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Alameda County  
Environmental Health



April 28, 2008

***VIA ALAMEDA COUNTY FTP SITE***

Mr. Paresh Khatri  
Alameda County Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502

Re: **Workplan for Site Characterization and Site Cleanup Goals**  
Connell Automobile Dealership  
3093 Broadway  
Oakland, California  
ACEH Case No. 199

Dear Mr. Khatri:

On behalf of the Hill Family Trust and Linden Broadway Trust, Pangea Environmental Services, Inc. has prepared this *Workplan for Site Characterization and Site Cleanup Goals* (Workplan) as requested in your letter dated March 20, 2008. The Workplan proposes a site investigation to provide additional delineation of the downgradient lateral extent of the contaminant plume near the intersection of Broadway and Hawthorne Street. The Workplan also proposes site cleanup goals for the approved Interim Remedial Action Plan (IRAP).

If you have any questions or comments, please call me at (510) 435-8664.

Sincerely,  
**Pangea Environmental Services, Inc.**

A handwritten signature in blue ink that reads "Bob Clark-Riddell". The signature is fluid and cursive.

Bob Clark-Riddell, P.E.  
Principal Engineer

Attachment: *Workplan for Site Characterization and Site Cleanup Goals*

cc: SWRCB Geotracker (electronic copy)  
Mr. George Hill, Geotracker  
Mr. Gordon Linden, Geotracker



## WORKPLAN FOR SITE CHARACTERIZATION AND SITE CLEANUP GOALS

**Connell Automobile Dealership  
3093 Broadway  
Oakland, California  
ACEH Case No. 469**

**April 28, 2008**

*Prepared for:*

Hill Family Trust  
C/O Mr. George Hill  
305 Sheridan Avenue  
Piedmont, California 94611

and

Linden Broadway Trust  
C/O Mr. Gordon Linden  
150 La Salle Avenue  
Piedmont, California 94611


*Prepared by:*

Pangea Environmental Services, Inc.  
1710 Franklin Street, Suite 200  
Oakland, California 94612

*Written by:*

  
Morgan Gillies  
Project Manager



  
Bob Clark-Riddell, P.E.  
Principal Engineer

**PANGEA Environmental Services, Inc.**

## **INTRODUCTION**

On behalf of Hill Family Trust and Linden Broadway Trust, Pangea Environmental Services, Inc. (Pangea) has prepared this *Workplan for Site Characterization and Site Cleanup Goals* (Workplan) for the above referenced site. The purpose of the workplan is to provide additional delineation of the downgradient lateral extent of the contaminant plume near the intersection of Broadway and Hawthorne Street. The Workplan also proposes site cleanup goals for the approved Interim Remedial Action Plan (IRAP). Pangea prepared this Workplan as requested by the March 20, 2008 letter from the Alameda County Environmental Health (ACEH). Our proposed scope of work for site investigation is detailed herein.

## **SITE BACKGROUND**

The site is located on the east side of “Pill Hill” south of Hawthorne Avenue, between Broadway and Webster Street (Figure 1). The northern portion of the site is occupied by the auto repair shop, offices and showrooms of the Connell automobile dealership, while the southern portion of the site is occupied by parking lots. The ground surface elevation ranges from approximately 80 to 100 feet above mean sea level (msl) and slopes southeastwards towards the base of “Pill Hill” at Broadway. Three underground storage tanks (USTs) that previously contained gasoline, diesel, and waste oil were removed from the upper (northwest) portion of the site in December 1989. Soil and groundwater assessment have been ongoing since 1990.

### **Constituents of Concern**

Chemicals of concern at the site are petroleum hydrocarbons (i.e. diesel and gasoline), the lead scavenger 1, 2-dichloroethane, and fuel-related semi-volatile organic compounds (e.g., naphthalene). In some prior analytical results from the site, extractable hydrocarbons have been quantified as total petroleum hydrocarbons as motor oil (TPHmo), although these hydrocarbons may represent the heavier fraction of diesel contamination. Methyl tertiary butyl ether (MTBE) is not a constituent of concern at this site.

### **Previous Environmental Assessment**

Three underground storage tanks (USTs), containing gasoline, diesel and waste oil, were formerly located beneath the sidewalk adjacent to the northern property boundary, as shown on Figure 2. Previous environmental activities associated with the USTS are summarized below. Historical soil and groundwater analytical results are summarized on Tables 1 and 2, respectively.

In 1989 the USTs were removed, soil samples were collected, and the UST cavity was backfilled with clean, imported fill material.

In December 1990, a preliminary site assessment was conducted by Subsurface Consultants, Inc. (SCI), which included the completion of five soil borings (B-1 through B-5) and the installation of monitoring well MW-1 in boring B-5. The soil sample containing the highest hydrocarbon concentrations was collected from 30.5 feet bgs in boring B-5.

In 1989 and 1990, groundwater samples were analyzed from offsite wells LF2, LF3 and LF4 installed by Levine Fricke close to the northern site boundary. Samples collected from the wells in October 1990 indicated that relatively little groundwater contamination was present, since only 10 ug/L of benzene was detected in LF2, and no benzene, toluene, ethylbenzene, and only trace levels of xylenes were detected in wells LF3 and LF4.

In June 1991, SCI performed an additional site assessment consisting of the installation of groundwater monitoring wells MW-2 through MW-7.

In October 1992, SCI conducted CPT testing at seventeen (17) locations onsite and offsite, and installed wells MW-8 through MW-13. Wells MW-8 and MW-10 are six-inch diameter groundwater monitoring/extraction wells, with MW-10 located within the plume and well MW-8 located near the approximate downgradient edge of the site.

In May 1998, SCI completed seven borings (SB-A through SB-G) and converted boring SB-D into monitoring well MW-14 and boring SB-E into well MW-15.

After several meetings with the ACHCSA, RWQCB- SFBR, City of Oakland, and representatives of the site owners in 1998, a risk-based approach for site management and closure was conditionally approved, according to SCI's *Workplan for Expanded CAP Preparation* dated April 15, 1999. After months of correspondence with ACEH and the California UST Cleanup Fund, the risk-based approach was deemed inappropriate. In May 2000, Cambria Environmental Technology, Inc (Cambria) submitted a workplan addendum for additional risk assessment and feasibility testing of active remediation.

In 2000, a potential receptor and preferential pathway survey were conducted by Cambria. The potential receptor and preferential pathway survey included a well survey, conduit study, and a review of surface water and historical geological/hydrogeological maps for the vicinity, and did not identify any significant receptors or pathways of concern.

### **Previous Site Remediation and Feasibility Testing**

In 1991, manual removal of separate phase hydrocarbons (SPH, also known as free product) from site monitoring wells was initiated, and continued until the first quarter of 2007. Manual removal of separate-

phase hydrocarbons (SPH) from monitoring wells has removed a total of approximately 950 pounds (156 gallons) of SPH since 1991.

Between October 1996 and March 1998, operation of a soil vapor extraction (SVE) remediation system on well MW-6 removed approximately 1,421 lbs of hydrocarbons. SVE was discontinued when the groundwater elevation rose and contaminant removal rates decreased.

During September 2000, Cambria conducted feasibility testing of dual-phase extraction (DPE) from select site wells. The feasibility testing indicated that DPE was effective for removing hydrocarbons at the site. Cambria made several inquiries to the ACEH regarding a site corrective action plan, and in June 2004, the ACEH issued a request for an Interim Remediation Work Plan (IRAP).

In November 2004, Pangea submitted an IRAP proposing DPE with air sparging (AS) as the appropriate remedial approach for the site. Additionally, two IRAP addendums, dated December 6, 2005 and January 9, 2006, were prepared at the request of the ACEH. The IRAP with addendums was approved March 17, 2006. Implementation of the IRAP was delayed due to a former prospective purchase of the property, PG&E non-responsiveness, and negotiation of a new lease with the tenants and significant remediation planning to minimize disruption to the tenants.

### **Recent Site Activities**

On February 27 through April 4, 2007, Pangea installed two groundwater monitoring wells (MW-16A and MW-16B) to monitor groundwater during remediation and fifteen remediation wells (AS-1A, AS-1B, AS-2A, AS-3A, AS-3B, AS-4A, RW-1, RW-2, RW-3A, RW-3B, RW-4, RW-5, MW-17A, MW-17B and VE-1) to implement air sparging (AS) and dual phase extraction (DPE). New wells installed at the site were categorized according to the depths of their screen intervals. Shallow (A-zone) wells have screen intervals above approximately 30 feet below grade surface (bgs), which generally straddle the top of the water table, while deeper (B-zone) wells are screened below approximately 30 feet bgs to target deeper contamination. Pangea is obtaining system installation permits, soliciting installation bids from remedial contractors, and has requested installation of higher pressure natural gas service from Pacific Gas and Electric Company (PG&E).

### **Site Geology and Hydrogeology**

Subsurface soil encountered during drilling generally consists of an upper relatively impermeable silty clay or clayey silt unit underlain by a moderately to highly permeable, coarser grained unit consisting of sandy/gravelly clay and clayey/gravelly/silty sand and gravel with thin, laterally discontinuous silty clay interbeds. Throughout much of the site, the deeper sand and gravel unit is present from approximately 25 to 35 ft bgs, although in some areas no sand and gravel was encountered, and silty clay was observed to the total

depth of the soil borings. The deeper extraction wells (MW-1, RW-3B, RW-4 and RW-5) and all of the injection wells (AS-1A through AS-4A and MW-17A/17B) are screened in the sand and gravel unit. The shallowest extraction wells (MW-14, MW-15, RW-1, RW-2, RW-3A and VE-1) are partially screened within the low permeability clay and silt unit.

Historically, the depth to groundwater in site monitoring wells has ranged from approximately 15 to 34 ft bgs. During drilling of wells and borings, groundwater was first encountered at depths of approximately 24 to 31 ft bgs in the upper portion of the site and 18 to 24 ft bgs in the lower portion of the site during well installation activities, but measured depths to groundwater were up to 4 feet higher during well development. These observations suggest that site groundwater is under confined to semi-confined conditions.

### **Groundwater Flow Direction**

Depth-to-water measurements collected during prior monitoring events indicate that the groundwater flow direction has been consistently eastwards onsite, and northeastwards beneath Broadway.

### **Hydrocarbon Distribution in Groundwater**

As illustrated on Figure 2, the area of elevated hydrocarbon concentrations and SPH covers much of the site, with numerous wells containing over 50,000 µg/L total petroleum hydrocarbons as gasoline (TPHg) and over 5,000 µg/L benzene. Wells MW-1, MW-6, MW-14 and MW-15 have historically contained SPH, although no measurable SPH has been observed in these wells during recent quarterly groundwater monitoring events. Offsite migration appears to be minimal, based on relatively low to non-detect concentrations found in downgradient wells MW-7, MW-8 and MW-13.

The lateral extent of hydrocarbon contamination appears to be well defined, except for the northeast boundary of the plume, near the intersection of Broadway and Hawthorne Street (Figure 2). This area is the focus of the proposed investigation.

