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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 enclosed report has been prepared by LRM Consulting, Inc. on behalf of the Strough Family Trust. 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.  
534 Plaza Lane, #145, Burlingame, CA 94010

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



**SECOND QUARTER 2012  
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**

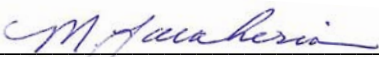
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Mehrdad M. Javaherian

July 2012

## TABLE OF CONTENTS

<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>2</b>
2.1 SITE DESCRIPTION.....	2
2.2 SUMMARY OF PREVIOUS INVESTIGATIONS AND MONITORING ACTIVITIES.....	2
2.3 SUMMARY OF INTERIM REMEDIAL ACTION ACTIVITIES.....	4
<b>3.0 PROTOCOLS FOR GROUNDWATER MONITORING .....</b>	<b>7</b>
3.1 GROUNDWATER GAUGING .....	8
3.2 WELL PURGING.....	8
3.3 GROUNDWATER SAMPLING.....	8
<b>4.0 MONITORING RESULTS .....</b>	<b>9</b>
4.1 SEPARATE-PHASE HYDROCARBON MONITORING.....	9
4.2 GROUNDWATER ELEVATION AND HYDRAULIC GRADIENT .....	9
4.3 GROUNDWATER ANALYTICAL RESULTS.....	9
<b>5.0 PLANNED ACTIVITIES .....</b>	<b>11</b>
5.1 REMEDIATION RELATED ACTIVITIES.....	11
5.2 PLANNED MONITORING ACTIVITIES.....	11
<b>6.0 REFERENCES.....</b>	<b>12</b>

## **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 Figures**

- Figure 1 – Site Location Map
- Figure 2 – Groundwater Elevation Contour Map and Rose Diagram-Second Quarter 2012  
Monitoring Event
- Figure 3 – Groundwater Analytical Data

## **List of Appendices**

- Appendix A – Field Documents
- Appendix B – Laboratory Analytical Reports and Chain-of-Custody Documentation



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## 1.0 INTRODUCTION

At the request of the Strough Family Trust of 1983, LRM Consulting, Inc. (LRM) has prepared this *Second Quarter 2012 Groundwater Monitoring Report* for the former Val Strough Chevrolet located in Oakland, California. This report documents the procedures and findings of the June 4, 2012 groundwater monitoring event reflecting water level and/or quality reporting for eleven onsite 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 eleven site wells (MW1, MW2, MW3, MW4, MW6, MW6, MW7, MW8, MW9A, MW9B, and O1) and sampling from six wells (MW2, MW3, MW4, MW9A, MW9B, and O1). Groundwater monitoring data and well construction details are shown on the figures and presented in the tables. Field data and laboratory 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>	11 (all onsite)
<b>Site ID #:</b>	3035
<b>RO #:</b>	0000134

### 1.2 Site Contacts

<b>Consultant:</b>	Mehrdad M. Javaherian, PE LRM Consulting, Inc. 1534 Plaza Lane, # 145 Burlingame, CA 94010 (415) 706-8935
<b>Regulatory agency:</b>	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. Eleven 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, MW3, and 9A, and have been subject to removal via hand-bailing as they occurred. The available 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. Additional wells more recently installed within this residual source area include MW9A/9B and O1.

**Petroleum Hydrocarbon Distribution in Groundwater:** The highest concentrations of petroleum hydrocarbons have been detected in samples collected from wells MW2, MW3, MW9A/9B, and O1, located immediately downgradient of the former USTs and within the previously defined residual source area. Significantly lower levels of petroleum hydrocarbons have been detected in samples collected from well MW4 and the other site wells located downgradient and outside of the residual source area. 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, MW7, and MW8 (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 MW-2 and MW-3 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 –September 2010. LRM Consulting, Inc. IRAP Activities:** 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 (MW-8) 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.

The investigation activities associated with the IRAP, including installation of an additional monitoring wells MW9A and MW9B, were completed by July 2009. On January 13, 2010, an addendum to the IRAP was prepared by LRM, reflecting a proposed change from iSOC technology originally outlined in the IRAP, due to hydrocarbon concentrations which were determined to be too elevated for treatment via iSOC technology. Specifically, pilot testing of in-situ chemical oxidation (ISCO) technology was proposed for the residual source area instead of iSOC. The IRAP Addendum was approved by the ACHCSA in a letter dated April 22, 2010.

The IRAP pilot testing included three rounds of RegenOx injections from August 15<sup>th</sup> through September 13<sup>th</sup> within a depth interval of 15 to 40 feet below ground surface (bgs), per the approved IRAP. All IRAP activities were reported to the ACHCSA via a Technical Memorandum dated October 6, 2010, with post-injection groundwater monitoring results documented in subsequent groundwater monitoring events. To summarize, over 9,500 gallons of RegenOx was injected into the residual source area via 20 direct-push borings across the three injection events. The table below summarizes the pre- and post-injection groundwater concentrations within the residual source area.



**Pre- and Post-Injection Groundwater Quality Data  
 Former Val Strough Chevrolet Site, Oakland, CA**

Well Number	Date	SPH Thickness (feet)	Concentration (µg/L)					DO (mg/L)	Comment	
			Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g			
MW2	05/28/10	0.00	260	1,100	650	4,700	23,000	2	Pre-injection event	
MW2	08/26/10	0.00	160	980	490	4,200	22,000	16	Sampling following first injection event	
MW2	09/20/10	0.00	52	360	210	1,600	8,800	18	Sampling following third injection event	
MW2	12/22/10	0.00	130	1,100	430	6,000	26,000	1.6	Sampling two months after final (3rd) injection event	
MW2	03/16/11	0.00	430	1700	490	3,700	29,000	3.5	Sampling six months after final (3rd) injection event	
MW3	05/28/10	0.00	1,200	4,600	920	4,800	31,000	2	Pre-injection event	
MW3	08/26/10	sheen	Not Sampled due to Free Product							Sampling following first injection event
MW3	09/20/10	SPH Sheen-Removed	2,700	13,000	2,900	18,000	110,000	11.3	Sampling following third injection event	
MW3	12/22/10	0.20	Not Sampled due to Free Product							Sampling two months after final (3rd) injection event
MW3	03/16/11	0.00	4,000	16,000	2,800	15,000	91,000	4.2	Four weekly SPH bailing events performed from 1/6/11 to 2/6/11. No SPHs detected after 2/6/11. Sampling six months after final (3rd) injection event	
MW9A	05/28/10	0.02	Not Sampled due to Free Product							Pre-injection event
MW9A	08/26/10	0.00	2,600	19,000	3,000	22,000	150,000	10.3	Sampling following first injection event	
MW9A	09/21/10	0.00	1,400	9,600	1,600	12,000	70,000	20.9	Sampling following third injection event	
MW9A	12/22/10	0.00	4,400	17,000	1,900	13,000	83,000	NA	Sampling two months after final (3rd) injection event	
MW9A	03/16/11	0.00	4,900	22,000	2,800	20,000	130,000	1.5	Sampling six months after final (3rd) injection event	
MW9B	05/28/10	0.00	31	75	150	270	2,900	2	Pre-injection event	
MW9B	08/26/10	0.00	13	160	310	2,000	14,000	40	Sampling following first injection event	
MW9B	09/20/10	0.00	6.7	110	140	830	6,200	26.9	Sampling following third injection event	
MW9B	12/22/10	0.00	<0.5	2.6	1.1	9.9	140	5.3	Sampling two months after final (3rd) injection event	
MW9B	03/16/11	0.00	22	39	47	290	3,500	4.5	Sampling six months after final (3rd) injection event	
O1	05/28/10	0.00	610	2,000	1,000	4,200	21,000	1.4	Pre-injection event	
O1	08/26/10	0.00	29	160	59	680	5,000	39	Sampling following first injection event	
O1	09/20/10	0.00	24	140	28	330	2,000	24.7	Sampling following third injection event	
O1	12/22/10	0.00	9.8	35	3.4	30	460	2.3	Sampling two months after final (3rd) injection event	
O1	03/16/11	0.00	200	440	240	850	6,900	2.8	Sampling six months after final (3rd) injection event	

Notes:

Data collected on 5/28/10 represents baseline sampling event and corresponds to 2nd Quarter 2010 groundwater monitoring event  
 Data collected on 8/26/10 represents sampling event following first round of RegenOx injection that was conducted from August 15 to 17, 2010.  
 Data collected on 9/20/10 represents sampling event following the third round of RegenOx injection that was conducted from September 12 to 13, 2010.

As indicated in the above table, the following observations were made in each of the following wells:

- MW2: ISCO injections resulted in a reduction in TPH-g concentrations from 23,000 ug/L to 8,800 ug/L; however, within 2 to six months after the final injection event, the TPH-g concentrations rebounded to pre-injection concentrations.
- MW3: ISCO injections appear to have resulted in induced migration of previously trapped SPHs near this well to flow into this well; hence, sampling of groundwater was limited in this well during ISCO activities. SPHs have been bailed out of this well per ACHCSA request and TPH-g concentrations remain at elevated levels.
- MW9A: ISCO injections resulted in a decline in TPH-g concentration from a pre-injection concentration of 150,000 ug/L to a concentration of 70,000 ug/L. Six

months following the final injection event, the TPH-g concentrations rebounded to pre-injection concentrations.

- MW9B: TPH-g concentrations increased from 2,900 ug/L to 14,000 ug/L following the first injection event (likely due to dissolution of adsorbed hydrocarbons in soils), but declined significantly (to 140 ug/L) during the subsequent injection events. Six months following termination of injection activities, the TPH-g concentration in this well has rebounded to pre-injection levels.
- O1: TPH-g concentrations in this well declined from a pre-injection concentration of 21,000 ug/L to 460 ug/L. Rebounded concentrations (6,900 ug/L) remain significantly below the pre-injection concentration six months after the final injection event.

Based on the ISCO pilot test results, it is evident that ISCO can be an effective technology in reducing hydrocarbon concentrations within the residual source area, including dissolution of concentrated hydrocarbons adsorbed to soils and reductions of dissolved TPH-g concentrations from 150,000 ug/L to 70,000 ug/L in a short period. The pilot test further revealed the ability of this technology to increase dissolved oxygen (DO) levels in injection areas, creating conditions for longer-term, natural biodegradation; however, the post-pilot test results further indicate that a significant hydrocarbon mass, including residual SPHs, remains trapped in the fine-grained soils within the localized residual source area, capable of yielding elevated dissolved concentrations following cessation of ISCO injections.

While SPHs observed during the pilot testing were bailed and remained absent during the two quarterly monitoring events (including the second quarter 2011 monitoring event) following the pilot testing, SPHs remain trapped near existing monitoring wells within the residual source area; this is evidenced by the results of this 4<sup>th</sup> Quarter 2011 monitoring event. Combined, these data suggest that a larger-scale application (i.e., compared to a pilot-scale application applied per the IRAP) of RegenOx is necessary to reduce and maintain lower levels of hydrocarbon impacts in groundwater within the residual source area; however, these applications may be greatly benefited by a broader effort to remove SPHs in advance of the ISCO injections.

To this end and per the ACHCSA's request, LRM prepared a Corrective Action Plan (CAP) which has been approved and finalized following completion of ACHCSA and the public review process. The CAP outlines two preferred remedial alternatives to address groundwater and SPH impacts in the residual source area, with permitted DPE activities to address SPHs initiated on July 2, 2012. Correspondingly, this round of monitoring represents pre-remediation groundwater quality conditions.

### **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 June 4, 2012. The scope of work for the quarterly groundwater monitoring event at the site is listed below.

- Checking all wells for SPHs.
- Gauging the depth to groundwater in all eleven site wells.
- Purging the monitoring wells prior to sampling.
- Collecting and analyzing groundwater samples from select onsite wells (see Table 4).
- 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 eleven 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. Field data forms are presented in Appendix A, indicating the absence of SPHs within the residual source area during this round of monitoring.

### **3.2 Well Purging**

Following well gauging, three well casing volumes of water were purged from wells scheduled to be sampled, and field parameters including temperature, pH, specific conductance, turbidity, dissolved oxygen (DO) and oxidation-reduction potential (ORP) were measured; these data are summarized in Appendix A.

### **3.3 Groundwater Sampling**

After purging, groundwater was sampled at each of the wells scheduled to be sampled 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 B.

## **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 during this round of monitoring.

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

The groundwater elevation contour map (Figure 2) for this monitoring event was constructed based on depth-to-groundwater measurements collected during the current sampling event.

Depth-to-groundwater measurements and calculated groundwater elevations are presented in Table 2.

On June 4, 2012, the depth to groundwater beneath the site ranged from 12.45 (MW8) to 22.30 (MW5) feet bgs (Table 2). Groundwater elevations in the site wells ranged from 42.55 feet msl in MW6 to 45.47 feet in O1 (Figure 2). Using the results from the first quarter 2012 monitoring event, the hydraulic gradient is estimated at an average of 0.022 ft/ft, with a general flow direction away from the residual source area toward the southwest (see Figure 2).

### **4.3 Groundwater Analytical Results**

On June 4, 2012, groundwater samples were collected from wells MW2, MW3, MW4, MW9A, MW9B, and O1, 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.

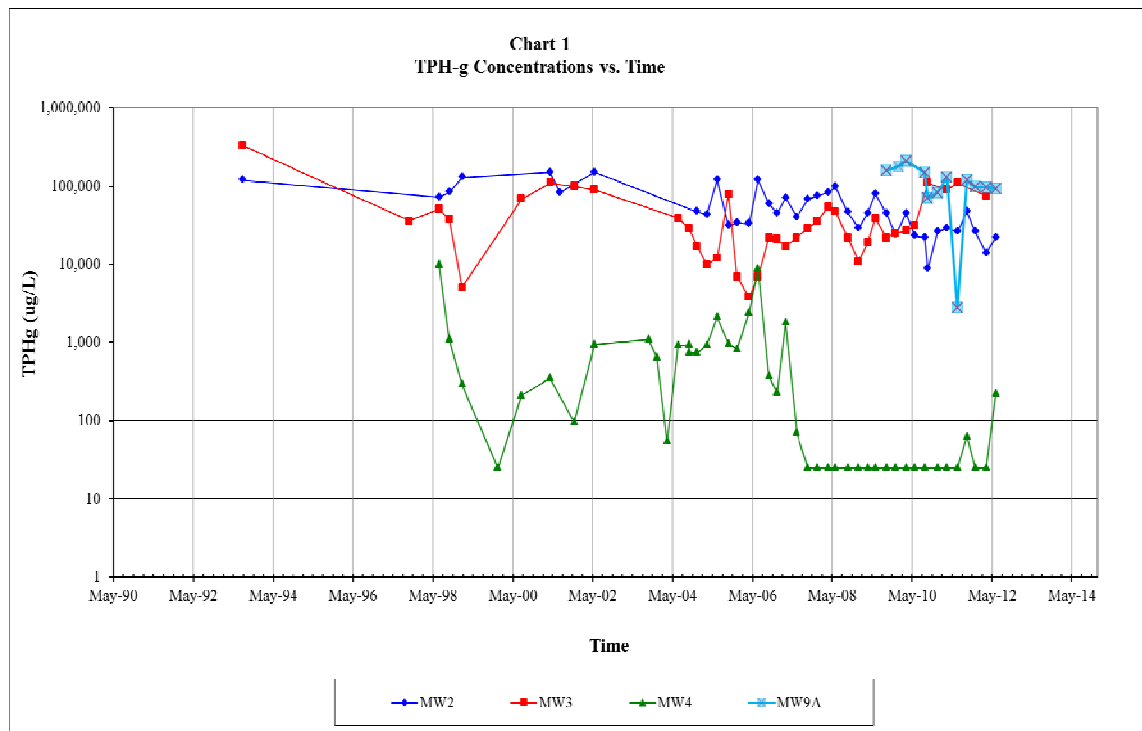
Analytical results for this event are presented on Figure 3, and historical petroleum hydrocarbon analytical results are presented in Table 2. Copies of the chain-of-custody and laboratory analytical reports for the groundwater samples are presented in Appendix B. Laboratory analytical results for petroleum hydrocarbons are summarized below:

- TPH-g was detected in samples collected from wells MW2, MW3, MW4, MW9A, MW9B, and O1. The maximum TPH-g concentration was detected at well MW9A (93,000 µg/L).
- Benzene was detected in the samples collected from wells MW2, MW3, MW4, MW9A, MW9B, and O1. The maximum benzene concentration was detected at well MW9A (3,800 µg/L).
- Toluene was detected at wells MW2, MW3, MW4, MW9A, MW9B, and O1. The maximum toluene concentration was detected at well MW9A (12,000 µg/L).
- Ethylbenzene was detected at wells MW2, MW3, MW4, MW9A, MW9B, and O1. The

maximum ethylbenzene concentration was detected at well MW3 (1,300 µg/L).

