

CAMBRIA

April 6, 1998

Pamela Evans
Alameda County
Department of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502

Re: Dispenser Soil Sampling Report

Shell Service Station
29 Wildwood Avenue
Piedmont, California
WIC# 204-6001-0109
Cambria Project# 24-687-984

Dear Ms. Evans:

On behalf of Shell Oil Products Company (Shell), Cambria Environmental Technology, Inc. (Cambria) is submitting the results of sampling conducted during station upgrade activities at the site referenced above. Presented below are summaries of the site conditions, dispenser sampling activities, waste oil remote fill piping sampling activities, and conclusions.

SITE CONDITIONS

The site is located at the intersection of Wildwood Avenue and Grand Avenue in Piedmont, California. The area surrounding the site is mixed residential and commercial.

This Shell service station was recently upgraded by Paradiso Mechanical of San Leandro, California (Paradiso). Paradiso added secondary containment to the existing dispensers and the turbine sumps, and removed the waste oil remote fill piping (Figure 1).

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ENVIRONMENTAL
TECHNOLOGY, INC.

SAMPLING ACTIVITIES AND SAMPLE ANALYSIS

1144 65TH STREET,

SUITE B

OAKLAND,
CA 94608

Ph: (510) 420-0700

Fax: (510) 420-9170

	<i>Personnel Present</i>	<i>Date</i>	<i>Title</i>	<i>Company</i>
	Michael Paves	3/3/98, 3/6/98	Staff Engineer	Cambria
	Ron Hales	3/3/98, 3/6/98	Site Foreman	Paradiso
	Ariu Levi	3/6/98	Hazardous Materials Supervisor	ACDEH

Dispenser Sampling

Sample Date: March 3, 1998.

Sampling Requirements: Based on Cambria's March 3, 1998 telephone conversation with Pamela Evans, the Alameda County Department of Environmental Health does not require sampling at dispensers during 1998 Upgrade projects unless there is evidence of hydrocarbons.

on Grand Ave. side

Dispenser Sampling: Cambria inspected the dispenser and tank pit areas. Soil samples were collected from native soil beneath **dispenser D-2** at a depth of approximately 2 feet into native soil because field indications of hydrocarbons were present. No field indications of hydrocarbons, such as staining or odor, were observed beneath the other dispenser during the site visit; therefore, no samples were collected. Cambria's standard procedures for dispenser and piping sampling are presented as Attachment A.

Sample Analyses: Sequoia Analytical of Redwood City, California analyzed samples D-2 for total petroleum hydrocarbons as gasoline (TPHg) and total petroleum hydrocarbons as diesel (TPHd) by modified EPA Method 8015, and benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tert-butyl ether (MTBE) by EPA Method 8020.

Analytical Results: The hydrocarbon concentrations were 1,600 milligrams per kilogram (mg/kg) TPHg and 6.3 mg/kg benzene in sample D-1 at 2.0 feet. Dispenser analytical results are summarized in Table 1 and the laboratory report is included as Attachment B.

Waste Oil Remote Fill Piping Sampling

Sample Date: March 6, 1998.

Piping Sampling: Cambria inspected the remote fill piping excavation at the waste oil tank. Ariu Levi of the Alameda County Department of Environmental Health was onsite to inspect the excavation at the time of Cambria's site visit. Approximately 10 feet of remote fill piping was removed prior to the site visit. Cambria collected sidewall soil sample RF-1 with a slide hammer, approximately 1.5 feet below the bottom of the pavement, at the direction of Mr. Levi.

Sample Analyses: Sequoia Analytical analyzed soil sample RF-1 collected from the waste oil remote fill piping excavation for the following compounds in accordance with the *Tri-Regional Board Staff*

Recommendations for Preliminary Investigation and Evaluation of Underground Tank Sites, and as requested by Mr. Levi of ACDEH:

- Total petroleum hydrocarbons as gasoline (TPHg) by modified EPA Method 8015;
- Total petroleum hydrocarbons as diesel (TPHd) by modified EPA Method 8015;
- Total recoverable petroleum hydrocarbons (TRPH) by EPA Method 418.1;
- Semivolatile compounds (SVOCs) by EPA 8270;
- Halogenated volatile organic compounds (VOCs) by EPA Method 8240; and
- Cadmium, chromium, lead, nickel, and zinc by EPA Method 6010.

Analytical Results: The only hydrocarbons detected were 10 mg/kg TPHd in sample RF-1. No TRPH, TPHg, TPHd, VOCs, or SVOCs were detected (Table 2, Attachment B). In addition, the elemental metal concentrations were below ten times the STLC values in sample RF-1 (Table 3, Attachment B)

CONCLUSIONS

Wells have been previously installed to monitor hydrocarbons in ground water, therefore no further investigation of the dispenser areas is warranted at this time. The low concentrations in the waste oil remote fill piping sample do not warrant further investigation of the waste oil tank area.

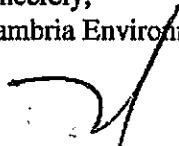
Pamela Evans
April 6, 1998

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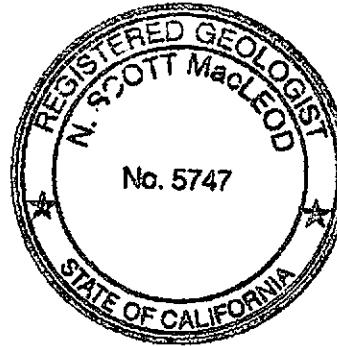
CLOSING

We appreciate the opportunity to work with you on this project. Please call if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc.



