Texaco Refining
and Marketing Inc

108 Cutting Blvd
Richmond CA 94804

ALCO
HAZMAT

94 APR -1 AM 11: 58

March 17, 1994

ENV - STUDIES, SURVEYS, & REPORTS
500 Grand Avenue
Oakland, California

STID 1109

Ms. Susan Hugo
Alameda County Environmental
Health Department
80 Swan Way, Room 200
Oakland, CA 94621

Dear Ms. Hugo:

This letter presents the results of groundwater monitoring and sampling conducted by Blaine Tech Services, Inc. on February 3, 1994, at the site referenced above (See Plate 1, Site Vicinity Map). Based on groundwater elevation measurements, the hydraulic gradient was determined to be approximately 0.09 and the general flow direction to be southeast (See Plate 2, Groundwater Gradient Map). TPHg and benzene concentrations are shown on Plate 3. Tables 1 and 2 list historical groundwater monitoring data and analytical results, respectively.

The certified analytical report, chain-of-custody, field data sheets, and bill of lading are in the Appendix along with Blaine Tech Services' Field Procedures and Protocols Summary.

If you have any questions or comments regarding this site, please call the Texaco Environmental Services' site Project Coordinator, Robert Robles at (818) 505-2476.

If you have any questions or comments regarding this report, please call Rebecca Digerness (510) 236-0479.

Best Regards,
Texaco Environmental Services

Karen E. Petryna
Engineer

R. R. Zielinski
Area Supervisor

KEP/RBD:rbd
P:\GWMP\QMR\500G\1Q94QMR.LET

Enclosures

CC: Mr. Richard Hiett
CRWQCB - San Francisco Bay Region
2101 Webster St., Suite 500
Oakland, CA 94612

RAOFile-UCPFile-RRobles (w/enclosures) RRZielinski (w/o enclosures)

PR: KLP

GROUNDWATER MONITORING AND SAMPLING
First Quarter, 1994
at
Former Texaco Station
500 Grand Avenue
Oakland, California

SOURCE:
1993 THE THOMAS GUIDE
ALAMEDA COUNTY, PAGE 9 (D4)

N

0 1/4 1/2 3/4 1
MILE
1"=2200'

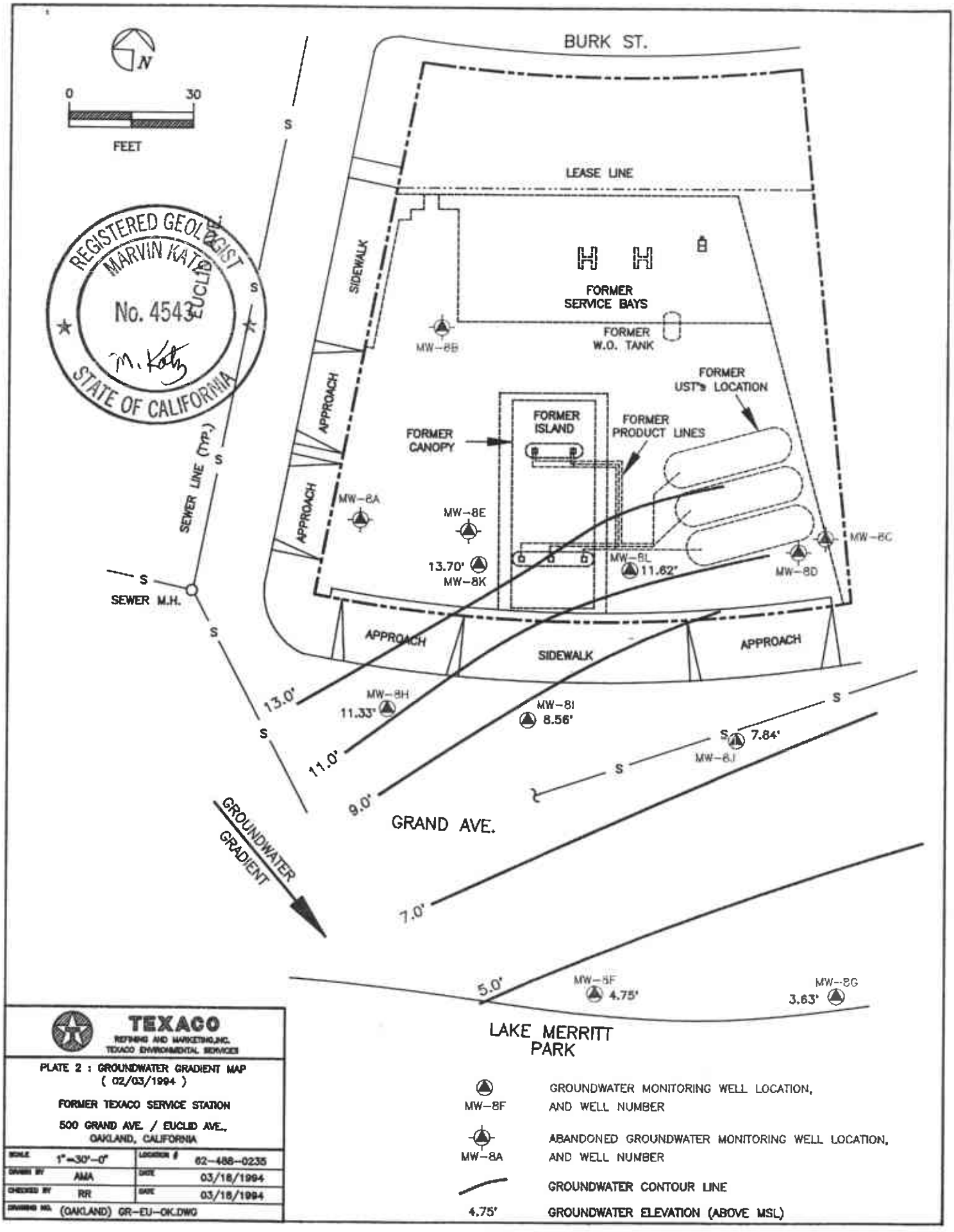
TEXACO
REFINING AND MARKETING, INC.
TEXACO ENVIRONMENTAL SERVICES

PLATE 1

SITE VICINITY MAP

FORMER TEXACO SERVICE STATION

500 GRAND AVE. / EUCLID AVE.,
OAKLAND, CALIFORNIA



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TEXACO ENVIRONMENTAL SERVICES

PLATE 2 : GROUNDWATER GRADIENT MAP
(02/03/1994)

FORMER TEXACO SERVICE STATION

500 GRAND AVE. / EUCLID AVE.,
OAKLAND, CALIFORNIA

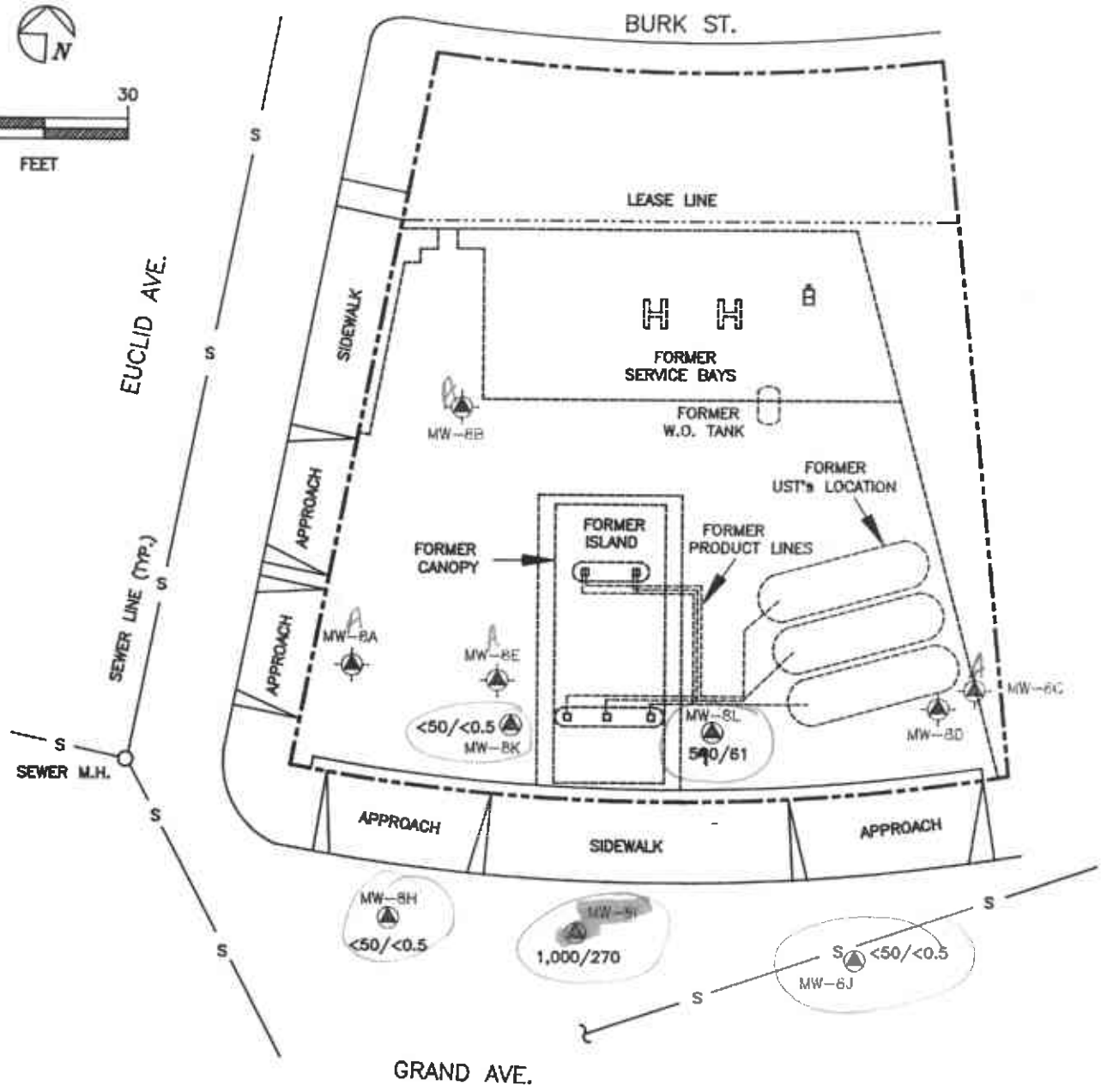
SCALE	1"=30'-0"	LOCATION #	62-488-0235
DRAWN BY	AMA	DATE	03/18/1994
CHECKED BY	RR	DATE	03/18/1994
DRAWING NO.	(OAKLAND) GR-EU-OK.DWG		

