RC 213

CAMBRIA

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February 24, 1998

Ms. Eva Chu
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

3/11/98 See page 4
Do MW as permanent MW
E/SE of tank complex.

Re: **Subsurface Investigation Report**
Shell Service Station
11989 Dublin Boulevard
Dublin, California
WIC# 204-2277-0204
Cambria Project# 24-548-13

Dear Ms. Chu:

On behalf of Shell Oil Products Company (Shell), Cambria Environmental Technology, Inc. (Cambria) is submitting the results of the subsurface investigation for the above-referenced site. The investigation objective was to define the extent of hydrocarbons in soil and ground water near the current underground storage tanks (USTs) and dispenser islands. A site summary and the results of our investigation are presented below.

BACKGROUND

Site Location: This operating Shell service station is located at the intersection of Dublin Boulevard and San Ramon Road in Dublin, California (Figure 1). The surrounding area is primarily commercial with retail businesses adjacent to the site. A Chevron service station is located northeast of the Shell site.

Dispenser and Piping Removal and Replacement: In June 1997, soil samples were collected and analyzed during dispenser and piping replacement. Maximum concentrations of total petroleum hydrocarbons as gasoline (TPHg) and total petroleum hydrocarbons as diesel (TPHd) were 690 milligrams per kilogram (mg/kg) and 12,000 mg/kg, respectively. The highest detected benzene and methyl tert-butyl ether (MTBE) concentrations during the same sampling event were 0.55 mg/kg and 8.9 mg/kg, respectively, both from beneath the center dispenser in the northern pump island.

Underground Storage Tanks (USTs): Three gasoline USTs and one diesel UST are in use on site.

CAMBRIA
ENVIRONMENTAL
TECHNOLOGY, INC.
1144 65TH STREET,
SUITE B
OAKLAND,
CA 94608
PH: (510) 420-0700
FAX: (510) 420-9170

Site Wells: On August 8, 1997, six tank backfill wells were abandoned in accordance with permit #97433 issued by the Alameda County Flood Control and Water Conservation District Zone 7 (Zone 7). One tank backfill well still exists on site. Water was not encountered at 12 ft below ground surface (bgs), the maximum tank backfill well depth.

Surface Waters: Dublin Creek is within 1/4 mile south of the site and may be lined with concrete.

Ground Water Depth and Flow Direction: Historical data from wells adjacent to the site indicate that ground water is typically 20 to 25 ft bgs. Topography slopes slightly to the east and we anticipate that ground water flows toward the east to southeast.

INVESTIGATION PROCEDURES

Cambria based the soil boring locations on the locations of the current dispenser islands and USTs and the location of detected hydrocarbon concentrations. Boring locations are indicated on Figure 1.

The procedures used for Cambria's November 1997 subsurface investigation were described in the work plan dated October 7, 1997 which was approved in a letter from the Alameda County Environmental Health Services Department (ACEHSD) dated October 21, 1997. The procedures are summarized below. Analytic results for soil and ground water are summarized in Table 1 and the analytical report is presented in Attachment A. Boring logs and Cambria's standard field procedures for Geoprobe® sampling are presented in Attachments B and C, respectively.

Field Activities

Personnel Present: Josh Bergstrom of Cambria logged the borings.

Permits: Zone 7 Permit #97475.

Drilling Company: Vironex of Hayward, California (C-57 License #705927).

Drilling Date: November 19, 1997.

Drilling Methods: Hydraulic push with roto-hammer (Geoprobe®).

Number of Borings: Four (SB-1 through SB-4, Figure 1).

Boring Depths: 31 to 41 ft (Attachment B).

Ground Water Depths: Ground water was encountered in only one of the borings, SB-2, at about 22 ft bgs. However, only a minimal amount of water recharged into boring SB-2.

Sediment Lithology: The site subsurface consists mostly of clayey and sandy silts of low to moderate estimated permeability to the maximum explored depth of 41 ft bgs (Attachment B).

Chemical Analyses: Soil samples and one grab water sample were analyzed for:

- TPHg by modified EPA Method 8015;
- TPHd by modified EPA Method 8015; and
- MTBE and benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8020.

Backfill Method: Borings were backfilled with cement grout to match the existing grade.

INVESTIGATION RESULTS

Hydrocarbon Distribution in Soil: The highest detected TPHg and TPHd concentrations were 11 mg/kg and 300 mg/kg, respectively, in sample SB-3 at 25 ft bgs. This sample also contained the only benzene concentration detected in soil of 0.0051 mg/kg. The highest detected MTBE concentration was 0.11 mg/kg in sample SB-2 at 20 ft bgs. In general, hydrocarbon concentrations were highest in soil samples taken from east of the pump islands; however, the concentrations detected were negligible.

Hydrocarbon Distribution in Ground Water: A ground water sample collected from SB-2 contained 0.47 milligrams per liter (mg/L) TPHg and 4.9 mg/L TPHd. This sample also contained 0.017 mg/L benzene and 0.11 mg/L MTBE. As indicated above, no ground water was encountered in the other borings.

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DISCUSSION

In our work plan for this investigation, we proposed drilling the initial four borings described in this report, and drilling additional borings if field observations indicated that additional borings were needed to define the extent of hydrocarbons in soil and ground water. No hydrocarbons were observed during drilling and the analytical results indicate that there is minimal impact to soil and ground water at the site. Therefore, we do not recommend additional investigation at this time. No contam in water sample may not be due to dispenser/product lines. Could be from tank field - ', Recommend permanent MW dgrf tank field

CLOSING

We appreciate your assistance with this project. Please call if you have any questions or comments.
soil contam was noted at 20' but not at 10'

Sincerely,
Cambria Environmental Technology, Inc.

N. Scott MacLeod, R.G. 101
Principal Geologist

REGISTERED GEOLOGIST
N. SCOTT MacLEOD
No. 5747
STATE OF CALIFORNIA

Attachments: A - Analytical Report for Soil and Ground Water
B - Soil Boring Logs
C - Standard Field Procedures for Geoprobe® Sampling

cc: A.E. (Alex) Perez, Shell Oil Products Company, P.O. Box 8080, Martinez, California 94553
Wyman Hong, Alameda County Flood Control District, 5997 Parkside Drive, Pleasanton, California, 94566

