CAMBRIA

ENVIRONMENTAL PROTECTION
97 MAR 26 PM 2:07

March 24, 1997

Madhulla Logan
Alameda Health Care Services
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: **Fourth Quarter 1996 Quarterly Monitoring Report**
Shell Service Station
4255 MacArthur Blvd.
Oakland, California
WIC #204-5510-0600

Dear Ms. Logan:

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

FOURTH QUARTER 1996 ACTIVITIES

Blaine measured ground water depths and collected ground water samples from the site wells (Figure 1). The Blaine report describing these activities and the analytic report for the ground water samples are included as Attachment A.

Cambria Environmental Technology, Inc. (Cambria) calculated ground water elevations (Table 2), compiled the analytic data (Table 3), and prepared a ground water elevation contour map (Figure 1).

Blaine Tech Services, Inc. (Blaine) of San Jose, California, removed separate-phase hydrocarbons from passive skimmer devices in wells MW-2 and MW-3 (Table 1). The quantities removed are presented in the table below.

Separate-Phase Hydrocarbon Removal Summary	
This Quarter (lbs)	Cumulative Removal (lbs)
0.81	15.67

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

CAMBRIA

ANTICIPATED FIRST QUARTER 1997 ACTIVITIES

Cambria will submit a report presenting a summary of activities for the upcoming quarter.

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

Sincerely,
Cambria Environmental Technology, Inc.

N. Scott MacLeod, R.G.
Principal Geologist

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

Attachments: A - Blaine Quarterly Ground Water Monitoring Report

cc: A. E. (Alex) Perez, Shell Oil Products Company, P.O. Box 4023 Concord, California 94524

