

STROUGH REVOCABLE TRUST
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Alameda County
Environmental Health

Ms. Barbara Jakub
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway
Alameda, CA 9502-6577

Subject: Former Val Strough Chevrolet Site
327 34th Street, Oakland, CA
Site ID #3035, RO#0000134

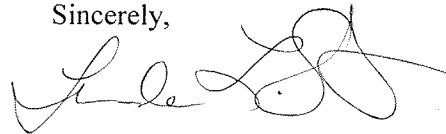
Dear Ms. Jakub:

This letter is to accompany the *First Quarter 2009 Groundwater Monitoring Report* for the above-referenced site prepared by LRM Consulting, Inc. of Burlingame, CA.

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.

If you have any questions, please contact Mr. Mehrdad Javaherian of LRM Consulting, Inc. at 650-343-4633.

Sincerely,



Linda L. Strough, Trustee

cc: Mehrdad Javaherian, LRM Consulting, Inc.,
1534 Plaza Lane, #145, Burlingame, CA 94010

Greggory Brandt, Wendel Rosen Black & Dean,
1111 Broadway, 24th Floor, Oakland, CA 94607



**1st QUARTER 2009
GROUNDWATER
MONITORING REPORT**

Former Val Strough Chevrolet Site
327 34th Street, Oakland, California
Fuel Leak Case No. RO0000134

Prepared by
LRM Consulting, Inc.
1534 Plaza Lane, #145
Burlingame, CA 94010

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1534 Plaza Lane, #145
Burlingame, CA 94010



Mehrdad M. Javaherian, Ph.D/MPH_{candidate}
Principal-in-Charge



Ram Rao, P.E.
Principal Engineer

April 2009



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1.0 INTRODUCTION

At the request of the Strough Family Trust of 1983, LRM Consulting, Inc. (LRM) has prepared this *1st Quarter 2009 Groundwater Monitoring Report* for the former Val Strough Chevrolet located in Oakland, California. This report documents the procedures and findings of the March 24, 2009 groundwater monitoring event reflecting water quality reporting and water level gauging for all site wells per the existing Alameda County Health Care Services Agency (ACHCSA)-approved monitoring program for the site.

The scope of groundwater monitoring for this quarter corresponded to the ACHCSA-approved program, which for this quarter corresponds to gauging and sampling from all eight site wells, including newly installed well MW8. Also worth noting is that this monitoring reflects groundwater conditions approximately two and three-quarter years following cessation of the dual phase extraction (DPE) system at the site; the operation of the DPE system was ceased on 30 June 2006. Groundwater monitoring data and well construction details are shown on the figures and presented in the tables. Groundwater monitoring protocols, field data, and analytical results are provided in the appendices.

1.1 General Site Information

Site name:	Former Val Strough Chevrolet
Site address:	327 34 th Street, Oakland, California
Current property owner:	Strough Family Trust of 1983
Current site use:	Automotive Dealership and Service Center
Current phase of project:	Groundwater monitoring and evaluation of need and approaches for additional remediation
Tanks at site:	Two former tanks (1 gasoline, 1 waste-oil) removed in 1993
Number of wells:	7 (all onsite)
Site ID #:	3035
RO #:	0000134

1.2 Site Contacts

Consultant:	Joel Greger, CEG, Senior Engineering Geologist Ram Rao, PE, Principal Engineer Mehrddad Javaherian, Ph.D/MPH _(candidate) Principal LRM Consulting, Inc. 1534 Plaza Lane, # 145 Burlingame, CA 94010 (650) 343-4633
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Regulatory agency:

Barbara Jakub, P.G.
Alameda County Health Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6746

2.0 SITE BACKGROUND

2.1 Site Description

Site Location and Land Use: The former Val Strough Chevrolet site is currently an active Honda automobile dealership and service center located on the southwestern corner of the intersection of Broadway (Auto Row) and 34th Street (Figure 1). The property is located south of Interstate 580. Land use in the area is primarily commercial.

The site is situated approximately two miles east of San Francisco Bay at approximately 61 feet above mean sea level (msl) (EDR, 2003). The land surface in the vicinity slopes toward the south. The nearest surface water body is Lake Merritt, located approximately 1 mile south of the site (Figure 1).

Site Features: The site consists of a multi-level building and an adjacent parking lot (Figure 2). The former fuel dispenser and underground storage tanks (USTs) were located in the northwestern portion of the site. Seven groundwater monitoring wells are located at the site. Construction details for the wells are presented in Table 1.

Underground Utilities: A box culvert for a former tributary of Glen Echo Creek is located approximately 17 feet below ground surface (bgs) in the eastern portion of the site (Figure 2). The culvert consists of a reinforced concrete box measuring 5 feet by 6 feet. During the winter of 1983, a section of the culvert collapsed and was replaced with a 5-foot-diameter pipeline.

Sanitary sewer, electrical, and natural gas utilities are generally present at depths less than 2 feet bgs at the site. Approximately 40 feet north of the site, along the northern edge of 34th Street, a storm sewer pipeline flows toward the east and into the box culvert. Sanitary sewer lines run parallel to both 34th Street and Broadway, north and east of the site, respectively. A lateral pipeline located along the western edge of the site connects to the sanitary sewer line below 34th Street. Natural gas service is located on the east side of the property. Water service appears to enter the site from the north.

Water Supply Well Search: A 2003 report compiled by EDR indicates that there are no federal U.S. Geological Survey wells and no public water supply wells located within a 1-mile radius of the site. No water supply wells were identified by the Alameda County Department of Public Works within a ½-mile radius of the site (ETIC, 2003).

2.2 Summary of Previous Investigations and Monitoring Activities

As presented in previous reports, the USTs were removed and multiple investigations, including the installation of seven groundwater monitoring wells, were conducted. In addition, a routine groundwater monitoring program has been in place since 1993. The following paragraphs summarize the findings of these activities.

Site Hydrogeology: In general, the site is underlain by silt and clay to depths ranging from approximately 15 to 20 feet bgs. Silty sand and fine-grained sand interbedded with thin clay intervals are encountered from approximately 20 feet bgs to the total explored depth of 35 feet bgs.

The depth to groundwater beneath the site has ranged from approximately 12.5 to 23 feet bgs. As shown in the modified rose diagram on Figure 2, the direction of groundwater flow is generally toward the southwest to south-southeast, with average hydraulic gradients ranging from approximately 0.01 to 0.03 foot/foot.

Primary Sources: Two USTs (one gasoline and one waste-oil) were located beneath the sidewalk on the northern side of the property. A fuel dispenser was located inside the building (Figure 2). These primary sources of petroleum hydrocarbons were removed from the site in 1993.

Constituents of Potential Concern: Based on the type of fuel stored in the USTs and the results of previous subsurface investigations, the constituents of potential concern (COPCs) at the site include total petroleum hydrocarbons as gasoline (TPH-g), benzene, toluene, ethylbenzene, and total xylenes (BTEX), and methyl t-butyl ether (MTBE). TPH as diesel (TPH-d) and TPH as motor oil (TPH-mo) are not routinely detected in groundwater samples and are considered secondary COPCs for the site.

Residual Source Area: Elevated concentrations of TPH-g, BTEX, and MTBE have been observed in soil in the vadose zone and upper portion of the water-bearing zone near the former USTs and fuel dispenser. Separate phase petroleum hydrocarbons (SPH) have been intermittently detected in wells MW2 and MW3, but none since March 2004 in MW3 and June 2006 in MW2. These data suggest that most of the residual petroleum hydrocarbon mass is present near the former USTs and fuel dispenser, herein referred to as the residual source area. This is corroborated by the dissolved groundwater data discussed below.

Petroleum Hydrocarbon Distribution in Groundwater: The highest concentrations of petroleum hydrocarbons have been detected in samples collected from wells MW2 and MW3. Generally significantly lower levels of petroleum hydrocarbons have been detected in samples collected from well MW4, and the other site wells. The extent of dissolved-phase petroleum hydrocarbons in groundwater is largely defined by relatively low and stable TPH-g, BTEX, and MTBE concentrations detected in downgradient and cross-gradient monitoring wells MW5, MW6, and MW7 (Tables 2 and 3).

2.3 Summary of Interim Remedial Action Activities

In addition to the routine groundwater monitoring activities, remediation pilot testing and remediation activities were conducted at the site between 2004 and 2006. A summary of these activities and associated regulatory correspondence with the ACHCSA are presented below:

DPE Pilot Test: In March 2004, ETIC Engineering, Inc. (ETIC) performed a DPE pilot test at the site. As summarized in the June 2004 *Dual Phase Extraction Pilot Test and Interim Remedial Action Plan* (DPE and IRAP Report), vacuum was applied to source area wells MW2 and MW3 while water and vacuum levels were measured in nearby monitoring wells. The DPE pilot test induced more than 1 foot of drawdown up to 50 feet from the extraction wells and an estimated radius of vacuum influence of 55 to 70 feet. Based on vapor flow rates and petroleum hydrocarbon concentrations in the vapor stream during the short-term pilot test, removal rates of approximately 90 pounds of petroleum hydrocarbons per day were estimated.

June 2004 DPE and IRAP Report: The DPE and interim remedial action plan (IRAP) Report (ETIC, 2004) described the planned reduction of residual petroleum hydrocarbon mass in the source area through temporary DPE system installation and operation and dual phase extraction from source area wells MW2 and MW3 to extract soil vapor and groundwater simultaneously. The system was designed to consist of a knockout vessel to be used for separation of the soil vapor and water streams. A thermal oxidizer (with propane as a supplemental fuel) was proposed for treatment of extracted vapor, and aqueous-phase granular activated carbon was proposed for treatment of extracted groundwater.

Interim Remedial Action: Between February 2005 and June 2006, ETIC operated a DPE system on site. Vacuum was applied to remove groundwater and soil vapor from up to two wells (MW2 and/or MW3). The system was temporarily shutdown on 30 January 2006 for conversion of vapor treatment from thermal oxidation to carbon filtration, and remained offline until 22 May 2006, when it was restarted. Because the mass removal rates by the DPE system had reached asymptotic levels and high petroleum hydrocarbon concentrations continued to exist in extraction wells MW2 and MW3 despite the DPE operation, the benefit of continuation of DPE in its current configuration was considered to be low and the DPE operation was ceased on 30 June 2006. ETIC subsequently dismantled the remediation system and removed the skid mounted DPE unit from the site.

August 2006 LRM Consulting, Inc. Correspondence and 11 December 2006 LRM Supplemental Source Area Investigation Work Plan: In a August 25, 2006 correspondence, LRM notified the ACHCSA of a project consultant change from ETIC to LRM. Also, based on a review of the available site data, the response of the hydrocarbon concentrations to past DPE operations, and the ACHCSA's comments on ETIC's Work Plan, LRM recommended a technical meeting with the ACHCSA to discuss the project direction. However, because of other commitments of Don Hwang and other ACHCSA staff, a technical meeting could not be scheduled. During a October 19, 2006 telephone conversation with Don Hwang, LRM presented an approach to conduct a supplemental investigation to define the magnitude and extent of the residual source area in the vicinity of the former fuel dispenser and wells MW2 and MW3. Based on these discussions and as agreed by Mr. Hwang, a supplemental source area investigation work plan outlining the proposed scope of work was prepared and submitted to ACHCSA on 11 December 2006; this work plan was revised through multiple discussions with Donna Drogos of the ACHCSA and was finalized in December of 2007. The subject investigation was conducted beginning on December 12, 2007, the results of

which were documented in a report to ACHCSA (LRM, 2008a).

August 2008 LRM Consulting, Inc. IRAP: In a August 25, 2008 IRAP report, LRM, in response to a request by Barbara Jakub of the ACHCSA, proposed a series of site investigation and pilot testing activities to address the residual source area at the site. These activities included: 1) soil and grab groundwater sampling to vertically characterize the extent of hydrocarbons within the residual source area previously encountered during the supplemental investigation referenced above; 2) grab groundwater sampling along the existing culvert at the site to evaluate the potential for preferential migration of hydrocarbons along the culvert backfill; 3), placement of a groundwater monitoring well (MW8) at the downgradient site boundary to define the downgradient extent of hydrocarbons; and 4) pilot testing activities including injection and observation well installation and pilot testing protocols for implementation of in-situ oxygen curtain (iSOC) technology within the residual source area. In a letter dated December 5, 2008, the ACHCSA approved the proposed site investigation activities with select modifications listed. Additional information was also requested for the iSOC pilot testing, which were provided by LRM in its response to ACHCSA comment dated December 5, 2008. The investigation activities associated with the IRAP have been completed, with related reporting currently under preparation. The results of sampling at the newly installed groundwater monitoring well (MW8) are included herein. Well installation details will be documented in the IRAP soil and groundwater investigation report.

