

RECEIVED

By dehloptoxic at 8:58 am, Oct 03, 2006

C A M B R I A

September 29, 2006

Mr. Jerry Wickham
Alameda County Health Care Services Agency (ACHSA)
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Re: **Subsurface Investigation Report**
Chevron Station #9-0917
5280 Hopyard Road
Pleasanton, California



Dear Mr. Wickham:

Cambria Environmental Technology, Inc. (Cambria) has prepared this *Subsurface Investigation Report* on behalf of Chevron Environmental Management (Chevron) for the site referenced above. The work was performed in accordance with Cambria's *Response to Comments* dated June 5, 2006, which was approved by ACHCSA in a letter dated June 21, 2006. The site background, investigation, results, and Cambria's conclusions and recommendations are presented below.

SITE BACKGROUND

Site Description: The site is located at the southern corner of the intersection of Hopyard Road and Owens Drive in Pleasanton, California (Figure 1). The site is an active Chevron branded service station with a station building, car wash facility, four underground storage tanks (USTs), and three dispenser islands under a common canopy (Figure 2).

Local topography is flat and the site is approximately 335 feet above mean sea level (msl). The closest surface water is Chabot Canal approximately 250 feet east of the site. The area surrounding the site is primarily commercial.

Site Geology: Sediments observed beneath the site during this investigation consist of clay, sandy clay, and clayey sand to a maximum explored depth of 24 fbg.

Site Hydrogeology: The Livermore Valley Groundwater Basin is divided into twelve sub-basins based on fault traces and hydrologic discontinuities. The site is located in the Dublin Sub-Basin (DSB). Regionally, the upper, unconfined groundwater in the DSB generally flows south. Aquifers in the DSB are generally flat lying, but there is a drop in groundwater elevation of approximately 50 feet across the Parks Fault (Evaluation of Groundwater Resources: Livermore

**Cambria
Environmental
Technology, Inc.**

2000 Opportunity Drive
Suite 110
Roseville, CA 95678
Tel (916) 677-3407
Fax (916) 677-3687

and Sonol Valleys, Department of the Water Resources Bulletin Number 118-2, June 1974). The Parks Fault trends east-northeast approximately 1 mile south of the site (Pacific Environmental Group, Inc., *Soil and Groundwater Investigation*, dated August 11, 1997).

Historically, the site groundwater flow direction has been variable, but recent events indicate a south-southeast flow direction at an approximate gradient between 0.004 to 0.009. Measured depth to groundwater at the site ranges between 7.5 and 10 fbg.

PREVIOUS INVESTIGATIONS



August 1989, Monitoring Well Installation: In August 1989, Groundwater Technology, Inc. (GTI) installed on-site groundwater monitoring wells MW-1 through MW-3. Soil samples from these well borings do not appear to have been submitted for laboratory analysis based on the information supplied by Chevron.

June 1991, UST Replacement and Soil Excavation: In June 1991, Blaine Tech Services, Inc. observed the UST system removal and soil excavation, and collected soil and grab-groundwater samples for chemical analyses. Five fiberglass USTs, consisting of three 10,000-gallon gasoline, one 10,000-gallon diesel, and one 500-gallon used-oil USTs, were removed and replaced with four 12,000-gallon double-walled fiberglass gasoline USTs. Total petroleum hydrocarbons as gasoline (TPHg) and benzene were reported in soil samples collected from the bottom of the UST excavation at maximum concentrations of 70 milligrams per kilogram (mg/kg) and 0.64 mg/kg, respectively, at depths of 9.5 fbg to 10 fbg. TPHg and benzene were reported in over-excavation soil samples collected from beneath the fuel product piping at concentrations of 440 mg/kg and 1.1 mg/kg, respectively, at 7 fbg. Total petroleum hydrocarbons as diesel (TPHd) was reported at a maximum concentration of 8.0 mg/kg from 10 fbg in the product piping area. Over-excavation of UST and product piping areas extended to maximum depths of approximately 10 fbg. TPHg and benzene were reported in a grab-groundwater sample collected from the bottom of the UST excavation at concentrations of 24,000 micrograms per liter ($\mu\text{g/L}$) and 1,000 $\mu\text{g/L}$, respectively. Depth to water in the excavation was measured at approximately 10 fbg. Approximately 90 cubic yards of soil, not including additional gravel, was removed during UST removal and over-excavation and approximately 70 cubic yards of soil was removed during product line removal and over-excavation. The probable source area, based on reported soil and grab-groundwater samples, is the former dispenser island and associated northeastern product lines. Soil analytical results and sample locations are found in Gettler-Ryan's (G-R) *Site Conceptual Model and Closure Request*, dated January 25, 2002.

July 1991, Monitoring Well Destruction and Well Installation: In July 1991, GTI destroyed wells MW-1 through MW-3 and installed groundwater monitoring wells MW-4 through MW-6. Based on information provided by Chevron, no soil samples from the well borings were submitted for chemical analyses. Groundwater was encountered in the well borings at a depth of approximately 9 fbg.

May 1997, Monitoring Well Installation: On May 5, 1997, Pacific Environmental Group, Inc. (PEG), installed off-site groundwater monitoring wells MW-7 through MW-9 to define the extent of petroleum hydrocarbons and methyl tertiary butyl ether (MTBE) in groundwater south of the source area. Selected soil samples were analyzed for TPHg, MTBE, benzene, toluene, ethylbenzene, and xylenes (BTEX). These compounds were not reported in any of the soil samples. Selected soil samples were sent to Cooper Testing Facilities for physical analysis for moisture, density, porosity, specific gravity, and organic content. Details of this investigation can be found in PEG's *Soil and Groundwater Investigation* dated August 11, 1997.

March 1999, Enhanced Bioremediation: Oxygen releasing compound (ORC) socks were installed in wells MW-5 and MW-6 on March 26, 1999, to increase the dissolved oxygen concentrations in groundwater in the areas of known petroleum hydrocarbons to oxidize organic contaminants and enhance biodegradation within the plume. A significant decrease in dissolved hydrocarbon concentrations was observed in wells MW-5 and MW-6 after installation of the ORC. A significant decrease in dissolved oxygen (DO) concentrations in wells MW-5 and MW-6 was reported from samples collected from June 19, 2000 to September 18, 2000, suggesting that the ORC socks were spent and oxidation and biodegradation were occurring. DO concentrations stabilized around 3.6 mg/L and 4.3 mg/L in wells MW-5 and MW-6, respectively, for the next five quarters. A second significant decrease in DO was reported from samples collected from September 7, 2001 to December 5, 2001. DO concentrations have stabilized to an average of 1.3 mg/L and 1.4 mg/L in wells MW-5 and MW-6, respectively.

February 2006 Subsurface Investigation: In February 2009, Cambria advanced a total of five soil borings. Two of the borings were advanced to deeper groundwater bearing zones using a Cone Penetration Technology (CPT) direct push drill rig. TPHg was only reported in soil samples from boring GP-1 at concentrations ranging from 110 mg/kg to 7.9 mg/kg. Benzene was also only reported in soil boring GP-1 at concentrations ranging from 0.09 mg/kg to 0.003 mg/kg. MTBE was only reported in the soil sample from boring GP-2 at 10 fbg at a concentration of 0.006 mg/kg. TPHg was reported at a maximum concentration in groundwater sample GP-1 at 2,400 µg/L at 8 fbg and additionally reported in GP-2 at 28 fbg at a concentration of 110 µg/L. Benzene was only reported in samples from GP-1 at concentrations of 24 µg/L and 0.7 µg/L at depths of 8 fbg and 36 fbg, respectively. MTBE was reported in GP-1 at 36 fbg and GP-2 at 28 fbg at

concentrations of 19 $\mu\text{g/L}$ and 22 $\mu\text{g/L}$, respectively. No TPHG, benzene or MTBE was reported in grab-groundwater samples from borings GP-3 through GP-5, with the exception of 1 $\mu\text{g/L}$ MTBE in GP-5.

INVESTIGATION RESULTS

Cambria advanced one soil boring and converted the boring to remediation well IW-1. Soil sample results are summarized in Table 1. Boring logs and permits are presented in Attachment A. Laboratory analytical results for soil are presented in Attachment B. Cambria's *Standard Field Procedures for Remediation Well Installation* are presented as Attachment D.



