



CAMBRIA

**ENVIRONMENTAL
PROTECTION**

97 FEB 14 PM 2:05

January 31, 1997

Susan Hugo
Alameda County Department
of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

LOP 3618

Re: **Fourth Quarter 1996 Monitoring Report**
Shell Service Station
5755 Broadway
Oakland, California 94606
WIC #204-5510-0303

Dear Ms. Hugo:

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.

Hydrocarbon and Ground Water Removal Summary

Hydrocarbon Phase	This Quarter	Cumulative (lbs)
Separate-Phase	0 (lbs)	0.55
Ground Water with Aqueous-Phase Hydrocarbons	43,100 (gals)	331,338

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

The table above summarizes removal of separate-phase hydrocarbons by manual bailing and ground water with aqueous-phase hydrocarbons from the tank-pit area by vacuum truck.

Fourth Quarter 1996 Activities

Blaine Tech Services, Inc. (Blaine) of San Jose, California measured ground water depths and collected water samples from the site wells (Figure 1). The Blaine report, describing these sampling activities and presenting the analytic results is included as Attachment A.

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

Susan Hugo
January 31, 1997

CAMBRIA

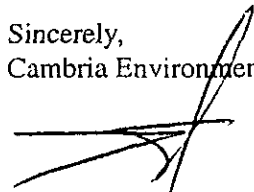
Due to seasonal rains, Cambria coordinated dewatering of the tank-pit through tank backfill wells on five separate occasions. Approximately 43,100 gallons of ground water with aqueous-phase hydrocarbons were removed from the tank backfill area during the fourth quarter.

Anticipated First Quarter 1997 Activities

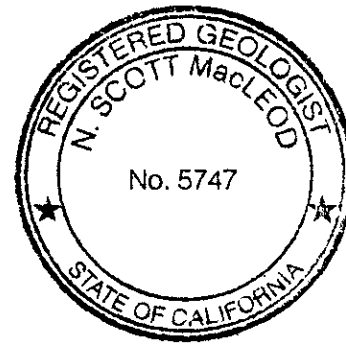
Cambria will continue to monitor water levels and arrange dewatering of the tankpit when necessary and will submit a report presenting a summary of activities for the upcoming quarter.

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



Attachments: A - Blaine Quarterly Ground Water Monitoring Report

cc: R. Jeff Granberry, Shell Oil Products Company, P.O. Box 4023 Concord, California 94524

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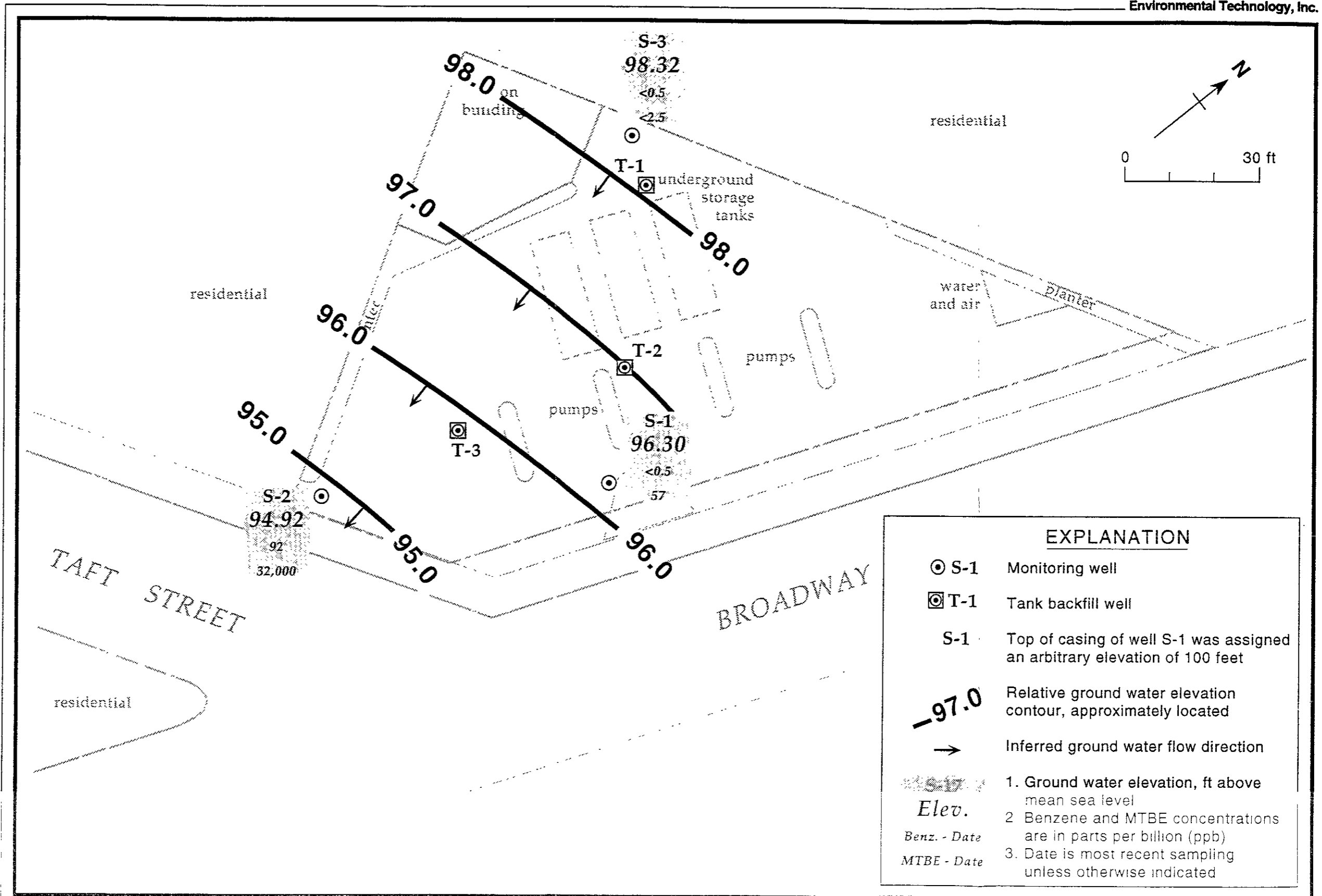


