

CAMBRIA



Lot 469

Transmittal

To:	Ms. Susan Hugo
Organization:	Alameda County
Address:	1131 Harbor Bay Parkway, Suite 250 Alameda, CA 94502-6577
Phone:	(510) 567-6780
From:	Bob Schultz
Phone:	(510) 420-3341
Date:	May 9, 2000
Re:	Connell Automobile Dealership

Dear Ms. Hugo:

Please find Cambria's Workplan Addendum for the above-referenced site enclosed. As we discussed on May 4th, Cambria plans to conduct the quarterly monitoring event for this site this month. During our conversation, you agreed to have a response to this workplan by May 22, so the revised sampling protocol may be implemented this quarter. Please call me at (510) 420-3341 with any questions.

Thank you,

Bob Schultz
 Bob Schultz
 Project Geologist
not necessary will

*5/30/00
 Added to Bob Schultz (Cambria)*

00 MAY 10 AM 10:39

May 8, 2000

Ms. Susan Hugo
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: **Workplan Addendum**
Connell Automobile Dealership
3093 Broadway
Oakland, California
StID #469



Dear Ms. Hugo:

On behalf of Messrs. George Hill and Gordon Linden, Cambria Environmental Technology, Inc. (Cambria) is submitting this addendum to the April 15, 1999 *Work Plan* prepared by Subsurface Consultants, Inc. for the above-referenced site. The Alameda County Health Care Services Agency (ACHCSA) requested this addendum during our April 3, 2000, meeting, held at the ACHCSA offices. At the meeting, the following revisions to the workplan were determined necessary or warranted:

- ✓ • Implementing a modified monitoring program;
- ✓ • Basing human health risk calculations on measured soil vapor concentrations;
- ✓ • Submitting the Risk Management Plan (RMP) at a later, unspecified date; and
- ✓ • Performing feasibility testing of technologies for active removal of separate phase hydrocarbons (SPH) from the site subsurface, and evaluating the testing results in the expanded Corrective Action Plan (CAP).

Descriptions of the proposed revisions and Cambria's rationale supporting the revisions are presented below.

PROPOSED GROUNDWATER SAMPLING PROTOCOL

Oakland, CA
San Ramon, CA
Sonoma, CA
Portland, OR

**Cambria
Environmental
Technology, Inc.**

1144 65th Street
Suite B
Oakland, CA 94608
Tel (510) 420-0700
Fax (510) 420-9170

In accordance with the May 3, 1999, ACHCSA letter to Messrs. Hill and Linden, the current well sampling protocol includes quarterly sampling of monitoring wells MW-1, MW-4, MW-6, MW-7, MW-8, MW-9, MW-13, MW-14, and MW-15 for total petroleum hydrocarbons (TPH) as diesel, TPH as motor oil (TPHmo), TPH as gasoline (TPHg), benzene, toluene, ethylbenzene, xylenes (BTEX), methyl tert-butyl ether (MTBE), EPA List 8010 halogenated volatile organic compounds (HVOCs), semi-volatile organic compounds (SVOCs), lead, cadmium, chromium, zinc, and nickel (LUFT Metals). Site monitoring has followed this protocol for three consecutive quarters. Tables 1, 2, and 3 summarize historical groundwater analytical results.

Proposed Modification


Several modifications to this protocol are warranted. Cambria's proposed well sampling protocol and the changes relative to the current protocol are presented below in Table A.

Table A - Proposed Well Sampling Protocol				
Well	Sampling Frequency	Proposed Analytes	Additions	Reductions/Removals
Source Area Wells				
MW-1	✓			
MW-6	Annually (Gauge Quarterly)	TPHd, TPHmo, TPHg, BTEX, MTBE, HVOCs, SVOCs, LUFT Metals, DO	DO	Reduced Well Sampling Frequency
MW-14				
MW-15				
Down-Gradient/Cross-Gradient Wells				
MW-4				
MW-7				
MW-13	Quarterly (annually for SVOCs)	TPHd, TPHmo, TPHg, BTEX, MTBE, HVOCs, SVOCs, DO	DO	LUFT Metals, Annual SVOCs
MW-8 (non-purge*)				
MW-9	Quarterly (annually for SVOCs and LUFT Metals)	TPHd, TPHmo, TPHg, BTEX, MTBE, HVOCs, SVOCs, LUFT Metals, DO	DO	Annual LUFT Metals, Annual SVOCs
<p>MW-8 will be sampled following the protocols for both purge and non-purge well sampling on the next sampling event. If results from both sampling methods are similar all future sampling will be performed using the non-purge method.</p> <p>Per the May 3, 1999, ACHCSA letter to Messrs. Hill and Linden, monitoring wells MW-2, MW-3, MW-5, MW-10, and MW-11 were dropped from the monitoring program.</p>				

Rationale for Modification

Cambria's proposed modifications will reduce the cost of quarterly monitoring by over \$10,000 annually, while providing sufficient data to evaluate potential plume migration and to safeguard human health and the environment. Cost savings from the proposed monitoring program could be used for active source removal, as described below in the *Proposed Feasibility Testing* section. Cambria proposes to continue quarterly monitoring of all downgradient wells that are currently in

the site monitoring program. The source area wells, including all wells where SPH has been consistently detected during past sampling events, would be gauged quarterly and sampled annually while source removal is ongoing. Once the source removal activities are complete, Cambria would resume quarterly sampling of the source area wells. Cambria's rationale for the proposed changes is presented below.

 **Addition of Dissolved Oxygen Measurement for One Year:** Cambria recommends adding the measurement of dissolved oxygen (DO) concentrations to the well sampling protocol for the next four quarters. Establishing a baseline for DO concentrations will assist in potential future evaluation of natural biodegradation occurring at the site. The additional cost for DO measurement is relatively small.


Remove LUFT Metals Analysis from Wells MW-4, MW-7, MW-8, and MW-13: Based on the naturally occurring metals concentrations in San Francisco Bay Area soils¹, the detected dissolved metals concentrations in wells MW-4, MW-7, MW-8, MW-9, and MW-13 are within the range of concentrations that may be expected to naturally occur (Table 3). The LUFT Metals results for these five wells have been repeated through three consecutive quarters of monitoring. LUFT Metals results for wells MW-14 and MW-15, sampled during the First Quarter 2000 only, indicate elevated dissolved lead, chromium, zinc, and nickel concentrations in the source area. Under the site conditions of neutral groundwater pH and significant clay content in soil, lead, chromium, zinc, and nickel are expected to be slightly mobile to relatively immobile² in site groundwater. To monitor the source area LUFT Metals concentrations, Cambria recommends continued LUFT Metals analysis of wells MW-6, MW-14, and MW-15. Cambria also recommends annual LUFT Metals analysis of well MW-9 to monitor potential migration of dissolved metals away from the source area.

Annual Monitoring for SVOCs: SVOCs are typically less mobile and would not be expected to migrate significantly away from the source area or beyond the SPH plume. The primary SVOCs detected in site groundwater are naphthalene and 2-methyl naphthalene; both of these compounds are slightly mobile to relatively immobile³ in groundwater. Groundwater monitoring over three consecutive quarters did not detect SVOCs in wells MW-7, MW-8, or MW-13. Cambria recommends annual SVOC monitoring in all sampled wells.

¹ Lawrence Berkeley National Laboratory, University of California, Environmental Restoration Program. Protocol for Determining Background Concentrations of Metals in Soil at Lawrence Berkeley National Laboratory. Berkeley, California. August 1995.

² Fetter C.W. Contaminant Hydrogeology. New York, New York. 1993.

³ ASTM Designation: E 1739 - 95. Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites. West Conshohocken, Pennsylvania. Updated December 1996.



Non-purge Sampling of MW-8: Non-purge sampling of monitoring wells has been shown to be a reliable method for evaluating groundwater quality⁴. For monitoring of petroleum hydrocarbons, well MW-8 meets the criteria identified in the January 31, 1997 San Francisco Bay Regional Water Quality Control Board (RWQCB-SFBR) guidance document regarding "Utilization of Non-Purge Approach for Sampling of Monitoring Wells Impacted by Petroleum Hydrocarbons, BTEX, and MTBE." At present, well MW-8 is also used for monitoring LUFT Metals and 1,2-dichloroethane (1,2-DCA) concentrations. As requested by the ACHCSA during the April 3, 2000 meeting, Cambria will sample MW-8 using the non-purge approach and the purge approach during the Second Quarter 2000. If this test of the non-purge approach indicates that the non-purge data is consistent with the purge approach data and with the historical data, Cambria will use the non-purge approach in future sampling of MW-8.

PROPOSED SOIL VAPOR SAMPLING

To perform an assessment of human health risk resulting from subsurface contamination, Cambria will collect soil vapor samples from locations overlying groundwater with SPH or elevated contaminant concentrations. The soil vapor results will replace the theoretical soil and groundwater volatilization/attenuation calculations used in screening level risk assessments. Standard contaminant volatilization/attenuation models, used when following the ASTM RBCA guidelines for petroleum release sites set forth by the American Society for Testing and Materials (ASTM E-1739-95⁵)⁶ or the software from the City of Oakland's Risk-Based Corrective Action (RBCA) Technical Background Document⁷, allow for consideration of soil and groundwater contaminant concentrations only, not SPH. Cambria's RBCA analysis results will quantify the potential health risk to site workers resulting from subsurface contamination and will help in establishing site cleanup goals.

⁴ Report for Western States Petroleum Association by SECOR International, Inc. The California Groundwater Purging Study for Petroleum Hydrocarbons. October 1996.

⁵ American Society for Testing and Materials. *ASTM Designation E 1739-95 (Revised December 1996): Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites*. 1996.

⁶ Groundwater Services, Inc. *Tier 2 RBCA: Spreadsheet System and Modeling Guidelines*. 1995.

⁷ Spence, L. and Gomez, M. *Oakland Risk-Based Corrective Action: Technical Background Document*. Urban Land Redevelopment Program Technical Advisory Committee. May 17, 1999.

Soil Vapor Sampling Scope of Work

Cambria will collect soil vapor samples at multiple depths in three locations (Figure 2). The proposed locations are above areas where SPH or elevated groundwater contaminant concentrations have been detected in groundwater. Cambria's proposed tasks are described below.

Permits: Cambria will obtain the necessary permits for installation of the borings from the Alameda County Public Works Agency.

Site Health and Safety Plan: Cambria will prepare a site health and safety plan to protect site workers. The plan will be kept on site at all times and signed by all site workers.

Utility Location: Cambria will notify Underground Service Alert (USA) of our planned drilling activities. USA will identify the underground utilities in the site vicinity. If necessary, Cambria will perform an underground utility survey using a private line locating firm.

Sample Collection: Cambria will advance soil borings and collect soil vapor samples using a truck-mounted direct-push drill rig. Cambria's standard procedures for Geoprobe soil vapor sampling are included as Attachment A.


