



Shell Oil Products US

20493

May 28, 2003

Mr. Barney Chan
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Alameda County
MAY 30 2003
Environmental Health

Subject: Shell-branded Service Station
610 Market Street
Oakland, California

Dear Mr. Chan:

Attached for your review and comment is a copy of the *Well Installation Report* for the above referenced site. Upon information and belief, I declare, under penalty of perjury, that the information contained in the attached document is true and correct.

As always, please feel free to contact me directly at (559) 645-9306 with any questions or concerns.

Sincerely,

Shell Oil Products US

Karen Petryna

Karen Petryna
Sr. Environmental Engineer

May 28, 2003

Mr. Barney Chan
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Alameda County

MAY 30 2003

Environmental Health

Re: **Well Installation Report**
Shell-branded Service Station
610 Market Street
Oakland, California
Incident # 98995750
Cambria Project # 245-0594-007



Dear Mr. Chan:

On behalf of Equilon Enterprises LLC dba Shell Oil Products US, Cambria Environmental Technology, Inc. (Cambria) has prepared this *Well Installation Report* for the referenced site. Cambria's August 19, 2002 *Investigation and Interim Remedial Action Work Plan* proposed to further characterize the extent of chemicals of concern in groundwater and to provide additional extraction points for a groundwater extraction (GWE) system at the site. Alameda County Health Care Services Agency (ACHCSA) approved this work plan on August 23, 2002.

SITE DESCRIPTION

Site Description: The site is a Shell-branded service station located on Market Street, between Sixth and Seventh Streets in Oakland, California (Figure 1). Currently, the site consists of a kiosk, three underground storage tanks (USTs), four dispenser islands and a drive-through car wash facility (Figure 2). The area surrounding the site is primarily of commercial use.


Subsurface Conditions: The site is underlain primarily by silty sands to a total explored depth of 26 feet below grade (fbg).

Groundwater Flow and Direction: Historically, groundwater depths have ranged from approximately 10 to 16 fbg. The groundwater flow direction is primarily to the southwest.

Cambria
Environmental
Technology, Inc.

5900 Hollis Street
Suite A
Emeryville, CA 94608
Tel (510) 420-0700
Fax (510) 420-9170

1995 Site Renovation: During station renovation activities in August 1995, Weiss Associates (Weiss) of Emeryville, California collected soil samples from beneath the gasoline dispensers and product piping locations. The renovation activities included the replacement of the central and western-most gasoline dispensers and the removal of the eastern-most dispensers and associated piping. Approximately 33 cubic yards of soil were removed during dispenser upgrades, and an additional 15 cubic yards were removed during over-excavation of the southern end of the middle dispenser island and the piping of the eastern-most dispenser islands. The details and results of this investigation are summarized in the November 2, 1995 *Dispenser Replacement Sampling* report, prepared by Weiss.




1998 Site Upgrade: In March 1998, Paradiso Mechanical of San Leandro, California (Paradiso) performed site upgrades. Paradiso added secondary containment to the turbine sumps in the USTs. Cambria inspected the turbine sumps and UST area, and no field indications of petroleum hydrocarbons, such as staining or odor, were observed during the site visit. Based on the field observations, no soil sampling was performed during the site upgrade activities. The details of these activities are summarized in Cambria's *1998 Site Upgrade Inspection Report* dated March 30, 1998.

March 1998 Site Investigation: On March 31, 1998, Cambria conducted a subsurface investigation at the facility which included the installation of three soil borings onsite using a Geoprobe® direct-push drill rig. Less than 2 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and xylenes (BTEX), and MTBE were detected in analyzed soil samples from soil borings SB-A, SB-B, and SB-C. A maximum of 2,100 parts per billion (ppb) TPHg, 490 ppb benzene, and 14,000 ppb MTBE was detected in grab groundwater samples collected from soil borings SB-A and SB-B. TPHg, BTEX, and MTBE concentrations were below laboratory detection limits in the grab groundwater sample collected from soil boring SB-C. The details of this investigation are summarized in Cambria's *Subsurface Investigation Report* dated July 1, 1998.

November 1998 Subsurface Investigation: On November 17, 1998, Cambria performed additional subsurface investigation activities which included the installation of three onsite groundwater monitoring wells (MW-1, MW-2, and MW-3). No TPHg, BTEX, or MTBE was reported in analyzed soil samples collected from well MW-1. Up to 8.3 ppm TPHg, 2.9 ppm MTBE and no benzene were detected in the soil samples collected from well MW-2. Up to 1,700 ppm TPHg, 8.3 ppm benzene, and 16 ppm MTBE were detected in soil samples collected from well MW-3. The first groundwater samples collected from the monitoring wells were collected as part of the first quarterly monitoring event (fourth quarter 1998) by Blaine Tech Services of San Jose, California (Blaine). The details of this investigation are summarized in Cambria's April 20, 1999 *Well Installation Report*.

2000 Mobile Dual-Phase Vacuum Extraction (DVE) Treatment: From March to October 2000, Cambria coordinated mobile DVE from wells MW-2 and MW-3. DVE removes soil vapors and

separate-phase hydrocarbons from the vadose zone and enhances groundwater removal from remediation or monitoring wells. Mobile DVE equipment consists of a dedicated extraction "stinger" installed in the extraction well, a vacuum truck, and a carbon vapor-treatment system. DVE was discontinued in October 2000 due to low groundwater-extraction volumes. The cumulative mass removal of TPHg and MTBE during the DVE treatment was approximately 35.6 pounds and 15.6 pounds, respectively.



2001 DVE and Soil Vapor Extraction (SVE) Pilot Test: On March 22, 2001, Cambria performed a short-term (1 day) DVE test on well MW-3 and a short-term (1 day) SVE test on tank backfill well T-1. The tests were conducted using an internal combustion engine for vapor abatement. The cumulative mass removal of TPHg and MTBE during the DVE and SVE pilot tests was approximately 1.2 pounds and 1.4 pounds, respectively.

SVE Pilot Test: Between October 8 and 12, 2001, Cambria conducted a long-term (5 day) SVE pilot test on tank backfill well T-1. The cumulative mass removal of TPHg and MTBE during the SVE pilot test was approximately 14.7 pounds and 32.8 pounds, respectively.

Mobile GWE: As recommended in the August 29, 2001 *Site Conceptual Model and Pilot Test Report*, Cambria began coordinating weekly GWE from well MW-3 using a vacuum truck in August 2001. Well MW-2 was added to the weekly GWE schedule at the site beginning in January 2002, as recommended in our December 19, 2001 *Soil Vapor Extraction Pilot Test Report and Investigation Work Plan*. The recommendation to extract from well MW-2 was approved in a January 2, 2002 ACHCSA letter. Through July 2002, the cumulative mass of TPHg and MTBE removed through GWE is estimated to be approximately 2.5 pounds and 57.9 pounds, respectively.

Monthly Vapor Sampling: As described in our December 19, 2001 *Soil Vapor Extraction Pilot Test Report and Investigation Work Plan*, Cambria coordinated monthly vapor measurements in the tank backfill wells using a photo-ionization detector (PID). Due to the elevated concentrations detected on February 7, 2002, Cambria began collecting monthly samples from well T-2 to be submitted to an analytical laboratory in addition to collecting PID readings.

Groundwater Monitoring: Quarterly groundwater monitoring has been ongoing at this site since the fourth quarter of 1998. The results of quarterly monitoring events are summarized in quarterly monitoring reports prepared by Cambria. The following table summarizes the highest and current hydrocarbon concentrations in groundwater at the site:

GROUNDWATER CONCENTRATION SUMMARY

Well ID	Constituent	Highest Historical Concentration (ppb)		Current Concentration (ppb)	
		Sample Date	Concentration	Sample Date	Concentration
MW-1	TPHg	09/21/00	7,490	02/26/03	580
	Benzene	11/30/00	420	02/26/03	30
	MTBE	11/30/00	167	02/26/03	27
MW-2	TPHg	06/20/00	101	02/26/03	<500
	Benzene	03/06/01	183	02/26/03	<5
	MTBE	09/12/01	17,000	02/26/03	1,600
MW-3	TPHg	12/22/99	44,500	02/26/03	<25,000
	Benzene	03/06/01	1,290	02/26/03	<250
	MTBE	06/28/01	610,000	02/26/03	210,000
MW-4	TPHg	06/06/02	<1,000	02/26/03	<50
	Benzene	06/06/02	<10	02/26/03	<0.5
	MTBE	06/06/02	4,800	02/26/03	<5
MW-5	TPHg	06/06/02	<5,000	02/26/03	<2,000
	Benzene	06/06/02	<50	02/26/03	<20
	MTBE	05/20/02	17,000	02/26/03	7,500



INVESTIGATION PROCEDURES

Cambria installed three on-site extraction wells as part of the GWE system installation and one off-site groundwater monitoring well to further delineate the extent of MTBE in soil and groundwater at the site. An additional off-site monitoring well will be installed beneath the Interstate Highway 880 (I-880) overpass southwest of the site. However, this location is in the process of being converted to a Park and Ride public transportation terminal. According to the California Department of Transportation (Caltrans), the well can be installed once the plans and/or work are finalized later this year.



The procedures for this subsurface investigation, described in Cambria's approved work plan, are summarized below. Soil sample analytical results are summarized in Table 1 and laboratory analytical reports are presented as Attachment A. Permits, boring logs, soil disposal confirmation and well completion reports are presented as Attachments B, C, D, and E respectively. Cambria's standard field procedures for monitoring well installation are presented as Attachment F.

- Personnel Present:*** Sarah Dwight, Staff Geologist, Cambria (November 14, 2002).
Jason Gerke, Staff Scientist, Cambria (November 14 and 15, 2002 and January 28, 2003).
Sergio Yzurl, Cruz Brothers Locating (November 14, 2002).
Bobby Deason and Vincent Pokiysla, Gregg Drilling and Testing (Gregg) (November 14 and 15, 2002 and January 28, 2003).
- Permits:*** Alameda County Public Works Agency Permits W02-1083, W02 1084, W02-1085 and W02-1086.
City of Oakland Encroachment/Excavation Permit #0300061.
- Drilling Company:*** Gregg (C-57 License # 485-165).
- Drilling Dates:*** November 14 and 15, 2002 and January 28, 2003.
- Drilling Method:*** The wells were advanced using a drill rig equipped with 10-inch diameter hollow stem augers.
- Number of Wells:*** Four wells: MW-6 through MW-9 (Figure 2).
- Well Depths:*** 20 fbg.
- Well Soil Sampling:*** Soil samples were collected at 5-foot intervals from all wells and transferred to a State-approved analytical laboratory.

Well Materials:

The wells were constructed using 4-inch diameter Schedule 40 PVC casing with 0.010-inch slotted screen. The wells were completed with a filter pack of Monterey #2/16 sand from the bottom of the boring to approximately 1 foot above the top of the screened casing, approximately 1 to 2 feet of bentonite above the filter pack, and Portland neat cement to 1 fbg. Flush-mounted, traffic-rated vault boxes were installed to protect the wells and complete the wells to grade.

Screened Interval:

5 to 20 fbg.

Well Elevation Survey

The top of casing elevations and latitude/longitude horizontal locations will be surveyed by Virgil Chavez Land Surveying of Vallejo, California on May 22, 2003. The survey results will be included in the forthcoming quarterly monitoring report.

Well Development and Sampling:

Blaine developed the new wells on April 7, 2003. Blaine gauged and sampled extraction and monitoring wells on February 26, 2003 according to the first quarter 2003 monitoring program. Data from this sampling event are depicted on Figure 2. The data from the first quarter 2003 sampling event will be presented in the forthcoming quarterly monitoring report.

Sediment Lithology:

Soils observed during this investigation consisted of silty sand and sand to total explored depth of 25.0 fbg.

Groundwater Depths:

Groundwater was first encountered during this investigation at depths between 10.2 fbg (MW-4) and 13.7 fbg (SB-D).

Chemical Analyses:

Soil samples from the borings were analyzed by a State-approved laboratory for TPHg, BTEX, and MTBE by EPA Method 8260.

Soil Stockpile Analysis:

To characterize stockpiled soil for disposal, four brass tubes of soil were collected from the stockpiled soil, and then composited by the analytical laboratory. The composite sample was analyzed for:

- TPHg by modified EPA Method 8260;
- BTEX and MTBE by EPA Method 8260; and
- Total threshold limit concentration lead.

Soil Handling:

Soil cuttings produced from the borings and excavated soil from the GWE system installation were stockpiled on the Shell-branded site. The soil was transported to Forward Landfill in Manteca, California for disposal on January 30, 2003. Disposal manifests are included as Attachment D.

INVESTIGATION RESULTS



Analytical Results for Soil Sampling: TPHg was detected only in well MW-6 at 15.5 fbg at a concentration of 6,000 ppm. Benzene was detected only in two soil samples in well MW-6 at concentrations of 7.5 ppm at 15.5 fbg and 0.017 ppm at 19.0 fbg. The TPHg and benzene detections in MW-6 soil were in samples collected below the level of first-encountered groundwater. MTBE was detected in soil collected from well MW-7 at a concentration of 0.7 ppm at 10.5 fbg. This depth is above the depth of first-encountered groundwater. MTBE was also detected in soil collected from well MW-8 at three elevations: 6.0, 11.0 and 10.5 fbg. The 6.0 fbg sample was collected above the depth of first-encountered groundwater, while the others were collected below that depth. The highest MTBE concentration in soil from MW-8 was reported at 4.3 ppm at 11 fbg.

Groundwater Sampling Results: Groundwater sampling results will be reported in the forthcoming quarterly monitoring report.

CONCLUSIONS AND RECOMMENDATIONS

Three groundwater extraction and one additional offsite groundwater monitoring well were installed. Subsequently, the GWE system has started operation. Cambria recommends continued operation and monitoring of the GWE system. Cambria recommends continued quarterly groundwater monitoring to monitor site remediation. Cambria also recommends installation of the proposed off-site monitoring well beneath I-880 overpass southwest of the site once Caltrans is able to grant access.

CLOSING

If you have any questions or comments, please call Dan Lescure at (510) 420-3306.

Sincerely,
Cambria Environmental Technology, Inc.



Matthew W. Derby for
Dan Lescure
Senior Project Engineer

Matthew W. Derby
Matthew W. Derby, P.E.
Senior Project Engineer



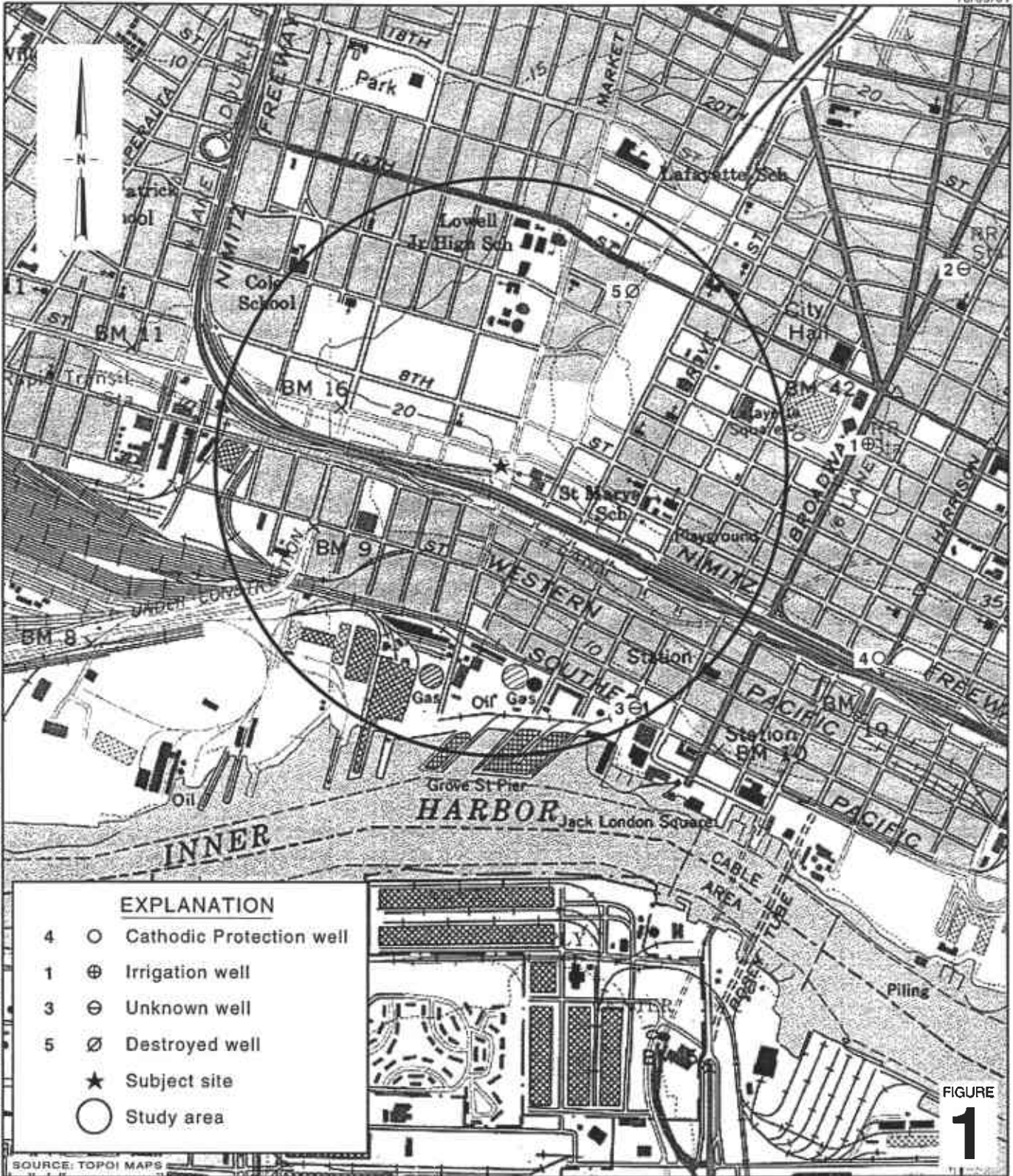
Figures: 1 - Vicinity/Well Location Map
 2 - Groundwater Contour Map

