

October 1, 2008

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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 34<sup>th</sup> Street, Oakland, CA  
Site ID #3035, RO#0000134

Dear Ms. Jakub:

This letter is to accompany the *Third Quarter 2008 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, 24<sup>th</sup> Floor, Oakland, CA 94607



**3rd QUARTER 2008  
GROUNDWATER  
MONITORING REPORT**

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

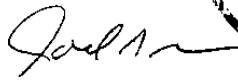
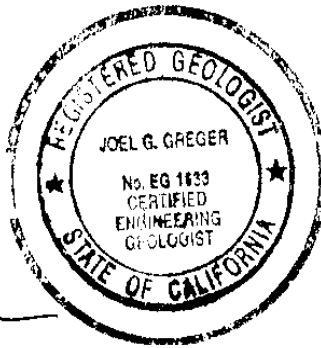
Prepared by  
**LRM Consulting, Inc.**  
**1534 Plaza Lane, #145**  
**Burlingame, CA 94010**

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**Burlingame, CA 94010**



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Joel G. Greger, C.E.G. No EG 1633  
Certified Engineering Geologist



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Mehrdad M. Javaherian  
Principal-in-Charge

October 2008



## TABLE OF CONTENTS

<b>TABLE OF CONTENTS .....</b>	<b>II</b>
<b>1.0 INTRODUCTION .....</b>	<b>1</b>
1.1 GENERAL SITE INFORMATION.....	1
1.2 SITE CONTACTS .....	1
<b>2.0 SITE BACKGROUND.....</b>	<b>3</b>
2.1 SITE DESCRIPTION .....	3
2.2 SUMMARY OF PREVIOUS INVESTIGATIONS AND MONITORING ACTIVITIES .....	3
2.2 SUMMARY OF INTERIM REMEDIAL ACTION ACTIVITIES .....	5
<b>3.0 PROTOCOLS FOR GROUNDWATER MONITORING.....</b>	<b>7</b>
3.1 GROUNDWATER GAUGING.....	7
3.2 WELL PURGING .....	7
3.3 GROUNDWATER SAMPLING .....	7
4.1 SEPARATE-PHASE HYDROCARBON MONITORING .....	8
4.2 GROUNDWATER ELEVATION AND HYDRAULIC GRADIENT .....	8
4.3 GROUNDWATER ANALYTICAL RESULTS.....	8
<b>5.0 PLANNED ACTIVITIES .....</b>	<b>11</b>
5.1 ADDITIONAL INVESTIGATION/REMEDIAL ACTIVITIES .....	11
5.2 PLANNED MONITORING ACTIVITIES .....	11
<b>6.0 REFERENCES .....</b>	<b>12</b>



## **List of Figures**

Figure 1 – Site Location Map

Figure 2 – Groundwater Elevation Contour Map and Rose Diagram-3<sup>rd</sup> Quarter 2008  
Monitoring Event

Figure 3 – Groundwater Analytical Data-3<sup>rd</sup> Quarter 2008 Monitoring Event

## **List of Tables**

Table 1 – Well Construction Details

Table 2 – Cumulative Groundwater Elevation and Analytical Data

Table 3 – Historical Grab Groundwater Analytical Data

Table 4 – Groundwater Monitoring Schedule

## **List of Appendices**

Appendix A – Protocols for Groundwater Monitoring

Appendix B – Field Documents

Appendix C – Laboratory Analytical Reports and Chain-of-Custody Documentation



## 1.0 INTRODUCTION

At the request of the Strough Family Trust of 1983, LRM Consulting, Inc. (LRM) has prepared this *3rd Quarter 2008 Groundwater Monitoring Report* for the former Val Strough Chevrolet located in Oakland, California. This report documents the procedures and findings of the September 25, 2008 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 from all seven site wells and sampling from wells MW2, MW3, and MW4. Also worth noting is that this monitoring reflects groundwater conditions approximately two 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

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

### 1.2 Site Contacts

<b>Consultant:</b>	Joel Greger, CEG, Senior Engineering Geologist Mehrhad Javaherian, Principal-in-Charge 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 34<sup>th</sup> 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 34<sup>th</sup> Street, a storm sewer pipeline flows toward the east and into the box culvert. Sanitary sewer lines run parallel to both 34<sup>th</sup> 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 34<sup>th</sup> 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).

## 2.2 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 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.

***25 August 2006 LRM Consulting, Inc. Correspondence and 11 December 2006 LRM Supplemental Source Area Investigation Work Plan:*** In a 25 August 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 19 October 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, 2008). Per the request of Ms. Barbara Jakub of the ACHCSA, LRM next prepared an interim remediation action plan (IRAP) to address the hydrocarbon concentrations remaining in the residual source area at the site. The IRAP was submitted to the ACHCSA for review on August 25<sup>th</sup>, 2008 and currently remains under review.

### **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 September 25, 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 seven site wells.
- Purging the monitoring wells prior to sampling.
- Collecting and analyzing groundwater samples from all seven 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 seven 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.

#### **3.2 Well Purging**

For this round of monitoring, groundwater sampling and field parameters were analyzed for all seven onsite wells; MW1 through MW7. Three well casing volumes of water were purged from all wells and field parameters including temperature, pH, specific conductance, and dissolved oxygen were measured. Groundwater monitoring protocols are presented in Appendix A.

#### **3.3 Groundwater Sampling**

After purging, groundwater was sampled at each of the seven 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. SPH was not detected in any wells during this monitoring event.

### **4.2 Groundwater Elevation and Hydraulic Gradient**

On September 25, 2008, the depth to water beneath the site ranged from 17.07 (MW7) to 25.00 (MW5) feet bgs (Table 2). Correspondingly, groundwater elevations in the site wells ranged from 40.59 feet above msl in well MW5 to 42.69 feet above msl in well MW3 (Figure 2); these levels mark a decline in water levels of approximately 1.5 to 2 feet relative to the previous quarter. Using the results from the 3<sup>rd</sup> Quarter 2008 monitoring event, the hydraulic gradient is estimated at 0.016 ft/ft, with a general flow direction toward the south-southeast (see Figure 2).

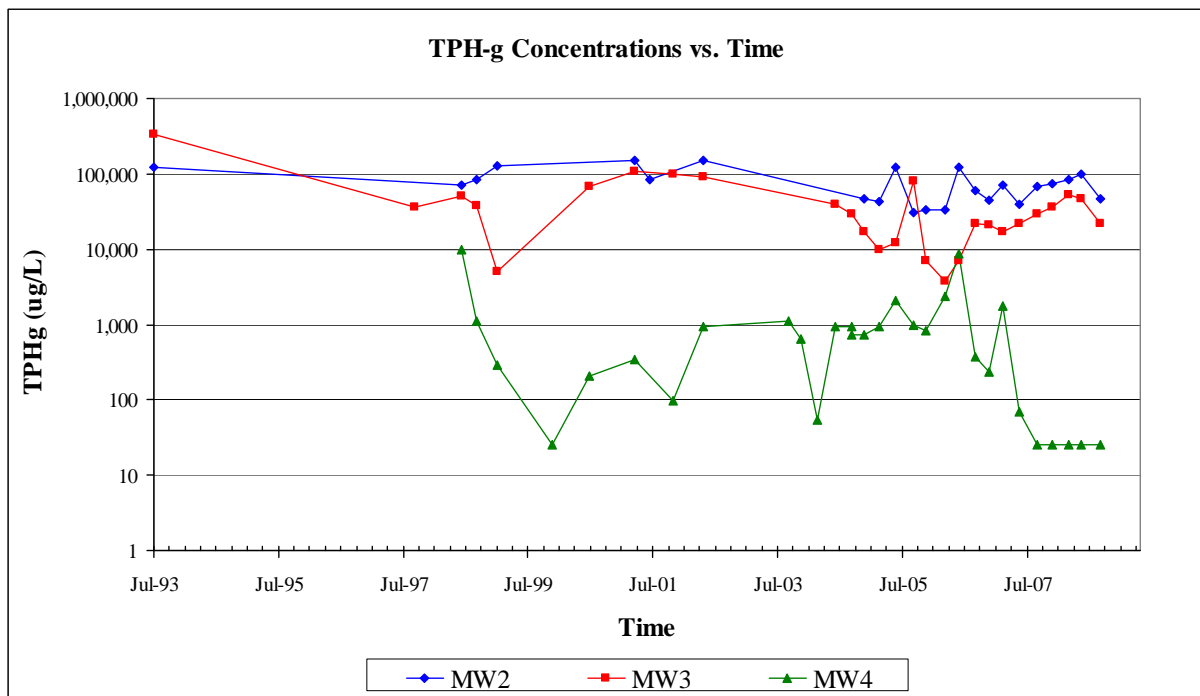
### **4.3 Groundwater Analytical Results**

On September 25, 2008, groundwater samples were collected from MW1 through MW7 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 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 46,000 µg/L and MW-3 at 22,000 µg/L. TPH-g remained below the detection limit of 50 ug/L in all other site wells.
- Benzene was detected in the samples collected from well MW2 at 740 µg/L and from well MW3 at 1,600 µg/L. Benzene was below the detection limit of 0.5 µg/L in all other site wells.
- Toluene was detected at 3,500 µg/L in MW2 and at 3,700 µg/L in MW3, but remained below the detection limit of 0.50 µg/L in all other site wells.
- Ethylbenzene was detected at 1,700 µg/L in MW2 and 700 µg/L in MW3, but remained below the detection limit of 0.50 µg/L in all other site wells.
- Total xylenes were detected at 10,000 µg/L in MW2 and 3,300 µg/L in MW3, but remain below the detection limit of 0.50 µg/L in all other site wells.
- MTBE was detected in the samples collected from well MW1 at 0.57 µg/L, MW2 at 340 µg/L, MW3 at 220 µg/L, MW4 at 380 µg/L, MW5 at 0.66, and MW6 at 78 µg/L. MTBE remained below the detection limit of 0.5 µg/L at MW7.

