CAMBRIA

August 12, 2002

AUG 15 2002

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

4017/493

Re: **Subsurface Investigation Report**
Shell-branded Service Station
610 Market Street
Oakland, California
Incident # 98995750
Cambria Project # 244-0594

Dear Mr. Chan:

On behalf of Equilon Enterprises LLC dba Shell Oil Products US (Shell), Cambria Environmental Technology, Inc. (Cambria) is submitting the results of the subsurface investigation conducted on April 16 and 17, 2002 at the above-referenced site. The objective of this investigation was to further delineate the extent of methyl tertiary butyl ether (MTBE) in soil and groundwater at the site. The investigation was conducted in accordance with Cambria's December 19, 2001 *Soil Vapor Extraction Pilot Test Report and Investigation Work Plan*. Presented below are summaries of the site background, investigation procedures, investigation results, and our conclusions and recommendations.

## SITE BACKGROUND

***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.

Oakland, CA
San Ramon, CA
Sonoma, CA

**Cambria Environmental Technology, Inc.**

1144 65th Street
Suite B
Oakland, 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, site upgrades were performed by Paradiso Mechanical of San Leandro, California (Paradiso). 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 were detected in grab groundwater samples collected from soil borings SB-A and SB-B. Concentrations of TPHg, BTEX, and MTBE 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 groundwater monitoring wells onsite (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.

***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.

***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 Groundwater Extraction (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 Alameda County Health Care Services Agency (ACHCSA) letter. Through the second quarter 2002, the cumulative mass of TPHg and MTBE removed through GWE are estimated to be approximately 2.1 pounds and 53.8 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. Up to 7,490 ppb TPHg, 420 ppb benzene and 167 ppb MTBE have been reported in groundwater samples collected from well MW-1. Well MW-2 has contained up to 101 ppb TPHg, 183 ppb benzene, and 17,000 ppb MTBE. Well MW-3 has contained up to 44,500 ppb TPHg, 1,290 ppb benzene and 610,000 ppb MTBE. The results of quarterly monitoring events are summarized in quarterly monitoring reports prepared by Cambria.

## INVESTIGATION PROCEDURES

Cambria advanced three onsite soil borings and two offsite monitoring wells to further delineate the extent of MTBE in soil and groundwater at the site (Figure 2). The three onsite soil borings were located northwest of the western-most dispenser island (SB-D), southwest of the eastern-most existing pump islands (SB-E), and in the southern corner of the site (SB-F). The borings were advanced using a Geoprobe drill rig and were continuously logged for lithologic description. One grab groundwater sample was collected from each of these borings for chemical analysis. The two groundwater monitoring wells, MW-4 and MW-5, were installed within 6th Street southwest of the site.

The procedures for this subsurface investigation, described in Cambria's approved work plan, are summarized below. Analytical results for soil and groundwater are summarized in Tables 1 and 2, respectively, and laboratory analytical reports are presented as Attachment A. Boring logs, permits, soil disposal confirmation and well-head elevation survey results are presented in Attachments B, C, D, and E, respectively. Cambria's standard field procedures for soil borings and monitoring well installation are presented in Attachments F and G, respectively.

***Personnel Present:*** Jason Gerke, Staff Geologist, Cambria (04/16-17/02).
Joseph Tanios, Inspector, City of Oakland (04/16-17/02).
Sergio Yzurl, Cruz Brothers Locating (04/16/02).
Don Pearson, Gregg Drilling and Testing (Gregg) (04/16/02).
Don Kirsnis, Gregg (04/17/02).
Armondo Tores, Gregg (04/17/02).
Ray Jeffrey, Gregg (04/17/02).
Gary Cooper, Flash Safety (04/17/02).

***Permits:*** Alameda County Public Works Agency Permits W02-0370, W02-0371, and W02-0372.
City of Oakland Encroachment/ Excavation Permits #0200344 and #0200345 (Attachment C).

***Drilling Company:*** Gregg Drilling and Testing Inc. of Martinez, California (C-57 License # 485-165).

***Drilling Dates:*** April 16 and 17, 2002.

***Drilling Method:*** The borings were advanced using a direct-push Geoprobe rig, and the wells were advanced using a drill rig equipped with 10-inch diameter hollow stem augers.

***Number of Borings:*** Three borings: SB-D, SB-E, and SB-F (Figure 2).

***Boring Depths:*** Between 12 and 20 fbg (Attachment B).

***Soil Boring Sampling:*** The borings were continuously cored for lithologic description, and soil samples were collected at a minimum of 5-foot intervals in the unsaturated zone. All collected soil samples were transported to a State-approved analytical laboratory.

***Grab Groundwater Sampling:*** Grab groundwater samples were collected from each boring at first encountered groundwater and transported to a State-approved analytical laboratory.

***Backfill Method:*** Borings SB-D, SB-E and SB-F were backfilled with cement grout and capped to match the existing grade.

***Number of Wells:*** Two monitoring wells: MW-4 and MW-5 (Figure 2).

***Well Depths:*** 20 fbg (Attachment B).

***Well Soil Sampling:*** Soil samples were collected at 5-foot intervals from wells MW-4 and MW-5 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 #2/12 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 (Attachment B).

***Screened Interval:*** 5 to 20 fbg (Attachment B).

***Well Elevation Survey*** The top of casing elevations and latitude/longitude horizontal locations were surveyed by Virgil Chavez Land Surveying of Vallejo, California on May 22, 2002. (Attachment E).

***Well Development and Sampling:*** Blaine developed the new wells on May 17, 2002 using surge-block agitation and pump evacuation. Blaine gauged and sampled the new site wells on May 20, 2002 (Attachment A).

***Sediment Lithology:*** Soils observed during this investigation consisted of silty sand and sand to total explored depth of 25.5 fbg (Attachment B).

***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 and groundwater samples from the borings were analyzed by a State-approved laboratory for the following analytes by EPA Method 8260:

- TPHg;
- MTBE; and
- BTEX.

***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 were stockpiled on the Shell-branded site. The cuttings were transported to Forward Landfill in Manteca, California for disposal on May 2, 2002. Disposal confirmation is included in Attachment D.

## INVESTIGATION RESULTS

***Analytical Results for Soil Sampling:*** No TPHg or BTEX was detected in soil samples collected from the soil borings and monitoring well installed. MTBE was detected in soil samples collected from boring SB-E and monitoring well MW-5 with a maximum concentration of 6.1 ppm in boring SB-E at 5.0 fbg. Soil sampling results are summarized in Table 1, and laboratory analytical results are included as Attachment A.

***Analytical Results for Groundwater Sampling:*** TPHg was detected in the grab groundwater sample collected from boring SB-D only at 68,000 ppb. Benzene was detected in the grab groundwater samples collected from borings SB-D and SB-E at 340 ppb and 34 ppb, respectively. MTBE was detected in grab groundwater samples collected from borings SB-E and SB-F at 19,000 ppb and 3,300 ppb, respectively. No MTBE was detected in grab groundwater samples collected from boring SB-D. MTBE was detected in groundwater samples collected from wells MW-4 and MW-5 at 4,600 ppb and 17,000 ppb, respectively. Groundwater sampling results are summarized in Table 2, and laboratory analytical results are included as Attachment A.

***Isoconcentration Contours:*** Figures 3 and 4 present isoconcentration contours for TPHg and benzene, respectively, at the site. As shown on Figures 3 and 4, TPHg and benzene concentrations remain undefined northwest of the site. However, the TPHg and benzene concentrations detected in grab groundwater samples collected from boring SB-D may be anomalous.

The grab groundwater samples collected on April 16, 2002 from boring SB-D, located northwest of the dispenser islands at the site, contained 68,000 ppb TPHg and 340 ppb benzene. As stated above, no TPHg or benzene was detected in the soil samples collected from boring SB-D. On March 8, 2002, groundwater samples collected from monitoring well MW-2, located west of the dispenser islands at the site, contained less than 250 ppb TPHg and less than 2.5 ppb benzene. On March 31, 1998, grab groundwater samples collected from boring SB-B, located immediately west of the dispenser islands and approximately 20 feet from boring SB-D, contained 120 ppb TPHg and 5.8 ppb benzene. Based on the disparity between groundwater concentrations in the same general vicinity and the lack of TPHg and benzene concentrations detected in soil samples, the TPHg and benzene concentrations detected in the grab groundwater sample from boring SB-D appear to be anomalous. As stated below, Cambria recommends further investigation to determine the steady-state groundwater concentrations in the vicinity of boring SB-D and to determine the extent of TPHg in groundwater northwest of the site.

Figure 5 presents isoconcentrations contours for MTBE detected at the site. As shown on Figure 5, current MTBE concentrations at the site are highest in the vicinity of the USTs. MTBE concentrations remain undefined northwest, southwest and southeast of the site. As stated below, Cambria recommends further investigation to determine the extent of MTBE in the site vicinity.

## CONCLUSIONS AND RECOMMENDATIONS

No TPHg or benzene was detected in any of the soil samples collected during this investigation. TPHg and benzene were detected in grab groundwater samples collected from boring SB-D, located northwest of the dispenser islands at the site, and benzene was detected in grab groundwater samples collected from boring SB-E, located southwest of the southeastern dispenser islands. Based on TPHg and benzene isoconcentration contours prepared for the site, TPHg and benzene remain undefined northwest of the site.

MTBE was detected in soil samples collected from boring SB-E, located southwest of the southeastern dispenser island at the site, and from well MW-5, located southwest of the site. No MTBE was detected in soil samples collected from borings SB-D and SB-F or from monitoring well MW-4. MTBE was detected in grab groundwater samples collected from borings SB-E and SB-F, and in groundwater samples collected from monitoring wells MW-4 and MW-5. Based on the prepared MTBE isoconcentration contours, MTBE concentrations remain undefined northwest, southwest and southeast of the site.

Based on the isoconcentration contours presented herein and the hydrocarbon concentrations detected in boring SB-D, Cambria recommends further investigation to determine the extent of chemicals of concern in groundwater at the site. In addition, Cambria recommends installation of a fixed GWE system at the site to address the elevated MTBE concentrations detected in groundwater. To this end, Cambria will submit an investigation and interim remediation work plan for the site by September 31, 2002.

## CLOSING

Please call Jacquelyn Jones at (510) 420-3316 if you have any questions or comments. Thank you for your assistance.

Sincerely,
**Cambria Environmental Technology, Inc.**

Jacquelyn L. Jones
Project Geologist

for

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


Figures:
1 - Vicinity/Area Well Survey Map
2 - Monitoring Well and Soil Boring Location Map
3 - TPHg Isoconcentration Contour Map
4 - Benzene Isoconcentration Contour Map
5 - MTBE Isoconcentration Contour Map

Tables:
1 - Soil Analytical Data
2 - Groundwater Analytical Data

Attachments:
A - Soil and Groundwater Analytical Reports
B - Soil Boring Logs
C - Permits
D - Soil Disposal Confirmation
E - Survey Results
F - Standard Field Procedures for Soil Borings
G - Standard Field Procedures for Monitoring Well Installation

cc: Karen Petryna, Shell Oil Products US, P.O. Box 7869, Burbank, CA 91510-7869

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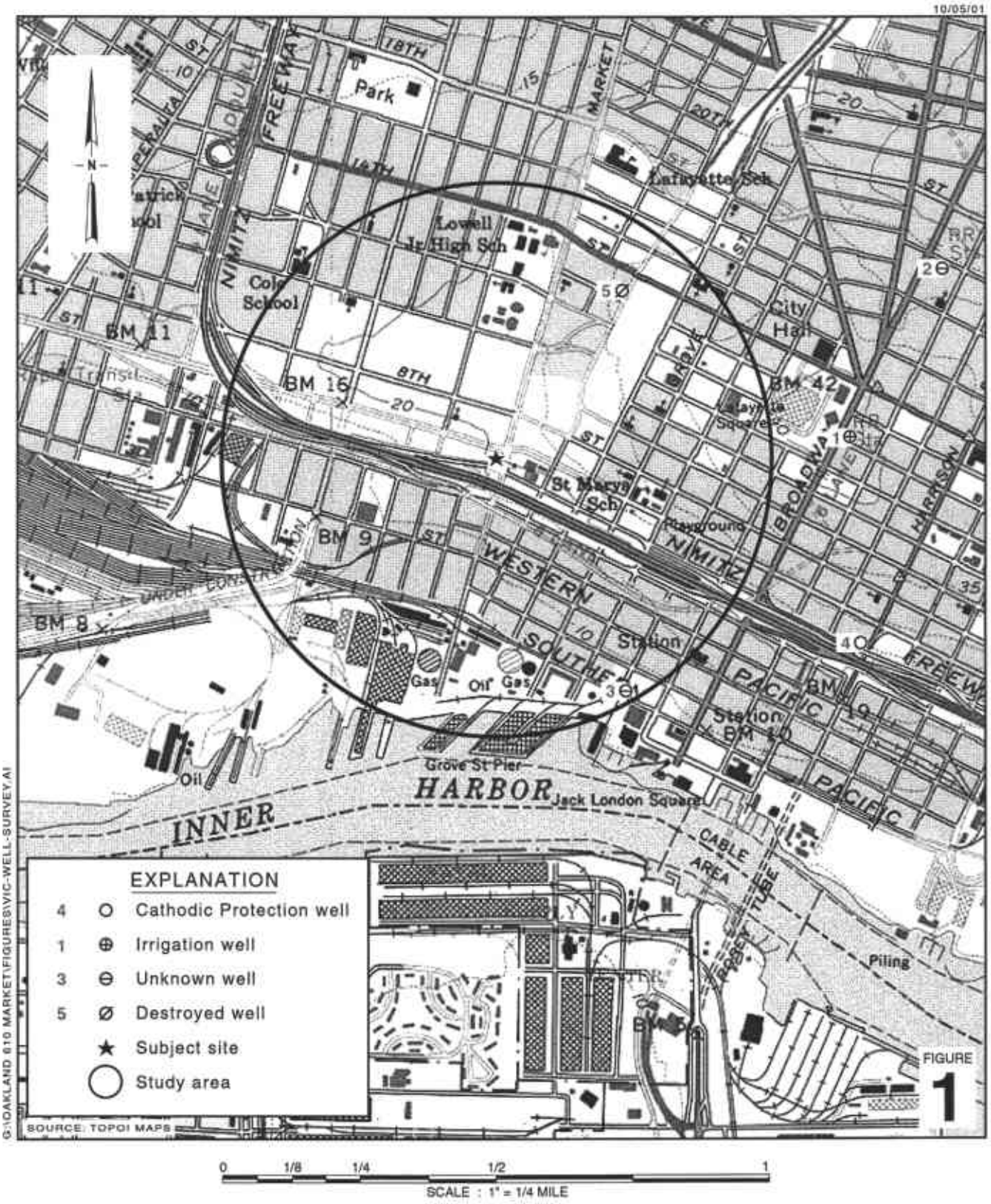


**Shell-branded Service Station**
610 Market Street
Oakland, California
Incident #98995750

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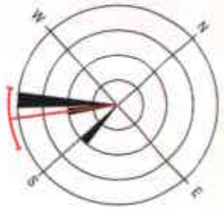
**Vicinity / Area Well Survey Map**
1/2 Mile Radius

08/12/02

## EXPLANATION

- MW-1 — Monitoring well location (11/17/98)
- MW-4 — Monitoring well location (4/17/02)
- SB-A — Geoprobe boring (3/31/98)
- SB-D — Soil boring location (4/17/02)
- T1 — Tank backfill well
- Storm Drain line
- Sanitary Sewer line
- Water Main
- Gas line
- Electrical line
- Flow direction
- FL = 5.8 — Flowline elevation, above mean sea level
- MH — Manhole




Groundwater Flow Direction
(4q99 through 3q01)