- Total xylenes were detected at wells MW2, MW3, MW4, MW9A, MW9B, and O1. The maximum xylenes concentration was detected at MW9A (13,000 µg/L).
- MTBE was detected in the samples from MW2, MW3, MW4, MW9A, MW9B, and O1. The maximum MTBE concentration occurred at well MW9A (860 µg/L).
- TPH-d was not detected in groundwater samples collected from any of the sampled wells this quarter.
- TPH-mo was not detected in groundwater samples collected from any of the sampled wells this quarter.

The above results are generally consistent with past quarters. The chart below depicts TPH-g concentration trends for wells MW2, MW3, and MW9A located within the residual source area, and MW4 located approximately 50 feet downgradient of the residual source area.



As indicated on the chart, the TPH-g concentrations declined in residual source area wells MW2 and MW9A between May 2010 and October 2010 as a result of the IRAP activities involving injection of RegenOx. Following cessation of ISCO injections in October 2010, TPH-g concentrations at both of these source area wells rebounded. As previously

indicated in the IRAP Memorandum (LRM, 2010d), injections near MW3 resulted in the presence of SPHs in this well, so TPHg levels in this well increased due to the presence of product and were not positively affected by the IRAP activities; the SPHs have since been removed by bailing and were not observed in the first and second quarterly monitoring events in 2011 (see Table 2). More recently, the third and fourth quarter monitoring events (see Table 2) in 2011 revealed the presence of SPHs at 0.17 foot and 0.02 foot, respectively at MW3, while the past two quarters did not show the presence of SPHs in existing monitoring wells; however, the elevated TPH-g concentrations in wells MW9A and MW3 continue to indicate that SPHs are present within the residual source area.

Away from the residual source area and no more than 50 feet away from the residual source area wells MW2, MW3, and MW9A, hydrocarbon concentrations in well MW4 remain predominantly at non-detect levels, with sporadic detections at residual levels for the past 4 years. In addition, routine sampling from other onsite downgradient wells (MW5, MW6, MW7, and MW8) have not contained detectable levels of TPH-g or BTEX for at least the past two years, with detections in these wells being limited to low-levels of MTBE (see Table 2).

Combined, these data indicate the presence of a stable plume characterized by a localized hydrocarbon source area (residual source area) embedded within fine-grained soils, with limited potential for migration and insignificant impacts to downgradient portions of the site.

## **5.0 PLANNED ACTIVITIES**

### **5.1 Remediation Related Activities**

The CAP for the site has been approved by the ACHCSA, and implementation of DPE activities were initiated on July 2, 2012. Per the CAP, HVDPE application for removal of SPHs will be followed by ISCO injections within the residual source area. A DPE startup report will be submitted to the ACHCSA approximately one month after DPE startup.

### **5.2 Planned Monitoring Activities**

Quarterly monitoring per the ACHCSA-approved plan will continue, with the next round (Third Quarter 2012) scheduled for September 2012 (Table 4).



## 6.0 REFERENCES

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## **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	7/19/1993	64.71	PVC	32	2	17 to 32	0.020	15 to 32	Gravel Pack
MW2	7/20/1993	65.71	PVC	33	2	18 to 33	0.020	16 to 33	Gravel Pack
MW3	7/20/1993	65.7	PVC	34	2	18 to 34	0.020	16 to 34	Gravel Pack
MW4	6/26/1998	64.37	PVC	31	2	15 to 31	0.020	13 to 31.5	Lonestar #3 Sand
MW5	6/26/1998	65.59	PVC	31	2	15 to 31	0.020	13 to 31.5	Lonestar #3 Sand
MW6	7/17/2000	59.60	PVC	31.5	2	10 to 30	0.020	8 to 30	Lonestar #3 Sand
MW7	7/17/2000	59.49	PVC	36.5	2	15 to 35	0.020	13 to 35	Lonestar #3 Sand
MW8	12/17/2008	57.07	PVC	26	1	11 to 26	0.010	9 to 26	#2/12 Sand
O1	12/12/2008	65.91	PVC	40	2	15 to 40	0.020	13 to 40	#3 Sand
MW9A	7/15/2009	65.90	PVC	25	2	15 to 25	0.020	14 to 25	#3 Monterey Sand
MW9B	7/15/2009	65.85	PVC	39	2	29 to 39	0.020	28 to 39	#3 Monterey sand

Abbreviations:

ft bgs feet below ground surface  
PVC Polyvinyl chloride.

Note:

\* Elevations Based on Survey Conducted in 1st Quarter 2009 relative to NAVD88 datum. Wells O1, MW9A, and MW9B were surveyed on November 12, 2009.

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)									
						Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	TPH-mo	MTBE	TBA	
MW1	07/27/93	100.00	a 20.79	79.21	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	--	--	--	
MW1	10/02/97	100.00	a 21.22	78.78	0.00	<0.50	<0.50	<0.50	<0.50	<50	--	--	<2.0	--	
MW1	06/30/98	100.00	a 18.21	81.79	0.00	<0.50	<0.50	2.1	0.6	84	--	--	2.1	--	
MW1	07/29/98	100.00	a 18.74	81.26	0.00	--	--	--	--	--	--	--	--	--	
MW1	08/26/98	100.00	a 19.28	80.72	0.00	--	--	--	--	--	--	--	--	--	
MW1	10/01/98	100.00	a 19.93	80.07	0.00	<1.0	<1.0	<1.0	<1.0	<50	--	--	<2.0	--	
MW1	10/30/98	100.00	a 20.22	79.78	0.00	--	--	--	--	--	--	--	--	--	
MW1	11/30/98	100.00	a 19.99	80.01	0.00	--	--	--	--	--	--	--	--	--	
MW1	12/28/98	100.00	a 19.81	80.19	0.00	--	--	--	--	--	--	--	--	--	
MW1	01/25/99	100.00	a 19.62	80.38	0.00	<1.0	<1.0	<1.0	<1.0	<50	--	--	<2.0	--	
MW1	02/26/99	100.00	a 17.18	82.82	0.00	--	--	--	--	--	--	--	--	--	
MW1	03/24/99	100.00	a 17.28	82.72	0.00	--	--	--	--	--	--	--	--	--	
MW1	05/12/99	100.00	a 17.91	82.09	0.00	--	--	--	--	--	--	--	--	--	
MW1	12/15/99	100.00	a 21.01	78.99	0.00	<0.50	<0.50	<0.50	<0.50	<50	--	--	<0.50	--	
MW1	03/20/00	100.00	a 16.25	83.75	0.00	--	--	--	--	--	--	--	--	--	
MW1	07/20/00	100.00	a 19.63	80.37	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	3.4	--	
MW1	10/11/00	100.00	a 20.80	79.20	0.00	--	--	--	--	--	--	--	--	--	
MW1	04/10-11/01	100.00	a 18.81	81.19	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	1.2	--	
MW1	07/10/01	100.00	a 20.51	79.49	0.00	--	--	--	--	--	--	--	--	--	
MW1	11/20/01	64.69	b 21.36	43.33	0.00	<0.50	1.3	<0.50	0.81	<50	<50	<300	<2.0	--	
MW1	02/19/02	64.69	b 18.95	45.74	0.00	--	--	--	--	--	--	--	--	--	
MW1	05/21/02	64.69	b 19.82	44.87	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	<2.0	--	
MW1	06/27/03	64.69	b 19.93	44.76	0.00	--	--	--	--	--	--	--	--	--	
MW1	09/29/03	64.69	b 21.24	43.45	0.00	<0.50	<0.50	<0.50	<1.0	<50	<50	<500	<0.50	--	
MW1	12/12/03	64.69	b 21.27	43.42	0.00	<0.50	<0.50	<0.50	1.1	<50	58	<500	<0.50	--	
MW1	03/15/04	64.69	b 18.18	46.51	0.00	<0.50	<0.50	<0.50	<1.0	<50	<50	<500	<0.50	--	
MW1	06/24/04	64.69	b 20.48	44.21	0.00	<0.50	<0.50	<0.50	<1.0	<50	<50	<500	<0.50	--	
MW1	09/29/04	64.69	b 21.37	43.32	0.00	<0.50	0.51	<0.50	<1.0	<50	<50	<500	<0.50	--	
MW1	12/13/04	64.69	b 20.63	44.06	0.00	--	--	--	--	--	--	--	--	--	
MW1	03/14/05	64.69	b 18.69	46.00	0.00	<0.50	<0.50	<0.50	<1.0	<50	73	<500	<0.50	--	
MW1	06/15/05	64.69	b 20.32	44.37	0.00	--	--	--	--	--	--	--	--	--	
MW1	09/26/05	64.69	b 22.10	42.59	0.00	<0.50	<0.50	<0.50	<1.0	<50	<50	<500	<0.50	--	
MW1	12/12/05	64.69	b 22.39	42.30	0.00	--	--	--	--	--	--	--	--	--	
MW1	03/29/06	64.69	b 15.24	49.45	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	74	--	
MW1	06/19/06	64.69	b 18.27	46.42	0.00	--	--	--	--	--	--	--	--	--	
MW1	09/29/06	64.69	b 20.06	44.63	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	7.9	--	
MW1	12/12/06	64.69	b 20.32	44.37	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	9.4	--	
MW1	03/01/07	64.69	b 18.68	46.01	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	3.5	--	
MW1	06/12/07	64.69	b 20.28	44.41	0.00	--	--	--	--	--	--	--	--	--	
MW1	09/25/07	64.69	b 21.37	43.32	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	1.8	--	
MW1	12/20/07	64.69	b 21.48	43.21	0.00	--	--	--	--	--	--	--	--	--	
MW1	03/26/08	64.69	b 20.98	43.71	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	<0.50	--	
MW1	06/03/08	64.69	b 20.70	43.99	0.00	--	--	--	--	--	--	--	--	--	
MW1	09/25/08	64.69	b 22.30	42.39	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	0.57	<5.0	
MW1	12/29/08	64.69	b 21.77	42.92	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	<0.50	<5.0	
MW1	03/24/09	64.71	l 18.68	46.03	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	<0.50	<5.0	
MW1	06/02/09	64.71	l 19.60	45.11	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	<0.50	<5.0	
MW1	09/10/09	64.71	l 21.20	43.51	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	<0.50	<5.0	
MW1	12/04/09	64.71	l 22.86	41.85	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	<0.50	<5.0	

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)									
						Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	TPH-mo	MTBE	TBA	
MW1	03/10/10	64.71	l	21.06	43.65	0.00	< 0.50	0.97	< 0.50	1.6	< 50	< 50	< 100	< 0.50	--
MW1	05/28/10	64.71	l	21.19	43.52	0.00	--	--	--	--	--	--	--	--	--
MW1	08/26/10	64.71	l	21.82	42.89	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	<0.50	--
MW1	12/22/10	64.71	l	21.42	43.29	0.00	--	--	--	--	--	--	--	--	--
MW1	03/16/11	64.71	l	19.18	45.53	0.00	< 0.50	< 0.50	< 0.50	< 0.50	< 50	< 50	< 100	< 0.50	--
MW1	03/16/11	64.71	l	19.18	45.53	0.00	--	--	--	--	--	--	--	--	--
MW1	06/21/11	64.71	l	19.18	45.53	0.00	--	--	--	--	--	--	--	--	--
MW1	09/14/11	64.71	l	20.87	43.84	0.00	< 0.50	< 0.50	< 0.50	< 0.50	< 50	< 50	< 100	< 0.50	--
MW1	12/01/11	64.71	l	21.69	43.02	0.00	--	--	--	--	--	--	--	--	--
MW1	03/08/12	64.71	l	21.51	43.20	0.00	< 0.50	< 0.50	< 0.50	< 0.50	< 50	< 50	< 100	< 0.50	--
MW1	06/04/12	64.71	l	19.31	45.40	0.00	--	--	--	--	--	--	--	--	--
MW2	07/27/93	101.27	a	22.10	79.17	0.00	10,000	27,000	2,900	20,000	120,000	--	--	--	--
MW2	10/02/97	101.27	a	22.91	78.36	0.43	*	*	*	*	*	*	*	*	--
MW2	06/30/98	101.27	a	19.69	81.58	0.45	7,300	18,000	2,500	15,600	72,000	--	--	5,500	--
MW2	07/29/98	101.27	a	20.11	81.16	0.29	--	--	--	--	--	--	--	--	--
MW2	08/26/98	101.27	a	20.54	80.73	0.08	--	--	--	--	--	--	--	--	--
MW2	10/01/98	101.27	a	21.52	79.75	0.42	6,400	17,000	2,600	17,000	84,000	--	--	2,000	--
MW2	10/30/98	101.27	a	21.54	79.73	0.10	--	--	--	--	--	--	--	--	--
MW2	11/30/98	101.27	a	21.21	80.06	0.04	--	--	--	--	--	--	--	--	--
MW2	12/28/98	101.27	a	21.10	80.17	0.02	--	--	--	--	--	--	--	--	--
MW2	01/25/99	101.27	a	20.80	80.47	0.01	9,000	26,000	3,800	27,500	130,000	--	--	5,800	--
MW2	02/26/99	101.27	a	18.00	83.27	sheen	--	--	--	--	--	--	--	--	--
MW2	03/24/99	101.27	a	18.27	83.00	trace	--	--	--	--	--	--	--	--	--
MW2	05/12/99	101.27	a	19.08	82.19	trace	--	--	--	--	--	--	--	--	--
MW2	12/15-16/99	101.27	a	22.42	78.85	0.025	*	*	*	*	*	*	*	*	--
MW2	03/20/00	101.27	a	17.09	84.18	0.026	--	--	--	--	--	--	--	--	--
MW2	07/20/00	101.27	a	20.86	80.41	0.017	*	*	*	*	*	*	*	*	--
MW2	10/11/00	101.27	a	22.10	79.17	0.00	--	--	--	--	--	--	--	--	--
MW2	04/10-11/01	101.27	a	19.98	81.29	0.00	8,000	22,000	2,600	23,500	150,000	1,500	<600	3,600	--
MW2	07/10/01	101.27	a	21.85	79.42	0.00	5,900	15,000	2,300	12,100	83,000	5,700	<1,500	2,800	--
MW2	11/20/01	65.95	b	22.75	43.20	0.00	--	--	--	--	--	--	--	--	--
MW2	02/19/02	65.95	b	20.12	45.83	0.00	--	--	--	--	--	--	--	--	--
MW2	05/21/02	65.95	b	21.10	44.85	0.00	8,600	25,000	3,500	26,000	150,000	31,000	<3,000	4,800	--
MW2	06/27/03	65.95	b	21.48	44.47	0.35	--	--	--	--	--	--	--	--	--
MW2	09/29/03	65.95	b	23.04	42.91	0.48	*	*	*	*	*	*	*	*	--
MW2 <sup>e</sup>	12/12/03	65.95	b	22.75	43.31	0.16	*	*	*	*	*	*	*	*	--
MW2 <sup>e</sup>	03/15/04	65.95	b	19.24	46.72	0.01	*	*	*	*	*	*	*	*	--
MW2 <sup>e</sup>	06/24/04	65.95	b	22.10	44.06	0.31	*	*	*	*	*	*	*	*	--
MW2 <sup>e</sup>	09/29/04	65.95	b	22.81	43.14	sheen	*	*	*	*	*	*	*	*	--
MW2 <sup>e</sup>	12/13/04	65.95	b	22.06	43.95	0.08	3,700	12,000	1,900	10,000	47,000	2,600	<500	1,200	--
MW2 <sup>j</sup>	03/14/05	65.95	b	25.00	40.95	0.00	780	3,700	920	6,400	43,000	43,000	<5,000	<200	--
MW2	06/15/05	65.95	b	21.14	44.81	0.00	2,900	15,000	2,400	22,000	120,000	13,000	<2,500	810	--
MW2	07/18/05	65.95	b	NM	NC	NM	2,700	13,000	1,800	15,000	120,000	17,000	--	530	--
MW2	09/26/05	65.95	b	22.93	43.02	0.00	570	4,000	620	6,200	31,000	63,000	28,000	<50	--
MW2	12/12/05	65.95	b	25.40	40.55	0.00	670	5,300	1,100	9,800	34,000	2,800	<500	65	--
MW2	03/29/06	65.95	b	15.66	50.29	sheen	620	2,800	540	4,700	33,000	<4,000	<100	37	--
MW2	06/19/06	65.95	b	19.14	46.81	sheen	680	5,200	990	16,000	120,000	<30,000	1,900	170	--
MW2	09/29/06	65.95	b	21.16	44.79	0.00	1,200	5,100	1,200	9,300	59,000	<8000	300	230	--
MW2	12/12/06	65.95	b	21.46	44.49	0.00	850	4,400	1,100	8,900	45,000	<10000	360	110	--