- Tert-butanol (TBA) was detected at 180 µg/L in MW2 and 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 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). As discussed in the recent supplemental investigation report (LRM, 2008), TPH-d (together with TPH-mo and MTBE) was encountered at higher concentrations in select grab groundwater samples across the downgradient site boundary than in the onsite monitoring wells. Placement of an additional monitoring well in the southeastern corner (downgradient boundary) of the site has accordingly been recommended in the IRAP submitted to the ACHCSA.
- TPH-mo was detected in the groundwater sample from MW2 at 170 µg/L, but remained undetected (<100 µg/L) in all other onsite wells.

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



As indicated on the graph, TPH-g concentrations in MW2 continue to fluctuate, reflecting a reduction (from 98,000 µg/L to 46,000 µg/L) for the first time in the past six quarters of monitoring. TPH-g concentrations at MW3 exhibit a similar pattern as MW2, declining 54,000 µg/L to 22,000 µg/L. Despite the declines in concentrations observed this quarter, likely due to the reduction in the groundwater level elevation, both of these wells exhibit concentrations and trends over the past six quarters which are consistent with the presence of

a residual source of hydrocarbons in the MW2 area. As shown on Table 2, benzene levels depict a similar trend over the past year, with generally stable (but elevated) levels in MW2 and MW3, reducing slightly during the 3<sup>rd</sup> Quarter monitoring event. Benzene levels in MW4 have reduced to below the detection limits over the past five quarters.

Away from the residual source area, TPH-g levels in MW4 have declined 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 consistent absence of TPH-g and petroleum hydrocarbon compounds over the past several rounds of monitoring, with recent detections limited to sporadic and low levels of xylenes and MTBE in MW5 and residual levels of MTBE in MW6.

In summary, the hydrocarbon concentrations detected in this quarter remain within the past range of detections and reflect the generally stable trend where data are available away from the residual source area (i.e, MW-4 area). However, within the source area (MW-2 and MW-3), measurable concentrations remain, exhibiting an increasing trend over the past six quarters and with levels lowering this quarter in conjunction with the lower groundwater elevations. This residual source area was recently investigated, with recommendations for additional vertical characterization and corrective action proposed in the recently completed IRAP for the site.

## **5.0 PLANNED ACTIVITIES**

### **5.1 Additional Investigation/Remediation Activities**

As previously indicated, LRM submitted an IRAP to ACHCSA for review on August 25, 2008, highlighting proposed monitoring and pilot testing activities for in-situ remediation at the MW2/MW3 area. LRM will implement the IRAP once it has been approved by the ACHCSA.

### **5.2 Planned Monitoring Activities**

Quarterly monitoring per the ACHCSA-approved plan will continue, with the next round scheduled for December 2008.



## 6.0 REFERENCES

- Alameda County Health Care Services Agency. 2004. Fuel Leak Case No. RO0000134, Val Strough Chevrolet, 327-34<sup>th</sup> St., Oakland, California. August 20.
- Alameda County Health Care Services Agency. 2005. Fuel Leak Case No. RO0000134, Val Strough Chevrolet, 327-34<sup>th</sup> St., Oakland, California. February 4.
- Alameda County Health Care Services Agency. 2006. Fuel Leak Case No. RO0000134, Val Strough Chevrolet, 327-34<sup>th</sup> St., Oakland, California. July 19.
- Environmental Data Resources (EDR). 2003. EDR Radius Map with GeoCheck, Strough Family Trust, 327 34<sup>th</sup> Street, Oakland, California. September 10.
- ETIC Engineering, Inc. 2003. Supplemental Site Investigation Workplan, Fuel Case No. RO0000134, Val Strough Chevrolet, 327 34<sup>th</sup> Street, Oakland, California. September 17.
- ETIC Engineering, Inc. 2003. Third Quarter 2003 Groundwater Monitoring Report, Strough Family Trust of 1983, 327 34<sup>th</sup> Street, Oakland, California. October.
- ETIC Engineering, Inc. 2004. Supplemental Site Investigation Report and Dual-Phase Extraction Pilot Test Workplan, Strough Family Trust of 1983, 327 34<sup>th</sup> Street, Oakland, California. February.
- ETIC Engineering, Inc. 2004. First Quarter 2004 Groundwater Monitoring Report, Strough Family Trust of 1983, 327 34<sup>th</sup> Street, Oakland, California. May.
- ETIC Engineering, Inc. 2004. Dual Phase Extraction Pilot Test Report and Interim Remedial Action Plan, Strough Family Trust of 1983, Former Val Strough Chevrolet, 327 34<sup>th</sup> Street, Oakland, California. June.
- ETIC Engineering, Inc. 2004. Second Quarter 2004 Groundwater Monitoring Report, Strough Family Trust of 1983, 327 34<sup>th</sup> Street, Oakland, California. August.
- ETIC Engineering, Inc. 2004. Response to Technical Comments, Strough Family Trust of 1983, 327 34<sup>th</sup> Street, Oakland, California. October.
- ETIC Engineering, Inc. 2004. Third Quarter 2004 Groundwater Monitoring Report, Strough Family Trust of 1983, 327 34<sup>th</sup> Street, Oakland, California. October.
- ETIC Engineering, Inc. 2004. Fourth Quarter 2004 Groundwater Monitoring Report, Strough Family Trust of 1983, 327 34<sup>th</sup> Street, Oakland, California. March.
- ETIC Engineering, Inc. 2005. First Quarter 2005 Groundwater Monitoring Report, Strough

- Family Trust of 1983, 327 34<sup>th</sup> Street, Oakland, California. May.
- ETIC Engineering, Inc., 2005. Second Quarter 2005 Groundwater Monitoring Report, Strough Family Trust of 1983, 327 34<sup>th</sup> Street, Oakland, California. July.
- ETIC Engineering, Inc., 2005. Third Quarter 2005 Groundwater Monitoring Report, Strough Family Trust of 1983, 327 34<sup>th</sup> Street, Oakland, California. November.
- ETIC Engineering, Inc., 2006. Fourth Quarter 2005 Groundwater Monitoring Report, Strough Family Trust of 1983, 327 34<sup>th</sup> Street, Oakland, California. March.
- ETIC Engineering, Inc., 2006. First Quarter 2006 Groundwater Monitoring Report, Strough Family Trust of 1983, 327 34<sup>th</sup> Street, Oakland, California. June.
- LRM Consulting, Inc., 2006a. Second Quarter 2006 Groundwater Monitoring Report, Strough Family Trust of 1983, 327 34<sup>th</sup> Street, Oakland, California. August.
- LRM Consulting, Inc., 2006b. Third Quarter 2006 Groundwater Monitoring Report, Strough Family Trust of 1983, 327 34<sup>th</sup> Street, Oakland, California. December.
- LRM Consulting, Inc., 2006c. Supplemental Source Area Investigation Work Plan, Strough Family Trust of 1983, 327 34<sup>th</sup> Street, Oakland, California. December.
- LRM Consulting, Inc., 2007. Revised Addendum to Supplemental Source Area Investigation Work Plan, Strough Family Trust of 1983, 327 34<sup>th</sup> Street, Oakland, California. November 15.
- LRM Consulting, Inc., 2008a. Supplemental Source Area Investigation Report. Strough Family Trust of 1983, 327 34<sup>th</sup> Street, Oakland, California. February 29<sup>th</sup>.
- LRM Consulting, Inc., 2008b. First Quarter 2008 Groundwater Monitoring Report, Strough Family Trust of 1983, 327 34<sup>th</sup> Street, Oakland, California. March.
- LRM Consulting, Inc. 2008c. Second Quarter 2008 Groundwater Monitoring Report, Strough Family Trust of 1983, 327 34<sup>th</sup> Street, Oakland, California. June.

## **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	64.69	PVC	32	2	17-32	0.020	15-32	Gravel Pack
MW2	07/20/93	65.95	PVC	33	2	18-33	0.020	16-33	Gravel Pack
MW3	07/20/93	65.99	PVC	34	2	18-34	0.020	16-34	Gravel Pack
MW4	06/26/98	63.35†	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	59.47	PVC	36.5	2	15-35	0.020	13-35	Lonestar #3 Sand

\* Elevations based on a survey conducted August 2002 and referenced benchmark with known elevation (NGVD 29) of 60.40 feet above mean sea level.

† The casing elevation is uncertain.

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 <sub>2</sub> (lab)	DO (field)	ORP (mv) (field)	pH (field)	Fe(II)	Mn	SO <sub>4</sub>	N-NH <sub>3</sub>	N-NO <sub>3</sub>	o-PO <sub>4</sub>	
MW7	12/12/06	59.47	b 15.21	44.26	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW7	03/01/07	59.47	b 14.68	44.79	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	<0.50	--	--	0.92	--	6.84	--	--	--	--	--	--	--
MW7	06/12/07	59.47	b 16.2	43.27	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
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	--	<b>1.5</b>	<b>-186</b>	<b>6.3</b>	--	--	--	--	--	--	

- SPH Separate-phase hydrocarbons.
- CO<sub>2</sub> Carbon dioxide.
- DO Dissolved oxygen.
- Fe(II) Ferrous iron.
- Mn Manganese.
- SO<sub>4</sub> Sulfate.
- N-NH<sub>3</sub> Ammonia.
- N-NO<sub>3</sub> Nitrate.
- o-PO<sub>4</sub> 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.
- 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.

