Texaco Refining
and Marketing Inc

ALCO
HAZMAT
95 JAN 10 PM 3:09

January 4, 1995

ENV - STUDIES, SURVEYS, & REPORTS
2200 E. 12th Street
Oakland, California

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

Dear Mr. Hiett:

This letter presents the results of groundwater monitoring and sampling conducted by Blaine Tech Services, Inc. on October 28, 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 west. (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, quarterly summary, and bill of lading 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 P[redacted]0) 236-9139.

Best Regards,

Samples for 10-26-94

Rebecca Digerness

Rebecca Digerness
Environmental Technician

Karen E Petryna

Karen E. Petryna
Engineer
Texaco Environmental Services

RBD:hs
P:\GWMP\QMR\2200E12\QMR.LET

Enclosures

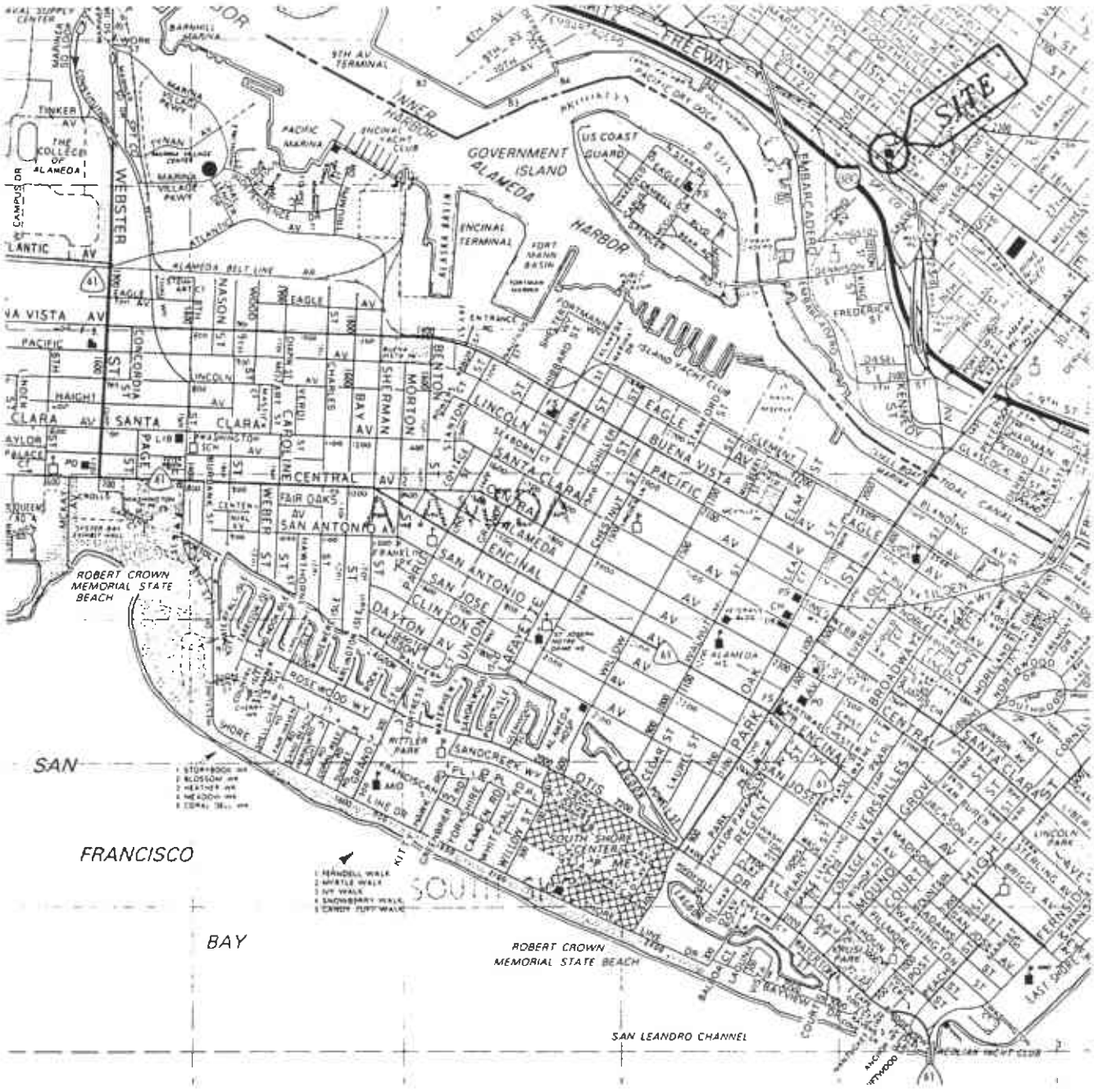
CC: Mr. Thomas Peacock
Alameda County Environmental
Health Department
80 Swan Way, Room 200
Oakland, CA 94621

Mr. Michael Faber
Exxon Company, U. S. A.
2300 Clayton Rd., Suite 1250
Concord, CA 94524

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

PR: KEP

Groundwater Monitoring and Sampling
Fourth Quarter, 1994
at the
Former Texaco Station
2200 East 12th Street
Oakland, CA



SOURCE

1993 THE THOMAS GUIDE
ALAMEDA COUNTY, PAGE 11 (E1)

N

0 1/4 1/2 3/4 1
MILE

1" = 2200'