Figure 1. Monitoring Well Locations, Ground Water Elevation Contours, and Benzene Concentrations in Ground Water - November 7, 1996
Shell Service Station WIC#204-2004-0204, 5755 Broadway, Oakland, California

Table 1. Ground Water Elevations - Shell Service Station WIC #504-5510-0303, 5755 Broadway, Oakland, California

Well ID	Date	Top-of-Casing Elevation ^a	Depth to Water (ft)	Ground Water Elevation (ft)
S-1	01/25/91	100.00	3.88	96.12
	06/03/91		3.51	96.49
	08/30/91		4.24	95.76
	11/22/91		4.29	95.71
	03/13/92		2.87	97.13
	05/28/92		3.79	96.21
	08/19/92		4.43	95.57
	11/18/92		4.34	95.66
	02/10/93		4.20	95.80
	06/11/93		3.39	96.61
	08/03/93		3.69	96.31
	11/02/93		4.26	95.74
	12/16/93		2.73	97.27
	02/01/94		3.38	96.62
	05/04/94		3.00	97.00
	08/18/94		3.70	96.30
	11/09/94		2.52	97.48
	02/22/95		4.08	95.92
	05/02/95		2.58	97.42
	08/30/95		3.48	96.52
	11/28/95		3.99	96.01
02/02/96	2.00	98.00		
03/09/96	3.38	99.62		
08/22/96	3.43	96.57		
	11/07/96		3.70	96.30
S-2	01/25/91	98.92	4.52	94.40
	06/03/91		4.02	94.90
	08/30/91		4.70	94.22
	11/22/91		4.72	94.20
	03/13/92		3.47	95.45
	05/28/92		4.45	94.45
	08/19/92		4.84	94.08
	11/18/92		4.73	94.19
	02/10/93		4.83	94.09
	06/11/93		3.74	95.18
	08/03/93		4.23	94.69
	11/02/93		4.72	94.20
	12/16/93		3.00	95.92
	02/01/94		3.48	95.44
	05/04/94		3.26	95.66
	08/18/94		3.98	94.94
11/09/94	3.10	95.82		
02/22/95	4.02	94.90		

Table 1. Ground Water Elevations - Shell Service Station WIC #504-5510-0303, 5755 Broadway, Oakland, California (continued)