MW-8F — GROUNDWATER MONITORING WELL LOCATION, AND WELL NUMBER

MW-8A — ABANDONED GROUNDWATER MONITORING WELL LOCATION, AND WELL NUMBER

GROUNDWATER CONTOUR LINE

4.75' — GROUNDWATER ELEVATION (ABOVE MSL)



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TEXACO ENVIRONMENTAL SERVICES

PLATE 3 : TPHg/BENZENE CONCENTRATION IN GROUNDWATER
(02/03/1994)

FORMER TEXACO SERVICE STATION

500 GRAND AVE. / EUCLID AVE.,
OAKLAND, CALIFORNIA

SCALE	1"=30'-0"	LOCATION #	62-488-0235
DRAWN BY	AMA	DATE	03/16/1994
CHECKED BY	RR	DATE	03/16/1994
DRAWING NO.	(OAKLAND) GR-EU-OK.DWG		

MW-8F — GROUNDWATER MONITORING WELL LOCATION, AND WELL NUMBER

MW-8A — ABANDONED GROUNDWATER MONITORING WELL LOCATION, AND WELL NUMBER

<50/<0.5 — TPHg/BENZENE CONCENTRATION IN GROUNDWATER (ppb)

Table 1
Groundwater Elevation Data

Former Texaco Service Station
500 Grand Avenue at Euclid Avenue
Oakland, California

Well Number	Date Gauged	Well Elevation (feet)	Depth to Water (feet, TOC)	Groundwater Elevation* (feet)
MW-8A	03/29/91	99.72	2.32	97.40
	04/23/91		2.31	97.41
	06/10/91		2.82	96.90
	06/28/91		2.53	97.19
	07/23/91		2.35	97.37
	08/22/91		2.68	97.04
	10/03/91		2.46	97.26
	10/24/91		2.53	97.19
	11/26/91		3.03	96.69
	12/30/91		2.28	97.44
	01/23/92		2.57	97.15
	02/28/92		2.48	97.24
	03/26/92		2.13	97.59
	04/30/92		2.10	97.62
	08/03/92		----- Well Properly Abandoned -----	
MW-8B	03/29/91	101.11	0.26	100.85
	04/23/91		0.31	100.80
	06/10/91		0.42	100.69
	06/28/91		0.41	100.70
	07/23/91		0.52	100.59
	08/22/91		0.62	100.49
	10/03/91		0.52	100.59
	10/24/91		0.62	100.49
	11/26/91		0.73	100.38
	12/30/91		0.30	100.81
	01/23/92		0.54	100.57
	02/28/92		0.29	100.82
	03/26/92		0.07	101.04
	04/30/92		0.60	100.51
	09/28/92		---------- Not Monitored ----------	
	11/19/92		---------- Not Monitored ----------	
	02/12/93		---------- Not Monitored ----------	
	04/01/93		----- Well Properly Abandoned -----	
MW-8C	03/29/91	98.41	6.47	91.94
	04/23/91		6.67	91.74
	06/10/91		8.08	90.33
	06/28/91		7.36	91.05
	07/23/91		7.37	91.04
	08/22/91		8.79	89.62
	10/03/91		7.93	90.48
	10/24/91		7.68	90.73
	11/26/91		7.59	90.82
	12/30/91		7.15	91.26
	01/23/92		6.88	91.53
	02/28/92		6.69	91.72
	03/26/92		6.69	91.72
	04/30/92		5.90	92.51
	09/28/92		---------- Not Monitored ----------	
	11/19/92		---------- Not Monitored ----------	
	02/12/93		---------- Not Monitored ----------	
	04/01/93		----- Well Properly Abandoned -----	

Table 1
Groundwater Elevation Data

Former Texaco Service Station
500 Grand Avenue at Euclid Avenue
Oakland, California

Well Number	Date Gauged	Well Elevation (feet)	Depth to Water (feet, TOC)	Groundwater Elevation* (feet)
MW-8E	03/29/91	99.38	3.28	96.10
	04/23/91		3.02	96.36
	06/10/91		3.08	96.30
	06/28/91		3.25	96.13
	07/23/91		3.24	96.14
	08/22/91		3.48	95.90
	10/03/91		3.32	96.06
	10/24/91		3.45	95.93
	11/26/91		3.34	96.04
	12/30/91		3.53	95.85
	01/23/92		3.57	95.81
	02/28/92		3.35	96.03
	03/26/92		3.01	96.37
	04/30/92		3.76	95.62
	08/03/92		----- Well Properly Abandoned -----	
MW-8F	03/29/91	97.94	8.59	89.35
	04/23/91		8.85	89.09
	06/10/91		9.58	88.36
	06/28/91		9.48	88.46
	07/23/91		9.79	88.15
	08/22/91		11.44	86.50
	10/03/91		11.58	86.36
	10/24/91		11.75	86.19
	11/26/91		11.63	86.31
	12/30/91		10.51	87.43
	01/23/92		10.24	87.70
	02/28/92		9.93	88.01
	03/26/92		8.78	89.16
	04/30/92		9.36	88.58
	09/28/92		11.83	86.11
	11/19/92		11.22	86.72
	02/12/93		9.66	88.28
	05/06/93		8.83	89.11
	08/16/93	14.04 *	10.16	3.88
	10/12/93		10.60	3.44
	02/03/94		9.29	4.75

Table 1
Groundwater Elevation Data

Former Texaco Service Station
500 Grand Avenue at Euclid Avenue
Oakland, California

Well Number	Date Gauged	Well Elevation (feet)	Depth to Water (feet, TOC)	Groundwater Elevation* (feet)
MW-8G	03/29/91		-------- Well Inaccessible --------	
	04/23/91	97.24	9.44	87.80
	06/10/91		10.29	86.95
	06/28/91		10.30	86.94
	07/23/91		10.74	86.50
	08/22/91		12.56	84.68
	10/03/91		13.09	84.15
	10/24/91		13.42	83.82
	11/26/91		13.02	84.22
	12/30/91		11.94	85.30
	01/23/92		11.30	85.94
	02/28/92		10.83	86.41
	03/26/92		9.20	88.04
	04/30/92		9.00	88.24
	09/28/92		13.32	83.92
	11/19/92		-------- Well Inaccessible --------	
	02/12/93		-------- Well Inaccessible --------	
	05/06/93		11.18	86.06
	08/16/93	13.32 *	9.51	3.81
	10/12/93		10.93	2.39
	02/03/94		9.69	3.63
MW-8H	03/29/91	98.90	3.70	95.20
	04/23/91		6.03	92.87
	06/10/91		3.68	95.22
	06/28/91		3.83	95.07
	07/23/91		3.85	95.05
	08/22/91		3.80	95.10
	10/03/91		3.79	95.11
	10/24/91		4.02	94.88
	11/26/91		3.88	95.02
	12/30/91		3.84	95.06
	01/23/92		3.74	95.16
	02/28/92		4.44	94.46
	03/26/92		4.21	94.69
	04/30/92		3.46	95.44
	09/28/92		-------- Well Inaccessible --------	
	11/19/92		3.75	95.15
	02/12/93		4.12	94.78
	05/06/93		3.85	95.05
	08/16/93	15.04 *	3.88	11.16
	10/12/93		3.80	11.24
	02/03/94		3.71	11.33