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)									
						Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	TPH-mo	MTBE	TBA	
MW2	03/01/07	65.95	b	19.48	46.47	0.00	1,400	5,200	980	9,500	71,000	<18000	460	160	--
MW2	06/12/07	65.95	b	20.98	44.97	0.00	1,300	4,900	1,200	8,900	40,000	<3000	<100	130	--
MW2	09/25/07	65.95	b	22.57	43.38	0.00	1,400	6,500	1,900	13,000	68,000	<12000	250	240	--
MW2	12/20/07	65.95	b	22.70	43.25	0.00	1,400	7,000	2,400	16,000	75,000	<5000	650	270	--
MW2	03/26/08	65.95	b	22.51	43.44	0.00	1,400	6,200	1,800	16,000	83,000	<10000	360	480	--
MW2	06/03/08	65.95	b	21.85	44.10	0.00	1,900	11,000	2,500	18,000	98,000	<12000	500	660	--
MW2	09/25/08	65.95	b	23.30	42.65	0.00	740	3,500	1,700	10,000	46,000	<8000	170	340	180
MW2	12/29/08	65.95	b	22.95	43.00	0.00	260	1,500	1,100	6,400	29,000	<4000	<100	110	<50
MW2	03/24/09	65.71	l	19.58	46.13	0.00	410	2,000	900	8,900	45,000	<8,000	420	300	210
MW2	06/02/09	65.71	l	20.50	45.21	0.00	680	3,100	1,200	10,000	80,000	<12000	480	330	180
MW2	09/10/09	65.71	l	22.40	43.31	0.00	700	3,000	1,300	9,400	45,000	< 8000	190	370	220
MW2	12/04/09	65.71	l	24.30	41.41	0.00	290	1,500	930	4,900	24,000	< 2000	170	200	92
MW2	03/10/10	65.71	l	22.20	43.51	0.00	200	1,300	700	9,500	45,000	< 6,000	< 100	340	--
MW2	05/28/10	65.71	l	22.41	43.30	0.00	260	1,100	650	4,700	23,000	< 8000	170	380	--
MW2	08/26/10	65.71	l	23.00	42.71	0.00	160	980	490	4,200	22,000	<2000	<100	180	--
MW2	09/20/10	65.71	l	NM	NC	0.00	52	360	210	1,600	8,800	--	--	--	--
MW2	12/22/10	65.71	l	22.47	43.24	0.00	130	1,100	430	6,000	26,000	<3000	<100	640	--
MW2	03/16/11	65.71	l	19.00	46.71	0.00	430	1700	490	3700	29,000	< 3000	190	500	--
MW2	06/21/11	65.71	l	20.10	45.61	0.00	640	2100	680	4000	26,000	< 3000	< 100	660	--
MW2	09/14/11	65.71	l	21.97	43.74	0.00	460	3200	1200	7600	47,000	< 30000	520	380	--
MW2	12/01/11	65.71	l	22.73	42.98	0.00	350	2,200	1,100	4,600	26,000	<1000	<100	510	--
MW2	03/08/12	65.71	l	22.62	43.09	0.00	150	1000	560	2500	14,000	< 200	< 100	200	--
MW2	06/04/12	65.71	l	20.31	45.40	0.00	380	2,000	560	3,200	22,000	<100	<100	320	--
MW3	07/27/93	101.29	a	22.28	79.01	0.02	9,100	24,000	5,300	33,000	330,000	--	--	--	--
MW3	10/02/97	101.29	a	22.71	78.58	0.03	4,200	11,000	1,800	10,600	36,000	--	--	3,500	--
MW3	06/30/98	101.29	a	19.47	81.82	0.00	4,800	11,000	1,200	7,100	51,000	--	--	3,900	--
MW3	07/29/98	101.29	a	20.01	81.28	0.00	--	--	--	--	--	--	--	--	--
MW3	08/26/98	101.29	a	20.62	80.67	0.00	--	--	--	--	--	--	--	--	--
MW3	10/01/98	101.29	a	21.33	79.96	0.00	3,900	8,500	1,200	6,000	38,000	--	--	2,300	--
MW3	10/30/98	101.29	a	21.62	79.67	0.00	--	--	--	--	--	--	--	--	--
MW3	11/30/98	101.29	a	21.31	79.98	0.00	--	--	--	--	--	--	--	--	--
MW3	12/28/98	101.29	a	21.15	80.14	0.06	--	--	--	--	--	--	--	--	--
MW3	01/25/99	101.29	a	20.79	80.50	0.00	4,000	10,000	1200	6700	5,100	--	--	2900	--
MW3	02/26/99	101.29	a	18.02	83.27	0.00	--	--	--	--	--	--	--	--	--
MW3	03/24/99	101.29	a	18.37	82.92	0.00	--	--	--	--	--	--	--	--	--
MW3	05/12/99	101.29	a	19.22	82.07	0.0083	--	--	--	--	--	--	--	--	--
MW3	12/15-16/99	101.29	a	22.43	78.86	0.00	*	*	*	*	*	*	*	*	--
MW3	03/20/00	101.29	a	17.14	84.15	0.00	--	--	--	--	--	--	--	--	--
MW3	07/20/00	101.29	a	20.98	80.31	0.00	5,700	14,000	1,600	9,300	69,000	2,900	<300	3,300	--
MW3	10/11/00	101.29	a	22.24	79.05	0.00	--	--	--	--	--	--	--	--	--
MW3	04/10-11/01	101.29	a	20.70	80.59	0.00	7,200	<0.001	2,300	12,900	110,000	4,700	<1,500	4,300	--
MW3	07/10/01	101.29	a	21.97	79.32	0.00	--	--	--	--	--	--	--	--	--
MW3	11/20/01	65.99	b	22.80	43.19	0.00	6,300	16,000	2,400	14,900	100,000	5,900	<900	4,000	--
MW3	02/19/02	65.99	b	20.11	45.88	0.00	--	--	--	--	--	--	--	--	--
MW3	05/21/02	65.99	b	21.20	44.79	0.00	6,500	17,000	2,200	12,700	91,000	14,000	<3,000	2,200	--
MW3	06/27/03	65.99	b	21.32	44.67	sheen	--	--	--	--	--	--	--	--	--
MW3	09/29/03	65.99	b	22.79	43.20	sheen	*	*	*	*	*	*	*	*	--
MW3 <sup>e</sup>	12/12/03	65.99	b	22.73	43.27	0.01	*	*	*	*	*	*	*	*	--
MW3 <sup>e</sup>	03/15/04	65.99	b	19.32	46.67	sheen	*	*	*	*	*	*	*	*	--



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)									
						Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	TPH-mo	MTBE	TBA	
MW3	06/24/04	65.99	b	21.99	44.00	0.00	3,400	7,700	1,000	4,800	39,000	1,700	<500	1,100	--
MW3	09/29/04	65.99	b	22.54	43.45	0.00	2,900	6,700	980	4,300	29,000	2,200	<500	1,100	--
MW3	12/13/04	65.99	b	22.06	43.93	0.00	1,700	2,900	790	3,400	17,000	1,300	<500	490	--
MW3 <sup>j</sup>	03/14/05	65.99	b	24.00	41.99	0.00	680	1,700	380	1,600	10,000	670	<500	67	--
MW3	06/15/05	65.99	b	21.13	44.86	0.00	260	960	330	1,400	12,000	1,200	<500	31	--
MW3	07/18/05	65.99	b	NM	NC	NM	1,000	5,600	1,100	4,300	23,000	1,700	--	81	--
MW3	09/26/05	65.99	b	22.92	43.07	0.00	4,000	17,000	1,900	17,000	79,000	5,100	540	270	--
MW3	12/12/05	65.99	b	23.30	42.69	0.00	200	710	450	1,400	7,000	550	<500	<10	--
MW3	03/29/06	65.99	b	15.70	50.29	0.00	110	300	130	490	3,800	<200	<100	13	--
MW3	06/19/06	65.99	b	19.11	46.88	0.00	160	500	320	840	7,000	<300	<100	3.1	--
MW3	09/29/06	65.99	b	21.15	44.84	0.00	1,300	2,300	720	2,900	22,000	<1500	<100	110	--
MW3	12/12/06	65.99	b	21.38	44.61	0.00	1,400	2,200	670	2,600	21,000	<1500	<100	130	--
MW3	03/01/07	65.99	b	19.50	46.49	0.00	1,100	2,500	510	2,200	17,000	<600	<100	51	--
MW3	06/12/07	65.99	b	21.00	44.99	0.00	1,800	4,000	800	3,300	22,000	<1500	<100	150	--
MW3	09/25/07	65.99	b	22.59	43.40	0.00	2,400	5,000	1,000	4,600	29,000	<500	<100	220	--
MW3	12/20/07	65.99	b	22.59	43.40	0.00	2,400	4,900	1,100	4,700	36,000	<2000	<100	240	--
MW3	03/26/08	65.99	b	22.13	43.86	0.00	4,500	11,000	1,700	7,800	54,000	<1500	<100	340	--
MW3	06/03/08	65.99	b	21.81	44.18	0.00	3,900	8,700	1,500	7,000	47,000	<1500	<100	470	--
MW3	09/25/08	65.99	b	23.30	42.69	0.00	1,600	3,700	700	3,300	22,000	<3000	<100	220	180
MW3	12/29/08	65.99	b	22.92	43.07	0.00	310	910	320	1,300	11,000	<1500	<100	35	23
MW3	03/24/09	65.70	l	19.43	46.27	0.00	1,400	4,200	600	2,500	19,000	<1,000	<100	160	60
MW3	06/02/09	65.70	l	20.70	45.00	0.00	2,800	7,600	1,300	5,600	39,000	<1,500	<100	240	180
MW3	09/10/09	65.70	l	22.32	43.38	0.00	1,800	3,900	790	3,500	22,000	<1500	<100	190	110
MW3	12/04/09	65.70	l	24.20	41.50	0.00	1,600	3,400	860	3,900	25,000	<800	<100	210	81
MW3	03/10/10	65.70	l	22.03	43.67	0.00	420	2,400	640	3,600	27,000	<3,000	<100	24	--
MW3	05/28/10	65.70	l	22.84	42.86	0.00	1,200	4,600	920	4,800	31,000	<5000	<100	120	--
MW3	08/26/10	65.70	l	23.42	42.28	sheen	--	--	--	--	--	--	--	--	--
MW3	09/20/10	65.70	l	NM	NC	sheen	2700	13000	2900	18000	110000	--	--	--	--
MW3	12/22/10	65.70	l	22.70	43.00	0.20	--	--	--	--	--	--	--	--	--
MW3	03/16/11	65.70	l	20.13	45.57	0.00	4000	16000	2800	15000	91000	<3000	<100	230	--
MW3	06/21/11	65.70	l	20.20	45.50	0.00	5200	16000	3200	18000	110000	<10000	130	490	--
MW3	09/14/11	65.70	l	22.15	43.55	0.17	--	--	--	--	--	--	--	--	--
MW3	12/01/11	65.70	l	22.86	42.84	0.02	--	--	--	--	--	--	--	--	--
MW3	03/08/12	65.70	l	22.69	43.01	0.00	3,400	11,000	2200	10000	75000	<2000	150	330	--
MW3	06/04/12	65.70	l	20.28	45.42	0.00	2,500	5,600	1,100	4,000	39,000	<100	<100	280	--
MW4	06/30/98	98.65	a	16.93	81.72	0.00	2,200	930	850	2,100	10,000	--	--	1,800	--
MW4	07/29/98	98.65	a	17.48	81.17	0.00	--	--	--	--	--	--	--	--	--
MW4	08/26/98	98.65	a	18.65	80.00	0.00	--	--	--	--	--	--	--	--	--
MW4	10/01/98	98.65	a	18.74	79.91	0.00	570	46	130	36	1,100	--	--	1,300	--
MW4	10/30/98	98.65	a	19.02	79.63	0.00	--	--	--	--	--	--	--	--	--
MW4	11/30/98	98.65	a	18.74	79.91	0.00	--	--	--	--	--	--	--	--	--
MW4	12/28/98	98.65	a	18.60	80.05	0.00	--	--	--	--	--	--	--	--	--
MW4	01/25-26/99	98.65	a	18.32	80.33	0.00	230	<8.3	<8.3	<8.3	290	--	--	1,300	--
MW4	02/26/99	98.65	a	15.81	82.84	0.00	--	--	--	--	--	--	--	--	--
MW4	03/24/99	98.65	a	16.01	82.64	0.00	--	--	--	--	--	--	--	--	--
MW4	05/12/99	98.65	a	17.71	80.94	0.00	--	--	--	--	--	--	--	--	--
MW4	12/15-16/99	98.65	a	19.83	78.82	0.00	5.8	<0.50	<0.50	<0.50	<50	--	--	1,400	--
MW4	03/20/00	98.65	a	14.9	83.75	0.00	--	--	--	--	--	--	--	--	--
MW4	07/20/00	98.65	a	18.38	80.27	0.00	91	4.6	19	12.9	210	<50	<300	1,500	--