3.0 PROTOCOLS FOR GROUNDWATER MONITORING

The following sections of this report present information relevant to the methods employed during the collection of groundwater samples from site wells on December 29, 2008. The scope of work for the quarterly groundwater monitoring event at the site included:

- Checking all wells for SPH.
- Gauging the depth to groundwater in all eight site wells.
- Purging the monitoring wells prior to sampling.
- Collecting and analyzing groundwater samples from all eight onsite wells.
- Estimating the hydraulic gradient and general flow direction.
- Evaluating the data and preparing a written report summarizing the results of the monitoring event.

3.1 Groundwater Gauging

For this round of monitoring, groundwater gauging was performed for all eight onsite wells. The monitoring wells were opened prior to gauging to allow the groundwater level to equilibrate with atmospheric pressure. The depth to groundwater and depth to SPH, if present, were then measured to the nearest 0.01 feet using an electronic water level meter or optical interface probe. The measurements were made from a fixed reference point at the top of the well casing.

The groundwater elevation map (Figure 2) for this monitoring event was constructed using depth-to-groundwater measurements collected during the current sampling event. Depth-to-groundwater measurements and calculated groundwater elevations are presented in Table 2. Field data forms are presented in Appendix B. Per the request of ACHCSA, the newly installed well (MW8) and all existing site wells were resurveyed to the datum NAVD 88 during this quarter. Data from the recent resurveying of wells are presented in Appendix D.

3.2 Well Purging

For this round of monitoring, groundwater sampling and field parameters were analyzed for all eight onsite wells; MW1 through MW8. Three well casing volumes of water were purged from all wells and field parameters including temperature, pH, specific conductance, and dissolved oxygen (DO) were measured. Groundwater monitoring protocols are presented in Appendix A.

3.3 Groundwater Sampling

After purging, groundwater was sampled at each of the eight wells using dedicated tubing and a WaTerra inertial pump, or a disposable bailer. Sample containers were sealed, labeled,



stored in a cooler and transported under chain-of-custody protocol to Kiff Analytical LLC (Kiff), a state-certified analytical laboratory in Davis, California. Groundwater analytical results and chain-of-custody documentation are presented in Appendix C.

4.0 MONITORING RESULTS

4.1 Separate-Phase Hydrocarbon Monitoring

The wells were monitored for the presence of SPH using a disposable bailer and/or interface probe. SPHs were not detected in any wells during this monitoring event. In fact, no SPHs have been detected at the site since June 2006 (sheen in MW2-see Table 2).

4.2 Groundwater Elevation and Hydraulic Gradient

On March 24, 2008, the depth to groundwater beneath the site ranged from 14.57 (MW7) to 21.85 (MW5) feet bgs (Table 2). Correspondingly, groundwater elevations in the site wells ranged from 40.99 feet above msl in well MW8 to 46.27 feet above msl in well MW3 (Figure 2); these depth to groundwater measurements mark a rise in water levels of 1 to 3 feet relative to the previous quarter. Using the results from the 1st Quarter 2009 monitoring event, the hydraulic gradient is estimated at 0.033 ft/ft, with a general flow direction toward the south-southwest (see Figure 2).

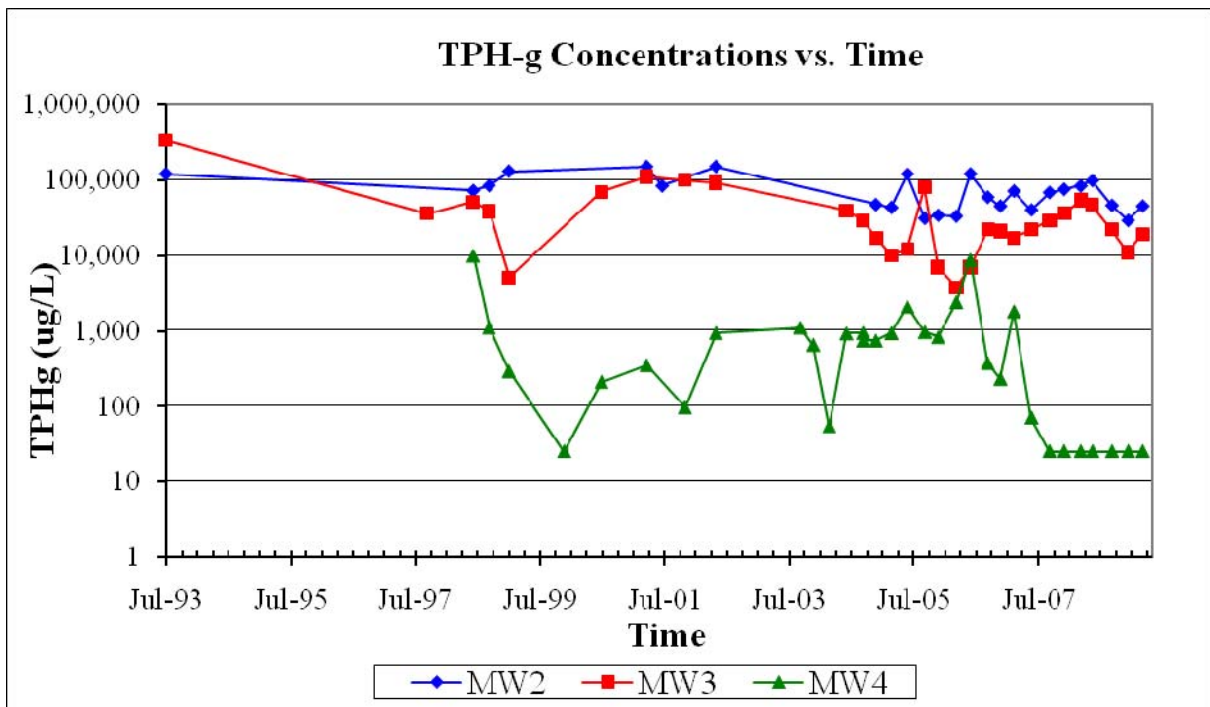
4.3 Groundwater Analytical Results

On March 24, 2009, groundwater samples were collected from MW1 through MW8 and analyzed by Kiff for TPH-g, BTEX, and MTBE by EPA Method 8260B and for TPH-d and TPH-mo by modified EPA Method 8015. Analytical results for this event are presented on Figure 3, and historical results, including field parameters such as DO, are presented in Table 2. Copies of the chain-of-custody and laboratory analytical reports for the groundwater samples are presented in Appendix C. Laboratory analytical results are summarized below:

- TPH-g was detected in samples collected from well MW2 at 45,000 µg/L, and MW3 at 19,000 µg/L. TPH-g remained below the detection limit of 50 µg/L in all six other site wells.
- Benzene was detected in the samples collected from well MW2 at 410 µg/L and MW3 at 1,400 µg/L. Benzene was below the detection limit of 0.5 µg/L in all six other site wells.
- Toluene was detected at 2,000 µg/L in MW2 and 4,200 µg/L in MW3, but remained below the detection limit of 0.50 µg/L in all six other site wells.
- Ethylbenzene was detected at 900 µg/L in MW2 and 600 µg/L in MW3, but remained below the detection limit of 0.50 µg/L in all six other site wells.
- Total xylenes were detected at 8,900 µg/L in MW2 and 2,500 µg/L in MW3, but remained below the detection limit of 0.50 µg/L in all six other site wells.
- MTBE was detected in the samples collected from well MW2 at 300 µg/L, MW3 at 160 µg/L, MW4 at 370 µg/L, MW-5 at 0.54 ug/L, and MW6 at 51 µg/L. MTBE remained below the detection limit of 0.5 µg/L at MW1, MW7, and MW8.

- Tert-butanol (TBA) was detected at 210 µg/L in MW2 and 60 µg/L in MW3, but remained below the detection limit of 5.0 µg/L in all other site wells.
- TPH-d was not detected in groundwater samples collected from any of the eight wells this quarter, although detection limits in samples from wells MW2 and MW3 were elevated due to interference from gasoline-range hydrocarbons (see Appendix C). Worth noting is that the detection of TPH-d (together with TPH-mo and MTBE) in a grab groundwater sample collected along the downgradient site boundary at concentrations higher than those present within the residual onsite source area (see Table 3) was not duplicated by the analytical results in the newly installed well MW8.
- TPH-mo was detected at a concentration of 420 µg/L in MW-2, but remained below the detection limit of 100 µg/L in all other site wells.

The figure below depicts TPH-g concentration trends for wells MW2 and MW3 located within the residual source area, and MW4 located immediately downgradient of this location.



As indicated on the graph, TPH-g concentrations have increased in wells MW2 and MW3 relative to those in the 4th quarter 2008. Specifically, at MW2, TPH-g has increased from 29,000 µg/L to 45,000 µg/L over this time frame, while TPH-g concentrations at MW3 have increased from 11,000 µg/L to 19,000 µg/L between the 4th quarter 2008 and 1st quarter 2009.

Worth noting, however is that these concentrations in MW2 and MW3 are still lower than the 98,000 ug/L and 47,000 ug/L reported in these wells during the 2nd quarter 2008. These declines have occurred while groundwater level elevations have risen to levels of approximately 2 feet above the elevations measured in the June 2008 monitoring event, when the post remediation elevated concentrations noted above occurred in each well. Moreover, as shown on Table 2, benzene concentrations for both wells exhibit a similar trend to TPH-g concentrations, declining significantly between June 2008 and March 2009. These observations suggests that natural attenuation within the residual source area is occurring and is consistent with suppression of DO levels in both MW2 and MW3 (see Table 2) compared to wells that are not impacted or are less impacted by hydrocarbons (e.g., MW1, MW5, MW7- see Table 2). This finding is consistent with the proposed pilot testing of iSOC technology in the IRAP (LRM, 2008d), which would significantly increase the DO levels in the residual source area and help enhance aerobic biodegradation of hydrocarbons at the location which they are most concentrated.

Away from the residual source area, TPH-g levels in MW4 also continued their observed decline over time and remain below detection limits over the past several rounds of monitoring (see above graph). Data from wells MW5 and MW6 also indicate the general absence of TPH-g and petroleum hydrocarbon compounds above detection limits over the past several years, with recent detections limited to sporadic and low levels of TPH-g (71 µg/L in MW5 in December 2008), benzene (0.77 µg/L in MW6 in December 2008), and MTBE (44 µg/L in MW6 in December 2008, 51 ug/L in MW6 and 0.54 ug/L in MW5 in March 2009). Also worth noting is that cross-gradient well MW7 remains, as it has for the last several years, below detection limits for all compounds analyzed.

Lastly, the groundwater sample collected from well MW8 did not report presence of petroleum hydrocarbon compounds above detection limits during the 1st quarter 2009. This together with negligible levels of toluene (0.64 µg/L), xylenes (0.78 µg/L), and MTBE (1.5 µg/L) reported in the sample collected during the 4th quarter 2008 suggest that the extent of the hydrocarbon plume is essentially confined to locations within the site boundary.

In summary, in the absence of SPHs over the past several years, petroleum hydrocarbon concentrations within the residual source area wells have begun to decline over time, exhibiting a distinct declining trend over the past year. Away from the residual source area, hydrocarbon detections in wells remain largely undetected, with sporadic detections over time typically well below Environmental Screening Levels (ESLs) for groundwater used as a drinking water resource (Regional Water Quality Control Board San Francisco Bay Region, 2008). The hydrocarbon plume is largely confined to within the site boundaries and is stable. To the extent that higher levels of hydrocarbons have been detected in localized, depth-discrete grab groundwater samples within the residual source area (LRM, 2008a), proposed pilot testing activities for enhancing degradation of hydrocarbons within the residual source area (via an IRAP) are under review by the ACHCSA

5.0 PLANNED ACTIVITIES

5.1 Additional Investigation/Remediation Activities

As previously indicated, LRM has submitted a response to ACHCSA comments on the IRAP on December 5, 2008 and has completed the ACHCSA-approved field investigation components of the IRAP. The report summarizing the findings of the field investigation is under preparation. Once the ACHCSA has reviewed the field investigation report and has approved the pilot testing component of the IRAP, LRM will implement the proposed 3- to 6-month iSOC pilot testing activities which will target the residual source area.