Table 1
Groundwater Elevation Data

Former Texaco Service Station
500 Grand Avenue at Euclid Avenue
Oakland, California

Well Number	Date Gauged	Well Elevation (feet)	Depth to Water (feet, TOC)	Groundwater Elevation* (feet)
MW-8I	03/29/91	98.27	6.15	92.12
	04/23/91		6.29	91.98
	06/10/91		6.11	92.16
	06/28/91		6.30	91.97
	07/23/91		6.41	91.86
	08/22/91		6.44	91.83
	10/03/91		6.47	91.80
	10/24/91		6.57	91.70
	11/26/91		6.58	91.69
	12/30/91		6.41	91.86
	01/23/92		6.33	91.94
	02/28/92		6.55	91.72
	03/26/92		6.45	91.82
	04/30/92		6.48	91.79
	09/28/92		--------- Well Inaccessible ---------	
	11/19/92		6.37	91.90
	02/12/93		6.44	91.83
	05/06/93		6.36	91.91
	08/16/93	14.40 *	6.35	8.05
	10/12/93		5.99	8.41
	02/03/94		5.84	8.56
MW-8J	03/29/91	97.69	5.71	91.98
	04/23/91		3.81	93.88
	06/10/91		6.17	91.52
	06/28/91		6.31	91.38
	07/23/91		6.67	91.02
	08/22/91		6.75	90.94
	10/03/91		6.77	90.92
	10/24/91		6.88	90.81
	11/26/91		6.59	91.10
	12/30/91		6.41	91.28
	01/23/92		6.31	91.38
	02/28/92		6.28	91.41
	03/26/92		6.20	91.49
	04/30/92		6.48	91.21
	09/28/92		------- Well Inaccessible -------	
	11/19/92		6.55	91.14
	02/12/93		7.46	90.23
	05/06/93		6.21	91.48
	08/16/93	13.82 *	6.29	7.53
	10/12/93		5.87	7.95
	02/03/94		5.98	7.84
MW-8K	08/16/93	15.18 *	2.08	13.10
	10/12/93		1.95	13.23
	02/03/94		1.48	13.70
MW-8L	08/16/93	14.44 *	2.47	11.97
	10/12/93		2.36	12.08
	02/03/94		2.82	11.62

* = New well elevation survey performed on August 16, 1993 based on mean sea level (MSL). Prior data based on arbitrary site datum.
TOC = Top of casing

Table 2
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPH as Gasoline, BTEX Compounds, TPH as Diesel, and TPH as Other*)

Former Texaco Service Station
500 Grand Avenue at Euclid Avenue
Oakland, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	TPH as Diesel (ppb)	TPH as Other* (ppm)
MW-8A	06/14/88	NA	<0.5	1.5	<2	6.6	NA	NA
	10/25/88	NA	<0.5	<1	<2	<1	NA	NA
	09/28/89	<50	<0.5	<0.5	<0.5	<3	NA	NA
	11/29/89	<50	<0.5	1.0	<0.5	<0.5	1,200	<50
	01/24/90	<100	<0.5	<0.5	<0.5	<0.5	NA	2,800
	04/26/90	<2,500	<0.5	<0.5	<0.5	<0.5	<50	890
	07/26/90	<50	6.0	<0.5	<0.5	<0.5	<50	<50
	10/18/90	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
	01/08/91	<30	<0.3	<0.3	<0.3	<0.3	<50	130
	04/23/91	<50	<0.5	<0.5	<0.5	<0.5	<50	<500
	07/23/91	<50	<0.5	<0.5	<0.5	<0.5	<50	<500
	10/24/91	<50	<0.5	<0.5	<0.5	<0.5	<50	<500
	01/23/92	<50	<0.5	<0.5	<0.5	<0.5*	700	NA
	04/30/92	<50	<0.5	<0.5	<0.5	<0.5	<50	<500
	08/03/92	---------- Well Properly Abandoned ----------						
MW-8B	06/14/88	NA	<0.5	<1	<2	<1	NA	NA
	10/21/88	NA	<0.5	<1	<2	3.1	NA	NA
	09/28/89	<50	<0.5	<0.5	<0.5	<3	NA	NA
	11/29/89	<50	<0.5	<0.5	<0.5	<0.5	<50	380
	01/24/90	<100	<0.5	<0.5	<0.5	<0.5	NA	350
	04/26/90	<50	<0.5	<0.5	<0.5	<0.5	<50	110
	07/26/90	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
	10/18/90	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
	01/08/91	<30	<0.3	<0.3	<0.3	<0.3	<50	180
	04/23/91	<50	8.4	2.5	<0.5	5.1	<50	<500
	07/23/91	<50	<0.5	1.1	<0.5	2.0	<50	<500
	10/24/91	<50	<0.5	<0.5	<0.5	<0.5	<50	<500
	01/23/92	<50	<0.5	<0.5	<0.5	<0.5	550	NA
	04/30/92	<50	<0.5	<0.5	<0.5	<0.5	<50	<500
	09/28/92	---------- Not Sampled ----------						
	11/19/92	---------- Not Sampled ----------						
	02/12/93	---------- Not Sampled ----------						
	04/01/93	---------- Well Properly Abandoned ----------						
MW-8C	06/14/88	NA	5.3	3.5	2.6	13.0	NA	NA
	10/21/88	NA	<0.5	<1	<2	<1	NA	NA
	09/28/89	<50	<0.5	<0.5	<0.5	<3.0	NA	NA
	11/29/89	<50	<0.5	<0.5	<0.5	<0.5	<50	190
	01/24/90	<100	0.9	<0.5	<0.5	<0.5	NA	480
	04/26/90	<50	<0.5	<0.5	<0.5	<0.5	<50	160
	07/26/90	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
	10/18/90	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
	01/08/91	<30	<0.3	<0.3	<0.3	<0.3	76	110
	04/23/91	800	12	25	3.7	19	<50	<500
	07/23/91	<50	<0.5	0.6	<0.5	<0.5	<50	<500
	10/24/91	<50	<0.5	<0.5	<0.5	<0.5	<50	<500
	01/23/92	<50	1.2	<0.5	<0.5	<0.5	840	NA

Table 2
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPH as Gasoline, BTEX Compounds, TPH as Diesel, and TPH as Other*)

Former Texaco Service Station
500 Grand Avenue at Euclid Avenue
Oakland, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	TPH as Diesel (ppb)	TPH as Other* (ppm)
MW-8C	04/30/92	<50	<0.5	<0.5	<0.5	<0.5	150	<500
(cont.)	09/28/92	---------- Not Sampled ----------						
	11/19/92	---------- Not Sampled ----------						
	02/12/93	---------- Not Sampled ----------						
	04/01/93	---------- Well Properly Abandoned ----------						
MW-8E	10/25/88	NA	1,400	510	2.9	420	NA	NA
	09/28/89	22,000	5,600	3,100	<500	<3,000	NA	NA
	11/29/89	15,000	4,900	2,600	<250	1,490	6,800	<50
	01/24/90	36,000	10,100	3,340	540	1,790	NA	4,900
	04/26/90	48,000	11,000	5,700	840	2,800	1,400	<50
	07/26/90	56,000	15,000	6,200	520	4,700	<50	<50
	10/18/90	15,000	1,500	1,300	170	1,800	620	<50
	01/08/91	51,000	14,000	5,400	860	1,700	17,000	520
	04/23/91	50,000	19,000	6,100	750	4,100	4,800	<500
	07/23/91	47,000	16,000	5,400	1,100	4,000	3,500	<500
	10/24/91	40,000	19,000	6,100	1,100	4,900	9,400	<500
	01/23/92	38,000	3,800	2,800	610	4,800	9,800	NA
	04/23/92	41,000	20,000	3,700	500	3,900	9,600	<500
	08/03/92	---------- Well Properly Abandoned ----------						
MW-8F	04/14/88	NA	<0.5	<1	<2	<1	NA	NA
	09/28/89	<50	<0.5	<0.5	<0.5	<3.0	NA	NA
	11/29/89	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
	01/24/90	<100	<0.5	<0.5	<0.5	<0.5	NA	<300
	04/26/90	<50	<0.5	<0.5	<0.5	<0.5	<50	110
	07/26/90	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
	10/18/90	<50	<0.5	<0.5	<0.5	<0.5	360	<50
	01/08/91	<30	<0.3	<0.3	<0.3	<0.3	380	620
	04/23/91	<50	5.9	3.1	<0.5	2.7	1,400	3,200
	07/23/91	<50	<0.5	0.8	<0.5	<0.5	60	<500
	10/24/91	<50	<0.5	<0.5	<0.5	<0.5	<50	<500
	01/23/92	<50	4.0	1.3	<0.5	1.9	1,300	NA
	04/30/92	<50	<0.5	<0.5	<0.5	<0.5	<50	<500
	09/28/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	11/19/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	02/12/93	<50	<0.5	<0.5	<0.5	<0.5	<0.5	NA
	05/06/93	<50	<0.5	<0.5	<0.5	<0.5	<100	<50
	08/16/93	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
	10/12/93	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
MW-8G	04/14/88	NA	<0.5	<1	<2	<1	NA	NA
	09/28/89	<50	<0.5	<0.5	<0.5	<3.0	NA	NA
	11/29/89	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
	01/24/90	<100	<0.5	<0.5	<0.5	<0.5	NA	650
	04/26/90	<50	<0.5	<0.5	<0.5	<0.5	<50	120
	07/26/90	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
	10/18/90	<50	<0.5	<0.5	<0.5	<0.5	460	<50
	01/08/91	<30	<0.3	<0.3	<0.3	<0.3	220	260

