



Texaco Refining
and Marketing Inc

108 Cutting Blvd
Richmond CA 94804

November 3, 1994

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

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 August 25, 1994, at the site referenced above (see Plate 1, Site Vicinity Map). Based on groundwater level measurements, the areal hydraulic gradient was estimated to be south-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.

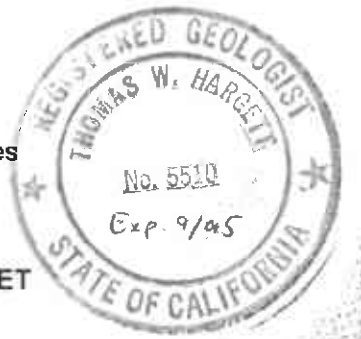
The certified analytical report, chain-of-custody, field data sheets, bill of lading, and quarterly summary report are in the Appendix, along with Texaco Environmental Services' Standard Operating Procedures.

If you have any questions or comments regarding this site, please call the Texaco Environmental Services' site Project Coordinator, Tom Hargett at (818) 505-2733.

Best Regards,

Rebecca Digerness
Groundwater Monitoring Coordinator

Tom Hargett, R. G.
Project Coordinator
Texaco Environmental Services



RBD:hs
P:\GWMP\QMR\500G\QMR.LET

Enclosures

54 NOV 23 PM 2:05
HAZMAT

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

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

PR: EG

**Groundwater Monitoring and Sampling
Third Quarter, 1994
at the
Former Texaco Station
500 Grand Avenue
Oakland, CA**



SOURCE

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



MILE

1" = 2200'



TEXACO

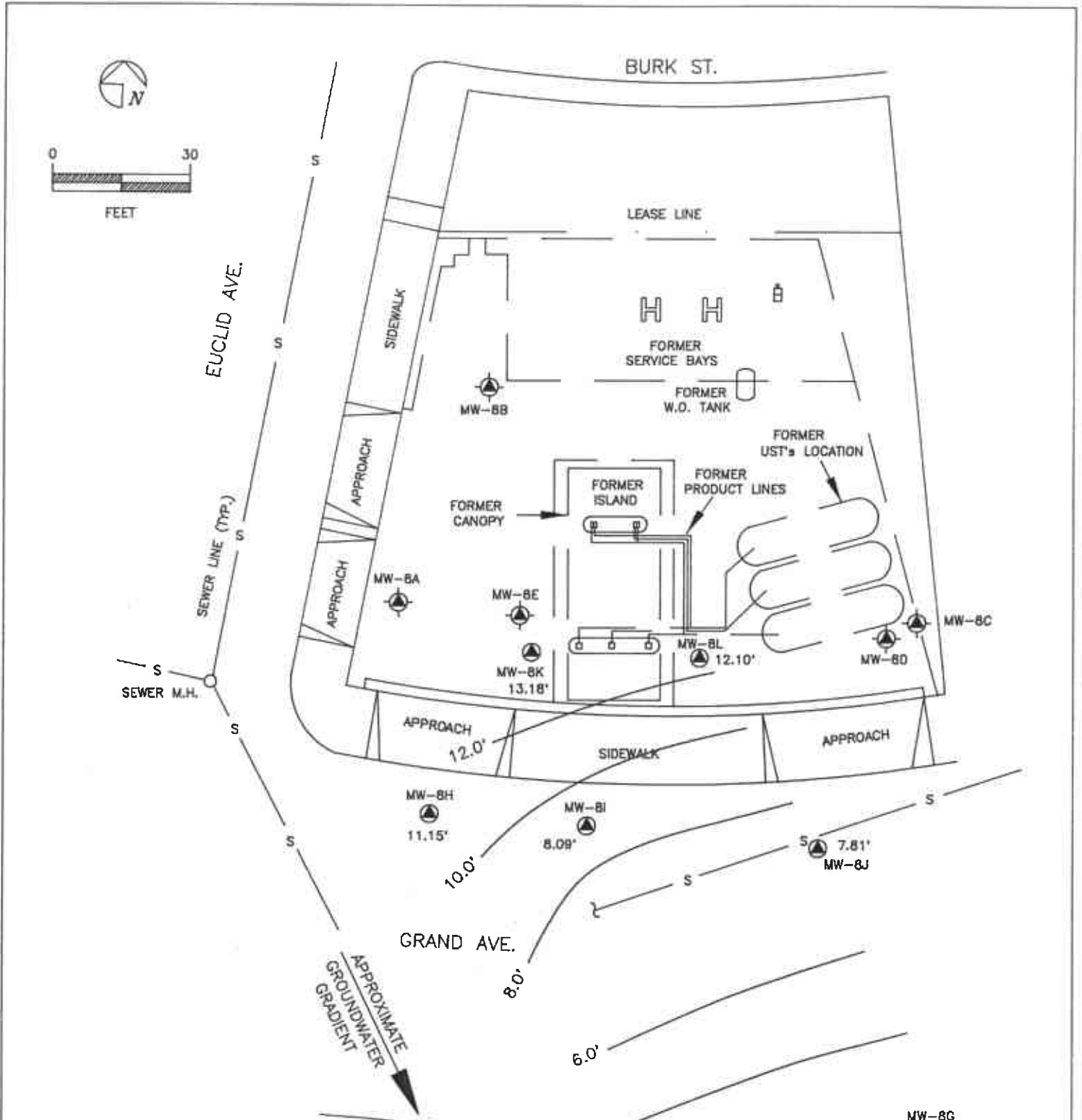
REFINING AND MARKETING, INC.
TEXACO ENVIRONMENTAL SERVICES

PLATE 1

SITE VICINITY MAP

FORMER TEXACO SERVICE STATION

500 GRAND AVE / EUCLID AVE.,
OAKLAND, CALIFORNIA



TEXACO
 REFINING AND MARKETING INC.
 TEXACO ENVIRONMENTAL SERVICES

PLATE 2 : GROUNDWATER GRADIENT MAP
 (08/25/1994)

FORMER TEXACO SERVICE STATION
 500 GRAND AVE. / EUCLID AVE.,
 OAKLAND, CALIFORNIA

SCALE	1"=30'-0"	LOCATION #	62-488-0235
DRAWN BY	AMA	DATE	10/31/1994
CHECKED BY	FD	DATE	11/15/94
DRAWING NO. (OAKLAND) GR-EU-OK.DWG			

LEGEND :

- GROUNDWATER MONITORING WELL LOCATION, AND WELL NUMBER
- ABANDONED GROUNDWATER MONITORING WELL LOCATION, AND WELL NUMBER
- GROUNDWATER CONTOUR LINE
- 8.09' GROUNDWATER ELEVATION (ABOVE MSL)

LAKE MERRITT PARK



EUCLID AVE.

BURK ST.

LEASE LINE

FORMER SERVICE BAYS

FORMER W.O. TANK

FORMER UST's LOCATION

FORMER PRODUCT LINES

FORMER ISLAND

FORMER CANOPY

MW-8B

SIDEWALK

APPROACH

MW-8A

MW-8E

MW-8K
<50/0.78

MW-8L
260/16

MW-8D

MW-8C

APPROACH

SIDEWALK

APPROACH

MW-8H
<50/<0.5

MW-8I
540/14

MW-8J
<50/<0.5

GRAND AVE.

MW-8F
<50/<0.5

MW-8G
<50/<0.5

LAKE MERRITT
PARK



TEXACO
REFINING AND MARKETING INC.
TEXACO ENVIRONMENTAL SERVICES

PLATE 3 : TPH₂/BENZENE CONCENTRATION IN GROUNDWATER
(08/25/1994)

FORMER TEXACO SERVICE STATION
500 GRAND AVE. / EUCLID AVE.,
OAKLAND, CALIFORNIA

SCALE	1"=30'-0"	LOCATION #	62-488-0235
DRAWN BY	AMA	DATE	10/31/1994
CHECKED BY	RD	DATE	11/2/94
DRAWING NO. (OAKLAND) GR-EU-OK.DWG			

LEGEND :



MW-8F

GROUNDWATER MONITORING WELL LOCATION,
AND WELL NUMBER



MW-8A

ABANDONED GROUNDWATER MONITORING WELL LOCATION,
AND WELL NUMBER

<50/<0.5

TPH₂/BENZENE CONCENTRATION IN GROUNDWATER (ppb)

Table 1
Groundwater Elevation Data
500 Grand Avenue, Oakland, CA

Well Number	Date Gauged	Elevation of Wellhead (feet, MSL)	Depth to Water (feet, TOC)	Elevation of Groundwater (feet, MSL)
MW-8A	03/29/91	99.72		
	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		
	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		
	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 -----		
MW-8D			----- Well Properly Abandoned -----	
MW-8E	03/29/91	99.38		
	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 -----	