5.2 Planned Monitoring Activities

Quarterly monitoring per the ACHCSA-approved plan will continue, with the next round scheduled for June 2009.

6.0 REFERENCES

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- LRM Consulting, Inc. 2008e. Third Quarter 2008 Groundwater Monitoring Report, Strough Family Trust of 1983, 327 34th Street, Oakland, California. October.
- LRM Consulting, Inc. 2008f. Fourth Quarter 2008 Groundwater Monitoring Report, Strough Family Trust of 1983, 327 34th Street, Oakland, California. December.

TABLES

TABLE 1 WELL CONSTRUCTION DETAILS
 FORMER VAL STROUGH CHEVROLET, 327 34th STREET OAKLAND, CALIFORNIA

Well ID	Well Installation Date	Top-of-Casing Elevation* (feet)	Casing Material	Total Depth of Borehole (ft bgs)	Casing Diameter (inches)	Screened Interval (ft bgs)	Slot Size (inches)	Filter Pack Interval (ft bgs)	Filter Pack Material
MW1	07/19/93	64.71	PVC	32	2	17-32	0.020	15-32	Gravel Pack
MW2	07/20/93	65.71	PVC	33	2	18-33	0.020	16-33	Gravel Pack
MW3	07/20/93	65.7	PVC	34	2	18-34	0.020	16-34	Gravel Pack
MW4	06/26/98	64.37	PVC	31	2	15-31	0.020	13-31.5	Lonestar #3 Sand
MW5	06/26/98	65.59	PVC	31	2	15-31	0.020	13-31.5	Lonestar #3 Sand
MW6	07/17/00	59.60	PVC	31.5	2	10-30	0.020	8-30	Lonestar #3 Sand
MW7	07/17/00	59.49	PVC	36.5	2	15-35	0.020	13-35	Lonestar #3 Sand
MW8	12/17/09	57.07	PVC	26	1	11-26	0.010	9-26	#2/12 Sand

* Elevations Based on Survey Conducted in 1st Quarter 2009 relative to NAVD88 datum.

PVC Polyvinyl chloride.

ft bgs Feet below ground surface.

TABLE 2 CUMULATIVE GROUNDWATER ELEVATION AND ANALYTICAL DATA
FORMER VAL STROUGH CHEVROLET, 327 34th STREET OAKLAND, CALIFORNIA

Well Number	Date	Casing Elevation (feet)	Depth to Water (feet)	GW Elevation (feet)	SPH Thickness (feet)	Concentration (µg/L)										Concentration (mg/L)																									
						Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	TPH-mo	MTBE	TBA	CO ₂ (lab)	DO (field)	ORP (mv) (field)	pH (field)	Fe(II)	Mn	SO ₄	N-NH ₃	N-NO ₃	o-PO ₄																	
MW7	09/25/07	59.47	b 16.72	42.75	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	<0.50	--	--	6.11	--	6.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW7	12/20/07	59.47	b 15.02	44.45	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
MW7	03/26/08	59.47	b 15.95	43.52	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	<0.50	--	--	3.3	23	6.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
MW7	06/03/08	59.47	b 14.24	45.23	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
MW7	09/25/08	59.47	b 17.07	42.40	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	<0.50	<5.0	--	1.5	-186	6.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
MW7	12/29/08	59.47	b 15.64	43.83	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	<0.50	<5.0	--	6.4	-50	6.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW7	03/24/09	59.49	l 14.57	44.92	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	<0.50	<5.0	--	1.7	-16	7.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW8	12/29/08	NS	b 15.71	NC	0.00	<0.50	0.64	<0.50	0.78	<50	<50	<100	1.5	<5.0	--	1.5	-3	6.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW8	03/24/09	57.07	l 16.08	40.99	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	<0.50	<5.0	--	1.8	-2	7.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

- SPH Separate-phase hydrocarbons.
- CO₂ Carbon dioxide.
- DO Dissolved oxygen.
- Fe(II) Ferrous iron.
- Mn Manganese.
- SO₄ Sulfate.
- N-NH₃ Ammonia.
- N-NO₃ Nitrate.
- o-PO₄ Ortho-Phosphate.
- GW Groundwater.
- TPH-g Total Petroleum Hydrocarbons as gasoline.
- TPH-d Total Petroleum Hydrocarbons as diesel.
- TPH-mo Total Petroleum Hydrocarbons as motor oil.
- MTBE Methyl tertiary butyl ether.
- NC Not calculated.
- NM Not measured.
- NR Not reported.
- NS Not yet surveyed
- µg/L Micrograms per liter.
- mg/L Milligrams per liter.
- * SPH present; not sampled.
- ** Well MW4 elevation modified due to site renovation activities. Not Surveyed.
- Not analyzed or not sampled.
- < Less than the laboratory reporting limits.
- a Elevations are referenced to monitoring well MW1, with assumed datum of 100.00 feet.
- b Elevations based on a survey conducted August 2002 and referenced benchmark with known elevation (NGVD 29) of 60.40 feet above mean sea level.
- c Analysis not conducted due to broken sample containers.
- d Hydrocarbon reported in the gasoline range does not match laboratory gasoline standard.
- e Groundwater elevation in wells with LPH are corrected by multiplying the specific gravity of gasoline (0.69) by the LPH thickness and adding this value to the water elevation.
- f Hydrocarbon reported is in the early diesel range, and does not match the laboratory diesel standard.
- g Sample contained discrete peak in gasoline range and identified by lab as MTBE.
- h Quantity of unknown hydrocarbon(s) in sample based on diesel.
- i The concentration reported reflect(s) individual or discrete unidentified peaks not matching a typical fuel pattern.
- j Depth to groundwater is based on the depth of the stingers.
- k Quantity of unknown hydrocarbon(s) in sample based on motor oil.
- l Resurveyed Prior to 1st Quarter 2009 Measurements

TABLE 3 HISTORICAL GRAB GROUNDWATER ANALYTICAL DATA
FORMER VAL STROUGH CHEVROLET, 327 34th STREET OAKLAND, CALIFORNIA

Boring ID	Date	Depth (feet)	Concentrations (µg/L)							
			Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TPH-g	TPH-d	TPH-mo
HP1	12/18/2003	26-30	<5.0	<5.0	<5.0	11	480	410	180	<500
HP3	12/18/2003	32-36	<0.50	<0.50	<0.50	<1.0	0.55	<50	75	<500
SB3	12/26/2007	24	0.75	28	35	180	0.59	1800	<1000	<100
SB3	12/26/2007	40	<0.50	1.1	5.3	33	1	240	<400	<100
SB4	12/26/2007	23	160	120	200	240	1.8	3500	<1500	<100
SB4	12/26/2007	40	250	1400	280	2000	3.2	9900	<1500	<100
SB5	12/26/2007	24	660	11000	4200	20000	34	110000	<100000	310
SB5	12/26/2007	40	74	1000	380	2400	31	13000	<3000	<100
SB6	12/26/2007	25	<0.5	6.6	3.6	27	1.2	210	<100	<100
SB6	12/26/2007	40	85	1500	620	6900	15	35000	<18000	<100
SB7	12/26/2007	40	120	1100	470	2900	7.9	20000	<6000	<100
SB8	12/26/2007	40	320	1300	920	3100	100	17000	<3000	<100
SB9	12/26/2007	34	<0.5	<0.5	<0.5	<0.5	92	<50	69	<100
SB10	12/26/2007	21.3	<0.5	<0.5	<0.5	<0.5	30	<50	2200	5000
SB11	12/26/2007	17	<0.5	<0.5	<0.5	<0.5	<50	<50	200	220
SB12	12/26/2007	20	<0.5	<0.5	<0.5	<0.5	43	67	950	1200
SB13	12/26/2007	26	<0.5	<0.5	<0.5	<0.5	160	<50	3800	6600

TPH-g Total Petroleum Hydrocarbons as gasoline.

TPH-d Total Petroleum Hydrocarbons as diesel.

TPH-mo Total Petroleum Hydrocarbons as motor oil.

< less than the laboratory reporting limits.

660 Bold values reflect maximum detected concentrations

TABLE 4 GROUNDWATER MONITORING SCHEDULE
 FORMER VAL STROUGH CHEVROLET, 327 34th STREET OAKLAND, CALIFORNIA

Well Number	Groundwater Gauging Frequency	Groundwater Sampling and Analysis Frequency		
		BTEX and TPH-g	MTBE	TEPH
MW1	Q	S	S	S
MW2	Q	Q	Q	Q
MW3	Q	Q	Q	Q
MW4	Q	Q	Q	Q
MW5	Q	A	A	A
MW6	Q	S	S	S
MW7	Q	A	A	A
MW8	Q	A	A	A

Q = Quarterly.
 S = Semiannual.
 A = Annual.

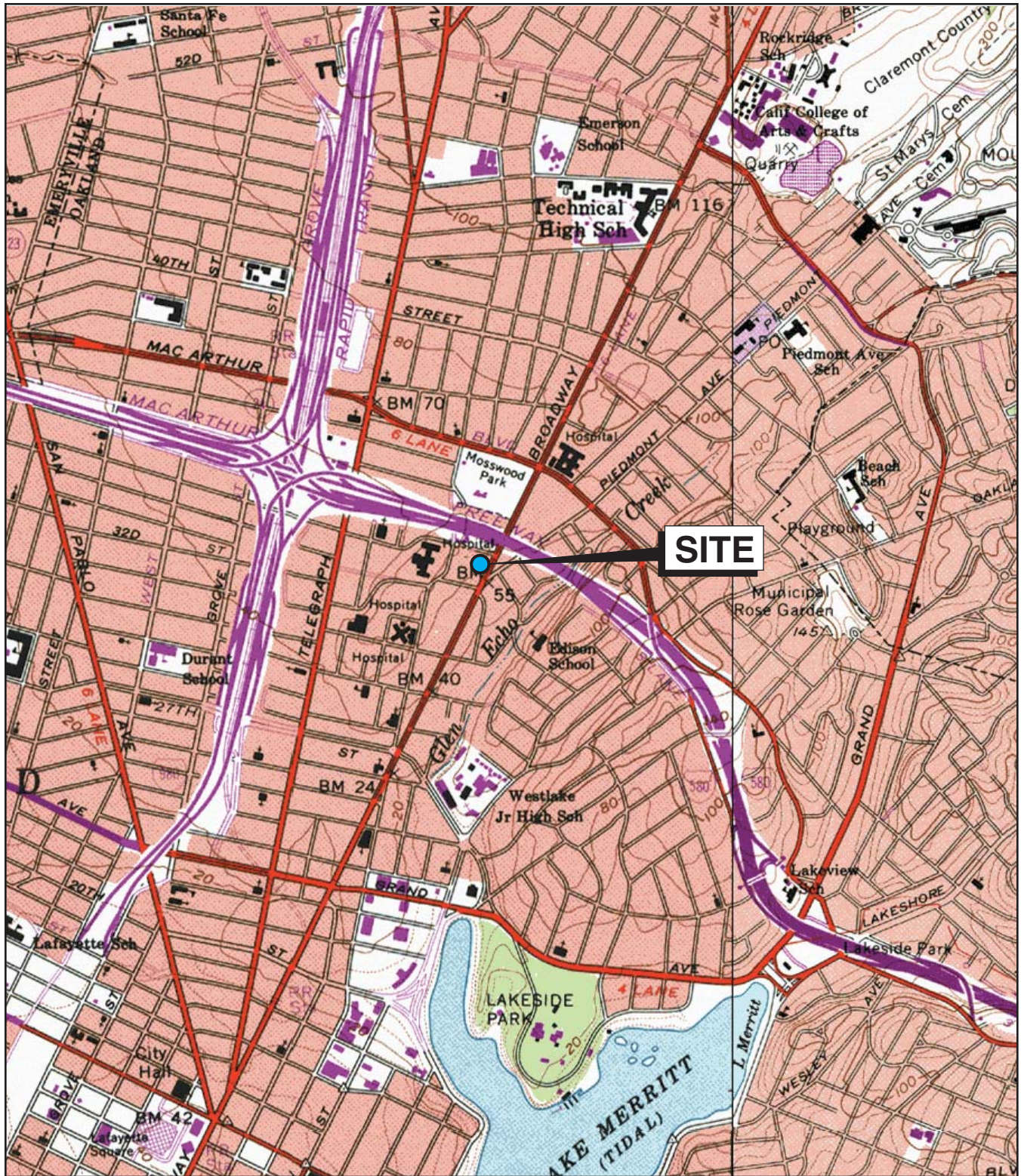
BTEX = Benzene, toluene, ethylbenzene, total xylenes.

