File

Texaco Refining and Marketing Inc
108 Cutting Boulevard
Richmond CA 94804

January 8, 1992

Mr. Lester Feldman
California Regional Water
Quality Control Board
San Francisco Bay Region
2101 Webster Street. Suite 500
Oakland, CA 94612

Dear Mr. Feldman:

Enclosed is a copy of our Quarterly Status Report (R-4 of 91) dated November 15, 1991 for our former Texaco Service Station located at 930 Springtown Boulevard in Livermore, California. This report covers the period August-October, 1991.

If you have any questions I can be contacted at (510) 236-3611.

Sincerely,

Karel Detterman
Project Environmental Geologist

KLD:kld

Enclosure

cc: Mr. Robi Arulananpham
Alameda County Environmental Health Dept.
Hazardous Materials Division
80 Swan Way - Room 200
Oakland, CA 94612

pr: 6 RT

HRP

930S1.8

GROUNDWATER TECHNOLOGY, INC.

1401 Halyard Drive, Suite 140, West Sacramento, CA 95691, (916) 372-4700

FAX (916) 372-8781

November 15, 1991

Project No. 02320 1383

Mr. R. R. Zielinski
Texaco Environmental Services
108 Cutting Boulevard
Richmond, California 94804

RE: QUARTERLY STATUS REPORT (R-4 OF 91)
FORMER TEXACO SERVICE STATION
930 SPRINGTOWN BOULEVARD
LIVERMORE, CALIFORNIA

Dear Mr. Zielinski:

This letter is presented as a quarterly report on groundwater conditions at the former Texaco service station site in Livermore, California for the quarter of August through October 1991. Groundwater monitoring and sampling were conducted to determine water table elevation, the thickness of any separate-phase petroleum hydrocarbons (SP), and the distribution of dissolved hydrocarbons in the 10 monitoring wells (MWs) at this site. Groundwater monitoring data and results of laboratory analyses of groundwater samples collected on October 4, 1991 are included.

WORK PERFORMED

GROUNDWATER MONITORING

Water table elevations at the site have decreased an average of 0.91 foot from levels reported the previous quarter. The potentiometric surface map (Figure 1, Attachment I) indicates that groundwater beneath the site flows to the north-northwest with a hydraulic gradient of approximately 0.08. Trace thicknesses (<0.01 foot) of SP were detected in MW-A and MW-B. Historical and recent monitoring data are summarized in Table 1 (Attachment II).

GROUNDWATER SAMPLING

Prior to water-sample collection, the groundwater monitoring wells were purged of approximately 4 well volumes and allowed to recharge with representative formation water. A Teflon® sampler, cleaned with an industrial detergent and distilled water, was used for the groundwater sampling. The water samples were transferred to 40-milliliter glass vials with Teflon® septum caps, preserved on ice, and transported to GTEL Environmental Laboratories, Inc. (GTEL), in Concord, California, accompanied by a chain-of-custody manifest. Groundwater samples were analyzed using modified EPA methods 8020/8015, which measure concentrations of total petroleum hydrocarbons-as-gasoline (TPH-G), and benzene, toluene, ethylbenzene and xylenes (BTEX). As mentioned in the August 12, 1991 quarterly report, MW-7 and MW-8 were interpreted to be non-strategic to plume boundary definition. MW-A and MW-B were not sampled because the wells contained separate-phase petroleum hydrocarbons.

GROUNDWATER ANALYTICAL RESULTS

Concentrations of benzene in groundwater sampled on October 4, 1991 ranged from 0.3 parts per billion (ppb) (MW-2 and MW-6) to 240 ppb (MW-5) and were detected in all wells sampled. TPH-G concentrations ranged from below the method detection limit (MDL) in four wells (MW-1, MW-4, MW-6, and MW-7) to 2,000 ppb (MW-5). The distribution of dissolved benzene and TPH-G concentrations in groundwater for October 4, 1991 are shown in Figure 2 and Figure 3, respectively. Historical and recent analytical data are summarized in Table 2 (Attachment II). Copies of the laboratory analyses reports and the chain-of-custody manifest for October 4, 1991 are included in Attachment III.