Table 1
Groundwater Elevation Data
500 Grand Avenue, Oakland, CA

Well Number	Date Gauged	Elevation of Wellhead (feet, MSL)	Depth to Water (feet, TOC)	Elevation of Groundwater (feet, MSL)
MW-8F	03/29/91	97.94		
	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
	05/31/94		9.34	4.70
	08/25/94		10.14	3.90
MW-8G	04/23/91	97.24		
	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
	05/31/94		9.24	4.08
	08/25/94		9.74	3.58
MW-8H	03/29/91	98.90		
	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
	05/31/94		3.80	11.24
	08/25/94		3.89	11.15

Table 1
Groundwater Elevation Data
500 Grand Avenue, Oakland, CA

Well Number	Date Gauged	Elevation of Wellhead (feet, MSL)	Depth to Water (feet, TOC)	Elevation of Groundwater (feet, MSL)
MW-8I	03/29/91	98.27		
	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
	05/31/94		6.25	8.15
	08/25/94		6.31	8.09
MW-8J	03/29/91	97.69		
	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
	05/31/94		6.10	7.72
	08/25/94		6.01	7.81
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
	05/31/94		1.59	13.59
	08/25/94		2.00	13.18
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
	05/31/94		2.66	11.78
	08/25/94		2.34	12.10
* = New well elevation survey performed on August 16, 1993 based on mean sea level (MSL). Prior data based on arbitrary site data.				
TOC = Top of casing				

Table 2
Groundwater Analytical Data
500 Grand Avenue, Oakland, CA

Well Number	Date Sampled	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	TPHd (ppm)	TPH as Other* (ppm)
MW-8A	01/23/92	<50	<0.5	<0.5	<0.5	<0.5	0.7	NA
	04/30/92	<50	<0.5	<0.5	<0.5	<0.5	<0.05	<500
	08/03/92	----- Well Properly Abandoned -----						
MW-8B	01/23/92	<50	<0.5	<0.5	<0.5	<0.5	0.55	NA
	04/30/92	<50	<0.5	<0.5	<0.5	<0.5	<0.05	<500
	09/28/92	----- Not Sampled -----						
	11/19/92	----- Not Sampled -----						
	02/12/93	----- Not Sampled -----						
	04/01/93	----- Well Properly Abandoned -----						
MW-8C	01/23/92	<50	1.2	<0.5	<0.5	<0.5	0.84	NA
	04/30/92	<50	<0.5	<0.5	<0.5	<0.5	0.15	<500
	09/28/92	----- Not Sampled -----						
	11/19/92	----- Not Sampled -----						
	02/12/93	----- Not Sampled -----						
	04/01/93	----- Well Properly Abandoned -----						
MW-8D	----- Well Properly Abandoned -----							
MW-8E	01/23/92	38,000	3,800	2,800	610	4,800	9.8	NA
	04/23/92	41,000	20,000	3,700	500	3,900	9.6	<500
	08/03/92	----- Well Properly Abandoned -----						
MW-8F	01/23/92	<50	4.0	1.3	<0.5	1.9	1.3	NA
	04/30/92	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<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	<0.1	<50
	08/16/93	<50	<0.5	<0.5	<0.5	<0.5	<0.05	<50
	10/12/93	<50	<0.5	<0.5	<0.5	<0.5	<0.05	<50
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	<0.05	<50
	05/31/94	<50	<0.5	<0.5	<0.5	<0.5	<0.05	0.53
	08/25/94	<50	<0.5	<0.5	<0.5	<0.5	<0.05	1.4
MW-8G	01/24/92	<50	<0.5	<0.5	<0.5	<0.5	0.98	NA
	04/30/92	<50	1.7	<0.5	<0.5	<0.5	<0.05	<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	0.06	<250
	08/16/93	<50	<0.5	<0.5	<0.5	<0.5	<0.05	<50
	10/12/93	<50	<0.5	<0.5	<0.5	<0.5	<0.05	<50
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	<0.05	<50
	05/31/94	<50	<0.5	<0.5	<0.5	<0.5	<0.05	<0.2
08/25/94	<50	<0.5	<0.5	<0.5	<0.5	<0.05	0.86	

Table 2
Groundwater Analytical Data
500 Grand Avenue, Oakland, CA

Well Number	Date Sampled	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	TPHd (ppm)	TPH as Other* (ppm)	
MW-8H	01/23/92	110	7.2	1.2	4.7	3.2	<0.06	NA	
	04/30/92	190	11	1.5	5.6	3.6	0.09	<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	<0.1	<50	
	08/16/93	<50	0.5	<0.5	0.5	1.4	<0.05	<50	
	10/12/93	<50	<0.5	<0.5	<0.5	<0.5	<0.05	<50	
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	<0.05	<50	
	05/31/94	<50	0.79	<0.5	<0.5	<0.5	<0.05	1.6	
08/25/94	<50	<0.5	<0.5	<0.5	<0.5	<0.05	4.0		
MW-8I	01/23/92	820	420	7	27	20	0.21	NA	
	04/30/92	2,200	1,800	19	180	25	0.43	<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	<0.01	<50	
	08/16/93	<50	3.1	<0.5	6	<0.5	<0.05	<50	
	10/12/93	<50	1.4	<0.5	<0.5	<0.5	<0.05	<50	
	02/03/94	1,000	270	3.2	51	14	<0.05	<50	
	05/31/94	1,400	330	4.6	52	16	<0.05	0.33	
08/25/94	540	14	0.58	30	4.3	<0.05	0.73		
MW-8J	01/23/92	<50	1	<0.5	<0.5	<0.5	<0.05	NA	
	04/30/92	<50	2	<0.5	<0.5	<0.5	<0.05	<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	<0.01	<50	
	08/16/93	<50	<0.5	<0.5	<0.5	<0.5	<0.05	<50	
	10/12/93	<50	<0.5	<0.5	<0.5	<0.5	<0.05	<50	
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	<0.05	<50	
	05/31/94	<50	<0.5	<0.5	<0.5	<0.5	<0.05	<0.2	
08/25/94	<50	<0.5	<0.5	<0.5	<0.5	<0.05	1.0		
MW-8K	05/21/93	54	12	<0.5	<0.5	<0.5	<0.05	<50	
	08/16/93	<50	<0.5	<0.5	1.0	<0.5	<0.05	<50	
	10/24/93	<50	4.2	<0.5	<0.5	<0.5	<0.05	<50	
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	<0.05	<50	
	05/31/94	<50	1.0	0.57	<0.5	<0.5	<0.05	<0.2	
	08/25/94	<50	0.78	<0.5	<0.5	<0.5	<0.05	0.98	

Table 2
Groundwater Analytical Data
500 Grand Avenue, Oakland, CA

Well Number	Date Sampled	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	TPHd (ppm)	TPH as Other* (ppm)
MW-8L	05/21/93	76	1.1	<0.5	<0.5	6	<0.05	<50
	08/16/93	<50	<0.5	<0.5	0.7	1.1	<0.05	<50
	10/12/93	110	13	<0.5	6	<0.5	<0.05	<50
	02/03/94	590	61	2.4	<0.5	110	<0.05	<50
	05/31/94	410	77	<0.5	20	1.1	<0.05	<0.2
	08/25/94	260	16	<0.5	2.5	<0.5	<0.05	1.1
OB-3	11/06/89	4,000	420	8.0	6.0	64	NA	NA
	04/26/90	1,000	160	19	5.0	8.6	3.2	<50
	07/26/90	68	<0.5	<0.5	<0.5	0.9	1.2	<50
	10/18/90	3,200	260	69	35	490	2.1	<50
----- Well Abandoned -----								
OB-4	11/06/89	4,000	500	11	10	24	NA	NA
	04/26/90	460	360	10	10	18	3.9	<50
	07/26/90	200	23	3.7	1.6	5.9	1.6	<50
	10/18/90	4,300	600	540	83	840	0.33	<50
----- Well Abandoned -----								
EB	08/25/94	69	<0.5	<0.5	<0.5	<0.5	<0.05	0.71
TB	08/25/94	52	<0.5	<0.5	<0.5	<0.5	NA	NA
EB = Equipment Blank								
TB = Trip Blank								
ppb = parts per billion								
ppm = parts per million								
NA = Not analyzed								
< = Less than the detection limit for the specified method of analysis.								
* = 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.								