TEXACO

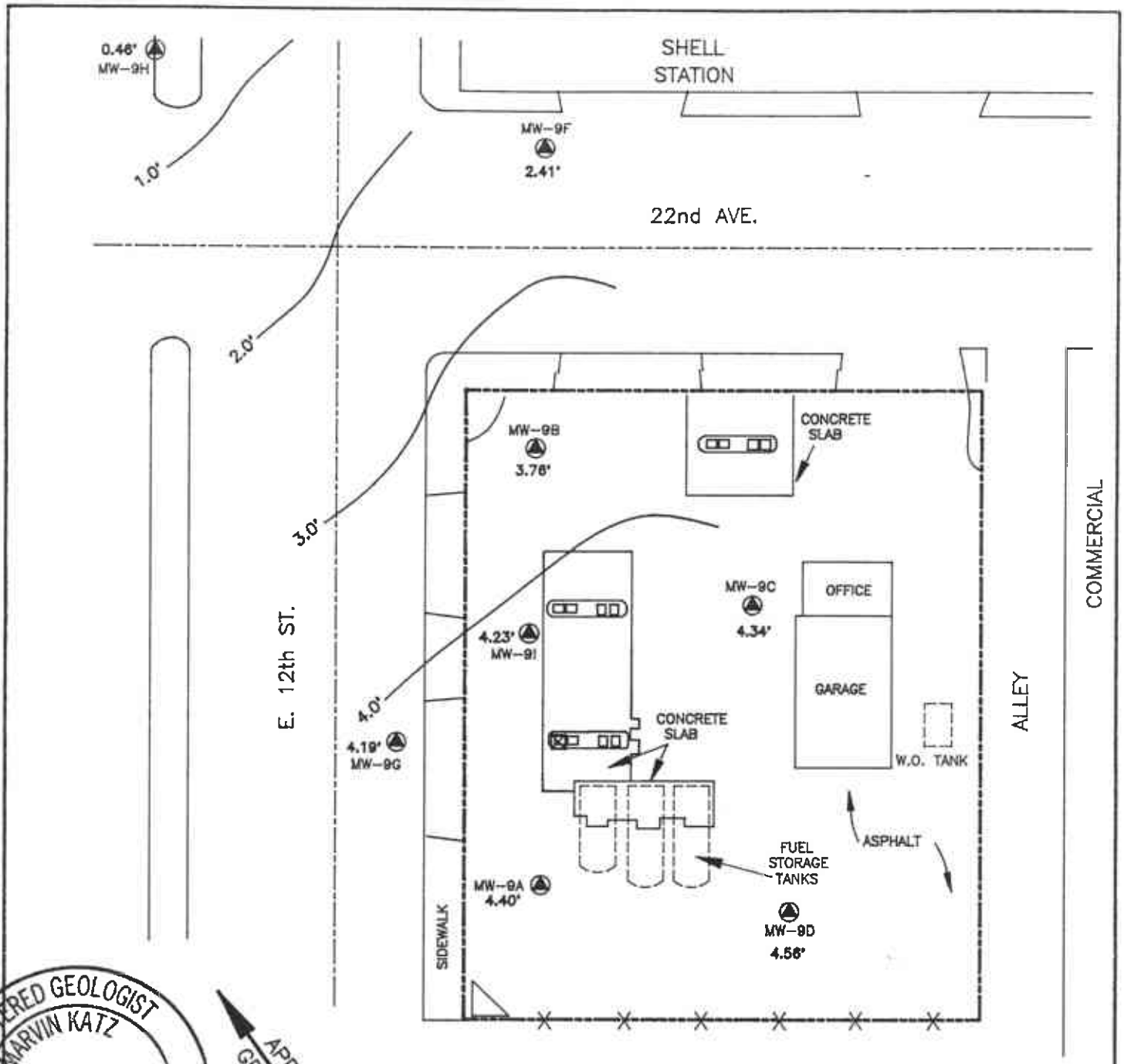
REFINING AND MARKETING, INC.
TEXACO ENVIRONMENTAL SERVICES

PLATE 1

SITE VICINITY MAP

FORMER TEXACO SERVICE STATION

2200 E. 12th ST. / 22nd AVE.,
OAKLAND, CALIFORNIA



REGISTERED GEOLOGIST
MARVIN KATZ
No. 4543
M. Katz

APPROXIMATE GROUNDWATER GRADIENT

SOURCE : MATTESON ENGINEERING CONDUCTED SURVEY ON 08/04/1994

LEGEND :

MW-9A	MONITORING WELL LOCATION AND WELL NUMBER
4.56'	GROUNDWATER CONTOUR LINE GROUNDWATER ELEVATION (ABOVE MSL)