Table: 1 - Soil Analytical Data

Attachments: A - Certified Laboratory Analytical Reports
 B - Permits
 C - Boring logs
 D - Soil Disposal Documentation
 E - Well Completion Reports
 F - Standard Field Procedures for Soil Boring and Monitoring Well Installation

cc: Ms. Karen Petryna, Shell Oil Products US, P.O. Box 7869, Burbank, CA 91510-7869
 Mr. Roger Schmidt, 1224 Contra Costa Dr., El Cerrito, CA 94530
 Ms. Virginia R. Rawson, Tr., 1860 Tice Creek Drive #1353, Walnut Creek, CA 94595

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FIGURE 1

Shell-branded Service Station
 610 Market Street
 Oakland, California
 Incident #98995750



C A M B R I A

**Vicinity / Area Well
 Survey Map**

1/2 Mile Radius

G:\OAKLAND\610\MARKET\FIGURES\10M03.MPA

EXPLANATION

- MW-6 Extraction well location
- MW-1 Monitoring well location
- SB-A Geoprobe boring (3/31/98)
- SB-D Soil boring location (4/17/02)
- T1 Tank backfill well (dry)
- Data anomalous, not used for contouring
- Groundwater flow direction
- XX.XX Groundwater elevation contour, in feet above msl, approximately located; dashed where inferred

Well	ELEV	Benzene	MTBE
Well designation			
Groundwater elevation, in feet above msl			
Benzene and MTBE concentrations are in parts per billion and are analyzed by EPA Method 8260			

- Storm Drain line (SD)
- Sanitary Sewer line (SS)
- Water Main (W)
- Gas line (G)
- Electrical line (E)
- Flow direction
- FL = 5.6 Flowline elevation, in feet above mean sea level (msl)
- MH Manhole
- Groundwater extraction system piping

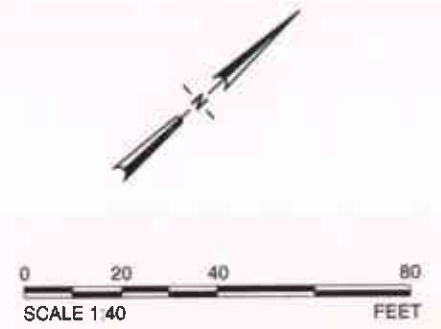
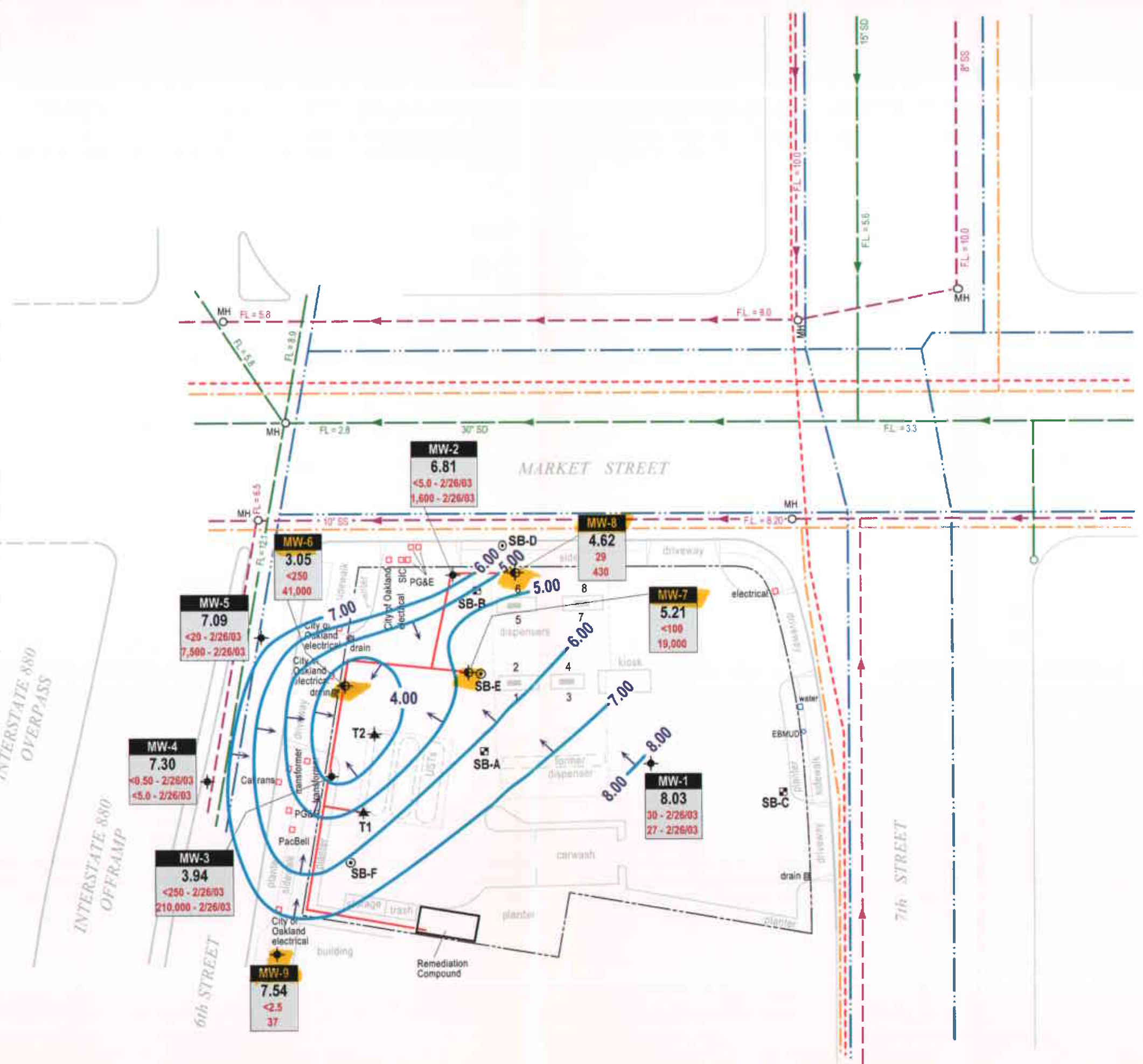


FIGURE 2

Shell-branded Service Station
 610 Market Street
 Oakland, California
 Incident #98995750



C A M B R I A

Groundwater Elevation Contour Map

April 15, 2003

Table 1. Soil Analytical Data - Shell-branded Service Station - 610 Market Street, Oakland, California - Incident # 98995750

Sample ID	Date	Depth (feet below grade)	(Concentrations in ppm)					
			TPHg	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes
MW-6-5.5	11/15/2002	5.5	<1.0	<0.5	<0.005	<0.005	<0.005	<0.005
MW-6-10.5	11/15/2002	10.5	<1.0	<0.5	<0.005	<0.005	<0.005	<0.005
MW-6-15.5	11/15/2002	15.5	6,000	<1.0	7.4	180	88	520
MW-6-19.0	11/15/2002	19.0	<1.0	<0.5	0.017	<0.005	<0.005	0.0079
MW-7-10.5	11/15/2002	10.5	<1.0	0.7	<0.005	<0.005	<0.005	<0.005
MW-7-15.5	11/15/2002	15.5	<1.0	<0.5	<0.005	<0.005	<0.005	<0.005
MW-7-19.0	11/15/2002	19.0	<1.0	<0.5	<0.005	<0.005	<0.005	<0.005
MW-8-6	11/14/2002	6.0	<1.0	4.1	<0.005	<0.005	<0.005	<0.005
MW-8-11	11/14/2002	11.0	<1.0	4.3	<0.005	<0.005	<0.005	<0.005
MW-8-16	11/14/2002	16.0	<1.0	10	<0.005	<0.005	<0.005	<0.005
MW-8-19.5	11/14/2002	19.5	<1.0	<0.5	<0.005	<0.005	<0.005	<0.005
MW-9-5.5	01/28/2002	5.5	<1.0	<0.5	<0.005	<0.005	<0.005	<0.005
MW-9-10.5	01/28/2002	10.5	<1.0	<0.5	<0.005	<0.005	<0.005	<0.025
MW-9-15.5	01/28/2002	15.5	<1.0	<0.5	<0.005	<0.005	<0.005	<0.005
MW-9-19.0	01/28/2002	19.0	<1.0	<0.5	<0.005	<0.005	<0.005	<0.005

Abbreviations & Notes:

TPHg = Total petroleum hydrocarbons as gasoline, analyzed by EPA Method 8260B

MTBE = Methyl tert-butyl ether, analyzed by EPA Method 8260B

Benzene, ethylbenzene, toluene, xylenes, analyzed by EPA Method 8260B

ppm = parts per million

<X = Below laboratory detection limit of X

ATTACHMENT A

Certified Laboratory Analytical Results



Report Number : 29861

Date : 12/2/2002

Jacquelyn Jones
Cambria Environmental Technology, Inc.
1144 65th Street, Suite B
Oakland, CA 94608

Subject : 12 Soil Samples
Project Name : 610 Market Street - Oakland
Project Number : 244-0594
P.O. Number : 98995750

Dear Ms. Jones,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

A handwritten signature in black ink that reads "Joel Kiff". The signature is written in a cursive style with a large initial "J".

Joel Kiff



Report Number : 29861

Date : 12/2/2002

Subject : 12 Soil Samples
Project Name : 610 Market Street - Oakland
Project Number : 244-0594
P.O. Number : 98995750

Case Narrative

Matrix Spike/Matrix Spike Duplicate Results associated with samples MW-6-5.5, MW-8-19.5, MW-7-19.0, MW-6-19.0, MW-6-15.5, MW-7-15.5, MW-6-10.5, MW-8-11, MW-8-6, MW-8-16, MW-7-10.5 for the analytes Tert-Butanol, Methyl-t-butyl ether were affected by the analyte concentrations already present in the un-spiked sample.

Approved By:  Joel Kiff



Report Number : 29861

Date : 12/2/2002

Project Name : 610 Market Street - Oakland

Project Number : 244-0594

Sample : MW-8-6

Matrix : Soil

Lab Number : 29861-01

Sample Date : 11/15/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Toluene	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Ethylbenzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Total Xylenes	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Methyl-t-butyl ether (MTBE)	4.1	0.5	mg/Kg	EPA 8260B	11/27/2002
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	11/23/2002
Toluene - d8 (Surr)	111		% Recovery	EPA 8260B	11/23/2002
4-Bromofluorobenzene (Surr)	86.8		% Recovery	EPA 8260B	11/23/2002

Sample : MW-8-11

Matrix : Soil

Lab Number : 29861-02

Sample Date : 11/15/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/22/2002
Toluene	< 0.005	0.005	mg/Kg	EPA 8260B	11/22/2002
Ethylbenzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/22/2002
Total Xylenes	< 0.005	0.005	mg/Kg	EPA 8260B	11/22/2002
Methyl-t-butyl ether (MTBE)	4.3	0.5	mg/Kg	EPA 8260B	11/27/2002
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	11/22/2002
Toluene - d8 (Surr)	113		% Recovery	EPA 8260B	11/22/2002
4-Bromofluorobenzene (Surr)	103		% Recovery	EPA 8260B	11/22/2002

Approved By:  Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800



Report Number : 29861

Date : 12/2/2002

Project Name : 610 Market Street - Oakland

Project Number : 244-0594

Sample : MW-8-16

Matrix : Soil

Lab Number : 29861-03

Sample Date :11/15/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Toluene	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Ethylbenzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Total Xylenes	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Methyl-t-butyl ether (MTBE)	10	0.5	mg/Kg	EPA 8260B	11/26/2002
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	11/23/2002
Toluene - d8 (Surr)	108		% Recovery	EPA 8260B	11/23/2002
4-Bromofluorobenzene (Surr)	102		% Recovery	EPA 8260B	11/23/2002

Sample : MW-8-19.5

Matrix : Soil

Lab Number : 29861-04

Sample Date :11/15/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Toluene	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Ethylbenzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Total Xylenes	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Methyl-t-butyl ether (MTBE)	< 0.5	0.5	mg/Kg	EPA 8260B	11/23/2002
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	11/23/2002
Toluene - d8 (Surr)	115		% Recovery	EPA 8260B	11/23/2002
4-Bromofluorobenzene (Surr)	85.8		% Recovery	EPA 8260B	11/23/2002

Approved By:  Joel Kiff



Report Number : 29861

Date : 12/2/2002

Project Name : 610 Market Street - Oakland

Project Number : 244-0594

Sample : MW-7-10.5

Matrix : Soil

Lab Number : 29861-06

Sample Date :11/15/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Toluene	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Ethylbenzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Total Xylenes	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Methyl-t-butyl ether (MTBE)	0.7	0.5	mg/Kg	EPA 8260B	11/27/2002
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	11/23/2002
Toluene - d8 (Surr)	111		% Recovery	EPA 8260B	11/23/2002
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	11/23/2002

Sample : MW-7-15.5

Matrix : Soil

Lab Number : 29861-07

Sample Date :11/15/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/26/2002
Toluene	< 0.005	0.005	mg/Kg	EPA 8260B	11/26/2002
Ethylbenzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/26/2002
Total Xylenes	< 0.005	0.005	mg/Kg	EPA 8260B	11/26/2002
Methyl-t-butyl ether (MTBE)	< 0.5	0.5	mg/Kg	EPA 8260B	11/26/2002
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	11/26/2002
Toluene - d8 (Surr)	105		% Recovery	EPA 8260B	11/26/2002
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	11/26/2002

Approved By:  Joel Kiff



Report Number : 29861

Date : 12/2/2002

Project Name : 610 Market Street - Oakland

Project Number : 244-0594

Sample : MW-7-19.0

Matrix : Soil

Lab Number : 29861-08

Sample Date :11/15/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Toluene	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Ethylbenzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Total Xylenes	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Methyl-t-butyl ether (MTBE)	< 0.5	0.5	mg/Kg	EPA 8260B	11/23/2002
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	11/23/2002
Toluene - d8 (Surr)	115		% Recovery	EPA 8260B	11/23/2002
4-Bromofluorobenzene (Surr)	100		% Recovery	EPA 8260B	11/23/2002

Sample : MW-6-5.5

Matrix : Soil

Lab Number : 29861-09

Sample Date :11/15/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Toluene	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Ethylbenzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Total Xylenes	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Methyl-t-butyl ether (MTBE)	< 0.5	0.5	mg/Kg	EPA 8260B	11/23/2002
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	11/23/2002
Toluene - d8 (Surr)	112		% Recovery	EPA 8260B	11/23/2002
4-Bromofluorobenzene (Surr)	85.2		% Recovery	EPA 8260B	11/23/2002

Approved By:  Joel Kiff



Report Number : 29861

Date : 12/2/2002

Project Name : 610 Market Street - Oakland

Project Number : 244-0594

Sample : MW-6-10.5

Matrix : Soil

Lab Number : 29861-10

Sample Date :11/15/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/27/2002
Toluene	< 0.005	0.005	mg/Kg	EPA 8260B	11/27/2002
Ethylbenzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/27/2002
Total Xylenes	< 0.010	0.010	mg/Kg	EPA 8260B	11/27/2002
Methyl-t-butyl ether (MTBE)	< 0.5	0.5	mg/Kg	EPA 8260B	11/27/2002
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	11/27/2002
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	11/27/2002
4-Bromofluorobenzene (Surr)	113		% Recovery	EPA 8260B	11/27/2002

