Reviewed 11/3/92
SAS

SOIL AND GROUNDWATER INVESTIGATION FORMER TEXACO SERVICE STATION 3940 CASTRO VALLEY BOULEVARD CASTRO VALLEY, CALIFORNIA

FOR

TEXACO ENVIRONMENTAL SERVICES 108 CUTTING BOULEVARD RICHMOND, CALIFORNIA

March 1992

Prepared by

RESNA Industries Inc.
42501 Albrae Street
Fremont, California

March 1992 **Project No. 3-30091-31**

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

RESNA
Working to Restore Nature

42501 Albrae Street
Fremont, California 94538
Phone: (510) 440-3300
FAX: (510) 651-2233

March 30, 1992
Project No. 3-30092-31

Texaco Environmental Services
108 Cutting Boulevard
Richmond, CA 94804

Attention: Mr. Ron Zielinski

Subject: Former Texaco Service Station
3940 Castro Valley Boulevard, Castro Valley, California

Dear Mr. Zielinski:

RESNA Industries Inc., is pleased to submit the results of the soil and groundwater investigation conducted at the subject site in Castro Valley, Alameda County, California. The work consisted of drilling three exploratory borings, collecting soil samples for analysis, converting the borings to groundwater monitoring wells, and sampling the new groundwater monitoring wells.

If you have any questions, please call.

Sincerely,
RESNA Industries Inc.

Nissa L. Nack
Staff Geologist

Lawrence D. Pavlak, C.E.G. 1187
Senior Program Geologist

NLN/LDP/sw
Enclosure

REGISTERED GEOLOGIST
LAWRENCE D. PAVLAK
№ 1187
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

CONTENTS

CONTENTS
Continued

Tables

Figures

Appendices

SOIL AND GROUNDWATER INVESTIGATION AT FORMER TEXACO SERVICE STATION 3940 CASTRO VALLEY BOULEVARD CASTRO VALLEY, CALIFORNIA

This report presents the results of a soil and groundwater investigation conducted at the subject site in Castro Valley, Alameda County, California (Figure 1).

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. The land use in the area is commercial and multi-unit residential. 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 by Winter Petroleum Services. A sample collected from the tank excavation contained up to 7,900 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPHG); and 38 ppm total petroleum hydrocarbons (TPH) was detected at 25 feet below the surface in a soil sample from the boring for monitoring well TX. Three additional monitoring wells, MW-1, MW-2, and MW-3 were installed at the site by Groundwater Technology, Inc. (GTI) in 1987 with the intent of defining the areal extent of dissolved hydrocarbon constituents in the groundwater. Fifteen parts per billion (ppb) benzene was detected in MW-1 and 220 in MW-2. Petroleum hydrocarbons were not detected in MW-3. Monitoring wells TX and MW-2 were destroyed in 1989 so that construction of the current buildings could proceed. Groundwater monitoring wells MW-4 and MW-5 were installed in 1990 by GTI, who then conducted quarterly monitoring and sampling at the site. MW-4 contained 97 ppb benzene at its first sampling.

RESNA Industries Inc., began quarterly groundwater monitoring at the site in October 1991. At that time, petroleum hydrocarbons were detected only in groundwater samples from monitoring well MW-4.

PURPOSE AND SCOPE

The purpose of the soil and groundwater investigation was to attempt to determine the lateral extent of the dissolved petroleum hydrocarbon plume at the site. The work performed included the following:

- Drilling three exploratory borings and collecting soil samples for analysis.

- Installing groundwater monitoring wells in the borings.
- Developing, purging, and sampling the new wells.
- Sampling the new wells and one previously-installed well (MW-4) and submitting the samples to a laboratory for analysis.
- Evaluating collected data.
- Preparing this report.

FIELD INVESTIGATION

RESNA conducted field work for this investigation from January 20 through 28, 1992. The field work involved the installation of three groundwater monitoring wells and their development and sampling. One of the wells, MW-8, was installed in the southeastern corner of the site. The other wells, MW-6 and MW-7 were placed off-site. These off-site well locations are approximately downgradient from the former Texaco Service Station. The groundwater flow direction and gradient for the site were derived from quarterly monitoring data. Each phase of the field work is described below.

Exploratory Drilling and Soil Sampling

RESNA drilled three exploratory borings, designated MW-6, MW-7, and MW-8, on January 20 through 22, 1992 at the locations shown on the Site Plan (Figure 2), using a RESNA Mobile B-53 truck-mounted drill rig. Soil samples were collected in the borings at approximately 5-foot depth intervals by driving a pre-cleaned modified California split-spoon sampler with a 140-pound hammer into the soil ahead of the augers. The sampler, containing three 2-inch diameter by 6-inch long brass liners, was driven 18 inches into the undisturbed soil, then retrieved and disassembled. The samples were checked for the presence of volatile hydrocarbons using an Organic Vapor Meter (OVM). A liner containing the soil from each interval selected for analysis was covered at both ends with foil and plastic caps, labeled with a unique sample number, and stored in a chilled cooler for transport to the laboratory. A total of five samples were collected and chain-of-custody documentation accompanied the samples to the laboratory. A copy of RESNA's Soil Sampling Protocol is in Appendix B.

A RESNA geologist logged the borings and characterized the soil in the remaining sample liners using the Unified Soil Classification System. Color was defined according to the Munsell Soil Color Charts. Details of the subsurface materials encountered in the borings are presented in Appendix A. The soil cuttings generated during drilling were placed on and covered by plastic sheeting and left on-site pending analytical results.

Groundwater Monitoring Well Construction

After each borehole was drilled to its final depth, it was converted to a groundwater monitoring well. RESNA constructed all monitoring wells in accordance with the permit requirements of Zone 7-Alameda County Flood Control and Water Conservation District and the County of Alameda Public Works Department. Copies of the permits are in Appendix C. The wells were constructed of 4-inch-diameter, Schedule 40, flush-threaded polyvinyl chloride (PVC) solid and 0.020-inch, slotted well casing. No glues or solvents were used in the well construction. After drilling each boring to the desired depth, the PVC casing was installed through the 12-inch diameter hollow-stem auger. Placement of the screened interval was determined in the field by the RESNA geologist. The sand pack (No. 2/12 sand) was installed in the borehole annulus to 1 to 2 feet above the slotted screen section. One foot of bentonite pellets was then placed above the sand pack and hydrated. Each well was sealed to within 2 feet of the surface with neat cement. The tops of two of the wells were set slightly above grade in a water-tight, traffic-rated concrete vault box set in concrete. MW-7 was installed in a sidewalk and the vault box was set flush with the surface as a safety precaution. Details of the monitoring well construction are in Appendix A.

Well Development and Sampling

On January 24 and 25, 1992, RESNA developed the three new wells using a bailer and a pump to remove silt and sand left from the drilling and to improve the hydraulic conductivity between the well and the natural formation. A surge block was used to surge water in and out of the screens and sand pack. Sediment brought into the wells was then removed with a bailer. Development continued until the wells appeared free of sand and no further improvement in water clarity was observed.

Following development, four groundwater monitoring wells were sampled on January 28, 1992. An equipment rinse water sample (bailer blank) was collected for quality control prior to purging. Each well was purged with a Teflon bailer until pH, temperature, and conductivity readings stabilized. Approximately four well casing volumes of groundwater were removed from each well. Samples were collected from the well following RESNA's groundwater sampling protocol. A record of the groundwater parameters is shown on Table 1. The equipment rinsewater and groundwater purged from the wells was temporarily placed in drums approved by the Department of Transportation and stored on-site pending analysis.

Surveying

A licensed land surveyor was retained to survey the monitoring wells and determine the elevation of each well casing. The survey ensures accuracy so that the plot plans will portray the data in a manner useful for determining groundwater flow direction. The survey included both horizontal and vertical measurements and was tied to an Alameda County monument on Castro Valley Boulevard at Aspen Avenue. Elevation readings

were to the nearest 0.01 feet and corrected to mean sea level. The data provided by the surveyor is in Appendix D.

SUBSURFACE CONDITIONS

The boring locations were underlain by 3 to 5 feet of olive brown to very dark grayish brown silty clay which may be artificial fill, followed by 2 to 6 feet of yellowish brown to brownish yellow silty clay. Below the yellow silty clay in MW-6, approximately 13 feet of yellowish brown clayey silt with pockets of silty sand followed by 2 feet of well-graded sand was encountered. In MW-7, the silty clay overlies approximately 2 feet of clayey sand. At 10 feet below grade in MW-7, is a light yellowish brown silt grading to silty sand at 16 feet. Approximately 10 feet of silty sand was observed below the silty clay in MW-8.

At 20 to 21 feet below the surface, a dark grayish brown to brown clay ranging in thickness from 2 to 9 feet was observed in all the borings. Below the clay in borings MW-6 and MW-8 are 3 to 6 feet of poorly graded gravels overlying flowing sands. Below this clay in MW-7, the strata consists of interbedded silty clays, silts, and sands to a depth of 31 feet. At 31 feet, 5 feet of clayey sand overlying clayey gravel was observed.

Groundwater was encountered at 29 to 30 feet below grade in each of the wells. A small perched zone was encountered at 19 feet below grade in MW-6 and 25 feet in MW-7. Static water level was observed to be around 19 to 24 feet below grade, indicating the groundwater below the subject site is confined. Apparent groundwater flow is toward the southwest.

LABORATORY ANALYSES AND RESULTS

Soil and groundwater samples from each of the new monitoring wells and a groundwater sample from MW-4 were submitted to RESNA Environmental Laboratories, a state-certified laboratory in Fremont, California. RESNA analyzed the samples for the presence of total petroleum hydrocarbons as gasoline (TPHG) and benzene, toluene, ethyl benzene, and total xylenes (BTEX) using methods approved by the California Regional Water Quality Control Board (CRWQCB) and the Environmental Protection Agency (EPA). Copies of the laboratory reports and chain-of-custody records are included in Appendix E.

Soil Analysis Results

TPHG and BTEX were not detected in the soil samples submitted for analysis for this site during this sampling event. The soil laboratory results are summarized in Table 2.

Groundwater Analysis Results

Laboratory analyses of the groundwater samples did not show TPHG or BTEX occurring in monitoring wells MW-6, MW-7, or MW-8. MW-4 was reported to contain 26 ppb benzene and 1,200 ppb TPHG. The groundwater laboratory results are summarized in Table 3.

DISCUSSION

RESNA installed three new groundwater monitoring wells to help evaluate the extent of the petroleum hydrocarbons at the site. The locations of the wells, designated MW-6, MW-7, and MW-8, are shown on Figure 1.

The subsurface materials encountered during the drilling of the borings consisted of clays and silts overlying thick sands and gravels. Groundwater was encountered below a [redacted] layer at a depth of about 30 feet below grade. The groundwater elevation contour map (Figure 4) shows the apparent flow direction to be generally toward the southwest at a gradient of 0.0004.

Analytical results show the hydrocarbon constituents to be concentrated around MW-4 on the southwestern corner of the property. The concentrations of hydrocarbons detected in MW-4 are higher than has been observed in this well in the past.

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
2101 Webster Street, Room 500
Oakland, CA 94612

LIMITATIONS

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

1. Exploratory borings drilled at the site and in its vicinity.
2. Observations by field personnel.
3. The results of laboratory analyses performed by a state-certified laboratory.
4. 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.

