STID 295
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CAMBRIA

ENVIRONMENTAL PROTECTION

98 APR 29 PM 3:28

April 24, 1998

Tom Peacock
Alameda County Department
of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Re: **First Quarter 1998 Monitoring Report**
Former Shell Service Station
1230 14th Street
Oakland, California
WIC # 204-4878-1300
Cambria Project # 24-314-198

Dear Mr. Peacock:

On behalf of Shell Oil Products Company, Cambria Environmental Technology, Inc. (Cambria) is submitting this monitoring report to satisfy the quarterly reporting requirements prescribed by California Administrative Code Title 23 Waters, Division 3, Chapter 16, Article 5, Section 2652.d.

FIRST QUARTER 1998 ACTIVITIES

Ground Water Monitoring: Blaine Tech Services, Inc. (Blaine) of San Jose, California measured ground water depths and collected water samples from selected site wells on February 19, 1998 (Figure 1). Blaine removed the oxygen releasing compounds (ORCs) in wells MW-1, VW/MW-2, and VW/MW-4, purged and sampled the wells, and replaced the ORCs in the wells. **Sampling of these wells will be suspended until dissolved oxygen (DO) concentrations return to pre-ORC levels.** The Blaine report, describing these sampling activities and presenting the analytical results, is included as Attachment A. Cambria calculated ground water elevations and compiled the analytical data (Table 1), and prepared a ground water elevation contour map (Figure 1).

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

CAMBRIA

ANTICIPATED FUTURE ACTIVITIES

Sampling Frequency Reduction: Sampling of wells MW-1, VW/MW-2, and VW/MW-4 will be suspended until DO concentrations return to pre-ORC levels. The remaining wells (MW-2, MW-3, and MW-4) typically sampled at the site have not contained detectable concentrations of petroleum hydrocarbons since sampling was started in March 1996. Therefore, we recommend that sampling at this site be reduced to semiannually in the second and fourth quarter of each year. We will implement this sampling frequency beginning third quarter of 1998, unless notified otherwise by your office.

Ground Water Monitoring: During second quarter 1998, Blaine will measure ground water elevations, DO concentrations, and/or collect ground water samples from wells MW-1, MW-2, MW-3, MW-4, VW/MW-2, and VW/MW-4. Cambria will submit a report summarizing the activities.

CLOSING

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

Sincerely,
Cambria Environmental Technology, Inc.

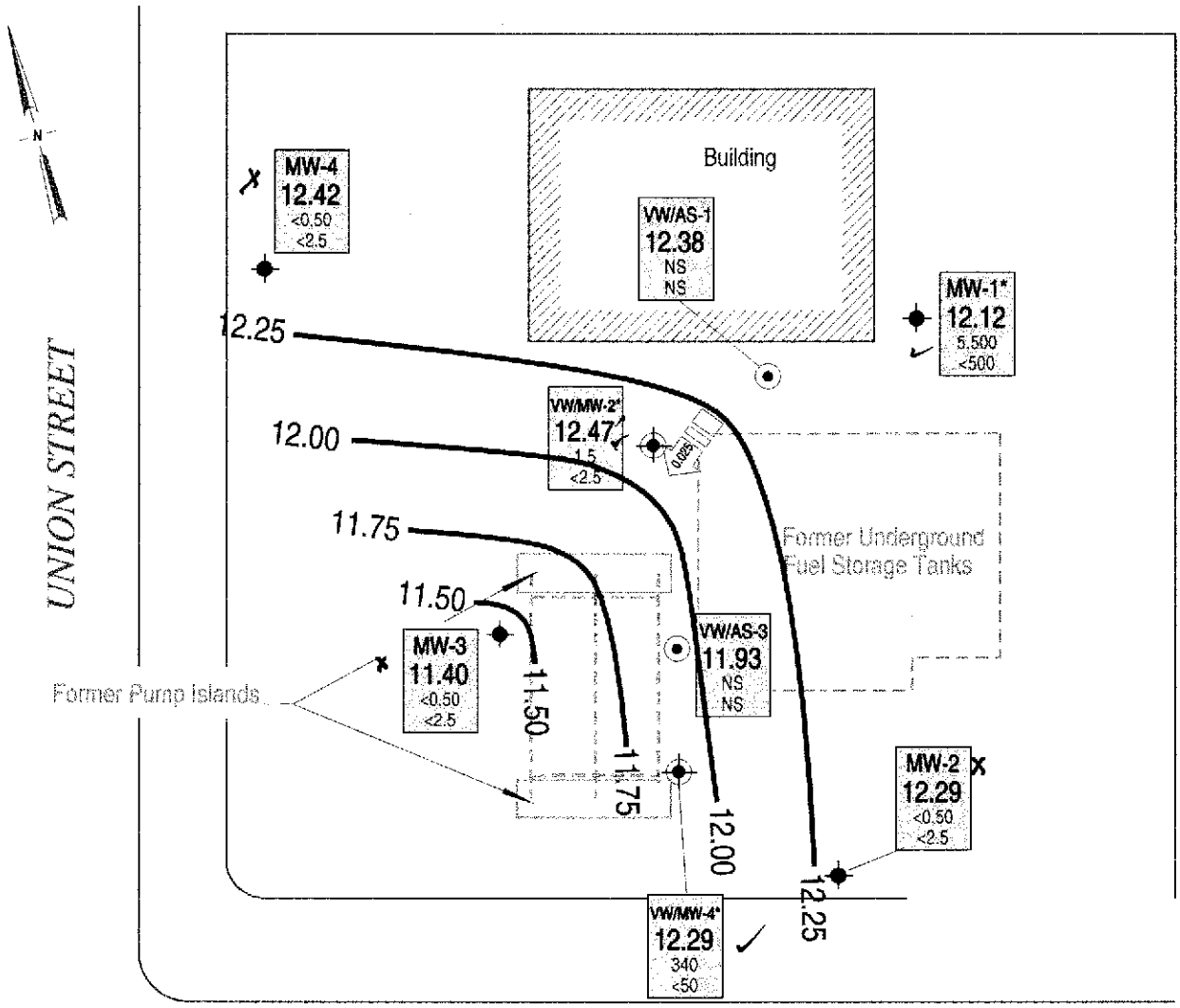
Khaled B. Rahman, R.G., C.H.G.
Senior Geologist

