Weiss Associates Environmental and Geologic Services

5500 Shellmound Street, Emeryville, CA 94608-2411 Fax: 510-547-5043 Phone: **510-450-6000**

STID 3673

May 24, 1996

#3673
SH

Gil Wistar
Alameda County
Environmental Health Department
1131 Harbor Bay Parkway
Alameda, California 94502

Re: **First Quarter 1996**
Shell Service Station
WIC #204-5508-0703
230 West MacArthur Boulevard
Oakland, California
WA Job #81-1161-206

Dear Mr. Wistar:

This status report satisfies the quarterly reporting requirements prescribed by California Administrative Code Title 23 Waters, Division 3, Chapter 16, Article 5, Section 2652.d.

First Quarter 1996 Activities

- Blaine Tech Services, Inc. (BTS) of San Jose, California measured ground water depths and collected ground water samples from the site wells (Figures 1 and 2). The BTS report describing these activities and the analytic report for the ground water samples are included as Attachment A.

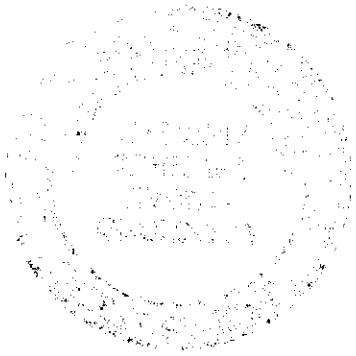
- Weiss Associates (WA) calculated ground water elevations, compiled the analytic data (Tables 1 and 2), prepared a ground water elevation contour map and plotted benzene concentrations in ground water (Figure 2).

Anticipated Second Quarter 1996 Activities

WA will submit a report presenting the results of the second quarter 1996 ground water monitoring results. The report will include tabulated chemical analytic results, ground water elevations, and a ground water elevation contour map and plotted benzene concentrations in ground water.

We trust that this submittal meets your needs. Please call Tim Utterback at (510) 450-6193 if you have any questions or comments.

Sincerely,
Weiss Associates



Grady S. Glasser
Technical Assistant

James W. Carmody, C.H.G.
Senior Project Hydrogeologist

Attachments: A - BTS Ground Water Monitoring Report

cc: R. Jeff Granberry, Shell Oil Products Company, P.O. Box 4023, Concord, California 94524
Lisa McCann, Regional Water Quality Control Board - San Francisco Bay Region, 2101 Webster Street, Suite 500, Oakland, California 94612
Craig Mayfield, Alameda County Flood Control and Water Conservation District, 399 Elmhurst Street, Hayward, California 94544-1395

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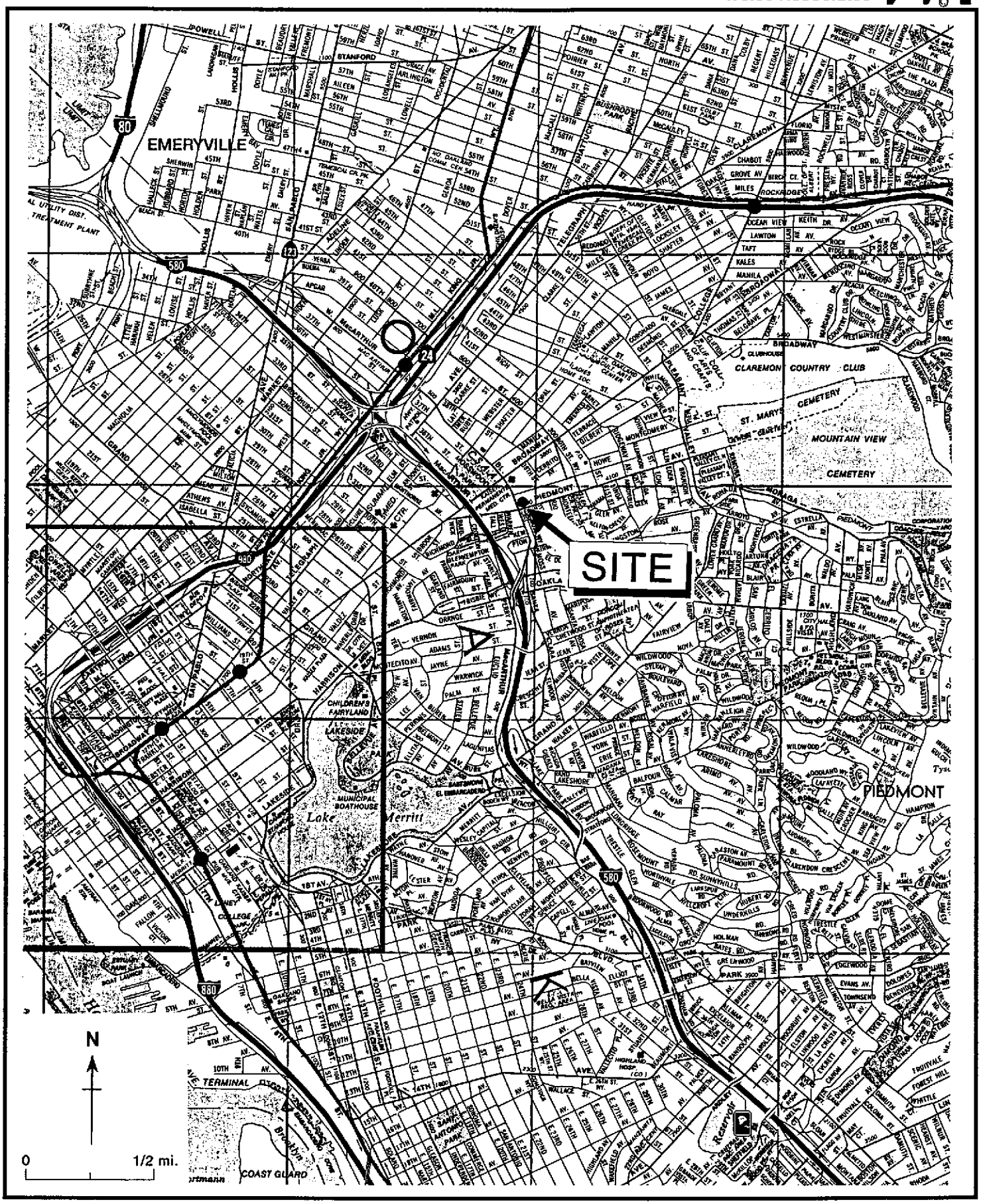

