CAMBRIA

November 18, 1998

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

Re: **Subsurface Investigation Report**
Shell-branded Service Station
105 Fifth Street
Oakland, California
WIC #204-5510-0402
Cambria Project #240-0472-08

Dear Mr. Seto:

On behalf of Equilon Enterprises LLC, Cambria Environmental Technology, Inc. (Cambria) is pleased to present the results of the subsurface investigation conducted on July 23, 1998 at the site referenced above. The investigation was conducted in accordance with our May 26, 1998 *Subsurface Investigation Workplan* which was approved by the Alameda County Health Care Services Agency (ACHCSA) in a June 2, 1998 letter to Shell Oil Products Company. The site summary, investigation procedures, and investigation results are presented below.

SITE SUMMARY

The site is located at the southwest corner of the intersection of Fifth and Oak Streets in a primarily commercial area of Oakland, California.

Armer/Norman & Associates of Walnut Creek, California performed upgrade activities at the site during November and December of 1996. Five gasoline dispensers and two diesel dispensers and associated piping were removed and replaced with additional secondary containment. Inactive piping to a former diesel fuel dispenser was located and removed. On November 27, 1996, Cambria collected soil samples from beneath the seven dispenser locations and the inactive diesel fuel piping prior to replacement. After receiving analytical results indicating the presence of hydrocarbons, Cambria filed an *Underground Storage Tank Unauthorized Release Site Report* with the ACHCSA.

In February, 1998 Paradiso Mechanical of San Leandro, California installed secondary containment on the turbine sumps. Since secondary containment had previously been added to the dispensers, no additional dispenser upgrade activities were performed. Cambria inspected the tank pit on February 26, 1998 and no field indications of hydrocarbons, such as staining or odor, were observed.

Oakland, CA
Sonoma, CA
Portland, OR
Seattle, WA

Cambria Environmental Technology, Inc.

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

INVESTIGATION PROCEDURES

To determine the extent of hydrocarbons in soil and ground water beneath the site, Cambria installed three borings in the assumed down gradient direction from existing dispensers and two borings in the assumed up gradient direction from the existing dispensers. Based on topography and the location of the nearby Oakland Inner Harbor, it was anticipated that ground water flowed in a southeasterly to southwesterly direction (Figure 1). Our standard field procedures are included as Attachment A.

Soil Borings

Personnel Present: Geologist Christina Empedocles directed the field sampling, working under the supervision of California Professional Engineer Diane Lundquist.

Permit: Alameda County Public Works Agency Permit #98WR256 (Attachment B).

Drilling Company: Gregg Drilling, Incorporated of Martinez, California (C-57 License #485-165).

Drilling Date: July 23, 1998.

Drilling Method: GeoProbe® (hydraulic push with roto-hammer).

Number of Borings: Five (SB-1 through SB-5).

Boring Depths: 11.0 to 12.0 feet below ground surface (ft bgs). Boring logs are included as Attachment C.

Ground Water Depths: Ground water was encountered in the soil borings at depths ranging from approximately 6 to 9 ft bgs (Attachment C).

Sediment Lithology: The site subsurface consists of silty sand of high estimated permeability to the total explored depth of 12 ft bgs (Attachment C).

Chemical Analyses: Selected soil and ground water samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) and total petroleum hydrocarbons as diesel (TPHd) by modified EPA Method 8015, methyl tert-butyl ether (MTBE) and benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8020. Analytical results are summarized in Tables 1 and 2, and the laboratory report is presented as Attachment D.

Backfill Method: Boring locations were backfilled with cement grout and capped with asphalt patch for the top six inches to match the existing grade.

INVESTIGATION RESULTS

***Soil Analyses*:** Soil boring SB-3 contained the maximum hydrocarbon concentrations in soil with 15 milligrams per kilogram (mg/kg) TPHd and 2.8 mg/kg TPHg at 5.0 ft bgs. Soil boring SB-5 contained the highest concentration of MTBE with 0.48 mg/kg at 5.0 ft bgs. No benzene was detected in the soil samples.

Ground Water Analyses: Water samples collected from borings SB-3 and SB-4 contained the highest hydrocarbon concentrations. SB-3 contained 90,000 micrograms per liter (µg/L) TPHg and 1,300 µg/L benzene. SB-4 contained 27,000 µg/L TPHd and 4,100 µg/L MTBE.

CONCLUSIONS

Elevated hydrocarbon concentrations in ground water samples from borings SB-3 and SB-4 are consistent with hydrocarbon concentrations in soil from nearby dispenser samples D-1 and D-8 collected in November 1996. Ground water samples in the presumed upgradient direction from boring SB-1 contain relatively low hydrocarbon concentrations, and hydrocarbon concentrations in soil appear to be confined to the vicinity of the dispensers.

CLOSING

We appreciate the opportunity to work with you on this project. Please call Darryk Ataide at (510) 420-0700 if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc.

D. Ataide

Darryk Ataide
Project Environmental Scientist

Diane M. Lundquist, P.E.
Principal Engineer

Attachments: A - Standard Field Procedures for GeoProbe® Sampling
B - Drilling Permit
C - Soil Boring Logs
D - Laboratory Analytical Results

cc: Karen Petryna, Equiva Services LLC, P.O. Box 6249, Carson, California 90749-6249

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FIGURE 1

Shell-branded Service Station
105 Fifth Street
Oakland, California

CAMBRIA

Soil Boring Location Map
WIC #204-5510-0402

Table 1. **Soil Analytical Data** - Shell-branded Service Station WIC# 204-5510-0402, 105 Fifth Street, Oakland, California

Sample ID	Depth (feet)	Date Sampled	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
			← Concentrations in mg/kg →						
SB-1-5.0	5.0	7/23/98	1.3	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025
SB-2-5.0	5.0	7/23/98	1.1	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025
SB-3-5.0	5.0	7/23/98	15	2.8	<0.0050	<0.0050	0.0080	0.014	<0.025
SB-4-5.0	5.0	7/23/98	2.5	1.3	<0.0050	0.0063	0.012	0.038	0.13
SB-5-5.0	5.0	7/23/98	8.4	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.48