REGISTERED GEOLOGIST
KHALED B. RAHMAN
No. 5851
CERTIFIED
HYDROGEOLOGIST
Exp. 7/31/99
STATE OF CALIFORNIA

Attachments: A - Blaine Quarterly Ground Water Monitoring Report

cc: A. E. (Alex) Perez, Shell Oil Products Company, P.O. Box 8080, Martinez, California 94553

G:\OAK1230\QMs\1Q98QM.WPD



EXPLANATION

- MW-2 — Ground Water Monitoring Well
- VW/AS-3 — Combination Air Sparge/Soil Vapor Extraction Wells
- VW/MW-4 — Combination Soil Vapor Extraction Well/Monitoring Well
- Ground Water Contour
- Ground Water Flow Direction/Gradient (ft/ft)
- NS — Not Sampled
- * — Not Contoured, ORCs removed and fresh ORCs installed prior to gauging

MW-1
ELEV.
Benz. Date
MTBE Date

1. Ground water elevation, ft above mean sea level (msl)
2. Benzene and MTBE concentrations are in parts per billion (ppb)
3. Date is most recent sampling unless otherwise indicated

0 10 20
Scale (ft)

Base Map by Tank Protect Engineering

CAMBRIA
Environmental Technology, Inc.

Former Shell Service Station
1230 14th Street
Oakland, California

Ground Water Elevation Contours
February 19, 1998

G:\OAK1230\FIGURES\1QM98-MP.DWG

FIGURE
1

Table 1. Ground Water Elevation and Analytical Data - Former Shell Service Station WIC # 204-5508-3103 - 1230 14th Street, Oakland, California