Figure 1. Site Location Map - Shell Service Station WIC# 204-5508-0703, 230 West MacArthur Boulevard, Oakland, California

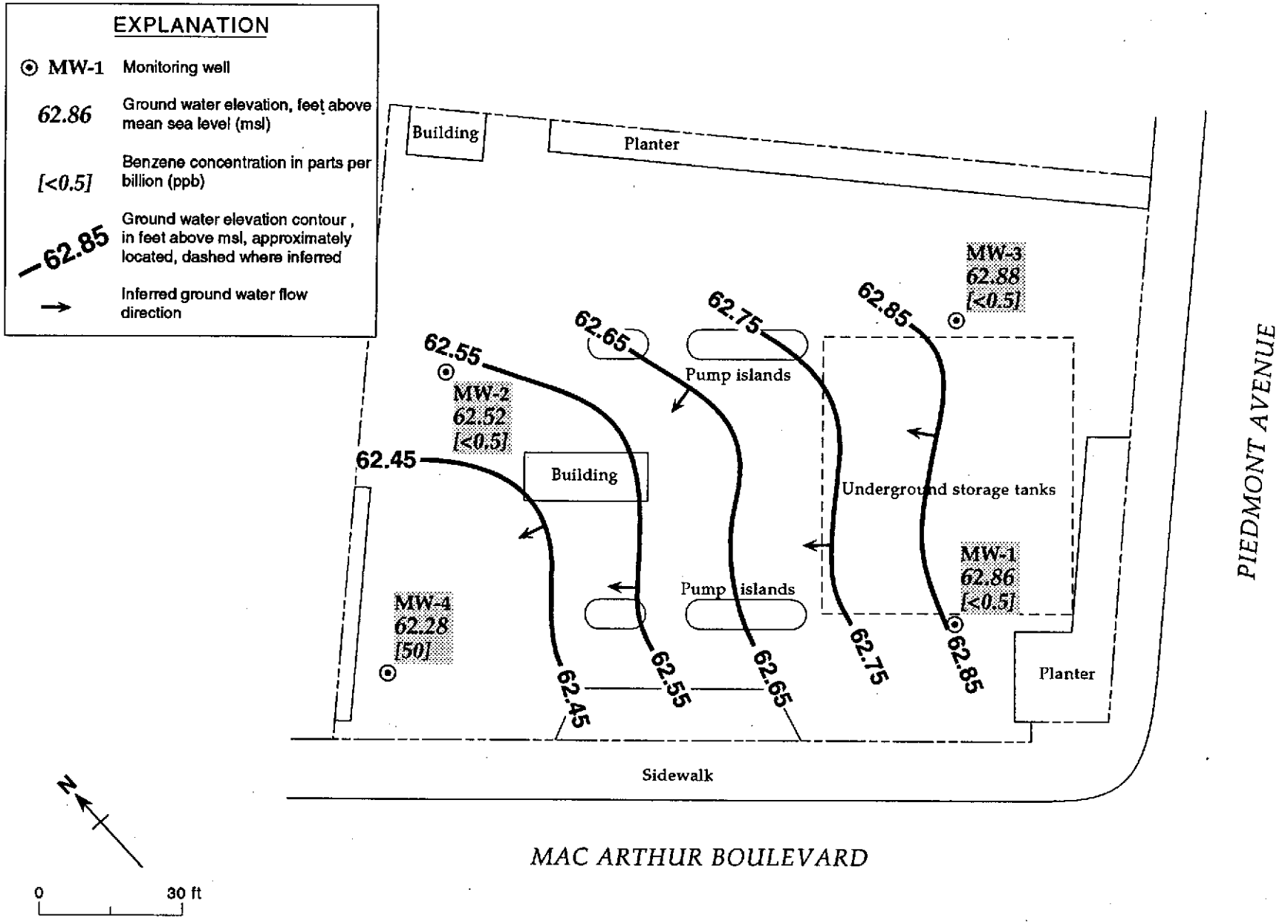

Figure 2. Monitoring Well Locations, Ground Water Elevation Contours, and Benzene Concentrations in Ground Water - March 21, 1996 - Shell Service Station WIC# 204-5508-0703, 230 West MacArthur Boulevard, Oakland, California

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05/23/96

Table 1. Ground Water Elevation Data - Shell Service Station WIC # 204-5508-0703, 2300 West MacArthur Boulevard, Oakland, California