The vertical extent of hydrocarbon contamination has not been fully delineated in the upgradient (northwest) portion of the site since, as shown on Figure 2, some of the deeper (B) wells (AS-1B, MW-16B) contain similar or higher contaminant concentrations than the shallower (A) wells (AS-1A, MW-16A), although one well cluster (MW-17A/MW-17B, located crossgradient to the south of the source zone) shows the opposite relationship, with the deeper (B) well containing lower concentrations than the shallower (A) well. In the downgradient portion of the plume, the vertical extent of contamination appears to be better defined to the southeast, as indicated by relatively low contaminant concentrations in a grab groundwater sample from 50 feet bgs in boring AS-4B and in routine groundwater samples from deep well RW-3B in comparison to relatively high concentrations in adjacent shallow wells AS-4A and RW-3A (Figure 2). However, further to

the north, well cluster AS-3A/AS-3B shows the reverse relationship, with the deeper (B) well containing higher contaminant concentrations than the shallower (A) well. The somewhat inconsistent results between the shallower and deeper clustered wells are likely due to contaminant migration within preferential pathways resulting from the heterogeneous and discontinuous nature of site soil horizons. Pangea does not recommend additional characterization at this time, other than the downgradient assessment proposed herein.

## **PROPOSED INVESTIGATION**

The objective of the proposed investigation is to characterize the downgradient lateral and vertical magnitude and extent of contamination near the intersection of Broadway and Hawthorne Street. The proposed scope of work to accomplish the investigation objective is detailed below. All field activities will be conducted in accordance with the Standard Operating Procedures (SOPs) detailed in Appendix A.

### **Task 1 - Pre-Field Activities**

Prior to initiating field activities, Pangea will conduct the following tasks:

- Obtain encroachment and excavation permits from the City of Oakland and drilling permits from Alameda County Public Works Agency as necessary;
- Pre-mark the boring locations with white paint, notify Underground Service Alert (USA) of the drilling and sampling activities at least 72 hours before work begins, and conduct private line locating as merited;
- Prepare a site-specific health and safety plan to educate personnel and minimize their exposure to potential hazards related to site activities; and
- Coordinate with drilling and laboratory subcontractors and other involved parties.

### **Task 2 – Soil Borings**

Pangea proposes to collect soil and groundwater samples from at least two downgradient soil boring locations. Proposed boring SB-1 is adjacent to the northeast corner of the site and proposed boring SB-2 is located across Broadway near former boring CPT-16 (where groundwater sampling was not completed). In addition, Pangea will employ a field dynamic assessment method to collect samples from up to two additional step-out boring locations to help achieve investigation objectives.

## Dynamic Lateral and Vertical Assessment

Pangea will advance borings SB-1 and SB-2 to a depth of approximately 40 feet bgs (Figure 2) using *dual-tube* drilling methods. Soil from the boring will be continuously logged, and samples will be collected for hydrocarbon screening purposes at approximately four-foot intervals. Hydrocarbon screening will consist of review of the soil log, visual and olfactory observations and photoionization detector (PID) readings on headspace samples. Representative samples will be submitted for laboratory analysis based on the screening results. Upon reaching total depth, a discrete-depth grab groundwater sample will be collected by pulling back the outer wall of the dual-tube system. Groundwater samples will also be collected at first-encountered groundwater, and possibly at additional horizons if merited based on field observations using a discrete-depth sampler (e.g. Screen-Point Sampler, HydroPunch™, Simulprobe or similar). Pangea proposes using the dual-tube drilling method to minimize the potential for cross-contamination during sampling of deeper groundwater-bearing materials.

If significant signs of contamination are observed in soil boring SB-1 and/or SB-2 (i.e., strong hydrocarbon odors and/or elevated photo-ionization detector readings, or subsequent elevated hydrocarbon analytical results), step-out borings SB-3 and SB-4 will be drilled using the methods described above. Step-out boring SB-3 would be located on the southern side of Hawthorne Street approximately 60 ft east of Broadway, while step-out boring SB-4 would be located approximately 75 ft north of boring SB-2 along the eastern edge of Broadway, as shown on Figure 2.

For all borings, sample cores will be geologically logged and classified according to the Unified Soil Classification System by a trained geologist/scientist or engineer working under the supervision of a California Professional Engineer (PE) or a California Professional Geologist (PG). All groundwater samples and select soil samples will be analyzed for TPHg, benzene, toluene, ethylbenzene, xylenes and MTBE by EPA Method 8015Cm/8021B. Completed borings will be tremie-grouted from the bottom of the hole to the surface.

### **Task 3 – Waste Management and Disposal**

Soil cuttings, monitoring well purge water, and other investigation-derived waste will be stored onsite in Department of Transportation (DOT)-approved 55-gallon drums. The drums and their contents will be held onsite pending laboratory analytical results. Upon receipt of the analytical reports, the waste will be transported to an appropriate disposal/recycling facility.



#### **Task 4 – Report Preparation**

Upon completion of assessment activities, Pangea will prepare a technical report. The report will describe the investigation activities, present tabulated analytical data, and offer conclusions and recommendations.

#### **CLEANUP LEVELS AND GOALS**

The remedial objective is to sufficiently remove subsurface hydrocarbons for natural attenuation to reduce residual contaminants to water quality objectives (cleanup goals) established by the RWQCB Basin Plan within a reasonable time. Pangea anticipates operating the remediation system until dissolved hydrocarbon concentrations are near or below the applicable Environmental Screening Levels (ESLs) established by the RWQCB and/or below water quality objectives specified in the RWQCB Basin Plan. However, if hydrocarbon removal rates reach low and asymptotic levels, Pangea plans to shutdown the remediation system for rebound testing and initial post-remediation groundwater monitoring. Pangea proposes a four-week shutdown period for rebound testing. After the rebound shutdown period, the system will be operated again until removal rates return to low, asymptotic levels. At that time, the system will be shutdown to monitor post-remediation groundwater conditions and determine if residual hydrocarbons will achieve water quality objectives in a reasonable time. If necessary to facilitate achievement of cleanup goals, Pangea will recommend modification of the remediation system/approach.

It is unlikely that groundwater at the site would be considered a potential drinking water resource, since the City of Oakland does not rely on groundwater for drinking water. Pangea is considering using the ESLs where groundwater is *not* a current or potential source of drinking water as the cleanup *level*. However, Pangea understands that the Basin Plan for the area aims to protect water quality for potential future drinking water use. Therefore, ESLs where groundwater *is* a current or potential source of drinking water are applicable for the site, and will be included with the cleanup *goals*.

#### **REFERENCES**

Subsurface Consultants, Inc. (SCI, 1994), *Phase III Hydrocarbon Contamination Assessment*, Connell Oldsmobile, 3093 Broadway, Oakland, California, January 13, 1994.

Pangea Environmental Services, Inc. (Pangea, 2007), *Well Installation Report*, Connell Automobile Dealership, 3093 Broadway, Oakland, California, August 30, 2007.

Pangea Environmental Services, Inc. (Pangea, 2008), *Groundwater Monitoring Report – Fourth Quarter*

2007, Connell Automobile Dealership, 3093 Broadway, Oakland, California, January 31, 2008.