Well ID (Quarters Sampled)	Date	GW Depth (ft)	GW Elev. (ft)	GW Flow Direction	GW Gradient(ft/ft)	TPHg	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	POG	DO (mg/L)
						← (concentrations in µg/L) →							
MW-1	03/25/96	9.53	9.05	---	---	37,000	<500	7,400	1,500	720	3,300	<5,000	---
(1st 1998)	06/21/96	10.72	7.86	NE	---	35,000	890	9,900	460	340	3,500	<5,000	---
TOC=18.58	09/26/96	12.88	5.70	W	---	19,000	<250	8,200	510	780	790	3,800	---
	12/19/96	12.59	5.99	N	---	27,000	<100	120	1,200	1,400	2,800	9,000	---
	12/19/96[dup]	12.59	5.99	N	---	32,000	830	12,000	1,300	1,600	3,100	8,800	---
	03/25/97	11.10	7.48	NE	0.03	39,000	730	13,000	1,600	840	3,100	<5,000	1.2
	06/26/97[a]	12.42	6.16	NE	0.007	---	---	---	---	---	---	---	---
	09/26/97[a]	13.31	5.27	NE	0.005	---	---	---	---	---	---	---	0.8
	12/05/97	12.65	5.93	NE	0.005	---	---	---	---	---	---	---	0.3
	02/19/98	**6.46**	**12.12**	**SW**	**0.025**	**16,000**	**<500**	**5,500**	**450**	**500**	**800**	**<5,000**	**2.4**
MW-2	03/25/96	8.19	9.71	---	---	<50	<2.5	<0.50	<0.50	<0.50	<0.50	---	---
(All)	06/21/96	9.94	7.96	NE	---	<50	<2.5	<0.50	<0.50	<0.50	<0.50	---	---
TOC=17.90	09/26/96	12.15	5.75	NW	---	<50	<2.5	<0.50	<0.50	<0.50	<0.50	---	---
	12/19/96	11.70	6.20	N	---	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---	---
	03/25/97	9.25	8.65	NE	0.03	<50	<2.5	<0.50	<0.50	<0.50	<0.50	---	1.8
	06/26/97	11.36	6.54	NE	0.007	<50	<2.5	<0.50	<0.50	<0.50	<0.50	<5,000	2.4
	09/26/97	12.56	5.34	NE	0.005	<50	<2.5	<0.50	<0.50	<0.50	<0.50	<5,000	1.1
	09/26/97[dup]	12.56	5.34	NE	0.005	<50	<2.5	<0.50	<0.50	<0.50	<0.50	<5,000	1.1
	12/05/97	11.15	6.75	NE	0.005	<50	<2.5	<0.50	<0.50	<0.50	<0.50	<5,000	0.7
	02/19/98	**5.61**	**12.29**	**SW**	**0.025**	**<50**	**<2.5**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<5,000**	**2.7**
MW-3	03/25/96	8.47	9.71	---	---	<50	<2.5	<0.50	<0.50	<0.50	<0.50	---	---
(All)	06/21/96	10.40	7.78	NE	---	<50	<2.5	<0.50	<0.50	<0.50	<0.50	---	---
TOC= 18.18	09/26/96	12.45	5.73	N	---	<50	<2.5	<0.50	<0.50	<0.50	<0.50	---	---
	12/19/96	12.14	6.02	N	---	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---	---
	03/25/97	9.54	8.64	NE	0.03	<50	<2.5	<0.50	<0.50	<0.50	<0.50	---	2.2
	06/26/97	11.66	6.52	NE	0.007	<50	<2.5	<0.50	<0.50	<0.50	<0.50	<5,000	3.6
	09/26/97	12.85	5.33	NE	0.005	<50	<2.5	<0.50	<050	<0.50	<0.50	<5,000	1.1
	12/05/97	11.44	6.74	NE	0.005	<50	<2.5	<0.50	<0.50	<0.50	<0.50	<5,000	0.6
	02/19/98	**6.78**	**11.40**	**SW**	**0.025**	**<50**	**<2.5**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<5,000**	**3.6**
MW-4	03/25/96	9.20	8.81	---	---	<50	<2.5	<0.50	<0.50	<0.50	<0.50	---	---
(All)	06/21/96	10.25	7.76	NE	---	<50	<2.5	<0.50	<0.50	<0.50	<0.50	---	---
TOC= 18.01	09/26/96	12.29	5.72	NE	---	<50	<2.5	<0.50	<0.50	<0.50	<0.50	---	---
	12/19/96	12.47	5.54	N	---	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---	---
	03/25/97	9.44	8.57	NE	0.03	<50	<2.5	<0.50	<0.50	<0.50	<0.50	---	1.8

Table 1. Ground Water Elevation and Analytical Data - Former Shell Service Station WIC # 204-5508-3103 - 1230 14th Street, Oakland, California