Well Number	Date Sampled	Well Elevation (ft, MSL)	Depth to Water (ft, TOC)	Ground Water Elevation (ft, MSL)
MW-1	07/14/88	73.89	13.30	60.59
	10/04/88		13.65	60.24
	11/10/88		13.55	60.34
	12/09/88		13.22	60.67
	01/10/89		12.86	61.03
	01/20/89		12.91	60.98
	02/06/89		12.94	60.95
	03/10/89		12.59	61.30
	06/06/89		14.05	59.84
	09/07/89		14.92	58.97
	12/18/89		14.88	59.01
	03/08/90		14.08	59.81
	06/07/90		13.89	60.00
	09/05/90		14.83	59.06
	12/03/90		15.05	58.84
	03/01/91		14.34	59.55
	06/03/91		14.16	59.73
	09/04/91		14.60	59.29
	03/13/92		13.40	60.49
	06/03/92		13.76	60.13
	08/19/92		14.57	59.32
	11/16/92		14.78	59.11
	02/18/93		12.14	61.75
	06/01/93		13.30	60.59
	08/30/93		14.32	59.57
	12/13/93		14.06	59.83
	03/03/94		13.12	60.77
	06/06/94		14.20	59.69
	09/12/94		15.72	58.17
	12/15/94		12.98	60.91
	03/13/95		11.74	62.15
	06/26/95		13.00	60.89
	09/12/95		14.14	59.75
	03/21/96		**11.03**	**62.86**
MW-2	07/14/88	75.24	15.18	60.06
	10/04/88		15.30	59.94
	11/10/88		15.17	60.07
	12/09/88		14.82	60.42
	01/20/89		14.54	60.70
	02/06/89		14.59	60.65
	03/10/89		14.88	60.36
	06/06/89		15.30	59.94
	09/07/89		16.76	58.48

Table 1. Ground Water Elevation Data - Shell Service Station WIC # 204-5508-0703, 2300 West MacArthur Boulevard, Oakland, California (continued)

Well Number	Date Sampled	Well Elevation (ft, MSL)	Depth to Water (ft, TOC)	Ground Water Elevation (ft, MSL)
	12/18/89		16.65	58.59
	03/08/90		15.92	59.32
	06/07/90		16.10	59.14
	09/05/90		16.61	58.63
	12/03/90		17.06	58.18
	03/01/91		16.62	58.62
	06/03/91		16.65	58.59
	09/04/91		16.57	58.67
	03/13/92		14.66	60.58
	06/03/92		15.90	59.34
	08/19/92		16.72	58.52
	11/16/92		16.66	58.58
	02/18/93		13.88	61.36
	06/01/93		14.74	60.50
	08/30/93		15.85	59.39
	12/13/93		15.83	59.41
	03/03/94		14.80	60.44
	06/06/94		16.65	58.59
	09/12/94		16.72	58.52
	12/15/94		15.25	59.99
	03/13/95		15.32	59.92
	06/26/95		14.65	60.59
	09/12/95		15.78	59.46
	03/21/96		**12.72**	**62.52**
MW-3	07/14/88	74.68	14.05	60.63
	10/04/88		14.60	60.08
	11/10/88		14.35	60.33
	12/09/88		14.04	60.64
	01/10/89		13.70	60.98
	01/20/89		13.72	60.96
	02/06/89		13.75	60.93
	03/10/89		13.42	61.26
	06/06/89		14.52	60.16
	09/07/89		15.52	59.16
	12/18/89		19.59	55.09
	03/08/90		14.72	59.96
	06/07/90		14.65	60.03
	09/05/90		15.51	59.17
	12/03/90		14.85	59.83
	03/01/91		14.92	59.76
	06/03/91		14.75	59.93
	09/04/91		15.14	59.54
	03/13/92		13.50	61.18

Table 1. Ground Water Elevation Data - Shell Service Station WIC # 204-5508-0703, 2300 West MacArthur Boulevard, Oakland, California (continued)

Well Number	Date Sampled	Well Elevation (ft, MSL)	Depth to Water (ft, TOC)	Ground Water Elevation (ft, MSL)
	06/03/92		14.39	60.29
	08/19/92		15.08	59.60
	11/16/92		15.43	59.25
	02/18/93		12.96	61.72
	06/01/93		13.98	60.70
	08/30/93		14.82	59.86
	12/13/93		14.70	59.98
	03/03/94		13.92	60.76
	06/06/94		14.73	59.95
	09/12/94		15.42	59.26
	12/15/94		13.80	60.88
	03/13/95		12.41	62.27
	06/26/95		13.79	60.89
	09/12/95		14.77	59.91
	03/21/96		**11.80**	**62.88**
MW-4	01/23/90	73.83	14.68	59.15
	03/08/90		14.38	59.45
	06/07/90		14.27	59.56
	09/05/90		15.40	58.43
	12/03/90		15.90	57.93
	06/03/91		14.60	59.23
	09/04/91		15.25	58.58
	03/13/92		12.72	61.11
	06/03/92		14.33	59.50
	08/19/92		15.18	58.65
	11/16/92		15.39	58.44
	02/18/93		12.62	61.21
	06/01/93		13.68	60.15
	08/30/93		14.83	59.00
	12/13/93		14.50	59.33
	03/03/94		13.48	60.35
	06/06/94		14.26	59.57
	09/12/94		15.42	58.41
	12/15/94		13.43	60.40
	03/13/95		12.13	61.70
	06/25/95		13.26	60.57
	09/12/95		14.64	59.19
	03/21/96		**11.55**	**62.28**

Abbreviations:

TOC = Top of casing
MSL = Mean sea level

Table 2. Ground Water Analytical Data - Shell Service Station WIC # 204-5508-0703, 2300 West MacArthur Boulevard, Oakland, California