Abbreviations and Notes:

TPHd = Total petroleum hydrocarbons as diesel by modified EPA Method 8015
TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015
MTBE = Methyl tert-butyl ether by EPA Method 8020
mg/kg = Milligrams per kilogram
<n = Below detection limit of n mg/kg
Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8020

Table 2. **Ground Water Analytical Data** - Shell-branded Service Station WIC# 204-5510-0402, 105 Fifth Street, Oakland, California

Sample ID	Date Sampled	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
		← Concentrations in µg/L →						
SB-1	7/23/98	99	380	1.1	<0.50	4.4	14	<2.5
SB-2	7/23/98	190	<50	0.55	<0.50	<0.50	1.4	<2.5
SB-3	7/23/98	5,500	**90,000**	1,300	**490**	3,500	**13,000**	1,700
SB-4	7/23/98	**27,000**	24,000	830	<100	1,000	2,700	4,100
SB-5	7/23/98	260	96	0.62	<0.50	<0.50	<0.50	39

Abbreviations and Notes:

TPHd = Total petroleum hydrocarbons as diesel by modified EPA Method 8015
TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015
MTBE = Methyl tert-butyl ether by EPA Method 8020
µg/L = Micrograms per liter
<n = Below detection limit of n µg/L
Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8020

ATTACHMENT A

Standard Field Procedures for GeoProbe® Sampling

STANDARD FIELD PROCEDURES FOR GEOPROBE® SAMPLING

This document describes Cambria Environmental Technology's standard field methods for GeoProbe® soil and ground water sampling. 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 separate-phase hydrocarbon saturation percentage,
- Observed odor and/or discoloration,
- Other significant observations (i.e., cementation, presence of marker horizons, mineralogy), and
- Estimated permeability.

Soil Sampling

GeoProbe® soil samples are collected from borings driven using hydraulic push technologies. A minimum of one and one half ft of the soil column is collected for every five ft of drilled depth. Additional soil samples can be collected near the water table and at lithologic changes. Samples are collected using samplers lined with polyethylene or brass tubes driven into undisturbed sediments at the bottom of the borehole. The ground surface immediately adjacent to the boring is used as a datum to measure sample depth. The horizontal location of each boring is measured in the field relative to a permanent on-site reference using a measuring wheel or tape measure.

Drilling and sampling equipment is steam-cleaned or washed 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

After a soil sample has been collected, soil from the remaining tubing is placed inside a sealed plastic bag and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable GasTech® or photoionization detector measures volatile hydrocarbon vapor concentrations in the bag's headspace, extracting the vapor through a slit in the plastic bag. The measurements are used along with the field observations, odors, stratigraphy and ground water depth to select soil samples for analysis.

Grab Ground Water Sampling

Ground water samples are collected from the open borehole using bailers, advancing disposable Tygon® tubing into the borehole and extracting ground water using a diaphragm pump, or using a hydro-punch style sampler with a bailer or tubing. 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 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 quality assurance/quality control (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.

ATTACHMENT B

Drilling Permit

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
951 TURNER COURT, SUITE 300, HAYWARD, CA 94545-2651
PHONE (510) 670-5575 ANDREAS GODFREY FAX (510) 670-5262
(510) 670-5148 ALVIN KAN

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 105 5TH STREET
OAKLAND, CA

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

CLIENT
Name SHELL OIL PRODUCTS COMPANY *
Address P.O. BOX 8080 Phone (510) 865-5028
City HAYWARD, CA Zip 94545
* EQUILON ENTERPRISES LLC AFTER JULY 1, 1998

APPLICANT
Name CAMBRIA ENVIRONMENTAL TECH. Fax (510) 420-9170
Address 1144 65TH STREET Phone (510) 420-0700
City OAKLAND, CA Zip 94608
ATTENTION: CHRISTINA EMPEDOCLES

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☒ Soil Borings
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	☒ GEOPROBE		

DRILLER'S LICENSE NO. # C 57-485-165

WELL PROJECTS
Drill Hole Diameter _____ in. Maximum
Casing Diameter _____ in. Depth _____ ft.
Surface Seal Depth _____ ft. Number _____

GEOTECHNICAL PROJECTS
Number of Borings 9 Maximum
Hole Diameter 2 in. Depth 20 ft.

ESTIMATED STARTING DATE JULY 9, 1998
ESTIMATED COMPLETION DATE JULY 9, 1998

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

APPLICANT'S SIGNATURE _____ DATE 6/22/98

CHRISTINA EMPEDOCLES
PHONE: (510) 420-3324

FOR OFFICE USE

PERMIT NUMBER 98WR256
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 work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
(3.) Permit is void if project not begun within 90 days of approval date.

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

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

F. WELL DESTRUCTION
See attached.

G. SPECIAL CONDITIONS

APPROVED Alvin Kan DATE 6/25/98

ATTACHMENT C

Soil Boring Logs

BORING LOG

Client: **Equilon Enterprises LLC**

Project No: **240-0472** Phase Task **08**

Boring ID **SB-1**

Location **105 Fifth Street, Oakland**

Surface Elev. **ft, NA**

Page **1** of **1**

Depth (feet)	Blow Count	Sample	Interval	Lithologic Description
0	Ground Surface			
				ASPHALT
5				**Silty SAND**: (SM); brown; medium dense; moist; 5% clay, 15% silt, 80% clay; high estimated permeability.
10				dense, 5% clay, 20% silt, 75% sand.
15				
20				
25				
30				

TPHg (ppm) | Graphic Log | Boring Completion Graphics

Depth (feet)	Additional Comments
0	
5	Water encountered @ 6 ft.
10	Bottom of boring @ 11 ft.
15	
20	
25	
30	

Driller **Gregg Drilling**

Logged By **C. Empedocles**

Water-Bearing Zones **NA**

Drilling Started **7/23/98**

Drilling Completed **7/23/98**

Grout Type **Portland Type I/II**

Notes: **5 ft north of northern dispenser.**

BOR SB1-SB5.GPJ 9/10/98

Cambria Environmental Technology, Inc.

