



Texaco Refining  
and Marketing Inc

108 Cutting Boulevard  
Richmond CA 94804

May 7, 1991

Mr. Rafat Shahid  
Alameda County Environmental  
Health Department  
80 Swan Way, Room 200  
Oakland, CA 94621

Dear Mr. Shahid:

For your information enclosed is a copy of our Pipe Excavation and Recent Groundwater Analyses dated February 12, 1991 for our former Texaco Service Station located at 500 Grand Avenue in Oakland, California.

Please call me at (415) 236-1770 if you have any questions.

Very truly yours,

R.R. Zielinski  
Environmental Supervisor

Enclosures

cc: Mr. Tom Callaghan  
California Regional Water  
Quality Control Board  
San Francisco Bay Area Region  
2101 Webster Street, Ste. 500  
Oakland, CA 94612

pr: KD

KEG

500GA.RS



January 31, 1991  
Revised February 12, 1991

2251,114.03

Texaco Refining and Marketing, Inc.  
108 Cutting Boulevard  
Richmond, California 94804

Attention: Mr. Ron Zielinski

Gentlemen:

Results of Pipe Excavation and  
Recent Groundwater Analyses  
Former Texaco Service Station  
500 Grand Avenue  
Oakland, California

#### INTRODUCTION

Harding Lawson Associates (HLA) presents this summary of work performed for Texaco Refining and Marketing, Inc. (Texaco) at 500 Grand Avenue in Oakland, California. This letter summarizes the results of soil and water analyses obtained as a result of the excavation and removal of a clay pipe at the site. In addition, laboratory results from the most recent groundwater sampling are presented. With respect to this recently obtained information, it is our opinion that Texaco should re-evaluate plans for installing additional monitoring well(s) at the site.

#### PROJECT HISTORY

The subject location is a former Texaco service station which is now operated by Exxon Company, USA (Exxon). Since 1988, HLA has conducted soil and groundwater investigations at the site on behalf of Texaco. Results of those investigations are presented in the following documents:

- Environmental Assessment Report, September 22, 1989
- Interim Remedial Plan, December 7, 1990
- Quarterly Technical Reports

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In June 1990, waste oil was discovered in the backfill around the waste oil tank as workers prepared to install overflow containment devices for Exxon. Mr. Gil Wistar, of the Alameda County Department of Environmental Health, recommended on July 17, 1990 that the waste oil tank be removed and that the contaminated soil around the tank be excavated. He also recommended that at least one monitoring well be installed downgradient of the former waste oil tank after all contaminated soil had been removed.

Exxon arranged for a general contractor to pull the tank on September 25, 1990. Representatives of Exxon, HLA, the Alameda County Department of Environmental Health (Gil Wistar), and the Oakland Fire Department were present. Fluids were pumped from the excavation, the tank was pulled, and contaminated soil was overexcavated.

During the process of overexcavating, two clay pipes were discovered approximately 1.5 foot below grade in the northwest and northeast corners of the excavation. The pipes appeared to have petroleum hydrocarbon products in them. A verbal request was made by Mr. Wistar that the clay pipes be excavated and that Texaco afterwards proceed with installation of the monitoring well(s). Mr. Wistar also requested removal of the clay pipes in written correspondence dated October 25, 1990.

#### RECENT WORK

##### Clay Pipe Excavation

On behalf of Texaco, HLA arranged to have the clay pipes removed and the soil overexcavated on January 8, 1991. A trench approximately 15 feet long, 2.5 feet wide, and 4.5 feet deep was excavated on the west side of the former tank location (Plate 1).

Two water samples and four soil samples were obtained. A small excavation was made on the east side of the former tank location and one additional soil sample was collected.

The clay pipe on the west side of the former waste oil tank was intact for approximately 10 feet. However, in the area where the pipe crossed under a utility trench, the pipe was crushed (Plate 1). Pieces of clay pipe were found around the utility

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cluster, suggesting that the clay line may have been broken during installation of the utilities. A utilities locator determined that the remainder of the pipe runs under the corner of the building and toward Euclid Avenue, where it apparently terminates on-site.

Water in the clay pipe and surrounding trench backfill was analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) and total petroleum hydrocarbons (TPH) as gasoline, as diesel fuel, and as motor oil. The water sample collected nearest the former waste oil tank (EP-01) contained the highest concentrations of TPH, as shown in Table 1. Results of laboratory analyses indicate 100,000 parts per billion (ppb) TPH as motor oil in water sample EP-01 and 17,000 ppb TPH as motor oil in water sample WP-01, which was collected from the backfill in the western end of the excavation.

