



Texaco Refining
and Marketing Inc

108 Cutting Boulevard
Richmond CA 94804

March 21, 1996

ENV - STUDIES, SURVEYS, & REPORTS

**500 Grand Avenue
Oakland, California**

Ms. Susan Hugo
Alameda County Environmental
Health Department
1131 Harbor Bay Pky.
Alameda, CA 94502-6577

Dear Ms. Hugo:

Enclosed is the 1st Quarter 1996 Groundwater Monitoring and Sampling Report for the subject site.

If you have any questions or comments regarding this site, please call Deborah Pryor at (818) 505-3113.

Best Regards,

R.R. Zielinski
Project Manager
Texaco Refining & Marketing Inc. - EH&S

RRZ:eg
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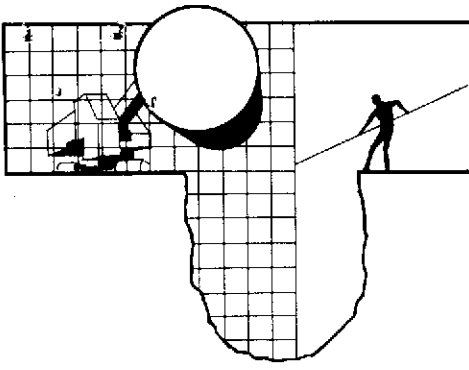
Enclosures

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

RAOFile-UCPFile (w/enclosures) DRPryor - RZielinski (w/o enclosures)

pr: *DLP*

ENVIRONMENTAL
PROTECTION
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BLAINE TECH SERVICES INC.

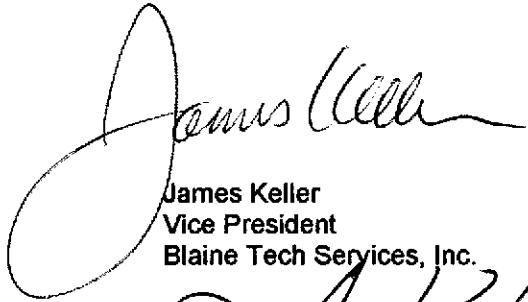
985 TIMOTHY DRIVE
SAN JOSE, CA 95133
(408) 995-5535
FAX (408) 293-8773

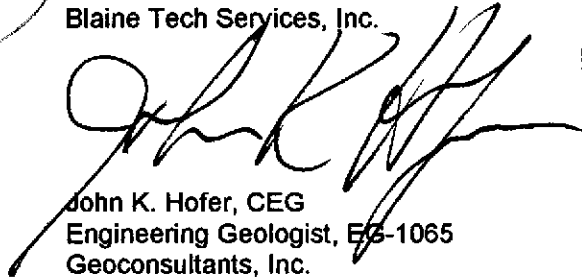
March 4, 1996

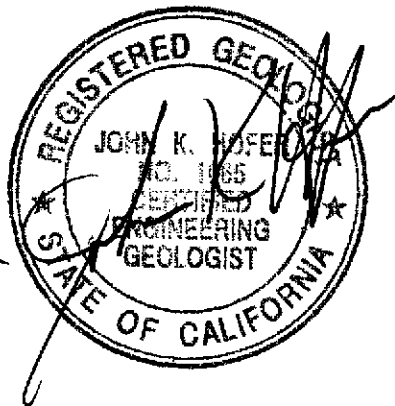
**Groundwater Monitoring and Sampling
First Quarter, 1996
at the
Former Texaco Service Station
500 Grand Avenue
Oakland, CA**

This letter presents the results of groundwater monitoring and sampling conducted by Blaine Tech Services, Inc. on February 5, 1996, at the site referenced above (see Plate 1, Site Vicinity Map). Based on groundwater level measurements, the areal hydraulic gradient was estimated 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.

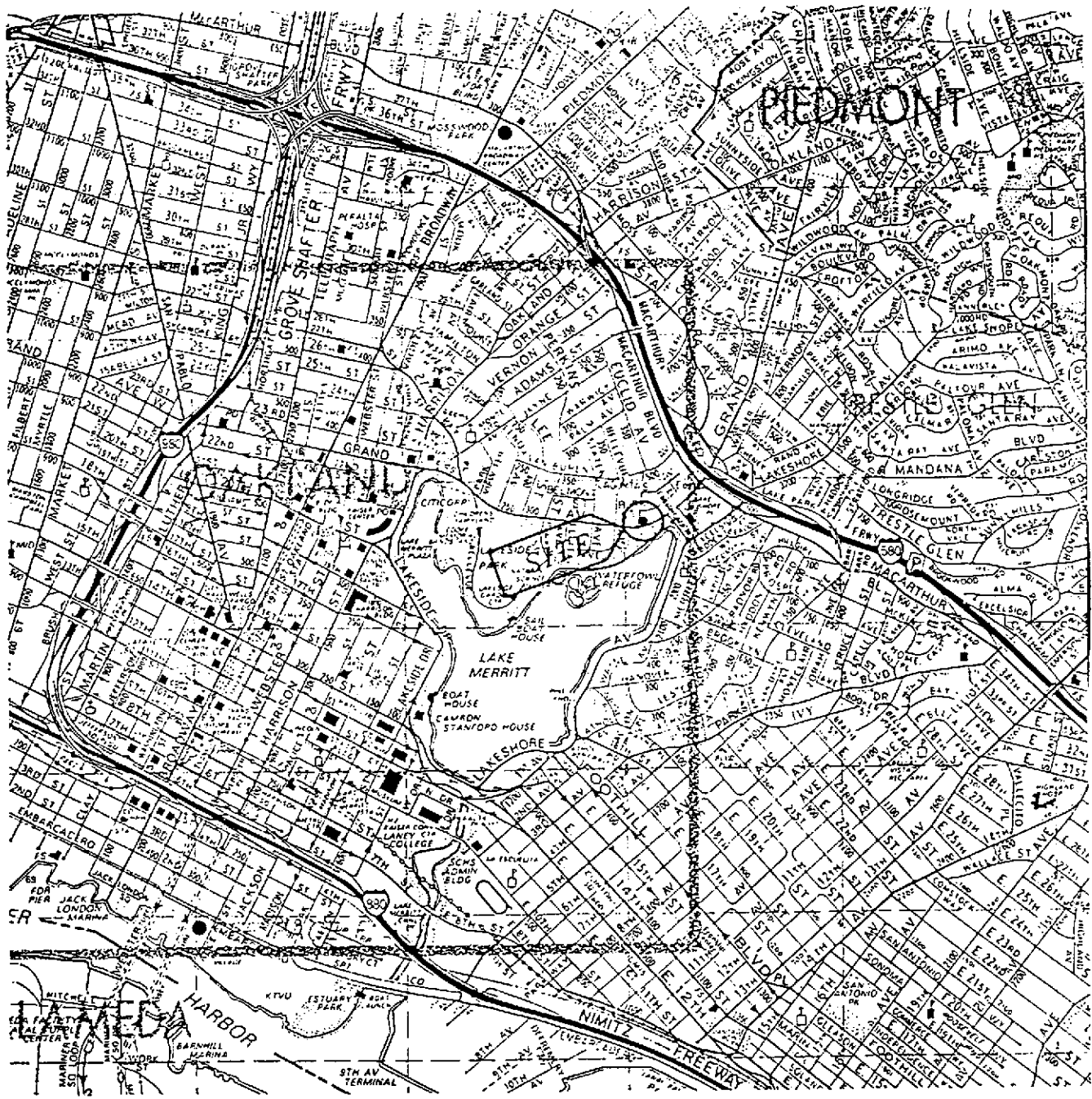
The certified analytical report, chain-of-custody, field data sheets, bill of lading, and quarterly summary report are in the Appendix, along with Texaco Environmental Services' Standard Operating Procedures.


James Keller
Vice President
Blaine Tech Services, Inc.

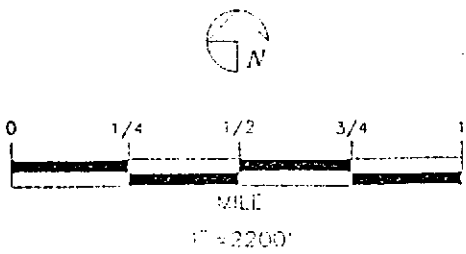

John K. Hofer, CEG
Engineering Geologist, EG-1065
Geoconsultants, Inc.



JPK:cf

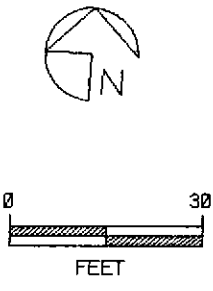


SOURCE:
 1993 THE THOMAS GUIDE
 ALAMEDA COUNTY, PAGE 9 (D4)