BORING LOG

Client: **Equilon Enterprises LLC**

Project No: **240-0472** Phase Task **08**

Boring ID **SB-2**

Location **105 Fifth Street, Oakland**

Surface Elev. **ft, NA**

Page **1** of **1**

Depth (feet)	Blow Count	Sample	Interval	Lithologic Description
0	Ground Surface			ASPHALT
5				Silty SAND; (SM); dark brown; medium dense; moist; 5% clay, 25% silt, 70% medium grained sand; high estimated permeability.
10				wet.
15				
20				
25				
30				

TPHg (ppm) | Graphic Log | Boring Completion Graphics

Depth (feet)	Additional Comments
0	
5	
10	Water encountered @ 9 ft.
	Bottom of boring @ 11 ft.
15	
20	
25	
30	

Driller **Gregg Drilling**

Logged By **C. Empedocles**

Water-Bearing Zones **NA**

Drilling Started **7/23/98**

Drilling Completed **7/23/98**

Grout Type **Portland Type I/II**

Notes: **5 ft north of western dispenser.**

BOR SB1-SB5.GPJ 9/10/98

Cambria Environmental Technology, Inc.

BORING LOG

Client: **Equilon Enterprises LLC**

Project No: **240-0472** Phase Task **08**

Boring ID **SB-3**

Location **105 Fifth Street, Oakland**

Surface Elev. **ft, NA**

Page **1** of **1**

Depth (feet)	Blow Count	Sample	Interval	Lithologic Description
0	Ground Surface			
				ASPHALT
5				**Silty SAND**; (SM); dark brown with green; medium dense; moist; 5% clay, 20% silt, 75% sand; high estimated permeability.
10				light brown with green; wet.
15				
20				
25				
30				

TPHg (ppm) | Graphic Log | Boring Completion Graphics

Depth (feet)	Additional Comments
0	
5	
10	Water encountered @ 9 ft.
	Bottom of boring @ 12 ft.
15	
20	
25	
30	

Driller **Gregg Drilling**

Logged By **C. Empedocles**

Water-Bearing Zones **NA**

Drilling Started **7/23/98**

Drilling Completed **7/23/98**

Grout Type **Portland Type I/II**

Notes: **5 ft south of northeast dispenser.**

BOR SB1-SB5.GPJ 9/10/98

Cambria Environmental Technology, Inc.

BORING LOG

Client: **Equilon Enterprises LLC**

Project No: **240-0472** Phase Task **08**

Boring ID **SB-4**

Location **105 Fifth Street, Oakland**

Surface Elev. **ft, NA**

Depth (feet)	Blow Count	Sample	Interval	Lithologic Description
0	Ground Surface			**ASPHALT**
5				**Silty SAND**: (SM); dark brown; moist; 5% clay, 20% silt, 70% sand, 5% gravel; high estimated permeability.
10				brown; wet.
15				
20				
25				
30				

TPHg (ppm) | Graphic Log | Boring Completion Graphics

Depth (feet)	Additional Comments
0	
5	
10	Water encountered @ 9 ft.
15	Bottom of boring @ 12 ft.
20	
25	
30	

Driller **Gregg Drilling**

Logged By **C. Empedocles**

Water-Bearing Zones **NA**

Drilling Started **7/23/98**

Drilling Completed **7/23/98**

Grout Type **Portland Type I/II**

Notes: **15 ft northeast of southern dispenser.**

BOR SB1-SB5.GPJ 9/10/98

Cambria Environmental Technology, Inc.

BORING LOG

Client: **Equilon Enterprises LLC**

Project No: **240-0472** Phase Task **08**

Boring ID **SB-5**

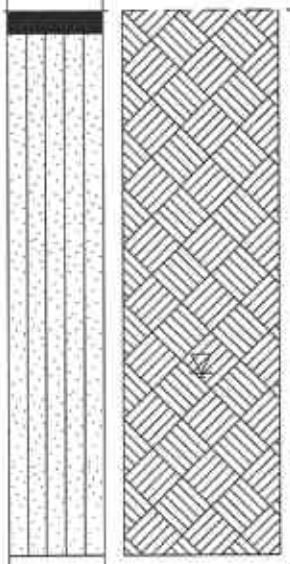
Location **105 Fifth Street, Oakland**

Surface Elev. **ft, NA**

Page **1** of **1**

Depth (feet)	Blow Count	Sample	Interval	Lithologic Description
0	Ground Surface			**ASPHALT**
5				**Silty SAND**; (SM); dark brown; medium dense; moist; 5% clay, 20% silt, 70% sand, 5% gravel; high estimated permeability.
10				brown; wet; 5% clay, 15% silt, 80% medium grained sand.
15				
20				
25				
30				

TPHg (ppm) | Graphic Log | Boring Completion Graphics



Depth (feet)	Additional Comments
0	
5	
10	Water encountered @ 8 ft.
15	Bottom of boring @ 12 ft.
20	
25	
30	

Driller **Gregg Drilling**

Logged By **C. Empedocles**

Water-Bearing Zones **NA**

Drilling Started **7/23/98**

Drilling Completed **7/23/98**

Grout Type **Portland Type I/II**

Notes: **5 ft south of southern dispenser.**

BOR SB1-SB5.GPJ 9/10/98

Cambria Environmental Technology, Inc.

