Texaco Refining and Marketing Inc.
108 Cutting Boulevard
Richmond CA 94804

August 25, 1992

ENV - STUDIES, SURVEYS & REPORTS
Groundwater Monitoring Report
3940 Castro Valley Blvd., Castro Valley, CA

Mr. Scott Seery
Alameda County Health Care Services Agency
Hazardous Materials Program
80 Swan Way, Room 200
Oakland, CA 94621

Dear Mr. Seery:

Enclosed please find the Groundwater Monitoring Report dated July 13, 1992, for our former Texaco service station located at 3940 Castro Valley Boulevard in Castro Valley, California.

Please call me at (510) 236-3611 if you have any questions.

Sincerely,
Texaco Environmental Services

Karel Detterman

Karel Detterman, REA
Project Coordinator

KLD:kdk
p:\kld\3940cast.ss1

Attachments

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

Mr. Dave Daffern
LakeShor Financial
21060 Redwood Road
Castro Valley, CA 94596

pr:93

HR/P

reviewed 6/3/92 SDS

FIRST QUARTER 1992
GROUNDWATER MONITORING REPORT

FOR

FORMER TEXACO SERVICE STATION
3940 CASTRO VALLEY BOULEVARD
CASTRO VALLEY, CALIFORNIA

May 1992

Project No. 3-30091-32
May 1992

RESNA
42501 Albrae Street
Fremont, California 94538
(510) 440-3300

July 13, 1992
Project No. 3-30091-32

Texaco Environmental Services
108 Cutting Boulevard
Richmond, CA 94804

Attention: Mr. Ron Zielinski

Subject: First Quarter 1992 Groundwater Monitoring
Former Texaco Service Station
3940 Castro Valley Boulevard, Castro Valley, California

Dear Mr. Zielinski:

This quarterly monitoring report summarizes the groundwater sampling and analyses performed during March 1992 for the subject site in Castro Valley, Alameda County, California (Figure 1). Current groundwater monitoring and sampling analytical data acquired during this investigation are included.

Site Description and Background

The site is located on the northeast corner of Castro Valley Boulevard and Marshall Street in Castro Valley, California. It is situated near the crest of a hill on the north side of Interstate 580 in an area of commercial and multi-unit residential development. Formerly a Texaco Service Station, the site is currently a Speedee Oil Change and Tune-up Facility.

Underground fuel storage tanks were removed from the site in June 1984, and one groundwater monitoring well was installed in the tank excavation area by Groundwater Technology, Inc. (GTI). Three additional wells were installed at the site by GTI in 1987 with the intent of defining the areal extent of dissolved hydrocarbon constituents in the groundwater. Two monitoring wells, TX and MW-2, were destroyed in 1989 as part of the construction of the current business. Groundwater monitoring wells MW-4 and MW-5 were installed in 1990, and quarterly monitoring and sampling at the site was conducted by GTI.

RESNA began quarterly groundwater monitoring at the site in October 1991. In January 1992, three additional groundwater monitoring wells were installed by RESNA. Two of the new wells, designated MW-6 and MW-7 are located off-site, and MW-8 is located on-site.

Groundwater Sampling

RESNA collected groundwater samples from seven groundwater monitoring wells on the site (Figure 2) in accordance with RESNA's groundwater sampling protocol (Appendix A) on March 30 and 31, 1992. In addition, groundwater monitoring wells MW-4, MW-6, MW-7, and MW-8

were sampled monthly during this quarter. The groundwater purged from the wells and the [illegible] were placed in drums approved by the Department of Transportation. The water was left on-site pending transport to a licensed facility.

Laboratory Analyses

The groundwater samples were transported to RESNA Environmental Laboratory (RESNA), located in Fremont, California. RESNA, state-certified laboratory No. 1211, analyzed the samples for the presence of total petroleum hydrocarbons as gasoline (TPHG) and benzene, toluene, ethyl benzene, and total xylenes (BTEX).

Summary of Laboratory Results

The results of the groundwater sampling and analyses are summarized in Table 1. The analytical reports and chain-of-custody documents are attached in Appendix B. Benzene was reported in MW-4 during the January and February samplings at concentrations of 26 and 68 ppm, respectively. Benzene was not found in MW-4 during April, or in MW-6, MW-7, or MW-8 during monthly or quarterly sampling. TPHg and benzene concentrations for the quarterly sampling round are shown on Figure 5.

Discussion

Groundwater elevation contour maps generated from measurements obtained during the February and March 1992 sampling rounds are shown as Figures 3 and 4. The apparent groundwater gradient and flow direction underlying the site is approximately 0.0005 to the southwest.

Reporting Requirements

A copy of this report should be forwarded by Texaco to the following agency:

Alameda County Health Care Services Agency
Hazardous Materials Program
80 Swan Way, Room 200
Oakland, California 94621
Attention: Mr. Scott Seery

California Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Room 500
Oakland, California 94612
Attention: Mr. Richard Hiett

Disclaimer

This report has been prepared solely for the use of Texaco and any reliance on this report by third parties shall be at such party's sole risk.

Limitations

The discussion presented in this report are based on the following:

1. Observations by field personnel.
2. The results of laboratory analyses performed by a state-certified laboratory.
3. Our understanding of the regulations of the State of California and Alameda County.

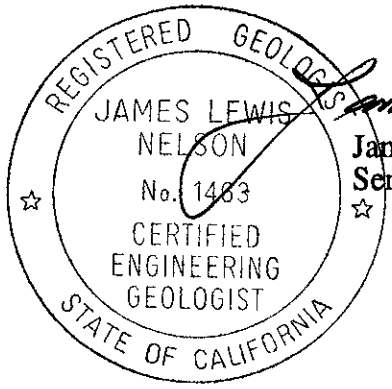
It is possible that variations in the soil or groundwater conditions could exist beyond the points explored in this investigation. Also, changes in the groundwater conditions could occur at some time in the future due to variations in rainfall, temperature, regional water usage, or other factors.

The service performed by RESNA has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the Castro Valley area. Please note that contamination of soil and groundwater must be reported to the appropriate agencies in a timely manner. No other warranty, expressed or implied, is made.

RESNA includes in this report chemical analytical data from a state-certified laboratory. The analytical results are performed according to procedures suggested by the U.S. EPA and State of California. RESNA is not responsible for laboratory errors in procedure or result reporting.

Sincerely,
RESNA Industries Inc.

Nissa L. Nack
Staff Geologist



James L. Nelson C.E.G. 1463
Senior Program Geologist

NLN/JLN/sw
Enclosures

TABLE 1

SUMMARY OF GROUNDWATER SAMPLING DATA

Well Number	Sampling Date	Top of Casing Elevation (ft.)	Depth to Water (ft.)	Groundwater Elevation (ft.)	Change in Groundwater Elevation	Well Depth (ft.)	Purge Volume (gal.)	Temp. (°C)	Cond. (µmhos/cm)	pH	Observations
TX	11/19/87	—	Dry	—	—	20.90	—	—	—	—	Well installed to 25 feet
	12/20/87		Dry			—					
	12/30/87		Dry			—					
	06/07/88		Dry			21.51					
	12/13/88		Dry			—					
	08/29/89										Destroyed prior to construction of new building.
MW-1	12/30/87	192.46		170.54							
	06/07/88			169.11							
	12/13/88			169.29							
	08/29/89			168.76							
	02/27/90			169.21							
	04/21/90			168.81							
	06/11/90			168.72							
	07/18/90			168.56							
	08/22/90			168.39							
	09/27/90			168.25							
	10/10/90			168.21							
	11/15/90			168.01							
	12/11/90			168.92							
	01/09/91			167.78							
	01/23/91			167.85							
	02/22/91			167.88							
	03/20/91			168.51							
	04/11/91			169.05							
	05/14/91			168.94							
	06/10/91			168.85							
	07/16/91		23.89	168.57							
	08/09/91		23.96	168.50							

