Texaco Refining and Marketing Inc
108 Cutting Boulevard
Richmond CA 94804

August 21, 1991

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-3 of 91) dated August 7, 1991 for our former Texaco Service Station located at 930 Springtown Boulevard in Livermore, California. This report covers the quarter ending July, 1991.

Our on-site consultants, Groundwater Technology, Inc., have completed the field work for the Soil Vent Feasibility Test and are currently preparing the results along with a Soil and Groundwater Remediation Workplan. Upon our review, we will submit the test results and workplan to the RWQCB.

If you have any questions I can be contacted at (415) 236-3541.

Best Regards,

Karel Detterman

K. Detterman
Environmental Geologist

KD:pap

Enclosure

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

prog.

KEG

930STB.LF

GROUNDWATER TECHNOLOGY, INC.

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

FAX (916) 372-8781

August 7, 1991

Project No. 02320 1383

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

RE: QUARTERLY STATUS REPORT (R-3 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 ending July 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 July 12, 1991 are included. In addition to the quarterly monitoring and sampling, a vapor-extraction system feasibility study was completed at the site. Results of this study will be included with a future remediation work plan.

WORK PERFORMED

GROUNDWATER MONITORING

Water table elevations at the site have decreased an average of 0.96 foot from levels reported the previous quarter. The estimated groundwater flow direction is to the north with a hydraulic gradient of approximately 0.05. Monitoring results are presented in Figure 1 (Attachment I) and 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). Copies of the laboratory analyses reports and chain-of-custody manifest are included in Attachment III. Two monitoring wells, MW-7 and MW-8, were interpreted to be non-strategic and were not sampled. MW-7 and MW-8 are located up-gradient and cross-gradient from the dissolved hydrocarbon

plume (Figure 2, Attachment II) and historically have not contained dissolved hydrocarbons (Table 2, Attachment II). MW-6 was not sampled because it was blocked by a parked vehicle.

GROUNDWATER ANALYTICAL RESULTS

Concentrations of TPH-G in the groundwater samples ranged from below the method detection limit (<MDL) to 100,000 parts per billion (ppb). The benzene concentrations ranged from <MDL to 2000 ppb. The distribution of dissolved TPH-G and benzene concentrations in groundwater for January 10, 1991 are shown in Figure 2 and Figure 3, respectively. Results of the laboratory analyses are presented in Table 2, Attachment A.

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.

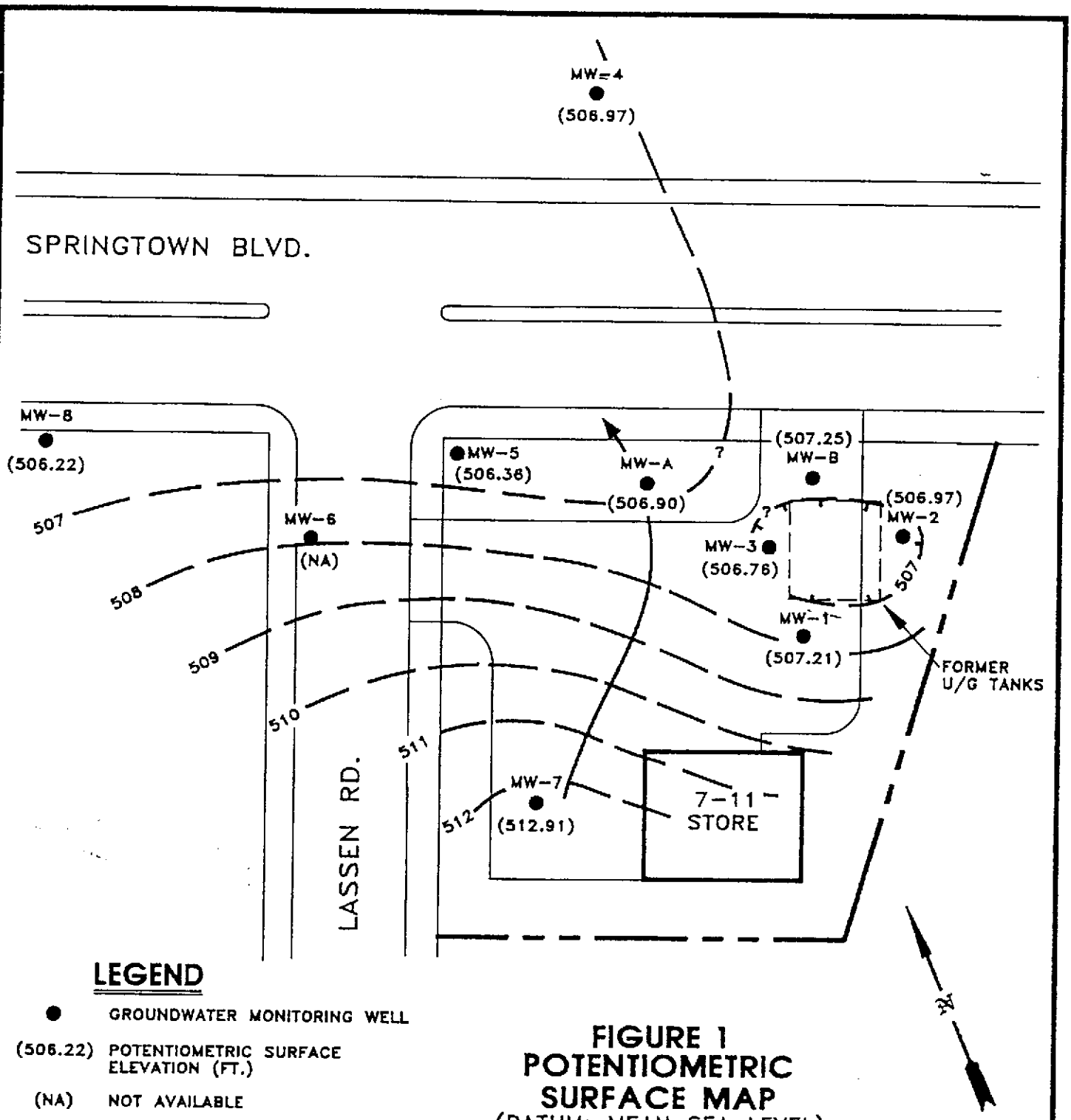
JOHN E. BOWER
Environmental Geologist
Project Manager