Well ID	Date	Top-of-Casing Elevation ^a	Depth to Water (ft)	Ground Water Elevation (ft)
	05/02/95		2.86	96.06
	08/30/95		4.06	94.86
	11/28/95		4.48	94.44
	02/02/96		1.99	96.93
	03/09/96		3.27	95.65
	08/22/96		3.85	95.07
	11/07/96		4.00	94.92
S-3	01/25/91	101.67	3.84	97.83
	06/03/91		3.25	98.42
	08/03/91		4.73	96.94
	11/22/91		4.81	96.86
	03/13/92		2.29	99.38
	05/28/92		3.62	98.05
	08/19/92		4.66	97.01
	11/18/92		4.51	97.16
	02/10/93		4.36	97.31
	06/11/93		2.91	98.76
	08/03/93		3.70	97.97
	11/02/93 ^b		---	---
	12/16/93		2.12	99.55
	02/01/94		2.90	98.77
	05/04/94		2.54	99.13
	08/18/94		3.51	98.16
	11/09/94		2.44	99.23
	02/22/95		4.12	97.55
	05/02/95		2.83	98.84
	08/30/95		3.16	98.51
	11/28/95		3.87	97.80
	02/02/96		2.24	99.43
	03/09/96		3.05	98.62
	08/22/96		2.85	98.82
	11/07/96		3.35	98.32

Notes:

a = Top of casing elevations referenced to arbitrary elevation of 100 ft

b = Well inaccessible

NA = Not available

Table 2. Analytic Results for Ground Water - Shell Service Station, WIC #204-5510-0303, 5755 Broadway, Oakland, California

Sample ID	Date	Depth to Water (ft)	TPH-G	parts per billion (µg/L)					MTBE	DO (mg/L)
				B	E	T	X			
S-1	01/25/91	3.88	<30	<0.3	<0.3	<0.3	<0.3	<0.3	---	---
	06/03/91	3.51	<30	<0.3	<0.3	<0.3	<0.3	<0.3	---	---
	08/30/91	4.24	<30	<0.3	<0.3	<0.3	<0.3	<0.3	---	---
	11/22/91	4.29	<30	2.3	0.3	<0.46	<0.65	---	---	---
	03/13/92	2.87	<30	<0.52	<0.3	<0.3	<0.3	<0.3	---	---
	05/28/92	3.79	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---
	08/19/92	4.43	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---
	11/18/92	4.34	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---
	02/10/93	4.20	51	1.4	<0.5	<0.5	<0.5	<0.5	---	---
	02/10/93 ^{dup}	4.20	<50	1.2	<0.5	<0.5	<0.5	<0.5	---	---
	06/11/93	3.39	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---
	08/03/93	3.69	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---
	11/02/93	4.26	70 ^a	<0.5	<0.5	<0.5	<0.5	<0.5	---	---
	02/01/94	3.38	60 ^a	<0.5	<0.5	<0.5	<0.5	<0.5	---	---
	05/04/94	3.00	<50	1.1	<0.5	<0.5	<0.5	<0.5	---	---
	08/18/94	3.70	<50	0.6	<0.5	<0.5	<0.5	<0.5	---	---
	08/18/94 ^{dup}	3.70	60 ^b	0.5	<0.5	<0.5	<0.5	<0.5	---	---
	11/09/94	2.52	<50	4.0	<0.5	<0.5	<0.5	<0.5	---	---
	02/22/95	4.08	50	0.8	<0.5	0.7	1.3	---	---	---
	05/02/95	2.58	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---
	08/30/95	3.48	<50	1.7	<0.5	<0.5	<0.5	<0.5	---	---
	11/28/95	3.99	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---
	02/02/96	2.00	<50	11	0.9	<0.5	<0.5	<0.5	---	---
03/09/96	3.38	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	
08/22/96	3.43	<50	1.5	<0.5	<0.5	<0.5	<0.5	130	---	
11/07/96	3.70	<50	<0.5	<0.5	<0.5	<0.5	<0.5	57	4.33	
S-2	01/25/91	4.52	450	140	6.2	1.8	15	---	---	
	06/03/91	4.02	490	150	8.2	2.7	7	---	---	
	08/30/91	4.70	70	0.37	<0.3	<0.3	<0.3	---	---	

Table 2. Analytic Results for Ground Water - Shell Service Station, WIC #204-5510-0303, 5755 Broadway, Oakland, California (continued)