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)									
						Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	TPH-mo	MTBE	TBA	
MW4	10/11/00	98.65	a	19.61	79.04	0.00	--	--	--	--	--	--	--	--	--
MW4	04/10-11/01	98.65	a	17.55	81.10	0.00	110	<5.0	<5.0	<5.0	350	<50	<300	1,100	--
MW4	07/10/01	98.65	a	19.34	79.31	0.00	--	--	--	--	--	--	--	--	--
MW4	11/20/01	63.35	b	20.16	43.19	0.00	<2.5	4	<2.5	3.7	96	<50	<300	2,500	--
MW4	02/19/02	63.35	b	17.34	46.01	0.00	--	--	--	--	--	--	--	--	--
MW4	05/21/02	63.35	b	18.57	44.78	0.00	340	5.7	70	<1.0	940	83	<300	1,600	--
MW4	06/27/03	63.35	b	18.72	44.63	0.00	--	--	--	--	--	--	--	--	--
MW4	09/29/03	63.35	b	20.11	43.24	0.00	<5.0	<5.0	<5.0	<10	1,100	<50	<500	1,700	--
MW4	12/12/03	63.35	b	20.06	43.29	0.00	<13	<13	<13	<25	<1,300	<50	<500	1,000	--
MW4	03/15/04	63.35	b	16.89	46.46	0.00	1.5	<0.50	<0.50	<1.0	54	<50	<500	41	--
MW4	06/24/04	63.35	b	19.31	44.04	0.00	69	<5.0	<5.0	<10	920	<50	<500	1,100	--
MW4	09/29/04	63.35	b	20.20	43.15	0.00	<5.0	<5.0	<5.0	<10	940	<50	<500	1,200	--
MW4	12/13/04	**	b	20.44	NC	0.00	<5.0	<5.0	<5.0	<10	740	<50	<500	860	--
MW4	03/14/05	**	b	18.30	NC	0.00	20	<5.0	<5.0	<10	930	<50	<500	930	--
MW4	06/15/05	**	b	20.03	NC	0.00	350	6.1	<5.0	<10	2100	89	<500	1,100	--
MW4	07/18/05	**	b	NM	NC	NM	11	<5.0	<5.0	<10	540	<50	--	1,100	--
MW4	09/26/05	**	b	21.79	NC	0.00	<5.0	<5.0	<5.0	<10	960	<50	<500	660	--
MW4	12/12/05	**	b	21.89	NC	0.00	<5.0	<5.0	<5.0	<10	820	<50	<500	1,000	--
MW4	03/29/06	**	b	14.85	NC	0.00	49	160	120	300	2,400	<100	<100	130	--
MW4	06/19/06	**	b	17.96	NC	0.00	100	940	540	1,800	8,800	<400	<100	55	--
MW4	09/29/06	63.35	b	19.85	43.50	0.00	18.0	2.6	1.5	3.5	370.0	<50	<100	180	--
MW4	12/12/06	63.35	b	20.03	43.32	0.00	11.0	0.77	<0.5	<0.5	230.0	<50	<100	260	--
MW4	03/01/07	63.35	b	18.33	45.02	0.00	63.0	7.10	40.0	190.0	1,800.0	<50	<100	130	--
MW4	06/12/07	63.35	b	19.70	43.65	0.00	9.3	<0.5	<0.5	<0.5	70.0	<50	<100	150	--
MW4	09/25/07	63.35	b	21.27	42.08	0.00	<0.5	<0.5	<0.5	<0.5	<50	<50	<100	300	--
MW4	12/20/07	63.35	b	21.30	42.05	0.00	<0.5	<0.5	<0.5	<0.5	<50	<50	<100	370	--
MW4	03/26/08	63.35	b	20.89	42.46	0.00	<0.5	<0.5	<0.5	<0.5	<50	<50	<100	260	--
MW4	06/03/08	63.35	b	20.51	42.84	0.00	<0.5	<0.5	<0.5	<0.5	<50	<50	<100	190	--
MW4	09/25/08	63.35	b	22.03	41.32	0.00	<0.5	<0.5	<0.5	<0.5	<50	<50	<100	380	<5.0
MW4	12/29/08	63.35	b	21.62	41.73	0.00	<0.5	<0.5	<0.5	<0.5	<50	<50	<100	230	<5.0
MW4	03/24/09	64.37	l	18.38	45.99	0.00	<0.5	<0.5	<0.5	<0.5	<50	<50	<100	370	<5.0
MW4	06/02/09	64.37	l	19.32	45.05	0.00	0.64	<0.5	<0.5	<0.5	<50	<50	<100	320	<5.0
MW4	09/10/09	64.37	l	21.00	43.37	0.00	< 0.50	< 0.50	< 0.50	< 0.50	< 50	< 50	< 100	280	< 5.0
MW4	12/04/09	64.37	l	22.76	41.61	0.00	< 0.50	< 0.50	< 0.50	2.9	< 50	< 50	< 100	430	< 5.0
MW4	03/10/10	64.37	l	20.87	43.50	0.00	< 0.50	< 0.50	< 0.50	< 0.50	< 50	< 50	< 100	130	--
MW4	05/28/10	64.37	l	21.07	43.30	0.00	< 0.50	< 0.50	< 0.50	< 0.50	< 50	< 50	< 100	140	--
MW4	08/26/10	64.37	l	21.71	42.66	0.00	<0.50	<0.50	<0.50	2.0	<50	<50	<100	160	--
MW4	12/02/10	64.37	l	21.21	43.16	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	50	--
MW4	03/16/11	64.37	l	18.82	45.55	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	220	--
MW4	06/21/11	64.37	l	18.95	45.42	0.00	0.70	< 0.50	1.4	< 0.50	< 50	< 50	< 100	220	--
MW4	09/14/11	64.37	l	20.68	43.69	0.00	< 0.50	< 0.50	< 0.50	2.9	63	< 50	< 100	150	--
MW4	12/01/11	64.37	l	21.59	42.78	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	200	--
MW4	03/08/12	64.37	l	21.32	43.05	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	210	--
MW4	06/04/12	64.37	l	19.01	45.36	0.00	35.00	1.10	19.0	6.1	220.0	<50	<100	160	--
MW5	06/30/98	100.9	a	20.60	80.30	0.00	<0.50	<0.50	<0.50	<0.50	<50	--	--	23	--
MW5	07/29/98	100.9	a	21.52	79.38	0.00	--	--	--	--	--	--	--	--	--
MW5	08/26/98	100.9	a	22.21	78.69	0.00	--	--	--	--	--	--	--	--	--
MW5	10/01/98	100.9	a	22.95	77.95	0.00	<1.0	<1.0	<1.0	<1.0	<50	--	--	<2.0	--
MW5	10/30/98	100.9	a	23.23	77.67	0.00	--	--	--	--	--	--	--	--	--

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)								
						Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	TPH-mo	MTBE	TBA
MW5	11/30/98	100.9	a 23.12	77.78	0.00	--	--	--	--	--	--	--	--	--
MW5	12/28/98	100.9	a 23.18	77.72	0.00	--	--	--	--	--	--	--	--	--
MW5	01/25-26/99	100.9	a 22.61	78.29	0.00	<1.0	<1.0	<1.0	<1.0	<50	--	--	<2.0	--
MW5	02/26/99	100.9	a 19.78	81.12	0.00	--	--	--	--	--	--	--	--	--
MW5	03/24/99	100.9	a 20.25	80.65	0.00	--	--	--	--	--	--	--	--	--
MW5	05/12/99	100.9	a 21.06	79.84	0.00	--	--	--	--	--	--	--	--	--
MW5	12/15-16/99	100.9	a 24.19	76.71	0.00	<0.50	<0.50	<0.50	<0.50	<50	--	--	<0.50	--
MW5	03/20/00	100.9	a 19.15	81.75	0.00	--	--	--	--	--	--	--	--	--
MW5	07/20/00	100.9	a 21.84	79.06	0.00	<0.50	0.98	<0.50	<0.50	<50	<50	<300	1.9	--
MW5	10/11/00	100.9	a 23.4	77.50	0.00	--	--	--	--	--	--	--	--	--
MW5	04/10-11/01	100.9	a 22.3	78.60	0.00	<0.50	2.6	<0.50	0.6	<50	<50	<300	1.5	--
MW5	07/10/01	100.9	a 23.64	77.26	0.00	--	--	--	--	--	--	--	--	--
MW5	11/20/01	65.59	b 24.65	40.94	0.00	0.83	12	1.2	11	140	860	2,500	10	--
MW5	02/19/02	65.59	b 22.37	43.22	0.00	--	--	--	--	--	--	--	--	--
MW5	05/21/02	65.59	b 23.10	42.49	0.00	<0.50	<0.50	<0.50	<0.50	<50	2,200	<300	<2.0	--
MW5	06/27/03	65.59	b 23.07	42.52	0.00	--	--	--	--	--	--	--	--	--
MW5	09/29/03	65.59	b 24.38	41.21	0.00	<0.50	0.52	7.1	35	100	<50	<500	1.4	--
MW5	12/12/03	65.59	b 23.90	41.69	0.00	<0.50	<0.50	<0.50	<1	<50	<50	<500	1.5	--
MW5	03/15/04	65.59	b 20.82	44.77	0.00	<0.50	<0.50	<0.50	<1.0	<50	<50	<500	<0.50	--
MW5	06/24/04	65.59	b 23.57	42.02	0.00	<0.50	<0.50	<0.50	<1.0	<50	130	<500	0.79	--
MW5	09/29/04	65.59	b 24.44	41.15	0.00	--	--	--	--	--	--	--	--	--
MW5	12/13/04	65.59	b 23.87	41.72	0.00	--	--	--	--	--	--	--	--	--
MW5	03/14/05	65.59	b 20.18	45.41	0.00	<0.50	1.3	1.5	8.6	82	<50	<500	<0.50	--
MW5	06/15/05	65.59	b 12.96	52.63	0.00	--	--	--	--	--	--	--	--	--
MW5	09/26/05	65.59	b 23.60	41.99	0.00	--	--	--	--	--	--	--	--	--
MW5	12/12/05	65.59	b 23.84	41.75	0.00	--	--	--	--	--	--	--	--	--
MW5	03/29/06	65.59	b 17.19	48.40	0.00	<0.50	<0.50	<0.50	<0.50	73	<50	<100	<0.50	--
MW5	06/19/06	65.59	b 20.22	45.37	0.00	--	--	--	--	--	--	--	--	--
MW5	09/29/06	65.59	b 22.80	42.79	0.00	--	--	--	--	--	--	--	--	--
MW5	12/12/06	65.59	b 23.08	42.51	0.00	--	--	--	--	--	--	--	--	--
MW5	03/01/07	65.59	b 21.02	44.57	0.00	<0.50	<0.50	<0.50	<0.50	54	<50	<100	<0.50	--
MW5	06/12/07	65.59	b 22.78	42.81	0.00	--	--	--	--	--	--	--	--	--
MW5	09/25/07	65.59	b 24.45	41.14	0.00	<0.50	1.5	<0.50	<0.50	<50	<50	<100	0.64	--
MW5	12/20/07	65.59	b 24.52	41.07	0.00	--	--	--	--	--	--	--	--	--
MW5	03/26/08	65.59	b 24.08	41.51	0.00	<0.50	1.5	<0.50	<0.50	<50	<50	<100	<0.5	--
MW5	06/03/08	65.59	b 23.68	41.91	0.00	--	--	--	--	--	--	--	--	--
MW5	09/25/08	65.59	b 25.00	40.59	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	0.66	<5.0
MW5	12/29/08	65.59	b 24.92	40.67	0.00	<0.50	<0.50	<0.50	<0.50	71	<50	<100	<0.5	<5.0
MW5	03/24/09	65.59	l 21.85	43.74	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	0.54	<5.0
MW5	06/02/09	65.59	l 22.70	42.89	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	<0.5	<5.0
MW5	09/10/09	65.59	l 24.12	41.47	0.00	< 0.50	< 0.50	< 0.50	< 0.50	< 50	< 50	< 100	0.56	< 5.0
MW5	12/04/09	65.59	l dry	--	0.00	--	--	--	--	--	--	--	--	--
MW5	03/10/10	65.59	l 25.90	39.69	0.00	< 0.50	< 0.50	< 0.50	< 0.50	55	< 50	< 100	0.71	--
MW5	05/28/10	65.59	l 25.54	40.05	0.00	--	--	--	--	--	--	--	--	--
MW5	08/26/10	65.59	l 25.59	40.00	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	0.52	--
MW5	12/22/10	65.59	l 24.80	40.79	0.00	--	--	--	--	--	--	--	--	--
MW5	03/16/11	65.59	l 22.02	43.57	0.00	< 0.50	< 0.50	< 0.50	< 0.50	< 50	< 50	< 100	< 0.50	--
MW5	06/21/11	65.59	l 22.41	43.18	0.00	--	--	--	--	--	--	--	--	--
MW5	09/14/11	65.59	l 24.39	41.20	0.00	< 0.50	< 0.50	< 0.50	< 0.50	< 50	< 50	< 100	< 0.50	--
MW5	12/01/11	65.59	l 25.22	40.37	0.00	--	--	--	--	--	--	--	--	--