Depth Profiling: In each location, samples will be collected at 3, 6, and 9 ft below ground surface (bgs). In the proposed location adjacent to the former UST excavation, Cambria will also collect a sample from 12 ft bgs. Multiple-depth soil vapor sampling will quantify hydrocarbon soil vapor concentrations and the degree of vapor attenuation occurring between the groundwater table and ground surface.

Chemical Analyses: Soil vapor samples will be analyzed for BTEX by EPA Method 8020, HVOCs by EPA Method 8010, and SVOCs by EPA Method 8270.

Timing of Sample Collection: To facilitate preparation of a conservative risk assessment, soil vapor samples will be collected underneath the site building and adjacent to the building during the dry summer months. Collecting soil vapor samples when soil moisture content is expected to be at or near the annual low, will help ensure high sample quality and will help to quantify the annual maximum soil vapor hydrocarbon concentrations. (Increased soil moisture resulting from rainfall may make soil vapor sample collection more difficult by decreasing the volumetric air content of vadose zone soil, and may decrease soil vapor concentrations by dilution of pore water with clean water.) If a clear determination of potential health risk can not be made from the first-round soil vapor sampling results, Cambria will revisit the sample locations and collect a second set of soil vapor samples for greater site characterization.

Reporting: Cambria will present the soil vapor sampling results to the ACHCSA in the expanded CAP. Cambria's report will include descriptions of the drilling and soil vapor sampling methods, tabulated soil vapor analytical results, laboratory analytical reports and chain-of-custody forms, and a discussion of the soil vapor concentration trends.

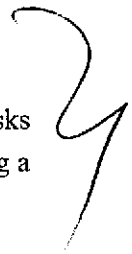
Site Soil Type



Since the risk assessment will be based on actual soil vapor results, site soil categorization as described in the April 15, 1999 *Work Plan* is not necessary. Further, Cambria's site cross-section (Figure 3, presented and discussed at the April 3, 2000, meeting) and review of site boring logs indicate that the site soil type is "Sandy Silt." The City of Oakland RBCA identifies three loosely-defined potential soil types - Merritt sands (found to the west of Lake Merritt), clayey silts (Bay Mud), and sandy silts (covers most other Oakland soil types) - and makes conservative assumptions of transport parameter values dependent on soil type.

PROPOSED SCHEDULE FOR RISK MANAGEMENT PLAN SUBMITTAL

A risk management plan is typically prepared to facilitate proper management of any risks associated with residual contamination at a site after case closure. Cambria proposes submitting a risk management plan for this site when regulatory case closure is imminent.




PROPOSED FEASIBILITY TESTING

At the April 3, 2000 meeting, the ACHCSA requested a proposed work scope for feasibility testing. The ACHCSA requested that feasibility testing assess the potential for enhanced source area SPH removal and the potential for reduction of dissolved contaminant concentrations beneath the site. Based on Cambria's review of recent site data and of cumulative site remediation data, further site remediation is practicable, and available remedial techniques may substantially accelerate SPH removal. The ACHCSA clearly indicated during the April 3, 2000 meeting that closure of the subject site will require additional SPH abatement and stabilization of the groundwater contaminant plume. Hydrocarbon and 1,2 DCA concentrations in downgradient well MW-13 have increased since monitoring began in 1993.

To evaluate additional site remediation techniques and to increase SPH removal rates, Cambria proposes feasibility testing of dual-phase soil vapor and groundwater extraction (DVE). Cambria has reviewed the SPH recovery, water-level, and field data from previous vapor extraction performed at the subject site, and agrees with the assertion in the April 15, 1999 *Work Plan* that

“fluctuation of the water table is a significant controlling factor at the site.” DVE creates a high vacuum in the wellhead and is therefore appropriate at this site because it:

- Controls the groundwater elevation at the extraction point by creating a groundwater cone of depression;
- Removes SPH from within the well and from the area surrounding the well;
- Enhances groundwater extraction rates; and
- Extracts soil vapor from the dewatered formation.



DVE testing allows evaluation of several remedial techniques: soil vapor extraction, groundwater extraction, and combined soil and groundwater extraction. DVE targets the entire source area of concern: the vadose zone, the capillary fringe, and the saturated zone. And, by increasing the contaminant attenuation rate through active remediation, Cambria intends to substantially reduce the site groundwater monitoring period, thereby reducing the lifecycle cost for closure of this site. Subsurface conditions which influence our selection of DVE as the recommended approach are presented in Figure 3. Boring logs and well construction details for the proposed DVE locations are presented in Attachment B.

Test Approach: Since the site areas surrounding the proposed extraction points are heavily used (automotive service and new car sales), Cambria has designed a testing protocol that minimizes disruption to site operations, while allowing collection of the required data and SPH recovery. Cambria will perform DVE at the subject site using monitoring wells MW-1, MW-6, MW-14, and MW-15. An 8-hour extraction event will be performed at each of the four existing wells. Total combined extraction time will be 32 hours. Cambria will conduct the extraction events after business hours. The test protocol is summarized below.

Protocol for Each Test Event

- Measure and record the initial depth-to-water in the extraction well and the most proximal well.
- Insert the dedicated extraction probe into the well to a depth just below groundwater.
- Before each test event, measure and record the total volume of SPH in the extracted-liquids storage tank. Measuring the volume of SPH in the collection vessel is important before the test commences, since the DVE process typically emulsifies SPH with the extracted groundwater.
- Engage system and apply a high vacuum to the extraction probe.
- Measure and record the wellhead vacuum, air flow rates, and hydrocarbon vapor concentrations. Vapor concentrations will be measured using a portable organic vapor analyzer (OVA). Measurements will be made periodically throughout each test.

- Collect initial soil vapor samples in Tedlar bags to allow comparison of laboratory analytical data to field measurements. (Once per well.)
- Measure and record groundwater/SPH removal rates.
- Adjust the extraction probe depth. Depending on field conditions, the depth of the probe will be adjusted upwards or downwards in order to maximize hydrocarbon recovery. The probe will not be lowered beyond the lowest groundwater elevation observed in the well (approximately the base of the "smear-zone").
- Measure and record the vacuum influence, if any, on the most proximal well and the depth-to-groundwater in the proximal well.
- Collect final soil vapor samples in Tedlar bags for laboratory analysis. (Once per well.)
- Measure and record the total volume of extracted groundwater/SPH.

Potential Additional Tasks

- If no SPH is present in the monitoring wells at the completion of the feasibility test period, Cambria will collect and analyze groundwater samples from the four test wells for TPHd, TPHmo, TPHg, BTEX, and MTBE.
- Depending on the effectiveness of the extraction events, Cambria may recommend additional events.

After each testing event, hydrocarbon recovery from the subject well will be calculated based on the extracted groundwater/SPH volume, vapor extraction flow rates, and hydrocarbon vapor concentrations. Groundwater monitoring data will be used to evaluate impact of the short-term feasibility testing on insitu soil and groundwater.

System Description: Cambria will use a mobile DVE unit that employs a high vacuum to simultaneously remove groundwater and hydrocarbon vapors from the subsurface via existing monitoring wells. By inserting an extraction probe into a monitoring well and applying a high vacuum, the test will lower the groundwater elevation and create a cone of depression to capture SPH on the groundwater surface near the well and trapped in the formation. At the surface, extracted water is separated from hydrocarbon vapors using an in-line water knockout vessel. An attached transfer pump is used to transfer extracted liquids from the knockout vessel to a storage tank for offsite treatment and disposal. The hydrocarbon vapors are abated using a series of carbon filter canisters. The high vacuum pump is capable of creating a sustained vacuum of 15 inches of mercury. Depending on the hydraulic properties of the site soil, the mobile system can sustain an air flow rate of 150 cfm and a liquid flow rate of 10 gpm. A truck-mounted diesel generator will supply electrical power for all equipment.

Permits: Cambria will inform the Bay Area Air Quality Management District (BAAQMD) prior to beginning field activities.

Site Health and Safety Plan: Cambria will prepare a site safety plan to protect site workers. The plan will be kept onsite at all times and signed by all site workers.

Chemical Analysis: Soil vapor samples will be analyzed for TPHg, BTEX, MTBE, and HVOCs. For disposal purposes, composite groundwater samples will be analyzed for TPHmo, TPHd, TPHg, BTEX, MTBE, HVOCs, SVOCs, and LUFT Metals.



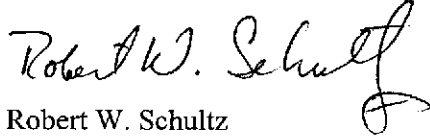
Water Disposal: Any groundwater generated from remedial field activities will be temporarily stored onsite in drums or a tank pending transport offsite for treatment and disposal.

Reporting: Cambria will include evaluation of the feasibility of using DVE and documentation of hydrocarbon source removal in the expanded CAP. The report will include all analytical results and descriptions of the remedial field activities. The report will also include a cost-benefit analysis of active remediation at the subject site.

CLOSING

If you have any questions or comments regarding this addendum or future site activities, please call Bob Schultz at (510) 420-3341.

Sincerely,
Cambria Environmental Technology, Inc.



Robert W. Schultz
Project Geologist



Bob Clark-Riddell, P.E.
Principal Engineer



Figures: 1 - Proposed Well Sampling Schedule
 2 - Proposed Soil Vapor Sampling Locations
 3 - Geologic Cross-Section

Tables: 1 - Groundwater Elevation and Analytical Data: Volatile Hydrocarbons
 2 - Groundwater Elevation and Analytical Data: Semi-Volatile Hydrocarbons
 3 - LUFT Metals in Groundwater

Attachments: A - Standard Field Procedures for Geoprobe Soil Vapor Sampling
 B - Soil Boring Logs and Well Diagrams

cc: George Hill, 305 Sheridan Ave., Piedmont, CA 94611
 Gordon Linden, 101 Gleneden Ave., Oakland, CA 94611
 Paul Kibel, Fitzgerald, Abbott & Beardsley, LLP, 1221 Broadway, 21st Floor, Oakland, CA 94612
 Leroy Griffin, Hazardous Materials Manager, Fire Department - OES, 1605 MLK Jr. Way, Oakland, CA 94612

EXPLANATION

MW-1 • Monitoring well location

Basemap from Subsurface Consultants, Inc.