ATTACHMENT D

Laboratory Analytical Results

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (925) 988-9600, FAX (925) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100
1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria
1144 65th St. Suite C
Oakland, CA 94608
Attention: Christina Empedocles

Project: Shell 105 5th St

Enclosed are the results from samples received at Sequoia Analytical on July 23, 1998. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9807E29 -01	SOLID, SB-1-5.0	07/23/98	Purgeable TPH/BTEX/MTBE
9807E29 -01	SOLID, SB-1-5.0	07/23/98	TPHD_S Extractable TPH
9807E29 -02	LIQUID, SB-1	07/23/98	TPHD_W Extractable TPH
9807E29 -02	LIQUID, SB-1	07/23/98	Purgeable TPH/BTEX/MTBE
9807E29 -03	SOLID, SB-2-5.0	07/23/98	Purgeable TPH/BTEX/MTBE
9807E29 -03	SOLID, SB-2-5.0	07/23/98	TPHD_S Extractable TPH
9807E29 -04	SOLID, SB-3-5.0	07/23/98	Purgeable TPH/BTEX/MTBE
9807E29 -04	SOLID, SB-3-5.0	07/23/98	TPHD_S Extractable TPH
9807E29 -05	LIQUID, SB-3	07/23/98	TPHD_W Extractable TPH
9807E29 -05	LIQUID, SB-3	07/23/98	Purgeable TPH/BTEX/MTBE
9807E29 -06	LIQUID, SB-2	07/23/98	TPHD_W Extractable TPH
9807E29 -06	LIQUID, SB-2	07/23/98	Purgeable TPH/BTEX/MTBE
9807E29 -07	SOLID, SB-4-5.0	07/23/98	Purgeable TPH/BTEX/MTBE

SEQUOIA ANALYTICAL

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9807E29 -07	SOLID, SB-4-5.0	07/23/98	TPHD_S Extractable TPH
9807E29 -08	LIQUID, SB-4	07/23/98	TPHD_W Extractable TPH
9807E29 -08	LIQUID, SB-4	07/23/98	Purgeable TPH/BTEX/MTBE
9807E29 -09	SOLID, SB-5-5.0	07/23/98	Purgeable TPH/BTEX/MTBE
9807E29 -09	SOLID, SB-5-5.0	07/23/98	TPHD_S Extractable TPH
9807E29 -10	LIQUID, SB-5	07/23/98	TPHD_W Extractable TPH
9807E29 -10	LIQUID, SB-5	07/23/98	Purgeable TPH/BTEX/MTBE

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (925) 988-9600, FAX (925) 988-9673
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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria	Client Proj. ID: Shell 105 5th St	Sampled: 07/23/98
1144 65th St. Suite C	Sample Descript: SB-1-5.0	Received: 07/23/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 08/03/98
	Analysis Method: 8015Mod/8020	Analyzed: 08/03/98
Attention: Christina Empedocles	Lab Number: 9807E29-01	Reported: 08/06/98

QC Batch Number: GC080398BTEXEXB
Instrument ID: GCHP07

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	94
4-Bromofluorobenzene	60	140	79

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria	Client Proj. ID: Shell 105 5th St	Sampled: 07/23/98
1144 65th St. Suite C	Sample Descript: SB-1-5.0	Received: 07/23/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 07/27/98
	Analysis Method: EPA 8015 Mod	Analyzed: 07/30/98
Attention: Christina Empedocles	Lab Number: 9807E29-01	Reported: 08/06/98

QC Batch Number: GC0727980HBPEXA
Instrument ID: GCHP5A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	**1.0**	**1.3**
Chromatogram Pattern:		**C9-C24**

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	92

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

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Project Manager

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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria	Client Proj. ID: Shell 105 5th St	Sampled: 07/23/98
1144 65th St. Suite C	Sample Descript: SB-1	Received: 07/23/98
Oakland, CA 94608	Matrix: LIQUID	Extracted: 07/24/98
	Analysis Method: EPA 8015 Mod	Analyzed: 07/30/98
Attention: Christina Empedocles	Lab Number: 9807E29-02	Reported: 08/06/98

QC Batch Number: GC0724980HBPEXC
Instrument ID: GCHP5A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel	**50**	**99**
Chromatogram Pattern:		**C9-C24**

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	78

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

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Cambria	Client Proj. ID: Shell 105 5th St	Sampled: 07/23/98
1144 65th St. Suite C	Sample Descript: SB-1	Received: 07/23/98
Oakland, CA 94608	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 08/04/98
Attention: Christina Empedocles	Lab Number: 9807E29-02	Reported: 08/06/98

QC Batch Number: GC080498BTEX02A
Instrument ID: GCHP02

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**50**	**380**
Methyl t-Butyl Ether	2.5	N.D.
Benzene	**0.50**	**1.1**
Toluene	0.50	N.D.
Ethyl Benzene	**0.50**	**4.4**
Xylenes (Total)	**0.50**	**14**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	101

Analytes reported as N.D. were not present above the stated limit of detection.

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Cambria	Client Proj. ID: Shell 105 5th St	Sampled: 07/23/98
1144 65th St. Suite C	Sample Descript: SB-2-5.0	Received: 07/23/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 08/03/98
	Analysis Method: 8015Mod/8020	Analyzed: 08/03/98
Attention: Christina Empedocles	Lab Number: 9807E29-03	Reported: 08/06/98

QC Batch Number: GC080398BTEXEXB
Instrument ID: GCHP07

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	73
4-Bromofluorobenzene	60	140	85

Analytes reported as N.D. were not present above the stated limit of detection.