MTBE = Methyl tertiary butyl ether.

TPH-g = Total Petroleum Hydrocarbons as gasoline.

TEPH = Total Extractable Petroleum Hydrocarbons, includes TPH-diesel and TPH-motor oil.

FIGURES



Base map: Maptech Inc., 2001



0 2,000

Scale (feet)



SITE LOCATION MAP
 FORMER VAL STROUGH CHEVROLET
 327 34TH STREET, OAKLAND, CALIFORNIA

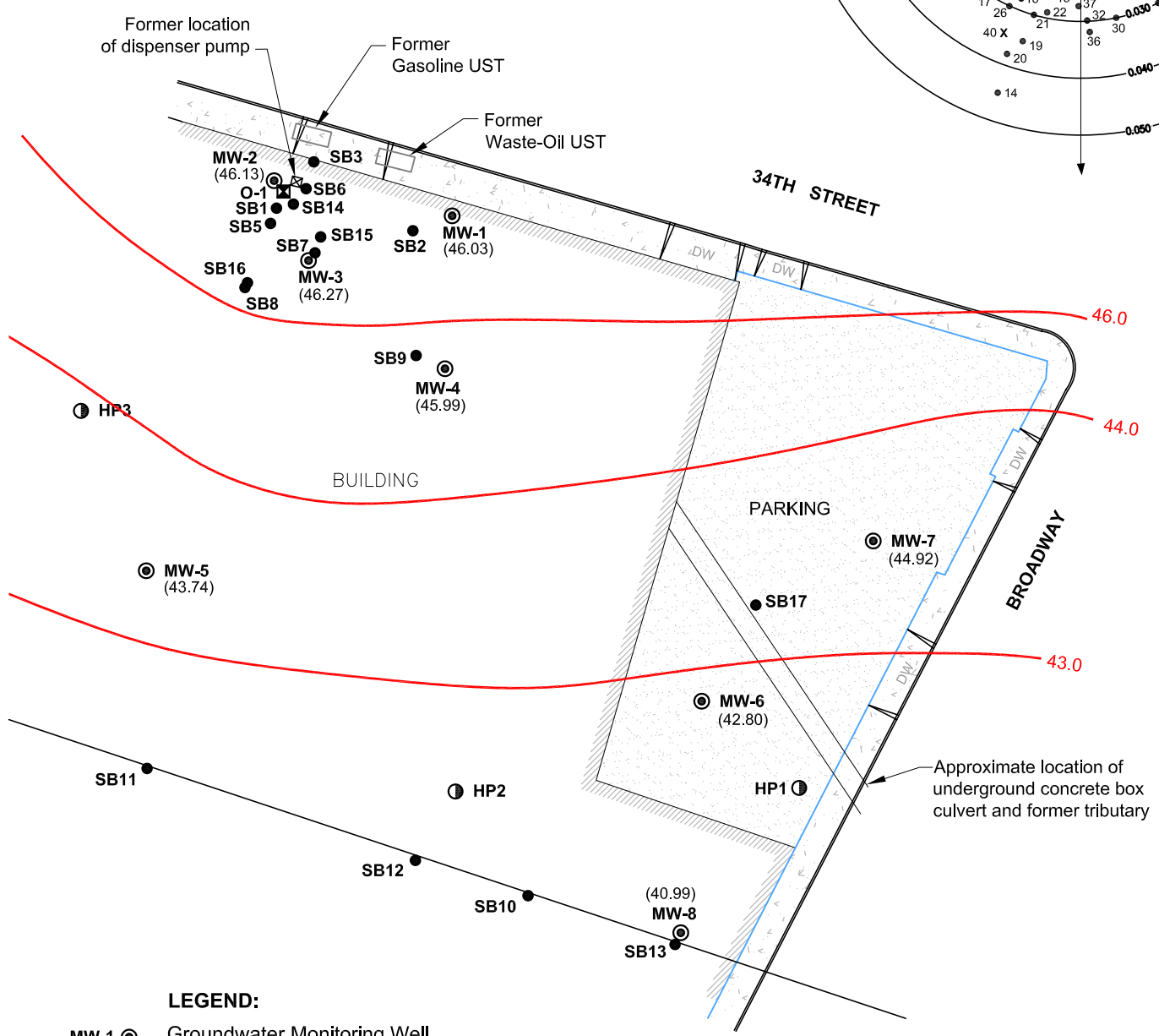
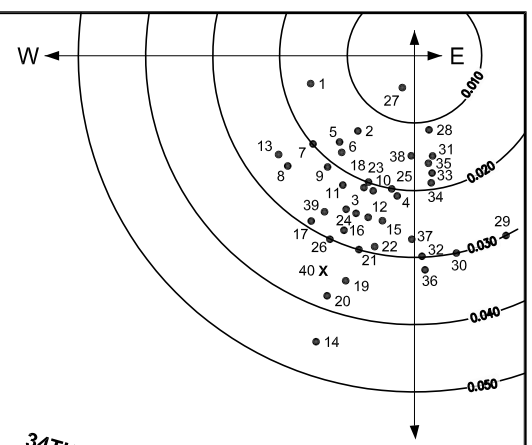
FIGURE:

1

Estimated Groundwater Flow Direction

ROSE DIAGRAM

- Historical
- X This Event



LEGEND:

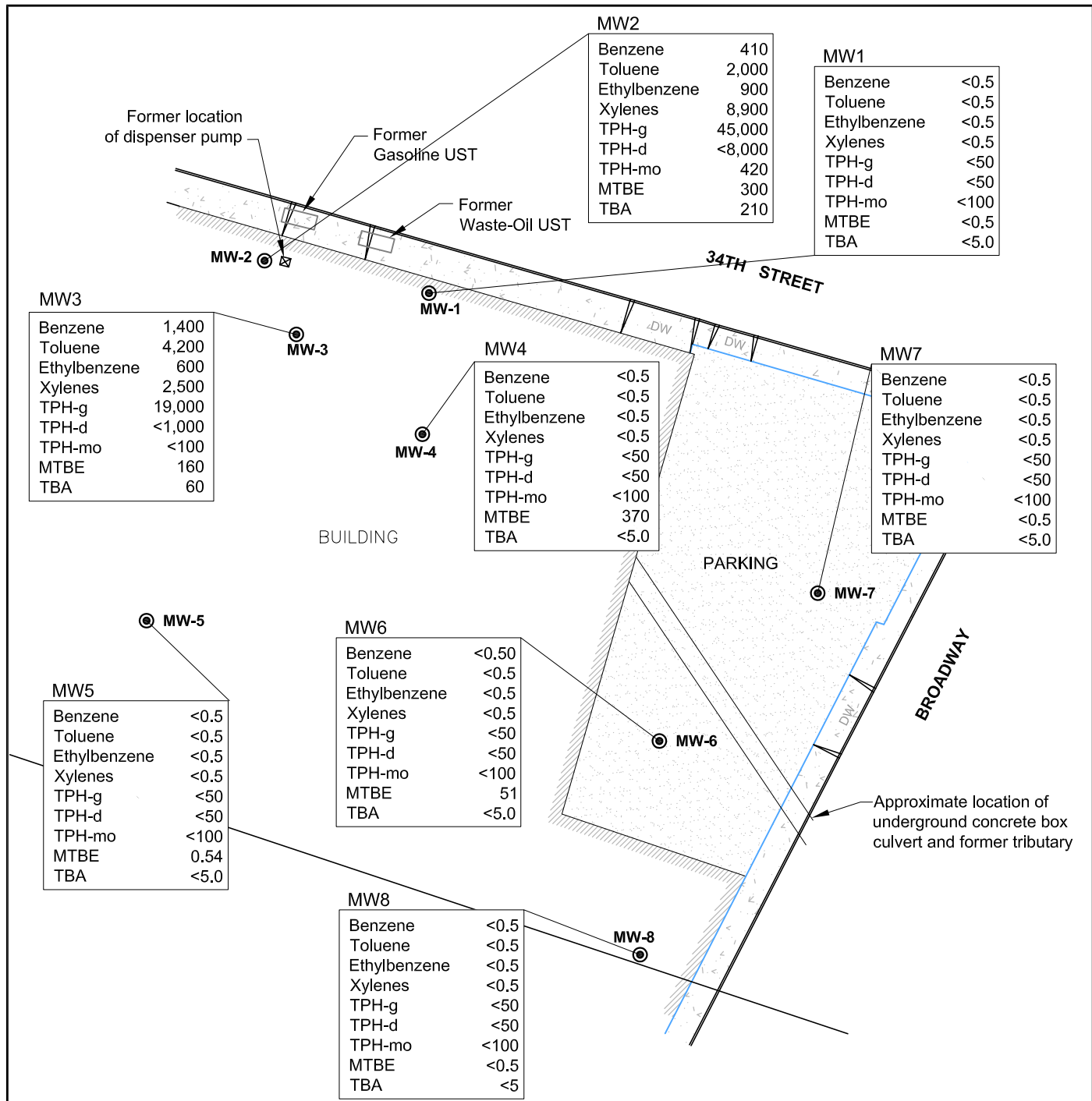
- MW-1 ● Groundwater Monitoring Well
- SB-1 ● Soil Boring
- HP-1 ● Grab groundwater Sampling Location
- O-1 ☒ Oxygen Injection Well
- (46.03) Groundwater Elevation (feet above mean sea level)
- 46.0 ~ Groundwater Elevation Contour (feet above mean sea level)

Base Map: Virgil Chavez Land Surveying, dated January 2009.



GROUNDWATER CONTOUR MAP AND ROSE DIAGRAM
1ST QUARTER 2009 MONITORING EVENT
 FORMER VAL STROUGH CHEVROLET
 327 34TH STREET, OAKLAND, CALIFORNIA
 MARCH 2009

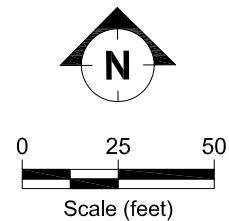
FIGURE:
2



LEGEND:

- MW-1 Groundwater monitoring well
- TPH-g Total Petroleum Hydrocarbons as gasoline
- TPH-d Total Petroleum Hydrocarbons as diesel
- TPH-mo Total Petroleum Hydrocarbons as motor oil
- MTBE Methyl Tertiary Butyl Ether
- TBA Tert-Butanol

All concentrations are reported in micrograms per liter (ug/L)



GROUNDWATER ANALYTICAL DATA
1ST QUARTER 2009 MONITORING EVENT
 FORMER VAL STROUGH CHEVROLET
 327 34TH STREET, OAKLAND, CALIFORNIA
 MARCH 2009

FIGURE:

3

APPENDIX A
PROTOCOLS FOR GROUNDWATER MONITORING



APPENDIX A

PROTOCOLS FOR GROUNDWATER MONITORING

GROUNDWATER GAUGING

Wells are opened prior to gauging to allow the groundwater level in the wells to equilibrate with atmospheric pressure. The depth to groundwater and depth to liquid-phase hydrocarbons, if present, are then measured to the nearest 0.01 feet using an electronic water level meter or optical interface probe. The measurements are made from a permanent reference point at the top of the well casing. If less than 1 foot of water is measured in a well, the water is bailed from the well and, if the well does not recover, the well is considered “functionally dry.” Wells with a sheen or measurable liquid-phase hydrocarbons are generally not purged or sampled.

WELL PURGING

After the wells are gauged, each well is purged of approximately 3 well casing volumes of water to provide representative groundwater samples for analysis. Field parameters of pH, temperature, and electrical conductance are measured during purging to ensure that these parameters have stabilized before groundwater in a well is sampled. Groundwater in each well is purged using an inertial pump (WaTerra), an electric submersible pump, or a bailer. After the well is purged, the water level is checked to ensure that the well has recharged to at least 80 percent of its original water level.