Results of soil analyses are shown in Table 2. In general, soil samples contained less than 100 parts per million (ppm) TPH as gasoline, less than 200 ppm TPH as diesel fuel, and less than 700 ppm total oil and grease. Three soil samples from the excavation were analyzed for chlorinated hydrocarbons, and all three contained non-detectable concentrations of the 28 compounds analyzed.

On January 8, Mr. Wistar requested that the excavation be continued up to the door of the first service bay. On January 9 and 10, HLA completed the required soil removal, removed water from the trench, completed sampling, and began to backfill the excavation.

#### Quarterly Groundwater Sampling

Concurrent with the excavation work, HLA conducted quarterly groundwater sampling of four on-site and five off-site monitoring wells. The samples were analyzed for BTEX and TPH as gasoline, as diesel fuel, and as motor oil (Table 3). As Table 3 indicates, heavy hydrocarbons other than diesel fuel were detected in some of the past groundwater analyses. The samples collected on January 8 were analyzed specifically for TPH as motor oil, and analytical results indicate that all of the samples contained heavy hydrocarbons identified as motor oil. Groundwater concentrations range from 69 ppb in MW-8J to 620 ppb in MW-8F (Plate 1).

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DISCUSSION

The recent excavations of the waste oil tank and the clay pipe have lead to the following observations and conclusions:

- The waste oil tank appeared in tact, but the tank backfill contained hydrocarbon-bearing water
- The clay line discovered during excavation of the waste oil tank is associated with hydrocarbon-bearing water, both in the fractured pipe and in the surrounding trench backfill
- The water sample collected closest to the former waste oil tank contained the highest concentrations of TPH as motor oil
- Other utility trenches on-site may have provided preferential flow paths for hydrocarbon-bearing water, given the relative impermeability of near surface strata

In addition, recent analytical results indicate that heavy hydrocarbons are present in groundwater from all of the monitoring wells, both on-site and off-site. It is likely that one source of the heavy hydrocarbons was near the former waste oil tank.

HLA believes that a monitoring well drilled immediately downgradient of the former waste oil tank is unnecessary because:

- Water samples from existing monitoring wells indicate that heavy hydrocarbons are widespread in groundwater, both on-site and off-site.
- The available space for downgradient monitoring well(s) is limited; any such well would have to be very carefully located between the main tank field backfill and the backfill of the former waste oil tank excavation.

HLA has tentatively scheduled the drilling for February 19, 1990. We will proceed with obtaining permits and planning the

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work, pending notification from Texaco that the work is still deemed necessary. Please contact the undersigned if you have questions regarding this matter.

We are pleased to be of continued service to Texaco Refining and Marketing, Inc.

Sincerely,

HARDING LAWSON ASSOCIATES



Jeanna S. Hudson  
Senior Geologist



Stephen J. Osborne  
Geotechnical Engineer

JSH/SJO/mlw 031447B/L28

Attachments: Tables 1, 2 and 3



Table 1. Results of Analyses of Excavation Water  
(concentrations in parts per billion [ppb])

<u>Sample</u>	<u>Depth (feet)</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl- benzene</u>	<u>Xylenes</u>	<u>TPH as Gasoline</u>	<u>TPH as Diesel</u>	<u>TPH as Motor Oil</u>	<u>Total oil and Grease</u>	<u>Chlorinated Hydrocarbons</u>
EP-01	west trench, east end	280	300	120	860	5,200	31,000	100,000	NA	NA
WP-01	west trench, west end	320	73	95	48	3,900	13,000	17,000	NA	NA

Table 2. Results of Soil Analyses from Pipe Excavation  
(concentrations in parts per million [ppm])

<u>Sample</u>	<u>Depth (feet)</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl- benzene</u>	<u>Xylenes</u>	<u>TPH as Gasoline</u>	<u>TPH as Diesel</u>	<u>TPH as Motor Oil</u>	<u>Total oil and Grease</u>	<u>Chlorinated Hydrocarbons</u>
PT-NS-7.5	2.5	0.020	ND	0.055	0.13	22	28	330	110	ND on all
PT-B-7.5	4.5	ND	ND	ND	ND	5.7	8.1	93	150	ND on all
PT-SS-7.5	2.5	0.071	0.071	0.30	0.63	100	17	160	630	ND on all
PT-E-1.5	1.5	<0.005	<0.005	<0.005	<0.005	1.1	110	NA	780	NA
PT-W-1.5	1.5	<0.005	0.014	<0.005	0.024	3.8	190	NA	370	NA