TABLE 1

SUMMARY OF GROUNDWATER SAMPLING DATA

Well Number	Sampling Date	Top of Casing Elevation (ft.)	Depth to Water (ft.)	Groundwater Elevation (ft.)	Change in Groundwater Elevation	Well Depth (ft.)	Purge Volume (gal.)	Temp. (°C)	Cond. (µmhos/cm)	pH	Observations
MW-1	09/11/91		24.16	168.30							
(Con't)	12/11/91		24.68	167.78	—	39.30	38	15/15/14	1760/1750/1740	6.85/6.80/6.67	Cloudy
resurvey	02/28/92	192.45	23.72	168.73	0.95	—	—	—	—	—	—
	03/30/92		23.25	169.20	0.47	39.24	42	21/20/21	2740/2690/2680	6.98/6.96/6.98	Cloudy
MW-2	12/20/87	—	22.30		—	—	—	—	—	—	—
	06/07/88		23.83								
	12/13/88		23.69								
	08/29/89										Destroyed prior to construction of new new building
MW-3	12/30/87	190.48	—	167.88	—	—	—	—	—	—	
	06/07/88			169.58							
	12/13/88			169.56							
	08/29/89			169.00							
	02/27/90			168.90							
	04/12/90			168.78							
	06/11/90			168.69							
	07/18/90			168.52							
	08/22/90			168.38							
	09/27/90			168.24							
	10/10/90			168.20							
	11/15/90			167.98							
	12/11/90			165.94							
	01/09/91			167.77							
	01/23/91			167.83							
	02/22/91			167.80							
	03/20/91			168.52							
	04/11/91			169.34							
	05/14/91			168.94							
	06/10/91			168.84							

TABLE 1

SUMMARY OF GROUNDWATER SAMPLING DATA

Well Number	Sampling Date	Top of Casing Elevation (ft.)	Depth to Water (ft.)	Groundwater Elevation (ft.)	Change in Groundwater Elevation	Well Depth (ft.)	Purge Volume (gal.)	Temp. (°C)	Cond. (µmhos/cm)	pH	Observations
MW-3	07/16/91		21.93	168.55							
(Con't)	08/09/91		21.99	168.49							
	09/11/91		22.22	168.26							
	12/11/91		22.67	167.81	—	34.41	31	15/16/15	1630/1820/1790	6.74/6.81/6.54	Cloudy
resurvey	02/28/92	190.50	21.76	168.74	0.93	—	—	—	—	—	—
	03/30/92		21.32	169.18	0.44	34.45	34	21/21/21	2860/2810/2790	7.06/6.93/6.87	Cloudy
MW-4	04/12/90	191.63	—	168.79	—	—	—	—	—	—	
	06/11/90			169.81							
	07/18/90			168.54							
	08/22/90			168.39							
	09/27/90			168.25							
	10/10/90			167.20							
	11/15/90			167.99							
	12/11/90			167.94							
	01/09/91			167.79							
	01/23/91			167.84							
	02/22/91			167.86							
	03/20/91			168.52							
	04/11/91			169.03							
	05/14/91			168.95							
	06/10/91			168.84							
	07/16/91		23.06	168.57							
	08/09/91		23.14	168.49							
	09/11/91		23.36	168.27							
	10/11/91		23.75	167.88	—	42.20	40	22/22/22	1320/320/1360	6.59/6.64/6.55	Clear to cloudy
	11/12/91		23.87	167.76	-0.12	42.50	36	5/5/5	2250/2280/2260	6.75/6.65/6.63	Clear to cloudy
	12/11/91		23.80	167.83	0.07	42.20	50	15/15/14	1820/1850/1770	6.84/6.75/6.55	Cloudy
resurvey	01/28/92	191.64	23.79	167.85	0.02	42.25	48	20/20/19	2630/2590/2760	6.69/6.69/6.58	Cloudy
	02/28/92		22.90	168.74	0.89	41.22	48	20/20/19	2680/2740/2710	6.63/6.65/6.68	Cloudy/clear
	03/30/92		22.46	169.18	0.44	42.15	52	22/21/21	3310/3230/3190	7.11/7.08/7.06	Cloudy Clear

TABLE 1

SUMMARY OF GROUNDWATER SAMPLING DATA

Well Number	Sampling Date	Top of Casing Elevation (ft.)	Depth to Water (ft.)	Groundwater Elevation (ft.)	Change in Groundwater Elevation	Well Depth (ft.)	Purge Volume (gal.)	Temp. (°C)	Cond. (µmhos/cm)	pH	Observations
MW-5	04/12/90	191.55		168.81							
	06/11/90			168.72							
	07/18/90			168.54							
	08/22/90			168.40							
	09/27/90			168.26							
	10/10/90			169.22							
	11/15/90			168.01							
	12/11/90			167.96							
	01/09/91			167.80							
	01/23/91			167.86							
	02/22/91			167.89							
	03/20/91			168.54							
	04/11/91			169.05							
	05/14/91			168.98							
	06/10/91			168.87							
	07/16/91		22.95	168.60							
	08/09/91		23.01	168.54							
	09/11/91		23.26	168.29							
	12/11/91		23.70	167.85	—	41.05	44	14/15/14	1770/1750/1710	6.76/6.70/6.46	Cloudy to clear
resurvey	02/28/92	191.56	22.80	168.76	0.91	—	—	—	—	—	—
	03/30/92		22.35	169.21	0.45	40.87	50	21/20/20	2640/2610//2540	6.81/6.86/6.93	Cloudy
MW-6	01/28/92	187.30	19.55	167.75	—	37.30	48	18/18/18	3150/3220/3180	6.94/6.83/6.80	Cloudy
	02/28/92		18.62	168.68	0.93	37.30	50	19/19/19	3180/3210/3230	6.81/6.84/6.83	Cloudy to clear
	03/30/92		18.20	169.10	0.42	37.41	50	22/22/21	2970/3020/3110	7.12/6.98/6.94	Cloudy to clear
MW-7	01/28/92	189.34	21.53	167.81	—	37.40	44	18/18/18	2930/2890/2860	6.80/6.81/6.91	Cloudy
	02/28/92		20.61	168.73	0.92	37.34	44	18/18/18	2950/2910/2890	6.73/6.81/6.86	Cloudy
	03/30/92		20.17	169.17	0.44	37.32	44	21/20/20	2980/2890/2850	6.94/6.87/6.84	Cloudy

TABLE 1

SUMMARY OF GROUNDWATER SAMPLING DATA

Well Number	Sampling Date	Top of Casing Elevation (ft.)	Depth to Water (ft.)	Groundwater Elevation (ft.)	Change in Groundwater Elevation	Well Depth (ft.)	Purge Volume (gal.)	Temp. (°C)	Cond. (µmhos/cm)	pH	Observations
MW-8	01/28/92	193.62	25.77	167.85	---	39.77	40	20/20/19	2630/2590/2760	6.69/6.69/6.58	Cloudy
	02/28/92		24.89	168.73	0.88	38.96	40	21/20/21	3010/3090/3110	6.65/6.63/6.67	Cloudy
	03/30/92		24.42	169.20	0.47	39.10	40	23/22/22	3010/3060/3030	6.86/6.92/6.95	Cloudy

ft. Feet
gal. Gallons
Temp. Temperature
°C Degrees Celcius
Cond. Conductivity
µmhos/cm Micromhos per centimeter

NOTE: Information obtained prior to October 1991 provided by Groundwater Technology, Inc.