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Cambria	Client Proj. ID: Shell 105 5th St	Sampled: 07/23/98
1144 65th St. Suite C	Sample Descript: SB-2-5.0	Received: 07/23/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 07/27/98
	Analysis Method: EPA 8015 Mod	Analyzed: 07/30/98
Attention: Christina Empedocles	Lab Number: 9807E29-03	Reported: 08/06/98

QC Batch Number: GC0727980HBPEXA
Instrument ID: GCHP5A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	**1.0**	**1.1**
Chromatogram Pattern:		**C9-C24**

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	73

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

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Cambria	Client Proj. ID: Shell 105 5th St	Sampled: 07/23/98
1144 65th St. Suite C	Sample Descript: SB-3-5.0	Received: 07/23/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 08/03/98
	Analysis Method: 8015Mod/8020	Analyzed: 08/03/98
Attention: Christina Empedocles	Lab Number: 9807E29-04	Reported: 08/06/98

QC Batch Number: GC080398BTEXEXB
Instrument ID: GCHP07

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	**1.0**	**2.8**
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	**0.0050**	**0.0080**
Xylenes (Total)	**0.0050**	**0.014**
Chromatogram Pattern:		**>C8**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	93
4-Bromofluorobenzene	60	140	87

Analytes reported as N.D. were not present above the stated limit of detection.

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Cambria	Client Proj. ID: Shell 105 5th St	Sampled: 07/23/98
1144 65th St. Suite C	Sample Descript: SB-3-5.0	Received: 07/23/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 07/27/98
	Analysis Method: EPA 8015 Mod	Analyzed: 07/30/98
Attention: Christina Empedocles	Lab Number: 9807E29-04	Reported: 08/06/98

QC Batch Number: GC0727980HBPEXA
Instrument ID: GCHP5A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	1.0	15
Chromatogram Pattern:		C9-C24

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	71

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

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Cambria	Client Proj. ID: Shell 105 5th St	Sampled: 07/23/98
1144 65th St. Suite C	Sample Descript: SB-3	Received: 07/23/98
Oakland, CA 94608	Matrix: LIQUID	Extracted: 07/24/98
	Analysis Method: EPA 8015 Mod	Analyzed: 07/30/98
Attention: Christina Empedocles	Lab Number: 9807E29-05	Reported: 08/06/98

QC Batch Number: GC0724980HBPEXC
Instrument ID: GCHP5B

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel	**100**	**5500**
Chromatogram Pattern:		**C9-C24**

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	77

Analytes reported as N.D. were not present above the stated limit of detection.

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Cambria	Client Proj. ID: Shell 105 5th St	Sampled: 07/23/98
1144 65th St. Suite C	Sample Descript: SB-3	Received: 07/23/98
Oakland, CA 94608	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 08/05/98
Attention: Christina Empedocles	Lab Number: 9807E29-05	Reported: 08/06/98

QC Batch Number: GC080598BTEX21A
Instrument ID: GCHP21

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**20000**	**90000**
Methyl t-Butyl Ether	**1000**	**1700**
Benzene	**200**	**1300**
Toluene	**200**	**490**
Ethyl Benzene	**200**	**3500**
Xylenes (Total)	**200**	**13000**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	132 Q

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

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Cambria	Client Proj. ID: Shell 105 5th St	Sampled: 07/23/98
1144 65th St. Suite C	Sample Descript: SB-2	Received: 07/23/98
Oakland, CA 94608	Matrix: LIQUID	Extracted: 07/27/98
	Analysis Method: EPA 8015 Mod	Analyzed: 07/30/98
Attention: Christina Empedocles	Lab Number: 9807E29-06	Reported: 08/06/98

QC Batch Number: GC0727980HBPEXZ
Instrument ID: GCHP4B

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel	**50**	**190**
Chromatogram Pattern:		**C9-C24**

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	82

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria	Client Proj. ID: Shell 105 5th St	Sampled: 07/23/98
1144 65th St. Suite C	Sample Descript: SB-2	Received: 07/23/98
Oakland, CA 94608	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 08/04/98
Attention: Christina Empedocles	Lab Number: 9807E29-06	Reported: 08/06/98

QC Batch Number: GC080498BTEX02A
Instrument ID: GCHP02

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Methyl t-Butyl Ether	2.5	N.D.
Benzene	**0.50**	**0.55**
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	**0.50**	**1.4**
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	114

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria	Client Proj. ID: Shell 105 5th St	Sampled: 07/23/98
1144 65th St. Suite C	Sample Descript: SB-4-5.0	Received: 07/23/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 08/03/98
	Analysis Method: 8015Mod/8020	Analyzed: 08/03/98
Attention: Christina Empedocles	Lab Number: 9807E29-07	Reported: 08/06/98

QC Batch Number: GC080398BTEXEXB
Instrument ID: GCHP01

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	**1.0**	**1.3**
Methyl t-Butyl Ether	**0.025**	**0.13**
Benzene	0.0050	N.D.
Toluene	**0.0050**	**0.0063**
Ethyl Benzene	**0.0050**	**0.012**
Xylenes (Total)	**0.0050**	**0.038**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	102
4-Bromofluorobenzene	60	140	99

Analytes reported as N.D. were not present above the stated limit of detection.

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Cambria	Client Proj. ID: Shell 105 5th St	Sampled: 07/23/98
1144 65th St. Suite C	Sample Descript: SB-4-5.0	Received: 07/23/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 07/27/98
	Analysis Method: EPA 8015 Mod	Analyzed: 07/30/98
Attention: Christina Empedocles	Lab Number: 9807E29-07	Reported: 08/06/98

QC Batch Number: GC0727980HBPEXA
Instrument ID: GCHP5A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	**1.0**	**2.5**
Chromatogram Pattern:		**C9-C24**

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	77

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

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Cambria	Client Proj. ID: Shell 105 5th St	Sampled: 07/23/98
1144 65th St. Suite C	Sample Descript: SB-4	Received: 07/23/98
Oakland, CA 94608	Matrix: LIQUID	Extracted: 07/27/98
	Analysis Method: EPA 8015 Mod	Analyzed: 07/30/98
Attention: Christina Empedocles	Lab Number: 9807E29-08	Reported: 08/06/98

QC Batch Number: GC0727980HBPEXZ
Instrument ID: GCHP5B

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel	**1000**	**27000**
Chromatogram Pattern:		**C9-C24**