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
	2/28/92	192.45	23.72	168.73	0.95	—	—	—	—	—	—
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
	2/28/92	190.50	21.76	168.74	0.93	—	—	—	—	—	
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
	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
	2/28/92		22.90	168.74	0.89	41.22	48	20/20/19	2680/2740/2710	6.63/6.65/6.68	Cloudy/clear

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
	2/28/92	191.56	22.80	168.76	0.91	—	—	—	—	—	—
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
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

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

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 SOIL ANALYSES DATA

Well Number	Date Sampled	Sample Depth (ft)	Benzene (ppm)	Toluene (ppm)	Ethyl Benzene (ppm)	Total Xylenes (ppm)	TPHG (ppm)
MW-6-1	01/20/92	5	<0.005	<0.005	<0.005	<0.005	<1.0
MW-6-2	01/20/92	10-1/2	<0.005	<0.005	<0.005	<0.005	<1.0
MW-6-3	01/20/92	15-1/2	<0.005	<0.005	<0.005	<0.005	<1.0
MW-6-4	01/20/92	20-1/2	<0.005	<0.005	<0.005	<0.005	<1.0
MW-7-1	01/21/92	5-1/2	<0.005	<0.005	<0.005	<0.005	<1.0
MW-7-2	01/21/92	10	<0.005	<0.005	<0.005	<0.005	<1.0
MW-7-3	01/21/92	15-1/2	<0.005	<0.005	<0.005	<0.005	<1.0
MW-7-4	01/21/92	20-1/2	<0.005	<0.005	<0.005	<0.005	<1.0
MW-7-5	01/21/92	25	<0.005	<0.005	<0.005	<0.005	<1.0
MW-8-1	01/22/92	5-1/2	<0.005	<0.005	<0.005	<0.005	<1.0
MW-8-2	01/22/92	10-1/2	<0.005	<0.005	<0.005	<0.005	<1.0
MW-8-3	01/22/92	15-1/2	<0.005	<0.005	<0.005	<0.005	<1.0
MW-8-4	01/22/92	20-1/2	<0.005	<0.005	<0.005	<0.005	<1.0
MW-8-5	01/22/92	25-1/2	<0.005	<0.005	<0.005	<0.005	<1.0

TPHG Total petroleum hydrocarbons as gasoline
ppm Parts per million
< Not detected at or above the indicated method detection limit

TABLE 3

SUMMARY OF GROUNDWATER ANALYSES DATA

Well Number	Date Sampled	Benzene (ppb)	Toluene (ppb)	Ethyl Benzene (ppb)	Total Xylenes (ppb)	TPHG (ppb)
MW-3	04/16/90	---	---	---	---	---
(con't)	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	<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	---	---	---	---	---
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	2.0	1,200
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

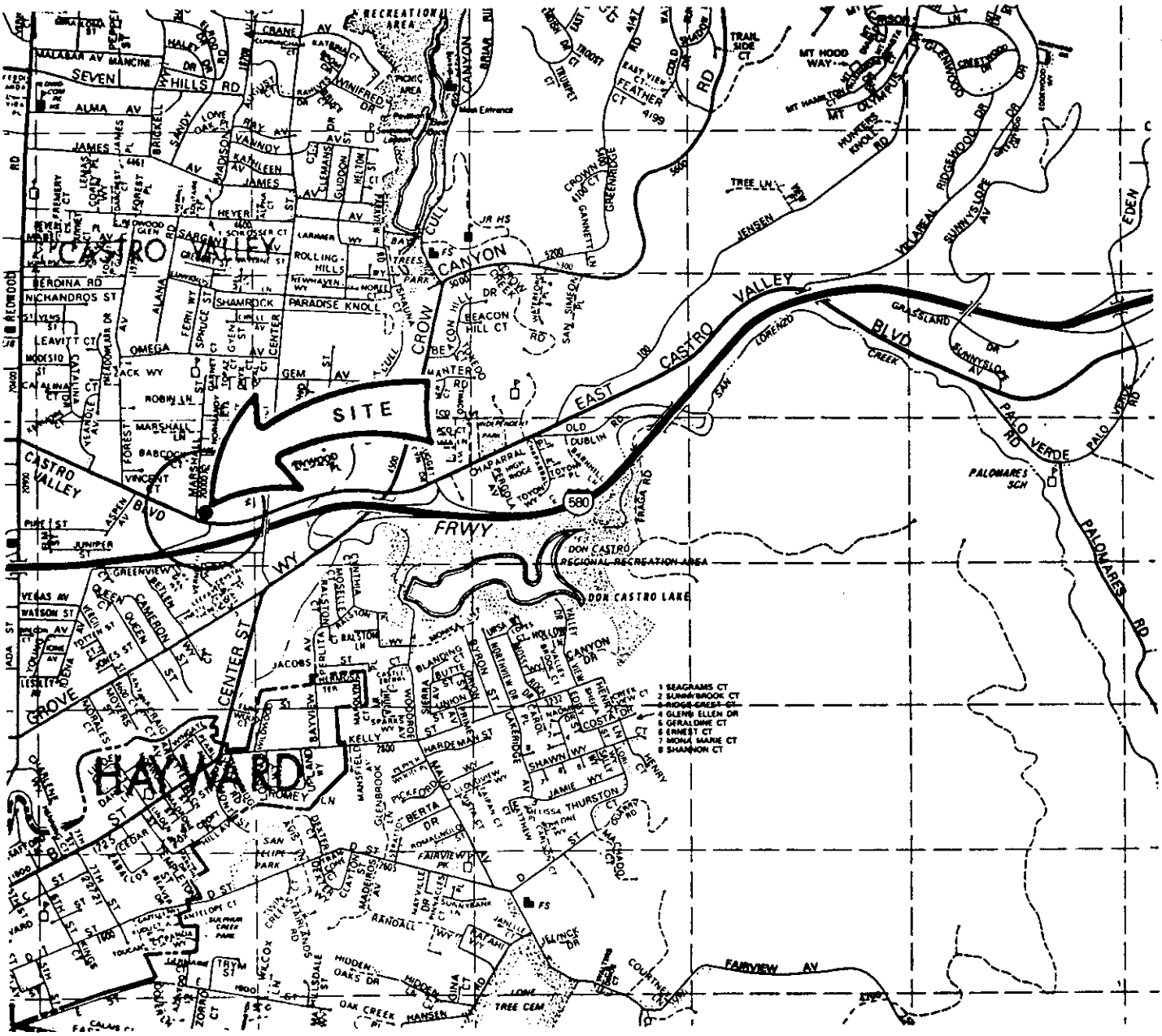
TABLE 3

SUMMARY OF GROUNDWATER ANALYSES DATA

Well Number	Date Sampled	Benzene (ppb)	Toluene (ppb)	Ethyl Benzene (ppb)	Total Xylenes (ppb)	TPHG (ppb)
MW-5	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	---	---	---	---	---
MW-6	01/28/92	<0.5	<0.5	<0.5	<0.5	<50
MW-7	01/28/92	<0.5	<0.5	<0.5	<0.5	<50
MW-8	01/28/92	<0.5	<0.5	<0.5	<0.5	<50

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

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



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

LEGEND

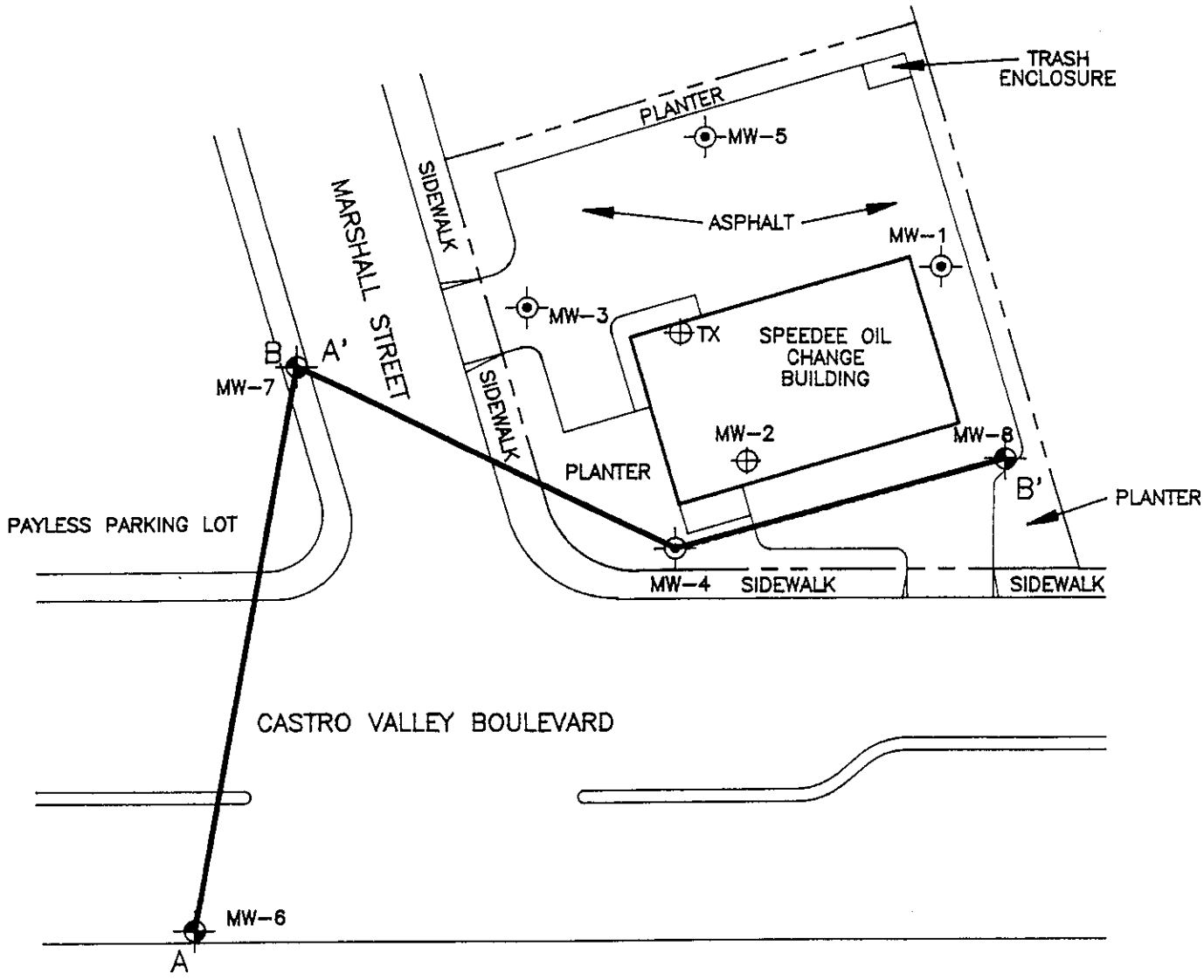
SITE LOCATION

N

0 1100 2200

SCALE IN FEET

REVIEWED BY:	**SITE LOCATION MAP**	RESNA	
	FORMER TEXACO SERVICE STATION		
APPROVED BY:	3940 CASTRO VALLEY BLVD.	JOB #: 3-30091-31	DRAWN BY: J.D.S.
	CASTRO VALLEY, CALIFORNIA	DATE: 2/28/92	DRAWING #: FIG. 1