WASTEWATER DISPOSAL

Purge water from the 10 monitoring wells is stored in Department of Transportation (DOT)-approved 55-gallon drums. Purge water found to contain petroleum hydrocarbons will be transported by a licensed trucking company to a wastewater recycling facility.

Please contact Groundwater Technology's West Sacramento office if you have questions or comments regarding this quarterly report.

Sincerely,

GROUNDWATER TECHNOLOGY, INC.

JOHN E. BOWER
Environmental Geologist
Project Manager

E. K. SIMONIS, R.G.
Senior Environmental Geologist

REGISTERED GEOLOGIST
EDVARDAS (ED) K. SIMONIS
No. 4422
STATE OF CALIFORNIA

JEB/EKS:rc

Attachments
1383QSR.R4

GROUNDWATER TECHNOLOGY, INC.

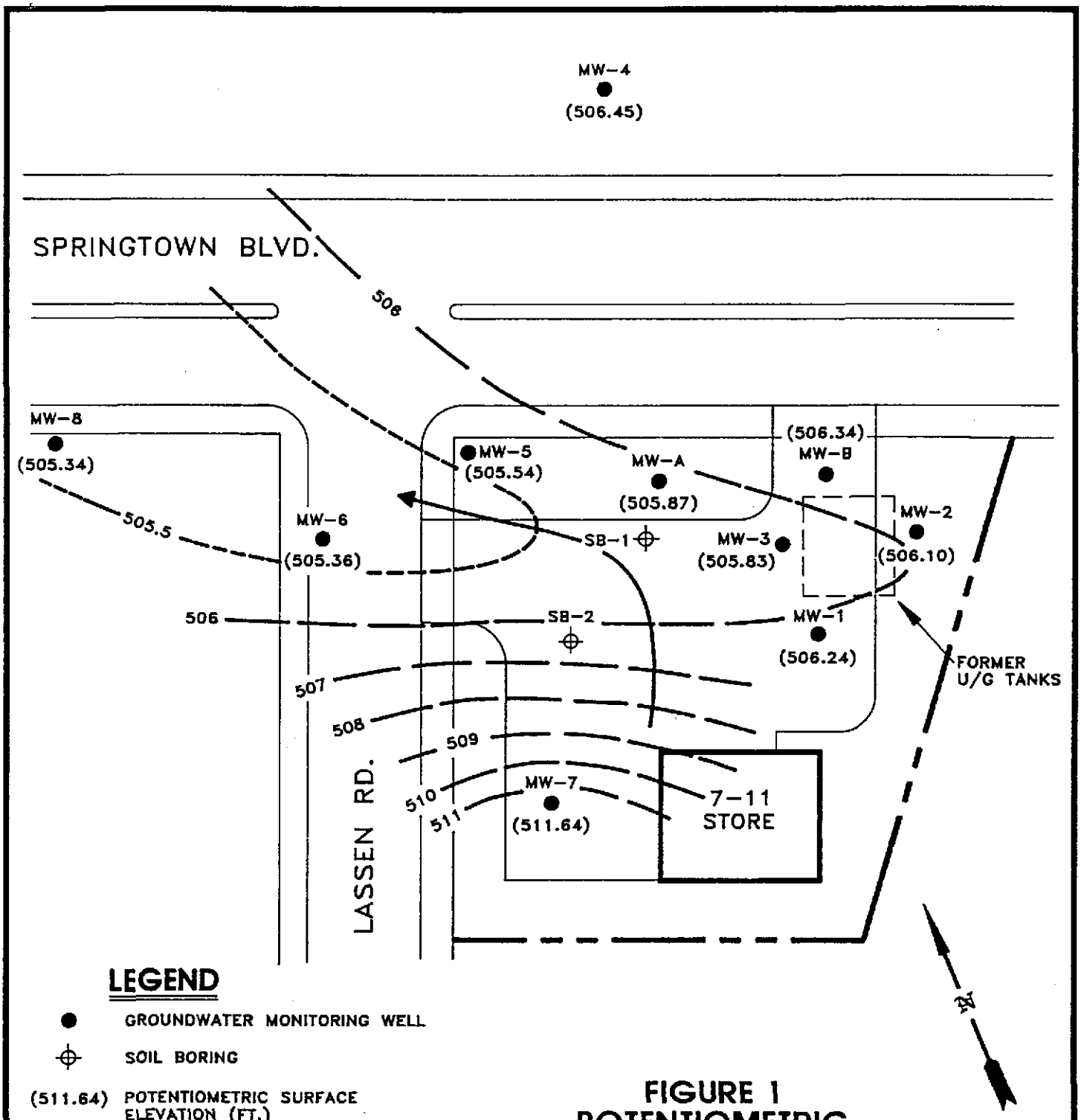
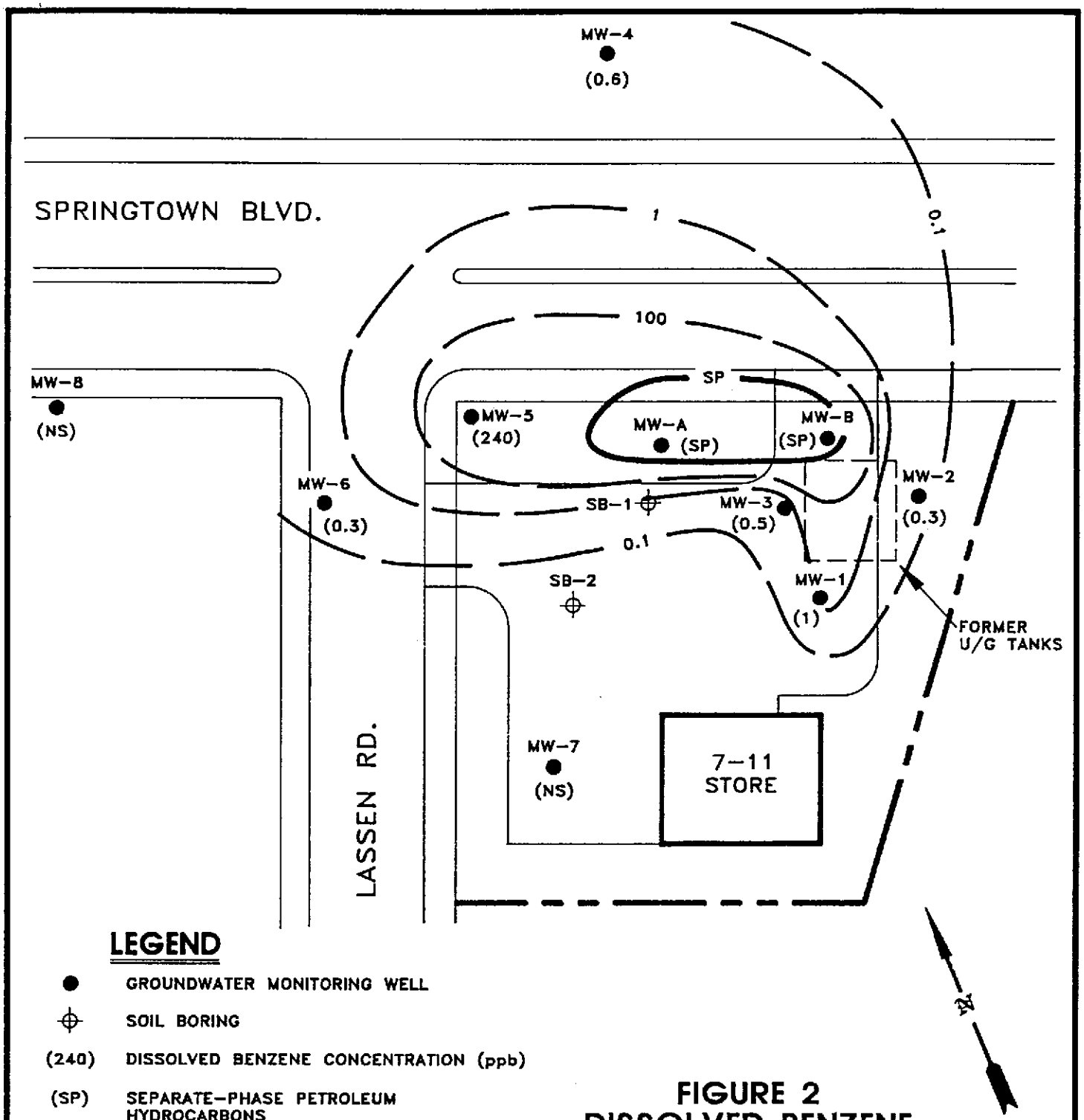


FIGURE 1
POTENTIOMETRIC SURFACE MAP

(DATUM: MEAN SEA LEVEL)
OCTOBER 4, 1991
TEXACO REFINING & MARKETING INC.
930 SPRINGTOWN BLVD.
LIVERMORE, CA.
02320-1383

REVISIONS:
DATE: 11/8/91
REVISION: FINAL DRAFT
BY: GWS

GROUNDWATER TECHNOLOGY, INC.