GROUNDWATER SAMPLING

After purging, groundwater in each well is sampled using dedicated tubing and an inertial pump (WaTerra) or a factory-cleaned disposable bailer. Samples from extraction wells are typically collected from sample ports associated with the groundwater remediation system. Samples collected for volatile organic analysis are placed in Teflon septum-sealed 40-milliliter glass vials. Samples collected for diesel analysis are placed in 1-liter amber glass bottles. Each sample bottle is labeled with the site name, well number, date, sampler’s initials, and preservative. The samples are placed in a cooler with ice for delivery to a state-certified laboratory. The information for each sample is entered on a chain-of-custody form prior to transport to the laboratory.

APPENDIX B

FIELD DOCUMENTS



Confluence Environmental, Inc.
 3308 El Camino Ave, Suite 300 #148
 Sacramento, CA 95821
 916-760-7641 - main
 916-473-8617 - fax
 www.confluence-env.com

Chain of Custody

Project Name: Former Strough Chevy - Oakland

Job Number: 41-090324

TAT: STANDARD 5 DAY 2 DAY 24 HOUR OTHER:

Lab: <u>Kiff</u>	Site Address: <u>327 34th St, Oakland</u>	Confluence PM: <u>Jason Brown</u>
Address: <u>2795 2nd St, Suite 300, Davis CA 95616</u>	California Global ID No.: <u>T0600101644</u>	Phone / Fax: <u>916-760-7641 / 916-473-8617</u>
Contact: <u>Angelique Showman</u>	Include EDF w/ Report: <u>Yes</u> No	Confluence Log Code: <u>CESC</u>
Phone/ Fax: <u>530-297-4800 x.127</u>	Consultant / PM: <u>LRM / Merhdat Javaherian</u>	Report to: <u>Merhdat Javaherian</u>
	Phone / Fax: <u>(415) 706-8935</u>	Invoice to: <u>Merhdat Javaherian</u>

Sample ID	Time	Date	Matrix			Laboratory No.	No. of Containers	Preservative					Requested Analysis				Initial	Date	Comments	
			Soil/Solid	Water/Liquid	Air			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	TEPH Diesel & Motor Oil* (8015)	TPH-G, BTEX (8260B)	MTBE (8260)	TBA (8260)				Temp °C
MW1	830	3/24	X				5						X	X	X	X				01
MW2	925		X										X	X	X	X				02
MW3	845		X										X	X	X	X				03
MW4	825		X										X	X	X	X				04
MW5	910		X										X	X	X	X				05
MW6	955		X										X	X	X	X				06
MW7	1050		X										X	X	X	X				07
MW8	1020		X										X	X	X	X				08
QCTB			X				2							X	X	X				09

SAMPLE RECEIPT
 Temp °C 2.9 Therm. ID# IR-2
 Initial LJR Date 032509
 Time 1630 Coolant present Yes Comments

Sampler's Name: <u>D. Myers</u>	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: <u>Confluence Environmental</u>	<u>[Signature]</u>	<u>3/25</u>	<u>1635</u>	<u>[Signature]</u>		
Shipment Date:				<u>Kiff Analytical</u>	<u>032509</u>	<u>1641</u>
Shipment Method:						
Special Instructions: <u>*Run TEPH w/ silica gel cleanup</u>						



Equipment Calibration Log

Equipment make/model	Equipment ID/serial number	Date	Time	Calibration Standards	Equipment Reading	Equipment Calibrated	Temp (°C/°F)	Tech init.	Comments
YSI 556	#1	3/24	700	PH 4, 7, 10	4.0, 7.0 10.0	Y	15	BM	
				COND 1413	1413	Y	15	BM	
				ORP 245	245	Y	15		
				D.O. 100%	100%	Y	15	BM	

Notes/comments:

Well Maintenance Inspection Form

Client: LRM Site: Former Straght Chew Date: 3/24/09
 Job #: 11-090324 Technician: BM Page of

Inspection Point	Well Inspected - No Corrective Action Required	Entry Indicates Deficiency											Well Not Inspected (explain in notes)	Notes (Note any repairs made while on site)		
		Cap non-functional	Lock non-functional	Lock missing	Bolts missing (# missing / # total tabs)	Tabs stripped (# stripped / # total tabs)	Tabs broken (# broken / # of total tabs)	Annular seal incomplete	Apron damaged	Rim / Lid broken	Trip Hazard	Below Grade			Other (explain in notes)	
MW-1	X															
MW-2	X															
MW-3	X															
MW-4								X								
MW-5	X															
MW-6													X			
MW-7													X			
MW-8	X															

Notes: _____

Repair codes: rt=retap/ bolts added or replaced as=annular seal repair.

Water Level Measurements

Job Number: M1-090324 Date: 3/24/09 Client: LRM

Site: Former Strough Cherry

Well I.D.	Time	Dia	Depth to NAPL	Thickness of NAPL	Depth to water (DTW)	Total Depth (measured)	Total Depth (historical)	Ref Point (TOC/TOB)
MW-1	735	2			18.68		30.59	TOC
MW-2	723	2			19.58		31.74	
MW-3	739	2			19.43		31.88	
MW-4	730	2			18.38		27.54	
MW-5	726	2			21.85		26.40	
MW-6	719	2			16.80		26.55	
MW-7	715	2			14.57		34.56	
MW-8	745	2			16.08		26.65	



Purging And Sampling Data Sheet

Job#: <u>11-090324</u>	Sampler: <u>B Myers</u>	Client: <u>LRM</u>
Well ID: <u>MW-1</u>	Date: <u>3/24/09</u>	Site: <u>Former Strough Chevy, Oakland</u>
Well diam: 1/4" 1" <u>2"</u> 3" 4" 6" Other:	DTW: <u>18.68</u> Total Depth: <u>30.59</u>	
Purge equip: ES - diam: Bladder <u>Peri</u> <u>Waterra</u> Positive Air Displacement Ext. System	disp bailer teflon bailer other:	
Purge method: 3-5 Case Volume <u>Micro/Low-Flow</u> Extraction Other:	Tubing: OD: New Dedicated NA	
Pump depth/ intake:	Multipliers: 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"= 1.02 6"= 1.47 Radius ² X 0.163	
(TD - DTW X Multiplier = 1 Volume)	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 2 X 3 = 6 (Total Purge) 80% = 21.06

Time	Temp (°C/°F)	pH	Cond (mS/µS)	Turbidity (NTU)	Purge Rate (gal or mL/min)	Volume Removed (gal/L)	DO (mg/l)	ORP	DTW	Notes
<u>In. 7a</u>	<u>17.4</u> <u>75.8</u>	<u>6.5</u>	<u>1134</u>	<u>71000</u>	—	—	<u>1.3</u>	<u>169</u>	—	
<u>754</u>	<u>17.3</u>	<u>6.5</u>	<u>813</u>	<u>71000</u>	—	<u>2</u>	<u>1.3</u>	<u>140</u>	—	
<u>757</u>	<u>18.4</u>	<u>6.5</u>	<u>814</u>	<u>71000</u>	—	<u>4</u>	<u>1.3</u>	<u>103</u>	—	
<u>759</u>	<u>18.5</u>	<u>6.5</u>	<u>816</u>	<u>71000</u>	—	<u>6</u>	<u>1.2</u>	<u>97</u>	<u>20.73</u>	

Did well dewater? YES <input checked="" type="radio"/> NO <input type="radio"/>			Total volume removed: <u>6</u> (gal/L)		
Sample method: Disp Bailer <u>Peri Tubing</u> New Tubing Ext. Port Other:					
Sample date: <u>3/24/09</u>		Sample time: <u>800</u>		DTW at sample: <u>20.73</u>	
Sample ID: <u>MW-1</u>		Lab: <u>Kiff</u>		Number of bottles: <u>5</u>	
Analysis: TPH-G, BTEX, MTBE, TBA, TEPH-D, TEPH-MO					
Equipment blank ID @			Field blank ID @		
Duplicate ID:		Pre-purge DO:		Post purge DO:	
Fe2 ⁺ :		Pre-purge ORP:		Post purge ORP:	
NAPL depth:		Volume of NAPL:		Volume removed: ml	



Purging And Sampling Data Sheet

Job#: <u>MT-090324</u>		Sampler: <u>B Myers</u>		Client: <u>LRM</u>	
Well ID: <u>Hw2</u>		Date: <u>3/24/09</u>		Site: <u>Former Strough Chevy, Oakland</u>	
Well diam: 1/4" 1" <u>2"</u> 3" 4" 6" Other:				DTW: <u>1958</u> Total Depth: <u>3174</u>	
Purge equip: ES - diam: Bladder <u>Disp</u> Waterra Positive Air Displacement Ext. System					
<u>Disp bailer</u> teflon bailer other: Tubing: OD: New Dedicated NA					
Purge method: 3-5 Case Volume <u>Micro/Low-Flow</u> Extraction Other:					
Pump depth/ intake:			Multipliers: 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"= 1.02 6"= 1.47 Radius ² X 0.163		
(TD - DTW X Multiplier = 1 Volume)			80% Recovery (TD - DTW X 0.20 + DTW)		

1 Volume = 2 X 3 = 6 (Total Purge) 80% = 22.01

Time	Temp (°C/°F)	pH	Cond (mS/cm)	Turbidity (NTU)	Purge Rate (gal or mL/min)	Volume Removed (gal/L)	DO (mg/L)	ORP	DTW	Notes
<u>Initial</u>	<u>16.4</u>	<u>6.6</u>	<u>659</u>	<u>38</u>	<u>—</u>	<u>—</u>	<u>0.7</u>	<u>-113</u>	<u>—</u>	
<u>914</u>	<u>17.3</u>	<u>6.6</u>	<u>706</u>	<u>63</u>	<u>—</u>	<u>2</u>	<u>0.9</u>	<u>-120</u>	<u>—</u>	
<u>917</u>	<u>17.3</u>	<u>6.9</u>	<u>717</u>	<u>68</u>	<u>—</u>	<u>4</u>	<u>0.9</u>	<u>-67</u>	<u>—</u>	
<u>920</u>	<u>17.3</u>	<u>6.9</u>	<u>723</u>	<u>74</u>	<u>—</u>	<u>6</u>	<u>0.9</u>	<u>-61</u>	<u>20.23</u>	

Did well dewater? YES NO Total volume removed: 6 (gal/L)

Sample method: Disp Bailer Ded. Tubing New Tubing Ext. Port Other:

Sample date: 3/24/09 Sample time: 925 DTW at sample: 20.23

Sample ID: Hw2 Lab: Kiff Number of bottles: 5

Analysis: TPH-G, BTEX, MTBE, TBA, TEPH-D, TEPH-MO

Equipment blank ID @ Field blank ID @

Duplicate ID: Pre-purge DO: Post purge DO:

Fe²⁺: Pre-purge ORP: Post purge ORP:

NAPL depth: Volume of NAPL: Volume removed: ml

Purging And Sampling Data Sheet

Job#: <u>HI-090324</u>	Sampler: <u>B Myers</u>	Client: <u>LRM</u>
Well ID: <u>MW-3</u>	Date: <u>3/24/09</u>	Site: <u>Former Strough Chevy, Oakland</u>
Well diam: 1/4" 1" <u>(2")</u> 3" 4" 6" Other:	DTW: <u>19.43</u> Total Depth: <u>31.88</u>	
Purge equip: ES - diam: Bladder <u>(Peri)</u> Waterra Positive Air Displacement Ext. System		
<u>(disp bailer)</u> teflon bailer other: Tubing: OD: New Dedicated NA		
Purge method: 3-5 Case Volume <u>(Micro/Low-Flow)</u> Extraction Other:		
Pump depth/ intake:	Multipliers: 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius ² X 0.163	
(TD - DTW X Multiplier = 1 Volume		80% Recovery (TD - DTW X 0.20 + DTW)