LEGEND

MW-5 — GROUNDWATER MONITORING WELL (GTI)

MW-8 — GROUNDWATER MONITORING WELL (RESNA)

MW-2 — DESTROYED GROUNDWATER MONITORING WELL

SITE BOUNDARY

B — B' LINE OF CROSS SECTION

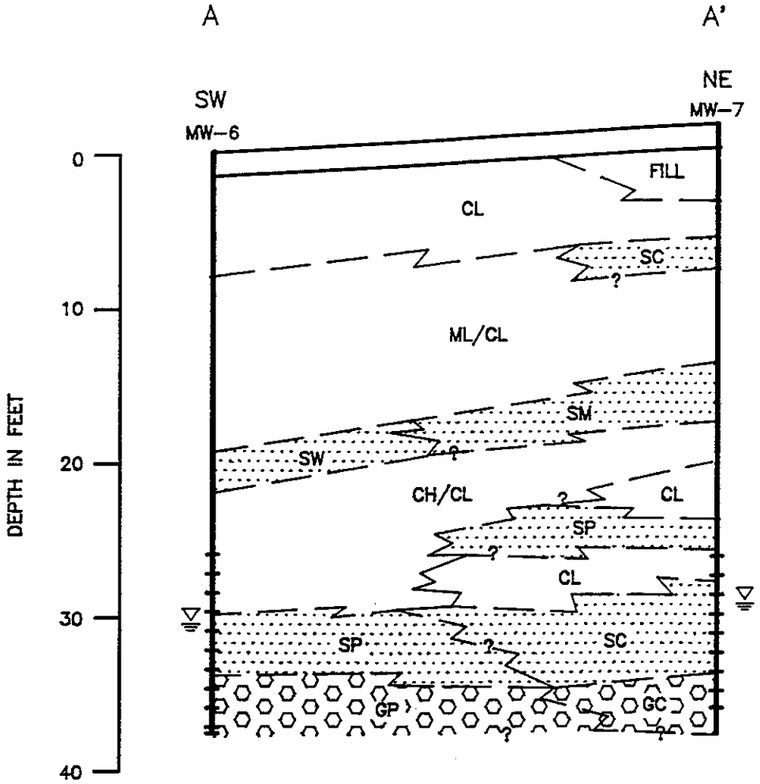
0 20 40

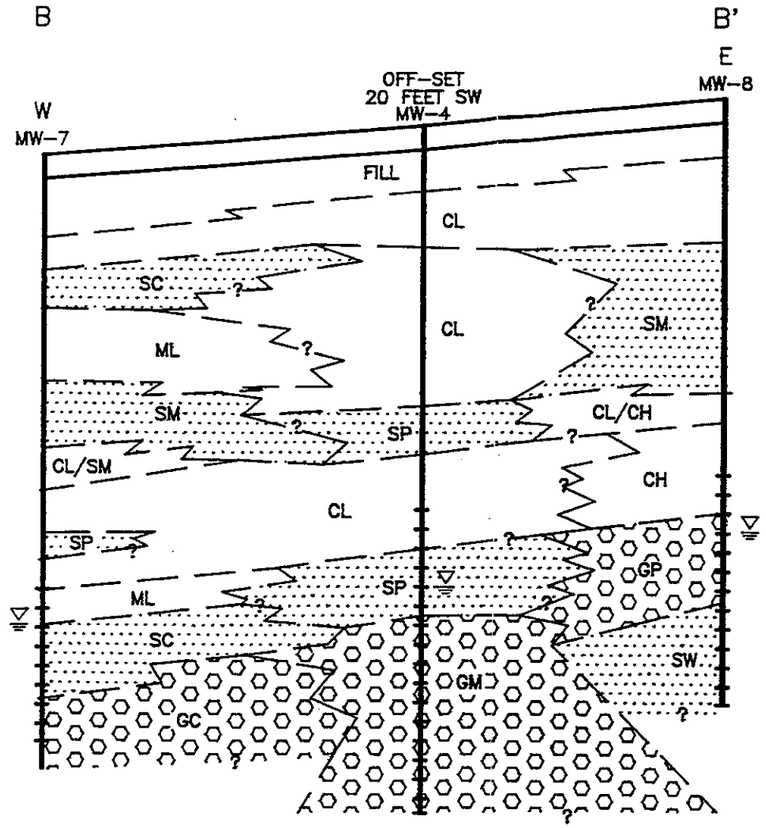
SCALE IN FEET

N

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

REVIEWED BY: JJW	**SITE PLAN**	RESNA
	FORMER TEXACO SERVICE STATION	
APPROVED BY:	3940 CASTRO VALLEY BOULEVARD	JOB #: 3-30091-31 / DRAWN BY: E.C.
	CASTRO VALLEY, CALIFORNIA	DATE: 3/11/92 / DRAWING #: FIG. 2





0 20 40
APPROXIMATE HORIZONTAL SCALE IN FEET

LEGEND

CH	CLAYS, HIGHLY PLASTIC
CL	CLAYS, LOW TO MODERATELY PLASTIC
GC	CLAYEY GRAVEL
GM	SILTY GRAVEL
GP	POORLY GRADED GRAVEL
ML	SILT
SC	CLAYEY SAND
SM	SILTY SAND
SP	POORLY GRADED SAND
SW	WELL GRADED SAND
	WELL CASING
	WELL SCREEN
	FIRST ENCOUNTERED WATER
	STATIC WATER LEVEL 12/9/91
TD	TOTAL DEPTH
■	SOIL SAMPLE

REVIEWED BY: NLN

APPROVED BY: LP

GEOLOGIC CROSS SECTIONS

FORMER TEXACO SERVICE STATION

3940 CASTRO VALLEY BOULEVARD

CASTRO VALLEY, CALIFORNIA

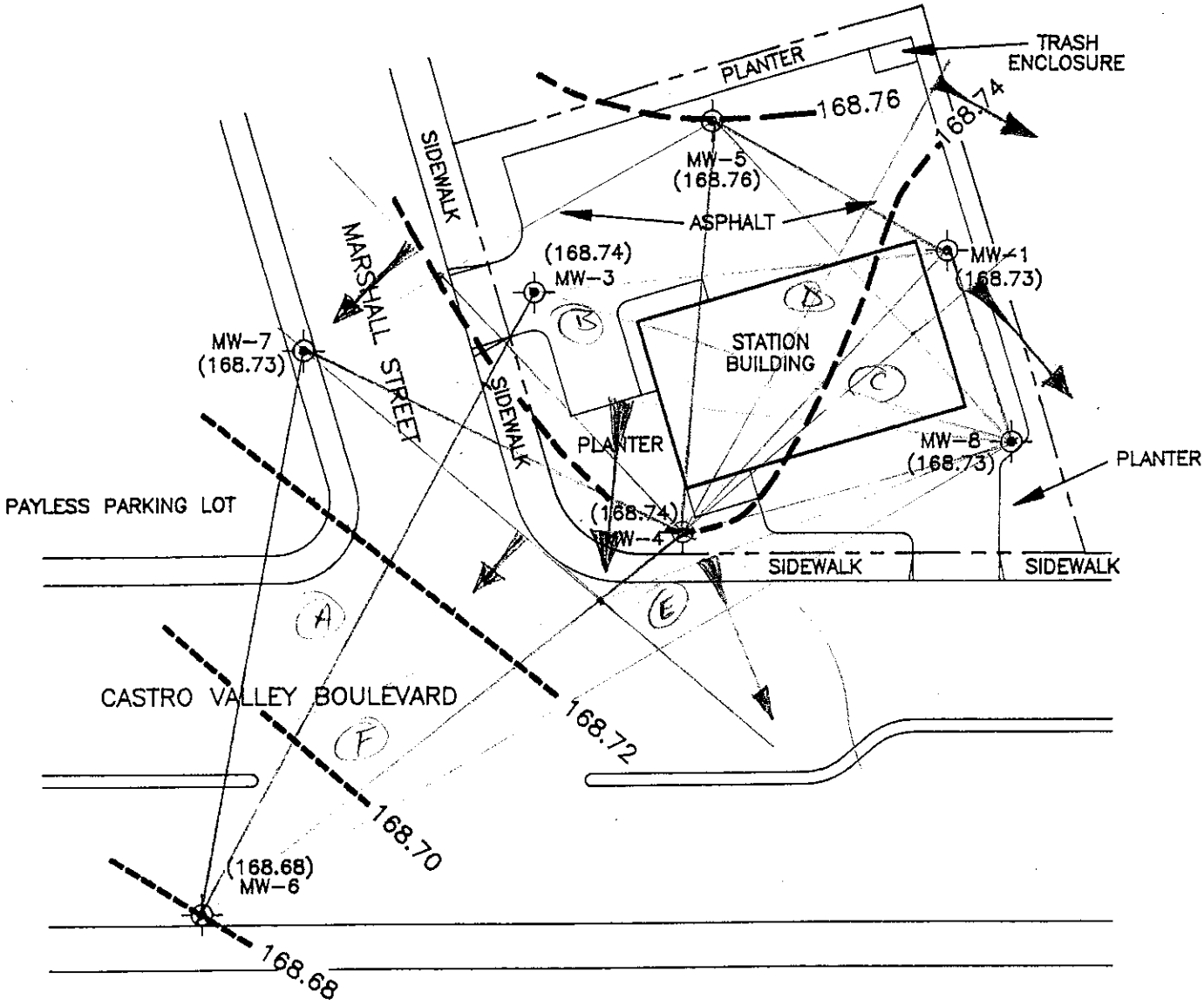
RESNA

JOB #: 3-30091-31

DRAWN BY: E.C.

DATE: 3/11/92

DRAWING #: FIG. 3



LEGEND

MW-8 — GROUNDWATER MONITORING WELL

SITE BOUNDARY

BUILDING

(168.76) GROUNDWATER ELEVATION (FEET)

168.76 GROUNDWATER ELEVATION CONTOUR LINE

CONTOUR INTERVAL: 0.02

0 20 40
SCALE IN FEET

N

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

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: J.D.S.

DATE: 3/5/92

DRAWING #: FIG. 4

APPENDIX A

BORING LOGS AND WELL CONSTRUCTION

RESNA EXPLORATORY BORING LOG

Project Name: Former Texaco Service Station
3940 Castro Valley Boulevard
Castro Valley, California

Project Number: 3-30091-31

Boring No. MW-6

Date Drilled: 1/20/91

Logged By: N.L. Nack

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
				4"Asphalt, 8" Aggregate Base		
1–3			CL	SILTY CLAY, possible artificial fill, olive brown (2.5Y 4/4), silt ≈20%, sand ≈15%, stiff, moist		
4–9	6-1		CL	SILTY CLAY, yellowish brown (10YR 4/5), silt ≈ 20%, sand 5-10%, medium stiff, moist		
10–11	6-2	9	ML/CL	CLAYEY SILT, yellowish brown (10YR 4/5), clay ≈20%, sand ≈10-15%		3.1
12–16	6-3	11		increasing silt, pockets of silty sand		2.4
17–20			SW	SAND, dark yellowish brown, (10YR 4/4), ≈ 10-15% silt, well graded, medium dense, saturated (small perched zone)	▼	
21	6-4	13	CH/CL	CLAY, brown (10YR 5/3), ≈10% silt, ≈5% sand, very stiff, moist		

REVIEWED BY R.G./C.E.G.