1085 Shary Circle
Concord, CA 94518
510/825-3894
Fax: 510/825-3924

LOG NO: G94-08-311
Received: 26 AUG 94
Mailed: SEP 13 1994

Ms. Rebecca Digerness
Texaco Environmental Services
108 Cutting Boulevard
Richmond, CA 94804

Purchase Order: 94-1446346+4370
Requisition: 624880235
Project: FKEP1014L

REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO	08-311-1	08-311-2	08-311-3
DATE SAMPLED	25 AUG 94	25 AUG 94	25 AUG 94
SAMPLE DESCRIPTION	MW8F	MW8G	MW8H
GROUND WATER			
Oil & Grease, IR(EPA-413.2), mg/L	1.4	0.86	4.0
TPH-diesel/CADHS/3520			
Date Analyzed	09/03/94	09/03/94	09/03/94
Date Extracted	08/31/94	08/31/94	08/31/94
Dilution Factor, Times 1	1	1	1
TPH (as diesel), mg/L	<0.05	<0.05	<0.05



B C Analytical

1085 Shary Circle
Concord, CA 94518
510/825-3894
Fax: 510/825-3924

LOG NO: G94-08-311

Received: 26 AUG 94

Ms. Rebecca Digerness
Texaco Environmental Services
108 Cutting Boulevard
Richmond, CA 94804

Purchase Order: 94-1446346+4370

Requisition: 624880235
Project: FKEP1014L

REPORT OF ANALYTICAL RESULTS

Page 2

LOG NO	08-311-1	08-311-2	08-311-3
DATE SAMPLED	25 AUG 94	25 AUG 94	25 AUG 94
SAMPLE DESCRIPTION	MW8F	MW8G	MW8H
GROUND WATER			
TPH-gas/BTEX (CADHS/8020)			
Date Analyzed	09/01/94	09/01/94	09/01/94
Dilution Factor, Times 1	1	1	1
Benzene, ug/L	<0.5	<0.5	<0.5
Toluene, ug/L	<0.5	<0.5	<0.5
Ethylbenzene, ug/L	<0.5	<0.5	<0.5
Total Xylene Isomers, ug/L	<0.5	<0.5	<0.5
TPH (as Gasoline), ug/L	<50	<50	<50



B C Analytical

1085 Shary Circle
Concord, CA 94518
510/825-3894
Fax: 510/825-3924

LOG NO: G94-08-311

Received: 26 AUG 94

Ms. Rebecca Digerness
Texaco Environmental Services
108 Cutting Boulevard
Richmond, CA 94804

Purchase Order: 94-1446346+4370

Requisition: 624880235
Project: FKEP1014L

REPORT OF ANALYTICAL RESULTS

Page 3

LOG NO	08-311-4	08-311-5	08-311-6
DATE SAMPLED	25 AUG 94	25 AUG 94	25 AUG 94
SAMPLE DESCRIPTION	MW8I	MW8J	MW8K
GROUND WATER			
Oil & Grease, IR(EPA-413.2), mg/L	0.73	1.0	0.98
TPH-diesel/CADHS/3520			
Date Analyzed	09/03/94	09/03/94	09/03/94
Date Extracted	08/31/94	08/31/94	08/31/94
Dilution Factor, Times 1	1	1	1
TPH (as diesel), mg/L	<0.05	<0.05	<0.05



B C Analytical

1085 Shary Circle
Concord, CA 94518
510/825-3894
Fax: 510/825-3924

LOG NO: G94-08-311

Received: 26 AUG 94

Ms. Rebecca Digerness
Texaco Environmental Services
108 Cutting Boulevard
Richmond, CA 94804

Purchase Order: 94-1446346+4370

Requisition: 624880235
Project: FKEP1014L

REPORT OF ANALYTICAL RESULTS

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LOG NO	08-311-4	08-311-5	08-311-6
DATE SAMPLED	25 AUG 94	25 AUG 94	25 AUG 94
SAMPLE DESCRIPTION	MW8I	MW8J	MW8K
GROUND WATER			
TPH-gas/BTEX (CADHS/8020)			
Date Analyzed	09/01/94	09/01/94	09/01/94
Dilution Factor, Times 1	1	1	1
Benzene, ug/L	14	<0.5	0.78
Toluene, ug/L	0.58	<0.5	<0.5
Ethylbenzene, ug/L	30	<0.5	<0.5
Total Xylene Isomers, ug/L	4.3	<0.5	<0.5
TPH (as Gasoline), ug/L	540	<50	<50



B C Analytical

1085 Shary Circle
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LOG NO: G94-08-311

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Texaco Environmental Services
108 Cutting Boulevard
Richmond, CA 94804

Purchase Order: 94-1446346+4370

Requisition: 624880235
Project: FKEP1014L

REPORT OF ANALYTICAL RESULTS

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LOG NO	08-311-7	08-311-8
DATE SAMPLED	25 AUG 94	25 AUG 94
SAMPLE DESCRIPTION	MWBL	EB
GROUND WATER		
Oil & Grease, IR(EPA-413.2), mg/L	1.1	0.71
TPH-diesel/CADHS/3520		
Date Analyzed	09/03/94	09/03/94
Date Extracted	08/31/94	08/31/94
Dilution Factor, Times 1	1	1
TPH (as diesel), mg/L	<0.05	<0.05



B C Analytical

1085 Shary Circle
Concord, CA 94518
510/825-3894
Fax: 510/825-3924

LOG NO: G94-08-311

Received: 26 AUG 94

Ms. Rebecca Digerness
Texaco Environmental Services
108 Cutting Boulevard
Richmond, CA 94804

Purchase Order: 94-1446346+4370

Requisition: 624880235
Project: FKEP1014L

REPORT OF ANALYTICAL RESULTS

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LOG NO	08-311-7	08-311-8
DATE SAMPLED	25 AUG 94	25 AUG 94
SAMPLE DESCRIPTION	MW8L	EB
GROUND WATER		
TPH-gas/BTEX (CADHS/8020)		
Date Analyzed	09/01/94	09/01/94
Dilution Factor, Times 1	1	1
Benzene, ug/L	16	<0.5
Toluene, ug/L	<0.5	<0.5
Ethylbenzene, ug/L	2.5	<0.5
Total Xylene Isomers, ug/L	<0.5	<0.5
TPH (as Gasoline), ug/L	260	69

BCA

B C Analytical

1085 Shary Circle
Concord, CA 94518
510/825-3894
Fax: 510/825-3924

LOG NO: G94-08-311

Received: 26 AUG 94

Ms. Rebecca Digerness
Texaco Environmental Services
108 Cutting Boulevard
Richmond, CA 94804

Purchase Order: 94-1446346+4370

Requisition: 624880235
Project: FKEP1014L

REPORT OF ANALYTICAL RESULTS

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LOG NO 08-311-9

DATE SAMPLED 25 AUG 94
SAMPLE DESCRIPTION TB
GROUND WATER

TPH-gas/BTEX (CADHS/8020)

Date Analyzed 09/01/94

Dilution Factor, Times 1 1

Benzene, ug/L <0.5

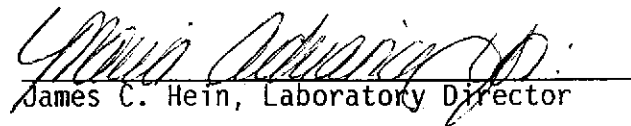
Toluene, ug/L <0.5

Ethylbenzene, ug/L <0.5

Total Xylene Isomers, ug/L <0.5

TPH (as Gasoline), ug/L 52

Tom Hargett
500 Grand Avenue, Oakland
Alameda County


James C. Hein, Laboratory Director



SAMPLES...	SAMPLE DESCRIPTION..	DETERM.....	DATE.....	METHOD.....	EQUIP.	BATCH..	ID.NO
			ANALYZED				
9408311*1	MW8F	IR.O&G	08.30.94	413.2	533-17	9483	8106
		DIESEL.3520.TES	09.03.94	8015M	536-01	94194	7424
		GAS.BTX.TESNC	09.01.94	8015M.TX	536-23	94561	8095
9408311*2	MW8G	IR.O&G	08.30.94	413.2	533-17	9483	8106
		DIESEL.3520.TES	09.03.94	8015M	536-01	94194	7424
		GAS.BTX.TESNC	09.01.94	8015M.TX	536-23	94561	8095
9408311*3	MW8H	IR.O&G	08.30.94	413.2	533-17	9483	8106
		DIESEL.3520.TES	09.03.94	8015M	536-01	94194	7424
		GAS.BTX.TESNC	09.01.94	8015M.TX	536-23	94561	8095
9408311*4	MW8I	IR.O&G	08.30.94	413.2	533-17	9483	8106
		DIESEL.3520.TES	09.03.94	8015M	536-01	94194	7424
		GAS.BTX.TESNC	09.01.94	8015M.TX	536-23	94561	8095
9408311*5	MW8J	IR.O&G	08.30.94	413.2	533-17	9483	8106
		DIESEL.3520.TES	09.03.94	8015M	536-01	94194	7424
		GAS.BTX.TESNC	09.01.94	8015M.TX	536-23	94561	8095
9408311*6	MW8K	IR.O&G	08.30.94	413.2	533-17	9483	8106
		DIESEL.3520.TES	09.03.94	8015M	536-01	94194	7424
		GAS.BTX.TESNC	09.01.94	8015M.TX	536-23	94561	8095
9408311*7	MW8L	IR.O&G	08.30.94	413.2	533-17	9483	8106
		DIESEL.3520.TES	09.03.94	8015M	536-01	94194	7424
		GAS.BTX.TESNC	09.01.94	8015M.TX	536-23	94561	8095
9408311*8	EB	IR.O&G	08.30.94	413.2	533-17	9483	8106
		DIESEL.3520.TES	09.03.94	8015M	536-01	94194	7424
		GAS.BTX.TESNC	09.02.94	8015M.TX	536-23	94561	8095
9408311*9	TB	GAS.BTX.TESNC	09.01.94	8015M.TX	536-23	94561	8095

Notes: Equipment = BC Analytical identification number for a particular piece of analytical equipment.