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	TPH-g	TPH-d	TPH-mo	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB
HP1	12/18/2003	26-30	<5.0	<5.0	<5.0	<b>11</b>	<b>410</b>	<b>180</b>	<500	<50	<b>480</b>	<10	<5.0	<5.0	<5.0	<5.0
HP3	12/18/2003	32-36	<0.50	<0.50	<0.50	<1.0	<50	<b>75</b>	<500	<5.0	<b>0.55</b>	<1.0	<0.50	<0.50	<b>1.3</b>	<0.50

TPH-g Total Petroleum Hydrocarbons as gasoline.  
 TPH-d Total Petroleum Hydrocarbons as diesel.  
 TPH-mo Total Petroleum Hydrocarbons as motor oil.  
 TBA t-butyl alcohol.  
 MTBE Methyl tertiary butyl ether.  
 DIPE di-isopropyl ether.  
 ETBE ethyl t-butyl ether.  
 TAME t-amyl methyl ether.  
 1,2-DCA 1,2-dichloroethane.  
 EDB ethylene dibromide.  
 < less than the laboratory reporting limits.

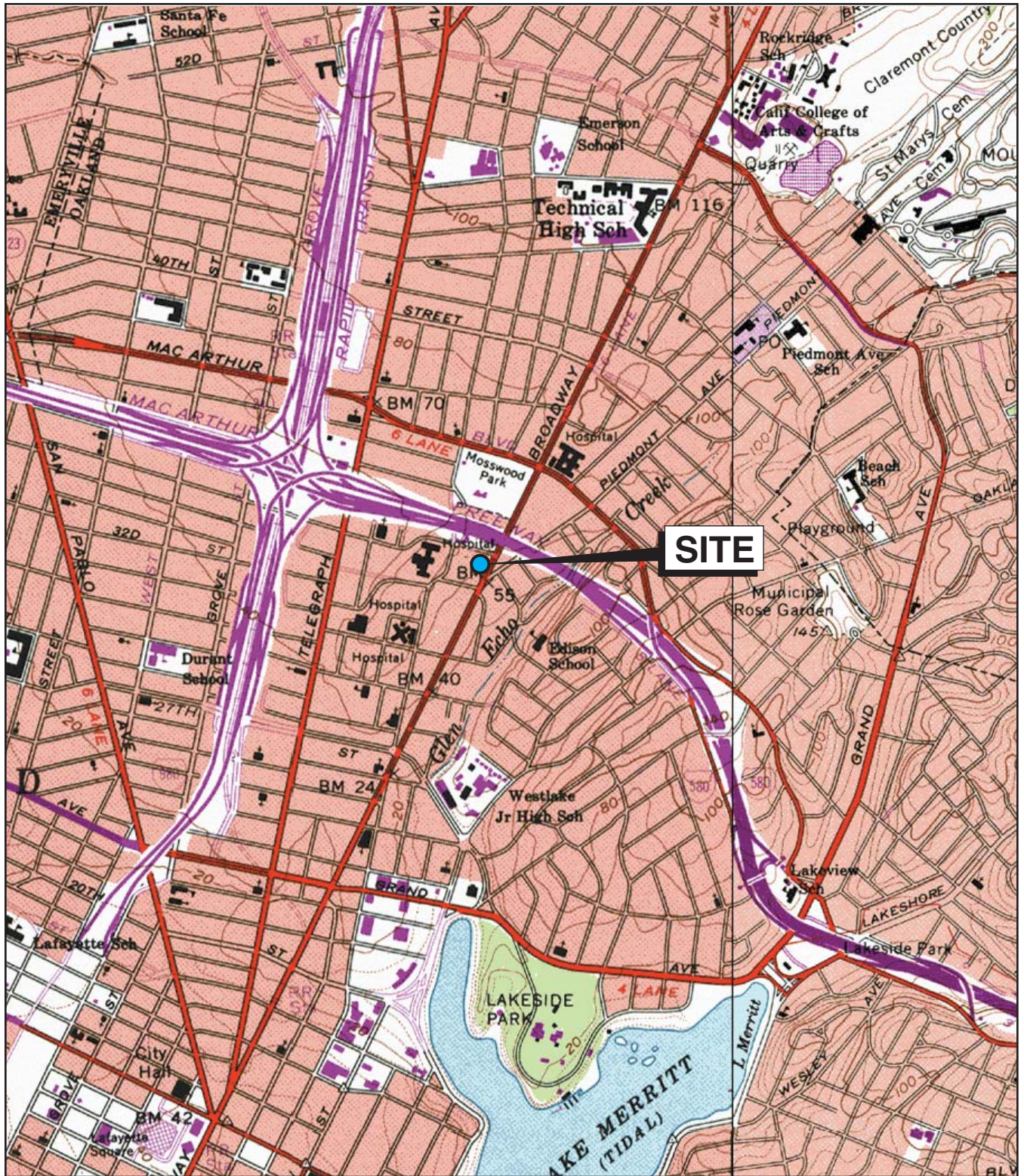
TABLE 4 GROUNDWATER MONITORING SCHEDULE  
 FORMER VAL STROUGH CHEVROLET, 327 34th STREET OAKLAND, CALIFORNIA

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

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)



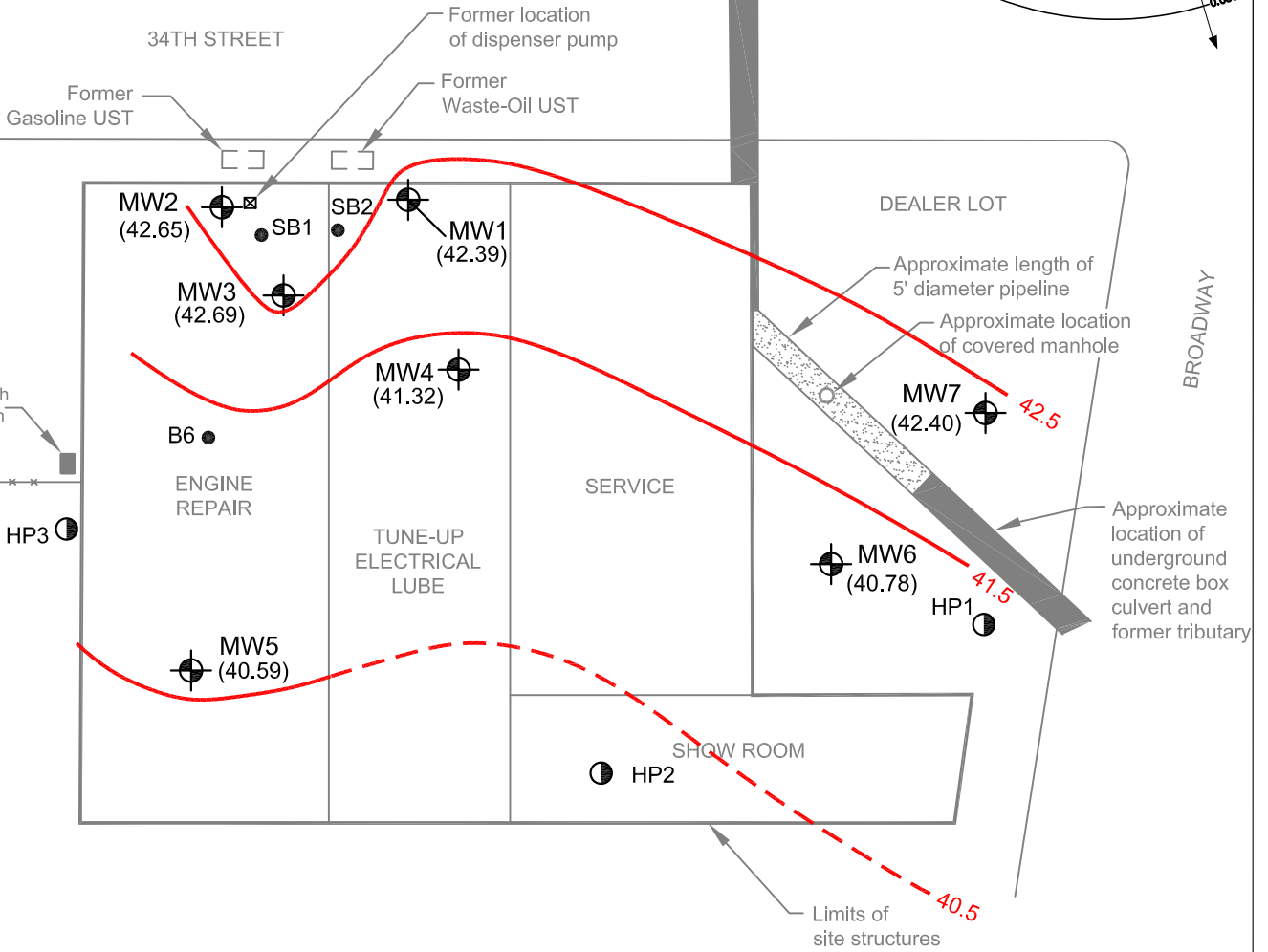
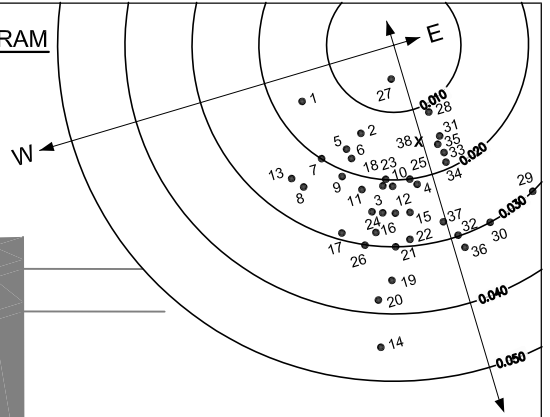
**SITE LOCATION MAP**  
 FORMER VAL STROUGH CHEVROLET  
 327 34TH STREET, OAKLAND, CALIFORNIA