F:\PROJECT\SHELL\OAK4255\QM\4Q96QM.WPD

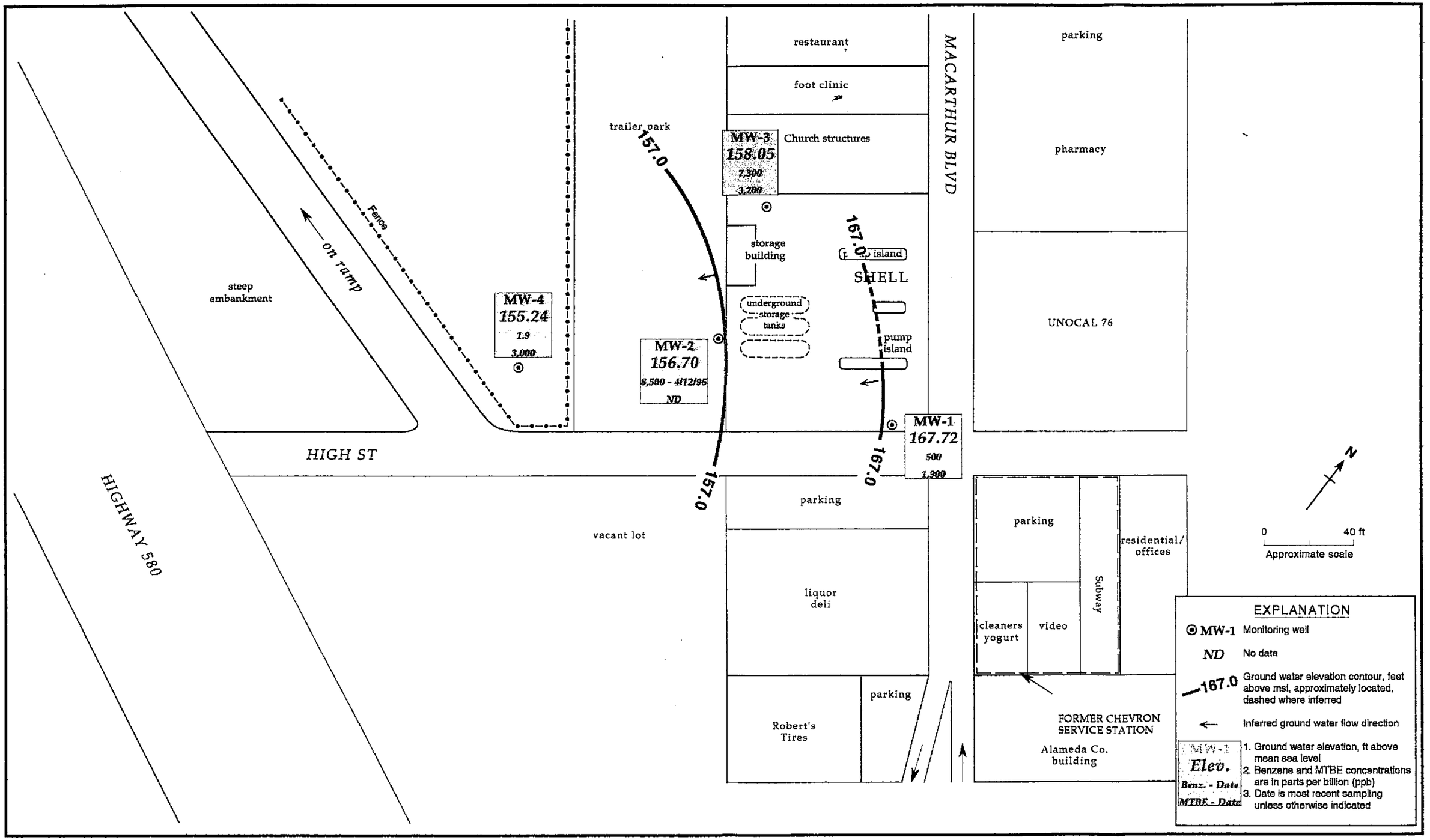

Figure 1. Ground Water Elevation Contours - October 1, 1996 - Shell Service Station WIC #204-5510-0600, 4255 MacArthur Boulevard, Oakland, California

F:\PROJECT\SHELL\OAK4255\4QM96-MP.AI

03/21/97

Table 1. **Separate-Phase Hydrocarbon Removal** - Shell Service Station WIC #204-5510-0600, 4255 MacArthur Blvd., Oakland, California

Well ID	Date	Separate-Phase Hydrocarbon Thickness (Ft)	Mass of Separate-Phase Hydrocarbons Removed (lbs)[a]	Cumulative Mass of Hydrocarbons Removed (lbs)
MW-2	11/17/93	0.0	0.0	0.0
	01/20/94	0.0	0.0	0.0
	04/25/94	0.0	0.0	0.0
	07/07/94	0.0	0.0	0.0
	01/13/95	0.0	0.0	0.0
	04/12/95	0.0	0.0	0.0
	08/10/95	0.52	5.98	5.98
	10/18/95	0.13	0.0	5.98
	01/17/96	0.17	1.74	7.72
	04/25/96	0.03	0.65	8.37
	07/17/96	0.48	2.11	10.48
	10/01/96	**0.28**	**0.81**	**11.29**
MW-3	11/17/93	0.0	0.0	0.0
	01/20/94	0.0	0.0	0.0
	04/25/94	0.0	0.0	0.0
	07/07/94	0.0	0.0	0.0
	01/13/95	---	0.02	0.02
	04/12/95	---	0.02	0.04
	08/10/95	0.06	0.69	0.73
	10/18/95	0.05	0.0	0.73
	01/17/96	0.24	2.62	3.35
	04/25/96	0.02	0.33	3.68
	07/17/96	0.03	0.70	4.38
TOTAL HYDROCARBONS REMOVED				**15.67**

Notes and Abbreviations

--- = not measured

a = Mass of SPH in 10" boring and 4" well estimated by following factor: 1 ft of SPH = 11.5 lbs of SPH.

Table 2. **Ground Water Elevations** - Shell Service Station WIC #204-5510-0600, 4255 MacArthur Blvd., Oakland, California