1 Volume = 2 X 3 = 6 (Total Purge) 80% = 21.92

Time	Temp (°F)	pH	Cond (µS/cm)	Turbidity (NTU)	Purge Rate (gal or mL / min)	Volume Removed (gal / L)	DO (mg/l)	ORP	DTW	Notes
<u>Final</u>	<u>17.0</u>	<u>6.7</u>	<u>762</u>	<u>57</u>	<u>—</u>	<u>—</u>	<u>0.6</u>	<u>-121</u>	<u>—</u>	
<u>838</u>	<u>18.0</u>	<u>6.6</u>	<u>792</u>	<u>44</u>	<u>—</u>	<u>2</u>	<u>0.6</u>	<u>-137</u>	<u>—</u>	
<u>840</u>	<u>18.8</u>	<u>7.0</u>	<u>790</u>	<u>39</u>	<u>—</u>	<u>4</u>	<u>0.5</u>	<u>-118</u>	<u>—</u>	
<u>843</u>	<u>18.8</u>	<u>7.0</u>	<u>790</u>	<u>38</u>	<u>—</u>	<u>6</u>	<u>0.5</u>	<u>-129</u>	<u>21.03</u>	

Did well dewater? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		Total volume removed: <u>6</u> (gal / L)	
Sample method: <u>(Disp Bailer)</u> Ded. Tubing New Tubing Ext. Port Other:			
Sample date: <u>3/24/09</u>	Sample time: <u>8:45</u>	DTW at sample: <u>21.03</u>	
Sample ID: <u>MW-3</u>	Lab: <u>Kiff</u>	Number of bottles: <u>5</u>	
Analysis: <u>TPH-G, BTEX, MTBE, TBA, TEPH-D, TEPH-MO</u>			
Equipment blank ID @	Field blank ID @		
Duplicate ID:	Pre-purge DO:	Post purge DO:	
Fe ²⁺ :	Pre-purge ORP:	Post purge ORP:	
NAPL depth:	Volume of NAPL:	Volume removed:	ml



Purging And Sampling Data Sheet

Job#: <u>M11090324</u>	Sampler: <u>B Myers</u>	Client: <u>LRM</u>
Well ID: <u>MW-4</u>	Date: <u>3/24/09</u>	Site: <u>Former Strough Chevy, Oakland</u>
Well diam: 1/4" 1" (2") 3" 4" 6" Other:	DTW: <u>18.38</u> Total Depth: <u>27.54</u>	
Purge equip: ES - diam: <u>Bladder</u> Perfl <u>Waterra</u> Positive Air Displacement Ext. System	disp baller teflon bailer other:	
Purge method: 3-5 Case Volume <u>Micro/Low-Flow</u> Extraction Other:	Tubing: OD: <u>New</u> Dedicated NA	
Pump depth/ intake:	Multipliers: 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius ² X 0.163	
(TD - DTW X Multiplier = 1 Volume)		80% Recovery (TD - DTW X 0.20 + DTW)

1 Volume = 1.5 X 3 = 4.5 (Total Purge) 80% = 20.21

Time	Temp (°C/°F)	pH	Cond (mS/ <u>45</u>)	Turbidity (NTU)	Purge Rate (gal or mL / min)	Volume Removed (gal / L)	DO (mg/l)	ORP	DTW	Notes
<i>In Hal</i>	17.0	7.1	722	38	—	—	2.5	61	—	
816	18.4	6.7	733	71000	—	1.5	0.9	60	—	
818	18.3	6.8	734	71000	—	3	1.0	42	—	
821	18.4	6.8	741	71000	—	4.5	0.9	33	20.02	

Did well dewater? YES NO Total volume removed: 4.5 (gal / L)

Sample method: Disp Bailer ~~Ded. Tubing~~ New Tubing Ext. Port Other:

Sample date: 3/24/09 Sample time: 825 DTW at sample: 20.02

Sample ID: MW-4 Lab: Kiff Number of bottles: 5

Analysis: TPH-G, BTEX, MTBE, TBA, TEPH-D, TEPH-MO

Equipment blank ID @ Field blank ID @

Duplicate ID: Pre-purge DO: Post purge DO:

Fe²⁺: Pre-purge ORP: Post purge ORP:

NAPL depth: Volume of NAPL: Volume removed: ml

Purging And Sampling Data Sheet

Job#: <u>HI-090324</u>		Sampler: B Myers		Client: LRM	
Well ID: <u>MW5</u>		Date: <u>3/24/09</u>		Site: Former Strough Chevy, Oakland	
Well diam: 1/4" 1" <u>(2)"</u> 3" 4" 6" Other:				DTW: <u>21.85</u> Total Depth: <u>26.40</u>	
Purge equip: ES - diam: Bladder <u>(Per)</u> Waterra Positive Air Displacement Ext. System					
<u>(disp bailer)</u> teflon bailer other: Tubing: OD: New Dedicated NA					
Purge method: 3-5 Case Volume <u>(Micro/Low-Flow)</u> Extraction Other:					
Pump depth/ intake:		Multipliers: 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius ² X 0.163			
(TD - DTW X Multiplier = 1 Volume)			80% Recovery (TD - DTW X 0.20 + DTW)		

1 Volume = 0.7 X 3 = 2.0 (Total Purge) 80% = 22.76

Time	Temp (°C/°F)	pH	Cond (mS/cm)	Turbidity (NTU)	Purge Rate (gal or mL/min)	Volume Removed (gal/L)	DO (mg/l)	ORP	DTW	Notes
<i>Initial</i>	<u>16.4</u>	<u>6.9</u>	<u>501</u>	<u>33</u>	—	—	<u>1.5</u>	<u>-30</u>	—	
<u>902</u>	<u>17.6</u>	<u>6.5</u>	<u>507</u>	<u>337</u>	—	<u>0.7</u>	<u>2.0</u>	<u>9</u>	—	
<u>905</u>	<u>17.9</u>	<u>6.2</u>	<u>521</u>	<u>438</u>	✓	<u>1.4</u>	<u>2.0</u>	<u>29</u>	—	
<u>907</u>	<u>17.9</u>	<u>6.2</u>	<u>525</u>	<u>466</u>	✓	<u>2.0</u>	<u>1.9</u>	<u>27</u>	<u>22.53</u>	

Did well dewater? YES (NO) Total volume removed: 2.0 (gal/L)

Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:

Sample date: 3/24/09 Sample time: 900 DTW at sample: 22.53

Sample ID: MW5 Lab: Kiff Number of bottles: 5

Analysis: TPH-G, BTEX, MTBE, TBA, TEPH-D, TEPH-MO

Equipment blank ID @	Field blank ID @
Duplicate ID:	Pre-purge DO: Post purge DO:
Fe ²⁺ :	Pre-purge ORP: Post purge ORP:
NAPL depth:	Volume of NAPL: Volume removed: ml

Purging And Sampling Data Sheet

Job#: <u>M1-090324</u>	Sampler: <u>B Myers</u>	Client: <u>LRM</u>
Well ID: <u>MW-6</u>	Date: <u>3/24/09</u>	Site: <u>Former Strough Chevy, Oakland</u>
Well diam: 1/4" 1" <u>2"</u> 3" 4" 6" Other:	DTW: <u>16.80</u> Total Depth: <u>26.55</u>	
Purge equip: ES - diam: Bladder <u>Peri</u> <u>Waterra</u> Positive Air Displacement Ext. System disp bailer teflon bailer other:	Tubing: OD: <u>New</u> Dedicated NA	
Purge method: 3-5 Case Volume <u>Micro/Low-Flow</u> Extraction Other:		
Pump depth/ intake:	Multipliers: 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"= 1.02 6"= 1.47 Radius ² x 0.163	
(TD - DTW X Multiplier = 1 Volume)	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 1.6 X 3 = 4.8 (Total Purge) 80% = 18.75

Time	Temp (°F)	pH	Cond (mS / (S))	Turbidity (NTU)	Purge Rate (gal or mL / min)	Volume Removed (gal / L)	DO (mg/l)	ORP	DTW	Notes
<u>Initial</u>	<u>16.8</u>	<u>7.0</u>	<u>652</u>	<u>71000</u>			<u>0.4</u>	<u>-131</u>		
<u>945</u>	<u>18.8</u>	<u>6.8</u>	<u>652</u>	<u>71000</u>	<u>-</u>	<u>1.6</u>	<u>0.3</u>	<u>-113</u>		
<u>949</u>	<u>18.4</u>	<u>6.8</u>	<u>679</u>	<u>71000</u>	<u>-</u>	<u>3.2</u>	<u>0.4</u>	<u>-117</u>		
<u>952</u>	<u>18.4</u>	<u>6.8</u>	<u>705</u>	<u>71000</u>	<u>-</u>	<u>4.8</u>	<u>0.3</u>	<u>-115</u>	<u>17.93</u>	

Did well dewater? YES NO Total volume removed: 5 (gal / L)

Sample method: Disp Bailer Ded. Tubing New Tubing Ext. Port Other:

Sample date: 3/24/09 Sample time: 955 DTW at sample: 17.93

Sample ID: MW-6 Lab: Kiff Number of bottles: 5

Analysis: TPH-G, BTEX, MTBE, TBA, TEPH-D, TEPH-MO

Equipment blank ID @ Field blank ID @

Duplicate ID: Pre-purge DO: Post purge DO:

Fe²⁺: Pre-purge ORP: Post purge ORP:

NAPL depth: Volume of NAPL: Volume removed: ml



Purging And Sampling Data Sheet

Job#: <u>M-090324</u>	Sampler: <u>B Myers</u>	Client: <u>LRM</u>
Well ID: <u>HW7</u>	Date: <u>3/24/09</u>	Site: <u>Former Strough Chevy, Oakland</u>
Well diam: 1/4" 1" <u>2"</u> 3" 4" 6" Other:	DTW: <u>14.57</u> Total Depth: <u>34.56</u>	
Purge equip: ES - diam: Bladder Per <u>Waterra</u> Positive Air Displacement Ext. System disp bailer teflon bailer other:	Tubing: OD: <u>New</u> Dedicated NA	
Purge method: 3-5 Case Volume <u>Micro/Low-Flow</u> Extraction Other:		
Pump depth/ intake:	Multipliers: 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"= 1.02 6"= 1.47 Radius ² X 0.163	
(TD - DTW X Multiplier = 1 Volume		80% Recovery (TD - DTW X 0.20 + DTW)

1 Volume = 3.2 X 3 = 9.5 (Total Purge) 80% = 18.57

Time	Temp (°C/°F)	pH	Cond (mS/µS)	Turbidity (NTU)	Purge Rate (gal or mL/min)	Volume Removed (gal/L)	DO (mg/l)	ORP	DTW	Notes
<u>Initial</u>	<u>19.8</u>	<u>7.6</u>	<u>647</u>	<u>77</u>	—	—	<u>1.3</u>	<u>-11</u>	—	
<u>1035</u>	<u>19.3</u>	<u>7.0</u>	<u>759</u>	<u>53</u>	—	<u>3.2</u>	<u>2.3</u>	<u>3</u>	—	
<u>1040</u>	<u>19.4</u>	<u>7.0</u>	<u>704</u>	<u>49</u>	—	<u>6.4</u>	<u>1.6</u>	<u>-20</u>	—	
<u>1045</u>	<u>19.3</u>	<u>7.1</u>	<u>669</u>	<u>44</u>	—	<u>9.5</u>	<u>1.7</u>	<u>-16</u>	<u>18.39</u>	

Did well dewater? YES <input type="checkbox"/> <u>NO</u>	Total volume removed: <u>9.5</u> (gal/L)
Sample method: Disp Bailer <input type="checkbox"/> <u>Ded. Tubing</u> New Tubing <input type="checkbox"/> Ext. Port <input type="checkbox"/> Other: <input type="checkbox"/>	
Sample date: <u>3/24/09</u> Sample time: <u>1050</u>	DTW at sample: <u>18.39</u>
Sample ID: <u>HW7</u> Lab: <u>Kiff</u>	Number of bottles: <u>5</u>
Analysis: <u>TPH-G, BTEX, MTBE, TBA, TEPH-D, TEPH-MO</u>	
Equipment blank ID @	Field blank ID @
Duplicate ID:	Pre-purge DO: Post purge DO:
Fe ²⁺ :	Pre-purge ORP: Post purge ORP:
NAPL depth:	Volume of NAPL: Volume removed: ml