0 40
FEET

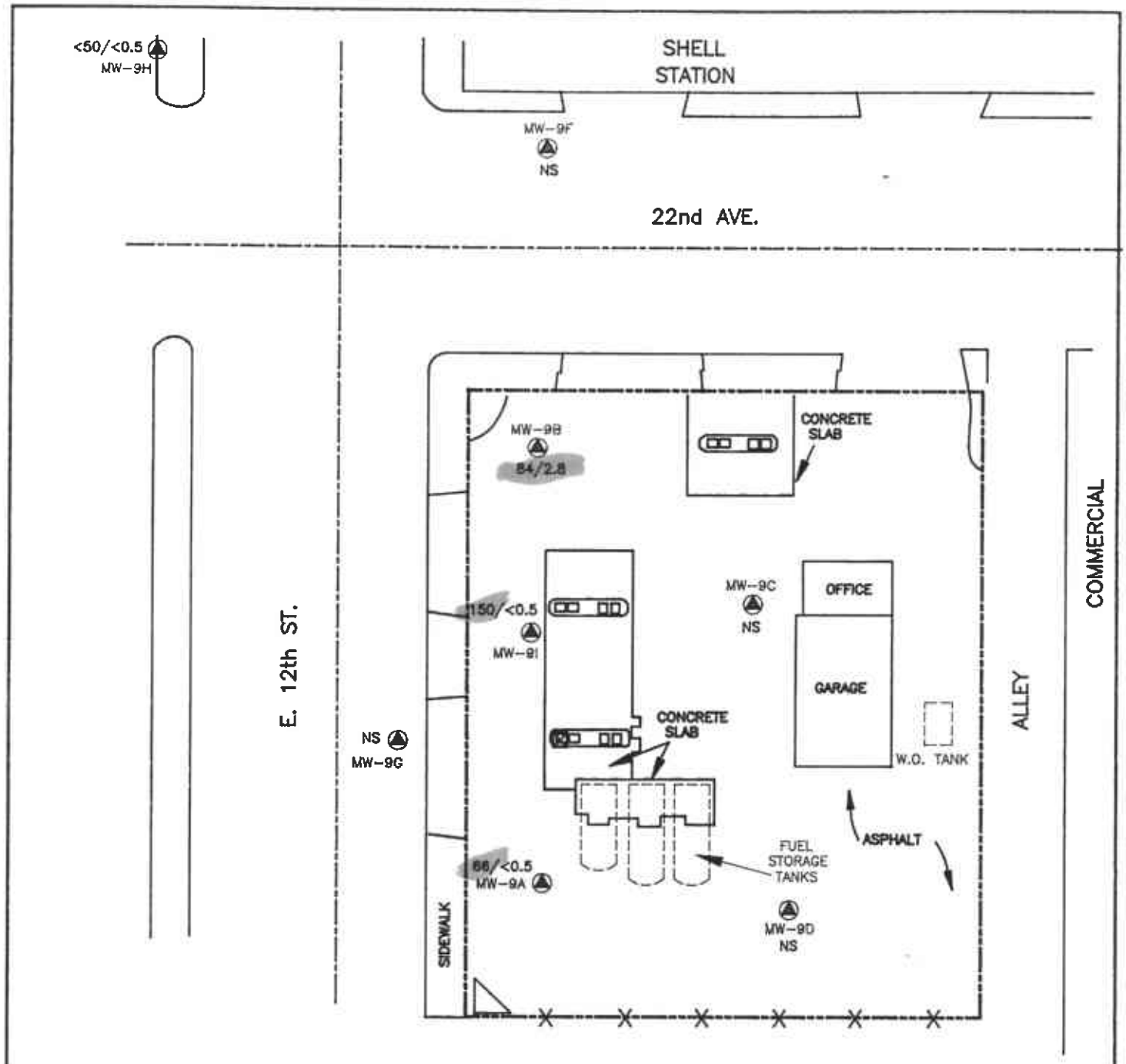
TEXACO
REFINING AND MARKETING INC.
ENVIRONMENTAL SERVICES

PLATE 2 : GROUNDWATER GRADIENT MAP
(10/26/1994)

FORMER TEXACO SERVICE STATION

2200 E. 12th ST. / 22nd AVE.,
OAKLAND, CALIFORNIA

SCALE	1"=40'-0"	LOCATION #	62-488-0088
DRAWN BY	AMA	DATE	12/19/1994
CHECKED BY	RD	DATE	12/27/94
DRAWING NO.	(OAKLAND) 12-22-OK.DWG		



SOURCE : MATTESON ENGINEERING CONDUCTED SURVEY ON 08/04/1994

LEGEND :

MW-9A	MONITORING WELL LOCATION AND WELL NUMBER
<50/<0.5	TPHg/BENZENE CONCENTRATION IN GROUNDWATER (ppb)
NS	WELL NOT SAMPLED

0 40
FEET

TEXACO
REFINING AND MARKETING INC.
ENVIRONMENTAL SERVICES

PLATE 3 : TPHg/BENZENE CONCENTRATION IN GROUNDWATER
(10/26/1994)

FORMER TEXACO SERVICE STATION

2200 E. 12th ST. / 22nd AVE.,
OAKLAND, CALIFORNIA

SCALE	1"=40'-0"	LOCATION #	62-486-0068
DRAWN BY	AMA	DATE	12/19/1994
CHECKED BY	RD	DATE	12/21/94
DRAWING NO.	(OAKLAND) 12-22-OK.DWG		

Table 1
Groundwater Elevation Data
2200 East 12th Street
Oakland, CA

Well Number	Date Sampled	Elevation of Wellhead (feet)		Depth to Water (feet, TOC)	Elevation of Groundwater (feet)
MW-9A	10/12/89	100.07	*		
	2/5/92			6.93	93.14
	5/5/92			6.95	93.12
	9/14/92			7.65	92.42
	11/16/92			7.35	92.72
	2/3/93			7.85	92.22
	5/18/93			6.95	93.12
	8/26/93			7.14	92.93
	11/4/93			7.23	92.84
	2/4/94			6.70	93.37
	5/31/94			6.74	93.33
	10/26/94	11.46	**	7.06	4.40
MW-9B	10/12/89	98.41	*		
	2/5/92			5.95	92.46
	5/5/92			5.92	92.49
	9/14/92			6.60	91.81
	11/16/92			6.35	92.06
	2/3/93			6.50	91.91
	5/18/93			6.42	91.99
	8/26/93			6.28	92.13
	11/4/93			6.23	92.18
	2/4/94			5.92	92.49
	5/31/94			9.22	89.19
	10/26/94	9.80	**	6.04	3.76
MW-9C	10/12/89	99.73	*		
	2/5/92			6.44	93.29
	5/5/92			6.50	93.23
	9/14/92			7.00	92.73
	11/16/92			6.72	93.01
	2/3/93			5.75	93.98
	5/18/93			6.72	93.01
	8/26/93			6.84	92.89
	11/4/93			6.90	92.83
	2/4/94			6.28	93.45
	5/31/94			6.42	93.31
	10/26/94	11.14	**	6.80	4.34