Well ID (Quarters Sampled)	Date	GW Depth (ft)	GW Elev. (ft)	GW Flow Direction	GW Gradient(ft/ft)	TPHg	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	POG	DO (mg/L)
						← (concentrations in µg/L) →							
	06/26/97	11.57	6.44	NE	0.007	<50	<2.5	<0.50	<0.50	<0.50	<0.50	<5,000	6.2
	06/26/97[dup]	11.57	6.44	NE	0.007	<50	<2.5	<0.50	<0.50	<0.50	<0.50	<5,000	6.2
	09/26/97	12.75	5.26	NE	0.005	<50	<2.5	<0.50	<0.50	<0.50	<0.50	<5,000	2.1
	12/05/97	11.37	6.64	NE	0.005	<50	<2.5	<0.50	<0.50	<0.50	<0.50	<5,000	1.0
	12/05/97[dup]	11.37	6.64	NE	0.005	<50	<2.5	<0.50	<0.50	<0.50	<0.50	<5,000	1.0
	02/19/98	**5.59**	**12.42**	**SW**	**0.025**	**<50**	**<2.5**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<5,000**	**6.5**
VW/MW-2	03/25/96	9.04	9.26	---	---	13,000	<250	900	920	180	1,500	---	---
(1st 1998)	06/21/96	10.48	7.82	NE	---	27,000	700	4,100	1,100	1,400	3,200	---	---
TOC= 18.30	09/26/96	12.52	5.78	NE	---	27,000	<500	5,300	1,900	980	2,200	---	---
	09/26/96[dup]	12.52	5.78	NE	---	29,000	<250	5,800	2,200	1,100	2,500	---	---
	12/19/96	12.42	5.88	N	---	50,000	590	6,200	5,100	1,700	5,600	---	---
	03/25/97	9.83	8.47	NE	0.03	210	14	5.6	<0.50	0.52	<0.50	---	2.0
	03/25/97[dup]	9.83	8.47	NE	0.03	250	4.7	1.7	0.58	0.51	<0.50	---	2.0
	06/26/97[a]	12.43	5.87	NE	0.007	---	---	---	---	---	---	---	---
	09/26/97[a]	12.98	5.32	NE	0.005	---	---	---	---	---	---	---	0.9
	12/05/97	12.20	6.10	NE	0.005	---	---	---	---	---	---	---	0.4
	02/19/98	**5.83**	**12.47**	**SW**	**0.025**	**<50**	**<2.5**	**<1.5**	**<0.50**	**<0.50**	**0.71**	**<5,000**	**3.6**
VW/MW-4	03/25/96	8.45	9.69	---	---	83,000	<250	6,500	7,000	2,000	11,000	---	---
(1st 1998)	03/25/96[dup]	8.45	9.69	---	---	84,000	<250	6,400	7,000	2,100	12,000	---	---
TOC= 18.14	06/21/96	10.38	7.76	NE	---	110,000	1,700	14,000	15,000	3,700	17,000	---	---
	06/21/96[dup]	10.38	7.76	NE	---	100,000	<1,000	12,000	12,000	2,900	13,000	---	---
	09/26/96	12.43	5.71	NE	---	52,000	<500	13,000	2,700	2,100	3,200	---	---
	12/19/96	11.87	6.27	N	---	75,000	<1,250	15,000	6,600	3,000	7,600	---	---
	03/25/97	9.60	8.54	NE	0.03	56,000	580	4,700	1,500	2,500	6,300	---	2.4
	06/26/97[a]	12.36	5.78	NE	0.007	---	---	---	---	---	---	---	---
	09/26/97[a]	12.82	5.32	NE	0.005	---	---	---	---	---	---	---	0.4
	12/05/97	12.15	5.99	NE	0.005	---	---	---	---	---	---	---	0.3
	02/19/98	**5.85**	**12.29**	**SW**	**0.025**	**[redacted]**	**<50**	**[redacted]**	**40**	**44**	**520**	**<5,000**	**1.8**
	02/19/98[dup]	**5.85**	**12.29**	**SW**	**0.025**	**4,300**	**<50**	**340**	**44**	**47**	**540**	**<5,000**	**1.8**
VW/AS-1	03/25/96	8.98	9.62	---	---	---	---	---	---	---	---	---	---
(Gauge only)	06/21/96	10.95	7.65	NE	---	---	---	---	---	---	---	---	---
TOC= 18.60	09/26/96	12.98	5.62	N	---	---	---	---	---	---	---	---	---
	12/19/96	12.67	5.93	N	---	---	---	---	---	---	---	---	---

Table 1. Ground Water Elevation and Analytical Data - Former Shell Service Station WIC # 204-5508-3103 - 1230 14th Street, Oakland, California

Well ID (Quarters Sampled)	Date	GW Depth (ft)	GW Elev. (ft)	GW Flow Direction	GW Gradient(ft/ft)	TPHg	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	POG	DO (mg/L)
						← (concentrations in µg/L) →							
	03/25/97	10.12	8.48	NE	0.03	---	---	---	---	---	---	---	---
	06/26/97	12.34	6.26	NE	0.007	---	---	---	---	---	---	---	---
	09/26/97	13.40	5.20	NE	0.005	---	---	---	---	---	---	---	---[b]
	12/05/97	11.96	6.64	NE	0.005	---	---	---	---	---	---	---	5.2[c]
	02/19/98	**6.22**	**12.38**	**SW**	**0.025**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**1.3**
VW/AS-3	03/25/96	8.50	9.67	---	---	---	---	---	---	---	---	---	---
(Gauge only)	06/21/96	10.42	7.75	NE	---	---	---	---	---	---	---	---	---
TOC= 18.17	09/26/96	12.49	5.68	NE	---	---	---	---	---	---	---	---	---
	12/19/96	12.28	5.89	N	---	---	---	---	---	---	---	---	---
	03/25/97	9.61	8.56	NE	0.03	---	---	---	---	---	---	---	---
	06/26/97	11.80	6.37	NE	0.007	---	---	---	---	---	---	---	---
	09/26/97	12.89	5.28	NE	0.005	---	---	---	---	---	---	---	---[b]
	12/05/97	11.38	6.79	NE	0.005	---	---	---	---	---	---	---	1.8[c]
	02/19/98	**6.24**	**11.93**	**SW**	**0.025**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**1.3**
MCLs						NE	NE	1	150	700	1,750	NE	

Abbreviations:

GW = Ground water
ft = Feet
mg/L = Micrograms per liter
mg/L = Milligrams per liter
TOC = Top of casing elevation
TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015
MTBE = Methyl tert-butyl ether by EPA Method 8020
POG = Petroleum oil and grease by SMMW 5520 B&F
DO = Dissolved oxygen
dup = Duplicate sample
--- = Not analyzed/Not available
<n = Below detection limits of n mg/L
MCLs = California primary maximum contaminant levels for drinking water (22 CCR 64444)
NE = MCLs not established

Notes:

a = Oxygen releasing compounds installed in wells were removed prior to gauging.
b = DO reading not taken due to small diameter of well.
c = Used pin bailer to capture water and take DO readings up-hole on December 12, 1997.

Benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8020

CAMBRIA

ATTACHMENT A

Blaine Quarterly Ground Water Monitoring Report

BLAINE
TECH SERVICES inc.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112
(408) 573-7771 FAX
(408) 573-0555 PHONE

March 16, 1998

Shell Oil Company
P.O. Box 8080
Martinez, CA 94553

Attn: Alex Perez

Shell WIC #204-5508-3103
1230 14th Street
Oakland, California

1st Quarter 1998

Groundwater Monitoring Report 980219-S-1

Blaine Tech Services, Inc. performs environmental sampling and documentation as an independent third party. Copies of our Sampling Report along with the laboratory's Certified Analytical Report are forwarded to the consultant overseeing work at this site. Submission of the assembled documents to interested regulatory agencies will be made by the designated consultant.

Groundwater monitoring at this site was performed in accordance with Standard Operating Procedures provided to the interested regulatory agencies. If you have any questions about the work performed at this site please call me at (408) 573-0555 ext. 201.

Yours truly,

Francis Thie

attachments: Table of Well Gauging Data
Chain of Custody
Field Data Sheets
Certified Analytical Report

cc: Cambria Environmental Technology, Inc.
1144 65th Street, Suite C
Oakland, CA, CA 95476
Attn: Maureen Feinemen

(Any professional evaluations or recommendations will be made by the consultant under separate cover.)

TABLE OF WELL GAUGING DATA

WELL I.D.	DATA COLLECTION DATE	MEASUREMENT REFERENCED TO	QUALITATIVE OBSERVATIONS (sheen)	DEPTH TO FIRST IMMISCIBLES LIQUID (FPZ) (feet)	THICKNESS OF IMMISCIBLES LIQUID ZONE (feet)	VOLUME OF IMMISCIBLES REMOVED (ml)	DEPTH TO WATER (feet)	DEPTH TO WELL BOTTOM (feet)
MW-1	02/19/98	TOC	--	NONE	--	--	6.46	21.31
MW-2	02/19/98	TOC	--	NONE	--	--	5.61	22.10
MW-3	02/19/98	TOC	--	NONE	--	--	6.78	21.70
MW-4	02/19/98	TOC	--	NONE	--	--	5.59	21.05
VW/MW-2	02/19/98	TOC	--	NONE	--	--	5.83	21.29
VW/MW-4*	02/19/98	TOC	ODOR	NONE	--	--	5.85	19.36
VW/AS-1	02/19/98	TOC	ODOR	NONE	--	--	6.22	19.21
VW/AS-3	02/19/98	TOC	--	NONE	--	--	6.24	19.77

* Sample DUP was a duplicate sample taken from well VW/MW-4.

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD

Serial No: 980219-S1

Date: 2-19-98
Page 1 of 1

Site Address: 1230 14th St., Oakland, CA

WIC#: 204-5508-3103

Shell Engineer: Alex Perez
Phone No.: (510) 675-6168
Fax #: 675-6172

Consultant Name & Address: Blaine Tech Services, Inc.
1680 Rogers Ave., San Jose, CA 95112

Consultant Contact: Fran Thie
Phone No.: (408) 573-0555
Fax #: 573-7771

Comments:

Sampled by: [signature]

Printed Name: DOUG SANDERS

Analysis Required 9802068

LAB: SEQUOIA

CHECK ONE (1) BOX ONLY		CT/DT
G.W. Monitoring	XX ☐	4461
Site Investigation	☐	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 ☐
16 days ☐ (Normal)
Other ☐ ______

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

UST AGENCY: ______

	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	TOG	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
01x	MW-1	2/19/98			X		5						X	X						
02x	MW-2	↓			X		5						X	X						
03x	MW-3	↓			X		5						X	X						
04x	MW-4	↓			X		5						X	X						
05x	VW/MW-2	↓			X		5						X	X						
06x	VW/MW-4	↓			X		5						X	X						
07x	DUP	↓			X		5						X	X						
08x	EB	↓			X		5						X	X						