RESNA EXPLORATORY BORING LOG

Project Name: Former Texaco Service Station
3940 Castro Valley Boulevard
Castro Valley, California

Project Number: 3-30091-31

Boring No. MW-6

Date Drilled: 1/20/91

Logged By: N. L. Nack

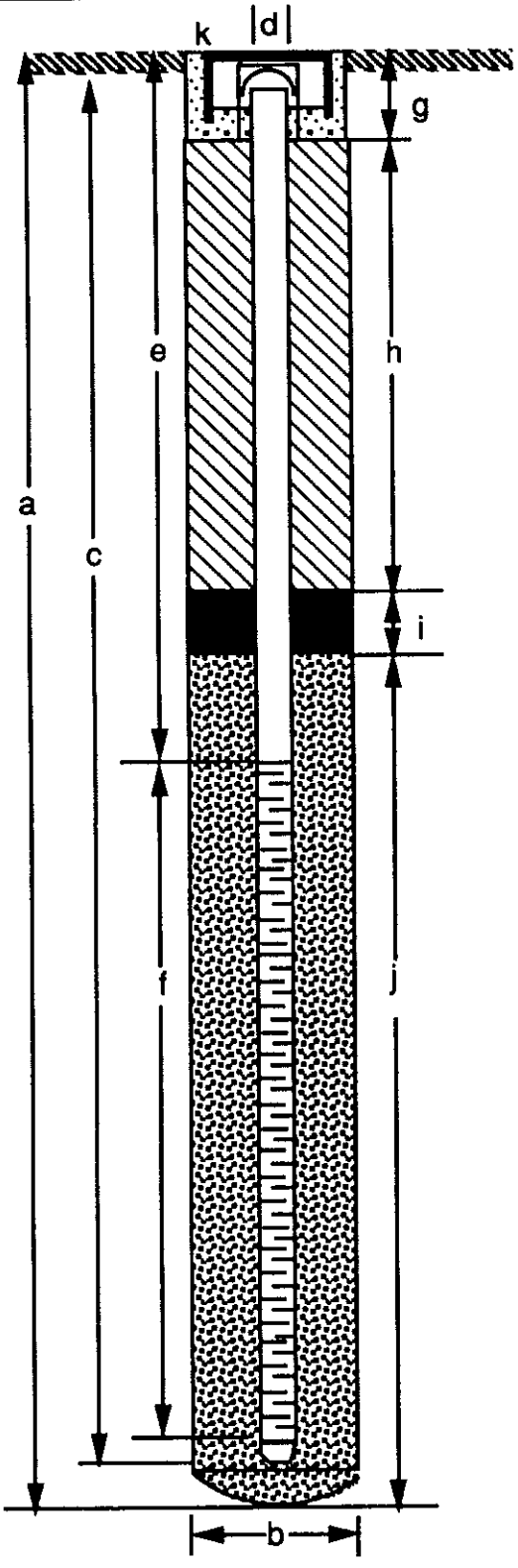
Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
22				CLAY, continued		
23						
24						
25						
26		18		Becoming gravelly		3.0
27						
28						
29					▽	
30			GP	GRAVEL, brown to yellowish brown (10YR 4/3 to 10YR 5/8), sand ≈25-30%, gravel poorly graded, subangular to subrounded, <1/2-inch diameter, medium dense, saturated		2.8
31		30				
32						
33						
34			SP	SAND, brown (10YR 4/3), poorly graded, silt ≈15%, flowing, loose, saturated		
35						
36						
37			GP	GRAVEL, brown to yellowish brown (10YR 4/3 - 10YR 5/8), sand ≈25-30%; gravel poorly graded, includes shale, sandstone, medium dense, saturated		
38						
39				Bottom of boring: 38 feet		
40				Groundwater encountered: 29 feet		
41						
42						

REVIEWED BY R.G./C.E.G.

RESNA

MONITORING WELL DETAIL

Project Number	3-30091-31	**Boring/Well No.**	MW-6
Project Name	Former Texaco Service Station	**Top of Casing Elev.**	187.30
County	Alameda	**Ground Surface Elev.**	187.50
Well Permit No.	91685	**Datum**	Mean Sea Level



EXPLORATORY BORING

a. **Total depth** 38 ft.

b. **Diameter** 12 in.

Drilling method Hollow stem auger

WELL CONSTRUCTION

c. **Casing length** 38 ft.

Material Schedule 40 PVC

d. **Diameter** 4 in.

e. **Depth to top perforations** 26 ft.

f. **Perforated length** 12 ft.

Perforated interval from 38 **to** 26 ft.

Perforation type Slot

Perforation size 0.02 in.

g. **Surface seal** 2 ft.

Seal material Concrete

h. **Backfill** 21 ft.

Backfill material Neat Cement

i. **Seal** 2 ft.

Seal material Bentonite

j. **Gravel pack** 13 ft.

Pack material 2/12 sand

k. 12" diameter traffic-rated vault box, locking expansion cap

RESNA EXPLORATORY BORING LOG

Project Name: Former Texaco Service Station
3940 Castro Valley Boulevard
Castro Valley, California

Project Number: 3-30091-31

Boring No. MW-7

Date Drilled: 1/21/92

Logged By: N. L. Nack

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
1				6" Concrete, 8" Base		
2			CL	SILTY CLAY, possible artificial fill, dark grayish brown (2.5Y 4/2), silt ≈20%, sand ≈20%, stiff, moist		
3						
4						
5						
6	7-1	21	CL	CLAY, brownish yellow (10YR 5/4), sand ≈30-40%, pockets of clayey sand, very stiff, damp		4.0
7						
8			SC	CLAYEY SAND brownish yellow (10YR 5/4), clay ≈30%, medium dense, moist		
9						
10						
11	7-2	15	ML	SILT, light yellowish brown (10YR 6/4) clay ≈10%, sand ≈15%, friable, rootholes, microlayers, medium stiff, moist		3.2
12						
13						
14				-increasing moisture, sand		
15						
16	7-3	22	SM	SILTY SAND, yellowish brown (10YR 5/4), silt ≈20-30%, fine-grained, trace coarse gravels, medium dense, damp		
17						
18						
19						
20						4.0
21	7-4	23	CL/CH	CLAY, brown (10YR 5/3), silt ≈15%, sand ≈5-10%, medium to high plasticity, stiff, moist		

REVIEWED BY R.G./C.E.G.

RESNA EXPLORATORY BORING LOG

Project Name: Former Texaco Service Station
3940 Castro Valley Boulevard
Castro Valley, California

Project Number: 3-30091-31

Boring No. MW-7

Date Drilled: 1/21/92

Logged By: N. L. Nack

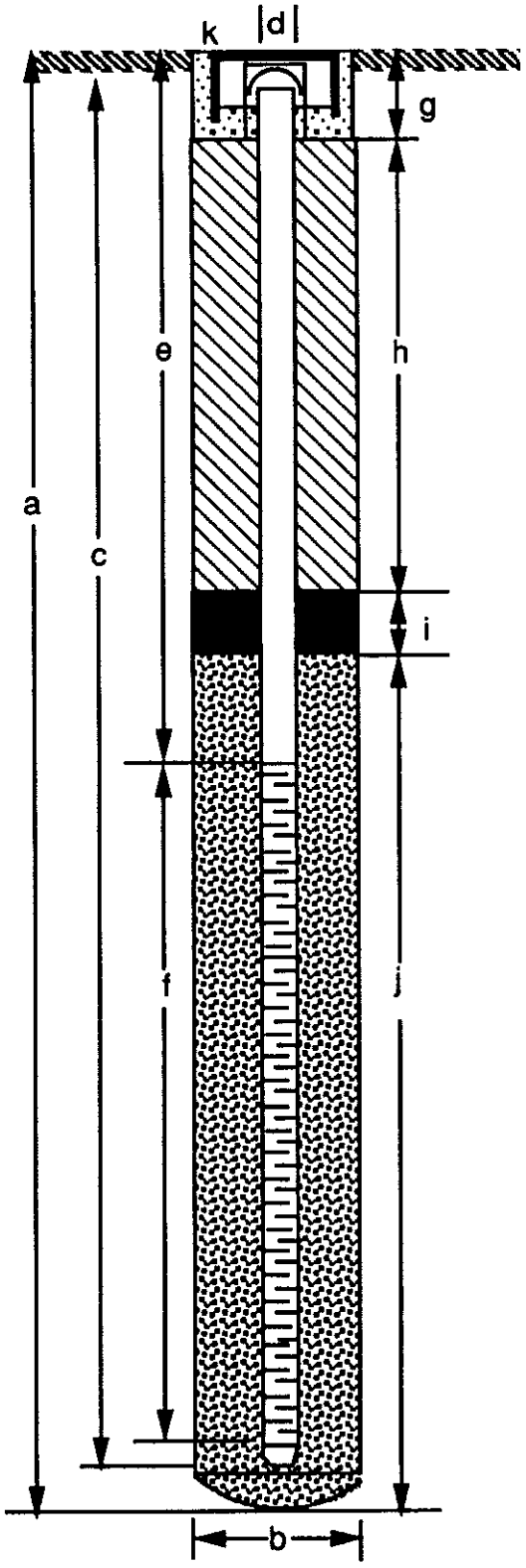
Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
22				CLAY, continued		
23			CL	SILTY CLAY, yellowish brown (10YR 5/4), silt ≈20-30%, very stiff, moist	▼	
24						
25	7-5	28				6.5
26			SP	SAND, yellowish brown (10YR 5/4) poorly graded, silt ≈10%, medium dense, saturated, small perched zone		
27			CL	SILTY CLAY, yellowish brown (10YR 5/4), silt ≈20-30%, stiff, moist		
28		15				
29			ML	SILT, yellowish brown (10YR 5/4), fractured, stiff, moist	▽	
30						2.8
31		36	SC	CLAYEY SAND, yellowish brown (10YR 5/4), clay ≈10-20%, gravel ≈5%, dense, saturated		
32						
33						
34				-increasing sand and gravels, flowing		
35			GC	CLAYEY GRAVEL, brown to yellowish brown (10YR 4/3 to 10YR 5/8), clay ≈20%, gravel subrounded, ≤ 2" diameter, dense, saturated		
36				-sample from drill bit		
37						
38						
39						
40				Bottom of boring: 40 feet		
41				Groundwater encountered: 30 feet		
42						

REVIEWED BY R.G./C.E.G.

RESNA

MONITORING WELL DETAIL

Project Number	3-30091-31	**Boring/Well No.**	MW-7
Project Name	Former Texaco Service Station	**Top of Casing Elev.**	189.34
County	3940 Castro Valley Boulevard	**Ground Surface Elev.**	189.53
Well Permit No.	91685	**Datum**	Mean Sea Level



EXPLORATORY BORING

a. **Total depth** 40 ft.

b. **Diameter** 12 in.

Drilling method Hollow Stem Auger

WELL CONSTRUCTION

c. **Casing length** 38 ft.

Material Schedule 40 PVC

d. **Diameter** 4 in.

e. **Depth to top perforations** 28 ft.

f. **Perforated length** 10 ft.

Perforated interval from 38 **to** 28 ft.

Perforation type Slot

Perforation size 0.02 in.

g. **Surface seal** 2 ft.

Seal material Concrete

h. **Backfill** 23-1/2 ft.

Backfill material Neat Cement

i. **Seal** 1 ft.

