



Texaco Refining
and Marketing Inc.

Environmental Services
Department

April 21, 1993

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

Ms. Eva Chu
Alameda County Department of Environmental Health
80 Swan Way, Room 200
Oakland, CA 94621

Dear Ms. Chu:

Enclosed are the following reports for the former Texaco Service Station located at the above referenced site:

- 1) Quarterly Groundwater Monitoring Letter Report, dated February 4, 1993, covering the third quarter 1992
- 2) Quarterly Groundwater Monitoring Letter Report, dated March 31, 1993, covering the fourth quarter 1992
- 3) Extraction Well Installation and Feasibility Testing Report, dated January 5, 1993

If you have any questions, I may be reached at (510) 236-3611.

Sincerely,
Texaco Environmental Services

Karel Detterman

Karel Detterman, R.G.
Project Coordinator

KLD:kld

C:\KLD\COVER1.WKB
A:\COVER\COVER1.WKB
C:\KLD\CC

Attachments

cc: HRPearson-RRZielinski

Regional Water Quality Control
Board
2101 Webster Street, Suite 500
Oakland, CA 94612

Mr. Bob Vasquez
The Southland Corporation
5820 Stoneridge Mall Road,
Suite 310
Pleasanton, CA 94588-3201

pr: *GRS*

3315 Almaden Expressway, Suite 34
San Jose, CA 95118
Phone: (408) 264-7723
FAX: (408) 264-2435

LETTER REPORT
QUARTERLY GROUNDWATER MONITORING
Third Quarter 1992
at
Former Texaco Station
930 Springtown Boulevard
Livermore, California

62090.01

3315 Almaden Expressway, Suite 34
San Jose, CA 95118
Phone: (408) 264-7723
FAX: (408) 264-2435

February 4, 1993
0201KDET
62090.01

Ms. Karel Detterman
Texaco Environmental Services
108 Cutting Boulevard
Richmond, California 94804

Subject: Results of Groundwater Monitoring and Sampling, Third Quarter 1992,
Former Texaco Station located at 930 Springtown Boulevard, Livermore,
California.

Ms. Detterman:

At the request of Texaco Environmental Services (TES), RESNA Industries Inc. (RESNA) has prepared this letter which summarizes the results of quarterly groundwater monitoring at the former Texaco Service Station located at 930 Springtown Boulevard in Livermore, California (Plate 1, Site Vicinity Map) for the third quarter 1992 (July through September 1992). On July 21, 1992, quarterly groundwater monitoring and sampling was conducted to evaluate groundwater elevations, gradient and flow direction, the presence and thickness of any petroleum hydrocarbon sheen or floating product, and the distribution of dissolved hydrocarbons in the 10 monitoring wells MW-A, MW-B, and MW-1 through MW-8 sampled at this site. Well MW-2, MW-7, and MW-8 were not sampled as requested by TES. RESNA's groundwater sampling protocol and well purge data sheets are included in Appendix A. Results of laboratory analyses with chain of custody documentation are included in Appendix B.

WORK PERFORMED

GROUNDWATER MONITORING

Groundwater elevations at the site have decreased an average of about 0.8 foot from the elevations reported the previous quarter, except for the elevations in MW-6, MW-7, and

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MW-8 which have increased by 0.08 feet, 1.32 feet and 3.37 feet, respectively. The groundwater gradient map shows the groundwater beneath the site to be **flowing towards the northeast** with a hydraulic gradient of approximately 0.06 (Plate 2, Groundwater Gradient Map). Historical and recent monitoring data are summarized in Table 1, Cumulative Groundwater Monitoring Data.

GROUNDWATER SAMPLING

Groundwater samples were submitted to Mobile Chem Laboratories (California Hazardous Materials Testing Laboratory Certification No. 1223) in Martinez, California under Chain of Custody protocol. The samples were analyzed for the gasoline constituents benzene, toluene, ethylbenzene, and total xylenes (BTEX), and total petroleum hydrocarbons as gasoline (TPHg) using modified Environmental Protection Agency (EPA) Methods 5030/602. The Chain of Custody Record and Laboratory Analysis reports are included in Appendix B.

GROUNDWATER ANALYTICAL RESULTS

Concentrations of TPHg in groundwater samples ranged from less than 50 parts per billion (ppb) to 57,000 ppb (MW-A). Dissolved benzene concentrations ranged from less than 0.5 ppb to 1,500 ppb (MW-A). TPHg and benzene concentrations are shown on Plate 3, TPHg/Benzene Concentrations in Groundwater. Neither floating product nor hydrocarbon sheen was observed in the wells. Historical and recent analytical data are summarized in Table 2, Cumulative Results of Laboratory Analyses of Groundwater Samples. Copies of the laboratory analyses reports and the chain of custody manifest for the groundwater samples are included in Appendix B.

PURGE WATER DISPOSAL

On November 17, 1992, purge water generated during purging and sampling of the monitoring wells was transported to Gibson Environmental in Redwood City, California for disposal.

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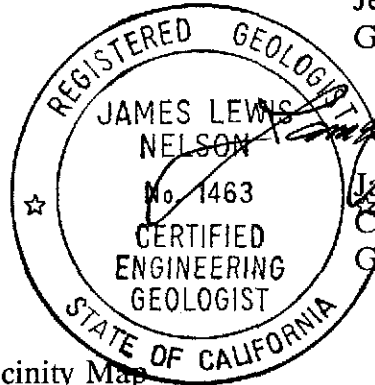
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If you have any questions or comments regarding this report, please call (408) 264-7723.

Sincerely,
RESNA Industries Inc.