N. Scott MacLeod, R.G.
Principal Geologist



Attachments: A - Standard Piping and Dispenser Removal Sampling Procedures
B - Laboratory Analytic Reports for Soil

cc: Mr. Ariu Levi, Alameda County Department of Environmental Health, 1131 Harbor Bay Parkway, 2nd Floor, Alameda, CA 94502
Mr. Tim Hargraves, Shell Oil Products Company, P.O. Box 8080, Martinez, CA 94553
Mr. A.E. (Alex) Perez, Shell Oil Products Company, P.O. Box 8080, Martinez, CA 94553

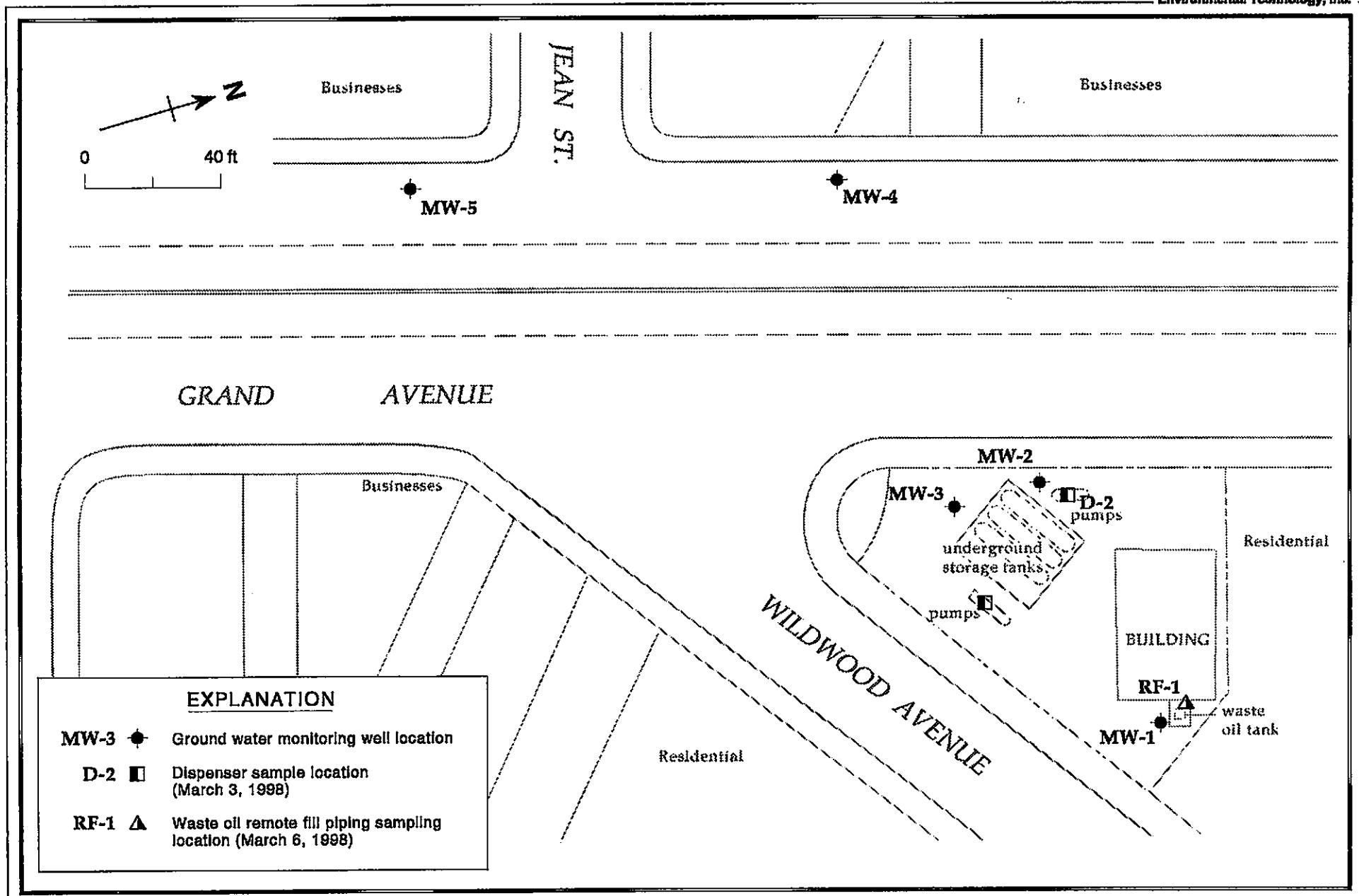


Figure 1. Dispenser and Waste Oil Sampling Locations - March 1998 - Shell Service Station, 29 Wildwood Avenue, Piedmont, California

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Table 1. Dispenser Sample Analytical Data - Shell Service Station - WIC #204-6001-0109, 29 Wildwood Avenue, Piedmont, California

Sample ID **Depth** **TPHg** **MTBE** **Benzene** **Toluene** **Ethylbenzene** **Xylenes**
 (feet) ← → (Concentrations reported in milligrams per kilogram)

March 3, 1998 Samples:

D-2 2.0 1,600 36 6.3 24 18.0 160

Abbreviations and Notes:

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

MTBE = Methyl tert-butyl ether by EPA Method 8020.