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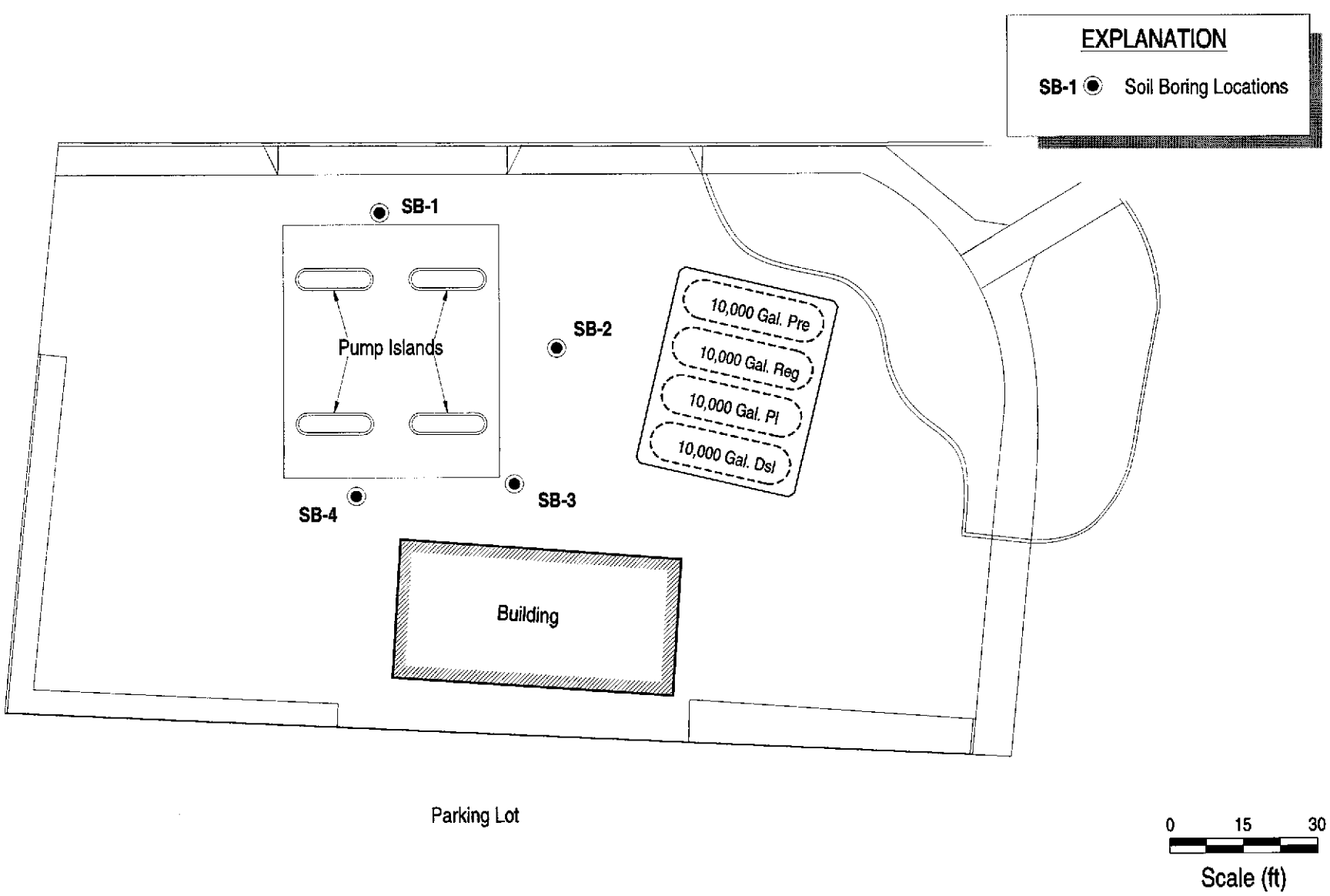

CAMBRIA
Environmental Technology, Inc.

Shell Service Station
11989 Dublin Boulevard
Dublin, California

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Soil Boring Location Map

November 19, 1997

FIGURE
1

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Table 1. Soil and Ground Water Analytical Results - Shell Service Station - WIC# 204-2277-0204, 11989 Dublin Boulevard, Dublin, California

Sample ID	TPHg	TPHd	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes
Soil Samples (in milligrams per kilogram):							
SB-1, 10'	<1.0	1.3	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-1, 20	<1.0	<1.0	0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-1, 35'	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-2, 10'	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-2, 20'	1.8	19	0.11	<0.0050	<0.0050	<0.0050	<0.0050
SB-3, 10'	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-3, 25'	11	300	0.069	0.0051	0.18	<0.0050	0.013
SB-3, 35'	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-4, 10'	<1.0	1.8	0.031	<0.0050	<0.0050	<0.0050	<0.0050
SB-4, 25'	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
Ground Water Sample (in milligrams per liter):							
SB-2	0.47	4.9	0.37	0.017	0.0024	<0.0010	0.0011

Abbreviations/Notes:

TPHg = Total petroleum hydrocarbons as gasoline by modified EPA method 8015.
TPHd = Total petroleum hydrocarbons as diesel by modified EPA method 8015.
MTBE = Methyl tert-butyl ether by EPA Method 8020.
Benzene, ethylbenzene, toluene, xylenes by EPA method 8020.

All samples collected on November 19, 1997.

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Attachment A

Analytical Report for Soil and Ground Water

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Cambria
1144 65th St. Suite C
Oakland, CA 94608
Attention: Josh Bergstrom

Project: Shell 11489 Dublin, Dublin

Enclosed are the results from samples received at Sequoia Analytical on November 20, 1997. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9711D10 -01	SOLID, SB-1, 10	11/19/97	TPGBMS Purgeable TPH/BTEX
9711D10 -01	SOLID, SB-1, 10	11/19/97	TPHD_S Extractable TPH
9711D10 -02	SOLID, SB-1, 20	11/19/97	TPGBMS Purgeable TPH/BTEX
9711D10 -02	SOLID, SB-1, 20	11/19/97	TPHD_S Extractable TPH
9711D10 -03	SOLID, SB-1, 35	11/19/97	TPGBMS Purgeable TPH/BTEX
9711D10 -03	SOLID, SB-1, 35	11/19/97	TPHD_S Extractable TPH
9711D10 -04	SOLID, SB-2, 10	11/19/97	TPGBMS Purgeable TPH/BTEX
9711D10 -04	SOLID, SB-2, 10	11/19/97	TPHD_S Extractable TPH
9711D10 -05	SOLID, SB-2, 20	11/19/97	TPGBMS Purgeable TPH/BTEX
9711D10 -05	SOLID, SB-2, 20	11/19/97	TPHD_S Extractable TPH
9711D10 -06	SOLID, SB-3, 10	11/19/97	TPGBMS Purgeable TPH/BTEX
9711D10 -06	SOLID, SB-3, 10	11/19/97	TPHD_S Extractable TPH
9711D10 -07	SOLID, SB-3, 25	11/19/97	TPGBMS Purgeable TPH/BTEX
9711D10 -07	SOLID, SB-3, 25	11/19/97	TPHD_S Extractable TPH
9711D10 -08	SOLID, SB-3, 35	11/19/97	TPGBMS Purgeable TPH/BTEX
9711D10 -08	SOLID, SB-3, 35	11/19/97	TPHD_S Extractable TPH
9711D10 -09	SOLID, SB-4, 10	11/19/97	TPGBMS Purgeable TPH/BTEX
9711D10 -09	SOLID, SB-4, 10	11/19/97	TPHD_S Extractable TPH
9711D10 -10	SOLID, SB-4, 25	11/19/97	TPGBMS Purgeable TPH/BTEX
9711D10 -10	SOLID, SB-4, 25	11/19/97	TPHD_S Extractable TPH
9711D10 -11	LIQUID, SB-2	11/19/97	TPHD_W Extractable TPH

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Sequoia Analytical

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SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9711D10 -11	LIQUID, SB-2	11/19/97	TPGBMW Purgeable TPH/BTEX
9711D10 -12	SOLID, SP-1	11/19/97	TPHD_S Extractable TPH
9711D10 -12	SOLID, SP-1	11/19/97	TPHGBS Purgeable TPH/BTEX
9711D10 -13	SOLID, SP-1	11/19/97	TPHD_S Extractable TPH
9711D10 -13	SOLID, SP-1	11/19/97	TPHGBS Purgeable TPH/BTEX
9711D10 -14	SOLID, SP-1	11/19/97	TPHD_S Extractable TPH
9711D10 -14	SOLID, SP-1	11/19/97	TPHGBS Purgeable TPH/BTEX
9711D10 -15	SOLID, SP-1	11/19/97	TPHD_S Extractable TPH
9711D10 -15	SOLID, SP-1	11/19/97	TPHGBS Purgeable TPH/BTEX
9711D10 -16	SOLID, SP-1 comp	11/19/97	ITTLCS Title 22: Metals, T