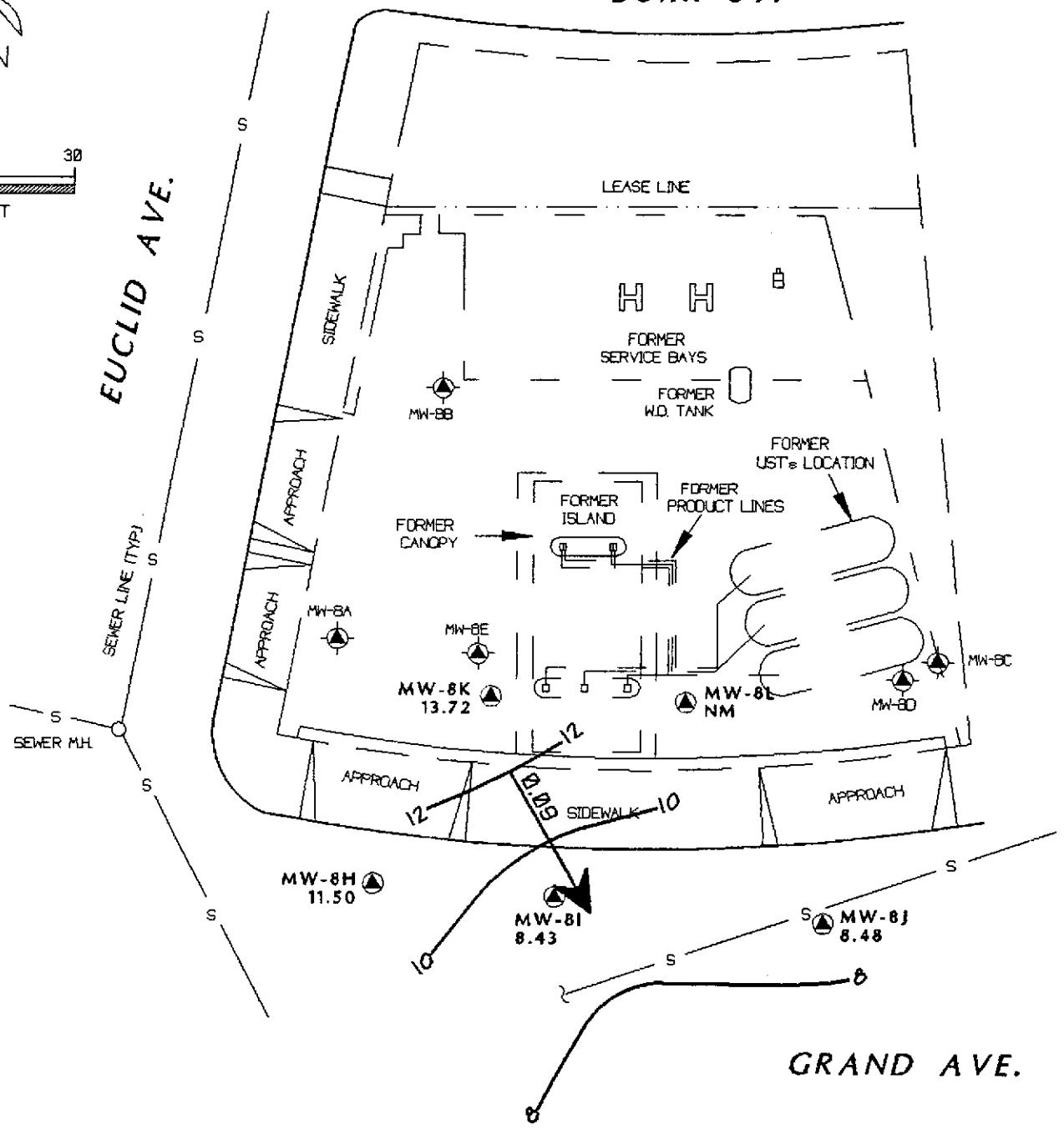
TEXACO
 REFINING AND MARKETING, INC.
 TEXACO ENVIRONMENTAL SERVICES

PLATE 1
 SITE VICINITY MAP
 FORMER TEXACO SERVICE STATION
 500 GRAND AVE. / EUCLID AVE.,
 OAKLAND, CALIFORNIA



BURK ST.

EUCLID AVE.



GRAND AVE.

EXPLANATION	
	GROUNDWATER MONITORING WELL LOCATION AND WELL NUMBER
	ABANDONED GROUNDWATER MONITORING WELL LOCATION AND WELL NUMBER
6.88	GROUND-WATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
NM	NOT MEASURED
	GROUND-WATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL
	APPROXIMATE DIRECTION OF GROUND-WATER FLOW. GRADIENT INDICATED IN FEET / FEET

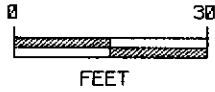


LAKE MERRIT PARK

TITLE : GROUND-WATER ELEVATION CONTOUR MAP - FEBRUARY 5, 1996
 LOCATION : FORMER TEXACO SERVICE STATION 500 GRAND AVE./ EUCLID AVE., OAKLAND, CALIFORNIA
 SOURCE : TEXACO, REFINING AND MARKETING ENVIRONMENTAL SERVICES

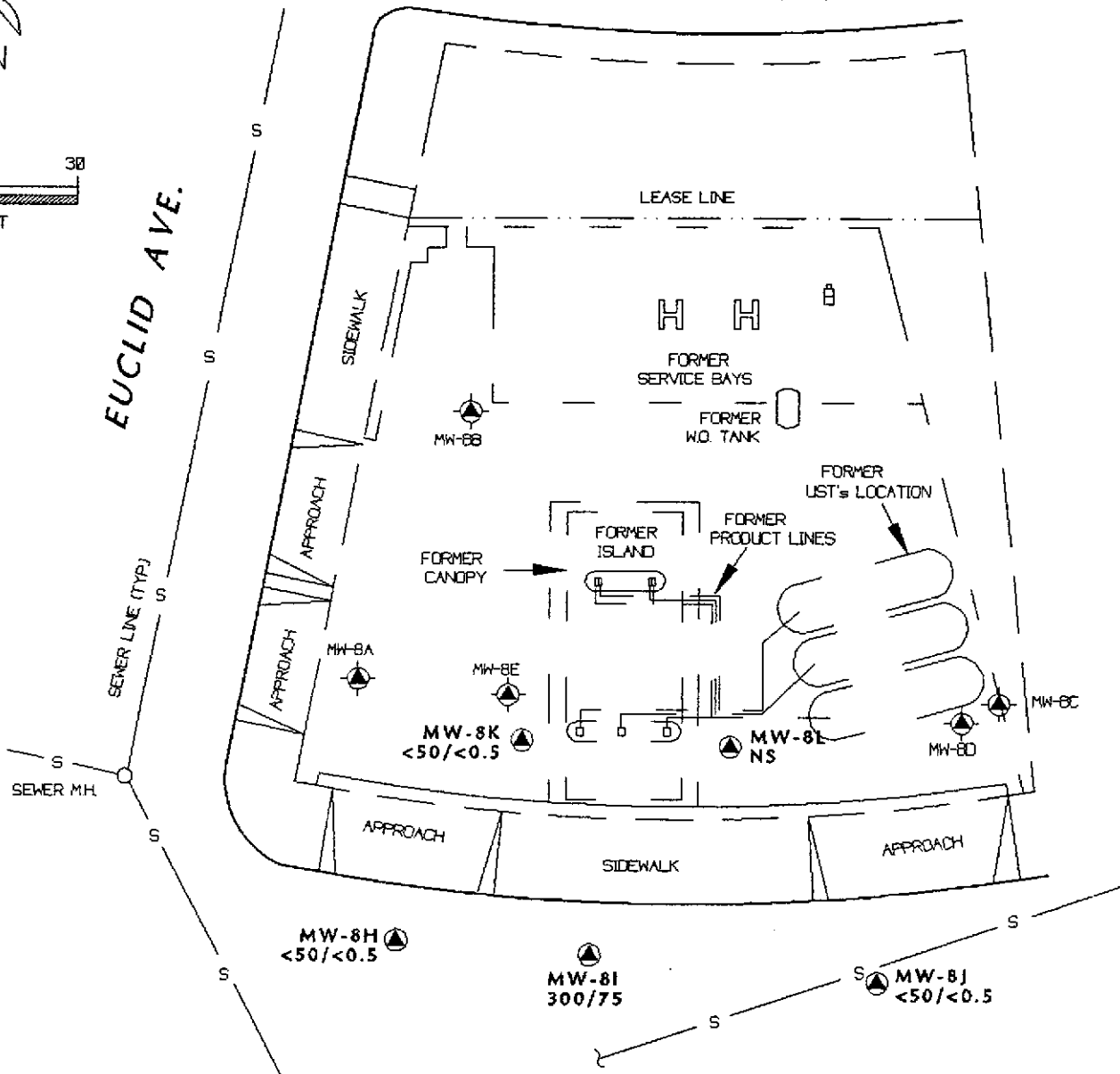


GEOCONSULTANTS, INC
 SAN JOSE, CALIFORNIA
 Project No. G758-11
 DRAWING NO. TEXACO/BERK-K/1020596



BURK ST.

EUCLID AVE.



GRAND AVE.

EXPLANATION

- MW-8I GROUNDWATER MONITORING WELL LOCATION AND WELL NUMBER
- MW-8C ABANDONED GROUNDWATER MONITORING WELL LOCATION AND WELL NUMBER
- 300/75 TPH AS GASOLINE / BENZENE CONCENTRATIONS (ug/L)
- NS NOT SAMPLED

MW-8F <50/<0.5

MW-8G <50/<0.5

LAKE MERRIT PARK

TITLE : TPH AS GASOLINE AND BENZENE CONCENTRATIONS MAP - FEBRUARY 5, 1996

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

SOURCE : TEXACO; REFINING AND MARKETING ENVIRONMENTAL SERVICES



GEOCONSULTANTS, INC

SAN JOSE, CALIFORNIA

Project No. G758-11

DRAWING NO. TEXACO/OK-GR-EU/G020596

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

Well Number	Date Gauged	Top of Casing Elevation (feet, MSL)	Depth to Water (feet, TOC)	Elevation of Groundwater (feet, MSL)
MW-8A	Well Properly Abandoned			
MW-8B	Well Properly Abandoned			
MW-8C	Well Properly Abandoned			
MW-8D	Well Properly Abandoned			
MW-8E	Well Properly Abandoned			
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
	11/02/94		10.42	3.62
	01/31/95		7.47	6.57
	05/18/95		8.00	6.04
	08/29/95		8.08	5.96
	11/02/95		8.70	5.34
	02/05/96		7.16	6.88

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

Well Number	Date Gauged	Top of Casing Elevation (feet, MSL)	Depth to Water (feet, TOC)	Elevation of Groundwater (feet, MSL)
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
	11/02/94		10.08	3.24
	01/31/95		5.75	7.57
	05/18/95		6.60	6.72
	08/29/95		8.14	5.18
	11/02/95		9.16	4.16
	02/05/96		7.18	6.14
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
	11/02/94		3.64	11.40
	01/31/95		3.58	11.46
	05/18/95		3.53	11.51
	08/29/95		3.55	11.49
	11/02/95		3.49	11.55
	02/05/96		3.54	11.50

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

Well Number	Date Gauged	Top of Casing Elevation (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
	11/02/94		6.10	8.30
	01/31/95		5.83	8.57
	05/18/95		6.09	8.31
	08/29/95		6.09	8.31
	11/02/95		6.26	8.14
	02/05/96		5.97	8.43
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
	11/02/94		5.90	7.92
	01/31/95		5.07	8.75
	05/18/95		5.33	8.49
	08/29/95		3.50	10.32
	11/02/95		5.94	7.88
	02/05/96		5.34	8.48