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

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Table 2. Soil Analytical Data - Non-Gasoline Hydrocarbons - Shell Service Station WIC #204-6001-0109, 29 Wildwood Avenue, Piedmont, California

Sample ID	Depth (feet)	Date Sampled	TRPH	TPHg	TPHd mg/kg	VOCs	SVOCs
RF-1	2.0	3/6/98	<15	<1.0	10	ND	ND

Notes and Abbreviations:

mg/kg = Milligrams per kilogram

TRPH = Total recoverable petroleum hydrocarbons by EPA Method 418.1

TPHg = Total petroleum hydrocarbons as gas by modified EPA Method 8015

TPHd = Total petroleum hydrocarbons as diesel by modified EPA Method 8015

VOCs = Volatile Organic Compounds by EPA Method 8240

SVOCs = Semi-volatile organic compounds by EPA Method 8270

<n = Below detection limit of n mg/kg

ND = Not detected. See laboratory report for specific detection limits.

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Table 3. Soil Analytical Data - Metals - Shell Service Station WIC #204-6001-0109, 29 Wildwood Avenue, Piedmont, California

Sample ID	Depth (feet)	Date Sampled	Cadmium	Chromium	Lead Concentrations in mg/kg	Nickel	Zinc
RF-1	2.0	3/6/98	<0.50	33.0	11.0	37.0	38.0

Notes and Abbreviations:

mg/kg = Milligrams per kilogram

Cadmium, Chromium, Lead, Nickel, and Zinc by EPA Method 6010

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ATTACHMENT A

**Standard Piping and Dispenser Removal
Sampling Procedures**

STANDARD PIPING AND DISPENSER REMOVAL SAMPLING PROCEDURES

Cambria Environmental Technology, Inc. (Cambria) has developed standard operating procedures for collecting soil samples during petroleum dispenser and piping removal. These procedures ensure that the samples are collected, handled, and documented in compliance with California Administration Code Title 23: Waters; Chapter 3: Water Resources Control Board; Subchapter 16: Underground Storage Tank Regulations (Title 23). Cambria's sampling procedures are based on guidelines contained in the California State Regional Water Quality Control Board Tri-Regional Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites dated August 10, 1990.

Piping and Dispenser Removal Sampling

The objective of sample collection during routine dispenser and piping removals is to determine whether hydrocarbons or other stored chemicals have leaked to the subsurface. We collect one soil sample from the native soil beneath each dispenser unit, at each piping elbow, and at every 20 ft of product piping, as applicable.

The soil samples are collected in steam cleaned brass or steel tubes from either a driven split-spoon type sampler or the bucket of a backhoe. When a backhoe is used, approximately three inches of soil are scraped from the surface and the tube is driven into the exposed soil.

Upon removal from the split-spoon sampler or the backhoe, the samples are trimmed flush, capped with Teflon sheets and plastic end caps, labeled, logged and refrigerated for delivery under chain of custody to a State certified analytic laboratory.

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ATTACHMENT B

Laboratory Analytic Reports for Soil



Sequoia Analytical

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

Cambria
1144 65th St. Suite C
Oakland, CA 94608
Attention: Michael Paves

Project: Shell 29 Wildwood Piedmont

Enclosed are the results from samples received at Sequoia Analytical on March 4, 1998.
The requested analyses are listed below:

<u>SAMPLE #</u>	<u>SAMPLE DESCRIPTION</u>	<u>DATE COLLECTED</u>	<u>TEST METHOD</u>
9803436 -01	SOLID, D-2(2.0)	03/03/98	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

Project Manager





Sequoia
Analytical

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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: Michael Paves

Client Proj. ID: Shell 29 Wildwood Piedmont
Sample Descript: D-2(2.0)
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9803436-01

Sampled: 03/03/98
Received: 03/04/98
Extracted: 03/11/98
Analyzed: 03/15/98
Reported: 03/27/98

QC Batch Number: GC031198BTEXEXB
Instrument ID: GCHP07

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	.....	250
Methyl t-Butyl Ether	.....	6.2
Benzene	.....	1.2
Toluene	.....	1.2
Ethyl Benzene	.....	1.2
Xylenes (Total)	.....	1.2
Chromatogram Pattern:	.....	.....
		1600
		36
		6.3
		24
		18
		160
		C6-C12
Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70	130
4-Bromofluorobenzene	60	140
		137 Q
		5 Q

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

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
Project Manager



**Sequoia
Analytical**

680 Chesapeake Drive 404 N. Wiget Lane 819 Striker Avenue, Suite 8	Redwood City, CA 94063 Walnut Creek, CA 94598 Sacramento, CA 95834	(650) 364-9600 (510) 988-9600 (916) 921-9600	FAX (650) 364-9233 FAX (510) 988-9673 FAX (916) 921-0100
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Cambria Environmental Tech.
1144 65th St., Ste. C
Oakland, CA 94608
Attention: Michael Paves

Client Project ID: Shell 29 Wildwood Piedmont
Matrix: Solid

Work Order #: 9803436 01

Reported: Apr 2, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC031198BTEXEXB	GC031198BTEXEXB	GC031198BTEXEXB	GC031198BTEXEXB	GC031198BTEXEXB
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:	J. Minkel	J. Minkel	J. Minkel	J. Minkel	J. Minkel
MS/MSD #:	980369201	980369201	980369201	980369201	980369201
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	3/11/98	3/11/98	3/11/98	3/11/98	3/11/98
Analyzed Date:	3/12/98	3/12/98	3/12/98	3/12/98	3/12/98
Instrument I.D. #:	GCHP18	GCHP18	GCHP18	GCHP18	GCHP18
Conc. Spiked:	0.20 mg/Kg	0.20 mg/Kg	0.20 mg/Kg	0.60 mg/Kg	1.2 mg/Kg
 Result:	0.18	0.19	0.19	0.59	1.0
MS % Recovery:	90	95	95	98	83
 Dup. Result:	0.18	0.19	0.19	0.59	1.0
MSD % Recov.:	90	95	95	98	83
 RPD:	0.0	0.0	0.0	0.0	0.0
RPD Limit:	0-25	0-25	0-25	0-25	0-25

LCS #:	BLK031198	BLK031198	BLK031198	BLK031198	BLK031198
Prepared Date:	3/11/98	3/11/98	3/11/98	3/11/98	3/11/98
Analyzed Date:	3/11/98	3/11/98	3/11/98	3/11/98	3/11/98
Instrument I.D. #:	GCHP18	GCHP18	GCHP18	GCHP18	GCHP18
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	0.21	0.21	0.65	1.1
LCS % Recov.:	100	105	105	108	92

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					

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.