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

Project Manager

Sequoia Analytical

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Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-1, 10	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 12/02/97
	Analysis Method: 8015Mod/8020	Analyzed: 12/02/97
Attention: Josh Bergstrom	Lab Number: 9711D10-01	Reported: 12/16/97

QC Batch Number: GC120297BTEXEXA
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	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	103
4-Bromofluorobenzene	60	140	85

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

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
Project Manager

Sequoia Analytical

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Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-1, 10	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 12/01/97
	Analysis Method: EPA 8015 Mod	Analyzed: 12/04/97
Attention: Josh Bergstrom	Lab Number: 9711D10-01	Reported: 12/16/97

QC Batch Number: GC1201970HBPEXB
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	86

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

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Richard Herling
Project Manager

Sequoia Analytical

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Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-1, 20	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/25/97
	Analysis Method: 8015Mod/8020	Analyzed: 12/03/97
Attention: Josh Bergstrom	Lab Number: 9711D10-02	Reported: 12/16/97

QC Batch Number: GC112597BTEXEXB
nstrument ID: GCHP7

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**	**0.025**
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	92
4-Bromofluorobenzene	60	140	105

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

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
Project Manager

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-1, 20	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/24/97
	Analysis Method: EPA 8015 Mod	Analyzed: 12/01/97
Attention: Josh Bergstrom	Lab Number: 9711D10-02	Reported: 12/16/97

QC Batch Number: GC1124970HBPEXC
Instrument ID: GCHP5A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	1.0	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	132

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

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
Project Manager

Sequoia Analytical

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Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-1, 35	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/25/97
	Analysis Method: 8015Mod/8020	Analyzed: 12/03/97
Attention: Josh Bergstrom	Lab Number: 9711D10-03	Reported: 12/16/97

QC Batch Number: GC112597BTEXEXB
Instrument ID: GCHP7

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	92
4-Bromofluorobenzene	60	140	96

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

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
Project Manager

Sequoia Analytical

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Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-1, 35	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/24/97
	Analysis Method: EPA 8015 Mod	Analyzed: 12/01/97
Attention: Josh Bergstrom	Lab Number: 9711D10-03	Reported: 12/16/97

QC Batch Number: GC1124970HBPEXC
Instrument ID: GCHP5A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	1.0	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	117

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

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
Project Manager

Sequoia Analytical

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Josh Bergstrom

Client Proj. ID: Shell 11489 Dublin, Dublin
Sample Descript: SB-2, 10
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9711D10-04

Sampled: 11/19/97
Received: 11/20/97
Extracted: 12/02/97
Analyzed: 12/02/97
Reported: 12/16/97

QC Batch Number: GC120297BTEXEXA
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	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	103
4-Bromofluorobenzene	60	140	95

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

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
Project Manager

Sequoia Analytical

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Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-2, 10	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/24/97
	Analysis Method: EPA 8015 Mod	Analyzed: 12/01/97
Attention: Josh Bergstrom	Lab Number: 9711D10-04	Reported: 12/16/97

QC Batch Number: GC1124970HBPEXC
Instrument ID: GCHP5A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	1.0	N.D.
Chromatogram Pattern:		

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

Richard Herling
Project Manager

Sequoia Analytical

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Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-2, 20	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 12/02/97
	Analysis Method: 8015Mod/8020	Analyzed: 12/03/97
Attention: Josh Bergstrom	Lab Number: 9711D10-05	Reported: 12/16/97

QC Batch Number: GC120297BTEXEXA
Instrument ID: GCHP7

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	**1.0**	**1.8**
Methyl t-Butyl Ether	**0.025**	**0.11**
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	89
4-Bromofluorobenzene	60	140	91

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

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
Project Manager

Sequoia Analytical

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-2, 20	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/24/97
	Analysis Method: EPA 8015 Mod	Analyzed: 11/26/97
Attention: Josh Bergstrom	Lab Number: 9711D10-05	Reported: 12/16/97

QC Batch Number: GC1124970HBPEXC
Instrument ID: GCHP4A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	**1.0**	**19**
Chromatogram Pattern:		**C9-C24**

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	94

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

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
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Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-3, 10	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/25/97
	Analysis Method: 8015Mod/8020	Analyzed: 12/03/97
Attention: Josh Bergstrom	Lab Number: 9711D10-06	Reported: 12/16/97

QC Batch Number: GC112597BTEXEXB
Instrument ID: GCHP7

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	93

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 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-3, 10	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/24/97
	Analysis Method: EPA 8015 Mod	Analyzed: 12/01/97
Attention: Josh Bergstrom	Lab Number: 9711D10-06	Reported: 12/16/97

QC Batch Number: GC1124970HBPEXC
Instrument ID: GCHP5A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	1.0	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	117

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 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-3, 25	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/25/97
	Analysis Method: 8015Mod/8020	Analyzed: 12/02/97
Attention: Josh Bergstrom	Lab Number: 9711D10-07	Reported: 12/16/97

QC Batch Number: GC112597BTEXEXB
Instrument ID: GCHP1

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	**1.0**	**11**
Methyl t-Butyl Ether	**0.025**	**0.069**
Benzene	**0.0050**	**0.0051**
Toluene	**0.0050**	**0.18**
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	**0.0050**	**0.013**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	103
4-Bromofluorobenzene	60	140	90

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

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Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-3, 25	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/24/97
	Analysis Method: EPA 8015 Mod	Analyzed: 12/02/97
Attention: Josh Bergstrom	Lab Number: 9711D10-07	Reported: 12/16/97

QC Batch Number: GC112497OHBPEXC
Instrument ID: GCHP5B

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	**5.0**	**300**
Chromatogram Pattern:		**C9-C24**

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	174 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 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-3, 35	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/25/97
	Analysis Method: 8015Mod/8020	Analyzed: 12/02/97
Attention: Josh Bergstrom	Lab Number: 9711D10-08	Reported: 12/16/97

QC Batch Number: GC112597BTEXEXB
Instrument ID: GCHP1

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	105
4-Bromofluorobenzene	60	140	90

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

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Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-3, 35	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/24/97
	Analysis Method: EPA 8015 Mod	Analyzed: 12/01/97
Attention: Josh Bergstrom	Lab Number: 9711D10-08	Reported: 12/16/97

QC Batch Number: GC1124970HBPEXC
Instrument ID: GCHP5A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	1.0	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	128

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 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-4, 10	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 12/02/97
	Analysis Method: 8015Mod/8020	Analyzed: 12/03/97
Attention: Josh Bergstrom	Lab Number: 9711D10-09	Reported: 12/16/97

QC Batch Number: GC120297BTEXEXA
Instrument ID: GCHP7

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**	**0.031**
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	83
4-Bromofluorobenzene	60	140	88

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

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Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-4, 10	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/24/97
	Analysis Method: EPA 8015 Mod	Analyzed: 12/01/97
Attention: Josh Bergstrom	Lab Number: 9711D10-09	Reported: 12/16/97