Table 1
Groundwater Elevation Data
2200 East 12th Street
Oakland, CA

Well Number	Date Sampled	Elevation of Wellhead (feet)		Depth to Water (feet, TOC)	Elevation of Groundwater (feet)
MW-9D	10/12/89	101.46	*		-
	2/5/92			7.78	93.68
	5/5/92			7.90	93.56
	9/14/92			8.45	93.01
	11/16/92			8.10	93.36
	2/3/93			7.07	94.39
	5/18/93			7.85	93.61
	8/26/93			8.30	93.16
	11/4/93			8.33	93.13
	2/4/94			7.66	93.80
	5/31/94			6.80	94.66
	10/26/94	12.90	**	8.34	4.56
MW-9F	10/12/89	96.96	*		
	2/5/92			5.81	91.15
	5/5/92			5.86	91.10
	9/14/92				Not Measured
	11/16/92			5.82	91.14
	2/3/93			5.55	91.41
	5/18/93			5.86	91.10
	8/26/93			5.86	91.10
	11/5/93			5.96	91.00
	2/4/94			5.68	91.28
	5/31/94			5.76	91.20
	10/26/94	8.37	**	5.96	2.41
MW-9G	10/12/89	98.51	*		
	2/5/92			5.59	92.92
	5/5/92			5.60	92.91
	9/14/92				Not Measured
	11/16/92			5.78	92.73
	2/3/93			5.05	93.46
	5/18/93			5.62	92.89
	8/26/93			5.86	92.65
	11/5/93			5.96	92.55
	2/4/94			5.48	93.03
	5/31/94			5.50	93.01
	10/26/94	9.95	**	5.76	4.19

Table 1
Groundwater Elevation Data
2200 East 12th Street
Oakland, CA

Well Number	Date Sampled	Elevation of Wellhead (feet)		Depth to Water (feet, TOC)	Elevation of Groundwater (feet)
MW-9H	10/12/89	97.14	*		
	2/5/92			7.70	89.44
	5/5/92			8.12	89.02
	9/14/92				Not Measured
	11/16/92				Not Measured
	2/3/93			7.72	89.42
	5/18/93			8.12	89.02
	8/26/93			8.14	89.00
	11/5/93			8.15	88.99
	2/4/94			7.98	89.16
	5/31/94			8.80	88.34
	10/26/94	8.58	**	8.12	0.46
MW-9I	11/15/90	98.66	*		
	2/5/92			5.56	93.10
	5/5/92			5.60	93.06
	9/14/92			6.12	92.54
	11/16/92			5.82	92.84
	2/3/93			4.92	93.74
	5/18/93			5.60	93.06
	8/26/93			5.91	92.75
	11/4/93			6.03	92.63
	2/4/94			5.37	93.29
	5/31/94			5.46	93.20
	10/26/94	10.11	**	5.88	4.23

* = Elevation relative to temporary benchmark with an arbitrary elevation of 100.0 feet.
**Wells resurveyed on 8/4/94, relative to mean sea level.
TOC = Top of Casing

Table 2
Groundwater Analytical Data
2200 East 12th Street
Oakland, CA

Well Number	Date Sampled	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)
MW-9A	2/5/92	<50	1.1	1.8	0.6	1.3
	5/5/92	<50	<0.5	<0.5	<0.5	<0.5
	9/14/92	<50	<0.5	<0.5	<0.5	<0.5
	11/16/92	<50	1.1	<0.5	<0.5	<0.5
	2/3/93	140	17	19	1.6	20
	5/18/93	<50	0.8	<0.5	1.3	7
	8/26/93	<50	<0.5	<0.5	<0.5	<0.5
	11/4/93	<50	<0.5	<0.5	<0.5	<0.5
	2/4/94	<50	<0.5	<0.5	<0.5	<0.5
	5/31/94	<50	<0.5	<0.5	<0.5	<0.5
	10/26/94	66	<0.5	<0.5	<0.5	<0.5
MW-9B	2/5/92	60	14	<0.5	2.9	2.5
	5/5/92	620	180	2.4	8.4	2.2
	9/14/92	110	9.6	<0.5	<0.5	<0.5
	11/16/92	200	33	<0.5	4.2	1.4
	2/3/93	[illegible]	320	13	35	110
	5/18/93	180	1.1	<0.5	2.6	5.9
	8/26/93	180	36	<0.5	3	1.7
	11/4/93	98	13	<0.5	1.4	<0.5
	2/4/94	790	170	1.3	12	0.8
	5/31/94	1,000	150	2.5	8.0	2.1
	10/26/94	84	2.8	0.72	<0.5	<0.5
MW-9C	2/5/92	<50	<0.5	<0.5	<0.5	<0.5
	5/5/92	<50	<0.5	<0.5	<0.5	<0.5
	9/14/92	<50	<0.5	<0.5	<0.5	<0.5
	11/16/92	<50	<0.5	<0.5	<0.5	<0.5
	2/3/93	<50	<0.5	<0.5	<0.5	<0.5
	5/18/93	<50	<0.5	<0.5	<0.5	<0.5
	8/26/93	<50	<0.5	<0.5	<0.5	<0.5
	11/4/93	<50	<0.5	<0.5	<0.5	<0.5
	2/4/94	<50	<0.5	<0.5	<0.5	<0.5
	5/31/94					Not Sampled
	10/26/94					Not Sampled

Table 2
Groundwater Analytical Data
2200 East 12th Street
Oakland, CA

Well Number	Date Sampled	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)
MW-9D	2/5/92	<50	<0.5	<0.5	<0.5	<0.5
	5/5/92	<50	<0.5	<0.5	<0.5	<0.5
	9/14/92	<50	<0.5	<0.5	<0.5	<0.5
	11/16/92	<50	<0.5	<0.5	<0.5	<0.5
	2/3/93	<50	<0.5	<0.5	<0.5	<0.5
	5/18/93	<50	<0.5	<0.5	<0.5	<0.5
	8/26/93	<50	<0.5	<0.5	<0.5	<0.5
	11/4/93	<50	<0.5	<0.5	<0.5	<0.5
	2/4/94	<50	<0.5	<0.5	<0.5	<0.5
	5/31/94					Not Sampled
	10/26/94					Not Sampled
MW-9F	2/5/92	<50	<0.5	<0.5	<0.5	<0.5
	5/5/92	<50	<0.5	<0.5	<0.5	<0.5
	9/14/92					Not Sampled
	11/16/92	<50	<0.5	<0.5	<0.5	<0.5
	2/3/93	<50	<0.5	<0.5	<0.5	<0.5
	5/19/93	<50	<0.5	<0.5	1.2	6.8
	8/26/93	<50	<0.5	<0.5	<0.5	<0.5
	11/5/93	<50	<0.5	<0.5	<0.5	<0.5
	2/4/94	<50	<0.5	<0.5	<0.5	<0.5
	5/31/94					Not Sampled
	10/26/94					Not Sampled
MW-9G	2/5/92	<50	<0.5	<0.5	<0.5	<0.5
	5/5/92	<50	1.5	3.8	1	4.7
	9/14/92					Not Sampled
	11/16/92	<50	<0.5	<0.5	<0.5	<0.5
	2/3/93	64	<0.5	<0.5	<0.5	<0.5
	5/19/93	<50	<0.5	<0.5	<0.5	<0.5
	8/26/93	<50	<0.5	<0.5	<0.5	<0.5
	11/5/93	<50	<0.5	<0.5	<0.5	<0.5
	2/4/94	<50	<0.5	<0.5	<0.5	<0.5
	5/31/94					Not Sampled
	10/26/94					Not Sampled