Permits:	Alameda County Zone 7 Water Agency permit # 26124 (Attachment A)
Drilling Date:	August 4, 2005.
Drilling Company:	Gregg Drilling and Testing Inc. of Martinez, CA (C-57 Lic. # 485165).
Sampling Personnel:	Staff Scientist John Bostick and Senior Staff Scientist Kiersten Hoey conducted all fieldwork under the supervision of California Professional Geologist David W. Herzog (P.G. # 7211).
Number of Wells:	One remediation well (IW-1).
Drilling Method:	The first 8 feet of each boring was cleared using a combination of air knife and hand auger to ensure no subsurface utilities were encountered during drilling. Below 8 feet, all borings and monitoring wells were advanced using 2- inch Geoprobe® and followed by 10-inch diameter hollow stem augers.
Soil Sampling:	Soil samples were collected every five feet, with the 5-foot sample being a grab sample and beginning at 10 fbg with a macro core liner. Table 1 presents soil analytical results for remediation well IW-1. Standard Field Procedures for borings and wells are presented as Attachment C.

Soil Screening: Soil samples were screened using a photo-ionization detector (PID). Samples were selected for analyses based on PID readings, evidence of discoloration, stratigraphic location, depth to groundwater, and the collection depth of previous samples containing hydrocarbons.

Encountered Lithology: Lithology encountered in each boring consists of mixtures of clay and sand to a total explored depth of 24 fbg.



Laboratory Analyses: Selected soil samples were analyzed for:

- TPHg by EPA Method 8015B Modified, and
- BTEX, MTBE, di-Isopropyl ether (DIPE), Ethyl t-butyl ether (ETBE), t-Amyl methyl ether (TAME) and t-Butyl alcohol (TBA) by EPA Method 8260B.

Soil Disposal: Soil cuttings are temporarily stored on-site. Pending landfill approval, the cuttings are scheduled to be removed by Integrated Waste Management and transported to a Chevron approved facility.

Groundwater Depth: Groundwater was encountered at approximately 22 fbg in the boring.

Well Installation

Well Construction: The well was constructed using a four-inch diameter, schedule 40 PVC casing with 0.010 slotted screen and #2/12 Monterey Sand filter pack. The screen interval for the well was from 4 fbg to 24 fbg.


Well Development and

Groundwater Sampling: Gettler-Ryan Inc. (G-R) developed newly installed injection well IW-1 on August 15, 2006. Well Development Report is included in Attachment D.

HYDROCARBONS IN SOIL

TPHg and benzene were reported at maximum concentrations of 880 mg/kg and 0.35 mg/kg, respectively. MTBE was not detected above laboratory detection limits in any of the samples submitted.

CONCLUSIONS AND RECOMMENDATIONS



Newly installed remediation well IW-1 appears to have been installed in areas of residual hydrocarbon impacted soil. Cambria recommends using IW-1 for groundwater extraction only, and does not plan to proceed with surfactant injection at this time. Cambria anticipates bi-monthly groundwater purging events, in which approximately 600 gallons of hydrocarbon impacted groundwater will be removed. Groundwater will be extracted using a truck mounted vacuum rig. Purgewater will be properly classified and disposed of at a Chevron approved facility. Following a couple groundwater extraction events, Cambria will evaluate its effectiveness, and will evaluate the feasibility of other potential remedial options at this site.

LIMITATIONS

The services described in this assessment report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services will be performed consistent with our agreement with our client. Summary of previous investigations contained in this report are generally excerpted from existing documents supplied by Chevron, and Cambria does not guarantee their completeness or accuracy. This report is solely for the use and information of our client unless otherwise noted.

CLOSING

Please contact David Herzog (ext 112) or John Bostick (ext 107) at (916) 677-3407 with any questions or if you require additional information.

Sincerely,
Cambria Environmental Technology, Inc.



John Bostick
Staff Scientist

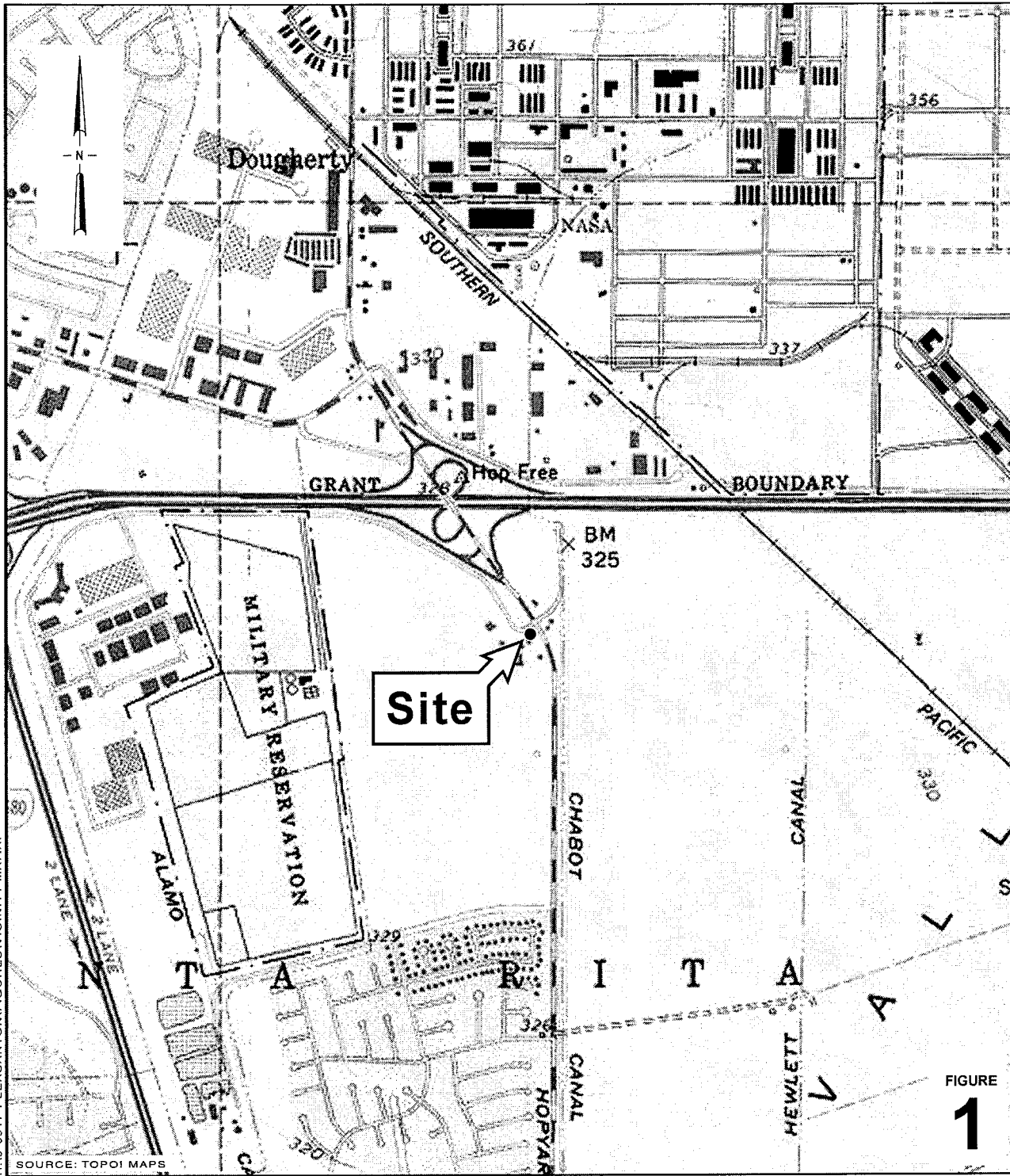
David W. Herzog, PG
Senior Project Geologist



Figures: 1 – Vicinity map
 2 – Site Map

Attachments: A – Drilling Permits and Boring Logs
 B – Soil Analytical Report
 C – Standard Field Procedures for borings and wells
 D – Results for Well Development

cc: Mr. Dana Thurman, Chevron Environmental Management Company, P.O. Box
 6012, San Ramon, CA 94583
 Cambria File Copy



R:19-0917 PLEASANTONFIGURESVICINITY-MAP.A1

SOURCE: TOPOI MAPS

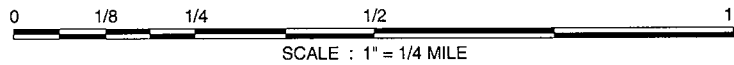


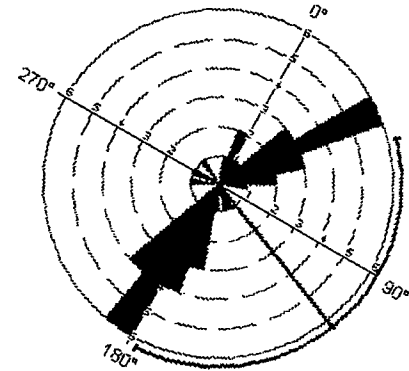
FIGURE 1

Chevron Service Station 9-0917
 5280 Hopyard Road
 Pleasanton, California



C A M B R I A

Vicinity Map



EXPLANATION	
GP-2	Soil boring location
MW-1	Monitoring well location
MW-3	Destroyed monitoring well location
IW-1	Remediation well location
S-8	Monitoring well location (Shell)
V-1	Vapor extraction well (Shell)
21	Soil sample location
	Former excavation limits