QC Batch Number: GC1124970HBPEXC
Instrument ID: GCHP5A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	**1.0**	**1.8**
Chromatogram Pattern:		**C9-C24**

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	127

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 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-4, 25	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/25/97
	Analysis Method: 8015Mod/8020	Analyzed: 12/03/97
Attention: Josh Bergstrom	Lab Number: 9711D10-10	Reported: 12/16/97

QC Batch Number: GC112597BTEXEXB
Instrument ID: GCHP7

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	78
4-Bromofluorobenzene	60	140	89

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

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Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-4, 25	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/24/97
	Analysis Method: EPA 8015 Mod	Analyzed: 12/01/97
Attention: Josh Bergstrom	Lab Number: 9711D10-10	Reported: 12/16/97

QC Batch Number: GC1124970HBPEXC
Instrument ID: GCHP5A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	1.0	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	111

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 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-2	Received: 11/20/97
Oakland, CA 94608	Matrix: LIQUID	Extracted: 11/25/97
	Analysis Method: EPA 8015 Mod	Analyzed: 12/02/97
Attention: Josh Bergstrom	Lab Number: 9711D10-11	Reported: 12/16/97

QC Batch Number: GC112597OHBPEXA
Instrument ID: GCHP5B

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/L	Sample Results mg/L
TEPH as Diesel	**0.10**	**4.9**
Chromatogram Pattern:		**C9-C24**

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	165 Q

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

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Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SB-2	Received: 11/20/97
Oakland, CA 94608	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 12/03/97
Attention: Josh Bergstrom	Lab Number: 9711D10-11	Reported: 12/16/97

QC Batch Number: GC120397BTEX21A
Instrument ID: GCHP21

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/L	Sample Results mg/L
TPPH as Gas	**100**	**0.47**
Methyl t-Butyl Ether	**0.0050**	**0.37**
Benzene	**0.0010**	**0.017**
Toluene	**0.0010**	**0.0024**
Ethyl Benzene	0.0010	N.D.
Xylenes (Total)	**0.0010**	**0.0011**
Chromatogram Pattern:		**C6-C8**

Surrogates	**Control Limits %**		**% Recovery**
Trifluorotoluene	70	130	102

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 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SP-1	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/24/97
	Analysis Method: EPA 8015 Mod	Analyzed: 12/01/97
Attention: Josh Bergstrom	Lab Number: 9711D10-12	Reported: 12/16/97

QC Batch Number: GC1124970HBPEXC
Instrument ID: GCHP5A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	**2.0**	**110**
Chromatogram Pattern:		**C9-C24**

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	130

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 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SP-1	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/25/97
	Analysis Method: 8015Mod/8020	Analyzed: 12/03/97
Attention: Josh Bergstrom	Lab Number: 9711D10-12	Reported: 12/16/97

QC Batch Number: GC112597BTEXEXB
Instrument ID: GCHP22

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	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	123
4-Bromofluorobenzene	60	140	104

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

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Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SP-1	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/24/97
	Analysis Method: EPA 8015 Mod	Analyzed: 11/27/97
Attention: Josh Bergstrom	Lab Number: 9711D10-13	Reported: 12/16/97

QC Batch Number: GC1124970HBPEXC
Instrument ID: GCHP4A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	**1.0**	**3.4**
Chromatogram Pattern:		**C9-C24**

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	104

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

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Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SP-1	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/25/97
	Analysis Method: 8015Mod/8020	Analyzed: 12/03/97
Attention: Josh Bergstrom	Lab Number: 9711D10-13	Reported: 12/16/97

QC Batch Number: GC112597BTEXEXB
Instrument ID: GCHP22

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	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	124
4-Bromofluorobenzene	60	140	103

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

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Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SP-1	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/24/97
	Analysis Method: EPA 8015 Mod	Analyzed: 12/01/97
Attention: Josh Bergstrom	Lab Number: 9711D10-14	Reported: 12/16/97

QC Batch Number: GC1124970HBPEXC
Instrument ID: GCHP5A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	1.0	16
Chromatogram Pattern:		C9-C24

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	138

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

SEQUOIA ANALYTICAL - ELAP #1210

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SP-1	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/25/97
	Analysis Method: 8015Mod/8020	Analyzed: 12/03/97
Attention: Josh Bergstrom	Lab Number: 9711D10-14	Reported: 12/16/97

QC Batch Number: GC112597BTEXEXB
Instrument ID: GCHP22

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	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	123
4-Bromofluorobenzene	60	140	102

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

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
Project Manager

Sequoia Analytical

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Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SP-1	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/24/97
	Analysis Method: EPA 8015 Mod	Analyzed: 11/26/97
Attention: Josh Bergstrom	Lab Number: 9711D10-15	Reported: 12/16/97

QC Batch Number: GC1124970HBPEXC
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	68

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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Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SP-1	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/25/97
	Analysis Method: 8015Mod/8020	Analyzed: 12/03/97
Attention: Josh Bergstrom	Lab Number: 9711D10-15	Reported: 12/16/97

QC Batch Number: GC112597BTEXEXC
Instrument ID: GCHP22

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	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	120
4-Bromofluorobenzene	60	140	105

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

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
Project Manager

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Cambria	Client Proj. ID: Shell 11489 Dublin, Dublin	Sampled: 11/19/97
1144 65th St. Suite C	Sample Descript: SP-1 comp	Received: 11/20/97
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/25/97
	Analysis Method: Title 22	Analyzed: 11/26/97
Attention: Josh Bergstrom	Lab Number: 9711D10-16	Reported: 12/16/97

Instrument ID: MTJA-2

Inorganic Persistent and Bioaccumulative Toxic Substances : TTLC

Analyte	Max. Limit mg/kg	Detection Limit mg/kg	Sample Results mg/kg
Antimony, Sb	500	5.0	N.D.
Arsenic, As	**500**	**5.0**	**9.9**
Barium, Ba	**10000**	**5.0**	**130**
Beryllium, Be	75	0.50	N.D.
Cadmium, Cd	100	0.50	N.D.
Chromium, Cr	**2500**	**0.50**	**28**
Cobalt, Co	**8000**	**2.5**	**9.2**
Copper, Cu	**2500**	**0.50**	**35**
Lead, Pb	**1000**	**5.0**	**8.6**
Mercury, Hg	**20**	**0.020**	**0.041**
Molybdenum, Mo	3500	2.5	N.D.
Nickel, Ni	**2000**	**2.5**	**46**
Selenium, Se	100	5.0	N.D.
Silver, Ag	500	0.50	N.D.
Thallium, Tl	700	5.0	N.D.
Vanadium, V	**2400**	**2.5**	**21**
Zinc, Zn	**5000**	**0.50**	**55**

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

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
Project Manager

Sequoia Analytical

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Cambria Environmental Tech.
1144 65th St., Ste. C
Oakland, CA 94608
Attention: Josh Bergstrom

Client Project ID: Shell 11489 Dublin, Dublin
Matrix: Solid
Work Order #: 9711D10 01, 04, 05, 09
Reported: Dec 18, 1997