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

Well Number	Date Gauged	Top of Casing Elevation (feet, MSL)	Depth to Water (feet, TOC)	Elevation of Groundwater (feet, MSL)
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
	11/02/94		2.10	13.08
	01/31/95		1.35	13.83
	05/18/95		1.36	13.82
	08/29/95		1.55	13.63
	11/02/95		1.88	13.30
	02/05/96		1.46	13.72
	MW-8L	08/16/93	14.44 *	2.47
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
11/02/94			Well Obstructed	
01/31/95			0.08	14.36
05/18/95			0.42	14.02
08/29/95			Well Inaccessible	
11/02/95			Well Inaccessible	
02/05/96			Well Inaccessible	
* = 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)	MTBE (ppb)	TPHd (ppm)	TPH as Other* (ppm)
MW-8A	Well properly abandoned								
MW-8B	Well properly abandoned								
MW-8C	Well properly abandoned								
MW-8D	Well properly abandoned								
MW-8E	Well properly abandoned								
MW-8F	01/23/92	<50	4.0	1.3	<0.5	1.9	NA	1.3	NA
	04/30/92	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<500
	09/28/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA
	11/19/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA
	02/12/93	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	NA
	05/06/93	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.1	<50
	08/16/93	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50
	10/12/93	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50
	05/31/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	0.53
	08/25/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	1.4
	11/02/94	<50	<0.5	<0.5	<0.5	<0.5	NA	0.52	<5
	01/31/95	<50	<0.5	<0.5	<0.5	<0.5	NA	0.29	<5
	05/18/95	<50	<0.5	<0.5	<0.5	<0.5	NA	0.054	<5
	08/29/95	<50	<0.5	<0.5	<0.5	<0.5	<10	0.083	<5
	11/02/95	<50	<0.5	<0.5	<0.5	<0.5	<10	0.051	<5
	02/05/96	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	0.89
MW-8G	** 01/24/92	<50	<0.5	<0.5	<0.5	<0.5	NA	0.98	NA
	04/30/92	<50	1.7	<0.5	<0.5	<0.5	NA	<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	NA	0.06	<250
	08/16/93	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50
	10/12/93	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50
	05/31/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<0.2
	08/25/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	0.86
	11/02/94	<50	<0.5	<0.5	<0.5	<0.5	NA	0.53	<5
	01/31/95	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5
	05/18/95	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5
	08/29/95	<50	<0.5	<0.5	<0.5	<0.5	<10	0.12	<5
	11/02/95	<50	<0.5	<0.5	<0.5	<0.5	<10	0.14	<5
	02/05/96	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	0.51

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)	MTBE (ppb)	TPHd (ppm)	TPH as Other* (ppm)
MW-8H	01/23/92	110	7.2	1.2	4.7	3.2	NA	<0.06	NA
	04/30/92	190	11	1.5	5.6	3.6	NA	0.09	<500
	09/28/92	Well Inaccessible							
	11/19/92	130	6.8	<0.5	1.1	1.5	NA	NA	NA
	02/12/93	73	5.9	<0.5	0.8	<0.5	NA	NA	NA
	05/06/93	57	1.7	<0.5	<0.5	<0.5	NA	<0.1	<50
	08/16/93	<50	0.5	<0.5	0.5	1.4	NA	<0.05	<50
	10/12/93	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50
	05/31/94	<50	0.79	<0.5	<0.5	<0.5	NA	<0.05	1.6
	08/25/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	4.0
	11/02/94	<50	<0.5	<0.5	<0.5	<0.5	NA	0.76	<5
	01/31/95	<50	<0.5	<0.5	<0.5	<0.5	NA	0.19	<5
	05/18/95	<50	<0.5	<0.5	<0.5	<0.5	NA	0.37	6.6
	08/29/95	<50	<0.5	<0.5	<0.5	<0.5	<10	1.0	<5
	11/02/95	<50	<0.5	<0.5	<0.5	<0.5	<10	<0.05	5.8
02/05/96	<50	<0.5	<0.5	<0.5	<0.5	NA	0.19	2.3	
MW-8I	01/23/92	820	420	7	27	20	NA	0.21	NA
	04/30/92	2,200	1,800	19	180	25	NA	0.43	<500
	09/28/92	Well Inaccessible							
	11/19/92	720	120	1.1	29	13	NA	NA	NA
	02/12/93	4,000	970	9.2	52	36	NA	NA	NA
	05/06/93	1,400	370	2.4	40	8.4	NA	<0.01	<50
	08/16/93	<50	3.1	<0.5	6	<0.5	NA	<0.05	<50
	10/12/93	<50	1.4	<0.5	<0.5	<0.5	NA	<0.05	<50
	02/03/94	1,000	270	3.2	51	14	NA	<0.05	<50
	05/31/94	1,400	330	4.6	52	16	NA	<0.05	0.33
	08/25/94	540	14	0.58	30	4.3	NA	<0.05	0.73
	11/02/94	310	5.7	0.74	20	<0.5	NA	0.37	<5
	01/31/95	840	290	4.5	45	1.6	NA	0.91	<5
05/18/95	1,700	390	7.8	80	10	NA	1.1	<5	
08/29/95	300	81	<0.5	13	0.63	<10	0.56	<5	
11/02/95	81	<0.5	4.1	1.5	<0.5	<10	0.16	<5	
02/05/96	300	75	0.75	8.4	1.2	NA	0.14	<0.5	

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)	MTBE (ppb)	TPHd (ppm)	TPH as Other* (ppm)	
MW-8J	01/23/92	<50	1	<0.5	<0.5	<0.5	NA	<0.05	NA	
	04/30/92	<50	2	<0.5	<0.5	<0.5	NA	<0.05	<500	
	09/28/92	Well Inaccessible								
	11/19/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	
	02/12/93	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	
	05/06/93	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.01	<50	
	08/16/93	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50	
	10/12/93	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50	
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50	
	05/31/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<0.2	
	08/25/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	1.0	
	11/02/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5	
	01/31/95	<50	3.7	<0.5	<0.5	<0.5	NA	<0.05	<5	
	08/29/95	<50	<0.5	<0.5	<0.5	<0.5	<10	0.25	<5	
	05/18/95	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5	
08/29/95	<50	<0.5	<0.5	<0.5	<0.5	<10	0.25	<5		
11/02/95	<50	<0.5	<0.5	<0.5	<0.5	<10	0.52	<5		
02/05/96	<50	<0.5	<0.5	<0.5	<0.5	NA	0.065	1.0		
MW-8K	05/21/93	54	12	<0.5	<0.5	<0.5	NA	<0.05	<50	
	08/16/93	<50	<0.5	<0.5	1.0	<0.5	NA	<0.05	<50	
	10/24/93	<50	4.2	<0.5	<0.5	<0.5	NA	<0.05	<50	
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50	
	05/31/94	<50	1.0	0.57	<0.5	<0.5	NA	<0.05	<0.2	
	08/25/94	<50	0.78	<0.5	<0.5	<0.5	NA	<0.05	0.98	
	11/02/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5	
	01/31/95	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5	
	05/18/95	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5	
	08/29/95	<50	<0.5	<0.5	<0.5	<0.5	<10	0.16	<5	
	11/02/95	<50	<0.5	<0.5	<0.5	<0.5	<10	<0.05	<5	
	02/05/96	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<0.5	
MW-8L	05/21/93	76	1.1	<0.5	<0.5	6	NA	<0.05	<50	
	08/16/93	<50	<0.5	<0.5	0.7	1.1	NA	<0.05	<50	
	10/12/93	110	13	<0.5	6	<0.5	NA	<0.05	<50	
	02/03/94	590	61	2.4	<0.5	110	NA	<0.05	<50	
	05/31/94	410	77	<0.5	20	1.1	NA	<0.05	<0.2	
	08/25/94	260	16	<0.5	2.5	<0.5	NA	<0.05	1.1	
	11/02/94	Not Sampled								
	01/31/95	Not Sampled								
	05/18/95	Not Sampled								
	08/29/95	Not Sampled								
	11/02/95	Not Sampled								
02/05/96	Not Sampled									

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)	MTBE (ppb)	TPHd (ppm)	TPH as Other* (ppm)
EB	08/25/94	69	<0.5	<0.5	<0.5	<0.5	NA	<0.05	0.71
	11/02/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5
	05/18/95	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5
	08/29/95	<50	<0.5	<0.5	<0.5	<0.5	<10	0.059	<5
	11/02/95	<50	<0.5	<0.5	<0.5	<0.5	<10	<0.05	<5
	02/05/96	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<0.5
TB	08/25/94	52	<0.5	<0.5	<0.5	<0.5	NA	NA	NA
	11/02/94	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA
	05/18/95	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA
	08/29/95	<50	<0.5	<0.5	<0.5	<0.5	<10	NA	NA
	11/02/95	<50	<0.5	<0.5	<0.5	<0.5	<10	NA	NA
	02/05/96	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA
MTBE = Methyl-tert-butylether									
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.									

801 Western Avenue
 Glendale, CA 91201
 818/247-5737
 Fax: 818/247-9797

LOG NO: G96-02-114

Received: 06 FEB 96

Mailed: FEB 16 1996

Ms. Caron French
 Blaine Tech Services
 985 Timothy Drive
 San Jose, California 95133

Purchase Order: 94-1446346+4370

Requisition: 624880235
 Project: FKEP1014L

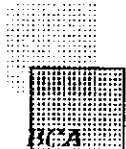
REPORT OF ANALYTICAL RESULTS

Page 1

AQUEOUS

SAMPLE DESCRIPTION	DATE SAMPLED	TRPH (CADHS/418.1)	TPH (CADHS/3510)		Dilution Factor	TPH-d mg/L	Carbon Range	TPH/BTEX (CADHS/8020)		TPH-g ug/L
			Date Extracted	Date Analyzed				Date Analyzed	Dilution Factor	
RDL		5000				0.05			1	50
1*MW8 F	02/05/96	0.89	02/08/96	02/09/96	1	<0.05	C10-C25	02/08/96	1	<50
2*MW8 G	02/05/96	0.51	02/08/96	02/09/96	1	<0.05	C10-C25	02/08/96	1	<50
3*MW8 H	02/05/96	2.3	02/08/96	02/09/96	1	0.19	C10-C25	02/08/96	1	<50
4*MW8 I	02/05/96	<0.5	02/08/96	02/09/96	1	0.14	C10-C25	02/08/96	1	300
5*MW8 J	02/05/96	1.0	02/08/96	02/09/96	1	0.065	C10-C25	02/08/96	1	<50
6*MW8 K	02/05/96	<0.5	02/08/96	02/09/96	1	<0.05	C10-C25	02/08/96	1	<50