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Separate-phase Hydrocarbons (ft)	Ground Water Elevation (ft above msl)
MW-1	11/17/93	175.79	8.59	---	167.20
	01/20/94		8.22	---	167.57
	04/25/94		7.63	---	168.16
	07/07/94		8.31	---	167.48
	10/27/94		8.84	---	166.95
	11/17/94		7.60	---	168.19
	11/28/94		7.56	---	168.23
	01/13/95		7.11	---	168.68
	04/12/95		7.08	---	168.71
	07/25/95		7.73	---	168.06
	10/18/95		8.42	---	167.37
	01/17/96		7.83	---	167.96
	04/25/96		7.35	---	168.44
	07/17/96		7.70	---	168.09
	10/01/96		**8.07**	**---**	**167.72**
MW-2	11/17/93	170.91	12.31	---	158.60
	01/20/94		11.48	---	159.43
	04/25/94		10.84	---	160.07
	07/07/94		11.89	---	159.02
	10/27/94		12.89	---	158.02
	11/17/94		9.11	---	161.80
	11/28/94		9.22	---	161.69
	01/13/95		8.10	---	162.81
	04/12/95		10.12	---	160.79
	07/25/95		11.53	0.52	159.80[a]
	10/18/95		14.02	0.13	156.99[a]
	01/17/96		10.27	0.17	160.78[a]
	04/25/96		11.68	0.03	159.25[a]
	07/17/96		12.78	0.48	158.81[a]
	10/01/96		**14.21**	**0.28**	**156.70**
MW-3	11/17/93	174.61	15.40	---	159.21
	01/20/94		14.61	---	160.00
	04/25/94		13.12	---	161.49
	07/07/94		14.54	0.02	160.07[a]
	10/27/94		15.62	0.05	159.03[a]
	11/17/94		13.83	---	160.78
	11/28/94		14.02	---	160.59
	01/13/95		12.13	---	162.48

Table 2. **Ground Water Elevations** - Shell Service Station WIC #204-5510-0600, 4255 MacArthur Blvd., Oakland, California (continued)

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Separate-phase Hydrocarbons (ft)	Ground Water Elevation (ft above msl)
	04/12/95		12.96	---	161.65
	07/25/95		14.28	0.06	160.38[a]
	10/18/95		15.88	0.05	158.77[a]
	01/17/96		13.86	0.24	160.94[a]
	04/25/96		13.82	0.02	160.81[a]
	07/17/96		16.11	0.03	158.52[a]
	10/01/96		**16.56**	**---**	**158.05**
MW-4	11/17/94	164.06	6.62	---	157.44
	11/28/94		6.11	---	157.95
	01/13/95		6.05	---	158.01
	04/12/95		6.31	---	157.75
	07/25/95		7.36	---	156.70
	10/18/95		8.54	---	155.52
	01/17/96		8.48	---	155.58
	04/25/96		7.40	---	156.66
	07/17/96		7.75	---	156.31
	10/01/96		**8.82**	**---**	**155.24**

Notes and Abbreviations

a = When separate-phase hydrocarbons are present, ground water elevation corrected by adding 80% of the separate-phase hydrocarbon thickness measured in the well

--- = Data not available

Table 3. **Analytic Results for Ground Water** - Shell Service Station WIC #204-5510-0600, 4255 MacArthur Boulevard, Oakland, California

Well ID	Date Sampled	Depth to Water (ft)	TPH-G	MTBE	B	E	T	X
			← parts per billion (µg/L) →					
MW-1	11/17/93	8.59	410	---	21	7.9	11	47
	01/20/94	8.22	1,200	---	180	48	19	47
	04/25/94	7.63	3,100	---	610	130	<10	27
	07/07/94	8.31	2,400	---	1,000	250	10	20
	10/27/94	8.84	2,200	---	500	72	3.1	1.8
	01/13/95	7.11	570	---	75	6.7	2.5	11
	04/12/95	7.08	1,800	---	480	79	<5.0	<5.0
	07/25/95	7.73	120	---	15	2.1	1.1	2.9
	07/25/95[dup]	7.73	300	---	88	11	2.4	6.5
	10/18/95	8.42	130	---	9.5	1.3	0.8	1.7
	10/18/95[dup]	8.42	120	---	11	1.4	0.8	1.8
	01/17/96	7.83	250	---	22	1.6	0.9	2.3
	04/25/95	7.35	<50	500[c]	4.6	<0.5	<0.5	0.60
	07/17/96	7.70	<250	540	15	<2.5	<2.5	<2.5
	10/01/96	**8.07**	**1,200**	**1,900**	**500**	**57**	**12**	**82**
MW-2	11/17/93	12.31	31,000	---	9,400	1,000	4,600	3,900
	01/20/94	11.48	40,000	---	6,900	780	5,600	4,100
	01/20/94[dup]	11.48	41,000	---	7,200	900	6,200	4,800
	04/25/94	10.84	60,000	---	9,300	1,400	6,100	6,200
	07/07/94	11.89	280,000[d]	---	40,000	8,100	26,000	32,000
	07/07/94[dup]	11.89	53,000	---	13,000	2,000	6,600	8,400
	10/27/94	12.89	130,000	---	14,000	2,400	12,000	13,000
	10/27/94[dup]	12.89	390,000	---	8,800	1,700	7,000	11,000
	01/13/95	8.10	75,000	---	5,900	3,100	12,000	17,000
	04/12/95	10.12	100,000	---	8,500	2,400	11,000	12,000
	04/12/95[dup]	10.12	80,000	---	4,200	2,500	9,300	12,000
	08/10/95[SPH]	11.53	---	---	---	---	---	---
	10/18/95[SPH]	14.02	---	---	---	---	---	---
	01/17/96[SPH]	10.27	---	---	---	---	---	---
	04/25/96[SPH]	11.68	---	---	---	---	---	---
	07/17/96[SPH]	12.78	---	---	---	---	---	---
	10/01/96	**14.21**	**---**	**---**	**---**	**---**	**---**	**---**