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC120297BTEXEXA	GC120297BTEXEXA	GC120297BTEXEXA	GC120297BTEXEXA	GC120297BTEXEXA
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	M. McLachlan	M. McLachlan	M. McLachlan	M. McLachlan	M. McLachlan
MS/MSD #:	9711D1003	9711D1003	9711D1003	9711D1003	9711D1003
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	12/2/97	12/2/97	12/2/97	12/2/97	12/2/97
Analyzed Date:	12/2/97	12/2/97	12/2/97	12/2/97	12/2/97
Instrument I.D.#:	GCHP22	GCHP22	GCHP22	GCHP22	GCHP22
Conc. Spiked:	0.20 mg/Kg	0.20 mg/Kg	0.20 mg/Kg	0.60 mg/Kg	1.2 mg/Kg
Result:	0.16	0.16	0.16	0.46	1.0
MS % Recovery:	80	80	80	77	83
Dup. Result:	0.14	0.14	0.14	0.39	0.90
MSD % Recov.:	70	70	70	65	75
RPD:	13	13	13	16	11
RPD Limit:	0-25	0-25	0-25	0-25	0-25

LCS #:	BLK120297	BLK120297	BLK120297	BLK120297	BLK120297
Prepared Date:	12/2/97	12/2/97	12/2/97	12/2/97	12/2/97
Analyzed Date:	12/2/97	12/2/97	12/2/97	12/2/97	12/2/97
Instrument I.D.#:	GCHP22	GCHP22	GCHP22	GCHP22	GCHP22
Conc. Spiked:	0.20 mg/Kg	0.20 mg/Kg	0.20 mg/Kg	0.60 mg/Kg	1.2 mg/Kg
LCS Result:	0.20	0.20	0.19	0.55	1.3
LCS % Recov.:	100	100	95	92	108

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

SEQUOIA ANALYTICAL

Richard Herling
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.

** MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

Sequoia Analytical

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Cambria Environmental Tech.
1144 65th St., Ste. C
Oakland, CA 94608
Attention: Josh Bergstrom

Client Project ID: Shell 11489 Dublin, Dublin
Matrix: Solid
Work Order #: 9711D10 02, 03, 06,07, 08, 10
Reported: Dec 18, 1997

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC112597BTEXEXB	GC112597BTEXEXB	GC112597BTEXEXB	GC112597BTEXEXB	GC112597BTEXEXB
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	M. McLachlan	M. McLachlan	M. McLachlan	M. McLachlan	M. McLachlan
MS/MSD #:	9711D1006	9711D1006	9711D1006	9711D1006	9711D1006
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	11/25/97	11/25/97	11/25/97	11/25/97	11/25/97
Analyzed Date:	11/26/97	11/26/97	11/26/97	11/26/97	11/26/97
Instrument I.D.#:	GCHP7	GCHP7	GCHP7	GCHP7	GCHP7
Conc. Spiked:	0.20 mg/Kg	0.20 mg/Kg	0.20 mg/Kg	0.60 mg/Kg	1.2 mg/Kg
Result:	0.20	0.19	0.19	0.57	1.0
MS % Recovery:	100	95	95	95	83
Dup. Result:	0.19	0.19	0.19	0.56	1.0
MSD % Recov.:	95	95	95	93	83
RPD:	5.1	0.0	0.0	1.8	0.0
RPD Limit:	0-25	0-25	0-25	0-25	0-25
LCS #:	BLK112597	BLK112597	BLK112597	BLK112597	BLK112597
Prepared Date:	11/25/97	11/25/97	11/25/97	11/25/97	11/25/97
Analyzed Date:	11/26/97	11/26/97	11/26/97	11/26/97	11/26/97
Instrument I.D.#:	GCHP7	GCHP7	GCHP7	GCHP7	GCHP7
Conc. Spiked:	0.20 mg/Kg	0.20 mg/Kg	0.20 mg/Kg	0.60 mg/Kg	1.2 mg/Kg
LCS Result:	0.23	0.22	0.22	0.66	1.2
LCS % Recov.:	115	110	110	110	100
MS/MSD	60-140	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130	70-130
Control Limits					

SEQUOIA ANALYTICAL

Richard Herling
Project Manager

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Cambria Environmental Tech.
1144 65th St., Ste. C
Oakland, CA 94608
Attention: Josh Bergstrom

Client Project ID: Shell 11489 Dublin, Dublin
Matrix: Liquid
Work Order #: 9711D10 11

Reported: Dec 18, 1997

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC120397BTEX21A	GC120397BTEX21A	GC120397BTEX21A	GC120397BTEX21A	GC120397BTEX21A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	A. Miraftab	A. Miraftab	A. Miraftab	A. Miraftab	A. Miraftab
MS/MSD #:	971202201	971202201	971202201	971202201	971202201
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	12/3/97	12/3/97	12/3/97	12/3/97	12/3/97
Analyzed Date:	12/3/97	12/3/97	12/3/97	12/3/97	12/3/97
Instrument I.D.#:	GCHP21	GCHP21	GCHP21	GCHP21	GCHP21
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
Result:	11	11	11	32	62
MS % Recovery:	110	110	110	107	103
Dup. Result:	11	11	11	33	64
MSD % Recov.:	110	110	110	110	107
RPD:	0.0	0.0	0.0	3.1	3.2
RPD Limit:	0-25	0-25	0-25	0-25	0-25
LCS #:	BLK120397	BLK120397	BLK120397	BLK120397	BLK120397
Prepared Date:	12/3/97	12/3/97	12/3/97	12/3/97	12/3/97
Analyzed Date:	12/3/97	12/3/97	12/3/97	12/3/97	12/3/97
Instrument I.D.#:	GCHP21	GCHP21	GCHP21	GCHP21	GCHP21
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
LCS Result:	10	10	11	31	60
LCS % Recov.:	100	100	110	103	100
MS/MSD Control Limits	60-140	60-140	60-140	60-140	60-140
LCS Control Limits	70-130	70-130	70-130	70-130	70-130

SEQUOIA ANALYTICAL

Richard Herling
Project Manager

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Sequoia Analytical

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Cambria Environmental Tech.	Client Project ID:	Shell 11489 Dublin, Dublin	
1144 65th St., Ste. C	Matrix:	Liquid	
Oakland, CA 94608			
Attention: Josh Bergstrom	Work Order #:	9711D10 11	Reported: Dec 18, 1997

QUALITY CONTROL DATA REPORT

Analyte:	Diesel
QC Batch#:	GC1125970HBPEXA
Analy. Method:	EPA 8015M
Prep. Method:	EPA 3510
Analyst:	D. Lockhart
MS/MSD #:	9711C7501
Sample Conc.:	N.D.
Prepared Date:	11/25/97
Analyzed Date:	11/26/97
Instrument I.D.#:	GCHP5B
Conc. Spiked:	1000 µg/L
Result:	850
MS % Recovery:	85
Dup. Result:	770
MSD % Recov.:	77
RPD:	9.9
RPD Limit:	0-50

LCS #:	BLK112597
Prepared Date:	11/25/97
Analyzed Date:	11/26/97
Instrument I.D.#:	GCHP5B
Conc. Spiked:	1000 µg/L
LCS Result:	820
LCS % Recov.:	82

MS/MSD	50-150
LCS	60-140
Control Limits	

SEQUOIA ANALYTICAL

Richard Herling
Project Manager

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Cambria Environmental Tech.	Client Project ID:	Shell 11489 Dublin, Dublin	
1144 65th St., Ste. C	Matrix:	Solid	
Oakland, CA 94608			
Attention: Josh Bergstrom	Work Order #:	9711D10 01	Reported: Dec 18, 1997