FIGURE:

**1**

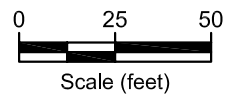
**ROSE DIAGRAM**

- Historical
- X This Event



**LEGEND:**

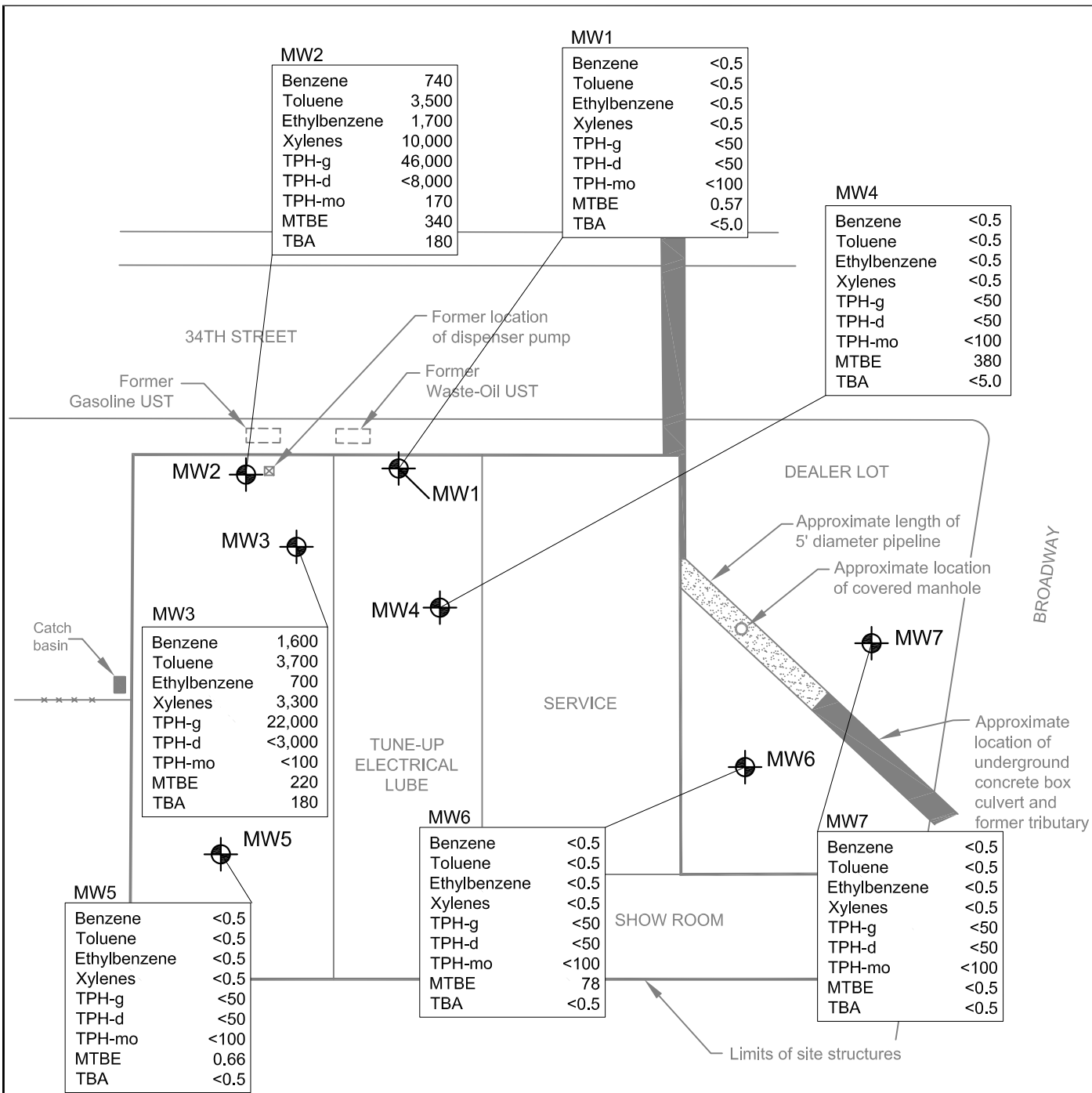
- SB1 ● Soil boring
- HP2 ● Grab groundwater sampling location
- MW2 ● Groundwater monitoring well
- (44.97) Groundwater elevation (feet above mean sea level)
- 42.5 — Groundwater elevation contour (feet above mean sea level)



**GROUNDWATER CONTOUR MAP AND ROSE DIAGRAM**  
**3RD QUARTER 2008 MONITORING EVENT**  
 FORMER VAL STROUGH CHEVROLET  
 327 34TH STREET, OAKLAND, CALIFORNIA  
 OCTOBER 2008

FIGURE:

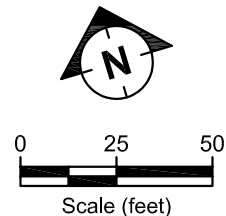
**2**



**LEGEND:**

- MW5 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**  
**3RD QUARTER 2008 MONITORING EVENT**  
 FORMER VAL STROUGH CHEVROLET  
 327 34TH STREET, OAKLAND, CALIFORNIA  
 OCTOBER 2008

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  
 916-473-0617 - fax  
 www.confluence-env.com

# Chain of Custody

Project Name: Former Strough Chevy - Oakland

Job Number: 41-080925

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 / Merhdad Javaherian</u>	Report to: <u>Merhdad Javaherian</u>
	Phone / Fax: <u>(415) 706-8935</u>	Invoice to: <u>Merhdad Javaherian</u>

Sample ID	Time	Date	Matrix			Laboratory No.	No. of Containers	Preservative					Requested Analysis				Notes and Comments	
			Soil/Solid	Water/Liquid	Air			Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	TEPH Diesel & Motor Oil* (8015)	TPH-G, BTEX (8260B)	MTBE (8260)	TBA (8260)		
MW-1	925	9/15		X			5					X	X	X	X			
MW-2	1155			X			5					X	X	X	X			
MW-3	1015			X			5					X	X	X	X			
MW-4	940			X			5					X	X	X	X			
MW-5	1035			X			5					X	X	X	X			
MW-6	1115			X			5					X	X	X	X			
MW-7	1055			X			5					X	X	X	X			
TB	-	-		X			2					X	X	X	X			

Sampler's Name: <u>B. Myers</u>	Relinquished By / Affiliation		Date	Time	Accepted By / Affiliation		Date	Time
Sampler's Company: <u>Confluence Environmental</u>								
Shipment Date:								
Shipment Method:								

Special Instructions: \*Run TEPH w/ silica gel cleanup



Confluence Environmental, Inc

### Equipment Calibration Log

Job #: <i>M1-080925</i>		Client: <i>LPCM</i>			Site: <i>Parmer Staugh Chevy</i>				
Equipment make/model	Equipment ID/serial number	Date	Time	Calibration Standards	Equipment Reading	Equipment Calibrated	Temp (°C) (°F)	Tech init.	Comments
<i>NISISS4</i>	<i>#2</i>	<i>9/25</i>	<i>850</i>	<i>pH</i> <i>4, 7, 10</i>	<i>4.9, 7.0, 10.0</i>	<i>yes</i>	<i>10</i>	<i>FM</i>	
↓	↓	↓	↓	<i>COND</i> <i>1413</i>	<i>1413</i>	↓	<i>113</i>	<i>BM</i>	
↓	↓	↓	↓	<i>D.O.</i> <i>100%</i>	<i>100%</i>	↓	<i>—</i>	<i>BM</i>	
↓	↓	↓	↓	<i>ORP</i> <i>237.5</i>	<i>237.7</i>	↓		<i>BM</i>	

Notes/comments:

# Drum Log

Site: Former Slough Camp Oakland

Drum(s) Location On Site: Inside used O.I./fire room near NW-2

Date		# of drums			total	contents (s=soil w/water m=mixed ?=unknown)	labeled (y or n)	label legible (y or n)	tech initial	Notes:
		full	partial	empty						
9/25	Arrival				0					
9/25	Departure		1		1	W	Y	Y	BM	
	Arrival									
	Departure									
	Arrival									
	Departure									
	Arrival									
	Departure									
	Arrival									
	Departure									
	Arrival									
	Departure									
	Arrival									
	Departure									
	Arrival									
	Departure									



# Well Maintenance Inspection Form

Client: UW

Site: Farmer Strough Cherry

Date: 9/25/08

Job #: M-080925

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)	
MW1	X															<del>lock</del> dolphin lock
MW2																has vacuum tubing down
MW3	X															lock
MW4	X													X		<del>lock</del> dolphin lock
MW5	X															lock
MW6	X													X		lock (In car lot)
MW7	X													X		lock (In car lot)

Notes: MW4 → inside parts depart, annular seal low (?)