TABLE 2

SUMMARY OF GROUNDWATER ANALYSES DATA

Well Number	Date Sampled	Benzene (ppb)	Toluene (ppb)	Ethyl Benzene (ppb)	Total Xylenes (ppb)	TPHg (ppb)
TX	12/30/87	---	---	---	---	---
	06/07/88	---	---	---	---	---
	12/13/88	---	---	---	---	---
	08/29/89	Well Abandoned				
MW-1	12/30/87	15	12	3	190	2,100
	06/07/88	12	<PQL	<PQL	17	290
	12/13/88	3	<PQL	<PQL	<PQL	370
	08/29/89	6	<PQL	<PQL	<PQL	160
	03/07/90	<PQL	<PQL	<PQL	<PQL	<PQL
	04/16/90	---	---	---	---	---
	06/11/90	14	1	1	2	39
	08/22/90	0.3	<MDL	<MDL	<MDL	130
	09/12/90	7	<MDL	2	3	92
	10/10/90	2	<MDL	0.6	1	40
	11/15/90	0.8	<MDL	<MDL	<MDL	18
	12/11/90	<MDL	<MDL	<MDL	<MDL	<MDL
	01/09/91	0.7	<MDL	<MDL	<MDL	33
	02/22/91	<MDL	<MDL	<MDL	<MDL	<MDL
	05/14/91	1	<0.3	0.4	0.8	17
	09/11/91	<0.3	<0.3	<0.3	<0.6	<10
	10/11/91	---	---	---	---	---
	11/12/91	---	---	---	---	---
	12/11/91	<0.5	<0.5	<0.5	<0.5	<0.5
	01/28/92	---	---	---	---	---
	02/28/92	---	---	---	---	---
	03/31/92	<0.5	<0.5	<0.5	1.3	280
MW-2	12/30/87	220	16	3	150	2,400
	06/07/88	220	<PQL	32	46	1,200
	12/13/88	640	23	120	110	4,000
	08/29/89	Well Abandoned				
MW-3	12/30/87	<MDL	<MDL	<MDL	<MDL	<MDL
	06/07/88	<PQL	<PQL	<PQL	<PQL	<PQL
	12/13/88	<PQL	<PQL	<PQL	<PQL	<PQL
	08/29/89	<PQL	<PQL	<PQL	<PQL	<PQL
	03/07/90	<PQL	<PQL	<PQL	<PQL	<PQL
	04/16/90	---	---	---	---	---
	06/11/90	<MDL	<MDL	<MDL	<MDL	<MDL
	08/22/90	<MDL	<MDL	<MDL	<MDL	<MDL
	09/12/90	<MDL	<MDL	<MDL	<MDL	<MDL

TABLE 2 — continued

SUMMARY OF GROUNDWATER ANALYSES DATA

Well Number	Date Sampled	Benzene (ppb)	Toluene (ppb)	Ethyl Benzene (ppb)	Total Xylenes (ppb)	TPHg (ppb)
MW-3	10/10/90	<MDL	<MDL	<MDL	<MDL	<MDL
(Con't)	11/15/90	<MDL	<MDL	<MDL	<MDL	<MDL
	12/11/90	<MDL	<MDL	<MDL	<MDL	<MDL
	01/09/91	<MDL	<MDL	<MDL	<MDL	<MDL
	02/22/91	<MDL	<MDL	<MDL	<MDL	<MDL
	05/14/91	<0.3	<0.3	<0.3	<0.6	<10
	09/11/91	<0.3	<0.3	<0.3	<0.6	<10
	10/11/91	---	---	---	---	---
	11/12/91	---	---	---	---	---
	12/11/91	<0.5	<0.5	<0.5	<0.5	<50
	01/28/92	---	---	---	---	---
	02/28/92	---	---	---	---	---
	03/31/92	<0.5	<0.5	<0.5	1.0	<50
MW-4	04/16/90	97	1	11	120	1,500
	06/11/90	18	<MDL	<MDL	0.7	110
	08/22/90	4	<MDL	<MDL	1	50
	09/12/90	6	<MDL	0.5	1	49
	10/10/90	4	<MDL	<MDL	<MDL	77
	11/15/90	2	<MDL	0.4	<MDL	49
	12/11/90	6	<MDL	1	<MDL	79
	01/09/91	6	<MDL	3	<MDL	120
	02/22/91	1	<MDL	<MDL	<MDL	120
	05/14/91	29	<0.3	9	1	370
	09/11/91	0.8	<0.3	1	<0.6	22
	10/11/91	1.0	<0.5	1.5	<0.5	<50
	11/12/91	1.6	<0.5	1.3	<0.5	<50
	12/11/91	0.8	<0.5	0.9	<0.5	<50
	01/28/92	26	0.8	28	210	1,200
	02/28/92	68	3.3	68	240	9,400
	03/31/92	<0.5	<0.5	3.2	1.1	360
MW-5	04/16/91	<MDL	<MDL	<MDL	<MDL	<MDL
	06/11/90	<MDL	<MDL	<MDL	<MDL	<MDL
	08/22/90	<MDL	<MDL	<MDL	<MDL	<MDL
	09/12/90	<MDL	<MDL	<MDL	<MDL	<MDL
	10/10/90	<MDL	<MDL	<MDL	<MDL	<MDL
	11/15/90	<MDL	<MDL	<MDL	<MDL	<MDL
	12/11/90	<MDL	<MDL	<MDL	<MDL	<MDL
	01/09/91	<MDL	<MDL	<MDL	<MDL	<MDL
	02/22/91	<MDL	<MDL	<MDL	<MDL	<MDL