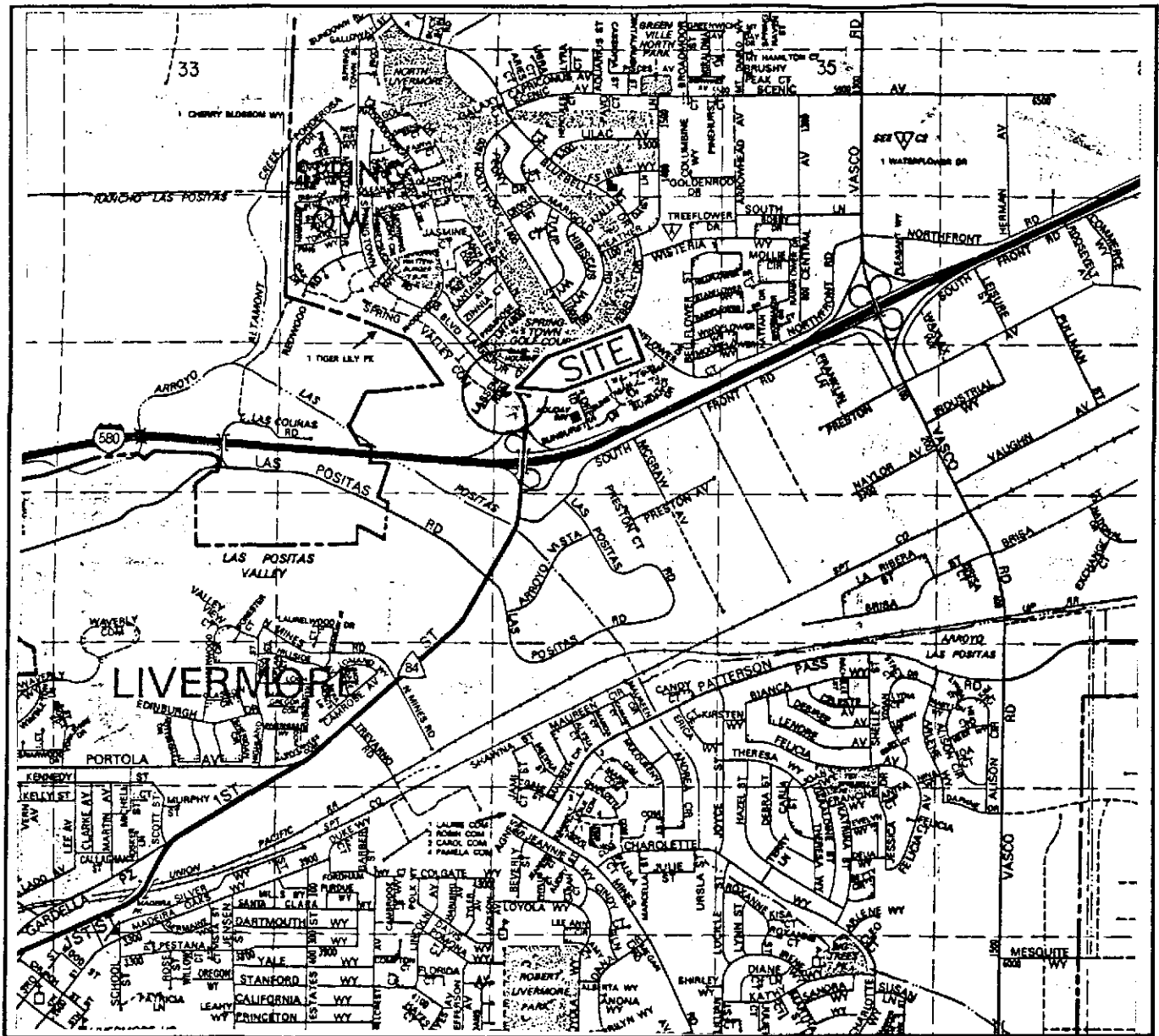


Jeanne Buckthal
Geologic Technician



James L. Nelson
Certified Engineering
Geologist No. 1463

- Enclosures: Plate 1: Site Vicinity Map
Plate 2: Groundwater Gradient Map
Plate 3: TPHg/Benzene Concentrations in Groundwater
- Table 1: Cumulative Groundwater Monitoring Data
Table 2: Cumulative Results of Laboratory Analyses of Groundwater Samples
- Appendix A, Groundwater Sampling Protocol and Well Purge Data Sheets
Appendix B, Laboratory Analysis Reports and Chain of Custody Documentation



