1230 - 1255 - 0.5

Texaco Refining
and Marketing Inc

108 Cutting Blvd
Richmond CA 94804

ALCO HAZMAT
94 NOV 30 AM 9:02

November 21, 1994

(1) Conduct of fifty trench (sewer) investigation to determine if sand potential conduit for migration of contaminants. And dig well perhaps needs in median strip
(2) Has soil vapor extraction system completed?

ENV - STUDIES, SURVEYS, & REPORTS
930 Springtown Blvd., Livermore, California

Ms. Eva Chu
Alameda County Department of Environmental Health
80 Swan Way, Room 200
Oakland, CA 94612

Dear Ms. Chu:

This letter presents the results of groundwater monitoring and sampling conducted by Blaine Tech Services, Inc. on August 31, 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 north-northeast (see Plate 2, Groundwater Gradient Map). The gradient map has been reviewed by a registered professional. 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 Enviornmental Services' Standard Operating Procedures.

If you have any questions or comments regarding this site, please call the Texaco Environmental Services' site Project Coordinator, Ms. Karen Petryna at (510) 236-9139.

Best Regards,

Rebecca Digerness

Rebecca Digerness
Environmental Technician

Karen E. Petryna

Karen E. Petryna
Engineer
Texaco Environmental Services

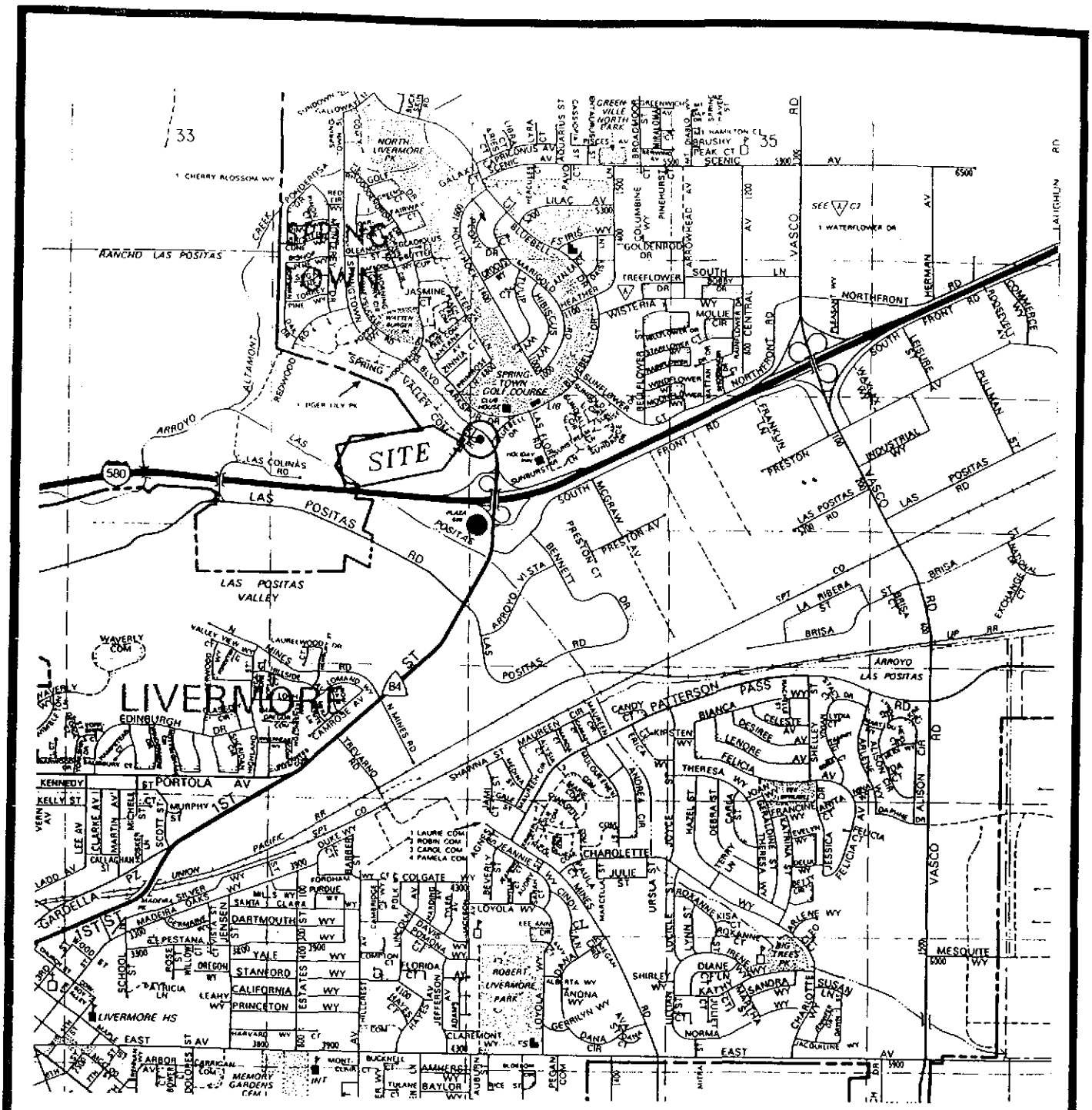
RBD:hs
C:\QMR\930S\QMR.LET

Enclosures

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

PR: KEP

GROUNDWATER MONITORING AND SAMPLING
Third Quarter, 1994
at the
Former Texaco Station
930 Springtown Boulevard
Livermore, California



SOURCE:
1993 THE THOMAS GUIDE
ALAMEDA COUNTY, PAGE 51 (C3)