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)									
						Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	TPH-mo	MTBE	TBA	
MW5	03/08/12	65.59	1	24.90	40.69	0.00	< 0.50	< 0.50	< 0.50	< 0.50	< 50	< 50	< 100	< 0.50	--
MW5	06/04/12	65.59	1	22.30	43.29	0.00	--	--	--	--	--	--	--	--	--
MW6	07/20/00	96.60	a	18.30	78.30	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	160	--
MW6	10/11/00	96.60	a	18.69	77.91	0.00	--	--	--	--	--	--	--	--	--
MW6	04/10-11/01	96.60	a	17.85	78.75	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	180	--
MW6	07/10/01	96.60	a	18.43	78.17	0.00	--	--	--	--	--	--	--	--	--
MW6	11/20/01	59.60	b	18.67	40.93	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	450	--
MW6	02/19/02	59.60	b	17.40	42.20	0.00	--	--	--	--	--	--	--	--	--
MW6	05/21/02	59.60	b	17.68	41.92	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	170	--
MW6	06/27/03	59.60	b	17.73	41.87	0.00	--	--	--	--	--	--	--	--	--
MW6	09/29/03	59.60	b	18.48	41.12	0.00	<1.0	<1.0	<1.0	<2.0	230	<50	<500	340	--
MW6	12/12/03	59.60	b	17.89	41.71	0.00	<2.5	<2.5	<2.5	<5.0	<250	51	<500	190	--
MW6	03/15/04	59.60	b	16.46	43.14	0.00	<1.0	<1.0	<1.0	<2.0	200	<50	<500	220	--
MW6	06/24/04	59.60	b	17.97	41.63	0.00	<1.0	<1.0	<1.0	<2.0	130	<50	<500	190	--
MW6	09/29/04	59.60	b	18.55	41.05	0.00	<0.50	0.61	<0.50	1.2	210	<50	<500	190	--
MW6	12/13/04	59.60	b	17.88	41.72	0.00	--	--	--	--	--	--	--	--	--
MW6	03/14/05	59.60	b	16.82	42.78	0.00	<0.50	<0.50	<0.50	1.8	160	<50	<500	190	--
MW6	06/15/05	59.60	b	17.60	42.00	0.00	--	--	--	--	--	--	--	--	--
MW6	09/26/05	59.60	b	NM	NM	0.00	--	--	--	--	--	--	--	--	--
MW6	12/12/05	59.60	b	18.33	41.27	0.00	0.62	<0.50	<0.50	1.0	81	<50	<500	140	--
MW6	03/29/06	59.60	b	14.53	45.07	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	120	--
MW6	06/19/06	59.60	b	16.46	43.14	0.00	--	--	--	--	--	--	--	--	--
MW6	09/29/06	59.60	b	17.60	42.00	0.00	0.87	<0.50	<0.50	<0.50	<50	<50	<100	140	--
MW6	12/12/06	59.60	b	16.93	42.67	0.00	0.67	<0.50	<0.50	<0.50	<50	<50	230	89	--
MW6	03/01/07	59.60	b	16.30	43.30	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	78	--
MW6	06/12/07	59.60	b	17.38	42.22	0.00	--	--	--	--	--	--	--	--	--
MW6	09/25/07	59.60	b	18.36	41.24	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	89	--
MW6	12/20/07	59.60	b	17.90	41.70	0.00	--	--	--	--	--	--	--	--	--
MW6	03/26/08	59.60	b	17.37	42.23	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	68	--
MW6	06/03/08	59.60	b	17.11	42.49	0.00	--	--	--	--	--	--	--	--	--
MW6	09/25/08	59.60	b	18.82	40.78	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	78	<5.0
MW6	12/29/08	59.60	b	18.30	41.30	0.00	0.77	<0.50	<0.50	<0.50	<50	<50	<100	44	<5.0
MW6	03/24/09	59.60	l	16.80	42.80	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	51	<5.0
MW6	06/02/09	59.60	l	17.27	42.33	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	59	<5.0
MW6	09/10/09	59.60	l	18.20	41.40	0.00	< 0.50	< 0.50	< 0.50	< 0.50	< 50	< 50	< 100	73	< 5.0
MW6	12/04/09	59.60	l	19.07	40.53	0.00	< 0.50	< 0.50	< 0.50	< 0.50	< 50	< 50	< 100	50	< 5.0
MW6	03/10/10	59.60	l	17.80	41.80	0.00	< 0.50	< 0.50	< 0.50	< 0.50	< 50	< 50	< 100	51	--
MW6	05/28/10	59.60	l	18.02	41.58	0.00	--	--	--	--	--	--	--	--	--
MW6	08/26/10	59.60	l	18.70	40.90	0.00	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<100	47	--
MW6	12/22/10	59.60	l	17.84	41.76	0.00	--	--	--	--	--	--	--	--	--
MW6	03/16/11	59.60	l	16.94	42.66	0.00	< 0.50	< 0.50	< 0.50	< 0.50	< 50	< 50	< 100	44	--
MW6	06/21/11	59.60	l	17.05	42.55	0.00	--	--	--	--	--	--	--	--	--
MW6	09/14/11	59.60	l	17.97	41.63	0.00	< 0.50	< 0.50	< 0.50	< 0.50	< 50	< 50	< 100	50	--
MW6	12/01/11	59.60	l	18.46	41.14	0.00	--	--	--	--	--	--	--	--	--
MW6	03/08/12	59.60	l	18.49	41.11	0.00	< 0.50	< 0.50	< 0.50	< 0.50	< 50	< 50	< 100	41	--
MW6	06/04/12	59.60	l	17.05	42.55	0.00	--	--	--	--	--	--	--	--	--
MW7	07/20/00	96.75	a	15.93	80.82	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	<0.50	--
MW7	10/11/00	96.75	a	16.90	79.85	0.00	--	--	--	--	--	--	--	--	--

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)									
						Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	TPH-mo	MTBE	TBA	
MW7	04/10-11/01	96.75	a	15.80	80.95	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	<0.50	--
MW7	07/10/01	96.75	a	16.71	80.04	0.00	--	--	--	--	--	--	--	--	--
MW7	11/20/01	59.47	b	16.17	43.30	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	<2.0	--
MW7	02/19/02	59.47	b	14.92	44.55	0.00	--	--	--	--	--	--	--	--	--
MW7	05/21/02	59.47	b	15.18	44.29	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	<0.50	--
MW7	06/27/03	59.47	b	16.28	43.19	0.00	--	--	--	--	--	--	--	--	--
MW7	09/29/03	59.47	b	16.88	42.59	0.00	<0.50	<0.50	<0.50	<1.0	<50	<50	<500	0.62	--
MW7	12/12/03	59.47	b	14.95	44.52	0.00	<0.50	<0.50	<0.50	<1.0	<50	<50	<500	<0.50	--
MW7	03/15/04	59.47	b	14.77	44.70	0.00	<0.50	<0.50	<0.50	<1.0	<50	<50	<500	<0.50	--
MW7	06/24/04	59.47	b	16.33	43.14	0.00	<0.50	<0.50	<0.50	<1.0	<50	300	<500	<0.50	--
MW7	09/29/04	59.47	b	16.88	42.59	0.00	--	--	--	--	--	--	--	--	--
MW7	12/13/04	59.47	b	15.26	44.21	0.00	--	--	--	--	--	--	--	--	--
MW7	03/14/05	59.47	b	15.00	44.47	0.00	<0.50	<0.50	<0.50	<1.0	<50	<50	<500	<0.50	--
MW7	06/15/05	59.47	b	15.32	44.15	0.00	--	--	--	--	--	--	--	--	--
MW7	09/26/05	59.47	b	NM	NM	0.00	--	--	--	--	--	--	--	--	--
MW7	12/12/05	59.47	b	15.99	43.48	0.00	--	--	--	--	--	--	--	--	--
MW7	03/29/06	59.47	b	12.65	46.82	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	<0.50	--
MW7	06/19/06	59.47	b	14.49	44.98	0.00	--	--	--	--	--	--	--	--	--
MW7	09/29/06	59.47	b	16.67	42.80	0.00	--	--	--	--	--	--	--	--	--
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	--
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	--
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	--
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
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
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
MW7	06/02/09	59.49	l	16.10	43.39	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	<0.50	<5.0
MW7	09/10/09	59.49	l	17.10	42.39	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	<0.50	<5.0
MW7	12/04/09	59.49	l	17.10	42.39	0.00	--	--	--	--	--	--	--	--	--
MW7	03/10/10	59.49	l	15.17	44.32	0.00	--	--	--	--	--	--	--	--	--
MW7	05/28/10	59.49	l	15.20	44.29	0.00	--	--	--	--	--	--	--	--	--
MW7	08/26/10	59.49	l	17.10	42.39	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	<0.50	--
MW7	12/22/10	59.49	l	14.94	44.55	0.00	--	--	--	--	--	--	--	--	--
MW7	03/16/11	59.49	l	14.75	44.74	0.00	--	--	--	--	--	--	--	--	--
MW7	06/21/11	59.49	l	15.74	43.75	0.00	--	--	--	--	--	--	--	--	--
MW7	09/14/11	59.49	l	16.68	42.81	0.00	< 0.50	< 0.50	< 0.50	< 0.50	< 50	< 50	< 100	< 0.50	--
MW7	12/01/11	59.49	l	16.65	42.84	0.00	--	--	--	--	--	--	--	--	--
MW7	03/08/12	59.49	l	16.07	43.42	0.00	--	--	--	--	--	--	--	--	--
MW7	06/04/12	59.49	l	16.19	43.30	0.00	--	--	--	--	--	--	--	--	--
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
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
MW8	06/02/09	57.07	l	15.46	41.61	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	<0.50	<5.0
MW8	09/10/09	57.07	l	15.58	41.49	0.00	< 0.50	< 0.50	< 0.50	< 0.50	< 50	< 50	< 100	2.4	< 5.0
MW8	12/04/09	57.07	l	16.27	40.80	0.00	--	--	--	--	--	--	--	--	--
MW8	03/10/10	57.07	l	14.47	42.60	0.00	--	--	--	--	--	--	--	--	--
MW8	05/28/10	57.07	l	16.12	40.95	0.00	--	--	--	--	--	--	--	--	--

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)									
						Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	TPH-mo	MTBE	TBA	
MW8	08/26/10	57.07	1 16.36	40.71	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<100	1.1	--	
MW8	12/22/10	57.07	1 16.25	40.82	0.00	--	--	--	--	--	--	--	--	--	
MW8	03/16/11	57.07	1 15.66	41.41	0.00	--	--	--	--	--	--	--	--	--	
MW8	06/21/11	57.07	1 15.72	41.35	0.00	--	--	--	--	--	--	--	--	--	
MW8	09/14/11	57.07	1 15.88	41.19	0.00	< 0.50	< 0.50	< 0.50	< 0.50	< 50	< 50	< 100	1.4	--	
MW8	12/01/11	57.07	1 16.01	41.06	0.00	--	--	--	--	--	--	--	--	--	
MW8	03/08/12	57.07	1 16.07	41.00	0.00	--	--	--	--	--	--	--	--	--	
MW8	06/04/12	57.07	1 12.45	44.62	0.00	--	--	--	--	--	--	--	--	--	
MW9A	09/10/09	65.90	22.51	43.39	0.00	7,800	33,000	4,500	25,000	160,000	< 20,000	410	1,800	780	
MW9A	12/04/09	65.90	24.42	41.48	0.00	--	--	--	--	--	--	--	--	--	
MW9A (m)	12/28/09	65.90	24.62	41.28	sheen	12,000	34,000	4,300	24,000	180,000	<200,000	3,400	2,100	680	
MW9A	03/10/10	65.90	22.30	43.60	0.00	15,000	42,000	4,800	26,000	210,000	< 40,000	250	2,300	--	
MW9A	05/28/10	65.90	22.62	43.29	(n) 0.02	Not Sampled due to Free Product									
MW9A	08/26/10	65.90	23.21	42.70	0.00	2,600	19,000	3,000	22,000	150,000	<500,000	11,000	75	--	
MW9A	09/21/10	65.90	NM	NC	0.00	1,400	9,600	1,600	12,000	70,000	--	--	--	--	
MW9A	12/22/10	65.90	22.63	43.28	0.00	4,400	17,000	1,900	13,000	83,000	<1500	<100	250	--	
MW9A	03/16/11	65.90	20.31	45.60	0.00	4,900	22,000	2,800	20,000	130,000	< 1500	230	620	--	
MW9A	06/21/11	65.90	20.36	45.55	0.00	16	33	39	230	2800	< 300	< 100	28	--	
MW9A	09/14/11	65.90	22.24	43.67	0.00	3700	17000	2800	21000	120000	< 25000	1400	720	--	
MW9A	12/01/11	65.90	23.02	42.89	0.00	3,700	14,000	2,000	15,000	98,000	<2000	410	670	--	
MW9A	03/08/12	65.90	22.90	43.01	0.00	4600	16000	2100	17000	97000	< 300	< 100	810	--	
MW9A	06/04/12	65.90	21.51	44.40	0.00	3,800	12,000	1,300	13,000	93,000	< 300	< 100	860	--	
MW9B	09/10/09	65.85	22.30	43.55	0.00	640	4,500	1,100	6,500	36,000	< 3,000	< 100	61	< 50	
MW9B	12/04/09	65.85	24.00	41.85	0.00	63	250	180	620	5,600	< 300	< 100	3.1	< 5.0	
MW9B	03/10/10	65.85	22.41	43.44	0.00	98	310	340	900	7,500	< 600	< 100	5.7	--	
MW9B	05/28/10	65.85	22.50	43.35	0.00	31	75	150	270	2,900	< 400	< 100	2.9	--	
MW9B	08/26/10	65.85	23.31	42.54	0.00	13	160	310	2,000	14,000	<1000	<100	88	--	
MW9B	09/20/10	65.85	NM	NC	0.00	7	110	140	830	6,200	--	--	--	--	
MW9B	12/22/10	65.85	23.20	42.65	0.00	<0.5	3	1	10	140	<50	<100	4.5	--	
MW9B	03/16/11	65.85	20.14	45.71	0.00	22	39	47	290	3,500	< 300	< 100	38	--	
MW9B	06/21/11	65.85	20.30	45.55	0.00	9.2	29	38	260	2200	< 300	< 100	41	--	
MW9B	09/14/11	65.85	21.44	44.41	0.00	17	22	47	220	2200	< 400	< 100	66	--	
MW9B	12/01/11	65.85	23.17	42.68	0.00	9	68	32	190	1,000	<50	<100	79	--	
MW9B	03/08/12	65.85	23.59	42.26	0.00	3.8	6.4	13	59	560	< 50	< 100	48	--	
MW9B	06/04/12	65.85	21.50	44.35	0.00	34	56	38	160	1,400	< 50	< 100	40	--	
O1	09/10/09	65.91	22.44	43.47	0.00	960	2,400	1,000	4,600	23,000	< 1,500	< 100	180	84	
O1	12/04/09	65.91	24.33	41.58	0.00	1,000	3,700	1,700	7,400	38,000	< 1000	< 100	310	200	
O1	03/10/10	65.91	22.20	43.71	0.00	660	2,600	970	5,300	29,000	< 1000	< 100	200	--	
O1	05/28/10	65.91	22.49	43.42	0.00	610	2,000	1,000	4,200	21,000	< 1500	< 100	270	--	
O1	08/26/10	65.91	23.25	42.66	0.00	29	160	59	680	5,000	<500	<100	97	--	
O1	09/20/10	65.91	NM	NC	0.00	24	140	28	330	2,000	--	--	--	--	
O1	12/22/10	65.91	22.70	43.21	0.00	10	35	3	30	460	<50	<100	220	--	
O1	03/16/11	65.91	20.19	45.72	0.00	200	440	240	850	6,900	< 300	< 100	180	--	
O1	06/21/11	65.91	20.31	45.60	0.00	320	530	400	1500	8900	< 400	< 100	260	--	
O1	09/14/11	65.91	22.16	43.75	0.00	320	540	510	1500	9000	< 1000	< 100	170	--	

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

SPH	Separate-phase hydrocarbons.
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.
TBA	Tertiary Butyl Alcohol
NC	Not calculated.
NS	Not surveyed
µg/L	Micrograms 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
m	The well was not purged due to insufficient water.
n	Groundwater elevation corrected by substituting the "product thickness" in the water column of the well with thickness of the groundwater equivalent, determined by multiplying the specific gravity of gasoline (0.739) by the "product thickness".

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	<b>480</b>	<b>410</b>	<b>180</b>	<500
HP3	12/18/2003	32-36	<0.50	<0.50	<0.50	<1.0	<b>0.55</b>	<50	<b>75</b>	<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	<b>660</b>	<b>11000</b>	<b>4200</b>	<b>20000</b>	34	<b>110000</b>	<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	<b>160</b>	<50	<b>3800</b>	<b>6600</b>

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	S	S	S
MW6	Q	S	S	S
MW7	Q	A	A	A
MW8	Q	A	A	A
MW9A	Q	Q	Q	Q
MW9B	Q	Q	Q	Q
O1	Q	Q	Q	Q

Q = Quarterly.

S = Semiannual (1st and 3rd Quarters).

A = Annual.

BTEX = Benzene, toluene, ethylbenzene, total xylenes.