LEGEND

- ● GROUNDWATER MONITORING WELL
- ⊕ SOIL BORING
- (240) DISSOLVED BENZENE CONCENTRATION (ppb)
- (SP) SEPARATE-PHASE PETROLEUM HYDROCARBONS
- (NS) NOT SAMPLED
- LINE OF ESTIMATED EQUAL DISSOLVED BENZENE CONCENTRATION (ppb)
- APPROXIMATE EXTENT OF SEPARATE-PHASE PETROLEUM HYDROCARBONS

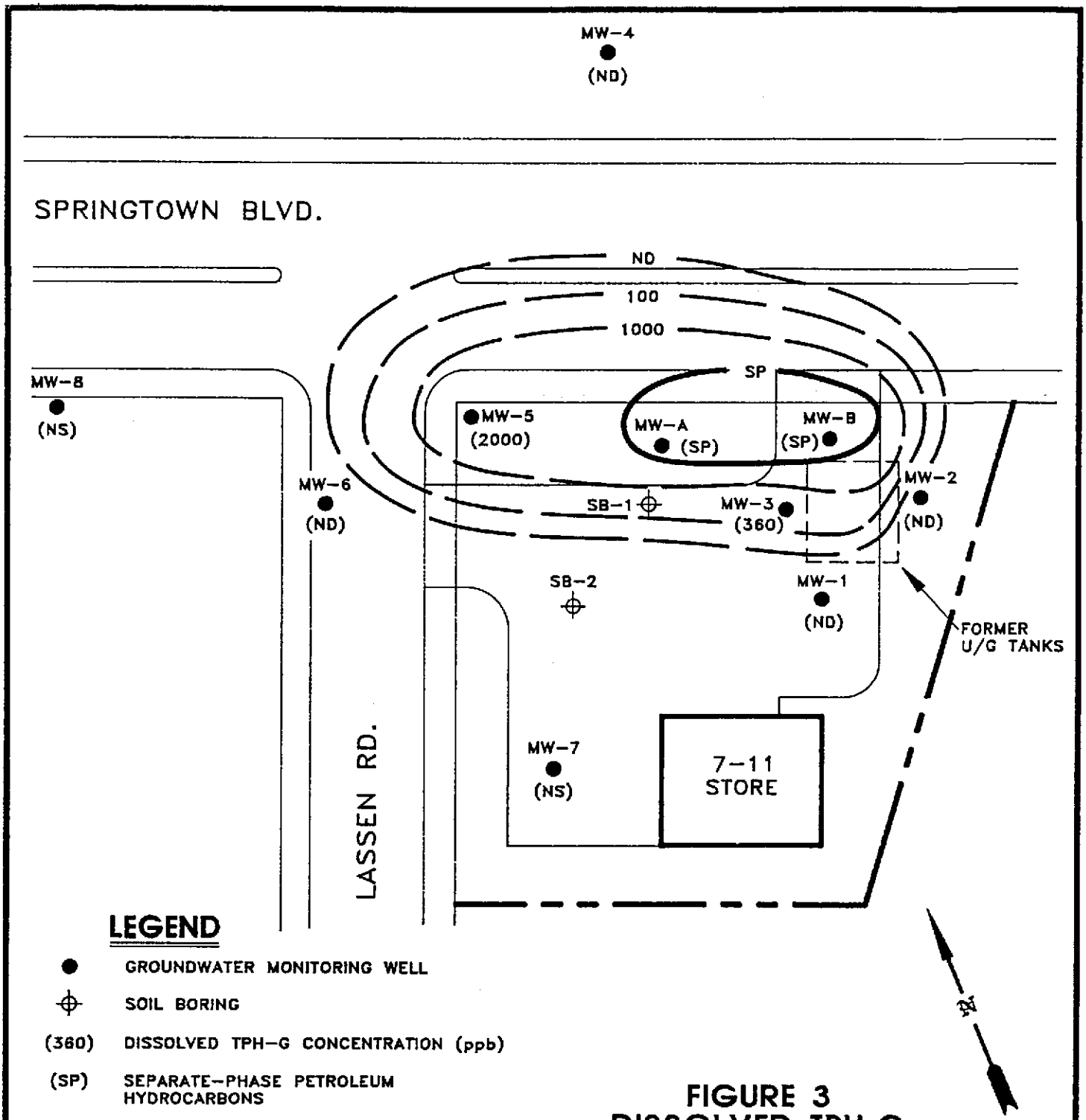
FIGURE 2
DISSOLVED BENZENE CONCENTRATION MAP