ID.NO = BC Analytical employee identification number of analyst.

BC ANALYTICAL

ORDER QC REPORT FOR G9408311

DATE REPORTED : 09/09/94

Page 1

LABORATORY CONTROL STANDARDS
FOR BATCHES WHICH INCLUDE THIS ORDER

PARAMETER	DATE ANALYZED	BATCH NUMBER	LC RESULT	LT RESULT	UNIT	PERCENT RECOVERY
1. Oil & Grease, IR(EP C4082179*1	08.30.94	9483	1.71	2.56	mg/L	67
2. TPH-diesel/CADHS/3520 C409354*1						
Date Analyzed	09.03.94	94194	09/03/94	09/03/94	Date	N/A
Date Extracted	09.03.94	94194	08/31/94	08/31/94	Date	N/A
TPH (as diesel)	09.03.94	94194	1.16	1.00	mg/L	116
Napthalene reported	09.03.94	94194	0.0679	0.0600	mg/L	113
Napthalene theoretical	09.03.94	94194	0.0600	0.0600	mg/L	100
3. TPH-diesel/CADHS/3520 C409355*1						
Date Analyzed	09.03.94	94194	09/03/94	09/03/94	Date	N/A
Date Extracted	09.03.94	94194	08/31/94	08/31/94	Date	N/A
TPH (as diesel)	09.03.94	94194	1.21	1.00	mg/L	121
Napthalene reported	09.03.94	94194	0.0786	0.0600	mg/L	131 Q
Napthalene theoretical	09.03.94	94194	0.0600	0.0600	mg/L	100
4. TPH-gas/BTEX (CADHS/80 C409237*1						
Date Analyzed	09.01.94	94561	09/01/94	09/01/94	Date	N/A
Benzene	09.01.94	94561	11.8	12.5	ug/L	94
Toluene	09.01.94	94561	57.0	55.5	ug/L	103
Ethylbenzene	09.01.94	94561	11.8	12.5	ug/L	94
Total Xylene Isomers	09.01.94	94561	60.4	42.5	ug/L	142 Q
TPH (as Gasoline)	09.01.94	94561	1050	1000	ug/L	105
a,a,a-Trifluorotoluene Reported	09.01.94	94561	55.2	50.0	ug/L	110
a,a,a-Trifluorotoluene Theoretic	09.01.94	94561	50.0	50.0	ug/L	100
5. TPH-gas/BTEX (CADHS/80 C409238*1						
Date Analyzed	09.01.94	94561	09/01/94	09/01/94	Date	N/A
Benzene	09.01.94	94561	8.56	12.5	ug/L	68
Toluene	09.01.94	94561	54.4	55.5	ug/L	98
Ethylbenzene	09.01.94	94561	12.1	12.5	ug/L	97
Total Xylene Isomers	09.01.94	94561	59.3	42.5	ug/L	140 Q
TPH (as Gasoline)	09.01.94	94561	1060	1000	ug/L	106
a,a,a-Trifluorotoluene Reported	09.01.94	94561	54.9	50.0	ug/L	110
a,a,a-Trifluorotoluene Theoretic	09.01.94	94561	50.0	50.0	ug/L	100

BC ANALYTICAL

ORDER QC REPORT FOR G9408311

DATE REPORTED : 09/09/94

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ADDITIONAL LCS PRECISION (DUPLICATES)
BATCH QC REPORT

PARAMETER	SAMPLE NUMBER	DATE ANALYZED	BATCH NUMBER	LC1 RESULT	LC2 RESULT	UNIT	RELATIVE % DIFF
1. TPH-diesel/CADHS/3520							
Date Analyzed		09.03.94	94194	09/03/94	09/03/94	Date	N/A
Date Extracted		09.03.94	94194	08/31/94	08/31/94	Date	N/A
TPH (as diesel)		09.03.94	94194	1.16	1.21	mg/L	4
Napthalene reported		09.03.94	94194	0.0679	0.0786	mg/L	15
Napthalene theoretical		09.03.94	94194	0.0600	0.0600	mg/L	0
2. TPH-gas/BTEX (CADHS/80							
Date Analyzed		09.01.94	94561	09/01/94	09/01/94	Date	N/A
Benzene		09.01.94	94561	11.8	8.56	ug/L	32 Q
Toluene		09.01.94	94561	57.0	54.4	ug/L	5
Ethylbenzene		09.01.94	94561	11.8	12.1	ug/L	3
Total Xylene Isomers		09.01.94	94561	60.4	59.3	ug/L	2
TPH (as Gasoline)		09.01.94	94561	1050	1060	ug/L	1
a,a,a-Trifluorotoluene Reported		09.01.94	94561	55.2	54.9	ug/L	1
a,a,a-Trifluorotoluene Theoretic		09.01.94	94561	50.0	50.0	ug/L	0

BC ANALYTICAL

ORDER QC REPORT FOR G9408311

DATE REPORTED : 09/09/94

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MATRIX QC ACCURACY (SPIKES)
BATCH QC REPORT

PARAMETER	SAMPLE NUMBER	DATE ANALYZED	BATCH NUMBER	MS %	MSD %	TRUE RESULT	UNIT	
1. Oil & Grease, IR(EP	9408311*8	08.30.94	9483	105	120	4.72	mg/L	
2. TPH-gas/BTEX (CADHS/80	9408311*4							
Benzene		09.01.94	94561	87	83	26.5	ug/L	
Toluene		09.01.94	94561	99	96	56.1	ug/L	
Ethylbenzene		09.01.94	94561	NC	NC	42.5	ug/L	NC
Total Xylene Isomers		09.01.94	94561	130 Q	130 Q	46.8	ug/L	Q
TPH (as Gasoline)		09.01.94	94561	107	107	1540	ug/L	
a,a,a-Trifluorotoluene Reported		09.01.94	94561	NC	NC	50.0	ug/L	NC
a,a,a-Trifluorotoluene Theoretic		09.01.94	94561	NC	NC	50.0	ug/L	NC

BC ANALYTICAL

ORDER QC REPORT FOR G9408311

DATE REPORTED : 09/09/94

Page 1

MATRIX QC PRECISION (DUPLICATE SPIKES)
BATCH QC REPORT

PARAMETER	SAMPLE NUMBER	DATE ANALYZED	BATCH NUMBER	MS RESULT	MSD RESULT	UNIT	RELATIVE % DIFF
1. Oil & Grease, IR(EP	9408311*8	08.30.94	9483	4.93	5.51	mg/L	11
2. TPH-gas/BTEX (CADHS/80	9408311*4						
Date Analyzed		09.01.94	94561	09/01/94	09/01/94	Date	N/A
Benzene		09.01.94	94561	24.9	24.4	ug/L	2
Toluene		09.01.94	94561	55.6	53.8	ug/L	3
Ethylbenzene		09.01.94	94561	36.0	36.0	ug/L	0
Total Xylene Isomers		09.01.94	94561	59.7	59.5	ug/L	0
TPH (as Gasoline)		09.01.94	94561	1610	1610	ug/L	0
a,a,a-Trifluorotoluene Reported		09.01.94	94561	52.3	52.0	ug/L	1
a,a,a-Trifluorotoluene Theoretic		09.01.94	94561	50.0	50.0	ug/L	0

BC ANALYTICAL

ORDER QC REPORT FOR G9408311

DATE REPORTED : 09/09/94

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METHOD BLANKS AND REPORTING DETECTION LIMIT (RDL)
FOR BATCHES WHICH INCLUDE THIS ORDER