Sample : MW-6-15.5

Matrix : Soil

Lab Number : 29861-11

Sample Date :11/15/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	7.4	1.0	mg/Kg	EPA 8260B	11/26/2002
Toluene	180	1.0	mg/Kg	EPA 8260B	11/26/2002
Ethylbenzene	88	1.0	mg/Kg	EPA 8260B	11/26/2002
Total Xylenes	520	1.0	mg/Kg	EPA 8260B	11/26/2002
Methyl-t-butyl ether (MTBE)	< 1.0	1.0	mg/Kg	EPA 8260B	11/26/2002
TPH as Gasoline	6000	100	mg/Kg	EPA 8260B	11/26/2002
Toluene - d8 (Surr)	120		% Recovery	EPA 8260B	11/26/2002
4-Bromofluorobenzene (Surr)	89.3		% Recovery	EPA 8260B	11/26/2002

Approved By:  Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800



Report Number : 29861

Date : 12/2/2002

Project Name : 610 Market Street - Oakland

Project Number : 244-0594

Sample : MW-6-19.0

Matrix : Soil

Lab Number : 29861-12

Sample Date : 11/15/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	0.017	0.005	mg/Kg	EPA 8260B	11/23/2002
Toluene	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Ethylbenzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/23/2002
Total Xylenes	0.0079	0.005	mg/Kg	EPA 8260B	11/23/2002
Methyl-t-butyl ether (MTBE)	< 0.5	0.5	mg/Kg	EPA 8260B	11/23/2002
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	11/23/2002
Toluene - d8 (Surr)	111		% Recovery	EPA 8260B	11/23/2002
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	11/23/2002

Approved By:  Joel Kiff

Report Number : 29861

Date : 12/2/2002

QC Report : Method Blank Data

Project Name : **610 Market Street - Oakland**

Project Number : **244-0594**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/26/2002
Toluene	< 0.005	0.005	mg/Kg	EPA 8260B	11/26/2002
Ethylbenzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/26/2002
Total Xylenes	< 0.005	0.005	mg/Kg	EPA 8260B	11/26/2002
Methyl-t-butyl ether (MTBE)	< 0.5	0.5	mg/Kg	EPA 8260B	11/26/2002
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	11/26/2002
Toluene - d8 (Surr)	105		%	EPA 8260B	11/26/2002
4-Bromofluorobenzene (Surr)	94.9		%	EPA 8260B	11/26/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
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KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Approved By:


Joel Kiff

Report Number: 29861

Date: 12/2/2002

QC Report: Matrix Spike/ Matrix Spike Duplicate

Project Name: 610 Market Street -

Project Number: 244-0594

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Benzene	29861-02	<0.0050	0.0402	0.0406	0.0424	0.0416	mg/Kg	EPA 8260B	11/22/02	106	102	3.00	70-130	25
Toluene	29861-02	<0.0050	0.0402	0.0406	0.0407	0.0387	mg/Kg	EPA 8260B	11/22/02	101	95.3	6.10	70-130	25
Tert-Butanol	29861-02	0.92	0.201	0.203	1.08	1.06	mg/Kg	EPA 8260B	11/22/02	79.6	65.3	19.8	70-130	25
Methyl-t-Butyl Ether	29861-02	7.5	0.0402	0.0406	5.20	6.29	mg/Kg	EPA 8260B	11/22/02	0.00	0.00	0.00	70-130	25

KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Approved By:  Joel Kiff

Report Number : 29861

Date : 12/2/2002

QC Report : Laboratory Control Sample (LCS)

Project Name : **610 Market Street -**

Project Number : **244-0594**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	0.0401	mg/Kg	EPA 8260B	11/22/02	92.8	70-130
Toluene	0.0401	mg/Kg	EPA 8260B	11/22/02	104	70-130
Tert-Butanol	0.200	mg/Kg	EPA 8260B	11/22/02	94.8	70-130
Methyl-t-Butyl Ether	0.0401	mg/Kg	EPA 8260B	11/22/02	80.2	70-130

KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Approved By:


Joel Kiff

SHELL Chain Of Custody Record

720 Olive Drive, Suite D
Davis, CA 95616

(530) 297-4800 (530) 297-4803 fax

Shell Project Manager to be Invoiced:

- SCIENCE & ENGINEERING
- TECHNICAL SERVICES
- O&M - HOUSTON

Karen Petryna

29861

INVOICE NUMBER (SEE ONLY)

9	8	9	9	5	7	5	0
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SAMPLE NUMBER (SEE ONLY)

1	3	5	6	9	2
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DATE: 11/14/02

PAGE: 1 of 2

SAMPLING COMPANY: Cambria Environmental Technology		LOG CODE: CETO	SITE ADDRESS (Street and City): 610 Market Street - Oakland		GLOBAL ID NO.: T0600102121
ADDRESS: 1144-65TH Street, Oakland, CA 94608		EPA DELIVERABLE TO (Responsible Party or Designee):		PHONE NO.:	E-MAIL:
PROJECT CONTACT (Hardcopy or PDF Report to): Jacquelyn Jones		SAMPLER NAME(S) (Print): Jason K. Gerke Sara Dwight / J. Gerke		CONSULTANT PROJECT NO.: 244-0594	
TELEPHONE: 510-420-3318	FAX: 510-420-8170	E-MAIL: jones@cambria-env.com		LAB USE ONLY	

TURNAROUND TIME (BUSINESS DAYS):
 10 DAYS 5 DAYS 72 HOURS 48 HOURS 24 HOURS LESS THAN 24 HOURS

LA - RWQCB REPORT FORMAT UST AGENCY:

GC/MS MTBE CONFIRMATION: HIGHEST _____ HIGHEST per BORING _____ ALL _____

SPECIAL INSTRUCTIONS OR NOTES: CHECK BOX IF EDD IS NOT NEEDED
Hold MW-7-9.0 for further instructions

Requested Analysis:

TPH - Gas, Purgeable	BTEX	MTBE (8021B - 5ppb RL)	MTBE (8280B - 0.5ppb RL)	Oxygenates (5) by (8280B)	Ethanol (8280B)	Methanol	EDB & 1,2-DCA (8280B)	EPA 8068 Extraction for Volatiles	VOCs Halogenated/Aromatic (8021B)	TRPH (418.1)	Vapor VOCs BTEX/MTBE (TO-15)	Vapor VOCs Full List (TO-15)	Vapor TPH (ASTM 8416m)	Vapor Fixed Gases (ASTM D1846)	Test for Disposal (48--)	TPH - Diesel, Extractable (8015m)	MTBE (8280B) Confirmation, See Note	FIELD NOTES: Container/Preservative or PID Readings or Laboratory Notes <i>JEW Toxic</i>
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Field Sample Identification	SAMPLING		MATRIX	NO. OF CONT.	TPH - Gas, Purgeable	BTEX	MTBE (8021B - 5ppb RL)	MTBE (8280B - 0.5ppb RL)	Oxygenates (5) by (8280B)	Ethanol (8280B)	Methanol	EDB & 1,2-DCA (8280B)	EPA 8068 Extraction for Volatiles	VOCs Halogenated/Aromatic (8021B)	TRPH (418.1)	Vapor VOCs BTEX/MTBE (TO-15)	Vapor VOCs Full List (TO-15)	Vapor TPH (ASTM 8416m)	Vapor Fixed Gases (ASTM D1846)	Test for Disposal (48--)	TPH - Diesel, Extractable (8015m)	MTBE (8280B) Confirmation, See Note	TEMPERATURE ON RECEIPT (°C)	
	DATE	TIME																						
MW-8-6	11/14/02	955a	SL	1	X	X	X	X															01	
MW-8-11		1000a		1	X	X	X	X																02
MW-8-16		1005a		1	X	X	X	X																03
MW-8-19.5		1010a		1	X	X	X	X																04
MW-7-9.0	11/15/02	940	Soil	1	X	X	X	X																05
MW-7-10.5		945		1	X	X	X	X																06
MW-7-15.5		950		1	X	X	X	X																07
MW-7-19.0		955		1	X	X	X	X																08
MW-6-5.5		1100		1	X	X	X	X																09
MW-6-10.5		1110		1	X	X	X	X																10

Retrieved by: (Signature) <i>Jacquelyn Jones</i>	Received by: (Signature) <i>"Secure Location"</i>	Date: 11/15/02	Time:
Retrieved by: (Signature)	Received by: (Signature)	Date:	Time:
Retrieved by: (Signature)	Received by: (Signature) <i>John EWA Kiff Analytical</i>	Date: 11/15/02	Time: 1530

SHELL Chain Of Custody Record

720 Oliva Drive, Suite D

Davis, CA 95616

(530) 297-4800 (530) 297-4803 fax

Shell Project Manager to be Invoiced:

SCIENCE & ENGINEERING
 TECHNICAL SERVICES
 O&E - HOUSTON

Karen Petryna

29861

INCIDENT NUMBER (SEE ONLY)

9 8 9 9 5 7 5 0

SAP OR CRM NUMBER (S/CRM)

1 3 5 6 9 2

DATE: 11/15/02

PAGE: 2 of 2

SAMPLING COMPANY: Cambria Environmental Technology		LOG CODE: CETO	SITE ADDRESS (Street and City): 610 Market Street - Oakland		GLOBAL ID NO.: T0600102121
ADDRESS: 1144-65TH Street, Oakland, CA 94608		EDF DELIVERABLE TO (Responsible Party or Design):		PHONE NO.:	CONSULTANT PROJECT NO.: 244-0594
PROJECT CONTACT (Hardcopy or PDF Report to): Jacquelyn Jones		SAMPLER NAME(S) (Print): Jason K. Gerke		E-MAIL:	
TELEPHONE: 510-420-3318	FAX: 510-420-9170	E-MAIL: jones@cambria-env.com		LAB USE ONLY	

TURNAROUND TIME (BUSINESS DAYS):
 10 DAYS 5 DAYS 72 HOURS 48 HOURS 24 HOURS LESS THAN 24 HOURS

LA - RWQCB REPORT FORMAT UST AGENCY:

GC/MS MTBE CONFIRMATION: HIGHEST _____ HIGHEST per BORING _____ ALL _____

SPECIAL INSTRUCTIONS OR NOTES: CHECK BOX IF EDO IS NOT NEEDED

REQUESTED ANALYSIS

FIELD NO.	Field Sample Identification	SAMPLING		MATRIX	NO. OF CONT.	REQUESTED ANALYSIS													TEMPERATURE ON RECEIPT °C				
		DATE	TIME			TPH - Gas, Purgeable	BTX	MTBE (8021B - 5ppb FL)	MTBE (8280B - 0.1ppb FL)	Oxygenates (8) by (8280B)	Ethanol (8260B)	Methanol	EDB & 1,2-DCA (8260B)	EPA 8036 Extraction for Volatiles	VOCs Halogenated/Aromatic (8021B)	TRPH (418.1)	Vapor VOCs BTX/MTBE (TO-15)	Vapor VOCs Full List (TO-16)		Vapor TPH (ASTM 3416m)	Vapor Fixed Gases (ASTM D1846)	Test for Disposal (4B-)	TPH - Diesel, Extractable (8015m)
144	MW-6-15.5	11/15/02	1115	Soil	1	X	X	X															11
145	MW-6-19.0	11/15/02	1120	Soil	1	X	X	X															12

FIELD NOTES:
 Container/Preservative
 or PID Readings
 or Laboratory Notes

130W

Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature) <i>"Secure Location"</i>	Date: 11/15/02	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature) <i>Joel Ewing Kiff Analytical</i>	Date: 11/18/02	Time: 1530



Report Number : 31152

Date : 2/4/03

Jaquelyn Jones
Cambria Environmental Technology, Inc.
1144 65th Street, Suite B
Oakland, CA 94608

Subject : 4 Soil Samples
Project Name : 610 Market Street - Oakland
Project Number : 245-0594
P.O. Number : 98995750

Dear Ms. Jones,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

A handwritten signature in black ink that reads "Joel Kiff". The signature is written in a cursive style with a large, looped initial "J".

Joel Kiff



Report Number : 31152

Date : 2/4/03

Project Name : 610 Market Street - Oakland

Project Number : 245-0594

Sample : MW-9-5.5

Matrix : Soil

Lab Number : 31152-01

Sample Date :1/28/03

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.005	0.005	mg/Kg	EPA 8260B	2/3/03
Toluene	< 0.005	0.005	mg/Kg	EPA 8260B	2/3/03
Ethylbenzene	< 0.005	0.005	mg/Kg	EPA 8260B	2/3/03
Total Xylenes	< 0.005	0.005	mg/Kg	EPA 8260B	2/3/03
Methyl-t-butyl ether (MTBE)	< 0.5	0.5	mg/Kg	EPA 8260B	2/3/03
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	2/3/03
Toluene - d8 (Surr)	99.3		% Recovery	EPA 8260B	2/3/03
4-Bromofluorobenzene (Surr)	98.1		% Recovery	EPA 8260B	2/3/03

Sample : MW-9-10.5

Matrix : Soil

Lab Number : 31152-02

Sample Date :1/28/03

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.005	0.005	mg/Kg	EPA 8260B	2/3/03
Toluene	< 0.005	0.005	mg/Kg	EPA 8260B	2/3/03
Ethylbenzene	< 0.005	0.005	mg/Kg	EPA 8260B	2/3/03
Total Xylenes	< 0.005	0.005	mg/Kg	EPA 8260B	2/3/03
Methyl-t-butyl ether (MTBE)	< 0.5	0.5	mg/Kg	EPA 8260B	2/3/03
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	2/3/03
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	2/3/03
4-Bromofluorobenzene (Surr)	98.5		% Recovery	EPA 8260B	2/3/03

Approved By:  Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800



Report Number : 31152

Date : 2/4/03

Project Name : 610 Market Street - Oakland

Project Number : 245-0594

Sample : MW-9-15.5

Matrix : Soil

Lab Number : 31152-03

Sample Date :1/28/03

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.005	0.005	mg/Kg	EPA 8260B	2/3/03
Toluene	< 0.005	0.005	mg/Kg	EPA 8260B	2/3/03
Ethylbenzene	< 0.005	0.005	mg/Kg	EPA 8260B	2/3/03
Total Xylenes	< 0.005	0.005	mg/Kg	EPA 8260B	2/3/03
Methyl-t-butyl ether (MTBE)	< 0.5	0.5	mg/Kg	EPA 8260B	2/3/03
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	2/3/03
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	2/3/03
4-Bromofluorobenzene (Surr)	98.1		% Recovery	EPA 8260B	2/3/03

Sample : MW-9-19.0

Matrix : Soil

Lab Number : 31152-04

Sample Date :1/28/03

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.005	0.005	mg/Kg	EPA 8260B	2/3/03
Toluene	< 0.005	0.005	mg/Kg	EPA 8260B	2/3/03
Ethylbenzene	< 0.005	0.005	mg/Kg	EPA 8260B	2/3/03
Total Xylenes	< 0.005	0.005	mg/Kg	EPA 8260B	2/3/03
Methyl-t-butyl ether (MTBE)	< 0.5	0.5	mg/Kg	EPA 8260B	2/3/03
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	2/3/03
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	2/3/03
4-Bromofluorobenzene (Surr)	105		% Recovery	EPA 8260B	2/3/03

Approved By:  Joel Kiff

Report Number : 31152

Date : 2/4/03

QC Report : Method Blank Data

Project Name : **610 Market Street - Oakland**

Project Number : **245-0594**

<u>Parameter</u>	<u>Measured Value</u>	<u>Method Reporting Limit</u>	<u>Units</u>	<u>Analysis Method</u>	<u>Date Analyzed</u>
Benzene	< 0.005	0.005	mg/Kg	EPA 8260B	2/2/03
Toluene	< 0.005	0.005	mg/Kg	EPA 8260B	2/2/03
Ethylbenzene	< 0.005	0.005	mg/Kg	EPA 8260B	2/2/03
Total Xylenes	< 0.005	0.005	mg/Kg	EPA 8260B	2/2/03
Methyl-t-butyl ether (MTBE)	< 0.5	0.5	mg/Kg	EPA 8260B	2/2/03
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	2/2/03
Toluene - d8 (Surr)	101		%	EPA 8260B	2/2/03
4-Bromofluorobenzene (Surr)	99.0		%	EPA 8260B	2/2/03

<u>Parameter</u>	<u>Measured Value</u>	<u>Method Reporting Limit</u>	<u>Units</u>	<u>Analysis Method</u>	<u>Date Analyzed</u>
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KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Approved By:  _____
Joel Kiff