Seal material Bentonite

j. **Gravel pack** 11.5 ft.

Pack material 2/12 sand

k. 12-inch diameter traffic-rated vault box locking expansion cap

NOTE: Hole caved bottom two feet due to flowing sand.

RESNA EXPLORATORY BORING LOG

Project Name: Former Texaco Service Station
3940 Castro Valley Boulevard
Castro Valley, California

Project Number: 3-30091-31

Boring No. MW-8

Date Drilled: 1/22/92

Logged By: N.L. Nack

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
				3" Asphalt, 8" Aggregate Base		
1-3			CL	SILTY CLAY, possible fill, very dark grayish brown (2.5Y 3/2), silt ≈20-30% sand ≈20%, soft, moist		
4			CL	SILTY CLAY, yellowish brown (10YR 5/4), silt ≈30%, sand ≈20%, medium stiff, moist		5.5
6	8-1	12				
9			SM	SILTY SAND, brown (10YR 5/3), silt ≈30-40%, fine grained with pockets of sandy silt, medium dense, damp		9.2
11	8-2	13				
16	8-3	33		-interbedded/lensed sandy silt, sand, silty sand, very stiff to dense, damp		7.6
21	8-4	13	CL/CH	CLAY, dark grayish brown (10YR 4/2), silt ≈5%, sand ≈10%, medium to high plasticity, stiff, moist		8.2

REVIEWED BY R.G./C.E.G.

RESNA EXPLORATORY BORING LOG

Project Name: Former Texaco Service Station
3940 Castro Valley Boulevard
Castro Valley, California

Project Number: 3-30091-31

Boring No. MW-8

Date Drilled: 1/22/92

Logged By: N. L. Nack

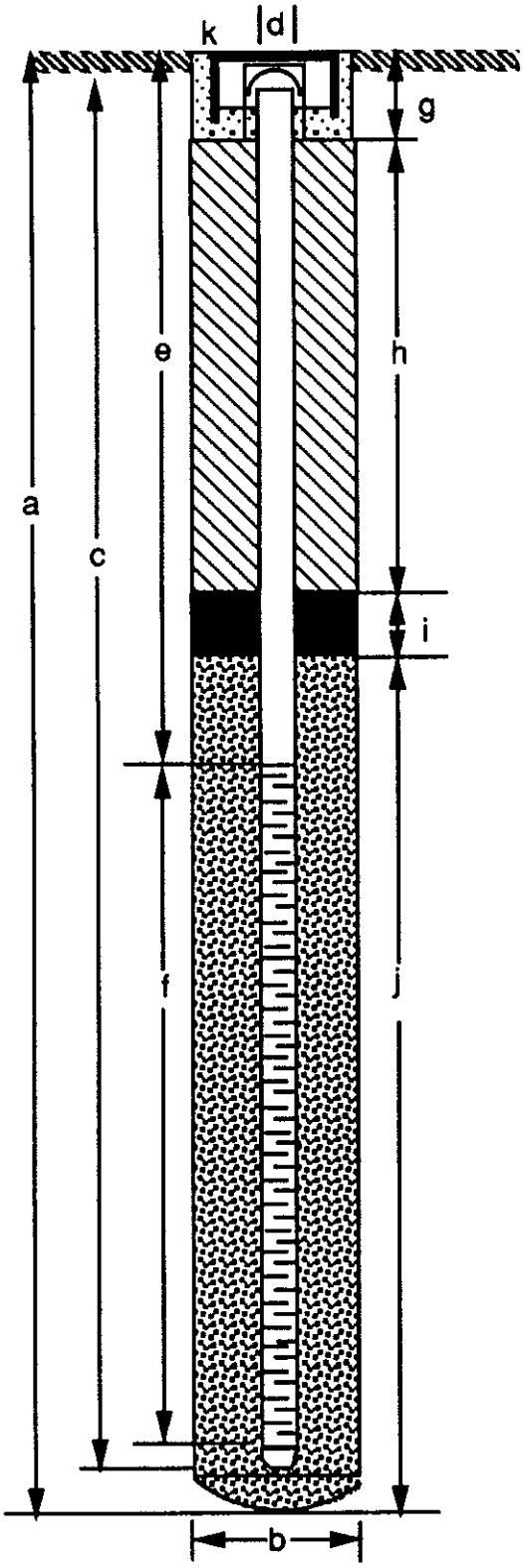
Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
22				CLAY, continued		
23			CH	CLAY, mottled dark yellowish brown (10YR 4/6), silt ≈10%, sand ≈15%, highly plastic, trace gravel in shoe, very stiff, moist		
24						
25						
26	8-5	33				6.4
27						
28			GP	GRAVEL, mottled yellowish brown (10YR 5/4), silt ≈10%, sand ≈30%, gravel ~ 2-1/2 diameter, poorly graded, subangular, includes sandstone, cherts, dense, saturated	▽	
29						
30						
31		36				23.4
32						
33						
34						
35			SW	SAND, mottled yellowish brown (10YR 5/4), well graded, gravel ≈15%, coarse grained, with pockets of clayey sand, dense, saturated		5.7
36		42				
37						
38				-flowing -sample from drill bit		
39						
40				Bottom of boring: 40 feet		
41				Groundwater encountered: 29 feet		
42						

REVIEWED BY R.G./C.E.G.

RESNA

MONITORING WELL DETAIL

Project Number	3-30091-31	**Boring/Well No.**	MW-8
Project Name	Former Texaco Service Station	**Top of Casing Elev.**	193.62
County	Alameda	**Ground Surface Elev.**	193.85
Well Permit No.	91685	**Datum**	Mean Sea Level



EXPLORATORY BORING

a. **Total depth** 40 ft.

b. **Diameter** 12 in.

Drilling method Hollow Stem Auger

WELL CONSTRUCTION

c. **Casing length** 40 ft.

Material Schedule 40 PVC

d. **Diameter** 4 in.

e. **Depth to top perforations** 24-1/2 ft.

f. **Perforated length** 15 ft.

Perforated interval from 39-1/2 **to** 24-1/2 ft.

Perforation type Slot

Perforation size 0.02 in.

g. **Surface seal** 2 ft.

Seal material Concrete

h. **Backfill** 20.5 ft.

Backfill material Cement

i. **Seal** 1 ft.

Seal material Bentonite

j. **Gravel pack** 16 ft.

Pack material 2/12 sand

k. 12-inch diameter traffic-rated vault box, locking expansion cap

NOTE: Hole caved 1/2-foot with flowing sands

APPENDIX B

SOIL AND GROUNDWATER SAMPLING PROTOCOLS

RESNA

Groundwater Sampling Protocol

GROUNDWATER SAMPLING PROTOCOL

Sampling of groundwater is performed by RESNA Industries, Inc. sampling technicians. Summarized field sampling procedures are as follows:

1. Proceed to first well with clean and decontaminated equipment.

2. Measurements of liquid surface(s) in the well, and total depth of monitoring well. Note presence of silt accumulation.

3. Field check for presence of floating product; measure apparent thickness.

4. Purge well prior to collecting samples; purge volume (casing volumes) calculated prior to removal.

5. Monitor groundwater for temperature, pH, and specific conductance during purging. Allow well to recover.

6. Collect samples using Environmental Protection Agency (EPA) approved sample collection devices, i.e., teflon or stainless steel bailers or pumps.

7. Transfer samples into laboratory-supplied EPA-approved containers.

8. Label samples and log onto chain-of-custody form.

9. Store samples in a chilled ice chest for shipment to a state-certified analytical laboratory.

10. Decontaminate equipment prior to sampling next well.

Sample Storage

Groundwater samples collected in the field are stored in an ice chest cooled to 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 quality assurance/quality control (QA/QC) guidelines. 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 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. It also includes how well the sampling point represents the actual parameter variations which are under study.

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 well or groundwater is thoroughly cleaned with a trisodium phosphate (TSP) solution and rinsed with deionized or distilled water before use at the site. This cleaning procedure is followed between each well sampled. Wells are sampled in approximate order of increasing contamination. 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, an optical interface probe is used to measure the hydrocarbon thickness and groundwater level. 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 siltation to be made and need for redevelopment.

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. Any observed film as well as odor and color of the water is 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 yield. In a high yield formation, samples will be collected when normal field measurement, including temperature, pH, and specific conductance stabilize, provided 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.

In low yield formations, the well is purged such that the "standing" water is removed and the well is allowed to recharge. (Normal field measurements will be periodically recorded during the purging process.) In situations where recovery to 80% of static water level is estimated, or observed to exceed a two hour duration, a sample will be collected when sufficient volume is available for a sample for each parameter. Attempts will be made so the well is not purged dry such that the recharge rate causes the formation water to cascade into the well.

In wells where free-phase hydrocarbons are detected, the free-phase portion will be bailed from the well and the estimated volume removed recorded. A groundwater sample will be collected if bailing reduces the amount of free-phase hydrocarbons to the point where they are not present in the well. Well sampling will be conducted using one of the aforementioned methods depending on the formation yield. However, if free-phase hydrocarbons persist throughout bailing, then 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 neck of the bottle; the teflon side of the septum (in cap) is positioned against the meniscus, and the cap screwed on tightly; the sample is inverted and the bottle lightly tapped. The absence of an air bubble indicates a successful seal; 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 chilled ice chest for shipment to a laboratory certified by the State of California Department of Health Services.

Laboratory and field handling procedures of samples are monitored by including QC samples for analysis with every submitted sample lot from a project site. QC samples may include any combination of the following:

- **Trip Blanks:** Used for purgeable organic compounds only; QC samples are collected in 40 milliliter (ml) sample vials filled in the analytical laboratory with organic-free water. 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. These QC samples 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. Occasionally, a state-certified laboratory subcontractor 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, 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 shallow survey contractor will supply sampling, purging, and field chemical analysis to RESNA in their report. RESNA considers this type of shallow probe mapping (together with shallow groundwater sampling) to be a reconnaissance technique only.

RESNA

Soil Sampling Protocol

SOIL SAMPLING PROTOCOL

I. SOIL SAMPLING BY DRILLING RIG

1) Review site proposal for boring locations and special instructions. Confirm boring locations in field with client. Have Underground Service Alert (USA) mark utilities in area prior to drilling.

2) Prior to initiating an exploratory boring, all equipment to be used during drilling and sampling operation is steam cleaned. Such equipment includes, but is not limited to, augers, bits, drilling rod, and soil samplers. Additionally, before each sampling event, the sampler and any sample liners are thoroughly cleaned with a dilute trisodium phosphate solution and rinsed with clean tap water or distilled water. Additional decontamination procedures are implemented as needed by specific projects.

3) Each exploratory boring is drilled with a truck-mounted drilling rig using either solid flight or hollow stem augers. The boring is advanced to the desired sampling depth and the sampler is lowered to the bottom of the hole. The sampler is driven a maximum of 18 inches into the undisturbed soils ahead of the auger by a 140-pound, rig-operated hammer falling 30 inches. The number of blows required to drive the sampler the final 12 inches is recorded on the boring log. When necessary, the sampler may be pushed by the drill rig hydraulics. In this case, the pressure exerted (in pounds per square inch) is recorded. After the sampler has penetrated the full depth, it is retrieved to the surface.