Well Number	Date Sampled	TPPH	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
		← parts per billion (ppb) →					
MW-1	07/14/88	ND	ND	ND	ND	ND	---
	10/04/88	ND	8	4.3	ND	9	---
	11/10/88	ND	ND	ND	ND	ND	---
	12/09/88	ND	ND	ND	ND	ND	---
	01/10/89	ND	ND	ND	ND	NA	---
	01/20/89	ND	ND	NA	NA	ND	---
	02/06/89	ND	ND	ND	ND	ND	---
	03/10/89	ND	ND	ND	ND	ND	---
	06/06/89	ND	ND	ND	ND	ND	---
	09/07/89	ND	ND	ND	ND	ND	---
	12/18/89	ND	ND	ND	ND	ND	---
	03/08/90	ND	ND	ND	ND	ND	---
	06/07/90	ND	ND	ND	ND	ND	---
	09/05/90	ND	ND	ND	ND	ND	---
	12/03/90	ND	ND	ND	ND	ND	---
	03/01/91	ND	ND	ND	ND	ND	---
	06/03/91	ND	ND	ND	ND	ND	---
	09/04/91	ND	ND	ND	ND	ND	---
	03/13/92	ND	ND	ND	ND	ND	---
	06/03/92	ND	ND	ND	ND	ND	---
	08/19/92	87	ND	ND	ND	ND	---
	11/16/92	ND	ND	ND	ND	ND	---
	02/18/93	59[a]	ND	ND	ND	ND	---
	06/01/93	ND	ND	ND	ND	ND	---
	08/30/93	ND	ND	ND	ND	ND	---
	12/13/93	ND	ND	ND	ND	ND	---
	03/03/94	100	ND	ND	ND	ND	---
	06/06/94	ND	ND	ND	ND	ND	---
	09/12/94	ND	ND	ND	ND	ND	---
	12/15/94	ND	ND	ND	ND	ND	---
	03/13/95[d]	60	4.7	9.8	ND	2.9	---
	04/21/95	ND	ND	ND	ND	ND	---
	06/26/95	ND	ND	ND	ND	ND	---
	09/12/95	ND	ND	ND	ND	ND	---
	03/21/96	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**ND**
MW-2	07/14/88	ND	7.9	2.6	1.1	4	---
	10/04/88	90	ND	1.3	2.3	12	---
	11/10/88	ND	ND	ND	ND	2	---
	12/09/88	ND	ND	0.6	ND	3	---
	01/20/89	ND	ND	ND	ND	ND	---
	02/06/89	NA	ND	ND	ND	ND	---
	03/10/89	ND	ND	ND	ND	ND	---

Table 2. Ground Water Analytical Data - Shell Service Station WIC # 204-8026-0700, 31889 Alvarado Boulevard, Union City, California (continued)

Well Number	Date Sampled	TPPH	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
		← parts per billion (ppb) →					
	06/06/89	ND	ND	0.5	ND	ND	---
	09/07/89	ND	ND	ND	ND	ND	---
	12/18/89	ND	ND	ND	ND	ND	---
	03/08/90	ND	ND	ND	ND	ND	---
	06/07/90	ND	ND	ND	ND	ND	---
	09/05/90	ND	ND	ND	ND	ND	---
	12/03/90	ND	ND	ND	ND	ND	---
	03/01/91	ND	ND	ND	ND	ND	---
	06/03/91	ND	ND	ND	ND	ND	---
	09/04/91	ND	ND	ND	ND	ND	---
	03/13/92	ND	ND	ND	ND	ND	---
	06/03/92	ND	ND	ND	ND	ND	---
	08/19/92	67	ND	ND	ND	ND	---
	11/16/92	50	ND	ND	ND	1.2	---
	02/18/93	52[a]	ND	ND	ND	ND	---
	02/18/93[dup]	52[a]	ND	ND	ND	ND	---
	06/01/93	ND	ND	ND	ND	ND	---
	08/30/93	70[a]	ND	ND	ND	ND	---
	12/13/93	68[a]	ND	ND	ND	ND	---
	03/03/94	280[a]	ND	ND	ND	ND	---
	06/06/94	ND	ND	ND	ND	ND	---
	09/12/94	ND	ND	ND	ND	ND	---
	12/15/94	230[a]	ND	ND	ND	ND	---
	03/13/95	ND	2.9	6.3	ND	2.7	---
	04/21/95	ND	ND	ND	ND	ND	---
	06/26/95	ND	ND	ND	ND	ND	---
	09/12/95	ND	ND	ND	ND	ND	---
	03/21/96	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**ND**
MW-3	07/14/88	ND	ND	ND	ND	ND	---
	10/04/88	ND	ND	ND	ND	5	---
	11/10/88	ND	ND	ND	ND	ND	---
	12/09/88	ND	ND	ND	ND	ND	---
	01/10/89	ND	ND	ND	ND	NA	---
	01/20/89	NA	NA	ND	ND	ND	---
	02/06/89	70	ND	ND	ND	ND	---
	03/10/89	150	ND	ND	ND	ND	---
	06/06/89	ND	ND	ND	ND	ND	---
	09/07/89	ND	0.65	ND	ND	ND	---
	12/06/89	46	1.3	ND	0.44	0.66	---
	03/08/90	ND	ND	ND	ND	ND	---
	06/07/90	ND	ND	ND	ND	ND	---
	09/05/91	ND	ND	ND	ND	ND	---
	12/03/90	ND	ND	ND	ND	ND	---

Table 2. Ground Water Analytical Data - Shell Service Station WIC # 204-8026-0700, 31889 Alvarado Boulevard, Union City, California (continued)