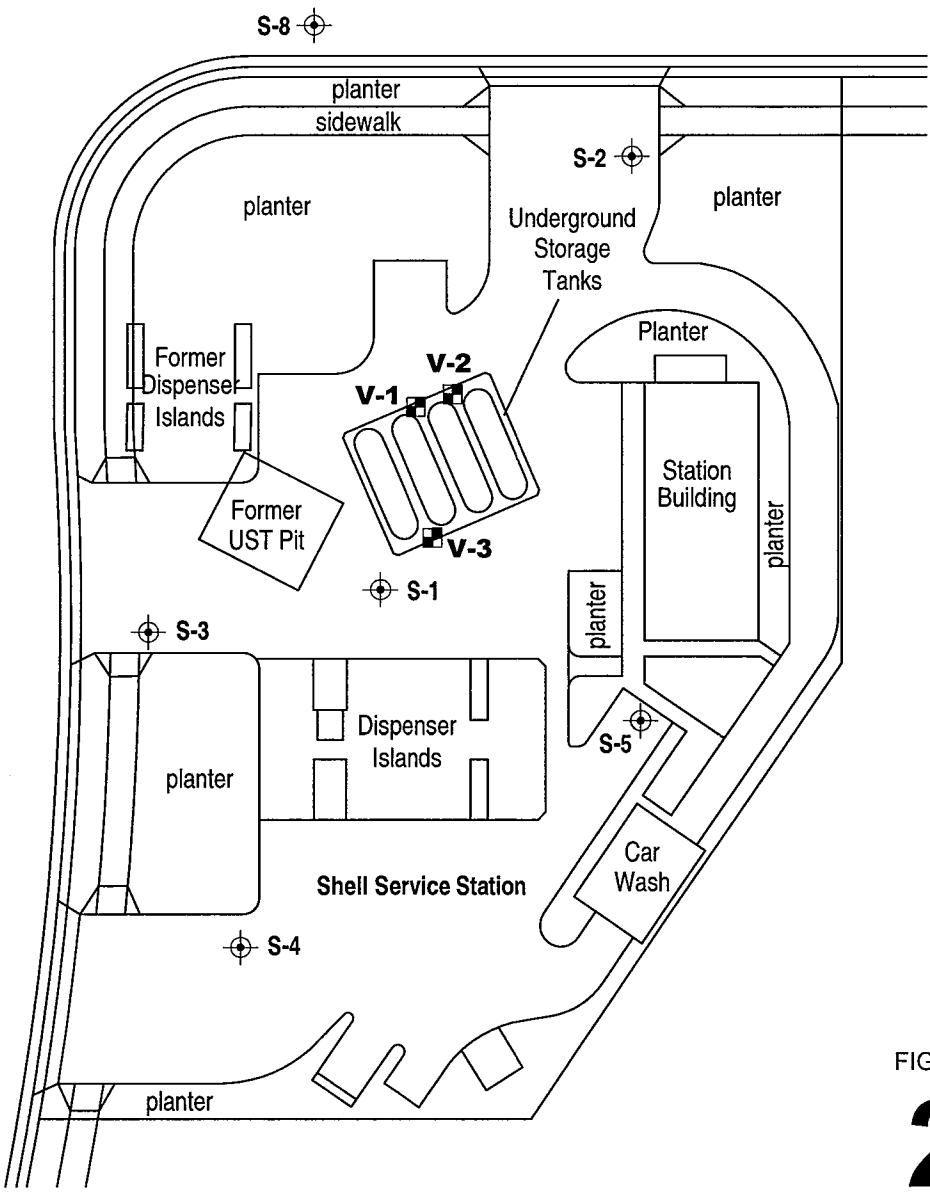
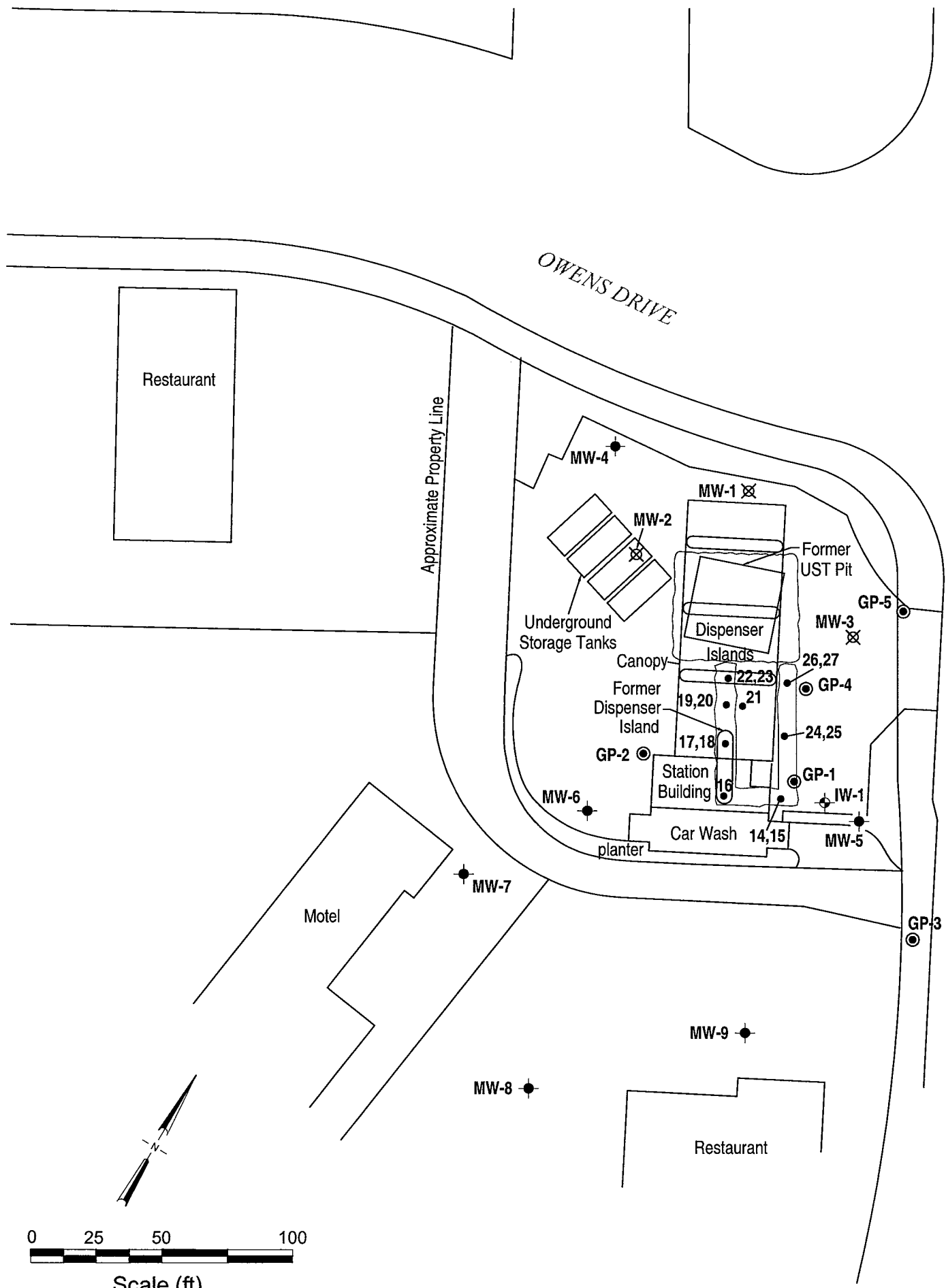


FIGURE 2

11-0917 PLEASANTONFIGURESITEPLAN.DWG



C A M B R I A

Chevron Service Station 9-0917

5280 Hopyard Road
Pleasanton, California

Table 1

Soil Sample Analytical Results

Chevron Service Station 9-0917, 5280 Hopyard Road, Pleasanton, California

Sample ID	Sample Depth (fbg)	Sampling Date	TPHg	Benzene	Toluene	Ethyl		MTBE	DIPE	TAME	TBA	ETBE
						benzene	Xylenes					
Concentrations reported in milligrams per kilogram (mg/kg)												
IW-1	5.0	08/04/06	3.2	<0.0005	<0.001	0.003	<0.001	<0.0005	<0.001	<0.001	<0.020	<0.001
	12.0	08/04/06	260	0.11	0.007	0.97	0.17	<0.002	<0.005	<0.005	<0.099	<0.005
	15.5	08/04/06	880	<0.003	0.007	3.4	1.6	<0.003	<0.005	<0.005	<0.10	<0.005
	20.0	08/04/06	130	0.35	<0.005	1.5	1.4	<0.003	<0.005	<0.005	<0.10	<0.005
	24.0	08/04/06	2.7	<0.0005	<0.001	0.001	<0.001	<0.0005	<0.001	<0.001	<0.020	<0.001

Notes:

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

Benzene, toluene, ethylbenzene, xylenes by EPA Method 8020.