## Water Level Measurements

Job Number: M1-080925 Date: 9/25/08 Client: UCM

Site: Ferrier Slough Chevy

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	800	2			22.30	30.59		TOC		
MW-2	836	2			23.30	31.74				
MW-3	830	2			23.30	31.88				
* MW-4	822	2			22.03	27.54				
* MW-5	807	2			25.00	26.40				
* MW-6	816	2			18.82	26.55				
* MW-7	814	2			17.07	34.50				
* Tubing in wells w/ check valves										





## Purging And Sampling Data Sheet

<b>Job#:</b> M1-080925	<b>Sampler:</b> B Myers	<b>Client:</b> LRM
<b>Well ID:</b> MW1	<b>Date:</b> 9/25/2008	<b>Site:</b> Former Strough Chevy, Oakland
<b>Well diam:</b> 1/4" 1" <u>2"</u> 3" 4" 6" Other:	<b>DTW:</b> 2230 <b>Total Depth:</b> 30.59	
<b>Purge equip:</b> ES - diam: Bladder <del>PERL</del> Waterra Positive Air Displacement Ext. System disp bailer teflon bailer other:		
<b>Tubing:</b> OD: 5/8 New <u>Dedicated</u> NA		
<b>Purge method:</b> 3-5 Case Volume <u>Micro/Low-Flow</u> Extraction Other:		
<b>Pump depth/ intake:</b>	<b>Multipliers:</b> 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius <sup>2</sup> X 0.163	
(TD - DTW X Multiplier = 1 Volume		80% Recovery (TD - DTW X 0.20 + DTW)

1 Volume = 1.3 X 3 = 3.9 (Total Purge) 80% = 23.96

Time	Temp (°C/°F)	pH	Cond (mS/15)	Turbidity (NTU)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	DO (mg/l)	ORP	DTW	Notes
Initial	20.2	6.0	1384	77	—	<del>2.3</del> 7.5	29	213	—	
915	19.0	6.0	1354	471	—	2.3	2.4	118	—	
918	19.0	5.9	1340	486	—	<del>2.3</del> 2.4	2.4	55	—	
923	19.0	5.9	1335	511	—	3.9	23	40	—	

Did well dewater? YES <input type="radio"/> NO <input checked="" type="radio"/>		Total volume removed: <u>4</u> (gal / L)	
Sample method: Disp Bailer <input type="checkbox"/> Ded. Tubing <input type="checkbox"/> New Tubing <input type="checkbox"/> Ext. Port <input type="checkbox"/> Other: <u>Tubing</u>			
Sample date: 9/25/08	Sample time: <u>925</u>	DTW at sample: <u>23.96</u>	
Sample ID: MW1	Lab: Kiff	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:	
Fe <sup>2+</sup> :	Pre-purge ORP:	Post purge ORP:	
NAPL depth:	Volume of NAPL:	Volume removed:	ml



## Purging And Sampling Data Sheet

<b>Job#:</b> M1-080925	<b>Sampler:</b> B Myers	<b>Client:</b> LRM
<b>Well ID:</b> MW-2	<b>Date:</b> 9/25/2008	<b>Site:</b> Former Strough Chevy, Oakland
<b>Well diam:</b> 1/4" 1" <u>2"</u> 3" 4" 6" Other:	<b>DTW:</b> 23.30 <b>Total Depth:</b> 31.74	
<b>Purge equip:</b> ES - diam: Bladder <u>Perj</u> Waterra Positive Air Displacement Ext. System		
<u>disp bailer</u> teflon bailer other: <b>Tubing:</b> OD: New Dedicated NA		
<b>Purge method:</b> 3-5 Case Volume <u>Micro/Low-Flow</u> Extraction Other:		
<b>Pump depth/ intake:</b>	<b>Multipliers:</b> 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius <sup>2</sup> X 0.163	
(TD - DTW X Multiplier = 1 Volume)		80% Recovery (TD - DTW X 0.20 + DTW)

1 Volume = 1.4 X 3 = 4.2 (Total Purge) 80% = 24.99

Time	Temp (°C/°F)	pH	Cond (mS / <u>µS</u> )	Turbidity (NTU)	Purge Rate (gal or mL / min)	Volume Removed (gal / L)	DO (mg/l)	ORP	DTW	Notes
1141	19.3	6.1	777	31	—	Initial	1.0	-146	—	
1144	19.0	6.1	882	27	—	1.5	1.1	-138	—	
1148	18.6	6.1	825	27	—	3	1.3	-135	—	
1152	18.7	6.1	833	25	—	4.5	1.2	-136	—	

Did well dewater? YES <input type="radio"/> <u>NO</u> <input checked="" type="radio"/>		Total volume removed: <u>4.5</u> (gal / L)	
Sample method: <u>Disp Bailer</u> Ded. Tubing New Tubing Ext. Port Other:			
Sample date: 9/25/08	Sample time: <u>1155</u>	DTW at sample: <u>23.67</u>	
Sample ID: <u>MW-2</u>	Lab: Kiff	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:	
Fe <sup>2+</sup> :	Pre-purge ORP:	Post purge ORP:	
NAPL depth:	Volume of NAPL:	Volume removed:	ml



## Purging And Sampling Data Sheet

<b>Job#:</b> M1-080925	<b>Sampler:</b> B Myers	<b>Client:</b> LRM
<b>Well ID:</b> <i>Mw-3</i>	<b>Date:</b> 9/25/2008	<b>Site:</b> Former Strough Chevy, Oakland
<b>Well diam:</b> 1/4" 1" <u>2"</u> 3" 4" 6" Other:	<b>DTW:</b> <i>23.30</i> <b>Total Depth:</b> <i>31.88</i>	
<b>Purge equip:</b> ES - diam: Bladder <del>Pen</del> Waterra Positive Air Displacement Ext. System <u>disp bailer</u> teflon bailer other: <b>Tubing:</b> OD: New Dedicated NA		
<b>Purge method:</b> 3-5 Case Volume <u>Micro/Low-Flow</u> Extraction Other:		
<b>Pump depth/ intake:</b>	<b>Multipliers:</b> 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius <sup>2</sup> X 0.163	
(TD - DTW X Multiplier = 1 Volume)		80% Recovery (TD - DTW X 0.20 + DTW)

1 Volume = 1.4 X 3 = 4.2 (Total Purge) 80% = 25.02

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
<i>1001</i>	<i>18.5</i>	<i>6.0</i>	<i>953</i>	<i>7100</i>	—	<i>Actual</i>	<i>0.8</i>	<i>-176</i>	—	
<i>1005</i>	<i>18.3</i>	<i>6.0</i>	<i>911</i>	<i>63</i>	—	<i>1.4</i>	<i>1.1</i>	<i>-166</i>	—	
<i>1008</i>	<i>18.2</i>	<i>6.0</i>	<i>900</i>	<i>59</i>	—	<i>2.8</i>	<i>1.4</i>	<i>-146</i>	—	
<i>1011</i>	<i>18.1</i>	<i>6.0</i>	<i>900</i>	<i>57</i>	—	<i>4.2</i>	<i>1.5</i>	<i>-139</i>	—	

Did well dewater? YES <u>NO</u>		Total volume removed: <i>4.5</i> (gal/L)	
Sample method: <u>Disp Bailer</u> Ded. Tubing New Tubing Ext. Port Other:			
Sample date: 9/25/08	Sample time: <i>1015</i>	DTW at sample: <i>23.56</i>	
Sample ID: <i>Mw-3</i>	Lab: Kiff	Number of bottles: <i>5</i>	
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 <sup>2+</sup> :	Pre-purge ORP:	Post purge ORP:	
NAPL depth:	Volume of NAPL:	Volume removed:	ml



## Purging And Sampling Data Sheet

Job#: M1-080925	Sampler: B Myers	Client: LRM
Well ID: <i>MW4</i>	Date: 9/25/2008	Site: Former Strough Chevy, Oakland
Well diam: 1/4" 1" <u>2"</u> 3" <del>4"</del> 6" Other:	DTW: <u>22.03</u> Total Depth: <u>2754</u>	
Purge equip: ES - diam: Bladder <del>Port</del> Waterra Positive Air Displacement Ext. System disp bailer teflon bailer other:	Tubing: OD: <u>5/8</u> New <u>Dedicated</u> 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 <sup>2</sup> X 0.163	
(TD - DTW X Multiplier = 1 Volume		80% Recovery (TD - DTW X 0.20 + DTW)

1 Volume = 0.9 X 3 = 2.7 (Total Purge)

80% = 23.13

Time	Temp (°C °F)	pH	Cond (ms $\mu$ S)	Turbidity (NTU)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	DO (mg/l)	ORP	DTW	Notes
932	19.2	6.1	876	71	—	<i>Initial</i>	2.2	-103	—	
934	19.0	6.0	760	>1000	—	0.9	1.8	-119	—	
935	18.8	6.0	770	>1000	—	1.8	1.7	-134	—	
937	19.0	6.0	788	>1000	—	2.7	1.7	-128	—	

Did well dewater? YES <input checked="" type="radio"/> NO <input type="radio"/>	Total volume removed: <u>3</u> (gal / L)
Sample method: Disp Bailer Ded. Tubing New Tubing Ext. Port Other: <u>Tubing</u>	
Sample date: 9/25/08	Sample time: <u>940</u> DTW at sample: <u>22.80</u>
Sample ID: <i>MW4</i>	Lab: Kiff 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:
Fe <sup>2+</sup> :	Pre-purge ORP: Post purge ORP:
NAPL depth:	Volume of NAPL: Volume removed: ml



## Purging And Sampling Data Sheet

Job#: M1-080925	Sampler: B Myers	Client: LRM
Well ID: <i>MW5</i>	Date: 9/25/2008	Site: Former Strough Chevy, Oakland
Well diam: 1/4" 1" <u>2"</u> 3" 4" 6" Other:	DTW: <i>7500</i> Total Depth: <i>26.40</i>	
Purge equip: ES - diam: Bladder <input checked="" type="checkbox"/> <u>Xeri</u> Waterra Positive Air Displacement Ext. System		
<input checked="" type="checkbox"/> disp bailer teflon bailer other: Tubing: OD: New Dedicated NA		
Purge method: 3-5 Case Volume <input checked="" type="checkbox"/> <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 <sup>2</sup> X 0.163	
(TD - DTW X Multiplier = 1 Volume		80% Recovery (TD - DTW X 0.20 + DTW)