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

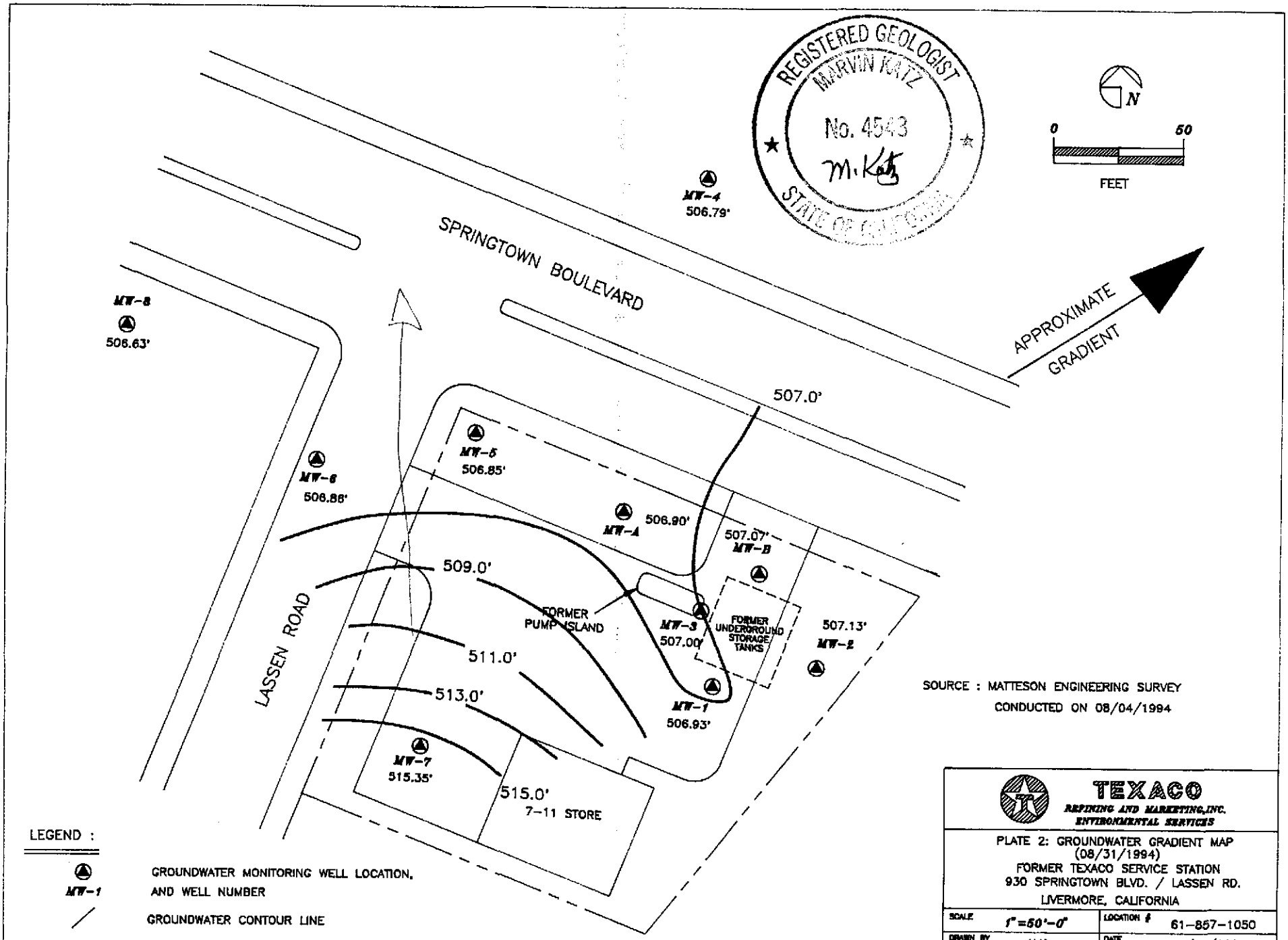
TEXACO
REFINING AND MARKETING, INC.
TEXACO ENVIRONMENTAL SERVICES

PLATE 1

SITE VICINITY MAP

FORMER TEXACO SERVICE STATION

930 SPRINGTOWN BLVD. / LASSEN RD.,
LIVERMORE, CALIFORNIA



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

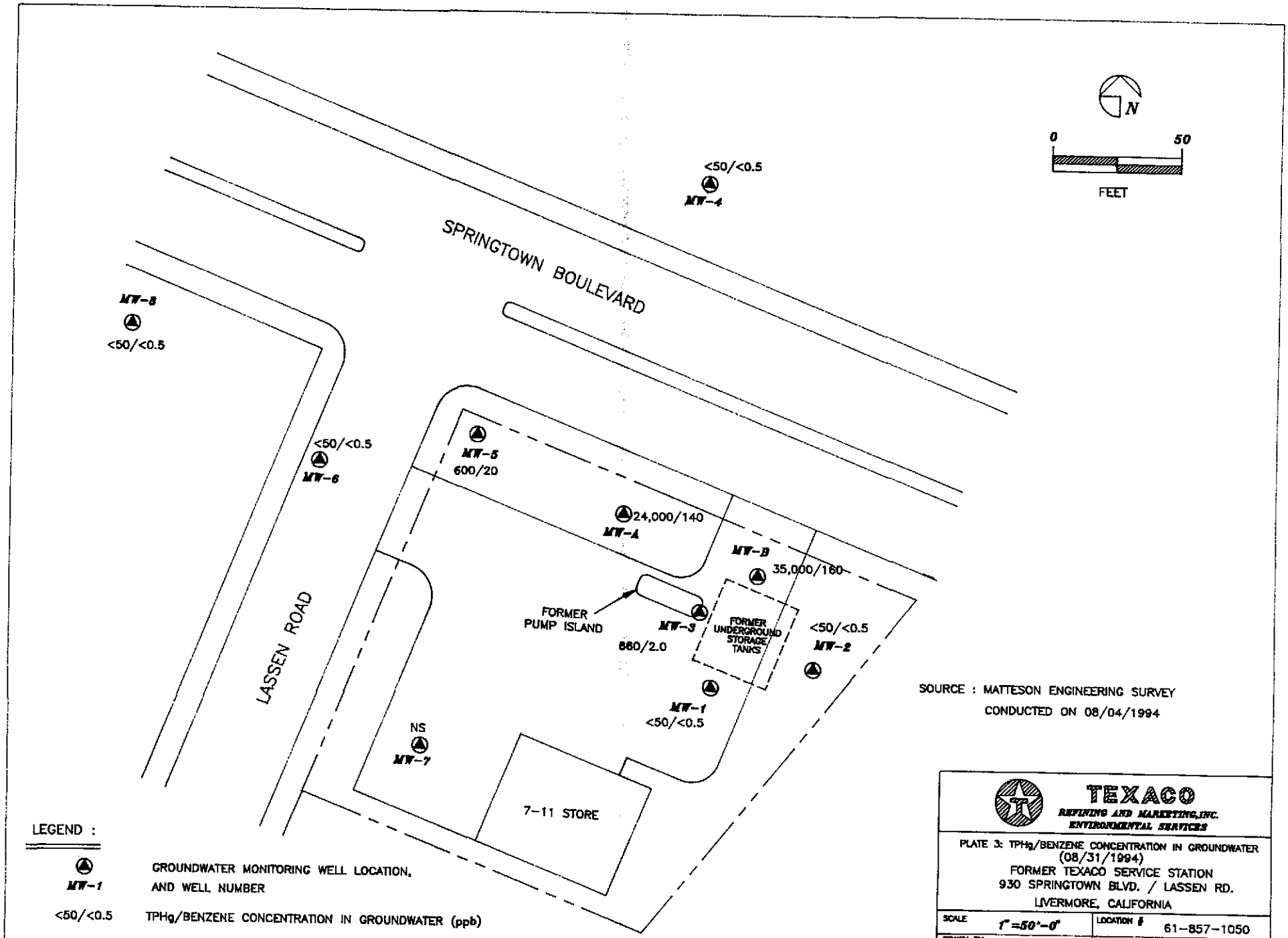
LEGEND :

MW-1	GROUNDWATER MONITORING WELL LOCATION, AND WELL NUMBER
	GROUNDWATER CONTOUR LINE
507.07'	GROUNDWATER ELEVATION (ABOVE MSL)

TEXACO
REFINING AND MARKETING,INC.
ENVIRONMENTAL SERVICES

PLATE 2: GROUNDWATER GRADIENT MAP
(08/31/1994)
FORMER TEXACO SERVICE STATION
930 SPRINGTOWN BLVD. / LASSEN RD.
LIVERMORE, CALIFORNIA

SCALE	1"=50'-0"	LOCATION #	61-857-1050
DRAWN BY	AMA	DATE	11/08/1994
CHECKED BY	RD	DATE	11/08/1994
DRAWING NO.	(LIVERMORE) ST-LA-LI.DWG		



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

TEXACO
REFINING AND MARKETING, INC.
ENVIRONMENTAL SERVICES

PLATE 3: TPHg/BENZENE CONCENTRATION IN GROUNDWATER (08/31/1994)
FORMER TEXACO SERVICE STATION
930 SPRINGTOWN BLVD. / LASSEN RD.
LIVERMORE, CALIFORNIA