E.K. SIMONIS
California Registered
Geologist, No. 4422

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

JEB/EKS:rc

Attachments



LEGEND

- ● GROUNDWATER MONITORING WELL
- (506.22) POTENTIOMETRIC SURFACE ELEVATION (FT.)
- (NA) NOT AVAILABLE
- POTENTIOMETRIC SURFACE CONTOUR; INTERVAL=1 FT.
- → ESTIMATED GROUNDWATER FLOW DIRECTION

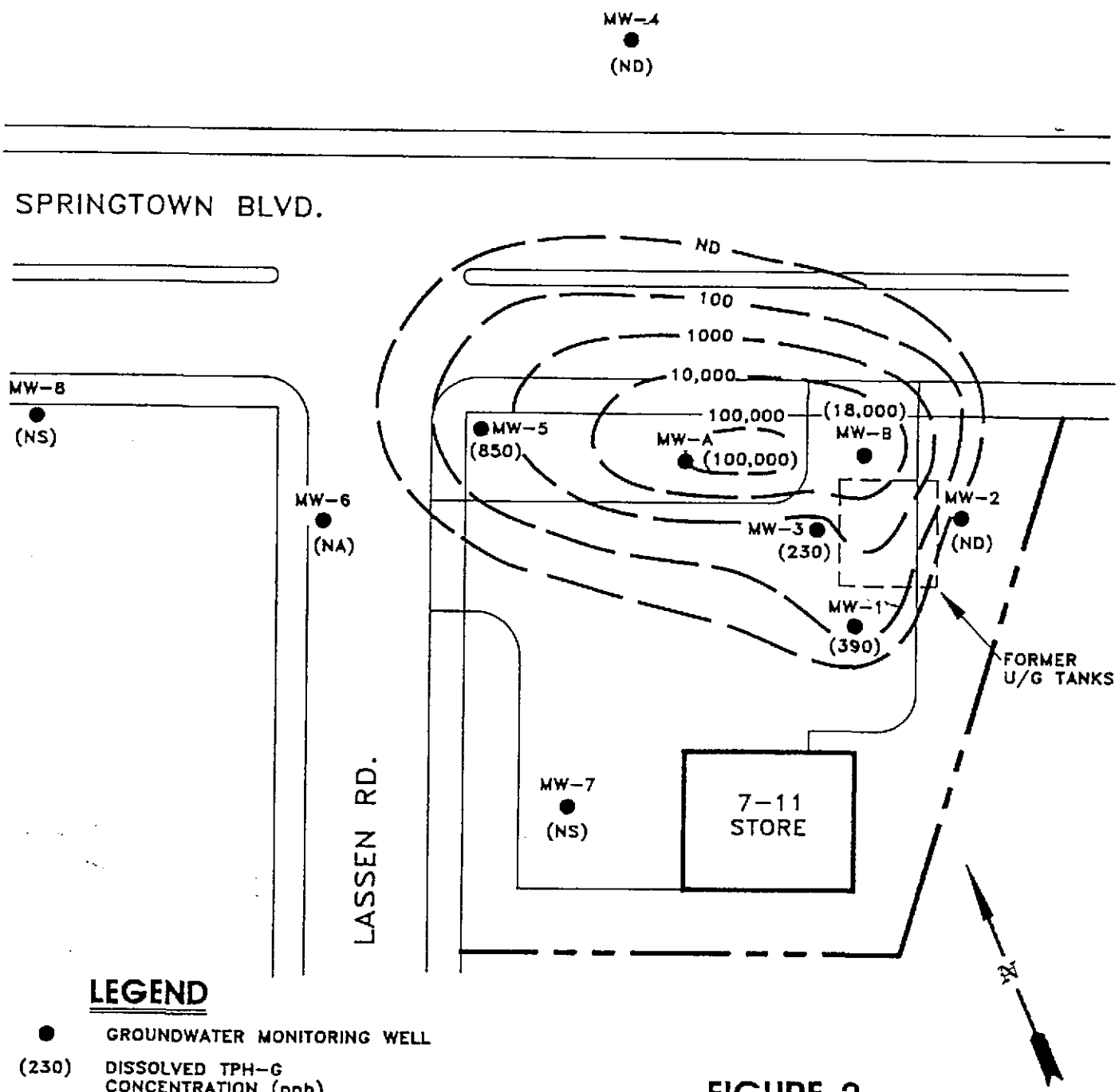
FIGURE 1
POTENTIOMETRIC SURFACE MAP

(DATUM: MEAN SEA LEVEL)
JULY 12, 1991
TEXACO REFINING & MARKETING INC.
930 SPRINGTOWN BLVD.
LIVERMORE, CA.
02320-1383

REVISIONS:
DATE: 8/5/91
REVISION: FINAL DRAFT
BY: GWS

0 50'
APPROX. SCALE

GROUNDWATER TECHNOLOGY, INC.



LEGEND

●	GROUNDWATER MONITORING WELL
(230)	DISSOLVED TPH-G CONCENTRATION (ppb)
(ND)	NOT DETECTABLE AT OR ABOVE METHOD DETECTION LIMIT
(NS)	NOT SAMPLED. NON-STRATEGIC WELL
(NA)	NOT AVAILABLE
⌒	LINE OF ESTIMATED EQUAL DISSOLVED TPH-G CONCENTRATION (ppb)