PARAMETER	DATE ANALYZED	BATCH NUMBER	BLANK RESULT	RDL	UNIT	METHOD
1. Oil & Grease, IR(EP B4081783*1	08.30.94	9483	0	0.2	mg/L	413.2
2. TPH-diesel/CADHS/3520 B409284*1						
Date Analyzed	09.03.94	94194	09/03/94	NA	Date	8015M
Date Extracted	09.03.94	94194	08/31/94	NA	Date	8015M
TPH (as diesel)	09.03.94	94194	0.091	0.05	mg/L	8015M
Napthalene reported	09.03.94	94194	0.0613	NA	mg/L	8015M
Napthalene theoretical	09.03.94	94194	0.0600	NA	mg/L	8015M
3. TPH-gas/BTEX (CADHS/80 B409196*1						
Date Analyzed	09.01.94	94561	09/01/94	NA	Date	8015M.TX
Benzene	09.01.94	94561	0	0.5	ug/L	8015M.TX
Toluene	09.01.94	94561	0	0.5	ug/L	8015M.TX
Ethylbenzene	09.01.94	94561	0	0.5	ug/L	8015M.TX
Total Xylene Isomers	09.01.94	94561	0	0.5	ug/L	8015M.TX
TPH (as Gasoline)	09.01.94	94561	0	50	ug/L	8015M.TX
a,a,a-Trifluorotoluene Reported	09.01.94	94561	50.9	NA	ug/L	8015M.TX
a,a,a-Trifluorotoluene Theoretic	09.01.94	94561	50.0	NA	ug/L	8015M.TX

METHOD	ANALYTE	BATCH	ANALYZED	REPORTED	TRUE	%REC	FLAG
9408311*1							
8015M	Napthalene reported	94194	09/03/94	0.0584	0.0600	97	
8015M.TXa	a,a,a-Trifluorotoluene	94561	09/01/94	51.0	50.0	102	
9408311*2							
8015M	Napthalene reported	94194	09/03/94	0.0612	0.0600	102	
8015M.TXa	a,a,a-Trifluorotoluene	94561	09/01/94	51.5	50.0	103	
9408311*3							
8015M	Napthalene reported	94194	09/03/94	0.0609	0.0600	102	
8015M.TXa	a,a,a-Trifluorotoluene	94561	09/01/94	51.3	50.0	103	
9408311*4							
8015M	Napthalene reported	94194	09/03/94	0.0779	0.0600	130	
8015M.TXa	a,a,a-Trifluorotoluene	94561	09/01/94	48.8	50.0	98	
9408311*5							
8015M	Napthalene reported	94194	09/03/94	0.0695	0.0600	116	
8015M.TXa	a,a,a-Trifluorotoluene	94561	09/01/94	51.7	50.0	103	
9408311*6							
8015M	Napthalene reported	94194	09/03/94	0.0555	0.0600	93	
8015M.TXa	a,a,a-Trifluorotoluene	94561	09/01/94	51.0	50.0	102	
9408311*7							
8015M	Napthalene reported	94194	09/03/94	0.0522	0.0600	87	
8015M.TXa	a,a,a-Trifluorotoluene	94561	09/01/94	51.0	50.0	102	
9408311*8							
8015M	Napthalene reported	94194	09/03/94	0.0631	0.0600	105	
8015M.TXa	a,a,a-Trifluorotoluene	94561	09/02/94	51.5	50.0	103	
9408311*9							
8015M.TXa	a,a,a-Trifluorotoluene	94561	09/01/94	51.5	50.0	103	

METHOD	ANALYTE	BATCH	ANALYZED	REPORTED	TRUE	%REC	FLAG
9408311*4*R1							
8015M.TXa,a,a-	Trifluorotoluene	94561	09/01/94	48.8	50.0	98	
9408311*4*S1							
8015M.TXa,a,a-	Trifluorotoluene	94561	09/01/94	52.3	50.0	105	NC
9408311*4*S2							
8015M.TXa,a,a-	Trifluorotoluene	94561	09/01/94	52.0	50.0	104	NC
9408311*4*T							
8015M.TXa,a,a-	Trifluorotoluene	94561	09/01/94	50.0	50.0	100	
9408311*8*R1							
8015M	Napthalene reported	94194	09/03/94	0.0631	0.0600	105	
B409196*1*MB							
8015M.TXa,a,a-	Trifluorotoluene	94561	09/01/94	50.9	50.0	102	
B409284*1*MB							
8015M	Napthalene reported	94194	09/03/94	0.0613	0.0600	102	
C409237*1*LC							
8015M.TXa,a,a-	Trifluorotoluene	94561	09/01/94	55.2	50.0	110	
C409237*1*LT							
8015M.TXa,a,a-	Trifluorotoluene	94561	09/01/94	50.0	50.0	100	
C409238*1*LC							
8015M.TXa,a,a-	Trifluorotoluene	94561	09/01/94	54.9	50.0	110	
C409238*1*LT							
8015M.TXa,a,a-	Trifluorotoluene	94561	09/01/94	50.0	50.0	100	
C409354*1*LC							
8015M	Napthalene reported	94194	09/03/94	0.0679	0.0600	113	
C409354*1*LT							
8015M	Napthalene reported	94194	09/03/94	0.0600	0.0600	100	
C409355*1*LC							
8015M	Napthalene reported	94194	09/03/94	0.0786	0.0600	131	

: SURROGATE RECOVERIES :
: BC ANALYTICAL : GLEN LAB : 12:28:47 09 SEP 1994 - P. 2 :
=====

METHOD	ANALYTE	BATCH	ANALYZED	REPORTED	TRUE	%REC	FLAG
C409355*1*LT							
8015M	Napthalene reported	94194	09/03/94	0.0600	0.0600	100	

Chain-of-Custody

Texaco Environmental Services
 108 Cutting Boulevard
 Richmond, California 94804
 Phone: (510) 236-3541
 FAX: (510) 237-7821
 Forward Results to the Attention of Rebecca Digerness
 Texaco Project Corodinator

Site Name: 624880235
 Site Address: 5023 Grand Ave
 Contractor Project Number: 940825161
 Contractor Name: Blaine Tech Serv
 Address: 485 Timothy Ave
 Project Contact: Don Weite
 Phone/FAX: 408 9953375 1

Laboratory: B C Analytical
 Turn Around Time: Standard
 Samplers (PRINT NAME): Keith Brown
 Sampler Signature: [Signature]
 Date Samples Collected: 8/25/94

ANALYSIS

Sample Number	Lab Sample Number	Date/Time Collected	No. of Containers	Type of Containers	Sample Matrix	Preservative	TPH gas/BTEX	TPH Diesel	O&G/TRPH (418.1)	TPH Ex. (C8-C36 +)	VOCs B240/624	P. Halocarbons 8010/60	P. Aromatics 8020/602	Organic Lead	Comments
NW8F	X	8/25 1315	2	100% Ticon	W	None	X	X	X	X	X	X	X	X	CLUSTAL D.1 EPA 3550 by 5520 XXXXX XXXXX XXXXX XXXXX XXXXX XXXXX XXXXX
NW8G	X	1450					X	X	X	X	X	X	X		
NW8H		1355					X	X	X	X	X	X	X		
NW8I		1425					X	X	X	X	X	X	X		
NW8J		1150					X	X	X	X	X	X	X		
NW8K		1300					X	X	X	X	X	X	X		
NW8L		1325					X	X	X	X	X	X	X		
BOPEB							X	X	X	X	X	X	X		
TB			2	Vials			X	X	X	X	X	X	X		

Relinquished by: [Signature] Date: 8/26/94 Time: 1410
 Received by: [Signature] Date: 8-26-94 Time: 1410
 Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____
 Method of Shipment: _____
 Lab Comments: _____

Groundwater Sampling Form

Project Name 500 Grand Oakland Well No. MW8F
 Project Number 940825-K2 Well Type Monitor Extraction Other
 Recorded By Keith Brown Sampled by KCB Date 8/25/99

WELL PURGING

PURGE VOLUME

Well casing diameter
 2-inch 4-inch Other

Well Total Depth (TD, ft. below TOC) 1448

Depth to Water (WL, ft. below TOC) 1014

Depth to free phase hydrocarbons (FP, ft. below TOC) _____

Number of well volumes to be purged
 3 10 Other _____

PURGE VOLUME CALCULATION

$$\frac{434}{\text{Water Column Length}} \times \frac{0.66}{\text{Multiplier}} \times \frac{3}{\text{No. Vols}} =$$

MULTIPLIER (Casing Dia. [inches] = Gallons/linear ft)
 2 = 0.17 | 3 = 0.38 | 4 = 0.66 | 4.5 = 0.83 | 5 = 1.02 | 6 = 1.5 | 8 = 2.6

