



Texaco Refining  
and Marketing Inc.

108 Garing Boulevard  
Richmond, CA 94801

April 21, 1993

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

Mr. Scott Seery  
Alameda County Department of Environmental Health  
80 Swan Way, Room 200  
Oakland, CA 94621

Dear Mr. Seery:

Enclosed is the Quarterly Groundwater Monitoring Letter Report, covering the third quarter 1992, for the former Texaco Service Station located at the above referenced site.

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

Attachment

cc: HRPearson-RRZielinski

Mr. Richard Hiett  
Regional Water Quality Control Board  
2101 Webster Street, Suite 500  
Oakland, CA 94612

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

pr: *CS*

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  
3940 Castro Valley Boulevard  
Castro Valley, California

62091.01

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

February 5, 1993  
0101KDET  
62091.01

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 3940 Castro Valley Boulevard, Castro  
Valley, 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 3940 Castro Valley Boulevard in Castro Valley, California (Plate 1, Site Vicinity Map) for the third quarter 1992 (July through September 1992). On October 5, 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 7 monitoring wells (MW-1 and MW-3 through MW-8) sampled at this site. 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 0.7 feet from the elevations reported the previous quarter. The groundwater gradient map shows the groundwater beneath the site to be flowing toward the southeast with a gradient of

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approximately 0.01 (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 were less than 50 parts per billion (ppb) in all wells sampled. Dissolved benzene concentrations ranged from less than 0.5 ppb to 1.5 ppb (MW-4). 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 16, 1992, approximately 480 gallons of 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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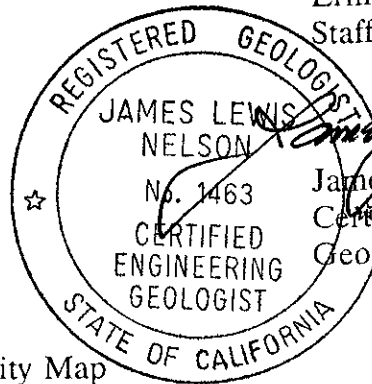
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If you have any questions or comments regarding this report, please call (408) 264-7723.

Sincerely,  
RESNA Industries Inc.

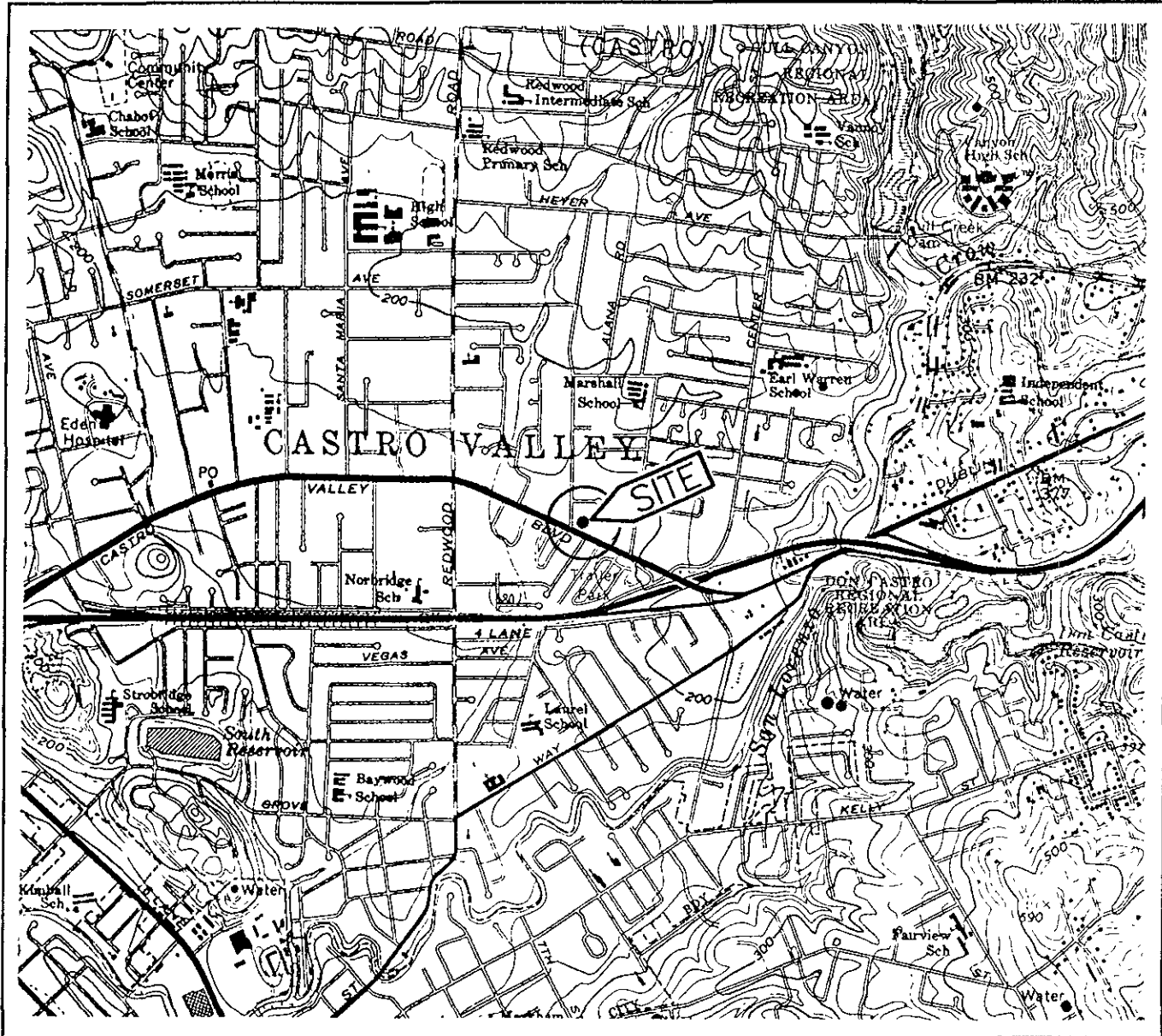


Erin McLucas  
Staff Geologist



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: U.S. Geological Survey  
 7 1/2-Minute Quadrangles  
 Hayward, California  
 Photorevised 1980