Tom Hargett
 500 Grand Ave., Oakland
 Alameda County
 The diesel range organics quantitated in the
 MW8 H, MW8 I and MW8 J samples did not display a
 typical diesel pattern.
 J. Winter, 2/16/96



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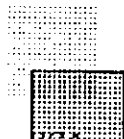
Requisition: 624880235
 Project: FKEP1014L

REPORT OF ANALYTICAL RESULTS

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AQUEOUS

SAMPLE DESCRIPTION	DATE SAMPLED	TPH/BTEX (CADHS/8020)					Carbon Range
		Benzene ug/L	Toluene ug/L	Ethyl-Benzene ug/L	Total Xylenes Isomers ug/L		
RDL		0.5	0.5	0.5	0.5		
1*MWB F	02/05/96	<0.5	<0.5	<0.5	<0.5	C6-C12	
2*MWB G	02/05/96	<0.5	<0.5	<0.5	<0.5	C6-C12	
3*MWB H	02/05/96	<0.5	<0.5	<0.5	<0.5	C6-C12	
4*MWB I	02/05/96	75	0.75	8.4	1.2	C6-C12	
5*MWB J	02/05/96	<0.5	<0.5	<0.5	<0.5	C6-C12	
6*MWB K	02/05/96	<0.5	<0.5	<0.5	<0.5	C6-C12	



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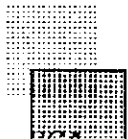
Requisition: 624880235
 Project: FKPE1014L

REPORT OF ANALYTICAL RESULTS

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AQUEOUS

SAMPLE DESCRIPTION	DATE SAMPLED	TRPH (CADHS/418.1) mg/L	TPH (CADHS/3510)		Dilution Factor Times	TPH-d mg/L	Carbon Range	TPH/BTEX (CADHS/8020)		TPH-g ug/L
			Date Extracted Date	Date Analyzed Date				Date Analyzed Date	Dilution Factor Times	
RDL		5000				0.05			1	50
7*EB	02/05/96	<0.5	02/08/96	02/09/96	1	<0.05	C10-C25	02/08/96	1	<50



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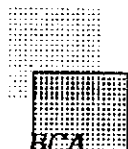
Requisition: 624880235
 Project: FKEP1014L

REPORT OF ANALYTICAL RESULTS

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AQUEOUS

SAMPLE DESCRIPTION	DATE SAMPLED	TPH/BTEX (CADHS/8020)					Carbon Range
		Benzene ug/L	Toluene ug/L	Ethyl-Benzene ug/L	Total Xylenes Isomers ug/L		
RDL		0.5	0.5	0.5	0.5		
7*EB	02/05/96	<0.5	<0.5	<0.5	<0.5	C6-C12	



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REPORT OF ANALYTICAL RESULTS

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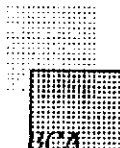
AQUEOUS

SAMPLE DESCRIPTION	DATE SAMPLED	TPH/BTEX (CADHS/8020)	Date Analyzed Date	Dilution Factor Times	TPH-g	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	Carbon Range
					ug/L	ug/L	ug/L	ug/L	ug/L	
RDL				1	50	0.5	0.5	0.5	0.5	
8*TB	02/05/96	02/12/96		1	<50	<0.5	<0.5	<0.5	<0.5	C6-C12

Dick Swenson
 Dick Swenson, Laboratory Director

The analytical results within this report relate only to the specific compounds and samples investigated and may not necessarily reflect other apparently similar material from the same or a similar location.

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SAMPLES...	SAMPLE DESCRIPTION..	DETERM.....	DATE.....	METHOD.....	EQUIP.	BATCH..	ID.NO
			ANALYZED				
9602114*1	MW8 F	IR.PETROHC	02.15.96	418.1	533-17	9615	8106
		DIESEL.3520.TES	02.09.96	8015M	536-25	9631	8042
		GAS.BTX.TESNC	02.08.96	8015M.TX	536-35	96421	8171
9602114*2	MW8 G	IR.PETROHC	02.15.96	418.1	533-17	9615	8106
		DIESEL.3520.TES	02.09.96	8015M	536-25	9631	8042
		GAS.BTX.TESNC	02.08.96	8015M.TX	536-35	96421	8171
9602114*3	MW8 H	IR.PETROHC	02.15.96	418.1	533-17	9615	8106
		DIESEL.3520.TES	02.09.96	8015M	536-25	9631	8042
		GAS.BTX.TESNC	02.08.96	8015M.TX	536-35	96421	8171
9602114*4	MW8 I	IR.PETROHC	02.15.96	418.1	533-17	9615	8106
		DIESEL.3520.TES	02.09.96	8015M	536-25	9631	8042
		GAS.BTX.TESNC	02.08.96	8015M.TX	536-35	96421	8171
9602114*5	MW8 J	IR.PETROHC	02.15.96	418.1	533-17	9615	8106
		DIESEL.3520.TES	02.09.96	8015M	536-25	9631	8042
		GAS.BTX.TESNC	02.08.96	8015M.TX	536-35	96421	8171
9602114*6	MW8 K	IR.PETROHC	02.15.96	418.1	533-17	9615	8106
		DIESEL.3520.TES	02.09.96	8015M	536-25	9631	8042
		GAS.BTX.TESNC	02.08.96	8015M.TX	536-35	96421	8171
9602114*7	EB	IR.PETROHC	02.15.96	418.1	533-17	9615	8106
		DIESEL.3520.TES	02.09.96	8015M	536-25	9631	8042
		GAS.BTX.TESNC	02.08.96	8015M.TX	536-35	96421	8171
9602114*8	TB	GAS.BTX.TESNC	02.12.96	8015M.TX	536-23	96522	8501

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 G9602114

DATE REPORTED : 02/16/96

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LABORATORY CONTROL STANDARDS
FOR BATCHES WHICH INCLUDE THIS ORDER

PARAMETER		DATE ANALYZED	BATCH NUMBER	LC RESULT	LT RESULT	UNIT	PERCENT RECOVERY
1. TRPH	C6021723*1	02.15.96	9615	1.54	1.32	mg/L	117
2. TRPH	C6021724*1	02.15.96	9615	1.57	1.32	mg/L	119
3. TPH	C602846*1						
Date Analyzed		02.09.96	9631	02/09/96	02/09/96	Date	N/A
Date Extracted		02.09.96	9631	02/08/96	02/08/96	Date	N/A
TPH (Diesel Range)		02.09.96	9631	1.24	1.00	mg/L	124
Naphthalene Reported		02.09.96	9631	0.0646	0.0500	mg/L	129 Q
Naphthalene Theoretical		02.09.96	9631	0.0500	0.0500	mg/L	100
4. TPH	C6021315*1						
Date Analyzed		02.09.96	9631	02/09/96	02/09/96	Date	N/A
Date Extracted		02.09.96	9631	02/08/96	02/08/96	Date	N/A
TPH (Diesel Range)		02.09.96	9631	1.13	1.00	mg/L	113
Naphthalene Reported		02.09.96	9631	0.0552	0.0500	mg/L	110
Naphthalene Theoretical		02.09.96	9631	0.0500	0.0500	mg/L	100
5. GRO	C6021252*1						
Date Analyzed		02.08.96	96421	02/08/96	02/08/96	Date	N/A
Benzene		02.08.96	96421	18.8	15.2	ug/L	124
Toluene		02.08.96	96421	86.4	97.4	ug/L	89
Ethylbenzene		02.08.96	96421	17.9	20.4	ug/L	88
Total Xylene Isomers		02.08.96	96421	99.3	119	ug/L	83
TPH (Gasoline Range)		02.08.96	96421	1120	1100	ug/L	102
a,a,a-Trifluorotoluene Rep.		02.08.96	96421	58.8	50.0	ug/L	118
a,a,a-Trifluorotoluene Th.		02.08.96	96421	50.0	50.0	ug/L	100
6. GRO	C6021354*1						
Date Analyzed		02.12.96	96522	02/12/96	02/12/96	Date	N/A
Benzene		02.12.96	96522	16.9	15.2	ug/L	111
Toluene		02.12.96	96522	104	97.4	ug/L	107
Ethylbenzene		02.12.96	96522	21.1	20.4	ug/L	103
Total Xylene Isomers		02.12.96	96522	127	119	ug/L	107
TPH (Gasoline Range)		02.12.96	96522	1110	1100	ug/L	101
a,a,a-Trifluorotoluene Rep.		02.12.96	96522	54.0	50.0	ug/L	108
a,a,a-Trifluorotoluene Th.		02.12.96	96522	50.0	50.0	ug/L	100

BC ANALYTICAL

ORDER QC REPORT FOR G9602114

DATE REPORTED : 02/16/96

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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. TRPH		02.15.96	9615	1.54	1.57	mg/L	2
2. TPH							
Date Analyzed		02.09.96	9631	02/09/96	02/09/96	Date	N/A
Date Extracted		02.09.96	9631	02/08/96	02/08/96	Date	N/A
TPH (Diesel Range)		02.09.96	9631	1.24	1.13	mg/L	9
Naphthalene Reported		02.09.96	9631	0.0646	0.0552	mg/L	16
Naphthalene Theoretical		02.09.96	9631	0.0500	0.0500	mg/L	0

BC ANALYTICAL

ORDER QC REPORT FOR G9602114

DATE REPORTED : 02/16/96

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MATRIX QC ACCURACY (SPIKES)
BATCH QC REPORT

PARAMETER	SAMPLE NUMBER	DATE ANALYZED	BATCH NUMBER	MS %	MSD %	TRUE RESULT	UNIT	
1. TPH	9602114*2							
TPH (Diesel Range)		02.09.96	9631	142 Q	151 Q	1.01	mg/L	Q
Naphthalene Reported		02.09.96	9631	124	122	0.0500	mg/L	
Naphthalene Theoretical		02.09.96	9631	100	100	0.0500	mg/L	
2. GRO	9602114*1							
Benzene		02.08.96	96421	130 Q	128 Q	15.2	ug/L	Q
Toluene		02.08.96	96421	92	92	97.4	ug/L	
Ethylbenzene		02.08.96	96421	91	90	20.4	ug/L	
Total Xylene Isomers		02.08.96	96421	87	86	119	ug/L	
TPH (Gasoline Range)		02.08.96	96421	100	100	1100	ug/L	
a,a,a-Trifluorotoluene Rep.		02.08.96	96421	111	109	50.0	ug/L	
a,a,a-Trifluorotoluene Th.		02.08.96	96421	100	100	50.0	ug/L	
3. GRO	9602249*2							
Benzene		02.12.96	96522	95	101	15.2	ug/L	
Toluene		02.12.96	96522	91	94	97.4	ug/L	
Ethylbenzene		02.12.96	96522	87	92	20.4	ug/L	
Total Xylene Isomers		02.12.96	96522	89	87	119	ug/L	
TPH (Gasoline Range)		02.12.96	96522	105	109	1100	ug/L	
a,a,a-Trifluorotoluene Rep.		02.12.96	96522	111	114	50.0	ug/L	
a,a,a-Trifluorotoluene Th.		02.12.96	96522	100	100	50.0	ug/L	