SCALE	1"=50'-0"	LOCATION #	61-857-1050
DRAWN BY	AMA	DATE	11/08/1994
CHECKED BY	RD	DATE	11/08/1994
DRAWING NO.	(LIVERMORE) ST-LA-LI.DWG		

Table 1
Groundwater Elevation Data
930 Springtown Boulevard, Livermore, CA

Well Number	Date Gauged	Elevation of Wellhead (feet, MSL)		Depth to Water (feet, TOC)	Elevation of Groundwater (feet, MSL)	Floating Product
MW-A						
	1/10/91	519.85				
	1/2/92			13.61	506.24	---
	4/2/92			12.44	507.41	---
	7/21/92			13.35	506.50	---
	10/9/92			12.92	506.93	SD
	1/11/93			11.78	508.07	SD
	5/5/93			11.39	508.46	SD
	8/9/93			12.80	507.05	SD
	10/14/93			13.48	506.37	SD
	1/24/94			12.74	507.11	SD
	5/31/94			12.28	507.57	---
	8/31/94	520.10	*	13.20	506.90	SD
MW-B						
	1/10/91	518.16				
	1/2/92			11.27	506.89	---
	4/2/92			10.18	507.98	---
	7/21/92			11.27	506.89	---
	10/9/92			11.64	506.52	SD
	1/11/93			9.65	508.51	SD
	5/5/93			9.28	508.88	SD
	8/9/93			11.02	507.14	SD
	10/14/93			11.34	506.82	SD
	1/24/94			10.54	507.62	SD
	5/31/94			10.19	507.97	---
	8/31/94	518.05	*	10.98	507.07	SD
MW-1						
	1/10/91	520.76				
	1/2/92			14.11	506.65	---
	4/2/92			12.98	507.78	---
	7/21/92			13.92	506.84	---
	10/9/92			14.25	506.51	---
	1/11/93			12.30	508.46	---
	5/5/93			11.88	508.88	---
	8/9/93			13.63	507.13	---
	10/14/93			13.91	506.85	---
	1/24/93			13.12	507.64	---
	5/31/94			12.74	508.02	---
	8/31/94	520.61	*	13.68	506.93	---

Table 1
Groundwater Elevation Data
930 Springtown Boulevard, Livermore, CA

Well Number	Date Gauged	Elevation of Wellhead (feet, MSL)		Depth to Water (feet, TOC)	Elevation of Groundwater (feet, MSL)	Floating Product
MW-2						
	1/10/91	518.46				
	1/2/92			11.96	506.50	---
	4/2/92			10.89	507.57	---
	7/21/92			11.55	506.91	---
	10/9/92			Not Monitored		
	1/11/93			Not Monitored		
	5/5/93			Not Monitored		
	8/9/93			Not Monitored		
	10/14/93			Not Monitored		
	1/24/94			Not Monitored		
	5/31/94			10.37	508.09	---
	8/31/94	518.29	*	11.16	507.13	---
MW-3						
	1/10/91	519.30				
	1/2/92			12.87	506.43	---
	4/2/92			11.97	507.33	---
	7/21/92			12.60	506.70	---
	10/9/92			12.93	506.37	---
	1/11/93			11.16	508.14	---
	5/5/93			10.72	508.58	---
	8/9/93			12.34	506.96	---
	10/14/93			12.71	506.59	---
	1/24/94			12.03	507.27	---
	5/31/94			11.54	507.76	---
	8/31/94	519.60	*	12.60	507.00	---
MW-4						
	1/10/91	518.75				
	1/2/92			12.22	506.53	---
	4/2/92			11.03	507.72	---
	7/21/92			12.36	506.39	---
	10/9/92			12.40	506.35	---
	1/11/93			10.72	508.03	---
	5/5/93			10.21	508.54	---
	8/9/93			12.25	506.50	---
	10/14/93			12.58	506.17	---
	1/24/94			11.72	507.03	---
	5/31/94			11.29	507.46	---
	8/31/94	518.79	*	12.00	506.79	---

Table 1
Groundwater Elevation Data
930 Springtown Boulevard, Livermore, CA

Well Number	Date Gauged	Elevation of Wellhead (feet, MSL)		Depth to Water (feet, TOC)	Elevation of Groundwater (feet, MSL)	Floating Product
MW-5						
	1/10/91	520.50				
	1/2/92			14.56	505.94	---
	4/2/92			13.58	506.92	---
	7/21/92			13.77	506.73	---
	10/9/92			14.09	506.41	---
	1/11/93			12.24	508.26	---
	5/5/93			11.90	508.60	---
	8/9/93			13.35	507.15	---
	10/14/93			13.89	506.61	---
	1/24/94			13.32	507.18	---
	5/31/94			12.75	507.75	---
	8/31/94	521.19	*	14.34	506.85	---
MW-6						
	1/10/91	522.26				
	1/2/92			16.64	505.62	---
	4/2/91			15.61	506.65	---
	7/21/92			15.53	506.73	---
	10/9/92			15.69	506.57	---
	1/11/93			Not Monitored		
	5/5/93			Not Monitored		
	8/9/93			14.50	507.76	---
	10/14/93			Not Monitored		
	1/24/94			15.09	507.17	---
	5/31/94			14.64	507.62	---
	8/31/94	522.18	*	15.32	506.86	---
MW-7						
	1/10/91	522.17				
	1/2/92			11.17	511.00	---
	4/2/92			10.34	511.83	---
	7/21/92			9.02	513.15	---
	10/9/92			Not Monitored		
	1/11/93			Not Monitored		
	5/5/93			Not Monitored		
	8/9/93			Not Monitored		
	10/14/93			Not Monitored		
	1/24/94			Not Monitored		
	5/31/94			9.42	512.75	---
	8/31/94	522.19	*	6.84	515.35	---

Table 1
Groundwater Elevation Data
930 Springtown Boulevard, Livermore, CA

Well Number	Date Gauged	Elevation of Wellhead (feet, MSL)		Depth to Water (feet, TOC)	Elevation of Groundwater (feet, MSL)	Floating Product
MW-8						
	1/10/91	524.04				
	1/2/92			18.42	505.62	---
	4/2/92			17.39	506.65	---
	7/21/92			14.02	510.02	---
	10/9/92			Not Monitored		
	1/11/93			Not Monitored		
	5/5/93			Not Monitored		
	8/9/93			Not Monitored		
	10/14/93			Not Monitored		
	1/24/94			Not Monitored		
	5/31/94			19.65	504.39	---
	8/31/94	524.03	*	17.40	506.63	---

*Wells resurveyed on 8/4/94

MSL	Mean Sea Level
TOC	Top of Casing
---	None Present
SD	Sheen detected in purge water