MARKET STREET

INTERSTATE 880 OVERPASS

INTERSTATE 880 OFFRAMP

6th STREET

7th STREET

MH FL = 5.8
FL = 8.0
FL = 10.0
15" SD
FL = 5.6
8" SS
FL = 10.0
MH
FL = 8.9
FL = 5.8
MH
FL = 2.8
30" SD
FL = 3.3
MH FL = 6.5
10" SS
FL = 8.20
MH
R = 12'

SB-D
MW-2
SB-B
PG&E
SIC
City of Oakland electrical
sidewalk
planter
driveway
electrical
MW-5
City of Oakland electrical
drain
City of Oakland electrical
pump islands
SB-E
kiosk
drain
water
EBMUD
T2
SB-A
MW-1
MW-4
Caltrans
transformer
transformer
MW-3
SB-C
PG&E
PacBell
T1
USTs
SB-F
carwash
drain
storage
trash
planter
planter
City of Oakland electrical

0 20 40
Scale (ft)

G:\OAKLAND\610MARKET\FIGURES\WELL-BOR-LOC-5-02.AI

FIGURE
**2**

**Monitoring Well and Soil Boring Location Map**

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

CAMBRIA

08/01/02

## EXPLANATION

- MW-1 — Monitoring well location (11/17/98)
- MW-4 — Monitoring well location (4/17/02)
- SB-A — Geoprobe boring (3/31/98)
- SB-D — Soil boring location (4/17/02)
- T1 — Tank backfill well
- Storm Drain line
- Sanitary Sewer line
- Water Main
- Gas line
- Electrical line
- Flow direction
- F.L. = 5.0 — Flowline elevation, above mean sea level
- MH — Manhole
- 100 — TPHg isoconcentration contour, approximately located; dashed where inferred
- Well ID / TPHg (5/20/02) — Sample designation; TPHg concentrations are in groundwater and are in parts per billion (Sample date)

Groundwater Flow Direction
(12/99 through 3/02)

MARKET STREET

INTERSTATE 880 OVERPASS

INTERSTATE 880 OFFRAMP

6th STREET

7th STREET

MH FL = 8.9

MH FL = 5.8

F.L. = 8.0

F.L. = 8.20

F.L. = 10.0

F.L. = 3.3

F.L. = 2.8

SB-D
68,000
(4/16/02)

MW-2
<250
(3/8/02)

SB-B
120
(3/31/98)

SB-E
<2,500
(4/16/02)

MW-5
<2,500
(5/20/02)

MW-3
<20,000
(3/8/02)

MW-4
<1,000
(5/20/02)

SB-A
2,100
(3/31/98)

MW-1
1,100
(3/8/02)

SB-C
<50
(3/31/98)

SB-F
<500
(4/16/02)

100

1,000

T1

T2

PG&E

City of Oakland electrical

Caltrans

PacBell

EBMUD

drain

water

electrical

Scale (ft): 0 20 40

G:\OAKLAND\810MARKET\FIGURES\TPHG.AI

# TPHG Isoconcentration Contour Map

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

FIGURE
**3**

08/01/02

## EXPLANATION

- MW-1 — Monitoring well location (11/17/98)
- MW-4 — Monitoring well location (4/17/02)
- SB-A — Geoprobe boring (3/31/98)
- SB-D — Soil boring location (4/17/02)
- T1 — Tank backfill well
- Storm Drain line
- Sanitary Sewer line
- Water Main
- Gas line
- Electrical line
- Flow direction
- FL = 5.0 — Flowline elevation, above mean sea level
- MH — Manhole
- 100 — Benzene isoconcentration contour, approximately located; dashed where inferred
- Well ID / Benz. (5/20/02) — Sample designation; Benzene concentrations are in groundwater and are in parts per billion (Sample date)

Groundwater Flow Direction
(12/99 through 3/02)

MARKET STREET

INTERSTATE 880 OVERPASS

INTERSTATE 880 OFFRAMP

6th STREET

7th STREET

MW-5 <25 (5/20/02)

MW-4 <10 (5/20/02)

MW-3 270 (3/8/02)

MW-2 <2.5 (3/8/02)

MW-1 63 (3/8/02)

SB-A 490 (3/31/98)

SB-B 5.8 (3/31/98)

SB-C <0.50 (3/31/98)

SB-D 340 (4/16/02)

SB-E 34 (4/16/02)

SB-F <5.0 (4/16/02)

T1, T2

10

100

1

FL = 10.0

FL = 8.0

FL = 5.8

MH FL = 8.9

FL = 8.20

10" SS

30" SD

8" SS

18" RD

PG&E

City of Oakland electrical

drain

Caltrans

transformer

EBMUD

water

electrical

sidewalk

driveway

planter

carwash

lawn

islands

trash

0 20 40
Scale (ft)

G:\OAKLAND\610MARKET\FIGURES\BENZ.AI

# Benzene Isoconcentration Contour Map

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

FIGURE
**4**

08/01/02

## EXPLANATION

- MW-1 — Monitoring well location (11/17/98)
- MW-4 — Monitoring well location (4/17/02)
- SB-A — Geoprobe boring (3/31/98)
- SB-D — Soil boring location (4/17/02)
- T1 — Tank backfill well
- Storm Drain line
- Sanitary Sewer line
- Water Main
- Gas line
- Electrical line
- Flow direction
- F.L. = 5.6 — Flowline elevation, above mean sea level
- MH — Manhole
- 100 — MTBE isoconcentration contour, approximately located; dashed where inferred
- Well ID / MTBE (5/20/02) — Sample designation; MTBE concentrations are in groundwater and are in parts per billion (Sample date)

Groundwater Flow Direction
(12/99 through 3/02)

MARKET STREET

INTERSTATE 880 OVERPASS

INTERSTATE 880 OFFRAMP

6th STREET

7th STREET

MW-2 1,100 (3/8/02)
SB-B 6,200 (3/31/98)
SB-D <250 (4/16/02)
MW-5 17,000 (5/20/02)
SB-E 19,000 (4/16/02)
SB-A 14,000 (3/31/98)
MW-4 4,600 (5/20/02)
MW-3 340,000 (3/8/02)
MW-1 50 (3/8/02)
SB-C <2.5 (3/31/98)
SB-F 3,300 (4/16/02)

100,000
10,000
1,000
100
10

T1
T2

MH
F.L. = 5.8
F.L. = 8.0
F.L. = 10.0
MH FL = 8.9
F.L. = 2.8
F.L. = 3.3
F.L. = 8.20
10" SS
8" SS
18" SD

PG&E
City of Oakland electrical
drain
Caltrans
transformer
USTs
Pacbell
carwash
EBMUD
water
storage
trash
planter
sidewalk
driveway

0 20 40
Scale (ft)

G:\OAKLAND610MARKET\FIGURES\MTBE AI

# MTBE Isoconcentration Contour Map

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

FIGURE
**5**

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

| Sample ID | Date | Depth (feet below grade) | TPHg | MTBE | Benzene | Toluene | Ethylbenzene | Xylenes |
|---|---|---|---|---|---|---|---|---|
| | | | ← (ppm) → | | | | | |
| SB-D-5.0 | April 16, 2002 | 5.0 | <1.0 | <0.5 | <0.005 | <0.005 | <0.005 | <0.005 |
| SB-D-10.0 | April 16, 2002 | 10.0 | <1.0 | <0.5 | <0.005 | <0.005 | <0.005 | <0.005 |
| SB-D-11.5 | April 16, 2002 | 11.5 | <1.0 | <0.5 | <0.005 | <0.005 | <0.005 | <0.005 |
| SB-E-5.0 | April 16, 2002 | 5.0 | <5.0 | **6.1** | <0.025 | <0.025 | <0.025 | <0.025 |
| SB-E-10.0 | April 16, 2002 | 10.0 | <1.0 | **2.7** | <0.005 | <0.005 | <0.005 | <0.010 |
| SB-E-12.5 | April 16, 2002 | 12.5 | <1.0 | **4.8** | <0.005 | <0.005 | <0.005 | <0.010 |
| SB-F-5.0 | April 16, 2002 | 5.0 | <1.0 | <0.5 | <0.005 | <0.005 | <0.005 | <0.005 |
| SB-F-10.0 | April 16, 2002 | 10.0 | <1.0 | <0.5 | <0.005 | <0.005 | <0.005 | <0.005 |
| SB-F-11.2 | April 16, 2002 | 11.2 | <1.0 | <0.5 | <0.005 | <0.005 | <0.005 | <0.005 |
| MW4-6.5 | April 17, 2002 | 6.5 | <1.0 | <0.5 | <0.005 | <0.005 | <0.005 | <0.005 |
| MW-4-9.5 | April 17, 2002 | 9.5 | <1.0 | <0.5 | <0.005 | <0.005 | <0.005 | <0.005 |
| MW-4-14.5 | April 17, 2002 | 14.5 | <1.0 | <0.5 | <0.005 | <0.005 | <0.005 | <0.005 |
| MW-4-19.0 | April 17, 2002 | 19.0 | <1.0 | <0.5 | <0.005 | <0.005 | <0.005 | <0.005 |
| MW-5-6.5 | April 17, 2002 | 6.5 | <1.0 | <0.5 | <0.005 | <0.005 | <0.005 | <0.025 |
| MW-5-9.5 | April 17, 2002 | 9.5 | <1.0 | <0.5 | <0.005 | <0.005 | <0.005 | <0.005 |
| MW-5-14.5 | April 17, 2002 | 14.5 | <1.0 | <0.5 | <0.005 | <0.005 | <0.005 | <0.005 |
| MW-5-19.5 | April 17, 2002 | 19.5 | <1.0 | **3.0** | <0.005 | <0.005 | <0.005 | <0.005 |
| MW-5-24.5 | April 17, 2002 | 24.5 | <1.0 | <0.5 | <0.005 | <0.005 | <0.005 | <0.005 |

**Notes and Abbreviations:**

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

**Table 2. Groundwater Analytical Data** - Shell-branded Service Station - 610 Market Street, Oakland, California
Incident # 98995750

| Sample ID | Date | TPHg | MTBE | Benzene | Toluene | Ethylbenzene | Xylenes |
|---|---|---|---|---|---|---|---|
| | | ← (ppb) → | | | | | |
| SB-D | April 16, 2002 | **68,000** | <250 | **340** | **44** | **3,200** | **10,000** |
| SB-E | April 16, 2002 | <2,500 | **19,000** | **34** | <25 | <25 | <25 |
| SB-F | April 16, 2002 | <500 | **3,300** | <5.0 | <5.0 | <5.0 | <5.0 |
| MW-4 | May 20, 2002 | <1,000 | **4,600** | <10 | <10 | <10 | <10 |
| MW-5 | May 20, 2002 | <2,500 | **17,000** | <25 | <25 | <25 | <25 |

**Notes and Abbreviations:**

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

ppb = parts per billion

<X = Below laboratory detection limit of X

# ATTACHMENT A

## Soil and Groundwater Analytical Reports

KIFF ANALYTICAL LLC

Report Number : 25993
Date : 4/29/02

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

Subject : 3 Water Samples and 18 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,

Joel Kiff

Joel Kiff

KIFF ANALYTICAL LLC

Report Number : 25993
Date : 4/29/02

Subject : 3 Water Samples and 18 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 SB-D-5.0, MW-5-24.5, SB-D-11.5, MW-5-9.5, SB-E-5.0, MW-4-6.5, SB-D-10.0, SB-F-5.0, MW-5-6.5, SB-F-11.2, SB-E-10.0, MW-5-19.5, SB-E-12.5, MW-4-9.5, MW-4-14.5, SB-F-10.0, MW-4-19.0, MW-5-14.5 for the analyte Methyl-t-butyl ether were affected by the analyte concentrations already present in the un-spiked sample.

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 916-297-4800

KIFF ANALYTICAL LLC

Report Number : 25993

Date : 4/29/02

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

Project Number : **244-0594**

Sample : **SB-D-5.0** Matrix : Soil Lab Number : 25993-01

Sample Date :4/16/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Toluene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Ethylbenzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Total Xylenes** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Methyl-t-butyl ether (MTBE)** | **< 0.5** | 0.5 | mg/Kg | EPA 8260B | 4/21/02 |
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/21/02 |
| Toluene - d8 (Surr) | 101 | | % Recovery | EPA 8260B | 4/21/02 |
| 4-Bromofluorobenzene (Surr) | 100 | | % Recovery | EPA 8260B | 4/21/02 |

Sample : **SB-D-10.0** Matrix : Soil Lab Number : 25993-02

Sample Date :4/16/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Toluene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Ethylbenzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Total Xylenes** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Methyl-t-butyl ether (MTBE)** | **< 0.5** | 0.5 | mg/Kg | EPA 8260B | 4/22/02 |
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/22/02 |
| Toluene - d8 (Surr) | 97.3 | | % Recovery | EPA 8260B | 4/22/02 |
| 4-Bromofluorobenzene (Surr) | 107 | | % Recovery | EPA 8260B | 4/22/02 |

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

KIFF ANALYTICAL LLC

Report Number : 25993
Date : 4/29/02

Project Name : **610 Market Street - Oakland**
Project Number : **244-0594**

Sample : **SB-D-11.5** Matrix : Soil Lab Number : 25993-03
Sample Date :4/16/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Toluene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Ethylbenzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Total Xylenes** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Methyl-t-butyl ether (MTBE)** | **< 0.5** | 0.5 | mg/Kg | EPA 8260B | 4/21/02 |
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/21/02 |
| Toluene - d8 (Surr) | 99.6 | | % Recovery | EPA 8260B | 4/21/02 |
| 4-Bromofluorobenzene (Surr) | 100 | | % Recovery | EPA 8260B | 4/21/02 |

Sample : **SB-D** Matrix : Water Lab Number : 25993-04
Sample Date :4/16/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **340** | 25 | ug/L | EPA 8260B | 4/22/02 |
| **Toluene** | **44** | 25 | ug/L | EPA 8260B | 4/22/02 |
| **Ethylbenzene** | **3200** | 25 | ug/L | EPA 8260B | 4/22/02 |
| **Total Xylenes** | **10000** | 25 | ug/L | EPA 8260B | 4/22/02 |
| **Methyl-t-butyl ether (MTBE)** | **< 250** | 250 | ug/L | EPA 8260B | 4/22/02 |
| **TPH as Gasoline** | **68000** | 2500 | ug/L | EPA 8260B | 4/22/02 |
| Toluene - d8 (Surr) | 100 | | % Recovery | EPA 8260B | 4/22/02 |
| 4-Bromofluorobenzene (Surr) | 107 | | % Recovery | EPA 8260B | 4/22/02 |

Approved By: Joel Kiff

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KIFF ANALYTICAL LLC

Report Number : 25993
Date : 4/29/02

Project Name : **610 Market Street - Oakland**
Project Number : **244-0594**

Sample : **SB-E-5.0** Matrix : Soil Lab Number : 25993-05
Sample Date :4/16/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 0.025** | 0.025 | mg/Kg | EPA 8260B | 4/22/02 |
| **Toluene** | **< 0.025** | 0.025 | mg/Kg | EPA 8260B | 4/22/02 |
| **Ethylbenzene** | **< 0.025** | 0.025 | mg/Kg | EPA 8260B | 4/22/02 |
| **Total Xylenes** | **< 0.025** | 0.025 | mg/Kg | EPA 8260B | 4/22/02 |
| **Methyl-t-butyl ether (MTBE)** | **6.1** | 0.5 | mg/Kg | EPA 8260B | 4/22/02 |
| **TPH as Gasoline** | **< 5.0** | 5.0 | mg/Kg | EPA 8260B | 4/22/02 |
| Toluene - d8 (Surr) | 100 | | % Recovery | EPA 8260B | 4/22/02 |
| 4-Bromofluorobenzene (Surr) | 100 | | % Recovery | EPA 8260B | 4/22/02 |