## **ATTACHMENTS**

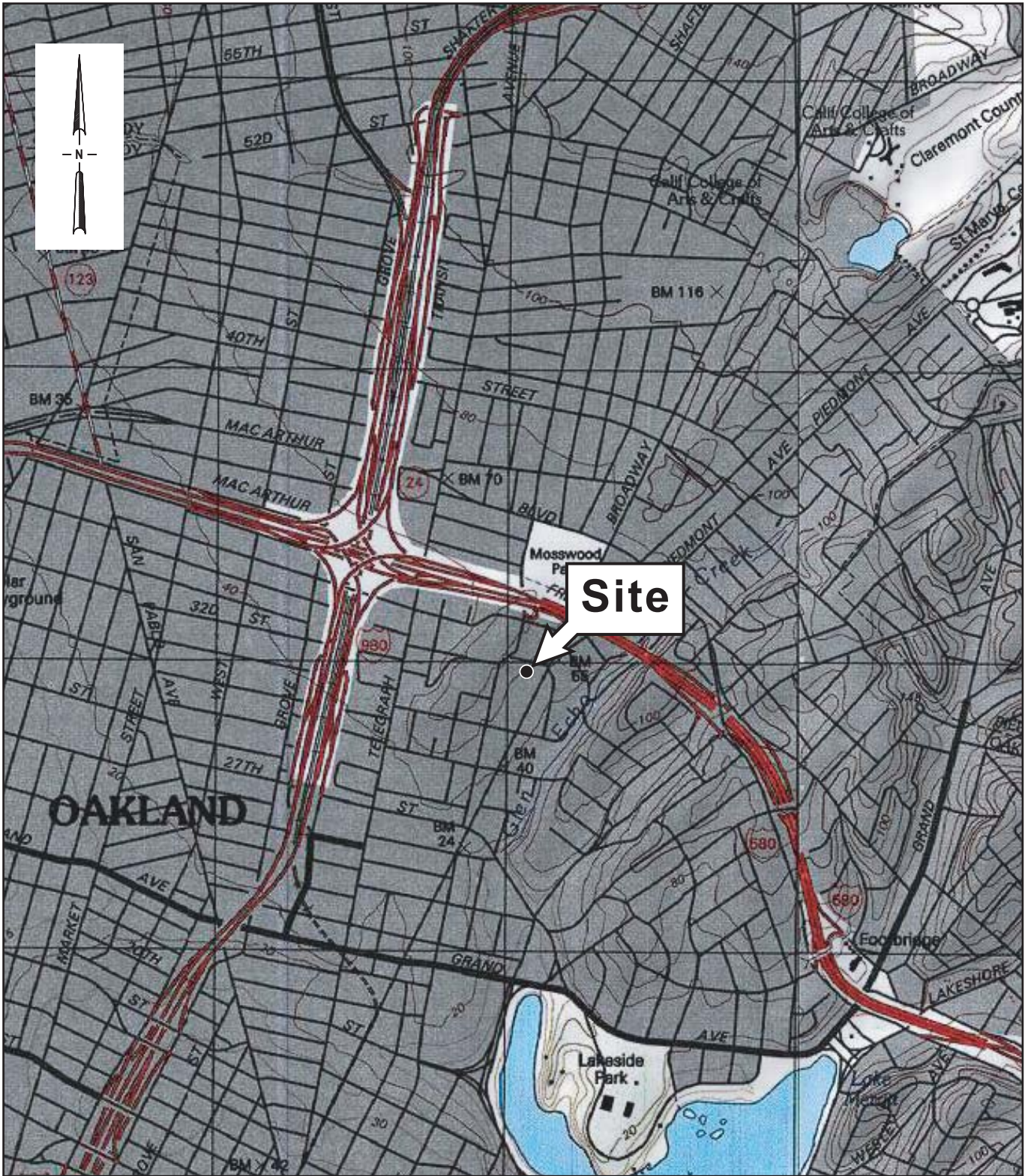
Figure 1 – Vicinity Map

Figure 2 – Hydrocarbon Distribution in Groundwater and Proposed Borings Map

Table 1 – Soil Analytical Data

Table 2 – Groundwater Analytical Data

Appendix A – Standard Operating Procedures



SOURCE: TOPOI MAPS



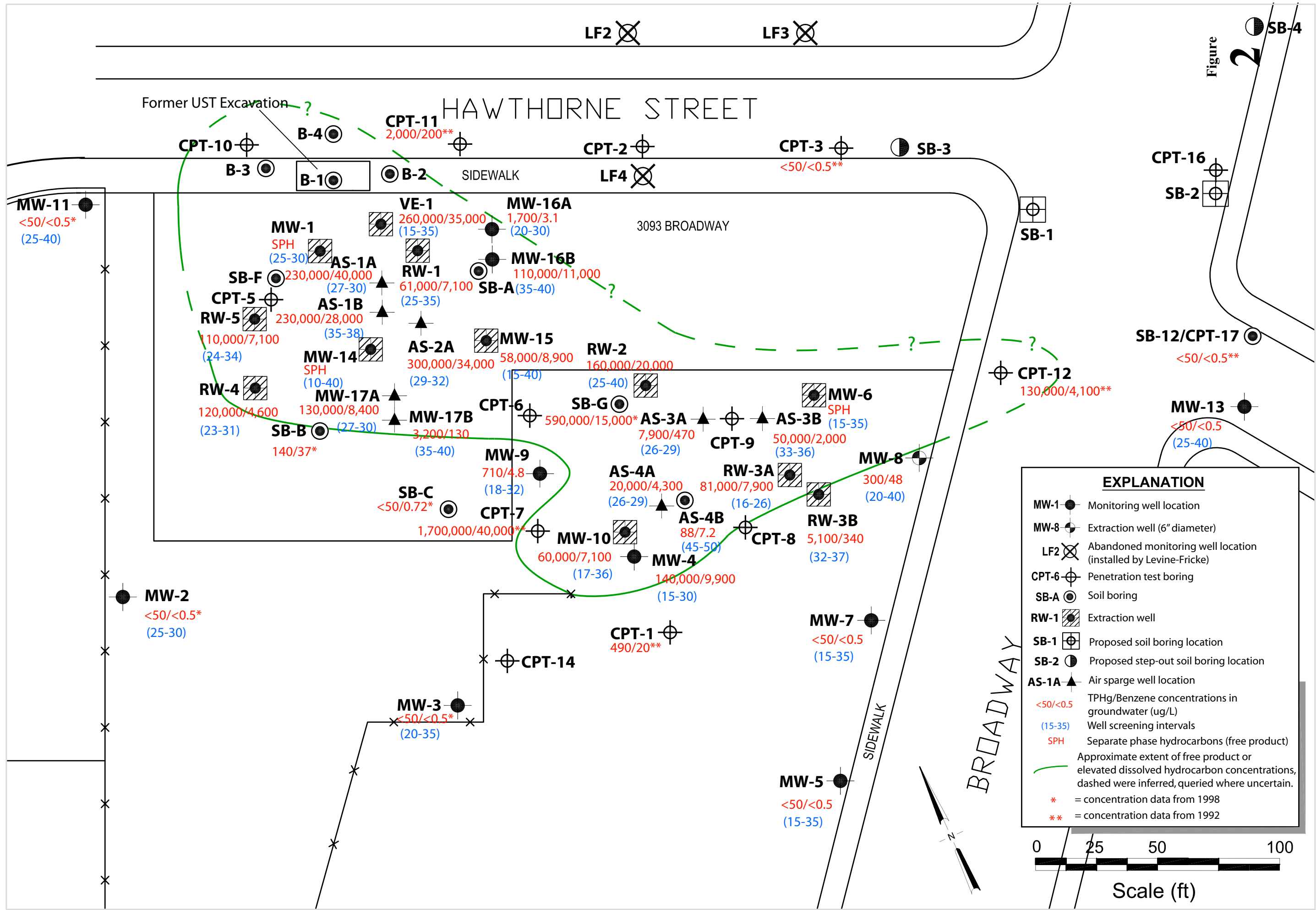
SCALE : 1" = 1/4 MILE

Figure 1

**Connell Automobile Dealership**  
 3093 Broadway  
 Oakland, California



Vicinity Map



# Pangea

**Table 1. Soil Analytical Data - Connell Auto - 3093 Broadway**

Sample ID	Date Sampled	Sample Depth (ft bgs)	TPHd (mg/kg)	TPHg (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl benzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	1,2 DCA (mg/kg)	TOG (mg/kg)
Commercial ESL, drinking water			<b>83</b>	<b>83</b>	<b>0.044</b>	<b>2.9</b>	<b>3.3</b>	<b>2.3</b>	<b>0.023</b>	<b>0.0045</b>	<b>2,500</b>
Commercial ESL, non-drinking water			150	450	0.26	29	33	100	8.4	0.48	2,500

**WELL INSTALLATION & BORINGS - 2007**

AS-3B-24	2/27/2007	24.0	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
AS-3B-24	2/27/2007	24.0	<1.0	3.9	<b>0.42</b>	0.39	0.33	0.33	<0.05	--	--
RW-3-20	2/28/2007	20.0	<b>1,100</b>	<b>9,000</b>	<b>98</b>	<b>470</b>	<b>140</b>	<b>610</b>	<40	--	--
RW-3-24	2/28/2007	24.0	8.2	15	<b>0.72</b>	0.76	0.19	0.76	<0.2	--	--
RW-3-28	2/28/2007	28.0	<1.0	<1.0	<b>0.1</b>	0.019	0.0076	0.018	<0.05	--	--
RW-3-35	2/28/2007	35.0	<1.0	<1.0	0.019	0.065	0.0085	0.046	<0.05	--	--
AS-4B-19	3/1/2007	19.0	--	13	<b>0.46</b>	0.96	0.16	0.85	<0.05	--	--
AS-4B-24	3/1/2007	24.0	<1.0	2.5	<b>0.45</b>	0.034	0.069	0.097	<0.05	--	--
AS-4B-27	3/1/2007	27.0	<1.0	2.8	<b>0.31</b>	0.27	0.056	0.21	<0.05	--	--
AS-4B-33	3/1/2007	33.0	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
AS-4B-46	3/1/2007	46.0	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
RW-2-20	3/1/2007	20.0	<b>400</b>	<b>2,300</b>	<b>25</b>	<b>110</b>	<b>36</b>	<b>180</b>	<10	--	--
RW-2-24	3/1/2007	24.0	<b>260</b>	<b>680</b>	<b>5.9</b>	<b>25</b>	<b>11</b>	<b>56</b>	<5.0	--	--
RW-2-30	3/1/2007	30.0	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
MW-16B-20	3/4/2007	20.0	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
MW-16B-23	3/4/2007	23.0	64	<b>180</b>	<0.050	1.1	<0.050	0.45	<0.50	--	--
MW-16B-26	3/4/2007	26.0	3.8	14	<0.005	0.041	<0.005	0.039	<0.05	--	--
MW-16B-34	3/4/2007	34.0	25	<b>130</b>	<b>1.1</b>	0.99	0.83	1.0	<0.50	--	--
MW-16B-40	3/4/2007	40.0	<1.0	1.5	<b>0.45</b>	<0.005	0.070	<0.005	<0.05	--	--
VE-1-16	3/11/2007	16.0	--	<b>250</b>	<b>2.5</b>	0.51	0.47	1.3	<1.0	--	--
VE-1-19	3/11/2007	19.0	--	6.2	<b>0.84</b>	0.38	0.086	0.43	<0.05	--	--
VE-1-22	3/11/2007	22.0	<b>570</b>	<b>960</b>	<b>14</b>	<b>3.9</b>	2.6	<b>52</b>	<10	--	--
VE-1-28	3/11/2007	28.0	--	<1.0	<0.005	<0.005	<0.005	0.0096	<0.05	--	--
VE-1-31	3/11/2007	31.0	--	15	<b>2.2</b>	1.8	0.22	1.3	<0.20	--	--
VE-1-35	3/11/2007	35.0	1.7	15	<b>1.9</b>	2.3	0.17	0.92	<0.05	--	--
AS-1B-16	3/11/2007	16.0	--	<b>190</b>	<b>5.5</b>	0.76	0.21	0.96	<1.5	--	--
AS-1B-22	3/11/2007	22.0	5.2	11	<b>0.12</b>	0.15	0.068	0.47	<0.05	--	--
AS-1B-28	3/11/2007	28.0	<b>450</b>	<b>2,700</b>	<b>41</b>	<b>150</b>	<b>31</b>	<b>250</b>	<15	--	--
MW-17B-20	3/11/2007	20.0	1.3	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
MW-17B-28	3/11/2007	28.0	25	42	<b>0.14</b>	1.5	0.52	<b>2.7</b>	<0.25	--	--
MW-17B-30	3/11/2007	30.0	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
MW-17B-36	3/11/2007	36.0	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
MW-17B-40	3/11/2007	40.0	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
AS-2A-24	3/18/2007	24.0	--	<b>2,700</b>	<b>19</b>	<b>140</b>	<b>16</b>	<b>260</b>	<5.0	--	--
AS-2A-38	3/18/2007	38.0	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
RW-4-23	3/25/2007	23.0	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
RW-4-29	3/25/2007	29.0	<b>240</b>	<b>1,700</b>	<b>6.9</b>	<b>50</b>	<b>17</b>	<b>130</b>	<10	--	--
RW-4-32	3/25/2007	32.0	--	1.1	0.0081	0.052	0.012	0.073	<0.05	--	--
RW-4-35	3/25/2007	35.0	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
RW-4-38	3/25/2007	38.0	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--	--

# Pangea

**Table 1. Soil Analytical Data - Connell Auto - 3093 Broadway**

Sample ID	Date Sampled	Sample Depth (ft bgs)	TPHd (mg/kg)	TPHg (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl benzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	1,2 DCA (mg/kg)	TOG (mg/kg)
Commercial ESL, drinking water			83	83	0.044	2.9	3.3	2.3	0.023	0.0045	2,500
Commercial ESL, non-drinking water			150	450	0.26	29	33	100	8.4	0.48	2,500

RW-5-20	3/25/2007	20.0	<50	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
RW-5-24	3/25/2007	24.0	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
RW-5-27	3/25/2007	27.0	--	<b>1,800</b>	<b>9.5</b>	<b>60</b>	<b>26</b>	<b>160</b>	<10	--	--
RW-5-30	3/25/2007	30.0	<1.0	2.8	<b>0.13</b>	0.30	0.073	0.40	<0.05	--	--
RW-5-36	3/25/2007	36.0	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
RW-5-40	3/25/2007	40.0	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--	--

**SOIL SAMPLES-MAY 1998 INVESTIGATION**

A-11.0	5/17/1998	11.0	<1	<1	<0.005	<0.005	<0.005	<0.005	<0.02	<0.005	--
A-20.5	5/17/1998	20.5	<1	<1	<0.005	<0.005	<0.005	<0.005	<0.02	<0.005	--
B-6.0	5/16/1998	6.0	<1	<1	<0.005	<0.005	<0.005	<0.005	<0.02	<0.005	--
B-20.5	5/16/1998	20.5	<1	<1	<b>0.076</b>	<0.005	<0.005	<0.005	<0.02	<b>0.077</b>	--
C-6.0	5/16/1998	6.0	<b>3,100</b>	<1	<0.005	<0.005	<0.005	<0.005	<0.02	<0.005	--
C-15.5	5/16/1998	15.5	<b>790</b>	4.6	<0.005	<0.005	0.0079	0.033	<b>0.084</b>	<0.005	--
MW-14/D-11.0	5/16/1998	11.0	<1	<1	<0.005	<0.005	<0.005	<0.005	<0.02	<0.005	--
MW-14/D-21.0	5/16/1998	21.0	<1	<1	<b>0.095</b>	0.1	0.019	0.103	<0.02	<b>0.1</b>	--
MW-15/E-6.0	5/16/1998	6.0	<1	<1	<0.005	<0.005	<0.005	<0.005	<0.02	<0.005	--
MW-15/E-21.0	5/16/1998	21.0	<1	<1	<0.005	<0.005	<0.005	<0.005	<0.02	<0.005	--
F-0.5	5/17/1998	0.5	41	<b>25,000</b>	<25	<25	<25	<25	<100	<0.005	--
F-6.0	5/17/1998	6.0	<1	<1	<0.005	<0.005	<0.005	<0.005	<0.02	<0.005	--
F-21.0	5/17/1998	21.0	<1	<1	0.024	<0.005	<0.005	<0.005	<0.02	<b>0.031</b>	--
G-5.5	5/17/1998	5.5	<1	<1	<0.005	<0.005	<0.005	<0.005	<0.02	<0.005	--
G-16.0	5/17/1998	16.0	<1	<1	<b>0.14</b>	<0.005	<0.005	0.048	<0.02	<b>0.013</b>	--