WEBSTER STREET

SIDEWALK

MW-11 •

MW-1
Gauge Quarterly
Sample Annually

MW-14
Gauge Quarterly
Sample Annually

MW-15
Gauge Quarterly
Sample Annually

MW-9
Sample Quarterly

MW-6
Gauge Quarterly
Sample Annually

MW-8
Sample Quarterly

MW-13
Sample Quarterly

MW-2 •

MW-4
Sample Quarterly

MW-7
Sample Quarterly

MW-3 •

MW-5 •

HAWTHORNE STREET

Fomer UST Excavation

SIDEWALK

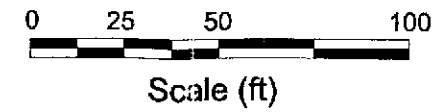
3093 BROADWAY

BROADWAY

SIDEWALK

SIDEWALK

BROOK STREET



FIGURE

1

Proposed Well
Sampling Schedule









C A M B R I A

Connell Automobile Dealership

3093 Broadway
Oakland, California

EXPLANATION

-  Proposed soil vapor sampling location
-  MW-1 Monitoring well location
-  MW-8 Extraction well
-  LF2 Levine Fricke monitoring well
-  CPT-6 Cone Penetration Test
-  SB-A Soil boring

Basemap from Subsurface Consultants, Inc.

WEBSTER STREET

SIDEWALK

MW-11

MW-2

MW-3

CPT-14

CPT-1

MW-5

MW-7

CPT-7

MW-9

MW-10/CPT-13

MW-4

SB-C

SB-B

MW-14

MW-15

SB-F

CPT-5

MW-1

SB-A

3093 BROADWAY

B-4

B-3

B-1

B-2

Former UST Excavation

SIDEWALK

LF4

HAWTHORNE STREET

LF2

LF3

CPT-10

CPT-11

CPT-2

CPT-3

CPT-12

MW-6

MW-8

CPT-9

CPT-6

MW-10/CPT-13

CPT-8

CPT-7

MW-4

CPT-1

MW-7

CPT-15

BROADWAY

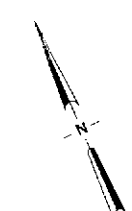
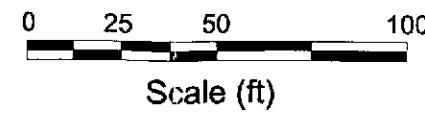
SIDEWALK

SB-12/CPT17

MW-13

CPT-16

BROOK STREET



FIGURE

2

Proposed Soil Vapor
Sampling Locations

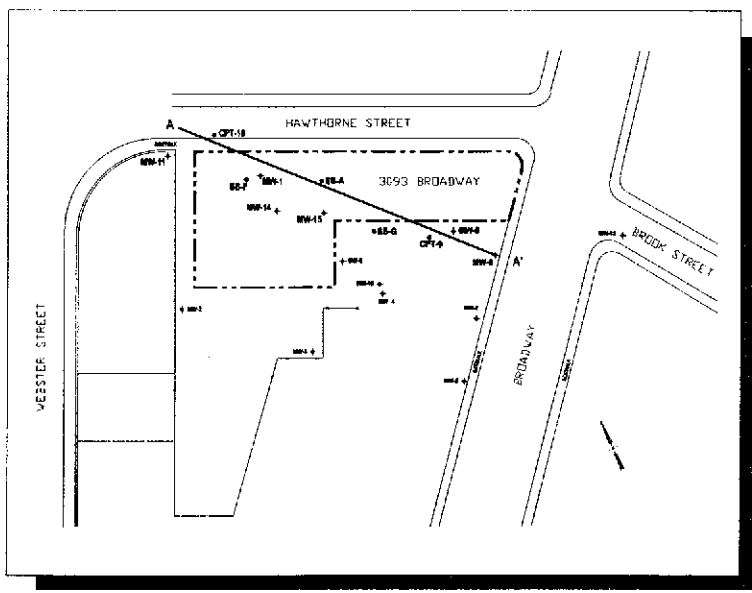
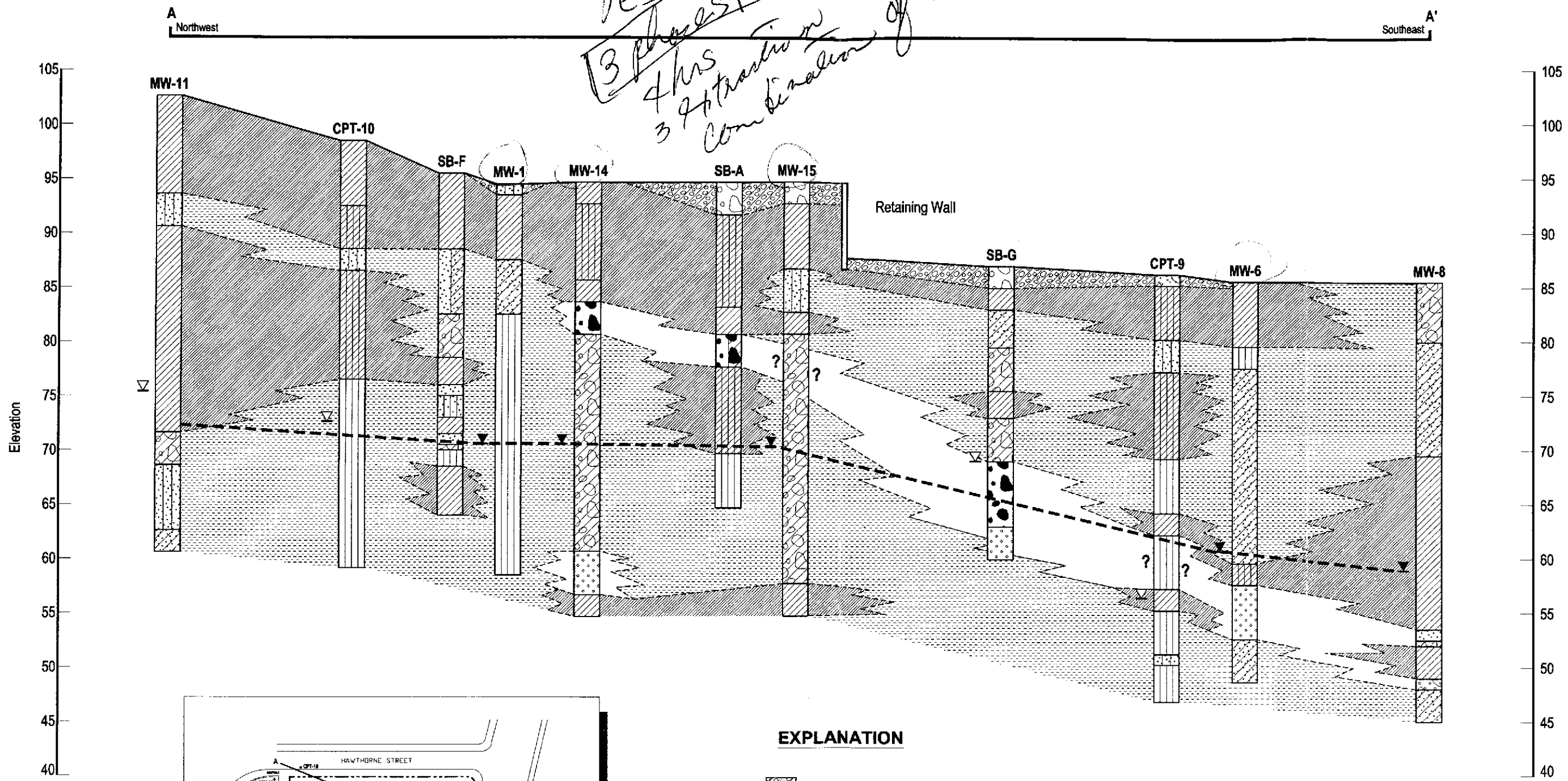


C A M B R I A








Connell Automobile Dealership

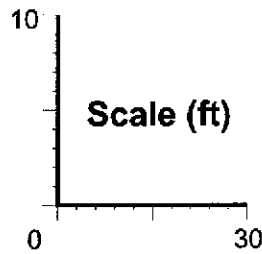
3093 Broadway
Oakland, California

YES
3 phases
4 hrs
3 7/8 hours
combination of two



EXPLANATION

-  Baserock / Fill
-  Moderate to High Permeability Soil
-  Low to Moderate Permeability Soil
-  Very Low to Low Permeability Soil
-  Depth of Groundwater
-  Initial Groundwater level
-  Groundwater Table



Geologic Cross-Section



C A M B R I A

Connell Automobile Dealership

3093 Broadway
Oakland, California

FIGURE
3

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Table 1. Groundwater Elevation and Analytical Data: Volatile Hydrocarbons and HVOCs

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID	Sampling Date	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TVH	TPHg	Benzene	Toluene	Ethyl - benzene	Xylenes	MTBE	1,2-DCA	Other HVOCs
				<-----ug/l----->								
MW-1	10/5/90	26.40	68.08	620,000	--	33,000	50,000	7,900	41,000	--	2,900	ND
94.48	3/1/91	27.46	67.02	FP	--	--	--	--	--	**	--	--
	10/12/92	26.44	68.04	490,000	--	51,000	59,000	5,000	27,000	--	1,300	--
	11/24/92	26.63	67.85	320,000	--	35,000	43,000	4,200	22,000	--	1,600	ND
	4/5/93	23.77	70.71	270,000	--	50,000	58,000	4,600	25,000	--	1,800	ND
	7/21/93	24.51	69.97	FP	--	--	--	--	--	--	--	--
	11/9/93	26.06	68.42	FP	--	--	--	--	--	--	--	--
	8/30/95	21.73	72.75	FP	--	--	--	--	--	--	--	--
	12/4/95	21.94	72.54	FP	--	--	--	--	--	<200	--	--
	5/2/96	20.65	73.83	340,000	--	57,000	73,000	7,200	38,000	--	1,200	--
	11/5/96	24.29	70.19	270,000	--	43,000	56,000	4,500	34,000	--	--	--
	5/9/97	22.79	71.69	240,000	--	36,000	45,000	3,300	17,900	--	930	--
	11/5/97	25.06	69.42	240,000	--	42,000	48,000	3,600	18,800	<1,000	1,200	--
	2/9/98	22.64	71.84	220,000	--	47,000	60,000	5,200	29,800	<1,000	1,500	ND
	5/1/98	19.95	74.53	160,000	--	35,000	42,000	2,800	16,000	<1,000	1,100	ND
	11/3/98	23.29	71.19	200,000	--	39,000	49,000	4,400	26,000	<500	1,200	ND
	3/24/99	22.30	72.18	FP	--	--	--	--	--	--	--	--
	7/1/99	22.70	71.78	FP	--	--	--	--	--	--	--	--
	9/21/99	23.81	70.67	FP	--	--	--	--	--	--	--	--
	2/9/00	23.95	70.59	FP	--	--	--	--	--	--	--	--
MW-2	3/1/91	27.86	66.95	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
94.81	11/24/92	27.91	66.90	<50	--	<0.5	1.1	<0.5	1.5	--	<1.0	ND
	4/5/93	25.95	68.86	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	7/21/93	25.59	69.22	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	11/10/93	26.72	68.09	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	8/30/95	25.75	69.06	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	--
	5/3/96	23.28	71.53	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	5/8/97	24.58	70.23	<50	--	<0.5	0.7	<0.5	<0.5	--	<1.0	--
	4/29/98	22.18	72.63	<50	--	<0.5	<0.5	<0.5	<0.5	<2	<1.0	ND