BC ANALYTICAL

ORDER QC REPORT FOR G9602114

DATE REPORTED : 02/16/96

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. TPH	9602114*2						
Date Analyzed		02.09.96	9631	02/09/96	02/09/96	Date	N/A
Date Extracted		02.09.96	9631	02/08/96	02/08/96	Date	N/A
TPH (Diesel Range)		02.09.96	9631	1.43	1.53	mg/L	7
Naphthalene Reported		02.09.96	9631	0.0619	0.0612	mg/L	1
Naphthalene Theoretical		02.09.96	9631	0.0500	0.0500	mg/L	0
2. GRO	9602114*1						
Date Analyzed		02.08.96	96421	02/08/96	02/08/96	Date	N/A
Benzene		02.08.96	96421	19.7	19.5	ug/L	1
Toluene		02.08.96	96421	89.4	89.4	ug/L	0
Ethylbenzene		02.08.96	96421	18.6	18.4	ug/L	1
Total Xylene Isomers		02.08.96	96421	103	102	ug/L	1
TPH (Gasoline Range)		02.08.96	96421	1100	1100	ug/L	0
a,a,a-Trifluorotoluene Rep.		02.08.96	96421	55.5	54.7	ug/L	1
a,a,a-Trifluorotoluene Th.		02.08.96	96421	50.0	50.0	ug/L	0
3. GRO	9602249*2						
Date Analyzed		02.12.96	96522	02/12/96	02/12/96	Date	N/A
Benzene		02.12.96	96522	14.4	15.3	ug/L	6
Toluene		02.12.96	96522	88.5	91.4	ug/L	3
Ethylbenzene		02.12.96	96522	17.7	18.8	ug/L	6
Total Xylene Isomers		02.12.96	96522	106	103	ug/L	3
TPH (Gasoline Range)		02.12.96	96522	1160	1200	ug/L	3
a,a,a-Trifluorotoluene Rep.		02.12.96	96522	55.7	57.2	ug/L	3
a,a,a-Trifluorotoluene Th.		02.12.96	96522	50.0	50.0	ug/L	0

BC ANALYTICAL

ORDER QC REPORT FOR G9602114

DATE REPORTED : 02/16/96

Page 1

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

PARAMETER	DATE ANALYZED	BATCH NUMBER	BLANK RESULT	RDL	UNIT	METHOD
1. TRPH	02.15.96	9615	0	0.2	mg/L	418.1
2. TPH	02.09.96	9631	02/09/96	NA	Date	8015M
Date Analyzed	02.09.96	9631	02/08/96	NA	Date	8015M
Date Extracted	02.09.96	9631	0	0.05	mg/L	8015M
TPH (Diesel Range)	02.09.96	9631	0.0608	0.01	mg/L	8015M
Naphthalene Reported	02.09.96	9631	0.0500	NA	mg/L	8015M
Naphthalene Theoretical	02.08.96	96421	02/08/96	NA	Date	8015M.TX
3. GRO	02.08.96	96421	0	0.5	ug/L	8015M.TX
Date Analyzed	02.08.96	96421	0	0.5	ug/L	8015M.TX
Benzene	02.08.96	96421	0	0.5	ug/L	8015M.TX
Toluene	02.08.96	96421	0	0.5	ug/L	8015M.TX
Ethylbenzene	02.08.96	96421	0	0.5	ug/L	8015M.TX
Total Xylene Isomers	02.08.96	96421	0	50	ug/L	8015M.TX
TPH (Gasoline Range)	02.08.96	96421	51.4	NA	ug/L	8015M.TX
a,a,a-Trifluorotoluene Rep.	02.08.96	96421	50.0	NA	ug/L	8015M.TX
a,a,a-Trifluorotoluene Th.	02.12.96	96522	02/12/96	NA	Date	8015M.TX
4. GRO	02.12.96	96522	0	0.5	ug/L	8015M.TX
Date Analyzed	02.12.96	96522	0	0.5	ug/L	8015M.TX
Benzene	02.12.96	96522	0	0.5	ug/L	8015M.TX
Toluene	02.12.96	96522	0	0.5	ug/L	8015M.TX
Ethylbenzene	02.12.96	96522	0	0.5	ug/L	8015M.TX
Total Xylene Isomers	02.12.96	96522	0	50	ug/L	8015M.TX
TPH (Gasoline Range)	02.12.96	96522	47.9	NA	ug/L	8015M.TX
a,a,a-Trifluorotoluene Rep.	02.12.96	96522	50.0	NA	ug/L	8015M.TX
a,a,a-Trifluorotoluene Th.						

: SURROGATE RECOVERIES :
: BC ANALYTICAL : GLEN LAB : 15:34:18 16 FEB 1996 - P. 1 :
=====

METHOD	ANALYTE	BATCH	ANALYZED	REPORTED	TRUE	%REC	FLAG
9602114*1							
8015M	Naphthalene	9631	02/09/96	0.0602	0.0500	120	
8015M.TXa	,a,a-Trifluorotoluene	Re96421	02/08/96	46.5	50.0	93	
9602114*2							
8015M	Naphthalene	9631	02/09/96	0.0614	0.0500	123	
8015M.TXa	,a,a-Trifluorotoluene	Re96421	02/08/96	51.2	50.0	102	
9602114*3							
8015M	Naphthalene	9631	02/09/96	0.0526	0.0500	105	
8015M.TXa	,a,a-Trifluorotoluene	Re96421	02/08/96	51.2	50.0	102	
9602114*4							
8015M	Naphthalene	9631	02/09/96	0.0582	0.0500	116	
8015M.TXa	,a,a-Trifluorotoluene	Re96421	02/08/96	47.5	50.0	95	
9602114*5							
8015M	Naphthalene	9631	02/09/96	0.0472	0.0500	94	
8015M.TXa	,a,a-Trifluorotoluene	Re96421	02/08/96	50.6	50.0	101	
9602114*6							
8015M	Naphthalene	9631	02/09/96	0.0548	0.0500	110	
8015M.TXa	,a,a-Trifluorotoluene	Re96421	02/08/96	50.0	50.0	100	
9602114*7							
8015M	Naphthalene	9631	02/09/96	0.0596	0.0500	119	
8015M.TXa	,a,a-Trifluorotoluene	Re96421	02/08/96	49.9	50.0	100	
9602114*8							
8015M.TXa	,a,a-Trifluorotoluene	Re96522	02/12/96	53.6	50.0	107	

: SURROGATE RECOVERIES :
 : BC ANALYTICAL : GLEN LAB : 15:34:21 16 FEB 1996 - P. 1 :
 =====

METHOD	ANALYTE	BATCH	ANALYZED	REPORTED	TRUE	%REC	FLAG
9602114*1*R1							
8015M.TXa,a,a-	Trifluorotoluene	Re96421	02/08/96	46.5	50.0	93	
9602114*1*S1							
8015M.TXa,a,a-	Trifluorotoluene	Re96421	02/08/96	55.5	50.0	111	
9602114*1*S2							
8015M.TXa,a,a-	Trifluorotoluene	Re96421	02/08/96	54.7	50.0	109	
9602114*1*T							
8015M.TXa,a,a-	Trifluorotoluene	Re96421	02/08/96	50.0	50.0	100	
9602114*2*R1							
8015M	Naphthalene	9631	02/09/96	0.0614	0.0500	123	
9602114*2*S1							
8015M	Naphthalene	9631	02/09/96	0.0619	0.0500	124	
9602114*2*S2							
8015M	Naphthalene	9631	02/09/96	0.0612	0.0500	122	
9602114*2*T							
8015M	Naphthalene	9631	02/09/96	0.0500	0.0500	100	
9602249*2*R1							
8015M.TXa,a,a-	Trifluorotoluene	Re96522	02/12/96	48.8	50.0	98	
9602249*2*S1							
8015M.TXa,a,a-	Trifluorotoluene	Re96522	02/12/96	55.7	50.0	111	
9602249*2*S2							
8015M.TXa,a,a-	Trifluorotoluene	Re96522	02/12/96	57.2	50.0	114	
9602249*2*T							
8015M.TXa,a,a-	Trifluorotoluene	Re96522	02/12/96	50.0	50.0	100	
B602427*1*MB							
8015M	Naphthalene	9631	02/09/96	0.0608	0.0500	122	
B602630*1*MB							
8015M.TXa,a,a-	Trifluorotoluene	Re96421	02/08/96	51.4	50.0	103	

: SURROGATE RECOVERIES :
 : BC ANALYTICAL : GLEN LAB : 15:34:22 16 FEB 1996 - P. 2 :
 =====

METHOD	ANALYTE	BATCH	ANALYZED	REPORTED	TRUE	%REC	FLAG
B602686*1*MB							
8015M.TXa	a,a-Trifluorotoluene	Re96522	02/12/96	47.9	50.0	96	
C6021252*1*LC							
8015M.TXa	a,a-Trifluorotoluene	Re96421	02/08/96	58.8	50.0	118	
C6021252*1*LT							
8015M.TXa	a,a-Trifluorotoluene	Re96421	02/08/96	50.0	50.0	100	
C6021315*1*LC							
8015M	Naphthalene	9631	02/09/96	0.0552	0.0500	110	
C6021315*1*LT							
8015M	Naphthalene	9631	02/09/96	0.0500	0.0500	100	
C6021354*1*LC							
8015M.TXa	a,a-Trifluorotoluene	Re96522	02/12/96	54.0	50.0	108	
C6021354*1*LT							
8015M.TXa	a,a-Trifluorotoluene	Re96522	02/12/96	50.0	50.0	100	
C602846*1*LC							
8015M	Naphthalene	9631	02/09/96	0.0646	0.0500	129	Q
C602846*1*LT							
8015M	Naphthalene	9631	02/09/96	0.0500	0.0500	100	

69602 114

Chain-of-Custody

Page ___ of ___

Texaco Environmental Services

100 Cutting Boulevard
 Richmond, California 94804
 Phone: (510) 230-3541
 FAX: (510) 237-7021

Site Name: Texaco Loc# 624880235

Site Address: 500 Grand Ave. Oakland, CA

Contractor Project Number: _____

Contractor Name: Blaine Tech Services, Inc.