NA = Compounds not analyzed

ND = Concentrations were below the detectable limit

Table 3. Results of Groundwater Analyses  
Concentrations in µg/l (ppb)

Well	Depth (feet)	Date Sampled	Benzene	Toluene	Ethyl- benzene	Xylenes	TPH as Gasoline	TPH as Diesel	TPH Other**
MW-8A	32	06/14/88	<0.5*	1.5	<2	6.6			
		10/28/88	<0.5	<1	<2	<1			
		09/28/89	<0.5	<0.5	<0.5	<3	<50		
		11/29/89	<0.5	1.0	<0.5	<0.5	<50	1,200	<50
		01/24/90	<0.5	<0.5	<0.5	<0.5	<100		2,800
		04/26/90	<0.5	<0.5	<0.5	<0.5	<2,500	<50	890
		07/26/90	6.0	<0.5	<0.5	<0.5	<50	<50	<50
		10/18/90	<0.5	<0.5	<0.5	<0.5	<50	<50	<50
		01/08/91	<0.3	<0.3	<0.3	<30	<50	130***	
MW-8B	20	06/14/88	<0.5	<1	<2	<1			
		10/21/88	<0.5	<1	<2	3.1			
		09/28/89	<0.5	<0.5	<0.5	<3	<50		
		11/29/89	<0.5	<0.5	<0.5	<0.5	<50	<50	380
		01/24/90	<0.5	<0.5	<0.5	<0.5	<100		350
		04/26/90	<0.5	<0.5	<0.5	<0.5	<50	<50	110
		07/26/90	<0.5	<0.5	<0.5	<0.5	<50	<50	<50
		10/18/90	<0.5	<0.5	<0.5	<0.5	<50	<50	<50
		01/08/91	<0.3	<0.3	<0.3	<30	<50	180***	
MW-8C	24.5	06/14/88	5.3	3.5	2.6	13.0			
		10/21/88	<0.5	<1	<2	<1			
		09/28/89	<0.5	<0.5	<0.5	<3.0	<50		
		11/29/89	<0.5	<0.5	<0.5	<0.5	<50	<50	190
		01/24/90	0.9	<0.5	<0.5	<0.5	<100		480
		04/26/90	<0.5	<0.5	<0.5	<0.5	<50	<50	160
		07/26/90	<0.5	<0.5	<0.5	<0.5	<50	<50	<50
		10/18/90	<0.5	<0.5	<0.5	<0.5	<50	<50	<50
		01/08/91	<0.3	<0.3	<0.3	<30	76	110***	
MW-8E	20	10/25/88	1,400	510	2.9	420			
		09/28/89	5,600	3,100	<500	<3,000	22,000		
		11/29/89	4,900	2,600	<250	1,490	15,000	6,800	<50
		01/24/90	10,100	3,340	540	1,790	36,000		4,900
		04/26/90	11,000	5,700	840	2,900	48,000	1,400	<50
		07/26/90	15,000	6,200	520	4,700	56,000	<50	<50
		(10/18/90)	1,500	1,300	170	1,800	15,000	620	<50
			01/08/91	14,000	5,400	860	1,700	51,000	17,000



Table 3 (continued)