Relinquished By (signature)	Printed Name	Date/Time	Received (signature)	Printed Name	Date/Time
[signature]	DOUG SANDERS	Date: 2/20/98 Time: 12:00	[signature]	Steve Tey	Date: 2/20/98 Time: 12:00
[signature]	Steve Tey	Date: 2/20/98 Time:			Date: Time:
		Date: Time:	[signature]	Mike Young	Date: 2/20/98 Time: 14:34

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

Shell Oil Chn. of Custody

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

Blaine Tech Services
1680 Rogers Avenue
San Jose, CA 95112
Attention: Fran Thie

Project: Shell Oakland/980219-S1

Enclosed are the results from samples received at Sequoia Analytical on February 20, 1998. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9802D68 -01	LIQUID, MW-1	02/19/98	Total Oil&Grease (5520B)
9802D68 -01	LIQUID, MW-1	02/19/98	TPGM2W Purgeable TPH/BTEX
9802D68 -02	LIQUID, MW-2	02/19/98	Total Oil&Grease (5520B)
9802D68 -02	LIQUID, MW-2	02/19/98	TPGM2W Purgeable TPH/BTEX
9802D68 -03	LIQUID, MW-3	02/19/98	Total Oil&Grease (5520B)
9802D68 -03	LIQUID, MW-3	02/19/98	TPGM2W Purgeable TPH/BTEX
9802D68 -04	LIQUID, MW-4	02/19/98	Total Oil&Grease (5520B)
9802D68 -04	LIQUID, MW-4	02/19/98	TPGM2W Purgeable TPH/BTEX
9802D68 -05	LIQUID, VW/MW-2	02/19/98	Total Oil&Grease (5520B)
9802D68 -05	LIQUID, VW/MW-2	02/19/98	TPGM2W Purgeable TPH/BTEX
9802D68 -06	LIQUID, VW/MW-4	02/19/98	Total Oil&Grease (5520B)
9802D68 -06	LIQUID, VW/MW-4	02/19/98	TPGM2W Purgeable TPH/BTEX
9802D68 -07	LIQUID, Dup	02/19/98	Total Oil&Grease (5520B)
9802D68 -07	LIQUID, Dup	02/19/98	TPGM2W Purgeable TPH/BTEX
9802D68 -08	LIQUID, EB	02/19/98	Total Oil&Grease (5520B)
9802D68 -08	LIQUID, EB	02/19/98	TPGM2W Purgeable TPH/BTEX

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

Very truly yours,

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

Sequoia Analytical

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

Blaine Tech Services
1680 Rogers Avenue
San Jose, CA 95112

Attention: Fran Thie

Client Proj. ID: Shell Oakland/980219-S1

Lab Proj. ID: 9802D68

Sampled: 02/19/98
Received: 02/20/98
Analyzed: see below

Reported: 03/03/98

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9802D68-01 Sample Desc : **LIQUID,MW-1**				
Total Oil&Grease (5520B)	mg/L	02/27/98	5.0	N.D.
Lab No: 9802D68-02 Sample Desc : **LIQUID,MW-2**				
Total Oil&Grease (5520B)	mg/L	02/27/98	5.0	N.D.
Lab No: 9802D68-03 Sample Desc : **LIQUID,MW-3**				
Total Oil&Grease (5520B)	mg/L	02/27/98	5.0	N.D.
Lab No: 9802D68-04 Sample Desc : **LIQUID,MW-4**				
Total Oil&Grease (5520B)	mg/L	02/27/98	5.0	N.D.
Lab No: 9802D68-05 Sample Desc : **LIQUID,VW/MW-2**				
Total Oil&Grease (5520B)	mg/L	02/27/98	5.0	N.D.
Lab No: 9802D68-06 Sample Desc : **LIQUID,VW/MW-4**				
Total Oil&Grease (5520B)	mg/L	02/27/98	5.0	N.D.
Lab No: 9802D68-07 Sample Desc : **LIQUID,Dup**				
Total Oil&Grease (5520B)	mg/L	02/27/98	5.0	N.D.

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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Blaine Tech Services
1680 Rogers Avenue
San Jose, CA 95112

Attention: Fran Thie

Client Proj. ID: Shell Oakland/980219-S1

Lab Proj. ID: 9802D68

Sampled: 02/19/98
Received: 02/20/98
Analyzed: see below

Reported: 03/03/98

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9802D68-08				
Sample Desc : **LIQUID,EB**				
Total Oil&Grease (5520B)	mg/L	02/27/98	5.0	N.D.