Table 3. **Analytic Results for Ground Water** - Shell Service Station WIC #204-5510-0600, 4255 MacArthur Boulevard, Oakland, California (continued)

Well ID	Date Sampled	Depth to Water (ft)	TPH-G	MTBE	B	E	T	X
			← parts per billion (µg/L) →					
MW-3	11/17/93	15.40	18,000	---	5,400	720	660	2,200
	01/20/94	14.61	55,000	---	13,000	2,200	2,600	6,500
	04/25/94	13.12	96,000	---	11,000	3,100	1,600	9,900
	04/25/94[dup]	13.12	78,000	---	12,000	2,600	1,900	7,300
	07/07/94[SPH]	14.54	---	---	---	---	---	---
	10/27/94[SPH]	15.62	---	---	---	---	---	---
	01/13/95	12.13	180,000	---	3,200	1,700	2,700	5,200
	01/13/95[dup]	12.13	23,000	---	4,000	960	690	3,000
	04/12/95	12.96	56,000	---	8,700	2,100	1,500	6,300
	08/10/95[SPH]	14.28	---	---	---	---	---	---
	10/18/95[SPH]	15.88	---	---	---	---	---	---
	01/17/96[SPH]	13.86	---	---	---	---	---	---
	04/25/96[SPH]	13.82	---	---	---	---	---	---
	07/17/96[SPH]	16.11	---	---	---	---	---	---
	10/01/96	**16.56**	**46,000**	**3,200**	**7,300**	**1,700**	**530**	**3,900**
	10/01/96[dup]	**16.56**	**47,000**	**2,900**	**7,100**	**1,700**	**530**	**4,000**
MW-4	11/28/94	6.11	2,900	---	200	76	17	260
	01/13/95	6.05	1,900	---	130	13	5.6	40
	04/14/95	6.31	680	---	150	10	<2.0	13
	07/25/95	7.36	340	---	100	8.8	0.8	3.0
	10/18/95	8.54	150	---	31	3.5	<0.5	0.8
	01/17/96	8.48	290	---	14	1.8	<0.5	0.8
	04/25/96	7.40	<500	1,700	65	<5	<5	<5
	04/25/96[dup]	7.40	<500	1,500	66	8.7	<5	<5
	07/17/96	7.75	<500	1,500	84	6.5	<5.0	<5.0
	07/17/96[dup]	7.75	<500	1,700	54	<5.0	<5.0	<5.0*
	10/01/96	**8.82**	**<500**	**3,000**	**1.9**	**<5.0**	**<5.0**	**<5.0**
Trip Blank	01/20/94		<50		<0.5	<0.5	<0.5	<0.5
	04/25/94		<50		<0.5	<0.5	<0.5	<0.5
	07/07/94		<50		<0.5	<0.5	<0.5	<0.5
	10/27/94		<50		<0.5	<0.5	<0.5	<0.5
	01/13/95		<50		<0.5	<0.5	<0.5	<0.5

Table 3. **Analytic Results for Ground Water** - Shell Service Station WIC #204-5510-0600, 4255 MacArthur Boulevard, Oakland, California (continued)