Sample ID	Date	Depth to Water (ft)	TPH-G	B	E	T	X	MTBE	DO (mg/L)
	11/22/91	4.72	1,600	110	29	9.3	150	---	---
	03/13/92	3.47	1,300	210	34	5.7	79	---	---
	05/28/92	4.45	100	28	<0.5	<0.5	<0.5	---	---
	08/19/92	4.84	470	42	8.3	<0.5	4.0	---	---
	11/18/92	4.73	490	43	17	39	29	---	---
	02/10/93	4.83	19,000	710	80	760	370	---	---
	06/11/93	3.74	33,000	3,100	370	1,600	1,100	---	---
	08/03/93	4.23	18,000	1,400	81	130	130	---	---
	08/03/93 ^{dup}	4.23	19,000	1,400	86	140	150	---	---
	11/02/93	4.72	12,000 ^a	470	31	47	92	---	---
	11/02/93 ^{dup}	4.72	13,000 ^a	530	35	47	96	---	---
	02/01/94	3.48	31,000 ^a	430	50	46	130	---	---
	02/01/94 ^{dup}	3.48	31,000 ^a	300	30	33	100	---	---
	05/04/94	3.26	3,900	1,200	53	31	71	---	---
	05/04/94 ^{dup}	3.26	4,500	1,200	57	37	110	---	---
	08/18/94	3.98	24,000	600	15	8.3	27	---	---
	11/09/94	3.10	1,400 ^a	240	13	9.3	20	---	---
	11/09/94 ^{dup}	3.10	1,800	260	13	8.5	21	---	---
	02/22/95	4.02	29,000	550	12	18	63	---	---
	02/22/95 ^{dup}	4.02	28,000	530	10	17	60	---	---
	05/02/95	2.86	4,400	1,000	38	25	77	---	---
	05/02/95 ^{dup}	2.86	4,400	1,000	41	26	83	---	---
	08/30/95	4.06	800	350	6.7	20	16	---	---
	08/30/95 ^{dup}	4.06	960	220	12	22	48	---	---
	11/28/95	4.48	2,000	230	50	220	230	---	---
	11/28/95 ^{dup}	4.48	2,100	240	51	230	230	---	---
	02/02/96	2.00	18,000	540	12	18	22	---	---
	02/02/96 ^{dup}	2.00	11,000	600	13	18	28	---	---
	03/09/96	3.27	3,800	1,500	30	27	58	---	---
	03/09/96 ^{dup}	3.27	3,500	1,300	21	24	53	---	---

Table 2. Analytic Results for Ground Water - Shell Service Station, WIC #204-5510-0303, 5755 Broadway, Oakland, California (continued)

Sample ID	Date	Depth to Water (ft)	TPH-G	B	E	T	X	MTBE	DO (mg/L)
	08/22/96	3.85	<20,000	490	<200	<200	<200	43,000	---
	08/22/96 ^{dup}	3.85	<20,000	570	<200	<200	<200	59,000*	---
	11/07/96	4.00	<5,000	290	<50	<50	<50	32,000	3.51
	11/07/96 ^{dup}	4.00	<5,000	290	<50	<50	<50	32,000	3.51
S-3	01/25/91	NA	<30	<0.3	<0.3	<0.3	<0.3	---	---
	06/03/91	3.25	<30	<0.3	0.3	0.3	0.3	---	---
	08/30/91	4.73	<30	<0.3	<0.3	<0.3	<0.3	---	---
	11/22/91	4.81	<30	<0.3	<0.3	<0.3	<0.3	---	---
	03/13/92	2.29	<30	<0.3	0.3	0.3	0.3	---	---
	05/28/92	3.62	<50	<0.5	<0.5	<0.5	<0.5	---	---
	08/19/92	4.66	<50	<0.5	<0.5	<0.5	0.5	---	---
	11/18/92	4.51	<50	<0.5	<0.5	<0.5	<0.5	---	---
	02/10/93	4.36	30	1.9	2.4	3.2	5.6	---	---
	06/11/93	2.91	<50	<0.5	<0.5	<0.5	<0.5	---	---
	06/11/93 ^{dup}	2.91	<50	<0.5	<0.5	<0.5	<0.5	---	---
	08/03/93	3.70	<50	<0.5	<0.5	<0.5	<0.5	---	---
	11/02/93 ^c	---	---	---	---	---	---	---	---
	02/01/94	2.90	<50	<0.5	<0.5	<0.5	<0.5	---	---
	05/04/94	2.54	<50	<0.5	<0.5	<0.5	<0.5	---	---
	08/18/94	3.51	<50	<0.5	<0.5	<0.5	<0.5	---	---
	11/09/94	2.44	<50	<0.5	<0.5	<0.5	<0.5	---	---
	02/22/95	4.12	80	<0.5	<0.5	0.5	0.5	---	---
	05/02/95	2.83	<50	<0.5	<0.5	<0.5	<0.5	---	---
	08/30/95	3.16	<50	0.5	<0.5	<0.5	<0.5	---	---
	11/28/95	3.87	<50	<0.5	<0.5	<0.5	<0.5	---	---
	02/02/96	2.24	<50	<0.5	<0.5	<0.5	<0.5	---	---
	03/09/96	3.05	<50	<0.5	<0.5	<0.5	<0.5	---	---
	08/22/96	2.85	<50	0.80	<0.5	<0.5	<0.5	<2.5	4.6
	11/07/96	3.35	<50	<0.5	<0.5	<0.5	<0.5	<2.5	4.6