4) The samplers commonly used are either a California modified sampler (3 inch or 2.5 inch O.D.) or a standard penetrometer (2 inch O.D.). The standard penetrometer does not contain sample liners and is used to determine soil strength characteristics and visually characterize the subsurface materials. If samples are collected for laboratory analysis the California modified sampler, equipped with brass liners, is used except when the analysis will include copper or zinc. In this instance, the sample should be taken with the standard penetrometer and placed in a labeled plastic bag.

Upon retrieval, the sampler is disassembled into its component parts. One or more of the liners is selected for chemical analysis. The ends of the selected liner(s) are sealed with aluminum foil or teflon tape, capped with plastic caps, labeled, logged on chain-of-custody forms and stored in a chilled ice chest for preservation in the field and during transport to the analytical laboratory. All labels are pre-written to the extent possible with indelible ink to minimize handling time.

5) Samples not sealed for chemical analysis are checked for the presence of contamination in the field by the geologist. Any discoloration or odor is noted on the boring log. Each sample is classified in the field by a geologist using the Unified Soil Classification System and a Munsell soil color chart. In addition, samples may also be field-screened with a photoionization detector (calibrated daily) or threshold limit value sniffer. In either case, the instrument probe is held adjacent to freshly crumbled soil and the stabilized reading value is recorded on the log. Values of volatile vapors measured in the field are reconnaissance only and are not meant to supplant chemical analysis in a certified laboratory. Other visual screening techniques include examination of the sample under hand-lens magnification as-well-as floating sheen inspection resulting from immersion in water.

   Lithology logging will collect geologic data as required, using conventional geologic and hydrogeologic terminology. When rock is logged, a GSA Rock Color Chart and appropriate terminology will be employed to describe rock, fractures, bedding, etc. Soil or rock coring may be specified by the supervising geologist on a project-specific basis.

6) Samples are held in the possession of RESNA personnel until transferred to the analytical laboratory. Transfer to the laboratory is accomplished with either delivery by RESNA personnel, pick-up by laboratory personnel, or transfer by a personal delivery service. Each transfer of responsibility is recorded on a chain-of-custody record that accompanies the samples.

7) Conditions occasionally arise when other drilling equipment are used given site-specific formation conditions. Rotary drilling may be selected if coring or bearing conditions arise. Rotary or casing hammer may be used as deep drilling, flowing sands, or formation-specific conditions require.

8) When drilling though an aquifer known to be contaminated, a staged drilling approach will be used. This would involve using either a temporary or

permanent conductor casing placed adjacent to the contaminated aquifer and pressed or advanced slightly into the underlying aquitard. The cased hole will be cleaned as necessary, following which, a smaller diameter drill bit/auger will be advanced to the next underlying water bearing stratum. An impermeable seal will be placed in the borehole or annular space as appropriate upon completion of exploratory boring/well construction.

II. SOIL SAMPLING BY HAND

1) Some situations require that samples be collected by hand without the assistance of a drill rig (e.g., soil stock piles, excavation sidewall sampling, etc.). When possible, soil samples will be collected using a steel core sampler equipped with clean brass liners which is advanced into the soil with a slide hammer. In other cases, the outer surface of the soil is removed and a brass liner is driven into the soil by hand or with a hammer. To avoid damaging the liner, a block of wood can be held next to the liner so that the hammer strikes the block rather than the liner. The liner is removed and handled as described above. In deep excavations where safety factors preclude the direct sampling of the bottom or side wall, soil is retrieved by a backhoe bucket and this soil is sampled.

APPENDIX C

COUNTY OF ALAMEDA PUBLIC WORKS DEPARTMENT AND ZONE 7 PERMITS

ALAMEDA COUNTY PUBLIC WORKS
399 ELMHURST STREET, HAYWARD, CALIFORNIA 94544
ROAD ENCROACHMENT PERMIT

(In accordance with Chapter 1 of Title 5, Streets and Highways, Ordinance Code, County of Alameda, an ordinance providing for the protection of Public Highways and rights of way thereof regulating the use thereof and the manner in which the same may be altered, excavated under, obstructed or encroached upon; and providing penalties for the violation of the provisions thereof)

Issued to: RESNA INDUSTRIES
41674 CHRISTY STREET
FREMONT, CA 94538
Phone: 659-0404

Permit Number: R00-911512
Issue Date: 12/19/1991
Expiration Date: 12/18/92
Permit Issue Receipt: 003821
Assessor Number: - - -
Work Order Number: 83012

Job site: 3940 CASTRO VALLEY BLVD.
Township: CV

In compliance with and subject to all the terms, conditions and restrictions contained in Chapter 1 of Title 5 of said Ordinance Code and as stated below or printed as general or special provisions on any part of or attached to and made a part of this encroachment permit.

THE ABOVE APPLICANT HEREBY REQUESTS PERMISSION TO:
INSTALL AND OPERATE TWO GROUNDWATER MONITORING WELLS IN THE VICINITY OF THE INTERSECTION OF MARSHALL STREET AND CASTRO VALLEY BOULEVARD, CASTRO VALLEY.

Attention is directed to the general provisions printed on the attached sheets of this permit and to the special provisions attached hereto and made a part hereof.

ALL MISCELLANEOUS GENERAL PROVISIONS AND THE FOLLOWING SPECIAL PROVISION NUMBERS:

C, K, L, Q, R

THE WELLS MUST BE INSTALLED IN THE SIDEWALK OR GUTTER AREAS ONLY, AND MUST BE PROTECTED WITH CONCRETE CAPS AND TRAFFIC-RATED COVERS.

HOURS OF OPERATION OF THE WELLS ARE RESTRICTED TO 9 AM TO 3:30 PM ON NON-HOLIDAY WEEKDAYS.

FLUIDS WITHDRAWN FROM THE WELLS MUST BE DISPOSED OF IN AN AUTHORIZED HAZARDOUS MATERIAL SITE ONLY; NO FLUIDS MAY BE DEPOSITED IN THE STREET OR IN A STORM DRAIN.

THE PLANNED EXCAVATION IS WITHIN 500 FEET OF AN EXISTING TRAFFIC SIGNAL. CONTACT ERIC DAYTON AT 670-5537 TWO DAYS PRIOR TO START OF WORK.

THE BONDS FURNISHED WITH THIS PERMIT WILL BE HELD PENDING DESTRUCTION OF THE WELLS AND RESTORATION OF THE COUNTY RIGHT-OF-WAY.

THIS PERMIT AUTHORIZES WELL INSTALLATION AND WELL OPERATION FOR THE PERIOD ADJUSTED. ADDITIONAL PERMITS WILL BE REQUIRED FOR OPERATIONS BEYOND THE EXPIRATION DATE OF THIS PERMIT, AND FOR REMOVAL OF THE WELLS.

COUNTY OF ALAMEDA
PUBLIC WORKS AGENCY
399 Elmhurst Street • Hayward, CA 94544-1395
(510) 670-5480

January 16, 1992

RESNA INDUSTRIES
41674 CHRISTY ST.
FREMONT, CA 94538

AMENDMENT #1 TO ROAD ENCROACHMENT PERMIT NO. 83012 (R00-911512)

Permission is hereby granted to modify said permit as follows:

Revise the special provisions as follows:

WAS:

"THE WELLS MUST BE INSTALLED IN THE SIDEWALK OR GUTTER AREAS ONLY, AND MUST BE PROTECTED WITH CONCRETE CAPS AND TRAFFIC-RATED COVERS."

NOW:

"THE WELLS MUST BE INSTALLED IN THE SIDEWALK OR PARKING LANES OF THE ROADWAY ONLY AND MUST BE PROTECTED WITH CONCRETE CAPS AND TRAFFIC-RATED COVERS."

All other conditions of the permit are still applicable.

JK Rogers for

KERN HANSON
PERMIT SUPERVISOR

A50321

ALAMEDA COUNTY PUBLIC WORKS AGENCY
Permit Center
399 Elmhurst Street, Hayward, CA 94544
(415) 670-5569

PERMIT NUMBER 00-911512
JOB SITE 3940 CASTRO VALLEY BLVD,
WORK ORDER 3012

RECEIVED FROM RESNA INDUSTRIES
41674 CHRISTY STREET
FREMONT, CA 94538
659-0404

Permit Fee	20-509/2311	FEE	10.00
Inspection Fee	20-509/6081	FEE	49.41
Computer Surcharge	20-509/7951	FEE	0.59
			60.00

CHECK NUMBER 2890
BANK NUMBER 90-4039

DIRECTOR OF PUBLIC WORKS

By JK Rogers

Note: A $10.00 fee will be charged for returned checks

This permit does not authorize, and it shall not be construed to authorize any infringement upon the property rights of owners of the facility of the highway referred to herein. Notice [illegible] and other required notices shall be given to the [illegible] Redwood Road, Castro Valley, Phone (415) 582-7781.

Other Required Permits: ZONE 7 DRILLING PERMIT #91685
Bond Information: CIGNA, K029 7914 #J2594, J2597
Inspection Deposit: $49.41 CASH

By SEE APP. Applicant Reviewed By: JKR

by JK Rogers ALAMEDA COUNTY Work Completed: __/__/__ Inspector: _____

Where no maps or plats are furnished, a sketch of the proposed work, showing location, name of road and other information must be made on a separate sheet, in triplicate.

ALAMEDA COUNTY PUBLIC WORKS AGENCY

MISCELLANEOUS

GENERAL AND SPECIAL PROVISIONS

These general and special provisions are attached to and made a part of Encroachment Permit No. _____, issued in accordance with Chapter 1 of Title 5 of the Alameda County Ordinance Code of the County of Alameda; failure to comply with the provisions noted shall void said permit.

GENERAL PROVISIONS

1. It is understood and agreed upon by the Permittee that the performance of any work authorized by this permit shall constitute acceptance of the terms, provisions and conditions of the permit.

2. This permit shall be readily available for inspection at the highway site and must be shown to any representative of the Public Works Agency or any Law Enforcement Officer upon demand.

3. All work authorized by the permit shall be performed in a workmanlike, diligent and expeditious manner and must be completed to the satisfaction of the Director of Public Works.

4. This permit is limited to work to be performed within, upon or adjacent to county roads and highways under the jurisdiction of the Board of Supervisors of the County of Alameda.

5. The Permittee shall be responsible for all liability imposed by law for personal injury or property damage which may arise out of the work permitted and done by Permittee under this permit, or which may arise out of the failure on the part of the Permittee to perform his obligations under said permit in respect to maintenance of the encroachment. The Permittee shall protect and indemnify the County of Alameda, its officers and employees, and save them harmless in every way from all action at law for damage or injury to persons or property that may arise out of or be occasioned in any way because of his operations as provided in this permit.

6. Except as specifically provided herein, the requirements of the vehicle code and any other applicable laws must be complied with in all particulars.

7. The Permittee shall be fully responsible for taking proper precautions for the prevention of accidents to persons and/or damage to public or private property at the site of the work. The Permittee shall provide watchmen and flagmen and shall provide and maintain such fences, barriers, signs, guardrails, red lights and other safety devices adjacent to and on the site at or near all barriers as may be necessary to control traffic and prevent accidents to the public. He shall furnish, place and maintain such lights as may be necessary for illuminating the said signs and fences. Signs, flags, lights and other warning and safety devices shall conform to the requirements set forth in the latest edition of "Manual of Traffic Controls for Construction and Maintenance Work Zones", issued by the California State Department of Transportation.