MTBE = methyl tertiary butyl ether by EPA Method 8020.

DIPE = Di-isopropyl ether by EPA Method 8260B

TAME = t-Amyl methyl ether by EPA Method 8260B

TBA = t-Butyl alcohol by EPA Method 8260B

ETBE = Ethyl t-butyl ether by EPA Method 8260B

fbg = feet below grade

<x=below laboratory detection limits

ATTACHMENT A
Drilling Permits and Boring Logs



ZONE 7 WATER AGENCY

100 NORTH CANYONS PARKWAY, LIVERMORE, CALIFORNIA 94551 VOICE (925) 454-5000 FAX (925) 454-5728

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT Chevron 9-0917
5280 Hopwood Road
Pleasanton, CA 94588

PERMIT NUMBER 26124
WELL NUMBER 3S/1E-6013
APN 941-1301-074-05

California Coordinates Source _____ ft. Accuracy _____ ft.
CCN _____ ft. CCE _____ ft.
APN _____

PERMIT CONDITIONS

(Circled Permit Requirements Apply)

CLIENT
Name Chevron Environmental Management
Address P.O. BOX 6012 Phone 925-842-9559
City San Ramon Zip 94583

A. GENERAL

1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

APPLICANT
Name Cambria Environmental
John Bostick Fax 916-677-3687
Address 3000 Opportunity Dr Phone 916-677-3407 X109
City Roseville, CA STE 110 Zip 95678

B. WATER SUPPLY WELLS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.
3. An access port at least 0.5 inches in diameter is required on the wellhead for water level measurements.
4. A sample port is required on the discharge pipe near the wellhead.

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	..	General	..
Water Supply	..	Contamination	..
Monitoring	..	Well Destruction	..

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

PROPOSED WELL USE

New Domestic	..	Irrigation	..
Municipal	..	Remediation	..
Industrial	..	Groundwater Monitoring	..
Dewatering	Other

Surfactant Injection

DRILLING METHOD:

Mud Rotary	..	Air Rotary	..	Hollow Stem Auger	..
Cable Tool	..	Direct Push	..	Other

DRILLING COMPANY Gregg Drilling
DRILLER'S LICENSE NO. 485165

D. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

E. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

F. WELL DESTRUCTION. See attached.

G. SPECIAL CONDITIONS. Submit to Zone 7 within 60 days after the completion of permitted work the well installation report including all soil and water laboratory analysis results.

WELL PROJECTS

Drill Hole Diameter	<u>10</u> in.	Maximum	
Casing Diameter	<u>4</u> in.	Depth	<u>20'</u> ft.
Surface Seal Depth	<u>2-3</u> ft.	Number	<u>1</u>

SOIL BORINGS

Number of Borings	_____	Maximum	
Hole Diameter	_____ in.	Depth	_____ ft.

ESTIMATED STARTING DATE 8/14/06
ESTIMATED COMPLETION DATE 8/14/06

Approved Wyman Hong Date 7/24/06
Wyman Hong

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S
SIGNATURE John Bostick Date _____
JOHN BOSTICK

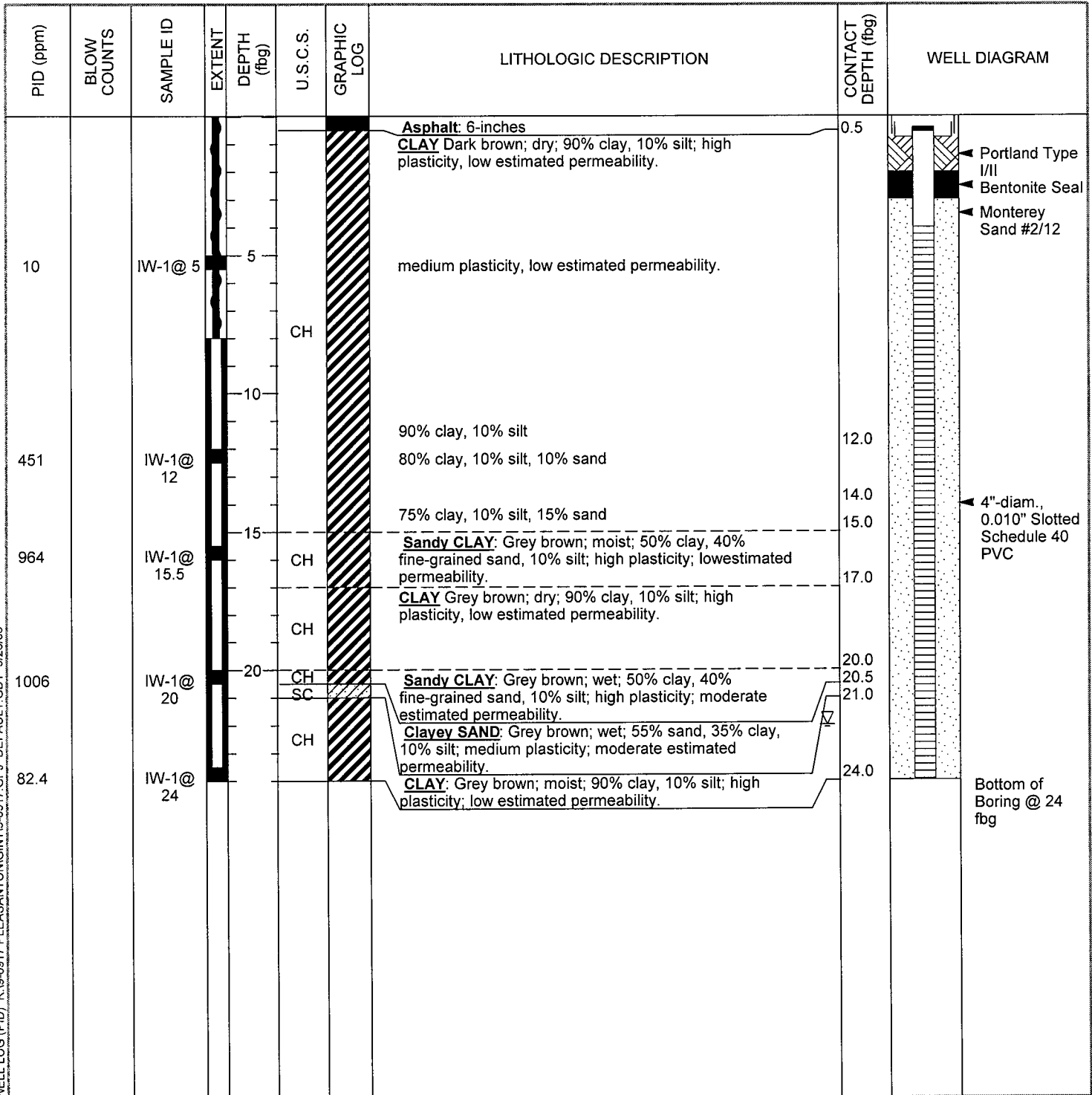
ATTACH SITE PLAN OR SKETCH



Cambria Environmental Technology, Inc.
 2000 Opportunity Drive, Suite 110
 Roseville, CA
 Telephone: 916-677-3407
 Fax: 916-677-3687

BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Company	BORING/WELL NAME	IW-1
JOB/SITE NAME	9-0917	DRILLING STARTED	04-Aug-06
LOCATION	5280 Hopyard Road, Pleasanton, CA	DRILLING COMPLETED	04-Aug-06
PROJECT NUMBER	61H-1959	WELL DEVELOPMENT DATE (YIELD)	15-Aug-06 (100)
DRILLER	Gregg Drilling & Testing, Inc.	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hollow-stem auger/ Geoprobe	TOP OF CASING ELEVATION	Not Surveyed
BORING DIAMETER	10"	SCREENED INTERVAL	4 to 24 fbg
LOGGED BY	K. Hoey	DEPTH TO WATER (First Encountered)	22.0 fbg (04-Aug-06)
REVIEWED BY	D. Herzog, PG# 7211	DEPTH TO WATER (Static)	NA
REMARKS			



WELL LOG (PID) R:\9-0917 PLEASANTON\GINT9-0917.GPJ DEFAULT.GDT 9/26/06

ATTACHMENT B
Soil Analytical Reports

ANALYTICAL RESULTS

Prepared for:

Chevron c/o Cambria
Suite 110
2000 Opportunity Drive
Roseville CA 95678

916-677-3407

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425SAMPLE GROUP

The sample group for this submittal is 1001176. Samples arrived at the laboratory on Thursday, August 10, 2006. The PO# for this group is 0015002176 and the release number is MTI.