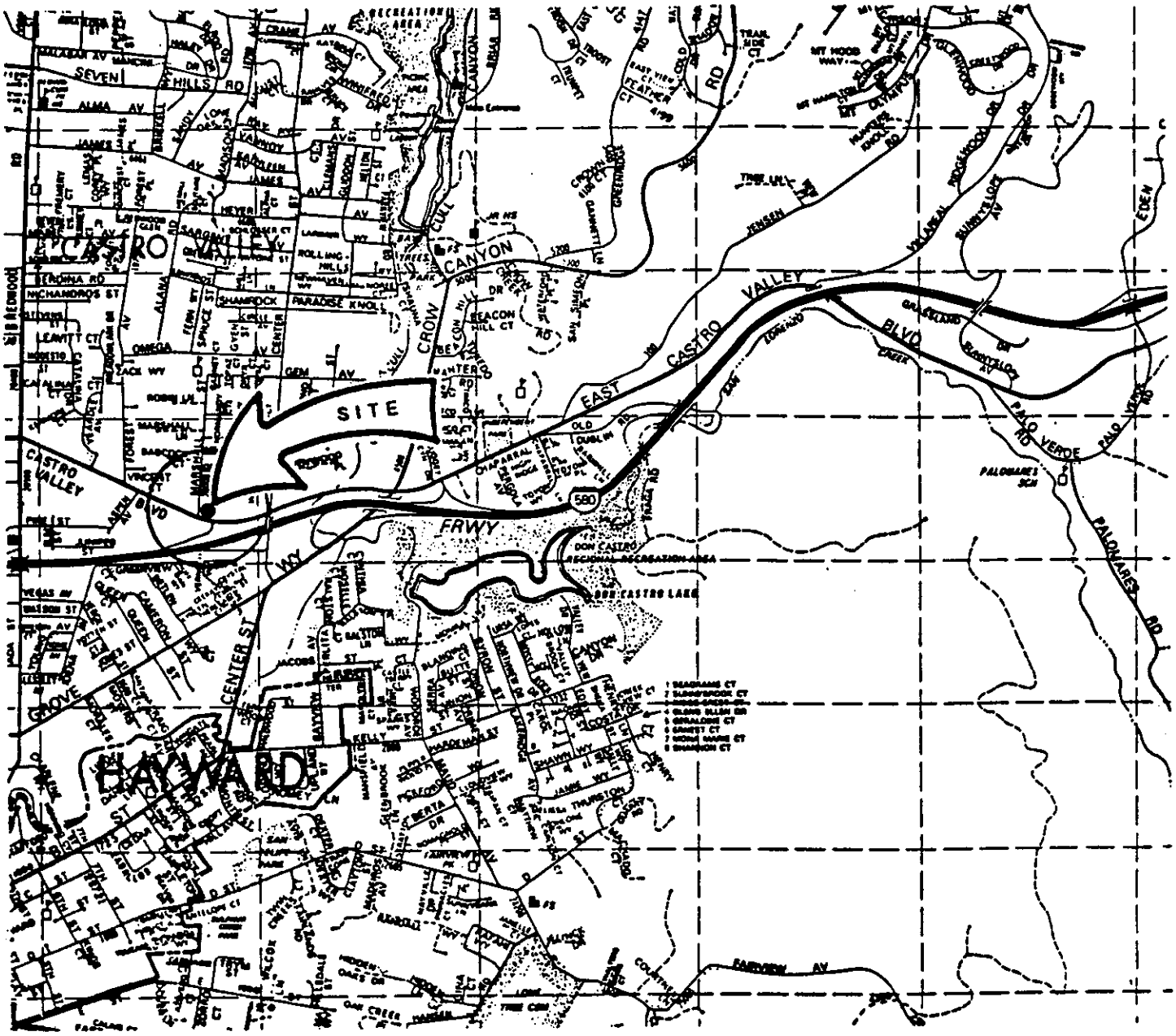
TABLE 2 — continued

SUMMARY OF GROUNDWATER ANALYSES DATA

Well Number	Date Sampled	Benzene (ppb)	Toluene (ppb)	Ethyl Benzene (ppb)	Total Xylenes (ppb)	TPHg (ppb)
MW-5	05/14/91	<0.3	<0.3	<0.3	<0.6	<10
(Con't)	09/11/91	<0.3	<0.3	<0.3	<0.6	<10
	10/11/91	---	---	---	---	---
	11/12/91	---	---	---	---	---
	12/11/91	<0.5	<0.5	<0.5	<0.5	<50
	01/28/92	---	---	---	---	---
	02/28/92	---	---	---	---	---
	03/31/92	<0.5	<0.5	<0.5	1.2	<50
MW-6	01/28/92	<0.5	<0.5	<0.5	<0.5	<50
	02/28/92	<0.5	1.3	<0.5	5.1	280
	03/31/92	<0.5	<0.5	<0.5	<0.5	<50
MW-7	01/28/92	<0.5	<0.5	<0.5	<0.5	<50
	02/28/92	<0.5	0.6	<0.5	1.8	<50
	03/31/92	<0.5	<0.5	<0.5	<0.5	<50
MW-8	01/28/92	<0.5	<0.5	<0.5	<0.5	<50
	02/28/92	<0.5	<0.5	<0.5	0.9	69
	03/31/92	<0.5	<0.5	<0.5	4.3	62

MDL Method detection limit
PQL Practical quantitation level
TPHg Total petroleum hydrocarbons as gasoline
<0.5 Not detected at or above the indicated method detection limit
ppb Parts per billion
--- Not analyzed

NOTE: Data obtained prior to October 1991 provided by Groundwater Technology, Inc.



BASE MAP: THOMAS BROS. GUIDE, ALAMEDA COUNTY, CA. 1991

LEGEND

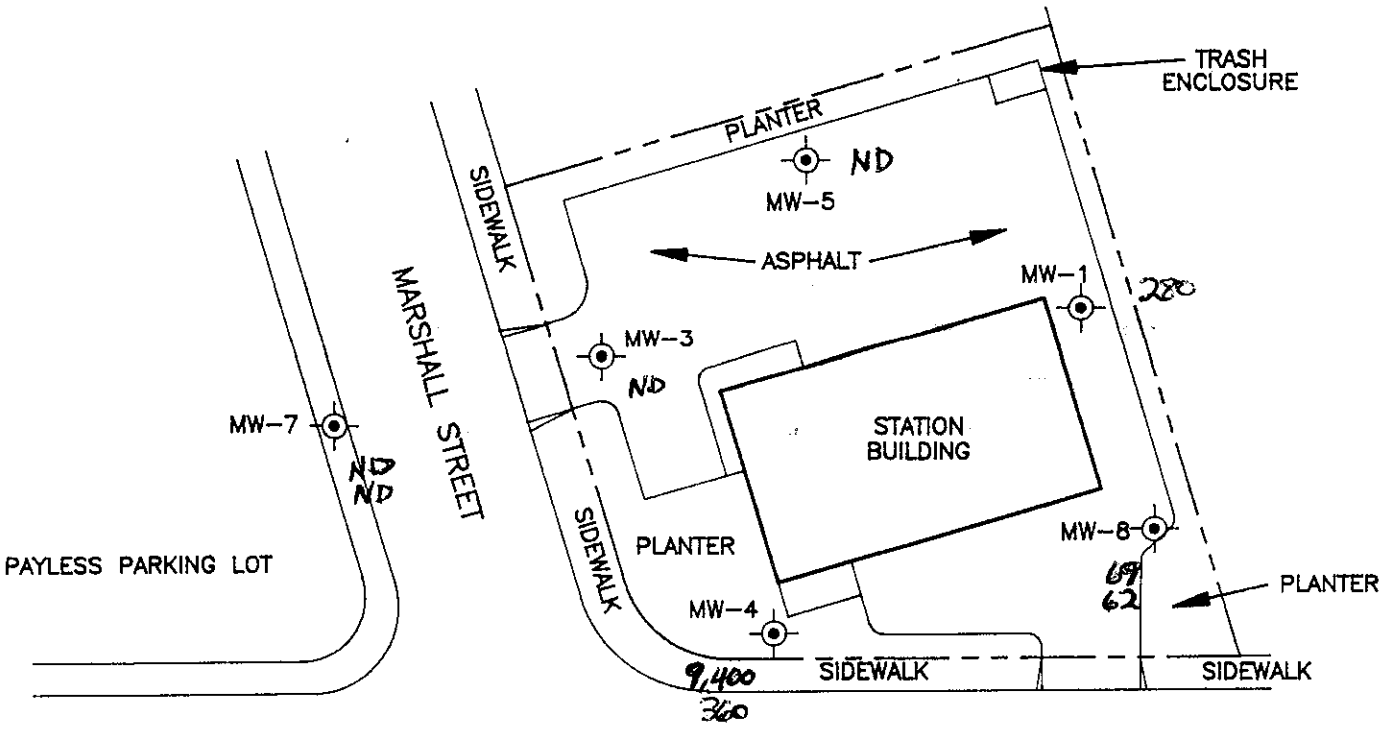
SITE LOCATION

N

0 1100 2200

SCALE IN FEET

REVIEWED BY: KLN	**SITE LOCATION MAP**	RESNA	
	FORMER TEXACO SERVICE STATION		
APPROVED BY:	3940 CASTRO VALLEY BLVD.	JOB #: 3-30091-32	DRAWN BY: J.D.S.
	CASTRO VALLEY, CALIFORNIA	DATE: 2/28/92	DRAWING #: FIG. 1



CASTRO VALLEY BOULEVARD

MW-6 280 ND

2/28/92 Sampling

TPH-G / TPH-G ppb

N

LEGEND

MW-8 GROUNDWATER MONITORING WELL

SITE BOUNDARY

BUILDING

0 20 40

SCALE IN FEET

BASE MAP: SURVEYED BY RON ARCHER CIVIL ENGINEER, INC.

REVIEWED BY: NLK

APPROVED BY:

SITE PLAN

FORMER TEXACO SERVICE STATION

3940 CASTRO VALLEY BOULEVARD

CASTRO VALLEY, CALIFORNIA

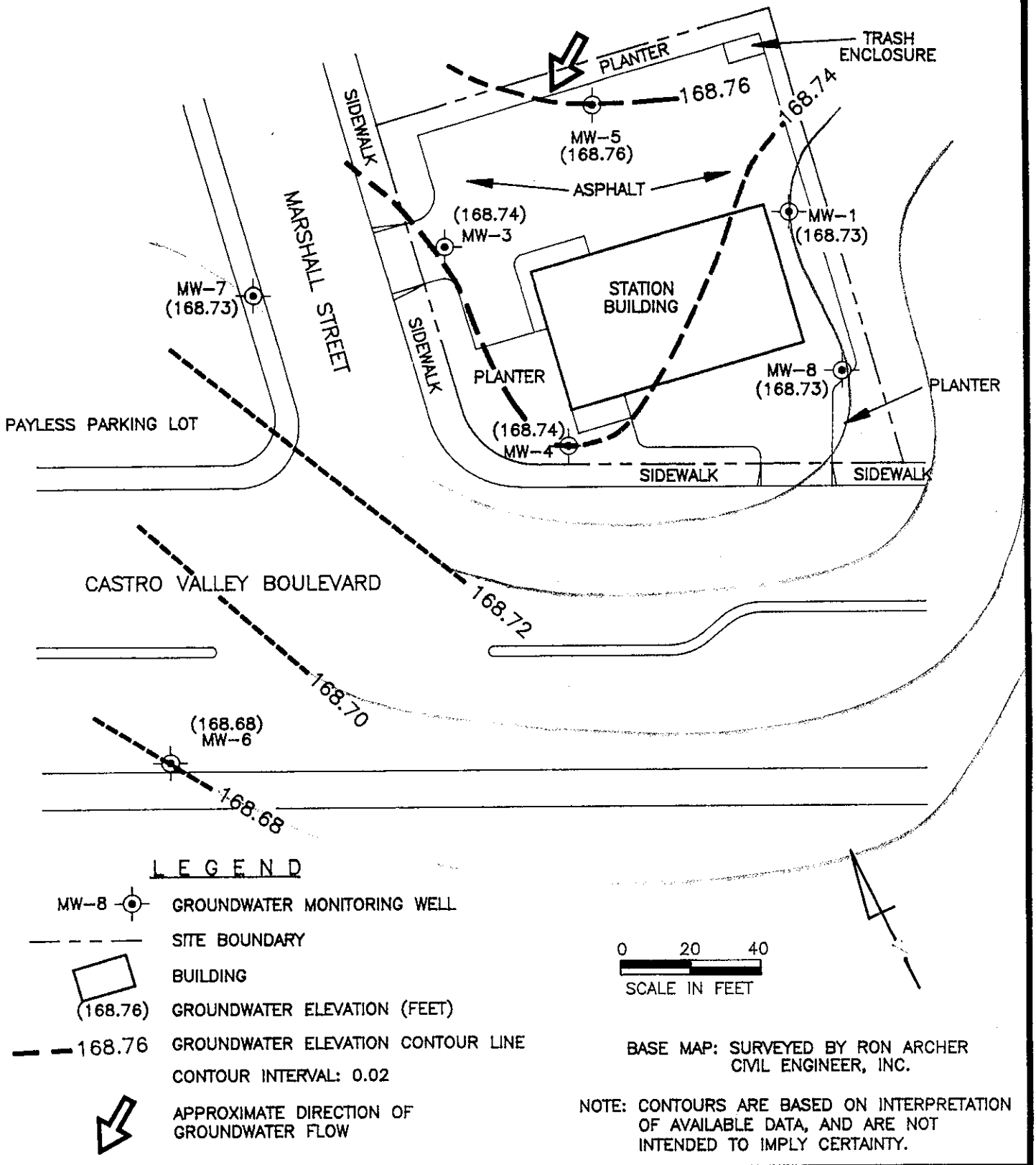
RESNA

JOB #: 3-30091-32

DRAWN BY: E.C.

DATE: 7/7/92

DRAWING #: FIG. 2



LEGEND

- MW-8 ⊙ GROUNDWATER MONITORING WELL
- SITE BOUNDARY
- BUILDING
- (168.76) GROUNDWATER ELEVATION (FEET)
- 168.76 GROUNDWATER ELEVATION CONTOUR LINE
- CONTOUR INTERVAL: 0.02
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW

0 20 40
SCALE IN FEET

BASE MAP: SURVEYED BY RON ARCHER CIVIL ENGINEER, INC.

NOTE: CONTOURS ARE BASED ON INTERPRETATION OF AVAILABLE DATA, AND ARE NOT INTENDED TO IMPLY CERTAINTY.

REVIEWED BY:

APPROVED BY:

GROUNDWATER ELEVATION MAP (2/28/92)

FORMER TEXACO SERVICE STATION

3940 CASTRO VALLEY BOULEVARD

CASTRO VALLEY, CALIFORNIA

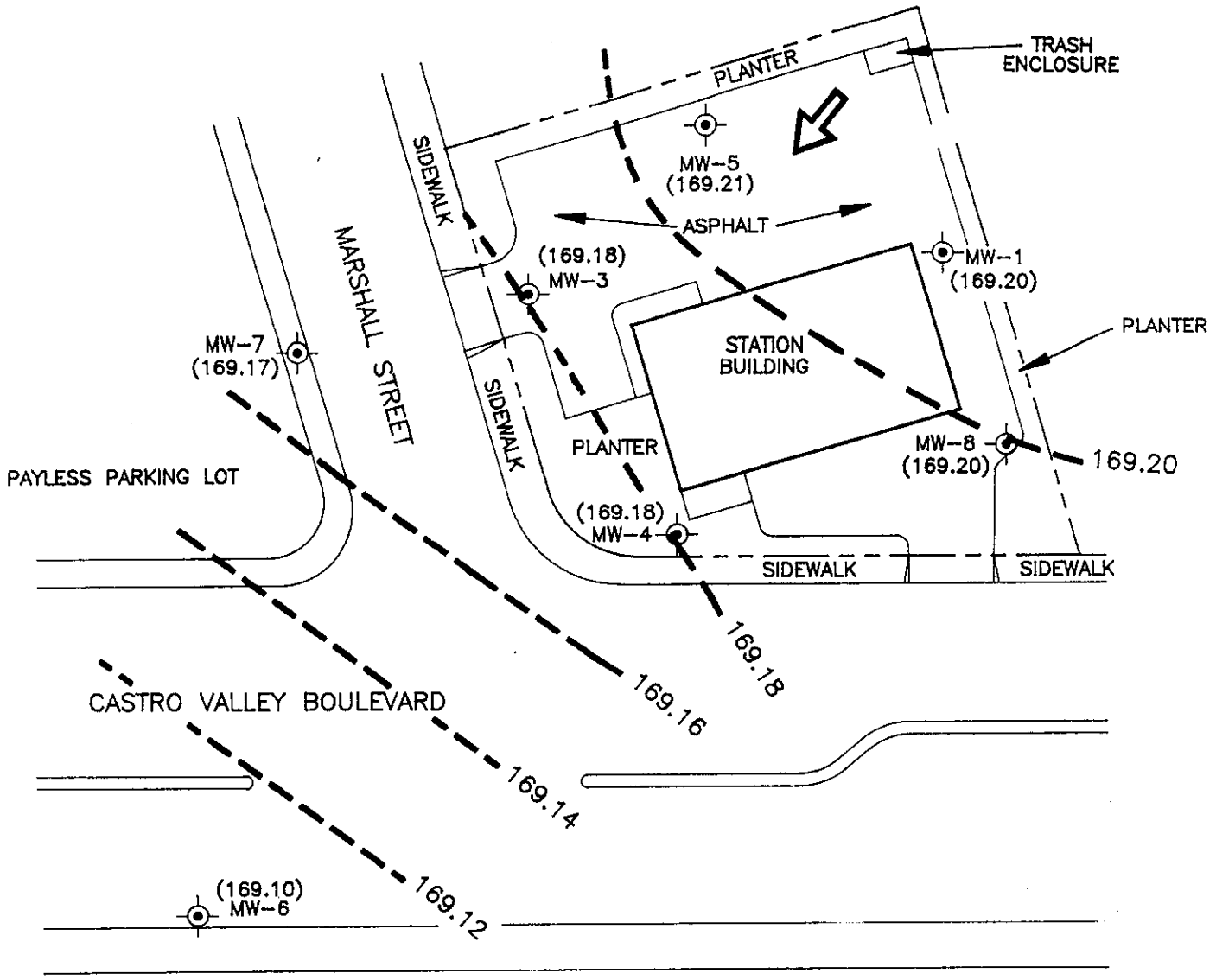
RESNA

JOB #: 3-30091-32

DRAWN BY: E.C.

DATE: 7/7/92

DRAWING #: FIG. 3



LEGEND

MW-8 — GROUNDWATER MONITORING WELL

SITE BOUNDARY

BUILDING

(169.21) GROUNDWATER ELEVATION (FEET)

169.20 GROUNDWATER ELEVATION CONTOUR LINE

CONTOUR INTERVAL: 0.02

APPROXIMATE DIRECTION OF GROUNDWATER FLOW

0 20 40

SCALE IN FEET

N

BASE MAP: SURVEYED BY RON ARCHER CIVIL ENGINEER, INC.