Sample : **SB-E-10.0** Matrix : Soil Lab Number : 25993-06
Sample Date :4/16/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Toluene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Ethylbenzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Total Xylenes** | **< 0.010** | 0.010 | mg/Kg | EPA 8260B | 4/22/02 |
| **Methyl-t-butyl ether (MTBE)** | **2.7** | 0.5 | mg/Kg | EPA 8260B | 4/22/02 |
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/22/02 |
| Toluene - d8 (Surr) | 99.3 | | % Recovery | EPA 8260B | 4/22/02 |
| 4-Bromofluorobenzene (Surr) | 103 | | % Recovery | EPA 8260B | 4/22/02 |

Approved By: Joel Kiff

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KIFF ANALYTICAL LLC

Report Number : 25993
Date : 4/29/02

Project Name : **610 Market Street - Oakland**
Project Number : **244-0594**

Sample : **SB-E-12.5** Matrix : Soil Lab Number : 25993-07
Sample Date :4/16/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Toluene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Ethylbenzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Total Xylenes** | **< 0.010** | 0.010 | mg/Kg | EPA 8260B | 4/22/02 |
| **Methyl-t-butyl ether (MTBE)** | **4.8** | 0.5 | mg/Kg | EPA 8260B | 4/22/02 |
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/22/02 |
| Toluene - d8 (Surr) | 97.1 | | % Recovery | EPA 8260B | 4/22/02 |
| 4-Bromofluorobenzene (Surr) | 89.4 | | % Recovery | EPA 8260B | 4/22/02 |

Sample : **SB-E** Matrix : Water Lab Number : 25993-08
Sample Date :4/16/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **34** | 25 | ug/L | EPA 8260B | 4/21/02 |
| **Toluene** | **< 25** | 25 | ug/L | EPA 8260B | 4/21/02 |
| **Ethylbenzene** | **< 25** | 25 | ug/L | EPA 8260B | 4/21/02 |
| **Total Xylenes** | **< 25** | 25 | ug/L | EPA 8260B | 4/21/02 |
| **Methyl-t-butyl ether (MTBE)** | **19000** | 250 | ug/L | EPA 8260B | 4/21/02 |
| **TPH as Gasoline** | **< 2500** | 2500 | ug/L | EPA 8260B | 4/21/02 |
| Toluene - d8 (Surr) | 95.9 | | % Recovery | EPA 8260B | 4/21/02 |
| 4-Bromofluorobenzene (Surr) | 107 | | % Recovery | EPA 8260B | 4/21/02 |

Approved By: Joel Kiff

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KIFF ANALYTICAL LLC

Report Number : 25993

Date : 4/29/02

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

Project Number : **244-0594**

Sample : **SB-F-5.0** Matrix : Soil Lab Number : 25993-09

Sample Date :4/16/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Toluene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Ethylbenzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Total Xylenes** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Methyl-t-butyl ether (MTBE)** | **< 0.5** | 0.5 | mg/Kg | EPA 8260B | 4/21/02 |
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/21/02 |
| Toluene - d8 (Surr) | 97.2 | | % Recovery | EPA 8260B | 4/21/02 |
| 4-Bromofluorobenzene (Surr) | 92.7 | | % Recovery | EPA 8260B | 4/21/02 |

Sample : **SB-F-10.0** Matrix : Soil Lab Number : 25993-10

Sample Date :4/16/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/23/02 |
| **Toluene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/23/02 |
| **Ethylbenzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/23/02 |
| **Total Xylenes** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/23/02 |
| **Methyl-t-butyl ether (MTBE)** | **< 0.5** | 0.5 | mg/Kg | EPA 8260B | 4/23/02 |
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/23/02 |
| Toluene - d8 (Surr) | 99.2 | | % Recovery | EPA 8260B | 4/23/02 |
| 4-Bromofluorobenzene (Surr) | 96.3 | | % Recovery | EPA 8260B | 4/23/02 |

Approved By: Joel Kiff

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KIFF ANALYTICAL LLC

Report Number : 25993
Date : 4/29/02

Project Name : **610 Market Street - Oakland**
Project Number : **244-0594**

Sample : **SB-F-11.2** Matrix : Soil Lab Number : 25993-11
Sample Date :4/16/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Toluene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Ethylbenzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Total Xylenes** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Methyl-t-butyl ether (MTBE)** | **< 0.5** | 0.5 | mg/Kg | EPA 8260B | 4/22/02 |
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/22/02 |
| Toluene - d8 (Surr) | 101 | | % Recovery | EPA 8260B | 4/22/02 |
| 4-Bromofluorobenzene (Surr) | 87.9 | | % Recovery | EPA 8260B | 4/22/02 |

Sample : **SB-F** Matrix : Water Lab Number : 25993-12
Sample Date :4/16/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 5.0** | 5.0 | ug/L | EPA 8260B | 4/21/02 |
| **Toluene** | **< 5.0** | 5.0 | ug/L | EPA 8260B | 4/21/02 |
| **Ethylbenzene** | **< 5.0** | 5.0 | ug/L | EPA 8260B | 4/21/02 |
| **Total Xylenes** | **< 5.0** | 5.0 | ug/L | EPA 8260B | 4/21/02 |
| **Methyl-t-butyl ether (MTBE)** | **3300** | 50 | ug/L | EPA 8260B | 4/21/02 |
| **TPH as Gasoline** | **< 500** | 500 | ug/L | EPA 8260B | 4/21/02 |
| Toluene - d8 (Surr) | 101 | | % Recovery | EPA 8260B | 4/21/02 |
| 4-Bromofluorobenzene (Surr) | 99.9 | | % Recovery | EPA 8260B | 4/21/02 |

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

KIFF ANALYTICAL LLC

Report Number : 25993

Date : 4/29/02

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

Project Number : **244-0594**

Sample : **MW-5-6.5** Matrix : Soil Lab Number : 25993-13

Sample Date :4/17/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Toluene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Ethylbenzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Total Xylenes** | **< 0.025** | 0.025 | mg/Kg | EPA 8260B | 4/22/02 |
| **Methyl-t-butyl ether (MTBE)** | **< 0.5** | 0.5 | mg/Kg | EPA 8260B | 4/22/02 |
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/22/02 |
| Toluene - d8 (Surr) | 96.8 | | % Recovery | EPA 8260B | 4/22/02 |
| 4-Bromofluorobenzene (Surr) | 88.5 | | % Recovery | EPA 8260B | 4/22/02 |

Sample : **MW-5-9.5** Matrix : Soil Lab Number : 25993-14

Sample Date :4/17/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Toluene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Ethylbenzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Total Xylenes** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Methyl-t-butyl ether (MTBE)** | **< 0.5** | 0.5 | mg/Kg | EPA 8260B | 4/21/02 |
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/21/02 |
| Toluene - d8 (Surr) | 99.5 | | % Recovery | EPA 8260B | 4/21/02 |
| 4-Bromofluorobenzene (Surr) | 99.7 | | % Recovery | EPA 8260B | 4/21/02 |

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

KIFF ANALYTICAL LLC

Report Number : 25993
Date : 4/29/02

Project Name : **610 Market Street - Oakland**
Project Number : **244-0594**

Sample : **MW-5-14.5** Matrix : Soil Lab Number : 25993-15
Sample Date :4/17/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/29/02 |
| **Toluene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/29/02 |
| **Ethylbenzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/29/02 |
| **Total Xylenes** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/29/02 |
| **Methyl-t-butyl ether (MTBE)** | **< 0.5** | 0.5 | mg/Kg | EPA 8260B | 4/29/02 |
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/29/02 |
| Toluene - d8 (Surr) | 93.8 | | % Recovery | EPA 8260B | 4/29/02 |
| 4-Bromofluorobenzene (Surr) | 90.9 | | % Recovery | EPA 8260B | 4/29/02 |

Sample : **MW-5-19.5** Matrix : Soil Lab Number : 25993-16
Sample Date :4/17/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Toluene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Ethylbenzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Total Xylenes** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Methyl-t-butyl ether (MTBE)** | **3.0** | 0.5 | mg/Kg | EPA 8260B | 4/22/02 |
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/21/02 |
| Toluene - d8 (Surr) | 96.4 | | % Recovery | EPA 8260B | 4/21/02 |
| 4-Bromofluorobenzene (Surr) | 94.4 | | % Recovery | EPA 8260B | 4/21/02 |

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

KIFF ANALYTICAL LLC

Report Number : 25993

Date : 4/29/02

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

Project Number : **244-0594**

Sample : **MW-5-24.5** Matrix : Soil Lab Number : 25993-17

Sample Date :4/17/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Toluene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Ethylbenzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Total Xylenes** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Methyl-t-butyl ether (MTBE)** | **< 0.5** | 0.5 | mg/Kg | EPA 8260B | 4/21/02 |
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/21/02 |
| Toluene - d8 (Surr) | 99.8 | | % Recovery | EPA 8260B | 4/21/02 |
| 4-Bromofluorobenzene (Surr) | 100 | | % Recovery | EPA 8260B | 4/21/02 |

Sample : **MW-4-6.5** Matrix : Soil Lab Number : 25993-18

Sample Date :4/17/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Toluene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Ethylbenzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Total Xylenes** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Methyl-t-butyl ether (MTBE)** | **< 0.5** | 0.5 | mg/Kg | EPA 8260B | 4/21/02 |
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/21/02 |
| Toluene - d8 (Surr) | 97.3 | | % Recovery | EPA 8260B | 4/21/02 |
| 4-Bromofluorobenzene (Surr) | 106 | | % Recovery | EPA 8260B | 4/21/02 |

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

KIFF ANALYTICAL LLC

Report Number : 25993
Date : 4/29/02

Project Name : **610 Market Street - Oakland**
Project Number : **244-0594**

Sample : **MW-4-9.5** Matrix : Soil Lab Number : 25993-19
Sample Date :4/17/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Toluene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Ethylbenzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Total Xylenes** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/22/02 |
| **Methyl-t-butyl ether (MTBE)** | **< 0.5** | 0.5 | mg/Kg | EPA 8260B | 4/22/02 |
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/22/02 |
| Toluene - d8 (Surr) | 100 | | % Recovery | EPA 8260B | 4/22/02 |
| 4-Bromofluorobenzene (Surr) | 106 | | % Recovery | EPA 8260B | 4/22/02 |

Sample : **MW-4-14.5** Matrix : Soil Lab Number : 25993-20
Sample Date :4/17/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/23/02 |
| **Toluene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/23/02 |
| **Ethylbenzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/23/02 |
| **Total Xylenes** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/23/02 |
| **Methyl-t-butyl ether (MTBE)** | **< 0.5** | 0.5 | mg/Kg | EPA 8260B | 4/23/02 |
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/23/02 |
| Toluene - d8 (Surr) | 99.7 | | % Recovery | EPA 8260B | 4/23/02 |
| 4-Bromofluorobenzene (Surr) | 98.6 | | % Recovery | EPA 8260B | 4/23/02 |

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

KIFF ANALYTICAL LLC

Report Number : 25993
Date : 4/29/02

Project Name : **610 Market Street - Oakland**
Project Number : **244-0594**

Sample : **MW-4-19.0** Matrix : Soil Lab Number : 25993-21
Sample Date :4/17/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/24/02 |
| **Toluene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/24/02 |
| **Ethylbenzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/24/02 |
| **Total Xylenes** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/24/02 |
| **Methyl-t-butyl ether (MTBE)** | **< 0.5** | 0.5 | mg/Kg | EPA 8260B | 4/24/02 |
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/24/02 |
| Toluene - d8 (Surr) | 100 | | % Recovery | EPA 8260B | 4/24/02 |
| 4-Bromofluorobenzene (Surr) | 112 | | % Recovery | EPA 8260B | 4/24/02 |

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

Report Number : 25993

Date : 4/29/02

**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 | 4/21/02 |
| Toluene | < 0.005 | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| Ethylbenzene | < 0.005 | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| Total Xylenes | < 0.005 | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| Methyl-t-butyl ether (MTBE) | < 0.5 | 0.5 | mg/Kg | EPA 8260B | 4/21/02 |
| TPH as Gasoline | < 1.0 | 1.0 | mg/Kg | EPA 8260B | 4/21/02 |
| Toluene - d8 (Surr) | 96.8 | | % | EPA 8260B | 4/21/02 |
| 4-Bromofluorobenzene (Surr) | 94.0 | | % | EPA 8260B | 4/21/02 |
| | | | | | |
| Benzene | < 0.50 | 0.50 | ug/L | EPA 8260B | 4/21/02 |
| Toluene | < 0.50 | 0.50 | ug/L | EPA 8260B | 4/21/02 |
| Ethylbenzene | < 0.50 | 0.50 | ug/L | EPA 8260B | 4/21/02 |
| Total Xylenes | < 0.50 | 0.50 | ug/L | EPA 8260B | 4/21/02 |
| Methyl-t-butyl ether (MTBE) | < 5.0 | 5.0 | ug/L | EPA 8260B | 4/21/02 |
| TPH as Gasoline | < 50 | 50 | ug/L | EPA 8260B | 4/21/02 |
| Toluene - d8 (Surr) | 100 | | % | EPA 8260B | 4/21/02 |
| 4-Bromofluorobenzene (Surr) | 106 | | % | EPA 8260B | 4/21/02 |

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

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

Report Number : 25993

Date : 4/29/02

**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 | 25993-21 | <0.0050 | 0.0393 | 0.0400 | 0.0345 | 0.0373 | mg/Kg | EPA 8260B | 4/21/02 | 87.8 | 93.3 | 5.99 | 70-130 | 25 |
| Toluene | 25993-21 | <0.0050 | 0.0393 | 0.0400 | 0.0365 | 0.0388 | mg/Kg | EPA 8260B | 4/21/02 | 93.0 | 97.0 | 4.18 | 70-130 | 25 |
| Tert-Butanol | 25993-21 | <0.0050 | 0.196 | 0.200 | 0.172 | 0.183 | mg/Kg | EPA 8260B | 4/21/02 | 87.3 | 91.6 | 4.82 | 70-130 | 25 |
| Methyl-t-Butyl Ether | 25993-21 | 0.026 | 0.0393 | 0.0400 | 0.0396 | 0.0393 | mg/Kg | EPA 8260B | 4/21/02 | 33.1 | 31.9 | 3.63 | 70-130 | 25 |
| Benzene | 25997-07 | 0.63 | 39.4 | 38.6 | 38.8 | 36.5 | ug/L | EPA 8260B | 4/21/02 | 96.8 | 92.9 | 4.15 | 70-130 | 25 |
| Toluene | 25997-07 | <0.50 | 39.4 | 38.6 | 39.4 | 37.0 | ug/L | EPA 8260B | 4/21/02 | 99.8 | 95.8 | 4.17 | 70-130 | 25 |
| Tert-Butanol | 25997-07 | 6.5 | 197 | 193 | 211 | 196 | ug/L | EPA 8260B | 4/21/02 | 104 | 98.0 | 5.69 | 70-130 | 25 |
| Methyl-t-Butyl Ether | 25997-07 | 0.80 | 39.4 | 38.6 | 36.5 | 36.6 | ug/L | EPA 8260B | 4/21/02 | 90.4 | 92.7 | 2.44 | 70-130 | 25 |