Base: The Thomas Guide
 Alameda County
 Livermore, California.
 1991

LEGEND

○ = Site Location

Approximate Scale

2200 1100 0 2200 4400



feet

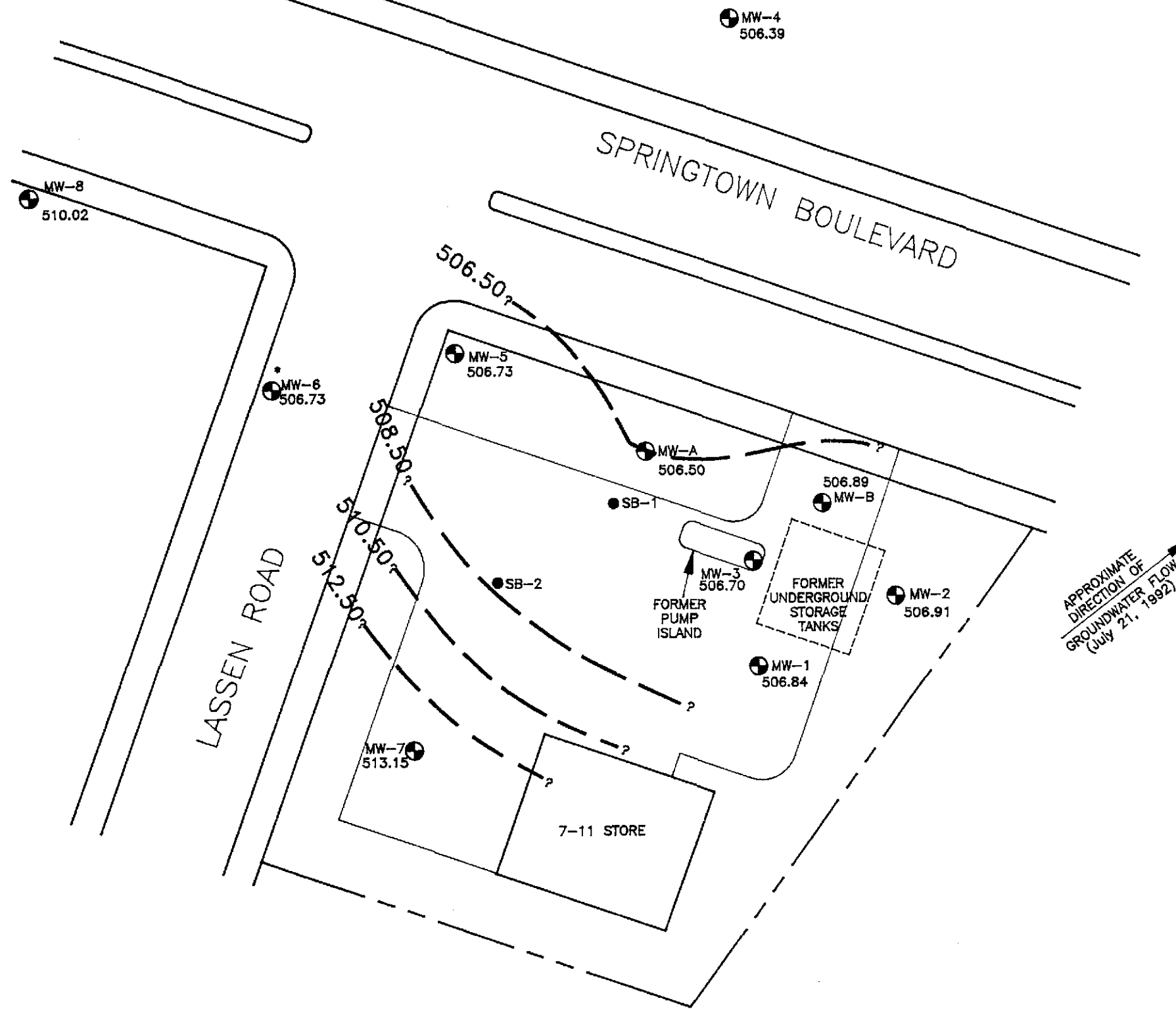
RESNA
 Working to Restore Nature

PROJECT 62090.01

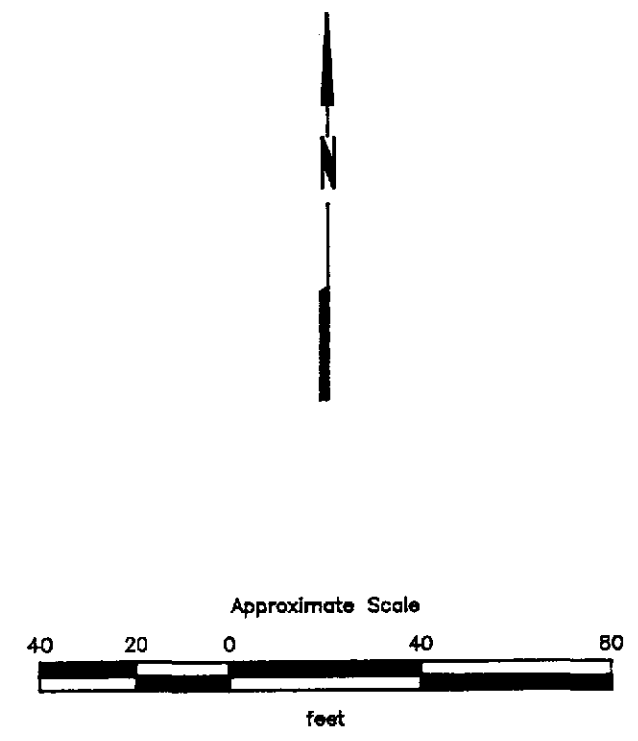
SITE VICINITY MAP
 Former Texaco Station
 930 Springtown Boulevard
 Livermore, California

PLATE

1



- EXPLANATION**
- MW-8 ⊕ = Groundwater monitoring well (GTI)
 - SB-2 ● = Soil boring (GTI)
 - 512.50 / = Line of equal elevation of groundwater in feet above mean sea level (MSL)
 - 513.15 = Elevation of groundwater in feet above MSL July 21, 1992
 - * = Not used to interpret groundwater gradient



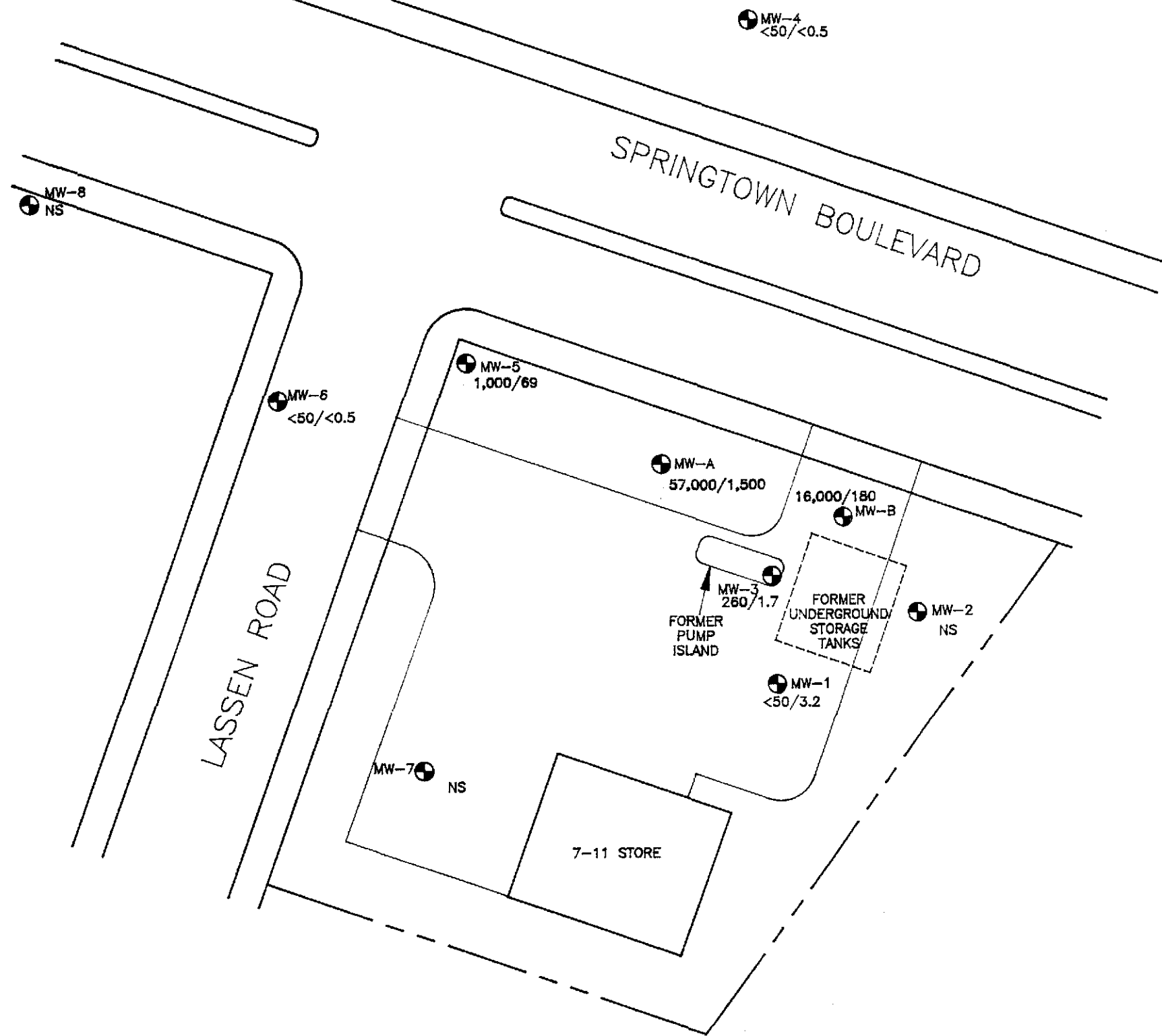
Source: Modified from site plan provided by Groundwater Technology, Inc., dated April 22, 1992.



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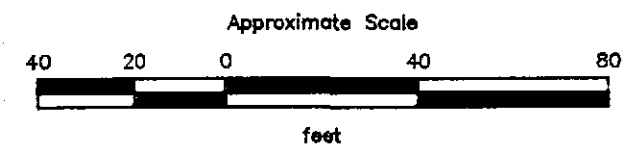
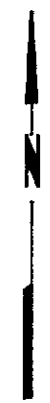
GROUNDWATER GRADIENT MAP
Former Texaco Station
930 Springtown Boulevard
Livermore, California

PLATE
2



EXPLANATION

- MW-B ⊕ = Groundwater monitoring well (GWI)
- 57,000/1,500 = Concentration of TPHg/Benzene in groundwater, in parts per billion, July 21, 1992
- NS = Not sampled



Source: Modified from site plan provided by Groundwater Technology, Inc., dated April 22, 1992.