Address: 985 Timothy Dr., San Jose, CA 95133

Forward Results **BLAINE TECH SERVICES** ATTN: **CARON FRENCH**

Project Contact: Jim Keller

Texaco Project Coordinator Tom Hargett

Phone/FAX: (408) 995-5535 / (408) 293-8773

Laboratory: B C Analytical

Turn Around Time: normal (10 day)

Samplers (PRINT NAME): William B Jones

Sampler Signature: [Signature]

Date Samples Collected: 2/5/96

ANALYSIS

624880235
 Alameda
 IWH
 FKEP 1014L
 Cooler Temp: on ice
 Sample Condition:
good

Sample Number	Lab Sample Number	Date/Time Collected	No. of Containers	Type of Container	Sample Matrix	Preservative	TPH gas/STEX	TPH Diesel	OLG/TPH (418.1)	TPH Ex. (C8-C36+)	VOCs 8240/624	P. Halocarbons 8010/80	P. Aromatics 8020/802	Organic Lead
MWBF		2/5 / 13:50	7		W	Y	X	X	X					
MWBG		2/5 / 14:25	7		W	Y	X	X	X					
MWBH		2/5 / 13:10	7		W	Y	X	X	X					
MWBI		2/5 / 12:40	7		W	Y	X	X	X					
MWBJ		2/5 / 12:15	7		W	Y	X	X	X					
MWBK		2/5 / 15:15	7		W	Y	X	X	X					
EB		2/5 / 12:38	7		W	Y	X	X	X					
TB		2/5 /	2		W	Y	X							

Comments

-1
 -2
 -3
 -4
 -5
 -6
 -7
 -8

Relinquished by: [Signature] Date: 2-6-96 Time: 12:15

Received by: [Signature] Date: 2-6-96 Time: 12:15

Relinquished by: [Signature] Date: 2-6-96 Time: 3:20

Received by: [Signature] Date: 2/6/96 Time: 3:20

Relinquished by: [Signature] Date: 2/7/96 Time: 5:30

Received by: _____ Date: _____ Time: _____

Method of Shipment: _____

Lab Comments: _____

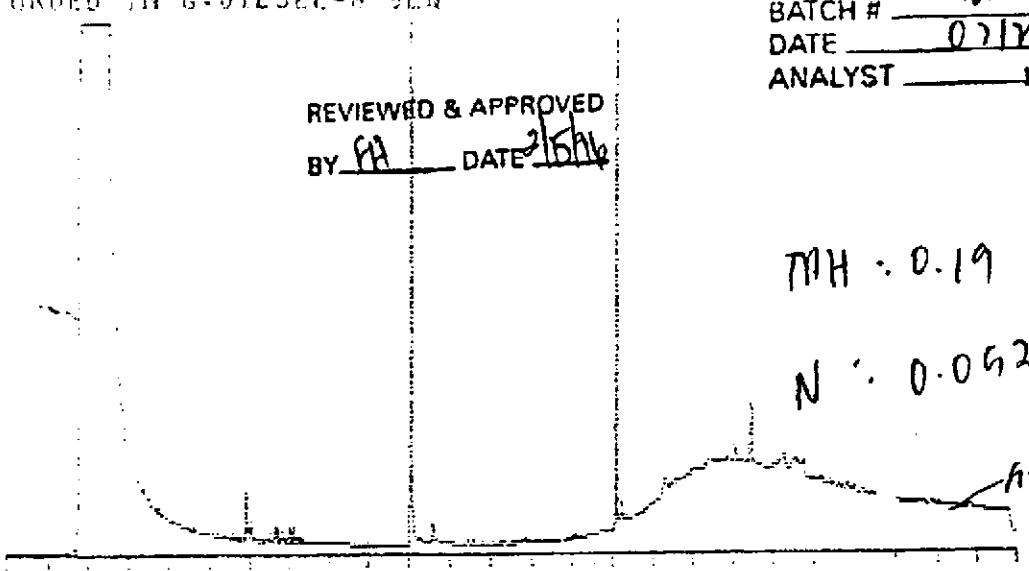
BATCH # 981
 DATE 07/29/96
 ANALYST J

REVIEWED & APPROVED
 BY PA DATE 2/5/96

MW8-H

MH : 0.19
 N : 0.0926

array#2
 No diesel
 pattern



[Interface 6] 0-25 Min Scale: 100 No
 09602114- Processed: 02-09-1996 16:43:10, segment 1, cycle 239
 RAW DATA SAVED IN FILE L:AA23-239.PTS

AREA PERCENT REPORT

***** 02-09-1996 16:43:22 Version 5.1.5 *****
 * Sample Name: *G9602114-5 B#9631/960209/100ML/5ML
 * Data File: L:AA23-239
 * Date: 02-09-1996 16:18:09 Method: DIESEL-6
 * Interface: 6 Cycle#: 239 Operator JP Channel#: 0 Vial#: N.A.
 * Starting Peak Width: 10 Threshold: 10 Area Threshold: 1000
 * Instrument Type: GC 3400 536-25 Column Type: DB5 .25
 * Solvent Description:
 * Conditions: 45 20/MIN FINAL 300 HOLD 8.25
 * Detector 0: FID Detector 1:
 * Misc. Information: GAS:NAPTHA:DIESEL:O-TERPH 10/09/95

 Starting Delay: 0.00 Run Time: 25.00

Pk No.	Ret Time	Peak Area	Area %	B L	Peak Ht.	Normalized %	Area/Height
1	1.550	4844	0.0151	1	1888	0.015	2.6
2	1.800	31366422	97.628200	994062	100.000	31.6	
3	5.567	3020	0.0094	1	699	0.010	4.3
4	5.817	2542	0.0079	1	1109	0.008	2.3
5	5.917	33093	0.1030	1	9369	0.106	3.5
6	6.517	3383	0.0105	1	1430	0.011	2.4
7	6.633	9942	0.0309	1	2636	0.032	3.8
8	7.000	5571	0.0173	1	2994	0.018	1.9
9	7.100	11197	0.0349	1	3300	0.036	3.4
10	10.050	247366	0.7699	1	148643	0.789	1.7
11	10.583	12440	0.0387	1	4008	0.040	3.1
12	12.800	3865	0.0120	1	1042	0.012	3.7
13	14.083	2387	0.0074	1	624	0.008	3.8
14	15.100	284889	0.8867	1	162516	0.908	1.8
15	15.233	8611	0.0268	1	2850	0.027	3.0

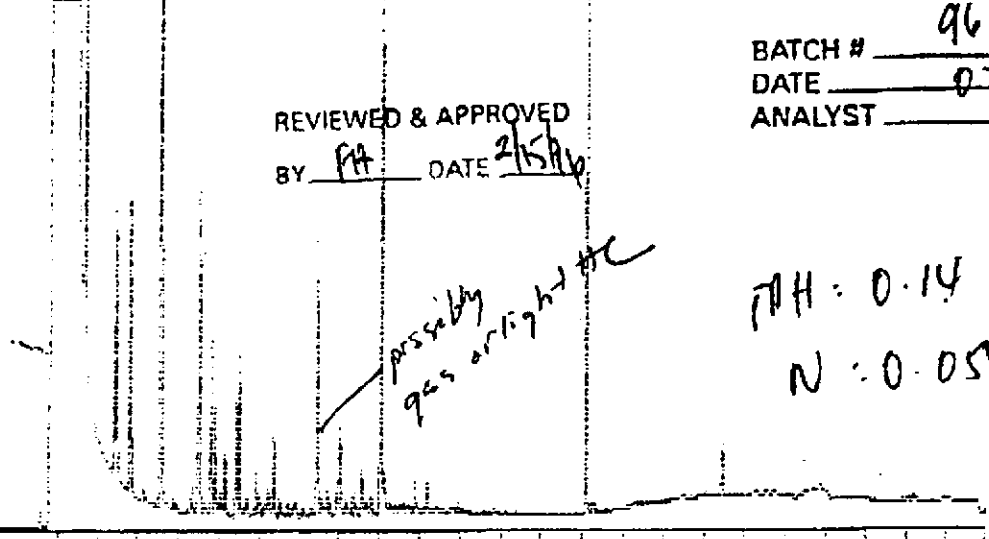
BATCH # 9621
 DATE 02/09/96
 ANALYST JL

REVIEWED & APPROVED
 BY FA DATE 2/15/96

MW9 - I

possibly gas or light etc

FAH: 0.14
 N: 0.0582



[Interface 6] 0-25 Min Scale: 100 Mu
 *G9602114- Processed: 02-09-1996 15:05:48, segment 3, cycle 237
 RAW DATA SAVED IN FILE L:AA23-237.FTS

***** AREA PERCENT REPORT *****

***** 02-09-1996 15:06:00 Version 5.1.5 *****
 * Sample Name: *G9602114-4 B#9651/960208/1000ML:5ML Data File: L:AA23-237 *
 * Date: 02-09-1996 14:40:47 Method: DIESEL-6 *
 * Interface: 6 Cycle#: 237 Operator JP Channel#: 0 Vial#: N.A. *
 * Starting Peak Width: 10 Threshold: 10 Area Threshold: 1000 *
 * Instrument Type: GC 3400 536-25 Column Type: DB5 .25 *
 * Solvent Description: *
 * Conditions: 45 20/MIN FINAL 300 HOLD 8.25 *
 * Detector 0: FID Detector 1: *
 * Misc. Information: GAS:NAPTHA:DIESEL:0-TERPH 10/09/95 *