8. The Permittee shall schedule and pursue his operations in such a manner that undesirable construction conditions will be minimized.

9. The Permittee agrees to exercise reasonable care in properly maintaining any authorized encroachment placed in the county right of way and to exercise reasonable care in inspecting for and immediately repairing and making good any injury to any portion of the county right of way which occurs as a result of the maintenance of the encroachment in the highway or as a result of the work done under this permit, including any and all injury to the roadway which would not have occurred had such work not been done or such encroachment not placed therein. A separate encroachment permit will be required for maintenance of these facilities.

10. The permittee shall begin work as authorized under this permit within 90 days from the date of issuance, unless a different date is stated in the permit. If the work is not begun within the 90 days or the time stated in the permit, the permit shall become void. The permit shall be valid for a term of one year from the date of issuance, unless discontinued by the use or removal of the encroachment for which the permit was issued (Section 5-3.10 Ordinance Code of the County of Alameda).

11. The County Inspector shall be notified at (415) 582-7781, 24 hours prior to commencing work.

12. The County Inspector shall be notified at (415) 582-7781, within 3 days after work is completed.

13. Permittee shall furnish all safeguards for pedestrians and post warning signs in advance of work area for vehicular traffic and shall clear the roadway at the end of each workday of any obstructions or debris. Failure to comply with this provision will result in the County's taking whatever measures are necessary to conform and billing the permittee for all expenses incurred.

14. No lane closures will be allowed between 6:00 a.m. and 9:00 a.m. or between 3:30 p.m. and 6:30 p.m. At other times at least one lane of traffic shall be kept open to the general public. No public road under the jurisdiction of the Board of Supervisors shall be closed to travel by the general public without special permission, in writing, of the Board.

15. Environmental Impact Review - No significant impact.

16. This permit is issued only for that portion of work to be performed within the County road right of way.

17. In the event any future improvement of the road right of way necessitates the relocation of the encroachment for which this permit is issued, the permittee will relocate same at his sole expense.

18. Permittee is hereby cautioned that unless otherwise noted, traffic signal detectors, wiring, etc., are not to be disturbed. Any damage to traffic signal detector loops, wiring, etc. shall be repaired within 48 hours.

SPECIAL PROVISIONS

A. Alameda County Survey Monuments destroyed or displaced during the progress of the work shall be replaced by the Permittee at no expense to the County of Alameda. The monument pin will be set by the County of Alameda.

B. Priority shall be given to operations performed under contract let by the County of Alameda for certain work at this location. Coordination shall be effected through said Contractor and the Project Representative for the County.

C. Permit is issued for a temporary installation only with the expressed condition that the encroachment permitted hereby shall be removed and the right of way restored to its original condition at no expense to Alameda County, at expiration date of this permit, or if in the judgement of the Director of Public Works that prior to that time public interest so requires.

D. Permittee is hereby notified that major construction is programmed for the widening and realignment of _____ within the next _____ years. Any driveway approach conforming to the existing _____ is to be considered temporary. Before permanent improvements are constructed by the permittee, it is suggested that permittee be aware of the future road improvements insomuch as they affect his property.

E. Roots and stump shall be removed two feet below ground surface. Maintenance and repairs to the right of way made necessary by the presence of such trees therein shall be the responsibility of the property owner and such maintenance and repairs shall be made by the property owner upon ten (10) days notice by the Director of Public works at no expense to Alameda County.

F. Permittee agrees to maintain the planted area and to keep it weed-free. The plants shall be kept at a height not exceeding _____ inches.

G. The tree(s) planted within the County road right of way shall be _____. The permittee agrees to maintain the tree(s) including trimming. The County will trim the trees only as necessary to provide safety to the users of the County road right of way.

H. All mailboxes must be placed in accordance and with the rules and regulations of the United States Postal Service, and no box shall be so placed within the road right of way as to endanger the life or safety of the traveling public.

I. (FOR PERMITS GRANTING PERMISSION FOR IMPROVING A DEDICATED BUT NOT ACCEPTED ROAD)

The issuance of this permit does not imply acceptance of _____ into the County Road System.

J. (FOR TEMPORARY ASPHALTIC CONCRETE DRIVEWAY AREA)

This permit is for a temporary installation only, to provide driveways to the adjacent property, and no construction under this authority will be replaced at County expense upon future widening and reconstruction of this road.

K. (FOR EXCAVATION)

Material excavated from within the County road right of way under this permit shall be removed from within the right of way and disposed of in a legal manner. Gutters, ditches, drop inlets, storm sewers, and other drainage facilities shall be cleaned of earth or other material deposited therein as a result of the work authorized herein and the right of way shall be left clean and orderly to the satisfaction of the Director of Public Works

L. Line and grade shall be to the satisfaction of the Director of Public Works. All work shall conform to County specifications and requirements, and County Inspector shall be notified at (415) 582-7781, 24 hours prior to placing of surfacing.

a. Asphaltic concrete surfacing to be limited to driveway width within the County road right of way.
b. Existing drainage is not to be altered.
c. The grade at the property line shall be approximately the same as the grade at the crown of the road.

M. The position of each pole placement shall be approved by the County Inspector prior to installation. This is to insure proper clearance for all improvements.

N. The authority herein above contained does not include work to be done within the trackage limits of the _____ right of way.

O. This encroachment permit is issued recognizing that construction and/or installation was already completed at the time of application for permit, and, as such, appropriate inspection was not possible.

P. Under California Law (Government Code, Sections 4216-4217) it is not legal to excavate until a Regional Notification Center Inquiry identification number has been provided. This County permit is not valid unless this I.D. number has been obtained. Requirement of a Regional Notification number, along with a copy of the permit, must be available upon request by a City/County Inspector on all jobs within our right-of-way. Work found in progress (except emergency repairs) without a Regional Notification Center number will be stopped and our right-of-way cleared. The toll free number for your local Notification Center, U.S.A., is (800) 642-2444.

Q. Where pavement is to be removed, it shall be sawed along the edges of the excavation in order to leave a smooth contour of the pavement surface. Cutting with air tools or other devices leaving ragged edges will not be permitted.

R. Where concrete is to be removed, the edges shall be sawed. No concrete shall be poured until forms have been inspected and approved by County Inspector. County Inspector shall be notified at (415) 582-7781 24 hours prior to placement of concrete.

S. The cash bond placed for this work will be held for six (6) months after the final inspection. In the event the permittee does not give the County the notice required in Section 11, and the work is performed without inspection, the cash bond will be held for one year after the final inspection.

DONALD J. LABELLE
DIRECTOR OF PUBLIC WORKS

rev. 5/91

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94588 • (510) 484-2600

11 December 1991

Resna
41674 Christy Street
Fremont, CA 94538-3114

Gentlemen:

Enclosed is Drilling permit 91685 for a monitoring well construction project at 3940 Castro Valley Road in Castro Valley for Texaco Refining and Marketing.

Please note that permit condition A-2 requires that a well construction report be submitted after completion of the work. The report should include drilling and completion logs, location sketch, and permit number.

If you have any questions, please contact Wyman Hong or me at 484-2600.

Very truly yours,

Craig A. Mayfield

Craig A. Mayfield
Water Resources Engineer

WH:mm
Enc.

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94588 • (415) 484-2600

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

PERMIT NUMBER 91685

LOCATION NUMBER

LOCATION OF PROJECT Former Texaco Station
3940 Castro Valley Road
Castro Valley, CA

CLIENT
Name Texaco Refining & Marketing Inc.
Address 108 Cutting Blvd Phone 510-237-7821
City Richmond, CA Zip 94804

APPLICANT
Name Nissa L. Mack
for: RESNA Industries
Address 41674 Christy St. Phone 510-659-0404
City Fremont, CA Zip 94538

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	___	General	___
Water Supply	___	Contamination	___
Monitoring	X	Well Destruction	___

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. C22930

WELL PROJECTS
Drill Hole Diameter 12 in. Maximum
Casing Diameter 4 in. Depth 40± ft.
Surface Seal Depth 15± ft. Number 3

GEOTECHNICAL PROJECTS
Number of Borings NA Maximum
Hole Diameter ___ in. Depth ___ ft.

ESTIMATED STARTING DATE 1/8/91
ESTIMATED COMPLETION DATE 1/9/91

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Nissa L. Mack Date 12/6/91
for: RESNA Industries

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

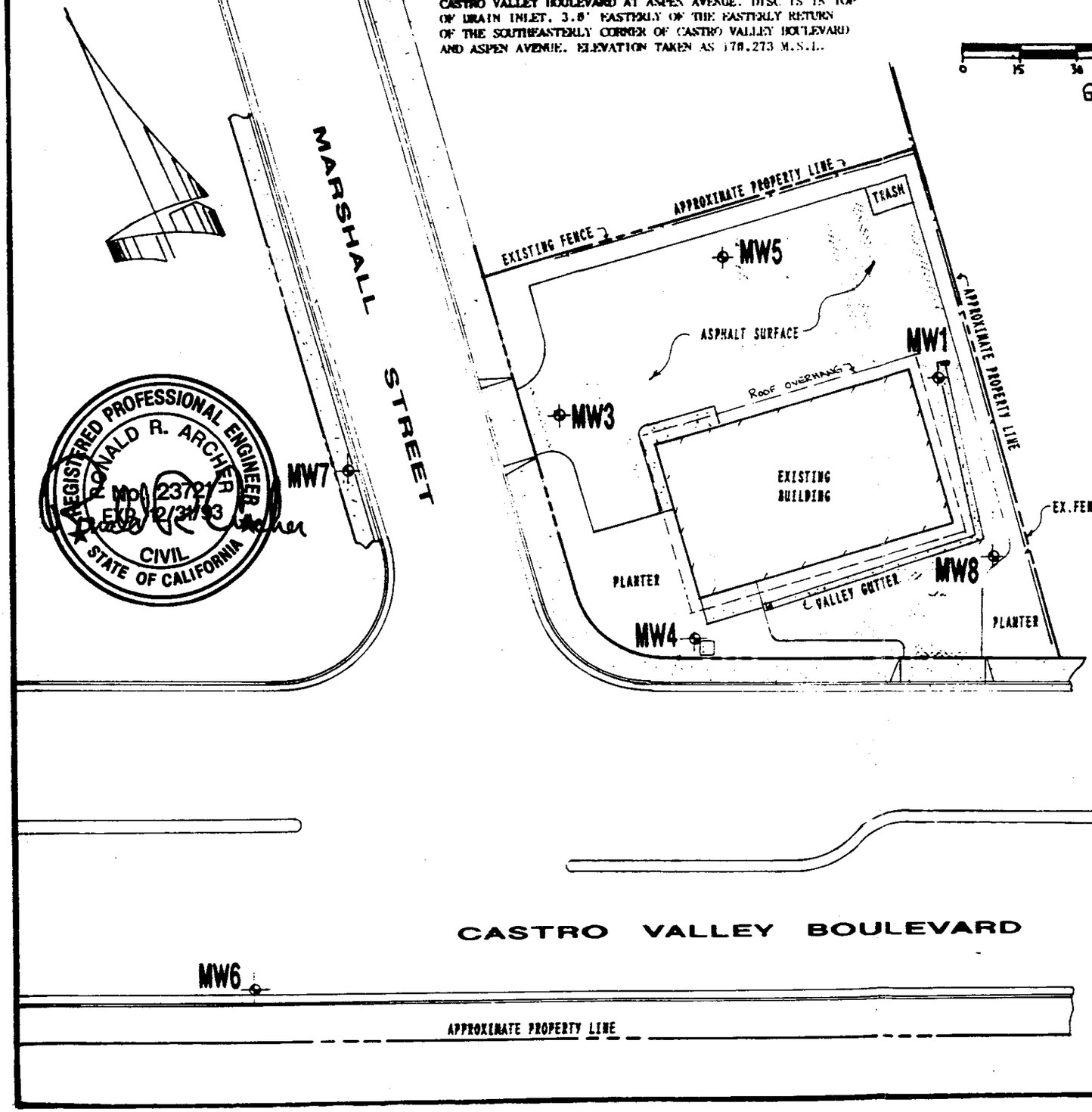
Approved Wyman Hong Date 9 Dec 91
Wyman Hong