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	150

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

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Cambria	Client Proj. ID: Shell 105 5th St	Sampled: 07/23/98
1144 65th St. Suite C	Sample Descript: SB-4	Received: 07/23/98
Oakland, CA 94608	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 08/04/98
Attention: Christina Empedocles	Lab Number: 9807E29-08	Reported: 08/06/98

QC Batch Number: GC080498BTEX02A
Instrument ID: GCHP02

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**10000**	**24000**
Methyl t-Butyl Ether	**500**	**4100**
Benzene	**100**	**830**
Toluene	100	N.D.
Ethyl Benzene	**100**	**1000**
Xylenes (Total)	**100**	**2700**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	114

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

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Cambria	Client Proj. ID: Shell 105 5th St	Sampled: 07/23/98
1144 65th St. Suite C	Sample Descript: SB-5-5.0	Received: 07/23/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 08/03/98
	Analysis Method: 8015Mod/8020	Analyzed: 08/04/98
Attention: Christina Empedocles	Lab Number: 9807E29-09	Reported: 08/06/98

QC Batch Number: GC080398BTEXEXB
Instrument ID: GCHP22

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	**0.025**	**0.48**
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	112
4-Bromofluorobenzene	60	140	103

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

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Cambria	Client Proj. ID: Shell 105 5th St	Sampled: 07/23/98
1144 65th St. Suite C	Sample Descript: SB-5-5.0	Received: 07/23/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 07/27/98
	Analysis Method: EPA 8015 Mod	Analyzed: 07/30/98
Attention: Christina Empedocles	Lab Number: 9807E29-09	Reported: 08/06/98

QC Batch Number: GC0727980HBPEXA
Instrument ID: GCHP5A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	**1.0**	**8.4**
Chromatogram Pattern:		**C9-C24**

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	75

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (925) 988-9600, FAX (925) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100
1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria	Client Proj. ID: Shell 105 5th St	Sampled: 07/23/98
1144 65th St. Suite C	Sample Descript: SB-5	Received: 07/23/98
Oakland, CA 94608	Matrix: LIQUID	Extracted: 07/27/98
	Analysis Method: EPA 8015 Mod	Analyzed: 07/30/98
Attention: Christina Empedocles	Lab Number: 9807E29-10	Reported: 08/06/98

QC Batch Number: GC0727980HBPEXB
Instrument ID: GCHP4A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel	**50**	**260**
Chromatogram Pattern:		**C9-C24**

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	87

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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Cambria	Client Proj. ID: Shell 105 5th St	Sampled: 07/23/98
1144 65th St. Suite C	Sample Descript: SB-5	Received: 07/23/98
Oakland, CA 94608	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 08/04/98
Attention: Christina Empedocles	Lab Number: 9807E29-10	Reported: 08/06/98

QC Batch Number: GC080498BTEX21A
Instrument ID: GCHP21

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**50**	**96**
Methyl t-Butyl Ether	**2.5**	**39**
Benzene	**0.50**	**0.62**
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	83

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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Cambria
1144 65th St., Ste. C
Oakland, CA 94608
Attention: Christina Empedocles

Client Project ID: Shell 105 5th St.

QC Sample Group: 9807E29-01, -03-04, -07, -

Reported: Aug 6, 1998

QUALITY CONTROL DATA REPORT

Matrix: Solid
Method: EPA 8020
Analyst: G. PESHINA

ANALYTE	Benzene	Toluene	Ethylbenzene	Xylenes
QC Batch #:	GC080398BTEXEXB			
Sample No.:	GS9807D92-2			
Date Prepared:	8/3/98	8/3/98	8/3/98	8/3/98
Date Analyzed:	8/3/98	8/3/98	8/3/98	8/3/98
Instrument I.D.#:	GCHP22	GCHP22	GCHP22	GCHP22
ample Conc., mg/Kg:	N.D.	N.D.	N.D.	N.D.
Conc. Spiked, mg/Kg:	0.20	0.20	0.20	0.60
Matrix Spike, mg/Kg:	0.22	0.22	0.23	0.69
% Recovery:	110	110	115	115
Matrix ike Duplicate, mg/Kg:	0.24	0.25	0.25	0.76
% Recovery:	120	125	125	127
elative % Difference:	8.7	13	8.3	9.9
RPD Control Limits:	0-25	0-25	0-25	0-25

LCS Batch#:	GSBLK080398B			
Date Prepared:	8/3/98	8/3/98	8/3/98	8/3/98
Date Analyzed:	8/3/98	8/3/98	8/3/98	8/3/98
Instrument I.D.#:	GCHP22	GCHP22	GCHP22	GCHP22
Conc. Spiked, mg/Kg:	0.20	0.20	0.20	0.60
Recovery, mg/Kg:	0.19	0.19	0.20	0.59
LCS % Recovery:	95	95	100.0	98

Percent Recovery Control Limits:

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

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Cambria
1144 65th St., Ste. C
Oakland, CA 94608
Attention: Christina Empedocles

Client Project ID: Shell 105 5th St.

QC Sample Group: 9807E29-01, -03-04, -07, -

Reported: Aug 6, 1998

QUALITY CONTROL DATA REPORT

Matrix:	Solid
Method:	EPA 8015M
Analyst:	A. PORTER
ANALYTE	Diesel

QC Batch #: GC0803980HBPEXA

Sample No.:	9807G76-9
Date Prepared:	7/29/98
Date Analyzed:	7/30/98
Instrument I.D.#:	GCHP4B
ample Conc., mg/Kg:	N.D.
Conc. Spiked, mg/Kg:	17
Matrix Spike, mg/Kg:	13
% Recovery:	76
Matrix ike Duplicate, mg/Kg:	13
% Recovery:	76
elative % Difference:	0.0
RPD Control Limits:	0-50

LCS Batch#: BLK080398AS

Date Prepared:	8/3/98
Date Analyzed:	8/4/98
Instrument I.D.#:	GCHP4B
Conc. Spiked, mg/Kg:	17
Recovery, mg/Kg:	14
LCS % Recovery:	82

Percent Recovery Control Limits:

MS/MSD	50-150
LCS	60-140

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

Please Note:
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Cambria
1144 65th St., Ste. C
Oakland, CA 94608
Attention: Christina Empedocles

Client Project ID: Shell 105 5th St.