PURGE METHOD

Bailer - Type S. Steel
 Pump - Type Edco Sub
 Other _____

PUMP INTAKE

Near top Depth (ft) _____
 Near Bottom Depth (ft) 1400
 Other _____

Pumping Rate _____ gpm

8.4 gals
CALCULATED PURGE VOLUME

3 gals
ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENT

Meter Type Myran LpDs - Turbidimeter

Time/Gallons	pH	Cond. (uomhos/cm)	Temp (deg C / deg F)	Turbidity (NTU)	Color/Odor
1109 1 3	8.1	3000	67.6	73.1	

Comments during well purge _____

Well Pumped dry: YES NO

Purge water storage/disposal Drummed onsite Other _____

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled 8/25 1 1450

Bailer - Type S. Steel

Sample port

Other

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS

Meter Type Same

Date/Time/% Recharge	pH	Cond. (uomhos/cm)	Temp (deg C / deg F)	Turbidity (NTU)	Color/Odor
8/25 1 1440 1 81	7.8	2100	68.8	7200	

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
MW8F	3 - 90ml Vials	TPHC/BTEX	HCl	BC Analytical	
"	2 - 1 liter	Waste O.I	H ₂ SO ₄	"	
"	2 - 1 liter	TPHD	None	"	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsale	
Transfer	
Other:	

Groundwater Sampling Form

Project Name 500 Grand Orchard Well No. MW 86
 Project Number 940825-K2 Well Type Monitor Extraction Other
 Recorded By Keith Brown Sampled by KCB Date 8/25/94

WELL PURGING

PURGE VOLUME
 Well casing diameter
 2-inch 4-inch Other
 Well Total Depth (TD, ft. below TOC) 1428
 Depth to Water (WL, ft. below TOC) 974
 Depth to free phase hydrocarbons (FP, ft. below TOC) _____
 Number of well volumes to be purged
 3 10 Other _____

PURGE METHOD
 Bailer - Type S. Steel
 Pump - Type Elec Sub
 Other _____

PUMP INTAKE
 Near top Depth (ft) _____
 Near Bottom Depth (ft) 14
 Other _____

Pumping Rate _____ gpm

Water Column Length 4.5' x Multiplier 0.66 x No. Vols 3 = 8 gals
CALCULATED PURGE VOLUME

MULTIPLIER (Casing Dia. [inches] = Gallons/linear ft)
 2 = 0.17 | 3 = 0.38 | 4 = 0.66 | 4.5 = 0.83 | 5 = 1.02 | 6 = 1.5 | 8 = 2.6

ACTUAL PURGE VOLUME 3 gals

GROUNDWATER PARAMETER MEASUREMENT

Meter Type Turbidometer; Myron PH

Time/Gallons	pH	Cond. (uomhos/cm)	Temp	deg C / deg F	Turbidity (NTU)	Color/Odor
<u>1223 1 3</u>	<u>7.3</u>	<u>2100</u>	<u>71.7</u>	<input checked="" type="checkbox"/> deg C / <input type="checkbox"/> deg F	<u>71.6</u>	<u>1.3/lt</u>

Comments during well purge _____
 Well Pumped dry: YES NO
 Purge water storage/disposal Drummed onsite Other _____

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled 8/25/94 1515
 Bailer - Type Stainless Steel Sample port Other

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type As above

Date/Time/% Recharge	pH	Cond. (uomhos/cm)	Temp	deg C / deg F	Turbidity (NTU)	Color/Odor
<u>8/25/94 1500 1</u>	<u>7.5</u>	<u>1800</u>	<u>70.3</u>	<input checked="" type="checkbox"/> deg C / <input type="checkbox"/> deg F	<u>2200</u>	<u>cloudy</u>

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
<u>MW 86</u>	<u>3 - 40ml Vials</u>	<u>TPHC/BTEX</u>	<u>HCl</u>	<u>BC Analytical</u>	
<u>"</u>	<u>2 - 1 liter</u>	<u>Waste O.I</u>	<u>H₂SO₄</u>	<u>"</u>	
<u>"</u>	<u>2 - 1 liter</u>	<u>TPHD</u>	<u>None</u>	<u>"</u>	

QUALITY CONTROL SAMPLES

Duplicate Samples		Blank Samples	
Original Sample No.	Duplicate Sample No.	Type	Sample No.
		Trip	
		Rinsate	
		Transfer	
		Other:	

Groundwater Sampling Form

Project Name 500 Grand Oakland Well No. NW 8 H
 Project Number 940825-K2 Well Type Monitor Extraction Other
 Recorded By Keith Brown Sampled by KCB Date 8/25/94

WELL PURGING

PURGE VOLUME
 Well casing diameter 2-inch 4-inch Other
 Well Total Depth (TD, ft. below TOC) 1463
 Depth to Water (WL, ft. below TOC) 389
 Depth to free phase hydrocarbons (FP, ft. below TOC) _____
 Number of well volumes to be purged
 3 10 Other 40.74

PURGE METHOD
 Bailor - Type _____
 Pump - Type Elec Sub
 Other _____

PUMP INTAKE
 Near top Depth (ft) _____
 Near Bottom Depth (ft) 14
 Other _____

Pumping Rate _____ gpm

Water Column Length 10.74 x Multiplier 0.66 x No. Vols 3 = 21 gals
CALCULATED PURGE VOLUME

MULTIPLIER (Casing Dia. inches) = Gallons/linear ft
 2 = 0.17 | 3 = 0.38 | 4 = 0.66 | 4.5 = 0.83 | 5 = 1.02 | 6 = 1.5 | 8 = 2.6

ACTUAL PURGE VOLUME 21 gals

GROUNDWATER PARAMETER MEASUREMENT

Time/Gallons	pH	Cond. (uomhos/cm)	Temp	deg		Turbidity (NTU)	Color/Odor
				C	F		
1340 1 7	7.6	1500	74.4			74.2	
1347 1 14	7.6	1500	75.2			37.3	
1346 1 21	7.6	1500	75.7			38.2	
1							
1							
1							
1							
1							

Comments during well purge _____
 Well Pumped dry: YES NO Purge water storage/disposal Drummed onsite Other _____

WELL SAMPLING

SAMPLING METHOD _____ Date/Time Sampled 8/25 1 1355
 Bailor - Type _____ Sample port Other

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS

Date/Time/% Recharge	pH	Cond. (uomhos/cm)	Temp	deg		Turbidity (NTU)	Color/Odor
				C	F		
1 1							

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
<u>NW 8 H</u>	<u>3 - 40ml Vials</u>	<u>TPHC/BTEX</u>	<u>HCl</u>	<u>BC Analytical</u>	
	<u>2 - 1 liter</u>	<u>Waste O.I</u>	<u>H₂SO₄</u>	<u>"</u>	
	<u>2 - 1 liter</u>	<u>TPHD</u>	<u>None</u>	<u>"</u>	

QUALITY CONTROL SAMPLES

Duplicate Samples		Blank Samples	
Original Sample No.	Duplicate Sample No.	Type	Sample No.
		Trip	
		Rinsate	
		Transfer	
		Other:	

Groundwater Sampling Form

Project Name 500 Grand Oakland Well No. NW8E
 Project Number 940825-K2 Well Type Monitor Extraction Other
 Recorded By Keith Brown Sampled by KCB Date 8/25/94

WELL PURGING

PURGE VOLUME

Well casing diameter
 2-inch 4-inch Other _____

Well Total Depth (TD, ft. below TOC) 1454

Depth to Water (WL, ft. below TOC) 631

Depth to free phase hydrocarbons (FP, ft. below TOC) _____

Number of well volumes to be purged
 3 10 Other _____

PURGE VOLUME CALCULATION

$$\frac{8.23}{\text{Water Column Length}} \times \frac{.66}{\text{Multiplier}} \times \frac{3}{\text{No. Vols}} =$$

MULTIPLIER (Casing Dia. [inches] = Gallons/linear ft.)
 2 = 0.17 | 3 = 0.38 | 4 = 0.66 | 4.5 = 0.83 | 5 = 1.02 | 6 = 1.5 | 8 = 2.6

PURGE METHOD

Bailor - Type _____
 Pump - Type Elec Sub
 Other _____

PUMP INTAKE

Near top Depth (ft) _____
 Near Bottom Depth (ft) 44
 Other _____

Pumping Rate _____ gpm
15.9 gals

CALCULATED PURGE VOLUME

16 gals
 ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENT

Meter Type Myron

Time/Gallons	pH	Cond. (uomhos/cm)	Temp	deg C / deg F	Turbidity (NTU)	Color/Odor
1408 1 6	7.6	1800	76.5		8.3	
1410 1 11	7.2	1600	74.2		2.8	
1413 1 16	7.2	1700	74.0		7.9	
1						
1						
1						
1						
1						