Report Number: 31152

Date: 2/4/03

QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : 610 Market Street -

Project Number : 245-0594

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Benzene	31152-02	<0.0050	0.0797	0.0790	0.0711	0.0694	mg/Kg	EPA 8260B	2/3/03	89.2	87.8	1.58	70-130	25
Toluene	31152-02	<0.0050	0.0797	0.0790	0.0710	0.0700	mg/Kg	EPA 8260B	2/3/03	89.1	88.6	0.619	70-130	25
Tert-Butanol	31152-02	<0.0050	0.398	0.395	0.350	0.333	mg/Kg	EPA 8260B	2/3/03	87.8	84.2	4.24	70-130	25
Methyl-t-Butyl Ether	31152-02	<0.0050	0.0797	0.0790	0.0816	0.0788	mg/Kg	EPA 8260B	2/3/03	102	99.8	2.67	70-130	25

KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Approved By:  Joel Kiff

Report Number : 31152

Date : 2/4/03

QC Report : Laboratory Control Sample (LCS)

Project Name : **610 Market Street -**

Project Number : **245-0594**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	0.0372	mg/Kg	EPA 8260B	2/2/03	82.6	70-130
Toluene	0.0372	mg/Kg	EPA 8260B	2/2/03	82.2	70-130
Tert-Butanol	0.186	mg/Kg	EPA 8260B	2/2/03	80.1	70-130
Methyl-t-Butyl Ether	0.0372	mg/Kg	EPA 8260B	2/2/03	93.6	70-130

KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Approved By:


Joel Kiff

SHELL Chain Of Custody Record

720 Olive Drive, Suite D
Davis, CA 95616

(530) 297-4800 (530) 297-4803 fax

Shell Project Manager to be Invoiced:

SCIENCE & ENGINEERING
 TECHNICAL SERVICES
 CBMT HOUSTON

Karen Petryna

31152

INCIDENT NUMBER (S&E ONLY)

9 8 9 9 5 7 5 0

S&E PROJECT NUMBER (IF SCIENT)

1 3 5 6 9 2

DATE: 1/29/03

PAGE: 1 of 1

SAMPLING COMPANY: Cambria Environmental Technology		LOA CODE: CETO	SITE ADDRESS (Street and City): 610 Market Street - Oakland		GLOBAL ID NO.: T0600102121
ADDRESS: 1144-65TH Street, Oakland, CA 94608		EDF DELIVERABLE TO (Responsible Party or Designer): elfshel@oakland@Cambria-Env.com		PHONE NO.:	CONSULTANT PROJECT NO.: 245-0594
PROJECT CONTACT (Hardcopy or PDF Report to): Jacquelyn Jones		SAMPLER NAME(S) (Print): Jason K. Gerke		LAB USE ONLY	
TELEPHONE: 810-420-3316	FAX: 810-420-8170	EMAIL: jones@cambria-env.com			

TURNAROUND TIME (BUSINESS DAYS):
 10 DAYS 5 DAYS 72 HOURS 48 HOURS 24 HOURS LESS THAN 24 HOURS

LA - RWQCB REPORT FORMAT UST AGENCY: _____

GDMS MTBE CONFIRMATION: HIGHEST _____ HIGHEST per BORING _____ ALL _____

SPECIAL INSTRUCTIONS OR NOTES: CHECK BOX IF EDO IS NOT NEEDED

REQUESTED ANALYSIS

Field Sample Identification	SAMPLING		MATRIX	NO. OF CONT.	TPH - Gas, Purgeable	BTEX	MTBE (8021B - 5ppb RL)	MTBE (8260B - 0.5ppb RL)	Oxygenates (5) by (8260B)	Ethanol (8260B)	Methanol	EDB & 1,2-DCA (8260B)	EPA 5035 Extraction for Volatiles	VOCs Halogenated/Aromatics (8021B)	TPPH (416.1)	Vapor VOCs BTEX / MTBE (TO-15)	Vapor VOCs Full List (TO-15)	Vapor TPH (ASTM 3416m)	Vapor Fixed Gases (ASTM D1946)	Test for Disposal (4B-)	TPH - Diesel, Extractable (ASTM)	MTBE (8060B) Confirmation, See Note	TEMPERATURE ON RECEIPT °C	FIELD NOTES: Container/Preservative or PID Readings or Laboratory Notes		
	DATE	TIME																								
MW-9-5.5	1/29/03	1030	Soil	1	X	X	Y																	-01		
MW-9-10.5		1040		1	X	X	Y																		-07	
MW-9-15.5		1045		1	X	X	Y																		-03	
MW-9-19.0		1050		1	X	X	Y																		-04	

Relinquished by (Signature): <i>Jason K. Gerke</i>	Received by (Signature): _____	Date: 1/29/03	Time: 1400
Relinquished by (Signature): _____	Received by (Signature): _____	Date:	Time:
Relinquished by (Signature): _____	Received by (Signature): <i>B. A. Brown</i>	Date: 012803	Time: 1400

CSQ Graphix (714) 898-9702



Report Number : 29876

Date : 11/25/2002

Jacquelyn Jones
Cambria Environmental Technology, Inc.
1144 65th Street, Suite B
Oakland, CA 94608

Subject : 5 Soil Samples
Project Name : 610 Market Street - Oakland
Project Number : 244-0594
P.O. Number : 98995750

Dear Ms. Jones,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

A handwritten signature in black ink that reads "Joel Kiff". The signature is written in a cursive style with a large initial "J".

Joel Kiff



Report Number : 29876

Date : 11/25/2002

Project Name : 610 Market Street - Oakland

Project Number : 244-0594

Sample : SP-1-A

Matrix : Soil

Lab Number : 29876-01

Sample Date :11/15/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	11/21/2002
4-Bromofluorobenzene (Surr)	98.1		% Recovery	EPA 8260B	11/21/2002

Sample : SP-1-B

Matrix : Soil

Lab Number : 29876-02

Sample Date :11/15/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	11/23/2002
4-Bromofluorobenzene (Surr)	97.0		% Recovery	EPA 8260B	11/23/2002

Sample : SP-1-C

Matrix : Soil

Lab Number : 29876-03

Sample Date :11/15/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	11/21/2002
4-Bromofluorobenzene (Surr)	96.3		% Recovery	EPA 8260B	11/21/2002

Approved By:  Joel Kiff



Report Number : 29876

Date : 11/25/2002

Project Name : 610 Market Street - Oakland

Project Number : 244-0594

Sample : SP-1-D

Matrix : Soil

Lab Number : 29876-04

Sample Date :11/15/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	11/21/2002
4-Bromofluorobenzene (Surr)	97.8		% Recovery	EPA 8260B	11/21/2002

Sample : SP-1-A,B,C,D

Matrix : Soil

Lab Number : 29876-05

Sample Date :11/15/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/22/2002
Toluene	< 0.005	0.005	mg/Kg	EPA 8260B	11/22/2002
Ethylbenzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/22/2002
Total Xylenes	< 0.010	0.010	mg/Kg	EPA 8260B	11/22/2002
Methyl-t-butyl ether (MTBE)	< 0.5	0.5	mg/Kg	EPA 8260B	11/22/2002
Toluene - d8 (Surr)	99.2		% Recovery	EPA 8260B	11/22/2002
4-Bromofluorobenzene (Surr)	104		% Recovery	EPA 8260B	11/22/2002

Approved By:  Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

Report Number : 29876

Date : 11/25/2002

QC Report : Method Blank Data

Project Name : **610 Market Street - Oakland**

Project Number : **244-0594**

<u>Parameter</u>	<u>Measured Value</u>	<u>Method Reporting Limit</u>	<u>Units</u>	<u>Analysis Method</u>	<u>Date Analyzed</u>
Benzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/21/2002
Toluene	< 0.005	0.005	mg/Kg	EPA 8260B	11/21/2002
Ethylbenzene	< 0.005	0.005	mg/Kg	EPA 8260B	11/21/2002
Total Xylenes	< 0.005	0.005	mg/Kg	EPA 8260B	11/21/2002
Methyl-t-butyl ether (MTBE)	< 0.5	0.5	mg/Kg	EPA 8260B	11/21/2002
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	11/21/2002
Toluene - d8 (Surr)	109		%	EPA 8260B	11/21/2002
4-Bromofluorobenzene (Surr)	88.2		%	EPA 8260B	11/21/2002

<u>Parameter</u>	<u>Measured Value</u>	<u>Method Reporting Limit</u>	<u>Units</u>	<u>Analysis Method</u>	<u>Date Analyzed</u>
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KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Approved By:  _____
Joel Kiff

Report Number : 29876

Date : 11/25/2002

QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : 610 Market Street -

Project Number : 244-0594

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Recov. Limit	Relative Percent Diff. Limit
Benzene	29879-11	<0.0050	0.0382	0.0380	0.0318	0.0317	mg/Kg	EPA 8260B	11/21/02	83.3	83.5	0.240	70-130	25
Toluene	29879-11	<0.0050	0.0382	0.0380	0.0299	0.0284	mg/Kg	EPA 8260B	11/21/02	78.3	74.6	4.81	70-130	25
Tert-Butanol	29879-11	<0.0050	0.191	0.190	0.158	0.142	mg/Kg	EPA 8260B	11/21/02	82.5	74.8	9.82	70-130	25
Methyl-t-Butyl Ether	29879-11	<0.0050	0.0382	0.0380	0.0311	0.0320	mg/Kg	EPA 8260B	11/21/02	81.4	84.1	3.32	70-130	25

KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Approved By:  _____
Joel Kiff

Report Number : 29876

Date : 11/25/2002

QC Report : Laboratory Control Sample (LCS)

Project Name : **610 Market Street -**

Project Number : **244-0594**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	0.0382	mg/Kg	EPA 8260B	11/21/02	97.2	70-130
Toluene	0.0382	mg/Kg	EPA 8260B	11/21/02	95.6	70-130
Tert-Butanol	0.191	mg/Kg	EPA 8260B	11/21/02	86.2	70-130
Methyl-t-Butyl Ether	0.0382	mg/Kg	EPA 8260B	11/21/02	87.2	70-130

KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Approved By:  _____
Joel Kiff

Calscience
Environmental
Laboratories, Inc.

November 25, 2002

Joel Kiff
Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Subject: **Calscience Work Order No.:** 02-11-1249
Client Reference: 610 Market Street - Oakland

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/21/2002 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

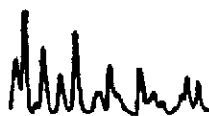
If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,


Calscience Environmental
Laboratories, Inc.

Stephen Nowak
Project Manager


Michael J. Crisostomo
Quality Assurance Manager





ANALYTICAL REPORT

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Date Received: 11/21/02
Work Order No: 02-11-1249
Preparation: Total Digestion
Method: EPA 6010B

Project: 610 Market Street - Oakland

Page 1 of 1

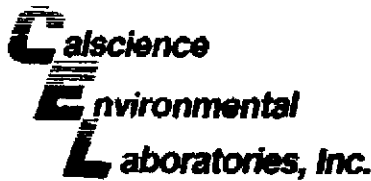
Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
SP-1-A,B,C,D	02-11-1249-1	11/15/02	Solid	11/21/02	11/22/02	021121L02

Parameter	Result	RL	DF	Qual	Units	Parameter	Result	RL	DF	Qual	Units
Cadmium	ND	0.500	1		mg/kg	Nickel	39.3	0.2	1		mg/kg
Chromium (Total)	57.5	0.2	1		mg/kg	Zinc	29.1	1.0	1		mg/kg
Lead	5.62	0.50	1		mg/kg						

Method Blank	007-01-002-3,812	N/A			Solid	11/21/02	11/21/02	021121L02
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Parameter	Result	RL	DF	Qual	Units	Parameter	Result	RL	DF	Qual	Units
Cadmium	ND	0.500	1		mg/kg	Nickel	ND	0.250	1		mg/kg
Chromium (Total)	ND	0.250	1		mg/kg	Zinc	ND	1.00	1		mg/kg
Lead	ND	0.500	1		mg/kg						

RL - Reporting Limit . DF - Dilution Factor . Qual - Qualifiers



ANALYTICAL REPORT

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-8593

Date Received: 11/21/02
Work Order No: 02-11-1249
Preparation: STLC
Method: EPA 8010B

Project: 610 Market Street - Oakland

Page 1 of 1

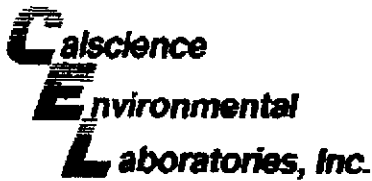
Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
SP-1-A,B,C,D	02-11-1249-1	11/15/02	Solid	11/25/02	12/02/02	021127L02

Parameter	Result	RL	DF	Qual	Units
Chromium (Total)	0.228	0.050	1		mg/L
Method Blank		007-05-008-2,000		N/A	Solid
					11/25/02 11/27/02 021127L02

Parameter	Result	RL	DF	Qual	Units
Chromium (Total)	ND	0.0500	1		mg/L

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

7440 Lincoln Way, Garden Grove, CA 92841-1432 • TEL: (714) 895-5494 • FAX: (714) 894-7501



Quality Control - Spike/Spike Duplicate

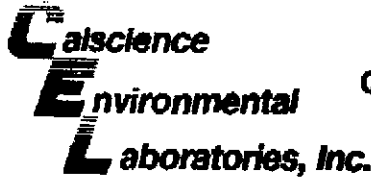
Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Date Received: 11/21/02
Work Order No: 02-11-1249
Preparation: Total Digestion
Method: EPA 6010B

Project: 610 Market Street - Oakland

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
02-11-1228-10	Solid	ICP 5500	11/21/02	11/21/02	021121802

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Cadmium	100	100	75-125	0	0-20	
Chromium (Total)	100	100	75-125	0	0-20	
Lead	99	96	75-125	3	0-20	
Nickel	98	98	75-125	0	0-20	
Zinc	100	106	75-125	3	0-20	



Quality Control - Laboratory Control Sample

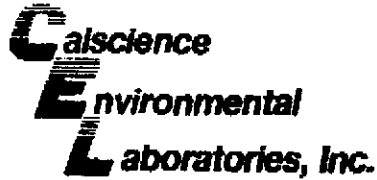
Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-8593

Date Received: 11/21/02
Work Order No: 02-11-1249
Preparation: Total Digestion
Method: EPA 6010B

Project: 610 Market Street - Oakland

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number
097-01-002-3, #12	Solid	ICP 3300	11/21/02	0211214 02	021121L02

Parameter	Conc Added	Conc Recovered	%Rec	%Rec Cl	Qualifier
Cadmium	50.0	51.7	103	80-120	
Chromium (Total)	50.0	50.1	100	80-120	
Lead	50.0	50.9	102	80-120	
Nickel	50.0	51.9	104	80-120	
Zinc	50.0	53.5	107	80-120	



Quality Control - Spike/Spike Duplicate

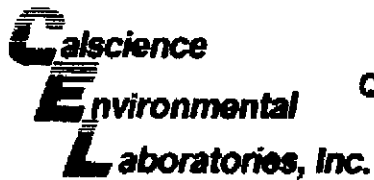
Kiff Analytical
 2795 2nd Street, Suite 300
 Davis, CA 95616-6593

Date Received: 11/21/02
 Work Order No: 02-11-1249
 Preparation: STLC
 Method: EPA 6010B

Project: 610 Market Street - Oakland

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MGD Batch Number
02-11-0700-2	Solid	ICP 3300	11/25/02	11/27/02	02-11-27502

Parameter	MS %REC	MGD %REC	%REC CL	RPD	RPD CL	Qualifiers
Chromium (Total)	98	96	75-125	0	0-20	



Quality Control - Laboratory Control Sample

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Date Received: 11/21/02
Work Order No: 02-11-1249
Preparation: STLC
Method: EPA 6010B

Project: 610 Market Street - Oakland

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number
097-05-006-2,000	Solid	ICP 3300	11/27/02	021127-1,02	021127L02

Parameter	Conc Added	Conc Recovered	%Rec	%Rec CL	Qualification
Chromium (Total)	10.0	10.7	107	80-120	

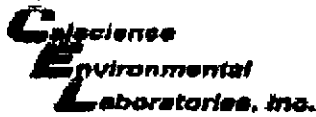


GLOSSARY OF TERMS AND QUALIFIERS

Work Order Number: 02-11-1249

<u>Qualifier</u>	<u>Definition</u>
ND	Not detected at indicated reporting limit.

A handwritten signature in black ink, appearing to be "Michael M.", is located at the bottom left of the page.