QUALITY CONTROL DATA REPORT

Analyte:	Diesel
QC Batch#:	GC1201970HBPEXB
Analy. Method:	EPA 8015M
Prep. Method:	EPA 3550
Analyst:	G. Fish
MS/MSD #:	9711D1001
Sample Conc.:	1.3
Prepared Date:	12/1/97
Analyzed Date:	12/4/97
Instrument I.D.#:	GCHP5A
Conc. Spiked:	25 mg/Kg
Result:	19
MS % Recovery:	71
Dup. Result:	17
MSD % Recov.:	63
RPD:	11
RPD Limit:	0-50

LCS #:	BLK120197
Prepared Date:	12/1/97
Analyzed Date:	12/4/97
Instrument I.D.#:	GCHP5A
Conc. Spiked:	25 mg/Kg
LCS Result:	21
LCS % Recov.:	84

MS/MSD	50-150
LCS	60-140
Control Limits	

SEQUOIA ANALYTICAL

Richard Herling
Project Manager

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Cambria Environmental Tech.	Client Project ID:	Shell 11489 Dublin, Dublin		
1144 65th St., Ste. C	Matrix:	Solid		
Oakland, CA 94608				
Attention: Josh Bergstrom	Work Order #:	9711D10	02-10, 12-15	Reported: Dec 18, 1997

QUALITY CONTROL DATA REPORT

Analyte:	Diesel
QC Batch#:	GC1124970HBPEXC
Analy. Method:	EPA 8015M
Prep. Method:	EPA 3550/DHS

Analyst:	G. Fish
MS/MSD #:	9711D1015
Sample Conc.:	1.3
Prepared Date:	11/24/97
Analyzed Date:	11/26/97
Instrument I.D.#:	GCHP5A
Conc. Spiked:	25 mg/Kg
Result:	25
MS % Recovery:	95
Dup. Result:	27
MSD % Recov.:	103
RPD:	7.7
RPD Limit:	0-50

LCS #:	BLK112497
Prepared Date:	11/24/97
Analyzed Date:	11/26/97
Instrument I.D.#:	GCHP5A
Conc. Spiked:	25 mg/Kg
LCS Result:	22
LCS % Recov.:	88

MS/MSD	50-150
LCS	60-140
Control Limits	

SEQUOIA ANALYTICAL

Richard Herling
Project Manager

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Cambria Environmental Tech.
1144 65th St., Ste. C
Oakland, CA 94608
Attention: Josh Bergstrom

Client Project ID: Shell 11489 Dublin, Dublin
Matrix: Solid
Work Order #: 9711D10 16
Reported: Dec 18, 1997

QUALITY CONTROL DATA REPORT

Analyte:	Beryllium	Cadmium	Chromium	Nickel	Mercury
QC Batch#:	ME1125976010MDD	ME1125976010MDD	ME1125976010MDD	ME1125976010MDD	ME1202977471M4A
Analy. Method:	EPA 6010	EPA 6010	EPA 6010	EPA 6010	EPA 7471
Prep. Method:	EPA 3050	EPA 3050	EPA 3050	EPA 3050	EPA 7471
Analyst:	R. Butler	R. Butler	R. Butler	R. Butler	M. Heid
MS/MSD #:	9711D3605	9711D3605	9711D3605	9711D3605	9711G7701
Sample Conc.:	N.D.	N.D.	27	24	0.024
Prepared Date:	11/25/97	11/25/97	11/25/97	11/25/97	12/2/97
Analyzed Date:	11/26/97	11/26/97	11/26/97	11/26/97	12/2/97
Instrument I.D.#:	MTJA5	MTJA5	MTJA5	MTJA5	MPE4
Conc. Spiked:	50 mg/kg	50 mg/kg	50 mg/kg	50 mg/kg	0.40 mg/Kg
Result:	46	47	78	74	0.39
MS % Recovery:	92	94	102	100	92
Dup. Result:	47	48	83	76	0.38
MSD % Recov.:	94	96	112	104	89
RPD:	2.2	2.1	6.2	2.7	2.6
RPD Limit:	0-20	0-20	0-20	0-20	0-30
LCS #:	BLK112597	BLK112597	BLK112597	BLK112597	BLK120297
Prepared Date:	11/25/97	11/25/97	11/25/97	11/25/97	12/2/97
Analyzed Date:	11/26/97	11/26/97	11/26/97	11/26/97	12/2/97
Instrument I.D.#:	MTJA5	MTJA5	MTJA5	MTJA5	MPE4
Conc. Spiked:	50 mg/kg	50 mg/kg	50 mg/kg	50 mg/kg	0.40 mg/Kg
LCS Result:	48	48	49	49	0.36
LCS % Recov.:	96	96	98	98	90
MS/MSD	80-120	80-120	80-120	80-120	
LCS	80-120	80-120	80-120	80-120	
Control Limits					75-125

SEQUOIA ANALYTICAL

Richard Herling
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.

** MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD

Serial No: ____________

Date: 11/19/97

Page 1 of 4

Site Address: 11989 Dublin, Dublin

WIC#: 204-2277-0204

Shell Engineer: Alex Perez

Phone No.: 510 335-5029

Fax #: 335-5027

Consultant Name & Address: CAMBRIA ENVIRONMENTAL 1144 65th St. Suite C, Oakland, CA 94608

Consultant Contact: Josh Bergstrom

Phone No.: 510 420-0700

Fax #: 420-9170

Comments:

Sampled by: [signature]

Printed Name: Josh Bergstrom

9711016

Analysis Required

LAB: Sequoia

CHECK ONE (1) BOX ONLY	CT/DT	TURN AROUND TIME
G.W. Monitoring [ ]	4461	24 hours [ ]
Site Investigation [X]	4441	48 hours [ ]
Soil Classify/Disposal [ ]	4443	16 days [X] (Normal)
Water Classify/Disposal [ ]	4443	Other [ ]
Soil/Air Rem. or Sys. O & M [ ]	4452	
Water Rem. or Sys. O & M [ ]	4453	
Other [ ]		

NOTE: Notify Lab as soon as Possible of 24/48 hrs. TAT.

...CY: Alameda Co.

Post-it® Fax Note 7671 — Date 11/20; # of pages ▶ 5; To Rich; From Josh; Co./Dept.; Co. Cambria; Phone #; Phone #; Fax # 650-364-9233; Fax #

Sample ID	Date	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	PNAs-Only if TPHd >5000 ppm	Asbestos	Container Size	SAMPLE CONDITION/ COMMENTS
SB-1,5	11/19		X			1										hold
SB-1,10	↓		X	1		1		X				X	X			
SB-1,15			X			1										hold
SB-1,20			X	2		1		X				X	X			
SB-1,25			X			1										hold
SB-1,30			X			1										hold
SB-1,35			X	3		1	X	X				X	X			
SB-2,5	↓		X			1										hold

Relinquished By (signature):	Printed Name:	Date/Time:	Received (signature):	Printed Name:	Date/Time:
[signature]	Josh Bergstrom	Date: 11/19 Time: 9:50	[signature]	[signature]	Date: 11/20/97 Time: 9:50
Relinquished By (signature):	Printed Name:	Date: Time:	Received (signature):	Printed Name:	Date: Time:
Relinquished By (signature):	Printed Name:	Date: Time:	Received (signature):	Printed Name:	Date: Time:

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

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: _____

Date: 11/19/97
Page 2 of 4

Site Address: 11989 Dublin, Dublin

WIC #: 204-2277-0204

Shell Engineer: Alex Perez
Phone No.: 510 735-5017
Fax #: 735-5021

Consultant Name & Address: CAMBRIA ENVIRONMENTAL
1144 65th St. Suite C, Oakland, CA 94608

Consultant Contact: Josh Bergstrom
Phone No.: 510 420-0700
Fax #: 420-9170

Comments:

Sampled by: Josh B

Printed Name: Josh Bergstrom

LAB: Sequoia

UST AGENCY: Alameda Co

Sample ID	Date	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	PNAs-Only if TPH >5000 ppm	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
SB-2, 10	11/9		X	W		1		X				X	X						
SB-2, 15								X				X							hold
SB-2, 20				S				X				X	X						
SB-2, 25								X				X							hold
SB-2, 30																			hold
SB-2, 5																			hold
SB-2, 10				6				X				X	X						
SB-2, 15	↓		↓			↓		X				X							hold

Analysis Required

CHECK ONE (1) BOX ONLY — C/GI

- G.W. Monitoring [ ] 4441
- Site Investigation [X] 4441
- Soil Classify/Disposal [ ] 4442
- Water Classify/Disposal [ ] 4443
- Soil/Air Rem. or Sys. O & M [ ] 4452
- Water Rem. or Sys. O & M [ ] 4453
- Other [ ]

TURN AROUND TIME

- 24 hours [ ]
- 48 hours [ ]
- 96 days [X] (Normal)
- Other [ ]

NOTE: Notify lab as soon as Possible of 24/48 hr. TAT

Relinquished By (signature)	Printed Name	Date/Time	Received (signature)	Printed Name	Date/Time
	Josh Bergstrom	11/19 9:30			
Relinquished By (signature)	Printed Name	Date/Time	Received (signature)	Printed Name	Date/Time
Relinquished By (signature)	Printed Name	Date/Time	Received (signature)	Printed Name	Date/Time

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

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: _____

Date: 11/17/97
Page 5 of 4

Site Address: 11989 Dublin, Dublin

WIC#: 204-2277-0204

Shell Engineer: Alex Perez
Phone No.: 510 [illegible]-5027
Fax #: 345-5029

Consultant Name & Address: CAMBRIA ENVIRONMENTAL
1144 65th St. Suite C, Oakland, CA 94608

Consultant Contact: Josh Bergstrom
Phone No.: 510 420-0700
Fax #: 420-9170

Comments:

Sampled by: [signature]

Printed Name: Josh Bergstrom

Analysis Required

LAB: Sequoia

Sample ID	Date	Sludge	Soil	Water	Air	No. of cont.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602D)	Volatile Organics (EPA 8240)	Test for Disposal	Combination TPH 8015 & BTEX 8020/MTBE	PNA's - Only if TPHd >5000 ppm	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
SB-2, 20	11/14		X			1													hold
SB-2, 25			X	7				X				X	X						
SB-2, 30			X					~~X~~				~~X~~							hold
SB-2, 35			X	8				X				X	X						
SB-3, 40			X																hold
SB-4, 10			X	9				X				X	X						
SB-4, 15			X																hold
SB-4, 20	↓		X			↓													hold

Relinquished By (signature)	Printed Name	Date / Time	Received (signature)	Printed Name	Date / Time
[signature]	Josh Bergstrom	11/20/97 9:55	[signature]	[illegible]	11/20/97 9:55
Relinquished By (signature):	Printed Name:	Date: Time:	Received (signature):	Printed Name:	Date: Time:
Relinquished By (signature):	Printed Name:	Date: Time:	Received (signature):	Printed Name:	Date: Time:

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

CHECK ONE (1) BOX ONLY	C1/01
G.W. Monitoring	4461
Site Investigation	4461
Soil Classify/Dispose	4462
Water Classify/Dispose	4463
Soil/Air Remed. or Sys. O & M	4462
Water Remed. or Sys. O & M	4463
Other	

TURN AROUND TIME
24 hours
48 hours
96 days (Normal)
Other

NOTE: Notify lab in case of Possible 24/48 hr. TAT.

UST AGENCY: Alameda Co.

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: _____

Date: 11/19/97
Page 4 of 4

Site Address: 11989 Dublin, Dublin
WIC #: 204-2277-0204
Shell Engineer: Alex Perez
Phone No: 510 735-5027
Fax #: 735-5029
Consultant Name & Address: CAMBRIA ENVIRONMENTAL
1144 65th St. Suite C, Oakland, CA 94608
Consultant Contact: Josh Bergstrom
Phone No.: 510 420-0700
Fax #: 420-9170
Comments: Follow attached protocol
Sampled by: [signature]
Printed Name: Josh Bergstrom

LAB: Sequoia

UST AGENCY: Alameda Co.

Sample ID	Date	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	PNA's - Only if TPHd > 5000 ppm	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
SB-4, 25	11/19		X		10	1		X				X	X						
SB-4, 30	↓		X			1													hold
SB-4, 35	↓		X			1													hold
SB-2	11/19			X	11	4	X	X				X	X						
SP-1	11/19		X		12-15	4					X								TEST 95 yes + diesel

Relinquished By (signature)	Printed Name	Date / Time	Received (signature)	Printed Name	Date / Time
[signature]	Josh Bergstrom	11/20/97 9:50	[signature]	Ray Scanlon	11/20/97 9:50
Relinquished By (signature):	Printed Name:	Date: Time:	Received (signature):	Printed Name:	Date: Time:
Relinquished By (signature):	Printed Name:	Date: Time:	Received (signature):	Printed Name:	Date: Time:

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

CHECK ONE (1) BOX ONLY — C7/01

G.W. Monitoring	☐	4411
Site Investigation	☒	4411
Soil Classify/Disposal	☐	4412
Water Classify/Disposal	☒	4413
Soil/Air Remt. or Sys. O & M	☐	4452
Water Remt. or Sys. O & M	☐	4453
Other	☐	

TURN AROUND TIME
24 hours ☐
48 hours ☐
10 days ☒ (Normal)
Other ☐ _____

NOTE: Notify Lab as soon as Possible of 24/48 hr. TAT.