NOTE: CONTOURS ARE BASED ON INTERPRETATION OF AVAILABLE DATA, AND ARE NOT INTENDED TO IMPLY CERTAINTY.

REVIEWED BY:

APPROVED BY:

GROUNDWATER ELEVATION MAP (3/30/92)

FORMER TEXACO SERVICE STATION

3940 CASTRO VALLEY BOULEVARD

CASTRO VALLEY, CALIFORNIA

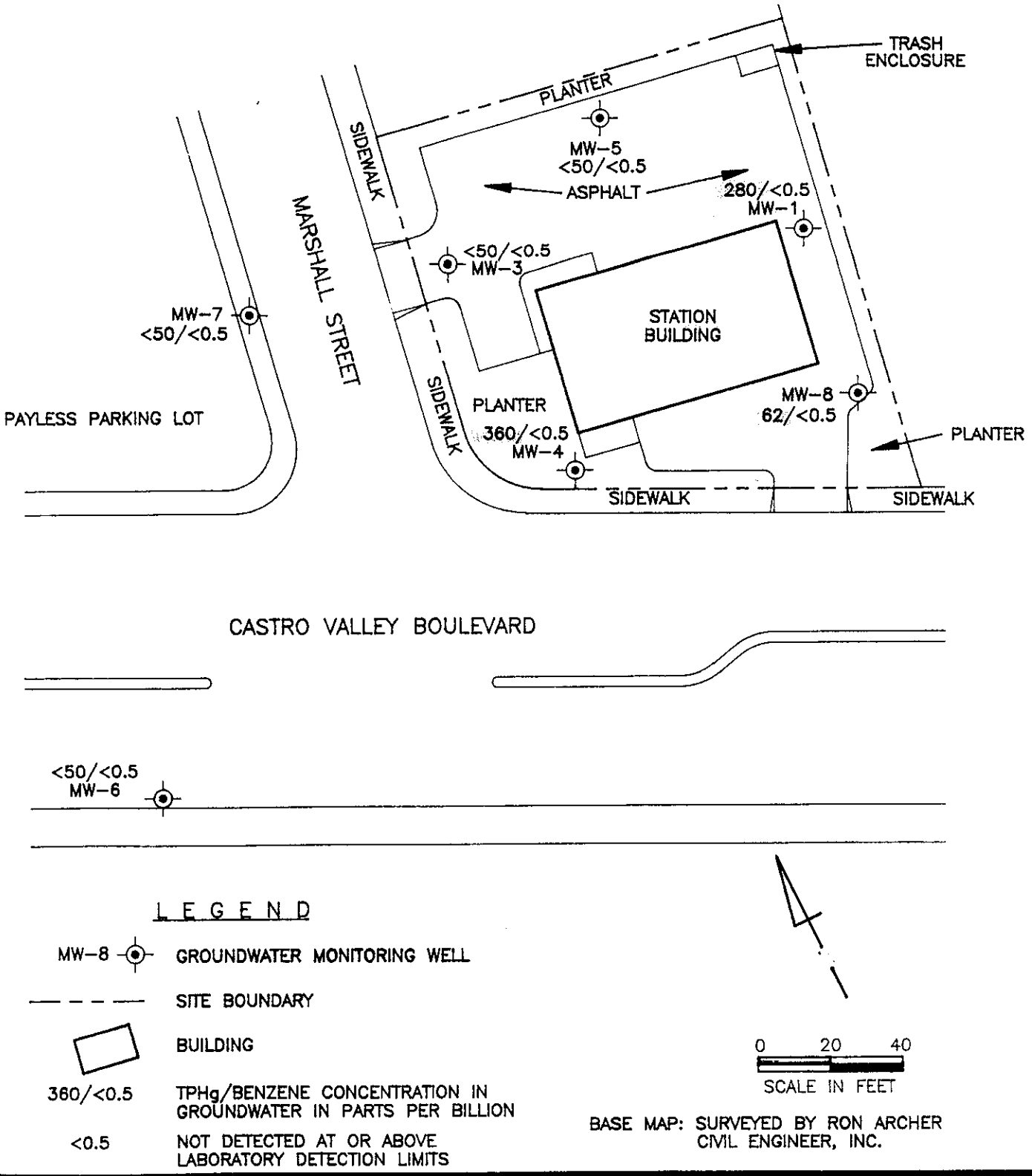
RESNA

JOB #: 3-30091-32

DATE: 7/7/92

DRAWN BY: E.C.

DRAWING #: FIG. 4



REVIEWED BY:

APPROVED BY:

TPHg/BENZENE CONCENTRATIONS IN GROUNDWATER (3/30-31/92)

FORMER TEXACO SERVICE STATION

3940 CASTRO VALLEY BOULEVARD

CASTRO VALLEY, CALIFORNIA

RESNA

JOB #: 3-30091-32

DATE: 7/7/92

DRAWN BY: E.C.

DRAWING #: FIG. 5

APPENDIX A

GROUNDWATER SAMPLING PROTOCOL

RESNA

Groundwater Sampling Protocol

GROUNDWATER SAMPLING PROTOCOL

Sampling of groundwater is performed by RESNA Industries, Inc. sampling technicians. Monitoring well sampling procedures are summarized as follows:

1. Wells are sampled in approximate order of increasing contamination.
2. Proceed to first well with clean and decontaminated equipment.
3. Measurements depths to liquid surface(s) in the well, and total depth of monitoring well. Note presence of sediment.
4. Field check for presence of floating product; measure apparent thickness.
5. Calculate minimum purge volume (well volumes) then purge well.
6. Monitor groundwater for temperature, pH, and specific conductance during purging. Following stabilization of parameters and removal of minimum volume, allow well to recover adequately.
7. Collect samples using Environmental Protection Agency (EPA) approved sample collection devices, i.e., teflon or stainless steel bailers or pumps.
8. Transfer samples into laboratory-supplied EPA-approved containers.
9. Label samples and log onto chain-of-custody form.
10. Store samples in a chilled ice chest for shipment to a state-certified analytical laboratory.
11. Secure wellhead.
12. Decontaminate equipment prior to sampling next well.

Equipment Cleaning and Decontamination

All water samples are placed in precleaned laboratory-supplied bottles. Sample bottles and caps remain sealed until actual usage at the site. All equipment which comes in contact with the interior of the well or groundwater is thoroughly cleaned with either a steam cleaner, a trisodium phosphate (TSP) solution or an Alconox™ solution and rinsed with deionized or distilled water before use at the site. This cleaning procedure is followed between each well sampled. If a teflon cord is used, the cord is cleaned. If a nylon or cotton cord is used, a new cord is used in each well.

All equipment blanks are collected prior to sampling. The blanks are analyzed periodically to ensure proper cleaning procedures are used.

Water Level Measurements

Depth to groundwater is measured in each well using a sealed sampling tape or scaled electric sounder prior to purging or sampling. If the well is known or suspected of containing free-phase petroleum hydrocarbons, either an optical interface probe or a bailer is used to measure the hydrocarbon thickness. Measurements are collected and recorded to the nearest 0.01 foot. Each monitoring well's total depth will be measured; this will allow a relative judgement of well sedimentation and need for redevelopment to be made.

Bailer Sheen Check

If no measurable free-phase petroleum hydrocarbons are detected, a clear acrylic bailer is used to determine the presence of a sheen. The color of the water and any film or obvious odor are recorded.

Groundwater Sampling

Prior to groundwater sampling, each well is purged of "standing" groundwater. Either a bailer, hand pump, or submersible pump is used to purge the well. The amount of purging is dependent on the well hydraulics. Samples will be collected when temperature, pH, and specific conductance stabilize and a minimum of three well-casing volumes of water have been removed. Field measurements will be taken after purging each well volume. Physical parameter measurements (temperature, pH, and specific conductance) are closely monitored throughout the well purging process and are used as

indicators for assessing sufficient purging. The purging parameters are measured to observe stabilization to a range of values typical for that aquifer and well. Stable field parameters are recognized as indicative of groundwater aquifer chemistry entering the well. Specific conductance (conductivity) meters are read to the nearest ±10 umhos/cm and are calibrated daily. pH meters are read to the nearest ±0.1 pH units and are calibrated daily. Temperature is read to the nearest 0.1 °F. Calibration of physical parameter meters will follow manufacturer's specifications. Collected field data during purging activities will be entered on the Well Sampling Field Data Sheet.