**WELL BORINGS**

MW-1/15.5	9/28/1990	15.5	<b>1,100</b>	<b>510</b>	<b>0.64</b>	<b>6.5</b>	<b>3.4</b>	<b>14</b>	--	--	610
MW-1/30.5	9/28/1990	30.5	ND	<b>5,500</b>	<b>16.3</b>	<b>170</b>	<b>98</b>	<b>520</b>	--	--	ND
MW-1/34.5	9/28/1990	34.5	ND	2.0	ND	2.2	0.015	0.079	--	--	ND
MW-3/20.5	2/25/1991	20.5	ND	ND	ND	ND	ND	ND	--	--	ND
MW-4/20.5	2/26/1991	20.5	ND	100	<b>0.26</b>	2.5	1.7	<b>7.3</b>	--	--	ND
MW-4/31.0	2/26/1991	31.0	ND	2.7	<b>0.076</b>	0.38	0.054	0.29	--	--	ND
MW-5/20.0	3/8/1991	20.0	ND	ND	ND	0.0069	ND	ND	--	--	--
MW-6/21.0	3/8/1991	21.0	ND	3.2	<b>0.35</b>	0.5	0.028	0.16	--	--	--
MW-6/30.5	3/8/1991	30.5	ND	ND	ND	ND	ND	ND	--	--	--
MW-7/20.5	3/8/1991	20.5	ND	ND	ND	0.017	ND	ND	--	--	--

**TEST BORINGS**

B1-8.0	Dec-90	8.0	ND	63	0.017	ND	0.1	1.6	--	--	ND
B1-23.0	Dec-90	23.0	ND	<b>2,700</b>	<b>16</b>	<b>120</b>	<b>50</b>	<b>220</b>	--	--	ND
B1-33.0	Dec-90	33.0	ND	4	<b>0.11</b>	0.2	0.052	0.29	--	--	ND
B1-43.0	Dec-90	43.0	ND	ND	0.006	0.022	0.007	0.041	--	--	ND
B2-1.5	Dec-90	1.5	--	--	--	--	--	--	--	--	ND
B2-3.0	Dec-90	3.0	--	--	--	--	--	--	--	--	ND
B2-5.5	Dec-90	5.5	--	--	--	--	--	--	--	--	ND
B2-10.5	Dec-90	10.5	--	--	--	--	--	--	--	--	ND
B2-15.0	Dec-90	15.0	ND	ND	ND	ND	ND	0.025	--	--	ND
B2-25.5	Dec-90	25.5	ND	ND	ND	0.011	ND	0.029	--	--	ND

# Pangea

**Table 1. Soil Analytical Data - Connell Auto - 3093 Broadway**

Sample ID	Date Sampled	Sample Depth (ft bgs)	TPHd (mg/kg)	TPHg (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl benzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	1,2 DCA (mg/kg)	TOG (mg/kg)
Commercial ESL, drinking water			<b>83</b>	<b>83</b>	<b>0.044</b>	<b>2.9</b>	<b>3.3</b>	<b>2.3</b>	<b>0.023</b>	<b>0.0045</b>	<b>2,500</b>
Commercial ESL, non-drinking water			150	450	0.26	29	33	100	8.4	0.48	2,500
B3-15.5	Dec-90	15.5	ND	ND	ND	0.01	ND	0.025	--	--	ND
B3-25.5	Dec-90	25.5	ND	8.8	ND	0.29	0.17	0.8	--	--	ND
B3-35.5	Dec-90	35.5	ND	ND	ND	0.021	0.0073	0.041	--	--	ND
B4-14.0	Dec-90	14.0	ND	2.3	0.011	0.038	0.031	0.15	--	--	ND
B4-24.5	Dec-90	24.5	ND	<b>370</b>	<b>0.45</b>	10	0.77	<b>30</b>	--	--	ND
B4-34.5	Dec-90	34.5	ND	ND	0.0061	0.029	0.0067	0.037	--	--	ND
<b>TANK PIT</b>											
1-12.0	Dec-89	12.0	ND	<b>31,000</b>	<b>190</b>	<b>3,000</b>	<b>68</b>	<b>2,600</b>	--	--	710
2-12.0	Dec-89	12.0	ND	<b>490</b>	<b>1.4</b>	2.5	<b>6.1</b>	<b>23</b>	--	--	570
3-12.0	Dec-89	12.0	<b>440</b>	<b>300</b>	ND	<b>720</b>	<b>4.7</b>	<b>12</b>	--	--	540
4-12.0	Dec-89	12.0	--	<b>630</b>	ND	ND	<b>17</b>	<b>29</b>	--	--	--
5-1.0	Dec-89	1.0	--	--	--	--	--	--	--	--	160
6-5.5	Dec-89	5.5	--	--	--	--	--	--	--	--	440
7-1.0	Dec-89	1.0	--	--	--	--	--	--	--	--	460
8-1.0	Dec-89	1.0	--	--	--	--	--	--	--	--	540
9-5.5	Dec-89	5.5	--	--	--	--	--	--	--	--	1,100
10-1.0	Dec-89	1.0	--	--	--	--	--	--	--	--	600
11-1.0	Dec-89	1.0	--	--	--	--	--	--	--	--	530
12-5.5	Dec-89	5.5	--	--	--	--	--	--	--	--	590
13-1.0	Dec-89	1.0	--	--	--	--	--	--	--	--	200
14-0.5	Dec-89	0.5	--	--	--	--	--	--	--	--	440
15-0.5	Dec-89	0.5	--	--	--	--	--	--	--	--	410
16-0.5	Dec-89	0.5	--	--	--	--	--	--	--	--	650

**Abbreviations and Methods:**

Commercial ESL, drinking water = Table A - Environmental Screening Levels for Shallow Soil (<3 meters) where groundwater is a current or potential source of drinking water, as established by the RWQCB-SFBR, Interim Final February 2005 (Revised November 2007).

Commercial ESL, non-drinking water = Table B - Environmental Screening Levels for Shallow Soil (<3 meters) where groundwater is not a current or potential source of drinking water, as established by the RWQCB-SFBR, Interim Final February 2005 (Revised November 2007).

**7.1** = Concentrations in **bold** are soil exceeding the commercial ESL protective of groundwater as a drinking water resource.

ft bgs = feet below ground surface.

mg/kg = milligrams per kilogram.

TPHd = Total petroleum hydrocarbons as diesel by modified EPA Method 8015C.

TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015C.

Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8021B.

MTBE = Methyl tertiary butyl ether by EPA Method 8260.

1,2 DCA = 1,2 Dichloroethane

TOG = Total Oil & Grease

-- = Not collected, not analyzed, or not applicable.

ND = Not detected above laboratory reporting limits.

# Pangea

**Table 2. Groundwater Elevation and Analytical Data: Extractable Hydrocarbons and SVOCs**

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID <i>TOC Elev.</i> (ft)	Sampling Date	Depth to water (ft)	Groundwater Elevation (ft)	TEH (µg/L)	TPHd (µg/L)	TPHmo (µg/L)	2-Methyl naphthalene (µg/L)	Naphthalene (µg/L)	Other SVOCs (µg/L)
MW-1	10/5/1990	26.40	68.08	<500	--	--	--	--	--
94.48	3/1/1991	27.46	67.02	SPH	--	--	--	--	--
	10/12/1992	26.44	68.04	--	--	--	--	--	--
	11/24/1992	26.63	67.85	4,600	--	--	--	--	--
	4/5/1993	23.77	70.71	25,000	--	--	--	--	--
	7/21/1993	24.51	69.97	SPH	--	--	--	--	--
	11/9/1993	26.06	68.42	SPH	--	--	--	--	--
	8/30/1995	21.73	72.75	SPH	--	--	630	1,200	1
	12/4/1995	21.94	72.54	SPH	--	--	--	--	--
	5/2/1996	20.65	73.83	32,000	--	--	250	640	ND
	11/5/1996	24.29	70.19	--	--	--	--	--	--
	5/9/1997	22.79	71.69	28,000	--	--	280	650	2
	11/5/1997	25.06	69.42	28,000	--	--	720	1,500	ND
	2/9/1998	22.64	71.84	27,000	--	--	160	570	3
	5/1/1998	19.95	74.53	29,000	--	--	--	--	--
	5/27/1998	--	--	--	--	--	120	630	4
	11/3/1998	23.29	71.19	37,000	--	--	500	1,100	ND?
	3/24/1999	22.30	72.18	SPH	--	--	--	--	--
	7/1/1999	22.70	71.78	SPH	--	--	--	--	--
	9/21/1999	23.81	70.67	SPH	--	--	--	--	--
	2/9/2000	23.95	70.59	--	SPH	--	--	--	--
	5/31/2000	22.05	72.43	--	SPH	--	--	--	--
	11/14/2000	24.65	69.83	--	SPH	--	--	--	--
	3/1/2001	24.22	70.28	--	SPH	--	--	--	--
	5/7/2001	23.85	70.67	--	SPH	--	--	--	--
	8/1/2001	23.91	70.64	--	SPH	--	--	--	--
	11/5/2001	23.95	70.67	--	SPH	--	--	--	--
	2/13/2002	23.15	71.39	--	SPH (0.07)	--	--	--	--
	5/2/2002	23.91	70.60	--	SPH (0.04)	--	--	--	--
	8/4/2002	24.02	70.48	--	SPH (0.03)	--	--	--	--
	11/26/2002	24.47	70.05	--	SPH (0.05)	--	--	--	--
	1/20/2003	22.37	72.14	--	SPH (0.04)	--	--	--	--
	5/28/2003	21.77	72.73	--	SPH (0.02)	--	--	--	--
	8/5/2003	23.07	71.44	--	SPH (0.04)	--	--	--	--
11/10/2003	22.53	71.97	--	SPH (0.03)	--	--	--	--	
2/18/2004	22.61	71.91	--	SPH (0.05)	--	--	--	--	
5/27/2004	22.08	72.44	--	SPH (0.05)	--	--	--	--	
8/19/2004	24.35	70.43	--	SPH (0.38)	--	--	--	--	
12/27/2004	24.62	70.21	--	SPH (0.44)	--	--	--	--	