Well Number	Date Sampled	TPPH	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
		← parts per billion (ppb) →					
	03/01/91	1.9	59	ND	22	ND	---
	06/03/91	ND	ND	ND	ND	ND	---
	09/04/91	ND	ND	ND	ND	ND	---
	03/13/92	ND	ND	ND	ND	ND	---
	06/03/92	ND	ND	ND	ND	ND	---
	08/19/92	92	ND	ND	ND	ND	---
	08/19/92[dup]	76	ND	ND	ND	ND	---
	11/16/92	200[a]	ND	ND	ND	ND	---
	11/16/92[dup]	140[a]	ND	ND	ND	ND	---
	02/18/93	680[a]	ND	ND	ND	ND	---
	06/01/93	160[a]	ND	ND	ND	ND	---
	06/01/93[dup]	150[a]	ND	ND	ND	ND	---
	08/30/93	110[a]	ND	ND	ND	ND	---
	12/13/93	140[a]	ND	ND	ND	ND	---
	12/13/93[dup]	110[a]	ND	ND	ND	ND	---
	03/03/94	61[a]	ND	ND	ND	ND	---
	06/06/94	ND	ND	ND	ND	ND	---
	09/12/94	ND	ND	ND	ND	ND	---
	12/15/94	ND	ND	0.9	ND	0.6	---
	03/13/95	100[b]	7.9	17	0.7	6.1	---
	04/21/95	60	0.9	1.1	ND	1.0	---
	06/26/95	ND	ND	ND	ND	ND	---
	09/12/95[d]	ND	ND	ND	ND	ND	---
	03/21/96	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**17**
MW-4	01/23/90	1,600	100	10	30	20	---
	03/08/90	4,200	260	18	88	39	---
	06/07/90	2,000	150	6.9	14	17	---
	09/05/90	1,700	130	10	7.2	19	---
	12/03/90	2,600	108	41	17	59	---
	06/03/91	2,800	160	15	8.8	32	---
	09/04/91	← Separate-Phase Hydrocarbon Sheen →					
	03/13/92	2,700	180	70	5.9	29	---
	06/03/92	1,700	190	ND	30	23	---
	08/19/92	170	4.2	ND	0.6	1.0	---
	11/16/92	2,600	92	49	50	81	---
	02/18/93	7,400	120	38	51	87	---
	06/01/93	7,000	1,800	1,700	1,600	1,700	---
	08/30/93	2,100	80	11	ND	11	---
	08/30/93[dup]	2,100	77	5.6	ND	5.5	---
	12/13/93	2,000[a]	20	ND	21	52	---
	03/03/94	3,500	150	86	85	90	---
	03/03/94[dup]	3,200	130	73	74	76	---
	06/06/94	590	25	ND	ND	ND	---

Table 2. Ground Water Analytical Data - Shell Service Station WIC # 204-8026-0700, 31889 Alvarado Boulevard, Union City, California (continued)

Well Number	Date Sampled	TPPH	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
		← parts per billion (ppb) →					
	06/06/94[dup]	400	16	ND	ND	ND	---
	09/12/94	1,800	42	ND	3.7	4.7	---
	09/12/94[dup]	2,000	40	ND	5.7	8.0	---
	12/15/94	2,900	78	14	94	17	---
	12/15/94[dup]	2,900	90	7	96	18	---
	03/13/95[c]	2,700	240	24	99	34	---
	03/13/95[dupc]	2,500	300	24	140	28	---
	06/26/95	2,100	87	10	67	25	---
	06/26/95[dup]	2,300	92	12	74	26	---
	09/12/95[d]	1,300	33	13	9.3	15	---
	09/12/95[dup,d]	1,500	2.1	16	11	17	---
	03/21/96	**2100**	**50**	**3.2**	**40**	**5.4**	**ND**
	03/21/96[dup]	**1700**	**24**	**<0.5**	**39**	**7.2**	**740**

Abbreviations:

TPPH = Total purgeable petroleum hydrocarbons
MTBE = Methyl-tertiary-butyl-ether
NA = Not analyzed
ND = Not detected
dup = Duplicate sample

Notes:

a = The concentration reported as gasoline is primarily due to the presence of a discrete hydrocarbon peak not indicative of gasoline
b = The laboratory noted result to have an atypical gasoline pattern
c = The laboratory noted sample was analyzed within hold time but further dilution was required and done out of hold time. The laboratory suggests these to be minimum concentrations
d = The laboratory noted the sampled was analyzed after the method specified holding time
See certified analytical reports for detection limits
Prior to June 1995, TPPH was reported as TPH calculated as gasoline

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ATTACHMENT A

BTS GROUND WATER MONITORING REPORT

BLAINE
TECH SERVICES INC.

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

April 11, 1996

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

Attn: R. Jeff Granberry

Shell WIC #204-5508-0703
230 West MacArthur Blvd.
Oakland, California

1st Quarter 1996

Quarterly Groundwater Monitoring Report 960321-A-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: Weiss Associates
5500 Shellmound Street
Emeryville, CA 94608-2411
Attn: Grady Glasser

(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	3/21/96	TOC	--	NONE	--	--	11.03	29.35
MW-2	3/21/96	TOC	--	NONE	--	--	12.72	27.64
MW-3	3/21/96	TOC	--	NONE	--	--	11.80	28.12
MW-4 *	3/21/96	TOC	ODOR	NONE	--	--	11.55	23.90

* Sample DUP was a duplicate sample taken from welll MW-4.

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: 960321-AC

Date: 3-21-96
Page 1 of 1

Site Address: 230 West MacArthur Blvd., Oakland

WIC#: 204-5508-0703

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

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

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

Comments: 9603F07

Sampled by: RANDY VALENTINE
Printed Name:

LAB: SEQUOIA

CHECK ONE (1) BOX ONLY | CT/DI
- Quarterly Monitoring [X] 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 [X] (Normal)
- Other [ ]

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

Analysis Required

Sample ID	Date	TIME ~~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
1 MW-1	3/21	1410		X		3						X	X							
2 MW-2		1505		X		3						X	X							
3 MW-3		1435		X		3						X	X							
4 MW-4		1530		X		3						X	X		1					
5 DUP		—		X		3						X	X							
6 EB	↓	1415		X		3						X	X							

Relinquished By (signature): Randy Valentine	Printed Name: RANDY VALENTINE	Date: 3-22 Time: 1530	Received (signature):	Printed Name: Fuller	Date: 3/21/96 Time: 3:30
Relinquished By (signature):	Printed Name:	Date: 3/21/96 Time:	Received (signature):	Printed Name:	Date: Time:
Relinquished By (signature):	Printed Name:	Date: Time:	Received (signature):	Printed Name: S. Henretty	Date: 3/22 Time: 1622

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

ine Technical Services
5 Timothy Drive
1 Jose, CA 95133
ention: Jim Keller

ject: Shell/Oakland/960321-A2

Enclosed are the results from samples received at Sequoia Analytical on March 22, 1996.
e requested analyses are listed below:

MPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
03F57 -01	LIQUID, MW-1	03/21/96	TPGBMW Purgeable TPH/BTEX
03F57 -02	LIQUID, MW-2	03/21/96	TPGBMW Purgeable TPH/BTEX
03F57 -03	LIQUID, MW-3	03/21/96	TPGBMW Purgeable TPH/BTEX
03F57 -04	LIQUID, MW-4	03/21/96	TPGBMW Purgeable TPH/BTEX
03F57 -05	LIQUID, DUP	03/21/96	TPGBMW Purgeable TPH/BTEX
03F57 -06	LIQUID, EB	03/21/96	TPGBMW Purgeable TPH/BTEX

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

y truly yours,

QUOIA ANALYTICAL

gy Penner
ject Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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Blaine Technical Services	Client Proj. ID: Shell/Oakland/960321-A2	Sampled: 03/21/96
985 Timothy Drive	Sample Descript: MW-1	Received: 03/22/96
San Jose, CA 95133	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 03/26/96
Attention: Jim Keller	Lab Number: 9603F57-01	Reported: 03/28/96

QC Batch Number: GC032696BTEX20A
Instrument ID: GCHP20

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	107

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

aine Technical Services
35 Timothy Drive
an Jose, CA 95133

tention: Jim Keller

Client Proj. ID: Shell/Oakland/960321-A2
Sample Descript: MW-2
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9603F57-02

Sampled: 03/21/96
Received: 03/22/96

Analyzed: 03/26/96
Reported: 03/28/96

Batch Number: GC032696BTEX20A
trument ID: GCHP20

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

nalyte	Detection Limit ug/L	Sample Results ug/L
PH as Gas	50	N.D.
ethyl t-Butyl Ether	**2.5**	**100**
enzene	0.50	N.D.
oluene	0.50	N.D.
hyl Benzene	0.50	N.D.
/lenes (Total)	0.50	N.D.
nromatogram Pattern:		

urrogates	Control Limits %		% Recovery
ifluorotoluene	70	130	105

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

QUOIA ANALYTICAL - ELAP #1210

gy Penner
ject Manager

Sequoia Analytical

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

Blaine Technical Services	Client Proj. ID: Shell/Oakland/960321-A2	Sampled: 03/21/96
985 Timothy Drive	Sample Descript: MW-3	Received: 03/22/96
San Jose, CA 95133	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 03/26/96
Attention: Jim Keller	Lab Number: 9603F57-03	Reported: 03/28/96

QC Batch Number: GC032696BTEX20A
Instrument ID: GCHP20

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**	**17**
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	98

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

laine Technical Services
35 Timothy Drive
an Jose, CA 95133

ttention: Jim Keller

Client Proj. ID: Shell/Oakland/960321-A2
Sample Descript: MW-4
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9603F57-04

Sampled: 03/21/96
Received: 03/22/96

Analyzed: 03/27/96
Reported: 03/28/96

Batch Number: GC032796BTEX03A
trument ID: GCHP03

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

nalyte	Detection Limit ug/L	Sample Results ug/L
PPH as Gas	250	2100
ethyl t-Butyl Ether	12	N.D.
enzene	2.5	50
oluene	2.5	3.2
thyl Benzene	2.5	40
ylenes (Total)	2.5	5.4
hromatogram Pattern:		C6-C12

urrogates	Control Limits %		% Recovery
ifluorotoluene	70	130	90

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

QUOIA ANALYTICAL - ELAP #1210

gy Penner
ject Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Blaine Technical Services	Client Proj. ID: Shell/Oakland/960321-A2	Sampled: 03/21/96
985 Timothy Drive	Sample Descript: DUP	Received: 03/22/96
San Jose, CA 95133	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 03/27/96
Attention: Jim Keller	Lab Number: 9603F57-05	Reported: 03/28/96

QC Batch Number: GC032796BTEX02A
Instrument ID: GCHP02

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**200**	**1700**
Methyl t-Butyl Ether	**10**	**740**
Benzene	**2.0**	**24**
Toluene	2.0	N.D.
Ethyl Benzene	**2.0**	**39**
Xylenes (Total)	**2.0**	**7.2**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	77

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

laine Technical Services	Client Proj. ID: Shell/Oakland/960321-A2	Sampled: 03/21/96
85 Timothy Drive	Sample Descript: EB	Received: 03/22/96
an Jose, CA 95133	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 03/26/96
ttention: Jim Keller	Lab Number: 9603F57-06	Reported: 03/28/96

Batch Number: GC032696BTEX21A
trument ID: GCHP21

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

nalyte	Detection Limit ug/L	Sample Results ug/L
PPH as Gas	50	N.D.
lethyl t-Butyl Ether	2.5	N.D.
enzene	0.50	N.D.
oluene	0.50	N.D.
thyl Benzene	0.50	N.D.
ylenes (Total)	0.50	N.D.
hromatogram Pattern:		

urrogates	Control Limits %		% Recovery
rifluorotoluene	70	130	105

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

QUOIA ANALYTICAL - ELAP #1210

gy Penner
ject 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, Inc.	Client Project ID:	Shell/Oakland/960321-A2	
985 Timothy Drive	Matrix:	Liquid	
San Jose, CA 95133			
Attention: Jim Keller	Work Order #:	9603F57 -01-03	Reported: Apr 1, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC032696BTEX20A	GC032696BTEX20A	GC032696BTEX20A	GC032696BTEX20A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	J. Woo	J. Woo	J. Woo	J. Woo
MS/MSD #:	9603A8707	9603A8707	9603A8707	9603A8707
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	3/26/96	3/26/96	3/26/96	3/26/96
Analyzed Date:	3/26/96	3/26/96	3/26/96	3/26/96
Instrument I.D.#:	GCHP20	GCHP20	GCHP20	GCHP20
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	9.7	9.8	9.5	28
MS % Recovery:	97	98	95	93
Dup. Result:	9.6	9.6	9.7	29
MSD % Recov.:	96	96	97	97
RPD:	1.0	2.1	2.1	3.5
RPD Limit:	0-50	0-50	0-50	0-50
LCS #:	BLK032696	BLK032696	BLK032696	BLK032696
Prepared Date:	3/26/96	3/26/96	3/26/96	3/26/96
Analyzed Date:	3/26/96	3/26/96	3/26/96	3/26/96
Instrument I.D.#:	GCHP20	GCHP20	GCHP20	GCHP20
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	10	9.6	9.7	28
LCS % Recov.:	100	96	97	93
MS/MSD 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