Following purging, the well is allowed to recharge prior to sampling. When recovery to 80% of the static water level is estimated or observed to exceed two hours, a sample will be collected when sufficient volume is available to fill all sample containers. The well will be purged slowly enough to minimize the volatilization of organic contaminants during well recharge.

In wells where free-phase hydrocarbons are detected, the free-phase portion will be bailed from the well and its volume recorded. If free-phase hydrocarbons persist through bailing, a groundwater sample will not be collected.

Volatile organic groundwater samples are collected so that air passage through the sample does not occur or is minimal (to prevent volatiles from being stripped from the samples). Sample bottles are filled by slowly running the sample down the side of the bottle until there is a positive convex meniscus over the mouth of the bottle. The teflon side of the septum (in cap) is then positioned against the meniscus, the cap is screwed on tightly, the sample is inverted, and the bottle is lightly tapped. If a bubble is evident, the cap is removed, more sample is added, and the bottle is resealed.

Chain-of-Custody

Groundwater sample containers are labeled with a unique sample number, location, and date of collection. All samples are logged into a chain-of-custody form and placed in a secure, chilled ice chest for shipment to a laboratory certified by the State of California.

Sample Storage

Groundwater samples collected in the field are stored in an ice chest cooled to approximately 4 °C while in transit to the office or analytical laboratory. Samples are stored in a refrigerator overnight and during weekends and holidays. The refrigerator is set to 4 °C and is locked with access controlled by a designated sample custodian.

Quality Assurance/Quality Control Objectives

The sampling and analysis procedures employed by RESNA for groundwater sampling and monitoring follow regulatory guidance for quality assurance/quality control (QA/QC). Quality assurance objectives have been established to develop and implement procedures for obtaining and evaluating water quality and field data in an accurate, precise, and complete manner. In this way, sampling procedures and field measurements provide information that is comparable and representative of actual field conditions. Quality control (QC) is maintained by site-specific field protocols and by requiring the analytical laboratory to perform internal and external QC checks. The goal is to provide data that are accurate, precise, complete, comparable, and representative. The definitions as developed by overseeing federal, state, and local agency guidance documents for accuracy, precision, completeness, comparability, and representativeness are:

- **Accuracy** — the degree of agreement of a measurement with an accepted reference or true value.
- **Precision** — a measure of agreement among individual measurements under similar conditions. Usually expressed in terms of the standard deviation.
- **Completeness** — the amount of valid data obtained from a measurement system compared to the amount that was expected to meet the project data goals.
- **Comparability** — express the confidence with which one data set can be compared to another.
- **Representativeness** — a sample or group of samples that reflect the characteristics of the media at the sampling point.

Laboratory and field handling procedures of samples may be monitored by including QC samples for analysis. QC samples may include any combination of the following:

- **Trip Blanks:** Trip blanks are sent to the project site, and travel with project site samples. Trip blanks are **not** opened, and are returned from a project site with the project site samples for analysis.

- **Field Blank:** Prepared in the field using organic-free water. Field blanks accompany project site samples to the laboratory and are analyzed for specific chemical parameters unique to the project site where they were prepared.

- **Duplicates:** Duplicated samples are collected "second samples" from a selected well and project site. They are collected as either split samples or second-run samples collected from the same well.

- **Equipment Blank:** Periodic QC samples collected from field equipment rinseate to verify decontamination procedures.

The number and types of QC samples are determined and analyzed on a project-specific basis.

Shallow Groundwater Survey

A shallow groundwater survey employs reconnaissance field sampling and chemical analysis for rapid plume mapping. A state-certified mobile laboratory may be used. The subcontractor would sample for analysis at locations marked by the RESNA field geologist. The thin-diameter probes from which groundwater is collected are advanced to the water bearing stratum and a groundwater sample is withdrawn to the surface, and analyzed immediately thereafter. Probe holes are backfilled with a grout slurry or as the local permitting agency requires. The contractor will report the details and results sampling, purging, and chemical analysis to RESNA. RESNA considers this type of shallow probe mapping (together with shallow groundwater sampling) to be a reconnaissance technique only.

APPENDIX B

LABORATORY REPORTS AND CHAIN-OF-CUSTODY RECORD

Environmental Laboratories

RESNA
Working to Restore Nature

42501 Albrae Street
Fremont, CA 94538
Phone: (510) 623-0775
(800) 247-5223
FAX: (510) 651-8754

ANALYSIS REPORT

1020lab.frm

Attention:	Ms. Nissa Nack	Date Sampled:	03-30/31-92
	RESNA	Date Received:	04-01-92
	42501 Albrae Street	BTEX Analyzed:	04-08-92
	Fremont, CA 94538	TPHg Analyzed:	04-08-92
Project:	AGS 19513-L,Project #3-30091-32	TPHd Analyzed:	NR
	Frmr Texaco, Castro Valley	Matrix:	Water

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppb	ppb	ppb	ppb	ppb	ppb
Detection Limit:	0.5	0.5	0.5	0.5	50	100
SAMPLE Laboratory Identification						
BB1 W1204024	ND	ND	ND	ND	ND	NR
MW-6 W1204025	ND	ND	ND	ND	ND	NR
MW-7 W1204026	ND	ND	ND	ND	ND	NR
MW-8 W1204027	ND	ND	ND	4.3	62	NR
MW-1 W1204028	ND	ND	ND	1.3	280	NR

ppb = parts per billion = µg/L = micrograms per liter.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not requested.

ANALYTICAL PROCEDURES

BTEX– Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction using EPA Method 5030 followed by analysis using EPA Method 8020/602, which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID) and a flame-ionization detector (FID) in series.

TPHg–Total petroleum hydrocarbons as gasoline (low-to-medium boiling points) are measured by extraction using EPA Method 5030, followed by analysis using modified EPA Method 8015, which utilizes a GC equipped with an FID.

TPHd–Total petroleum hydrocarbons as diesel (high boiling points) are measured by extraction using EPA Method 3550 for soils and EPA Method 3510 for water, followed by modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Laboratory Representative

April 13, 1992
Date Reported

Environmental Laboratories

RESNA
Working to Restore Nature

42501 Albrae Street
Fremont, CA 94538
Phone: (510) 623-0775
(800) 247-5223
FAX: (510) 651-8754

ANALYSIS REPORT

1020lab.frm

Attention:	Ms. Nissa Nack	Date Sampled:	03-30/31-92
	RESNA	Date Received:	04-01-92
	42501 Albrae Street	BTEX Analyzed:	04-08-92
	Fremont, CA 94538	TPHg Analyzed:	04-08-92
Project:	AGS 19513-L,Project #3-30091-32	TPHd Analyzed:	NR
	Frmr Texaco, Castro Valley	Matrix:	Water

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppb	ppb	ppb	ppb	ppb	ppb
Detection Limit:	0.5	0.5	0.5	0.5	50	100
SAMPLE Laboratory Identification						
MW-5 W1204029	ND	ND	ND	1.2	ND	NR
MW-3 W1204030	ND	ND	ND	1.0	ND	NR
MW-4 W1204031	ND	ND	3.2	1.1	360	NR

ppb = parts per billion = µg/L = micrograms per liter.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not requested.

ANALYTICAL PROCEDURES

BTEX– Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction using EPA Method 5030 followed by analysis using EPA Method 8020/602, which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID) and a flame-ionization detector (FID) in series.

TPHg–Total petroleum hydrocarbons as gasoline (low-to-medium boiling points) are measured by extraction using EPA Method 5030, followed by analysis using modified EPA Method 8015, which utilizes a GC equipped with an FID.