Table 2. Analytic Results for Ground Water - Shell Service Station, WIC #204-5510-0303, 5755 Broadway, Oakland, California (continued)

Sample ID	Date	Depth to Water (ft)	TPH-G	B	E	T	X	MTBE	DO (mg/L)
Bailer	08/19/92		<50	<0.5	<0.5	<0.5	<0.5	---	---
Blank	11/22/91		<50	<0.5	<0.5	<0.5	<0.5	---	---
	02/22/95		<50	<0.5	<0.5	<0.5	<0.5	---	---
Trip	03/13/92		<50	<0.3	<0.3	<0.3	<0.3	---	---
Blank	05/28/92		<50	<0.5	<0.5	<0.5	<0.5	---	---
	08/19/92		<50	<0.5	<0.5	<0.5	<0.5	---	---
	11/18/92		<50	<0.5	<0.5	<0.5	<0.5	---	---
	02/10/93		<50	<0.5	<0.5	<0.5	<0.5	---	---
	08/03/93		<50	<0.5	<0.5	<0.5	<0.5	---	---
	11/02/93		<50	<0.5	<0.5	<0.5	<0.5	---	---
	02/01/94		<50	<0.5	<0.5	<0.5	<0.5	---	---
	05/04/94		<50	<0.5	<0.5	<0.5	<0.5	---	---
	11/09/94		<50	<0.5	<0.5	<0.5	<0.5	---	---
	02/22/95		<50	<0.5	1.0 ^e	<0.5	<0.5	---	---
	05/02/95		<50	<0.5	<0.5	<0.5	<0.5	---	---
	08/30/95		<50	<0.5	<0.5	<0.5	<0.5	---	---
	11/28/95		<50	<0.5	<0.5	<0.5	<0.5	---	---
DTSC MCLs			NE	1	680	100 ^d	1,750		

Table 2. Analytic Results for Ground Water - Shell Service Station, WIC #204-5510-0303, 5755 Broadway, Oakland, California (continued)

Abbreviations:

TPH-G = Total petroleum hydrocarbons as gasoline by Modified EPA Method 8015
B = Benzene by EPA Method 8020
E = Ethylbenzene by EPA Method 8020
T = Toluene by EPA Method 8020
X = Xylenes by EPA Method 602 or 8020
--- = Not analyzed
DTSC MCLs = California Department of Toxic Substances Control maximum
contaminant levels for drinking water
NA = Not available
NE = Not established
<n = Not detected at detection limits of n ppb
dup = Duplicate sample

Notes:

a = Concentrations reported as gasoline are primarily due to presence of a discrete peak not indicative of gasoline.
b = This positive result has an atypical pattern for gasoline
c = Well inaccessible
d = DTSC recommended action level for drinking water; MCL not established
e = Positive result confirmed by secondary column or GC/MS analysis.
* = MTBE result confirmed by EPA method 8260; sample result was 51,000 ug/l.

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

November 26, 1996

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

Attn: R. Jeff Granberry

Shell WIC #204-5510-0303
5755 Broadway
Oakland, California

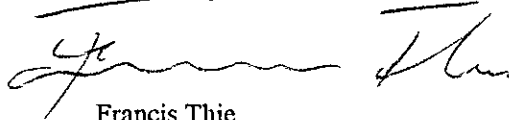
4th Quarter 1996

Quarterly Groundwater Monitoring Report 961107-H-2

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)
S-1	11/7/96	TOC	--	NONE	--	--	3.70	11.55
S-2 *	11/7/96	TOC	--	NONE	--	--	4.00	9.40
S-3	11/7/96	TOC	--	NONE	--	--	3.35	9.49
T-1	11/7/96	TOC	--	NONE	--	--	2.76	13.40
T-2	11/7/96	TOC	--	NONE	--	--	1.90	12.90
T-3	11/7/96	TOC	--	NONE	--	--	2.04	8.72

* Sample DUP was a duplicate sample taken from well S-2.



SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD

Serial No: 961107-H2

Date: 11/7/96

Page 1 of 1

Silo Address: 5755 Broadway, Oakland

WIC#: 204-5510-0303

Shell Engineer: R. Jeff Granberry Phone No.: (510) 575-6168
Fax #: 675-6160

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

Consultant Contact: Fran Thie Phone No.: (408) 995-5535 ext 201
Fax #: 293-8773

Comments:

Sampled by:

Printed Name: TROY N. HORNER

Analysis Required

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 <u>MTBE</u>	Asbestos	Container Size	Preparation Used	Composite Y/N
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LAB: REQ

CHECK ONE (1) BOX ONLY	CI/DI	TURN AROUND TIME
Quantity Monitoring <input checked="" type="checkbox"/>	6441	24 hours <input type="checkbox"/>
Site Investigation <input type="checkbox"/>	6441	48 hours <input type="checkbox"/>
Soil Classfy/Disposal <input type="checkbox"/>	6442	16 days <input checked="" type="checkbox"/> (Normal)
Water Classfy/Disposal <input type="checkbox"/>	6443	Other <input type="checkbox"/>
Soil/Air Rem. or Sys. O & M <input type="checkbox"/>	6452	
Water Rem. or Sys. O & M <input type="checkbox"/>	6453	
Other <input type="checkbox"/>		

NOTE: Hasty 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 <u>MTBE</u>	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS	
S-1	11/7			X		3						X							
S-2	11/7			X		3						X							CONFIRM HIGHEST
S-3	11/7			X		3						X							MTBE HIT BY
DOP	11/7			X		3						X							EPA 8260
EB	11/7			X		3						X							

Relinquished By (signature): <u>[Signature]</u>	Printed Name: <u>TROY N. HORNER</u>	Date: <u>11/8/96</u>	Time: <u>10:35</u>	Received (signature): <u>[Signature]</u>	Printed Name: <u>F. J. H. [Signature]</u>	Date: <u>11/9/96</u>	Time: <u>10:38</u>
Relinquished By (signature): <u>[Signature]</u>	Printed Name:	Date: <u>11/7/96</u>	Time:	Received (signature):	Printed Name:	Date:	Time:
Relinquished By (signature):	Printed Name:	Date:	Time:	Received (signature): <u>[Signature]</u>	Printed Name: <u>Margaret [Signature]</u>	Date: <u>11/8/96</u>	Time: <u>9:08</u>

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



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FAX (916) 921-0100

Blaine Technical Services
985 Timothy Drive
San Jose, CA 95133
Attention: Fran Thie

Project: Shell Oakland/961107-H2

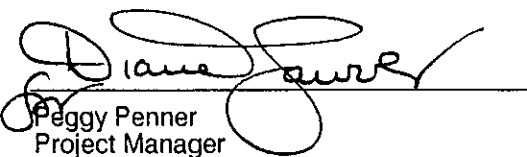
Enclosed are the results from samples received at Sequoia Analytical on November 8, 1996.
The requested analyses are listed below:

<u>SAMPLE #</u>	<u>SAMPLE DESCRIPTION</u>	<u>DATE COLLECTED</u>	<u>TEST METHOD</u>
9611560 -01	LIQUID, S-1	11/07/96	TPGBMW Purgeable TPH/BTEX
9611560 -02	LIQUID, S-2	11/07/96	TPGBMW Purgeable TPH/BTEX
9611560 -03	LIQUID, S-3	11/07/96	TPGBMW Purgeable TPH/BTEX
9611560 -04	LIQUID, Dup	11/07/96	TPGBMW Purgeable TPH/BTEX
9611560 -05	LIQUID, EB	11/07/96	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





Blaine Technical Services 985 Timothy Drive San Jose, CA 95133 Attention: Fran Thie	Client Proj. ID: Shell Oakland/961107-H2 Sample Descript: S-1 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9611560-01	Sampled: 11/07/96 Received: 11/08/96 Analyzed: 11/14/96 Reported: 11/22/96
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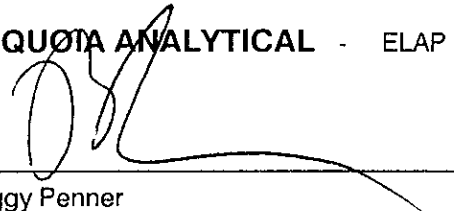
QC Batch Number: GC111496BTEX02A
Instrument ID: GCHP02