Table 2
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPH as Gasoline, BTEX Compounds, TPH as Diesel, and TPH as Other*)

Former Texaco Service Station
500 Grand Avenue at Euclid Avenue
Oakland, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	TPH as Diesel (ppb)	TPH as Other* (ppm)
MW-8G	04/23/91	<50	0.9	0.9	<0.5	<0.5	1,100	<500
(cont.)	07/23/91	<50	0.5	1.5	<0.5	3.0	<50	<500
	10/24/91	<50	0.6	<0.5	<0.5	<0.5	NA	NA
	01/24/92	<50	<0.5	<0.5	<0.5	<0.5	980	NA
	04/30/92	<50	1.7	<0.5	<0.5	<0.5	<50	<500
	09/28/92	---------- Well Dry ----------						
	11/19/92	---------- Well Inaccessible ----------						
	02/12/93	---------- Well Inaccessible ----------						
	04/29/93	<50	<0.5	<0.5	<0.5	<0.5	64 **	<250
	08/16/93	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
	10/12/93	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
MW-8H	01/24/90	460	14.8	14.8	10.8	38.8	NA	<300
	04/26/90	830	67	19	43	64	<50	820
	07/26/90	190	45	1.3	12	8.2	<50	<50
	10/18/90	300	17	2.5	14	8.5	<50	<50
	01/08/91	320	12	2.2	6.4	4.0	180	89
	04/23/91	<50	1.5	<0.5	<0.5	<0.5	730	<500
	07/23/91	270	21	1.8	9.7	2.6	<50	<500
	10/24/91	120	7.6	1.0	3.5	2.4	70	<500
	01/23/92	110	7.2	1.2	4.7	3.2	<60	NA
	04/30/92	190	11	1.5	5.6	3.6	90	<500
	09/28/92	---------- Well Inaccessible ----------						
	11/19/92	130	6.8	<0.5	1.1	1.5	NA	NA
	02/12/93	73	5.9	<0.5	0.8	<0.5	NA	NA
	05/06/93	57	1.7	<0.5	<0.5	<0.5	<100	<50
	08/16/93	<50	0.5	<0.5	0.5	1.4	<50	<50
	10/12/93	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
MW-8I	01/24/90	580	116	2.9	13	30.5	NA	440
	04/26/90	4,400	2,400	100	230	350	<50	1,400
	07/26/90	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
	10/18/90	530	92	4.1	37	21	<50	<50
	01/08/91	1,300	500	4.3	36	26	710	210
	04/23/91	1,500	1,600	17	100	86	1,100	900
	07/23/91	1,700	1,600	30	140	63	260	<500
	10/25/91	760	470	6.0	76	13	230	<500
	01/23/92	820	420	7.2	27	20	210	NA
	04/30/92	2,200	1,800	19	180	25	430	<500
	09/28/92	---------- Well Inaccessible ----------						
	11/19/92	720	120	1.1	29	13	NA	NA
	02/12/93	4,000	970	9.2	52	36	NA	NA
	05/06/93	1,400	370	2.4	40	8.4	<100	<50
	08/16/93	<50	3.1	<0.5	5.6	<0.5	<50	<50
	10/12/93	<50	1.4	<0.5	<0.5	<0.5	<50	<50
	02/03/94	1,000	270	3.2	51	14	<50	<50
MW-8J	01/24/90	<100	2.7	<0.5	1	2.6	NA	<300
	04/26/90	160	28	7.7	19	24	<50	320
	07/26/90	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
	10/18/90	<50	8.3	<0.5	2.6	1.5	<50	<50
	01/08/91	71	0.41	<0.3	<0.3	0.52	<50	69

Table 2
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPH as Gasoline, BTEX Compounds, TPH as Diesel, and TPH as Other*)

Former Texaco Service Station
500 Grand Avenue at Euclid Avenue
Oakland, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	TPH as Diesel (ppb)	TPH as Other* (ppm)
MW-8J	04/23/91	300	16	2.2	9.3	4.6	550	<500
(cont.)	07/23/91	<50	4.6	<0.5	3.1	<0.5	<50	<500
	10/24/91	<50	0.8	<0.5	<0.5	<0.5	<50	<500
	01/23/92	<50	0.8	<0.5	<0.5	<0.5	<50	NA
	04/30/92	<50	2.3	<0.5	<0.5	<0.5	<50	<500
	09/28/92	---------- Well Inaccessible ----------						
	11/19/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	02/12/93	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	05/06/93	<50	<0.5	<0.5	<0.5	<0.5	<100	<50
	08/16/93	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
	10/12/93	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
MW-8K	05/21/93	54	12	<0.5	<0.5	<0.5	<50	<50
	08/16/93	<50	<0.5	<0.5	1	<0.5	<50	<50
	10/24/93	<50	4.2	<0.5	<0.5	<0.5	<50	<50
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	<50	<50
MW-8L	05/21/93	76	1.1	<0.5	<0.5	6	<50	<50
	08/16/93	<50	<0.5	<0.5	0.7	1.1	<50	<50
	10/12/93	110	13	<0.5	6.2	<0.5	<50	<50
	02/03/94	590	61	2.4	<0.5	110	<50	<50
OB-3	11/06/89	4,000	420	8	6	64	NA	NA
	04/26/90	1,000	160	19	5	8.6	3,200	<50
	07/25/90	68	<0.5	<0.5	<0.5	0.9	1,200	<50
	10/18/90	3,200	260	69	35	490	2,100	<50
		---------- Well Abandoned ----------						
OB-4	11/06/89	4,000	500	11	10	24	NA	NA
	04/26/90	460	360	10	10	18	3,900	<50
	07/26/90	200	23	3.7	1.6	5.9	1,600	<50
	10/18/90	4,300	600	540	83	840	330	<50
		---------- Well Abandoned ----------						

ppb = Parts per billion
ppm = Parts per million
NA = Not analyzed
* = Includes "heavy" petroleum hydrocarbons such as waste oil, mineral spirits, jet fuel, or fuel oil.
** = Non-diesel mix >C16; The certified analytical report for sample MW-8G was revised on 10/21/93.