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

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Blaine Tech Services	Client Proj. ID: Shell Oakland/980219-S1	Sampled: 02/19/98
1680 Rogers Avenue	Sample Descript: MW-1	Received: 02/20/98
San Jose, CA 95112	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 02/27/98
Attention: Fran Thie	Lab Number: 9802D68-01	Reported: 03/03/98

QC Batch Number: GC022798BTEX02A
Instrument ID: GCHP2

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**10000**	**16000**
Methyl t-Butyl Ether	500	N.D.
Benzene	**100**	**5500**
Toluene	**100**	**450**
Ethyl Benzene	**100**	**500**
Xylenes (Total)	**100**	**800**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	113

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

SEQUOIA ANALYTICAL - ELAP #1271

Peggy Penner
Project Manager

Sequoia Analytical

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Blaine Tech Services	Client Proj. ID: Shell Oakland/980219-S1	Sampled: 02/19/98
1680 Rogers Avenue	Sample Descript: MW-2	Received: 02/20/98
San Jose, CA 95112	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 02/27/98
Attention: Fran Thie	Lab Number: 9802D68-02	Reported: 03/03/98

QC Batch Number: GC022798BTEX02A
Instrument ID: GCHP2

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

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	117

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

SEQUOIA ANALYTICAL - ELAP #1271

Peggy Penner
Project Manager

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Blaine Tech Services	Client Proj. ID: Shell Oakland/980219-S1	Sampled: 02/19/98
1680 Rogers Avenue	Sample Descript: MW-3	Received: 02/20/98
San Jose, CA 95112	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 02/27/98
Attention: Fran Thie	Lab Number: 9802D68-03	Reported: 03/03/98

QC Batch Number: GC022798BTEX02A
Instrument ID: GCHP2

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

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	112

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

SEQUOIA ANALYTICAL - ELAP #1271

Peggy Penner
Project Manager

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Blaine Tech Services	Client Proj. ID: Shell Oakland/980219-S1	Sampled: 02/19/98
1680 Rogers Avenue	Sample Descript: MW-4	Received: 02/20/98
San Jose, CA 95112	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 02/27/98
Attention: Fran Thie	Lab Number: 9802D68-04	Reported: 03/03/98

QC Batch Number: GC022798BTEX02A
Instrument ID: GCHP2

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

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	115

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

SEQUOIA ANALYTICAL - ELAP #1271

Peggy Penner
Project Manager

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Blaine Tech Services
1680 Rogers Avenue
San Jose, CA 95112

Attention: Fran Thie

Client Proj. ID: Shell Oakland/980219-S1
Sample Descript: VW/MW-2
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9802D68-05

Sampled: 02/19/98
Received: 02/20/98

Analyzed: 02/27/98
Reported: 03/03/98

QC Batch Number: GC022798BTEX02A
Instrument ID: GCHP2

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Methyl t-Butyl Ether	2.5	N.D.
Benzene	**0.50**	**1.5**
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	**0.50**	**0.71**
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	118

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

SEQUOIA ANALYTICAL - ELAP #1271

Peggy Penner
Project Manager

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Blaine Tech Services	Client Proj. ID: Shell Oakland/980219-S1	Sampled: 02/19/98
1680 Rogers Avenue	Sample Descript: VW/MW-4	Received: 02/20/98
San Jose, CA 95112	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 02/27/98
Attention: Fran Thie	Lab Number: 9802D68-06	Reported: 03/03/98

QC Batch Number: GC022798BTEX02A
Instrument ID: GCHP2

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**1000**	**4100**
Methyl t-Butyl Ether	50	N.D.
Benzene	**10**	**320**
Toluene	**10**	**40**
Ethyl Benzene	**10**	**44**
Xylenes (Total)	**10**	**520**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	122

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

SEQUOIA ANALYTICAL - ELAP #1271

Peggy Penner
Project Manager

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Blaine Tech Services
1680 Rogers Avenue
San Jose, CA 95112

Attention: Fran Thie

Client Proj. ID: Shell Oakland/980219-S1
Sample Descript: Dup
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9802D68-07

Sampled: 02/19/98
Received: 02/20/98

Analyzed: 03/02/98
Reported: 03/03/98

QC Batch Number: GC030298BTEX02A
Instrument ID: GCHP2

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**1000**	**4300**
Methyl t-Butyl Ether	50	N.D.
Benzene	**10**	**340**
Toluene	**10**	**44**
Ethyl Benzene	**10**	**47**
Xylenes (Total)	**10**	**540**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	127

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

SEQUOIA ANALYTICAL - ELAP #1271

Peggy Penner
Project Manager

Sequoia Analytical

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Blaine Tech Services	Client Proj. ID: Shell Oakland/980219-S1	Sampled: 02/19/98
1680 Rogers Avenue	Sample Descript: EB	Received: 02/20/98
San Jose, CA 95112	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 02/27/98
Attention: Fran Thie	Lab Number: 9802D68-08	Reported: 03/03/98