Well ID	Date Sampled	Depth to Water (ft)	TPH-G	MTBE	B	E	T	X
			← parts per billion (µg/L) →					
	04/12/95		<50		<0.5	<0.5	<0.5	0.89
	07/25/95		<50		<0.5	<0.5	<0.5	<0.5
	10/18/95		<50		<0.5	<0.5	<0.5	<0.5
DTSC MCLs			NE		1	680	100[b]	1,750

Notes and Abbreviations

TPH-G = Total petroleum hydrocarbons as gasoline by Modified EPA Method 8015
MTBE = Methyl-t-butyl-ether by EPA Method 8020
B = Benzene by EPA Method 8020
E = Ethylbenzene by EPA Method 8020
T = Toluene by EPA Method 8020
X = Xylenes by EPA Method 8020
POG = Non-polar Petroleum oil and grease by APHA Method 5520 B/F
SPH = Separate-phase hydrocarbons present, well not sampled
NE = Not established
DTSC MCLs = California Department of Toxic Substances Control maximum contaminant levels for drinking water
--- = Not analyzed
<n = Not detected at detection limits of n ppb
dup = Duplicate sample

a = Ground water surface had a sheen when sampled.
b = DTSC recommended action level; MCL not established
c = MTBE value is estimated by Sequoia Analytical of Redwood City, California
* = MTBE confirmed by EPA Method 8260

CAMBRIA

ATTACHMENT A

Blaine Quarterly Ground Water Monitoring Report

BLAINE
TECH SERVICES INC.

985 TIMOTHY DRIVE
SAN JOSE, CA 95133
(408) 995-5535
FAX (408) 293-8773

October 21, 1996

Shell Oil Company
P.O. Box 4023
Concord, CA 94524

Attn: R. Jeff Granberry

Shell WIC #204-5510-0600
4255 MacArthur Blvd.
Oakland, California

4th Quarter 1996

Quarterly Groundwater Monitoring Report 961001-A-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) 995-5535 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 94608
Attn: Scott MacLeod

(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	10/1/96	TOC	ODOR	NONE	--	--	8.07	23.30
MW-2	10/1/96	TOC	FREE PRODUCT	13.93	0.28	500	14.21	--
MW-3 *	10/1/96	TOC	SHEEN/ODOR	--	--	--	16.56	21.90
MW-4	10/1/96	TOC	--	NONE	--	--	8.82	30.30

* Sample DUP was a duplicate sample taken from well MW-3.

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: ~~960~~ 961001 -A1

Date: 10-1-96
Page 1 of 1

Site Address: 4255 MacArthur Blvd., Oakland

WIC#: 204-5510-0600

Shell Engineer: R. Jeff Granberry
Phone No.: (510) 675-6168
Fax #: 675-6160

Consultant Name & Address: Blaine Tech Services
985 Timothy Dr.
San Jose, CA 95133

Consultant Contact: Jim Keller
Phone No.: (408) 995-5535
Fax #: 293-8773

Comments:

Sampled by: RANDY VALENTINE

Printed Name:

LAB: SEQUOIA

CHECK ONE (1) BOX ONLY	C/D#
Quarterly Monitoring XX	6441
Site Investigation	6441
Soil Closure/Disposal	6442
Water Closure/Disposal	6443
Soil/Air Rem. or Sys. O & M	6462
Water Rem. or Sys. O & M	6463
Other	

TURN AROUND TIME
24 hours
48 hours
15 days XXX (Normal)
Other ____

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

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			Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
MW-1	10/1			X		3						X								
MW-3	"			X		3						X								
MW-4	"			X		3						X							9610137	
EB	"			X		3						X								
DUP	"			X		3						X								

	Printed Name:	Date:	Time:	Received (signature):	Printed Name:	Date:	Time:
Relinquished By (signature):	RANDY VALENTINE	10/2/96	11:00		Fulcher	10/2/96	11:00
Relinquished By (signature):		10/2/96		Received (signature):		Date:	
	Printed Name:	Time:			Printed Name:	Time:	
Relinquished By (signature):	Printed Name:	Date:		Received (signature):	Printed Name: R Herring	Date: 10/2/96	
		Time:				Time: 1208	

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

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 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 Technical Services
985 Timothy Drive
San Jose, CA 95133
Attention: Jim Keller