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**TPHg/BENZENE CONCENTRATIONS
IN GROUNDWATER
Former Texaco Station
930 Springtown Boulevard
Livermore, California**

PLATE

3

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TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
Former Texaco Service Station
930 Springtown Boulevard
Livermore, California
(Page 1 of 3)

| Well | Date | Elevation of Wellhead | Depth to Water | Elevation of Groundwater | Floating Product |
|-------------|----------|--------------------------|-------------------|-----------------------------|---------------------|
| <u>MW-A</u> | | | | | |
| GTI | 01/10/91 | 519.85 | 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 |
| | 01/02/92 | | 13.61 | 506.24 | --- |
| | 04/02/92 | | 12.44 | 507.41 | --- |
| RESNA | 07/21/92 | | 13.35 | 506.50 | --- |
| <u>MW-B</u> | | | | | |
| GTI | 01/10/91 | 518.16 | 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 |
| | 01/02/92 | | 11.27 | 506.89 | trace |
| | 04/02/92 | | 10.18 | 507.98 | --- |
| RESNA | 07/21/92 | | 11.27 | 506.89 | --- |
| <u>MW-1</u> | | | | | |
| GTI | 01/10/91 | 520.76 | 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 | --- |
| | 01/02/92 | | 14.11 | 506.65 | --- |
| | 04/02/92 | | 12.98 | 507.78 | --- |
| RESNA | 07/21/92 | | 13.92 | 506.84 | --- |
| <u>MW-2</u> | | | | | |
| GTI | 01/10/91 | 518.46 | 11.66 | 506.80 | --- |
| | 04/04/91 | | 10.61 | 507.85 | --- |
| | 07/12/91 | | 11.48 | 506.98 | --- |
| | 10/04/91 | | 12.35 | 506.11 | --- |
| | 01/02/92 | | 11.96 | 506.50 | --- |
| | 04/02/92 | | 10.89 | 507.57 | --- |
| RESNA | 07/21/92 | | 11.55 | 506.91 | --- |
| <u>MW-3</u> | | | | | |
| GTI | 01/10/91 | 519.30 | 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 | --- |
| | 01/02/92 | | 12.87 | 506.43 | --- |

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TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
Former Texaco Service Station
930 Springtown Boulevard
Livermore, California
(Page 2 of 3)

| Well | Date | Elevation of Wellhead | Depth to Water | Elevation of Groundwater | Floating Product |
|---------------------|----------|--------------------------|-------------------|-----------------------------|---------------------|
| <u>MW-3 (cont.)</u> | | | | | |
| | 04/02/92 | | 11.97 | 507.33 | --- |
| RESNA | 07/21/92 | | 12.60 | 506.70 | --- |
| <u>MW-4</u> | | | | | |
| GTI | 01/10/91 | 518.75 | 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 | --- |
| | 01/02/92 | | 12.22 | 506.53 | --- |
| | 04/02/92 | | 11.03 | 507.72 | --- |
| RESNA | 07/21/92 | | 12.36 | 506.39 | --- |
| <u>MW-5</u> | | | | | |
| GTI | 01/10/91 | 520.50 | 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 | --- |
| | 01/02/92 | | 14.56 | 505.94 | --- |
| | 04/02/92 | | 13.58 | 506.92 | --- |
| RESNA | 07/21/92 | | 13.77 | 506.73 | --- |
| <u>MW-6</u> | | | | | |
| GTI | 01/10/91 | 522.26 | 16.31 | 505.95 | --- |
| | 04/04/91 | | 15.19 | 507.07 | --- |
| | 07/12/91 | | NR | NR | NR |
| | 10/04/91 | | 16.90 | 505.36 | --- |
| | 01/02/92 | | 16.64 | 505.62 | --- |
| | 04/02/91 | | 15.61 | 506.65 | --- |
| RESNA | 07/21/92 | | 15.53 | 506.73 | --- |
| <u>MW-7</u> | | | | | |
| GTI | 01/10/91 | 522.17 | 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 | --- |
| | 01/02/92 | | 11.17 | 511.00 | --- |
| | 04/02/92 | | 10.34 | 511.83 | --- |
| RESNA | 07/21/92 | | 9.02 | 513.15 | --- |

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TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
Former Texaco Service Station
930 Springtown Boulevard
Livermore, California
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| Well | Date | Elevation of Wellhead | Depth to Water | Elevation of Groundwater | Floating Product |
|-------------|----------|--------------------------|-------------------|-----------------------------|---------------------|
| <u>MW-8</u> | | | | | |
| GTI | 01/10/91 | 524.04 | 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 | — |
| | 01/02/92 | | 18.42 | 505.62 | — |
| | 04/02/92 | | 17.39 | 506.65 | — |
| RESNA | 07/21/92 | | 14.02 | 510.02 | — |

Datum Mean Sea Level (MSL)
Depth to water measured in feet below top of casing.
— : None Present
GTI : Groundwater Technology, Inc.
RESNA : RESNA Industries, Inc.
NR : No Record

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TABLE 2
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF GROUNDWATER SAMPLES
Former Texaco Service Station
930 Springtown Boulevard
Livermore, California
(Page 1 of 3)

| Well | Date | TPHg | Benzene | Toluene | Ethyl- benzene | Total Xylenes |
|-------------|----------|-------------------|--------------|---------|-------------------|------------------|
| <u>MW-A</u> | | | | | | |
| GTI | 01/10/91 | 50,000 | 1,900 | 3,700 | 2,600 | 8,300 |
| | 04/04/91 | 31,000 | 950 | 1,100 | 1,300 | 2,900 |
| | 07/12/91 | 100,000 | 2,000 | 4,200 | 4,600 | 13,000 |
| | 10/04/91 | SP | SP | SP | SP | SP |
| | 01/02/92 | SP | SP | SP | SP | SP |
| | 04/02/92 | 27,000 | 1,200 | 570 | 1,700 | 2,300 |
| RESNA | 07/21/92 | 57,000 | 1,500 | 1,800 | 2,700 | 7,100 |
| <u>MW-B</u> | | | | | | |
| GTI | 01/10/91 | 35,000 | 47 | 1,300 | 770 | 3,100 |
| | 04/04/91 | 2,300 | 4 | 10 | 22 | 19 |
| | 07/12/91 | 18,000 | 88 | 1,800 | 390 | 1,300 |
| | 10/04/91 | SP | SP | SP | SP | SP |
| | 01/02/92 | SP | SP | SP | SP | SP |
| | 04/02/92 | 1,900 | ND | 39 | 24 | 35 |
| RESNA | 07/21/92 | 16,000 | 180 | 1,600 | 270 | 1,100 |
| <u>MW-1</u> | | | | | | |
| GTI | 01/10/91 | ND | ND | ND | ND | ND |
| | 04/04/91 | ND | ND | ND | ND | ND |
| | 07/12/91 | 390 | ND | ND | 3 | 16 |
| | 10/04/91 | ND | 1 | ND | ND | ND |
| | 01/02/92 | 16 | 6 | ND | ND | ND |
| | 04/02/92 | ND | ND | ND | ND | ND |
| RESNA | 07/21/92 | <50 | 3.2 | <0.5 | <0.5 | <0.5 |
| <u>MW-2</u> | | | | | | |
| GTI | 01/10/91 | ND | ND | ND | ND | ND |
| | 04/04/92 | ND | ND | ND | ND | ND |
| | 07/12/91 | ND | ND | ND | ND | ND |
| | 10/04/91 | ND | 0.3 | ND | ND | ND |
| | 01/02/92 | ND | ND | ND | ND | ND |
| | 04/02/91 | ND | ND | ND | ND | ND |
| RESNA | 07/21/92 | NA | NA | NA | NA | NA |
| <u>MW-3</u> | | | | | | |
| GTI | 01/10/91 | 110 | ND | ND | ND | ND |
| | 04/04/91 | 630 | 4 | ND | 0.6 | 0.9 |
| | 07/12/91 | 230 | 2 | ND | ND | 1 |
| | 10/04/91 | 360 | 0.5 | 2 | ND | 0.5 |
| | 01/02/92 | 340 | 0.4 | ND | ND | ND |