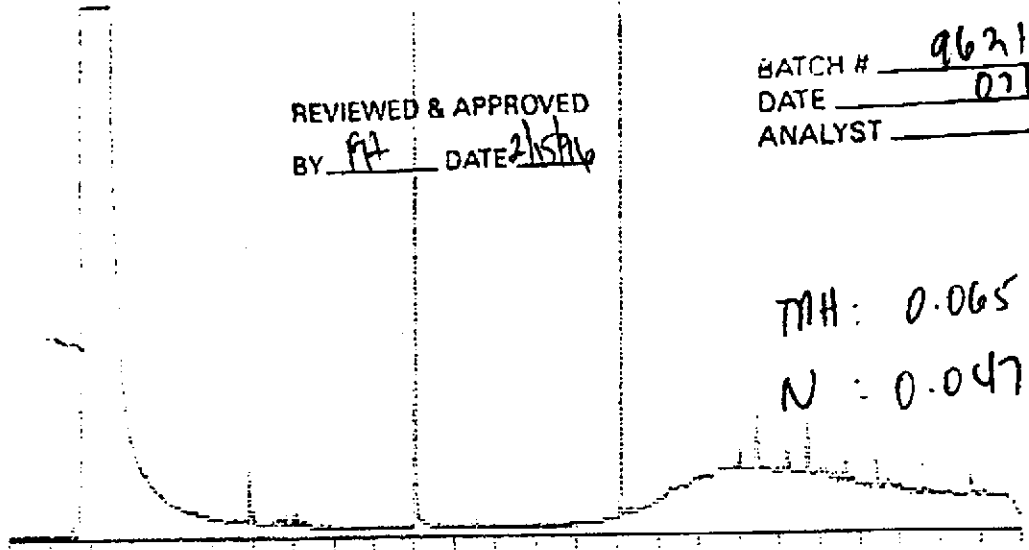
 Starting Delay: 0.00 Run Time: 25.00

Pk No.	Ret Time	Peak Area	Area %	S L	Peak Ht.	Normalized %	Area/Height
1	1.550	6566	0.0229	1	3120	0.025	2.1
2	1.800	26184540	91.31690	0	990645	100.000	26.4
3	2.667	145261	0.5066	1	108332	0.555	1.3
4	3.800	251671	0.8777	1	54035	0.961	4.7
5	4.150	6486	0.0226	1	1762	0.025	3.7
6	4.567	640771	2.2346	1	351346	2.447	1.8
7	4.900	3821	0.0133	1	1933	0.015	2.0
8	5.500	166317	0.5800	1	59964	0.635	2.8
9	5.817	95906	0.3345	1	32413	0.366	3.0
10	6.150	21422	0.0747	1	10627	0.082	2.0
11	6.500	97100	0.3386	1	30470	0.371	3.2
12	6.683	15050	0.0525	1	3050	0.057	4.9
13	6.917	13997	0.0488	1	7746	0.053	1.8
14	7.233	27348	0.0954	1	4413	0.104	6.2
15	7.350	34721	0.1211	1	14962	0.133	2.3
16	7.717	6650	0.0232	1	2343	0.025	2.8
17	7.900	6487	0.0226	1	2607	0.025	2.5

REVIEWED & APPROVED
BY FA DATE 2/15/96

BATCH # 9621
DATE 02/15/96
ANALYST J

u8-J



MH: 0.065
N: 0.047v

rodiesel
pattern

Interface 6] 0-25 Min Scale: 100 Mv
69602114- Processed: 02-09-1996 15:37:55, segment 4, cycle 338
RAW DATA SAVED IN FILE L:AA23-238.PTS

AREA PERCENT REPORT

***** 02-09-1996 15:38:06 Version 5.1.5 *****
* Sample Name: *69602114-5 B#9631/960208/1000ML/5ML
* Date File: L:AA23-238 *
* Date: 02-09-1996 15:12:53 Method: DIESEL-6 *
* Interface: 6 Cycle#: 238 Operator JP Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 10 Area Threshold: 1000 *

* Instrument Type: GC 3400 536-25 Column Type: DB5 .25 *
* Solvent Description: *
* Conditions: 45 20/MIN FINAL 300 HOLD 8.25 *
* Detector 0: FID Detector 1: *
* Misc. Information: GAS:NAPHTHA:DIESEL:0-TERPH 10/09/95 *

Starting Delay: 0.00 Run Time: 25.00

PK No.	Ret Time	Peak Area	Area %	B L	Peak Ht.	Normalized %	Area/Height
1	1.550	4892	0.0156	1	2120	0.016	2.3
2	1.800	30570924	97.647600	994029		100.000	30.8
3	5.917	25752	0.0823	1	9411	0.084	2.7
4	6.683	13085	0.0418	1	1732	0.043	7.6
5	6.983	4418	0.0141	1	1975	0.014	2.2
6	7.083	10659	0.0340	1	2584	0.035	4.1
7	10.033	221604	0.7078	1	96199	0.725	2.3
8	11.567	2563	0.0082	1	1231	0.008	2.1
9	13.117	2411	0.0077	1	1192	0.008	2.0
10	15.083	247040	0.7891	1	132022	0.808	1.9
12	16.300	3432	0.0110	1	740	0.011	4.6
13	17.500	7527	0.0240	1	1135	0.025	6.6
14	18.017	7821	0.0250	1	3360	0.026	2.3
15	18.433	34854	0.1113	1	10143	0.114	3.4
16	18.717	3294	0.0105	1	771	0.011	4.3
17	18.967	2663	0.0085	1	1009	0.009	2.6
18	19.133	20201	0.0645	1	3943	0.066	5.1

Groundwater Sampling Form

Project Name Texas Well No. MW8F
 Project Number 960105-W2 Well Type Monitor Extraction Other
 Recorded By WT Sampled by WS Date 2/5/96

WELL PURGING

PURGE VOLUME

Well casing diameter
 2-inch 4-inch Other
 Well Total Depth (TD, ft. below TOC) 14.50
 Depth to Water (WL, ft. below TOC) 7.16

Depth to free phase hydrocarbons (FP, ft. below TOC) _____
 Number of well volumes to be purged
 3 10 Other _____

PURGE VOLUME CALCULATION

$$\frac{7.34}{\text{Water Column Length}} \times \frac{.66}{\text{Multiplier}} \times \frac{3}{\text{No. Vols}} = 4.8$$

MULTIPLIER (Casing Dia. (inches) = Gallons/linear ft.)
 2 = 0.17 | 3 = 0.35 | 4 = 0.65 | 4.5 = 0.83 | 5 = 1.02 | 6 = 1.5 | 8 = 2.5

PURGE METHOD

Bailor - Type _____
 Pump - Type E.S.
 Other _____

PUMP INTAKE

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

Pumping Rate 6.0 gpm

14.4 gals
 CALCULATED PURGE VOLUME

15.0 gals
 ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENT

Meter Type _____

Time/Gallons	pH	Cond. (µmhos/cm)	Temp (deg C / deg F)	Turbidity (NTU)	Color/Odor
13:46 / 5.0	6.8	1600	65.4	84	
13:47 / 10.0	6.6	1520	65.2	72	
13:48 / 15.0	6.6	1600	65.4	45	
/					
/					
/					
/					
/					

Comments during well purge _____

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

WELL SAMPLING

SAMPLING METHOD: _____ Date/Time Sampled 2/5/96 / 13:50
 Bailor - Type SS. Sample port Other

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS

Meter Type _____

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

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
<u>MW 8F</u>	<u>3 / 40ml VOA</u>	<u>TPH6/BTEX</u>	<u>HCl</u>	<u>BCA</u>	
	<u>2 liters</u>	<u>OTG</u>	<u>H2SO4</u>		
	<u>2 liters</u>	<u>TPH-D</u>			

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.

Groundwater Sampling Form

Project Name Texas
 Project Number 960205-W2
 Recorded By JS

Well No. MN86
 Well Type Monitor Extraction Other
 Sampled by WJ Date 2/5/96

WELL PURGING

PURGE VOLUME

Well casing diameter
 2-inch 4-inch Other
 Well Total Depth (TD, ft. below TOC) 14.48
 Depth to Water (WL, ft. below TOC) 7.18
 Depth to free phase hydrocarbons (FP, ft. below TOC) _____
 Number of well volumes to be purged
 3 10 Other _____

PURGE METHOD

Bailor - Type _____
 Pump - Type E.S.
 Other _____

PUMP INTAKE

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

PURGE VOLUME CALCULATION

$$\frac{7.3}{\text{Water Column Length}} \times \frac{.66}{\text{Multiplier}} \times \frac{3}{\text{No. Vols}} = 4.8$$

MULTIPLIER (Casing Dia. (inches) = Gallons/linear ft.)
 2 = 0.17 | 3 = 0.38 | 4 = 0.65 | 4.5 = 0.63 | 5 = 1.02 | 6 = 1.5 | 8 = 2.6

Pumping Rate 6.0 gpm
14.4 gals
CALCULATED PURGE VOLUME
15.0 gals
ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENT

Time/Gallons	pH	Cond. (uomhos/cm)	Temp (deg C / deg F)	Turbidity (NTU)	Color/Odor
14:18 / 5.0	6.8	3800	63.2	37	
14:19 / 10.0	6.9	3800	63.4	36	
14:20 / 15.0	6.9	3800	64.2	27	
/					
/					
/					
/					
/					

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

WELL SAMPLING

SAMPLING METHOD: _____ Date/Time Sampled 2/5/96 / 14:25
 Bailor - Type E.S. Sample port Other

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS

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

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
<u>MN86a</u>	<u>3 / 40ml VOA</u>	<u>TPH6/600</u>	<u>HCE</u>	<u>BCA</u>	
	<u>2 liter</u>	<u>046</u>	<u>H2SO4</u>		
	<u>2 liter</u>	<u>TP4-D</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 Texas Well No. MWBH
 Project Number 960205-12 Well Type Monitor Extraction Other
 Recorded By WS Sampled by WS Date 2/5/96

WELL PURGING

PURGE VOLUME

Well casing diameter
 2-inch 4-inch Other
 Well Total Depth (TD, ft. below TOC) 14.84
 Depth to Water (WL, ft. below TOC) 3.54
 Depth to free phase hydrocarbons (FP, ft. below TOC)
 Number of well volumes to be purged
 3 10 Other

PURGE METHOD

Bailor - Type
 Pump - Type E.S.
 Other

PUMP INTAKE

Near top Depth (ft)
 Near Bottom Depth (ft) 14.00
 Other

Pumping Rate 5.0 gpm

PURGE VOLUME CALCULATION

$$\frac{11.3}{\text{Water Column Length}} \times \frac{-66}{\text{Multiplier}} \times \frac{3}{\text{No. Vols}} = 7.5$$

7.5 22.5 gals
CALCULATED PURGE VOLUME

MULTIPLIER (Casing Dia. (inches) = Gallons/linear ft.)
 2 = 0.47 | 3 = 0.36 | 4 = 0.66 | 5 = 0.63 | 6 = 1.02 | 8 = 1.5 | 10 = 2.6

7.5 22.5 gals
ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENT

Time/Gallons	pH	Cond. (uomhos/cm)	Temp	deg C / deg F	Turbidity (NTU)	Color/Odor
13:00 / 7.5	7.1	1000	67.6		60	
13:02 / 15.0	7.1	980	68.0		80	
13:04 / 22.5	7.1	980	68.6		61	
/						
/						
/						
/						

Comments during well purge

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

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled 2/5/96 / 13:10
 Bailor - Type S.S. Sample port Other

GROUNDWATER PARAMETER MEASUREMENTS

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

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
<u>MWBH</u>	<u>3 / 40ml VOA</u>	<u>TPH-D / BTEX</u>	<u>HCL</u>	<u>BCA</u>	
	<u>2 liters</u>	<u>TPH-D</u>			
	<u>2 liters</u>	<u>D&C</u>	<u>H2SO4</u>		

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No.	Duplicate Sample No.