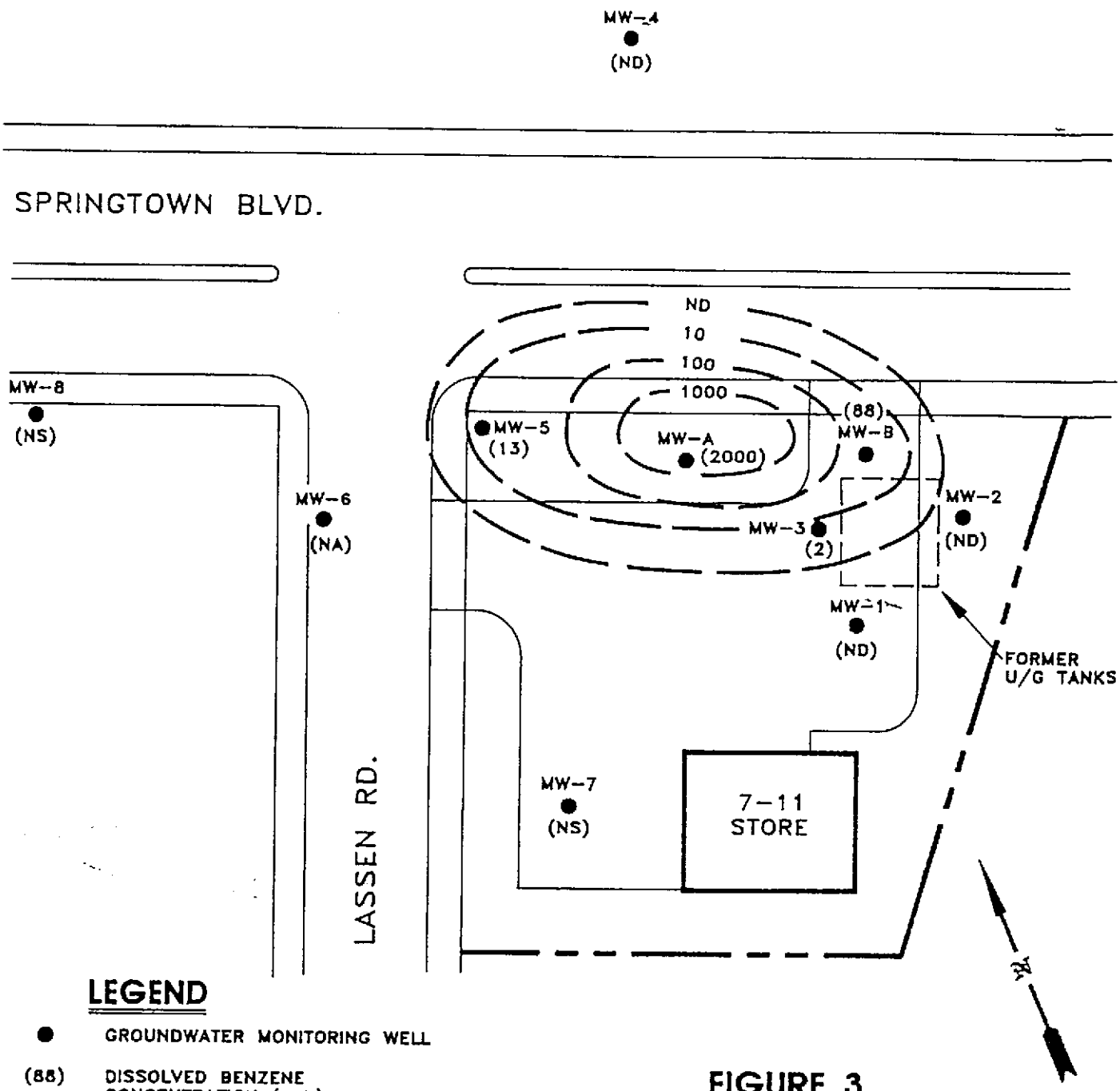
FIGURE 2
DISSOLVED TPH-G CONCENTRATION MAP

(IN PARTS PER BILLION [ppb])
JULY 12, 1991
TEXACO REFINING & MARKETING INC.
930 SPRINGTOWN BLVD.
LIVERMORE, CA.
02320-1383

REVISIONS:
DATE: 8/5/91
REVISION: FINAL DRAFT
BY: GWS

0 50'
APPROX. SCALE

GROUNDWATER TECHNOLOGY, INC.



LEGEND

- ● GROUNDWATER MONITORING WELL
- (88) DISSOLVED BENZENE CONCENTRATION (ppb)
- (ND) NOT DETECTABLE AT OR ABOVE METHOD DETECTION LIMIT
- (NS) NOT SAMPLED, NON-STRATEGIC WELL
- (NA) NOT AVAILABLE
- ( ) LINE OF ESTIMATED EQUAL DISSOLVED BENZENE CONCENTRATION (ppb)

FIGURE 3
DISSOLVED BENZENE CONCENTRATION MAP

(IN PARTS PER BILLION (ppb)
JULY 12, 1991
TEXACO REFINING & MARKETING INC.
930 SPRINGTOWN BLVD.
LIVERMORE, CA.
02320-1383

REVISIONS:
DATE: 8/5/91
REVISION: FINAL DRAFT
BY: GWS

0 50'
APPROX. SCALE

GROUNDWATER TECHNOLOGY, INC.

TABLE 1
1990/91 GROUNDWATER MONITORING DATA
(measured in feet)

Former Texaco Service Station

930 Springtown Blvd.

Livermore, California

WELL ID ELEVATION	DATE	DEPTH TO WATER	DEPTH TO SP	SP THICK	WATER TABLE ELEVATION
MW-A	03/27/90	12.55	--	--	507.30
519.85	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
MW-B	03/27/90	10.62	--	--	507.54
518.16	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
MW-1	03/27/90	13.20	--	--	507.56
520.76	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
MW-2	03/27/90	10.86	--	--	507.59
518.45	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
MW-3	03/27/90	11.84	--	--	507.46
519.30	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