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Methyl t-Butyl Ether	2.5	57
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 Penner
Project Manager





Blaine Technical Services	Client Proj. ID: Shell Oakland/961107-H2	Sampled: 11/07/96
985 Timothy Drive	Sample Descript: S-2	Received: 11/08/96
San Jose, CA 95133	Matrix: LIQUID	
Attention: Fran Thie	Analysis Method: 8015Mod/8020	Analyzed: 11/18/96
	Lab Number: 9611560-02	Reported: 11/22/96

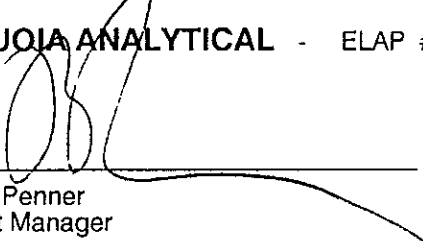
QC Batch Number: GC111896BTEX02A
Instrument ID: GCHP2

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	5000	N.D.
Methyl t-Butyl Ether	250	32000
Benzene	50	290
Toluene	50	N.D.
Ethyl Benzene	50	N.D.
Xylenes (Total)	50	N.D.
Chromatogram Pattern:		
Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	73

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

SEQUOIA ANALYTICAL - ELAP #1210


Peggy Penner
Project Manager





Blaine Technical Services	Client Proj. ID: Shell Oakland/961107-H2	Sampled: 11/07/96
985 Timothy Drive	Sample Descript: S-3	Received: 11/08/96
San Jose, CA 95133	Matrix: LIQUID	
Attention: Fran Thie	Analysis Method: 8015Mod/8020	Analyzed: 11/15/96
	Lab Number: 9611560-03	Reported: 11/22/96

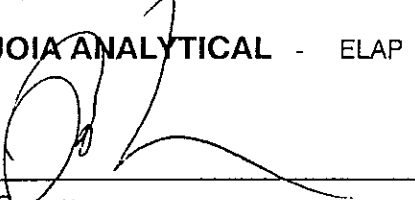
QC Batch Number: GC111596BTEX03A
Instrument ID: GCHP03

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	96

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

SEQUOIA ANALYTICAL - ELAP #1210


Peggy Penner
Project Manager





Blaine Technical Services 985 Timothy Drive San Jose, CA 95133	Client Proj. ID: Shell Oakland/961107-H2 Sample Descript: Dup Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9611560-04	Sampled: 11/07/96 Received: 11/08/96 Analyzed: 11/15/96 Reported: 11/22/96
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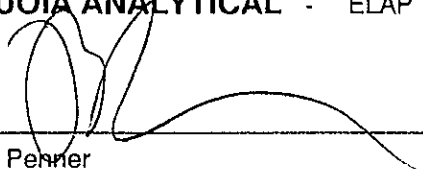
QC Batch Number: GC111596BTEX03A
Instrument ID: GCHP03

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	10000	N.D.
Methyl t-Butyl Ether	500	29000
Benzene	100	440
Toluene	100	N.D.
Ethyl Benzene	100	N.D.
Xylenes (Total)	100	N.D.
Chromatogram Pattern:		
Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	92

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

SEQUOIA ANALYTICAL - ELAP #1210


Peggy Penner
Project Manager





Blaine Technical Services 985 Timothy Drive San Jose, CA 95133	Client Proj. ID: Shell Oakland/961107-H2 Sample Descript: EB Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9611560-05	Sampled: 11/07/96 Received: 11/08/96 Analyzed: 11/15/96 Reported: 11/22/96
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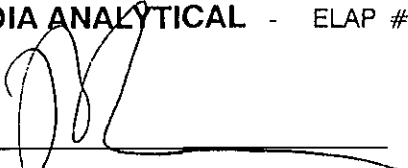
QC Batch Number: GC111596BTEX03A
Instrument ID: GCHP03

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	93

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 Technical Services
985 Timothy Drive
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Attention: Fran Thie

Client Proj. ID: Shell Oakland/961107-H2

Received: 11/08/96

Lab Proj. ID: 9611560

Reported: 11/22/96

LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 11 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager



Blaine Tech Services, Inc.
 985 Timothy Drive
 San Jose, CA 95133
 Attention: Fran Thie