QC Batch Number: GC022798BTEX02A
Instrument ID: GCHP2

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

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	117

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

SEQUOIA ANALYTICAL - ELAP #1271

Peggy Penner
Project Manager

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Blaine Tech Services, Inc.	Client Project ID:	Shell Oakland / 980219-S1	
1680 Rogers Ave.	Matrix:	Liquid	
San Jose, CA 95112			
Attention: Fran Thie	Work Order #:	9802D68 -01-08	Reported: Mar 10, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Total Oil & Grease
QC Batch#:	SP022598552000A
Analy. Method:	SM 5520B
Prep. Method:	SM 5520B
Analyst:	P. Cheung
BS/BSD #:	BLK022598
Sample Conc.:	N.D.
Prepared Date:	2/25/98
Analyzed Date:	2/26/98
Instrument I.D.#:	MANUAL
Conc. Spiked:	20 mg/L
Result:	18
BS % Recovery:	90
Dup. Result:	17
BSD % Recov.:	85
RPD:	5.7
RPD Limit:	0-30

LCS #:	LCS022698
Prepared Date:	2/26/98
Analyzed Date:	2/27/98
Instrument I.D.#:	MANUAL
Conc. Spiked:	20 mg/L
LCS Result:	19
LCS % Recov.:	95

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

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

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

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

Sequoia Analytical

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Blaine Tech Services, Inc.	Client Project ID:	Shell Oakland / 980219-S1	
1680 Rogers Ave.	Matrix:	Liquid	
San Jose, CA 95112			
Attention: Fran Thie	Work Order #:	9802D68-01-06, 08	Reported: Mar 10, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC022798802002A	GC022798802002A	GC022798802002A	GC022798802002A	GC022798802002A
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:	D. Newcomb	D. Newcomb	D. Newcomb	D. Newcomb	D. Newcomb
MS/MSD #:	8021426	8021426	8021426	8021426	8021426
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	2/27/98	2/27/98	2/27/98	2/27/98	2/27/98
Analyzed Date:	2/27/98	2/27/98	2/27/98	2/27/98	2/27/98
Instrument I.D.#:	HP2	HP2	HP2	HP2	HP2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	320 µg/L
Result:	20	20	20	60	330
MS % Recovery:	100	100	100	100	103
Dup. Result:	20	21	22	64	340
MSD % Recov.:	100	105	110	107	106
RPD:	0.0	4.9	9.5	6.5	3.0
RPD Limit:	0-20	0-20	0-20	0-20	0-50
LCS #:	LCS022798	LCS022798	LCS022798	LCS022798	LCS022798
Prepared Date:	2/27/98	2/27/98	2/27/98	2/27/98	2/27/98
Analyzed Date:	2/27/98	2/27/98	2/27/98	2/27/98	2/27/98
Instrument I.D.#:	HP2	HP2	HP2	HP2	HP2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	320 µg/L
LCS Result:	20	20	22	64	290
LCS % Recov.:	100	100	110	107	91
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
Elap #1271

Peggy Penner
Project Manager

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Sequoia Analytical

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Blaine Tech Services, Inc.
1680 Rogers Ave.
San Jose, CA 95112
Attention: Fran Thie

Client Project ID: Shell Oakland / 980219-S1
Matrix: Liquid
Work Order #: 9802D68-07

Reported: Mar 10, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC030298802002A	GC030298802002A	GC030298802002A	GC030298802002A	GC030298802002A
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:	D. Newcomb	D. Newcomb	D. Newcomb	D. Newcomb	D. Newcomb
MS/MSD #:	8021742	8021742	8021742	8021742	8021742
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	3/2/98	3/2/98	3/2/98	3/2/98	3/2/98
Analyzed Date:	3/2/98	3/2/98	3/2/98	3/2/98	3/2/98
Instrument I.D.#:	HP2	HP2	HP2	HP2	HP2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	310 µg/L
Result:	20	20	21	61	320
MS % Recovery:	100	100	105	102	103
Dup. Result:	19	20	21	61	360
MSD % Recov.:	95	100	105	102	116
RPD:	5.1	0.0	0.0	0.0	11.8
RPD Limit:	0-20	0-20	0-20	0-20	0-50
LCS #:	LCS030298	LCS030298	LCS030298	LCS030298	LCS030298
Prepared Date:	3/2/98	3/2/98	3/2/98	3/2/98	3/2/98
Analyzed Date:	3/2/98	3/2/98	3/2/98	3/2/98	3/2/98
Instrument I.D.#:	HP2	HP2	HP2	HP2	HP2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	310 µg/L
LCS Result:	16	16	17	53	350
LCS % Recov.:	80	80	85	88	113
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
Elap #1271

Peggy Penner
Project Manager

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

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Blaine Tech Services
1680 Rogers Avenue
San Jose, CA 95112
Attention: Fran Thie

Client Proj. ID: Shell Oakland/980219-S1
Lab Proj. ID: 9802D68

Received: 02/20/98
Reported: 03/03/98

LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 14 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

SEQUOIA ANALYTICAL

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