LEGEND

● = Site Location

Approximate Scale

2000 1000 0 2000 4000



feet

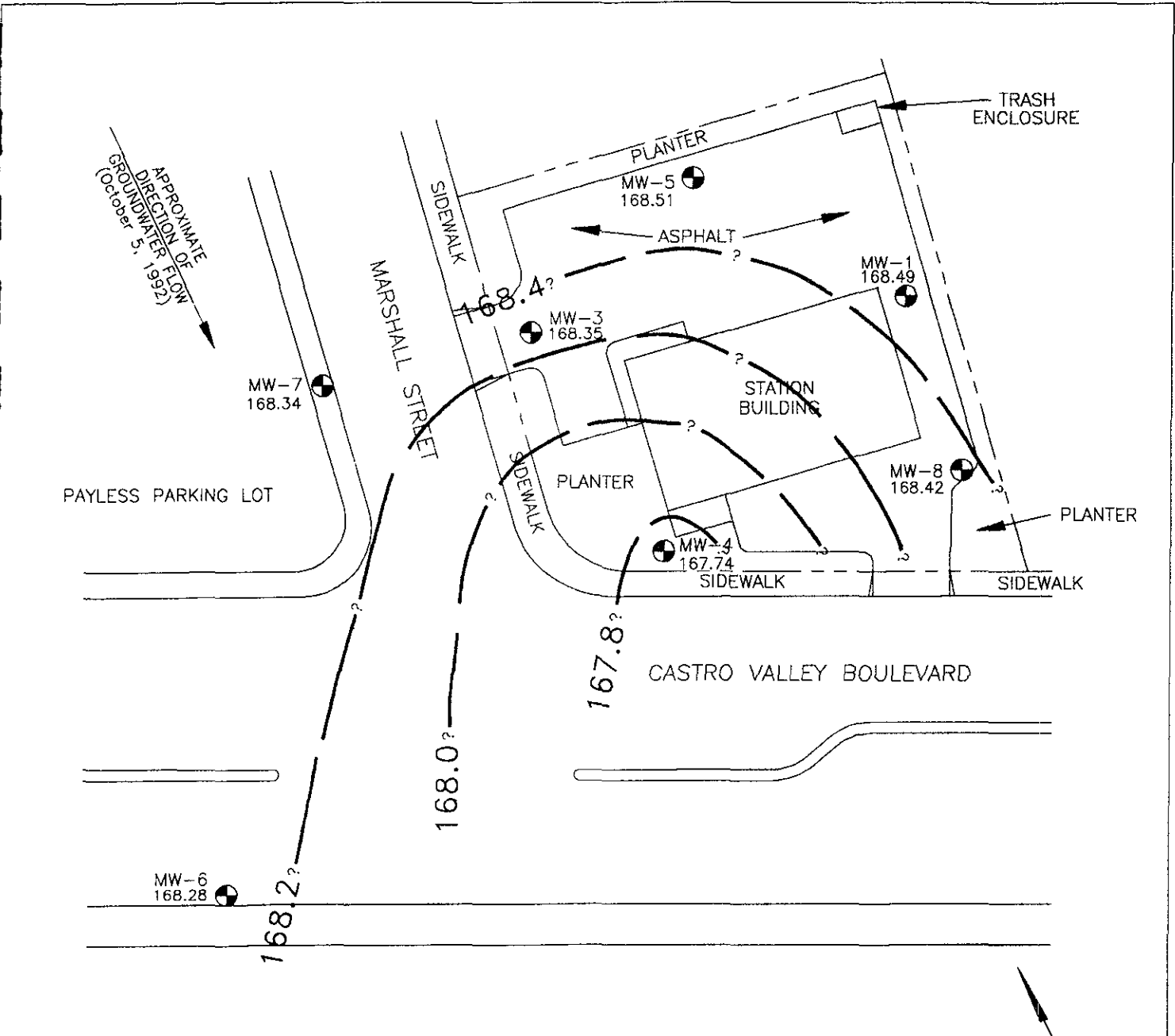
**RESNA**  
 Working to Restore Nature

PROJECT 62091.01

**SITE VICINITY MAP**  
 Former Texaco Station  
 3940 Castro Valley Boulevard  
 Castro Valley, California

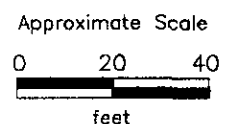
PLATE

1



EXPLANATION

- MW-8 = Monitoring Well
- 168.4 = Line of equal elevation of groundwater in feet above mean sea level (MSL)
- 168.51 = Elevation of groundwater in feet above MSL, October 5, 1992