QC Sample Group: 9807E29-02, -05

Reported: Aug 6, 1998

QUALITY CONTROL DATA REPORT

Matrix:	Liquid
Method:	EPA 8015A
Analyst:	A. Porter
ANALYTE	Diesel

QC Batch #: GC0724980HBPEXC

Sample No.:	9807E22-1
Date Prepared:	7/24/98
Date Analyzed:	7/28/98
Instrument I.D.#:	GCHP4B
Sample Conc., ug/L:	670
Conc. Spiked, ug/L:	1000
Matrix Spike, ug/L:	990
% Recovery:	32
Matrix pike Duplicate, ug/L:	960
% Recovery:	29
elative % Difference:	9.8
RPD Control Limits:	0-50

LCS Batch#: BLK072498CS

Date Prepared:	7/24/98
Date Analyzed:	7/28/98
Instrument I.D.#:	GCHP4B
Conc. Spiked, ug/L:	1000
Recovery, ug/L:	740
LCS % Recovery:	74

Percent Recovery Control Limits:

MS/MSD	50-150
LCS	60-140

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

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Cambria
1144 65th St., Ste. C
Oakland, CA 94608
Attention: Christina Empedocles

Client Project ID: Shell 105 5th St.

QC Sample Group: 9807E29-06, -08, -10

Reported: Aug 6, 1998

QUALITY CONTROL DATA REPORT

Matrix: Liquid
Method: EPA 8015A
Analyst: A. PORTER

ANALYTE Diesel

QC Batch #: GC0727980HBPEXZ

Sample No.: 9807E98-1
Date Prepared: 7/27/98
Date Analyzed: 7/28/98
Instrument I.D.#: GCHP4A

Sample Conc., ug/L: 200
Conc. Spiked, ug/L: 1000

Matrix Spike, ug/L: 940
% Recovery: 74

Matrix
pike Duplicate, ug/L: 750
% Recovery: 55

elative % Difference: 29

RPD Control Limits: 0-50

LCS Batch#: BLK072798ZS

Date Prepared: 7/27/98
Date Analyzed: 7/28/98
Instrument I.D.#: GCHP4A

Conc. Spiked, ug/L: 1000

Recovery, ug/L: 850
LCS % Recovery: 85

Percent Recovery Control Limits:

MS/MSD	50-150
LCS	60-140

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

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Cambria
1144 65th St., Ste. C
Oakland, CA 94608
Attention: Christina Empedocles

Client Project ID: Shell 105 5th St.

QC Sample Group: 9807E29-02, -06, -08

Reported: Aug 6, 1998

QUALITY CONTROL DATA REPORT

Matrix:	Liquid
Method:	EPA 8015
Analyst:	N. Herrera
ANALYTE	Gasoline

QC Batch #: GC080498BTEX02A

Sample No.:	GW9807E98-2
Date Prepared:	8/4/98
Date Analyzed:	8/4/98
Instrument I.D.#:	GCHP02
Sample Conc., ug/L:	N.D.
Conc. Spiked, ug/L:	250
Matrix Spike, ug/L:	230
% Recovery:	92
Matrix pike Duplicate, ug/L:	220
% Recovery:	88
elative % Difference:	4.4
RPD Control Limits:	0-25

LCS Batch#: GWLCS080498A

Date Prepared:	8/4/98
Date Analyzed:	8/4/98
Instrument I.D.#:	GCHP02
Conc. Spiked, ug/L:	250
LCS Recovery, ug/L:	220
LCS % Recovery:	88

Percent Recovery Control Limits:

MS/MSD	60-140
LCS	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

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Cambria
1144 65th St., Ste. C
Oakland, CA 94608
Attention: Christina Empedocles

Client Project ID: Shell 105 5th St.

QC Sample Group: 9807E29-05

Reported: Aug 6, 1998

QUALITY CONTROL DATA REPORT

Matrix: Liquid
Method: EPA 8020
Analyst: N. Herrera

ANALYTE	Benzene	Toluene	Ethylbenzene	Xylenes
QC Batch #:	GC080598BTEX21A			
Sample No.:	GW9807E71-4			
Date Prepared:	8/5/98	8/5/98	8/5/98	8/5/98
Date Analyzed:	8/5/98	8/5/98	8/5/98	8/5/98
Instrument I.D.#:	GCHP21	GCHP21	GCHP21	GCHP21
Sample Conc., ug/L:	N.D.	N.D.	N.D.	N.D.
Conc. Spiked, ug/L:	10	10	10	30
Matrix Spike, ug/L:	11	11	11	33
% Recovery:	110	110	110	110
Matrix pike Duplicate, ug/L:	11	11	11	33
% Recovery:	110	110	110	110
elative % Difference:	0.0	0.0	0.0	0.0
RPD Control Limits:	0-25	0-25	0-25	0-25

LCS Batch#:	GWLCS080598A			
Date Prepared:	8/5/98	8/5/98	8/5/98	8/5/98
Date Analyzed:	8/5/98	8/5/98	8/5/98	8/5/98
Instrument I.D.#:	GCHP21	GCHP21	GCHP21	GCHP21
Conc. Spiked, ug/L:	10	10	10	30
LCS Recovery, ug/L:	12	11	11	34
LCS % Recovery:	120	110	110	113

Percent Recovery Control Limits:

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

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Cambria
1144 65th St., Ste. C
Oakland, CA 94608
Attention: Christina Empedocles

Client Project ID: Shell 105 5th St.