(IN PARTS PER BILLION [ppb])
OCTOBER 4, 1991
TEXACO REFINING & MARKETING INC.
930 SPRINGTOWN BLVD.
LIVERMORE, CA.
02320-1383

REVISIONS:
DATE: 11/8/91
REVISION: FINAL DRAFT
BY: GWS

0 50'
APPROX. SCALE

GROUNDWATER TECHNOLOGY, INC.



LEGEND

- ● GROUNDWATER MONITORING WELL
- ⊕ SOIL BORING
- (360) DISSOLVED TPH-G CONCENTRATION (ppb)
- (SP) SEPARATE-PHASE PETROLEUM HYDROCARBONS
- (ND) NOT DETECTABLE AT OR ABOVE METHOD DETECTION LIMIT
- (NS) NOT SAMPLED
- LINE OF ESTIMATED EQUAL DISSOLVED TPH-G CONCENTRATION (ppb)
- APPROXIMATE EXTENT OF SEPARATE-PHASE PETROLEUM HYDROCARBONS

FIGURE 3
DISSOLVED TPH-G CONCENTRATION MAP

(IN PARTS PER BILLION [ppb])
OCTOBER 4, 1991
TEXACO REFINING & MARKETING INC.
930 SPRINGTOWN BLVD.
LIVERMORE, CA.
02320-1383

REVISIONS:
DATE: 11/8/91
REVISION: FINAL DRAFT
BY: GWS

0 50'
APPROX. SCALE

GROUNDWATER TECHNOLOGY, INC.

Table 1
CUMULATIVE GROUNDWATER MONITORING SUMMARY
(in feet)

Former Texaco Service Station
930 Springtown Boulevard
Livermore, California

WELL I.D.	DATE MONITORED	WELL ELEVATION	DEPTH TO WATER	WATER TABLE ELEVATION	COMMENTS
MW-A	03/27/90	519.85	12.55	507.30	
	06/25/90		12.58	507.27	
	09/21/90		12.75	507.10	
	01/10/91		13.28	506.57	
	04/04/91		12.12	507.73	
	07/12/91		12.95	506.90	
	10/04/91		13.98	505.87	trace SP
MW-B	03/27/90	518.16	10.62	0.00	
	06/25/90		10.68	507.48	
	09/21/90		10.76	507.40	
	01/10/91		11.06	507.10	
	04/04/91		10.04	508.12	
	07/12/91		10.91	507.25	
	10/04/91		11.82	506.34	trace SP
MW-1	03/27/90	520.76	13.20	507.56	
	06/25/90		13.22	507.54	
	09/21/90		13.39	507.37	
	01/10/91		13.80	506.96	
	04/04/91		12.70	508.06	
	07/12/91		13.55	507.21	
	10/04/91		14.52	506.24	
MW-2	03/27/90	518.45	10.86	507.59	
	06/25/90		10.91	507.54	
	09/21/90		11.34	507.11	
	01/10/91		11.66	506.79	
	04/04/91		10.61	507.84	
	07/12/91		11.48	506.97	
	10/04/91		12.35	506.10	
MW-3	03/27/90	519.30	11.84	507.46	
	06/25/90		11.85	507.45	
	09/21/90		12.37	506.93	
	01/10/91		12.84	506.46	
	04/04/91		11.71	507.59	
	07/12/91		12.54	506.76	
	10/04/91		13.47	505.83	
MW-4	03/27/90	518.75	11.43	507.32	
	06/25/90		11.55	507.20	
	09/21/90		11.79	506.96	
	01/10/91		12.02	506.73	
	04/04/91		10.72	508.03	
	07/12/91		11.78	506.97	
	10/04/91		12.30	506.45	