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TABLE 2
 CUMULATIVE RESULTS OF LABORATORY ANALYSES
 OF GROUNDWATER SAMPLES
 Former Texaco Service Station
 930 Springtown Boulevard
 Livermore, California
 (Page 2 of 3)

| Well | Date | TPHg | Benzene | Toluene | Ethyl- benzene | Total Xylenes |
|---------------------|----------|-------|---------|---------|-------------------|------------------|
| <u>MW-3 (cont.)</u> | | | | | | |
| | 04/02/92 | 160 | 5 | ND | 0.3 | 0.5 |
| RESNA | 07/21/92 | 260 | 1.7 | <0.5 | <0.5 | <0.5 |
| <u>MW-4</u> | | | | | | |
| GTI | 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 | ND | 0.6 | ND | ND | ND |
| | 01/02/92 | ND | ND | ND | ND | ND |
| | 04/02/92 | ND | ND | ND | ND | ND |
| RESNA | 07/21/92 | <50 | <0.5 | <0.5 | <0.5 | <0.5 |
| <u>MW-5</u> | | | | | | |
| GTI | 01/10/91 | 1,900 | 48 | 2 | 87 | 9 |
| | 04/04/91 | ND | ND | ND | ND | ND |
| | 07/12/91 | 850 | 13 | ND | 18 | 1 |
| | 10/04/91 | 2,000 | 240 | 13 | 34 | 14 |
| | 01/02/92 | 1,800 | 74 | 41 | 84 | 94 |
| | 04/02/92 | ND | ND | ND | ND | ND |
| RESNA | 07/21/92 | 1,000 | 69 | 16 | 40 | 31 |
| <u>MW-6</u> | | | | | | |
| GTI | 01/10/91 | ND | ND | ND | ND | ND |
| | 04/04/91 | ND | ND | ND | ND | ND |
| | 07/12/91 | NA | NA | NA | NA | NA |
| | 10/04/91 | ND | 0.3 | ND | ND | ND |
| | 01/02/92 | 23 | ND | 0.3 | 0.6 | 3 |
| | 04/02/92 | ND | ND | ND | ND | ND |
| RESNA | 07/21/92 | <50 | <0.5 | <0.5 | <0.5 | <0.5 |
| <u>MW-7</u> | | | | | | |
| GTI | 01/10/91 | ND | ND | ND | ND | ND |
| | 04/04/91 | ND | ND | ND | ND | ND |
| | 07/12/91 | NA | NA | NA | NA | NA |
| | 10/04/91 | NA | NA | NA | NA | NA |
| | 01/02/92 | NA | NA | NA | NA | NA |
| | 04/02/92 | ND | ND | ND | ND | ND |
| RESNA | 07/21/92 | NA | NA | NA | NA | NA |

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TABLE 2
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF GROUNDWATER SAMPLES
Former Texaco Service Station
930 Springtown Boulevard
Livermore, California
(Page 3 of 3)

| Well | Date | TPHg | Benzene | Toluene | Ethyl- benzene | Total Xylenes |
|-------------|----------|--------|---------|---------|-------------------|------------------|
| <u>MW-8</u> | | | | | | |
| GTI | 01/10/91 | ND | ND | ND | ND | ND |
| | 04/04/91 | NA | NA | NA | NA | NA |
| | 07/12/91 | NA | NA | NA | NA | NA |
| | 10/04/91 | NA | NA | NA | NA | NA |
| | 01/02/92 | 12,000 | 32 | 980 | 200 | 760 |
| | 04/02/92 | ND | ND | ND | ND | ND |
| RESNA | 07/21/92 | NA | NA | NA | NA | NA |
| MCLs: | | - | 1.0 | - | 680 | 1,750 |
| DWAL: | | - | - | 100 | - | - |

Results in parts per billion (ppb).

- NA : Not Analyzed
- NR : No Records
- 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.
- MCLs : Adopted Maximum Contaminant Levels in Drinking Water, DHS (October 1990)
- DWAL : Recommended Drinking Water Action Level, DHS (October 1990)
- : Not applicable
- GTI : Groundwater Technology, Inc.
- RESNA : RESNA Industries Inc.

APPENDIX A
GROUNDWATER SAMPLING PROTOCOL
AND WELL PURGE DATA SHEETS

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GROUNDWATER SAMPLING PROTOCOL

The static water level and floating product level, if present, in each well that contained water was measured with an ORS Interphase Probe Model No. 1068018; this instrument is accurate to the nearest 0.01 foot. These groundwater depths were subtracted from wellhead elevations, including corrections for product thickness, when necessary, for gradient evaluation by multiplying product thickness (PT) by a correction factor 0.8 and subtracting from the DTW (Adjusted DTW = DTW - [PT x 0.8]).

Water samples collected for subjective evaluation were collected by gently lowering approximately half the length of a new disposable bailer and/or teflon bailer past the air-water interface (if possible) and collecting a sample from near the surface of the water in the well. The samples were checked for measurable floating hydrocarbon product. All teflon bailers are triple washed and rinsed withalconox and distilled water prior to each use.

Before water samples were collected from the groundwater monitoring wells, the wells were purged until stabilization of the temperature, pH, and conductivity were obtained. Approximately four well casing volumes were purged before those characteristics stabilized. The quantity of water purged from each well was calculated as follows:

1 well casing volume = $\pi r^2 h (7.48)$ where:

- r = radius of the well casing in feet.
- h = column of water in the well in feet
(depth to bottom - depth to water).
- 7.48 = conversion constant from cubic feet to
gallons

Gallons of water purged/gallons in 1 well casing volume = well casing volumes removed.