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Table 1. Groundwater Elevation and Analytical Data: Volatile Hydrocarbons and HVOCs

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID	Sampling Date	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TVH	TPHg	Benzene	Toluene	Ethyl - benzene	Xylenes	MTBE	1,2-DCA	Other HVOCs
				<-----ug/l----->								
MW-3	3/1/91	23.17	66.91	<50	--	<50	0.6	<0.5	<0.5	--	<1.0	ND
90.08	11/25/92	23.01	67.07	50	--	<0.5	0.9	<0.5	2	--	<1.0	ND
	4/5/93	22.11	67.97	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	7/21/93	23.93	66.15	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	11/10/93	23.14	66.94	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	8/30/95	20.61	69.47	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	--
	5/3/96	18.43	71.65	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	5/8/97	19.77	70.31	<50	--	<0.5	0.7	<0.5	<0.5	--	<1.0	--
	4/29/98	17.92	72.16	<50	--	<0.5	<0.5	<0.5	<0.5	<2	<1.0	ND
MW-4	3/1/91	23.79	65.05	150,000	--	20,000	38,000	2,800	14,000	**	610	ND
88.84	10/12/92	22.48	66.36	230,000	--	15,000	32,000	2,500	14,000	--	430	--
	11/24/92	22.60	66.24	210,000	--	14,000	31,000	2,500	14,000	--	500	ND
	4/2/93	20.11	68.73	FP	--	--	--	--	--	--	--	--
	7/21/93	20.48	68.36	FP	--	--	--	--	--	--	--	--
	11/9/93	21.71	67.13	FP	--	--	--	--	--	--	--	--
	8/30/95	19.90	68.94	FP	--	--	--	--	--	--	--	--
	12/1/95	19.40	69.44	FP	--	--	--	--	--	--	--	--
	5/2/96	17.50	71.34	140,000	--	24,000	50,000	3,000	15,100	--	420	ND
	11/4/96	20.13	68.71	160,000	--	16,000	38,000	2,700	14,000	--	380	ND
	5/8/97	18.63	70.21	170,000	--	16,000	37,000	2,400	15,900	--	290	--
	11/5/97	20.19	68.65	190,000	--	15,000	31,000	2,200	14,600	<400	290	--
	2/9/98	18.28	70.56	110,000	--	19,000	42,000	2,500	18,300	<500	300	--
	5/1/98	16.11	72.73	130,000	--	15,000	31,000	2,000	13,400	<1,000	260	ND
	8/4/98	17.54	71.30	130,000	--	16,000	34,000	2,400	15,700	<400	240	ND
	11/2/98	19.21	69.63	140,000	--	16,000	32,000	2,300	15,500	<400	230	ND
	3/26/99	17.51	71.33	110,000	--	15,000	30,000	1,600	15,000	450 ⁴	210	⁵
7/1/99	18.80	70.04	110,000	--	13,000	23,000	1,600	12,000	<83	170	⁵	
9/21/99	19.85	68.99	140,000	--	16,000	31,000	2,400	14,800	ND	<1000	⁵	
2/9/00	19.76	69.08	--	--	140,000	16,000	28,000	2,100	14,000	<400	100	DCB: 5.9, MCB: 5.9

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Table 1. Groundwater Elevation and Analytical Data: Volatile Hydrocarbons and HVOCs
 Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID TOC Elev. (ft)	Sampling Date	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TVH	TPHg	Benzene	Toluene	Ethyl - benzene	Xylenes	MTBE	1,2-DCA	Other HVOCs
MW-5	3/15/91	26.31	58.53	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
84.84	11/10/92	26.83	58.01	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	4/2/93	26.62	58.22	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	7/21/93	26.60	58.24	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	11/9/93	27.24	57.60	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	8/30/95	27.46	57.38	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	--
	5/3/96	26.02	58.82	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	5/8/97	26.76	58.08	<50	--	<0.5	0.5	<0.5	<0.5	--	<1.0	--
	4/29/98	26.55	58.29	<50	--	<0.5	0.5	<0.5	<0.5	<2	<1.0	ND
MW-6	3/15/91	25.82	59.80	80,000	--	12,000	13,000	1,100	5,400	--	1,400	DBCM: 160
85.62	10/12/92	25.02	60.60	19,000	--	3,200	1,400	200	560	--	840	--
	12/1/92	28.87	56.75	FP	--	--	--	--	--	--	--	--
	4/2/93	26.96	58.66	FP	--	--	--	--	--	--	--	--
	7/21/93	26.17	59.45	FP	--	--	--	--	--	--	--	--
	11/9/93	27.51	58.11	FP	--	--	--	--	--	--	--	--
	8/30/95	28.00	57.62	FP	--	--	--	--	--	--	--	--
	12/1/95	27.58	58.04	FP	--	--	--	--	--	<8,000,000	71	--
86.94	5/3/96	28.15	58.79	130,000	--	37,000	50,000	3,200	14,200	--	2,400	ND
	5/9/97	26.54	60.40	1,700,000	--	14,000	27,000	4,000	28,200	--	1,200	--
	11/5/97	26.16	60.78	160,000	--	13,000	19,000	1,900	14,300	<200	790	--
85.82	5/1/98	22.96	62.86	130,000	--	15,000	23,000	1,700	13,200	<500	1,100	ND
	11/3/98	24.35	61.47	110,000	--	17,000	21,000	1,800	10,700	<200	990	ND
	3/26/99	23.82	62.00	FP	--	--	--	--	--	--	--	--
	7/1/99	24.45	61.37	FP	--	--	--	--	--	--	--	--
	9/21/99	24.58	61.24	FP	--	--	--	--	--	--	--	--
	2/9/00	24.93	61.24	FP	--	--	--	--	--	--	--	--

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Table 1. Groundwater Elevation and Analytical Data: Volatile Hydrocarbons and HVOCs

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID	Sampling Date	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TVH	TPHg	Benzene	Toluene	Ethyl - benzene	Xylenes	MTBE	1,2-DCA	Other HVOCs
				-----<----->----- ug/l								
MW-7	3/15/91	21.63	63.78	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
85.41	11/24/92	21.52	63.89	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	4/2/93	20.08	65.33	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	7/21/93	19.59	65.82	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	11/9/93	20.65	64.76	<50	--	<0.5	1	<0.5	1.7	--	<1.0	ND
	8/30/95	18.78	66.63	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	--
	12/1/95	19.47	65.94	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	5/2/96	17.15	68.26	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	8/8/96	18.48	66.93	<50	--	<0.5	<0.5	<0.5	<0.5	<2	<1.0	ND
	11/4/96	18.69	66.72	<50	--	<1	<1	<1	<1	--	<1.0	ND
	2/6/97	17.44	67.97	<50	--	<0.5	<0.5	<0.5	<0.5	<2	<1.0	ND
	5/8/97	17.72	67.69	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	--
	8/7/97	18.49	66.92	<50	--	<0.5	<0.5	<0.5	<0.5	<2	<1.0	ND
	11/5/97	18.86	66.55	<50	--	<0.5	<0.5	<0.5	<0.5	<2	1	--
	2/9/98	17.56	67.85	<50	--	<0.5	<0.5	<0.5	<0.5	<2	<1.0	--
	4/29/98	16.23	69.18	<50	--	<0.5	<0.5	<0.5	<0.5	<2	<1.0	ND
	8/4/98	17.24	68.17	<50	--	<0.5	<0.5	<0.5	<0.5	<2	1.1	ND
	11/2/98	17.91	67.50	<50	--	<0.5	<0.5	<0.5	<0.5	<2	1.2	ND
	3/26/99	16.42	68.99	<50	--	<0.5	<0.5	<0.5	<0.5	<2	ND	ND
7/1/99	17.90	67.51	85	--	<0.5	1.1	0.55	2.5	<0.5	1.0	5	
9/21/99	18.91	66.50	<50	--	0.7	1.8	<0.5	1.5	<5.0	<5.0	ND	
2/9/00	16.74	68.67	--	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5
MW-8	10/12/92	27.70	57.80	70	--	20	1	1	3	--	210	--
85.50	11/25/92	27.62	57.88	<50	--	<0.5	<0.5	<0.5	<0.5	--	200	ND
	4/8/93	26.64	58.86	490	--	15	45	5.1	73	--	210	ND
	7/21/93	26.60	58.90	180	--	2.5	3	<0.5	1.9	--	350	ND
	11/11/93	27.18	58.32	310	--	23	<0.5	<0.5	<0.5	--	240	ND
	8/30/95	26.35	59.15	660	--	360	6.8	13	2.8	--	130	--
	12/4/95	26.72	58.78	250	--	46	0.9	4.9	<0.5	--	94	ND

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Table 1. Groundwater Elevation and Analytical Data: Volatile Hydrocarbons and HVOCs

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID	Sampling Date	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TVH	TPHg	Benzene	Toluene	Ethyl - benzene	Xylenes	MTBE	1,2-DCA	Other HVOCs	
TOC Elev. (ft)						<-----ug/l----->							
	5/3/96	25.47	60.03	69	--	110	<0.5	<0.5	1.5	--	100	ND	
	8/8/96	26.41	59.09	120	--	11	<0.5	<0.5	<0.5	<2	93	ND	
	11/5/96	26.77	58.73	110	--	20	<1	1	<1	--	98	ND	
	2/6/97	25.84	59.66	67 ^{1,2}	--	51	<0.5	0.56	<0.5	<2	81	ND	
	5/9/97	26.39	59.11	110 ^{1,2}	--	59	<0.5	<0.5	<0.5	--	76	--	
	8/7/97	26.72	58.78	<50	--	12 ³	<0.5	<0.5	<0.5	<2	79	ND	
	11/5/97	26.82	58.68	<50	--	9.4	<0.5	<0.5	<0.5	<2	84	--	
	2/9/98	25.57	59.93	<50	--	6	<0.5	<0.5	<0.5	<2	85	--	
	5/1/98	25.64	59.86	430	--	490	7.1	27	26	<10	85	ND	
	8/5/98	25.96	59.54	140	--	19	<0.5	5.2	5.3	<2	69	ND	
	11/3/98	26.27	59.23	150	--	110	1.1	4.3	4.5	<2	67	ND	
	3/31/99	20.93	64.57	54	--	170	1.5	4.1	1.9	4.4 ⁴	5.9	1,1 DCA: 0.7	
	7/1/99	26.59	58.91	140	--	58	0.9	3	2.3	<0.5	55	⁵	
	9/21/99	26.89	58.61	670	--	170	2.6	11	7.9	<5	41	ND	
	2/9/00	26.60	58.90	--	300	60	1.2	4.8	1.2	<5.0	40	<0.5	
MW-9	11/24/92	23.51	66.86	19,000	--	180	590	23	2000	--	340	TCM: 15	
90.37	4/5/93	21.14	69.23	2,300	--	48	4	0.6	13	--	600	TCM: 2	
	7/21/93	21.54	68.83	2,300	--	170	8.1	15	<0.5	--	1100	ND	
	11/10/93	27.53	62.84	4,400	--	69	7.3	21	9.7	--	900	ND	
	8/30/95	19.59	70.78	3,200	--	3,900	49	80	22.8	--	960	--	
	12/4/95	20.65	69.72	--	--	--	--	--	--	<2	--	--	
	5/2/96	18.63	71.74	<1300	--	2,600	<13	200	<13	--	550	ND	
	11/5/96	20.69	69.68	1,800	--	280	<5	65	<5	--	770	ND	
	5/9/97	19.96	70.41	1,100	--	160	<0.5	42	<0.5	--	690	--	
	8/8/97	20.84	69.53	570 ^{1,2}	--	<0.5	<0.5	<0.5	0.78 ³	<2	680	ND	
	11/5/97	21.55	68.82	490 ¹	--	<0.5	<0.5	6	<0.5	<2	500	--	
	2/9/98	20.21	70.16	270 ¹	--	48	17	5.8	<0.5	<2	520	--	
	5/1/98	19.27	71.10	550	--	70	<0.5	22	2.2	<2	390	ND	
	8/5/98	19.35	71.02	550 ¹	--	88	<0.5	13	1.9 ³	<2	420	ND	