Comments during well purge _____

Well Pumped dry: YES NO Purge water storage/disposal Drummed onsite Other _____

WELL SAMPLING

SAMPLING METHOD

Date/Time Sampled 8/25 11425

Bailer - Type S. Steel Sample port Other

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS

Meter Type _____

Date/Time/% Recharge	pH	Cond. (uomhos/cm)	Temp	deg C / deg F	Turbidity (NTU)	Color/Odor
1 1						

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
<u>NW 8E</u>	<u>3 - 40ml Vials</u>	<u>TPHC/BPEX</u>	<u>HCl</u>	<u>BC Analytical</u>	
	<u>2 - 1 liter</u>	<u>Waste O.I</u>	<u>H₂SO₄</u>	<u>"</u>	
	<u>2 - 1 liter</u>	<u>TPHD</u>	<u>None</u>	<u>"</u>	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Groundwater Sampling Form

Project Name 500 Grand Oakland Well No. MW85
 Project Number 940825-K2 Well Type Monitor Extraction Other
 Recorded By Keith Brown Sampled by KCB Date 8/25/94

WELL PURGING

PURGE VOLUME

Well casing diameter
 2-inch 4-inch Other
 Well Total Depth (TD, ft. below TOC) 1477
 Depth to Water (WL, ft. below TOC) 601
 Depth to free phase hydrocarbons (FP, ft. below TOC) _____
 Number of well volumes to be purged
 3 10 Other _____

PURGE METHOD

Bailer - Type _____
 Pump - Type Elcc Sub
 Other _____

PUMP INTAKE

Near top Depth (ft) _____
 Near Bottom Depth (ft) 14
 Other _____

PURGE VOLUME CALCULATION

$$\frac{8.76}{\text{Water Column Length}} \times \frac{66}{\text{Multiplier}} \times \frac{3}{\text{No. Vols}} = \frac{17.1}{\text{gals}}$$

MULTIPLIER (Casing Dia. [inches] = Gallons/linear ft)
 2 = 0.17 | 3 = 0.38 | 4 = 0.66 | 4.5 = 0.83 | 5 = 1.02 | 6 = 1.5 | 8 = 2.6

Pumping Rate _____ gpm
17.1 gals
CALCULATED PURGE VOLUME
18 gals
ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENT

Meter Type Myron Labs Turbidity

Time/Gallons	pH	Cond. (uomhos/cm)	Temp	deg C / deg F	Turbidity (NTU)	Color/Odor
1125 1 77.1	7.4	1800	77.1		36.2	
1128 1 75.3	7.4	1800	75.3		40.9	
1140 1 75.7	7.6	120	75.7		122.4	
1						
1						
1						
1						
1						

Comments during well purge

Well Pumped dry: YES NO Purge water storage/disposal Drummed onsite Other _____

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled 8/25 1150

Bailer - Type S. Secl. Sample port Other

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS

Meter Type _____

Date/Time/% Recharge	pH	Cond. (uomhos/cm)	Temp	deg C / deg F	Turbidity (NTU)	Color/Odor
1 1						

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
MW85	3 - 40ml Vials	TPHC/BTEX	HCl	BC Analytical	
"	2 - 1 liter	Waste O.I	H ₂ SO ₄	"	
"	2 - 1 liter	TPHD	None	"	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	<u>EB-1210</u>

Groundwater Sampling Form

Project Name 500 Grand Orchard
 Project Number 940825-K2
 Recorded By Keith Brown

Well No. NW 8K
 Well Type Monitor Extraction Other
 Sampled by KCB Date 8/25/94

WELL PURGING

PURGE VOLUME

Well casing diameter
 2-inch 4-inch Other _____
 Well Total Depth (TD, ft. below TOC) 1698
 Depth to Water (WL, ft. below TOC) 2.00
 Depth to free phase hydrocarbons (FP, ft. below TOC) _____
 Number of well volumes to be purged
 3 10 Other 1498

PURGE METHOD

Bailor - Type Teflon
 Pump - Type Recirc
 Other _____

PUMP INTAKE

Near top Depth (ft) _____
 Near Bottom Depth (ft) _____
 Other _____

PURGE VOLUME CALCULATION

$$\frac{1498}{\text{Water Column Length}} \times \frac{.17}{\text{Multiplier}} \times \frac{3}{\text{No. Vols}} = \text{Result}$$

MULTIPLIER (Casing Dia. inches) = Gallons/linear ft.
 2 = 0.17 | 3 = 0.38 | 4 = 0.66 | 4.5 = 0.83 | 5 = 1.02 | 6 = 1.5 | 8 = 2.6

Pumping Rate _____ gpm
7.2 gals
CALCULATED PURGE VOLUME
7.5 gals
ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENT

Meter Type Myron LpDs

Time/Gallons	pH	Cond. (uomhos/cm)	Temp	deg C / deg F	Turbidity (NTU)	Color/Odor
1244 1 2.5	7.6	1400	77.5		7200	
1247 1 5.0	7.6	1400	74.1		7200	
1250 1 7.5	7.6	1400	73.7		7200	
1						
1						
1						
1						
1						

Comments during well purge Soft Bottom

Well Pumped dry: YES NO Purge water storage/disposal Drummed onsite Other

WELL SAMPLING

SAMPLING METHOD _____ Date/Time Sampled 8/25 1 1300

Bailer - Type Teflon Sample port Other

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS

Meter Type _____

Date/Time/% Recharge	pH	Cond. (uomhos/cm)	Temp	deg C / deg F	Turbidity (NTU)	Color/Odor
1 1						

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
	3 - 40ml Vials	TPHC/BTEX	HCl	BC Analytical	
	2 - 1 liter	Waste O.I	H ₂ SO ₄	"	
	2 - 1 liter	TPHD	None	"	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

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

Contractor: BVS
 Address: 985 Ymohl
 City, State, ZIP: S.S.
 Phone: _____

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 listed 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 directed from one Texaco facility to the designated desitnation point; from one Texaco facility to the designated destination point via another Texaco facility; from a Texaco facility 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
 Address: _____
 City, State, ZIP: _____

Well I.D.	Gals.	Well I.D.	Gals.
<u>Nu 8E1</u>			
<u>1</u>		<u>1</u>	
<u>1</u>		<u>1</u>	
<u>MU 8L 1</u>		<u>1</u>	
<u>1</u>		<u>1</u>	
<u>1</u>		<u>1</u>	
<u>1</u>		<u>1</u>	
<u>1</u>		<u>1</u>	
<u>1</u>		<u>1</u>	
<u>1</u>		<u>1</u>	
<u>1</u>		<u>1</u>	
<u>1</u>		<u>1</u>	
<u>1</u>		<u>1</u>	

Total gals. 72 added rinse water 10
 Total Gals. Recovered 82

Job #: 940825-1
 Date: 2/15
 Time: 1800
 Signature: [Signature]

REC'D AT: _____
 Date: 2/15
 Time: 120
 Signature: [Signature]

**THIRD-QUARTER 1994 PROGRESS REPORT
500 GRAND AVENUE
OAKLAND, CALIFORNIA**

HISTORY OF INVESTIGATIVE AND REMEDIAL ACTIONS

The site is the former location of a Texaco service station location. Currently the site is a fenced, vacant lot. A site preliminary subsurface investigation was conducted in May 1988. During the initial investigation, a soil gas survey was conducted, 15 soil borings were drilled, and 5 on-site groundwater monitoring wells were installed. In 1989, five off-site wells were installed. The initial five on-site wells have been abandoned and replaced by two wells located at the southern perimeter of the site.

Over 2,400 cubic yards of hydrocarbon-impacted soil have been excavated and removed from within the property boundaries. The waste oil tank, tank backfill material, and impacted soil were excavated and disposed of in September 1990. Clay sewer pipes and contaminated soil from an abandoned utility trench near the former waste oil tank were removed from the site in early 1991. Three underground storage tanks, dispenser islands and associated piping, stockpiled soils, and site structures were removed from the site in April 1992. The excavated area was backfilled and compacted using clean imported material.

WORK PERFORMED THIRD QUARTER 1994

Ground-water monitoring was conducted during the quarter. Results are provided in a separate ground-water monitoring report.

PROPOSED INVESTIGATIONS OR REMEDIATION PLANS

All petroleum impacted soils underlying the site, with a possible exception of a very narrow band along the Grand Avenue sidewalk, have been removed by the extensive soil excavation activities. No further investigation or remediation of the vadose-zone soils is proposed.

Ground water at the site has been affected by gasoline, diesel, and hydrocarbons above the range of diesel. Since the removal of on-site contaminated soils, significant reductions in TPH-g and TPH-d concentrations in groundwater have been reported for samples taken from on- and off-site wells. It is proposed that downgradient wells continue to be monitored to document the biodegradation of the remaining dissolved-phase hydrocarbons in the ground water.