Table 2
Groundwater Analytical Data
930 Springtown Boulevard, Livermore, CA

Well Number	Date Sampled	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)
MW-A						
	1/2/92	SP	SP	SP	SP	SP
	4/2/92	27,000	1,200	570	1,700	2,300
	7/21/92	57,000	1,500	1,800	2,700	7,100
	10/9/92	56,000	2,900	2,600	4,600	12,000
	1/11/93	NS	NS	NS	NS	NS
	5/5/93	NS	NS	NS	NS	NS
	8/9/93	NS	NS	NS	NS	NS
	10/14/93	NS	NS	NS	NS	NS
	1/24/94	1,400,000	6,900	2,100	15,000	38,000
	5/31/94	48,000	1,200	900	1,900	4,200
	8/31/94	24,000	140	120	830	1,500
MW-B						
	1/2/92	SP	SP	SP	SP	SP
	4/2/92	1,900	ND	39	24	35
	7/21/92	16,000	180	1,600	270	1,100
	10/9/92	38,000	490	8,300	1,400	5,100
	1/11/93	NS	NS	NS	NS	NS
	5/5/93	NS	NS	NS	NS	NS
	8/9/93	NS	NS	NS	NS	NS
	10/14/93	NS	NS	NS	NS	NS
	1/24/94	23,000	110	1,700	600	1,900
	5/31/94	13,000	780	310	370	1,400
	8/31/94	35,000	160	2,800	1,000	4,500
MW-1						
	1/2/92	16	6	ND	ND	ND
	4/2/92	ND	ND	ND	ND	ND
	7/21/92	<50	3.2	<0.5	<0.5	<0.5
	10/9/92	<50	8.5	<0.5	<0.5	<0.5
	1/11/93	<50	<0.5	<0.5	<0.5	<0.5
	5/5/93	<50	<0.5	<0.5	<0.5	<0.5
	8/9/93	<50	<0.5	<0.5	<0.5	<0.5
	10/14/93	440	16	2.9	2.9	11
	5/31/94	<50	<0.5	<0.5	<0.5	<0.5
	8/31/94	<50	<0.5	<0.5	<0.5	<0.5

Table 2
Groundwater Analytical Data
930 Springtown Boulevard, Livermore, CA

Well Number	Date Sampled	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)
MW-2						
	1/2/92	ND	ND	ND	ND	ND
	4/2/91	ND	ND	ND	ND	ND
	7/21/92	NS	NS	NS	NS	NS
	10/9/92	NS	NS	NS	NS	NS
	1/11/93	NS	NS	NS	NS	NS
	5/5/93	NS	NS	NS	NS	NS
	8/9/93	NS	NS	NS	NS	NS
	10/14/93	NS	NS	NS	NS	NS
	1/24/94	NS	NS	NS	NS	NS
	5/31/94	NS	NS	NS	NS	NS
	8/31/94	<50	<0.5	<0.5	<0.5	<0.5
MW-3						
	1/2/92	340	0.4	ND	ND	ND
	4/2/92	160	5	ND	0.3	0.5
	7/21/92	260	1.7	<0.5	<0.5	<0.5
	10/9/92	88	<0.5	<0.5	<0.5	<0.5
	1/11/93	130	<0.5	<0.5	<0.5	<0.5
	5/5/93	340	1.8	<0.5	1.3	<0.5
	8/9/93	610	18	<0.5	2.4	0.9
	10/14/93	<50	<0.5	<0.5	<0.5	<0.5
	1/24/94	320	3.5	<0.5	<0.5	<0.5
	5/31/94	830	11	12	5.0	1.2
	8/31/94	660	2.0	<0.5	0.80	<0.5
MW-4						
	1/2/92	ND	ND	ND	ND	ND
	4/2/92	ND	ND	ND	ND	ND
	7/21/92	<50	<0.5	<0.5	<0.5	<0.5
	10/9/92	<50	<0.5	<0.5	<0.5	<0.5
	1/11/93	<50	<0.5	<0.5	<0.5	<0.5
	5/5/93	<50	<0.5	<0.5	<0.5	<0.5
	8/9/93	<50	<0.5	<0.5	<0.5	<0.5
	10/14/93	<50	<0.5	<0.5	<0.5	<0.5
	1/24/94	<50	<0.5	<0.5	<0.5	<0.5
	5/31/94	NS	NS	NS	NS	NS
	8/31/94	<50	<0.5	<0.5	<0.5	<0.5

Table 2
Groundwater Analytical Data
930 Springtown Boulevard, Livermore, CA

Well Number	Date Sampled	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)
MW-5						
	1/2/92	1,800	74	41	84	94
	4/2/92	ND	ND	ND	ND	ND
	7/21/92	1,000	69	16	40	31
	10/9/92	3,400	890	51	110	110
	1/11/93	15,000	460	110	900	370
	5/5/93	4,500	160	19	280	110
	8/9/93	2,300	180	19	130	80
	10/14/93	2,200	160	27	90	64
	1/24/94	2,600	69	11	65	25
	5/31/94	3,100	130	64	140	120
	8/31/94	600	20	2.9	14	7.1
MW-6						
	1/2/92	23	ND	0.3	0.6	3
	4/2/92	ND	ND	ND	ND	ND
	7/21/92	<50	<0.5	<0.5	<0.5	<0.5
	10/9/92	<50	<0.5	<0.5	<0.5	<0.5
	1/11/93	NS	NS	NS	NS	NS
	5/5/93	NS	NS	NS	NS	NS
	8/9/93	<50	<0.5	<0.5	<0.5	<0.5
	10/14/93	NS	NS	NS	NS	NS
	1/24/94	<50	<0.5	<0.5	<0.5	<0.5
	5/31/94	NS	NS	NS	NS	NS
	8/31/94	<50	<0.5	<0.5	<0.5	<0.5
MW-7						
	1/2/92	NS	NS	NS	NS	NS
	4/2/92	ND	ND	ND	ND	ND
	7/21/92	NS	NS	NS	NS	NS
	10/9/92	NS	NS	NS	NS	NS
	1/11/93	NS	NS	NS	NS	NS
	5/5/93	NS	NS	NS	NS	NS
	8/9/93	NS	NS	NS	NS	NS
	10/14/93	NS	NS	NS	NS	NS
	1/24/94	NS	NS	NS	NS	NS
	5/31/94	NS	NS	NS	NS	NS
	8/31/94	NS	NS	NS	NS	NS

Table 2
Groundwater Analytical Data
930 Springtown Boulevard, Livermore, CA

Well Number	Date Sampled	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)
MW-8						
	1/2/92	12,000	32	980	200	760
	4/2/92	ND	ND	ND	ND	ND
	7/21/92	NS	NS	NS	NS	NS
	10/9/93	NS	NS	NS	NS	NS
	1/11/93	NS	NS	NS	NS	NS
	5/5/93	NS	NS	NS	NS	NS
	8/9/93	NS	NS	NS	NS	NS
	10/14/93	NS	NS	NS	NS	NS
	1/24/94	NS	NS	NS	NS	NS
	5/31/94	NS	NS	NS	NS	NS
	8/31/94	<50	<0.5	<0.5	<0.5	<0.5

NS	Not Sampled
ND	None Detected
SP	Separate-phase petroleum hydrocarbons
TPHg	Total petroleum hydrocarbons as gasoline analyzed by EPA method 5030/602.
BTEX	Analyzed by EPA method 5030/602.
<	Less than the detection limit for the specified method of analysis.