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Table 1. Groundwater Elevation and Analytical Data: Volatile Hydrocarbons and HVOCs
Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID TOC Elev. (ft)	Sampling Date	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TVH	TPHg	Benzene	Toluene	Ethyl - benzene	Xylenes	MTBE	1,2-DCA	Other HVOCs
<-----ug/l----->												
	11/2/98	20.43	69.94	580	--	<0.5	<0.5	7.5 ³	1.6 ³	<2	430	ND
	3/25/99	18.46	71.91	1,100	--	160	<0.5	21	2.1 ³	5.7 ⁴	550	ND
	7/1/99	19.95	70.42	540	--	100	7.4	26	16.9	<1.3	400	⁵
	9/21/99	21.15	69.22	2,700	--	320	98	88	47	<20	540	ND
	2/9/00	21.08	69.29	--	1,600	81	3.6	19	18	<5.0	360	<0.5
MW-10	10/12/92	21.55	67.05	28,000	--	2,700	3,800	210	1,300	--	150	--
88.60	11/24/92	21.86	66.74	130,000	--	9,700	19,000	1,400	8,400	--	370	ND
	4/5/93	19.14	69.46	63,000	--	6,300	14,000	1,100	7,500	--	70	ND
	7/21/93	19.79	68.81	140,000	--	16,000	31,000	2,200	13,000	--	700	ND
	8/30/95	17.99	70.61	92,000	--	13,000	24,000	1,800	9,100	--	300	--
	5/3/96	17.04	71.56	81,000	--	17,000	29,000	2,100	8,500	--	320	ND
	5/9/97	18.36	70.24	63,000	--	7,400	13,000	940	4,100	--	150	--
	5/1/98	15.84	72.76	60,000	--	7,100	14,000	1100	5,300	<250	120	ND
MW-11	11/24/92	33.65	68.41	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
102.06	2/8/92**	33.37	68.69	<50	--	<0.1	<0.1	<0.1	<0.1	--	--	--
	12/8/92	33.37	68.69	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--
	4/5/93	31.03	71.03	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	7/21/93	31.90	70.16	160	--	<0.5	1.8	<0.5	<0.5	--	<1.0	ND
	11/9/93	32.60	69.46	80	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	8/30/95	28.92	73.14	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	--
	5/3/96	28.00	74.06	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	5/8/97	29.93	72.13	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	--
	4/29/98	27.22	74.84	<50	--	<0.5	<0.5	<0.5	<0.5	<2	<1.0	ND
MW-13	11/24/92	26.05	58.01	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
84.06	2/8/92**	25.08	58.98	<50	--	<0.1	<0.1	<0.1	<0.1	--	--	--
	12/8/92	25.08	58.98	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--
	4/5/93	24.64	59.42	<50	--	<0.5	0.9	<0.5	<0.5	--	<1.0	ND

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Table 1. Groundwater Elevation and Analytical Data: Volatile Hydrocarbons and HVOCs

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID TOC Elev. (ft)	Sampling Date	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TVH	TPHg	Benzene	Toluene	Ethyl - benzene	Xylenes	MTBE	1,2-DCA	Other HVOCs
←----- ug/l ----->												
	7/21/93	24.29	59.77	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	11/9/93	24.23	59.83	<50	--	<0.5	<0.5	<0.5	<0.5	--	<1.0	ND
	8/30/95	23.30	60.76	<50	--	49	<0.5	<0.5	<0.5	--	3.6	--
	12/1/95	23.80	60.26	<50	--	<0.5	<0.5	<0.5	<0.5	--	4.1	ND
	5/3/96	23.19	60.87	<50	--	<0.5	<0.5	<0.5	<0.5	--	4	ND
	8/8/96	23.44	60.62	<50	--	32	<0.5	<0.5	<0.5	<2	6.4	ND
	11/5/96	24.04	60.02	<50	--	<1	<1	<1	<1	--	5.7	ND
	2/6/97	23.24	60.82	<50	--	<0.5	<0.5	<0.5	<0.5	<2	3.5	ND
	5/8/97	23.46	60.60	<50	--	81	<0.5	<0.5	<0.5	--	5.5	--
	8/8/97	23.92	60.14	<50	--	<0.5	<0.5	<0.5	<0.5	<2	6.8	ND
	11/5/97	24.27	59.79	<50	--	<0.5	<0.5	<0.5	<0.5	<2	5.5	--
	2/9/98	22.89	61.17	<50	--	<0.5	<0.5	<0.5	<0.5	<2	2.9	--
	4/29/98	22.27	61.79	<50	--	24	<0.5	<0.5	<0.5	<2	5.7	ND
	8/4/98	22.75	61.31	120	--	200	<1	<1	<1	<4	6.2	ND
	11/3/98	23.90	60.16	59 ¹	--	33	<0.5	<0.5	<0.5	<2	6.1	ND
	3/31/99	23.11	60.95	130	--	0.56	<0.5	<0.5	<0.5	<2	1.4	ND
	7/1/99	23.40	60.66	160	--	370	19	1.2	3.5	<1	4.2	⁵
	9/21/99	21.91	62.15	370	--	150	1.0	0.8	0.8	<5.0	<5.0	ND
	2/9/00	23.84	60.22	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	2.1	<0.5
MW-14	5/26/98	21.67	72.99	41,000	--	7,100	11,000	720	3,900	<1000	440	ND
94.66	7/1/99	22.95	71.71	FP	--	--	--	--	--	--	--	--
	9/21/99	24.26	70.40	FP	--	--	--	--	--	--	--	--
	2/9/00	24.13	70.53	--	92,000	12,000	17,000	1,300	8,700	<140	450	<0.5
MW-15	5/26/98	21.87	72.89	130,000	--	30,000	38,000	2,500	12,600	<1000	1,200	ND
94.76	7/1/99	22.25	72.51	FP	--	--	--	--	--	--	--	--
	9/21/99	24.12	70.64	FP	--	--	--	--	--	--	--	--
	2/9/00	24.42	70.34	--	180,000	32,000	37,000	2,800	14,000	<200	1,100	<0.5

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Table 1. Groundwater Elevation and Analytical Data: Volatile Hydrocarbons and HVOCs

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID	Sampling	Depth to	Groundwater	TVH	TPHg	Benzene	Toluene	Ethyl - benzene	Xylenes	MTBE	1,2-DCA	Other HVOCs
<i>TOC Elev. (ft)</i>	Date	Groundwater (ft)	Elevation (ft)									
-----> ug/l <-----												

Abbreviations and Notes:

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

TVH = Total Volatile Hydrocarbons

TEH = Total Extractable Hydrocarbons

MTBE = Methyl tert-butyl ether

* = Suspect laboratory contamination contributing to test result.

** = Fuel fingerprint analysis indicates MTBE is not present in the free product sample collected from this well.

*** = Duplicate sample sent to a different chemical laboratory.

DCB = 1, 3 Dichlorobenzene

MCB = Chlorobenzene

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

1,2-DCA = 1,2 Dichloroethane

TPHg = Total petroleum hydrocarbons as gasoline

HVOCs = Halogenated volatile organic compounds by EPA Method 8010

TOC Elev. (ft) = Top of casing elevation in feet above mean sea level

DBCM = Dibromochloromethane

TCM = Chloroform = trichloromethane

<0.5 = Chemical not present at a concentration in excess of detection limit shown

MW-1 was initially referred to as Sample 5

-- = Sample not analyzed

FP = Free product encountered in well

1 = Sample exhibits fuel pattern which does not resemble standard

2 = Lighter hydrocarbons than indicated standard

3 = Presence of this compound confirmed by second column, however, the confirmation concentration differed from the reported result by more than a factor of two

4 = detection may potentially be a false positive, to be checked during the next event.

5 = One or more of the following substances found: Acetone, 1,2-Dibromoethane, Ethylbenzene, Styrene, Isopropylbenzene, Propylbenzene, 1,3,5-Trimethylbenzene, 2-Chlorotoluene, 1,2,4-Trimethylbenzene, n-Butylbenzene, and Naphthalene. See laboratory results for details.