Table 1 (continued)

WELL I.D.	DATE MONITORED	WELL ELEVATION	DEPTH TO WATER	WATER TABLE ELEVATION	COMMENTS
MW-5	03/27/90	520.50	13.17	507.33	
	06/25/90		13.18	507.32	
	09/21/90		13.79	506.71	
	01/10/91		14.33	506.17	
	04/04/91		13.26	507.24	
	07/12/91		14.14	506.36	
	10/04/91		14.96	505.54	
MW-6	03/27/90	522.26	15.04	507.22	
	06/25/90		15.03	507.23	
	09/21/90		15.40	506.86	
	01/10/91		16.31	505.95	
	04/04/91		15.19	507.07	
	07/12/91		NA	NA	
	10/04/91		16.90	505.36	
MW-7	03/27/90	522.17	9.41	512.76	
	06/25/90		9.22	512.95	
	09/21/90		8.38	513.79	
	01/10/91		9.07	513.10	
	04/04/91		7.59	514.58	
	07/12/91		9.26	512.91	
	10/04/91		10.53	511.64	
MW-8	03/27/90	524.04	16.15	507.89	
	06/25/90		16.90	507.14	
	09/21/90		17.56	506.48	
	01/10/91		18.03	506.01	
	04/04/91		17.01	507.03	
	07/12/91		17.82	506.22	
	10/04/91		18.70	505.34	

NOTES:
SP = Separate-phase petroleum hydrocarbons
NA = Not Available

GMSTAB1.WK1

Table 2
CUMULATIVE LABORATORY ANALYSES OF GROUNDWATER
(in parts per billion [ppb])

Former Texaco Service Station
930 Springtown Boulevard
Livermore, California

WELL I.D.	DATE SAMPLED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TPH-G
MW-A	03/27/90	SP	SP	SP	SP	SP
	06/25/90	2,700	4,000	2,600	6,500	39,000
	09/21/90	1,400	1,900	1,800	4,200	30,000
	01/10/91	1,900	3,700	2,600	8,300	50,000
	04/04/91	950	1,100	1,300	2,900	31,000
	07/12/91	2,000	4,200	4,600	13,000	100,000
	10/04/91	SP	SP	SP	SP	SP
MW-B	03/27/90	SP	SP	SP	SP	SP
	06/25/90	28	230	87	260	5,400
	09/21/90	150	1,700	1,200	3,700	45,000
	01/10/91	47	1,300	770	3,100	35,000
	04/04/91	4	10	22	19	2,300
	07/12/91	88	1,800	390	1,300	18,000
	10/04/91	SP	SP	SP	SP	SP
MW-1	03/27/90	ND	ND	ND	ND	ND
	06/25/90	ND	ND	ND	ND	ND
	09/21/90	ND	ND	ND	ND	ND
	01/10/91	ND	ND	ND	ND	ND
	04/04/91	ND	ND	ND	ND	ND
	07/12/91	ND	ND	3	16	390
	10/04/91	1	ND	ND	ND	ND
MW-2	03/27/90	ND	ND	ND	ND	ND
	06/25/90	ND	ND	ND	ND	14
	09/21/90	ND	ND	ND	ND	ND
	01/10/91	ND	ND	ND	ND	ND
	04/04/91	ND	ND	ND	ND	ND
	07/12/91	ND	ND	ND	ND	ND
	10/04/91	0.3	ND	ND	ND	ND
MW-3	03/27/90	1	ND	ND	ND	1,100
	06/25/90	0.03	ND	ND	ND	340
	09/21/90	ND	ND	ND	ND	96
	01/10/91	ND	ND	ND	ND	110
	04/04/91	4	ND	0.6	0.9	630
	07/12/91	2	ND	ND	1	230
	10/04/91	0.5	2	ND	0.5	360
MW-4	03/27/90	ND	ND	ND	ND	ND
	06/25/90	ND	ND	ND	ND	ND
	09/21/90	ND	ND	ND	ND	ND
	01/10/91	ND	ND	ND	ND	ND
	04/04/91	ND	ND	ND	ND	ND
	07/12/91	ND	ND	ND	ND	ND
	10/04/91	0.6	ND	ND	ND	ND