<u>Well</u>	<u>Depth (feet)</u>	<u>Date Sampled</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl- benzene</u>	<u>Xylenes</u>	<u>TPH as Gasoline</u>	<u>TPH as Diesel</u>	<u>TPH Other**</u>
MW-8F	16.5	04/14/89	<0.5	<1	<2	<1			
		09/28/89	<0.5	<0.5	<0.5	<3	<50		
		11/29/89	<0.5	<0.5	<0.5	<0.5	<50	<50	<50
		01/24/90	<0.5	<0.5	<0.5	<0.5	<100		<300
		04/26/90	<0.5	<0.5	<0.5	<0.5	<50	<50	110
		(07/26/90)	<0.5	<0.5	<0.5	<0.5	<50	<50	<50
		10/18/90	<0.5	<0.5	<0.5	<0.5	<50	360	<50
		01/08/91	<0.3	<0.3	<0.3	<0.3	<30	380	620***
MW-8G	16.5	04/14/89	<0.5	<1	<2	<1			
		09/28/89	<0.5	<0.5	<0.5	<3	<50		
		11/29/89	<0.5	<0.5	<0.5	<0.5	<50	<50	<50
		01/24/90	<0.5	<0.5	<0.5	<0.5	<100		650
		04/26/90	<0.5	<0.5	<0.5	<0.5	<50	<50	120
		(07/26/90)	<0.5	<0.5	<0.5	<0.5	<50	<50	<50
		10/18/90	<0.5	<0.5	<0.5	<0.5	<50	460	<50
		01/08/91	<0.3	<0.3	<0.3	<0.3	<30	220	260***
MW-8H	16.5	01/24/90	14.8	14.8	10.8	38.8	460		<300
		04/26/90	67	19	43	64	830	<50	820
		(07/26/90)	45	1.3	12	8.2	190	<50	<50
		10/18/90	17	2.5	14	8.5	300	<50	<50
		01/08/91	12	2.2	6.4	4.0	320	180	89***
MW-8I	16.5	01/24/90	116	2.9	13	30.5	580		440
		04/26/90	2,400	100	230	350	4,400	<50	1,400
		(07/26/90)	<0.5	<0.5	<0.5	<0.5	<50	<50	<50
		10/18/90	92	4.1	37	21	530	<50	<50
		01/08/91	500	4.3	36	26	1,300	710	210***
MW-8J	16.5	01/24/90	2.7	<0.5	1	2.6	<100		<300
		04/26/90	28	7.7	19	24	160	<50	320
		(07/26/90)	<0.5	<0.5	<0.5	<0.5	<50	<50	<50
		10/18/90	8.3	<0.5	2.6	1.5	<50	<50	<50
		01/08/91	0.41	<0.3	<0.3	0.52	71	<50	

Table 3(continued)

<u>Well</u>	<u>Depth (feet)</u>	<u>Date Sampled</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl- benzene</u>	<u>Xylenes</u>	<u>TPH as Gasoline</u>	<u>TPH as Diesel</u>	<u>TPH Other**</u>
OB-3	11.5	11/06/89	420	8	6	64	4,000		
		04/26/90	160	19	5	8.6	1,000	3,200	<50
		(07/26/90)	<0.5	<0.5	<0.5	0.9	68	1,200	<50
		10/18/90	260	69	35	490	3,200	2,100	<50
		01/08/91	NA	NA	NA	NA	NA	NA	NA
OB-4	10.0	11/06/89	500	11	10	24	4,000		
		04/26/90	360	10	10	18	460	3,900	<50
		(07/26/90)	23	3.7	1.6	5.9	200	1,600	<50
		10/18/90	600	540	83	840	4,300	330	<50
		01/08/91	NA	NA	NA	NA	NA	NA	NA
DWAL			1.0	680	100	1,750			

DWAL = Drinking water action levels, State of California Department of Health Services (April, 1989).

\* <0.5 indicates that concentrations are below the reporting limit of 0.5 µg/l.













\*\* "Heavy" petroleum hydrocarbons such as waste oil, mineral spirits, jet fuel, or fuel oil.

\*\*\* TPH as motor oil

(07/26/90) Sample not analyzed for BTEX and TPH (g) within 14-day holding time

NA Samples not collected/not analyzed for compound

**LEGEND**

-  Monitoring Well
-  Observation Well
-  Soil Boring
-  Decommissioned Monitoring Well
-  Ground-Water flow direction
-  Bench Mark (HLA datum el. = 100 Feet)
-  Area of clay pipe excavation
-  Soil samples collected from trench
-  Clay pipe (abandoned sewer line?)
-  Air
-  Water
-  Electrical