SEQUOIA ANALYTICAL

Richard Herling
Project Manager



Sequoia
Analytical

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FAX (916) 921-0100

Cambria
1144 65th St. Suite C
Oakland, CA 94608
Attention: Michael Paves

Client Proj. ID: Shell 29 Wildwood Piedmont

Received: 03/04/98

Lab Proj. ID: 9803436

Reported: 03/27/98

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

Richard Herling
Project Manager





Sequoia Analytical

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Cambria
1144 65th St. Suite C
Oakland, CA 94608
Attention: Michael Paves

Project: Shell 29 Wildwood, Piedmont

Enclosed are the results from samples received at Sequoia Analytical on March 6, 1998.
The requested analyses are listed below:

<u>SAMPLE #</u>	<u>SAMPLE DESCRIPTION</u>	<u>DATE COLLECTED</u>	<u>TEST METHOD</u>
9803535 -01	SOLID, RF-1	03/06/98	TRPH (EPA 418.1M)
9803535 -01	SOLID, RF-1	03/06/98	8240 Volatile Organic Co
9803535 -01	SOLID, RF-1	03/06/98	8270 SemiVolatile Organi
9803535 -01	SOLID, RF-1	03/06/98	Cadmium by ICP
9803535 -01	SOLID, RF-1	03/06/98	Chromium by ICP
9803535 -01	SOLID, RF-1	03/06/98	Nickel by ICP
9803535 -01	SOLID, RF-1	03/06/98	Lead by ICP
9803535 -01	SOLID, RF-1	03/06/98	Zinc by ICP
9803535 -01	SOLID, RF-1	03/06/98	TPHD_S Extractable TPH
9803535 -01	SOLID, RF-1	03/06/98	TPHG_S Purgeable TPH

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
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FAX (916) 921-0100

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

Client Proj. ID: Shell 29 Wildwood, Piedmont
Lab Proj. ID: 9803535

Sampled: 03/06/98
Received: 03/06/98
Analyzed: see below

Attention: Michael Paves

Reported: 03/26/98

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9803535-01				
Sample Desc : SOLID,RF-1				
Cadmium by ICP	mg/Kg	03/11/98	0.50	N.D.
Chromium by ICP	mg/Kg	03/11/98	0.50	33.0
Lead by ICP	mg/Kg	03/11/98	5.0	11.0
Nickel by ICP	mg/Kg	03/11/98	2.5	37.0
TRPH (EPA 418.1M)	mg/Kg	03/18/98	15	N.D.
Zinc by ICP	mg/Kg	03/11/98	0.50	38.0

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: Michael Paves

Client Proj. ID: Shell 29 Wildwood, Piedmont
Sample Descript: RF-1
Matrix: SOLID
Analysis Method: EPA 8240
Lab Number: 9803535-01

Sampled: 03/06/98
Received: 03/06/98
Extracted: 03/13/98
Analyzed: 03/13/98
Reported: 03/26/98

QC Batch Number: MS0310988240EXA
Instrument ID: F3

Volatile Organics (EPA 8240)

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Acetone	500	N.D.
Benzene	100	N.D.
Bromodichloromethane	100	N.D.
Bromoform	100	N.D.
Bromomethane	100	N.D.
2-Butanone	500	N.D.
Carbon disulfide	100	N.D.
Carbon tetrachloride	100	N.D.
Chlorobenzene	100	N.D.
Chloroethane	100	N.D.
2-Chloroethyl vinyl ether	500	N.D.
Chloroform	100	N.D.
Chloromethane	100	N.D.
Dibromochloromethane	100	N.D.
1,1-Dichloroethane	100	N.D.
1,2-Dichloroethane	100	N.D.
1,1-Dichloroethene	100	N.D.
cis-1,2-Dichloroethene	100	N.D.
trans-1,2-Dichloroethene	100	N.D.
1,2-Dichloropropane	100	N.D.
cis-1,3-Dichloropropene	100	N.D.
trans-1,3-Dichloropropene	100	N.D.
Ethylbenzene	100	N.D.
2-Hexanone	500	N.D.
Methylene chloride	250	N.D.
4-Methyl-2-pentanone	500	N.D.
Styrene	100	N.D.
1,1,2,2-Tetrachloroethane	100	N.D.
Tetrachloroethene	100	N.D.
Toluene	100	N.D.
1,1,1-Trichloroethane	100	N.D.
1,1,2-Trichloroethane	100	N.D.
Trichloroethene	100	N.D.
Trichlorofluoromethane	100	N.D.
Vinyl acetate	250	N.D.
Vinyl chloride	100	N.D.
Total Xylenes	100	N.D.