Table 2 (continued)

WELL I.D.	DATE SAMPLED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TPH-G
MW-5	03/27/90	230	32	420	250	5,100
	06/25/90	160	8	140	42	2,000
	09/21/90	98	2	120	5	2,100
	01/10/91	48	2	87	9	1,900
	04/04/91	ND	ND	ND	ND	ND
	07/12/91	13	ND	18	1	850
	10/04/91	240	13	34	14	2000
MW-6	03/27/90	ND	ND	ND	ND	ND
	06/25/90	ND	ND	ND	ND	3
	09/21/90	ND	ND	ND	ND	ND
	01/10/91	ND	ND	ND	ND	ND
	04/04/91	ND	ND	ND	ND	ND
	07/12/91	NS	NS	NS	NS	NS
	10/04/91	0.3	ND	ND	ND	ND
MW-7	03/27/90	ND	ND	ND	ND	ND
	06/25/90	ND	ND	ND	ND	ND
	09/21/90	ND	ND	ND	ND	ND
	01/10/91	ND	ND	ND	ND	ND
	04/04/91	ND	ND	ND	ND	ND
	07/12/91	NS	NS	NS	NS	NS
	10/04/91	NS	NS	NS	NS	NS
MW-8	03/27/90	ND	ND	ND	ND	ND
	06/25/90	ND	ND	ND	ND	ND
	09/21/90	ND	ND	ND	ND	ND
	01/10/91	ND	ND	ND	ND	ND
	04/04/91	NS	NS	NS	NS	NS
	07/12/91	NS	NS	NS	NS	NS
	10/04/91	NS	NS	NS	NS	NS
MDL		0.3	0.3	0.3	0.5	10

NOTES:
MDL = Method Detection Limit
ND = Non-detectable concentration (below MDL)
TPH-G = Total petroleum hydrocarbons-as-gas
SP = Separate-phase petroleum hydrocarbons
NS = Not sampled

LABTAB2.WK1

ATTACHMENT III

LABORATORY ANALYSES REPORTS AND
CHAIN OF CUSTODY MANIFEST

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Northwest Region
4080 Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 from inside California
(800) 423-7143 from outside California

Client Number: GTI71TEX01
Consultant Project Number: 023201383
Project ID: Livermore
Work Order Number: C1-10-167

October 21, 1991

John Bower
Groundwater Technology, Inc.
1401 Halyard Dr., Ste. 140
West Sacramento, CA 95691

Enclosed please find the analytical results for samples received by GTEL Environmental Laboratories, Inc. on 10/07/91, under chain of custody record 72-12835.

A formal Quality Control/Quality Assurance (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria, unless otherwise stated in the footnotes.

GTEL is certified by the California State Department of Health Services to perform analyses for drinking water, wastewater, and hazardous waste materials according to EPA protocols.

If you have any questions concerning this analysis or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,
GTEL Environmental Laboratories, Inc.

Emma P. Popek
Laboratory Director

Client Number: GTI71TEX01
Consultant Project Number: 023201383
Project ID: Livermore
Work Order Number: C1-10-167

Table 1

ANALYTICAL RESULTS

Aromatic Volatile Organics and
Total Petroleum Hydrocarbons as Gasoline in Water

EPA Methods 5030, 8020, and Modified 8015[a]

GTEL Sample Number		01	02	03	04
Client Identification		RINSATE	MW-4	MW-6	MW-2
Date Sampled		10/04/91	10/04/91	10/04/91	10/04/91
Date Analyzed		10/14/91	10/14/91	10/14/91	10/14/91
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3	0.6	<0.3	0.3
Toluene	0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene	0.3	<0.3	<0.3	<0.3	<0.3
Xylene, total	0.5	<0.5	<0.5	<0.5	<0.5
BTEX, total	--	--	0.6	--	0.3
Gasoline	10	<10	<10	<10	<10
Detection Limit Multiplier		1	1	1	1

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Control Board LUFT Manual protocols, May 1988 revision.

GTEL ENVIRONMENTAL LABORATORIES, INC.