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Blaine Tech Services, Inc.
985 Timothy Drive
San Jose, CA 95133
Attention: Jim Keller

Client Project ID: Shell/Oakland/960321-A2
Matrix: Liquid
Work Order #: 9603F57-04
Reported: Apr 1, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC032796BTEX03A	GC032796BTEX03A	GC032796BTEX03A	GC032796BTEX03A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	J. Woo	J. Woo	J. Woo	J. Woo
MS/MSD #:	9603A6007	9603A6007	9603A6007	9603A6007
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	3/27/96	3/27/96	3/27/96	3/27/96
Analyzed Date:	3/27/96	3/27/96	3/27/96	3/27/96
Instrument I.D.#:	GCHP3	GCHP3	GCHP3	GCHP3
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	8.6	8.6	8.7	26
MS % Recovery:	86	86	87	87
Dup. Result:	9.8	9.8	9.7	29
MSD % Recov.:	98	98	97	97
RPD:	13	13	11	11
RPD Limit:	0-50	0-50	0-50	0-50
LCS #:	BLK032796	BLK032796	BLK032796	BLK032796
Prepared Date:	3/27/96	3/27/96	3/27/96	3/27/96
Analyzed Date:	3/27/96	3/27/96	3/27/96	3/27/96
Instrument I.D.#:	GCHP3	GCHP3	GCHP3	GCHP3
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	8.0	8.0	8.4	23
LCS % Recov.:	80	80	84	77
MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

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Blaine Tech Services, Inc.
985 Timothy Drive
San Jose, CA 95133
Attention: Jim Keller

Client Project ID: Shell/Oakland/960321-A2
Matrix: Liquid
Work Order #: 9603F57-05

Reported: Apr 1, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC032796BTEX02A	GC032796BTEX02A	GC032796BTEX02A	GC032796BTEX02A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	J. Woo	J. Woo	J. Woo	J. Woo
MS/MSD #:	9603A6007	9603A6007	9603A6007	9603A6007
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	3/27/96	3/27/96	3/27/96	3/27/96
Analyzed Date:	3/27/96	3/27/96	3/27/96	3/27/96
Instrument I.D.#:	GCHP2	GCHP2	GCHP2	GCHP2
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	9.7	9.7	9.8	29
MS % Recovery:	97	97	98	97
Dup. Result:	10	10	9.8	31
MSD % Recov.:	100	100	98	103
RPD:	3.0	3.0	0.0	6.7
RPD Limit:	0-50	0-50	0-50	0-50
LCS #:	BLK032796	BLK032796	BLK032796	BLK032796
Prepared Date:	3/27/96	3/27/96	3/27/96	3/27/96
Analyzed Date:	3/27/96	3/27/96	3/27/96	3/27/96
Instrument I.D.#:	GCHP2	GCHP2	GCHP2	GCHP2
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	9.8	9.5	9.3	29
LCS % Recov.:	98	95	93	97
MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

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Blaine Tech Services, Inc.	Client Project ID:	Shell/Oakland/960321-A2	
985 Timothy Drive	Matrix:	Liquid	
San Jose, CA 95133			
Attention: Jim Keller	Work Order #:	9603F57-06	Reported: Apr 1, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC032696BTEX21A	GC032696BTEX21A	GC032696BTEX21A	GC032696BTEX21A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	J. Woo	J. Woo	J. Woo	J. Woo
MS/MSD #:	9603A8707	9603A8707	9603A8707	9603A8707
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	3/26/96	3/26/96	3/26/96	3/26/96
Analyzed Date:	3/26/96	3/26/96	3/26/96	3/26/96
Instrument I.D.#:	GCHP21	GCHP21	GCHP21	GCHP21
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	10	10	10	30
MS % Recovery:	100	100	100	100
Dup. Result:	8.8	8.6	8.2	25
MSD % Recov.:	88	86	82	83
RPD:	13	15	20	18
RPD Limit:	0-50	0-50	0-50	0-50

LCS #:	BLK032696	BLK032696	BLK032696	BLK032696
Prepared Date:	3/26/96	3/26/96	3/26/96	3/26/96
Analyzed Date:	3/26/96	3/26/96	3/26/96	3/26/96
Instrument I.D.#:	GCHP21	GCHP21	GCHP21	GCHP21
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	9.9	9.9	9.8	30
LCS % Recov.:	99	99	98	100
MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

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WELL GAUGING DATA

Project # 960321-A2 Date 3-21-96 Client SHELL - 204-5508-0703

Site 280 W. MacARTHUR BLVD., OAKLAND

Well I.D.	Well Size (in.)	Sheen/ Odor	Depth to Immiscible Liquid (feet)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to Water (feet)	Depth to Well Bottom (feet)	Survey Point: TOB or TOC
MW-1	4					11.03	29.35	TOC
MW-2	4					12.72	27.64	
MW-3	4					11.80	28.12	
MW-4	4					11.55	23.90	

SHELL WELL MONITORING DATA SHEET

Project #: 960321-A2	Wic #: 204550807O3
Sampler: M	Start Date: 3-21-96
Well I.D.: MW-1	Well Diameter: (circle one) 2 3 (4) 6 ___
Total Well Depth: Before 29.35 After	Depth to Water: Before 11.03 After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to: PVC Grade Other:	