After purging, each well was allowed to recharge to at least 80% of the initial water level. Water samples were collected with a new disposable bailer, and carefully poured into 40-milliliter (ml) glass vials, which were filled so as to produce a positive meniscus. Each vial was preserved with hydrochloric acid, sealed with a cap containing a Teflon® septum, and subsequently examined for air bubbles to avoid headspace which would allow volatilization to occur. The samples were promptly transported in iced storage in a thermally-insulated ice chest, accompanied by a Chain of Custody Record, to a California-certified laboratory.

WELL PURGE DATA SHEET

Project Name: Texaco-- Springtown

Job No. 62090.01

Date: July 21, 1992

Page 1 of 1

Well No. MW-A

Time Started 11:00

| TIME (hr) | GALLONS (cum.) | TEMP. (F) | pH | CONDUCT. (micromho) | TURBIDITY (NTU) |
|--|--------------------|--------------|------|------------------------|--------------------|
| 11:00 | Start purging MW-A | | | | |
| 11:00 | .5 | 71.6 | 7.60 | 1010 | NM |
| 11:02 | 1 | 71.0 | 7.51 | 1010 | NM |
| 11:04 | 1.5 | 70.3 | 7.44 | 1050 | NM |
| 11:06 | 2.0 | 71.4 | 7.50 | 1060 | NM |
| | | | | | NM |
| 11:06 | Stop purging MW-A | | | | |
| Notes: | | | | | |
| <p style="text-align: center;">NM = Not Measured</p> <p style="text-align: right;">Well Diameter (inches) : 2</p> <p style="text-align: right;">Depth to Bottom (feet) : 15.62</p> <p style="text-align: right;">Depth to Water - initial (feet) : 13.35</p> <p style="text-align: right;">Depth to Water - final (feet) : 13.35</p> <p style="text-align: right;">% recovery : 100</p> <p style="text-align: right;">Time Sampled : 5:45</p> <p style="text-align: right;">Gallons per Well Casing Volume : 0.5</p> <p style="text-align: right;">Gallons Purged : 2</p> <p style="text-align: right;">Well Casing Volume Purged : 4</p> <p style="text-align: right;">Approximate Pumping Rate (gpm) : 0.7</p> | | | | | |

WELL PURGE DATA SHEET

Project Name: Texaco-- Springtown

Job No. 62090.01

Date: July 21, 1992

Page 1 of 1

Well No. MW-B

Time Started 10:55

| TIME (hr) | GALLONS (cum.) | TEMP. (F) | pH | CONDUCT. (micromho) | TURBIDITY (NTU) |
|--------------|--------------------|--------------|------|------------------------|--------------------|
| 10:55 | Start purging MW-B | | | | |
| 10:55 | 1.5 | 73.8 | 7.57 | 1050 | NM |
| 10:57 | 3.0 | 71.0 | 7.56 | 1040 | NM |
| 10:59 | 5.0 | 70.5 | 7.53 | 1030 | NM |
| | | | | | NM |
| | | | | | NM |
| 10:59 | Stop purging MW-B | | | | |

Notes:

NM = Not Measured
 Well Diameter (inches) : 2
 Depth to Bottom (feet) : 21.35
 Depth to Water - initial (feet) : 11.27
 Depth to Water - final (feet) : 11.27
 % recovery : 100
 Time Sampled : 5:30
 Gallons per Well Casing Volume : 1.7
 Gallons Purged : 5
 Well Casing Volume Purged : 3
 Approximate Pumping Rate (gpm) : 1

WELL PURGE DATA SHEET

Project Name: Texaco-- Springtown

Job No. 62090.01

Date: July 21, 1992

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Well No. MW-1

Time Started 10:20

| TIME (hr) | GALLONS (cum.) | TEMP. (F) | pH | CONDUCT. (micromho) | TURBIDITY (NTU) |
|--------------|--------------------|--------------|------|------------------------|--------------------|
| 10:20 | Start purging MW-1 | | | | |
| 10:20 | 8 | 72.3 | 7.49 | 1250 | NM |
| 10:22 | 15 | 71.4 | 7.35 | 1220 | NM |
| 10:24 | 23 | 71.3 | 7.34 | 1210 | NM |
| | | | | | NM |
| | | | | | NM |
| 10:24 | Stop purging MW-1 | | | | |

Notes:

NM = Not Measured

Well Diameter (inches) : 4
 Depth to Bottom (feet) : 25.50
 Depth to Water - initial (feet) : 13.92
 Depth to Water - final (feet) : NM
 % recovery : NM
 Time Sampled : 2:15
 Gallons per Well Casing Volume : 7.5
 Gallons Purged : 24
 Well Casing Volume Purged : 3
 Approximate Pumping Rate (gpm) : 3

WELL PURGE DATA SHEET

Project Name: Texaco-- Springtown

Job No. 62090.01

Date: July 21, 1992

Page 1 of 1

Well No. MW-3

Time Started 10:35

| TIME (hr) | GALLONS (cum.) | TEMP. (F) | pH | CONDUCT. (micromho) | TURBIDITY (NTU) |
|-----------|--------------------|-----------|------|---------------------|-----------------|
| 10:35 | Start purging MW-3 | | | | |
| 10:35 | 8 | 71.2 | 7.49 | 1110 | NM |
| 10:37 | 15 | 74.5 | 7.40 | 1120 | NM |
| 11:39 | 23 | Well Dry | | | NM |
| | | | | | NM |
| | | | | | NM |
| 11:39 | Stop purging MW-3 | | | | |

Notes:

NM = Not Measured
 Well Diameter (inches) : 4
 Depth to Bottom (feet) : 24.20
 Depth to Water - initial (feet) : 12.60
 Depth to Water - final (feet) : NM
 % recovery : NM
 Time Sampled : 4:15
 Gallons per Well Casing Volume : 8
 Gallons Purged : 23
 Well Casing Volume Purged : 3
 Approximate Pumping Rate (gpm) : 0.75

WELL PURGE DATA SHEET

Project Name: Texaco-- Springtown

Job No. 62090.01

Date: July 21, 1992

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Well No. MW-4

Time Started 10:10

| TIME (hr) | GALLONS (cum.) | TEMP. (F) | pH | CONDUCT. (micromho) | TURBIDITY (NTU) |
|--------------|--------------------|--------------|------|------------------------|--------------------|
| 10:10 | Start purging MW-4 | | | | |
| 10:10 | 5 | 72.6 | 7.49 | 830 | NM |
| 10:12 | 10 | 71.1 | 7.49 | 840 | NM |
| 10:14 | 15 | 70.5 | 7.49 | 830 | NM |
| | | | | | NM |
| | | | | | NM |
| 10:14 | Stop purging MW-4 | | | | |

Notes:

NM = Not Measured
 Well Diameter (inches) : 3
 Depth to Bottom (feet) : 25.05
 Depth to Water - initial (feet) : 12.36
 Depth to Water - final (feet) : 12.36
 % recovery : 100
 Time Sampled : 1:15
 Gallons per Well Casing Volume : 5
 Gallons Purged : 15
 Well Casing Volume Purged : 3
 Approximate Pumping Rate (gpm) : 0.75

WELL PURGE DATA SHEET

Project Name: Texaco-- Springtown

Job No. 62090.01

Date: July 21, 1992

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Well No. MW-5

Time Started 10:40

| TIME (hr) | GALLONS (cum.) | TEMP. (F) | pH | CONDUCT. (micromho) | TURBIDITY (NTU) |
|--------------|--------------------|--------------|------|------------------------|--------------------|
| 10:40 | Start purging MW-5 | | | | |
| 10:40 | 2 | 72.0 | 7.60 | 920 | NM |
| 10:42 | 5 | 70.0 | 7.57 | 910 | NM |
| 10:44 | 7 | 69.5 | 7.55 | 900 | NM |
| | | | | | NM |
| | | | | | NM |
| 10:44 | Stop purging MW-5 | | | | |

Notes:

NM = Not Measured
 Well Diameter (inches) : 2
 Depth to Bottom (feet) : 27.90
 Depth to Water - initial (feet) : 13.77
 Depth to Water - final (feet) : 13.77
 % recovery : 100
 Time Sampled : 5:15
 Gallons per Well Casing Volume : 2.4
 Gallons Purged : 7
 Well Casing Volume Purged : 3
 Approximate Pumping Rate (gpm) : 1

WELL PURGE DATA SHEET

Project Name: Texaco-- Springtown

Job No. 62090.01

Date: July 21, 1992

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Well No. MW-6

Time Started 10:30

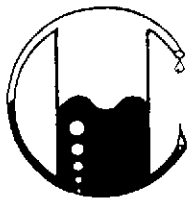
| TIME (hr) | GALLONS (cum.) | TEMP. (F) | pH | CONDUCT. (micromho) | TURBIDITY (NTU) |
|-----------|--------------------|-----------|------|---------------------|-----------------|
| 10:30 | Start purging MW-6 | | | | |
| 10:30 | 2 | 73.0 | 7.73 | 830 | NM |
| 10:32 | 3 | 70.8 | 7.68 | 780 | NM |
| 10:33 | 5 | Well Dry | | | NM |
| | | | | | NM |
| | | | | | NM |
| 10:33 | Stop purging MW-6 | | | | |

Notes:

NM = Not Measured
 Well Diameter (inches) : 2
 Depth to Bottom (feet) : 24.70
 Depth to Water - initial (feet) : 15.53
 Depth to Water - final (feet) : 15.53
 % recovery : 100
 Time Sampled : 3:15
 Gallons per Well Casing Volume : 1.6
 Gallons Purged : 5
 Well Casing Volume Purged : 3
 Approximate Pumping Rate (gpm) : 1

APPENDIX B

**LABORATORY ANALYSIS REPORTS AND
CHAIN OF CUSTODY DOCUMENTATION**



MOBILE CHEM LABS INC.

5021 Blum Road, Suite 3 • Martinez, CA 94553
Phone (415) 372-3700 • Fax (415) 372-6955

62090.01/011985

RESNA Industries
42501 Albrae Street
Fremont, CA 94538
Attn: Nissa Nack
Project Manager

Date Sampled: 07-21-92
Date Received: 07-22-92
Date Reported: 07-27-92

Sample Number

072033

Sample Description

Project # 62090.01
Texaco - Livermore
930 Springtown Blvd.
MW-1 WATER

JK

ANALYSIS

| | <u>Detection Limit</u> | <u>Sample Results</u> |
|--|------------------------|-----------------------|
| | ppb | ppb |
| Total Petroleum Hydrocarbons as Gasoline | 50 | <50 |
| Benzene | 0.5 | 3.2 |
| Toluene | 0.5 | <0.5 |
| Xylenes | 0.5 | <0.5 |
| Ethylbenzene | 0.5 | <0.5 |

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.
(ppb) = (µg/L)

MOBILE CHEM LABS

Ronald G. Evans
Lab Director



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Phone (415) 372-3700 • Fax (415) 372-6955

62090.01/011985

RESNA Industries
42501 Albrae Street
Fremont, CA 94538
Attn: Nissa Nack
Project Manager

Date Sampled: 07-21-92
Date Received: 07-22-92
Date Reported: 07-27-92

Sample Number

072034

Sample Description

Project # 62090.01
Texaco - Livermore
930 Springtown Blvd.
MW-3 WATER

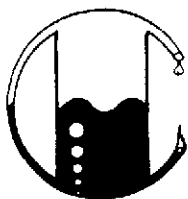
ANALYSIS

| | <u>Detection Limit</u> | <u>Sample Results</u> |
|---|----------------------------|---------------------------|
| | ppb | ppb |
| Total Petroleum Hydrocarbons as Gasoline | 50 | 260 |
| Benzene | 0.5 | 1.7 |
| Toluene | 0.5 | <0.5 |
| Xylenes | 0.5 | <0.5 |
| Ethylbenzene | 0.5 | <0.5 |

Note: Analysis was performed using EPA methods 5030 and TPH
LUFT with method 602 used for BTX distinction.
(ppb) = ($\mu\text{g/L}$)

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62090.01/011985

RESNA Industries
42501 Albrae Street
Fremont, CA 94538
Attn: Nissa Nack
Project Manager

Date Sampled: 07-21-92
Date Received: 07-22-92
Date Reported: 07-27-92

Sample Number

072035

Sample Description

Project # 62090.01
Texaco - Livermore
930 Springtown Blvd.
MW-4 WATER

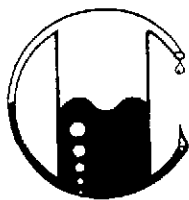
ANALYSIS

| | Detection Limit ----- ppb | Sample Results ----- ppb |
|---|------------------------------------|-----------------------------------|
| Total Petroleum Hydrocarbons as Gasoline | 50 | <50 |
| Benzene | 0.5 | <0.5 |
| Toluene | 0.5 | <0.5 |
| Xylenes | 0.5 | <0.5 |
| Ethylbenzene | 0.5 | <0.5 |

Note: Analysis was performed using EPA methods 5030 and TPH
LUFT with method 602 used for BTX distinction.
(ppb) = (µg/L)

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62090.01/011985

RESNA Industries
42501 Albrae Street
Fremont, CA 94538
Attn: Nissa Nack
Project Manager