1 Volume = 0.2 X 3 = 0.5 (Total Purge)

80% = 75.28

Time	Temp (C/F)	pH	Cond (mS <u>µS</u> )	Turbidity (NTU)	Purge Rate (gal or mL / min)	Volume Removed (gal / L)	DO (mg/l)	ORP	DTW	Notes
1025	18.2	5.5	574	43	-	<i>Initial</i>	2.3	-51	-	
1027	18.1	5.5	583	71000	-	0.2	2.3	-52	-	
1028	18.0	5.5	599	71000	-	0.4	2.3	-51	-	
1029	18.0	5.5	607	71000	-	0.5	2.2	-52	-	

Did well dewater? YES <input checked="" type="checkbox"/> <u>NO</u>		Total volume removed: <u>0.5</u> (gal / L)	
Sample method: <input checked="" type="checkbox"/> <u>Disp Bailer</u> Ded. Tubing New Tubing Ext. Port Other:			
Sample date: 9/25/08	Sample time: <u>1035</u>	DTW at sample: <u>75.12</u>	
Sample ID: <u>MW5</u>	Lab: Kiff	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 <sup>+</sup> :	Pre-purge ORP:	Post purge ORP:	
NAPL depth:	Volume of NAPL:	Volume removed:	ml



## Purging And Sampling Data Sheet

Job#: M1-080925	Sampler: B Myers	Client: LRM
Well ID: <u>MW6</u>	Date: 9/25/2008	Site: Former Strough Chevy, Oakland
Well diam: 1/4" 1" <u>2"</u> 3" 4" 6" Other: <u>X</u>	DTW: <u>18.02</u> Total Depth: <u>26.55</u>	
Purge equip: ES - diam: Bladder <u>Perf</u> Waterra Positive Air Displacement Ext. System disp bailer teflon bailer other: <u>X</u> Tubing: QD: <u>90</u> New <u>Dedicated</u> 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 <sup>2</sup> X 0.163	
(TD - DTW X Multiplier = 1 Volume)		80% Recovery (TD - DTW X 0.20 + DTW)

1 Volume = 1.2 X 3 = 3.5 (Total Purge) 80% = 20.37

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
1106	20.2	6.1	770	37	—	<u>Initial</u>	0.8	-160	—	
1108	19.0	6.2	712	123	—	1.2	1.2	-156	—	
1110	19.5	6.2	742	137	—	2.4	1.5	-141	—	
1112	19.7	6.2	757	148	—	3.5	1.6	-135	—	

Did well dewater? YES <u>NO</u>		Total volume removed: <u>3.5</u> (gal / L)	
Sample method: Disp Bailer Ded. Tubing New Tubing Ext. Port Other: <u>Tubing</u>			
Sample date: 9/25/08	Sample time: <u>1115</u>	DTW at sample: <u>19.11</u>	
Sample ID: <u>MW6</u>	Lab: Kiff	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:	
Fe <sup>2+</sup> :	Pre-purge ORP:	Post purge ORP:	
NAPL depth:	Volume of NAPL:	Volume removed:	ml

## Purging And Sampling Data Sheet

Job#: M1-080925	Sampler: B Myers	Client: LRM
Well ID: <u>MW-7</u>	Date: 9/25/2008	Site: Former Strough Chevy, Oakland
Well diam: 1/4" 1" <u>2"</u> 3" 4" 6" Other:	DTW: <u>17.07</u> Total Depth: <u>34.50</u>	
Purge equip: ES - diam: Bladder <u>Part</u> Waterra Positive Air Displacement Ext. System disp baller teflon baller other:	Tubing: OD: <u>3/8</u> New <u>Dedicated</u> 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 <sup>2</sup> X 0.163	
(TD - DTW X Multiplier = 1 Volume)		80% Recovery (TD - DTW X 0.20 + DTW)

1 Volume = 2.8 X 3 = 8.5 (Total Purge) 80% = 20.57

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
1044	21.1	6.2	814	71000	—	Initial	1.3	-151	—	
1047	20.1	6.3	790	54	—	2.8	1.3	-183	—	
1050	19.8	6.3	782	51	—	5.4	1.5	-186	—	
1054	19.9	6.3	779	50	—	8.5	1.5	-186	—	

Did well dewater? YES <u>NO</u>		Total volume removed: <u>8.5</u> (gal / L)	
Sample method: Disp Bailer Ded. Tubing New Tubing Ext. Port Other: <u>Tubing</u>			
Sample date: 9/25/08	Sample time: <u>1055</u>	DTW at sample: <u>17.34</u>	
Sample ID: <u>MW-7</u>	Lab: Kiff	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 <sup>+</sup> :		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 : 65047

Date : 10/03/2008

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

Subject : 8 Water Samples  
Project Name : Former Strough Chevy - Oakland  
Project Number : M1-080925

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 : 65047

Date : 10/03/2008

Subject : 8 Water Samples  
Project Name : Former Strough Chevy - Oakland  
Project Number : M1-080925

## Case Narrative

Matrix Spike/Matrix Spike Duplicate results associated with samples MW-2 and MW-3 for the analyte Tert-Butanol were affected by the analyte concentrations already present in the un-spiked sample.

Matrix Spike/Matrix Spike Duplicate results associated with sample MW-4 for the analyte Methyl-t-butyl ether were affected by the analyte concentrations already present in the un-spiked sample.



Report Number : 65047

Date : 10/03/2008

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

Project Number : **M1-080925**

Sample : **MW-1**

Matrix : Water

Lab Number : 65047-01

Sample Date :09/25/2008

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	< 0.50	0.50	ug/L	EPA 8260B	10/02/2008
<b>Toluene</b>	< 0.50	0.50	ug/L	EPA 8260B	10/02/2008
<b>Ethylbenzene</b>	< 0.50	0.50	ug/L	EPA 8260B	10/02/2008
<b>Total Xylenes</b>	< 0.50	0.50	ug/L	EPA 8260B	10/02/2008
<b>Methyl-t-butyl ether (MTBE)</b>	<b>0.57</b>	0.50	ug/L	EPA 8260B	10/02/2008
<b>Tert-Butanol</b>	< 5.0	5.0	ug/L	EPA 8260B	10/02/2008
<b>TPH as Gasoline</b>	< 50	50	ug/L	EPA 8260B	10/02/2008
1,2-Dichloroethane-d4 (Surr)	98.9		% Recovery	EPA 8260B	10/02/2008
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	10/02/2008
<b>TPH as Diesel (w/ Silica Gel)</b>	< 50	50	ug/L	M EPA 8015	10/02/2008
<b>TPH as Motor Oil (w/ Silica Gel)</b>	< 100	100	ug/L	M EPA 8015	10/02/2008
Octacosane (Silica Gel Surr)	107		% Recovery	M EPA 8015	10/02/2008



Report Number : 65047

Date : 10/03/2008

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

Project Number : **M1-080925**

Sample : **MW-2**

Matrix : Water

Lab Number : 65047-02

Sample Date :09/25/2008

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	<b>740</b>	25	ug/L	EPA 8260B	10/01/2008
<b>Toluene</b>	<b>3500</b>	25	ug/L	EPA 8260B	10/01/2008
<b>Ethylbenzene</b>	<b>1700</b>	25	ug/L	EPA 8260B	10/01/2008
<b>Total Xylenes</b>	<b>10000</b>	25	ug/L	EPA 8260B	10/01/2008
<b>Methyl-t-butyl ether (MTBE)</b>	<b>340</b>	25	ug/L	EPA 8260B	10/01/2008
<b>Tert-Butanol</b>	<b>180</b>	150	ug/L	EPA 8260B	10/01/2008
<b>TPH as Gasoline</b>	<b>46000</b>	2500	ug/L	EPA 8260B	10/01/2008
1,2-Dichloroethane-d4 (Surr)	99.0		% Recovery	EPA 8260B	10/01/2008
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	10/01/2008
<b>TPH as Diesel (w/ Silica Gel)</b>	<b>&lt; 8000</b>	8000	ug/L	M EPA 8015	10/02/2008
(Note: MRL increased due to interference from Gasoline-range hydrocarbons.)					
<b>TPH as Motor Oil (w/ Silica Gel)</b>	<b>170</b>	100	ug/L	M EPA 8015	10/02/2008
Octacosane (Silica Gel Surr)	117		% Recovery	M EPA 8015	10/02/2008

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

Project Number : **M1-080925**

Sample : **MW-3**

Matrix : Water

Lab Number : 65047-03

Sample Date :09/25/2008

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	<b>1600</b>	25	ug/L	EPA 8260B	10/01/2008
<b>Toluene</b>	<b>3700</b>	25	ug/L	EPA 8260B	10/01/2008
<b>Ethylbenzene</b>	<b>700</b>	25	ug/L	EPA 8260B	10/01/2008
<b>Total Xylenes</b>	<b>3300</b>	25	ug/L	EPA 8260B	10/01/2008
<b>Methyl-t-butyl ether (MTBE)</b>	<b>220</b>	25	ug/L	EPA 8260B	10/01/2008
<b>Tert-Butanol</b>	<b>180</b>	150	ug/L	EPA 8260B	10/01/2008
<b>TPH as Gasoline</b>	<b>22000</b>	2500	ug/L	EPA 8260B	10/01/2008
1,2-Dichloroethane-d4 (Surr)	97.6		% Recovery	EPA 8260B	10/01/2008
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	10/01/2008
<b>TPH as Diesel (w/ Silica Gel)</b>	<b>&lt; 3000</b>	3000	ug/L	M EPA 8015	10/02/2008
(Note: MRL increased due to interference from Gasoline-range hydrocarbons.)					
<b>TPH as Motor Oil (w/ Silica Gel)</b>	<b>&lt; 100</b>	100	ug/L	M EPA 8015	10/02/2008
Octacosane (Silica Gel Surr)	114		% Recovery	M EPA 8015	10/02/2008