Client Number: GTI71TEX01
Consultant Project Number: 023201383
Project ID: Livermore
Work Order Number: C1-10-167

Table 1 (Continued)

ANALYTICAL RESULTS

Aromatic Volatile Organics and Total Petroleum Hydrocarbons as Gasoline in Water

EPA Methods 5030, 8020, and Modified 8015[a]

GTEL Sample Number		05	06	07	
Client Identification		MW-1	MW-3	MW-5	
Date Sampled		10/04/91	10/04/91	10/04/91	
Date Analyzed		10/16/91	10/14/91	10/14/91	
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	1	0.5	240	
Toluene	0.3	<0.3	2	13	
Ethylbenzene	0.3	<0.3	<0.3	34	
Xylene, total	0.5	<0.5	0.5	14	
BTEX, total	--	1	3	300	
Gasoline	10	<10	360	2000	
Detection Limit Multiplier		1	1	1	

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Control Board LUFT Manual protocols, May 1988 revision.

C110161

GTEL ENVIRONMENTAL LABORATORIES, INC.

4080- Pike Lane
Concord, CA 94520
415-685-7852

800-544-3422 (In CA)
800-423-7143 (Outside CA)

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

72- 12835

Project Manager: John Bower
Phone #: 916-372-4700
FAX #: 916-372-8781

Address: 1401 Halyard #140 Sacto. Ca.
Site location: Livermore

Project Number: 02320-1353
Project Name: TES Livermore

I attest that the proper field sampling procedures were used during the collection of these samples.
Sampler Name (Print):

Field Sample ID	Source of Sample	GTEL Lab # (Lab use only)	# CONTAINERS	Matrix: WATER	SOIL	AIR	SLUDGE	OTHER	Method Preserved: HCl	HNO_3	H_2SO_4	ICE	NONE	OTHER	Sampling: DATE	TIME
MW11									✓							
Rinsate				✓					✓			✓				1350
mw-4				✓					✓			✓				1400
mw-6				✓					✓			✓				1410
mw-2				✓					✓			✓				1420
mw-1				✓					✓			✓				1430
mw-3				✓					✓			✓				1440
mw-5				✓					✓			✓				1450

ANALYSIS REQUEST

- BTEX 602 ☐ 8020 ☐ with MTBE ☐
- BTEX/TPH Gas 602/8015 ☒ 8020/8015 ☐ MTBE ☐
- TPH as ☐ Gas ☐ Diesel ☐ Jet Fuel
- Product I.D. by GC (SIMDIS) ☐
- Total Oil & Grease: 413.1 ☐ 413.2 ☐ 503A ☐
- Total Petroleum Hydrocarbons: 418.1 ☐ 503E ☐
- EPA 601 ☐ 8010 ☐ DCA only ☐
- EPA 602 ☐ 8020 ☐
- EPA 608 ☐ 8080 ☐ PCBs only ☐
- EPA 610 ☐ 8310 ☐
- EPA 624 ☐ 8240 ☐ NBS +15 ☐
- EPA 625 ☐ 8270 ☐ NBS +25 ☐
- EPTOX: Metals ☐ Pesticides ☐ Herbicides ☐
- TCLP Metals ☐ VOA ☐ Semi VOA ☐
- EPA Priority Pollutant Metals ☐ HSL ☐
- LEAD 7420 ☐ 7421 ☐ 239.2 ☐ 6010 ☐ Org. Lead ☐
- CAM Metals ☐ STLC ☐ TTLC
- Corrosivity ☐ Flashpoint ☐ Reactivity ☐

TBC

SPECIAL HANDLING

24 HOURS ☐
EXPEDITED 48 Hours ☐
SEVEN DAY ☐
OTHER _____(#) BUSINESS DAYS
QA/QC CLP Level ☐ Blue Level ☐
FAX ☐

SPECIAL DETECTION LIMITS (Specify)

SPECIAL REPORTING REQUIREMENTS (Specify)

REMARKS:

Lab Use Only
Lot #:
Storage Location
Work Order #:

CUSTODY RECORD

Relinquished by Sampler: Date 10/7/91 Time 1600
Received by: Date 10/7/91 Time 11:16

Relinquished by: Date 10/7/91 Time 11:15
Received by:

Relinquished by:
Received by Laboratory: Date 10-7-91 Time 11:15

Way bill # 114092