WELL ID ELEVATION	DATE	DEPTH TO WATER	DEPTH TO SP	SP THICK	WATER TABLE ELEVATION
MW-4	03/27/90	11.43	--	--	507.32
518.75	06/25/90	11.55	--	--	NA
	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
MW-5	03/27/90	13.17	--	--	507.33
520.50	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
MW-6	03/27/90	15.04	--	--	507.22
522.26	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
MW-7	03/27/90	9.41	--	--	512.76
522.17	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
MW-8	03/27/90	16.15	--	--	507.89
524.04	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

EXPLANATION
SP = Separate phase petroleum hydrocarbons
NA = Not Available

TABLE 2
CUMULATIVE LABORATORY ANALYSES OF GROUNDWATER
IN PARTS PER BILLION (PPB)

Former Texaco Service Station

930 Springtown Blvd.

Livermore, California

WELL ID	SAMPLE DATE	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENE	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
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
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
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
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

WELL ID	SAMPLE DATE	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENE	TPH-G
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
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
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
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
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
MDL		0.3	0.3	0.3	0.6	1

EXPLANATION
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

ATTACHMENT III

LABORATORY ANALYSES REPORTS AND CHAIN OF CUSTODY MANIFEST

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Northwest Region
4080-C Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*
(415) 825-0720 (FAX)

Client Number: GTI71.TEX01
Consultant Project Number: 023200086
Project ID: Livermore, CA
Work Order Number: C1-07-353

July 19, 1991

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

Enclosed please find the analytical results report prepared by GTEL for samples received on 07/15/91, under chain of custody number 72-7547.

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.

A formal quality control/quality assurance program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project was performed in strict adherence to our QA/QC program to ensure sample integrity and to meet quality control criteria.

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

Emma P. Popek
Laboratory Director

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		FIELD BLK.	RINSATE	MW-1	MW-2
Date Sampled		07/12/91	07/12/91	07/12/91	07/12/91
Date Analyzed		07/16/91	07/16/91	07/16/91	07/16/91
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3	<0.3	<0.3	<0.3
Toluene	0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene	0.3	<0.3	<0.3	3	<0.3
Xylene, total	0.6	<0.6	<0.6	16	<0.6
BTEX, total	--	--	--	19	--
TPH as Gasoline	10	<10	<10	390	<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.

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	08
Client Identification		MW-4	MW-5	MW-3	MW-B
Date Sampled		07/12/91	07/12/91	07/12/91	07/12/91
Date Analyzed		07/16/91	07/16/91	07/16/91	07/16/91
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3	13	2	88
Toluene	0.3	<0.3	<0.3	<0.3	1800
Ethylbenzene	0.3	<0.3	18	<0.3	390
Xylene, total	0.6	<0.6	1	1	1300
BTEX, total	--	--	32	3	3600
TPH as Gasoline	10	<10	850	230	18000
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.

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		09			
Client Identification		MW-A			
Date Sampled		07/12/91			
Date Analyzed		07/16/91			
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	2000			
Toluene	0.3	4200			
Ethylbenzene	0.3	4600			
Xylene, total	0.6	13000			
BTEX, total	--	24000			
TPH as Gasoline	10	100000			
Detection Limit Multiplier		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.
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- 7547

Project Manager: John Bower
Phone #: 916 372 4700
FAX #:
Address: Sac office
Site location: Livermore
Project Number: 02320-0086 030504
Project Name: Texaco - Livermore
I attest that the proper field sampling procedures were used during the collection of these samples.
Sampler Name (Print): John R. McIntosh

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 ☐ TLC ☐ | Corrosivity ☐ Flashpoint ☐ Reactivity ☐

I-BOX

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	BTEX/TPH Gas 602/8015
Field Blank	01		2	X					X			X			7/12	1400	↓
Rinsate	02		↓	X					X			X			↓	1410	↓
MW-1	03		↓	X					X			X			↓	1410	↓
MW-2	04		↓	X					X			X			↓	1420	↓
~~MW-7~~			↓	X					X			X			↓	~~1430~~	
~~MW-8~~			↓	X					X			X			↓	~~1440~~	
MW-4	05		↓	X					X			X			↓	1450	↓
MW-5	06		↓	X					X			X			↓	1500	↓
MW-3	07		↓	X					X			X			↓	1510	↓
MW-B	08		↓	X					X			X			↓	1520	↓
MW-A	09		↓	X					X			X			↓	1530	↓

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:	Received by:	Date	Time
John McIntosh	[signature]	7/15/91	0800

Relinquished by:	Received by:	Date	Time
[signature]		7/15/91	

Relinquished by:	Received by Laboratory:	Date	Time	Way bill #
	[signature]	7/15	11:46	[illegible]