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

Report Number : 25993

**QC Report : Laboratory Control Sample (LCS)**

Date : 4/29/02

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 | 0.0400 | mg/Kg | EPA 8260B | 4/23/02 | 88.9 | 70-130 |
| Toluene | 0.0400 | mg/Kg | EPA 8260B | 4/23/02 | 86.2 | 70-130 |
| Tert-Butanol | 0.200 | mg/Kg | EPA 8260B | 4/23/02 | 80.3 | 70-130 |
| Methyl-t-Butyl Ether | 0.0400 | mg/Kg | EPA 8260B | 4/23/02 | 86.2 | 70-130 |
| | | | | | | |
| Benzene | 19.7 | ug/L | EPA 8260B | 4/21/02 | 98.6 | 70-130 |
| Toluene | 19.7 | ug/L | EPA 8260B | 4/21/02 | 101 | 70-130 |
| Tert-Butanol | 98.4 | ug/L | EPA 8260B | 4/21/02 | 102 | 70-130 |
| Methyl-t-Butyl Ether | 19.7 | ug/L | EPA 8260B | 4/21/02 | 91.3 | 70-130 |

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

KIFF ANALYTICAL

720 Olive Drive, Suite D
Davis, CA 95616
(530) 297-4600 (530) 297-4803 fax

# SHELL Chain Of Custody Record

**Shell Project Manager to be Invoiced:**
☑ SCIENCE & ENGINEERING: Karen Petryna
☐ TECHNICAL SERVICES
☐ EMPT: HOUSTON
25993

INCIDENT NUMBER (SAP ONLY): 98995750
SAP CHARTNUMBER (SAP ONLY):

DATE: 4/16/02
PAGE: 1 of 3

| SAMPLING COMPANY: | LOG CODE: | SITE ADDRESS (Street and City): | GLOBAL ID NO.: |
|---|---|---|---|
| Cambria Environmental Technology | CETO | 610 Market Street - Oakland | T0600102121 |

| ADDRESS: | EDF DELIVERABLE TO (Responsible Party or Designee): | PHONE NO.: | E-MAIL: | CONSULTANT PROJECT NO.: |
|---|---|---|---|---|
| 1144-65TH Street, Oakland, CA 94608 | shelloaklandedf@cambria-env.com | | | 244-0594 |

| PROJECT CONTACT (Hardcopy or PDF Report to): | TELEPHONE: | FAX: | E-MAIL: | SAMPLER NAME(S) (Print): | LAB USE ONLY |
|---|---|---|---|---|---|
| Jacquelyn Jones | 510-420-3316 | 510-420-9170 | jjones@cambria-env.com | Jason K. Gerke | |

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 ☐

cc lab report to: jgerke@cambria-env.com

REQUESTED ANALYSIS

| LAB USE ONLY | Field Sample Identification | SAMPLING DATE | SAMPLING TIME | 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/Aromatic (8021B) | TRPH (418.1) | Vapor VOCs BTEX / MTBE (TO-15) | Vapor VOCs Full List (TO-15) | Vapor TPH (ASTM 3416m) | Vapor Fixed Gases (ASTM D1946) | Test for Disposal ( 48-_____) | | TPH - Diesel, Extractable (8015m) | | MTBE (8260B) Confirmation, See Note | FIELD NOTES: Container/Preservative or PID Readings or Laboratory Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | TEMPERATURE ON RECEIPT C° |
| | SB-D-5.0 | 4/16/02 | 845 | Soil | 1 | X | X | X | | | | | | | | | | | | | | | | | | -01 |
| | SB-D-10.0 | | 930 | Soil | 1 | X | X | X | | | | | | | | | | | | | | | | | | -02 |
| | SB-D-11.5 | | 940 | Soil | 1 | X | X | X | | | | | | | | | | | | | | | | | | -03 |
| | SB-D | | 952 | GW | 4 | X | X | X | | | | | | | | | | | | | | | | | | -04 |
| | SB-E-5.0 | | 1019 | Soil | 1 | X | X | X | | | | | | | | | | | | | | | | | | -05 |
| | SB-E-10.0 | | 1030 | Soil | 1 | X | X | X | | | | | | | | | | | | | | | | | | -06 |
| | SB-E-12.5 | | 1100 | Soil | 1 | X | X | X | | | | | | | | | | | | | | | | | | -07 |
| No Time | SB-E | | 1115 | GW | 4 | X | X | X | | | | | | | | | | | | | | | | | | -08 |
| | SB-F-5.0 | | 1215 | Soil | 1 | X | X | X | | | | | | | | | | | | | | | | | | -09 |
| | SB-F-10.0 | | 1226 | Soil | 1 | X | X | X | | | | | | | | | | | | | | | | | | -10 |

| Relinquished by: (Signature) | Received by: (Signature) | Date: | Time: |
|---|---|---|---|
| Jason Gerke | | | |
| Relinquished by: (Signature) | Received by: (Signature) | Date: | Time: |
| | | | |
| Relinquished by: (Signature) | Received by: (Signature) | Date: | Time: |
| | John Cuadra / Kiff Analytical | 041902 | 1235 |

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10/16/00 Revision

QSQ Graphic (714) 888-9782

KIFF ANALYTICAL

720 Olive Drive, Suite D

Davis, CA 95616

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

# SHELL Chain Of Custody Record

**Shell Project Manager to be invoiced:**

☑ SCIENCE & ENGINEERING Karen Petryna

☐ TECHNICAL SERVICES

☐ GMT HOUSTON

25993

INCIDENT NUMBER (SAP) ONLY: 9 8 9 9 5 7 5 0

SAP CONTRACT NUMBER (IF KNOWN):

DATE: 4/16/02

PAGE: 2 of 3

| SAMPLING COMPANY: | LOG CODE: | SITE ADDRESS (Street and City): | GLOBAL ID NO.: |
|---|---|---|---|
| Cambria Environmental Technology | CETO | 610 Market Street - Oakland | T0600102121 |

| ADDRESS: | EDF DELIVERABLE TO (Responsible Party or Designee): | PHONE NO.: | E-MAIL: | CONSULTANT PROJECT NO.: |
|---|---|---|---|---|
| 1144 65TH Street, Oakland, CA 94608 | shelloaklandedf@cambria-env.com | | | 244-0594 |

| PROJECT CONTACT (Hardcopy or PDF Report to): | SAMPLER NAME(S) (Print): |
|---|---|
| Jacquelyn Jones | Jason K. Gerke |

| TELEPHONE: | FAX: | E-MAIL: |
|---|---|---|
| 510-420-3316 | 510-420-9170 | jjones@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: _____

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

SPECIAL INSTRUCTIONS OR NOTES: CHECK BOX IF EDD IS NOT NEEDED ☐

cc lab report to: jgerke@cambria-env.com

**REQUESTED ANALYSIS**

| LAB USE ONLY | Field Sample Identification | SAMPLING DATE | SAMPLING TIME | 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 8035 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 3416m) | Vapor Fixed Gases (ASTM D1946) | Test for Disposal ( 4B— ) | | TPH - Diesel, Extractable (8015m) | | MTBE (8260B) Confirmation, See Note | FIELD NOTES: Container/Preservative or PID Readings or Laboratory Notes / TEMPERATURE ON RECEIPT C° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SB-F-11.2 | 4/16/02 | 1225 | Soil | 1 | X | X | X | | | | | | | | | | | | | | | | | | -11 |
| | SB-F | 4/16/02 | 1230 | GW | 4 | X | X | X | | | | | | | | | | | | | | | | | | -12 |
| | MW-5-6.5 | 4/17/02 | 1010 | Soil | 1 | X | X | X | | | | | | | | | | | | | | | | | | -13 |
| | MW-5-9.5 | " | 1017 | Soil | 1 | X | X | X | | | | | | | | | | | | | | | | | | -14 |
| | MW-5-14.5 | " | 1025 | Soil | 1 | X | X | X | | | | | | | | | | | | | | | | | | -15 |
| | MW-5-19.5 | " | 1030 | Soil | 1 | X | X | X | | | | | | | | | | | | | | | | | | -16 |
| | MW-5-24.5 | " | 1040 | Soil | 1 | X | X | X | | | | | | | | | | | | | | | | | | -17 |
| | MW-4-6.5 | " | 1300 | Soil | 1 | X | X | X | | | | | | | | | | | | | | | | | | -18 |
| | MW-4-9.5 | " | 1310 | Soil | 1 | X | X | X | | | | | | | | | | | | | | | | | | -19 |
| | MW-4-14.5 | ↓ | 1315 | Soil | 1 | X | X | X | | | | | | | | | | | | | | | | | | -20 |

| Relinquished by: (Signature) | Received by: (Signature) | Date: | Time: |
|---|---|---|---|
| Jason Gerke | | | |
| Relinquished by: (Signature) | Received by: (Signature) | Date: | Time: |
| | | | |
| Relinquished by: (Signature) | Received by: (Signature) | Date: | Time: |
| | John Cuttle / Kiff Analytical | 04/19/02 | 1235 |

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Q&Q Graphics (714) 832-9702

10/16/00 Revision

KIFF ANALYTICAL

720 Olive Drive, Suite D

Davis, CA 95616

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

# SHELL Chain Of Custody Record

Shell Project Manager to be Invoiced:

☑ SCIENCE & ENGINEERING: Karen Petryna

☐ TECHNICAL SERVICES

☐ GMT HOUSTON

25993

INCIDENT NUMBER (S&E ONLY): 98995750

SAP # or GMT NUMBER (TS/GMT):

DATE: 4/19/02

PAGE: 3 of 3

| | |
|---|---|
| SAMPLING COMPANY: Cambria Environmental Technology | LOG CODE: CETO |
| ADDRESS: 1144-65TH Street, Oakland, CA 94608 | |
| PROJECT CONTACT (Hardcopy or PDF Report to): Jacquelyn Jones | |
| TELEPHONE: 510-420-3316 | FAX: 510-420-9170 |
| E-MAIL: jjones@cambria-env.com | |
| SITE ADDRESS (Street and City): 610 Market Street - Oakland | GLOBAL ID NO.: T0600102121 |
| EDF DELIVERABLE TO (Responsible Party or Designee): shelloaklandedf@cambria-env.com | PHONE NO.: |
| E-MAIL: | CONSULTANT PROJECT NO.: 244-0594 |
| SAMPLER NAME(S) (Print): Jason K. Gerke | 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 ☐

cc lab report to: jgerke@cambria-env.com

REQUESTED ANALYSIS

| LAB USE ONLY | Field Sample Identification | SAMPLING DATE | SAMPLING TIME | 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 5030 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 3416m) | Vapor Fixed Gases (ASTM D1946) | Test for Disposal ( ) | | TPH - Diesel, Extractable (8015m) | | MTBE (8260B) Confirmation, See Note |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MW-4-19.0 | 4/17 | 1328 | Soil | 1 | x | x | x | | | | | | | | | | | | | | | | | |

FIELD NOTES:

Container/Preservative or PID Readings or Laboratory Notes

TEMPERATURE ON RECEIPT C°: -21

| | | |
|---|---|---|
| Relinquished by: (Signature) Jason Gale | Received by: (Signature) | Date: Time: |
| Relinquished by: (Signature) | Received by: (Signature) | Date: Time: |
| Relinquished by: (Signature) | Received by: (Signature) John Cuttle / Kiff Analytical | Date: 041902 Time: 1235 |

DISTRIBUTION: White with final report, Green to File, Yellow and Pink to Client.

10/16/00 Revision

CEQ Graphic (714) 838-6702

KIFF ANALYTICAL LLC

Report Number : 25992
Date : 4/25/02

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 : SAP# 135692

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,

Joel Kiff

Joel Kiff

KIFF ANALYTICAL LLC

Report Number : 25992
Date : 4/25/02

Subject : 5 Soil Samples
Project Name : 610 Market Street-Oakland
Project Number : 244-0594
P.O. Number : SAP# 135692

# Case Narrative

Matrix Spike/Matrix Spike Duplicate Results associated with sample SP1-A-B-C-D for the analyte Methyl-t-butyl ether were affected by the analyte concentrations already present in the un-spiked sample.

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 916-297-4800

KIFF ANALYTICAL LLC

Report Number : 25992
Date : 4/25/02

Project Name : **610 Market Street-Oakland**
Project Number : **244-0594**

Sample : **SP1-A** Matrix : Soil Lab Number : 25992-01
Sample Date :4/17/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/22/02 |
| 4-Bromofluorobenzene (Surr) | 104 | | % Recovery | EPA 8260B | 4/22/02 |

Sample : **SP1-B** Matrix : Soil Lab Number : 25992-02
Sample Date :4/17/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/21/02 |
| 4-Bromofluorobenzene (Surr) | 104 | | % Recovery | EPA 8260B | 4/21/02 |

Sample : **SP1-C** Matrix : Soil Lab Number : 25992-03
Sample Date :4/17/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/21/02 |
| 4-Bromofluorobenzene (Surr) | 99.7 | | % Recovery | EPA 8260B | 4/21/02 |

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

KIFF ANALYTICAL LLC

Report Number : 25992
Date : 4/25/02

Project Name : **610 Market Street-Oakland**
Project Number : **244-0594**

Sample : **SP1-D** Matrix : Soil Lab Number : 25992-04
Sample Date :4/17/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/21/02 |
| 4-Bromofluorobenzene (Surr) | 101 | | % Recovery | EPA 8260B | 4/21/02 |

Sample : **SP1-A-B-C-D** Matrix : Soil Lab Number : 25992-05
Sample Date :4/17/02

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Toluene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Ethylbenzene** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Total Xylenes** | **< 0.005** | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| **Methyl-t-butyl ether (MTBE)** | **< 0.5** | 0.5 | mg/Kg | EPA 8260B | 4/21/02 |
| **TPH as Gasoline** | **< 1.0** | 1.0 | mg/Kg | EPA 8260B | 4/21/02 |
| Toluene - d8 (Surr) | 97.4 | | % Recovery | EPA 8260B | 4/21/02 |
| 4-Bromofluorobenzene (Surr) | 91.6 | | % Recovery | EPA 8260B | 4/21/02 |

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

Report Number : 25992

Date : 4/25/02

**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 | 4/21/02 |
| Toluene | < 0.005 | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| Ethylbenzene | < 0.005 | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| Total Xylenes | < 0.005 | 0.005 | mg/Kg | EPA 8260B | 4/21/02 |
| Methyl-t-butyl ether (MTBE) | < 0.5 | 0.5 | mg/Kg | EPA 8260B | 4/21/02 |
| TPH as Gasoline | < 1.0 | 1.0 | mg/Kg | EPA 8260B | 4/21/02 |
| Toluene - d8 (Surr) | 96.7 | | % | EPA 8260B | 4/21/02 |
| 4-Bromofluorobenzene (Surr) | 104 | | % | EPA 8260B | 4/21/02 |

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

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

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

Report Number : 25992

Date : 4/25/02

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

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 | 25992-02 | <0.0050 | 0.194 | 0.196 | 0.182 | 0.188 | mg/Kg | EPA 8260B | 4/25/02 | 94.0 | 95.6 | 1.71 | 70-130 | 25 |
| Toluene | 25992-02 | <0.0050 | 0.194 | 0.196 | 0.191 | 0.195 | mg/Kg | EPA 8260B | 4/25/02 | 98.6 | 99.3 | 0.708 | 70-130 | 25 |
| Tert-Butanol | 25992-02 | 0.038 | 0.971 | 0.980 | 1.02 | 1.05 | mg/Kg | EPA 8260B | 4/25/02 | 101 | 103 | 2.29 | 70-130 | 25 |
| Methyl-t-Butyl Ether | 25992-02 | 0.45 | 0.194 | 0.196 | 0.339 | 0.409 | mg/Kg | EPA 8260B | 4/25/02 | 0.00 | 0.00 | 0.00 | 70-130 | 25 |

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

Report Number : 25992

**QC Report : Laboratory Control Sample (LCS)**

Date : 4/25/02

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

Project Number : **244-0594**

| Parameter | Spike Level | Units | Analysis Method | Date Analyzed | LCS Percent Recov. | LCS Percent Recov. Limit |
|---|---|---|---|---|---|---|
| Benzene | 0.0411 | mg/Kg | EPA 8260B | 4/21/02 | 77.9 | 70-130 |
| Toluene | 0.0411 | mg/Kg | EPA 8260B | 4/21/02 | 80.0 | 70-130 |
| Tert-Butanol | 0.205 | mg/Kg | EPA 8260B | 4/21/02 | 94.5 | 70-130 |
| Methyl-t-Butyl Ether | 0.0411 | mg/Kg | EPA 8260B | 4/21/02 | 78.4 | 70-130 |

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

Calscience Environmental Laboratories, Inc.