Table 2
Groundwater Analytical Data
2200 East 12th Street
Oakland, CA

Well Number	Date Sampled	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)
MW-9H	2/5/92	<50	<0.5	<0.5	<0.5	<0.5
	5/5/92	<50	<0.5	<0.5	<0.5	<0.5
	9/14/92					Not Sampled
	11/16/92					Not Sampled
	2/3/93	[illegible]	<0.5	<0.5	<0.5	<0.5
	5/19/93	<50	<0.5	<0.5	1.1	6.4
	8/26/93	<50	0.8	<0.5	<0.5	<0.5
	11/5/93	<50	<0.5	<0.5	<0.5	<0.5
	2/4/94	<50	<0.5	<0.5	<0.5	<0.5
	5/31/94	<50	0.92	1.1	<0.5	0.86
	10/26/94	<50	<0.5	<0.5	<0.5	<0.5
MW-9I	2/5/92	<50	<0.5	<0.5	<0.5	<0.5
	5/5/92	<50	0.9	<0.5	<0.5	0.7
	9/14/92	<50	<0.5	<0.5	<0.5	<0.5
	11/16/92	<50	<0.5	<0.5	<0.5	<0.5
	2/2/93	[illegible]	[illegible]	1.1	2.3	2.1
	5/18/93	79	<0.5	<0.5	<0.5	<0.5
	8/26/93	<50	<0.5	<0.5	<0.5	<0.5
	11/4/93	<50	<0.5	<0.5	<0.5	<0.5
	2/4/94	<50	<0.5	<0.5	<0.5	<0.5
	5/31/94	[illegible]	0.66	0.63	<0.5	1.4
	10/26/94	150	<0.5	<0.5	<0.5	<0.5
ppb = parts per billion						
TPHg = Total petroleum hydrocarbons analyzed as gasoline						
< = Less than the detection limit for the specified method of analysis						

APPENDIX

B C Analytical

ANALYTICAL REPORT

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

LOG NO: G94-10-448

Received: 27 OCT 94

Mailed: NOV 14 1994

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

Purchase Order: 94-1446346+4370

Requisition: 624880088
Project: FKEP1016L

REPORT OF ANALYTICAL RESULTS

AQUEOUS

SAMPLE DESCRIPTION	DATE SAMPLED	TPH/BTEX (CADHS/8020) Date Analyzed	Dilution Factor Times	TPH-g ug/L	Benzene ug/L	Toluene ug/L	Ethyl-Benzene ug/L	Total Xylenes Isomers ug/L
RDL			1		0.5	0.5	0.5	0.5
1*MW-9A	10/26/94	11/08/94	1	66	<0.5	<0.5	<0.5	<0.5
2*MW-9B	10/26/94	11/08/94	1	84	2.8	0.72	<0.5	<0.5
3*MW-9H	10/26/94	11/08/94	1	<50	<0.5	<0.5	<0.5	<0.5
4*MW-9I	10/26/94	11/08/94	1	150	<0.5	<0.5	<0.5	<0.5
5*EB	10/26/94	11/08/94	1	110	<0.5	<0.5	<0.5	<0.5
6*TB	10/26/94	11/08/94	1	<50	<0.5	<0.5	<0.5	<0.5

Karen Petryna
2200 East Twelfth St., Oakland
Alameda County

Mark A. Valentini, PhD, Laboratory Director

: ORDER PLACED FOR CLIENT: Texaco Environmental Services 9410448 :
: BC ANALYTICAL : GLEN LAB : 14:34:42 11 NOV 1994 - P. 1 :

SAMPLES...	SAMPLE DESCRIPTION..	DETERM.....	DATE..... ANALYZED	METHOD.....	EQUIP.	BATCH..	ID.NO
9410448*1	MW-9A	GAS.BTX.TESNC	11.08.94	8015M.TX	516-20	948030	8607
9410448*2	MW-9B	GAS.BTX.TESNC	11.08.94	8015M.TX	516-20	948030	8607
9410448*3	MW-9H	GAS.BTX.TESNC	11.08.94	8015M.TX	516-20	948030	8607
9410448*4	MW-9I	GAS.BTX.TESNC	11.08.94	8015M.TX	516-20	948030	8607
9410448*5	EB	GAS.BTX.TESNC	11.08.94	8015M.TX	516-20	948030	8607
9410448*6	TB	GAS.BTX.TESNC	11.08.94	8015M.TX	516-20	948030	8607

***

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 G9410448

DATE REPORTED : 11/11/94

LABORATORY CONTROL STANDARDS
FOR BATCHES WHICH INCLUDE THIS ORDER

PARAMETER	DATE ANALYZED	BATCH NUMBER	LC RESULT	LT RESULT	UNIT	PERCENT RECOVERY
1. TPH-gas/BTEX (CADHS/80 C4111209*1						
Date Analyzed	11.08.94	948030	11/08/94	11/08/94	Date	N/A
Benzene	11.08.94	948030	18.8	19.6	ug/L	96
Toluene	11.08.94	948030	49.6	57.0	ug/L	87
Ethylbenzene	11.08.94	948030	13.3	13.9	ug/L	96
Total Xylene Isomers	11.08.94	948030	65.9	67.3	ug/L	98
TPH (as Gasoline)	11.08.94	948030	851	1000	ug/L	85