Sequoia Analytical

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FAX (916) 921-0100

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

Attention: Michael Paves

Client Proj. ID: Shell 29 Wildwood, Piedmont
Sample Descript: RF-1
Matrix: SOLID
Analysis Method: EPA 8240
Lab Number: 9803535-01

Sampled: 03/06/98
Received: 03/06/98
Extracted: 03/13/98
Analyzed: 03/13/98
Reported: 03/26/98

QC Batch Number: MS0310988240EXA
Instrument ID: F3

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Surrogates		
1,2-Dichloroethane-d4	70	121
Toluene-d8	81	117
4-Bromofluorobenzene	74	121
	Control Limits %	% Recovery

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

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
Project Manager



Sequoia
Analytical

680 Chesapeake Drive Redwood City, CA 94063 (650) 364-9600
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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: Michael Paves

Client Proj. ID: Shell 29 Wildwood, Piedmont
Sample Descript: RF-1
Matrix: SOLID
Analysis Method: EPA 8270
Lab Number: 9803535-01

Sampled: 03/06/98
Received: 03/06/98
Extracted: 03/11/98
Analyzed: 03/13/98
Reported: 03/26/98

QC Batch Number: MS0305988270EXA
Instrument ID: H5

Semivolatile Organics (EPA 8270)

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Acenaphthene	250	N.D.
Acenaphthylene	250	N.D.
Anthracene	250	N.D.
Benzoic Acid	500	N.D.
Benzo(a)anthracene	250	N.D.
Benzo(b)fluoranthene	250	N.D.
Benzo(k)fluoranthene	250	N.D.
Benzo(g,h,i)perylene	250	N.D.
Benzo(a)pyrene	250	N.D.
Benzyl alcohol	250	N.D.
Bis(2-chloroethoxy)methane	250	N.D.
Bis(2-chloroethyl)ether	250	N.D.
Bis(2-chloroisopropyl)ether	250	N.D.
Bis(2-ethylhexyl)phthalate	500	N.D.
4-Bromophenyl phenyl ether	250	N.D.
Butyl benzyl phthalate	250	N.D.
4-Chloroaniline	500	N.D.
2-Chloronaphthalene	250	N.D.
4-Chloro-3-methylphenol	250	N.D.
2-Chlorophenol	250	N.D.
4-Chlorophenyl phenyl ether	250	N.D.
Chrysene	250	N.D.
Dibenzo(a,h)anthracene	250	N.D.
Dibenzofuran	250	N.D.
Di-n-butyl phthalate	500	N.D.
1,2-Dichlorobenzene	250	N.D.
1,3-Dichlorobenzene	250	N.D.
1,4-Dichlorobenzene	250	N.D.
3,3'-Dichlorobenzidine	500	N.D.
2,4-Dichlorophenol	250	N.D.
Diethyl phthalate	250	N.D.
2,4-Dimethylphenol	250	N.D.
Dimethyl phthalate	250	N.D.
4,6-Dinitro-2-methylphenol	500	N.D.
2,4-Dinitrophenol	500	N.D.
2,4-Dinitrotoluene	250	N.D.
2,6-Dinitrotoluene	250	N.D.
Di-n-octyl phthalate	250	N.D.
Fluoranthene	250	N.D.



Sequoia Analytical

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

Attention: Michael Paves

Client Proj. ID: Shell 29 Wildwood, Piedmont
 Sample Descript: RF-1
 Matrix: SOLID
 Analysis Method: EPA 8270
 Lab Number: 9803535-01

Sampled: 03/06/98
 Received: 03/06/98
 Extracted: 03/11/98
 Analyzed: 03/13/98
 Reported: 03/26/98

QC Batch Number: MS0305988270EXA
 Instrument ID: H5

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Fluorene	250	N.D.
Hexachlorobenzene	250	N.D.
Hexachlorobutadiene	250	N.D.
Hexachlorocyclopentadiene	500	N.D.
Hexachloroethane	250	N.D.
Indeno(1,2,3-cd)pyrene	250	N.D.
Isophorone	250	N.D.
2-Methylnaphthalene	250	N.D.
2-Methylphenol	250	N.D.
4-Methylphenol	250	N.D.
Naphthalene	250	N.D.
2-Nitroaniline	500	N.D.
3-Nitroaniline	500	N.D.
4-Nitroaniline	500	N.D.
Nitrobenzene	250	N.D.
2-Nitrophenol	250	N.D.
4-Nitrophenol	500	N.D.
N-Nitrosodiphenylamine	250	N.D.
N-Nitroso-di-n-propylamine	250	N.D.
Pentachlorophenol	500	N.D.
Phenanthrene	250	N.D.
Phenol	250	N.D.
Pyrene	250	N.D.
1,2,4-Trichlorobenzene	250	N.D.
2,4,5-Trichlorophenol	500	N.D.
2,4,6-Trichlorophenol	250	N.D.