April 29, 2002

Joel Kiff
Kiff Analytical
720 Olive Drive, Suite D
Davis, CA 95616-0000

Subject: **Calscience Work Order No.:** **02-04-1009**
**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 4/23/02 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 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.
Larry Lem
Project Manager

Michael J. Crisostomo
Quality Assurance Manager

Calscience Environmental Laboratories, Inc.

# ANALYTICAL REPORT

Kiff Analytical
720 Olive Drive, Suite D
Davis, CA 95616-0000

Date Received: 04/23/02
Work Order No: 02-04-1009
Preparation: Total Digestion
Method: EPA 6010B

Project: 610 Market Street - Oakland



| Client Sample Number | Lab Sample Number | Matrix | Date Collected | Date Prepared | Date Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|
| SP1-A-B-C-D | 02-04-1009-1 | Solid | 04/17/02 | 04/24/02 | 04/25/02 | 020424lca6 |

| Parameter | Result | RL | DF | Qual | Units |
|---|---|---|---|---|---|
| Lead | 4.18 | 0.50 | 1 | | mg/kg |

| Method Blank | 097-01-002-3,303 | Solid | N/A | 04/24/02 | 04/24/02 | 020424lca6 |
|---|---|---|---|---|---|---|

| Parameter | Result | RL | DF | Qual | Units |
|---|---|---|---|---|---|
| Lead | ND | 0.500 | 1 | | mg/kg |

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

Calscience Environmental Laboratories, Inc.

## Quality Control - Spike/Spike Duplicate

Kiff Analytical
720 Olive Drive, Suite D
Davis, CA 95616-0000

Project: 610 Market Street - Oakland

Date Received: 04/23/02
Work Order No: 02-04-1009
Preparation: Total Digestion
Method: EPA 6010B

| Quality Control Sample ID | Matrix | Instrument | Date Prepared | Date Analyzed | MS/MSD Batch Number |
|---|---|---|---|---|---|
| 02-04-0942-32 | Solid | ICP 3300 | 04/24/02 | 04/25/02 | 042402ms6 |

| Parameter | MS %REC | MSD %REC | %REC CL | RPD | RPD CL | Qualifiers |
|---|---|---|---|---|---|---|
| Lead | 85 | 83 | 75-125 | 2 | 0-20 | |

Calscience Environmental Laboratories, Inc.

# Quality Control - Laboratory Control Sample

Kiff Analytical
720 Olive Drive, Suite D
Davis, CA 95616-0000

Project: 610 Market Street - Oakland

Date Received: 04/23/02
Work Order No: 02-04-1009
Preparation: Total Digestion
Method: EPA 6010B

| Quality Control Sample ID | Matrix | Instrument | Date Analyzed | Lab File ID | LCS Batch Number |
|---|---|---|---|---|---|
| 097-01-002-3,303 | Solid | ICP 3300 | 04/24/02 | 020423lc | 020424lcs6 |

| Parameter | Conc Added | Conc Recovered | %Rec | %Rec CL | Qualifiers |
|---|---|---|---|---|---|
| Lead | 50.0 | 49.7 | 99 | 80-120 | |

Calscience Environmental Laboratories, Inc.

# GLOSSARY OF TERMS AND QUALIFIERS

Work Order Number: 02-04-1009

| Qualifier | Definition |
|---|---|
| ND | Not detected at indicated reporting limit. |

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 02-0404-1009

Cooler 1 of 1

# SAMPLE RECEIPT FORM

CLIENT: KFC DATE: 4/23/02

## 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):**

4 °C Temperature blank.
_____ °C IR thermometer.
_____ Ambient temperature.

Initial: MZ

## CUSTODY SEAL INTACT:

Sample(s): _____ Cooler: ✓ No (Not Intact): _____ Not Applicable (N/A): _____

Initial: MZ

## SAMPLE CONDITION:

| | Yes | No | N/A |
|---|---|---|---|
| Chain-Of-Custody document(s) received with samples | — | | |
| Sample container label(s) consistent with custody papers | — | | |
| Sample container(s) intact and good condition | ✓ | | |
| Correct containers for analyses requested | — | | |
| Proper preservation noted on sample label(s) | | | — |
| VOA vial(s) free of headspace. | | | ✓ |
| Tedlar bag(s) free of condensation | | | — |

Initial: MZ

## COMMENTS:

**CALSCIENCE ENVIRONMENTAL LABORATORIES, INC.**
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 • FAX: (714) 894-7501

Kiff Analytical Note:
Equiva Waste Disposal Form Page 4B-26 Analyses

Project No. 135692

# CHAIN OF CUSTODY RECORD

Date 042202

Page 1 of 1

| | | | |
|---|---|---|---|
| LABORATORY CLIENT: Kiff Analytical, LLC | | CLIENT PROJECT NAME / NUMBER: 610 Market Street - oakland | P.O. NO.: COC NO. 25992 |
| ADDRESS: 720 Olive Drive, Suite D | | PROJECT CONTACT: Joel Kiff | LAB USE ONLY 24-1623-9 |
| CITY: Davis | STATE: CA | ZIP: 95616 | SAMPLER(S): (SIGNATURE) |
| TEL: (530) 297-4800 | FAX: (530) 297-4803 | E-MAIL | COOLER RECEIPT TEMP = °C |

TURNAROUND TIME: DUE 05/01/02
☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☐ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ___/___/___

SPECIAL INSTRUCTIONS

REQUESTED ANALYSES

| LAB USE ONLY | SAMPLE ID | LOCATION/DESCRIPTION | SAMPLING DATE | SAMPLING TIME | MATRIX | NO. OF CONT | TTLC PB | STLC PB if TTLC =>50 mg/kg | Organic PB if TTLC =>13 mg/kg | Aquatic Fish Bioassay if TPH>5000 ppm. Part 800 of Standard Methods, 15th ed. Call Kiff to determine TPH. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SP1-A-B-C-D | | 041702 | | SO | 1 | X | X | X | X |

Relinquished by: (Signature) Kiff Analytical — Received by: (Signature) — Date: 042202 — Time: 1830

Relinquished by: (Signature) — Received by: (Signature) — Date: — Time:

Relinquished by: (Signature) — Received for Laboratory by: (Signature) — Date: 4/23/02 — Time: 113

DISTRIBUTION: White with final report, Green to File, Yellow and Pink to Client.

10/01/00 Revision

APR-29-2002 17:03 CALSCIENCE P.07/07
TOTAL P.07

KIFF ANALYTICAL

# 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
☑ GMT HOUSTON

25992
Tim Dazey

STARS #: 1 3 5 6 9 2

DATE: 4/17/02
PAGE: 1 of 1

| SAMPLING COMPANY: | LOG CODE: | SITE ADDRESS (Street and City): | GLOBAL ID NO.: |
|---|---|---|---|
| Cambria Environmental Technology | CETO | 610 Market Street - Oakland | T0600102121 |

| ADDRESS: | EDF DELIVERABLE TO (Responsible Party or Designee): | PHONE NO.: | E-MAIL: | CONSULTANT PROJECT NO.: |
|---|---|---|---|---|
| 1144-65TH Street, Oakland, CA 94608 | | | | 244-0594 |

| PROJECT CONTACT (Hardcopy or PDF Report to): | SAMPLER NAME(S) (Print): |
|---|---|
| Jacquelyn Jones | Jason K. Gerke |

| TELEPHONE: | FAX: | E-MAIL: |
|---|---|---|
| 510-420-3316 | 510-420-9170 | jjones@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: _____

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

**SPECIAL INSTRUCTIONS OR NOTES:** CHECK BOX IF EDD IS NOT NEEDED ☒

Composite SP1-A through D.

Copy analytical reports to TDAZEY@EQUILON.COM and jgerke@cambria-env.com

**REQUESTED ANALYSIS**

| Field Sample Identification | SAMPLING DATE | SAMPLING TIME | 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/Aromatic (8021B) | TRPH (418.1) | Vapor VOCs BTEX / MTBE (TO-15) | Vapor VOCs Full List (TO-15) | Vapor TPH (ASTM 2416m) | Vapor Fixed Gases (ASTM D1946) | Test for Disposal (48-28) | | TPH - Diesel, Extractable (8015m) | | MTBE (8260B) Confirmation, See Note | TEMPERATURE ON RECEIPT C° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SP1-A | 4/17 | | Soil | 1 | | | | | | | | | | | | | | | | X | | | | | -01 |
| SP1-B | ↓ | | Soil | 1 | | | | | | | | | | | | | | | | X | | | | | -02 |
| SP1-C | | | Soil | 1 | | | | | | | | | | | | | | | | X | | | | | -03 |
| SP1-D | | | Soil | 1 | | | | | | | | | | | | | | | | X | | | | | -04 |
| | | | | | | | | | | | | | | | | | | | | | | | | | -05 |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | | | | | |

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

| Relinquished by: (Signature) | Received by: (Signature) | Date: | Time: |
|---|---|---|---|
| Jason K. Gerke | | | |
| Relinquished by: (Signature) | Received by: (Signature) | Date: | Time: |
| | | | |
| Relinquished by: (Signature) | Received by: (Signature) | Date: | Time: |
| | John Cuttle / Kiff Analytical | 041902 | 1235 |

DISTRIBUTION: White with final report, Green to File, Yellow and Pink to Client.

10/16/00 Revision

Q&Q Graphic (714) 898-9702

ISSUED DATE: 05/23/97
CANCELS ISSUE: 03/05/97
ISSUED BY: RLG

# MATERIAL: MINIMUM SOIL ANALYSIS FOR UST SOIL WITH GASOLINE OR DIESEL CONTAMINATION

**USE FOR ARIZONA , CALIFORNIA AND NEVADA WASTE ONLY!!!**

**NOTE: ANALYSES ARE BASED ON CHARACTERIZATION MINIMUM. YOU MUST BE SURE THAT THE FACILITY WILL TAKE THE FOLLOWING AS ACCEPTANCE. FURTHER ANALYSIS MAY BE REQUIRED FOR CHARACTERIZATION UPON REVIEW BY THE WASTE TEAM MEMBER OR TO MEET DISPOSAL SITE REQUIREMENTS. IF THE MATERIAL IS RETURNED TO CONSULTANT, COPIES OF ALL TRANSPORTATION DOCUMENTS MUST BE SENT TO THE WASTE DISPOSAL COORDINATOR FOR RECORDING WHEN PROJECT IS COMPLETE.**

## MINIMUM REQUIRED TESTING

**Note: If material is to be sent to a BFI facility EPA METHOD 8010 must be run IN ADDITION to the following analysis prior to requesting profile approval:**

TPH = TOTAL PETROLEUM HYDROCARBONS, DHS GC-FID MOD 8015
GASOLINE OR DIESEL AS REQUIRED.
BTXE = EPA 8020 + MTBE
CAM METALS = TTLC LEAD, STLC LEAD IF TTLC => 50 MG/KG AND/OR
ORGANIC LEAD IF TTLC => 13 MG/KG

AQUATIC BIOASSAY (FISH TOX) IS ONLY TO BE RUN ON SAMPLES WITH GREATER THAN 5000 PPM TPH. COMPOSITE A MAXIMUM OF 4 SAMPLES.

AQUATIC BIOASSAY (FISH TOX) = PART 800 OF "STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER (15TH EDITION)"

## LABORATORY INSTRUCTIONS (MINIMUM GUIDELINES ONLY)

- 8015/8020 TO BE BILLED AS "COMBO" WITHOUT EXCEPTION
- TPH REQUIRED FOR ALL SAMPLES.
- ALL OTHER TESTS REQUIRED TO BE RUN ON COMPOSITE(S). MAXIMUM 4 SAMPLES PER COMPOSITE.
- STLC REQUIRED FOR METALS WITH TTLC VALUE 10 X STLC MAXIMUM.
- ORGANIC ANALYSIS REQUIRED FOR TTLC LEAD OF 13 MG/KG OR GREATER.
- LABORATORY IS TO SUPPLY QA/QC INFORMATION WITH ALL ANALYTICAL REPORTS.
- MAIL OR FAX ALL ANALYSIS TO PERSON REQUESTING ANALYSIS.

KIFF ANALYTICAL LLC

Report Number : 26495
Date : 6/29/2002

Leon Gearhart
Blaine Tech Services
1680 Rogers Avenue
San Jose, CA 95112-1105

Subject : 2 Water Samples
Project Name : 610 Market Street, Oakland
Project Number : 020520-MN3
P.O. Number : 98995750

Dear Mr. Gearhart,

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,

Joel Kiff

Joel Kiff

KIFF ANALYTICAL LLC

Report Number : 26495
Date : 6/29/2002

Project Name : **610 Market Street, Oakland**
Project Number : **020520-MN3**

Sample : **MW-4** Matrix : Water Lab Number : 26495-01
Sample Date :5/20/2002

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 10** | 10 | ug/L | EPA 8260B | 5/25/2002 |
| **Toluene** | **< 10** | 10 | ug/L | EPA 8260B | 5/25/2002 |
| **Ethylbenzene** | **< 10** | 10 | ug/L | EPA 8260B | 5/25/2002 |
| **Total Xylenes** | **< 10** | 10 | ug/L | EPA 8260B | 5/25/2002 |
| **Methyl-t-butyl ether (MTBE)** | **4600** | 100 | ug/L | EPA 8260B | 5/25/2002 |
| **TPH as Gasoline** | **< 1000** | 1000 | ug/L | EPA 8260B | 5/25/2002 |
| Toluene - d8 (Surr) | 98.2 | | % Recovery | EPA 8260B | 5/25/2002 |
| 4-Bromofluorobenzene (Surr) | 96.1 | | % Recovery | EPA 8260B | 5/25/2002 |

Sample : **MW-5** Matrix : Water Lab Number : 26495-02
Sample Date :5/20/2002

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| **Benzene** | **< 25** | 25 | ug/L | EPA 8260B | 5/23/2002 |
| **Toluene** | **< 25** | 25 | ug/L | EPA 8260B | 5/23/2002 |
| **Ethylbenzene** | **< 25** | 25 | ug/L | EPA 8260B | 5/23/2002 |
| **Total Xylenes** | **< 25** | 25 | ug/L | EPA 8260B | 5/23/2002 |
| **Methyl-t-butyl ether (MTBE)** | **17000** | 250 | ug/L | EPA 8260B | 5/23/2002 |
| **TPH as Gasoline** | **< 2500** | 2500 | ug/L | EPA 8260B | 5/23/2002 |
| Toluene - d8 (Surr) | 101 | | % Recovery | EPA 8260B | 5/23/2002 |
| 4-Bromofluorobenzene (Surr) | 97.4 | | % Recovery | EPA 8260B | 5/23/2002 |

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

Report Number : 26495

Date : 6/29/2002

**QC Report : Method Blank Data**

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

Project Number : **020520-MN3**

| Parameter | Measured Value | Method Reporting Limit | Units | Analysis Method | Date Analyzed |
|---|---|---|---|---|---|
| Benzene | < 0.50 | 0.50 | ug/L | EPA 8260B | 5/23/2002 |
| Toluene | < 0.50 | 0.50 | ug/L | EPA 8260B | 5/23/2002 |
| Ethylbenzene | < 0.50 | 0.50 | ug/L | EPA 8260B | 5/23/2002 |
| Total Xylenes | < 0.50 | 0.50 | ug/L | EPA 8260B | 5/23/2002 |
| Methyl-t-butyl ether (MTBE) | < 5.0 | 5.0 | ug/L | EPA 8260B | 5/23/2002 |
| TPH as Gasoline | < 50 | 50 | ug/L | EPA 8260B | 5/23/2002 |
| Toluene - d8 (Surr) | 102 | | % | EPA 8260B | 5/23/2002 |
| 4-Bromofluorobenzene (Surr) | 99.1 | | % | EPA 8260B | 5/23/2002 |