# Pangea

**Table 2. Groundwater Elevation and Analytical Data: Extractable Hydrocarbons and SVOCs**

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID <i>TOC Elev.</i> (ft)	Sampling Date	Depth to water (ft)	Groundwater Elevation (ft)	TEH (µg/L)	TPHd (µg/L)	TPHmo (µg/L)	2-Methyl naphthalene (µg/L)	Naphthalene (µg/L)	Other SVOCs (µg/L)
<i>MW-1</i> <i>(cont'd)</i>	2/18/2005	23.14	71.37	--	SPH (0.04)	--	--	--	--
	5/11/2005	22.71	71.79	--	SPH (0.02)	--	--	--	--
	8/3/2005	23.03	71.50	--	SPH (0.06)	--	--	--	--
	11/30/2005	23.98	70.52	--	SPH (0.03)	--	--	--	--
	2/17/2006	23.81	70.68	--	SPH (0.01)	--	--	--	--
	5/12/2006	21.75	72.75	--	SPH (0.02)	--	--	--	--
	8/7/2006	21.35	73.14	--	SPH (0.01)	--	--	--	--
	11/21/2006	23.38	71.13	--	SPH (0.04)	--	--	--	--
	2/12/2007	23.18	71.33	--	SPH (0.03)	--	--	--	--
	5/11/2007	22.68	71.80	--	--	--	--	--	--
	8/16/2007	23.74	70.74	--	--	--	--	--	--
	<b>11/26/2007</b>	<b>24.98</b>	<b>69.50</b>	--	--	--	--	--	--
<i>MW-2</i> <i>94.81</i>	3/1/1991	27.86	66.95	<50	--	--	--	--	--
	11/24/1992	27.91	66.90	<50	--	--	--	--	--
	4/5/1993	25.95	68.86	870	--	--	--	--	--
	7/21/1993	25.59	69.22	<50	--	--	--	--	--
	11/10/1993	26.72	68.09	240	--	--	--	--	--
	8/30/1995	25.75	69.06	150	--	--	--	--	--
	5/3/1996	23.28	71.53	<50	--	--	--	--	--
	5/8/1997	24.58	70.23	<50	--	--	--	--	--
	4/29/1998	22.18	72.63	<47	--	--	--	--	--
<i>MW-3</i> <i>90.08</i>	3/1/1991	23.17	66.91	<50	--	--	--	--	--
	11/25/1992	23.01	67.07	160	--	--	--	--	--
	4/5/1993	22.11	67.97	<50	--	--	--	--	--
	7/21/1993	23.93	66.15	<50	--	--	--	--	--
	11/10/1993	23.14	66.94	<50	--	--	--	--	--
	8/30/1995	20.61	69.47	<50	--	--	--	--	--
	5/3/1996	18.43	71.65	<50	--	--	--	--	--
	5/8/1997	19.77	70.31	<50	--	--	--	--	--
4/29/1998	17.92	72.16	<47	--	--	--	--	--	
<i>MW-4</i> <i>88.84</i>	3/1/1991	23.79	65.05	<500	--	--	--	--	--
	10/12/1992	22.48	66.36	--	--	--	--	--	--
	11/24/1992	22.60	66.24	1,600	--	--	--	--	--
	4/2/1993	20.11	68.73	SPH	--	--	--	--	--
	7/21/1993	20.48	68.36	SPH	--	--	--	--	--
11/9/1993	21.71	67.13	SPH	--	--	--	--	--	

# Pangea

**Table 2. Groundwater Elevation and Analytical Data: Extractable Hydrocarbons and SVOCs**

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID <i>TOC Elev.</i> (ft)	Sampling Date	Depth to water (ft)	Groundwater Elevation (ft)	TEH (µg/L)	TPHd (µg/L)	TPHmo (µg/L)	2-Methyl naphthalene (µg/L)	Naphthalene (µg/L)	Other SVOCs (µg/L)
MW-4	8/30/1995	19.90	68.94	SPH	--	--	--	--	--
(cont'd)	12/1/1995	19.40	69.44	SPH	--	--	--	--	--
	5/2/1996	17.50	71.34	9,200	--	--	--	--	--
	11/4/1996	20.13	68.71	4,700	--	--	--	--	--
	5/8/1997	18.63	70.21	5,100	--	--	--	--	--
	11/5/1997	20.19	68.65	3,700	--	--	--	--	--
	2/9/1998	18.28	70.56	4,800	--	--	--	--	--
	5/1/1998	16.11	72.73	5,000	--	--	--	--	--
	8/4/1998	17.54	71.30	3,500	--	--	--	--	--
	11/2/1998	19.21	69.63	7,200	--	--	--	--	--
	3/26/1999	17.51	71.33	14,000	--	--	--	--	--
	7/1/1999	18.80	70.04	17,000	--	--	370	860	ND
	9/21/1999	19.85	68.99	14,000	--	--	360	820	ND
	2/9/2000	19.76	69.08	--	12,000	1,000	290	700	ND
	5/31/2000	17.90	70.94	--	14,000 **	<500	--	--	--
	11/14/2000	19.63	69.21	--	8,000	290	--	--	--
	3/1/2001	19.68	69.16	--	57,000	2,800	210	510	ND
	5/7/2001	18.60	70.24	--	56,000	3,600	--	--	--
	8/1/2001	18.73	70.11	--	42,000	6,700	--	--	--
	11/5/2001	18.97	69.87	--	49,000	14,000	--	--	--
	2/13/2002	18.59	70.25	--	140,000	11,000	620	1000	--
	5/2/2002	18.77	70.07	--	68,000	<25,000	--	--	--
	8/4/2002	18.95	69.89	--	58,000	<25,000	--	--	--
	11/26/2002	20.83	68.01	--	7,100	<250	--	--	--
	1/20/2003	16.90	71.94	--	29,000	<2500	--	--	--
	5/28/2003	15.25	73.59	--	12,000	300	--	--	--
	8/5/2003	17.05	71.79	--	6,600	<250	--	--	--
	11/10/2003	16.60	72.24	--	15,000	--	--	--	--
	2/18/2004	16.59	72.25	--	16,000	--	--	--	--
	5/27/2004	15.97	72.87	--	23,000	<2,500	--	--	--
	8/19/2004	18.11	70.73	--	19,000	--	--	--	--
	12/27/2004	19.53	69.31	--	8,700	<2,500	--	--	--
	2/18/2005	18.40	70.44	--	13,000	<250	--	--	--
	5/11/2005	17.93	70.91	--	16,000	<1,200	--	--	--
	8/3/2005	18.14	70.70	--	20,000	<5,000	--	--	--
	11/30/2005	19.70	69.14	--	19,000	<2,500	--	--	--
	2/17/2006	17.63	71.21	--	10,000	340	--	--	--
	5/12/2006	15.53	73.31	--	7,500	<1200	--	--	--
	8/7/2006	17.75	71.09	--	17,000	440	--	--	--

# Pangea

**Table 2. Groundwater Elevation and Analytical Data: Extractable Hydrocarbons and SVOCs**

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID <i>TOC Elev.</i> (ft)	Sampling Date	Depth to water (ft)	Groundwater Elevation (ft)	TEH (µg/L)	TPHd (µg/L)	TPHmo (µg/L)	2-Methyl naphthalene (µg/L)	Naphthalene (µg/L)	Other SVOCs (µg/L)
MW-4 <i>(cont'd)</i>	11/21/2006	19.14	69.70	--	21,000	540	--	--	--
	2/12/2007	18.98	69.86	--	16,000	460	--	--	--
	5/11/2007	18.27	70.57	--	23,000	--	--	--	--
	8/16/2007	19.54	69.30	--	30,000	<2,500	--	--	--
	<b>11/26/2007</b>	<b>20.47</b>	<b>68.37</b>	--	<b>14,000</b>	<b>270</b>	--	--	--
MW-5 <i>84.84</i>	3/15/1991	26.31	58.53	<50	--	--	--	--	--
	11/10/1992	26.83	58.01	50	--	--	--	--	--
	4/2/1993	26.62	58.22	<50	--	--	--	--	--
	7/21/1993	26.60	58.24	190	--	--	--	--	--
	11/9/1993	27.24	57.60	170	--	--	--	--	--
	8/30/1995	27.46	57.38	180	--	--	--	--	--
	5/3/1996	26.02	58.82	<50	--	--	--	--	--
	5/8/1997	26.76	58.08	<50	--	--	--	--	--
	4/29/1998	26.55	58.29	<47	--	--	--	--	--
MW-6 <i>85.62</i>  <i>86.94</i>  <i>85.82</i>	3/15/1991	25.82	59.80	<50	--	--	--	--	--
	10/12/1992	25.02	60.60	--	--	--	--	--	--
	12/1/1992	28.87	56.75	SPH	--	--	--	--	--
	4/2/1993	26.96	58.66	SPH	--	--	--	--	--
	7/21/1993	26.17	59.45	SPH	--	--	--	--	--
	11/9/1993	27.51	58.11	SPH	--	--	--	--	--
	8/30/1995	28.00	57.62	SPH	--	--	--	--	--
	12/1/1995	27.58	58.04	SPH	--	--	--	--	--
	5/3/1996	26.83	58.79	9,000	--	--	--	--	--
	<i>86.94</i>	5/9/1997	26.54	60.40	53,000	--	--	--	--
		11/5/1997	26.16	60.78	65,000	--	--	--	--
	<i>85.82</i>	5/1/1998	22.96	62.86	25,000	--	--	--	--
		11/3/1998	24.35	61.47	30,000	--	--	--	--
		3/26/1999	23.82	62.00	SPH	--	--	--	--
		7/1/1999	24.45	61.37	SPH	--	--	--	--
		9/21/1999	24.58	61.24	SPH	--	--	--	--
		2/9/2000	24.93	61.24	--	SPH	--	--	--
		5/31/2000	23.47	62.41	--	SPH	--	--	--
		11/14/2000	24.61	61.21	--	SPH	--	--	--
		3/1/2001	23.97	61.85	--	SPH	--	--	--
	5/7/2001	23.17	62.71	--	SPH	--	--	--	
	8/1/2001	obstruction in well		--	--	--	--	--	
	11/5/2001	obstruction in well		--	--	--	--	--	

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**Table 2. Groundwater Elevation and Analytical Data: Extractable Hydrocarbons and SVOCs**