METHOD AND LOCATION OF DISPOSAL

Ground water purged during the quarterly monitoring was transported to the Texaco Terminal in Richmond, California, for disposal.

Texaco Environmental Services
Standard Operating Procedures
for Groundwater Monitoring and Sampling

The following are routine procedures to be followed by personnel obtaining field information concerning petroleum product thickness and samples of groundwater during the monitoring and sampling of Texaco sites. These procedures are designed to assure that:

- Information and samples are properly collected.
- Samples are identified, preserved and transported in a manner such that they are representative of field conditions.
- Monitoring and sampling results are reproducible.

Water Level Measurements

Water level measurements are needed to document groundwater flow directions and calculate gradient. By gauging the level of water in a groundwater monitoring well and comparing the compiled data, calculations can be made that determine the direction the groundwater at the monitored well is flowing and the groundwater gradient between successive monitoring wells.

- An interface probe or electronic probe is generally used to gauge the level of water in a monitoring well. When using either probe, it is slowly lowered into the well until the oscillating alarm indicating water is heard. Raise the interface probe above the water level and lower it back into the water at least three times to verify that the true depth to water is measured. Without moving the probe, read the numbers on the tape to determine the distance from the predetermined top of the well casing. A chalked, steel add-tape may also be used to gauge the level of water in a monitoring well. When using the steel tape, it is slowly lowered into the well until the chalked portion of the tape encounters water. Read the numbers on the tape to determine the distance from the predetermined top of the well casing. Raise the tape to the surface grade, re-chalk and lower it back into the water at least two times to verify that the true depth to water is measured. Record the depth to water on the Well Gauging Form and Groundwater Sampling Form.

Petroleum Product Thickness Measurements.

If free phase petroleum hydrocarbons (product) are observed floating on the groundwater surface during the water level measurement, the thickness of the product will be measured in each appropriate well. Groundwater samples will not be collected for chemical analysis from wells containing product unless specifically requested by the Project Coordinator. Product thicknesses will be measured using interface probes, and/or acrylic (clear plastic) bailers. The procedures for obtaining level and thickness measurements using each instrument are:

- The level of the top of the product will be measured with an interface probe. When product is suspected but not measurable with the interface probe, a visual evaluation can be made using clear acrylic bailers. A bailer will be lowered into the water/product surface so that the top of the bailer is NOT submerged; the bailer is then removed from

the well and the thickness of the product visually measured and documented on the Well Gauging Form.

- When the interface probe contacts liquid, the visual/audible alarm on the reel will be activated. An oscillating alarm indicates water, a continuous alarm indicates hydrocarbon. To determine the exact thickness of a hydrocarbon layer, the probe should be slowly lowered to the air/hydrocarbon interface until the alarm is activated. With the probe at the exact point where the alarm comes on, read the numbers on the tape to determine the distance from the predetermined top of casing elevation mark. Next, lower the probe through the hydrocarbon layer and well into the water. An oscillating alarm will be obtained. The probe should then be raised slowly to the hydrocarbon/water interface until the point where the alarm changes from oscillating to continuous. The thickness of the hydrocarbon layer is determined by subtracting the first reading from the second reading. Record the calculated value on the Well Gauging Form and Groundwater Sampling Form.

Groundwater Sampling

Groundwater samples will be collected from selected groundwater monitoring wells to provide data which will be statistically representative of local groundwater conditions at the site. Groundwater samples will be collected as follows:

- All measuring and sampling equipment will be decontaminated prior to sample collection from each well and documented on the Groundwater Sampling Form.
- Prior to sampling activity, the water level of the well will be measured and the minimum purge volume of each well will be calculated using the purge volume calculation portion of the Groundwater Sampling Form. A minimum of three casing volumes will be purged prior to sample collection. The actual total volume purged will be recorded on Groundwater Sampling Form.
- Prior to sampling, a submersible pump, centrifugal pump, peristaltic pump, or a Teflon or stainless steel bailer will be used to purge a minimum of three casing volumes from each well. Purge volumes will be estimated using a flow meter or a stopwatch and a bucket to estimate flow rate, from which a time to purge the required volume will be calculated. The pump will be lowered to a depth of two to three feet from bottom of the well. When bailers are used for purging, the bailer should be gently lowered into the water and allowed to fill then removed. Care should be taken to not agitate the water which could release volatile organics.
- Whenever possible, groundwater parameters (pH, temperature (in degrees Celsius [C]), specific conductance (in micromhos per centimeters squared [umhos]), and turbidity (in National Turbidity Units [NTU]) will be monitored and recorded on the Groundwater Sampling Form.
- If a well is purged dry before three casing volumes have been removed, the sample will be taken after the well has recovered to within 80 percent of the static water level prior to purging or after 4 hours when sufficient water volume is available to meet analytical requirements, whichever comes first. Reasonable efforts will be made to avoid dewatering wells by using low-yield pumps as necessary.

- Water samples will be collected with a stainless steel or Teflon bailer. To reduce potential cross contamination, sampling should take place in order from least to most contaminated wells. Bailer strings should be replaced between each well to avoid cross contamination from a bailer string which has absorbed contamination.
- Sample containers will be filled directly from the bailer.
- Use only sample containers prepared and provided by an analytical laboratory. Preservatives are required for some types of samples. Sample containers containing preservatives should be supplied by an analytical laboratory.
- For volatile organics analysis, each sample vial will be filled with sample water so that water stands above the lip of the vial. The cap should then be quickly placed on the vial and tightened securely. The vial should then be checked to ensure that no air bubbles are present prior to labeling the sample.
- Take site blank samples (trip and rinsate) using distilled water or laboratory supplied water from a known uncontaminated source. One trip blank and one rinsate blank sample for each site will be analyzed for each site sampling event.
- Once collected and labeled, all samples will be stored in cooler maintained at 4 degrees Celsius using frozen water ice.

Sample Custody Procedures

Sample custody procedures will be followed through sample collection, transfer, analysis and ultimate disposal. The purpose of these procedures is to assure that the integrity of samples is maintained during their collection and transfer. Sample quantities, types and locations will be determined before the actual field work begins. As few people as possible will handle samples. The field sampler is personally responsible for the care and custody of the collected samples until they are properly transferred.

Each sample will be labelled and sealed properly immediately after collection. Sample identification documents will be carefully prepared so that identification and chain-of-custody records can be maintained and sample disposition can be controlled. Forms will be filled out with waterproof ink. The following are sample identification documents that will be utilized during the field operations.

- Sample Identification Label
- Chain-of Custody

Each separate sample will be identified using a label obtained from the laboratory. The sampler will complete all information, using a black waterproof pen, as follows:

The Site ID This is the name assigned to the particular sampling station.

The Sample Source. This will be the name of the well location.

The Analysis Required. This will be indicated for each sample using proper EPA reference

number indicating analytical method.

The Date Taken. This will be the date the sample was collected, using the format MM-DD-YY.
Example: 06-15-91

Noting the Time. The time the sample was collected will be given in military time.
Example: 1430

The Method of Preservation. Preservation methods will be provided, specifying the type of preservation. For non-acidified samples, "ice" will be indicated.

The Sampler's Name. This will be printed in the "Sampled By" section. The sampler's signature will be written in the "Signed" section.

There is the potential that samples and analysis could be of an evidentiary nature. Therefore, the possession of samples must be traceable from the time samples are collected in the field until the analysis is completed and the data are entered as evidence. The tracing of the samples through the laboratory is accomplished by "chain-of-custody" procedures. Chain-of-Custody Forms will be completed for each set of samples. The sampler will sign the first "Relinquished By" line at the bottom of the chain of custody record, and will indicate the date and time of the custody transfer. Samples will not leave custody of the field technician until relinquished to another party. Custody is defined by the following criteria.

In the Actual Physical Possession. When field personnel have sample in possession, they have "custody".

In View. The field personnel view after being in physical possession.

Special Areas. Sample is kept in a locked area after being in physical possession.

Designated Area. Sample is in a designated, locked-storage area.

Transfer of samples to an analytical laboratory will be done by use of a common carrier or personal delivery. Carrier personnel will personally secure samples and sample containers in such a way that no containers can be opened in transit. The person to whom custody is being transferred will sign on the first "Received By" line of the chain-of-custody record, indicating that custody is being accepted by the carrier for all the samples listed on the sheet. For subsequent transfers of custody, the succeeding relinquish and receipt lines will be used.

Equipment Decontamination

All equipment that comes in contact with potentially contaminated soil or water will be decontaminated prior to and after each use (for example, after each sampling event). All hand bailers and will be decontamination with an Alconox wash with deionized (DI) water rinse.