Report Number : 65047

Date : 10/03/2008

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

Project Number : **M1-080925**

Sample : **MW-4**

Matrix : Water

Lab Number : 65047-04

Sample Date :09/25/2008

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
<b>Toluene</b>	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
<b>Ethylbenzene</b>	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
<b>Total Xylenes</b>	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
<b>Methyl-t-butyl ether (MTBE)</b>	<b>380</b>	0.50	ug/L	EPA 8260B	10/01/2008
<b>Tert-Butanol</b>	< 5.0	5.0	ug/L	EPA 8260B	10/01/2008
<b>TPH as Gasoline</b>	< 50	50	ug/L	EPA 8260B	10/01/2008
1,2-Dichloroethane-d4 (Surr)	96.0		% Recovery	EPA 8260B	10/01/2008
Toluene - d8 (Surr)	99.7		% Recovery	EPA 8260B	10/01/2008
<b>TPH as Diesel (w/ Silica Gel)</b>	< 50	50	ug/L	M EPA 8015	10/02/2008
<b>TPH as Motor Oil (w/ Silica Gel)</b>	< 100	100	ug/L	M EPA 8015	10/02/2008
Octacosane (Silica Gel Surr)	116		% Recovery	M EPA 8015	10/02/2008



Report Number : 65047

Date : 10/03/2008

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

Project Number : **M1-080925**

Sample : **MW-5**

Matrix : Water

Lab Number : 65047-05

Sample Date :09/25/2008

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	< 0.50	0.50	ug/L	EPA 8260B	10/02/2008
<b>Toluene</b>	< 0.50	0.50	ug/L	EPA 8260B	10/02/2008
<b>Ethylbenzene</b>	< 0.50	0.50	ug/L	EPA 8260B	10/02/2008
<b>Total Xylenes</b>	< 0.50	0.50	ug/L	EPA 8260B	10/02/2008
<b>Methyl-t-butyl ether (MTBE)</b>	<b>0.66</b>	0.50	ug/L	EPA 8260B	10/02/2008
<b>Tert-Butanol</b>	< 5.0	5.0	ug/L	EPA 8260B	10/02/2008
<b>TPH as Gasoline</b>	< 50	50	ug/L	EPA 8260B	10/02/2008
1,2-Dichloroethane-d4 (Surr)	100		% Recovery	EPA 8260B	10/02/2008
Toluene - d8 (Surr)	99.3		% Recovery	EPA 8260B	10/02/2008
<b>TPH as Diesel (w/ Silica Gel)</b>	< 50	50	ug/L	M EPA 8015	10/02/2008
<b>TPH as Motor Oil (w/ Silica Gel)</b>	< 100	100	ug/L	M EPA 8015	10/02/2008
Octacosane (Silica Gel Surr)	102		% Recovery	M EPA 8015	10/02/2008



Report Number : 65047

Date : 10/03/2008

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

Project Number : **M1-080925**

Sample : **MW-6**

Matrix : Water

Lab Number : 65047-06

Sample Date :09/25/2008

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
<b>Toluene</b>	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
<b>Ethylbenzene</b>	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
<b>Total Xylenes</b>	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
<b>Methyl-t-butyl ether (MTBE)</b>	<b>78</b>	0.50	ug/L	EPA 8260B	10/01/2008
<b>Tert-Butanol</b>	< 5.0	5.0	ug/L	EPA 8260B	10/01/2008
<b>TPH as Gasoline</b>	< 50	50	ug/L	EPA 8260B	10/01/2008
1,2-Dichloroethane-d4 (Surr)	98.9		% Recovery	EPA 8260B	10/01/2008
Toluene - d8 (Surr)	98.2		% Recovery	EPA 8260B	10/01/2008
<b>TPH as Diesel (w/ Silica Gel)</b>	< 50	50	ug/L	M EPA 8015	10/02/2008
<b>TPH as Motor Oil (w/ Silica Gel)</b>	< 100	100	ug/L	M EPA 8015	10/02/2008
Octacosane (Silica Gel Surr)	85.4		% Recovery	M EPA 8015	10/02/2008





Report Number : 65047

Date : 10/03/2008

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

Project Number : **M1-080925**

Sample : **MW-7**

Matrix : Water

Lab Number : 65047-07

Sample Date :09/25/2008

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
<b>Toluene</b>	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
<b>Ethylbenzene</b>	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
<b>Total Xylenes</b>	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
<b>Methyl-t-butyl ether (MTBE)</b>	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
<b>Tert-Butanol</b>	< 5.0	5.0	ug/L	EPA 8260B	10/01/2008
<b>TPH as Gasoline</b>	< 50	50	ug/L	EPA 8260B	10/01/2008
1,2-Dichloroethane-d4 (Surr)	99.8		% Recovery	EPA 8260B	10/01/2008
Toluene - d8 (Surr)	95.8		% Recovery	EPA 8260B	10/01/2008
<b>TPH as Diesel (w/ Silica Gel)</b>	< 50	50	ug/L	M EPA 8015	10/02/2008
<b>TPH as Motor Oil (w/ Silica Gel)</b>	< 100	100	ug/L	M EPA 8015	10/02/2008
Octacosane (Silica Gel Surr)	92.1		% Recovery	M EPA 8015	10/02/2008

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

Project Number : **M1-080925**

Sample : **TB**

Matrix : Water

Lab Number : 65047-08

Sample Date :09/25/2008

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	< 0.50	0.50	ug/L	EPA 8260B	09/30/2008
<b>Toluene</b>	< 0.50	0.50	ug/L	EPA 8260B	09/30/2008
<b>Ethylbenzene</b>	< 0.50	0.50	ug/L	EPA 8260B	09/30/2008
<b>Total Xylenes</b>	< 0.50	0.50	ug/L	EPA 8260B	09/30/2008
<b>Methyl-t-butyl ether (MTBE)</b>	< 0.50	0.50	ug/L	EPA 8260B	09/30/2008
<b>Tert-Butanol</b>	< 5.0	5.0	ug/L	EPA 8260B	09/30/2008
<b>TPH as Gasoline</b>	< 50	50	ug/L	EPA 8260B	09/30/2008
1,2-Dichloroethane-d4 (Surr)	103		% Recovery	EPA 8260B	09/30/2008
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	09/30/2008
<b>TPH as Diesel (w/ Silica Gel)</b>	< 50	50	ug/L	M EPA 8015	10/02/2008
<b>TPH as Motor Oil (w/ Silica Gel)</b>	< 100	100	ug/L	M EPA 8015	10/02/2008
Octacosane (Silica Gel Surr)	102		% Recovery	M EPA 8015	10/02/2008

Report Number : 65047

Date : 10/03/2008

**QC Report : Method Blank Data**

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

Project Number : **M1-080925**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
TPH as Diesel (w/ Silica Gel)	< 50	50	ug/L	M EPA 8015	10/01/2008
TPH as Motor Oil (w/ Silica Gel)	< 100	100	ug/L	M EPA 8015	10/01/2008
Octacosane (Silica Gel Surr)	105		%	M EPA 8015	10/01/2008
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/30/2008
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/30/2008
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/30/2008
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/30/2008
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/30/2008
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	09/30/2008
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/30/2008
1,2-Dichloroethane-d4 (Surr)	95.4		%	EPA 8260B	09/30/2008
Toluene - d8 (Surr)	91.6		%	EPA 8260B	09/30/2008
Benzene	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
Toluene	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	10/01/2008
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	10/01/2008
1,2-Dichloroethane-d4 (Surr)	99.6		%	EPA 8260B	10/01/2008
Toluene - d8 (Surr)	101		%	EPA 8260B	10/01/2008

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	10/02/2008
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	10/02/2008
Toluene	< 0.50	0.50	ug/L	EPA 8260B	10/02/2008
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	10/02/2008
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	10/02/2008
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	10/02/2008
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	10/02/2008
1,2-Dichloroethane-d4 (Surr)	98.1		%	EPA 8260B	10/02/2008
Toluene - d8 (Surr)	100		%	EPA 8260B	10/02/2008
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/30/2008
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/30/2008
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/30/2008
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/30/2008
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/30/2008
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	09/30/2008
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/30/2008
1,2-Dichloroethane-d4 (Surr)	98.2		%	EPA 8260B	09/30/2008
Toluene - d8 (Surr)	98.4		%	EPA 8260B	09/30/2008
Benzene	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
Toluene	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	10/01/2008
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	10/01/2008
1,2-Dichloroethane-d4 (Surr)	100		%	EPA 8260B	10/01/2008
Toluene - d8 (Surr)	99.4		%	EPA 8260B	10/01/2008

KIFF ANALYTICAL, LLC

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

Report Number : 65047

Date : 10/03/2008

**QC Report : Method Blank Data**

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

Project Number : **M1-080925**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	10/02/2008
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	10/02/2008
Toluene	< 0.50	0.50	ug/L	EPA 8260B	10/02/2008
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	10/02/2008
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	10/02/2008
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	10/02/2008
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	10/02/2008
1,2-Dichloroethane-d4 (Surr)	101		%	EPA 8260B	10/02/2008
Toluene - d8 (Surr)	99.2		%	EPA 8260B	10/02/2008
Benzene	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
Toluene	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	10/01/2008
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	10/01/2008
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	10/01/2008
1,2-Dichloroethane-d4 (Surr)	101		%	EPA 8260B	10/01/2008
Toluene - d8 (Surr)	97.4		%	EPA 8260B	10/01/2008