WORK ORDER #: 02-11-1249

Cooler 1 of 1

SAMPLE RECEIPT FORM

CLIENT: [Signature]

DATE: 11/21/02

TEMPERATURE - SAMPLES RECEIVED BY:

CALSCIENCE COURIER:

- Chilled, cooler with temperature blank provided.
Chilled, cooler without temperature blank.
Chilled and placed in cooler with wet ice.
Ambient and placed in cooler with wet ice.
Ambient temperature.
°C Temperature blank.

LABORATORY (Other than CalScience Courier):

- 3 °C Temperature blank.
°C IR thermometer.
Ambient temperature.

Initial: [Signature]

CUSTODY SEAL INTACT:

Sample(s): Cooler: [checked] No (Not Intact): Not Applicable (N/A):

Initial: [Signature]

SAMPLE CONDITION:

Table with 4 columns: Description, Yes, No, N/A. Rows include Chain-Of-Custody document(s), Sample container label(s), Sample container(s) intact, Correct containers for analyses, Proper preservation noted, VOA vial(s) free of headspace, Tedlar bag(s) free of condensation.

Initial: [Signature]

COMMENTS:

Blank lines for handwritten comments.

This information is business proprietary and confidential and must not be divulged or shared outside the company. The use of this information is strictly for the purpose of doing business with the Centralized Residual Management Team (CRMT). Upon termination of the relationship with the CRMT, this information is not to be forwarded, duplicated, shared or used for any purpose other than for the documentation of past actions.

RESIDUAL MANAGEMENT PROCEDURE

ISSUED DATE: 08/01/01
CANCELS ISSUE:
ISSUED BY: LRR

RESIDUAL STREAM: SOIL WITH UNLEADED GASOLINE

VENDOR: ALLIED-BFI

LOCATION: ALLIED WASTE - MANTECA
9999 SOUTH AUSTIN ROAD
MANTECA, CA 95336

CALIFORNIA - TRANSPORTATION AND RETAIL

BTEX - EPA (8021B) 8260B (IF BENZENE IS > OR = TO 10 MG/KG THEN TCLP BENZENE IS REQUIRED)

5 CAM METALS = TTLC METALS
STLC ON ALL TTLC METALS 10 TIMES STLC MAXIMUM
TTLC LEAD=>13 MG/KG REQUIRES ORGANIC LEAD ANALYSIS
IF ANY TTLC TOTAL METAL IS > OR = TO 20 TIMES TCLP REGULATORY LEVELS, TCLP IS REQUIRED

TOTAL PETROLEUM HYDROCARBONS, METHOD 418.1 OR (8015) - GASOLINE

MTBE METHOD 8260B (GC/MS)

AQUATIC BIOASSAY (FISH TOX) IS ONLY TO BE RUN ON SAMPLES > OR = TO 5000 PPM TPH. AQUATIC BIOASSAY (FISH TOX) = PART 800 OF STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER (15TH EDITION)

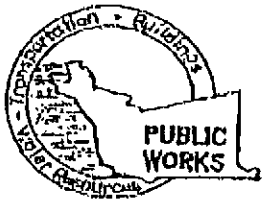
LABORATORY INSTRUCTIONS (MINIMUM GUIDELINES ONLY)

- ALTERNATE APPROVED TEST METHODS PER SW846 ARE ALSO ACCEPTABLE
- ALL REQUIRED TESTS ON COMPOSITE
- LABORATORY IS TO SUPPLY QA/QC INFORMATION WITH ALL ANALYTICAL REPORTS
- MAIL OR FAX ALL ANALYSIS TO THE CENTRALIZED RESIDUAL MANAGEMENT TEAM

PROCEDURE ORIGINAL DATE: 08/01/01
PROCEDURE REVISED DATE: 08/01/01

ATTACHMENT B

Permits



ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
 399 ELMHURST ST. HAYWARD CA. 94544-1395
 PHONE (510) 670-6633 James Yoo
 FAX (510) 782-1939

APPLICANTS: PLEASE ATTACH A SITE MAP FOR ALL DRILLING PERMIT APPLICATIONS
 DESTRUCTION OF WELLS OVER 45 FEET REQUIRES A SEPARATE PERMIT APPLICATION

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 610 Market St.
Oakland

PERMIT NUMBER W02-1083
 WELL NUMBER _____
 APN _____

CLIENT Name Shell Oil Products US
 Address _____ Phone _____
 City _____ Zip _____

APPLICANT Name Cambria Environmental Tech.
 Address 1144 85th St. Phone 510-420-9170
 City Oakland, CA Zip 94609

TYPE OF PROJECT
 Well Construction _____ Geotechnical Investigation _____
 Cathodic Protection General
 Water Supply Contamination
 Monitoring Well Destruction

PROPOSED WATER SUPPLY WELL USE
 New Domestic Replacement Domestic
 Municipal Irrigation
 Industrial Other _____

DRILLING METHOD:
 Mud Rotary Air Rotary Auger
 Cable Other

DRILLER'S NAME Gregg Drilling & Testing
 DRILLER'S LICENSE NO. CS7-485165

WELL PROJECTS
 Drill Hole Diameter 10 in. Maximum Depth 30 ft.
 Casing Diameter 4 in. Owner's Well Number MW-6
 Surface Seal Depth 5 ft.

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

ESTIMATED STARTING DATE 11/14/02
 ESTIMATED COMPLETION DATE 12/11/02

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 71-AR.

APPLICANT'S SIGNATURE Jason Gerke DATE 11/11/02
 PLEASE PRINT NAME Jason Gerke Rev.3-04-02

PERMIT CONDITIONS
 Circled Permit Requirements Apply

A. GENERAL

1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS

1. Minimum surface seal thickness is two inches of cement grout placed by trowel.
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.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS

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

D. GEOTECHNICAL

Backfill bore hole by trowel with cement grout or cement grout/sand mixture. Upper two-thirds seal replaced in kind or with compacted cuttings.

E. CATHODIC

Fill hole anode zone with concrete placed by trowel.

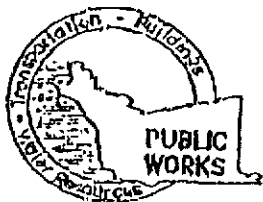
F. WELL DESTRUCTION

Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED _____ DATE 11-12-02



ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 F. MURPHY ST. HAYWARD CA. 94544-1395
PHONE (510) 670-6633 James Yee
FAX (510) 782-1939

APPLICANTS: PLEASE ATTACH A SITE MAP FOR ALL DRILLING PERMIT APPLICATIONS
DESTRUCTION OF WELLS OVER 45 FEET REQUIRES A SEPARATE PERMIT APPLICATION

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 610 Market St.
Oakland

PERMIT NUMBER W02-1084
WELL NUMBER _____
APN _____

CLIENT Shell Oil Products US
Name _____
Address _____ Phone _____
City _____ Zip _____

APPLICANT Cambria Environmental Tech
Name _____
Address 1144 65th St Fax 570-420-9170
City Oakland, CA Phone 510-420-0700
Zip 94608

TYPE OF PROJECT
Well Construction Geotechnical Investigation
Cathodic Protection General
Water Supply Contamination
Monitoring Well Destruction

PROPOSED WATER SUPPLY WELL USE
New Domestic Replacement Domestic
Municipal Irrigation
Industrial Other _____

DRILLING METHOD:
Mud Rotary Air Rotary Auger
Cable Other

DRILLER'S NAME Gregg Drilling & Testing

DRILLER'S LICENSE NO. C57-485165

WELL PROJECTS
Drill Hole Diameter 4 in. Maximum _____
Cutting Diameter 4 in. Depth 32 ft.
Surface Seal Depth 5 ft. Owner's Well Number MW 7

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

ESTIMATED STARTING DATE 11/14/02
ESTIMATED COMPLETION DATE 12/14/02

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

APPLICANT'S SIGNATURE Jasen Gerke DATE 11/14/02

PLEASE PRINT NAME Jasen Gerke Rcv.3-04-02

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL

1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources Well Completion Report.
3. Permits is void if project not begun within 90 days of approval date.

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.

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.

D. GEOTECHNICAL

Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC

Fill hole grade zone with concrete placed by tremie.

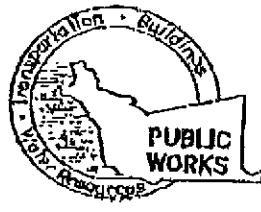
F. WELL DESTRUCTION

Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED [Signature] DATE 11-12-02



ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 EL-MHURST ST. HAYWARD CA. 94544-1595
PHONE (510) 670-6633 James Yoo
FAX (510) 782-1939

APPLICANT PLEASE ATTACH A SITE MAP FOR ALL DRILLING PERMIT APPLICATIONS
DESTRUCTION OF WELLS OVER 45 FEET REQUIRES A SEPARATE PERMIT APPLICATION

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 616 Market St.
Oakland

CLIENT Name Shell Oil Products US
Address _____ Phone _____
City _____ Zip _____

APPLICANT Name Cambria Environmental Tech.
Address 1144-68th St City Oakland, CA
Phone 510-420-9700 Zip 94608

TYPE OF PROJECT
Well Construction _____ Geotechnical Investigation _____
Cathodic Protection _____ General _____
Water Supply _____ Contamination _____
Monitoring _____ Well Destruction _____

PROPOSED WATER SUPPLY WELL USE
New Domestic _____ Replacement Domestic _____
Municipal _____ Irrigation _____
Industrial _____ Other _____

DRILLING METHOD:
Mud Rotary _____ Air Rotary _____ Auger _____
Cable _____ Other _____

DRILLER'S NAME Gregg Drilling & Testing

DRILLER'S LICENSE NO. C57-485165

WELL PROJECTS
Drill Hole Diameter 10 in. Maximum Depth 30 ft.
Casing Diameter 4 in. Owner's Well Number MW-8
Surface Seal Depth 5 ft.

GEOTECHNICAL PROJECTS
Number of Borings _____ Maximum Depth _____ ft.
Hole Diameter _____ ft.

ESTIMATED STARTING DATE 11/14/02
ESTIMATED COMPLETION DATE 12/14/02

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-6A.

APPLICANT'S SIGNATURE Jason Gerke DATE 11/14/02

PLEASE PRINT NAME Jason Gerke Rcv.3-04-02

FOR OFFICE USE

PERMIT NUMBER W02-1085
WELL NUMBER _____
APN _____

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL

1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date.

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.

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.

D. GEOTECHNICAL

Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC

Fill hole anode zone with concrete placed by tremie.

F. WELL DESTRUCTION

Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED [Signature] DATE 11-7-02



ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 F.L. MITCHELL ST. HAYWARD CA. 94544-1395
PHONE (510) 670-6683 James Van
FAX (510) 782-1939

APPLICANTS: PLEASE ATTACH A SITE MAP FOR ALL DRILLING PERMIT APPLICATIONS
DESTRUCTION OF WELLS OVER 45 FEET REQUIRES A SEPARATE PERMIT APPLICATION

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 610 Market St.
Oakland

PERMIT NUMBER W02-1086
WELL NUMBER _____
APN _____

CLIENT Name Shell Oil Products US
Address _____ Phone _____
City _____ Zip _____

APPLICANT Name Cambria Environmental Tech.
Address 114-65th St. Fax 510-420-9170
City Oakland, CA Phone 510-420-0700
Zip 94608

TYPE OF PROJECT

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

PROPOSED WATER SUPPLY WELL USE

New Domestic Replacement Domestic
Municipal Irrigation
Industrial Other _____

DRILLING METHOD:

Mud Rotary Air Rotary Auger
Cable Other

DRILLER'S NAME Gregg Drilling & Testing

DRILLER'S LICENSE NO. C57-485165

WELL PROJECTS

Drill Hole Diameter 10 in. Maximum Depth 30 ft.
Casing Diameter 4 in. Owner's Well Number MW-9
Surface Seal Depth 5 ft.

GEOTECHNICAL PROJECTS

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

ESTIMATED STARTING DATE 11/14/02
ESTIMATED COMPLETION DATE 12/14/02

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

APPLICANT'S SIGNATURE Jason Gerke DATE 11/11/02

PELLARE PRINT NAME Jason Gerke

Rev. 3-04-02

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL

1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date.

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 specifically approved.

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.

D. GEOTECHNICAL

Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-thirds seal replaced in kind or with compacted cuttings.

E. CATHODIC

Fill hole anode zone with concrete placed by tremie.

F. WELL DESTRUCTION

Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED [Signature] DATE 11-12-02

ATTACHMENT C

Boring Logs



Cambria Environmental Technology, Inc.
 5900 Hollis Street, Suite A
 Emeryville, CA 94608
 Telephone: (510) 420-0700
 Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	BORING/WELL NAME	MW-6
JOB/SITE NAME	Shell-Branded Service Station	DRILLING STARTED	15-Nov-02
LOCATION	610 Market, Oakland CA	DRILLING COMPLETED	15-Nov-02
PROJECT NUMBER	244-0594	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Gregg Drilling	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hollow-stem auger	TOP OF CASING ELEVATION	NA
BORING DIAMETER	10"	SCREENED INTERVAL	5 to 20.01 ft bgs
LOGGED BY	J. Gerke	DEPTH TO WATER (First Encountered)	15.0 ft (15-Nov-02)
REVIEWED BY	M. Derby, PE# 55475	DEPTH TO WATER (Static)	NA
REMARKS	Hand augered to 5' bgs.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft)	WELL DIAGRAM
			0.7			CONCRETE SAND; (SP); Brown; 5% Silt, 95% Sand.	0.7	
		MW-6-5.5	5	SP				
		MW-6-10.5	10			Brown with gray mottling.		
		MW-6-15.5	15	SM		Silty SAND; (SM); Gray; 20% Silt, 80% Sand.	15.0	
		MW-6-19.0	17.5	SP		SAND; (SP); 5% Silt, 95% Sand.	17.5	
			20.0				20.0	Bottom of Boring @ 20 ft

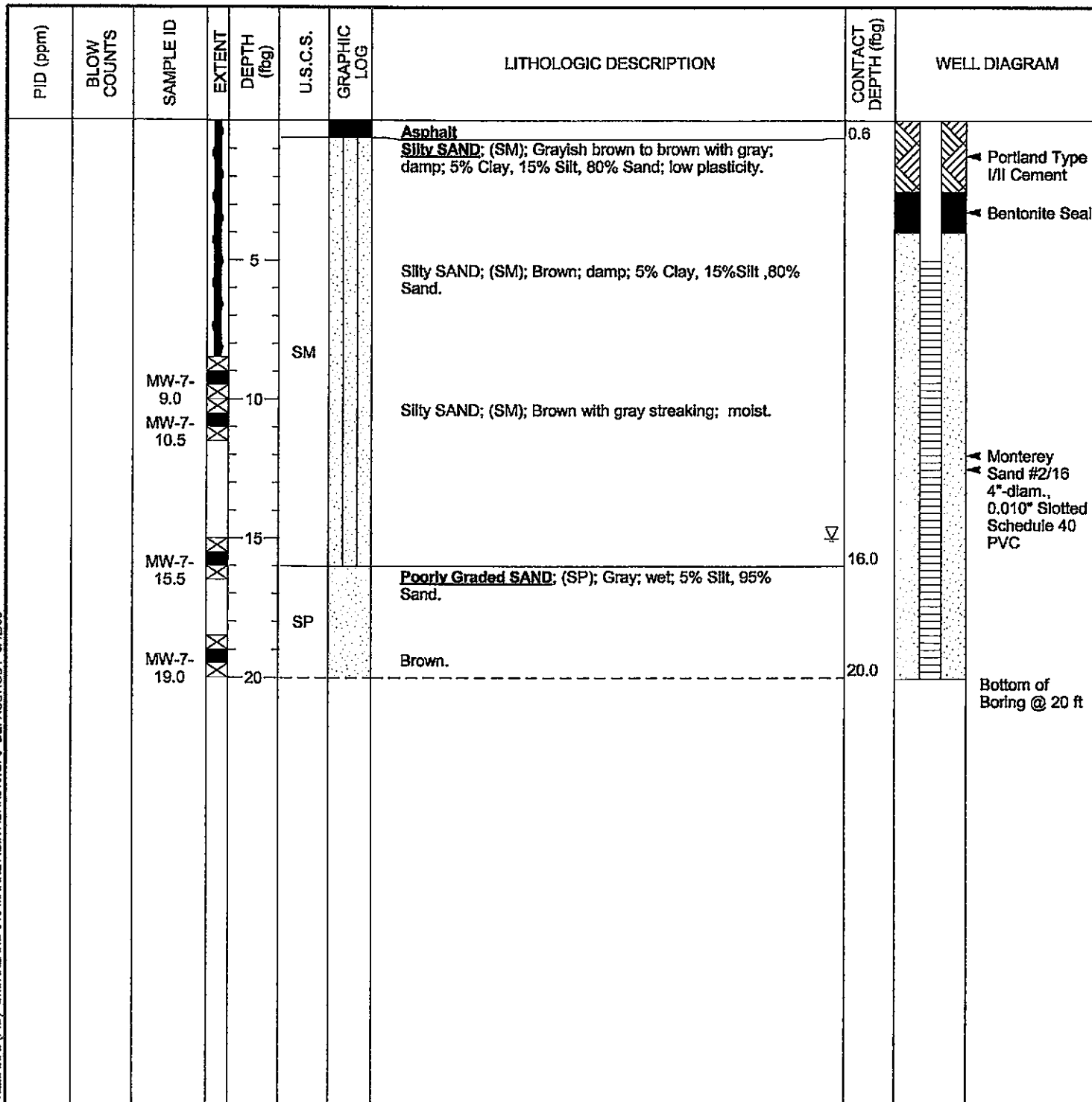
WELL LOG (PID) G:\OAKLAND 610 MARKET\GINTOAKS10.GPJ_DEFAULT.GDT 3/12/03



Cambria Environmental Technology, Inc.
 5900 Hollis Street, Suite A
 Emeryville, CA 94608
 Telephone: (510) 420-0700
 Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	BORING/WELL NAME	MW-7
JOB/SITE NAME	Shell-Branded Service Station	DRILLING STARTED	14-Nov-02
LOCATION	610 Market, Oakland CA	DRILLING COMPLETED	15-Nov-02
PROJECT NUMBER	244-0594	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Gregg Drilling	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hollow-stem auger	TOP OF CASING ELEVATION	NA
BORING DIAMETER	10"	SCREENED INTERVAL	5 to 20.01 ft bgs
LOGGED BY	J. Gerke	DEPTH TO WATER (First Encountered)	15.0 ft (14-Nov-02)
REVIEWED BY	M. Derby, PE# 55475	DEPTH TO WATER (Static)	NA
REMARKS	Hand augered to 8' bgs.		