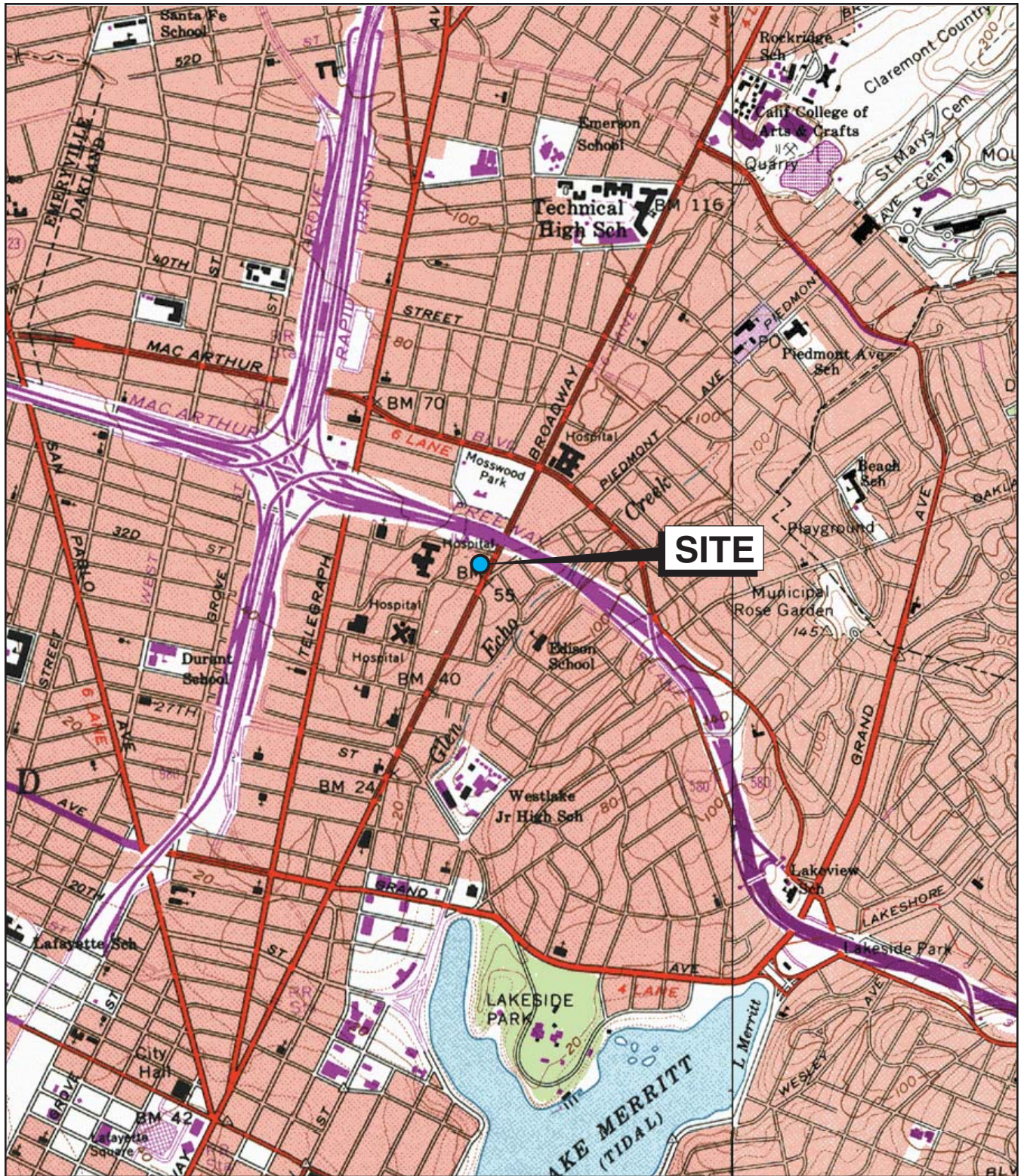
MTBE = Methyl tertiary butyl ether.

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)



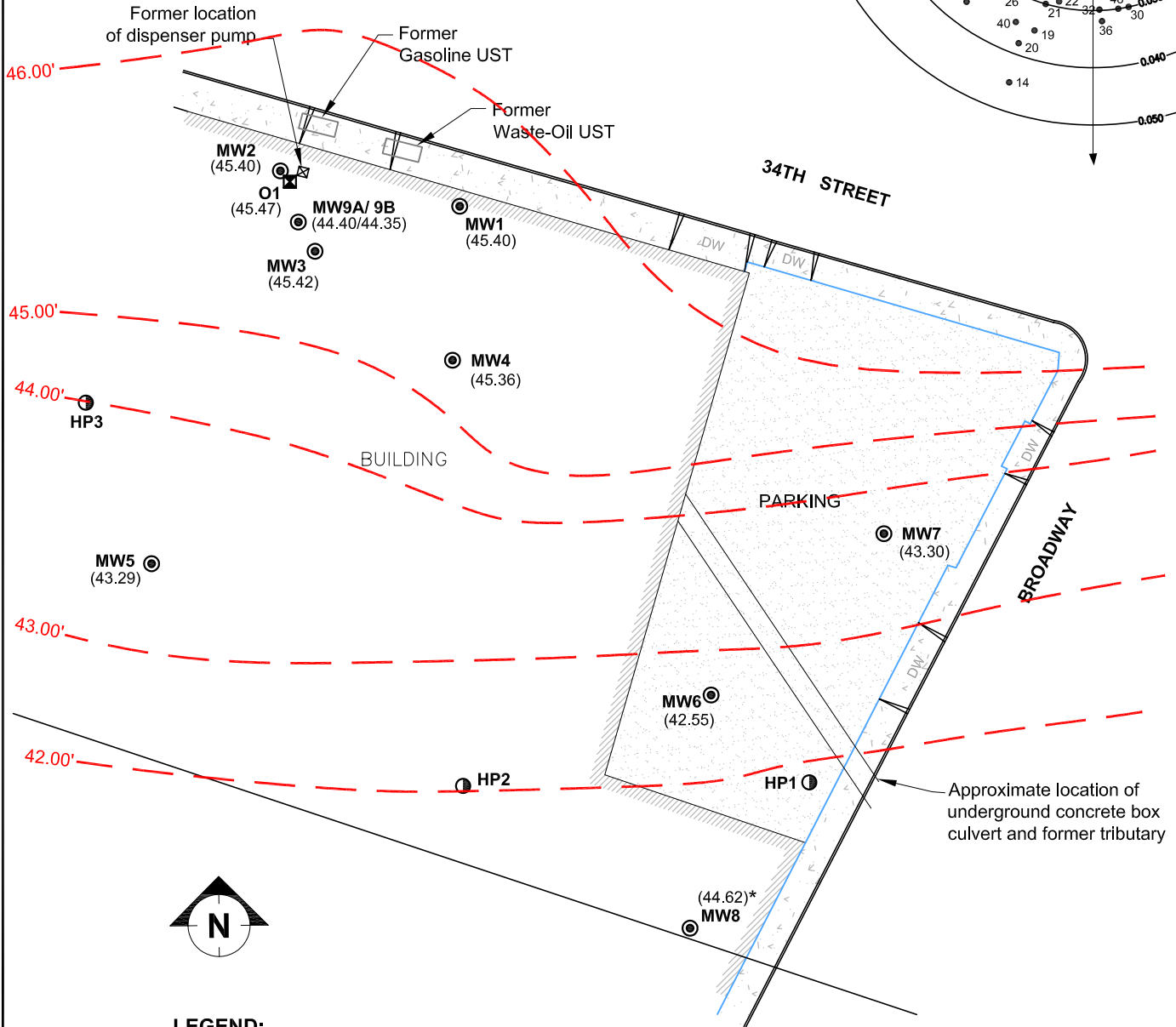
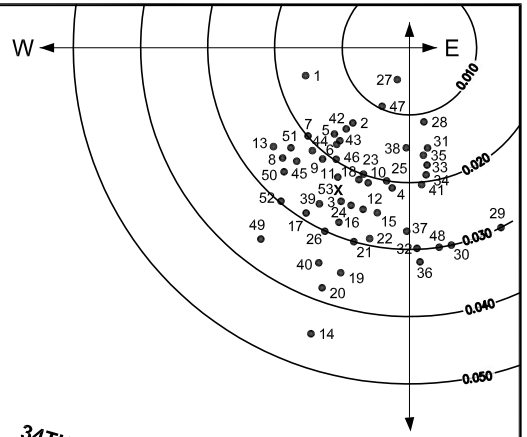
**SITE LOCATION MAP**  
 FORMER VAL STROUGH CHEVROLET  
 327 34TH STREET, OAKLAND, CALIFORNIA

FIGURE:

**1**

**ROSE DIAGRAM**

- Historical
- X This Event



**LEGEND:**

- MW1 ● Groundwater Monitoring Well
- HP1 ● Grab Groundwater Sampling Location
- (40.00) Groundwater Elevation (feet above mean sea level)

42.00' --- Groundwater Elevation Contour (feet above mean sea level)

\* Data not used in Contouring



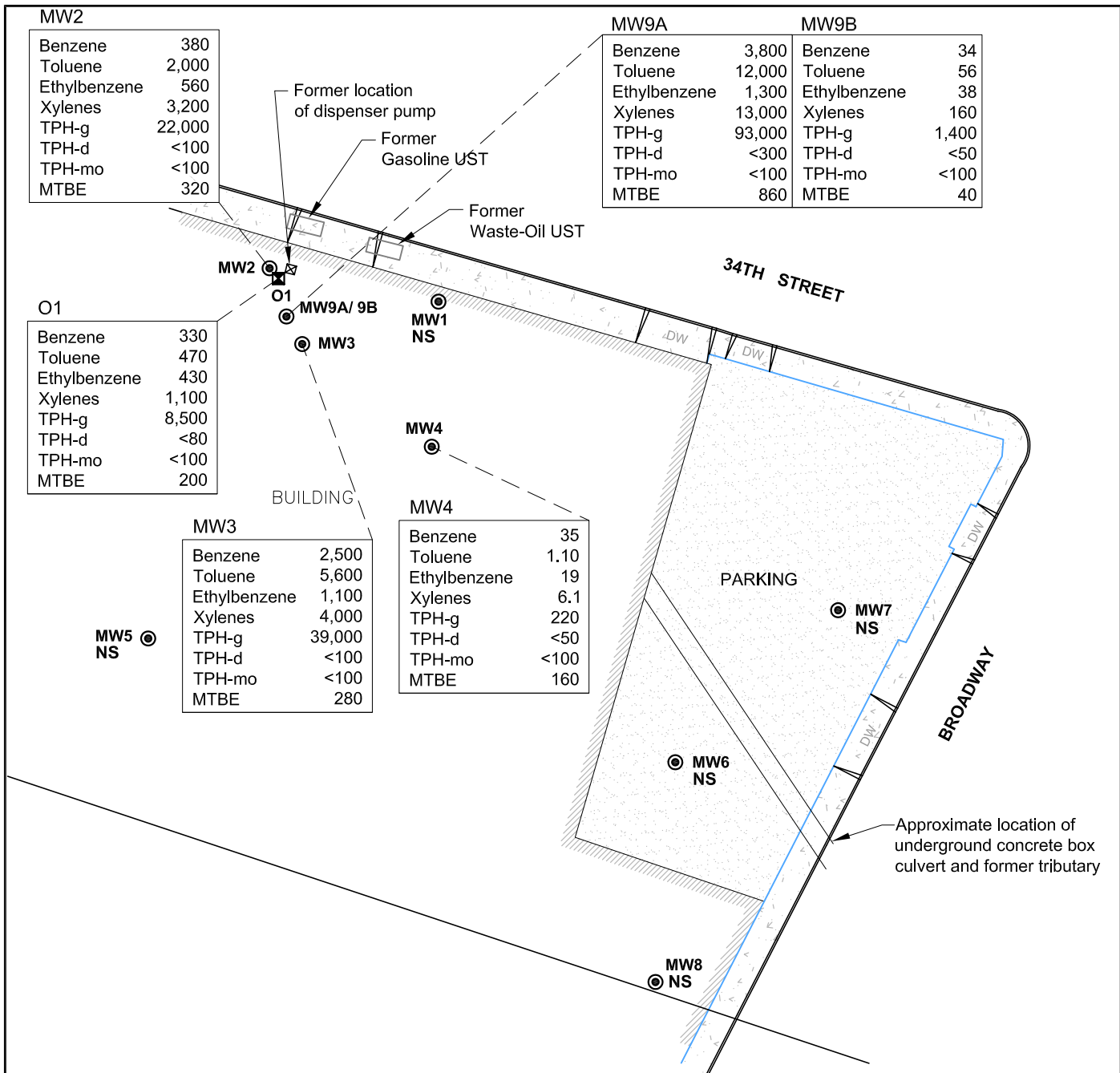
Base Map: Virgil Chavez Land Surveying, dated January 2009.



**GROUNDWATER ELEVATION CONTOUR MAP AND ROSE DIAGRAM**  
**2ND QUARTER 2012 MONITORING EVENT**  
 FORMER VAL STROUGH CHEVROLET  
 327 34TH STREET, OAKLAND, CALIFORNIA  
 JUNE 2012

FIGURE:

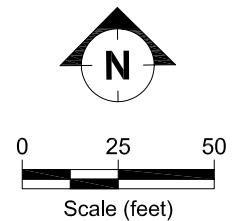
**2**



**LEGEND:**

- MW1** ● 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
- NS** Not sampled this quarter

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



**GROUNDWATER ANALYTICAL DATA**  
**2ND QUARTER 2012 MONITORING EVENT**  
 FORMER VAL STROUGH CHEVROLET  
 327 34TH STREET, OAKLAND, CALIFORNIA  
 JUNE 2012

FIGURE:

**3**



**Appendix A**  
**Field Documents**



# Purging And Sampling Data Sheet

Job Number: <b>TMSTROUGH</b>	Sampler: <b>S. POLSTON</b>	Client: <b>VAL STROUGH</b>
Well ID: <b>MW2</b>	Date: <b>6/4/2012</b>	Site: <b>FORMER CHEVY OAKLAND</b>
Well Diameter: <b>2</b>	DTW: <b>20.31</b>	Total Depth: <b>32.0</b>
Purge Equipment: <b>PURGE PUMP</b>	Tubing (OD) <b>1/2"</b>	<b>New</b> Dedicated
Purge Method: <b>3-5 Casing Vol</b>	Micro/low Flow	Extraction Well
Multipliers: <b>1"= 0.04, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47</b>	Gallons per liner foot	
Total Depth - DTW X Multiplier = 1 casing vol.		80% Recovery = Total Depth -DTW X .20 + DTW

1 volume =  $11.69 \times .16 = 1.87$  Gallons      80% =  $22.65'$

Time	ph	Temp	Cond	Turb	DO	ORP	Gallons	Notes
1056	6.23	19.0	1.36	50.9	7.8	-207	2.0	.5
1100	6.24	19.1	1.32	12.0	9.2	-218	4.0	2.0
1103	6.34	19.1	1.34	6.6	6.6	-197	6.0	4.0
1106	6.36	19.1	1.32	1.4	6.2	-161	6.0	
1108	6.37	19.1	1.31	1.2	6.2	-166	6.5	

Well Dewater: <b>Yes/No</b>	Total Volume Removed: <b>7.0</b>	Gallons
Sample Method: <b>Disp Bailer</b>	New Tubing	Sample port
Sample Date: <b>6/4/2012</b>	Sample Time: <b>1108</b>	DTW at Sample:
Sample ID: <b>MW2</b>	Lab: <b>KIFF</b>	Number of Containers: <b>5</b>
Analysis: <b>TPH- Gas, BTEX, MTBE, TEPH</b>		

Notes:

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# Purging And Sampling Data Sheet

Job Number: <b>TMSTROUGH</b>		Sampler: <b>S. POLSTON</b>		Client: <b>VAL STROUGH</b>	
Well ID: <b>MW3</b>		Date: <b>6/4/2012</b>		Site: <b>FORMER CHEVY OAKLAND</b>	
Well Diameter: <b>2</b>		DTW: <b>20.28</b>		Total Depth <b>32</b>	
Purge Equipment <b>PURGE PUMP</b>			Tubing (OD) <b>1/2"</b>		<b>New</b> Dedicated
Purge Method		<input checked="" type="checkbox"/> 3- 5 Casing Vol <input type="checkbox"/> Micro/low Flow <input type="checkbox"/> Extraction Well <input type="checkbox"/> Other:			
Multipliers		1"= 0.04, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47 Gallons per liner foot			
Total Depth - DTW X Multplier = 1 casing vol.			80% Recovery = Total Depth -DTW X .20 + DTW		