1,1 DCA = 1,1 Dichloroethane

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

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Table 2. Groundwater Elevation and Analytical Data: Extractable Hydrocarbons and SVOCs
 Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID TOC Elev. (ft)	Sampling Date	Depth to water (ft)	Groundwater Elevation (ft)	TEH <-----	TPHd	TPHmo	2-Methyl naphthalene ug/l	Naphthalene	Other SVOCs ----->
MW-1	10/5/90	26.40	68.08	<500	--	--	--	--	--
94.48	3/1/91	27.46	67.02	FP	--	--	--	--	--
	10/12/92	26.44	68.04	--	--	--	--	--	--
	11/24/92	26.63	67.85	4,600	--	--	--	--	--
	4/5/93	23.77	70.71	25,000	--	--	--	--	--
	7/21/93	24.51	69.97	FP	--	--	--	--	--
	11/9/93	26.06	68.42	FP	--	--	--	--	--
	8/30/95	21.73	72.75	FP	--	--	630	1,200	ND
	12/4/95	21.94	72.54	FP	--	--	--	--	--
	5/2/96	20.65	73.83	32,000	--	--	250	640	ND
	11/5/96	24.29	70.19	--	--	--	--	--	--
	5/9/97	22.79	71.69	28,000	--	--	280	650	ND
	11/5/97	25.06	69.42	28,000	--	--	720	1,500	ND
	2/9/98	22.64	71.84	27,000	--	--	160	570	ND
	5/1/98	19.95	74.53	29,000	--	--	--	--	--
	5/27/98	--	--	--	--	--	120	630	ND
	11/3/98	23.29	71.19	37,000	--	--	500	1,100	ND
	3/24/99	22.30	72.18	FP	--	--	--	--	--
	7/1/99	22.70	71.78	FP	--	--	--	--	--
	9/21/99	23.81	70.67	FP	--	--	--	--	--
	2/9/00	23.95	70.59	--	FP	--	--	--	--
MW-2	3/1/91	27.86	66.95	<50	--	--	--	--	--
94.81	11/24/92	27.91	66.90	<50	--	--	--	--	--
	4/5/93	25.95	68.86	870	--	--	--	--	--
	7/21/93	25.59	69.22	<50	--	--	--	--	--
	11/10/93	26.72	68.09	240	--	--	--	--	--
	8/30/95	25.75	69.06	150	--	--	--	--	--
	5/3/96	23.28	71.53	<50	--	--	--	--	--
	5/8/97	24.58	70.23	<50	--	--	--	--	--
	4/29/98	22.18	72.63	<47	--	--	--	--	--
MW-3	3/1/91	23.17	66.91	<50	--	--	--	--	--
90.08	11/25/92	23.01	67.07	160	--	--	--	--	--

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

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID TOC Elev. (ft)	Sampling Date	Depth to water (ft)	Groundwater Elevation (ft)	TEH <----- ----->	TPHd	TPHmo	2-Methyl naphthalene ug/l	Naphthalene	Other SVOCs
	4/5/93	22.11	67.97	<50	--	--	--	--	--
	7/21/93	23.93	66.15	<50	--	--	--	--	--
	11/10/93	23.14	66.94	<50	--	--	--	--	--
	8/30/95	20.61	69.47	<50	--	--	--	--	--
	5/3/96	18.43	71.65	<50	--	--	--	--	--
	5/8/97	19.77	70.31	<50	--	--	--	--	--
	4/29/98	17.92	72.16	<47	--	--	--	--	--
MW-4	3/1/91	23.79	65.05	<500	--	--	--	--	--
88.84	10/12/92	22.48	66.36	--	--	--	--	--	--
	11/24/92	22.60	66.24	1,600	--	--	--	--	--
	4/2/93	20.11	68.73	FP	--	--	--	--	--
	7/21/93	20.48	68.36	FP	--	--	--	--	--
	11/9/93	21.71	67.13	FP	--	--	--	--	--
	8/30/95	19.90	68.94	FP	--	--	--	--	--
	12/1/95	19.40	69.44	FP	--	--	--	--	--
	5/2/96	17.50	71.34	9,200	--	--	--	--	--
	11/4/96	20.13	68.71	4,700	--	--	--	--	--
	5/8/97	18.63	70.21	5,100	--	--	--	--	--
	11/5/97	20.19	68.65	3,700	--	--	--	--	--
	2/9/98	18.28	70.56	4,800	--	--	--	--	--
	5/1/98	16.11	72.73	5,000	--	--	--	--	--
	8/4/98	17.54	71.30	3,500	--	--	--	--	--
	11/2/98	19.21	69.63	7,200	--	--	--	--	--
	3/26/99	17.51	71.33	14,000	--	--	--	--	--
	7/1/99	18.80	70.04	17,000	--	--	370	860	ND
	9/21/99	19.85	68.99	14,000	--	--	360	820	ND
	2/9/00	19.76	69.08	--	12,000	1,000	290	700	ND
MW-5	3/15/91	26.31	58.53	<50	--	--	--	--	--
84.84	11/10/92	26.83	58.01	50	--	--	--	--	--
	4/2/93	26.62	58.22	<50	--	--	--	--	--
	7/21/93	26.60	58.24	190	--	--	--	--	--
	11/9/93	27.24	57.60	170	--	--	--	--	--
	8/30/95	27.46	57.38	180	--	--	--	--	--

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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. (ft)</i>	Sampling Date	Depth to water (ft)	Groundwater Elevation (ft)	TEH	TPHd	TPHmo	2-Methyl	Naphthalene	Other SVOCs
							naphthalene		
							<-----ug/l----->		
	5/3/96	26.02	58.82	<50	--	--	--	--	--
	5/8/97	26.76	58.08	<50	--	--	--	--	--
	4/29/98	26.55	58.29	<47	--	--	--	--	--
MW-6	3/15/91	25.82	59.80	<50	--	--	--	--	--
85.62	10/12/92	25.02	60.60	--	--	--	--	--	--
	12/1/92	28.87	56.75	FP	--	--	--	--	--
	4/2/93	26.96	58.66	FP	--	--	--	--	--
	7/21/93	26.17	59.45	FP	--	--	--	--	--
	11/9/93	27.51	58.11	FP	--	--	--	--	--
	8/30/95	28.00	57.62	FP	--	--	--	--	--
	12/1/95	27.58	58.04	FP	--	--	--	--	--
	5/3/96	26.83	58.79	9,000	--	--	--	--	--
86.94	5/9/97	26.54	60.40	53,000	--	--	--	--	--
	11/5/97	26.16	60.78	65,000	--	--	--	--	--
85.82	5/1/98	22.96	62.86	25,000	--	--	--	--	--
	11/3/98	24.35	61.47	30,000	--	--	--	--	--
	3/26/99	23.82	62.00	FP	--	--	--	--	--
	7/1/99	24.45	61.37	FP	--	--	--	--	--
	9/21/99	24.58	61.24	FP	--	--	--	--	--
	2/9/00	24.93	61.24	--	FP	--	--	--	--
MW-7	3/15/91	21.63	63.78	<50	--	--	--	--	--
85.41	11/24/92	21.52	63.89	<50	--	--	--	--	--
	4/2/93	20.08	65.33	<50	--	--	--	--	--
	7/21/93	19.59	65.82	150	--	--	--	--	--
	11/9/93	20.65	64.76	200	--	--	--	--	--
	8/30/95	18.78	66.63	170	--	--	--	--	--
	12/1/95	19.47	65.94	<50	--	--	--	--	--
	5/2/96	17.15	68.26	<50	--	--	--	--	--
	8/8/96	18.48	66.93	<50	--	--	--	--	--
	11/4/96	18.69	66.72	<50	--	--	--	--	--
	2/6/97	17.44	67.97	<50	--	--	--	--	--
	5/8/97	17.72	67.69	<50	--	--	--	--	--
	8/7/97	18.49	66.92	<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. (ft)</i>	Sampling Date	Depth to water (ft)	Groundwater Elevation (ft)	TEH	TPHd	TPHmo	2-Methyl naphthalene	Naphthalene	Other SVOCs
				-----> ug/l <-----					
	11/5/97	18.86	66.55	<50	--	--	--	--	--
	2/9/98	17.56	67.85	<50	--	--	--	--	--
	4/29/98	16.23	69.18	<47	--	--	--	--	--
	8/4/98	17.24	68.17	<50	--	--	--	--	--
	11/2/98	17.91	67.50	<50	--	--	--	--	--
	3/26/99	16.42	68.99	<50	--	--	--	--	--
	7/1/99	17.90	67.51	<50	--	--	<10	<10	ND
	9/21/99	18.91	66.50	<48	--	--	<9.5	<9.5	ND
	2/9/00	16.74	68.67	--	<50	<250	<10	<10	ND
MW-8	10/12/92	27.70	57.80	--	--	--	--	--	--
85.50	11/25/92	27.62	57.88	170	--	--	--	--	--
	4/8/93	26.64	58.86	100	--	--	--	--	--
	7/21/93	26.60	58.90	90	--	--	--	--	--
	11/11/93	27.18	58.32	170	--	--	--	--	--
	8/30/95	26.35	59.15	240	--	--	--	--	--
	12/4/95	26.72	58.78	<50	--	--	--	--	--
	5/3/96	25.47	60.03	94	--	--	--	--	--
	8/8/96	26.41	59.09	250	--	--	--	--	--
	11/5/96	26.77	58.73	<50	--	--	--	--	--
	2/6/97	25.84	59.66	130	--	--	--	--	--
	5/9/97	26.39	59.11	120	--	--	--	--	--
	8/7/97	26.72	58.78	150	--	--	--	--	--
	11/5/97	26.82	58.68	110	--	--	--	--	--
	2/9/98	25.57	59.93	75	--	--	--	--	--
	5/1/98	25.64	59.86	210	--	--	--	--	--
	8/5/98	25.96	59.54	260	--	--	--	--	--
	11/3/98	26.27	59.23	190	--	--	--	--	--
	3/31/99	20.93	64.57	200	--	--	--	--	--
	7/1/99	26.59	58.91	170	--	--	<9.6	<9.6	ND
	9/21/99	26.89	58.61	420	--	--	<9.4	<9.4	ND
	2/9/00	26.60	58.90	--	120	280	<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. (ft)</i>	Sampling Date	Depth to water (ft)	Groundwater Elevation (ft)	TEH	TPHd	TPHmo	2-Methyl		Other SVOCs
							naphthalene	Naphthalene	
							-ug/l-		
MW-9	11/24/92	23.51	66.86	320	--	--	--	--	--
90.37	4/5/93	21.14	69.23	920	--	--	--	--	--
	7/21/93	21.54	68.83	450	--	--	--	--	--
	11/10/93	27.53	62.84	450	--	--	--	--	--
	8/30/95	19.59	70.78	680	--	--	--	--	--
	12/4/95	20.65	69.72	--	--	--	--	--	--
	5/2/96	18.63	71.74	710	--	--	--	--	--
	11/5/96	20.69	69.68	420	--	--	--	--	--
	5/9/97	19.96	70.41	490	--	--	--	--	--
	8/8/97	20.84	69.53	480	--	--	--	--	--
	11/5/97	21.55	68.82	370	--	--	--	--	--
	2/9/98	20.21	70.16	410	--	--	--	--	--
	5/1/98	19.27	71.10	450	--	--	--	--	--
	8/5/98	19.35	71.02	630	--	--	--	--	--
	11/2/98	20.43	69.94	500	--	--	--	--	--
	3/25/99	18.46	71.91	630	--	--	--	--	--
	7/1/99	19.95	70.42	570	--	--	<9.5	<9.5	ND
	9/21/99	21.15	69.22	770	--	--	<9.4	<9.4	ND
	2/9/00	21.08	69.29	--	320	<250	<10	<10	ND
MW-10	10/12/92	21.55	67.05	--	--	--	--	--	--
88.60	11/24/92	21.86	66.74	1,300	--	--	--	--	--
	4/5/93	19.14	69.46	5,000	--	--	--	--	--
	7/21/93	19.79	68.81	20,000	--	--	--	--	--
	8/30/95	17.99	70.61	5,900	--	--	--	--	--
	5/3/96	17.04	71.56	5,600	--	--	--	--	--
	5/9/97	18.36	70.24	2,500	--	--	--	--	--
	5/1/98	15.84	72.76	2,000	--	--	--	--	--
MW-11	11/24/92	33.65	68.41	220	--	--	--	--	--
102.06	12/8/92*	33.37	68.69	140	--	--	--	--	--
	12/8/92	33.37	68.69	120	--	--	--	--	--