Client Project ID: Shell Oakland / 961107-H2
 Matrix: Liquid

Work Order #: 9611560 -01

Reported: Nov 25, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC111496BTEX02A	GC111496BTEX02A	GC111496BTEX02A	GC111496BTEX02A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	Y. Arteaga	Y. Arteaga	Y. Arteaga	Y. Arteaga
MS/MSD #:	961138811	961138811	961138811	961138811
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	11/14/96	11/14/96	11/14/96	11/14/96
Analyzed Date:	11/14/96	11/14/96	11/14/96	11/14/96
Instrument I.D.#:	GCHP2	GCHP2	GCHP2	GCHP2
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	11	9.7	9.3	26
MS % Recovery:	110	97	93	87
Dup. Result:	12	10	9.7	27
MSD % Recov.:	120	100	97	90
RPD:	8.7	3.0	4.2	3.8
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK111496	BLK111496	BLK111496	BLK111496
Prepared Date:	11/14/96	11/14/96	11/14/96	11/14/96
Analyzed Date:	11/14/96	11/14/96	11/14/96	11/14/96
Instrument I.D.#:	GCHP2	GCHP2	GCHP2	GCHP2
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	12	10	10	28
LCS % Recov.:	120	100	100	93

MS/MSD	60-140	60-140	60-140	60-140
LCS	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

[Signature]
 Peggy Penner
 Project Manager





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Blaine Tech Services, Inc.
985 Timothy Drive
San Jose, CA 95133
Attention: Fran Thie

Client Project ID: Shell Oakland / 961107-H2
Matrix: Liquid

Work Order #: 9611560-02

Reported: Nov 25, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC111896BTEX02A	GC111896BTEX02A	GC111896BTEX02A	GC111896BTEX02A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	Y. Arteaga	Y. Arteaga	Y. Arteaga	Y. Arteaga
MS/MSD #:	961138818	961138818	961138818	961138818
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	11/18/96	11/18/96	11/18/96	11/18/96
Analyzed Date:	11/18/96	11/18/96	11/18/96	11/18/96
Instrument I.D.#:	GCHP2	GCHP2	GCHP2	GCHP2
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L

Result:	10	9.3	9.0	25
MS % Recovery:	100	93	90	83

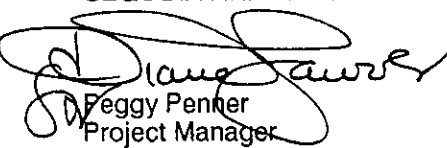
Dup. Result:	11	9.6	9.2	26
MSD % Recov.:	110	96	92	87

RPD:	9.5	3.2	2.2	3.9
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK111896	BLK111896	BLK111896	BLK111896
Prepared Date:	11/18/96	11/18/96	11/18/96	11/18/96
Analyzed Date:	11/18/96	11/18/96	11/18/96	11/18/96
Instrument I.D.#:	GCHP2	GCHP2	GCHP2	GCHP2
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	11	9.8	9.4	26
LCS % Recov.:	110	98	94	87

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

9611560.BLA <2>





Sequoia Analytical

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Blaine Tech Services, Inc.
985 Timothy Drive
San Jose, CA 95133
Attention: Fran Thle

Client Project ID: Shell Oakland / 961107-H2
Matrix: Liquid

Work Order #: 9611560-03-05

Reported: Nov 25, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC111596BTEX03A	GC111596BTEX03A	GC111596BTEX03A	GC111596BTEX03A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	G. Fish	G. Fish	G. Fish	G. Fish
MS/MSD #:	961138812	961138812	961138812	961138812
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	11/15/96	11/15/96	11/15/96	11/15/96
Analyzed Date:	11/15/96	11/15/96	11/15/96	11/15/96
Instrument I.D.#:	GCHP3	GCHP3	GCHP3	GCHP3
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L

Result:	8.9	8.5	8.7	27
MS % Recovery:	89	85	87	90

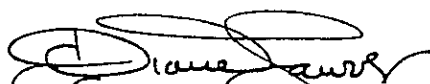
Dup. Result:	8.9	8.5	8.6	27
MSD % Recov.:	89	85	86	90

RPD:	0.0	0.0	1.2	0.0
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK111596	BLK111596	BLK111596	BLK111596
Prepared Date:	11/15/96	11/15/96	11/15/96	11/15/96
Analyzed Date:	11/15/96	11/15/96	11/15/96	11/15/96
Instrument I.D.#:	GCHP3	GCHP3	GCHP3	GCHP3
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	8.7	8.2	8.6	26
LCS % Recov.:	87	82	86	87

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

9611560.BLA <3>