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID <i>TOC Elev.</i> (ft)	Sampling Date	Depth to water (ft)	Groundwater Elevation (ft)	TEH (µg/L)	TPHd (µg/L)	TPHmo (µg/L)	2-Methyl naphthalene (µg/L)	Naphthalene (µg/L)	Other SVOCs (µg/L)
<i>MW-6</i>	2/13/2002	obstruction in well		--	--	--	--	--	--
<i>(cont'd)</i>	5/2/2002	23.25	62.41	--	SPH (0.05)	--	--	--	--
	8/4/2002	23.55	62.29	--	SPH (0.03)	--	--	--	--
	11/26/2002	24.22	61.62	--	SPH (0.03)	--	--	--	--
	1/20/2003	22.49	63.36	--	SPH (0.04)	--	--	--	--
	5/28/2003	21.92	63.93	--	SPH (0.04)	--	--	--	--
	8/5/2003	23.98	61.87	--	SPH (0.04)	--	--	--	--
	11/10/2003	23.50	62.40	--	SPH (0.10)	--	--	--	--
	2/18/2004	22.21	63.64	--	SPH (0.04)	--	--	--	--
	5/27/2004	22.01	63.85	--	SPH (0.05)	--	--	--	--
	8/19/2004	24.16	61.68	--	SPH (0.03)	--	--	--	--
	12/27/2004	24.69	61.13	--	SPH (sheen)	--	--	--	--
	2/18/2005	23.55	62.33	--	SPH (0.08)	--	--	--	--
	5/11/2005	22.90	62.97	--	SPH (0.06)	--	--	--	--
	8/3/2005	23.68	62.19	--	SPH (0.06)	--	--	--	--
	11/30/2005	24.17	61.67	--	SPH (0.02)	--	--	--	--
	2/17/2006	23.89	61.95	--	SPH (0.03)	--	--	--	--
	5/12/2006	22.66	63.18	--	SPH (0.03)	--	--	--	--
	8/7/2006	22.83	63.01	--	SPH (0.02)	--	--	--	--
	11/21/2006	23.92	61.92	--	SPH (0.02)	--	--	--	--
	2/12/2007	23.97	61.87	--	SPH (0.02)	--	--	--	--
	5/11/2007	23.54	62.30	--	--	--	--	--	--
	8/16/2007	24.18	61.66	--	--	--	--	--	--
	<b>11/26/2007</b>			<b>Unable to gauge or sample - vehicle parked over well</b>					
<i>MW-7</i>	3/15/1991	21.63	63.78	<50	--	--	--	--	--
<i>85.41</i>	11/24/1992	21.52	63.89	<50	--	--	--	--	--
	4/2/1993	20.08	65.33	<50	--	--	--	--	--
	7/21/1993	19.59	65.82	150	--	--	--	--	--
	11/9/1993	20.65	64.76	200	--	--	--	--	--
	8/30/1995	18.78	66.63	170	--	--	--	--	--
	12/1/1995	19.47	65.94	<50	--	--	--	--	--
	5/2/1996	17.15	68.26	<50	--	--	--	--	--
	8/8/1996	18.48	66.93	<50	--	--	--	--	--
	11/4/1996	18.69	66.72	<50	--	--	--	--	--
	2/6/1997	17.44	67.97	<50	--	--	--	--	--
	5/8/1997	17.72	67.69	<50	--	--	--	--	--
	8/7/1997	18.49	66.92	<50	--	--	--	--	--
	11/5/1997	18.86	66.55	<50	--	--	--	--	--

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**Table 2. Groundwater Elevation and Analytical Data: Extractable Hydrocarbons and SVOCs**

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID <i>TOC Elev.</i> (ft)	Sampling Date	Depth to water (ft)	Groundwater Elevation (ft)	TEH (µg/L)	TPHd (µg/L)	TPHmo (µg/L)	2-Methyl naphthalene (µg/L)	Naphthalene (µg/L)	Other SVOCs (µg/L)
MW-7	2/9/1998	17.56	67.85	<50	--	--	--	--	--
(cont'd)	4/29/1998	16.23	69.18	<47	--	--	--	--	--
	8/4/1998	17.24	68.17	<50	--	--	--	--	--
	11/2/1998	17.91	67.50	<50	--	--	--	--	--
	3/26/1999	16.42	68.99	<50	--	--	--	--	--
	7/1/1999	17.90	67.51	<50	--	--	<10	<10	ND
	9/21/1999	18.91	66.50	<48	--	--	<9.5	<9.5	ND
	2/9/2000	16.74	68.67	--	<50	<250	<10	<10	ND
	5/31/2000	16.21	69.20	--	<50	<500	--	--	--
	11/14/2000	17.00	68.41	--	<50	<250	--	--	--
	3/1/2001	17.09	68.32	--	<50	<250	<10	<10	ND
	5/7/2001	17.19	68.22	--	<50	<250	--	--	--
	8/1/2001	17.25	68.16	--	<50	<250	--	--	--
	11/5/2001	17.35	68.06	--	<50	<250	--	--	--
	2/13/2002	17.50	67.91	--	<50	<250	--	--	--
	5/2/2002	17.30	68.11	--	<50	<250	--	--	--
	8/4/2002	17.58	67.83	--	<50	<250	--	--	--
	11/26/2002	18.35	67.06	--	<50	<250	--	--	--
	1/20/2003	15.84	69.57	--	83	<250	--	--	--
	5/28/2003	15.19	70.22	--	<50	<250	--	--	--
	8/5/2003	17.00	68.41	--	<50	<250	--	--	--
	11/10/2003	16.54	68.87	--	<50	--	--	--	--
	2/18/2004	16.47	68.94	--	<50	--	--	--	--
	5/27/2004	15.93	69.48	--	<50	<250	--	--	--
	8/19/2004	18.05	67.36	--	<50	--	--	--	--
	12/27/2004	17.35	68.06	--	<50	<250	--	--	--
	2/18/2005	16.23	69.18	--	<50	<250	--	--	--
	5/11/2005	15.79	69.62	--	<50	<250	--	--	--
	8/3/2005	17.52	67.89	--	<50	<250	--	--	--
	11/30/2005	19.57	65.84	--	<50	<250	--	--	--
	2/17/2006	16.82	68.59	--	<50	<250	--	--	--
	5/12/2006	15.86	69.55	--	<50	<250	--	--	--
	8/7/2006	17.52	67.89	--	<50	<250	--	--	--
	11/21/2006	18.67	66.74	--	<50	<250	--	--	--
	2/12/2007	18.20	67.21	--	<50	<250	--	--	--
	5/11/2007	17.73	67.68	--	<50	--	--	--	--
	8/16/2007	18.86	66.55	--	<50	<250	--	--	--
	<b>11/26/2007</b>	<b>19.51</b>	<b>65.90</b>	--	<b>&lt;50</b>	<b>&lt;250</b>	--	--	--

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**Table 2. Groundwater Elevation and Analytical Data: Extractable Hydrocarbons and SVOCs**

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID <i>TOC Elev.</i> (ft)	Sampling Date	Depth to water (ft)	Groundwater Elevation (ft)	TEH (µg/L)	TPHd (µg/L)	TPHmo (µg/L)	2-Methyl naphthalene (µg/L)	Naphthalene (µg/L)	Other SVOCs (µg/L)
MW-8	10/12/1992	27.70	57.80	--	--	--	--	--	--
85.50	11/25/1992	27.62	57.88	170	--	--	--	--	--
	4/8/1993	26.64	58.86	100	--	--	--	--	--
	7/21/1993	26.60	58.90	90	--	--	--	--	--
	11/11/1993	27.18	58.32	170	--	--	--	--	--
	8/30/1995	26.35	59.15	240	--	--	--	--	--
	12/4/1995	26.72	58.78	<50	--	--	--	--	--
	5/3/1996	25.47	60.03	94	--	--	--	--	--
	8/8/1996	26.41	59.09	250	--	--	--	--	--
	11/5/1996	26.77	58.73	<50	--	--	--	--	--
	2/6/1997	25.84	59.66	130	--	--	--	--	--
	5/9/1997	26.39	59.11	120	--	--	--	--	--
	8/7/1997	26.72	58.78	150	--	--	--	--	--
	11/5/1997	26.82	58.68	110	--	--	--	--	--
	2/9/1998	25.57	59.93	75	--	--	--	--	--
	5/1/1998	25.64	59.86	210	--	--	--	--	--
	8/5/1998	25.96	59.54	260	--	--	--	--	--
	11/3/1998	26.27	59.23	190	--	--	--	--	--
	3/31/1999	20.93	64.57	200	--	--	--	--	--
	7/1/1999	26.59	58.91	170	--	--	<9.6	<9.6	ND
	9/21/1999	26.89	58.61	420	--	--	<9.4	<9.4	ND
	2/9/2000	26.60	58.90	--	120	280	<10	<10	ND
	5/31/2000	26.16	59.34	--	160 **	<500	--	--	--
	11/14/2000	26.60	58.90	--	150	< 250	--	--	--
	3/1/2001	26.41	59.09	--	54	<250	<10	<10	Phenol: 25
	5/7/2001	26.55	58.95	--	<50	<250	--	--	--
	8/1/2001	26.71	58.79	--	58	<250	--	--	--
	11/5/2001	26.67	58.83	--	84	<250	--	--	--
	2/13/2002	26.15	59.35	--	83	<250	--	--	--
	5/2/2002	26.63	58.87	--	<50	<250	--	--	--
	8/4/2002	26.80	58.70	--	260	<250	--	--	--
	11/26/2002	27.50	58.00	--	<50	<250	--	--	--
	1/20/2003	24.93	60.57	--	63	<250	--	--	--
	5/28/2003	24.28	61.22	--	<50	<250	--	--	--
	8/5/2003	26.51	58.99	--	2,700	380	--	--	--
	11/10/2003	26.04	59.46	--	<50	--	--	--	--
	2/18/2004	25.97	59.53	--	<50	--	--	--	--
	5/27/2004	25.31	60.19	--	<50	<250	--	--	--
	8/19/2004	27.55	57.95	--	<50	--	--	--	--

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**Table 2. Groundwater Elevation and Analytical Data: Extractable Hydrocarbons and SVOCs**

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID <i>TOC Elev.</i> (ft)	Sampling Date	Depth to water (ft)	Groundwater Elevation (ft)	TEH (µg/L)	TPHd (µg/L)	TPHmo (µg/L)	2-Methyl naphthalene (µg/L)	Naphthalene (µg/L)	Other SVOCs (µg/L)
MW-8 <i>(cont'd)</i>	12/27/2004	26.50	59.00	--	<50	<250	--	--	--
	2/18/2005	26.00	59.50	--	<50	<250	--	--	--
	5/11/2005	25.47	60.03	--	<50	<250	--	--	--
	8/3/2005	26.31	59.19	--	53	<250	--	--	--
	11/30/2005	26.51	58.99	--	<50	<250	--	--	--
	2/17/2006	26.11	59.39	--	<50	<250	--	--	--
	5/12/2006	25.38	60.12	--	<50	<250	--	--	--
	8/7/2006	26.10	59.40	--	<50	<250	--	--	--
	11/21/2006	26.43	59.07	--	<50	<250	--	--	--
	2/12/2007	26.29	59.21	--	120	<250	--	--	--
	5/11/2007	26.23	59.27	--	<50	--	--	--	--
	8/16/2007	26.81	58.69	--	56	<250	--	--	--
	<b>11/26/2007</b>	<b>26.99</b>	<b>58.51</b>	--	<b>&lt;50</b>	<b>&lt;250</b>	--	--	--
	MW-9 <i>90.37</i>	11/24/1992	23.51	66.86	320	--	--	--	--
4/5/1993		21.14	69.23	920	--	--	--	--	--
7/21/1993		21.54	68.83	450	--	--	--	--	--
11/10/1993		27.53	62.84	450	--	--	--	--	--
8/30/1995		19.59	70.78	680	--	--	--	--	--
12/4/1995		20.65	69.72	--	--	--	--	--	--
5/2/1996		18.63	71.74	710	--	--	--	--	--
11/5/1996		20.69	69.68	420	--	--	--	--	--
5/9/1997		19.96	70.41	490	--	--	--	--	--
8/8/1997		20.84	69.53	480	--	--	--	--	--
11/5/1997		21.55	68.82	370	--	--	--	--	--
2/9/1998		20.21	70.16	410	--	--	--	--	--
5/1/1998		19.27	71.10	450	--	--	--	--	--
8/5/1998		19.35	71.02	630	--	--	--	--	--
11/2/1998		20.43	69.94	500	--	--	--	--	--
3/25/1999		18.46	71.91	630	--	--	--	--	--
7/1/1999		19.95	70.42	570	--	--	<9.5	<9.5	ND
9/21/1999	21.15	69.22	770	--	--	<9.4	<9.4	ND	
2/9/2000	21.08	69.29	--	--	320	<250	<10	<10	ND

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**Table 2. Groundwater Elevation and Analytical Data: Extractable Hydrocarbons and SVOCs**