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

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID	Sampling Date	Depth to water (ft)	Groundwater Elevation (ft)	TEH	TPHd	TPHmo	2-Methyl naphthalene	Naphthalene	Other SVOCs
				<-----ug/l----->					
	4/5/93	31.03	71.03	<50	--	--	--	--	--
	7/21/93	31.90	70.16	150	--	--	--	--	--
	11/9/93	32.60	69.46	60	--	--	--	--	--
	8/30/95	28.92	73.14	240	--	--	--	--	--
	5/3/96	28.00	74.06	<50	--	--	--	--	--
	5/8/97	29.93	72.13	<50	--	--	--	--	--
	4/29/98	27.22	74.84	<47	--	--	--	--	--
MW-13	11/24/92	26.05	58.01	3,600	--	--	--	--	--
84.06	12/8/92*	25.08	58.98	210	--	--	--	--	--
	12/8/92	25.08	58.98	100	--	--	--	--	--
	4/5/93	24.64	59.42	<50	--	--	--	--	--
	7/21/93	24.29	59.77	<50	--	--	--	--	--
	11/9/93	24.23	59.83	160	--	--	--	--	--
	8/30/95	23.30	60.76	<50	--	--	--	--	--
	12/1/95	23.80	60.26	<50	--	--	--	--	--
	5/3/96	23.19	60.87	<50	--	--	--	--	--
	8/8/96	23.44	60.62	<50	--	--	--	--	--
	11/5/96	24.04	60.02	<50	--	--	--	--	--
	2/6/97	23.24	60.82	<50	--	--	--	--	--
	5/8/97	23.46	60.60	<50	--	--	--	--	--
	8/8/97	23.92	60.14	<50	--	--	--	--	--
	11/5/97	24.27	59.79	<50	--	--	--	--	--
	2/9/98	22.89	61.17	<50	--	--	--	--	--
	4/29/98	22.27	61.79	<47	--	--	--	--	--
	8/4/98	22.75	61.31	78	--	--	--	--	--
	11/3/98	23.90	60.16	<50	--	--	--	--	--
	3/31/99	23.11	60.95	<48	--	--	--	--	--
	7/1/99	23.40	60.66	100	--	--	<9.6	<9.6	ND
	9/21/99	21.91	62.15	<48	--	--	<9.4	<9.4	ND
	2/9/00	23.84	60.22	--	<50	<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. (ft)</i>	Sampling Date	Depth to water (ft)	Groundwater Elevation (ft)	TEH <-----	TPHd	TPHmo	2-Methyl naphthalene ug/l	Naphthalene	Other SVOCs ----->
MW-14	5/26/98	21.67	72.99	7,700	--	--	--	--	--
94.66	7/1/99	22.95	71.71	FP	--	--	--	--	--
	9/21/99	24.26	70.40	FP	--	--	--	--	--
	2/9/00	24.13	70.53	--	14,000	1,500	290	600	ND
MW-15	5/26/98	21.87	72.89	1,700	--	--	--	--	--
94.76	7/1/99	22.25	72.51	FP	--	--	--	--	--
	9/21/99	24.12	70.64	FP	--	--	--	--	--
	2/9/00	24.42	70.34	--	4,000	1,200	50	270	ND

Abbreviations and Notes:

SVOCs = Semi-volatile organic compounds

TEH = Total extractable hydrocarbons

TPHd = Total petroleum hydrocarbons as diesel

TPHmo = Total petroleum hydrocarbons as motor oil

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

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

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

* = Duplicate sample sent to a different chemical laboratory

< n = Not detected above n ug/l

-- = Not analyzed/not available

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Table 3. LUFT Metals in Groundwater

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID	Sampling Date	Cadmium	Chromium	Lead	Nickel	Zinc
		<-----ug/l----->				
MW-4	7/1/99	<5	<10	59	<20	<20
	9/21/99	<5	<10	66	<20	33
	2/9/00	<5	17	68	<50	<50
MW-7	7/1/99	<5	<10	<3	<20	<20
	9/21/99	<5	<10	<3	<20	<20
	2/9/00	<5	14	8.6	59	<50
MW-8	7/1/99	<5	<10	<3	<20	<20
	9/21/99	<5	<10	<3	<20	<20
	2/9/00	<5	<5	<5	<50	<50
MW-9	7/1/99	<5	<10	<3	34	<20
	9/21/99	<5	<10	<3	25	37
	2/9/00	<5	82	29	160	130
MW-13	7/1/99	<5	<10	<3	<20	<20
	9/21/99	<5	<10	<3	<20	<20
	2/9/00	<5	12	15	<50	<50
MW-14	2/9/00	<5	210	24	2,500	280
MW-15	2/9/00	<5	140	1,800	220	150

Abbreviations and Notes:

LUFT metals analyzed by EPA Method 6010

ug/l = micrograms per liter

ATTACHMENT A

Standard Field Procedures for Geoprobe Soil Vapor Sampling

CAMBRIA

STANDARD FIELD PROCEDURES FOR GEOPROBE® SOIL VAPOR SAMPLING

This document describes Cambria Environmental Technology's standard field methods for Geoprobe® soil vapor sampling. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

Objectives

Soil vapor samples are collected and analyzed to characterize subsurface contaminant distribution and to assess whether vapor-phase subsurface contaminants pose a threat to human health or the environment.

Soil Vapor Sampling

Geoprobe® cuttingless drill rigs allow for rapid sample retrieval and can move quickly between boring locations. The drill-rig uses a hydraulic-push advancement method and is equipped with a variety of groundwater, soil, and vapor sampling systems to assure sample collection in most hydrogeologic environments. Since the hollow drill rods are pushed into the ground, rather than augured, the stratigraphy forms a vapor seal between the surface and subsurface environments ensuring that the surface and subsurface gases do not mix. Once the desired soil vapor sampling depth has been reached, the Geoprobe® operator installs disposable tubing with a threaded adaptor that screws into the bottom of the rods. The screw adaptor ensures that the vapor sample comes directly from the bottom of the drill rods and does not mix with other vapor from inside the rod or from the ground surface. The operator then pulls up on the rods and exposes about six inches of the desired stratigraphy by leaving an expendable drive point at the maximum depth. The required volume of soil vapor is then purged through the polyethylene tubing using a standard vacuum pump. The soil vapor can be sampled for direct injection into a field gas chromatograph, pumped into inert tedlar bags using a "bell jar" sampling device, or allowed to enter a Summa vacuum canister. Once collected, the vapor sample is transported under chain-of-custody to a state-certified laboratory. The ground surface immediately adjacent to the boring is used as a datum to measure sample depth. The horizontal location of each boring is measured in the field relative to a permanent on-site reference using a measuring wheel or tape measure. Drilling and sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Storage, Handling and Transport

Samples are stored out of direct sunlight in coolers and transported under chain-of-custody to a state-certified analytic laboratory.

Field Screening

After collecting a vapor sample for laboratory analysis, Cambria often collects an additional vapor sample for field screening using a portable photo-ionization detector (PID), flame-ionization detector (FID), or GasTech® combustible gas detector to measure volatile hydrocarbon vapor concentrations. These measurements are used along with the field observations, odors, stratigraphy and groundwater depth to help select the best location for additional borings to be advanced during the field mobilization.

Grouting

The borings are filled to the ground surface with neat cement poured or pumped through a tremie pipe.

ATTACHMENT B

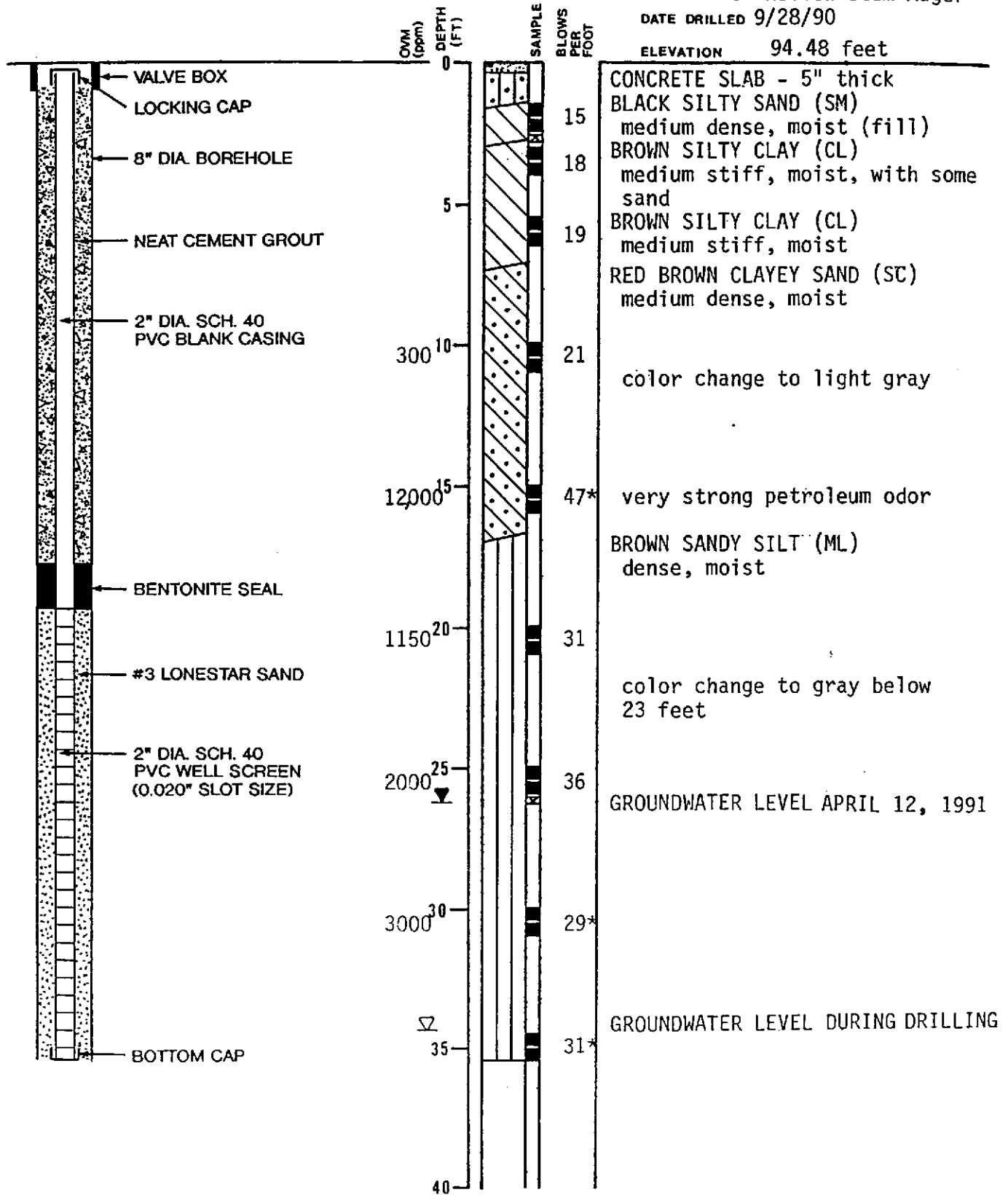
Soil Boring Logs and Well Diagrams

LOG OF TEST BORING MW1

EQUIPMENT 8" Hollow Stem Auger

DATE DRILLED 9/28/90

ELEVATION 94.48 feet



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JOB NUMBER
447.026

DATE
10/17/90

APPROVED
[Signature]