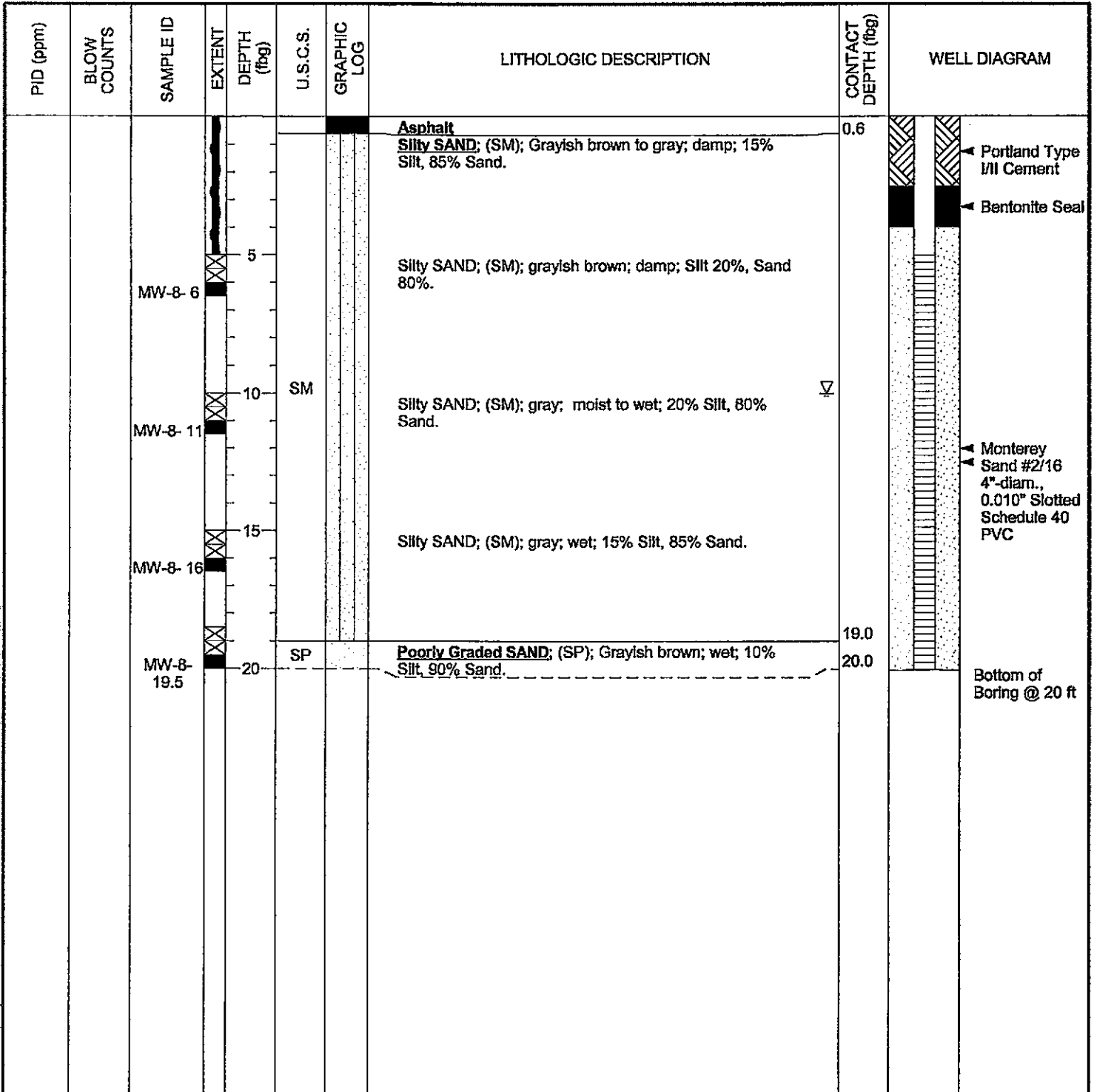
WELL LOG (PID) G:\OAKLAND 610 MARKET\GINTOAK610.GPJ_DEFAULT.GDT 3/12/03



Cambria Environmental Technology, Inc.
 5900 Hollis Street, Suite A
 Emeryville, CA 94608
 Telephone: (510) 420-0700
 Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	BORING/WELL NAME	MW-8
JOB/SITE NAME	Shell-Branded Service Station	DRILLING STARTED	14-Nov-02
LOCATION	610 Market, Oakland CA	DRILLING COMPLETED	14-Nov-02
PROJECT NUMBER	244-0594	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Gregg Drilling	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hollow-stem auger	TOP OF CASING ELEVATION	NA
BORING DIAMETER	10"	SCREENED INTERVAL	5 to 20.01 ft bgs
LOGGED BY	J. Gerke	DEPTH TO WATER (First Encountered)	10.0 ft (14-Nov-02)
REVIEWED BY	M. Derby, PE# 55475	DEPTH TO WATER (Static)	NA
REMARKS	Hand augered to 5' bgs.		



WELL LOG (PID) G:\OAKLAND 610 MARKET\GINT\OAK610.GPJ DEFAULT.GDT 3/12/03



Cambria Environmental Technology, Inc.
 5900 Hollis Street, Suite A
 Emeryville, CA 94608
 Telephone: (510) 420-0700
 Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	BORING/WELL NAME	MW-9
JOB/SITE NAME	Shell-Branded Service Station	DRILLING STARTED	28-Jan-03
LOCATION	610 Market, Oakland CA	DRILLING COMPLETED	28-Jan-03
PROJECT NUMBER	244-0594	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Gregg Drilling	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hollow-stem auger	TOP OF CASING ELEVATION	NA
BORING DIAMETER	10"	SCREENED INTERVAL	5 to 20.01 ft bgs
LOGGED BY	J. Gerke	DEPTH TO WATER (First Encountered)	12.5 ft (18-Jan-03) ∇
REVIEWED BY	M. Derby, PE# 55475	DEPTH TO WATER (Static)	NA ∇
REMARKS	Hand augered to 5' bgs.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT DEPTH (ftg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ftg)	WELL DIAGRAM
			0.4		XXXX	Surface Planter with debris.; Dark brown; damp; 25% Clay, 40% Silt, 35% Sand. Silty SAND; (SM); Reddish brown to gray; damp; 5% Clay, 40% Silt, 55% Sand.	0.4	Portland Type I/II Cement
		MW-9-5.5	5			Silty SAND; (SM); 5% Clay, 35% Silt, 60% Sand.		Bentonite Seal
		MW-9-10.5	10	SM		Silty SAND; (SM); Brown with 35% gray mottling; moist; 5% Clay, 45% Silt, 50% Sand.	∇	Monterey Sand #2/16 4"-diam., 0.010" Slotted Schedule 40 PVC
		MW-9-15.5	15			Silty SAND; (SM); Wet; 35% Silt, 65% Sand.		
		MW-9-19.0	20			Silty SAND; (SM); Wet; 20% Silt, 80% Sand.	20.0	Bottom of Boring @ 20 ft

WELL LOG (PID) G:\OAKLAND\810 MARKET\INT\OAKS10.GPJ DEFAULT.GDT 3/12/03

ATTACHMENT D

Soil Disposal Documentation

Keller Canyon Sanitary Landfill
 901 Bailey Road
 Pittsburg, CA 94565
 Phone (925) 458-9800
 Fax (925) 458-9891

Ox Mountain Sanitary Landfill
 12310 San Mateo Road
 Half Moon Bay, CA 94019
 Phone (650) 726-1819
 Fax (650) 726-9183

Newby Island Sanitary Landfill
 1601 Dixon Landing Road
 Milpitas, CA 95035
 Phone (408) 945-2800
 Fax (408) 262-2871

Forward Landfill
 9999 S. Austin Road
 Manteca, CA 95336
 Phone (209) 982-4298
 Fax (209) 982-1009

NON-HAZARDOUS WASTE MANIFEST

GENERATOR		WASTE ACCEPTANCE NO.	
MAILING ADDRESS		2803	
CITY, STATE, ZIP		REQUIRED PERSONAL PROTECTIVE EQUIPMENT	
PHONE		<input type="checkbox"/> GLOVES <input type="checkbox"/> GOGGLES <input type="checkbox"/> RESPIRATOR <input type="checkbox"/> HARD HAT <input type="checkbox"/> TY-VEK <input type="checkbox"/> OTHER	
CONTACT PERSON		SPECIAL HANDLING PROCEDURES:	
SIGNATURE OF AUTHORIZED AGENT / TITLE		<div style="border: 2px solid black; padding: 5px; text-align: center;"> RECEIVED RECEIVING FACILITY FEB - 4 2003 </div>	
DATE			
* <i>Michael P...</i>			
<small>GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or title 22 of the California code of regulations, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.</small>			
WASTE TYPE:			
<input type="checkbox"/> DISPOSAL <input type="checkbox"/> SLUDGE <input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> WOOD <input type="checkbox"/> DEBRIS <input type="checkbox"/> OTHER <input type="checkbox"/> SPECIAL WASTE			
GENERATING FACILITY			
610 Warbler Street R1PR#205340 Oakland			
TRANSPORTER		NOTES:	
ADDRESS		VEHICLE LICENSE NUMBER TRUCK NUMBER	
CITY, STATE, ZIP		NEW 1145	
PHONE		<input checked="" type="checkbox"/> END DUMP <input type="checkbox"/> BOTTOM DUMP <input type="checkbox"/> TRANSFER <input type="checkbox"/> ROLL-OFF(S) <input type="checkbox"/> FLAT-BED <input type="checkbox"/> VAN <input type="checkbox"/> DRUMS	
SIGNATURE OF AUTHORIZED AGENT OR DRIVER			
DATE			
* <i>J. ...</i>			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.		CUBIC YARDS	
		DISPOSAL METHOD: (TO BE COMPLETED BY LANDFILL)	
REMARKS		DISPOSE OTHER	
		<input type="checkbox"/> SOIL	
		<input type="checkbox"/> CONSTRUCTION DEBRIS	
		<input type="checkbox"/> NON-FRIABLE ASBESTOS	
		<input type="checkbox"/> WOOD	
		<input type="checkbox"/> ASH	
FACILITY TICKET NUMBER		<input type="checkbox"/> SPECIAL OTHER	
SIGNATURE OF AUTHORIZED AGENT			
DATE			
* <i>J. ...</i>			

SCHEDULING MUST BE MADE PRIOR TO 3:00 P.M. THE DAY PRIOR TO EXPECTED ARRIVAL • ANY UNSCHEDULED LOADS ARE SUBJECT TO REFUSAL UPON ARRIVAL. ONGOING DAILY DELIVERIES MUST BE SCHEDULED WITH THE LANDFILL THE DAY BEFORE.

GENERATOR COPY

MANIFEST # 186485

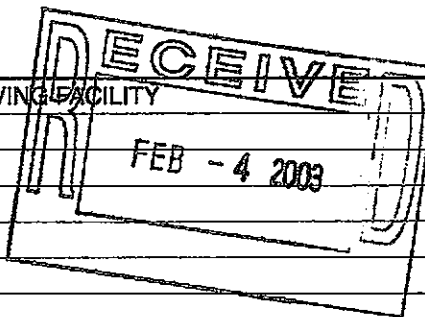
Keller Canyon
Sanitary Landfill
901 Bailey Road
Pittsburg, CA 94565
Phone (925) 458-9800
Fax (925) 458-9891

Ox Mountain
Sanitary Landfill
12310 San Mateo Road
Half Moon Bay, CA 94019
Phone (650) 726-1819
Fax (650) 726-9183

Newby Island
Sanitary Landfill
1601 Dixon Landing Road
Milpitas, CA 95035
Phone (408) 945-2800
Fax (408) 262-2871

Forward
Landfill
9999 S. Austin Road
Manteca, CA 95336
Phone (209) 982-4298
Fax (209) 982-1009

NON-HAZARDOUS WASTE MANIFEST

GENERATOR		WASTE ACCEPTANCE NO.	
MAILING ADDRESS		2893	
CITY, STATE, ZIP		REQUIRED PERSONAL PROTECTIVE EQUIPMENT	
PHONE		<input type="checkbox"/> GLOVES <input type="checkbox"/> GOGGLES <input type="checkbox"/> RESPIRATOR <input type="checkbox"/> HARD HAT <input type="checkbox"/> TY-VEK <input type="checkbox"/> OTHER	
CONTACT PERSON		SPECIAL HANDLING PROCEDURES:	
SIGNATURE OF AUTHORIZED AGENT / TITLE			
DATE			
* <i>[Signature]</i>		1-30-03	
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or title 22 of the California code of regulations, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.			
WASTE TYPE:			
<input type="checkbox"/> DISPOSAL <input type="checkbox"/> SLUDGE <input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> WOOD <input type="checkbox"/> DEBRIS <input type="checkbox"/> OTHER <input type="checkbox"/> SPECIAL WASTE			
GENERATING FACILITY			
610 Market Street 94534 Oakland			
TRANSPORTER		NOTES:	VEHICLE LICENSE NUMBER
ADDRESS			81050
CITY, STATE, ZIP			
PHONE		END DUMP	BOTTOM DUMP
		<input checked="" type="checkbox"/>	<input type="checkbox"/>
SIGNATURE OF AUTHORIZED AGENT OR DRIVER		ROLL-OFF(S)	FLAT-BED
		<input type="checkbox"/>	<input type="checkbox"/>
DATE		VAN	DRUMS
1-20-03		<input type="checkbox"/>	<input type="checkbox"/>
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.		CUBIC YARDS	
		DISPOSAL METHOD: (TO BE COMPLETED BY LANDFILL)	
REMARKS		DISPOSE	OTHER
FACILITY TICKET NUMBER		<input type="checkbox"/> SOIL	
SIGNATURE OF AUTHORIZED AGENT		<input type="checkbox"/> CONSTRUCTION DEBRIS	
DATE		<input type="checkbox"/> NON-FRIABLE ASBESTOS	
* <i>[Signature]</i>		<input type="checkbox"/> WOOD	
		<input type="checkbox"/> ASH	
		<input type="checkbox"/> SPECIAL OTHER	

SCHEDULING MUST BE MADE PRIOR TO 3:00 P.M. THE DAY PRIOR TO EXPECTED ARRIVAL • ANY UNSCHEDULED LOADS ARE SUBJECT TO REFUSAL UPON ARRIVAL. ONGOING DAILY DELIVERIES MUST BE SCHEDULED WITH THE LANDFILL THE DAY BEFORE.