TPHd–Total petroleum hydrocarbons as diesel (high boiling points) are measured by extraction using EPA Method 3550 for soils and EPA Method 3510 for water, followed by modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Laboratory Representative

April 13, 1992
Date Reported

RESNA

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

194872

PROJECT NO. 3-30091-32

PROJECT NAME/SITE: Former Texaco Castro Valley

SAMPLERS (SIGN) / (PRINT) L Sutherland

ANALYSIS REQUESTED

P.O. # Direct Bill To Texaco c/o Karel Detterman

SAMPLE IDENTIFICATION	DATE	TIME	COMP	GRAB	PRES. USED	ICED	NO. CONTAINERS	SAMPLE TYPE	BTEX (602/8020)	TPHg (8015)	TPHd (8015)	TOG 418.1/5520	601/8010	624/8240	625/8270	REMARKS
BB-1	3-30-92	11:30		X	HCL	Y	3	W	X	X						
MW-6	↓	13:00		X	↓	↓	↓	↓	X	X						
MW-7	↓	15:00		X	↓	↓	↓	↓	X	X						
MW-8	3-31-92	8:30		X	↓	↓	↓	↓	X	X						
MW-1	↓	10:00		X	↓	↓	↓	↓	X	X						
MW-5	↓	11:30		X	↓	↓	↓	↓	X	X						
MW-3	↓	13:00		X	↓	↓	↓	↓	X	X						
MW-4	↓	14:30		X	↓	↓	↓	↓	X	X						

RELINQUISHED BY:	DATE: 4/1/92	TIME: 2:35	RECEIVED BY:	LABORATORY: Resna	PLEASE SEND RESULTS TO: Nissa Nack
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:		
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	REQUESTED TURNAROUND TIME:	
RELINQUISHED BY:	DATE: 4/1/92	TIME: 2:35	RECEIVED BY LABORATORY:	RECEIPT CONDITION: good / cold	PROJECT MANAGER:

Environmental Laboratories

RESNA
Working to Restore Nature

42501 Albrae Street
Fremont, CA 94538
Phone: (510) 623-0775
(800) 247-5223
FAX: (510) 651-8754

ANALYSIS REPORT

1020lab.frm

Attention:	Ms. Nissa Nack	Date Sampled:	02-28-92
	RESNA/Exceltech Inc.	Date Received:	03-02-92
	42501 Albrae St.	BTEX Analyzed:	03-02-92
	Fremont, CA 94538	TPHg Analyzed:	03-02-92
Project:	AGS 19521-L,Project #3-30091-32	TPHd Analyzed:	NR
	Texaco	Matrix:	Water

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppb	ppb	ppb	ppb	ppb	ppb
Detection Limit:	0.5	0.5	0.5	0.5	50	100
SAMPLE Laboratory Identification						
BB1 W1203001	ND	ND	ND	ND	ND	NR
MW-6 W1203002	ND	1.3	ND	5.1	280	NR
MW-7 W1203003	ND	0.6	ND	1.8	ND	NR
MW-8 W1203004	ND	ND	ND	0.9	69	NR
MW-4 W1203005	68	5.3	68	240	9400	NR

ppb = parts per billion = µg/L = micrograms per liter.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not requested.

ANALYTICAL PROCEDURES

BTEX– Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction using EPA Method 5030 followed by analysis using EPA Method 8020/602, which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID) and a flame-ionization detector (FID) in series.

TPHg–Total petroleum hydrocarbons as gasoline (low-to-medium boiling points) are measured by extraction using EPA Method 5030, followed by analysis using modified EPA Method 8015, which utilizes a GC equipped with an FID.

TPHd–Total petroleum hydrocarbons as diesel (high boiling points) are measured by extraction using EPA Method 3550 for soils and EPA Method 3510 for water, followed by modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Laboratory Representative

March 6, 1992
Date Reported

RESNA ENVIRONMENTAL LABORATORY IS CERTIFIED BY THE STATE OF CALIFORNIA DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
(Certification No. 1211)

CHAIN OF CUSTODY RECORD

94718

PROJECT NO.	PROJECT NAME
3-30091-32	Texaco Castro Valley

SAMPLERS (Signature): Rick S. Sutherland

P.O. # Direct Bill

LAB: Resnet

TURN AROUND TIME: Normal

NO.	DATE	TIME	SAMPLE DESCRIPTION	TPH G/BTEX							REMARKS
BB-1	2-28-92	10:00	3 Fres Vocs	X							
MW-6		10:30		X							
MW-7		11:30		X							
MW-8		12:30		X							
MW-4		13:30		X							

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
Rick S. Sutherland	3/2/92	9:30	
RELINQUISHED BY:	DATE: 3/2/92	TIME:	RECEIVED BY: Anthony Enesco

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:

REMARKS:

REPORT TO: Nissan Nork

EXCELTECH
41674 Christy Street
Fremont, C.A. 94538-3114
(415) 659-0404
Fax (415) 651-4677
Contr. Lic. No. 550205

FORM DATED 3-27-90

Environmental Laboratories

RESNA
Working to Restore Nature

42501 Albrae Street
Fremont, CA 94538
Phone: (510) 623-0775
(800) 247-5223
FAX: (510) 651-8754

ANALYSIS REPORT

1020lab.frm

Attention:	Ms. Nissa Nack	Date Sampled:	01-28-92
	RESNA/Exceltech Inc.	Date Received:	01-28-92
	41674 Christy Street	BTEX Analyzed:	01-30-92
	Fremont, CA 94538	TPHg Analyzed:	01-30-92
Project:	AGS 19513-L,Project #3-30091-31	TPHd Analyzed:	NR
	Castro Valley	Matrix:	Water

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppb	ppb	ppb	ppb	ppb	ppb
Detection Limit:	0.5	0.5	0.5	0.5	50	100
SAMPLE Laboratory Identification						
BB1 W1201571	ND	ND	ND	ND	ND	NR
MW-6 W1201572	ND	ND	ND	ND	ND	NR
MW-7 W1201573	ND	ND	ND	ND	ND	NR
MW-8 W1201574	ND	ND	ND	ND	ND	NR
MW-4 W1201575	26	0.8	28	2.0	1200	NR

ppb = parts per billion = µg/L = micrograms per liter.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not requested.

ANALYTICAL PROCEDURES

BTEX– Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction using EPA Method 5030 followed by analysis using EPA Method 8020/602, which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID) and a flame-ionization detector (FID) in series.

TPHg--Total petroleum hydrocarbons as gasoline (low-to-medium boiling points) are measured by extraction using EPA Method 5030, followed by analysis using modified EPA Method 8015, which utilizes a GC equipped with an FID.

TPHd--Total petroleum hydrocarbons as diesel (high boiling points) are measured by extraction using EPA Method 3550 for soils and EPA Method 3510 for water, followed by modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Laboratory Representative

February 6, 1992
Date Reported

RESNA ENVIRONMENTAL LABORATORY IS CERTIFIED BY THE STATE OF CALIFORNIA DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
(Certification No. 1211)

CHAIN OF CUSTODY RECORD

094570

PROJECT NO.	PROJECT NAME
3-30091-31	Texaco Castro Valley

SAMPLERS (Signature): Rob Sutherland

NO.	DATE	TIME	SAMPLE DESCRIPTION	TPH/BTEX
BB-1	1-28-92	09:00	3 pres Voas	X
MW-6		9:30		X
MW-7		11:30		X
MW-8		13:30		X
MW-4		15:30		X

TEST REQUESTED

P.O. # Direct Bill Karen Determan

LAB Applied

TURN AROUND TIME Normal

REMARKS

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
Rob Sutherland	1-28-91	16:15	
RELINQUISHED BY:	DATE: 1/29/92	TIME: 4:15	RECEIVED BY: Anthony Ennis

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:

REMARKS:

REPORT TO: Nissa Nack

EXCELTECH
41674 Christy Street
Fremont, C.A. 94538-3114
(415) 659-0404
Fax (415) 651-4677
Contr. Lic. No. 550205

FORM DATED 3-27-90