Purging And Sampling Data Sheet

Job#: <u>44-090324</u>	Sampler: <u>B Myers</u>	Client: <u>LRM</u>
Well ID: <u>MW-8</u>	Date: <u>3/24/09</u>	Site: <u>Former Strough Chevy, Oakland</u>
Well diam: 1/4" <u>(1")</u> 2" 3" 4" 6" Other:	DTW: <u>16.08</u> Total Depth: <u>26.65</u>	
Purge equip: ES - diam: Bladder <u>Peri</u> Waterra Positive Air Displacement Ext. System disp bailer teflon bailer other:	Tubing: OD: New Dedicated NA	
Purge method: 3-5 Case Volume <u>Micro/Low-Flow</u> Extraction Other:		
Pump depth/ intake:	Multipliers: 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"= 1.02 6"= 1.47 Radius ² X 0.163	
(TD - DTW X Multiplier = 1 Volume)		80% Recovery (TD - DTW X 0.20 + DTW)

1 Volume = 0.4 X 3 = 1.2 (Total Purge) 80% = 18.19

Time	Temp (C/F)	pH	Cond (mS / μ S)	Turbidity (NTU)	Purge Rate (gal or mL / min)	Volume Removed (gal / L)	DO (mg/l)	ORP	DTW	Notes
<i>Initial</i>	18.3	7.0	329	34	—	—	1.5	-46	—	
10:4	19.4	7.3	311	31	—	0.4	1.6	-18	—	
10:16	19.8	7.2	300	30	—	0.8	1.8	-5	—	
10:18	19.7	7.2	293	27	—	1.5	1.8	-2	—	

Did well dewater? YES <input checked="" type="radio"/> NO <input type="radio"/>		Total volume removed: <u>1.5</u> (gal / L)	
Sample method: Disp Bailer <input checked="" type="radio"/> <u>Ded. Tubing</u> New Tubing Ext. Port Other:			
Sample date: <u>3/24/09</u>	Sample time: <u>1020</u>	DTW at sample: <u>—</u>	
Sample ID: <u>MW-8</u>	Lab: <u>Kiff</u>	Number of bottles: <u>5</u>	
Analysis: <u>TPH-G, BTEX, MTBE, TBA, TEPH-D, TEPH-MO</u>			
Equipment blank ID @	Field blank ID @		
Duplicate ID:	Pre-purge DO:	Post purge DO:	
Fe2 ⁺ :	Pre-purge ORP:	Post purge ORP:	
NAPL depth:	Volume of NAPL:	Volume removed:	ml



APPENDIX C

**LABORATORY ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY
DOCUMENTATION**



Report Number : 67859

Date : 04/01/2009

Mehrdad Javaherian
LRM Consulting, Inc.
1534 Plaza Lane, #145
Burlingame, CA 94010

Subject : 9 Water Samples
Project Name : Former Strough Chevy - Oakland
Project Number : M1-090324

Dear Mr. Javaherian,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

A handwritten signature in black ink, appearing to read "Joel Kiff".

Joel Kiff



Report Number : 67859

Date : 04/01/2009

Subject : 9 Water Samples
Project Name : Former Strough Chevy - Oakland
Project Number : M1-090324

Case Narrative

For sample MW-2, repeat analysis by test method Modified EPA 8015 yielded inconsistent results. The concentrations appear to vary between the bottles. The highest valid results are reported.



Report Number : 67859

Date : 04/01/2009

Project Name : **Former Strough Chevy - Oakland**

Project Number : **M1-090324**

Sample : **MW-1**

Matrix : Water

Lab Number : 67859-01

Sample Date :03/24/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	03/26/2009
Toluene	< 0.50	0.50	ug/L	EPA 8260B	03/26/2009
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/26/2009
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	03/26/2009
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	03/26/2009
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	03/26/2009
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	03/26/2009
1,2-Dichloroethane-d4 (Surr)	101		% Recovery	EPA 8260B	03/26/2009
Toluene - d8 (Surr)	99.6		% Recovery	EPA 8260B	03/26/2009
TPH as Diesel (w/ Silica Gel)	< 50	50	ug/L	M EPA 8015	03/26/2009
TPH as Motor Oil (w/ Silica Gel)	< 100	100	ug/L	M EPA 8015	03/26/2009
Octacosane (Silica Gel Surr)	104		% Recovery	M EPA 8015	03/26/2009



Report Number : 67859

Date : 04/01/2009

Project Name : **Former Strough Chevy - Oakland**

Project Number : **M1-090324**

Sample : **MW-2**

Matrix : Water

Lab Number : 67859-02

Sample Date :03/24/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	410	9.0	ug/L	EPA 8260B	03/26/2009
Toluene	2000	9.0	ug/L	EPA 8260B	03/26/2009
Ethylbenzene	900	9.0	ug/L	EPA 8260B	03/26/2009
Total Xylenes	8900	9.0	ug/L	EPA 8260B	03/26/2009
Methyl-t-butyl ether (MTBE)	300	9.0	ug/L	EPA 8260B	03/26/2009
Tert-Butanol	210	50	ug/L	EPA 8260B	03/26/2009
TPH as Gasoline	45000	900	ug/L	EPA 8260B	03/26/2009
1,2-Dichloroethane-d4 (Surr)	95.0		% Recovery	EPA 8260B	03/26/2009
Toluene - d8 (Surr)	98.9		% Recovery	EPA 8260B	03/26/2009
TPH as Diesel (w/ Silica Gel)	< 8000	8000	ug/L	M EPA 8015	04/01/2009
(Note: MRL increased due to interference from Gasoline-range hydrocarbons.)					
TPH as Motor Oil (w/ Silica Gel)	420	100	ug/L	M EPA 8015	04/01/2009
Octacosane (Silica Gel Surr)	125		% Recovery	M EPA 8015	04/01/2009



Report Number : 67859

Date : 04/01/2009

Project Name : **Former Strough Chevy - Oakland**

Project Number : **M1-090324**

Sample : **MW-3**

Matrix : Water

Lab Number : 67859-03

Sample Date :03/24/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	1400	2.5	ug/L	EPA 8260B	03/26/2009
Toluene	4200	9.0	ug/L	EPA 8260B	03/28/2009
Ethylbenzene	600	2.5	ug/L	EPA 8260B	03/26/2009
Total Xylenes	2500	2.5	ug/L	EPA 8260B	03/26/2009
Methyl-t-butyl ether (MTBE)	160	2.5	ug/L	EPA 8260B	03/26/2009
Tert-Butanol	60	15	ug/L	EPA 8260B	03/26/2009
TPH as Gasoline	19000	250	ug/L	EPA 8260B	03/26/2009
1,2-Dichloroethane-d4 (Surr)	90.4		% Recovery	EPA 8260B	03/26/2009
Toluene - d8 (Surr)	97.6		% Recovery	EPA 8260B	03/26/2009
TPH as Diesel (w/ Silica Gel)	< 1000	1000	ug/L	M EPA 8015	03/26/2009
(Note: MRL increased due to interference from Gasoline-range hydrocarbons.)					
TPH as Motor Oil (w/ Silica Gel)	< 100	100	ug/L	M EPA 8015	03/26/2009
Octacosane (Silica Gel Surr)	109		% Recovery	M EPA 8015	03/26/2009



Report Number : 67859

Date : 04/01/2009

Project Name : **Former Strough Chevy - Oakland**

Project Number : **M1-090324**

Sample : **MW-4**

Matrix : Water

Lab Number : 67859-04

Sample Date :03/24/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Toluene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Methyl-t-butyl ether (MTBE)	370	0.50	ug/L	EPA 8260B	03/25/2009
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	03/25/2009
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	03/25/2009
1,2-Dichloroethane-d4 (Surr)	103		% Recovery	EPA 8260B	03/25/2009
Toluene - d8 (Surr)	94.2		% Recovery	EPA 8260B	03/25/2009
TPH as Diesel (w/ Silica Gel)	< 50	50	ug/L	M EPA 8015	03/31/2009
TPH as Motor Oil (w/ Silica Gel)	< 100	100	ug/L	M EPA 8015	03/31/2009
Octacosane (Silica Gel Surr)	112		% Recovery	M EPA 8015	03/31/2009



Report Number : 67859

Date : 04/01/2009

Project Name : **Former Strough Chevy - Oakland**

Project Number : **M1-090324**

Sample : **MW-5**

Matrix : Water

Lab Number : 67859-05

Sample Date :03/24/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Toluene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Methyl-t-butyl ether (MTBE)	0.54	0.50	ug/L	EPA 8260B	03/25/2009
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	03/25/2009
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	03/25/2009
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	03/25/2009
Toluene - d8 (Surr)	94.8		% Recovery	EPA 8260B	03/25/2009
TPH as Diesel (w/ Silica Gel)	< 50	50	ug/L	M EPA 8015	03/26/2009
TPH as Motor Oil (w/ Silica Gel)	< 100	100	ug/L	M EPA 8015	03/26/2009
Octacosane (Silica Gel Surr)	105		% Recovery	M EPA 8015	03/26/2009



Report Number : 67859

Date : 04/01/2009

Project Name : **Former Strough Chevy - Oakland**

Project Number : **M1-090324**

Sample : **MW-6**

Matrix : Water

Lab Number : 67859-06

Sample Date :03/24/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Toluene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Methyl-t-butyl ether (MTBE)	51	0.50	ug/L	EPA 8260B	03/25/2009
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	03/25/2009
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	03/25/2009
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	03/25/2009
Toluene - d8 (Surr)	99.5		% Recovery	EPA 8260B	03/25/2009
TPH as Diesel (w/ Silica Gel)	< 50	50	ug/L	M EPA 8015	03/26/2009
TPH as Motor Oil (w/ Silica Gel)	< 100	100	ug/L	M EPA 8015	03/26/2009
Octacosane (Silica Gel Surr)	88.3		% Recovery	M EPA 8015	03/26/2009



Report Number : 67859

Date : 04/01/2009

Project Name : **Former Strough Chevy - Oakland**

Project Number : **M1-090324**

Sample : **MW-7**

Matrix : Water

Lab Number : 67859-07

Sample Date :03/24/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Toluene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	03/25/2009
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	03/25/2009
1,2-Dichloroethane-d4 (Surr)	98.7		% Recovery	EPA 8260B	03/25/2009
Toluene - d8 (Surr)	106		% Recovery	EPA 8260B	03/25/2009
TPH as Diesel (w/ Silica Gel)	< 50	50	ug/L	M EPA 8015	03/26/2009
TPH as Motor Oil (w/ Silica Gel)	< 100	100	ug/L	M EPA 8015	03/26/2009
Octacosane (Silica Gel Surr)	91.2		% Recovery	M EPA 8015	03/26/2009



Report Number : 67859

Date : 04/01/2009

Project Name : **Former Strough Chevy - Oakland**

Project Number : **M1-090324**

Sample : **MW-8**

Matrix : Water

Lab Number : 67859-08

Sample Date :03/24/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	03/26/2009
Toluene	< 0.50	0.50	ug/L	EPA 8260B	03/26/2009
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/26/2009
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	03/26/2009
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	03/26/2009
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	03/26/2009
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	03/26/2009
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	03/26/2009
Toluene - d8 (Surr)	99.9		% Recovery	EPA 8260B	03/26/2009
TPH as Diesel (w/ Silica Gel)	< 50	50	ug/L	M EPA 8015	03/26/2009
TPH as Motor Oil (w/ Silica Gel)	< 100	100	ug/L	M EPA 8015	03/26/2009
Octacosane (Silica Gel Surr)	91.9		% Recovery	M EPA 8015	03/26/2009



Report Number : 67859

Date : 04/01/2009

Project Name : **Former Strough Chevy - Oakland**

Project Number : **M1-090324**

Sample : **QCTB**

Matrix : Water

Lab Number : 67859-09

Sample Date :03/24/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Toluene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	03/25/2009
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	03/25/2009
1,2-Dichloroethane-d4 (Surr)	97.1		% Recovery	EPA 8260B	03/25/2009
Toluene - d8 (Surr)	106		% Recovery	EPA 8260B	03/25/2009