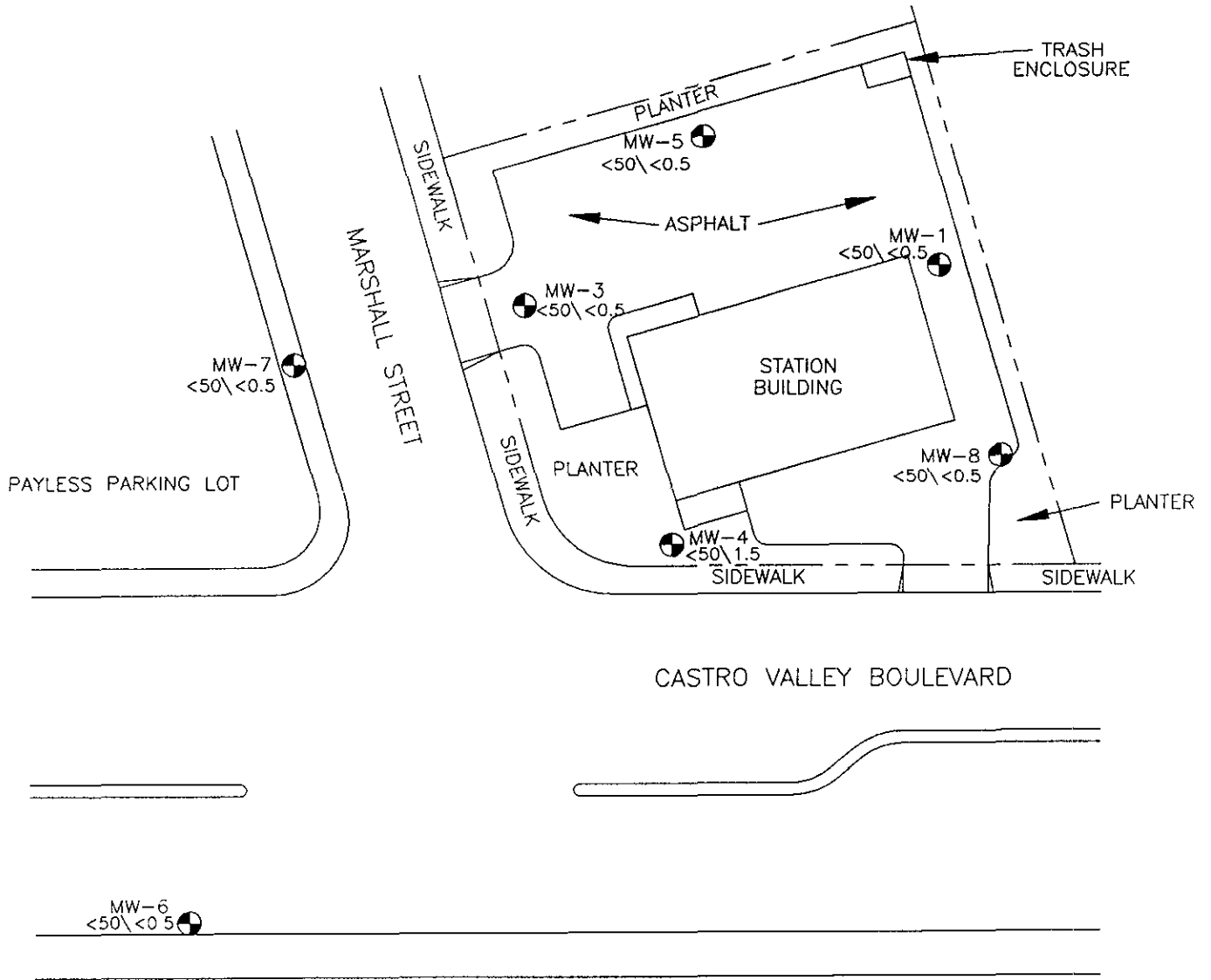
BASE MAP: SURVEYED BY RON ARCHER CIVIL ENGINEER, INC.




PROJECT 62091.01

**GROUNDWATER GRADIENT MAP**  
**Former Texaco Station**  
**3940 Castro Valley Boulevard**  
**Castro Valley, California**

**PLATE**  
**2**

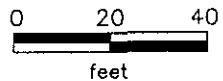


EXPLANATION

MW-8  = Monitoring Well

<50/1.5 = Concentrations of TPHg\Benzene in groundwater in parts per billion (ppb) (October 5, 1992)

Approximate Scale



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

**RESNA**  
Working to Restore Nature

**TPHg\BENZENE CONCENTRATIONS  
IN GROUNDWATER  
Former Texaco Station  
3940 Castro Valley Boulevard  
Castro Valley, California**

**PLATE  
3**

**PROJECT 62091.01**



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TABLE 1  
CUMULATIVE GROUNDWATER MONITORING DATA  
Former Texaco Service Station  
3940 Castro Valley Boulevard  
Castro Valley, California  
(Page 1 of 4)

Well	Date	Elevation of Wellhead	Depth to Water	Elevation of Groundwater	Floating Product
<u>TX</u>					
	11/19/87	--	Dry	---	---
	12/20/87		Dry	---	---
	12/30/87		Dry	---	---
	06/07/88		Dry	---	---
	12/13/88		Dry	---	---
	08/29/92		Dry	---	---
<u>MW-1</u>					
	12/30/87	192.46	21.92	170.54	NR
	06/07/88		23.35	169.11	NR
	12/13/88		23.17	169.29	NR
	08/29/89		23.70	168.76	NR
	02/27/90		23.25	169.21	NR
	04/21/90		23.65	168.81	NR
	06/11/90		23.74	168.72	NR
	07/18/90		23.90	168.56	NR
	08/22/90		24.07	168.39	NR
	09/27/90		24.21	168.25	NR
	10/10/90		24.25	168.21	NR
	11/15/90		24.45	168.01	NR
	12/11/90		23.54	168.92	NR
	01/09/91		24.68	167.78	NR
	01/23/91		24.61	167.85	NR
	02/22/91		24.58	167.88	NR
	03/20/91		23.95	168.51	NR
	04/11/91		23.41	169.05	NR
	05/14/91		23.52	168.94	NR
	06/10/91		23.61	168.85	NR
	07/16/91		23.89	168.57	NR
	08/09/91		23.96	168.50	NR
	09/11/91		24.16	168.30	NR
	12/11/91		24.68	167.78	NR
	02/28/92	192.45	23.72	168.73	NR
	03/30/92		23.25	169.20	NR
	06/30/92		23.44	169.01	NR
	10/05/92		23.96	168.49	ND
<u>MW-2</u>					
	12/20/87	---	22.30	---	---
	06/07/88		23.83	---	---
	12/13/88		23.69	---	---
	08/29/89		Well Destroyed		

See notes on page 4 of 4.