PLATE

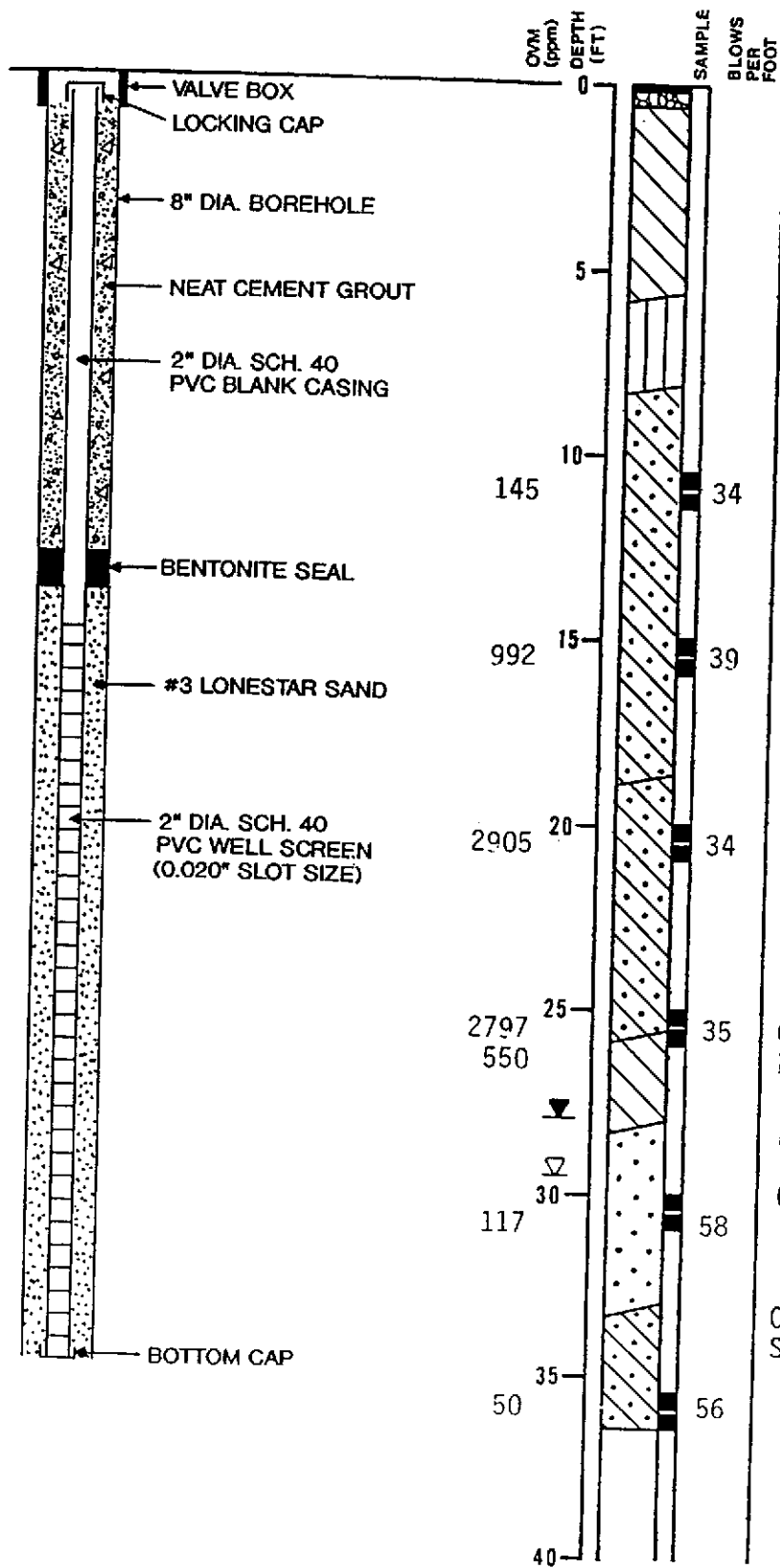
A1

LOG OF TEST BORING MW6

EQUIPMENT 8" Hollow Stem Aug

DATE DRILLED 3/8/91

ELEVATION 85.62 feet



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JOB NUMBER
447.026

DATE
3/13/91

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ja

AE

Project Name & Location: Connell Oldsmobile Oakland, California		Ground Surface Elevation: ---	
Drilling Coordinates: ---		Elevation Datum: ---	
Drilling Company & Driller: Gregg Drilling / Jason		Start: Date 5/16/98	Time 1400
Rig Type & Drilling Method: Rhino Limited Access Truck		Finish: Date 5/16/98	Time 1630
Sampler Type(s): A) Modified California Sampler (3.0-inch O.D.) B) Standard Penetration Test Sampler (2.0-inch O.D.) C)		Drilling Fluid: NA	Hole Diameter: 4 1/4", reamed to 8" for well installation
Sampling Method(s): A) Pneumatic Push B) C)		Logged By: John Wolfe	Backfill Method: Well Installed
		Date: 5/16/98	

Elevation (feet) Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	Well Construction	SOIL DESCRIPTIONS		LABORATORY DATA		
							GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	Moisture Content (%)	Dry Density (pcf)	Other	
0							Concrete Slab - 6 inches thick SANDY LEAN CLAY (CL) black 10Y 2.5/1, medium stiff, moist, with brick fragments (Fill)				
0							LEAN CLAY (CL-ML) dark yellowish-brown 10YR 4/4, medium stiff to stiff, moist (Fill?)				
5	B						Hydrocarbon odor at 7 feet				
0							SANDY LEAN CLAY (CL) yellowish-brown 10YR 5/4, stiff, moist, with thin lenses of clayey sand				
10	B						WELL GRADED GRAVEL WITH CLAY AND SAND (GW) dark yellowish-brown 10YR 4/6, very dense, moist, with chemical odor, gravel angular				
3							grades to CLAYEY GRAVEL (GC) dark yellowish-brown 10YR 4/6, very dense, moist				
53							Strong hydrocarbon odor Clay, gravel, and sand contents vary				
15	B						Groundwater level during drilling				
15											
20	B										
285											
250											
25	B										
30											

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OAKLAND, CALIFORNIA

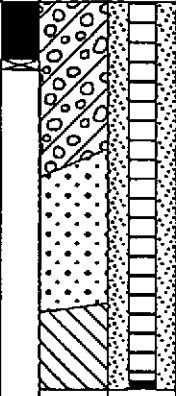
JOB NUMBER: 447.055 DATE: 5/27/98 APPROVED: *[Signature]*

PLATE
6a

Project Name & Location: **Connell Oldsmobile
Oakland, California**

Start Date: **5/16/98**

Logged By: **John Wolfe**

Elevation (feet) ± Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	Well Construction	SOIL DESCRIPTIONS		LABORATORY DATA		
							GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	Moisture Content (%)	Dry Density (pcf)	Other	
38	B	45					Heaving sands at 34 feet, unable to obtain sample below this depth WELL GRADED SAND WITH GRAVEL (SW)				
34							LEAN CLAY (CL) dark yellowish-brown 10YR 4/4, medium stiff to stiff, moist				
30											
25											
20											
15											
10											
5											



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OAKLAND, CALIFORNIA

PLATE

JOB NUMBER
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
DATE
5/27/98

APPROVED
[Signature]

6b

Project Name & Location: Connell Oldsmobile Oakland, California		Ground Surface Elevation: _____	
Drilling Coordinates: _____		Elevation Datum: _____	
Drilling Company & Driller: Gregg Drilling / Doug		Start: Date 5/17/98	Time 1400
Rig Type & Drilling Method: Rhino Limited Access Truck		Finish: Date 5/17/98	Time 1700
Sampler Type(s): A) Modified California Sampler (3.0-inch O.D.) B) Standard Penetration Test Sampler (2.0-inch O.D.) C)		Drilling Fluid: NA	
Sampling Method(s): A) Pneumatic Push B) C)		Hole Diameter: 6"; reamed to 8" for well installation	
		Logged By: John Wolfe	
		Backfill Method: Well Installed	
		Date: 5/17/98	

Elevation (feet)	Depth (feet)	Sampler Type	Blows/5 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	Well Construction	SOIL DESCRIPTIONS		LABORATORY DATA		
								GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	Moisture Content (%)	Dry Density (pcf)	Other	
0								Concrete Slab - 6 inches thick				
								POORLY GRADED GRAVEL WITH SAND (GP) brownish-yellow 10YR 5/8, medium dense, moist (Fill)				
								LEAN CLAY (CL) very dark grayish-brown 10YR 3/2, medium stiff, moist (Fill)				
5		B						LEAN CLAY (CL) yellowish-brown 10YR 5/4, medium stiff, moist				
								SILTY SAND (SM) yellowish-brown 10YR 5/8, dense, moist				
10		B						LEAN CLAY (CL) olive-brown 2.5Y 4/3, medium stiff, moist				
								CLAYEY GRAVEL (GC) olive-gray 5Y 4/2 and yellowish-brown 10Y 5/8, dense, moist, gravel angular, well graded				
15		B						Gravel, sand, and clay contents vary Color changes to dark brown 10YR 3/3 and dark yellowish-brown 10YR 4/6				
20		B						Groundwater level during drilling				
								Strong hydrocarbon odor				
25		B										
220												

 Subsurface Consultants, Inc. Geotechnical & Environmental Engineers	CONNELL OLDSMOBILE OAKLAND, CALIFORNIA		PLATE 7a
	JOB NUMBER 447.055	DATE 5/27/98	APPROVED 

Project Name & Location: Connell Oldsmobile
Oakland, California

Start Date: 5/17/98

Logged By: John Wolfe

Elevation (feet)	Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	Well Construction	SOIL DESCRIPTIONS	LABORATORY DATA		
								GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	Moisture Content (%)	Dry Density (pcf)	Other
33		B		53							
35											
40								LEAN CLAY (CL) light olive-brown 2.5Y 5/4, stiff, wet			
45											
50											
55											
60											
65											



Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

CONNELL OLDSMOBILE
OAKLAND, CALIFORNIA

JOB NUMBER
447.055

DATE
5/27/98

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PLATE

7b