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

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

Report Number : 26495

Date : 6/29/2002

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

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

Project Number : **020520-MN3**

| 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 | 26492-04 | <0.50 | 39.3 | 39.2 | 39.4 | 39.0 | ug/L | EPA 8260B | 5/23/02 | 100 | 99.5 | 0.850 | 70-130 | 25 |
| Toluene | 26492-04 | <0.50 | 39.3 | 39.2 | 39.8 | 39.6 | ug/L | EPA 8260B | 5/23/02 | 101 | 101 | 0.321 | 70-130 | 25 |
| Tert-Butanol | 26492-04 | <5.0 | 196 | 196 | 191 | 192 | ug/L | EPA 8260B | 5/23/02 | 97.2 | 97.8 | 0.523 | 70-130 | 25 |
| Methyl-t-Butyl Ether | 26492-04 | <0.50 | 39.3 | 39.2 | 37.6 | 37.1 | ug/L | EPA 8260B | 5/23/02 | 95.7 | 94.6 | 1.10 | 70-130 | 25 |

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

Report Number : 26495

**QC Report : Laboratory Control Sample (LCS)**

Date : 6/29/2002

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

Project Number : **020520-MN3**

| Parameter | Spike Level | Units | Analysis Method | Date Analyzed | LCS Percent Recov. | LCS Percent Recov. Limit |
|---|---|---|---|---|---|---|
| Benzene | 20.0 | ug/L | EPA 8260B | 5/23/02 | 101 | 70-130 |
| Toluene | 20.0 | ug/L | EPA 8260B | 5/23/02 | 103 | 70-130 |
| Tert-Butanol | 100 | ug/L | EPA 8260B | 5/23/02 | 97.9 | 70-130 |
| Methyl-t-Butyl Ether | 20.0 | ug/L | EPA 8260B | 5/23/02 | 93.0 | 70-130 |

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

# SHELL Chain Of Custody Record

Lab Identification (if necessary):

Address:

City, State, Zip:

**Shell Project Manager to be invoiced:** Karen Petryna

☑ SCIENCE & ENGINEERING ☐ TECHNICAL SERVICES ☐ CRMT HOUSTON

26495

INCIDENT NUMBER (S&E ONLY): 98995750

SAP or CRMT NUMBER (TS/CRMT):

DATE: 5/20/02

PAGE: 1 of 1

SAMPLING COMPANY: Blaine Tech Services

LOG CODE: BTSS

SITE ADDRESS (Street and City): 610 Market Street, Oakland

GLOBAL ID NO.: T0600102121

ADDRESS: 1680 Rogers Avenue, San Jose, CA 95112

EDF DELIVERABLE TO (Responsible Party or Designee): Anni Kreml

PHONE NO.: 510-420-3335

E-MAIL: ShellOaklandEDF@cambria-env.com

CONSULTANT PROJECT NO.: BTS # 020520-MW3

PROJECT CONTACT (Hardcopy or PDF Report to): Leon Gearhart

TELEPHONE: 408-573-0555

FAX: 408-573-7771

E-MAIL: lgearhart@blainetech.com

SAMPLER NAME(S) (Print): Michael Niimoka tx

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 ☐

REQUESTED ANALYSIS

| LAB USE ONLY | Field Sample Identification | SAMPLING DATE | SAMPLING TIME | MATRIX | NO. OF CONT. | TPH - Gas, Purgeable | BTEX | MTBE (8021B - 5ppb RL) | MTBE (8260B - 0.5ppb RL) | Oxygenates (5) by (8260B) | Ethanol (8260B) | Methanol | 1,2-DCA (8260B) | EDB (8260B) | TPH - Diesel, Extractable (8015m) | TEMPERATURE ON RECEIPT C° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MW-4 | 5/20/02 | 1500 | W | 3 | X | X | X | | | | | | | | -01 |
| | MW-5 | " | 1517 | " | 3 | X | X | X | | | | | | | | -02 |
| | | | | | | | | | | | | | | | | |
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**FIELD NOTES:** Container/Preservative or PID Readings or Laboratory Notes

| | | | |
|---|---|---|---|
| Relinquished by: (Signature) | Received by: (Signature) | Date: 5/21/02 | Time: 1100 |
| Relinquished by: (Signature) | Received by: (Signature) | Date: | Time: |
| Relinquished by: (Signature) | Received by: (Signature) John Cuttle/K Jeff Analytical | Date: 052102 | Time: 1100 |

DISTRIBUTION: White with final report, Green to File, Yellow and Pink to Client.

10/16/00 Revision

Q&Q Graphic, (714) 898-9702

# WELL GAUGING DATA

Project # 020520-MW3 Date 5/20/02 Client Equiva

Site 660 Market St Oakland

| Well ID | Well Size (in.) | Sheen / Odor | Depth to Immiscible Liquid (ft.) | Thickness of Immiscible Liquid (ft.) | Volume of Immiscibles Removed (ml) | Depth to water (ft.) | Depth to well bottom (ft.) | Survey Point: TOB or TOC | |
|---|---|---|---|---|---|---|---|---|---|
| MW-4 | 4 | | | | | 10.64 | 19.80 | | |
| MW-5 | 4 | | | | | 10.41 | 20.22 | ↓ | |
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2

# SHELL WELL MONITORING DATA SHEET

| | |
|---|---|
| BTS #: 020720-MW3 | Site: 98995750 |
| Sampler: MDN | Date: 5/20/02 |
| Well I.D.: MW-4 | Well Diameter: 2 3 (4) 6 8 ____ |
| Total Well Depth: 19.80 | Depth to Water: 10.64 |
| Depth to Free Product: | Thickness of Free Product (feet): |
| Referenced to: (PVC) Grade | D.O. Meter (if req'd): YSI HACH |

Purge Method: Bailer, Disposable Bailer, Middleburg, X Electric Submersible, Waterra, Peristaltic, Extraction Pump, Other____

Sampling Method: Bailer, Disposable Bailer, Extraction Port, Dedicated Tubing, Other: ____

6.0 (Gals.) X 3 = 18.0 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

| Well Diameter | Multiplier | Well Diameter | Multiplier |
|---|---|---|---|
| 1" | 0.04 | 4" | 0.65 |
| 2" | 0.16 | 6" | 1.47 |
| 3" | 0.37 | Other | radius² * 0.163 |

| Time | Temp (°F) | pH | Cond. (mS or µS) | Turbidity (NTUs) | Gals. Removed | Observations |
|---|---|---|---|---|---|---|
| ~~1453 67.7~~ 1455 | 67.7 | 6.9 | 974 | > 200 | 6.0 | cloudy |
| 1454 | 68.3 | 6.9 | 988 | 163 | 12.0 | less cloudy |
| 1455 | 68.3 | 6.9 | 984 | 197 | 18.0 | cloudy, odor |
| | | | | | | |
| | | | | | | |

Did well dewater? Yes (No) Gallons actually evacuated: 18.0

Sampling Time: 1500 Sampling Date: 5/20/02

Sample I.D.: MW-4 Laboratory: (Kiff) SPL Other____

Analyzed for: (TPH-G) BTEX (MTBE) TPH-D Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Other:

| | | | | |
|---|---|---|---|---|
| D.O. (if req'd): | Pre-purge: | mg/L | Post-purge: | mg/L |
| O.R.P. (if req'd): | Pre-purge: | mV | Post-purge: | mV |

2

# SHELL WELL MONITORING DATA SHEET

| | |
|---|---|
| BTS #: 20520-MW3 | Site: 98995750 |
| Sampler: MDN | Date: 5/20/02 |
| Well I.D.: MW-5 | Well Diameter: 2 3 (4) 6 8 ____ |
| Total Well Depth: 20.22 | Depth to Water: 10.41 |
| Depth to Free Product: | Thickness of Free Product (feet): |
| Referenced to: (PVC) Grade | D.O. Meter (if req'd): YSI HACH |

Purge Method: Bailer, Disposable Bailer, ✗Middleburg, Electric Submersible, Waterra, Peristaltic, Extraction Pump, Other____

Sampling Method: ✗Bailer, Disposable Bailer, Extraction Port, Dedicated Tubing, Other: ____

6.4 (Gals.) X 3 = 19.2 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

| Well Diameter | Multiplier | Well Diameter | Multiplier |
|---|---|---|---|
| 1" | 0.04 | 4" | 0.65 |
| 2" | 0.16 | 6" | 1.47 |
| 3" | 0.37 | Other | radius² * 0.163 |

| Time | Temp (°F) | pH | Cond. (mS or µS) | Turbidity (NTUs) | Gals. Removed | Observations |
|---|---|---|---|---|---|---|
| 1509 | 68.5 | 6.8 | 1061 | >200 | 6.4 | cloudy |
| 1511 | 67.5 | 6.8 | 1115 | >200 | 12.8 | " |
| 1512 | 67.2 | 6.8 | 1085 | >200 | 19.2 | Increased Cloudiness |
| | | | | | | |
| | | | | | | |

Did well dewater? Yes (No) Gallons actually evacuated: 19.2

Sampling Time: 1517 Sampling Date: 5/20/02

Sample I.D.: MW-5 Laboratory: (Kiff) SPL Other____

Analyzed for: (TPH-G BTEX MTBE TPH-D) Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Other:

| | | | | |
|---|---|---|---|---|
| D.O. (if req'd): | Pre-purge: | mg/L | Post-purge: | mg/L |
| O.R.P. (if req'd): | Pre-purge: | mV | Post-purge: | mV |

# WELL DEVELOPMENT DATA SHEET

| | |
|---|---|
| Project #: 020517-MG3 | Client: Shell |
| Developer: MG | Date Developed: 5/17/02 |
| Well I.D. MW-5 | Well Diameter: (circle one) 2 3 (4) 6 |
| Total Well Depth: Before 20.10 After | Depth to Water: Before 10.35 After |
| Reason not developed: | If Free Product, thickness: |
| Additional Notations: | |

| Volume Conversion Factor (VCF): | Well dia. | | VCF |
|---|---|---|---|
| [12 x ($d^2$/4) x π] /231 | 2" | = | 0.16 |
| where | 3" | = | 0.37 |
| 12 = in / foot | 4" | = | 0.65 |
| d = diameter (in.) | 6" | = | 1.47 |
| π = 3.1416 | 10" | = | 4.08 |
| 231 = in 3/gal | 12" | = | 6.87 |

| 6.3 | X | ~~10~~ 6 | = | 37.8 |
|---|---|---|---|---|
| 1 Case Volume | | Specified Volumes | | gallons |

Purging Device: Bailer ☐ Electric Submersible ☒
Middleburg ☐ Suction Pump ☐

Type of Installed Pump _____
Other equipment used Surge Block

| TIME | TEMP (F) | pH | Cond. (mS or (µS)) | TURBIDITY (NTUs) | VOLUME REMOVED: | NOTATIONS: |
|---|---|---|---|---|---|---|
| 1442 | 69.4 | 7.7 | 1303 | >200 | 7 | Surge Block - 10 min |
| 1444 | 68.0 | 7.4 | 1361 | >200 | 14 | Very turbid brown. |
| 1445 | Well dewatered @ ≈ 15 gals. | | | | DTW = 18.30' | Fine silt. Slow Recharge |
| 1500 | DTW = 15.90. Start Pump again. | | | | | |
| 1501 | Well dewatered @ ≈ 18 gals | | | | DTW = 18.30 | |
| | Recharge rate = 0.18 gals/min. | | | | | |
| 1505 | DTW = 17.40. Start Pump again | | | | | |
| 1506 | 69.5 | 7.4 | 1317 | ≥200 | 19 | |
| 1507 | Well dewatered @ | | | 19 gals | DTW = | 18.25' |
| | | | | | | |
| | | | | | | |
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| | | | | | | |

Did Well Dewater? yes | If yes, note above. | Gallons Actually Evacuated: 19

# WELL GAUGING DATA

Project # 020513-DA-2 Date 5/13/02 Client Shell

Site 610 Market St. Oakland, CA

| Well ID | Well Size (in.) | Sheen / Odor | Depth to Immiscible Liquid (ft.) | Thickness of Immiscible Liquid (ft.) | Volume of Immiscibles Removed (ml) | Depth to water (ft.) | Depth to well bottom (ft.) | Survey Point: TOB or TOC | |
|---|---|---|---|---|---|---|---|---|---|
| MW-4 | 4 2 | | | | | 10.64 / 16.22a | 19.77 / 19.73 | TOC | |
| MW-5 | 4 2 | | | | | 10.40 / 18.47a | 19.63 / 20.17 | ↓ | |
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# WELL DEVELOPMENT DATA SHEET

| | |
|---|---|
| Project #: 020513-DA-2 | Client: Shell |
| Developer: David Allbut | Date Developed: 5/13/02 |
| Well I.D. MW-4 | Well Diameter: (circle one) ~~2~~ 3 (4) 6 |
| Total Well Depth: Before 19.77 After 19.73 | Depth to Water: Before 10.64 After 16.22 |
| Reason not developed: | If Free Product, thickness: |
| Additional Notations: Surged 15 min. before purging | |

| Volume Conversion Factor (VCF): | Well dia. | | VCF |
|---|---|---|---|
| (12 x ($d^2$/4) x π) /231 | ~~2"~~ | = | 0.16 |
| where | 3" | = | 0.37 |
| 12 = in / foot | (4") | = | 0.65 |
| d = diameter (in.) | 6" | = | 1.47 |
| π = 3.1416 | 10" | = | 4.08 |
| 231 = in 3/gal | 12" | = | 6.87 |

| 5.9 | X | 10 | | 59 |
|---|---|---|---|---|
| 1 Case Volume | | Specified Volumes | = | gallons |

Purging Device: Bailer ☐ Electric Submersible ☒
Middleburg ☒ Suction Pump ☐

Type of Installed Pump _____
Other equipment used _____

| TIME | TEMP (F) | pH | Cond. (mS or µS) | TURBIDITY (NTUs) | VOLUME REMOVED: | NOTATIONS: |
|---|---|---|---|---|---|---|
| 1537 | 66.8 | 7.5 | 1227µS | >200 | 6 | ~~Agitated bottom; hard bottom~~ brown, cloudy, silty, Middleburg |
| 1547 | 67.3 | 7.1 | 1183 | >200 | 12 | brown, cloudy, silty, ES |
| 1548 | 67.5 | 7.1 | 1174 | >200 | 18 | " slight odor |
| 1549 | 67.9 | 7.0 | 994 | >200 | 24 | " |
| 1550 | 68.5 | 6.9 | 1027 | >200 | 30 | "; less silty |
| 1555 | 67.7 | 6.9 | 1018 | >200 | 36 | " |
| 1557 | 68.2 | 6.9 | 1000 | >200 | 42 | clearing, less brown |
| 1600 | 68.1 | 6.8 | 935 | >200 | 48 | still cloudy |
| 1602 | 68.5 | 6.8 | 891 | >200 | 54 | " |
| 1604 | 68.2 | 6.8 | 923 | >200 | 59 | " |
| | | | | | | |
| | | | | | | |
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| | | | |
|---|---|---|---|
| Did Well Dewater? NO | If yes, note above. | Gallons Actually Evacuated: | 59 |

switched off ES between case volumes

# WELL DEVELOPMENT DATA SHEET

| | |
|---|---|
| Project #: 020513-DA-2 | Client: Shell |
| Developer: David A. | Date Developed: 5/13/02 |
| Well I.D. MW-5 | Well Diameter: (circle one) ~~2~~ 3 (4) 6 |
| Total Well Depth: 20.17<br>Before 18.63 After ~~20.27~~ | Depth to Water:<br>Before 10.40 After 18.47 |
| Reason not developed: | If Free Product, thickness: |
| Additional Notations: Surged 15 min before purging | |