<u>Client Description</u>			<u>Lancaster Labs Number</u>
IW-1-S-5-060804	Grab	Soil	4838938
IW-1-S-12-060804	Grab	Soil	4838939
IW-1-S-15.5-060804	Grab	Soil	4838940
IW-1-S-20-060804	Grab	Soil	4838941
IW-1-S-24-060804	Grab	Soil	4838942

ELECTRONIC Cambria Environmental
COPY TO

Attn: David Herzog

Questions? Contact your Client Services Representative
Angela M Miller at (717) 656-2300

Respectfully Submitted,



Marla S. Lord
Senior Specialist



Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Page 1 of 1

Lancaster Laboratories Sample No. SW 4838938

IW-1-S-5-060804 Grab Soil CETR
 Facility# 90917
 5280 Hopyard-Pleasanton T0600100345 IW-1
 Collected: 08/04/2006 09:17 by JB Account Number: 11997

Submitted: 08/10/2006 09:05 Chevron c/o Cambria
 Reported: 08/23/2006 at 14:28 Suite 110
 Discard: 09/23/2006 2000 Opportunity Drive
 Roseville CA 95678

1---5

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method	Detection Limit	Units	Dilution Factor
01725	TPH-GRO - Soils	n.a.	3.2		1.0	mg/kg	25
<p>The analysis for volatiles was performed on a sample which was preserved in methanol. Therefore, the reporting limits were raised. The reported concentration of TPH-GRO does not include MTBE or other gasoline constituents eluting prior to the C6 (n-hexane) TPH-GRO range start time. The surrogate data associated with the method blank for the original analysis is outside the QC limits. The sample was reanalyzed outside the method hold time with sample results of 1.3 mg/kg. The original data was reported.</p>							
07361	BTEX+5 Oxygenates+EDC+EDB						
02016	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.0005	mg/kg	1
02017	di-Isopropyl ether	108-20-3	N.D.		0.001	mg/kg	1
02018	Ethyl t-butyl ether	637-92-3	N.D.		0.001	mg/kg	1
02019	t-Amyl methyl ether	994-05-8	N.D.		0.001	mg/kg	1
02020	t-Butyl alcohol	75-65-0	N.D.		0.020	mg/kg	1
05460	Benzene	71-43-2	N.D.		0.0005	mg/kg	1
05466	Toluene	108-88-3	N.D.		0.001	mg/kg	1
05474	Ethylbenzene	100-41-4	0.003		0.001	mg/kg	1
06301	Xylene (Total)	1330-20-7	N.D.		0.001	mg/kg	1

State of California Lab Certification No. 2116

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01725	TPH-GRO - Soils	TPH GRO SW-846 8015B mod	1	08/15/2006 21:21	Linda C Pape	25
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	08/14/2006 15:06	Emiley A King	1
00374	GC/MS - Bulk Sample Prep	SW-846 5030A	1	08/14/2006 12:28	Emiley A King	n.a.
01150	GC - Bulk Soil Prep	SW-846 5035	1	08/11/2006 09:10	Stephanie A Sanchez	n.a.



Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Page 1 of 1

Lancaster Laboratories Sample No. SW 4838939

IW-1-S-12-060804 Grab Soil CETR
Facility# 90917
5280 Hopyard-Pleasanton T0600100345 IW-1
Collected: 08/04/2006 09:45 by JB

Account Number: 11997

Submitted: 08/10/2006 09:05
Reported: 08/23/2006 at 14:28
Discard: 09/23/2006

Chevron c/o Cambria
Suite 110
2000 Opportunity Drive
Roseville CA 95678

1--12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
01725	TPH-GRO - Soils	n.a.	260.		40.	mg/kg	1000
	The analysis for volatiles was performed on a sample which was preserved in methanol. Therefore, the reporting limits were raised. The reported concentration of TPH-GRO does not include MTBE or other gasoline constituents eluting prior to the C6 (n-hexane) TPH-GRO range start time. The surrogate data associated with the method blank for the original analysis is outside the QC limits. The sample was reanalyzed outside the method hold time with sample results of 520 mg/kg. The original data was reported.						
07361	BTEX+5 Oxygenates+EDC+EDB						
02016	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.002	mg/kg	4.95
02017	di-Isopropyl ether	108-20-3	N.D.		0.005	mg/kg	4.95
02018	Ethyl t-butyl ether	637-92-3	N.D.		0.005	mg/kg	4.95
02019	t-Amyl methyl ether	994-05-8	N.D.		0.005	mg/kg	4.95
02020	t-Butyl alcohol	75-65-0	N.D.		0.099	mg/kg	4.95
05460	Benzene	71-43-2	0.11		0.002	mg/kg	4.95
05466	Toluene	108-88-3	0.007		0.005	mg/kg	4.95
05474	Ethylbenzene	100-41-4	0.97		0.12	mg/kg	124.38
06301	Xylene (Total)	1330-20-7	0.17		0.005	mg/kg	4.95

State of California Lab Certification No. 2116

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
01725	TPH-GRO - Soils	TPH GRO SW-846 8015B mod	1	08/15/2006	21:58	Linda C Pape	1000
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	08/14/2006	15:53	Emiley A King	4.95
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	08/16/2006	18:56	Lauren C Marzario	124.38
00374	GC/MS - Bulk Sample Prep	SW-846 5030A	1	08/14/2006	12:33	Emiley A King	n.a.
00374	GC/MS - Bulk Sample Prep	SW-846 5030A	2	08/15/2006	10:25	Tyler J Zook	n.a.
01150	GC - Bulk Soil Prep	SW-846 5035	1	08/11/2006	09:15	Stephanie A Sanchez	n.a.



Analysis Report

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Lancaster Laboratories Sample No. SW 4838940

IW-1-S-15.5-060804 Grab Soil
 Facility# 90917 CETR
 5280 Hopyard-Pleasanton T0600100345 IW-1
 Collected: 08/04/2006 09:50 by JB

Account Number: 11997

Submitted: 08/10/2006 09:05
 Reported: 08/23/2006 at 14:28
 Discard: 09/23/2006

Chevron c/o Cambria
 Suite 110
 2000 Opportunity Drive
 Roseville CA 95678

1--15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01725	TPH-GRO - Soils	n.a.	880.	100.	mg/kg	2500
<p>The analysis for volatiles was performed on a sample which was preserved in methanol. Therefore, the reporting limits were raised. The reported concentration of TPH-GRO does not include MTBE or other gasoline constituents eluting prior to the C6 (n-hexane) TPH-GRO range start time. The surrogate data associated with the method blank for the original analysis is outside the QC limits. The sample was reanalyzed outside the method hold time with similar sample results. The original data was reported.</p>						
07361	BTEX+5 Oxygenates+EDC+EDB					
02016	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.003	mg/kg	5
02017	di-Isopropyl ether	108-20-3	N.D.	0.005	mg/kg	5
02018	Ethyl t-butyl ether	637-92-3	N.D.	0.005	mg/kg	5
02019	t-Amyl methyl ether	994-05-8	N.D.	0.005	mg/kg	5
02020	t-Butyl alcohol	75-65-0	N.D.	0.10	mg/kg	5
05460	Benzene	71-43-2	N.D.	0.003	mg/kg	5
05466	Toluene	108-88-3	0.007	0.005	mg/kg	5
05474	Ethylbenzene	100-41-4	3.4	0.12	mg/kg	124.69
06301	Xylene (Total)	1330-20-7	1.6	0.005	mg/kg	5

State of California Lab Certification No. 2116

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01725	TPH-GRO - Soils	TPH GRO SW-846 8015B mod	1	08/15/2006 22:34	Linda C Pape	2500
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	08/15/2006 22:09	Emiley A King	5
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	08/16/2006 19:19	Lauren C Marzario	124.69
00374	GC/MS - Bulk Sample Prep	SW-846 5030A	1	08/15/2006 16:05	Emiley A King	n.a.
00374	GC/MS - Bulk Sample Prep	SW-846 5030A	2	08/15/2006 10:29	Tyler J Zook	n.a.
01150	GC - Bulk Soil Prep	SW-846 5035	1	08/11/2006 09:18	Stephanie A Sanchez	n.a.