B C Analytical

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

ANALYTICAL REPORT

LOG NO: G94-09-011

Received: 01 SEP 94

Mailed: SEP 13 1994

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

Purchase Order: 94-1446346+4370

Requisition: 618571050
Project: FKEP1012L

REPORT OF ANALYTICAL RESULTS

AQUEOUS

SAMPLE DESCRIPTION	DATE SAMPLED	TPH/BTEX (CADHS/8020)							
		Date Analyzed Date	Dilution Factor Times 1	TPH-g ug/L	Benzene ug/L	Toluene ug/L	Ethyl- Benzene ug/L	Total Xylenes Isomers ug/L	
RDL			1	50	0.5	0.5	0.5	0.5	
1*MW-A	08/31/94	09/07/94	100	24000	140	120	830	1500	
2*MW-B	08/31/94	09/07/94	20	35000	160	2800	1000	4500	
3*MW-1	08/31/94	09/07/94	1	<50	<0.5	<0.5	<0.5	<0.5	
4*MW-2	08/31/94	09/05/94	1	<50	<0.5	<0.5	<0.5	<0.5	
5*MW-3	08/31/94	09/07/94	1	660	2.0	<0.5	0.80	<0.5	
6*MW-4	08/31/94	09/07/94	1	<50	<0.5	<0.5	<0.5	<0.5	
7*MW-5	08/31/94	09/07/94	1	600	20	2.9	14	7.1	
8*MW-6	08/31/94	09/08/94	1	<50	<0.5	<0.5	<0.5	<0.5	
9*MW-8	08/31/94	09/08/94	1	<50	<0.5	<0.5	<0.5	<0.5	
10*TB	08/31/94	09/07/94	1	<50	<0.5	<0.5	<0.5	<0.5	
11*EB	08/31/94	09/07/94	1	<50	<0.5	<0.5	<0.5	<0.5	

Karen Petryna
930 Springtown Boulevard, Livermore
Alameda County

James C. Hein, Laboratory Director

SAMPLES...	SAMPLE DESCRIPTION..	DETERM.....	DATE..... ANALYZED	METHOD.....	EQUIP.	BATCH..	ID.NO
9409011*1	MW-A	GAS.BTX.TESNC	09.07.94	8015M.TX	536-21	94121	8095
9409011*2	MW-B	GAS.BTX.TESNC	09.07.94	8015M.TX	536-21	94121	8095
9409011*3	MW-1	GAS.BTX.TESNC	09.07.94	8015M.TX	536-21	94121	8095
9409011*4	MW-2	GAS.BTX.TESNC	09.07.94	8015M.TX	536-21	94121	8095
9409011*5	MW-3	GAS.BTX.TESNC	09.07.94	8015M.TX	536-21	94121	8095
9409011*6	MW-4	GAS.BTX.TESNC	09.07.94	8015M.TX	536-21	94121	8095
9409011*7	MW-5	GAS.BTX.TESNC	09.07.94	8015M.TX	536-21	94121	8095
9409011*8	MW-6	GAS.BTX.TESNC	09.08.94	8015M.TX	536-21	94121	8095
9409011*9	MW-8	GAS.BTX.TESNC	09.08.94	8015M.TX	536-21	94121	8095
9409011*10	TB	GAS.BTX.TESNC	09.07.94	8015M.TX	536-21	94121	8095
9409011*11	EB	GAS.BTX.TESNC	09.07.94	8015M.TX	536-21	94121	8095

***

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

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

BC ANALYTICAL

ORDER QC REPORT FOR G9409011

DATE REPORTED : 09/12/94

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 C409362*1						
Date Analyzed	09.07.94	94121	09/07/94	09/07/94	Date	N/A
Benzene	09.07.94	94121	14.9	12.5	ug/L	119
Toluene	09.07.94	94121	53.0	55.5	ug/L	95
Ethylbenzene	09.07.94	94121	10.4	12.5	ug/L	83
Total Xylene Isomers	09.07.94	94121	58.2	42.5	ug/L	137 Q
TPH (as Gasoline)	09.07.94	94121	920	1000	ug/L	92
a,a,a-Trifluorotoluene Reported	09.07.94	94121	35.3	50.0	ug/L	71 Q
a,a,a-Trifluorotoluene Theoretic	09.07.94	94121	50.0	50.0	ug/L	100
2. TPH-gas/BTEX (CADHS/80 C409417*1						
Date Analyzed	09.08.94	94121	09/08/94	09/08/94	Date	N/A
Benzene	09.08.94	94121	11.3	12.5	ug/L	90
Toluene	09.08.94	94121	55.0	55.5	ug/L	99
Ethylbenzene	09.08.94	94121	11.0	12.5	ug/L	88
Total Xylene Isomers	09.08.94	94121	63.1	42.5	ug/L	148 Q
TPH (as Gasoline)	09.08.94	94121	1030	1000	ug/L	103
a,a,a-Trifluorotoluene Reported	09.08.94	94121	54.8	50.0	ug/L	110
a,a,a-Trifluorotoluene Theoretic	09.08.94	94121	50.0	50.0	ug/L	100

BC ANALYTICAL

ORDER QC REPORT FOR G9409011

DATE REPORTED : 09/12/94

ADDITIONAL LCS PRECISION (DUPLICATES)
BATCH QC REPORT

PARAMETER	SAMPLE NUMBER	DATE ANALYZED	BATCH NUMBER	LC1 RESULT	LC2 RESULT	UNIT	RELATIVE % DIFF
1. TPH-gas/BTEX (CADHS/80							
Date Analyzed		09.07.94	94121	09/07/94	09/08/94	Date	N/A
Benzene		09.07.94	94121	14.9	11.3	ug/L	27
Toluene		09.07.94	94121	53.0	55.0	ug/L	4
Ethylbenzene		09.07.94	94121	10.4	11.0	ug/L	6
Total Xylene Isomers		09.07.94	94121	58.2	63.1	ug/L	8
TPH (as Gasoline)		09.07.94	94121	920	1030	ug/L	11
a,a,a-Trifluorotoluene Reported		09.07.94	94121	35.3	54.8	ug/L	43
a,a,a-Trifluorotoluene Theoretic		09.07.94	94121	50.0	50.0	ug/L	0

BC ANALYTICAL

ORDER QC REPORT FOR G9409011

DATE REPORTED : 09/12/94

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 9409011*7							
Date Analyzed		09.08.94	94121	09/08/94	09/08/94	Date	N/A
Benzene		09.08.94	94121	22.8	31.2	ug/L	31 Q
Toluene		09.08.94	94121	45.0	50.7	ug/L	12
Ethylbenzene		09.08.94	94121	22.4	23.5	ug/L	5
Total Xylene Isomers		09.08.94	94121	56.9	63.0	ug/L	10
TPH (as Gasoline)		09.08.94	94121	1480	1600	ug/L	8
a,a,a-Trifluorotoluene Reported		09.08.94	94121	52.0	53.5	ug/L	3
a,a,a-Trifluorotoluene Theoretic		09.08.94	94121	50.0	50.0	ug/L	0

BC ANALYTICAL

ORDER QC REPORT FOR G9409011

DATE REPORTED : 09/12/94

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 9409011*7								
Benzene		09.07.94	94121	22 Q	90	32.5	ug/L	Q
Toluene		09.07.94	94121	76	86	58.4	ug/L	
Ethylbenzene		09.07.94	94121	67	76	26.5	ug/L	
Total Xylene Isomers		09.07.94	94121	117	132 Q	49.6	ug/L	Q
TPH (as Gasoline)		09.07.94	94121	88	100	1600	ug/L	
a,a,a-Trifluorotoluene Reported		09.07.94	94121	NC	NC	50.0	ug/L	NC
a,a,a-Trifluorotoluene Theoretic		09.07.94	94121	NC	NC	50.0	ug/L	NC