Volume Conversion Factor (VCF):
(12 x ($d^2$/4) x π) /231
where
12 = in / foot
d = diameter (in.)
π = 3.1416
231 = in 3/gal

| Well dia. | | VCF |
|---|---|---|
| ~~2~~ | = | 0.16 |
| 3" | = | 0.37 |
| (4") | = | 0.65 |
| 6" | = | 1.47 |
| 10" | = | 4.08 |
| 12" | = | 6.87 |

| 5.3 | X | 10 | = | 53 |
|---|---|---|---|---|
| 1 Case Volume | | Specified Volumes | | gallons |

Purging Device: Bailer ☐ Electric Submersible ☒
Middleburg ☒ Suction Pump ☐

Type of Installed Pump _____
Other equipment used _____

| TIME | TEMP (F) | pH | Cond. (mS or µS) | TURBIDITY (NTUs) | VOLUME REMOVED: | NOTATIONS: |
|---|---|---|---|---|---|---|
| 1636 | 66.0 | 7.0 | 1913µS | 7200 | 65.3 | Agitated bottom; hard bottom very grey, very turbid, silty |
| 1644 | 67.1 | 7.6 | 1747 | 7200 | 10.6 | Middleburg still; " |
| 1647 | 67.0 | 7.7 | 1476 | 7200 | 15.9 | " |
| 1700 | 65.9 | 8.0 | 1173 | >200 | 21.2 | " is still turbid, grey |
| 1700 | Well dewatered | @ ~21g. | — | — | — | ↑ less turbid, but still grey, cloudy less silty |
| | | | | | | |
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Did Well Dewater? Yes | If yes, note above. | Gallons Actually Evacuated: 22

# ATTACHMENT B

## Soil Boring Logs

Cambria Environmental Technology, Inc.
1144 - 65th St.
Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

# BORING/WELL LOG

| | | | |
|---|---|---|---|
| **CLIENT NAME** | Shell Oil Products US | **BORING/WELL NAME** | SB-D |
| **JOB/SITE NAME** | Shell-Branded Service Station | **DRILLING STARTED** | 16-Apr-02 |
| **LOCATION** | 610 Market, Oakland CA | **DRILLING COMPLETED** | 16-Apr-02 |
| **PROJECT NUMBER** | 244-0594 | **WELL DEVELOPMENT DATE (YIELD)** | NA |
| **DRILLER** | Gregg Drilling | **GROUND SURFACE ELEVATION** | Not Surveyed |
| **DRILLING METHOD** | Hydraulic push | **TOP OF CASING ELEVATION** | NA |
| **BORING DIAMETER** | 2" | **SCREENED INTERVAL** | NA |
| **LOGGED BY** | J. Gerke | **DEPTH TO WATER (First Encountered)** | 13.7 ft (16-Apr-02) |
| **REVIEWED BY** | D. Lundquist, PE | **DEPTH TO WATER (Static)** | NA |
| **REMARKS** | Hand augered to 5' bgs. Located approximately 20 feet northwest of dispesnser D5/D6. | | |

| MTBE (ppm) | BLOW COUNTS | SAMPLE ID | EXTENT | DEPTH (ft bgs) | U.S.C.S. | GRAPHIC LOG | LITHOLOGIC DESCRIPTION | CONTACT DEPTH (ft bgs) | WELL DIAGRAM |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | **FILL** | 0.9 | |
| | | | | | | | **Silty SAND**: (SM); brown; damp; 3% clay, 12% silt, 85% fine grained sand; no plasticity. | | |
| <0.5 | | SB-D-5.0 | | 5 | | | | | |
| | | | | | SM | | | | |
| <0.5 | | SB-D-10.0 | | 10 | | | | | Portland Type I/II Cement |
| <0.5 | | SB-D-11.5 | | | | | @ 11.1 fbg - brown with gray mottling; moist; 5% clay, 25% silt, 70% fine grained sand. | | |
| | | | | 15 | | | @ 16.0 fbg - bluish gray; wet; 7% clay, 28% silt, 65% fine grained sand; odor. | | |
| | | | | | | | | 18.8 | |
| | | | | | SP | | **SAND**: (SP); bluish gray; wet; 3% clay, 7% silt, 90% fine grained sand; no plasticity; odor. | | |
| | | | | 20 | | | | 20.0 | Bottom of Boring @ 20 ft |

WELL LOG (MTBE) G:\OA\3300-1\GINT\OAK610.GPJ DEFAULT.GDT 6/11/02

Cambria Environmental Technology, Inc.
1144 - 65th St.
Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

# BORING/WELL LOG

| | | | |
|---|---|---|---|
| **CLIENT NAME** | Shell Oil Products US | **BORING/WELL NAME** | SB-E |
| **JOB/SITE NAME** | Shell-Branded Service Station | **DRILLING STARTED** | 16-Apr-02 |
| **LOCATION** | 610 Market, Oakland CA | **DRILLING COMPLETED** | 16-Apr-02 |
| **PROJECT NUMBER** | 244-0594 | **WELL DEVELOPMENT DATE (YIELD)** | NA |
| **DRILLER** | Gregg Drilling | **GROUND SURFACE ELEVATION** | Not Surveyed |
| **DRILLING METHOD** | Hydraulic push | **TOP OF CASING ELEVATION** | NA |
| **BORING DIAMETER** | 2" | **SCREENED INTERVAL** | NA |
| **LOGGED BY** | J. Gerke | **DEPTH TO WATER (First Encountered)** | 13.0 ft (16-Apr-02) |
| **REVIEWED BY** | D. Lundquist, PE | **DEPTH TO WATER (Static)** | NA |
| **REMARKS** | Hand augered to 5' bgs. Located approximately 5 feet southwest of dispenser D1/D2. | | |

| MTBE (ppm) | BLOW COUNTS | SAMPLE ID | EXTENT | DEPTH (ft bgs) | U.S.C.S. | GRAPHIC LOG | LITHOLOGIC DESCRIPTION | CONTACT DEPTH (ft bgs) | WELL DIAGRAM |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | **ASPHALT.** | 0.4 | |
| | | | | | SP | | **SAND**; (SP); bluish gray; damp; 5% clay, 10% silt, 80% fine grained sand; no plasticity. | 3.5 | |
| 6.1 | | SB-E-5.0 | | 5 | SM | | **Silty SAND**; (SM); brown; damp; 10% clay, 15% silt, 75% fine grained sand; no plasticity; odor. | 6.5 | |
| | | | | | SP | | **SAND**; (SP); bluish gray; moist; 3% clay, 7% silt, 90% fine grained sand; no plasticity; odor. | 12.0 | Portland Type I/II Cement |
| 2.7 | | SB-E-10.0 | | 10 | | | | | |
| 4.8 | | SB-E-12.5 | | | SM | | **Silty SAND**; (SM); brown; moist; 3% clay, 17% silt, 80% fine grained sand; no plasticity; odor.<br>@ 13 fbg - wet. | 16.0 | Bottom of Boring @ 16 ft |
| | | | | 15 | | | | | |

WELL LOG (MTBE) G:\OA5300-1\GINT\OAK610.GPJ DEFAULT.GDT 6/11/02

Cambria Environmental Technology, Inc.
1144 - 65th St.
Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

# BORING/WELL LOG

| | | | |
|---|---|---|---|
| **CLIENT NAME** | Shell Oil Products US | **BORING/WELL NAME** | SB-F |
| **JOB/SITE NAME** | Shell-Branded Service Station | **DRILLING STARTED** | 16-Apr-02 |
| **LOCATION** | 610 Market, Oakland CA | **DRILLING COMPLETED** | 16-Apr-02 |
| **PROJECT NUMBER** | 244-0594 | **WELL DEVELOPMENT DATE (YIELD)** | NA |
| **DRILLER** | Gregg Drilling | **GROUND SURFACE ELEVATION** | Not Surveyed |
| **DRILLING METHOD** | Hydraulic push | **TOP OF CASING ELEVATION** | NA |
| **BORING DIAMETER** | 2" | **SCREENED INTERVAL** | NA |
| **LOGGED BY** | J. Gerke | **DEPTH TO WATER (First Encountered)** | 11.7 ft (16-Apr-02) |
| **REVIEWED BY** | D. Lundquist, PE | **DEPTH TO WATER (Static)** | NA |

**REMARKS** Hand augered to 5' bgs. Located approximately 27 feet south of well MW-3, near the south corner of the site.

| MTBE (ppm) | BLOW COUNTS | SAMPLE ID | EXTENT | DEPTH (ft bgs) | U.S.C.S. | GRAPHIC LOG | LITHOLOGIC DESCRIPTION | CONTACT DEPTH (ft bgs) | WELL DIAGRAM |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | **ASPHALT.** | 0.6 | |
| | | | | | | | **Silty SAND**; (SM); brown; damp; 5% clay, 15% silt, 80% fine grained sand. | | |
| <0.5 | | SB-F-5.0 | | 5 | SM | | @ 5.0 fbg - brown with light gray mottling. | | Portland Type I/II Cement |
| | | | | | | | @ 8.0 fbg - moist, odor. | | |
| <0.5 | | SB-F-10.0 | | 10 | | | @ 9.8 fbg - bluish gray; 5% clay, 15% silt, 80% sand. | | |
| <0.5 | | SB-F-11.2 | | | | | @ 11.7 fbg - wet; 15% silt, 85% sand. | 12.0 | Bottom of Boring @ 12 ft |

WELL LOG (MTBE) G:\OA5300-1\GINT\OAK610.GPJ DEFAULT.GDT 6/11/02

Cambria Environmental Technology, Inc.
1144 - 65th St.
Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

# BORING/WELL LOG

| | | | |
|---|---|---|---|
| **CLIENT NAME** | Shell Oil Products US | **BORING/WELL NAME** | MW-4 |
| **JOB/SITE NAME** | Shell-Branded Service Station | **DRILLING STARTED** | 17-Apr-02 |
| **LOCATION** | 610 Market, Oakland CA | **DRILLING COMPLETED** | 17-Apr-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 ft bgs |
| **LOGGED BY** | J. Gerke | **DEPTH TO WATER (First Encountered)** | 10.2 ft (17-Apr-02) |
| **REVIEWED BY** | D. Lundquist, PE | **DEPTH TO WATER (Static)** | 10.61 ft (20-May-02) |

**REMARKS** Hand augered to 5' bgs. Located within 6th Street, approximately 43 feet SW of the site and 103 feet SE of Market St.

| MTBE (ppm) | BLOW COUNTS | SAMPLE ID | DEPTH (ft bgs) | U.S.C.S. | LITHOLOGIC DESCRIPTION | CONTACT DEPTH (ft bgs) | WELL DIAGRAM |
|---|---|---|---|---|---|---|---|
| | | | 0 | | **ASPHALT.** | | Portland Type I/II Cement |
| | | | | | **Silty SAND**; (SM); brown; damp; 20% silt, 80% fine with trace medium grained sand; no plasticity. | 1.7 | |
| | | | 5 | | | | Bentonite Seal |
| | 5, 7, 8 | | | | | | Monterey Sand #2/16 |
| <0.5 | | MW-4-6.5 | | | @ 6 fbg - medium dense; moist. | | |
| | 7, 9, 12 | | | | | | |
| <0.5 | | MW-4-9.5 | 10 | | @ 9 fbg - light brown with light gray mottling and oxidization staining. | | |
| | | | | SM | @ 10.2 fbg - wet. ▽▼ | | |
| | | | | | | | 4"-diam., 0.010" Slotted Schedule 40 PVC |
| | 7, 7, 8 | | | | | | |
| <0.5 | | MW-4-14.5 | 15 | | @ 14.0 fbg - light brown with light gray mottling. | | |
| | 6, 8, 10 | | | | | | |
| <0.5 | | MW-4-19.0 | 20 | | | 20.0 | Bottom of Boring @ 20 ft |

WELL LOG (MTBE) G:\DA5300--1\GINT\OAK610.GPJ DEFAULT.GDT 6/11/02

Cambria Environmental Technology, Inc.
1144 - 65th St.
Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

# BORING/WELL LOG

| | | | |
|---|---|---|---|
| **CLIENT NAME** | Shell Oil Products US | **BORING/WELL NAME** | MW-5 |
| **JOB/SITE NAME** | Shell-Branded Service Station | **DRILLING STARTED** | 17-Apr-02 |
| **LOCATION** | 610 Market, Oakland CA | **DRILLING COMPLETED** | 17-Apr-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 ft bgs |
| **LOGGED BY** | J. Gerke | **DEPTH TO WATER (First Encountered)** | 12.0 ft (17-Apr-02) ▽ |
| **REVIEWED BY** | D. Lundquist, PE | **DEPTH TO WATER (Static)** | 10.41 ft (20-May-02) ▼ |
| **REMARKS** | Hand augered to 6' bgs. Located within 6th Street, approximately 35 feet SW of the site and 38 feet SE of Market St. | | |

| MTBE (ppm) | BLOW COUNTS | SAMPLE ID | DEPTH (ft bgs) | U.S.C.S. | LITHOLOGIC DESCRIPTION | CONTACT DEPTH (ft bgs) | WELL DIAGRAM |
|---|---|---|---|---|---|---|---|
| | | | 0 | | **ASPHALT.** | 1.0 | Portland Type I/II Cement |
| | | | | SP | **SAND**; (SP); brown; damp; 5% clay, 10% silt, 85% fine sand; no plasticity. | | Bentonite Seal |
| | | | | | | 4.6 | Monterey Sand #2/16 |
| | | | 5 | SM | **Silty SAND**; (SM); light gray; damp; 10% clay, 25% silt, 65% sand; no plasticity. | 5.6 | |
| <0.5 | 8, 12, 16 | MW-5-6.5 | | SP | **SAND**; (SP); brown; medium dense; damp; 10% silt, 90% fine sand; no plasticity.<br>@ 6 fbg - greenish gray; moist. | | |
| <0.5 | 6, 8, 11 | MW-5-9.5 | 10 | | | | |
| | | | | | @ 12 fbg - wet. | 12.3 | 4"-diam., 0.010" Slotted Schedule 40 PVC |
| <0.5 | 7, 10, 12 | MW-5-14.5 | 15 | | **Silty SAND**; (SM); light brown with light gray mottling; medium dense; wet; 25% silt, 75% sand; no plasticity. | | |
| 3.0 | 7, 9, 13 | MW-5-19.5 | 20 | SM | @ 19 fbg - light brown. | | |
| <0.5 | 12, 14, 17 | MW-5-24.5 | 25 | | @ 24 fbg - 20% silt, 80% sand. | 25.5 | Portland Type I/II Cement<br>Bottom of Boring @ 25.5 ft |

WELL LOG (MTBE) G:\OA5300-11\GINT\OAK610.GPJ DEFAULT.GDT 6/11/02

# ATTACHMENT C

## Permits

# ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5584 6633
FAX (510)782-1939

## DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 610 - Market Street
Oakland, CA

CLIENT
Name Shell Oil Products, U.S.
Address PO Box 7869 Phone 559-645-9306
City Burbank, CA Zip 91510-7869

APPLICANT
Name Cambria Environmental Technology, Inc.
Address 1144-65th Street Fax 510-420-9170
City Oakland, CA Phone 510-420-3320
Zip 94608

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

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

DRILLING METHOD:
- Mud Rotary
- Cable
- Air Rotary
- Other - Geoprobe
- Auger ✓

DRILLER'S NAME Gregg Drilling
DRILLER'S LICENSE NO. C-57-485165

WELL PROJECTS
Drill Hole Diameter ___ in. Maximum
Casing Diameter ___ in. Depth ___ ft.
Surface Seal Depth ___ ft. Owner's Well Number ___

GEOTECHNICAL PROJECTS
Number of Borings 3
Hole Diameter 4 in. Maximum Depth 20 ft.