Project: Shell Oakland/961001-A1

Enclosed are the results from samples received at Sequoia Analytical on October 2, 1996. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9610137 -01	LIQUID, MW-1	10/01/96	TPGBMW Purgeable TPH/BTEX
9610137 -02	LIQUID, MW-3	10/01/96	TPGBMW Purgeable TPH/BTEX
9610137 -03	LIQUID, MW-4	10/01/96	TPGBMW Purgeable TPH/BTEX
9610137 -04	LIQUID, EB	10/01/96	TPGBMW Purgeable TPH/BTEX
9610137 -05	LIQUID, DUP	10/01/96	TPGBMW 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

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 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 Technical Services
985 Timothy Drive
San Jose, CA 95133

Attention: Jim Keller

Client Proj. ID: Shell Oakland/961001-A1
Sample Descript: MW-1
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9610137-01

Sampled: 10/01/96
Received: 10/02/96

Analyzed: 10/07/96
Reported: 10/14/96

QC Batch Number: GC100796BTEX07A
Instrument ID: GCHP07

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	500	1200
Methyl t-Butyl Ether	25	1900
Benzene	5.0	500
Toluene	5.0	12
Ethyl Benzene	5.0	57
Xylenes (Total)	5.0	82
Chromatogram Pattern:		C6-C12

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	94

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 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 Technical Services	Client Proj. ID: Shell Oakland/961001-A1	Sampled: 10/01/96
985 Timothy Drive	Sample Descript: MW-3	Received: 10/02/96
San Jose, CA 95133	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 10/07/96
Attention: Jim Keller	Lab Number: 9610137-02	Reported: 10/14/96

QC Batch Number: GC100796BTEX22A
Instrument ID: GCHP22

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**5000**	**46000**
Methyl t-Butyl Ether	**250**	**3200**
Benzene	**50**	**7300**
Toluene	**50**	**530**
Ethyl Benzene	**50**	**1700**
Xylenes (Total)	**50**	**3900**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	96

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 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 Technical Services	Client Proj. ID: Shell Oakland/961001-A1	Sampled: 10/01/96
985 Timothy Drive	Sample Descript: MW-4	Received: 10/02/96
San Jose, CA 95133	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 10/09/96
Attention: Jim Keller	Lab Number: 9610137-03	Reported: 10/14/96

QC Batch Number: GC100996BTEX06A
Instrument ID: GCHP06

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	500	N.D.
Methyl t-Butyl Ether	**25**	**2000**
Benzene	**5.0**	**19**
Toluene	5.0	N.D.
Ethyl Benzene	5.0	N.D.
Xylenes (Total)	5.0	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	72

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 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 Technical Services	Client Proj. ID: Shell Oakland/961001-A1	Sampled: 10/01/96
985 Timothy Drive	Sample Descript: EB	Received: 10/02/96
San Jose, CA 95133	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 10/08/96
Attention: Jim Keller	Lab Number: 9610137-04	Reported: 10/14/96

QC Batch Number: GC100896BTEX01A
Instrument ID: GCHP01

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Methyl t-Butyl Ether	2.5	N.D.
Benzene	0.50	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	80

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Renner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 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 Technical Services	Client Proj. ID: Shell Oakland/961001-A1	Sampled: 10/01/96
985 Timothy Drive	Sample Descript: DUP	Received: 10/02/96
San Jose, CA 95133	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 10/07/96
Attention: Jim Keller	Lab Number: 9610137-05	Reported: 10/14/96

QC Batch Number: GC100796BTEX22A
Instrument ID: GCHP22

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**5000**	**47000**
Methyl t-Butyl Ether	**250**	**2900**
Benzene	**50**	**7100**
Toluene	**50**	**530**
Ethyl Benzene	**50**	**1700**
Xylenes (Total)	**50**	**4000**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	91

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 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, Inc.
985 Timothy Drive
San Jose, CA 95133
Attention: Jim Keller

Client Project ID: Shell, Oakland / 961001-A1
Matrix: Liquid
Work Order #: 9610137 -01