BC ANALYTICAL

ORDER QC REPORT FOR G9409011

DATE REPORTED : 09/12/94

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 B409337*1						
Date Analyzed	09.07.94	94121	09/07/94	NA	Date	8015M.TX
Benzene	09.07.94	94121	0	0.5	ug/L	8015M.TX
Toluene	09.07.94	94121	0	0.5	ug/L	8015M.TX
Ethylbenzene	09.07.94	94121	0	0.5	ug/L	8015M.TX
Total Xylene Isomers	09.07.94	94121	0	0.5	ug/L	8015M.TX
TPH (as Gasoline)	09.07.94	94121	0	50	ug/L	8015M.TX
a,a,a-Trifluorotoluene Reported	09.07.94	94121	46.1	NA	ug/L	8015M.TX
a,a,a-Trifluorotoluene Theoretic	09.07.94	94121	50.0	NA	ug/L	8015M.TX

: SURROGATE RECOVERIES :
: BC ANALYTICAL : GLEN LAB : 12:49:33 12 SEP 1994 - P. 1 :

METHOD ANALYTE	BATCH	ANALYZED	REPORTED	TRUE	%REC	FLAG
9409011*1						
8015M.TXa,a,a-Trifluorotoluene	94121	09/07/94	45.0	50.0	90	
9409011*2						
8015M.TXa,a,a-Trifluorotoluene	94121	09/07/94	48.3	50.0	97	
9409011*3						
8015M.TXa,a,a-Trifluorotoluene	94121	09/07/94	49.6	50.0	99	
9409011*4						
8015M.TXa,a,a-Trifluorotoluene	94121	09/07/94	48.6	50.0	97	
9409011*5						
8015M.TXa,a,a-Trifluorotoluene	94121	09/07/94	44.9	50.0	90	
9409011*6						
8015M.TXa,a,a-Trifluorotoluene	94121	09/07/94	45.9	50.0	92	
9409011*7						
8015M.TXa,a,a-Trifluorotoluene	94121	09/07/94	42.0	50.0	84	
9409011*8						
8015M.TXa,a,a-Trifluorotoluene	94121	09/08/94	41.4	50.0	83	
9409011*9						
8015M.TXa,a,a-Trifluorotoluene	94121	09/08/94	46.5	50.0	93	
9409011*10						
8015M.TXa,a,a-Trifluorotoluene	94121	09/07/94	47.6	50.0	95	
9409011*11						
8015M.TXa,a,a-Trifluorotoluene	94121	09/07/94	47.4	50.0	95	

: SURROGATE RECOVERIES :
: BC ANALYTICAL : GLEN LAB : 12:49:34 12 SEP 1994 - P. 1 :

METHOD ANALYTE	BATCH	ANALYZED	REPORTED	TRUE	%REC	FLAG
9409011*7*R1						
8015M.TXa,a,a-Trifluorotoluene	94121	09/07/94	42.0	50.0	84	
9409011*7*S1						
8015M.TXa,a,a-Trifluorotoluene	94121	09/08/94	52.0	50.0	104	NC
9409011*7*S2						
8015M.TXa,a,a-Trifluorotoluene	94121	09/08/94	53.5	50.0	107	NC
9409011*7*T						
8015M.TXa,a,a-Trifluorotoluene	94121	09/08/94	50.0	50.0	100	
B409337*1*MB						
8015M.TXa,a,a-Trifluorotoluene	94121	09/07/94	46.1	50.0	92	
C409362*1*LC						
8015M.TXa,a,a-Trifluorotoluene	94121	09/07/94	35.3	50.0	71	Q
C409362*1*LT						
8015M.TXa,a,a-Trifluorotoluene	94121	09/07/94	50.0	50.0	100	
C409417*1*LC						
8015M.TXa,a,a-Trifluorotoluene	94121	09/08/94	54.8	50.0	110	
C409417*1*LT						
8015M.TXa,a,a-Trifluorotoluene	94121	09/08/94	50.0	50.0	100	

G94-09-011

Chain-of-Custody

Texaco Environmental Services
108 Cutting Boulevard
Richmond, California 94804
Phone: (510) 236-3541
FAX: (510) 237-7821

Forward Results to the Attention of Rebecca Digerness
Texaco Project Coordinator: KAREN PETRYNA

Site Name: 930SPRINGTOWN
Site Address: 930 SPRINGTOWN BLVD LIVERMORE, 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: STANDARD
Samplers (PRINT NAME): MIKE MYERS
Sampler Signature:
Date Samples Collected: 8-31-94

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
							ANALYSIS										
MW-A		8-31 15:45	3	VOA	W	HCL	X										
MW-B		15:05	3				X										
MW-1		13:15	3				X										
MW-2		14:30	3				X										
MW-3		16:05	3				X										
MW-4		12:40	3				X										
MW-5		14:15	3				X										
MW-6		12:05	3				X										
MW-8		11:30	3				X										
TB		—	2				X										
EB		12:25	2				X										

Relinquished by: (Signature)	Mike Myers	Date: 9/1/94	Time: 1155.
Relinquished by: (Signature)	Bill Lyons	Date: 9-1-94	Time: 1205
Relinquished by: (Signature)		Date:	Time:
Method of Shipment:			

Received by: (Signature)	Bill Lyons	Date: 9-1-94	Time: 1155
Received by: (Signature)	Phillip Cummins	Date: 9-1-94	Time: 1205
Received by: (Signature)		Date:	Time:
Lab Comments:			

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

Well Gauging Data

Project Name: 970 SPRINGTOWN BLVD
Project Number: 940831-M1

Date: 08-31-94
Recorded By: MIKE MYERS

Well ID	TOC Elev.	DTB (ft. TOC)	Well Dia. (in.)	DTP (ft.)	DTW (ft.)	PT (ft.)	Comments
MW-A		16.88	2		13.20		
MW-B		21.30	2		10.98		
MW-1		25.40	4		13.68		
MW-2		22.58	4		11.16		
MW-3		24.54	4		12.60		
MW-4		25.02	4		12.00		
MW-5		28.40	2		14.34		
MW-6		24.58	2		15.32		
MW-7		23.90	4		6.84		BAILED H_2O IN WELL BOX
MW-8		24.14	4		17.40		

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 930 SPRINGTOWN Well No. MW-A

Project Number 940831-M1 Well Type ☒ Monitor ☐ Extraction ☐ Other

Recorded By Mike Myers Sampled by MM Date 08-31-94

WELL PURGING

PURGE VOLUME

Well casing diameter

☒ 2-inch ☐ 4-inch ☐ Other

Well Total Depth (TD, ft. below TOC) ~~16.88~~ 16.88

Depth to Water (WL, ft. below TOC) ~~13.20~~ 13.20

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

Number of well volumes to be purged

☒ 3 ☐ 10 ☐ Other _____ Case = 6

PURGE METHOD

☒ Bailer - Type Teflon

☐ Pump - Type _____

☐ Other _____

PUMP INTAKE

☐ Near top Depth (ft) _____

☐ Near Bottom Depth (ft) _____

☐ Other _____

Pumping Rate _____ gpm

PURGE VOLUME CALCULATION

3.68 (Water Column Length) x .17 (Multiplier) x 3 (No. Vols) = 1.8 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

1.8 gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENT

Meter Type _____

Time/Gallons	pH	Cond. (uomhos/cm)	Temp ☒ deg C ☐ deg F	Turbidity (NTU)	Color/Odor
15:34 / .6	7.6	2000	21.0	>200	SHEEN
15:35 / 1.2	7.2	2200	20.4	>200	ODOR
15:37 / 1.8	7.5	2200	19.8	>200	BLACK
/					
/					
/					
/					
/					