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Texaco Environmental Services
108 Cutting Blvd.
Richmond, CA 94804
Attn: Rebecca Digerness
Environmental Technician

Date Sampled: 02-03-94
Date Received: 02-04-94
Date Analyzed: 02-15-94

Sample Number	Sample Description
024072	Texaco - Oakland 500 Grand Ave. MW-8F WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5

QA/QC: Spike Recovery is 93%

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.
(ppb) = (µg/L)

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Ronald G. Evans
Lab Director

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Attn: Rebecca Digerness
Environmental Technician

Date Sampled: 02-03-94
Date Received: 02-04-94
Date Analyzed: 02-15-94

Sample Number	Sample Description
024073	Texaco - Oakland 500 Grand Ave. MW-8G WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.
(ppb) = (µg/L)

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Fred Chaske
for

Ronald G. Evans
Lab Director

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Richmond, CA 94804
Attn: Rebecca Digerness
Environmental Technician

Date Sampled: 02-03-94
Date Received: 02-04-94
Date Analyzed: 02-15-94

Sample Number	Sample Description
024074	Texaco - Oakland 500 Grand Ave. MW-8H WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.
(ppb) = (µg/L)

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Ronald G. Evans
Lab Director

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Richmond, CA 94804
Attn: Rebecca Digerness
Environmental Technician

Date Sampled: 02-03-94
Date Received: 02-04-94
Date Analyzed: 02-15-94

Sample Number	Sample Description
024075	Texaco - Oakland 500 Grand Ave. MW-8I WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	1,000
Benzene	0.5	270
Toluene	0.5	3.2
Xylenes	0.5	14
Ethylbenzene	0.5	51

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.
(ppb) = (µg/L)

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Date Sampled: 02-03-94
Date Received: 02-04-94
Date Analyzed: 02-15-94

Sample Number	Sample Description
024076	Texaco - Oakland 500 Grand Ave. MW-8J WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.
(ppb) = (µg/L)

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Richmond, CA 94804
Attn: Rebecca Digerness
Environmental Technician

Date Sampled: 02-03-94
Date Received: 02-04-94
Date Analyzed: 02-15-94

Sample Number	Sample Description
024077	Texaco - Oakland 500 Grand Ave. MW-8K WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.
(ppb) = (µg/L)

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Date Sampled: 02-03-94
Date Received: 02-04-94
Date Analyzed: 02-15-94

Sample Number	Sample Description
024078	Texaco - Oakland 500 Grand Ave. MW-8L WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	590
Benzene	0.5	61
Toluene	0.5	2.4
Xylenes	0.5	110
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.
(ppb) = (µg/L)

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Environmental Technician

Date Sampled: 02-03-94
Date Received: 02-04-94
Date Analyzed: 02-15-94

Sample Number	Sample Description
024079	Texaco - Oakland 500 Grand Ave. E.B. WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.
(ppb) = (µg/L)

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Attn: Rebecca Digerness
Environmental Technician

Date Sampled: 02-03-94
Date Received: 02-04-94
Date Analyzed: 02-15-94

Sample Number	Sample Description
024080	Texaco - Oakland 500 Grand Ave. T.B. WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.
(ppb) = (µg/L)

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Attn: Rebecca Digerness
Environmental Technician

Date Sampled: 02-03-94
Date Received: 02-04-94
Date Analyzed: 02-09-94

Sample Number	Sample Description	Detection Limit ppb	WATER Total Petroleum Hydrocarbons as Diesel ppb
		Texaco - Oakland 500 Grand Avenue Project No.: 624880235	
024072	MW-8F	50	<50
024073	MW-8G	50	<50
024074	MW-8H	50	<50
024075	MW-8I	50	<50
024076	MW-8J	50	<50
024077	MW-8K	50	<50
024078	MW-8L	50	<50
024079	E.B.	50	<50

QA/QC: Spike Recovery on 024073 is 81%
Duplicate Deviation on 024073 is 3.4%

Note: Analysis was performed using EPA method 3510 and TPH LUFT.
(ppb) = (µg/L)

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Texaco Environmental Services
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Richmond, CA 94804
Attn: Rebecca Digerness
Environmental Technician

Date Sampled: 02-03-94
Date Received: 02-04-94
Date Analyzed: 02-15-94

Sample Number	Sample Description	Detection Limit ppm	WATER Gravimetric Waste Oil as Petroleum Oil ppm
		Project # 624880235 Texaco - Oakland 500 Grand Ave.	
024072	MW-8F	50	<50
024073	MW-8G	50	<50
024074	MW-8H	50	<50
024075	MW-8I	50	<50
024076	MW-8J	50	<50
024077	MW-8K	50	<50
024078	MW-8L	50	<50
024079	E.B.	50	<50

QA/QC: Spike Recovery on 024072 is 92%
Duplicate Deviation on 024072 is 1.1%

Note: Analysis was performed using EPA extraction method 3550 with Trichlorotrifluoroethane as solvent, and gravimetric determination by standard methods 5520
(ppm) = (mg/L)

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

BLAINE TECH SERVICES INC.

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

CHAIN OF CUSTODY 940203-L1

CLIENT: Texaco Environmental Services

SITE: Location # 624880235
500 GRAND AVE.
OAKLAND, CA

CONDUCT ANALYSIS TO DETECT

LAB: Mobile Chem Laboratory DHS #

ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION LIMITS SET BY CALIFORNIA DHS AND

☐ EPA ☐ RWQCB REGION ____
☐ LIA
☐ OTHER

SPECIAL INSTRUCTIONS

Report & Invoice to:
Texaco Environmental Service
108 Cutting Blvd.
Richmond, CA 94804
Attn: Rebecca Digerness
(510) 236-3541

SAMPLE I.D.	TIME	DATE	MATRIX S=SOIL W=H2O	CONTAINERS TOTAL	40ml. HCL VOA	C=COMPOSITE ALL CONTAINERS	TPHG, BTEX	TPHD	WASTE OIL	ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
MW-8F	1245	2/3	W	4			X	X	X		AS CONTRACTED		
MW-8G	1310		W	4			X	X	X				
MW-8H	1105		W	4			X	X	X				
MW-8I	1135		W	4			X	X	X				
MW-8J	1025		W	4			X	X	X				
MW-8K	1205		W	4			X	X	X				
MW-8L	1235		W	4			X	X	X				
E.B.	1250		W	5			X	X	X				
T.B.			W	2			X						

SAMPLING COMPLETED: DATE 2/3/94 TIME 1310

SAMPLING PERFORMED BY: LAD BOLVER

RESULTS NEEDED NO LATER THAN

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
[signature]	2-4-94	1:45	[signature]	2-4-94	1:45

SHIPPED VIA | DATE SENT | TIME SENT | COOLER # | ON ICE No head space

WELL GAUGING DATA

Project # 940203-L1 Date 2/3/94 Client TEXACO # 624880235

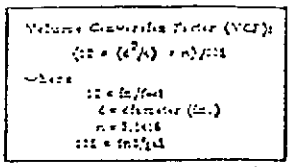
Site 500 GRAND AVE., OAKLAND, CA

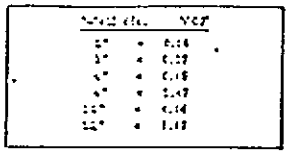
	Well I.D.	Well Size (in.)	Sheen/ Odor	Depth to Immiscible Liquid (feet)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to Water (feet)	Depth to Well Bottom (feet)	Survey Point: TOB or TOC
	MW-8F	4					9.29	14.50	TOC
	MW-8G	4					9.69	14.47	
	MW-8H	4					3.71	14.83	
	MW-8I	4					5.84	14.58	
	MW-8J	4					5.98	14.76	
*	MW-8K	2					1.48	17.40	
*	MW-8L	2					2.82	18.92	↓
									—

(MW-8K, MW-8L)
*ALLOW TIME FOR WATER LEVEL TO EQUILIBRIATE

WELL MONITORING DATA SHEET

Project #: 940203-L1	Client: TEXACO ENVIRONMENTAL SERVICES
Sampler: LAD	Date Sampled: 2/3/94
Well I.D.: MW-8F	Well Diameter: (circle one) 2 3 (4) 6 ___
Total Well Depth: Before 14.50 After	Depth to Water: TIME: 1240 Before 9.29 After 12.84
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to: (PVC)	Grade Other --





3.4	x 3	10.2	
1 Case Volume	Specified Volumes	= gallons	

Purging: Bailer ☐ Middleburg ☐ Electric Submersible ☒ Suction Pump ☐ Type of Installed Pump ___

Sampling: Bailer ☒ Middleburg ☐ Electric Submersible ☐ Suction Pump ☐ Installed Pump ☐

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
928	56.4	7.0	2200.	31.	4.	
	DEWATERED AT 4. GAL.					
1240	RETURNED TO SAMPLE D.T.W. AT 12.84'					
1242	58.0	7.1	1400.	42.		

Did Well Dewater? YES If yes, gals. 4. Gallons Actually Evacuated: 4.