GENERATOR COPY

MANIFEST # 186487

Keller Canyon
Sanitary Landfill
 901 Bailey Road
 Pittsburg, CA 94565
 Phone (925) 458-9800
 Fax (925) 458-9891

Ox Mountain
Sanitary Landfill
 12310 San Mateo Road
 Half Moon Bay, CA 94019
 Phone (650) 726-1819
 Fax (650) 726-9183

Newby Island
Sanitary Landfill
 1601 Dixon Landing Road
 Milpitas, CA 95035
 Phone (408) 945-2800
 Fax (408) 262-2871

Forward
Landfill
 9999 S. Austin Road
 Manteca, CA 95336
 Phone (209) 982-4298
 Fax (209) 982-1009

NON-HAZARDOUS WASTE MANIFEST

GENERATOR		WASTE ACCEPTANCE NO.	
MAILING ADDRESS		0845 -	
CITY, STATE, ZIP		REQUIRED PERSONAL PROTECTIVE EQUIPMENT	
PHONE		<input type="checkbox"/> GLOVES <input type="checkbox"/> GOGGLES <input type="checkbox"/> RESPIRATOR <input type="checkbox"/> HARD HAT <input type="checkbox"/> TY-VEK <input type="checkbox"/> OTHER	
CONTACT PERSON		SPECIAL HANDLING PROCEDURES:	
SIGNATURE OF AUTHORIZED AGENT / TITLE		<div style="border: 2px solid black; padding: 5px; text-align: center;"> RECEIVED RECEIVING FACILITY FEB - 4 - 2003 </div>	
DATE			
* <i>[Signature]</i> <small>GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or title 22 of the California code of regulations, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.</small>			
WASTE TYPE:			
<input type="checkbox"/> DISPOSAL <input type="checkbox"/> SLUDGE <input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> WOOD <input type="checkbox"/> DEBRIS <input type="checkbox"/> OTHER <input type="checkbox"/> SPECIAL WASTE			
GENERATING FACILITY			
610 Market Street RIFR#205640 Oakland			
TRANSPORTER		NOTES:	
ADDRESS		VEHICLE LICENSE NUMBER	
CITY, STATE, ZIP		TRUCK NUMBER	
PHONE		<input type="checkbox"/> END DUMP <input type="checkbox"/> BOTTOM DUMP <input type="checkbox"/> TRANSFER <input type="checkbox"/> ROLL-OFF(S) <input type="checkbox"/> FLAT-BED <input type="checkbox"/> VAN <input checked="" type="checkbox"/> DRUMS	
SIGNATURE OF AUTHORIZED AGENT OR DRIVER			
DATE			
* <i>[Signature]</i> I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.		CUBIC YARDS	
REMARKS		DISPOSAL METHOD: (TO BE COMPLETED BY LANDFILL)	
FACILITY TICKET NUMBER		DISPOSE OTHER	
SIGNATURE OF AUTHORIZED AGENT		<input type="checkbox"/> SOIL <input type="checkbox"/> CONSTRUCTION DEBRIS <input type="checkbox"/> NON-FRIABLE ASBESTOS <input type="checkbox"/> WOOD <input type="checkbox"/> ASH <input type="checkbox"/> SPECIAL OTHER	
DATE			
* <i>[Signature]</i>			

SCHEDULING MUST BE MADE PRIOR TO 3:00 P.M. THE DAY PRIOR TO EXPECTED ARRIVAL • ANY UNSCHEDULED LOADS ARE SUBJECT TO REFUSAL UPON ARRIVAL. ONGOING DAILY DELIVERIES MUST BE SCHEDULED WITH THE LANDFILL THE DAY BEFORE.

GENERATOR COPY

MANIFEST # 180492

Keller Canyon
Sanitary Landfill
901 Bailey Road
Pittsburg, CA 94565
Phone (925) 458-9800
Fax (925) 458-9891

Ox Mountain
Sanitary Landfill
12310 San Mateo Road
Half Moon Bay, CA 94019
Phone (650) 726-1819
Fax (650) 726-9183

Newby Island
Sanitary Landfill
1601 Dixon Landing Road
Milpitas, CA 95035
Phone (408) 945-2800
Fax (408) 262-2871

Forward
Landfill
9999 S. Austin Road
Manteca, CA 95336
Phone (209) 982-4298
Fax (209) 982-1009

NON-HAZARDOUS WASTE MANIFEST

GENERATOR'S Products		WASTE ACCEPTANCE NO.	
MAILING ADDRESS		2893	
CITY, STATE, ZIP		REQUIRED PERSONAL PROTECTIVE EQUIPMENT	
PHONE		<input type="checkbox"/> GLOVES <input type="checkbox"/> GOGGLES <input type="checkbox"/> RESPIRATOR <input type="checkbox"/> HARD HAT <input type="checkbox"/> TY-VEK <input type="checkbox"/> OTHER	
CONTACT PERSON		SPECIAL HANDLING PROCEDURES:	
SIGNATURE OF AUTHORIZED AGENT / TITLE		<div style="border: 2px solid black; padding: 5px; display: inline-block;"> RECEIVED READING FACILITY FEB - 4 </div>	
DATE			
* <i>Marcus [Signature]</i> 1-31-03			
<small>GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or title 22 of the California code of regulations, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.</small>			
WASTE TYPE:			
<input type="checkbox"/> DISPOSAL <input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> DEBRIS <input type="checkbox"/> SPECIAL WASTE		<input type="checkbox"/> SLUDGE <input type="checkbox"/> WOOD <input type="checkbox"/> OTHER	
GENERATING FACILITY			
510 Market Street RIFE #207340 Oakland			
TRANSPORTER: Transportation		NOTES:	VEHICLE LICENSE NUMBER
ADDRESS			023229
CITY, STATE, ZIP			
PHONE			
SIGNATURE OF AUTHORIZED AGENT OR DRIVER		END DUMP	BOTTOM DUMP
DATE		<input type="checkbox"/>	<input type="checkbox"/>
* <i>[Signature]</i> 1-30-03		ROLL-OFF(S)	FLAT-BED
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	VAN
		<input type="checkbox"/>	<input checked="" type="checkbox"/> DRUMS
		<input type="checkbox"/>	<input type="checkbox"/>
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.		CUBIC YARDS	
REMARKS		DISPOSAL METHOD: (TO BE COMPLETED BY LANDFILL)	
FACILITY TICKET NUMBER		DISPOSE	
		OTHER	
SIGNATURE OF AUTHORIZED AGENT		<input type="checkbox"/> SOIL	
		<input type="checkbox"/> CONSTRUCTION DEBRIS	
DATE		<input type="checkbox"/> NON-FRIABLE ASBESTOS	
		<input type="checkbox"/> WOOD	
* <i>[Signature]</i>		<input type="checkbox"/> ASH	
		<input type="checkbox"/> SPECIAL OTHER	

SCHEDULING MUST BE MADE PRIOR TO 3:00 P.M. THE DAY PRIOR TO EXPECTED ARRIVAL • ANY UNSCHEDULED LOADS ARE SUBJECT TO REFUSAL UPON ARRIVAL. ONGOING DAILY DELIVERIES MUST BE SCHEDULED WITH THE LANDFILL THE DAY BEFORE.

GENERATOR COPY

MANIFEST #

193485

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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ATTACHMENT E

Well Completion Reports



CLIENT NAME	Shell Oil Products US	BORING/WELL NAME	MW-6
JOB/SITE NAME	Shell-Branded Service Station	DRILLING STARTED	15-Nov-02
LOCATION	610 Market, Oakland CA	DRILLING COMPLETED	15-Nov-02
PROJECT NUMBER	244-0594	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Gregg Drilling	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hollow-stem auger	TOP OF CASING ELEVATION	NA
BORING DIAMETER	10"	SCREENED INTERVAL	5 to 20.01 ft bgs
LOGGED BY	J. Gerke	DEPTH TO WATER (First Encountered)	15.0 ft (15-Nov-02) ▽
REVIEWED BY	M. Derby, PE# 55475	DEPTH TO WATER (Static)	NA ▽
REMARKS	Hand augered to 5' bgs.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
				0.7			CONCRETE SAND; (SP); Brown; 5% Silt, 95% Sand.		Portland Type I/II Cement
		MW-6-5.5		5	SP				Bentonite Seal
		MW-6-10.5		10			Brown with gray mottling.		
		MW-6-15.5		15	SM		Silty SAND; (SM); Gray; 20% Silt, 80% Sand.	15.0	Monterey Sand #2/16 4"-diam., 0.010" Slotted Schedule 40 PVC
		MW-6-19.0		20	SP		SAND; (SP); 5% Silt, 95% Sand.	17.5	
				20.0				20.0	Bottom of Boring @ 20 ft

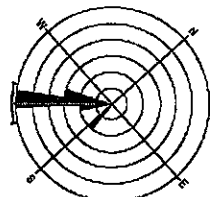
WELL LOG (PID) G:\OAKLAND 610 MARKET\GINT\OAK610.GPJ DEFAULT.GDT 6/22/03

04/02/03

S:\WORK AND BY\MARKET\FIGURE\STUFF\AN-3-03.A

EXPLANATION

- MW-1 Monitoring well location
- MW-6 Extraction well location
- SB-A Geoprobe boring (3/31/88)
- SB-D Soil boring location (4/17/02)
- T1 Tank backfill well (dry)
- Storm drain line (SD)
- Sanitary sewer line (SS)
- Water main (W)
- Gas line (G)
- Electrical line (E)
- Flow direction
- FL = 5.8 Elevation, in feet above mean sea level (msl)
- MH Manhole
- Groundwater extraction system piping



Groundwater Flow Direction
(12/98 through 12/02)

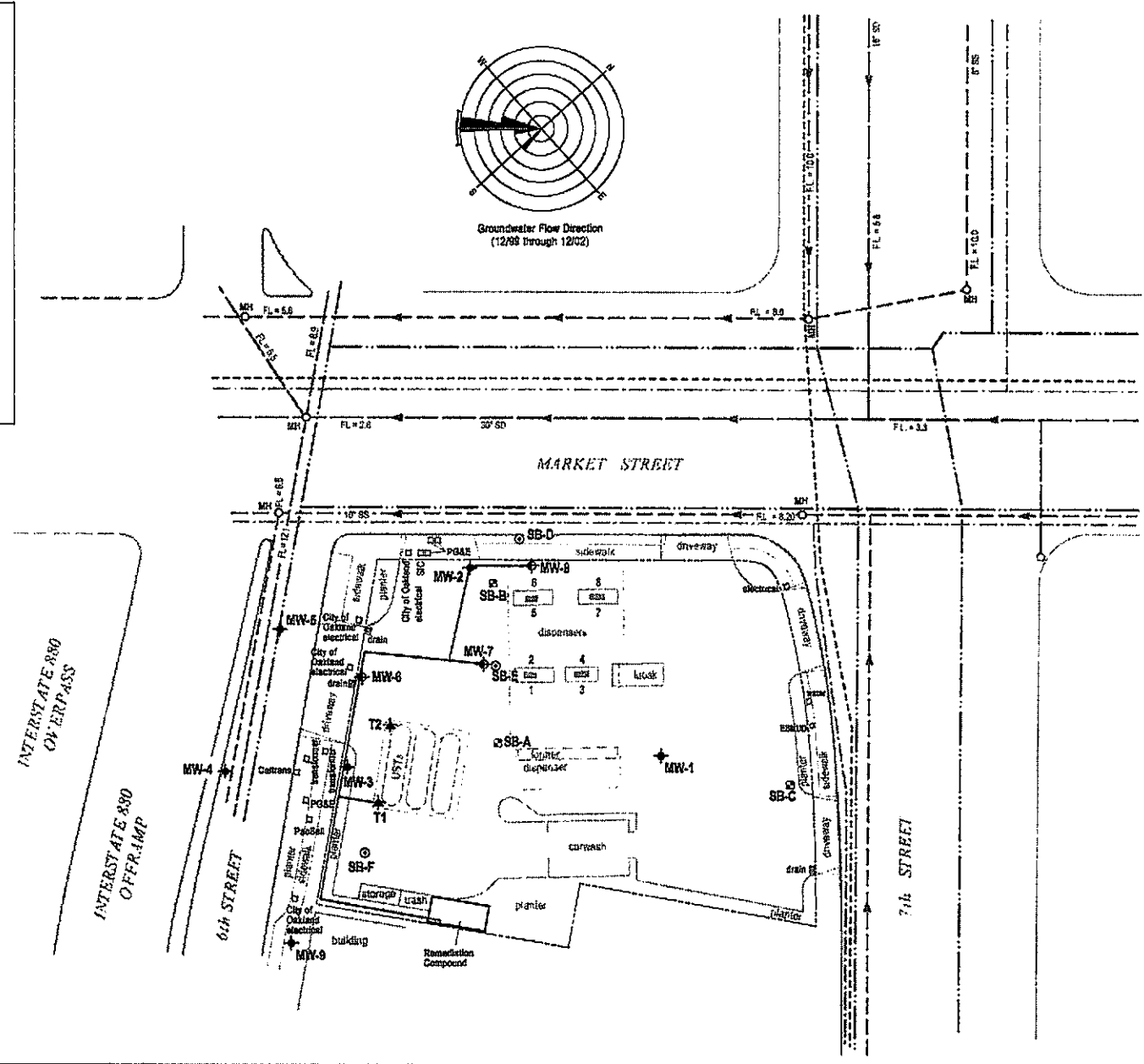


FIGURE
2

Site Plan



CAMBRIA

Shell-branded Service Station

610 Market Street
Oakland, California
Incident #88995750

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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 Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	BORING/WELL NAME	MW-7
JOB/SITE NAME	Shell-Branded Service Station	DRILLING STARTED	14-Nov-02
LOCATION	610 Market, Oakland CA	DRILLING COMPLETED	15-Nov-02
PROJECT NUMBER	244-0594	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Gregg Drilling	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hollow-stem auger	TOP OF CASING ELEVATION	NA
BORING DIAMETER	10"	SCREENED INTERVAL	5 to 20.01 ft bgs
LOGGED BY	J. Gerke	DEPTH TO WATER (First Encountered)	15.0 ft (14-Nov-02)
REVIEWED BY	M. Derby, PE# 55475	DEPTH TO WATER (Static)	NA
REMARKS	Hand augered to 8' bgs.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT DEPTH (ftg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ftg)	WELL DIAGRAM
			0.6			Asphalt	0.6	<p>Portland Type I/II Cement Bentonite Seal Monterey Sand #2/16 4"-diam., 0.010" Slotted Schedule 40 PVC</p>
			5			Silty SAND; (SM); Grayish brown to brown with gray; damp; 5% Clay, 15% Silt, 80% Sand; low plasticity.		
			10	SM		Silty SAND; (SM); Brown; damp; 5% Clay, 15% Silt, 80% Sand.		
		MW-7-9.0 MW-7-10.5	10.5			Silty SAND; (SM); Brown with gray streaking; moist.		
			15					
		MW-7-15.5	15.5			Poorly Graded SAND; (SP); Gray; wet; 5% Silt, 95% Sand.	16.0	
			20	SP		Brown.	20.0	
		MW-7-19.0	19.0				20.0	Bottom of Boring @ 20 ft