Comments during well purge _____

Well Pumped dry: YES (NO)

Purge water storage/disposal ☐ Drummed onsite ☐ Other _____

WELL SAMPLING

SAMPLING METHOD

Date/Time Sampled 8-31-94, 15:45

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-A	4 40ml	TPH GBTEX	HCl	EC	

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 930 SPRINGTOWN Well No. MW-B

Project Number 0831-M1 Well Type ☒ Monitor ☐ Extraction ☐ Other

Recorded By Mike Myers Sampled by MM Date 8-31-94

WELL PURGING

PURGE VOLUME

Well casing diameter

☒ 2-inch ☐ 4-inch ☐ Other

Well Total Depth (TD, ft. below TOC) 21.30

Depth to Water (WL, ft. below TOC) 10.98

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

Number of well volumes to be purged

☒ 3 ☐ 10 ☐ Other _____ case = 1.8

PURGE METHOD

☒ Bailer - Type Teflon

☐ Pump - Type _____

☐ Other _____

PUMP INTAKE

☐ Near top Depth (ft) _____

☐ Near Bottom Depth (ft) _____

☐ Other _____

Pumping Rate _____ gpm

PURGE VOLUME CALCULATION

10.32 (Water Column Length) x .17 (Multiplier) x 3 (No. Vols) = 5.4 gals CALCULATED PURGE VOLUME

5.6 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

GROUNDWATER PARAMETER MEASUREMENT

Meter Type _____

Time/Gallons	pH	Cond. (uomhos/cm)	Temp ☒ deg C ☐ deg F	Turbidity (NTU)	Color/Odor
14:58 / 1.8	7.0	5200	19.2	7200	ODOR
15:00 / 4.0	7.0	3000	18.9	>2000	SHEEN
15:02 / 5.6	7.0	3200	13.1	>200	BLACK
/					
/					
/					
/					
/					

Comments during well purge _____

Well Pumped dry: YES (NO)

Purge water storage/disposal ☐ Drummed onsite ☐ Other _____

WELL SAMPLING

SAMPLING METHOD

Date/Time Sampled 8-31-94 / 15:05

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-B	40 ml	TPH BTEX	HCL	SC	

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 930 SPRINGTOWN
Project Number 940831-MM
Recorded By Mike Myers
Well No. MW-1
Well Type [X] Monitor [ ] Extraction [ ] Other
Sampled by MM
Date 08-31-94

WELL PURGING

PURGE VOLUME

Well casing diameter
[ ] 2-inch [X] 4-inch [ ] Other
Well Total Depth (TD, ft. below TOC) 25.40
Depth to Water (WL, ft. below TOC) 13.68
Depth to free phase hydrocarbons (FP, ft. below TOC)
Number of well volumes to be purged
[X] 3 [ ] 10 [ ] Other ____ 7.7 cal

PURGE METHOD

[ ] Bailer - Type
[X] Pump - Type ELECT SUB
[ ] Other

PUMP INTAKE

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

Pumping Rate ____ gpm

PURGE VOLUME CALCULATION

11.72 (Water Column Length) x .66 (Multiplier) x 3 (No. Vols) = 23.21 gals CALCULATED PURGE VOLUME

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

24.0 gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENT

Meter Type ____

Time/Gallons	pH	Cond. (uomhos/cm)	Temp [X] deg C [ ] deg F	Turbidity (NTU)	Color/Odor
13:08 / 8.0	6.9	2800	21.7	700	
13:10 / 16.0	7.0	2900	19.5	187	
13:12 / 24.0	6.9	2700	20.0	52	
/					
/					
/					
/					
/					

Comments during well purge ____

Well Pumped dry: YES (NO)

Purge water storage/disposal [ ] Drummed onsite [ ] Other ____

WELL SAMPLING

SAMPLING METHOD

Date/Time Sampled 8/31/94 13:15

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
MW1	40 mL	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 930 SPRINGTOWN Well No. MW-2
Project Number 940831-MM Well Type [X] Monitor [ ] Extraction [ ] Other
Recorded By Mike Myers Sampled by MM Date 08-31-94

WELL PURGING

PURGE VOLUME

Well casing diameter
[ ] 2-inch [X] 4-inch [ ] Other
Well Total Depth (TD, ft. below TOC) 22.58
Depth to Water (WL, ft. below TOC) 11.16
Depth to free phase hydrocarbons (FP, ft. below TOC)
Number of well volumes to be purged
[X] 3 [ ] 10 [ ] Other 7.5 case

PURGE VOLUME CALCULATION
11.42 (Water Column Length) x .66 (Multiplier) x 3 (No. Vols) = 22.5 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

23.6 gals ACTUAL PURGE VOLUME

PURGE METHOD

[ ] Bailer - Type
[X] Pump - Type GRUNDFOS SUB
[ ] 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 [X] deg C [ ] deg F	Turbidity (NTU)	Color/Odor
14:31 / 7.5	7.5	2200	19.7	32.0	
14:33 / 14.0	7.3	2400	18.4	28.4	
14:35 / 23.0	7.4	2200	18.4	28.6	
/					
/					
/					
/					
/					

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

WELL SAMPLING

SAMPLING METHOD

Date/Time Sampled 8-31-94 / 14:40
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-2	3 40ml VOAs	TPH 8015	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 930 SPRINGTOWN Well No. MW-3

Project Number 940831-MJ Well Type [X] Monitor [ ] Extraction [ ] Other

Recorded By Mike Myers Sampled by MM Date 8-31-94

WELL PURGING

PURGE VOLUME

Well casing diameter

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

Well Total Depth (TD, ft. below TOC) 24.54

Depth to Water (WL, ft. below TOC) 12.60

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

Number of well volumes to be purged

[X] 3 [ ] 10 [ ] Other _____ 7.9 case

PURGE VOLUME CALCULATION

11.94 (Water Column Length) X .66 (Multiplier) X 3 (No. Vols) = 23.7 gals CALCULATED PURGE VOLUME

9.0 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 _____

[X] Pump - Type ELECTSUB

[ ] Other _____

PUMP INTAKE

[ ] Near top Depth (ft) _____

[X] Near Bottom Depth (ft) _____

[ ] Other _____

Pumping Rate _____ gpm

GROUNDWATER PARAMETER MEASUREMENT Meter Type _____

Time/Gallons	pH	Cond. (uomhos/cm)	Temp [X] deg C [ ] deg F	Turbidity (NTU)	Color/Odor
13:39 1 6.5	7.0	3800	22.1	24.6	ODOR
13:43 8.5	7.0	3400	22.1	8.4	
/					
/	DEWATERED AT 9.0 GAL				
RETURNED TO	SAMPLE 15:55				
/					
/	DTW = 14.90				
/					

Comments during well purge SLOW RECHARGE

Well Pumped dry: (YES) NO

Purge water storage/disposal [ ] Drummed onsite [ ] Other _____

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled 8-31-94 16:05

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-3	40 ml	TPH GOLD	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 930 SPRINGTOWN Well No. MW-4