Analysis Report

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Lancaster Laboratories Sample No. SW 4838941

IW-1-S-20-060804 Grab Soil CETR
Facility# 90917
5280 Hopyard-Pleasanton T0600100345 IW-1
Collected: 08/04/2006 10:05 by JB Account Number: 11997

Submitted: 08/10/2006 09:05
Reported: 08/23/2006 at 14:28
Discard: 09/23/2006
Chevron c/o Cambria
Suite 110
2000 Opportunity Drive
Roseville CA 95678

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CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Detection Limit	
01725	TPH-GRO - Soils	n.a.	130.		10.	mg/kg 250
	The analysis for volatiles was performed on a sample which was preserved in methanol. Therefore, the reporting limits were raised. The reported concentration of TPH-GRO does not include MTBE or other gasoline constituents eluting prior to the C6 (n-hexane) TPH-GRO range start time. The surrogate data associated with the method blank for the original analysis is outside the QC limits. The sample was reanalyzed outside the method hold time with similar sample results. The original data was reported.					
07361	BTEX+5 Oxygenates+EDC+EDB					
02016	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.003	mg/kg 5
02017	di-Isopropyl ether	108-20-3	N.D.		0.005	mg/kg 5
02018	Ethyl t-butyl ether	637-92-3	N.D.		0.005	mg/kg 5
02019	t-Amyl methyl ether	994-05-8	N.D.		0.005	mg/kg 5
02020	t-Butyl alcohol	75-65-0	N.D.		0.10	mg/kg 5
05460	Benzene	71-43-2	0.35		0.003	mg/kg 5
05466	Toluene	108-88-3	N.D.		0.005	mg/kg 5
05474	Ethylbenzene	100-41-4	1.5		0.005	mg/kg 5
06301	Xylene (Total)	1330-20-7	1.4		0.005	mg/kg 5

State of California Lab Certification No. 2116

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
01725	TPH-GRO - Soils	TPH GRO SW-846 8015B mod	1	08/15/2006	23:11	Linda C Pape	250
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	08/15/2006	22:32	Emiley A King	5
00374	GC/MS - Bulk Sample Prep	SW-846 5030A	1	08/15/2006	16:07	Emiley A King	n.a.
01150	GC - Bulk Soil Prep	SW-846 5035	1	08/11/2006	09:23	Stephanie A Sanchez	n.a.



Analysis Report

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Lancaster Laboratories Sample No. SW 4838942

IW-1-S-24-060804 Grab Soil
Facility# 90917 CETR
5280 Hopyard-Pleasanton T0600100345 IW-1
Collected:08/04/2006 10:14 by JB Account Number: 11997

Submitted: 08/10/2006 09:05
Reported: 08/23/2006 at 14:28
Discard: 09/23/2006
Chevron c/o Cambria
Suite 110
2000 Opportunity Drive
Roseville CA 95678

1--24

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
01725	TPH-GRO - Soils	n.a.	2.7	Detection Limit 1.0	mg/kg	25
The analysis for volatiles was performed on a sample which was preserved in methanol. Therefore, the reporting limits were raised. The reported concentration of TPH-GRO does not include MTBE or other gasoline constituents eluting prior to the C6 (n-hexane) TPH-GRO range start time. The surrogate data associated with the method blank for the original analysis is outside the QC limits. The sample was reanalyzed outside the method hold time with similar sample results. The original data was reported.						
07361	BTEX+5 Oxygenates+EDC+EDB					
02016	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.0005	mg/kg	1
02017	di-Isopropyl ether	108-20-3	N.D.	0.001	mg/kg	1
02018	Ethyl t-butyl ether	637-92-3	N.D.	0.001	mg/kg	1
02019	t-Amyl methyl ether	994-05-8	N.D.	0.001	mg/kg	1
02020	t-Butyl alcohol	75-65-0	N.D.	0.020	mg/kg	1
05460	Benzene	71-43-2	N.D.	0.0005	mg/kg	1
05466	Toluene	108-88-3	N.D.	0.001	mg/kg	1
05474	Ethylbenzene	100-41-4	0.001	0.001	mg/kg	1
06301	Xylene (Total)	1330-20-7	N.D.	0.001	mg/kg	1

State of California Lab Certification No. 2116

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
01725	TPH-GRO - Soils	TPH GRO SW-846 8015B mod	1	08/15/2006 23:48		Linda C Pape	25
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	08/14/2006 15:30		Emiley A King	1
00374	GC/MS - Bulk Sample Prep	SW-846 5030A	1	08/14/2006 12:30		Emiley A King	n.a.
01150	GC - Bulk Soil Prep	SW-846 5035	1	08/11/2006 09:27		Stephanie A Sanchez	n.a.

Quality Control Summary

 Client Name: Chevron c/o Cambria
 Reported: 08/23/06 at 02:28 PM

Group Number: 1001176

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 06227A33A TPH-GRO - Soils	Sample number(s): 4838938-4838942							
	N.D.	61.	mg/kg	107		67-119		
Batch number: B062261AA	Sample number(s): 4838938-4838939,4838942							
Methyl Tertiary Butyl Ether	N.D.	0.5	ug/kg	96		72-117		
di-Isopropyl ether	N.D.	1.	ug/kg	96		72-120		
Ethyl t-butyl ether	N.D.	1.	ug/kg	89		72-115		
t-Amyl methyl ether	N.D.	1.	ug/kg	94		73-116		
t-Butyl alcohol	N.D.	20.	ug/kg	107		52-153		
Benzene	N.D.	0.5	ug/kg	103		77-119		
Toluene	N.D.	1.	ug/kg	103		81-116		
Ethylbenzene	N.D.	1.	ug/kg	100		82-115		
Xylene (Total)	N.D.	1.	ug/kg	102		82-117		
Batch number: B062261AB	Sample number(s): 4838940-4838941							
Methyl Tertiary Butyl Ether	N.D.	0.5	ug/kg	96		72-117		
di-Isopropyl ether	N.D.	1.	ug/kg	96		72-120		
Ethyl t-butyl ether	N.D.	1.	ug/kg	89		72-115		
t-Amyl methyl ether	N.D.	1.	ug/kg	94		73-116		
t-Butyl alcohol	N.D.	20.	ug/kg	107		52-153		
Benzene	N.D.	0.5	ug/kg	103		77-119		
Toluene	N.D.	1.	ug/kg	103		81-116		
Ethylbenzene	N.D.	1.	ug/kg	100		82-115		
Xylene (Total)	N.D.	1.	ug/kg	102		82-117		
Batch number: R062262AC	Sample number(s): 4838939-4838940							
Ethylbenzene	N.D.	130.	ug/kg	88		82-115		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
 Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 06227A33A TPH-GRO - Soils	Sample number(s): 4838938-4838942 UNSPK: P837753								
	100	113	39-118	11	30				
Batch number: B062261AA	Sample number(s): 4838938-4838939,4838942 UNSPK: P838249								
Methyl Tertiary Butyl Ether	86	84	47-130	2	30				
di-Isopropyl ether	85	84	58-122	0	30				
Ethyl t-butyl ether	82	80	57-122	2	30				
t-Amyl methyl ether	87	84	58-119	3	30				
t-Butyl alcohol	91	87	51-134	4	30				
Benzene	89	86	59-120	3	30				

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The background result was more than four times the spike added.