620 Groundwater concentrations of TPH as motor oil in parts per billion. Samples collected 1/8/91

MW-8F  
620

MW-8G  
260

MW-8H  
89

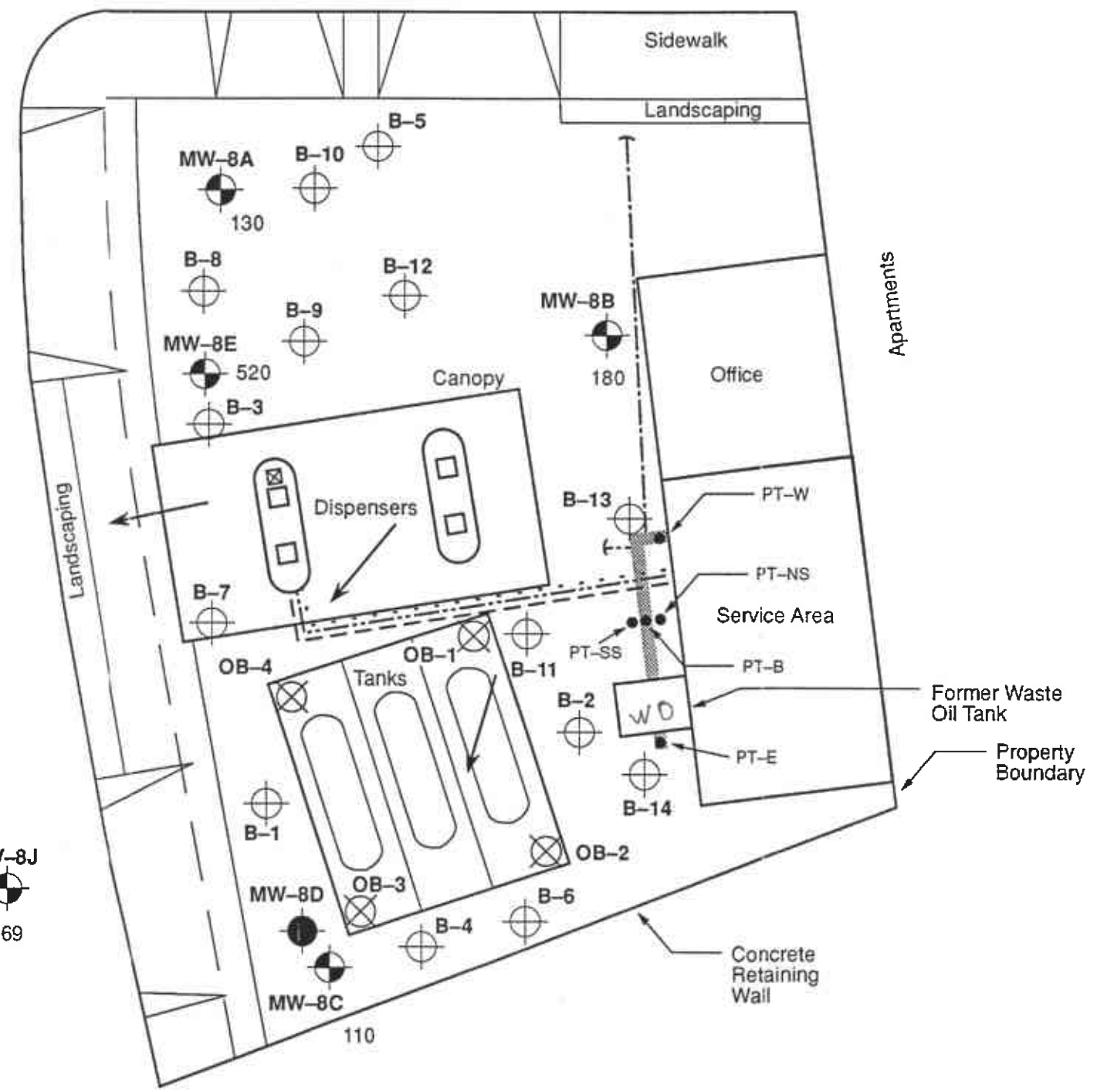
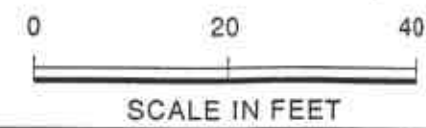
MW-8I  
210

MW-8J  
69

B-8K

GRAND AVENUE

EUCLID AVENUE



**Harding Lawson Associates**

Engineering and Environmental Services

DRAWN  
S. Patel

JOB NUMBER  
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Site Plan Showing TPH as Motor Oil Concentrations in Groundwater  
Former Texaco Station  
500 Grand Avenue  
Oakland, California

APPROVED  
JSH

DATE  
11/09/90

REVISED DATE  
01/30/91

PLATE

**1**