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TABLE 1  
CUMULATIVE GROUNDWATER MONITORING DATA  
Former Texaco Service Station  
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Well	Date	Elevation of Wellhead	Depth to Water	Elevation of Groundwater	Floating Product
<u>MW-3</u>					
	12/30/87	190.48	22.60	167.88	NR
	06/07/88		20.90	169.58	NR
	12/13/88		20.92	169.56	NR
	08/29/89		21.48	169.00	NR
	02/27/90		21.58	168.90	NR
	04/12/90		21.70	168.78	NR
	06/11/90		21.79	168.69	NR
	07/18/90		21.96	168.52	NR
	08/22/90		22.10	168.38	NR
	09/27/90		22.24	168.24	NR
	10/10/90		22.28	168.20	NR
	11/15/90		22.50	167.98	NR
	12/11/90		24.54	165.94	NR
	01/09/91		22.71	167.77	NR
	01/23/91		22.65	167.83	NR
	02/22/91		22.68	167.80	NR
	03/20/91		24.96	168.52	NR
	04/11/91		21.14	169.34	NR
	05/14/91		21.54	168.94	NR
	06/10/91		21.64	168.84	NR
	07/16/91		21.93	168.55	NR
	08/09/91		21.99	168.49	NR
	09/11/91		22.22	168.26	NR
	12/11/91		22.67	167.81	NR
	02/28/92	190.50	21.76	168.74	NR
	03/30/92		21.49	169.18	NR
	06/30/92		21.49	169.01	NR
	10/05/92		22.15	168.35	ND
<u>MW-4</u>					
	04/12/90	191.63	22.84	168.79	NR
	06/11/90		21.82	169.81	NR
	07/18/90		23.09	168.54	NR
	08/22/90		23.24	168.39	NR
	09/27/90		23.38	168.25	NR
	10/10/90		24.43	167.20	NR
	11/15/90		21.64	167.99	NR
	12/11/90		23.69	167.94	NR
	01/09/91		23.84	167.79	NR
	01/23/91		23.79	167.84	NR

See notes on page 4 of 4.

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TABLE 1  
CUMULATIVE GROUNDWATER MONITORING DATA  
Former Texaco Service Station  
3940 Castro Valley Boulevard  
Castro Valley, California  
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Well	Date	Elevation of Wellhead	Depth to Water	Elevation of Groundwater	Floating Product
<u>MW-4 (cont.)</u>					
	02/22/91		23.77	167.86	NR
	03/20/91		23.11	168.52	NR
	04/11/91		22.60	169.03	NR
	05/14/91		22.68	168.95	NR
	06/10/91		22.79	168.84	NR
	07/16/91		23.06	168.57	NR
	08/09/91		23.14	168.49	NR
	09/11/91		23.36	168.27	NR
	10/11/91		23.75	167.88	NR
	11/12/91		23.87	167.76	NR
	12/11/91		23.80	167.83	NR
	01/28/92	191.64	23.79	167.85	NR
	02/28/92		22.90	168.74	NR
	03/30/92		22.46	169.18	NR
	06/30/92		22.64	169.00	NR
	10/05/92		23.90	167.74	ND
<u>MW-5</u>					
	04/12/90	191.55	22.74	168.81	NR
	06/11/90		22.83	168.72	NR
	07/18/90		23.01	168.54	NR
	08/22/90		23.15	168.40	NR
	09/27/90		23.29	168.26	NR
	10/10/90		22.33	169.22	NR
	11/15/90		23.54	168.01	NR
	12/11/90		23.59	167.96	NR
	01/09/91		23.75	167.80	NR
	01/23/91		23.69	167.86	NR
	02/22/91		23.66	167.89	NR
	03/20/91		23.01	168.54	NR
	04/11/91		22.50	169.05	NR
	05/14/91		22.57	168.98	NR
	06/10/91		22.68	168.87	NR
	07/16/91		22.95	168.60	NR
	08/09/91		23.01	168.54	NR
	09/11/91		23.26	168.29	NR
	12/11/91		23.70	167.85	NR
	02/28/92	191.56	22.80	168.76	NR
	03/30/92		22.35	168.21	NR
	06/30/92		22.54	169.02	NR
	10/05/92		23.05	168.51	ND

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TABLE 1  
CUMULATIVE GROUNDWATER MONITORING DATA  
Former Texaco Service Station  
3940 Castro Valley Boulevard  
Castro Valley, California  
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Well	Date	Elevation of Wellhead	Depth to Water	Elevation of Groundwater	Floating Product
<u>MW-6</u>	01/28/92	187.30	19.55	167.75	NR
	02/28/92		18.62	168.68	NR
	03/30/92		18.20	168.10	NR
	06/30/92		18.38	168.92	NR
	10/05/92		19.02	168.28	ND
<u>MW-7</u>	01/28/92	189.34	21.53	167.81	NR
	02/28/92		20.61	168.73	NR
	03/30/92		20.17	169.17	NR
	06/30/92		20.37	168.97	NR
	10/05/92		21.00	168.34	ND
<u>MW-8</u>	01/28/92	193.62	25.77	167.85	NR
	02/28/92		24.89	168.73	NR
	03/30/92		24.42	169.20	NR
	06/30/92		24.61	169.01	NR
	10/05/92		25.20	168.42	ND

Datum Mean Sea Level (MSL)

Depth to water measured in feet below top of casing.