Date Sampled: 07-21-92
Date Received: 07-22-92
Date Reported: 07-27-92

Sample Number

072036

Sample Description

Project # 62090.01
Texaco - Livermore
930 Springtown Blvd.
MW-5 WATER

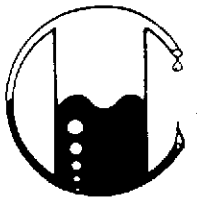
ANALYSIS

| | <u>Detection Limit</u> | <u>Sample Results</u> |
|---|----------------------------|---------------------------|
| | ppb | ppb |
| Total Petroleum Hydrocarbons as Gasoline | 50 | 1,000 |
| Benzene | 0.5 | 69 |
| Toluene | 0.5 | 16 |
| Xylenes | 0.5 | 31 |
| Ethylbenzene | 0.5 | 40 |

Note: Analysis was performed using EPA methods 5030 and TPH
LUFT with method 602 used for BTX distinction.
(ppb) = (µg/L)

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62090.01/011985

RESNA Industries
42501 Albrae Street
Fremont, CA 94538
Attn: Nissa Nack
Project Manager

Date Sampled: 07-21-92
Date Received: 07-22-92
Date Reported: 07-27-92

Sample Number

072037

Sample Description

Project # 62090.01
Texaco - Livermore
930 Springtown Blvd.
MW-6 WATER

ANALYSIS

| | <u>Detection Limit</u> | <u>Sample Results</u> |
|---|----------------------------|---------------------------|
| | ppb | ppb |
| Total Petroleum Hydrocarbons as Gasoline | 50 | <50 |
| Benzene | 0.5 | <0.5 |
| Toluene | 0.5 | <0.5 |
| Xylenes | 0.5 | <0.5 |
| Ethylbenzene | 0.5 | <0.5 |

Note: Analysis was performed using EPA methods 5030 and TPH
LUFT with method 602 used for BTX distinction.
(ppb) = (µg/L)

MOBILE CHEM LABS

Ronald G. Evans
Lab Director



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62090.01/011985

RESNA Industries
42501 Albrae Street
Fremont, CA 94538
Attn: Nissa Nack
Project Manager

Date Sampled: 07-21-92
Date Received: 07-22-92
Date Reported: 07-27-92

Sample Number

072038

Sample Description

Project # 62090.01
Texaco - Livermore
930 Springtown Blvd.
MW-A WATER

ANALYSIS

| | <u>Detection Limit</u> | <u>Sample Results</u> |
|---|----------------------------|---------------------------|
| | ppb | ppb |
| Total Petroleum Hydrocarbons as Gasoline | 50 | 57,000 |
| Benzene | 0.5 | 1,500 |
| Toluene | 0.5 | 1,800 |
| Xylenes | 0.5 | 7,100 |
| Ethylbenzene | 0.5 | 2,700 |

QA/QC: Sample blank is none detected
Duplicate Deviation is 3.5%

Note: Analysis was performed using EPA methods 5030 and TPH
LUFT with method 602 used for BTX distinction.
(ppb) = (µg/L)

MOBILE CHEM LABS

Ronald G. Evans

Ronald G. Evans
Lab Director



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62090.01/011985

RESNA Industries
42501 Albrae Street
Fremont, CA 94538
Attn: Nissa Nack
Project Manager

Date Sampled: 07-21-92
Date Received: 07-22-92
Date Reported: 07-27-92

Sample Number

072039

Sample Description

Project # 62090.01
Texaco - Livermore
930 Springtown Blvd.
MW-B WATER

ANALYSIS

| | <u>Detection Limit</u> | <u>Sample Results</u> |
|---|----------------------------|---------------------------|
| | ppb | ppb |
| Total Petroleum Hydrocarbons as Gasoline | 50 | 16,000 |
| Benzene | 0.5 | 180 |
| Toluene | 0.5 | 1,600 |
| Xylenes | 0.5 | 1,100 |
| Ethylbenzene | 0.5 | 270 |

Note: Analysis was performed using EPA methods 5030 and TPH
LUFT with method 602 used for BTX distinction.
(ppb) = (µg/L)

MOBILE CHEM LABS

Ronald G. Evans
Lab Director



CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

| PROJECT NO. | | PROJECT NAME/SITE | | ANALYSIS REQUESTED | | | | | | | | | | P.O. #: | | | | | | | | | | | | | |
|-----------------------|---------|--|-------|---------------------------------|-------------|---------------------------|-----|-------------------------|---|---|--|--|--|---------|--|---------|--|------------|--|--|--|--|--|------|--|------------------------------------|--|
| 62090.01 | | Texaco, 930 Springtown Blvd Livermore | | / / / / / / / / / / / / / / / / | | | | | | | | | | | | | | | | | | | | | | | |
| SAMPLERS (SIGN) | | (PRINT) | | NO. CONTAINERS | SAMPLE TYPE | | | | | | | | | | | REMARKS | | | | | | | | | | | |
| Robert A. Adair | | Robin A. Adair | | | | | | | | | | | | | | | | | | | | | | | | | |
| SAMPLE IDENTIFICATION | DATE | TIME | COMP | GRAB | PRES. USED | ICED | | | | | | | | | | | | | | | | | | | | | |
| BB1 | 7-21-92 | 1:00 | | | HC1 | Y | 3 | | | | | | | | | | | | | | | | | Hold | | | |
| MW - 1 | ↓ | 2:15 | | | | | H2O | X | X | | | | | | | | | | | | | | | | | | |
| MW - 3 | | 4:15 | | | | | | X | X | | | | | | | | | | | | | | | | | | |
| MW - 4 | | 1:15 | | | | | | | X | X | | | | | | | | | | | | | | | | | |
| MW - 5 | | 5:15 | | | | | | | X | X | | | | | | | | | | | | | | | | | |
| MW - 6 | | 3:15 | | | | | | | X | X | | | | | | | | | | | | | | | | * | |
| MW - A | | 5:45 | | | | | | | X | X | | | | | | | | | | | | | | | | Direct Bill to | |
| MW - B | | 5:30 | | | | | | | X | X | | | | | | | | | | | | | | | | Texaco, C/O Karel Dettmerman | |
| RELINQUISHED BY: | | DATE | TIME | RECEIVED BY: | | LABORATORY: | | PLEASE SEND RESULTS TO: | | | | | | | | | | | | | | | | | | | |
| Robert A. Adair | | 7-22-92 | 14:30 | Nissa Naek | | Mobil Chem | | | | | | | | | | | | Nissa Naek | | | | | | | | | |
| RELINQUISHED BY: | | DATE | TIME | RECEIVED BY: | | REQUESTED TURNAROUND TIME | | | | | | | | | | | | | | | | | | | | | |
| Nissa Naek | | 7/22/92 | 14:30 | Conn D. Ferris | | Normal | | | | | | | | | | | | | | | | | | | | | |
| RELINQUISHED BY: | | DATE | TIME | RECEIVED BY: | | RECEIPT CONDITION | | PROJECT MANAGER: | | | | | | | | | | | | | | | | | | | |
| RELINQUISHED BY: | | DATE | TIME | RECEIVED BY LABORATORY | | RECEIPT CONDITION | | PROJECT MANAGER: | | | | | | | | | | | | | | | | | | | |