Well Diameter	VCF	Well Diameter	VCF
1"	0.04	6"	1.47
2"	0.16	8"	2.61
3"	0.37	10"	4.08
4"	0.65	12"	5.87
5"	1.02	16"	10.43

11.9	x	5	=	35.7
1 Case Volume		Specified Volumes		gallons

Purging: Bailer
Disposable Bailer
Middleburg
Electric Submersible ✓
Extraction Pump
Other ___

Sampling: Bailer ✓
Disposable Bailer
Extraction Port
Other ___

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
1400	70.2	7.0	600	39	12	
1402	69.6	7.2	540	27	24	
1403	69.8	7.2	540	21	36	

Did Well Dewater? N If yes, gals. Gallons Actually Evacuated: 36

Sampling Time: 1410 Sampling Date: 3-21-96

Sample I.D.: MW-1 Laboratory: UET

Analyzed for: (Circle) TPH-G BTEX TPH-D OTHER: MTBE

Duplicate I.D.: Cleaning Blank I.D.: EB @ 1415

Analyzed for: (Circle) TPH-G BTEX TPH-D OTHER: after MW-1

SHELL WELL MONITORING DATA SHEET

Project #: 960321-A2	Wic #: 204 5508 0703
Sampler: L.V.	Start Date: 3-21-96
Well I.D.: MW-2	Well Diameter: (circle one) 2 3 ~~4~~ 6 ____
Total Well Depth: Before 27.64 After	Depth to Water: Before 12.72 After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to: (PVC) Grade	Other:

Well Diameter	VCF	Well Diameter	VCF
1"	0.04	6"	1.47
2"	0.16	8"	2.61
3"	0.37	10"	4.08
4"	0.65	12"	5.87
5"	1.02	16"	10.43

9.6 (1 Case Volume) x 3 (Specified Volumes) = 28.8 gallons

Purging: Bailer
Disposable Bailer
Middleburg
Electric Submersible ✓
Extraction Pump
Other_____

Sampling: Bailer ✓
Disposable Bailer
Extraction Port
Other_____

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
1447	70.4	7.4	610	31	10	
1448	69.8	7.3	610	70	20	
1449	70.2	7.3	610	54	29	

Did Well Dewater? N If yes, gals. Gallons Actually Evacuated: 29

Sampling Time: 1505 Sampling Date: 3-21-96

Sample I.D.: MW-2 Laboratory: NET

Analyzed for: (TPH-G) (BTEX) TPH-D OTHER: MTBE

Duplicate I.D.: Cleaning Blank I.D.:

Analyzed for: TPH-G BTEX TPH-D OTHER:

SHELL WELL MONITORING DATA SHEET

Project #: 960321-A2 | Wic #: 204550807O3

Sampler: K.V. | Start Date: 3-21-96

Well I.D.: MW-3 | Well Diameter: (circle one) 2 3 (4) 6 ____

Total Well Depth: Before 28.12 After | Depth to Water: Before 11.80 After

Depth to Free Product: | Thickness of Free Product (feet):

Measurements referenced to: (PVC) Grade Other:

Well Diameter	VCF	Well Diameter	VCF
1"	0.04	6"	1.47
2"	0.16	8"	2.61
3"	0.37	10"	4.08
4"	0.65	12"	5.87
5"	1.02	16"	10.43

10.6 (1 Case Volume) x 3 (Specified Volumes) = 31.8 gallons

Purging: Bailer / Disposable Bailer / Middleburg / Electric Submersible ✓ / Extraction Pump / Other ____

Sampling: Bailer ✓ / Disposable Bailer / Extraction Port / Other ____

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
1422	70.2	7.3	430	37	11	
1424	70.4	7.2	420	59	22	
1425	70.4	7.2	420	120	32	

Did Well Dewater? N If yes, gals. Gallons Actually Evacuated: 32.8

Sampling Time: 1435 | Sampling Date: 3-21-96

Sample I.D.: MW-3 | Laboratory: NET

Analyzed for: (TPH-G) (BTEX) TPH-D OTHER: MTBE

Duplicate I.D.: | Cleaning Blank I.D.:

Analyzed for: TPH-G BTEX TPH-D OTHER:

SHELL WELL MONITORING DATA SHEET

Project #: 960321-A2	Wic #: 204550800703
Sampler: R.J.	Start Date: 3-21-96
Well I.D.: MW-4	Well Diameter: (circle one) 2 3 (4) 6 ____
Total Well Depth: Before 23.90 After	Depth to Water: Before 11.55 After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to: (PVC) Grade	Other:

Well Diameter	VCF	Well Diameter	VCF
1"	0.04	6"	1.47
2"	0.16	8"	2.61
3"	0.37	10"	4.08
4"	0.65	12"	5.87
5"	1.02	16"	10.43

8.0	x	3	24.0
1 Case Volume		Specified Volumes	= gallons

Purging: Bailer
Disposable Bailer
Middleburg
Electric Submersible ✓
Extraction Pump
Other_____

Sampling: Bailer ✓
Disposable Bailer
Extraction Port
Other_____

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
1519	69.2	7.2	620	170	8	SLIGHT ODOR
1520	69.6	7.2	630	82	16	
1521	69.4	7.2	660	110	24	

Did Well Dewater? N If yes, gals. Gallons Actually Evacuated: 24.0

Sampling Time: 1530	Sampling Date: 3-21-96
Sample I.D.: MW4	Laboratory: NET
Analyzed for: (Circle) (TPH-G) (BTEX) TPH-D OTHER: MTBE	
Duplicate I.D.: DUP	Cleaning Blank I.D.:
Analyzed for: (Circle) (TPH-G) (BTEX) TPH-D OTHER: MTBE	