1 volume = 11.72 X .16 = 1.88 Gallons      80% = 22.62

Time	ph	Temp	Cond	Turb	DO	ORP	Gallons	Notes
1234	3.59	19.1	1.71	82	5.13	-167	.5	
1236	4.66	19.1	1.47	28.0	1.93	-190	2.0	
1238	4.85	19.1	1.45	29.8	3.33	-175	4.0	
1240	4.85	19.1	1.47	11.5	3.13	-153	6.0	
1242	4.72	19.2	1.50	24.3	3.46	-148	6.5	

Well Dewater		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Total Volume Removed: <b>7.0</b> Gallons	
Sample Method:		<input checked="" type="checkbox"/> Disp Bailer		<input type="checkbox"/> New Tubing <input type="checkbox"/> Sample port <input type="checkbox"/> Other:	
Sample Date: <b>6/4/2012</b>		Sample Time: <b>1242</b>		DTW at Sample:	
Sample ID: <b>MW3</b>		Lab: <b>KIFF</b>		Number of Containers: <b>5</b>	
Analysis: <b>TPH- Gas, BTEX, MTBE, TEPH</b>					

Notes:

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## Purging And Sampling Data Sheet

Job Number: TMSTROUGH	Sampler: S. POLSTON	Client: VAL STROUGH
Well ID: MW4	Date: 6/4/2012	Site: FORMER CHEVY OAKLAND
Well Diameter: 2	DTW: 19.01	Total Depth: 27.9
Purge Equipment: PURGE PUMP	Tubing (OD) 1/2"	<u>New</u> Dedicated
Purge Method: <u>3-5 Casing Vol</u>	Micro/low Flow	Extraction Well Other:
Multipliers: 1=0.04, 2'=0.16, 3'=0.37, 4'=0.65, 5'=1.02, 6'=1.47	Gallons per liner foot	
Total Depth - DTW X Multiplier = 1 casing vol.		80% Recovery = Total Depth - DTW X .20 ÷ DTW

1 volume =  $8.89 \times .16 = 1.42$  Gallons      80% =  $20.79$

Time	ph	Temp	Cond	Turb	DO	ORP	Gallons	Notes
1031	6.10	19.0	1.12	567	4.35	425	.5	
1033	6.21	19.5	.99	146	2.98	414	1.5	
1035	6.32	19.7	.987	38	2.58	352	3.0	
1037	6.22	19.7	1.06	36	1.99	267	4.5	
1039	6.18	19.8	1.06	032	1.45	237	5.0	

Well Dewater: <u>Yes</u> / No	Total Volume Removed: 5.25	Gallons
Sample Method: <u>Disp Bailer</u>	New Tubing	Sample port Other:
Sample Date: 6/4/2012	Sample Time: 1039	DTW at Sample:
Sample ID: MW4	Lab: KIFF	Number of Containers: 5
Analysis: TPH- Gas, BTEX, MTBE, TEPH		

Notes:

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## Purging And Sampling Data Sheet

Job Number: <b>TMSTROUGH</b>	Sampler: <b>S. POLSTON</b>	Client: <b>VAL STROUGH</b>
Well ID: <b>MW9A</b>	Date: <b>6/4/2012</b>	Site: <b>FORMER CHEVY OAKLAND</b>
Well Diameter: <b>2</b>	DTW: <b>21.51</b>	Total Depth: <b>24.9</b>
Purge Equipment: <b>PURGE PUMP</b>	Tubing (OD) <b>1/2"</b>	<b>New</b> Dedicated
Purge Method: <b>3-5 Casing Vol</b>	Micro/low Flow	Extraction Well Other:
Multipliers:	1"= 0.04, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47 Gallons per liner foot	
Total Depth - DTW X Multiplier = 1 casing vol.		80% Recovery = Total Depth - DTW X .20 + DTW

1 volume =  $3.39 \times .16 = .54$  Gallons      80% =  $22.19$

Time	ph	Temp	Cond	Turb	DO	ORP	Gallons	Notes
1153	6.96	18.6	6.6	212	.88	-175	.6	
1157	6.68	18.5	6.2	89.8	1.5	-45	1.0	Well Dry
1327								DTW=21.92
1328	6.62	18.6	6.1	200	1.23	-106	1.5	

Well Dewater: <b>Yes</b> / No	Total Volume Removed: <del>1.5</del> <b>1.5</b> Gallons
Sample Method: <b>Disp Bailer</b>	New Tubing    Sample port    Other:
Sample Date: <b>6/4/2012</b>	Sample Time: <b>1328</b> DTW at Sample: <b>21.92</b>
Sample ID: <b>MW9A</b>	Lab: <b>KIFF</b> Number of Containers: <b>5</b>
Analysis: <b>TPH- Gas, BTEX, MTBE, TEPH</b>	

Notes:

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## Purging And Sampling Data Sheet

Job Number: <b>TMSTROUGH</b>	Sampler: <b>S. POLSTON</b>	Client: <b>VAL STROUGH</b>
Well ID: <b>MW9B</b>	Date: <b>6/4/2012</b>	Site: <b>FORMER CHEVY OAKLAND</b>
Well Diameter: <b>2</b>	DTW: <b>21.50</b>	Total Depth: <b>38.85</b>
Purge Equipment: <b>PURGE PUMP</b>	Tubing (OD): <b>1/2"</b>	<b>New</b> Dedicated
Purge Method: <b>3.5 Casing Vol</b>	Micro/low Flow	Extraction Well Other:
Multipliers:	1"= 0.04, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47 Gallons per liner foot	
Total Depth - DTW X Multiplier = 1 casing vol.		80% Recovery = Total Depth -DTW X .20 + DTW

1 volume =  $17.35 \times .16 = 2.78$  Gallons      80% =  $24.97$

Time	ph	Temp	Cond	Turb	DO	ORP	Gallons	Notes
1205	4.99	19.1	3.49	50.4	5.30	-5	0.5	
1210	5.27	19.2	2.53	171.0	2.89	-22	3.0	
1214	5.49	19.4	3.12	19.0	4.01	+4	6.0	
1220	5.82	19.5	3.2	70.0	4.14	+30	9.0	
1222	5.42	19.5	3.15	32	4.34	+65	9.5	

Well Dewater: <b>Yes / No</b>	Total Volume Removed: <b>10</b> Gallons
Sample Method: <b>Disp Bailer</b>	New Tubing Sample port Other:
Sample Date: <b>6/4/2012</b>	Sample Time: <b>1222</b> DTW at Sample:
Sample ID: <b>MW9B</b>	Lab: <b>KIFF</b> Number of Containers: <b>5</b>
Analysis: <b>TPH, Gas, BTEX, MTBE, TEPH</b>	

Notes:

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## Purging And Sampling Data Sheet

Job Number: TMSTROUGH	Sampler: S. POLSTON	Client: VAL STROUGH
Well ID: O1	Date: 6/4/2012	Site: FORMER CHEVY OAKLAND
Well Diameter: 2	DTW: 20.49	Total Depth: 39.82
Purge Equipment: PURGE PUMP	Tubing (OD): 1/2"	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">New</span> Dedicated
Purge Method:	3-5 Casing Vol Microflow Flow Extraction Well Other:	
Multipliers:	1"=0.04, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47 Gallons per liner foot	
Total Depth - DTW X Multiplier = 1 casing vol.		80% Recovery = Total Depth - DTW X .20 ÷ DTW

1 volume =  $\frac{3.09}{19.33} \times .16 = 3.09$  Gallons      80% = 24.36

Time	ph	Temp	Cond	Turb	DO	ORP	Gallons	Notes
1126	6.69	19.1	1.55	35.7	4.66	-215	0.5	
1129	6.62	19.06	1.6	1.7	4.8	-181	3.5	
1131	6.43	19.1	1.57	1.2	4.76	-193	6.5	
1133	6.37	19.2	1.54	1.0	4.67	-154	9.5	
1135	6.29	19.1	1.57	3.7	4.5	-177	10.0	

Well Dewater: Yes/No	Total Volume Removed: 10.5	Gallons
Sample Method: <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">Disp Baller</span>	New Tubing	Sample port Other:
Sample Date: 6/4/2012	Sample Time: 1135	DTW at Sample:
Sample ID: O1	Lab: KIFF	Number of Containers: 5
Analysis: TPH, Gas, BTEX, MTBE, TEPH		

Notes:

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2795 2nd Street, Suite 300  
 Davis, CA 95618  
 Lab: 530.297.4800  
 Fax: 530.297.4802

SRG # / Lab No. \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_

Project Contact (Hardcopy or PDF To): **MERHDAD JAVAHERIAN**  
 California EDF Report?  Yes  No  
 Company / Address: **LRM CONSULTING**  
**1534 PLAZA LANE, 94010**  
 Phone Number: **415.706.8935**  
 Global ID: **T06001201644**  
 Fax Number: \_\_\_\_\_  
 EDF Deliverable To (Email Address): \_\_\_\_\_  
 Project #: **TM STROUGH** P.O. #: \_\_\_\_\_  
 Bill to: \_\_\_\_\_  
 Project Name: **FORMER VAL STROUGH CHEVROLET**  
 Sampler Print Name: **SCOTT POLSTON**  
 Sampler Signature: \_\_\_\_\_

Chain-of-Custody Record and Analysis Request

Project Address: 327 34TH STREET OAKLAND, CA 94609	Sampling		Container					Preservative			Matrix		
	Date	Time	40 ml VOA	Sleeve	Poly	Glass	Tedlar	HCl	HNO <sub>3</sub>	None	Water	Soil	Air
<b>MW4</b>	6/4/2012	10:39	X					X					
<b>MW2</b>	6/4/2012	11:08	X					X					
<b>O1</b>	6/4/2012	11:35	X					X					
<b>MW9B</b>	6/4/2012	12:22	X					X					
<b>MW3</b>	6/4/2012	12:42	X					X					
<b>MW9A</b>	6/4/2012	13:28	X					X					

Analysis Request												TAT	
PLEASE CIRCLE METHOD													
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12 hr
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	24 hr
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	48 hr
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	72 hr
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 wk

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received by: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received by: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received by Laboratory: \_\_\_\_\_

Remarks: \_\_\_\_\_

For Lab Use Only: Sample Receipt					
Temp °C	Initials	Date	Time	Therm. ID #	Coagent Present
					Yes / No



## **Appendix B**

### **Laboratory Analytical Reports and Chain-of-Custody Documentation**



## Laboratory Results

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

Subject : 6 Water Samples  
Project Name : FORMER VAL STROUGH CHEVROLET  
Project Number : TM STROUGH

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. Testing procedures comply with the 2003 NELAC and TNI 2009 standards. Laboratory results relate only to the samples tested. This report may be freely reproduced in full, but may only be reproduced in part with the express permission of Kiff Analytical, LLC. Kiff Analytical, LLC is certified by the State of California under the National Environmental Laboratory Accreditation Program (NELAP), lab # 08263CA. If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

Troy Turpen



Subject : 6 Water Samples  
Project Name : FORMER VAL STROUGH CHEVROLET  
Project Number : TM STROUGH

## Case Narrative

Matrix Spike/Matrix Spike Duplicate results associated with samples MW4, MW3, and MW9A for the analyte Ethylbenzene were outside of control limits. This may indicate a bias for the sample that was spiked. Since the LCS recoveries were within control limits, no data are flagged.

Matrix Spike/Matrix Spike Duplicate results associated with samples MW4, MW3, and MW9A for the analyte Methyl-t-butyl ether were affected by the analyte concentrations already present in the un-spiked sample.

Project Name : **FORMER VAL STROUGH CHEVROLET**

Project Number : **TM STROUGH**

Sample : **MW4**

Matrix : Water

Lab Number : 81505-01

Sample Date :06/04/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene</b>	<b>35</b>	0.50	ug/L	EPA 8260B	06/11/12 11:24
<b>Toluene</b>	<b>1.1</b>	0.50	ug/L	EPA 8260B	06/11/12 11:24
<b>Ethylbenzene</b>	<b>19</b>	0.50	ug/L	EPA 8260B	06/11/12 11:24
<b>Total Xylenes</b>	<b>6.1</b>	0.50	ug/L	EPA 8260B	06/11/12 11:24
<b>Methyl-t-butyl ether (MTBE)</b>	<b>160</b>	0.50	ug/L	EPA 8260B	06/11/12 11:24
<b>TPH as Gasoline</b>	<b>220</b>	50	ug/L	EPA 8260B	06/11/12 11:24
1,2-Dichloroethane-d4 (Surr)	100		% Recovery	EPA 8260B	06/11/12 11:24
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	06/11/12 11:24
TPH as Diesel (w/ Silica Gel)	< 50	50	ug/L	M EPA 8015	06/12/12 09:58
TPH as Motor Oil (w/ Silica Gel)	< 100	100	ug/L	M EPA 8015	06/12/12 09:58
Octacosane (Silica Gel Surr)	97.4		% Recovery	M EPA 8015	06/12/12 09:58

Project Name : **FORMER VAL STROUGH CHEVROLET**

Project Number : **TM STROUGH**

Sample : **MW2**

Matrix : Water

Lab Number : 81505-02

Sample Date :06/04/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene</b>	<b>380</b>	4.0	ug/L	EPA 8260B	06/11/12 16:50
<b>Toluene</b>	<b>2000</b>	4.0	ug/L	EPA 8260B	06/11/12 16:50
<b>Ethylbenzene</b>	<b>560</b>	4.0	ug/L	EPA 8260B	06/11/12 16:50
<b>Total Xylenes</b>	<b>3200</b>	4.0	ug/L	EPA 8260B	06/11/12 16:50
<b>Methyl-t-butyl ether (MTBE)</b>	<b>320</b>	4.0	ug/L	EPA 8260B	06/11/12 16:50
<b>TPH as Gasoline</b>	<b>22000</b>	400	ug/L	EPA 8260B	06/11/12 16:50
1,2-Dichloroethane-d4 (Surr)	97.9		% Recovery	EPA 8260B	06/11/12 16:50
Toluene - d8 (Surr)	97.4		% Recovery	EPA 8260B	06/11/12 16:50
TPH as Diesel (w/ Silica Gel) (Note: MRL increased due to interference from Gasoline-range hydrocarbons.)	< 100	100	ug/L	M EPA 8015	06/12/12 10:27
TPH as Motor Oil (w/ Silica Gel)	< 100	100	ug/L	M EPA 8015	06/12/12 10:27
Octacosane (Silica Gel Surr)	99.4		% Recovery	M EPA 8015	06/12/12 10:27

Project Name : **FORMER VAL STROUGH CHEVROLET**

Project Number : **TM STROUGH**

Sample : **O1**

Matrix : Water

Lab Number : 81505-03

Sample Date :06/04/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene</b>	<b>330</b>	2.0	ug/L	EPA 8260B	06/11/12 15:15
<b>Toluene</b>	<b>470</b>	2.0	ug/L	EPA 8260B	06/11/12 15:15
<b>Ethylbenzene</b>	<b>430</b>	2.0	ug/L	EPA 8260B	06/11/12 15:15
<b>Total Xylenes</b>	<b>1100</b>	2.0	ug/L	EPA 8260B	06/11/12 15:15
<b>Methyl-t-butyl ether (MTBE)</b>	<b>200</b>	2.0	ug/L	EPA 8260B	06/11/12 15:15
<b>TPH as Gasoline</b>	<b>8500</b>	200	ug/L	EPA 8260B	06/11/12 15:15
1,2-Dichloroethane-d4 (Surr)	99.9		% Recovery	EPA 8260B	06/11/12 15:15
Toluene - d8 (Surr)	97.8		% Recovery	EPA 8260B	06/11/12 15:15
TPH as Diesel (w/ Silica Gel)	< 80	80	ug/L	M EPA 8015	06/12/12 10:56
(Note: MRL increased due to interference from Gasoline-range hydrocarbons.)					
TPH as Motor Oil (w/ Silica Gel)	< 100	100	ug/L	M EPA 8015	06/12/12 10:56
Octacosane (Silica Gel Surr)	105		% Recovery	M EPA 8015	06/12/12 10:56