Quality Control Summary

 Client Name: Chevron c/o Cambria
 Reported: 08/23/06 at 02:28 PM

Group Number: 1001176

Sample Matrix Quality Control

 Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
 Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS</u> <u>%REC</u>	<u>MSD</u> <u>%REC</u>	<u>MS/MSD</u> <u>Limits</u>	<u>RPD</u> <u>RPD</u>	<u>BKG</u> <u>MAX</u> <u>Conc</u>	<u>DUP</u> <u>Conc</u>	<u>DUP</u> <u>RPD</u>	<u>Dup RPD</u> <u>Max</u>
Toluene	86	80	52-121	6	30			
Ethylbenzene	115	85	54-116	15	30			
Xylene (Total)	119	86	44-127	14	30			
Batch number: B062261AB		Sample number(s): 4838940-4838941 UNSPK: P838249						
Methyl Tertiary Butyl Ether	86	84	47-130	2	30			
di-Isopropyl ether	85	84	58-122	0	30			
Ethyl t-butyl ether	82	80	57-122	2	30			
t-Amyl methyl ether	87	84	58-119	3	30			
t-Butyl alcohol	91	87	51-134	4	30			
Benzene	89	86	59-120	3	30			
Toluene	86	80	52-121	6	30			
Ethylbenzene	115	85	54-116	15	30			
Xylene (Total)	119	86	44-127	14	30			
Batch number: R062262AC		Sample number(s): 4838939-4838940 UNSPK: P838141						
Ethylbenzene	54	32*	54-116	14	30			

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

 Analysis Name: TPH-GRO - Soils
 Batch number: 06227A33A
 Trifluorotoluene-F

4838938	74
4838939	4*
4838940	5*
4838941	10*
4838942	78
Blank	0*
LCS	85
MS	92
MSD	94

Limits: 61-122

 Analysis Name: BTEX+5 Oxygenates+EDC+EDB
 Batch number: B062261AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
4838938	94	91	95	90
4838939	91	94	114	98
4838942	92	90	96	84
Blank	99	95	93	80
LCS	95	92	99	95
MS	95	93	95	88
MSD	96	94	96	88

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The background result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron c/o Cambria
Reported: 08/23/06 at 02:28 PM

Group Number: 1001176

Surrogate Quality Control

Limits:	71-114	70-109	70-123	70-111
Analysis Name:	BTEX+5 Oxygenates+EDC+EDB			
Batch number:	B062261AB			
	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
4838940	89	89	115	92
4838941	91	89	105	91
Blank	98	100	92	87
LCS	95	92	99	95
MS	95	93	95	88
MSD	96	94	96	88

Limits:	71-114	70-109	70-123	70-111
Analysis Name:	8260 Master Scan (soil)			
Batch number:	R062262AC			
	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
Blank	88	95	87	79
LCS	97	106	84	81
MS	93	100	78	78
MSD	94	106	79	79

Limits:	71-114	70-109	70-123	70-111
---------	--------	--------	--------	--------

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The background result was more than four times the spike added.

Chevron California Region Analysis Request/Chain of Custody



MTI 611-1959

Acct #: 11997 For Lancaster Laboratories use only
 Sample #: 1738958-42 SCR#: 240460

9/18/1001176

Facility #: 9-0917
 Site Address: 5280 Hopyard Rd, Pleasanton, CA
 Chevron PM: D. Thurman Lead Consultant: Cambria
 Consultant/Office: Cambria - Roseville
 Consultant Prj. Mgr.: D. Herzog
 Consultant Phone #: 916 677-3907 Fax #: 916 677-3687
 Sampler: J. Bostick
 Service Order #: _____ Non SAR: _____

Analyses Requested

Preservation Codes		Preservative Codes	
<input type="checkbox"/> 8021	<input type="checkbox"/> 8260	H = HCl	T = Thiosulfate
<input type="checkbox"/> 8015 MOD GRO	<input type="checkbox"/> Silica Gel Cleanup	N = HNO ₃	B = NaOH
<input type="checkbox"/> 8260 full scan	<input type="checkbox"/> Oxygenates	S = H ₂ SO ₄	O = Other
<input type="checkbox"/> Lead 7420	<input type="checkbox"/> 7421	<input type="checkbox"/> J value reporting needed	
<u>TRAJAME, FIRE, PIPE (Sub)</u>		<input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds	
		8021 MTBE Confirmation	
		<input type="checkbox"/> Confirm highest hit by 8260	
		<input type="checkbox"/> Confirm all hits by 8260	
		<input type="checkbox"/> Run ___ oxy's on highest hit	
		<input type="checkbox"/> Run ___ oxy's on all hits	

Field Point Name	Matrix	Repeat Sample	Top Depth	Year Month Day	Time Collected	New Field Pt.	Grab	Composite	Total Number of Containers	8260 + MTBE 8260 <input checked="" type="checkbox"/> 8021 <input type="checkbox"/>	TPH 8015 MOD GRO	TPH 8015 MOD DRO <input type="checkbox"/> Silica Gel Cleanup	8260 full scan	Oxygenates	Lead 7420 <input type="checkbox"/> 7421 <input type="checkbox"/>	TRAJAME, FIRE, PIPE (Sub)
IW-1 E 5	SOIL		4.5	06 08 04	917	Y	X		1	X	X					X
IW-1 E 12			11.5		945	Y	X		1	X	X					X
IW-1 E 15.5			15		950	Y	X		1	X	X					X
IW-1 E 20			19.5		1005	Y	X		1	X	X					X
IW-1 E 24			23.5		1014	Y	X		1	X	X					X

Comments / Remarks

Turnaround Time Requested (TAT) (please circle) <input checked="" type="radio"/> STD. TAT 24 hour 72 hour 48 hour 4 day 5 day	Relinquished by:	Date	Time	Received by:	Date	Time
	<u>J. Bostick</u>	<u>8/19/04</u>	<u>0950</u>			
Data Package Options (please circle if required) QC Summary Type I - Full Type VI (Raw Data) <input type="checkbox"/> Coelt Deliverable not needed WIP (RWQCB) Disk	Relinquished by:	Date	Time	Received by:	Date	Time
	Relinquished by Commercial Carrier:	UPS FedEx Other _____		Received by:	Date	Time
Temperature Upon Receipt _____ C°				Custody Seals Intact?	Yes	No

Chevron California Region Analysis Request/Chain of Custody



Acct. #: 11997

For Lancaster Laboratories use only

Sample #: 4898938-42

SCR#:

240460

MTI 614-1959

gr 1001176

Facility #: 9-0917
 Site Address: 5280 Hopyard Rd, Pleasanton, CA
 Chevron PM: D. Thurman Lead Consultant: Cambria
 Consultant/Office: Cambria-Roseville
 Consultant Prj. Mgr.: D. Herzog
 Consultant Phone #: 916 677-3707 Fax #: 916 677-3687
 Sampler: J. Bastick
 Service Order #: _____ Non SAR: _____

Analyses Requested

Preservation Codes	
<input type="checkbox"/> BTEX + MTBE 8260 <input type="checkbox"/> 8021 <input type="checkbox"/> TPH 8015 MOD GRO <input type="checkbox"/> TPH 8015 MOD DRO <input type="checkbox"/> Silica Gel Cleanup <input type="checkbox"/> 8260 full scan <input type="checkbox"/> Oxygenates <input type="checkbox"/> Lead 7420 <input type="checkbox"/> 7421	

Preservative Codes
 H = HCl T = Thiosulfate
 N = HNO₃ B = NaOH
 S = H₂SO₄ O = Other

- J value reporting needed
- Must meet lowest detection limits possible for 8260 compounds
- 8021 MTBE Confirmation
- Confirm highest hit by 8260
- Confirm all hits by 8260
- Run ___ oxy's on highest hit
- Run ___ oxy's on all hits

Field Point Name	Matrix	Repeat Sample	Top Depth	Year	Month	Day	Time Collected	New Field Pt.	Grab	Composite	Total Number of Containers	BTEX + MTBE 8260 <input type="checkbox"/> 8021 <input type="checkbox"/>	TPH 8015 MOD GRO <input type="checkbox"/>	TPH 8015 MOD DRO <input type="checkbox"/> Silica Gel Cleanup <input type="checkbox"/>	8260 full scan <input type="checkbox"/>	Oxygenates <input type="checkbox"/>	Lead 7420 <input type="checkbox"/> 7421 <input type="checkbox"/>
IW-1 C5	Soil		4.50	06	08	04	917	Y	X		1						
IW-1 C12			11.5				945	Y	X		1						
IW-1 @15.5			15				950	Y	X		1						
IWM C20			19.5				1005	Y	X		1						
IW-1 C24			23.5				1014	Y	X		1						

Comments / Remarks

Turnaround Time Requested (TAT) (please circle)

STD. TAT 72 hour 48 hour
 24 hour 4 day 5 day

Data Package Options (please circle if required)

QC Summary Type I - Full
 Type VI (Raw Data) Coelt Deliverable not needed
 WIP (RWQCB)
 Disk

Relinquished by: <u>[Signature]</u>	Date: <u>8/9/06</u>	Time: <u>0950</u>	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by Commercial Carrier:	Date:	Time:	Received by:	Date:	Time:
UPS <input type="checkbox"/> <u>FedEx</u> <input type="checkbox"/> Other _____			<u>Kathy Binkley</u>	<u>8-10-06</u>	<u>0905</u>
Temperature Upon Receipt <u>5.0</u> C°			Custody Seals Intact? <u>Yes</u> <input type="checkbox"/> <u>No</u> <input type="checkbox"/>		

Lancaster Laboratories Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	BMQL	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	MPN	Most Probable Number
IU	International Units	CP Units	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	NTU	nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
Cal	(diet) calories	lb.	pound(s)
meq	milliequivalents	kg	kilogram(s)
g	gram(s)	mg	milligram(s)
ug	microgram(s)	l	liter(s)
ml	milliliter(s)	ul	microliter(s)
m3	cubic meter(s)	fib >5 um/ml	fibers greater than 5 microns in length per ml
<	less than – The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
>	greater than		
ppm	parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.		