BC ANALYTICAL

ORDER QC REPORT FOR G9410448

DATE REPORTED : 11/11/94

MATRIX QC PRECISION (DUPLICATE SPIKES)
BATCH QC REPORT

PARAMETER	SAMPLE NUMBER	DATE ANALYZED	BATCH NUMBER	MS RESULT	MSD RESULT	UNIT	RELATIVE % DIFF
1. TPH-gas/BTEX (CADHS/80 9410448*1							
Date Analyzed		11.08.94	948030	11/08/94	11/08/94	Date	N/A
Benzene		11.08.94	948030	20.5	23.2	ug/L	12
Toluene		11.08.94	948030	54.0	62.0	ug/L	14
Ethylbenzene		11.08.94	948030	15.1	16.8	ug/L	11
Total Xylene Isomers		11.08.94	948030	71.0	77.4	ug/L	9
TPH (as Gasoline)		11.08.94	948030	944	851	ug/L	10

BC ANALYTICAL

ORDER QC REPORT FOR G9410448

DATE REPORTED : 11/11/94

MATRIX QC ACCURACY (SPIKES)
BATCH QC REPORT

PARAMETER	SAMPLE NUMBER	DATE ANALYZED	BATCH NUMBER	MS %	MSD %	TRUE RESULT	UNIT
1. TPH-gas/BTEX (CADHS/80	9410448*1						
Benzene		11.08.94	948030	105	118	19.6	ug/L
Toluene		11.08.94	948030	95	109	57.0	ug/L
Ethylbenzene		11.08.94	948030	109	121	13.9	ug/L
Total Xylene Isomers		11.08.94	948030	105	115	67.3	ug/L
TPH (as Gasoline)		11.08.94	948030	88	79	1066	ug/L

BC ANALYTICAL

ORDER QC REPORT FOR G9410448

DATE REPORTED : 11/11/94

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

PARAMETER	DATE ANALYZED	BATCH NUMBER	BLANK RESULT	RDL	UNIT	METHOD
1. TPH-gas/BTEX (CADHS/80 B411970*1						
Date Analyzed	11.09.94	948030	11/09/94	NA	Date	8015M.TX
Benzene	11.09.94	948030	0.070	0.5	ug/L	8015M.TX
Toluene	11.09.94	948030	0.26	0.5	ug/L	8015M.TX
Ethylbenzene	11.09.94	948030	0	0.5	ug/L	8015M.TX
Total Xylene Isomers	11.09.94	948030	0.087	0.5	ug/L	8015M.TX
TPH (as Gasoline)	11.09.94	948030	11	50	ug/L	8015M.TX
2. TPH-gas/BTEX (CADHS/80 B4111065*1						
Date Analyzed	11.08.94	948030	11/08/94	NA	Date	8015M.TX
Benzene	11.08.94	948030	0.17	0.5	ug/L	8015M.TX
Toluene	11.08.94	948030	0.60	0.5	ug/L	8015M.TX
Ethylbenzene	11.08.94	948030	0.079	0.5	ug/L	8015M.TX
Total Xylene Isomers	11.08.94	948030	0.34	0.5	ug/L	8015M.TX
TPH (as Gasoline)	11.08.94	948030	14	50	ug/L	8015M.TX

: SURROGATE RECOVERIES :
: BC ANALYTICAL : GLEN LAB : 14:39:19 11 NOV 1994 - P. 1 :

METHOD	ANALYTE	BATCH	ANALYZED	REPORTED	TRUE	%REC	FLAG
9410448*1							
8015M.TX	a,a,a-Trifluorotoluene	948030	11/08/94	57.7	50.0	115	
9410448*2							
8015M.TX	a,a,a-Trifluorotoluene	948030	11/08/94	55.7	50.0	111	
9410448*3							
8015M.TX	a,a,a-Trifluorotoluene	948030	11/08/94	55.4	50.0	111	
9410448*4							
8015M.TX	a,a,a-Trifluorotoluene	948030	11/08/94	56.0	50.0	112	
9410448*5							
8015M.TX	a,a,a-Trifluorotoluene	948030	11/08/94	54.3	50.0	109	
9410448*6							
8015M.TX	a,a,a-Trifluorotoluene	948030	11/08/94	55.8	50.0	112	

: SURROGATE RECOVERIES :
: BC ANALYTICAL : GLEN LAB : 14:39:22 11 NOV 1994 - P. 1 :

METHOD	ANALYTE	BATCH	ANALYZED	REPORTED	TRUE	%REC	FLAG
9410448*1*R1							
8015M.TX	a,a,a-Trifluorotoluene	948030	11/08/94	57.7	50.0	115	
9410448*1*S1							
8015M.TX	a,a,a-Trifluorotoluene	948030	11/08/94	62.1	50.0	124	
9410448*1*S2							
8015M.TX	a,a,a-Trifluorotoluene	948030	11/08/94	62.1	50.0	124	
9410448*1*T							
8015M.TX	a,a,a-Trifluorotoluene	948030	11/08/94	50.0	50.0	100	
94111065*1*MB							
8015M.TX	a,a,a-Trifluorotoluene	948030	11/08/94	56.7	50.0	113	
9411970*1*MB							
8015M.TX	a,a,a-Trifluorotoluene	948030	11/09/94	54.9	50.0	110	
94111209*1*LC							
8015M.TX	a,a,a-Trifluorotoluene	948030	11/08/94	56.8	50.0	114	
94111209*1*LT							
8015M.TX	a,a,a-Trifluorotoluene	948030	11/08/94	50.0	50.0	100	

Chain-of-Custody

Page ___ of ___

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 Corordinator: Karen Petryna