Sampling Time: 1245

Sample I.D.: MW-8F Laboratory: MOBILE CHEM

Analyzed for: TPHG, BTEX, TPHD, WASTE OIL

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

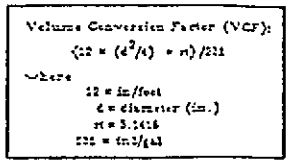
Analyzed for:

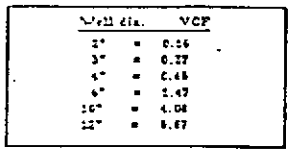
Wellhead maintenance performed: NEW LOCK + 4" CAP

Additional Notations:

WELL MONITORING DATA SHEET

Project #: 940203-L1	Client: TEXACO ENVIRONMENTAL
Sampler: LAD	Date Sampled: 2/3/94
Well I.D.: MW-8G	Well Diameter: (circle one) 2 3 (4) 6 ___
Total Well Depth: Before 14.47 After	Depth to Water: TIME: 1300 Before 9.69 After 13.14
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to: (PVC)	Grade Other --





1 Case Volume	x	Specified Volumes	=	gallons
3.1		3		9.3

Purging: Bailer ☐
Middleburg ☐
Electric Submersible ☒
Suction Pump ☐
Type of Installed Pump _____

Sampling: Bailer ☒
Middleburg ☐
Electric Submersible ☐
Suction Pump ☐
Installed Pump ☐

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
936	56.8	7.1	2700.	82.	4	
940	56.2	7.0	2600.	70.	7.	
	DEWATERED AT 7. GAL.					
1300	RETURNED TO SAMPLE D.T.W. AT 13.14'					
1303	57.5	7.1	2000.	69.		

Did Well Dewater? YES If yes, gals. 7. Gallons Actually Evacuated: 7.

Sampling Time: 1310

Sample I.D.: MW-8G Laboratory: MOBILE CHEM

Analyzed for: TPH6, BTEX, TPHD, WASTE OIL

Duplicate I.D.: Cleaning Blank I.D.: EB AT 1250

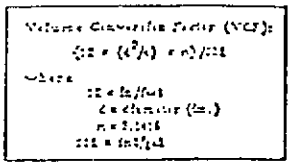
Analyzed for: AFTER MW-8F

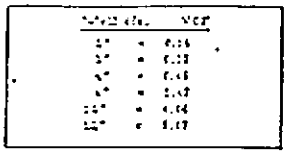
Shipping Notations:

Additional Notations: NEW LOCK

WELL MONITORING DATA SHEET

Project #: 940203-L1	Client: TEXACO ENVIRONMENTAL SERVICES
Sampler: LAD	Date Sampled: 2/3/94
Well I.D.: MW-8H	Well Diameter: (circle one) 2 3 (4) 6 ___
Total Well Depth: Before 14.83 After	Depth to Water: Before 3.71 After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to: (PVC) Grade Other --	





7.2	x	3	=	21.6
1 Case Volume		Specified Volumes		gallons

Purging: Bailer ☐ Middleburg ☐ Electric Submersible ☒ Suction Pump ☐ Type of Installed Pump ___

Sampling: Bailer ☒ Middleburg ☐ Electric Submersible ☐ Suction Pump ☐ Installed Pump ☐

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
1047	60.4	7.2	900.	8.	8.	
1049	60.4	7.3	900.	5.	16.	
1058	62.4	7.3	900.	18.	22.	

Did Well Dewater? NO If yes, gals. Gallons Actually Evacuated: 22.

Sampling Time: 1105

Sample I.D.: MW-8H Laboratory: MOBILE CHEM

Analyzed for: TPHG, BTEX, TPHD, WASTE OIL

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

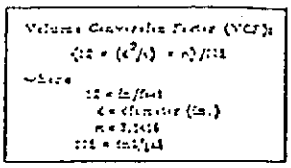
Analyzed for:

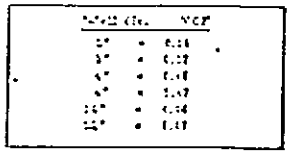
Wellhead maintenance performed:

Additional Notations: SLOW RECHARGE

WELL MONITORING DATA SHEET

Project #: 940203-L1	Client: TEXACO ENVIRONMENTAL SERVICES
Sampler: LAD	Date Sampled: 2/3/94
Well I.D.: MW-8I	Well Diameter: (circle one) 2 3 (4) 6 ___
Total Well Depth: Before 14.58 After	Depth to Water: Before 5.84 After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to: (PVC) Grade Other --	





1 Case Volume	x Specified Volumes	= gallons
5.7	3	17.1

Purging: Bailer ☐ Middleburg ☐ Electric Submersible ☒ Suction Pump ☐ Type of Installed Pump ___

Sampling: Bailer ☒ Middleburg ☐ Electric Submersible ☐ Suction Pump ☐ Installed Pump ☐

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
1118	61.8	7.2	950.	10.	6.	
1120	61.8	7.2	950.	5.	12.	
1130	61.2	7.2	900.	6.	18.	

Did Well Dewater? NO If yes, gals. Gallons Actually Evacuated: 18.

Sampling Time: 1135

Sample I.D.: MW-8I Laboratory: MOBILE CHEM

Analyzed for: TPHG, BTEX, TPHD, WASTE OIL

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

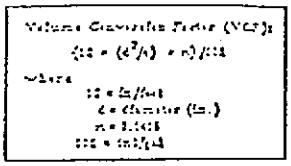
Analyzed for:

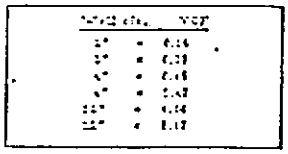
Wellhead maintenance performed: SLOW RECHARGE

Additional Notations:

WELL MONITORING DATA SHEET

Project #: 940203-L1	Client: TEXACO ENVIRONMENTAL SERVICES
Sampler: LAD	Date Sampled: 2/3/94
Well I.D.: MW-8J	Well Diameter: (circle one) 2 3 (4) 6 ___
Total Well Depth: Before 14.76 After	Depth to Water: Before 5.98 After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to: (PVC) Grade Other --	





5.7	x	3	=	17.1
1 Case Volume		Specified Volumes		gallons

Purging: Bailer ☐ Middleburg ☐ Electric Submersible ☒ Suction Pump ☐ Type of Installed Pump _____

Sampling: Bailer ☒ Middleburg ☐ Electric Submersible ☐ Suction Pump ☐ Installed Pump ☐

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
1005	61.6	7.2	950.	22.	6.	
1007	62.4	7.2	950.	31.	12.	
1020	63.6	7.3	900.	40.	18.	

Did Well Dewater? NO If yes, gals. Gallons Actually Evacuated: 18.

Sampling Time: 1025

Sample I.D.: MW-8J Laboratory: MOBILE CHEM

Analyzed for: TPHG, BTEX, TPHD, WASTE OIL

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

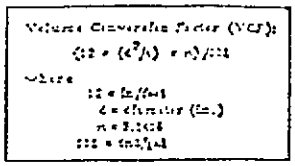
Analyzed for:

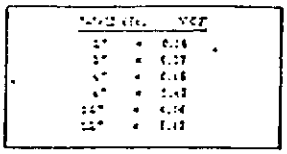
Wellhead maintenance performed:

Additional Notations: SLOW RECHARGE

WEL MONITORING DATA SHEET

Project #: 940203-L1	Client: TEXACO ENVIRONMENTAL SERVICES
Sampler: LAD	Date Sampled: 2/3/94
Well I.D.: MW-8K	Well Diameter: (circle one) (2) 3 4 6 ___
Total Well Depth: Before 17.40 After	Depth to Water: Before 1.48 After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to: (PVC) Grade Other --	





2.5	x	3	=	7.5
1 Case Volume		Specified Volumes		gallons

Purging: Bailer ☒ BTS DEDICATED
Middleburg ☐
Electric Submersible ☐
Suction Pump ☐
Type of Installed Pump ___

Sampling: Bailer ☒ BTS DED
Middleburg ☐
Electric Submersible ☐
Suction Pump ☐
Installed Pump ☐

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
1150	53.6	7.3	950,	>200,	3,	
1155	53.4	7.3	950,	>200,	5,	
1200	53.0	7.4	950,	>200,	8,	

Did Well Dewater? NO If yes, gals. Gallons Actually Evacuated: 8,

Sampling Time: 1205

Sample I.D.: MW-8K Laboratory: MOBILE CHEM

Analyzed for: TPHG, BTEX, TAHD, WASTE OIL

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

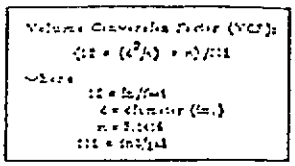
Analyzed for:

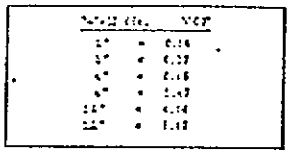
Wellhead maintenance performed:

Additional Notations:

WELL MONITORING DATA SHEET

Project #: 940203-L1	Client: TEXACO ENVIRONMENTAL SERVICES
Sampler: LAD	Date Sampled: 2/3/94
Well I.D.: MW-8L	Well Diameter: (circle one) (2) 3 4 6 ___
Total Well Depth: Before 18.92 After	Depth to Water: Before 2.82 After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to: (PVC) Grade Other --	





2.6	x	3	=	7.8
1 Case Volume		Specified Volumes		gallons

Purging: Bailer X BTS DEDICATED
Middleburg ☐
Electric Submersible ☐
Suction Pump ☐
Type of Installed Pump ___

Sampling: Bailer X BTS DED.
Middleburg ☐
Electric Submersible ☐
Suction Pump ☐
Installed Pump ☐

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
1218	53.4	7.2	950.	>200.	3.	
1223	54.2	7.2	950.	>200.	6.	
1228	54.2	7.1	950.	>200.	8.	