NR : No Record  
ND : None Detected  
--- : Not Applicable

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TABLE 2  
CUMULATIVE RESULTS OF LABORATORY ANALYSES  
OF GROUNDWATER SAMPLES  
Former Texaco Service Station  
3940 Castro Valley Boulevard  
Castro Valley, California  
(Page 1 of 4)

Well	Date	TPHg	Benzene	Toluene	Ethyl- benzene	Total Xylenes
<u>TX</u>	12/30/87	---	---	---	---	---
	06/07/88	---	---	---	---	---
	12/13/88	---	---	---	---	---
	08/29/89	Well Abandoned				
<u>MW-1</u>	12/30/87	2,100	15	12	3	190
	06/07/88	290	12	<PQL	<PQL	17
	12/13/88	370	3	<PQL	<PQL	<PQL
	08/29/89	160	6	<PQL	<PQL	<PQL
	03/07/90	<PQL	<PQL	<PQL	<PQL	<PQL
	04/16/90	NA	NA	NA	NA	NA
	06/11/90	39	14	1	1	2
	08/22/90	130	0.3	<MDL	<MDL	<MDL
	09/12/90	92	7	<MDL	2	3
	10/10/90	40	2	<MDL	0.6	1
	11/15/90	18	0.8	<MDL	<MDL	<MDL
	12/11/90	<MDL	<MDL	<MDL	<MDL	<MDL
	01/09/91	33	0.7	<MDL	<MDL	<MDL
	02/22/91	<MDL	<MDL	<MDL	<MDL	<MDL
	05/14/91	17	1	<0.3	0.4	0.8
	09/11/91	<10	<0.3	<0.3	<0.3	<0.6
	10/11/91	NA	NA	NA	NA	NA
	11/12/91	NA	NA	NA	NA	NA
	12/11/91	<50	<0.5	<0.5	<0.5	<0.5
	01/28/92	NA	NA	NA	NA	NA
	02/28/92	NA	NA	NA	NA	NA
03/31/92	280	<0.5	<0.5	<0.5	1.3	
06/30/92	67	1.3	<0.5	<0.5	<0.5	
10/05/92	<50	<0.5	<0.5	<0.5	<0.5	
<u>MW-2</u>	12/30/87	2,400	220	16	3	150
	06/07/88	1,200	220	<PQL	32	46
	12/13/88	4,000	640	23	120	110
	08/29/89	Well Abandoned				

See notes on page 4 of 4.

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TABLE 2  
CUMULATIVE RESULTS OF LABORATORY ANALYSES  
OF GROUNDWATER SAMPLES  
Former Texaco Service Station  
3940 Castro Valley Boulevard  
Castro Valley, California  
(Page 2 of 4)

Well	Date	TPHg	Benzene	Toluene	Ethyl- benzene	Total Xylenes
<u>MW-3</u>	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	NA	NA	NA	NA	NA
	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
	05/14/91	<10	<0.3	<0.3	<0.3	<0.6
	09/11/91	<10	<0.3	<0.3	<0.3	<0.6
	10/11/91	NA	NA	NA	NA	NA
	11/12/90	NA	NA	NA	NA	NA
	12/11/90	<50	<0.5	<0.5	<0.5	<0.5
	01/28/92	NA	NA	NA	NA	NA
	02/02/92	NA	NA	NA	NA	NA
	03/31/92	<50	<0.5	<0.5	<0.5	1.0
	06/30/92	<50	<0.5	<0.5	<0.5	<0.5
	10/05/92	<50	<0.5	<0.5	<0.5	<0.5
<u>MW-4</u>	04/16/90	1,500	97	1	11	120
	06/11/90	110	18	<MDL	<MDL	0.7
	08/22/90	50	4	<MDL	<MDL	1
	09/12/90	49	6	<MDL	<MDL	1
	10/10/90	77	4	<MDL	<MDL	<MDL
	11/15/90	49	2	<MDL	0.4	<MDL
	12/11/90	79	6	<MDL	1	<MDL
	01/19/91	120	6	<MDL	3	<MDL
	02/22/91	120	1	<MDL	<MDL	<MDL
	05/14/91	370	29	<0.3	9	1
	09/11/91	22	0.8	<0.3	1	<0.6
	10/11/91	<50	1.0	<0.5	1.5	<0.5

See notes on page 4 of 4.

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TABLE 2  
CUMULATIVE RESULTS OF LABORATORY ANALYSES  
OF GROUNDWATER SAMPLES  
Former Texaco Service Station  
3940 Castro Valley Boulevard  
Castro Valley, California  
(Page 3 of 4)

Well	Date	TPHg	Benzene	Toluene	Ethyl- benzene	Total Xylenes
<u>MW-4 (cont.)</u>						
	11/12/91	<50	1.6	<0.5	1.3	<0.5
	12/11/91	<50	0.8	<0.5	0.9	<0.5
	01/28/92	1,200	26	0.8	28	20
	02/28/92	9,400	68	5.3	68	240
	03/31/92	360	<0.5	<0.5	3.2	1.1
	06/30/92	76	2.4	<0.5	3.3	<0.5
	10/05/92	<50	1.5	<0.5	<0.5	<0.5
<u>MW-5</u>						
	04/16/90	<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
	05/14/91	<10	<0.3	<0.3	<0.3	<0.6
	09/11/91	<10	<0.3	<0.3	<0.3	<0.6
	10/11/91	NA	NA	NA	NA	NA
	11/12/91	NA	NA	NA	NA	NA
	12/11/91	<50	<0.5	<0.5	<0.5	<0.5
	01/28/92	NA	NA	NA	NA	NA
	02/28/92	NA	NA	NA	NA	NA
	03/31/92	<50	<0.5	<0.5	<0.5	1.2
	06/30/90	<50	<0.5	<0.5	<0.5	<0.5
	10/05/92	<50	<0.5	<0.5	<0.5	<0.5
<u>MW-6</u>						
	01/28/92	<50	<0.5	<0.5	<0.5	<0.5
	02/28/92	280	<0.5	0.3	<0.5	5.1
	03/31/92	<50	<0.5	<0.5	<0.5	<0.5
	06/30/92	<50	<0.5	<0.5	<0.5	<0.5
	10/05/92	<50	<0.5	<0.5	<0.5	<0.5

See notes on page 4 of 4.