U.S. EPA data qualifiers:

Organic Qualifiers	Inorganic Qualifiers
A TIC is a possible aldol-condensation product	B Value is <CRDL, but ≥IDL
B Analyte was also detected in the blank	E Estimated due to interference
C Pesticide result confirmed by GC/MS	M Duplicate injection precision not met
D Compound quantitated on a diluted sample	N Spike amount not within control limits
E Concentration exceeds the calibration range of the instrument	S Method of standard additions (MSA) used for calculation
J Estimated value	U Compound was not detected
N Presumptive evidence of a compound (TICs only)	W Post digestion spike out of control limits
P Concentration difference between primary and confirmation columns >25%	* Duplicate analysis not within control limits
U Compound was not detected	+ Correlation coefficient for MSA <0.995
X,Y,Z Defined in case narrative	

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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ATTACHMENT C
Standard Field Procedures Remediation Well Install

STANDARD FIELD PROCEDURES FOR REMEDIATION WELL INSTALLATION

This document presents standard field methods for drilling and sampling soil borings and installing remediation wells. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

SOIL BORING AND SAMPLING

Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor or staining, and to collect samples for analysis at a State-certified laboratory. All borings are logged using the Unified Soil Classification System by a trained geologist working under the supervision of a California Professional Geologist (PG) or a Certified Engineering Geologist (CEG).

Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers or push technologies such as the Geoprobe. Prior to drilling, the first 5 ft of the boring are cleared using an air or water knife and vacuum extraction. This minimizes the potential for impacting utilities.

Soil samples are collected at least every five ft to characterize the subsurface sediments and for possible chemical analysis. Additional soil samples are collected near the water table and at lithologic changes. Samples are collected using lined split-barrel or equivalent samplers driven into undisturbed sediments at the bottom of the borehole.

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 Analysis

Sampling tubes 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

One of the remaining tubes is partially emptied leaving about one-third of the soil in the tube. The tube is capped with plastic end caps and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable photoionization detector (PID) measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. PID measurements are used along with the field observations, odors, stratigraphy and groundwater depth to select soil samples for analysis.

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.

REMEDIATION WELL INSTALLATION

Well Construction

Remediation wells are commonly installed for dual phase extraction (DPE), soil vapor extraction (SVE), groundwater extraction (GWE), oxygenation, air sparging (AS), and vapor monitoring (VM). Well depths and screen lengths will vary depending upon several factors including the intended use of the well, groundwater depth, occurrence of hydrocarbons or other compounds in the borehole, stratigraphy and State and local regulatory guidelines.

Well casing and screen are typically one to four inch diameter flush-threaded Schedule 40 PVC. Screen slot size varies according to the sediments screened, but slots are generally 0.010 or 0.020 inches wide. A rinsed and graded sand occupies the annular space between the boring and the well screen to about one to two ft above the well screen. A two ft thick hydrated bentonite seal separates the sand from the overlying sanitary surface seal composed of Portland type I,II cement. Well-heads are typically connected with remediation piping set in traffic-rated vaults finished flush with the ground surface. Typical well screen intervals for each type of well are described below.

DPE Wells: DPE wells are screened in the vadose zone targeting horizons with the highest hydrocarbon concentrations and a few feet into the saturated zone, targeting SPH on or submerged by the water table. A vacuum is applied to the well casing and/or a 'stinger' (a one-inch diameter tube) placed in the well about 1 to 2 feet below the static fluid level. Vacuums can be adjusted to fine tune the performance of the well/system and to optimize the removal of SPH without excessive production of ground water.

SVE Wells: SVE wells are screened in the vadose zone targeting horizons with the highest hydrocarbon concentrations. SVE wells are also occasionally screened as concurrent soil vapor and groundwater extraction wells with screen interval above and below the water table.

GWE Wells: Groundwater extraction wells are typically screened ten to fifteen ft below the first water-bearing zone encountered. The well screen may or may not be screened above the water table depending upon whether the water bearing zone is unconfined or confined.

Oxygenation Wells: Oxygenation wells are installed above or below the water table to supply oxygen and enhance naturally occurring hydrocarbon biodegradation. Oxygenation wells installed in the vadose zone typically have well screens that are two to ten feet long and target horizons with the highest hydrocarbon concentrations. Oxygenation wells installed below the water table typically have a two foot screen interval set ten to fifteen ft below the water table.

AS Wells: Air sparging wells are installed below the water table and typically have a two foot screen interval set ten to fifteen ft below the water table.

VM Wells: Vapor monitoring wells are installed in the vadose zone to check for hydrocarbon vapor migration during air injection. The wells are typically constructed with short screens to target horizons through which hydrocarbon vapor migration could occur. These wells can also be constructed in borings drilled using push technologies such as the Geoprobe by using non-collapsible Teflon tubing set in small sand packed regions overlain by grout.

Well Development

Groundwater extraction wells are generally developed using a combination of groundwater surging and extraction. Surging agitates the groundwater and dislodges fine sediments from the sand pack. After about ten minutes of surging, groundwater is extracted from the well using bailing, pumping and/or reverse air-lifting through an eductor pipe to remove the sediments from the well. Surging and extraction continue until at least ten well-casing volumes of groundwater are extracted and the sediment volume in the groundwater is negligible. This process usually occurs prior to installing the sanitary surface seal to ensure sand pack stabilization. If development occurs after surface seal installation, then development occurs 24 to 72 hours after seal installation to ensure that the Portland cement has set up correctly.

All equipment is steam-cleaned prior to use and air used for air-lifting is filtered to prevent oil entrained in the compressed air from entering the well. Wells that are developed using air-lift evacuation are not sampled until at least 24 hours after they are developed.

ATTACHMENT D
Results for Well Development

**WELL MONITORING/DEVELOPMENT
FIELD DATA SHEET**

Client/Facility #: Chevron #9-0917
 Site Address: 5280 Hopyard Road
 City: Pleasanton, CA

Job Number: 385242
 Event Date: 8/15/06
 Sampler: HAIG R.

Well ID: IW-1
 Well Diameter: 4 in.
 Initial Total Depth: 23.58 ft.
 Final Total Depth: 23.65 ft.
 Depth to Water: 8.56 ft.

Date Monitored: 8/15/06 Well Condition: NEW

Volume	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
Factor (VF)	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

15.02 xVF 0.66 = 9.9 x10 (case volume) = Estimated Purge Volume: 100 gal.

Purge Equipment:
 Disposable Bailer _____
 Stainless Steel Bailer ✓
 Stack Pump ✓
 Suction Pump _____
 Grundfos _____
 Other: _____

Sampling Equipment: N/A
 Disposable Bailer _____
 Pressure Bailer _____
 Discrete Bailer _____
 Other: _____

Time Started: _____ (2400 hrs)
 Time Completed: _____ (2400 hrs)
 Depth to Product: _____ ft
 Depth to Water: _____ ft
 Hydrocarbon Thickness: _____ ft
 Visual Confirmation/Description: _____
 Skimmer / Absorbant Sock (circle one)
 Amt Removed from Skimmer: _____ gal
 Amt Removed from Well: _____ gal
 Water Removed: _____ gal
 Product Transferred to: _____

Start Time (purge): 1255 Weather Conditions: SUNNY
 Sample Time/Date: N/A Water Color: CLOUDY / CLEAR Odor: YES
 Purging Flow Rate: 21.5 gpm. Sediment Description: SLIGHT SAND / SILT
 Did well de-water? NO If yes, Time: _____ Volume: _____ gal.

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (umhos/cm)	Temperature (C/F)	D.O. (mg/L)	ORP (mV)
1312	10	8.06	973	19.8		
1318	20	8.01	986	19.5		
1325	30	7.98	988	19.2		
1331	40	7.91	956	19.1		
1337	50	7.83	948	19.1		
1343	60	7.80	958	19.3		
1350	70	7.75	952	19.0		
1357	80	7.73	960	19.1		
1410	100	7.71	963	19.0		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
IW-1					

COMMENTS: _____

Add/Replaced Locky 1

Add/Replaced Plug: _____ Size: _____