WELL LOG (PID) G:\OAKLAND 610 MARKET\GINT\OAK610.GPJ DEFAULT.GDT 5/22/03

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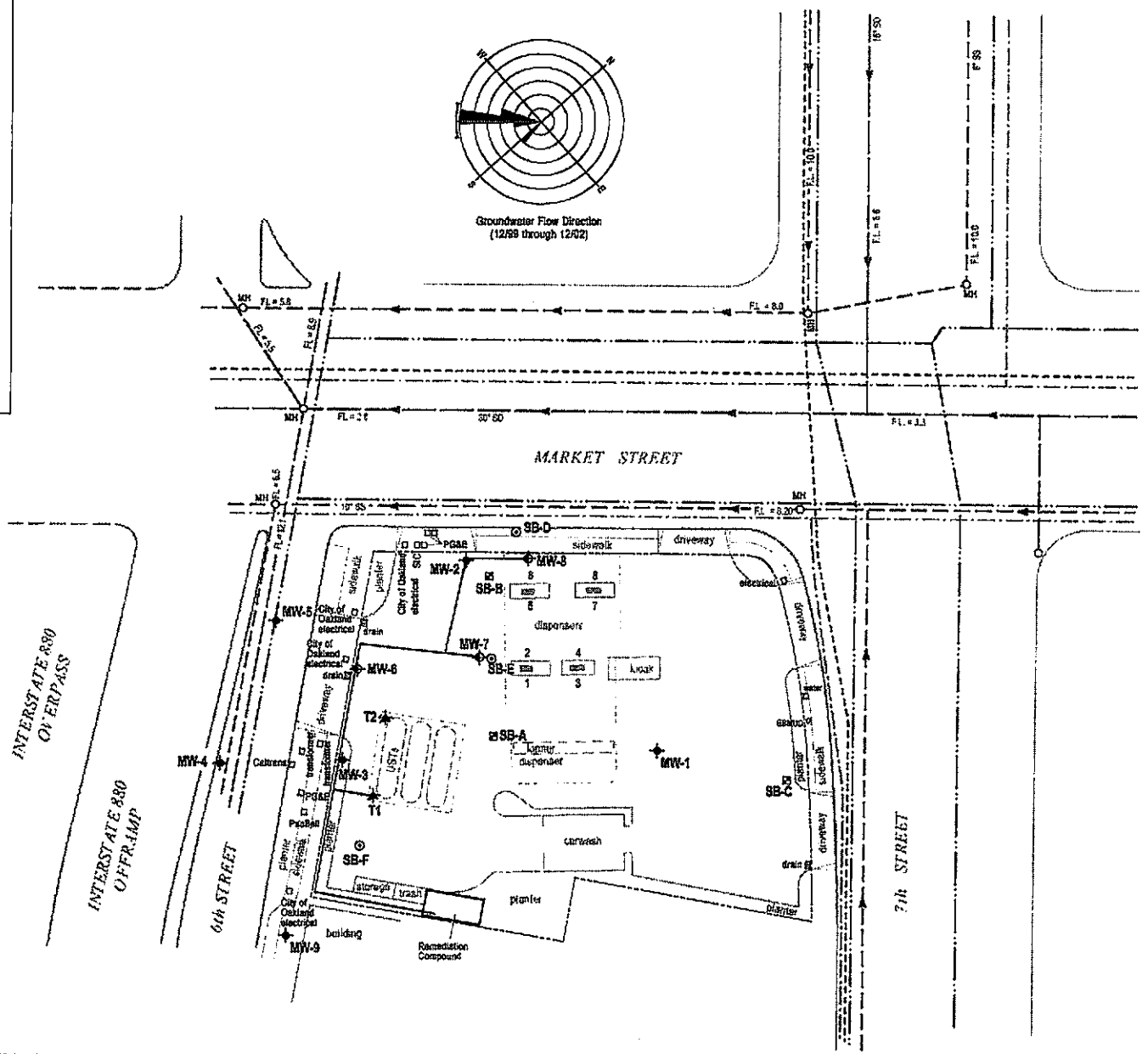
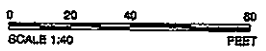
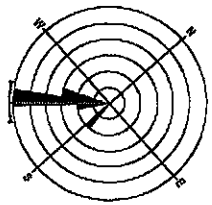
REMOVED

04/02/03

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EXPLANATION

- MW-1 Monitoring well location
- MW-8 Extraction well location
- SB-A Geoprobe boring (3/3/98)
- SB-D Soil boring location (4/17/02)
- T1 Tank backfill well (dry)
- Storm drain line (SD)
- Sanitary sewer line (SS)
- Water main (W)
- Gas line (G)
- Electrical line (E)
- Flow direction
- FL = 5.8
 Floodline elevation, in feet above mean sea level (msl)
- MH Manhole
- Groundwater extraction system piping



Site Plan



CAMBRIA

Shell-branded Service Station

610 Market Street
Oakland, California
Incident #68995750

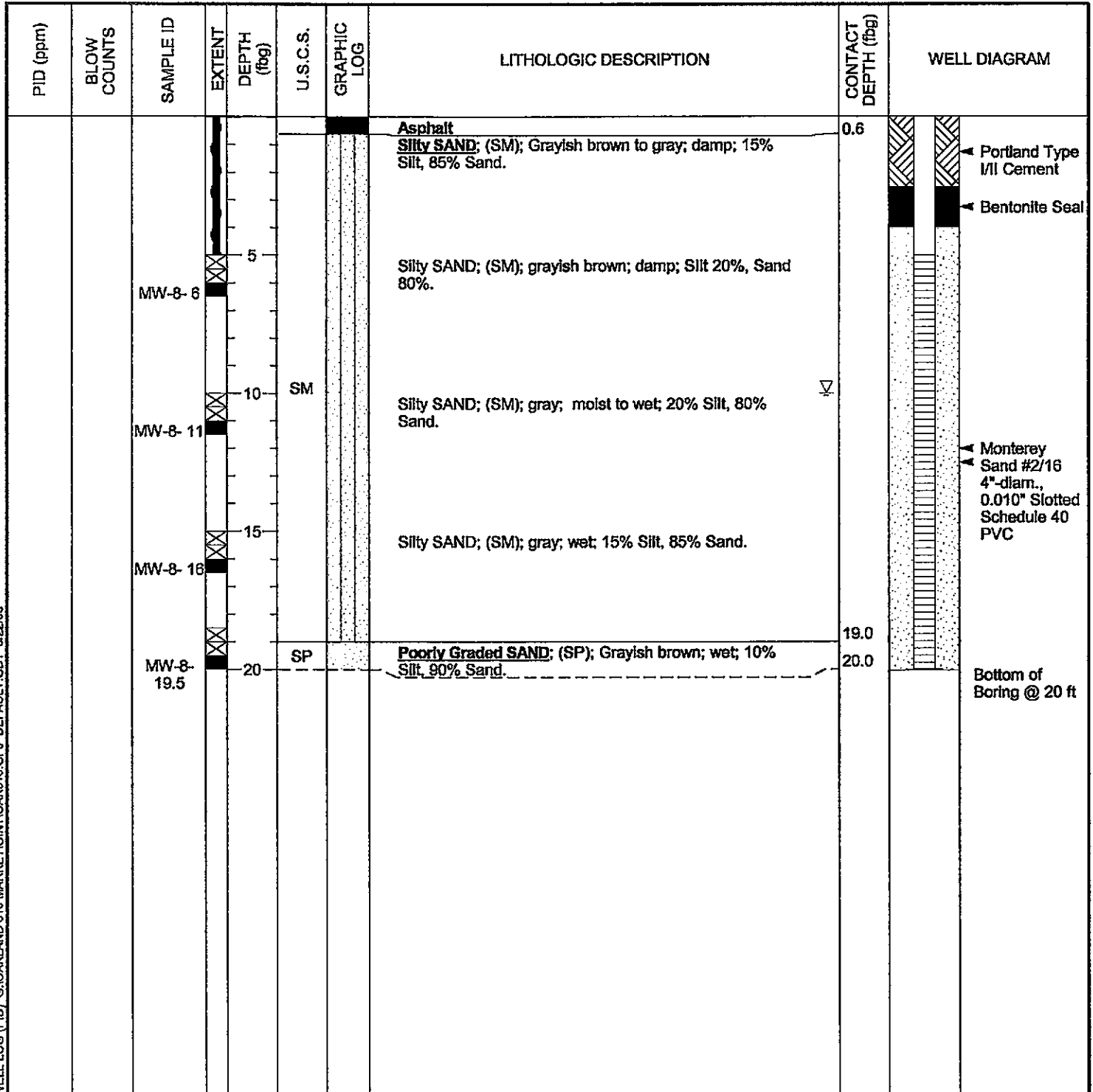
FIGURE
2



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 Fax: (510) 420-9170

BORING/WELL LOG

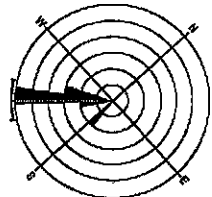
CLIENT NAME	Shell Oil Products US	BORING/WELL NAME	MW-8
JOB/SITE NAME	Shell-Branded Service Station	DRILLING STARTED	14-Nov-02
LOCATION	610 Market, Oakland CA	DRILLING COMPLETED	14-Nov-02
PROJECT NUMBER	244-0594	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Gregg Drilling	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hollow-stem auger	TOP OF CASING ELEVATION	NA
BORING DIAMETER	10"	SCREENED INTERVAL	5 to 20.01 ft bgs
LOGGED BY	J. Gerke	DEPTH TO WATER (First Encountered)	10.0 ft (14-Nov-02)
REVIEWED BY	M. Derby, PE# 55475	DEPTH TO WATER (Static)	NA
REMARKS	Hand augered to 5' bgs.		



WELL LOG (PID) G:\OAKLAND\610 MARKET\GINT\OAK610.GPJ DEFAULT.GDT 5/22/03

EXPLANATION

- MW-1 Monitoring well location
- MW-6 Extraction well location
- SB-A Geoprobe boring (3/3/88)
- SB-D Soil boring location (4/17/02)
- T1 Tank backfill well (dry)
- Storm drain line (SD)
- Sanitary sewer line (SS)
- Water main (W)
- Gas line (G)
- Electrical line (E)
- Flow direction
- F.L. = 5.8 Flotline elevation, in feet above mean sea level (msl)
- MH Manhole
- Groundwater extraction system piping



Groundwater Flow Direction
(12/68 through 12/02)

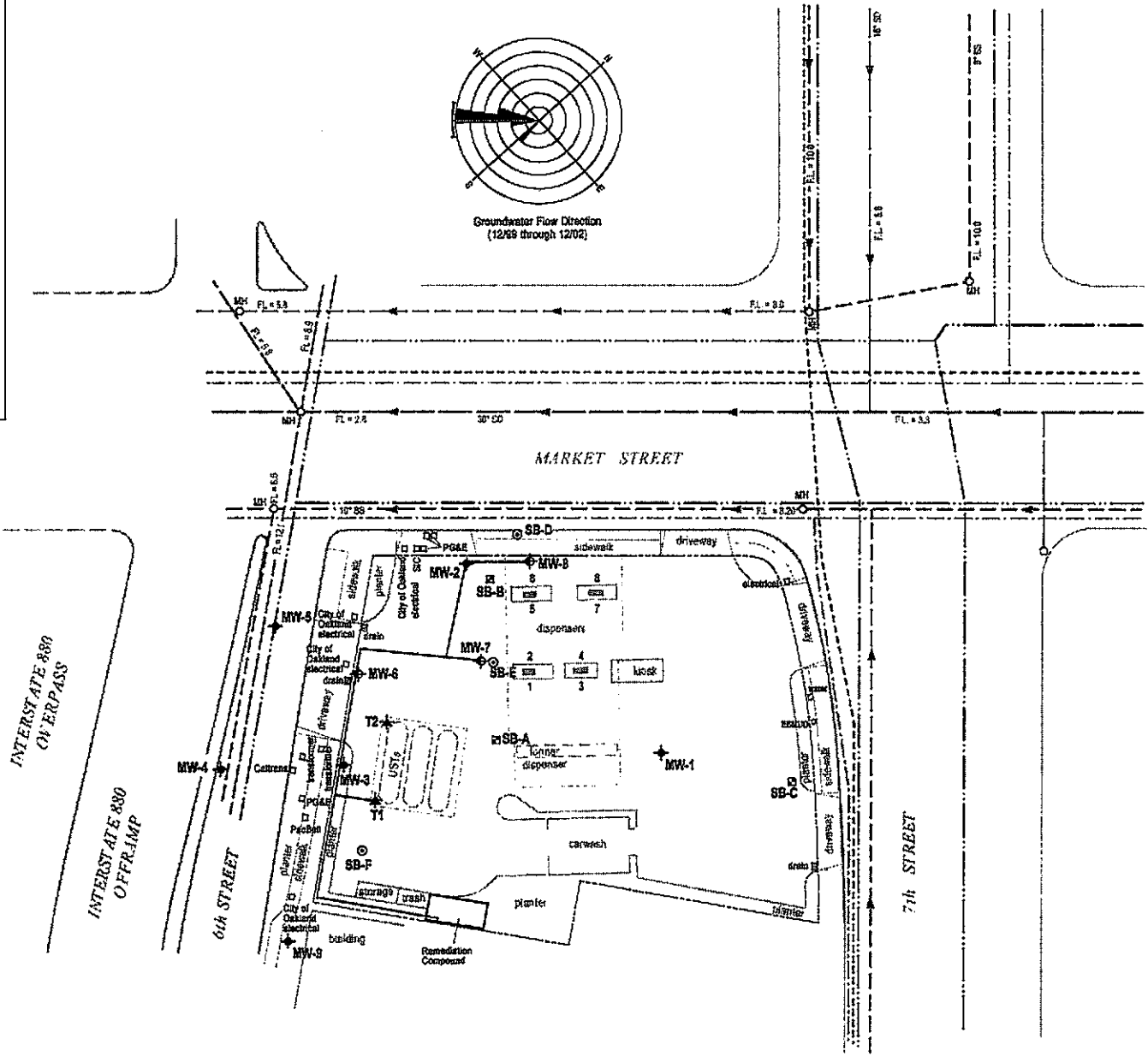
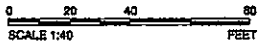


FIGURE
2



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(WELL LOGS)

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 Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	BORING/WELL NAME	MW-9
JOB/SITE NAME	Shell-Branded Service Station	DRILLING STARTED	28-Jan-03
LOCATION	610 Market, Oakland CA	DRILLING COMPLETED	28-Jan-03
PROJECT NUMBER	244-0594	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Gregg Drilling	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hollow-stem auger	TOP OF CASING ELEVATION	NA
BORING DIAMETER	10"	SCREENED INTERVAL	5 to 20.01 ft bgs
LOGGED BY	J. Gerke	DEPTH TO WATER (First Encountered)	12.5 ft (18-Jan-03)
REVIEWED BY	M. Derby, PE# 55475	DEPTH TO WATER (Static)	NA
REMARKS	Hand augered to 5' bgs.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
			0.4			Surface Planter with debris; Dark brown; damp; 25% Clay, 40% Silt, 35% Sand. Silty SAND; (SM); Reddish brown to gray; damp; 5% Clay, 40% Silt, 55% Sand.	0.4	
		MW-9-5.5	5			Silty SAND; (SM); 5% Clay, 35% Silt, 60% Sand.		
		MW-9-10.5	10	SM		Silty SAND; (SM); Brown with 35% gray mottling; moist; 5% Clay, 45% Silt, 50% Sand.		
		MW-9-15.5	15			Silty SAND; (SM); Wet; 35% Silt, 65% Sand.		
		MW-9-19.0	20			Silty SAND; (SM); Wet; 20% Silt, 80% Sand.	20.0	Bottom of Boring @ 20 ft

WELL LOG (PID) G:\OAKLAND 610 MARKET\GINTOAK610.GPJ DEFAULT.GDT 5/22/03

ATTACHMENT F

Standard Field Procedures for Soil Boring and Monitoring Well
Installation

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STANDARD FIELD PROCEDURES FOR SOIL BORING AND MONITORING WELL INSTALLATION

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

SOIL BORINGS

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 Registered Geologist (RG).

Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers or direct-push technologies such as the Geoprobe®. 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 volatile vapor analyzer measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. Volatile vapor analyzer measurements are used along with the field observations, odors, stratigraphy and groundwater depth to select soil samples for analysis.

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Water Sampling

Water samples, if they are collected from the boring, are either collected using a driven Hydropunch® type sampler or are collected from the open borehole using bailers. The groundwater samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

Grouting

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

MONITORING WELL INSTALLATION, DEVELOPMENT AND SAMPLING

Well Construction and Surveying

Groundwater monitoring wells are installed to monitor groundwater quality and determine the groundwater elevation, flow direction and gradient. Well depths and screen lengths are based on groundwater depth, occurrence of hydrocarbons or other compounds in the borehole, stratigraphy and State and local regulatory guidelines. Well screens typically extend 10 to 15 feet below and 5 feet above the static water level at the time of drilling. However, the well screen will generally not extend into or through a clay layer that is at least three feet thick.

Well casing and screen are 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 feet above the well screen. A two feet thick hydrated bentonite seal separates the sand from the overlying sanitary surface seal composed of Portland type I,II cement.

Well-heads are secured by locking well-caps inside traffic-rated vaults finished flush with the ground surface. A stovepipe may be installed between the well-head and the vault cap for additional security.

The well top-of-casing elevation is surveyed with respect to mean sea level and the well is surveyed for horizontal location with respect to an onsite or nearby offsite landmark.

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Well Development

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.

Groundwater Sampling

Depending on local regulatory guidelines, three to four well-casing volumes of groundwater are purged prior to sampling. Purging continues until groundwater pH, conductivity, and temperature have stabilized. Groundwater samples are collected using bailers or pumps and are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

Waste Handling and Disposal

Soil cuttings from drilling activities are usually stockpiled onsite and covered by plastic sheeting. At least three individual soil samples are collected from the stockpiles and composited at the analytic laboratory. The composite sample is analyzed for the same constituents analyzed in the borehole samples in addition to any analytes required by the receiving disposal facility. Soil cuttings are transported by licensed waste haulers and disposed in secure, licensed facilities based on the composite analytic results.

Groundwater removed during development and sampling is typically stored onsite in sealed 55-gallon drums. Each drum is labeled with the drum number, date of generation, suspected contents, generator identification and consultant contact. Upon receipt of analytic results, the water is either pumped out using a vacuum truck for transport to a licensed waste treatment/disposal facility or the individual drums are picked up and transported to the waste facility where the drum contents are removed and appropriately disposed.