ESTIMATED STARTING DATE 4/16/02
ESTIMATED COMPLETION DATE 4/19/02

FOR OFFICE USE
PERMIT NUMBER W02-0370
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 4-2-02

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

APPLICANT'S SIGNATURE [signature] DATE 4/02/02

PLEASE PRINT NAME Jason Gerke
Cambria

Rev. 5-13-00

# ALAMEDA COUNTY PUBLIC WORKS AGENCY

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

## DRILLING PERMIT APPLICATION

**FOR APPLICANT TO COMPLETE**

LOCATION OF PROJECT 610 - Market Street
Oakland, CA

CLIENT
Name Shell Oil Products, U.S. Phone 559-645-9306
Address P.O. Box 9869 Zip 93510-9869
City Bakersfield, CA

APPLICANT
Name Cambria Environmental Technology, Inc. Fax 510-420-9170
Address 1144-65th Street Phone 510-420-3320
City Oakland, CA 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
DRILLER'S LICENSE NO. C-57-485165

WELL PROJECTS
Drill Hole Diameter 10 in. Maximum Depth 30 ft.
Casing Diameter 2 in. Owner's Well Number MW-4
Surface Seal Depth 5 ft.

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

ESTIMATED STARTING DATE 4/16/02
ESTIMATED COMPLETION DATE 4/19/02

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

APPLICANT'S SIGNATURE [signature] DATE 4/02/02
PLEASE PRINT NAME Jason Gerke
Cambria

**FOR OFFICE USE**

PERMIT NUMBER W02-0371
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 above zone with concrete placed by tremie.

F. WELL DESTRUCTION See Attached
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 4-2-02

Rev. 5-13-00

# ALAMEDA COUNTY PUBLIC WORKS AGENCY

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

## DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 610 - Market Street
Oakland, CA

CLIENT
Name Shell Oil Products, U.S.
Address P.O. Box 7869 Phone 559-645-9306
City Burbank, CA Zip 91510-7869

APPLICANT
Name Cambria Environmental Technology, Inc.
Fax 510-420-9170
Address 1144-65th Street Phone 510-420-3320
City Oakland, CA Zip 94608

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

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

DRILLING METHOD:
Mud Rotary
Cable
Air Rotary
Other
Auger ✓

DRILLER'S NAME Gregg Drilling
DRILLER'S LICENSE NO. C-57-485165

WELL PROJECTS
Drill Hole Diameter 10 in. Maximum
Casing Diameter 2 in. Depth 30 ft.
Surface Seal Depth 5 ft. Owner's Well Number MW-5

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

ESTIMATED STARTING DATE 4/16/02
ESTIMATED COMPLETION DATE 4/19/02

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

APPLICANT'S SIGNATURE Jason Gerke DATE 4/02/02
PLEASE PRINT NAME Jason Gerke
Cambria,

Rev 5-13-00

FOR OFFICE USE
PERMIT NUMBER WO2-0372
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 above zone with concrete placed by tremie.

F. WELL DESTRUCTION — See Attached
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 4-2-02

CITY OF OAKLAND Community and Economic Development Agency
250 Frank H. Ogawa Plaza, 2nd Floor, Oakland, CA 94612 Phone (510)238-3443 Fax (510) 238-2263

Job Site 610 MARKET ST Parcel# 001 -0223-001-00 Appl# X0200345

Descr soil boring on market st for geotechnical investigation adjacent to above address Permit Issued 04/10/02

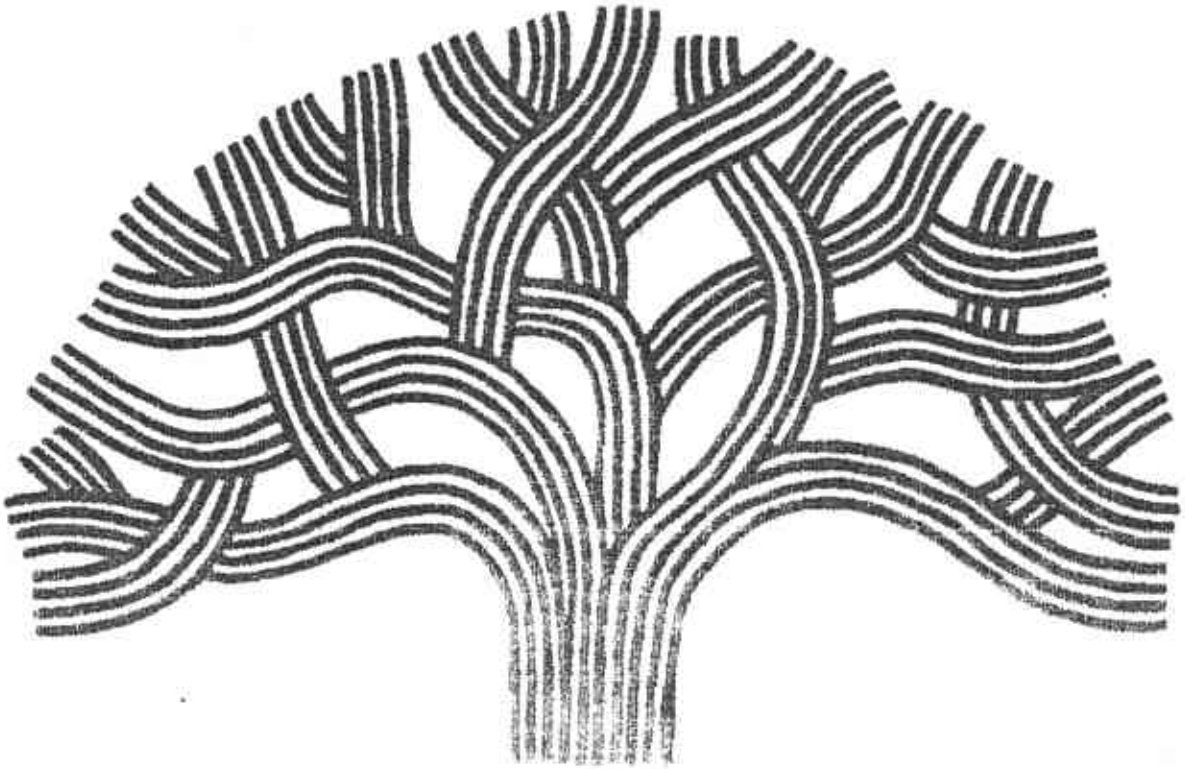
Work Type EXCAVATION-PRIVATE P

USA # Util Co. Job # Acctg#:
Util Fund #:

| | | Applcnt | Phone# | Lic# | --License Classes-- |
|---|---|---|---|---|---|
| Owner | RAWSON VIRGINIA R TR | | | | |
| Contractor | GREGG DRILLING & TESTING, INC. | X | (510)313-5800 | 485165 | C57 |
| Arch/Engr | | | | | |
| Agent | CAMBRIA ENVIRONMENT TECH | | | | |
| Applic Addr | 1144-65TH ST. STE B, OAKLAND, CA, 94608 | | | | |

$250.00 TOTAL FEES PAID AT ISSUANCE

| | |
|---|---|
| $45.00 Applic | $205.00 Permit |
| $.00 Process | $.00 Rec Mgmt |
| $.00 Gen Plan | $.00 Invstg |
| $.00 Other | |



CITY OF OAKLAND

CITY OF OAKLAND Community and Economic Development Agency
250 Frank H. Ogawa Plaza, 2nd Floor, Oakland, CA 94612 Phone (510)238-3443 Fax (510) 238-2263

Job Site 610 MARKET ST Parcel# 001 -0223-001-00 Appl# X0200344

Descr install (2)two monitoring wells on 6th st adjacent to above address Permit Issued 04/10/02

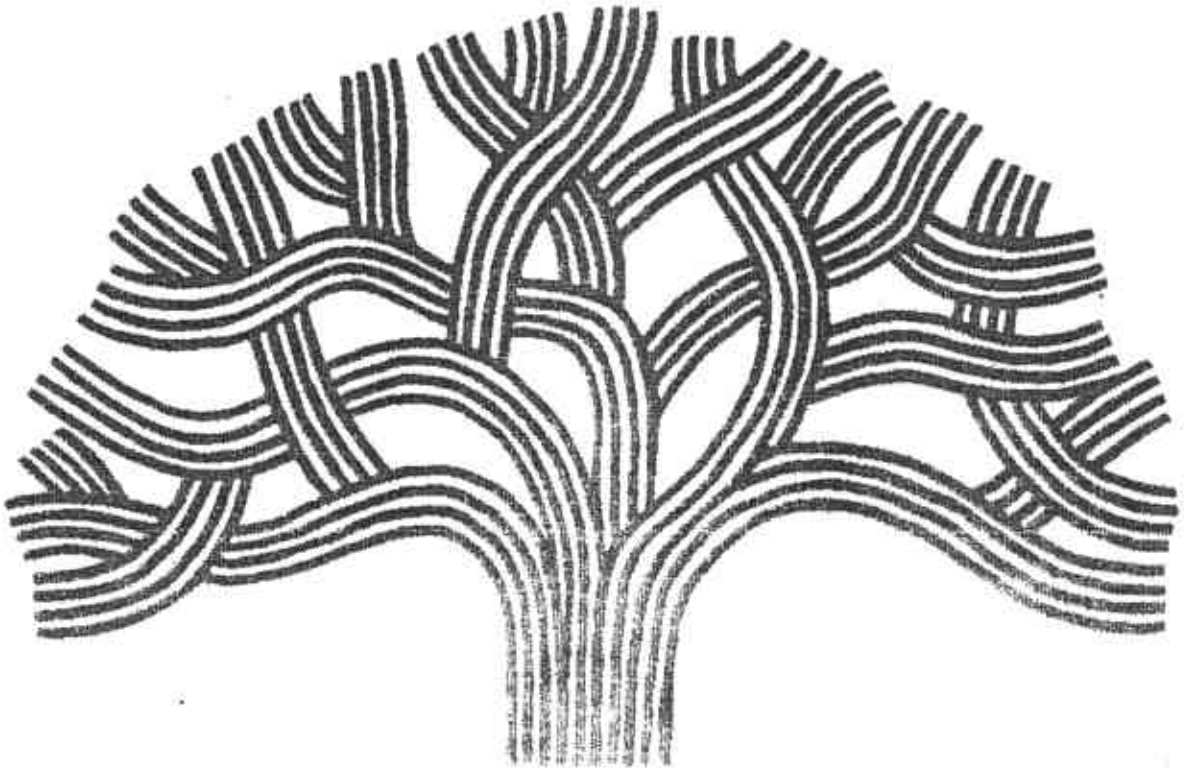
Work Type EXCAVATION-PRIVATE P

USA # Util Co. Job # Acctg#:
Util Fund #:

| | | Applcnt | Phone# | Lic# | --License Classes-- |
|---|---|---|---|---|---|
| Owner | RAWSON VIRGINIA R TR | | | | |
| Contractor | GREGG DRILLING & TESTING, INC. | X | (510)313-5800 | 485165 | C57 |
| Arch/Engr | | | | | |
| Agent | CAMBRIA ENVIRONMENT TECH | | | | |
| Applic Addr | 1144-65TH ST. STE B, OAKLAND, CA, 94608 | | | | |

$250.00 TOTAL FEES PAID AT ISSUANCE

| | |
|---|---|
| $45.00 Applic | $205.00 Permit |
| $.00 Process | $.00 Rec Mgmt |
| $.00 Gen Plan | $.00 Invstg |
| $.00 Other | |



CITY OF OAKLAND

# ATTACHMENT D

## Soil Disposal Confirmation

MANLEY & SONS TRUCKING, INC.
ROCK
SAND
DEMO
FILL DIRT
TOP SOIL
CA 009930
(916) 381-6864

Hazardous Waste Hauler (Registration #2843)

8896 Elder Creek Rd. • Sacramento, CA 95828 • FAX (916) 381-1573

# Disposal Confirmation

Request for Transportation Received: 04/30/02

## Consultant Information

| | |
|---|---|
| Company: | Cambria |
| Contact: | Gerke, Jason |
| Phone: | 510-420-3320 |
| Fax: | 510-420-9170 |

## Site Information

| | |
|---|---|
| Station #: | |
| Street Address: | 610 Market St |
| City, State, ZIP: | Oakland, CA 94607 |
| Customer: | Shell Oil Company RESA-0023-LDC |
| RIPR #: | 11251 |
| SAP # / Location: | 135692 |
| Incident #: | 98995750 |
| Location / WIC #: | 2045508-5702 |
| Environmental Engineer: | Petryna, Karen E. |
| Fax: | |
| Material Description: | Soil from drill cuttings |
| Estimated Quantity: | 6 Yards |
| Service Requested Date: | 05/07/02 |
| Disposal Facility: | Forward Landfill |
| Contact: | Joe Griffith |
| Phone: | 800-204-4242 |
| Approval #: | 1927 |
| Date of Disposal: | 05/08/02 |
| Actual Tonnage | 1.88 Tons |
| Transporter: | Manley & Sons Trucking, Inc. |
| Contact: | Glenell Forbes |
| Phone: | 916 381-6864 |
| Fax: | 916 381-1573 |
| Invoice: | 50183A |
| Date of Invoice: | 05/10/02 |

Fax To: Consultant Cc:Tim Dazey Shell

# ATTACHMENT E

## Survey Results

**Virgil Chavez Land Surveying**
312 Georgia Street, Suite 225
Vallejo, California 94590-5907
(707) 553-2476 • Fax (707) 553-8698

May 23, 2002
Project No.: 1603-30A

Jason Gerke
Cambria Environmental
1144-65th Street, Suite C
Oakland, CA 94608

Subject: Monitoring Well Survey
Shell Service Station
610 Market Street
Oakland, CA

Dear Jason:

This is to confirm that we have proceeded at your request to survey the new ground water monitoring wells located at the above referenced location. The survey was completed on May 16, 2002. The benchmark for this survey was a cut square in the top of curb in mid-return at an over the curb inlet at the northwest corner of 7th and Fallon Streets. The latitude, longitude and coordinates are for top of casings and are based on the California State Coordinate System, Zone III (NAD83).
Benchmark Elevation 19.29 feet (NGVD 29).

| Latitude | Longitude | Northing | Easting | Elev. | Desc. |
|---|---|---|---|---|---|
| | | | | 18.79 | RIM MW-4 |
| 37.8019515 | -122.2826134 | 2119375.54 | 6046671.30 | 18.03 | TOC MW-4 |
| | | | | 18.48 | RIM MW-5 |
| 37.8020510 | -122.2828059 | 2119412.83 | 6046616.36 | 17.78 | TOC MW-5 |


Sincerely,

Virgil D. Chavez, PLS 6323

# ATTACHMENT F

## Standard Field Procedures for Soil Borings

# CAMBRIA

## STANDARD FIELD PROCEDURES FOR SOIL BORINGS

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

### Objectives

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

### Soil Classification/Logging

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

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

### Soil Boring and Sampling

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

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

### Sample Storage, Handling and Transport

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

### Field Screening

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

### 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 ground water samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory.

### Duplicates and Blanks

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

### Grouting

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

### Waste Handling and Disposal

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

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

# ATTACHMENT G

## Standard Field Procedures for Monitoring Well Installation

CAMBRIA

## STANDARD FIELD PROCEDURES FOR 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.

### 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 fee 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.

## 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.