Did Well Dewater? NO If yes, gals. Gallons Actually Evacuated: 8.

Sampling Time: 1235

Sample I.D.: MW-8L Laboratory: MOBILE CHEM

Analyzed for: TPH6, BTEX, TPHD, WASTE OIL

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

Analyzed for:

Wellhead maintenance performed:

Additional Notations:

TEXACO TYPE **A** BILL OF LADING

SOURCE RECORD **BILL OF LADING**

FOR NON-HAZARDOUS PURGEWATER RECOVERED FROM GROUNDWATER WELLS AT TEXACO FACILITIES IN THE STATE OF CALIFORNIA. THE NON-HAZARDOUS PURGEWATER WHICH HAS BEEN RECOVERED FROM GROUNDWATER WELLS IS COLLECTED BY THE CONTRACTOR, MADE UP INTO LOADS OF APPROPRIATE SIZE AND HAULED TO THE DESTINATION DESIGNATED BY TEXACO ENVIRONMENTAL SERVICES (TES).

The contractor performing this work is BLAINE TECH SERVICES, INC., 985 Timothy Drive, San Jose, CA 95133 (phone [408] 995-5535). Blaine Tech Services, Inc. is authorized by TEXACO ENVIRONMENTAL SERVICES to recover, collect, apportion into loads, and haul the Non-Hazardous Well Purgewater that is drawn from wells at the TEXACO facility indicated below and to deliver that purgewater to an appropriate destination designated by TEXACO ENVIRONMENTAL SERVICES in either Redwood City, California or in Richmond, California. Transport routing of the Non-Hazardous Well Purgewater may be direct from one Texaco facility to the designated destination point; from one Texaco facility to the designated destination point via another Texaco facility; from a Texaco facility to the designated destination point via the contractor's facility, or any combination thereof. The Non-Hazardous Well Purgewater is and remains the property of Texaco Environmental Services (TES).

This Source Record **BILL OF LADING** was initiated to cover the recovery of Non-Hazardous Well Purgewater from wells at the Texaco facility described below:

TEXACO # 624880235

500 GRAND AVE., OAKLAND, CA

street number street name city state

WELL I.D.	GALS.	WELL I.D.	GALS.
MW-8A			
MW-8L	85		

added equip. rinse water 10

any other adjustments

TOTAL GALS. RECOVERED 95

loaded onto BTS vehicle # 14

BTS event # 940203-L1 time 1025 date 2/3/94

signature Z. A. Boles

* *

REC'D AT B-T-S time 1800 date 2/3/94

unloaded by signature Z. A. Boles

BLAINE TECH SERVICES, INC.
A SUMMARY OF
FIELD PROCEDURES AND PROTOCOLS

WELL GAUGING (MONITORING)

All field notations are made on preprinted field data collection forms which are supplied to our personnel in a field notebook specific to each assignment at each site. All notations are contemporaneous and completed field notebooks (which we call Sampling Event Folders) are turned in daily and reviewed by our office personnel.

Water-level information is obtained from groundwater monitoring wells either as a preliminary step before evacuation or as a separate activity which is performed on wells that will not be sampled. In cases where none of the wells at the site are scheduled to be evacuated and sampled, the gauging of the wells for the purpose of collecting water-level information is conducted during a designated gauging event.

Wells should be gauged in Clean-to-Dirty Order.
Well gauging instruments and devices are cleaned after each use and before use in the next well.
Well gauging is performed prior to well evacuation and sampling.
Well gauging is to be completed in as short a time period as possible.

Normal gauging activities include the following Wellhead Maintenance checks:

1. Is there a lid on the grade level utility box that encloses the wellhead? Yes/No
2. Is the lid whole or damaged? Okay/Cracked/Chipped/Broken
3. Is the lid secured in the intended manner? Yes/No/Loose/Missing bolts
4. Is the lid equipped with a seal? Yes/No/Damaged
5. Is there water standing in the utility box? Yes/No
6. Water stood in what relationship to the top of the well? Above/Below/Even with the top
7. Is there a cap or plug in the well, itself? Yes/No (Cap/Plug)
8. Is there a lock to secure the cap or plug? Yes/No
9. Is the lock closed so as to secure the well? Yes/No
10. Is the lock functional? Yes/No
11. Is the cap or lid on the wellhead capable of sealing out water? Yes/No seal is possible
12. Is the cap or plug sealing tightly? Yes/No/Can be pulled loose

The foregoing 12 checks are drawn from our more extensive Wellhead Survey Forms. They will be included in the next revision of the Sampling Event Field Folder forms.

Well gauging includes the following measurements:

1. Depth to Water (DTW)
2. Total Depth (TD)
3. Odor and Sheen (O&S),
4. Separate Phase Hydrocarbon (SPH) thickness (to the nearest 0.01').

Depth to Water measurements are referenced to the surveyed elevation of the wellhead to calculate the elevation of the groundwater in each well (for groundwater gradient mapping). Depth to Water and Total Depth measurements are used in calculating the volume of the water column standing in the wellcase (for evacuation calculation). Odor, sheen and Separate Phase Hydrocarbon thickness are used in evaluating whether or not the well meets standards set by the client that determine when a well should be evacuated and sampled and when that well should not be evacuated and sampled.

EVACUATING GROUNDWATER WELLS

Wells are selected for evacuation and sampling in Clean-to-Dirty order.

Blaine Tech Services, Inc. field personnel select well **evacuation devices** based on efficiency. They can select from the following:

1. **Bailers**. Teflon and stainless steel are the only materials used in Blaine Tech Services bailers. Our shop fabricates stainless steel bailers in any size we need. Typical bailers are hand operated, but we have hydraulic booms and high speed winches to handle the larger versions.
2. **Pneumatic purge pumps**. These evolved from the USGS/Middleburg bladder type sampling pumps which we began using in 1982. We retain the Teflon air pressure and water discharge hoses, but have modified the pump to increase efficiency and allow more certain cleaning than was possible with the original design. These pumps are ideal for certain types of wells and turbidity control situations.
3. **Variable speed electric** submersible pump. This 2" Grundfos pump has become an accepted tool of the environmental industry in recent years. Despite claims to the contrary, we do not see it as a suitable sampling pump (except in dedicated applications) and use it only as a well evacuation device.
4. **Fixed speed electric** submersible pumps. These 3" and 4" pumps (made by Grundfos and others) are also useful evacuation tools where the well depth or volume of water needing to be removed warrants their use.
5. **Suction pumps**. Grade level pneumatic diaphragm pumps (and similar devices) can be used to evacuate shallow wells when the proper type of hose and footvalves are assembled.

Normal field instrument readings are taken during the evacuation process. These include pH, temperature and electrical conductivity (EC) readings taken within each case volume of groundwater removed and at least one final set of readings taken just prior to sampling. The volume of water evacuated from the well is typically three case volumes and whatever additional volume is needed to achieve stable parameters.

We routinely remove four case volumes of water in those jurisdictions where the regulatory agency requests this level of purging. Our personnel are also equipped to take turbidity readings

and adjust our evacuation protocol to conform to regulatory standards for achieving specific NTU levels prior to collecting samples.

Wells that dewater are handled according to the protocol specified by each client. In most cases this is based on 80% recovery of the original water column or an evaluation of the volume of water that recharges into the well within a period not greater than 24 hours. In view of the volatile constituents being sought, most clients and their consultants are willing to have samples collected from whatever volume of water has recharged into a dewatered well by the end of the day or the end of the work being performed by our personnel at that particular site.

Instruments are calibrated daily and calibration logs are maintained at our office. In addition, each vehicle has calibration fluids on board so that pH and EC meters can be recalibrated in the field. Parameter readings are recorded (along with case volume calculations and other important information) on the preprinted Well Data sheet. Effluent water from the evacuation process is contained and transported in tanks on the sampling vehicle or in tanks on one of our water hauling trailers.