Site Name: Texaco Loc.# 624880088
Site Address: 2200 East Twelfth St. Oakland, CA
Contractor Project Number:
Contractor Name: Blaine Tech Services, Inc.
Address: 985 Timothy Dr., San Jose, CA 95133
Project Contact: Don Weltz
Phone/FAX: (408) 995-5535 / (408) 293-8773

Laboratory: B C Analytical
Turn Around Time: normal (10 day)
Samplers (PRINT NAME): SHAWN R. HALL
Sampler Signature:
Date Samples Collected: 10/26/94

G9410 448

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 8240/624	P. Halocarbons 8010/60	P. Aromatics 8020/602	Organic Lead			Comments
MW-9A		10/26/94	3				X										
MW-9B		10/26/94	3				X										
MW-9H		10/26/94	3				X										
MW-9I		10/26/94	3				X										
EB		10/26/94	3				X										
TB		10/21/94	2				X										

Relinquished by: (Signature)	Date: 10/27/94	Time: 1140	Received by: (Signature) Bill Lyons
Relinquished by: (Signature) Bill Lyons	Date: 10-27-94	Time: 305	Received by: (Signature) Jan Winter
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Method of Shipment:			Lab Comments:

Received by: (Signature) Bill Lyons	Date: 10-27-94	Time: 1140
Received by: (Signature) Jan Winter	Date: 10/27/94	Time: 305
Received by: (Signature)	Date:	Time:

P:\GWMP\FORMS\TEX-COC.XLS

Well Gauging Data

Project Name: TEXACO LOC # 624880088
Project Number: 941026-E1

Date: 10/26/94
Recorded By: KENT BROWN

Well ID	TOC Elev.	DTB (ft. TOC)	Well Dia. (in.)	DTP (ft.)	DTW (ft.)	PT (ft.)	Comments
MW 9A		17.34	2"		7.06		
MW 9B		17.54	2.		6.04		
MW 9C		16.06	2"		6.80		
MW 9D		14.82	4"		8.34		
MW 9F		13.94	4"		5.96		
MW 9G		14.04	4"		5.76		
MW 9H		14.14	4"		8.12		
MW 9I		13.86	4"		5.88		

TOC = Top of casing
DTB = Depth to bottom in feet below TOC
DTP = Depth to product in feet below TOC
DTW = Depth to water in feet below TOC
PT = Product thickness in feet

Groundwater Sampling Form

Project Name 2200 E. 12TH ST. OAKLAND Well No. MW-9A
Project Number 941026-E2 Well Type ☒ Monitor ☐ Extraction ☐ Other
Recorded By KBNT Sampled by KEB Date 10/26/94

WELL PURGING

PURGE VOLUME

Well casing diameter
☒ 2-inch ☐ 4-inch ☐ Other
Well Total Depth (TD, ft. below TOC) 17.54
Depth to Water (WL, ft. below TOC) 7.06
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 MIDDLEBURG
☐ Other

PUMP INTAKE

☐ Near top Depth (ft)
☒ Near Bottom Depth (ft)
☐ Other

Pumping Rate ____ gpm

PURGE VOLUME CALCULATION

10.48 (Water Column Length) x .17 (Multiplier) (1.78) x 3 (No. Vols) = 5.34 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

6.0 gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENT

Meter Type HYDAC / HF-TURB.

Time/Gallons	pH	Cond. (uomhos/cm)	Temp	☒ deg C ☐ deg F	Turbidity (NTU)	Color/Odor
11:50 / 2.0	6.76	835	72.1		38.6	CLEAR / NONE
11:52 / 4.0	6.78	817	73.1		21.3	CLEAR / NONE
11:54 / 6.0	6.87	839	73.7		50.1	CLOUDY / NONE
/						
/						
/						
/						
/						

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

WELL SAMPLING

SAMPLING METHOD

Date/Time Sampled 10/26/94 1200
Bailer - Type ☒
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
MW-9A	3 VOAS	TPHG/BTEX	HCL	BC	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	TB
Rinsate TPHG/BTEX	EB AT 1210
Transfer	
Other:	

Groundwater Sampling Form

Project Name 2200 E. 12TH ST OAKLAND Well No. MW-9B

Project Number ~~941012-2R~~ 941026-E2 Well Type [X] Monitor [ ] Extraction [ ] Other

Recorded By ~~BB~~ KBB Sampled by ~~BB~~ KBB Date ~~10/12/94~~ 10/26/94

WELL PURGING

PURGE VOLUME

Well casing diameter

[X] 2-inch [ ] 4-inch [ ] Other

Well Total Depth (TD, ft. below TOC) 17.54

Depth to Water (WL, ft. below TOC) 6.04

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

Number of well volumes to be purged

[ ] 3 [ ] 10 [ ] Other

PURGE VOLUME CALCULATION (1.95)

11.5 (Water Column Length) x .17 (Multiplier) x 3 (No. Vols) = 5.8 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

6.0 gals ACTUAL PURGE VOLUME

PURGE METHOD

[ ] Bailer - Type

[X] Pump - Type Middleburg

[ ] Other

PUMP INTAKE

[ ] Near top Depth (ft)

[X] Near Bottom Depth (ft)

[ ] Other

Pumping Rate ____ gpm

GROUNDWATER PARAMETER MEASUREMENT

Meter Type MYRON LpDS

Time/Gallons	pH	Cond. (uomhos/cm)	Temp	[ ] deg C [X] deg F	Turbidity (NTU)	Color/Odor
1258 / 2.0	6.78	787	72.5		102.4	CLOUDY / ODOR
1300 / 4.0	6.92	794	73.3		84.3	↓
1302 / 6.0	6.97	817	73.5		61.3	INCREASED ↑ ODOR
/						
/						
/						
/						
/						

Comments during well purge

Well Pumped dry: YES (NO)

Purge water storage/disposal [ ] Drummed onsite [X] Other TEXACO

WELL SAMPLING

SAMPLING METHOD

Date/Time Sampled 10/12/94 / 1206

Bailer - Type [X]

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
MW-9B	3 / VOAs	TPHg-BTEX	HCL	BC	