Third Quarter 1992 Quarterly Report  
Castro Valley Boulevard, Castro Valley, California

February 5, 1993  
62091.01

TABLE 2  
CUMULATIVE RESULTS OF LABORATORY ANALYSES  
OF GROUNDWATER SAMPLES  
Former Texaco Service Station  
3940 Castro Valley Boulevard  
Castro Valley, California  
(Page 4 of 4)

Well	Date	TPH <sub>g</sub>	Benzene	Toluene	Ethyl- benzene	Total Xylenes
<u>MW-7</u>	01/28/92	<50	<0.5	<0.5	<0.5	<0.5
	02/28/92	<50	<0.5	0.6	<0.5	1.8
	03/31/92	<50	<0.5	<0.5	<0.5	<0.5
	06/30/92	<50	<0.5	<0.5	<0.5	<0.5
	10/05/92	<50	<0.5	<0.5	<0.5	<0.5
<u>MW-8</u>	01/28/92	<50	<0.5	<0.5	<0.5	<0.5
	02/28/92	69	<0.5	<0.5	<0.5	0.9
	03/31/92	62	<0.5	<0.5	<0.5	4.3
	06/30/92	<50	<0.5	<0.5	<0.5	<0.5
	10/05/92	<50	<0.5	<0.5	<0.5	<0.5
	MCLs:	-	1.0	-	680	1,750-
	DWAL:	-	-	100	-	--

Results in parts per billion (ppb)

- NA : Not Analyzed
- PQL : Practical quantitation level
- MDL : Method detection limit
- TPH<sub>g</sub> : 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, DIIS (October 1990)



**APPENDIX A**

**GROUNDWATER SAMPLING PROTOCOL  
AND WELL PURGE DATA SHEETS**

## 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 a 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--Castro Valley

Job No. 62091.01

Date: October 5, 1992

Page 1 of 1

Well No. MW-1

Time Started 1:00

TIME (hr)	GALLONS (cum.)	TEMP. (F)	pH	CONDUCT. (micromho)	TURBIDITY (NTU)
1:00	Start purging MW-1				
1:00	0	71.5	7.51	2360	NM
1:04	10	70.0	7.39	2350	NM
1:08	20	71.2	7.38	2370	NM
1:12	30	70.6	7.38	2360	NM
1:13	Stop purging MW-1				
Notes:					
<p style="text-align: center;">NM = Not Measured</p> <p style="text-align: right;">Well Diameter (inches) : 4</p> <p style="text-align: right;">Depth to Bottom (feet) : 39.02</p> <p style="text-align: right;">Depth to Water - initial (feet) : 23.96</p> <p style="text-align: right;">Depth to Water - final (feet) : 23.96</p> <p style="text-align: right;">% recovery : 100</p> <p style="text-align: right;">Time Sampled : 2:30</p> <p style="text-align: right;">Gallons per Well Casing Volume : 10</p> <p style="text-align: right;">Gallons Purged : 30</p> <p style="text-align: right;">Well Casing Volume Purged : 3</p> <p style="text-align: right;">Approximate Pumping Rate (gpm) : 3</p>					

WELL PURGE DATA SHEET

Project Name: Texaco--Castro Valley

Job No. 62091.01

Date: October 5, 1992

Page 1 of 1

Well No. MW-3

Time Started 11:40

TIME (hr)	GALLONS (cum.)	TEMP. (F)	pH	CONDUCT. (micromho)	TURBIDITY (NTU)
11:40	Start purging MW-3				
11:40	0	70.6	7.57	2190	NM
11:43	8	70.4	7.56	2170	NM
11:46	16	69.6	7.51	2160	NM
11:49	24	70.0	7.50	2160	NM
					NM
11:50	Stop purging MW-3				

Notes:

NM = Not Measured  
 Well Diameter (inches) : 4  
 Depth to Bottom (feet) : 34.35  
 Depth to Water - initial (feet) : 22.15  
 Depth to Water - final (feet) : 22.15  
 % recovery : 100  
 Time Sampled : 1:25  
 Gallons per Well Casing Volume : 8  
 Gallons Purged : 24  
 Well Casing Volume Purged : 3  
 Approximate Pumping Rate (gpm) : 3

WELL PURGE DATA SHEET

Project Name: Texaco--Castro Valley

Job No. 62091.01

Date: October 5, 1992

Page 1 of 1

Well No. MW-4

Time Started 2:00

TIME (hr)	GALLONS (cum.)	TEMP. (F)	pH	CONDUCT. (micromho)	TURBIDITY (NTU)
2:00	Start purging MW-4				
2:00	0	76.5	7.59	2410	NM
2:04	10.5	7.63	7.63	2290	NM
2:08	21	7.56	7.56	2270	NM
2:12	31.5	7.51	7.51	2270	NM
					NM
2:13	Stop purging MW-4				

Notes:

NM = Not Measured  
 Well Diameter (inches) : 4  
 Depth to Bottom (feet) : 39.87  
 Depth to Water - initial (feet) : 23.90  
 Depth to Water - final (feet) : 23.90  
 % recovery : 100  
 Time Sampled : 3:15  
 Gallons per Well Casing Volume : 10.5  
 Gallons Purged : 31.5  
 Well Casing Volume Purged : 3  
 Approximate Pumping Rate (gpm) : 3

WELL PURGE DATA SHEET

Project Name: Texaco--Castro Valley

Job No. 62091.01

Date: October 5, 1992

Page 1 of 1

Well No. MW-5

Time Started 11:05

TIME (hr)	GALLONS (cum.)	TEMP. (F)	pH	CONDUCT. (micromho)	TURBIDITY (NTU)
11:05	Start purging MW-5				
11:05	0	70.3	7.61	2180	NM
11:10	13	68.9	7.54	2110	NM
11:15	25	68.5	7.50	2110	NM
11:20	38	68.8	7.43	2080	NM
					NM
Stop purging MW-					

Notes:

NM = Not Measured  
 Well Diameter (inches) : 4  
 Depth to Bottom (feet) : 42.22  
 Depth to Water - initial (feet) : 23.05  
 Depth to Water - final (feet) : 23.05  
 % recovery : 100  
 Time Sampled : 12:45  
 Gallons per Well Casing Volume : 12.7  
 Gallons Purged : 38  
 Well Casing Volume Purged : 3  
 Approximate Pumping Rate (gpm) : 3

WELL PURGE DATA SHEET

Project Name: Texaco--Castro Valley

Job No. 62091.01

Date: October 5, 1992

Page 1 of 1

Well No. MW-6

Time Started 10:20

TIME (hr)	GALLONS (cum.)	TEMP. (F)	pH	CONDUCT. (micromho)	TURBIDITY (NTU)
10:20	Start purging MW-6				
10:20	0	70.5	7.55	2640	NM
10:24	12	70.4	7.50	2660	NM
10:28	24	70.7	7.44	2690	NM
10:32	36	71.4	7.39	2660	NM
					NM
10:32	Stop purging MW-6				

Notes:

NM = Not Measured  
 Well Diameter (inches) : 4  
 Depth to Bottom (feet) : 37.23  
 Depth to Water - initial (feet) : 19.02  
 Depth to Water - final (feet) : 19.02  
 % recovery : 100  
 Time Sampled : 11:30  
 Gallons per Well Casing Volume : 12.0  
 Gallons Purged : 36.0  
 Well Casing Volume Purged : 3  
 Approximate Pumping Rate (gpm) : 3

WELL PURGE DATA SHEET

Project Name: Texaco--Castro Valley

Job No. 62091.01

Date: October 5, 1992

Page 1 of 1

Well No. MW-7

Time Started 9:30

TIME (hr)	GALLONS (cum.)	TEMP. (F)	pH	CONDUCT. (micromho)	TURBIDITY (NTU)
9:30	Start purging MW-7				
9:30	0	66.3	7.63	2300	NM
9:34	11	67.2	7.53	2340	NM
9:38	22	67.7	7.49	2330	NM
9:42	33	68.2	7.41	2360	NM
					NM
9:42	Stop purging MW-7				
Notes:					
<p style="text-align: center;">NM = Not Measured</p> <p style="text-align: right;">Well Diameter (inches) : 4</p> <p style="text-align: right;">Depth to Bottom (feet) : 37.25</p> <p style="text-align: right;">Depth to Water - initial (feet) : 21.00</p> <p style="text-align: right;">Depth to Water - final (feet) : 21.00</p> <p style="text-align: right;">% recovery : 100</p> <p style="text-align: right;">Time Sampled : 10:45</p> <p style="text-align: right;">Gallons per Well Casing Volume : 11.0</p> <p style="text-align: right;">Gallons Purged : 33</p> <p style="text-align: right;">Well Casing Volume Purged : 3</p> <p style="text-align: right;">Approximate Pumping Rate (gpm) : 3</p>					



WELL PURGE DATA SHEET

Project Name: Texaco--Castro Valley

Job No. 62091.01

Date: October 5, 1992

Page 1 of 1

Well No. MW-8

Time Started 12:15

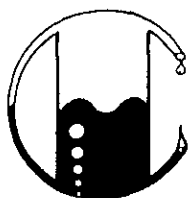
TIME (hr)	GALLONS (cum.)	TEMP. (F)	pH	CONDUCT. (micromho)	TURBIDITY (NTU)
12:15	Start purging MW-8				
12:15	0	72.8	7.52	2610	NM
12:19	9	71.0	7.47	2600	NM
12:23	17	70.8	7.43	2570	NM
12:27	26	70.5	7.37	2580	NM
					NM
12:28	Stop purging MW-8				

Notes:

NM = Not Measured  
 Well Diameter (inches) : 4  
 Depth to Bottom (feet) : 38.34  
 Depth to Water - initial (feet) : 25.20  
 Depth to Water - final (feet) : 25.20  
 % recovery : 100  
 Time Sampled : 1:45  
 Gallons per Well Casing Volume : 8.7  
 Gallons Purged : 26  
 Well Casing Volume Purged : 3  
 Approximate Pumping Rate (gpm) : 3

**APPENDIX B**

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



# MOBILE CHEM LABS INC.

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

RECEIVED

OCT 21 1992

RESNA  
SAN JOSE

62091.01\1718\012176

RESNA Industries  
3315 Alamen Expressway, #34  
San Jose, CA 95118  
Attn: Phillip Mayberry  
Project Manager

Date Sampled: 10-05-92  
Date Received: 10-06-92  
Date Analyzed: 10-14-92

Sample Number

102161

Sample Description

Project # 62091.01  
Texaco - Castro Valley  
3940 Castro Valley Blvd.  
BB1 WATER