SAMPLE COLLECTION

Blaine Tech Services, Inc. several years ago standardized its sample collection procedures. With few exceptions, all groundwater samples are taken with a **bailer**. We have a large number of stainless steel and/or Teflon bailers. Specialized bailers are used to perform field filtration of water that will receive metals analyses and other bailers can be rigged as flow-through devices which are attached to the evacuation pump so that the entire volume of evacuated water moves through the bailer which then collects the final volume when the evacuation pump is turned off. Normal sampling is simple and straightforward. It involves removing the evacuation device from the well and promptly collecting water in a stainless steel sampling bailer which is lowered into the well and retracted with a disposable cotton line.

Typically, sample bottles appropriate to the intended analyses are supplied by the laboratory along with prepared trip blanks and a volume of organic free water sufficient to take any equipment rinsate blanks and/or field blanks that have been requested. These sample bottles are filled in accordance with EPA requirements as specified in the SW-846 and the T.E.G.D. Our personnel verify the correct composition of the sample set by referring to the Scope of Work statement provided by our office, and authorized by the client or client's consultant. In addition to notations required by the client, our personnel complete the preprinted Well Data Sheet, the multi-part Chain of Custody form and the blank portions of our computer generated sample bottle labels (time, date and sampler's initials). The samples are placed in an ice chest for storage and transport to the laboratory. We comply with regulatory agency specifications for both temperature and the material by which temperature is achieved and maintained. (e.g. Southern Alameda County Water District requires the use of ice rather than frozen blocks of ice substitutes such as Blue Ice and Super Ice.) Strict adherence to Chain of Custody requirements is maintained.

DECONTAMINATION

Blaine Tech Services, Inc. field personnel are trained and equipped to decontaminate all the devices which have been used to inspect, measure, evacuate and sample each well before moving on to the next well. All apparatus is brought to the site in clean and serviceable condition. It is then thoroughly cleaned after each every use.

Our QA program includes spot audits of our field personnel while they are working at a client's site and the collection of various blanks which are in-addition-to and outside of the normal project QA measures and therefore analyzed at our expense.

All vehicles used for petroleum sites are equipped with steam cleaners which we have had the supplier detune to function as **hot pressure washers**. After modification these units produce a high pressure jet of very hot water which retains its heat better than jets of steam which start off hotter but cool very quickly. (Steam cools so rapidly that it falls to the same temperature as hot water only 8" out from the nozzel and is far cooler than hot water thereafter.) These hot pressure washer units are supplied with deionized water from an onboard tank. (Deionized water is very hard on the steel components of our steam cleaners, but using it increases our cleaning efficiency.) Hot deionized water from the steam cleaner is supplemented with scrub brushes, soak tanks, and the application of aqueous cleaners which we test and evaluate. We do not use solvents or petroleum products as cleaning agents.

All effluent liquids are captured and retained. The effluent from all on site decontamination procedures is classified the same as the evacuated water from the well in which that equipment was used.

In most cases this means that the effluent from the cleaning of pumps and bailers will be classified as a non-hazardous effluent material which we will be able to transport away from the site as a non-hazardous material. (See Water Hauling below.) In those few cases where the concentration of fuel hydrocarbons in the groundwater causes the well's effluent water to be classified as a hazardous material, we will treat the effluent from our on site cleaning the same way and contain that effluent material along with the well effluent for proper on site storage, transport and disposal. (See Free Product Bailing & Transportation below).

NON-HAZARDOUS PURGEWATER HAULING

Blaine Tech Services, Inc. has evolved a paperwork tracking system for hauling non-hazardous purge water that uses two Bill of Ladings.

The effluent from wells which can be classified as non-hazardous is collected in onboard storage tanks and recorded on a **Source Record Bill of Lading** by our personnel as they collect effluent in the course of doing their work in the field. The small additional volume of water that is used to clean the evacuation and sampling equipment is added to the onboard non-hazardous effluent tank and recorded on the Source Record Bill of Lading. Each vehicle creates a Source Record Bill of Lading to cover all the non-hazardous purgewater hauled away from any Texaco site. If three

vehicles work on the same site each will have a Source Record Bill of Lading to cover the water being hauled away from that site by that vehicle. If a vehicle collects water from more than one Texaco site, it will have a Source Record Bill of Lading to cover the water obtained at each Texaco site. The Source Record Bill of Ladings covers the legal transport of non-hazardous purgewater and related effluent from one Texaco site to the Blaine Tech Services, Inc. facility in San Jose, California. There the water is offloaded from the individual sampling vehicles into a storage tank dedicated exclusively to non-hazardous purgewater from Texaco sites.

When a sufficient volume of Texaco purgewater has been collected in the Texaco storage tank to make up an efficient load to the destination designated by Texaco Environmental Services, we will create such a load. Purgewater is pumped out of the Texaco storage tank into an appropriate water hauling vehicle (we have both truck mounted tanks and trailers). The person loading the vehicle makes up a **Bulk Load Disposition Bill of Lading.** This documentation covers the load of purgewater during its movement from our facility to the destination designated by Texaco Environmental Services (whether to the Gibson Pilot facility in Redwood City or to the TES offloading point in Richmond).

We maintain a file for both Source Record Bill of Ladings and for Bulk Load Disposition Bill of Ladings. Periodic audits can be easily performed by reviewing this file.

FREE PRODUCT BAILING AND TRANSPORT

Blaine Tech Services, Inc. is not in the hazardous waste hauling business. The insurance overhead is so great that it is not economical to haul hazardous waste on an occasional or casual basis. Since we are in the sampling and objective data collection business, it makes sense to leave hazardous waste hauling to firms that are in the hazardous waste hauling business.

There is a fair amount of attention being put on clarifying EPA regulations which may offer exemptions to hazardous waste classification rules that apply to fuel facility waste material and debris that is being moved from a retail fuel dispensing facility to a refinery. It is thought that this or some similar loophole will be found that will eliminate some or all of the restrictions which are now being applied to fuel facility materials. As these openings develop, we will perform all the actions which are appropriate for us to perform. However, we are cautious because we certainly do not want to bring discredit to ourselves or to our client by presuming too much, too quickly.

Pending the clarification of exemptions that might allow us to transport such materials, we continue to remove place all the highly contaminated effluent materials we pump or bail from wells in properly labeled drums which remain on the site. Drums or the waste materials in the drums is removed and transported off the site by a properly licensed hazardous waste hauler.

There are several different arrangements that can be made, but most involve some liaison between ourselves and the licensed hazardous waste hauler who will need to offhaul any hazardous materials we place in the barrels within 90 days. Our personnel are involved in tracking the actual performance of the hazardous waste hauler by noting when new barrels are delivered to the

site and when resident barrels are emptied and labeled as empty. Our personnel fill out labels when adding material to a barrel and are careful to follow all the **barrel preparation and closure protocols** specified by our client and the hazardous waste hauler. The management of barrels and hauling requires tracking systems we have already developed for other clients.

ABILITY TO PERFORM

In the first quarter of 1993 one of our clients awarded us an additional territory and new sites that added more than 600 new gas station wells to our workload. These were not the only increases we took on and completed at the start of 1993, but they illustrate the fact that we can flex our organization to handle sudden increases.

Blaine Tech Services, Inc. performed all its 1993 commitments with never more than 10 field technicians working out of four (4) General Purpose Sampling Vehicles and six (6) Big Rigs. We managed all our commitments without relying on our #11 truck which was out of service during 1993, receiving a new body and serving as the test bed for the development of the new electric pump hose handling and cleaning package which you saw a week or so before it was completed. That #11 truck is now back in service and we are preparing to add field personnel.

We have also placed in service a new water hauling vehicle (#18) and have taken delivery of another new Ford Super Duty (#19) which is now in the shop to receive the same equipment package that was prototyped on #11. We hope to have #19 out of the shop by the time #20 arrives later in the first quarter of 1994. These added vehicles represent our commitment to a reasonable rate of growth which we achieve by backing up our field personnel with efficient equipment.

However, we do not require *any* additional vehicles to handle Texaco work in the amounts you are likely to limit us to. **The #11 truck which is now in service can handle all the wells in any two Texaco territories with a 30% safety margin.** That translates into a little more than one (1) site per day or one territory per month with the third month of each quarter free to pursue other work. The safety margin is actually even wider because our field personnel work only four days a week. If we found ourselves running behind we could add either more personnel or require overtime.

In practice we always assign **several trucks** to perform work of this type so that we can quickly build a broad base of experienced personnel. However, the single truck yardstick is useful for calculating the overall level of stress which a new assignment adds to the organization.

We have every reason to believe that we can handle whatever work you would like to award us. If we are fortunate enough to be successful in our bidding, we will commence work at Texaco sites during the first week of 1994.

Richard Blaine
President