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
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**QC Report : Matrix Spike/ Matrix Spike Duplicate**Project Name : **Former Strough Chevy - Oakland**Project Number : **M1-080925**

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	1070	1130	ug/L	M EPA 8015	10/1/08	107	113	5.34	70-130	25
Benzene	65008-02	<0.50	40.1	40.1	41.0	40.5	ug/L	EPA 8260B	9/30/08	102	101	1.39	70-130	25
Methyl-t-butyl ether	65008-02	3.5	40.1	40.1	43.0	42.8	ug/L	EPA 8260B	9/30/08	98.5	98.0	0.485	70-130	25
Tert-Butanol	65008-02	570	200	200	860	843	ug/L	EPA 8260B	9/30/08	143	135	6.03	70-130	25
Toluene	65008-02	<0.50	39.5	39.5	41.2	40.4	ug/L	EPA 8260B	9/30/08	104	102	1.99	70-130	25
Benzene	65047-04	<0.50	40.1	40.1	43.5	39.7	ug/L	EPA 8260B	10/1/08	108	99.0	8.96	70-130	25
Methyl-t-butyl ether	65047-04	380	39.6	39.6	430	397	ug/L	EPA 8260B	10/1/08	127	46.5	93.0	70-130	25
Tert-Butanol	65047-04	<5.0	200	200	218	202	ug/L	EPA 8260B	10/1/08	109	101	7.70	70-130	25
Toluene	65047-04	<0.50	39.5	39.5	41.5	38.3	ug/L	EPA 8260B	10/1/08	105	96.8	8.05	70-130	25
Benzene	65084-04	<0.50	40.1	40.1	42.2	40.7	ug/L	EPA 8260B	10/2/08	105	101	3.67	70-130	25
Methyl-t-butyl ether	65084-04	0.71	39.6	39.6	37.6	37.6	ug/L	EPA 8260B	10/2/08	93.3	93.2	0.120	70-130	25
Tert-Butanol	65084-04	<5.0	200	200	208	213	ug/L	EPA 8260B	10/2/08	104	106	2.15	70-130	25
Toluene	65084-04	<0.50	39.5	39.5	40.4	38.8	ug/L	EPA 8260B	10/2/08	102	98.2	4.11	70-130	25
Benzene	65037-02	9.2	40.1	40.1	51.3	51.6	ug/L	EPA 8260B	9/30/08	105	106	0.613	70-130	25
Methyl-t-butyl ether	65037-02	0.57	39.6	39.6	39.7	39.0	ug/L	EPA 8260B	9/30/08	98.8	97.2	1.62	70-130	25
Tert-Butanol	65037-02	<5.0	200	200	205	206	ug/L	EPA 8260B	9/30/08	102	103	0.488	70-130	25
Toluene	65037-02	<0.50	39.5	39.5	39.2	38.9	ug/L	EPA 8260B	9/30/08	99.2	98.4	0.836	70-130	25

**QC Report : Matrix Spike/ Matrix Spike Duplicate**Project Name : **Former Strough Chevy - Oakland**Project Number : **M1-080925**

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
Benzene	65047-06	<0.50	40.1	40.1	41.0	40.7	ug/L	EPA 8260B	10/1/08	102	101	0.686	70-130	25
Methyl-t-butyl ether	65047-06	78	39.6	39.6	119	119	ug/L	EPA 8260B	10/1/08	105	104	0.746	70-130	25
Tert-Butanol	65047-06	<5.0	200	200	206	207	ug/L	EPA 8260B	10/1/08	103	104	0.661	70-130	25
Toluene	65047-06	<0.50	39.5	39.5	40.0	39.9	ug/L	EPA 8260B	10/1/08	101	101	0.337	70-130	25
Benzene	65060-07	<0.50	40.1	40.1	37.8	36.4	ug/L	EPA 8260B	10/2/08	94.1	90.6	3.81	70-130	25
Methyl-t-butyl ether	65060-07	<0.50	39.6	39.6	45.2	44.6	ug/L	EPA 8260B	10/2/08	114	112	1.46	70-130	25
Tert-Butanol	65060-07	<5.0	200	200	192	187	ug/L	EPA 8260B	10/2/08	95.7	93.3	2.56	70-130	25
Toluene	65060-07	<0.50	39.5	39.5	37.5	36.0	ug/L	EPA 8260B	10/2/08	94.8	91.1	3.89	70-130	25
Benzene	65047-07	<0.50	40.1	40.1	38.8	38.3	ug/L	EPA 8260B	10/1/08	96.7	95.5	1.22	70-130	25
Methyl-t-butyl ether	65047-07	<0.50	39.6	39.6	35.7	35.5	ug/L	EPA 8260B	10/1/08	90.2	89.7	0.561	70-130	25
Tert-Butanol	65047-07	<5.0	200	200	195	194	ug/L	EPA 8260B	10/1/08	97.4	96.8	0.510	70-130	25
Toluene	65047-07	<0.50	39.5	39.5	38.1	37.8	ug/L	EPA 8260B	10/1/08	96.3	95.6	0.795	70-130	25

**QC Report : Laboratory Control Sample (LCS)**Project Name : **Former Strough Chevy - Oakland**Project Number : **M1-080925**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	40.1	ug/L	EPA 8260B	9/30/08	102	70-130
Methyl-t-butyl ether	40.1	ug/L	EPA 8260B	9/30/08	103	70-130
Tert-Butanol	200	ug/L	EPA 8260B	9/30/08	105	70-130
Toluene	39.5	ug/L	EPA 8260B	9/30/08	103	70-130
Benzene	40.0	ug/L	EPA 8260B	10/1/08	110	70-130
Methyl-t-butyl ether	39.6	ug/L	EPA 8260B	10/1/08	96.5	70-130
Tert-Butanol	200	ug/L	EPA 8260B	10/1/08	109	70-130
Toluene	40.0	ug/L	EPA 8260B	10/1/08	108	70-130
Benzene	39.8	ug/L	EPA 8260B	10/2/08	105	70-130
Methyl-t-butyl ether	39.4	ug/L	EPA 8260B	10/2/08	92.4	70-130
Tert-Butanol	199	ug/L	EPA 8260B	10/2/08	109	70-130
Toluene	39.8	ug/L	EPA 8260B	10/2/08	103	70-130
Benzene	40.0	ug/L	EPA 8260B	9/30/08	101	70-130
Methyl-t-butyl ether	40.0	ug/L	EPA 8260B	9/30/08	104	70-130
Tert-Butanol	199	ug/L	EPA 8260B	9/30/08	103	70-130
Toluene	39.4	ug/L	EPA 8260B	9/30/08	103	70-130
Benzene	40.0	ug/L	EPA 8260B	10/1/08	98.0	70-130

**QC Report : Laboratory Control Sample (LCS)**Project Name : **Former Strough Chevy - Oakland**Project Number : **M1-080925**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Methyl-t-butyl ether	39.5	ug/L	EPA 8260B	10/1/08	99.7	70-130
Tert-Butanol	200	ug/L	EPA 8260B	10/1/08	99.4	70-130
Toluene	39.4	ug/L	EPA 8260B	10/1/08	98.5	70-130
Benzene	39.9	ug/L	EPA 8260B	10/2/08	97.0	70-130
Methyl-t-butyl ether	39.5	ug/L	EPA 8260B	10/2/08	111	70-130
Tert-Butanol	200	ug/L	EPA 8260B	10/2/08	98.9	70-130
Toluene	39.9	ug/L	EPA 8260B	10/2/08	97.7	70-130
Benzene	40.1	ug/L	EPA 8260B	10/1/08	96.1	70-130
Methyl-t-butyl ether	39.6	ug/L	EPA 8260B	10/1/08	89.2	70-130
Tert-Butanol	200	ug/L	EPA 8260B	10/1/08	96.9	70-130
Toluene	39.5	ug/L	EPA 8260B	10/1/08	96.2	70-130





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 65047

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

**Job Number:** 41-080925

**TAT:** STANDARD 5 DAY 2 DAY 24 HOUR OTHER:

Lab: <b>Kiff</b>	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: <u>Yes</u> No	Confluence Log Code: <b>CESC</b>
Phone/ Fax: 530-297-4800 x.127	Consultant / PM: LRM / Merhdat Javaherian	Report to: Merhdat Javaherian
	Phone / Fax: (415) 706-8935	Invoice to: Merhdat Javaherian

Sample ID	Time	Date	Matrix			Laboratory No.	No. of Containers	Preservative					Requested Analysis				Notes and Comments		
			Soil/Solid	Water/Liquid	Air			Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	TEPH Diesel & Motor Oil* (8015)	TPH-G, BTEX (8260B)	MTBE (8260)	TBA (8260)			
MW-1	925	9/15		X			5						X	X	X				
MW-2	1155			X			5						X	X	X				
MW-3	1015			X			5						X	X	X				
MW-4	940			X			5						X	X	X				
MW-5	1035			X			5						X	X	X				
MW-6	1115			X			5						X	X	X				
MW-7	1055			X			5						X	X	X				
TB	-	-		X			2						X	X	X				

**SAMPLE RECEIPT**  
 Temp °C 27 Therm. ID# FR-7  
 Initial TJB Date 09/24/08  
 Time 0935 Contact present (Yes/No) Yes

01  
02  
03  
04  
05  
06  
07  
08

Sampler's Name: <u>B. Myers</u>	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Confluence Environmental		9/27	200		11/7	0800
Shipment Date:		9/29	935			
Shipment Method:				<u>TJB</u> Kiff Analytical	09/29/08	0935
Special Instructions: <b>*Run TEPH w/ silica gel cleanup</b>						