QC Sample Group: 9807E29-10

Reported: Aug 6, 1998

QUALITY CONTROL DATA REPORT

Matrix:	Liquid
Method:	EPA 8015
Analyst:	N. Herrera
ANALYTE	Gasoline

QC Batch #: GC080498BTEX21A

Sample No.:	GW98087E98-3
Date Prepared:	8/4/98
Date Analyzed:	8/4/98
Instrument I.D.#:	GCHP21
Sample Conc., ug/L:	N.D.
Conc. Spiked, ug/L:	250
Matrix Spike, ug/L:	200
% Recovery:	82
Matrix pike Duplicate, ug/L:	230
% Recovery:	91
elative % Difference:	10
RPD Control Limits:	0-25

LCS Batch#: GWLCS080498A

Date Prepared:	8/4/98
Date Analyzed:	8/4/98
Instrument I.D.#:	GCHP21
Conc. Spiked, ug/L:	250
LCS Recovery, ug/L:	230
LCS % Recovery:	92

Percent Recovery Control Limits:

MS/MSD	60-140
LCS	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

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Cambria	Client Proj. ID: Shell 105 5th St	Received: 07/23/98
1144 65th St. Suite C Oakland, CA 94608	Lab Proj. ID: 9807E29	Reported: 08/06/98
Attention: Christina Empedocles		

LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of_____ pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: 980 7E29

Date:
Page 1 of 2

Site Address: 105 5TH STREET, OAKLAND

WIC#: 204-5510-0402

Shell Engineer: KAREN PETRYNA
Phone No.: (510) 236-9139
Fax #: 237-7821

Consultant Name & Address: Cambria Environmental
1144 - 65th St. Ste. C, Oakland, CA 94608

Consultant Contact: CHRISTINA EMPEDOCLES
Phone No.: (510) 420-0700
Fax #: 420-9170

Comments:

Sampled by:

Printed Name: CHRISTINA EMPEDOCLES

LAB: SEQUOIA

UST AGENCY: ACDEH

Sample ID	Date	Time Sludge	Soil	Water	Air	No. of conts.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Combination TPH 8015 & BTEX 8020 + MTBE	HOLD	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
SB-1-5.0	7/23/98	9:35	/					/				/							
SB-1-10.0	↑	9:45	/					/				/							
SB-1		9:50		/				/				/							HOLD
SB-2-5.0		10:45	/					/				/							
SB-2-10.0		10:50	/					/				/							
SB-3-5.0		12:30	/					/				/							HOLD
SB-3-9.0	↓	12:35	/					/				/							
SB-3	7/23/98	12:55	/					/				/							HOLD

Relinquished By (signature):	Printed Name: CHRISTINA EMPEDOCLES	Date: 7/23/98 Time: 4:35	Received (signature): Steve Teu
Relinquished By (signature):	Printed Name:	Date: Time:	Received (signature):
Relinquished By (signature):	Printed Name:	Date: Time:	Received (signature):

Printed Name: Steve Teu	Date: 7/23/98 Time: 5:25	
Printed Name:	Date: Time:	
Printed Name: Mike Yung	Date: 7/23/98 Time: 21:11	

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE AND RESULTS

CHECK ONE (1) BOX ONLY	CT/DT	TURN AROUND TIME
G.W. Monitoring	4461	24 hours
Site Investigation	4441	48 hours
Soil Classify/Disposal	4442	15 days (Normal)
Water Classify/Disposal	4443	Other
Soil/Air Rem. or Sys. O & M	4452	
Water Rem. or Sys. O & M	4453	NOTE: Notify Lab as soon as Possible of 24/48 hrs. TAT.
Other		

Rev. 12/12/95

Shell Oil Chain of Custody

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: 9807E29

Date:
Page 2 of 2

Site Address: 105 5TH STREET, OAKLAND

WIC#: 204-5510-0402

Shell Engineer: KAREN PETRYNA
Phone No.: (510) 236-9139
Fax #: 237-7821

Consultant Name & Address: Cambria Environmental
1144 - 65th St. Ste. C, Oakland, CA 94608

Consultant Contact: CHRISTINA EMPEDOCLES
Phone No.: (510) 420-0700
Fax #: 420-9170

Comments:

Sampled by:

Printed Name: CHRISTINA EMPEDOCLES

LAB: SEQUOIA

UST AGENCY: ACDEH

Sample ID	Date	Time Sludge	Soil	Water	Air	No. of conts.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Combination TPH 8015 & BTEX 8020 + MTBE	HOLD	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
SB-2	7/23/98	10:55		/				/				/							
SB-4-5.0	↑	1:30	/					/				/							
SB-4-10.0		1:35	/					/				/							
SB-4		3:15		/				/				/						HOLD	
SB-5-5.0		2:15	/					/				/							
SB-5-10.0	↓	2:30	/					/				/							
SB-5	7/23/98	2:35		/				/				/						HOLD	

CHECK ONE (1) BOX ONLY	CT/DT	TURN AROUND TIME
G.W. Monitoring	☐ 4461	24 hours ☐
Site Investigation	☒ 4441	48 hours ☐
Soil Classify/Disposal	☐ 4442	15 days ☒ (Normal)
Water Classify/Disposal	☐ 4443	Other ☐
Soil/Air Rem. or Sys. O & M	☐ 4452	NOTE: Notify Lab as soon as Possible of 24/48 hrs. TAT.
Water Rem. or Sys. O & M	☐ 4453	
Other	☐	

Relinquished By (signature):	Printed Name: CHRISTINA EMPEDOCLES	Date: 7/23/98 Time: 5:35	Received (signature): Steve Teu
Relinquished By (signature):	Printed Name:	Date: Time:	Received (signature):
Relinquished By (signature):	Printed Name:	Date: Time:	Received (signature):

Printed Name: Steve Teu	Date: 7/23/98 Time: 5:35
Printed Name:	Date: Time:
Printed Name: Mike Yang	Date: 7/23/98 Time: 21:15

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE AND RESULTS

Shell Oil Co. of California