Report Number : 67859

Date : 04/01/2009

QC Report : Method Blank Data

Project Name : **Former Strough Chevy - Oakland**

Project Number : **M1-090324**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed	Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
TPH as Diesel (w/ Silica Gel)	< 50	50	ug/L	M EPA 8015	03/26/2009	Benzene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
TPH as Motor Oil (w/ Silica Gel)	< 100	100	ug/L	M EPA 8015	03/26/2009	Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Octacosane (Silica Gel Surr)	102		%	M EPA 8015	03/26/2009	Toluene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
TPH as Diesel (w/ Silica Gel)	< 50	50	ug/L	M EPA 8015	03/31/2009	Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
TPH as Motor Oil (w/ Silica Gel)	< 100	100	ug/L	M EPA 8015	03/31/2009	Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Octacosane (Silica Gel Surr)	96.5		%	M EPA 8015	03/31/2009	Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	03/25/2009
Benzene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009	TPH as Gasoline	< 50	50	ug/L	EPA 8260B	03/25/2009
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009	1,2-Dichloroethane-d4 (Surr)	99.6		%	EPA 8260B	03/25/2009
Toluene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009	Toluene - d8 (Surr)	100		%	EPA 8260B	03/25/2009
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009	Benzene	< 0.50	0.50	ug/L	EPA 8260B	03/26/2009
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009	Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/26/2009
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	03/25/2009	Toluene	< 0.50	0.50	ug/L	EPA 8260B	03/26/2009
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	03/25/2009	Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	03/26/2009
1,2-Dichloroethane-d4 (Surr)	102		%	EPA 8260B	03/25/2009	Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	03/26/2009
Toluene - d8 (Surr)	102		%	EPA 8260B	03/25/2009	Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	03/26/2009
Toluene	< 0.50	0.50	ug/L	EPA 8260B	03/27/2009	TPH as Gasoline	< 50	50	ug/L	EPA 8260B	03/26/2009
Benzene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009	1,2-Dichloroethane-d4 (Surr)	101		%	EPA 8260B	03/26/2009
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009	Toluene - d8 (Surr)	99.5		%	EPA 8260B	03/26/2009
Toluene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009	Benzene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009	Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009	Toluene	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	03/25/2009	Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	03/25/2009	Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	03/25/2009
1,2-Dichloroethane-d4 (Surr)	102		%	EPA 8260B	03/25/2009	Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	03/25/2009
Toluene - d8 (Surr)	95.6		%	EPA 8260B	03/25/2009	TPH as Gasoline	< 50	50	ug/L	EPA 8260B	03/25/2009
						1,2-Dichloroethane-d4 (Surr)	99.5		%	EPA 8260B	03/25/2009
						Toluene - d8 (Surr)	106		%	EPA 8260B	03/25/2009

QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : **Former Strough Chevy - Oakland**Project Number : **M1-090324**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
TPH-D (Si Gel)	BLANK	<50	1000	1000	935	916	ug/L	M EPA 8015	3/26/09	93.5	91.6	1.97	70-130	25
Benzene	67837-07	21	39.3	39.1	57.9	57.8	ug/L	EPA 8260B	3/25/09	94.2	94.4	0.193	70-130	25
Methyl-t-butyl ether	67837-07	22	40.6	40.5	62.4	63.5	ug/L	EPA 8260B	3/25/09	99.3	102	3.05	70-130	25
Tert-Butanol	67837-07	6.1	201	200	210	200	ug/L	EPA 8260B	3/25/09	102	97.0	4.72	70-130	25
Toluene	67837-07	0.55	40.0	39.9	40.3	39.9	ug/L	EPA 8260B	3/25/09	99.2	98.6	0.515	70-130	25
Toluene	67844-04	<0.50	40.0	40.0	40.0	40.2	ug/L	EPA 8260B	3/26/09	99.8	100	0.703	70-130	25
Benzene	67859-05	<0.50	39.3	39.3	37.5	35.8	ug/L	EPA 8260B	3/25/09	95.3	91.0	4.62	70-130	25
Methyl-t-butyl ether	67859-05	0.54	40.7	40.7	39.5	42.5	ug/L	EPA 8260B	3/25/09	95.7	103	7.30	70-130	25
Tert-Butanol	67859-05	<5.0	201	201	199	197	ug/L	EPA 8260B	3/25/09	98.7	97.7	1.05	70-130	25
Toluene	67859-05	<0.50	40.1	40.1	38.4	36.8	ug/L	EPA 8260B	3/25/09	95.7	91.8	4.14	70-130	25
Benzene	67859-06	<0.50	39.3	39.3	38.7	37.6	ug/L	EPA 8260B	3/25/09	98.4	95.5	2.98	70-130	25
Methyl-t-butyl ether	67859-06	51	40.7	40.7	92.4	98.4	ug/L	EPA 8260B	3/25/09	101	116	13.6	70-130	25
Tert-Butanol	67859-06	<5.0	201	201	200	194	ug/L	EPA 8260B	3/25/09	99.1	96.5	2.65	70-130	25
Toluene	67859-06	<0.50	40.1	40.1	40.0	38.9	ug/L	EPA 8260B	3/25/09	99.7	97.0	2.72	70-130	25
Benzene	67859-08	<0.50	39.3	39.3	37.9	36.7	ug/L	EPA 8260B	3/26/09	96.4	93.3	3.24	70-130	25
Methyl-t-butyl ether	67859-08	<0.50	40.7	40.7	39.0	39.0	ug/L	EPA 8260B	3/26/09	95.9	95.9	0.0213	70-130	25
Tert-Butanol	67859-08	<5.0	201	201	196	196	ug/L	EPA 8260B	3/26/09	97.3	97.5	0.206	70-130	25

QC Report : Matrix Spike/ Matrix Spike DuplicateProject Name : **Former Strough Chevy - Oakland**Project Number : **M1-090324**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Toluene	67859-08	<0.50	40.1	40.1	39.9	38.3	ug/L	EPA 8260B	3/26/09	99.5	95.5	4.03	70-130	25
Benzene	67859-07	<0.50	39.3	39.3	38.9	37.1	ug/L	EPA 8260B	3/25/09	99.0	94.3	4.84	70-130	25
Methyl-t-butyl ether	67859-07	<0.50	40.7	40.7	35.6	32.9	ug/L	EPA 8260B	3/25/09	87.4	80.9	7.74	70-130	25
Tert-Butanol	67859-07	<5.0	201	201	194	195	ug/L	EPA 8260B	3/25/09	96.4	97.0	0.569	70-130	25
Toluene	67859-07	<0.50	40.1	40.1	43.8	41.8	ug/L	EPA 8260B	3/25/09	109	104	4.66	70-130	25
TPH-D (Si Gel)	BLANK	<50	1000	1000	811	863	ug/L	M EPA 8015	3/31/09	81.1	86.3	6.20	70-130	25

QC Report : Laboratory Control Sample (LCS)Project Name : **Former Strough Chevy - Oakland**Project Number : **M1-090324**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	39.3	ug/L	EPA 8260B	3/25/09	106	70-130
Methyl-t-butyl ether	40.7	ug/L	EPA 8260B	3/25/09	111	70-130
Tert-Butanol	201	ug/L	EPA 8260B	3/25/09	107	70-130
Toluene	40.1	ug/L	EPA 8260B	3/25/09	108	70-130
Toluene	40.1	ug/L	EPA 8260B	3/26/09	100	70-130
Benzene	39.9	ug/L	EPA 8260B	3/25/09	98.5	70-130
Methyl-t-butyl ether	40.6	ug/L	EPA 8260B	3/25/09	103	70-130
Tert-Butanol	201	ug/L	EPA 8260B	3/25/09	100	70-130
Toluene	39.9	ug/L	EPA 8260B	3/25/09	96.7	70-130
Benzene	39.9	ug/L	EPA 8260B	3/25/09	97.2	70-130
Methyl-t-butyl ether	40.6	ug/L	EPA 8260B	3/25/09	96.2	70-130
Tert-Butanol	201	ug/L	EPA 8260B	3/25/09	94.5	70-130
Toluene	39.9	ug/L	EPA 8260B	3/25/09	98.0	70-130
Benzene	39.8	ug/L	EPA 8260B	3/26/09	102	70-130
Methyl-t-butyl ether	40.5	ug/L	EPA 8260B	3/26/09	99.9	70-130
Tert-Butanol	200	ug/L	EPA 8260B	3/26/09	100	70-130
Toluene	39.8	ug/L	EPA 8260B	3/26/09	102	70-130

Report Number : 67859

Date : 04/01/2009

QC Report : Laboratory Control Sample (LCS)

Project Name : **Former Strough Chevy - Oakland**

Project Number : **M1-090324**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	39.2	ug/L	EPA 8260B	3/25/09	98.1	70-130
Methyl-t-butyl ether	40.6	ug/L	EPA 8260B	3/25/09	82.0	70-130
Tert-Butanol	201	ug/L	EPA 8260B	3/25/09	96.4	70-130
Toluene	40.0	ug/L	EPA 8260B	3/25/09	108	70-130

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800



Confluence Environmental, Inc.
3308 El Camino Ave, Suite 300 #148
Sacramento, CA 95821
916-760-7641 - main
916-473-8617 - fax
www.confluence-env.com

Chain of Custody

67859

Project Name: Former Strough Chevy - Oakland

Job Number: MI-090324

TAT: STANDARD 5 DAY 2 DAY 24 HOUR OTHER:

Lab: Kiff	Site Address: 327 34th St, Oakland	Confluence PM: Jason Brown
Address: 2795 2nd St, Suite 300, Davis CA 95616	California Global ID No.: T0600101644	Phone / Fax: 916-760-7641 / 916-473-8617
Contact: Angelique Showman	Include EDF w/ Report: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Confluence Log Code: CESC
Phone/ Fax: 530-297-4800 x.127	Consultant / PM: LRM / Merhdad Javaherian	Report to: Merhdad Javaherian
	Phone / Fax: (415) 706-8935	Invoice to: Merhdad Javaherian

Sample ID	Time	Date	Matrix			Laboratory No.	No. of Containers	Preservative					Requested Analysis				Temp °C	Therm. ID#	Initial	Date	Time	Coplant present	Notes and Comments			
			Soil/Solid	Water/Liquid	Air			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	TEPH Diesel & Motor Oil* (8015)	TPH-G, BTEX (8260B)	MTBE (8260)	TBA (8260)										
NW-1	800	3/24	X				5					X	X	X	X										01	
NW-2	925		X									X	X	X	X											02
NW-3	845		X									X	X	X	X											03
NW-4	825		X									X	X	X	X											04
NW-5	910		X									X	X	X	X											05
NW-6	955		X									X	X	X	X											06
NW-7	1050		X									X	X	X	X											07
NW-8	1020		X									X	X	X	X											08
QCTB	-		X				2								X	X	X									09

SAMPLE RECEIPT
Temp °C 2.9 Therm. ID# IR-2
Initial LJR Date 032509
Time 1636 Coplant present Yes

Sampler's Name: <u>B. Myers</u>	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Confluence Environmental	<u>Jason Brown</u>	<u>3/25</u>	<u>1635</u>	<u>Jason Brown</u>		
Shipment Date:						
Shipment Method:				<u>Substrate K. H Analytical</u>	<u>032509</u>	<u>1641</u>
Special Instructions: *Run TEPH w/ silica gel cleanup						

APPENDIX D

SURVEY DATA FROM MONITORING WELLS

Benchmark Elevation = 60.40 feet (NGVD 29). FROM VIRGIL CHAVEZ
SURVEYING

<u>Latitude</u>	<u>Longitude</u>	<u>Northing</u>	<u>Easting</u>	<u>Elev.</u>	<u>Desc.</u>
37.8218057	-122.2611703	2126486.36	6053001.49	65.06	RIM MW-1
				64.71	TOC MW-1
				66.32	RIM MW-2
37.8218326	-122.2613609	2126497.19	6052946.62	65.71	TOC MW-2
				66.24	RIM MW-3
37.8217656	-122.2613226	2126472.58	6052957.22	65.70	TOC MW-3
				65.03	RIM MW-4
37.8216762	-122.2611748	2126439.24	6052999.29	64.37	TOC MW-4
				66.20	RIM MW-5
37.8215005	-122.2614896	2126376.98	6052907.19	65.59	TOC MW-5
				59.86	RIM MW-6
37.8214002	-122.2608921	2126337.21	6053079.04	59.60	TOC MW-6
				59.77	RIM MW-7
37.8215373	-122.2607144	2126386.16	6053131.30	59.49	TOC MW-7
				57.63	RIM MW-8
37.8212027	-122.2609119	2126265.44	6053071.97	57.07	TOC MW-8