Project Number 5408 31-M1 Well Type [X] Monitor [ ] Extraction [ ] Other

Recorded By Mike Myers Sampled by MM Date 08-31-94

WELL PURGING

PURGE VOLUME

Well casing diameter

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

Well Total Depth (TD, ft. below TOC) 25.02

Depth to Water (WL, ft. below TOC) 12.00

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

Number of well volumes to be purged

[X] 3 [ ] 10 [ ] Other

PURGE VOLUME CALCULATION

13.02 (Water Column Length) x .16 (Multiplier) x 3 (No. Vols) = Calc = 8.6

PURGE METHOD

[X] Bailer - Type

[X] Pump - Type ELECT SUB

[ ] Other

PUMP INTAKE

[ ] Near top Depth (ft)

[X] Near Bottom Depth (ft)

[ ] Other

Pumping Rate gpm

25.8 gals CALCULATED PURGE VOLUME

26.0 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

GROUNDWATER PARAMETER MEASUREMENT Meter Type

Time/Gallons	pH	Cond. (uomhos/cm)	Temp [X] deg C [ ] deg F	Turbidity (NTU)	Color/Odor
12:31 / 8.0	7.4	1600	19.7	187.6	
12:33 / 17.0	7.6	1600	19.6	187.5	
12:35 / 26.0	7.66	1500	19.6	160	
/					
/					
/					
/					
/					

Comments during well purge

Well Pumped dry: YES (NO) Purge water storage/disposal [ ] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled 8-31-94 12:40

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-4	40ML	TPHG 5/6X	HCL	QC	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other: EQUIPMENT	EB

DONE AT 12:25

Groundwater Sampling Form

Project Name 920 SPRINGTOWN Well No. MW-5

Project Number 940831-M1 Well Type [X] Monitor [ ] Extraction [ ] Other

Recorded By Mike Myers Sampled by jmm Date 8-31-94

WELL PURGING

PURGE VOLUME

Well casing diameter

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

Well Total Depth (TD, ft. below TOC) 28.40

Depth to Water (WL, ft. below TOC) 14.34

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

Number of well volumes to be purged

[X] 3 [ ] 10 [ ] Other 2.4=case

PURGE VOLUME CALCULATION

14.06 (Water Column Length) x .17 (Multiplier) x 3 (No. Vols) = 7.2 gals CALCULATED PURGE VOLUME

7.2 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

[X] Bailer - Type Teflon

[ ] Pump - Type

[ ] 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 [X] deg C [ ] deg F	Turbidity (NTU)	Color/Odor
14:04 / 2.5	7.4	2200	18.6	>200	ODR
14:08 / 5.0	7.2	2400	17.8	>200	
14:12 / 7.2	7.2	2200	17.9	>200	
/					
/					
/					
/					
/					

Comments during well purge

Well Pumped dry: YES (NO)

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

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled 08-31-94 14:15

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-5	40ml	TPH 6 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 930 SPRINGTOWN Well No. MW-6
Project Number 940831-M1 Well Type ☐ Monitor ☐ Extraction ☐ Other
Recorded By Mike Myers Sampled by MM Date 8-31-94

WELL PURGING

PURGE VOLUME

Well casing diameter
☒ 2-inch ☐ 4-inch ☐ Other
Well Total Depth (TD, ft. below TOC) 24.58
Depth to Water (WL, ft. below TOC) 15.32
Depth to free phase hydrocarbons (FP, ft. below TOC)
Number of well volumes to be purged
☒ 3 ☐ 10 ☐ Other ____ 16 = case

PURGE METHOD

☒ Bailer - Type Teflon
☐ Pump - Type
☐ Other

PUMP INTAKE

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

Pumping Rate ____ gpm

PURGE VOLUME CALCULATION

9.26 (Water Column Length) x .17 (Multiplier) x 3 (No. Vols) = 4.8 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

5.0 gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENT Meter Type

Time/Gallons	pH	Cond. (uomhos/cm)	Temp ☒ deg C ☐ deg F	Turbidity (NTU)	Color/Odor
11:46 / 1.6	7.5	1400	18.5	>200	
11:53 / 3.2	7.5	1200	18.4	>200	
11:59 / 5.0	7.5	1200	18.2	>200	
/					
/					
/					
/					
/					

Comments during well purge SLOW RECHARGE
Well Pumped dry: YES (NO)
Purge water storage/disposal ☐ Drummed onsite ☐ Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled 8-31-94 12:05

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-6	4 40ml	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 930 SPRING TOWN
Well No. MW-8
Project Number 940831-M1
Well Type ☑ Monitor ☐ Extraction ☐ Other
Recorded By Mike Myers
Sampled by MIKE MYERS
Date 8-31-94

WELL PURGING

PURGE VOLUME

Well casing diameter
☐ 2-inch ☒ 4-inch ☐ Other
Well Total Depth (TD, ft. below TOC) ~~24.14~~
Depth to Water (WL, ft. below TOC) 17.40
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 ELECT SUB
☐ Other

PUMP INTAKE

☐ Near top Depth (ft)
☒ Near Bottom Depth (ft)
☐ Other
Pumping Rate ____ gpm

PURGE VOLUME CALCULATION

4.4=case

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

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

____ gals CALCULATED PURGE VOLUME
13.2 gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENT

Meter Type

Time/Gallons	pH	Cond. (uomhos/cm)	Temp	☑ deg C ☐ deg F	Turbidity (NTU)	Color/Odor
11:21 / 4.5	7.7	2900	20.9		>700	
11:22 / 9.0	7.6	2800	17.7		141.9	
11:23 / 13.5	7.7	2600	17.0		117.0	
/						
/						
/						
/						
/						

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

WELL SAMPLING

SAMPLING METHOD

Date/Time Sampled 8-31-94 11:30
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-8	40ml	TPHG 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: BTS
Address: 985 TIMOTHY DR
City, State, ZIP: S.J., CA 95133
Phone: 408 945-5535

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 #: 6185710050
Address: 920 SPRINGTOWN BLVD
City, State, ZIP: LIVERMORE CA

Well I.D.	Gals.	Well I.D.	Gals.
MW-A	1.8		
MW-B	5.6		
MW-1	24.0		
MW-2	23.0		
MW-3	9.0		
MW-4	26.6		
MW-5	7.2		
MW-6	5.0		
MW-8	13.2		

Total gals. 114.8

added rinse water 10

Total Gals. Recovered 124.8

Job #: 9408 31-M
Date 08-31-94
Time 10:30
Signature: Mike Myers

REC'D AT: BTS
Date: 8-31-94
Time: 17:00
Signature: Mike Myers

P:\GW\MP\FORMS\TEX_BOL.WK1

QUARTERLY SUMMARY REPORT
Former Texaco Service Station
930 Springtown, Livermore, California
Alameda County
Second Quarter, 1994

HISTORY OF INVESTIGATIVE AND REMEDIAL ACTIONS

Subsurface investigation initiated in September, 1984 with the installation of two groundwater monitoring wells. Underground storage tanks were removed in June, 1985. Investigation continued in 1985, 1986, and 1989 to define extent of plume. One soil boring and two additional monitoring wells were drilled in December, 1989 to fully define the extent of subsurface hydrocarbons.

WORK PERFORMED DURING THIS QUARTER

Quarterly groundwater monitoring and sampling. Preparations for soil vapor extraction system installation.

CHARACTERIZATION STATUS

Petroleum hydrocarbons plume has been delineated.

REMEDIATION STATUS

Soil vapor extraction system being installed Third Quarter, 1994.

WORK TO BE PERFORMED NEXT QUARTER

Continue quarterly monitoring and sampling to record fluctuations in hydrocarbons concentrations. Install soil vapor extraction system.

COMPANY CONTACT: Karen Petryna (510) 236-9134

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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.