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID <i>TOC Elev.</i> (ft)	Sampling Date	Depth to water (ft)	Groundwater Elevation (ft)	TEH (µg/L)	TPHd (µg/L)	TPHmo (µg/L)	2-Methyl naphthalene (µg/L)	Naphthalene (µg/L)	Other SVOCs (µg/L)
MW-9	5/31/2000	19.11	71.26	--	390 **	<500	--	--	--
(cont'd)	11/14/2000	20.90	69.47	--	160	<250	--	--	--
	3/1/2001	20.45	69.92	--	220	<250	<10	<10	ND
	5/7/2001	19.83	70.54	--	290	<250	--	--	--
	8/1/2001	20.02	70.35	--	460	<250	--	--	--
	11/5/2001	19.85	70.52	--	230	<250	--	--	--
	2/13/2002	19.80	70.57	--	210	<250	--	--	--
	5/2/2002	19.93	70.44	--	250	<250	--	--	--
	8/4/2002	20.20	70.17	--	300	<250	--	--	--
	11/26/2002	20.37	70.00	--	270	<250	--	--	--
	1/20/2003	17.93	72.44	--	350	<250	--	--	--
	5/28/2003	17.25	73.12	--	91	<250	--	--	--
	8/5/2003	19.03	71.34	--	210	<250	--	--	--
	11/10/2003	18.65	71.72	--	250	--	--	--	--
	2/18/2004	18.41	71.96	--	250	--	--	--	--
	5/27/2004	17.89	72.48	--	160	<250	--	--	--
	8/19/2004	20.14	70.23	--	160	--	--	--	--
	12/27/2004	21.65	68.72	--	91	<250	--	--	--
	2/18/2005	19.97	70.40	--	120	<250	--	--	--
	5/11/2005	19.41	70.96	--	76	<250	--	--	--
	8/3/2005	19.35	71.02	--	110	<250	--	--	--
	11/30/2005	20.96	69.41	--	210	<250	--	--	--
	2/17/2006	19.13	71.24	--	120	<250	--	--	--
	5/12/2006	17.70	72.67	--	88	<250	--	--	--
	8/7/2006	18.82	71.55	--	130	<250	--	--	--
	11/21/2006	20.10	70.27	--	110	<250	--	--	--
	2/12/2007	20.48	69.89	--	74	<250	--	--	--
	5/11/2007	19.55	70.82	--	57	--	--	--	--
	8/16/2007	20.83	69.54	--	82	<250	--	--	--
	<b>11/26/2007</b>	<b>21.79</b>	<b>68.58</b>	--	<b>81</b>	<b>&lt;250</b>	--	--	--
MW-10	10/12/1992	21.55	67.05	--	--	--	--	--	--
88.60	11/24/1992	21.86	66.74	1,300	--	--	--	--	--
	4/5/1993	19.14	69.46	5,000	--	--	--	--	--



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**Table 2. Groundwater Elevation and Analytical Data: Extractable Hydrocarbons and SVOCs**

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID <i>TOC Elev.</i> (ft)	Sampling Date	Depth to water (ft)	Groundwater Elevation (ft)	TEH (µg/L)	TPHd (µg/L)	TPHmo (µg/L)	2-Methyl naphthalene (µg/L)	Naphthalene (µg/L)	Other SVOCs (µg/L)
MW-10 <i>(cont'd)</i>	7/21/1993	19.79	68.81	20,000	--	--	--	--	--
	8/30/1995	17.99	70.61	5,900	--	--	--	--	--
	5/3/1996	17.04	71.56	5,600	--	--	--	--	--
	5/9/1997	18.36	70.24	2,500	--	--	--	--	--
	5/1/1998	15.84	72.76	2,000	--	--	--	--	--
MW-11 <i>102.06</i>	11/24/1992	33.65	68.41	220	--	--	--	--	--
	12/8/92*	33.37	68.69	140	--	--	--	--	--
	12/8/1992	33.37	68.69	120	--	--	--	--	--
	4/5/1993	31.03	71.03	<50	--	--	--	--	--
	7/21/1993	31.90	70.16	150	--	--	--	--	--
	11/9/1993	32.60	69.46	60	--	--	--	--	--
	8/30/1995	28.92	73.14	240	--	--	--	--	--
	5/3/1996	28.00	74.06	<50	--	--	--	--	--
	5/8/1997	29.93	72.13	<50	--	--	--	--	--
	4/29/1998	27.22	74.84	<47	--	--	--	--	--
MW-13 <i>84.06</i>	11/24/1992	26.05	58.01	3,600	--	--	--	--	--
	12/8/92*	25.08	58.98	210	--	--	--	--	--
	12/8/1992	25.08	58.98	100	--	--	--	--	--
	4/5/1993	24.64	59.42	<50	--	--	--	--	--
	7/21/1993	24.29	59.77	<50	--	--	--	--	--
	11/9/1993	24.23	59.83	160	--	--	--	--	--
	8/30/1995	23.30	60.76	<50	--	--	--	--	--
	12/1/1995	23.80	60.26	<50	--	--	--	--	--
	5/3/1996	23.19	60.87	<50	--	--	--	--	--
	8/8/1996	23.44	60.62	<50	--	--	--	--	--
	11/5/1996	24.04	60.02	<50	--	--	--	--	--
	2/6/1997	23.24	60.82	<50	--	--	--	--	--
	5/8/1997	23.46	60.60	<50	--	--	--	--	--
	8/8/1997	23.92	60.14	<50	--	--	--	--	--
	11/5/1997	24.27	59.79	<50	--	--	--	--	--
	2/9/1998	22.89	61.17	<50	--	--	--	--	--
	4/29/1998	22.27	61.79	<47	--	--	--	--	--
	8/4/1998	22.75	61.31	78	--	--	--	--	--
11/3/1998	23.90	60.16	<50	--	--	--	--	--	
3/31/1999	23.11	60.95	<48	--	--	--	--	--	
7/1/1999	23.40	60.66	100	--	--	<9.6	<9.6	ND	
9/21/1999	21.91	62.15	<48	--	--	<9.4	<9.4	ND	

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**Table 2. Groundwater Elevation and Analytical Data: Extractable Hydrocarbons and SVOCs**

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID <i>TOC Elev.</i> (ft)	Sampling Date	Depth to water (ft)	Groundwater Elevation (ft)	TEH (µg/L)	TPHd (µg/L)	TPHmo (µg/L)	2-Methyl naphthalene (µg/L)	Naphthalene (µg/L)	Other SVOCs (µg/L)
<i>MW-13</i>	2/9/2000	23.84	60.22	--	<50	<250	<10	<10	ND
<i>(cont'd)</i>	5/31/2000	22.97	61.09	--	<50	<500	--	--	--
	11/14/2000	24.00	60.06	--	65	< 250	--	--	--
	3/1/2001	23.93	60.13	--	<50	<250	<10	<10	ND
	5/7/2001	23.93	60.13	--	<50	<250	--	--	--
	8/1/2001	24.10	59.96	--	<50	<250	--	--	--
	11/5/2001	24.02	60.04	--	350	610	--	--	--
	2/13/2002	23.70	60.36	--	<50	<250	--	--	--
	5/2/2002	23.97	60.09	--	<50	<250	--	--	--
	8/4/2002	24.19	59.87	--	810	310	--	--	--
	11/26/2002	24.78	59.28	--	66	<250	--	--	--
	1/20/2003	22.10	61.96	--	<50	<250	--	--	--
	5/28/2003	17.25	66.81	--	<50	<250	--	--	--
	8/5/2003	23.99	60.07	--	<50	<250	--	--	--
	11/10/2003	23.47	60.59	--	<50	--	--	--	--
	2/18/2004	22.58	61.48	--	<50	--	--	--	--
	5/27/2004	21.95	62.11	--	<50	<250	--	--	--
	8/19/2004	24.29	59.77	--	<50	--	--	--	--
	12/27/2004	23.70	60.36	--	<50	<250	--	--	--
	2/18/2005	23.15	60.91	--	<50	<250	--	--	--
	5/11/2005	22.68	61.38	--	<50	<250	--	--	--
	8/3/2005	23.04	61.02	--	56	<250	--	--	--
	11/30/2005	23.65	60.41	--	<50	<250	--	--	--
	2/17/2006	23.07	60.99	--	<50	<250	--	--	--
	5/12/2006	22.02	62.04	--	<50	<250	--	--	--
	8/7/2006	22.61	61.45	--	<50	<250	--	--	--
	11/21/2006	23.11	60.95	--	<50	<250	--	--	--
	2/12/2007	23.27	60.79	--	<50	<250	--	--	--
	5/11/2007	23.07	60.99	--	<50	--	--	--	--
	8/16/2007	23.67	60.39	--	<50	<250	--	--	--
	<b>11/26/2007</b>	<b>24.13</b>	<b>59.93</b>	--	<b>&lt;50</b>	<b>&lt;250</b>	--	--	--

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**Table 2. Groundwater Elevation and Analytical Data: Extractable Hydrocarbons and SVOCs**

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID <i>TOC Elev.</i> (ft)	Sampling Date	Depth to water (ft)	Groundwater Elevation (ft)	TEH (µg/L)	TPHd (µg/L)	TPHmo (µg/L)	2-Methyl naphthalene (µg/L)	Naphthalene (µg/L)	Other SVOCs (µg/L)
MW-14	5/26/1998	21.67	72.99	7,700	--	--	--	--	--
94.66	7/1/1999	22.95	71.71	SPH	--	--	--	--	--
	9/21/1999	24.26	70.40	SPH	--	--	--	--	--
	2/9/2000	24.13	70.53	--	14,000	1,500	290	600	ND
	5/31/2000	22.09	72.57	--	SPH	--	--	--	--
	11/14/2000	23.90	70.76	--	SPH	--	--	--	--
	3/1/2001	23.97	70.69	--	SPH	--	--	--	--
	5/7/2001	23.45	71.23	--	SPH	--	--	--	--
	8/1/2001	23.57	71.12	--	SPH	--	--	--	--
	11/5/2001	23.50	71.18	--	SPH	--	--	--	--
	2/13/2002	22.99	71.70	--	SPH (0.04)	--	--	--	--
	5/2/2002	23.51	71.17	--	SPH (0.02)	--	--	--	--
	8/4/2002	23.61	71.06	--	SPH (0.01)	--	--	--	--
	11/26/2002	24.35	70.31	--	SPH (sheen)	--	--	--	--
	1/20/2003	22.35	72.31	--	SPH (sheen)	--	--	--	--
	5/28/2003	21.95	72.74	--	SPH (0.04)	--	--	--	--
	8/5/2003	23.03	71.66	--	SPH (0.04)	--	--	--	--
	11/10/2003	22.70	72.02	--	SPH (0.07)	--	--	--	--
	2/18/2004	22.37	72.32	--	SPH (0.04)	--	--	--	--
	5/27/2004	21.78	72.92	--	SPH (0.05)	--	--	--	--
	8/19/2004	24.13	70.57	--	SPH (0.05)	--	--	--	--
	12/27/2004	24.19	70.47	--	SPH (sheen)	--	--	--	--
	2/18/2005	23.24	71.46	--	SPH (0.05)	--	--	--	--
	5/11/2005	22.77	71.92	--	SPH (0.04)	--	--	--	--
	8/3/2005	23.17	71.51	--	SPH (0.02)	--	--	--	--
	11/30/2005	24.02	70.66	--	SPH (0.02)	--	--	--	--
	2/17/2006	23.87	70.81	--	SPH (0.02)	--	--	--	--
	5/12/2006	21.74	72.93	--	SPH (0.01)	--	--	--	--
	8/7/2006	21.66	73.01	--	SPH (0.01)	--	--	--	--
	11/21/2006	23.41	71.27	--	SPH (0.03)	--	--	--	--
	2/12/2007	23.45	71.23	--	SPH (0.03)	--	--	--	--
5/11/2007	22.95	71.71	--	--	--	--	--	--	
8/16/2007	24.14	70.52	--	--	--	--	--	--	
<b>11/26/2007</b>	<b>24.94</b>	<b>69.72</b>	--	--	--	--	--	--	