Project Name : **FORMER VAL STROUGH CHEVROLET**

Project Number : **TM STROUGH**

Sample : **MW9B**

Matrix : Water

Lab Number : 81505-04

Sample Date :06/04/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene</b>	<b>34</b>	0.50	ug/L	EPA 8260B	06/11/12 14:12
<b>Toluene</b>	<b>56</b>	0.50	ug/L	EPA 8260B	06/11/12 14:12
<b>Ethylbenzene</b>	<b>38</b>	0.50	ug/L	EPA 8260B	06/11/12 14:12
<b>Total Xylenes</b>	<b>160</b>	0.50	ug/L	EPA 8260B	06/11/12 14:12
<b>Methyl-t-butyl ether (MTBE)</b>	<b>40</b>	0.50	ug/L	EPA 8260B	06/11/12 14:12
<b>TPH as Gasoline</b>	<b>1400</b>	50	ug/L	EPA 8260B	06/11/12 14:12
1,2-Dichloroethane-d4 (Surr)	97.9		% Recovery	EPA 8260B	06/11/12 14:12
Toluene - d8 (Surr)	97.2		% Recovery	EPA 8260B	06/11/12 14:12
TPH as Diesel (w/ Silica Gel)	< 50	50	ug/L	M EPA 8015	06/12/12 11:26
TPH as Motor Oil (w/ Silica Gel)	< 100	100	ug/L	M EPA 8015	06/12/12 11:26
Octacosane (Silica Gel Surr)	95.5		% Recovery	M EPA 8015	06/12/12 11:26

Project Name : **FORMER VAL STROUGH CHEVROLET**

Project Number : **TM STROUGH**

Sample : **MW3**

Matrix : Water

Lab Number : 81505-05

Sample Date :06/04/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene</b>	<b>2500</b>	15	ug/L	EPA 8260B	06/11/12 15:53
<b>Toluene</b>	<b>5600</b>	15	ug/L	EPA 8260B	06/11/12 15:53
<b>Ethylbenzene</b>	<b>1100</b>	15	ug/L	EPA 8260B	06/11/12 15:53
<b>Total Xylenes</b>	<b>4000</b>	15	ug/L	EPA 8260B	06/11/12 15:53
<b>Methyl-t-butyl ether (MTBE)</b>	<b>280</b>	15	ug/L	EPA 8260B	06/11/12 15:53
<b>TPH as Gasoline</b>	<b>39000</b>	1500	ug/L	EPA 8260B	06/11/12 15:53
1,2-Dichloroethane-d4 (Surr)	99.7		% Recovery	EPA 8260B	06/11/12 15:53
Toluene - d8 (Surr)	99.3		% Recovery	EPA 8260B	06/11/12 15:53
TPH as Diesel (w/ Silica Gel)	< 100	100	ug/L	M EPA 8015	06/12/12 11:15
(Note: MRL increased due to interference from Gasoline-range hydrocarbons.)					
TPH as Motor Oil (w/ Silica Gel)	< 100	100	ug/L	M EPA 8015	06/12/12 11:15
Octacosane (Silica Gel Surr)	104		% Recovery	M EPA 8015	06/12/12 11:15

Project Name : **FORMER VAL STROUGH CHEVROLET**

Project Number : **TM STROUGH**

Sample : **MW9A**

Matrix : Water

Lab Number : 81505-06

Sample Date :06/04/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene</b>	<b>3800</b>	25	ug/L	EPA 8260B	06/11/12 17:34
<b>Toluene</b>	<b>12000</b>	25	ug/L	EPA 8260B	06/11/12 17:34
<b>Ethylbenzene</b>	<b>1300</b>	25	ug/L	EPA 8260B	06/11/12 17:34
<b>Total Xylenes</b>	<b>13000</b>	25	ug/L	EPA 8260B	06/11/12 17:34
<b>Methyl-t-butyl ether (MTBE)</b>	<b>860</b>	25	ug/L	EPA 8260B	06/11/12 17:34
<b>TPH as Gasoline</b>	<b>93000</b>	2500	ug/L	EPA 8260B	06/11/12 17:34
1,2-Dichloroethane-d4 (Surr)	99.1		% Recovery	EPA 8260B	06/11/12 17:34
Toluene - d8 (Surr)	99.6		% Recovery	EPA 8260B	06/11/12 17:34
TPH as Diesel (w/ Silica Gel)	< 300	300	ug/L	M EPA 8015	06/12/12 11:51
(Note: MRL increased due to interference from Gasoline-range hydrocarbons.)					
TPH as Motor Oil (w/ Silica Gel)	< 100	100	ug/L	M EPA 8015	06/12/12 11:51
Octacosane (Silica Gel Surr)	90.9		% Recovery	M EPA 8015	06/12/12 11:51

**QC Report : Method Blank Data**

Project Name : **FORMER VAL STROUGH CHEVROLET**

Project Number : **TM STROUGH**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
TPH as Diesel (w/ Silica Gel)	< 50	50	ug/L	M EPA 8015	06/08/2012
TPH as Motor Oil (w/ Silica Gel)	< 100	100	ug/L	M EPA 8015	06/08/2012
Octacosane (Silica Gel Surr)	105		%	M EPA 8015	06/08/2012
Benzene	< 0.50	0.50	ug/L	EPA 8260B	06/11/2012
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	06/11/2012
Toluene	< 0.50	0.50	ug/L	EPA 8260B	06/11/2012
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	06/11/2012
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	06/11/2012
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	06/11/2012
1,2-Dichloroethane-d4 (Surr)	100		%	EPA 8260B	06/11/2012
Toluene - d8 (Surr)	97.8		%	EPA 8260B	06/11/2012
Benzene	< 0.50	0.50	ug/L	EPA 8260B	06/11/2012
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	06/11/2012
Toluene	< 0.50	0.50	ug/L	EPA 8260B	06/11/2012
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	06/11/2012
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	06/11/2012
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	06/11/2012
1,2-Dichloroethane-d4 (Surr)	99.7		%	EPA 8260B	06/11/2012
Toluene - d8 (Surr)	99.8		%	EPA 8260B	06/11/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
-----------	----------------	------------------------	-------	-----------------	---------------



## QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : **FORMER VAL STROUGH CHEVROLET**Project Number : **TM STROUGH**

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	833	858	ug/L	M EPA 8015	6/8/12	83.3	85.8	2.94	70-130	25
Benzene	81468-03	<0.50	40.0	40.0	40.3	39.3	ug/L	EPA 8260B	6/11/12	101	98.3	2.41	80-120	25
Ethylbenzene	81468-03	<0.50	40.0	40.0	41.6	40.6	ug/L	EPA 8260B	6/11/12	104	102	2.36	80-120	25
Methyl-t-butyl ether	81468-03	<0.50	40.0	40.0	35.8	35.9	ug/L	EPA 8260B	6/11/12	89.5	89.6	0.137	69.7-121	25
P + M Xylene	81468-03	<0.50	40.0	40.0	40.3	39.6	ug/L	EPA 8260B	6/11/12	101	99.0	1.67	76.8-120	25
Toluene	81468-03	<0.50	40.0	40.0	40.1	39.1	ug/L	EPA 8260B	6/11/12	100	97.9	2.41	80-120	25
Benzene	81505-01	35	40.0	40.0	83.6	82.7	ug/L	EPA 8260B	6/11/12	120	118	1.86	80-120	25
<b>Ethylbenzene</b>	81505-01	19	40.0	40.0	68.8	67.5	ug/L	EPA 8260B	6/11/12	<b>124</b>	<b>121</b>	2.67	80-120	25
<b>Methyl-t-butyl ether</b>	81505-01	160	40.0	40.0	225	225	ug/L	EPA 8260B	6/11/12	<b>174</b>	<b>176</b>	0.684	69.7-121	25

**QC Report : Matrix Spike/ Matrix Spike Duplicate**

Project Name : **FORMER VAL STROUGH CHEVROLET**

Project Number : **TM STROUGH**

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
P + M Xylene	81505-01	4.7	40.0	40.0	46.4	46.2	ug/L	EPA 8260B	6/11/12	104	104	0.465	76.8-120	25
Toluene	81505-01	1.1	40.0	40.0	41.8	41.5	ug/L	EPA 8260B	6/11/12	102	101	0.697	80-120	25

**QC Report : Laboratory Control Sample (LCS)**Project Name : **FORMER VAL STROUGH CHEVROLET**Project Number : **TM STROUGH**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	40.1	ug/L	EPA 8260B	6/11/12	99.7	80-120
Ethylbenzene	40.1	ug/L	EPA 8260B	6/11/12	104	80-120
Methyl-t-butyl ether	40.1	ug/L	EPA 8260B	6/11/12	88.6	69.7-121
P + M Xylene	40.1	ug/L	EPA 8260B	6/11/12	101	76.8-120
TPH as Gasoline	502	ug/L	EPA 8260B	6/11/12	104	70.0-130
Toluene	40.1	ug/L	EPA 8260B	6/11/12	101	80-120
Benzene	39.9	ug/L	EPA 8260B	6/11/12	97.9	80-120
Ethylbenzene	39.9	ug/L	EPA 8260B	6/11/12	98.0	80-120
Methyl-t-butyl ether	39.9	ug/L	EPA 8260B	6/11/12	95.7	69.7-121
P + M Xylene	39.9	ug/L	EPA 8260B	6/11/12	95.3	76.8-120
TPH as Gasoline	504	ug/L	EPA 8260B	6/11/12	96.1	70.0-130
Toluene	39.9	ug/L	EPA 8260B	6/11/12	98.9	80-120



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 Davis, CA 95618  
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SRG # / Lab No. 81505

Page 1 of 1

Project Contact (Hardcopy or PDF To): **MERHDAD JAVAHERIAN**  
 Company / Address: **LRM CONSULTING**  
**1534 PLAZA LANE, 94010**  
 Phone Number: **415.706.8935**  
 Fax Number:  
 Project #: **TM STROUGH** P.O. #:  
 Project Name: **FORMER VAL STROUGH CHEVROLET**  
 California EDF Report?  Yes  No  
 Sampling Company Log Code:  
 Global ID: **T06001201644**  
 EDF Deliverable To (Email Address):  
 Bill to:  
 Sampler Print Name: **SCOTT POLSTON**  
 Sampler Signature:

Chain-of-Custody Record and Analysis Request

Sample Designation	Sampling		Container				Preservative			Matrix			MTBE @ 0.5 ppb (EPA 8260B)	BTEX (EPA 8260B)	TPH Gas (EPA 8260B)	5 Oxygenates (MTBE, DIPE, ETBE, TAME, TBA) (EPA 8260B)	7 Oxygenates (5 oxy + EOH, MeOH) (EPA 8260B)	Lead Scav. (1,2 DCA & 1,2 EDB) (EPA 8260B)	Volatile Halocarbons (EPA 8260B)	Volatile Organics Full List (EPA 8260B)	Volatile Organics (EPA 524.2 Drinking Water)	TPH as Diesel (EPA 8015M)	TPH as Motor Oil (EPA 8015M)	CAM 17 Metals (EPA 200.7 / 6010)	5 Waste Oil Metals (EPA 200.7 / 6010)	Mercury (EPA 245.1 / 7470 / 7474)	Total Lead (EPA 200.7 / 6010)	W.E.L. Lead (SILC)	SILICA GEL CLEAN UP	TAT		
	Date	Time	40 ml VOA	Sleeve	Poly	Glass	Tedlar	HCl	HNO <sub>3</sub>	None	Water	Soil																			Air	
MW4	6/4/2012	10:39	X					X					X	X	X							X	X									12hr
MW2	6/4/2012	11:08	X					X					X	X	X							X	X									24hr
O1	6/4/2012	11:35	X					X					X	X	X							X	X									48hr
MW9B	6/4/2012	12:22	X					X					X	X	X							X	X									72hr
MW3	6/4/2012	12:42	X					X					X	X	X							X	X									1 wk
MW9A	6/4/2012	13:28	X					X					X	X	X							X	X									

Analysis Request

PLEASE CIRCLE METHOD

For Lab Use Only

Relinquished by: *[Signature]* Date: 6/7/12 Time: 10:26 Received by: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received by: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date: 06/07/12 Time: 10:26 Received by Laboratory: *[Signature]*

Remarks:

Temp °C		Initials		Date		Time		Therm. ID #		Event	
										Yes	No

**SAMPLE RECEIPT CHECKLIST**

RECEIVER

*Eug*  
Initials

SRG#: 81505 Date: 060712

Project ID: FORMER VAC STROUGH CHEURDET

Method of Receipt:  Courier  Over-the-counter  Shipper

**COC Inspection**

Is COC present?  Yes  No  
 Custody seals on shipping container?  Intact  Broken  Not present  N/A  
 Is COC Signed by Relinquisher?  Yes  No Dated?  Yes  No  
 Is sampler name legibly indicated on COC?  Yes  No  
 Is analysis or hold requested for all samples?  Yes  No  
 Is the turnaround time indicated on COC?  Yes  No  
 Is COC free of whiteout and uninitialed cross-outs?  Yes  No, Whiteout  No, Cross-outs

**Sample Inspection**

Coolant Present:  Yes  No (includes water)  
 Temperature °C 1-4 Therm. ID# IR-4 Initial Eug Date/Time 060712 1855  N/A  
 Are there custody seals on sample containers?  Intact  Broken  Not present  
 Do containers match COC?  Yes  No  No, COC lists absent sample(s)  No, Extra sample(s) present  
 Are there samples matrices other than soil, water, air or carbon?  Yes  No  
 Are any sample containers broken, leaking or damaged?  Yes  No  
 Are preservatives indicated?  Yes, on sample containers  Yes, on COC  Not indicated  N/A  
 Are preservatives correct for analyses requested?  Yes  No  N/A  
 Are samples within holding time for analyses requested?  Yes  No  
 Are the correct sample containers used for the analyses requested?  Yes  No  
 Is there sufficient sample to perform testing?  Yes  No  
 Does any sample contain product, have strong odor or are otherwise suspected to be hot?  Yes  No

**Receipt Details**

Matrix WA Container type Ves # of containers received 30  
 Matrix \_\_\_\_\_ Container type \_\_\_\_\_ # of containers received \_\_\_\_\_  
 Matrix \_\_\_\_\_ Container type \_\_\_\_\_ # of containers received \_\_\_\_\_  
 Date and Time Sample Put into Temp Storage Date: 060712 Time: 1413

**Quicklog**

Are the Sample ID's indicated:  On COC  On sample container(s)  On Both  Not indicated  
 If Sample ID's are listed on both COC and containers, do they all match?  Yes  No  N/A  
 Is the Project ID indicated:  On COC  On sample container(s)  On Both  Not indicated  
 If project ID is listed on both COC and containers, do they all match?  Yes  No  N/A  
 Are the sample collection dates indicated:  On COC  On sample container(s)  On Both  Not indicated  
 If collection dates are listed on both COC and containers, do they all match?  Yes  No  N/A  
 Are the sample collection times indicated:  On COC  On sample container(s)  On Both  Not indicated  
 If collection times are listed on both COC and containers, do they all match?  Yes  No  N/A

COMMENTS: SR received water as the matrix. Eug 060712 1421