Blank Samples	
Type	Sample No.
Trip	
Rinsate	
Transfer	
Other	

Project Name Texas 960205 w2
 Project Number _____
 Recorded By WJ

Groundwater Sampling Form

Well No. MW81
 Well Type Monitor Extraction Other
 Date 2/5/96

WELL PURGING

PURGE VOLUME

Well casing diameter
 2-inch 4-inch Other
 Well Total Depth (TD, ft. below TOC) 14.56
 Depth to Water (WL, ft. below TOC) 5.97
 Depth to free phase hydrocarbons (FP, ft. below TOC) _____
 Number of well volumes to be purged
 3 10 Other _____

PURGE METHOD

Bailor - Type _____
 Pump - Type ES
 Other _____

PUMP INTAKE

Near top Depth (ft) _____
 Near Bottom Depth (ft) 14.00
 Other _____

PURGE VOLUME CALCULATION

$$\frac{8.59}{\text{Water Column Length}} \times \frac{.66}{\text{Multiplier}} \times \frac{3}{\text{No. Vols}} = 57$$

MULTIPLIER (Casing Dia. (inches) = Gallons/linear ft.)
 2 = 0.173 | 3 = 0.3874 | 4.5 = 0.63 | 5 = 1.02 | 6 = 1.5 | 8 = 2.6

Pumping Rate 5.0 gpm
17.1 gals
 CALCULATED PURGE VOLUME

18.0 gals
 ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENT

Time/Gallons	pH	Cond. (uomhos/cm)	Temp (deg C / deg F)	Turbidity (NTU)	Color/Odor
12:30 / 60	6.9	1200	70.2	20	
12:32 / 12.0	6.8	1200	70.4	14	
12:35 / 18.0	6.8	1200	71.0	7	
/					
/					
/					
/					
/					

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

WELL SAMPLING

SAMPLING METHOD: _____ Date/Time Sampled 2/5/96 / 12:40
 Bailor - Type S.S. Sample port Other

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS

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

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
<u>MW81</u>	<u>3 / 100ml vOA</u>	<u>TPH-G / BTEX</u>	<u>HCL</u>	<u>SCA</u>	
	<u>2 / 1 liter</u>	<u>TPH-D</u>			
	<u>2 / 1 liter</u>	<u>DTG</u>	<u>H2SO4</u>		

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No.	Duplicate Sample No.

Blank Samples	
Type	Sample No.
Trip	
Rinsale	<u>EB @ 12:38</u>
Transfer	
Other:	

Groundwater Sampling Form

Project Name TEXAS Well No. MW85
 Project Number 900205-W2 Well Type Monitor Extraction Other
 Recorded By WT Sampled by WT Date _____

WELL PURGING

PURGE VOLUME

Well casing diameter
 2-inch 4-inch Other _____
 Well Total Depth (TD, ft. below TOC) 1478
 Depth to Water (WL, ft. below TOC) 5.34
 Depth to free phase hydrocarbons (FP, ft. below TOC) _____
 Number of well volumes to be purged
 3 10 Other _____

PURGE METHOD

Bailor - Type _____
 Pump - Type E.S.
 Other _____

PUMP INTAKE

Near top Depth (ft) _____
 Near Bottom Depth (ft) 1400
 Other _____
 Pumping Rate 5 gpm

PURGE VOLUME CALCULATION

$$\frac{8.94}{\text{Water Column Length}} \times \frac{666}{\text{Multiplier}} \times \frac{3}{\text{No. Vols}} = 5.9$$

MULTIPLIER (Casing Dia. (inches) = Gallons (linear ft))
 2 = 0.473 | 3 = 0.3674 | 4 = 0.65 | 4.5 = 0.83 | 5 = 1.02 | 6 = 1.5 | 8 = 2.6

5.9 17.7 gals
 CALCULATED PURGE VOLUME

6.0 18.0 gals
 ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENT Meter Type

Time/Gallons	pH	Cond. (uomhos/cm)	Temp (deg C / deg F)	Turbidity (NTU)	Color/Odor
12:04 / 6.0	6.8	1200	67.4	83	
12:05 / 12.0	7.2	1600	68.0	180	
12:07 / 18.0	7.2	1600	68.4	>200	
/					
/					
/					
/					

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

WELL SAMPLING

SAMPLING METHOD: _____ Date/Time Sampled 2/5/96 / 12:15
 Bailor - Type E.S. 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
/ /					

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
<u>MW85</u>	<u>3/40mL VOA</u>	<u>PHG/600</u>	<u>HCl</u>	<u>BCB</u>	
	<u>2/100mL</u>	<u>TPHD</u>			
	<u>2/100mL</u>	<u>DTG</u>		<u>H2SO4</u>	

QUALITY CONTROL SAMPLES

Duplicate Samples		Blank Samples	
Original Sample No.	Duplicate Sample No.	Type	Sample No.
		Trip	
		Rinse	
		Transfer	
		Other	

Groundwater Sampling Form

Project Name Texas Well No. mWBK
 Project Number 960205-2 Well Type Monitor Extraction Other
 Recorded By VS Sampled by VS Date 2/5/96

WELL PURGING

PURGE VOLUME

Well casing diameter
 2-inch 4-inch Other _____
 Well Total Depth (TD, ft. below TOC) 1.46
 Depth to Water (WL, ft. below TOC) 16.58
 Depth to free phase hydrocarbons (FP, ft. below TOC) _____
 Number of well volumes to be purged
 3 10 Other _____

PURGE METHOD

Bailor - Type Tellon
 Pump - Type 1
 Other _____

PUMP INTAKE

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

Pumping Rate _____ gpm

$$\frac{15.12}{\text{Water Column Length}} \times \frac{.17}{\text{Multiplier}} \times \frac{3}{\text{No. Vols}} = 2.6$$

7.8 gals
CALCULATED PURGE VOLUME

MULTIPLIER (Casing Dia. (inches) = Gallons/linear ft.)
 2 = 0.47 | 3 = 0.35 | 4 = 0.65 | 4.5 = 0.83 | 5 = 1.02 | 6 = 1.5 | 8 = 2.6

2.0 gals
ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENT

Time/Gallons	pH	Cond. (uomhos/cm)	Temp (deg C / deg F)	Turbidity (NTU)	Color/Odor
15:00 / 2.0	7.4	1400	61.0	7200	
15:05 / 6.0	7.0	1400	60.8	7200	
15:10 / 8.0	7.0	1400	60.8	7200	
/					
/					
/					
/					
/					

Comments during well purge _____

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

WELL SAMPLING

SAMPLING METHOD: _____ Date/Time Sampled 2/5/96 15:15
 Bailor - Type Tellon Sample port Other

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS

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

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
mWBK	3/40-2 VOA	TPH/BRP	HCL	BCA	
	2/1 liter	TPH-D			
	2/1 liter	DA G	H2SO4		

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 Texas Well No. MW 8L
 Project Number 900705W2 Well Type Monitor Extraction Other
 Recorded By WS Sampled by _____ Date 2/5/96

WELL PURGING

PURGE VOLUME

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

PURGE METHOD

Bailor - Type _____
 Pump - Type _____
 Other _____

PUMP INTAKE

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

Pumping Rate _____ gpm
 _____ cals
CALCULATED PURGE VOLUME
 _____ cals
ACTUAL PURGE VOLUME

PURGE VOLUME CALCULATION

_____ X _____ X _____ = _____
 Water Column Length Multiplier No. Vols
MULTIPLIER (Casing Dia. (inches) = Gallons/linear ft)
 2 = 0.173 = 0.3674 = 0.65 | 4.5 = 0.63 | 5 = 1.02 | 6 = 1.5 | 8 = 2.6

GROUNDWATER PARAMETER MEASUREMENT

Time/Gallons	pH	Cond. (µmhos/cm)	Temp	deg C / deg F	Turbidity (NTU)	Color/Odor
/						
/						
NO REC. CAR OVER WELL						
/						
/						
/						

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

WELL SAMPLING

SAMPLING METHOD

Date/Time Sampled _____ / _____
 Bailor - Type _____ Sample port Other

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS

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

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No.	Duplicate Sample No.

Blank Samples	
Type	Sample No.
Trip	
Rinse	
Transfer	
Other	

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. The depth to water should always be measured from the same spot on the top of the well casing. The designated "Top of Casing" mark should be at the North side of the casing. Without moving the probe, read the numbers on the tape to determine the distance to water from the 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 (even a sheen) unless specifically requested by the Project Coordinator. If the Project Coordinator requests that wells containing product be sampled, only those wells with product thickness of less than 0.01 foot will be sampled. Arrangements to bail, store, and dispose of product must be made separately. When product is stored, according to Texaco policy, it will be double-contained and disposed of within 90 days of generation.

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 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 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.

- The process described here is equipment specific. Follow the procedures applicable for your monitoring equipment.

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 in 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. Purged water may be placed into 5-gallon buckets to determine the volume of groundwater 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 at least 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 a 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 labeled 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 analyses 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 samples are in the field personnel's view, after being in their 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 purging and sampling equipment will be decontaminated with an Alconcx wash and rinsed with deionized water. Decontamination water generated will be added to the purge water.

**FOURTH-QUARTER 1995 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 FOURTH QUARTER 1995

Groundwater monitoring was conducted during the quarter. Results are provided in a separate groundwater 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.

Groundwater 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 groundwater.

METHOD AND LOCATION OF DISPOSAL

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