Surrogates	Control Limits %	% Recovery
2-Fluorophenol	25	121
Phenol-d5	24	113
Nitrobenzene-d5	23	120
2-Fluorobiphenyl	30	115
2,4,6-Tribromophenol	19	122
p-Terphenyl-d14	18	137

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

SEQUOIA ANALYTICAL - ELAP #1210

Richard Herling
 Project Manager

Page:

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

Attention: Michael Paves

Client Proj. ID: Shell 29 Wildwood, Piedmont
Sample Descript: RF-1
Matrix: SOLID
Analysis Method: EPA 8015 Mod
Lab Number: 9803535-01

Sampled: 03/06/98
Received: 03/06/98
Extracted: 03/11/98
Analyzed: 03/12/98
Reported: 03/26/98

QC Batch Number: GC0311980HBPEXA
Instrument ID: GCHP19A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	.....	1.0
Chromatogram Pattern: Unidentified HC	.....	C9-C24
Surrogates n-Pentacosane (C25)	Control Limits % 50 150	% Recovery 78

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

Attention: Michael Paves

Client Proj. ID: Shell 29 Wildwood, Piedmont
Sample Descript: RF-1
Matrix: SOLID
Analysis Method: EPA 8015 Mod
Lab Number: 9803535-01

Sampled: 03/06/98
Received: 03/06/98
Extracted: 03/11/98
Analyzed: 03/20/98
Reported: 03/26/98

QC Batch Number: GC031198BTEXEXB
Instrument ID: GCHP07

Total Purgeable Petroleum Hydrocarbons (TPPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Chromatogram Pattern:		
Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70	102
4-Bromofluorobenzene	60	94

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 Environmental Tech.
1144 65th St., Ste. C
Oakland, CA 94608
Attention: Michael Paves

Client Project ID: Shell 29 Wildwood, Piedmont
Matrix: Solid

Work Order #: 9803535 01

Reported: Apr 1, 1998

QUALITY CONTROL DATA REPORT

Analyte: Total Petroleum
Hydrocarbons

QC Batch#: IN031798418100A
Analy. Method: EPA 418.1
Prep. Method:

Analyst: P. Sandrock
Dup. Sample #: LCS031898
Sample Conc.:
Prepared Date: 3/18/98
Analyzed Date: 3/18/98
Instrument I.D.#: FTIR1
Conc. Spiked: 210 mg/Kg

Result: 220
MS % Recovery: 105

Dup. Result: 240
MSD % Recov.: 114

RPD: 8.7
RPD Limit: 0-20

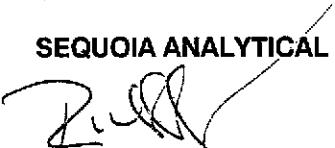
LCS #: LCS031898

Prepared Date: 3/18/98
Analyzed Date: 3/18/98
Instrument I.D.#: FTIR1
Conc. Spiked: 210 mg/Kg

LCS Result: 220
LCS % Recov.: 105

MS/MSD	60-140
LCS	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: Michael Paves

Client Project ID: Shell 29 Wildwood, Piedmont
Matrix: Solid

Work Order #: 9803535 01

Reported: Apr 1, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Beryllium	Cadmium	Chromium	Nickel
QC Batch#:	ME0311986010MDE	ME0311986010MDE	ME0311986010MDE	ME0311986010MDE
Analy. Method:	EPA 6010	EPA 6010	EPA 6010	EPA 6010
Prep. Method:	EPA 3050	EPA 3050	EPA 3050	EPA 3050

Analyst:	T. Sears	T. Sears	T. Sears	T. Sears
MS/MSD #:	9802C7701	9802C7701	9802C7701	9802C7701
Sample Conc.:	N.D.	N.D.	9.2	4.7
Prepared Date:	3/11/98	3/11/98	3/11/98	3/11/98
Analyzed Date:	3/11/98	3/11/98	3/11/98	3/11/98
Instrument I.D. #:	MTJA5	MTJA5	MTJA5	MTJA5
Conc. Spiked:	50 mg/Kg	50 mg/Kg	50 mg/Kg	50 mg/Kg
Result:	47	48	53	50
MS % Recovery:	94	96	88	91
Dup. Result:	45	45	53	48
MSD % Recov.:	90	90	88	87
RPD:	4.3	6.5	0.0	4.1
RPD Limit:	0-20	0-20	0-20	0-20

LCS #:	BLK031198	BLK031198	BLK031198	BLK031198
Prepared Date:	3/11/98	3/11/98	3/11/98	3/11/98
Analyzed Date:	3/11/98	3/11/98	3/11/98	3/11/98
Instrument I.D. #:	MTJA5	MTJA5	MTJA5	MTJA5
Conc. Spiked:	50 mg/Kg	50 mg/Kg	50 mg/Kg	50 mg/Kg
LCS Result:	50	49	49	49
LCS % Recov.:	100	98	98	98

MS/MSD	80-120	80-120	80-120	80-120
LCS	80-120	80-120	80-120	80-120
Control Limits				

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SEQUOIA ANALYTICAL

Richard Herling
Project Manager



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

Client Project ID: Shell 29 Wildwood, Piedmont
Matrix: Solid

Work Order #: 9803535 01

Reported: Apr 1, 1998

QUALITY CONTROL DATA REPORT

Analyte:	1,1-Dichloroethene	Trichloroethene	Benzene	Toluene	Chlorobenzene
QC Batch#:	MS0310988240EXA	MS0310988240EXA	MS0310988240EXA	MS0310988240EXA	MS0310988240EXA
Analy. Method:	EPA 8240	EPA 8240	EPA 8240	EPA 8240	EPA 8240
Prep. Method:					

Analyst:	L. Zhu	L. Zhu	L. Zhu	L. Zhu	L. Zhu
MS/MSD #:	980352503	980352503	980352503	980352503	980352503
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	3/10/98	3/10/98	3/10/98	3/10/98	3/10/98
Analyzed Date:	3/10/98	3/10/98	3/10/98	3/10/98	3/10/98
Instrument I.D. #:	F2	F2	F2	F2	F2
Conc. Spiked:	2500 µg/Kg	2500 µg/Kg	2500 µg/Kg	2500 µg/Kg	2500 µg/Kg
Result:	2000	2100	2400	2200	2200
MS % Recovery:	80	84	96	88	88
Dup. Result:	1900	2100	2400	2200	2300
MSD % Recov.:	76	84	96	88	92
RPD:	5.1	0.0	0.0	0.0	4.4
RPD Limit:	0-25	0-25	0-25	0-25	0-25