121989

APPENDIX D

SURVEY DATA

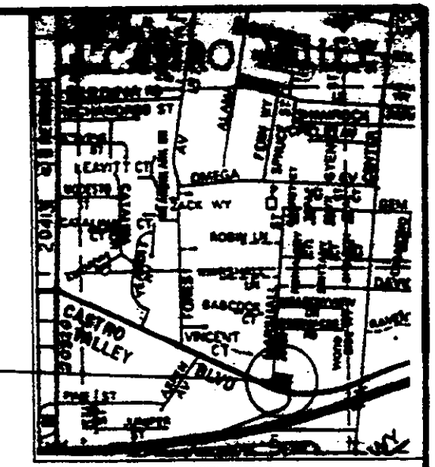
BENCHMARK: CVH-ASPEN
AN ALAMEDA COUNTY BRASS DISC STAMPED "CVH-ASPEN 1977" ON CASTRO VALLEY BOULEVARD AT ASPEN AVENUE. DISC IS IN TOP OF DRAIN INLET, 3.8' EASTERLY OF THE EASTERLY RETURN OF THE SOUTHEASTERLY CORNER OF CASTRO VALLEY BOULEVARD AND ASPEN AVENUE. ELEVATION TAKEN AS 178.273 M.S.L.



1" = 30'

0 15 30 60 90

Graphic Scale
In feet



VICINITY MAP
N.T.S.

REGISTERED PROFESSIONAL ENGINEER
RONALD R. ARCHER
No. 23721
EXP. 12/31/93
CIVIL
STATE OF CALIFORNIA

MONITOR WELL DATA TABLE

WELL DESIGNATION	ELEVATION	DESCRIPTION
MW1	192.45	TOP OF PVC CASING (LOWER LIP)
	192.88	TOP OF BOX
MW3	190.50	TOP OF PVC CASING
	190.74	TOP OF BOX
MW4	191.64	TOP OF PVC CASING
	192.63	TOP OF BOX
MW5	191.56	TOP OF PVC CASING
	191.93	TOP OF BOX
MW6	187.30	TOP OF PVC CASING
	187.50	TOP OF BOX
MW7	189.34	TOP OF PVC CASING
	189.53	TOP OF BOX
MW8	193.62	TOP OF PVC CASING
	193.85	TOP OF BOX

JANUARY 28. 1992 JOB NO. 1890

PLAT SHOWING EXISTING MONITOR WELLS AT THE FORMER TEXACO SERVICE STATION (NOW SPEEDEE OIL CHANGE FACILITY) LOCATED AT 3948 CASTRO VALLEY BOULEVARD, AT MARSHALL STREET. CASTRO VALLEY, ALAMEDA COUNTY. CALIFORNIA.

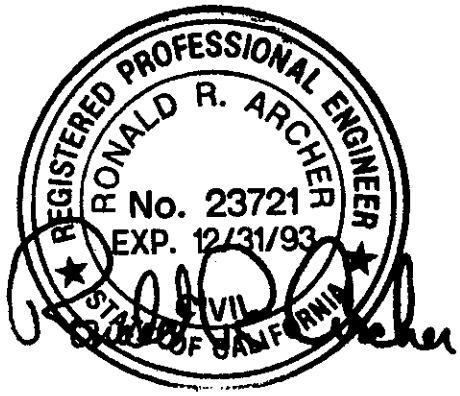
FOR: EXCELTECH/A RESNA COMPANY
PROJECT NO. 3-38891-31

RON ARCHER
CIVIL ENGINEER, INC.
CONSULTING · PLANNING · DESIGN · SURVEYING
4133 Mohr Ave., Suite E · Pleasanton, CA 94566
(415) 426-8272

RON ARCHER
CIVIL ENGINEER, INC.

CONSULTING • PLANNING • DESIGN • SURVEYING

4133 Mohr Ave., Suite E • Pleasanton, CA 94566
(415) 462-9372



JANUARY 28, 1992 JOB NO. 1890

ELEVATIONS OF EXISTING MONITOR WELLS AT THE FORMER TEXACO SERVICE STATION (NOW SPEEDEE OIL CHANGE FACILITY) LOCATED AT 3940 CASTRO VALLEY BOULEVARD, AT MARSHALL STREET, CASTRO VALLEY, ALAMEDA COUNTY, CALIFORNIA.

FOR: EXCELTECH/A RESNA COMPANY
PROJECT NO. 3-30091-31

BENCHMARK: CVB-ASPEN
AN ALAMEDA COUNTY BRASS DISC STAMPED "CVB-ASPEN 1977" ON CASTRO VALLEY BOULEVARD AT ASPEN AVENUE. DISC IS IN TOP OF DRAIN INLET, 3.0' EASTERLY OF THE EASTERLY RETURN OF THE SOUTHEASTERLY CORNER OF CASTRO VALLEY BOULEVARD AND ASPEN AVENUE. ELEVATION TAKEN AS 170.273 M.S.L.

MONITOR WELL DATA TABLE

WELL DESIGNATION	ELEVATION	DESCRIPTION
MW1	192.45	TOP OF PVC CASING (LOWER LIP)
	192.88	TOP OF BOX
MW3	190.50	TOP OF PVC CASING
	190.74	TOP OF BOX
MW4	191.64	TOP OF PVC CASING
	192.63	TOP OF BOX
MW5	191.56	TOP OF PVC CASING
	191.93	TOP OF BOX
MW6	187.30	TOP OF PVC CASING
	187.50	TOP OF BOX
MW7	189.34	TOP OF PVC CASING
	189.53	TOP OF BOX
MW8	193.62	TOP OF PVC CASING
	193.85	TOP OF BOX

APPENDIX E

LABORATORY REPORTS AND CHAIN OF CUSTODY

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:	01-20 to 22-92
	RESNA	Date Received:	01-23-92
	41674 Christy St.	BTEX Analyzed:	01-23/24-92
	Fremont, CA 94538	TPHg Analyzed:	01-23/24-92
Project:	19513-L, Project #3-30091-31	TPHd Analyzed:	NR
	Former Texaco	Matrix:	Soil

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit:	0.005	0.005	0.005	0.005	1.0	10
SAMPLE Laboratory Identification						
MW6-1 S1201409	ND	ND	ND	ND	ND	NR
MW6-2 S1201410	ND	ND	ND	ND	ND	NR
MW6-3 S1201411	ND	ND	ND	ND	ND	NR
MW6-4 S1201412	ND	ND	ND	ND	ND	NR
MW7-1 S1201413	ND	ND	ND	ND	ND	NR

ppm = parts per million = mg/kg = milligrams per kilogram.
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

January 26, 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:	01-20-92 - 01-22-92
	RESNA	Date Received:	01-23-92
	41674 Christy St.	BTEX Analyzed:	01-23-92 - 01-24-92
	Fremont, CA 94538	TPHg Analyzed:	01-23-92 - 01-24-92
Project:	19513-L, Project #3-30091-31	TPHd Analyzed:	NR
	Former Texaco	Matrix:	Soil

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit:	0.005	0.005	0.005	0.005	1.0	10
SAMPLE Laboratory Identification						
MW7-2 S1201414	ND	ND	ND	ND	ND	NR
MW7-3 S1201415	ND	ND	ND	ND	ND	NR
MW7-4 S1201416	ND	ND	ND	ND	ND	NR
MW7-5 S1201417	ND	ND	ND	ND	ND	NR
MW8-1 S1201418	ND	ND	ND	ND	ND	NR

ppm = parts per million = mg/kg = milligrams per kilogram.
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

January 26, 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:	01-20-92 - 01-22-92
	RESNA	Date Received:	01-23-92
	41674 Christy St.	BTEX Analyzed:	01-23-92 - 01-24-92
	Fremont, CA 94538	TPHg Analyzed:	01-23-92 - 01-24-92
Project:	19513-L, Project #3-30091-31	TPHd Analyzed:	NR
	Former Texaco	Matrix:	Soil

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit:	0.005	0.005	0.005	0.005	1.0	10
SAMPLE Laboratory Identification						
MW8-2 S1201419	ND	ND	ND	ND	ND	NR
MW8-3 S1201420	ND	ND	ND	ND	ND	NR
MW8-4 S1201421	ND	ND	ND	ND	ND	NR
MW8-5 S1201422	ND	ND	ND	ND	ND	NR

ppm = parts per million = mg/kg = milligrams per kilogram.
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

January 26, 1992
Date Reported

CHAIN OF CUSTODY RECORD

Project No.	Project Name	Test Requested							P.O. No.
3-30091-31	Former Texaco 3940 Castro Valley Blvd Castro Valley	TPH-G	BTEX						Lab: Applied Analytical
Samplers (Signature): Russell Mack									Turnaround Time: Normal

No.	Date	Time	Sample Description	Remarks
MW6-1	1/20/91	1015	One 6" brass liner, Soil	
MW6-2		1040		
MW6-3		1050		
MW6-4		1105		
MW7-1	1/21/91	1035		
MW7-2		1050		
MW7-3		1105		
MW7-4		1115		
MW7-5		1135		
MW8-1	1/22/91	745		
MW8-2		805		
MW8-3		820		
MW8-4		835		
MW8-5		905		
				Direct Bill to: Texaco Environmental Services 100 Cutting Blvd Richmond, CA 94804 Attn: Karel Detterman

Relinquished By	Date	Time	Received By	Relinquished By	Date	Time	Received By
Russell Mack	1/23/91						
Relinquished By	Date	Time	Received By	Relinquished By	Date	Time	Received By
	1/23/91	1:00					

Remarks:

Report To: Russell Mack

RESNA
41674 Christy Street
Fremont, CA 94538-3114
(510) 659-0404
Fax (510) 651-4677
Contr. Lic. No. 629796

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	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	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

CHAIN OF CUSTODY RECORD

694570

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 Detterman

LAB Applied

TURN AROUND TIME Normal

REMARKS

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

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

Texaco Refining
and Marketing Inc

108 Cutting Boulevard
Richmond CA 94804

92 APR 24 AM 8:21

April 20, 1992

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 copies of the following reports:

1. Groundwater Monitoring Report - Fourth Quarter 1991, dated February 12, 1992
2. Soil and Groundwater Investigation, dated March 30, 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,

Karel Detterman

Karel Detterman
Project Coordinator

Enclosure:

cc: California Regional Water Quality Control Board
2101 Webster Street, Room 500
Oakland, CA 94612

pr: GRS

HR/P

3940CV4.20