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 2200 E 12TH ST, OAKLAND Well No. MW-9H
Project Number 941026-E2 Well Type [X] Monitor [ ] Extraction [ ] Other
Recorded By KENT Sampled by KBB Date 10/26/94

WELL PURGING

PURGE VOLUME

Well casing diameter
[ ] 2-inch [X] 4-inch [ ] Other
Well Total Depth (TD, ft. below TOC) 14.14
Depth to Water (WL, ft. below TOC) 8.12
Depth to free phase hydrocarbons (FP, ft. below TOC)
Number of well volumes to be purged
[X] 3 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer - Type
[X] Pump - Type ELECTRIC SUBMERSIBLE
[ ] Other

PUMP INTAKE

[ ] Near top Depth (ft)
[X] Near Bottom Depth (ft)
[ ] Other
Pumping Rate ____ gpm

PURGE VOLUME CALCULATION

6.02 (Water Column Length) x .66 (Multiplier) x 3 (No. Vols) = 11.91 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

12.0 gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENT

Meter Type

Time/Gallons	pH	Cond. (uomhos/cm)	Temp	[X] deg F	Turbidity (NTU)	Color/Odor
1220 / 4.0	6.93	683	73.4		29.1	CLEAR/NONE
1225 / 8.0	7.60	702	73.5		196.8	CLOUDY/ODOR
1228 / 12.0	7.36	721	73.5		148.9	
/						
/						
/						
/						
/						

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

WELL SAMPLING

SAMPLING METHOD

Date/Time Sampled 10/26/94 1230
Bailer - Type [X]
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
MW-9H	3 VOAS	TP	HCl	BC	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

2200 E 12TH ST. OAKLAND

Groundwater Sampling Form

Project Name ~~94/026-61~~ Well No. MW-9I

Project Number 94/026-62 Well Type ☒ Monitor ☐ Extraction ☐ Other

Recorded By KBB Sampled by KBB Date 10/26/94

WELL PURGING

PURGE VOLUME

Well casing diameter

☐ 2-inch ☒ 4-inch ☐ Other

Well Total Depth (TD, ft. below TOC) 13.86

Depth to Water (WL, ft. below TOC) 5.88

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

Number of well volumes to be purged

☒ 3 ☐ 10 ☐ Other

PURGE VOLUME CALCULATION

7.98 (Water Column Length) x .66 (Multiplier) x 3 (No. Vols) = 15.80 gals CALCULATED PURGE VOLUME

(5.26)

16.0 gals ACTUAL 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	

PURGE METHOD

☐ Bailer - Type

☒ Pump - Type ELECTRIC SUBMERSIBLE

☐ Other

PUMP INTAKE

☐ Near top Depth (ft)

☒ Near Bottom Depth (ft)

☐ Other

Pumping Rate gpm

GROUNDWATER PARAMETER MEASUREMENT Meter Type

Time/Gallons	pH	Cond. (uomhos/cm)	Temp	☐ deg C ☒ deg F	Turbidity (NTU)	Color/Odor
1242 / 5.5	7.15	13.12	74.5		21.6	CLEAR/SLIGHT
1244 / 11.0	7.1	13.45	76.3		6.68	CLEAR
1246 / 16.0	7.13	1418	76.4		10.63	CLEAR
/						
/						
/						
/						
/						

Comments during well purge

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

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled 10/26/94, 1250

Bailer - Type ☒ 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
MW-9I	3 VOAS	TPH6/BTEX	HCl	BC	

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: Blaine Tech Services, Inc.
Address: 985 Timothy Drive
City, State, ZIP: San Jose, CA 95133
Phone: (408) 995-5535

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 #: 624880088
Address: 2200 E. 12TH ST., OAK
City, State, ZIP: OAKLAND, CA.

Well I.D.	Gals.	Well I.D.	Gals.
MW-9A	6.0		
MW-9B	6.0		
MW-9H	12.0		
MW-9I	16.0		

Total gals. 40

added rinse water 10.0

Total Gals. Recovered 50

Job #: 941026-E2
Date 10/26/94
Time 1250
Signature:

REC'D AT: BTS
Date: 10/26/94
Time: 1700
Signature:

P:\GWMP\FORMS\TEX-BOL.WK1

QUARTERLY SUMMARY REPORT

Former Texaco/Current Exxon Service Station
2200 East 12th, Oakland, California
Alameda County
Third Quarter, 1994

HISTORY OF INVESTIGATIVE AND REMEDIAL ACTIONS

Investigation began in May, 1988 and initially consisted of a sensitive receptor study and a preliminary subsurface investigation. Five shallow monitoring wells have been installed on site; three (3) wells were installed off-site. Dissolved petroleum hydrocarbons were found in water from two (2) on-site wells, downgradient of the tanks and a pump island. 20 shallow soil borings were drilled and sampled near the pump islands and underground tanks. Slug tests were performed in two (2) on-site wells to evaluate hydraulic properties of shallow saturated material. The site assessment report was completed in the third quarter of 1989. In fourth quarter, 1990 soils with hydrocarbon concentrations at and above 100 parts per million (ppm) were excavated between the sidewalk and the canopy covering the western pump islands. Following on-site treatment, the excavated soils were removed from the site to Redwood Landfill in Novato. MW-9E was abandoned, and MW-9I was installed in approximately the same location. During the third quarter of 1991, Exxon removed and replaced the underground storage tanks and product lines.

WORK PERFORMED DURING THIS QUARTER

Quarterly groundwater monitoring and sampling.

CHARACTERIZATION STATUS

The petroleum hydrocarbon plume has been delineated.

REMEDIATION STATUS

Not applicable.

WORK TO BE PERFORMED NEXT QUARTER

Continue quarterly monitoring and sampling to record fluctuations in hydrocarbons concentrations and water levels.

COMPANY CONTACT: Karen Petryna (510) 236-9139

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W:\QSR_RAO\2200E12.QSR

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 complied 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 beings. 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.