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**Table 2. Groundwater Elevation and Analytical Data: Extractable Hydrocarbons and SVOCs**

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID <i>TOC Elev.</i> <i>(ft)</i>	Sampling Date	Depth to water <i>(ft)</i>	Groundwater Elevation <i>(ft)</i>	TEH <i>(µg/L)</i>	TPHd <i>(µg/L)</i>	TPHmo <i>(µg/L)</i>	2-Methyl naphthalene <i>(µg/L)</i>	Naphthalene <i>(µg/L)</i>	Other SVOCs <i>(µg/L)</i>
MW-15	5/26/1998	21.87	72.89	1,700	--	--	--	--	--
94.76	7/1/1999	22.25	72.51	SPH	--	--	--	--	--
	9/21/1999	24.12	70.64	SPH	--	--	--	--	--
	2/9/2000	24.42	70.34	--	4,000	1,200	50	270	ND
	5/31/2000	22.40	72.36	--	SPH	--	--	--	--
	11/14/2000	24.15	70.61	--	SPH	--	--	--	--
	3/1/2001	23.99	70.77	--	SPH	--	--	--	--
	5/7/2001	23.50	71.26	--	SPH	--	--	--	--
	8/1/2001	23.62	71.14	--	SPH	--	--	--	--
	11/5/2001	23.65	71.11	--	SPH (sheen)	--	--	--	--
	2/13/2002	23.09	71.67	--	3,100	<250	17	68	5
	5/2/2002	23.59	71.17	--	SPH (sheen)	--	--	--	--
	8/4/2002	23.65	71.11	--	SPH (sheen)	--	--	--	--
	11/26/2002	24.59	70.17	--	SPH (sheen)	--	--	--	--
	1/20/2003	22.08	72.68	--	3,700	340	--	--	--
	5/28/2003	21.68	73.08	--	SPH (sheen)	--	--	--	--
	8/5/2003	24.05	70.71	--	SPH (sheen)	--	--	--	--
	11/10/2003	23.68	71.08	--	SPH (sheen)	--	--	--	--
	2/18/2004	23.51	71.25	--	1,100	--	--	--	--
	5/27/2004	22.98	71.78	--	SPH (sheen)	--	--	--	--
	8/19/2004	25.31	69.45	--	SPH (sheen)	--	--	--	--
	12/27/2004	24.46	70.30	--	SPH (sheen)	--	--	--	--
	2/18/2005	23.27	71.57	--	SPH (0.10)	--	--	--	--
	5/11/2005	22.80	72.03	--	SPH (0.09)	--	--	--	--
	8/3/2005	23.29	71.48	--	SPH (0.01)	--	--	--	--
	11/30/2005	24.11	70.69	--	SPH (0.05)	--	--	--	--
	2/17/2006	23.91	70.89	--	SPH (0.05)	--	--	--	--
	5/12/2006	21.88	72.92	--	SPH (0.03)	--	--	--	--
8/7/2006	22.05	72.75	--	SPH (0.01)	--	--	--	--	
11/21/2006	23.70	71.10	--	--	--	--	--	--	
2/12/2007	23.80	71.00	--	1,100	<250	--	--	--	
5/11/2007	23.28	71.48	--	--	--	--	--	--	
8/16/2007	24.38	70.38	--	--	--	--	--	--	
<b>11/26/2007</b>	<b>25.30</b>	<b>69.46</b>	<b>69.46</b>	--	--	--	--	--	

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**Table 2. Groundwater Elevation and Analytical Data: Extractable Hydrocarbons and SVOCs**

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID <i>TOC Elev.</i> (ft)	Sampling Date	Depth to water (ft)	Groundwater Elevation (ft)	TEH (µg/L)	TPHd (µg/L)	TPHmo (µg/L)	2-Methyl naphthalene (µg/L)	Naphthalene (µg/L)	Other SVOCs (µg/L)
MW-16A	5/11/2007	25.12	--	--	760	--	--	--	--
	8/16/2007	26.02	--	--	620	250	--	--	--
	<b>11/26/2007</b>	<b>26.16</b>	--	--	<b>160</b>	<b>&lt;250</b>	--	--	--
MW-16B	5/11/2007	28.98	--	--	15,000	--	--	--	--
	8/16/2007	31.02	--	--	7,700	<250	--	--	--
	<b>11/26/2007</b>	<b>30.00</b>	--	--	<b>6,400</b>	<b>&lt;250</b>	--	--	--

**Grab Sampling Data**

B (boring)	5/16/1998	--	--	77**	--	--	--	--	--
C (boring)	5/16/1998	--	--	48**	--	--	--	--	--
G (boring)	5/16/1998	--	--	35,000**	--	--	--	--	--

**Abbreviations and Notes:**

*TOC Elev. (ft)* = Top of casing elevation, surveyed to an arbitrary datum

TEH = Total extractable hydrocarbons

TPHd = Total petroleum hydrocarbons as diesel

TPHmo = Total petroleum hydrocarbons as motor oil

SVOCs = Semi-volatile organic compounds

Other SVOC's = All other compounds analyzed by EPA Method 8270

µg/l = micrograms per liter = parts per billion = ppb

ND = None detected above laboratory reporting limit, see laboratory report for individual reporting limits

1 = ND except for 1,700 ug/l 2,4 dichlorophenol, 240 ug/l bis (2-ethyl hexyl) phthalate. Also 10 mg/l oil and grease.

2 = ND except for 570 ug/l benzoic acid and 93 ug/l phenol. Also 20 mg/l oil and grease.

3 = ND except for 700 ug/l benzoic acid, 92 ug/l phenol, and 52 ug/l 3,4 methyl phenol.

4 = ND except for 74 ug/l benzoic acid and 68 ug/l creosol.

5 = ND except for 480 ug/l phenol, 110 ug/l 2,4 dimethylphenol, 210 ug/l 2-methylphenol, 200 ug/l 3,4-methylphenol, and 5.7 mg/l oil and grease.

< n = Not detected above n ug/l

-- = Not analyzed/not available

\* = Duplicate sample sent to a different chemical laboratory

\*\* = Does not match TPHd or TEH pattern

## **APPENDIX A**

### Standard Operating Procedures

## STANDARD FIELD PROCEDURES FOR SOIL BORINGS

This document describes Pangea Environmental Services' standard field methods for drilling and sampling soil borings. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

### Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor odor or staining, estimate ground water depth and quality, and to submit samples for chemical analysis.

### Soil Classification/Logging

All soil samples are classified according to the Unified Soil Classification System by a trained geologist, scientist or engineer working under the supervision of a California Registered Engineer, California Registered Geologist (RG) or a Certified Engineering Geologist (CEG). The following soil properties are noted for each soil sample:

- Principal and secondary grain size category (i.e. sand, silt, clay or gravel)
- Approximate percentage of each grain size category,
- Color,
- Approximate water or product saturation percentage,
- Observed odor and/or discoloration,
- Other significant observations (i.e. cementation, presence of marker horizons, mineralogy), and
- Estimated permeability.

### Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers or hydraulic-push technologies. At least one and one half ft of the soil column is collected for every five ft of drilled depth. Additional soil samples are collected near the water table and at lithologic changes. With hollow-stem drilling, samples are collected using lined split-barrel or equivalent samplers driven into undisturbed sediments beyond the bottom of the borehole. With hydraulic-push drilling, samples are typically collected using acetate liners. The vertical location of each soil sample is determined by measuring the distance from the middle of the soil sample tube to the end of the drive rod used to advance the split barrel sampler. All sample depths use the ground surface immediately adjacent to the boring as a datum. The horizontal location of each boring is measured in the field from an onsite permanent reference using a measuring wheel or tape measure.

Drilling and sampling equipment is steam-cleaned prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

### Sample Storage, Handling and Transport

Sampling tubes or cut acetate liners chosen for analysis are trimmed of excess soil and capped with Teflon tape and plastic end caps. Soil samples are labeled and stored at or below 4°C on either crushed or dry ice, depending upon local regulations. Samples are transported under chain-of-custody to a State-certified analytic laboratory.

## **Field Screening**

Soil samples collected during drilling will be analyzed in the field for ionizable organic compounds using a photo-ionization detector (PID) with a 10.2 eV lamp. The screening procedure will involve placing an undisturbed soil sample in a sealed container (either a zip-lock bag, glass jar, or a capped soil tube). The container will be set aside, preferably in the sun or warm location. After approximately fifteen minutes, the head space within the container will be tested for total organic vapor, measured in parts per million on a volume to volume basis (ppmv) by the PID. The PID instrument will be calibrated prior to boring using hexane or isobutylene. PID measurements are used along with the field observations, odors, stratigraphy and ground water depth to select soil samples for analysis.

## **Water Sampling**

Water samples collected from borings are either collected from the open borehole, from within screened PVC inserted into the borehole, or from a driven Hydropunch-type sampler. Groundwater is typically extracted using a bailer, check valve and/or a peristaltic pump. The ground water samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory.

Pangea often performs electrical conductivity (EC) logging and/or continuous coring to identify potential water-bearing zones. Hydropunch-type sampling is then performed to provide discrete-depth grab groundwater sampling within potential water-bearing zones for vertical contaminant delineation. Hydropunch-type sampling typically involves driving a cylindrical sheath of hardened steel with an expendable drive point to the desired depth within undisturbed soil. The sheath is retracted to expose a stainless steel or PVC screen that is sealed inside the sheath with Neoprene O-rings to prevent infiltration of formation fluids until the desired depth is attained. The groundwater is extracted using tubing inserted down the center of the rods into the screened sampler.

## **Duplicates and Blanks**

Blind duplicate water samples are usually collected only for monitoring well sampling programs, at a rate of one blind sample for every 10 wells sampled. Laboratory-supplied trip blanks accompany samples collected for all sampling programs to check for cross-contamination caused by sample handling and transport. These trip blanks are analyzed if the internal laboratory QA/QC blanks contain the suspected field contaminants. An equipment blank may also be analyzed if non-dedicated sampling equipment is used.

## **Grouting**

If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

## **Waste Handling and Disposal**

Soil cuttings from drilling activities are usually stockpiled onsite on top of and covered by plastic sheeting. At least four individual soil samples are collected from the stockpiles for later compositing at the analytic laboratory. The composite sample is analyzed for the same constituents analyzed in the borehole samples. Soil cuttings are transported by licensed waste haulers and disposed in secure, licensed facilities based on the composite analytic results.

Ground water removed during sampling and/or rinsate generated during decontamination procedures are stored onsite in sealed 55 gallon drums. Each drum is labeled with the drum number, date of generation, suspected contents, generator identification and consultant contact. Disposal of the water is based on the analytic results for the well samples. The water is either pumped out using a vacuum truck for transport to a licensed waste treatment/disposal facility or the individual drums are picked up and transported to the waste facility where the drum contents are removed and appropriately disposed.