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Cambria 1144 65th St. Suite C Oakland, CA 94608 Attention: Josh Bergstrom	Client Proj. ID: Shell 11489 Dublin, Dublin Lab Proj. ID: 9711D10	Received: 11/20/97 Reported: 12/16/97

LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 45 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

SEQUOIA ANALYTICAL

Richard Herling
Project Manager

CAMBRIA

Attachment B

Soil Boring Logs

BORING LOG

Client: **Shell Oil Products Company**

Project No: **24-548** Phase Task **012**

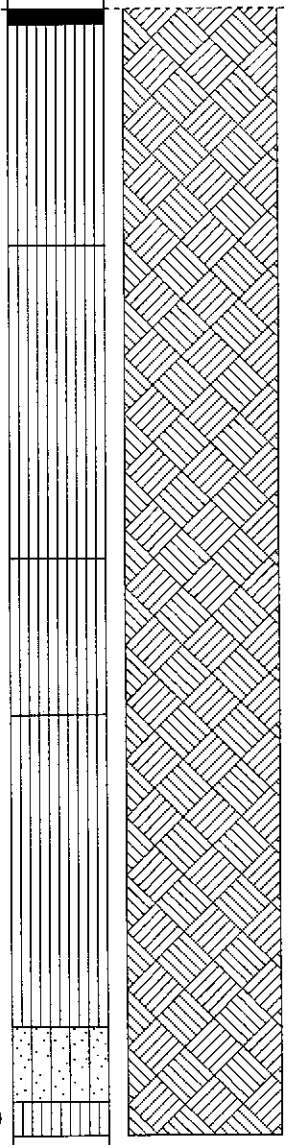
Boring ID **SB-1**

Location **11989 Dublin Blvd, Dublin**

Surface Elev. **NA ft,**

Depth (feet)	Blow Count	Sample	Interval	Lithologic Description
0	Ground Surface			**Asphalt**
5				**Sandy, Clayey SILT**; (ML); brown; soft; damp; 20% clay, 60% silt, 15% fine sand, 5% fine gravel; medium plasticity; moderate estimated permeability.
10				**Clayey SILT**; (ML); brown; soft; damp; 30% clay, 70% silt; medium plasticity; moderate estimated permeability.
15				grey; 30% clay, 65% silt, 5% fine sand; low estimated permeabililty.
20				**Sandy SILT**; (ML); brown; soft; damp; 10% clay, 65% silt, 20% sand, 5% fine gravel; low to medium plasticity; low to moderate estimated permeability.
25				**Clayey SILT**; (ML); brown; stiff; damp; 35% clay, 60% silt, 5% fine sand; low to medium plasticity; low estimated permeability.
30				25% clay, 70% silt, 5% fine sand; low to moderate estimated permeability.
35				**Silty SAND**; (SM); grey; medium dense; wet; 5% clay, 25% silt; 70% fine sand; low plasticity; moderate estimated permeability.
40				**Clayey SILT**; (ML); brown; stiff; damp; 30% clay, 65% silt, 5% fine sand; low to medium plasticity; low estimated permeability.

TPHg (ppm)
<1.0
<1.0
<1.0



Depth (feet)
0
5
10
15
20
25
30
35
40

Additional Comments: Bottom of boring @ 36 ft.

Driller **Vironex**

Logged By **Josh Bergstrom**

Water-Bearing Zones **NA**

Drilling Started **11/19/97**

Drilling Completed **11/19/97**

Grout Type **Portland Type I/II**

Notes: **Northern edge of property.**

BOR 24548 2/13/98

Cambria Environmental Technology, Inc.

BORING LOG

Client: **Shell Oil Products Company**

Project No: **24-548** Phase Task **012**

Boring ID **SB-2**

Location **11989 Dublin Blvd, Dublin**

Surface Elev. **NA ft,**

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

Depth (feet)	Blow Count	Sample	Interval	Lithologic Description	TPHg (ppm)
0	Ground Surface			**Asphalt**	
5				**Clayey, Sandy SILT**; (ML); brown; soft; damp; 15% clay, 60% silt, 20% sand, 5% gravel; low plasticity; moderate estimated permeability.	
10				15% clay, 70% silt, 15% sand; low to medium plasticity.	<1.0
15				**Clayey SILT**; (ML); grey; stiff; damp; 20% clay, 75% silt, 5% sand; low to medium plasticity; low estimated permability.	
20				**Sandy, Clayey SILT**; (ML); green; stiff; damp; 20% clay, 65% silt, 15% sand, 2" thick gravel layer; medium plasticity; low to moderate estimated permeability.	1.8
25				**Clayey SILT**; (ML); green; stiff; damp; 40% clay, 60% silt; medium plasticity; low estimated permeability.	
30				brown to green.	
35					
40					

Graphic Log

Boring Completion Graphics

Depth (feet)

Additional Comments

Water level @ 22 ft.

Bottom of boring @ 31 ft.

Driller **Vironex**

Logged By **Josh Bergstrom**

Water-Bearing Zones **NA**

Drilling Started **11/19/97**

Drilling Completed **11/19/97**

Grout Type **Portland Type I/II**

Notes: **Eastern edge of canopy.**

BOR 24548 2/13/98

Cambria Environmental Technology, Inc.

BORING LOG

Client: **Shell Oil Products Company**

Project No: **24-548** Phase Task **012**

Boring ID **SB-3**

Location **11989 Dublin Blvd, Dublin**

Surface Elev. **NA ft,**

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

Depth (feet)	Blow Count	Sample	Interval	Lithologic Description
0	Ground Surface			
				Asphalt
5		X		**Clayey SILT**; (ML); brown; soft; damp; 20% clay, 70% silt, 10% coarse sand; low to medium plasticity; moderate estimated permeability.
10		X		20% clay, 75% silt, 5% sand; low to moderate estimated permeability.
15		X		stiff; 20% clay, 80% silt; low estimated permeability.
20		X		30% clay, 65% silt, 5% fine sand; medium plasticity.
25		X		grey; 40% clay, 60% silt.
30		X		grey to green.
35		X		brown; 40% clay, 55% silt, 5% sand.
40		X		40% clay, 60% silt.

TPHg (ppm)	Graphic Log	Boring Completion Graphics	Depth (feet)	Additional Comments
			0	
<1.0			10	
11.0			25	
<1.0			35	
			40	Bottom of boring @ 41 ft.

Driller **Vironex**

Logged By **Josh Bergstrom**

Water-Bearing Zones **NA**

Drilling Started **11/19/97**

Drilling Completed **11/19/97**

Grout Type **Portland Type I/II**

Notes: **Southeastern edge of canopy.**

BOR 24548 2/13/98

Cambria Environmental Technology, Inc.

BORING LOG

Client: **Shell Oil Products Company**

Project No: **24-548** Phase Task **012**

Boring ID **SB-4**

Location **11989 Dublin Blvd, Dublin**

Surface Elev. **NA ft,**

Depth (feet)	Blow Count	Sample	Interval	Lithologic Description	TPHg (ppm)
0	Ground Surface			Concrete	
5				Clayey SILT; (ML); brown; soft; damp; 15% clay, 80% silt, 5% sand; low to medium plasticity; moderate estimated permeability.	
10				Clayey, Sandy SILT; (ML); brown; soft; damp; 15% clay, 55% silt, 30% fine sand; no plasticity; moderate estimated permeability.	<1.0
15				Clayey SILT; (ML); brown; soft; damp; 35% clay, 60% silt, 5% sand; medium plasticity; low estimated permeability.	
20				Clayey, Sandy SILT; (ML); brown; soft; damp; 15% clay, 45% silt, 40% fine sand; low to medium plasticity; low to moderate estimated permeability.	
25				Clayey SILT; (ML); brown; stiff; damp; 35% clay, 65% silt; medium plasticity; low estimated permeability.	<1.0
30				40% clay, 60% silt.	
35				40% clay, 55% silt, 5% fine sand.	
40					

Graphic Log | Boring Completion Graphics | Depth (feet) | Additional Comments

Bottom of boring @ 36 ft.

Driller **Vironex**

Logged By **Josh Bergstrom**

Water-Bearing Zones **NA**

Drilling Started **11/19/97**

Drilling Completed **11/19/97**

Grout Type **Portland Type I/II**

Notes: **Southern edge of canopy.**

BOR 24548 2/13/98

Cambria Environmental Technology, Inc.

CAMBRIA

Attachment C

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.