ANALYSIS

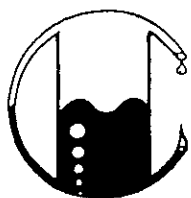
	<u>Detection Limit</u>	<u>Sample Results</u>
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5

QA/QC: Sample blank is none detected

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



# MOBILE CHEM LABS INC.

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

62091.01\1718\012176

RESNA Industries  
3315 Alamen Expressway, #34  
San Jose, CA 95118  
Attn: Phillip Mayberry  
Project Manager

Date Sampled: 10-05-92  
Date Received: 10-06-92  
Date Analyzed: 10-14-92

Sample Number  
-----  
102162

Sample Description  
-----  
Project # 62091.01  
Texaco - Castro Valley  
3940 Castro Valley Blvd.  
MW1 WATER

## ANALYSIS

-----

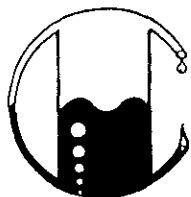
	Detection Limit ----- ppb	Sample Results ----- ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5

QA/QC: Sample blank is none detected

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



# MOBILE CHEM LABS INC.

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

62091.01\1718\012176

RESNA Industries  
3315 Alamden Expressway, #34  
San Jose, CA 95118  
Attn: Phillip Mayberry  
Project Manager

Date Sampled: 10-05-92  
Date Received: 10-06-92  
Date Analyzed: 10-14-92

Sample Number

102163

Sample Description

Project # 62091.01  
Texaco - Castro Valley  
3940 Castro Valley Blvd.  
MW3 WATER

ANALYSIS

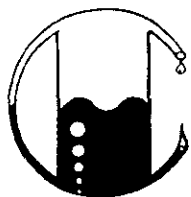
	<u>Detection Limit</u>	<u>Sample Results</u>
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5

QA/QC: Sample blank is none detected

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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Ronald G. Evans  
Lab Director



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RESNA Industries  
3315 Alamen Expressway, #34  
San Jose, CA 95118  
Attn: Phillip Mayberry  
Project Manager

Date Sampled: 10-05-92  
Date Received: 10-06-92  
Date Analyzed: 10-14-92

Sample Number

-----  
102164

Sample Description

-----  
Project # 62091.01  
Texaco - Castro Valley  
3940 Castro Valley Blvd.  
MW4 WATER

ANALYSIS

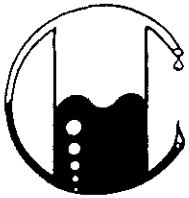
	Detection Limit	Sample Results
	----- ppb	----- ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	1.5
Toluene	0.5	<0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5

QA/QC: Sample blank is none detected

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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Ronald G. Evans  
Lab Director



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62091.01\1718\012176

RESNA Industries  
3315 Alamen Expressway, #34  
San Jose, CA 95118  
Attn: Phillip Mayberry  
Project Manager

Date Sampled: 10-05-92  
Date Received: 10-06-92  
Date Analyzed: 10-14-92

Sample Number  
-----  
102165

Sample Description  
-----  
Project # 62091.01  
Texaco - Castro Valley  
3940 Castro Valley Blvd.  
MW5 WATER

## ANALYSIS

-----

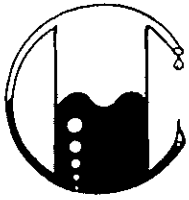
	Detection Limit ----- ppb	Sample Results ----- ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5

QA/QC: Sample blank is none detected

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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Lab Director



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62091.01\1718\012176

RESNA Industries  
3315 Alamen Expressway, #34  
San Jose, CA 95118  
Attn: Phillip Mayberry  
Project Manager

Date Sampled: 10-05-92  
Date Received: 10-06-92  
Date Analyzed: 10-14-92

Sample Number  
-----  
102166

Sample Description  
-----  
Project # 62091.01  
Texaco - Castro Valley  
3940 Castro Valley Blvd.  
MW6 WATER

## ANALYSIS

-----

	Detection Limit	Sample Results
	-----	-----
	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

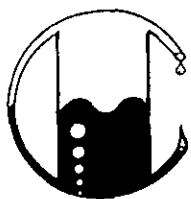
QA/QC: Sample blank is none detected  
Spike Recovery is 89.5%

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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Ronald G. Evans  
Lab Director





# MOBILE CHEM LABS INC.

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

62091.01\1718\012176

RESNA Industries  
3315 Alamen Expressway, #34  
San Jose, CA 95118  
Attn: Phillip Mayberry  
Project Manager

Date Sampled: 10-05-92  
Date Received: 10-06-92  
Date Analyzed: 10-14-92

Sample Number

-----  
102167

Sample Description

-----  
Project # 62091.01  
Texaco - Castro Valley  
3940 Castro Valley Blvd.  
MW7 WATER

ANALYSIS

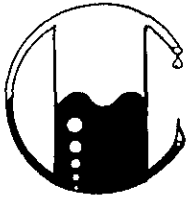
	Detection Limit	Sample Results
	----- ppb	----- ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5

QA/QC: Sample blank is none detected

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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Ronald G. Evans  
Lab Director



# MOBILE CHEM LABS INC.

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62091.01\1718\012176

RESNA Industries  
3315 Alampen Expressway, #34  
San Jose, CA 95118  
Attn: Phillip Mayberry  
Project Manager

Date Sampled: 10-05-92  
Date Received: 10-06-92  
Date Analyzed: 10-14-92

Sample Number  
-----

102168

Sample Description  
-----

Project # 62091.01  
Texaco - Castro Valley  
3940 Castro Valley Blvd.  
MW8 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

QA/QC: Sample blank is none detected

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

MOBILE CHEM LABS

Ronald G. Evans  
Lab Director