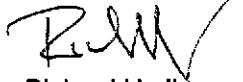
LCS #:	LCS031398	LCS031398	LCS031398	LCS031398	LCS031398
Prepared Date:	3/13/98	3/10/98	3/10/98	3/10/98	3/10/98
Analyzed Date:	3/13/98	3/10/98	3/10/98	3/10/98	3/10/98
Instrument I.D. #:	F3	F2	F2	F2	F2
Conc. Spiked:	2500 µg/Kg	2500 µg/Kg	2500 µg/Kg	2500 µg/Kg	2500 µg/Kg
LCS Result:	2400	2500	2400	2400	2500
LCS % Recov.:	96	100	96	96	100
MS/MSD	60-140	60-140	60-140	60-140	60-140
LCS	65-135	70-130	70-130	70-130	70-130
Control Limits					

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SEQUOIA ANALYTICAL


Richard Herling
Project Manager

9803535.CCC <3>





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Cambria Environmental Tech.
1144 65th St., Ste. C
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Attention: Michael Paves

Client Project ID: Shell 29 Wildwood, Piedmont
Matrix: Solid

Work Order #: 9803535 01

Reported: Apr 1, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Phenol	2-Chlorophenol	1,4-Dichloro-benzene	N-Nitroso-Di-N-propylamine
QC Batch#:	MS0305988270EXA	MS0305988270EXA	MS0305988270EXA	MS0305988270EXA
Analy. Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270
Prep. Method:	EPA 3550	EPA 3550	EPA 3550	EPA 3550

Analyst:	B. Pitamah	B. Pitamah	B. Pitamah	B. Pitamah
MS/MSD #:	BLK030598	BLK030598	BLK030598	BLK030598
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	3/5/98	3/5/98	3/5/98	3/5/98
Analyzed Date:	3/6-9/98	3/6-9/98	3/6-9/98	3/6-9/98
Instrument I.D. #:	F4/H5	F4/H5	F4/H5	F4/H5
Conc. Spiked:	3300 µg/Kg	3300 µg/Kg	3300 µg/Kg	3300 µg/Kg
Result:	1890	2310	2320	1940
MS % Recovery:	57	70	70	59
Dup. Result:	2540	2690	2410	2680
MSD % Recov.:	77	82	73	81
RPD:	29	15	3.8	32
RPD Limit:	0-40	0-40	0-40	0-40

LCS #:	LCS031198	LCS031198	LCS031198	LCS031198
Prepared Date:	3/11/98	3/11/98	3/11/98	3/11/98
Analyzed Date:	3/13/98	3/13/98	3/13/98	3/13/98
Instrument I.D. #:	H5	H5	H5	H5
Conc. Spiked:	3300 µg/Kg	3300 µg/Kg	3300 µg/Kg	3300 µg/Kg
LCS Result:	2030	2160	1880	2210
LCS % Recov.:	610	650	570	670

MS/MSD			
LCS			
Control Limits	26-90	25-102	28-104
			41-126

Please Note:

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SEQUOIA ANALYTICAL

Richard Herling
Project Manager



**Sequoia
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Cambria Environmental Tech.
1144 65th St., Ste. C
Oakland, CA 94608
Attention: Michael Paves

Client Project ID: Shell 29 Wildwood, Piedmont
Matrix: Solid

Work Order #: 9803535 01

Reported: Apr 1, 1998

QUALITY CONTROL DATA REPORT

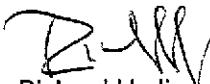
Analyte:	1,2,4-Trichloro-benzene	4-Chloro-3-Methylphenol	Acenaphthene	4-Nitrophenol
QC Batch#:	MS0305988270EXA	MS0305988270EXA	MS0305988270EXA	MS0305988270EXA
Analy. Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270
Prep. Method:	EPA 3550	EPA 3550	EPA 3550	EPA 3550

Analyst:	B. Pitamah	B. Pitamah	B. Pitamah	B. Pitamah
MS/MSD #:	BLK030598	BLK030598	BLK030598	BLK030598
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	3/5/98	3/5/98	3/5/98	3/5/98
Analyzed Date:	3/6-9/98	3/6-9/98	3/6-9/98	3/6-9/98
Instrument I.D. #:	F4/H5	F4/H5	F4/H5	F4/H5
Conc. Spiked:	3300 µg/Kg	3300 µg/Kg	3300 µg/Kg	3300 µg/Kg
Result:	2930	2580	2500	2840
MS % Recovery:	89	78	76	86
Dup. Result:	2780	2520	2390	2030
MSD % Recov.:	84	76	72	62
RPD:	5.3	2.4	4.5	33
RPD Limit:	0-40	0-40	0-40	0-40

LCS #:	LCS031198	LCS031198	LCS031198	LCS031198
Prepared Date:	3/11/98	3/11/98	3/11/98	3/11/98
Analyzed Date:	3/13/98	3/13/98	3/13/98	3/13/98
Instrument I.D. #:	H5	H5	H5	H5
Conc. Spiked:	3300 µg/Kg	3300 µg/Kg	3300 µg/Kg	3300 µg/Kg
LCS Result:	2120	2030	2070	2110
LCS % Recov.:	640	620	630	640