Reported: Oct 15, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC100796BTEX07A	GC100796BTEX07A	GC100796BTEX07A	GC100796BTEX07A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	H. Porter	H. Porter	H. Porter	H. Porter
MS/MSD #:	961015602	961015602	961015602	961015602
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	10/7/96	10/7/96	10/7/96	10/7/96
Analyzed Date:	10/7/96	10/7/96	10/7/96	10/7/96
Instrument I.D.#:	GCHP7	GCHP7	GCHP7	GCHP7
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	11	10	10	29
MS % Recovery:	110	100	100	97
Dup. Result:	11	10	10	30
MSD % Recov.:	110	100	100	100
RPD:	0.0	0.0	0.0	3.4
RPD Limit:	0-25	0-25	0-25	0-25
LCS #:	BLK100796	BLK100796	BLK100796	BLK100796
Prepared Date:	10/7/96	10/7/96	10/7/96	10/7/96
Analyzed Date:	10/7/96	10/7/96	10/7/96	10/7/96
Instrument I.D.#:	GCHP7	GCHP7	GCHP7	GCHP7
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	12	11	11	31
LCS % Recov.:	120	110	110	103
MS/MSD Control Limits	60-140	60-140	60-140	60-140
LCS Control Limits	70-130	70-130	70-130	70-130

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

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 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, Inc.
985 Timothy Drive
San Jose, CA 95133
Attention: Jim Keller

Client Project ID: Shell, Oakland / 961001-A1
Matrix: Liquid
Work Order #: 9610137-02, 05

Reported: Oct 15, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC100796BTEX22A	GC100796BTEX22A	GC100796BTEX22A	GC100796BTEX22A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	H. Porter	H. Porter	H. Porter	H. Porter
MS/MSD #:	961015603	961015603	961015603	961015603
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	10/7/96	10/7/96	10/7/96	10/7/96
Analyzed Date:	10/7/96	10/7/96	10/7/96	10/7/96
Instrument I.D.#:	GCHP22	GCHP22	GCHP22	GCHP22
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	10	9.4	9.3	29
MS % Recovery:	100	94	93	97
Dup. Result:	9.9	9.2	9.0	28
MSD % Recov.:	99	92	90	93
RPD:	1.0	2.2	3.3	3.5
RPD Limit:	0-25	0-25	0-25	0-25
LCS #:	BLK100796	BLK100796	BLK100796	BLK100796
Prepared Date:	10/7/96	10/7/96	10/7/96	10/7/96
Analyzed Date:	10/7/96	10/7/96	10/7/96	10/7/96
Instrument I.D.#:	GCHP22	GCHP22	GCHP22	GCHP22
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	10	9.2	9.1	28
LCS % Recov.:	100	92	91	93
MS/MSD Control Limits	60-140	60-140	60-140	60-140
LCS Control Limits	70-130	70-130	70-130	70-130

SEQUOIA ANALYTICAL

Reggy Renner
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

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 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, Inc.
985 Timothy Drive
San Jose, CA 95133
Attention: Jim Keller

Client Project ID: Shell, Oakland / 961001-A1
Matrix: Liquid
Work Order #: 9610137-03

Reported: Oct 15, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC100996BTEX06A	GC100996BTEX06A	GC100996BTEX06A	GC100996BTEX06A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	R. Geckler	R. Geckler	R. Geckler	R. Geckler
MS/MSD #:	961027804	961027804	961027804	961027804
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	10/9/96	10/9/96	10/9/96	10/9/96
Analyzed Date:	10/9/96	10/9/96	10/9/96	10/9/96
Instrument I.D.#:	GCHP6	GCHP6	GCHP6	GCHP6
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	13	11	11	33
MS % Recovery:	130	110	110	110
Dup. Result:	14	12	11	34
MSD % Recov.:	135	120	110	113
RPD:	3.8	8.7	0.0	3.0
RPD Limit:	0-25	0-25	0-25	0-25
LCS #:	BLK100996	BLK100996	BLK100996	BLK100996
Prepared Date:	10/9/96	10/9/96	10/9/96	10/9/96
Analyzed Date:	10/9/96	10/9/96	10/9/96	10/9/96
Instrument I.D.#:	GCHP6	GCHP6	GCHP6	GCHP6
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	13	11	10	32
LCS % Recov.:	130	110	100	107
MS/MSD Control Limits	60-140	60-140	60-140	60-140
LCS Control Limits	70-130	70-130	70-130	70-130

SEQUOIA ANALYTICAL

Peggy Renner
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