MS/MSD			
LCS			
Control Limits	38-107	26-103	31-137
			11-114

SEQUOIA ANALYTICAL


Richard Herling
Project Manager

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

Client Project ID: Shell 29 Wildwood, Piedmont
Matrix: Solid
Work Order #: 9803535

Reported: Apr 1, 1998

QUALITY CONTROL DATA REPORT

Analyte:	2,4-Dinitro-toluene	Pentachloro-phenol	Pyrene
QC Batch#:	MS0305988270EXA	MS0305988270EXA	MS0305988270EXA
Analy. Method:	EPA 8270	EPA 8270	EPA 8270
Prep. Method:	EPA 3550	EPA 3550	EPA 3550

Analyst:	B. Pitamah	B. Pitamah	B. Pitamah
MS/MSD #:	BLK030598	BLK030598	BLK030598
Sample Conc.:	N.D.	N.D.	N.D.
Prepared Date:	3/5/98	3/5/98	3/5/98
Analyzed Date:	3/6-9/98	3/6-9/98	3/6-9/98
Instrument I.D. #:	F4/H5	F4/H5	F4/H5
Conc. Spiked:	3300 µg/Kg	3300 µg/Kg	3300 µg/Kg
 Result:	1900	1500	2300
MS % Recovery:	58	45	70
 Dup. Result:	2670	2360	2580
MSD % Recov.:	81	72	78
 RPD:	34	45	11
RPD Limit:	0-40	0-40	0-40

LCS #:	LCS031198	LCS031198	LCS031198
Prepared Date:	3/11/98	3/11/98	3/11/98
Analyzed Date:	3/13/98	3/13/98	3/13/98
Instrument I.D. #:	H5	H5	H5
Conc. Spiked:	3300 µg/Kg	3300 µg/Kg	3300 µg/Kg
 LCS Result:	2110	1000	2030
LCS % Recov.:	640	300	620

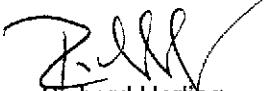
MS/MSD			
LCS			
Control Limits	28-89	17-109	35-142

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SEQUOIA ANALYTICAL


Richard Herling
Project Manager





Sequoia
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Cambria Environmental Tech.
1144 65th St., Ste. C
Oakland, CA 94608
Attention: Michael Paves

Client Project ID: Shell 29 Wildwood, Piedmont
Matrix: Solid

Work Order #: 9803535 01

Reported: Apr 1, 1998

QUALITY CONTROL DATA REPORT

Analyte: Diesel

QC Batch#: GC0311980HBPEXA
Analy. Method: EPA 8015M
Prep. Method: EPA 3550/DHS

Analyst: A. Porter
MS/MSD #: 980363603
Sample Conc.: 5.3
Prepared Date: 3/11/98
Analyzed Date: 3/12/98
Instrument I.D.#: GCHP19A
Conc. Spiked: 25 mg/Kg

Result: 22
MS % Recovery: 67

Dup. Result: 24
MSD % Recov.: 75

RPD: 8.7
RPD Limit: 0-50

LCS #: BLK031198

Prepared Date: 3/11/98
Analyzed Date: 3/12/98
Instrument I.D.#: GCHP19A
Conc. Spiked: 25 mg/Kg

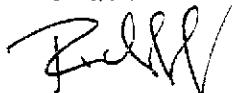
LCS Result: 18
LCS % Recov.: 72

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

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.

SEQUOIA ANALYTICAL


Richard Herling
Project Manager

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

9803535.CCC <7>



**Sequoia
Analytical**

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 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 Environmental Tech.
 1144 65th St., Ste. C
 Oakland, CA 94608
 Attention: Michael Paves

Client Project ID: Shell 29 Wildwood, Piedmont
 Matrix: Solid

Work Order #: 9803535 01

Reported: Apr 1, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC031198BTEXEXB	GC031198BTEXEXB	GC031198BTEXEXB	GC031198BTEXEXB	GC031198BTEXEXB
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:	J. Minkel	J. Minkel	J. Minkel	J. Minkel	J. Minkel
MS/MSD #:	980369201	980369201	980369201	980369201	980369201
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	3/11/98	3/11/98	3/11/98	3/11/98	3/11/98
Analyzed Date:	3/12/98	3/12/98	3/12/98	3/12/98	3/12/98
Instrument I.D. #:	GCHP18	GCHP18	GCHP18	GCHP18	GCHP18
Conc. Spiked:	0.20 mg/Kg	0.20 mg/Kg	0.20 mg/Kg	0.60 mg/Kg	1.2 mg/Kg
Result:	0.18	0.19	0.19	0.59	1.0
MS % Recovery:	90	95	95	98	83
Dup. Result:	0.18	0.19	0.19	0.59	1.0
MSD % Recov.:	90	95	95	98	83
RPD:	0.0	0.0	0.0	0.0	0.0
RPD Limit:	0-25	0-25	0-25	0-25	0-25

LCS #:	BLK031198	BLK031198	BLK031198	BLK031198	BLK031198
Prepared Date:	3/11/98	3/11/98	3/11/98	3/11/98	3/11/98
Analyzed Date:	3/12/98	3/12/98	3/12/98	3/12/98	3/12/98
Instrument I.D. #:	GCHP18	GCHP18	GCHP18	GCHP18	GCHP18
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	0.21	0.21	0.65	1.1
LCS % Recov.:	100	105	105	108	92

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					

Please Note:

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Client Proj. ID: Shell 29 Wildwood, Piedmont

Received: 03/06/98

Lab Proj. ID: 9803535

Reported: 03/26/98

LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 16 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