Texaco Refining
and Marketing Inc

108 Cutting Boulevard
Richmond CA 94804

91 JUL -3 AM 11:39

[redacted]1

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

Dear Mr. Smith:

Enclosed is a copy of our Quarterly Technical Report dated June 4, 1991 for our former Texaco Service Station located at 500 Grand Avenue in Oakland, California. This report covers the period from January through March, 1991.

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

Best Regards,

R.R. Zielinski
Area Supervisor

RRZ/pap

Enclosure

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

pr: GPJ

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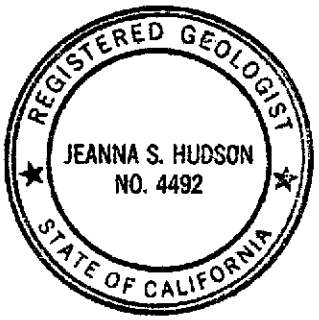
A Report Prepared for

Texaco Refining and Marketing Inc.
10 Universal City Plaza
Universal City, California 91608

QUARTERLY TECHNICAL REPORT
FIRST QUARTER OF 1991
FORMER TEXACO STATION NO. 6248800235
500 GRAND AVENUE
OAKLAND, CALIFORNIA

HLA Job No. 2251,169.03
June 4, 1991
1991 Report No. 1

by



Jeanna S. Hudson
Registered Geologist

Stephen J. Osborne
Geotechnical Engineer

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, California 94520
415/687-9660

INTRODUCTION

This Quarterly Technical Report (QTR) presents the results of investigation activities by Harding Lawson Associates (HLA) during the first quarter of 1991 at the former site of Texaco service station No. 6248800235, 500 Grand Avenue, Oakland, California (Plate 1). This site is currently operated by Exxon Company U.S.A. (Exxon). This report summarizes previous work at the site, presents first quarter activities, and describes planned activities for the second quarter of 1991.

SUMMARY OF PREVIOUS WORK

Texaco Refining and Marketing Inc. retained HLA to conduct a sensitive receptor survey at the subject location in May 1988. In June 1988, Texaco Refining and Marketing Inc. requested that HLA proceed with a subsurface investigation to evaluate whether hydrocarbons had affected shallow soil or groundwater. By the end of the fourth quarter of 1990, HLA had completed the following tasks in the site investigation:

- Conducted a soil-gas survey consisting of 18 soil-gas probe locations on or near the site (survey performed by Tracer Research Corporation).
- Installed and developed four 2-inch-diameter groundwater monitoring wells (MW-8A, MW-8B, MW-8C, and MW-8D) and six 4-inch-diameter monitoring wells (MW-8E, MW-8F and MW-8G MW-8H, MW-8I, and MW-8J). Locations are shown on Plate 2.
- Obtained groundwater samples from each well on a quarterly basis and analyzed them for benzene, toluene, ethylbenzene, and total xylenes (BTEX), and total

petroleum hydrocarbons (TPH) as gasoline and as diesel fuel.

- Gauged water levels and estimated the direction of groundwater flow.
- Performed slug tests in MW-8C and MW-8E to estimate hydraulic conductivity.
- Drilled and sampled 15 soil borings to identify and delineate the extent of hydrocarbons in the vadose zone (Plate 2).
- Analyzed soil samples for BTEX and TPH as gasoline.
- Analyzed soil samples from B-6, B-7, B-8, B-9, B-10, B-11, B-12, B-13, B-14 and B-8K for TPH as diesel fuel.
- Analyzed soil sample from B-13 for halogenated volatile organics, semivolatile organics, oil and grease, and selected metals.
- Pumped and disposed of 5,000 gallons of water from the tank backfill as an interim remedial measure.
- Submitted an Environmental Assessment Report, dated September 22, 1989, to Texaco.
- Issued an Interim Remedial Plan, dated December 7, 1990, in lieu of a Third Quarter Technical Report.

RESULTS OF PREVIOUS WORK

The results of the soil-gas survey indicated petroleum hydrocarbon vapors in the unsaturated zone near the underground storage tanks and dispenser islands. Analyses of water samples from the four observation wells in the storage tank backfill showed the presence of dissolved petroleum hydrocarbons in groundwater adjacent to the underground tanks.

Soil samples and drill cuttings indicate that the subsurface materials at the site consist of clay and minor amounts of

interbedded clayey sand. Analysis of slug test data obtained from MW-3C and MW-3E indicate a hydraulic conductivity of 0.02 to 0.03 foot/day. Groundwater would be expected to move through the soils relatively slowly.

Local groundwater flow is to the south and southeast, toward Lake Merritt (Plate 3). Water-level data from monitoring wells across the site show that, in most wells, the water table has fluctuated 2.5 to 3.0 feet since early 1988. Water levels in MW-8A fluctuated as much as 8 feet; those data are suspect and were not used in contouring the potentiometric groundwater surface.

Results of Soil Analyses

Samples from 15 soil borings were chemically analyzed to evaluate the horizontal and vertical extent of petroleum hydrocarbons in the subsurface. The analytical data are summarized in Tables 1 and 2. A contour map showing concentrations of TPH as gasoline in the vadose-zone soil is presented on Plate 4. For this map, the vadose zone was defined by comparing sample depths to static water levels at the time of sampling.

Plate 4 depicts a vadose-zone hydrocarbon plume that apparently originates near the underground tanks and extends off site to MW-8J. Significant concentrations of TPH as gasoline are also found in the area of the dispenser islands. The highest concentration, 2900 parts per million (ppm), was found in a soil sample collected at a depth of 1.5 foot in B-11. In general,

BTEX concentrations in the soil are either below detection limits or very low.

The results of soil analyses for TPH as diesel fuel indicate concentrations ranging from nondetectable to 460 ppm (B-9); most of the soil samples with detectable concentrations contained less than 100 ppm TPH as diesel fuel.

Results of Groundwater Analyses

Table 3 presents the results of groundwater analyses obtained since 1988. Groundwater from monitoring wells MW-8E, MW-8H, MW-8I, and MW-8J, and observation wells OB-3 and OB-4 contained benzene in concentrations that exceed the Department of Health Services Drinking Water Action Levels (DWALs). In groundwater samples from wells MW-8A, MW-8B, and MW-8C, BTEX concentrations were either nondetectable or below the DWALs.

A contour map showing benzene concentrations in groundwater is presented on Plate 5; Plate 6 is a contour map showing concentrations of TPH as gasoline. These maps suggest that hydrocarbons in groundwater may have originated near the dispenser islands. Water from monitoring well MW-8E, cross-gradient and down-gradient of the dispenser islands, has the highest concentrations of BTEX, TPH as gasoline, and TPH as diesel fuel.

TPH as gasoline was detected in groundwater downgradient of MW-8E in samples from MW-8H, MW-8I, and MW-8J. Samples from MW-8F and MW-8G contained nondetectable concentrations of BTEX and

TPH as gasoline and as diesel fuel. However, "heavy" hydrocarbons, above the range of diesel fuel, were detected in groundwater from these downgradient locations during the second quarter 1990 analyses.

In the third quarter 1990, workers installing overfill containment devices on the underground storage tanks discovered floating hydrocarbons around the waste oil tank. Exxon removed this tank in September 1990. Waste oil and water were pumped from the tank backfill and disposed of by Exxon. Tank backfill material and affected soil were also excavated and disposed of by Exxon. Two clay sewer lines, apparently containing petroleum hydrocarbon products, were discovered adjacent to the tank pit during the excavation process. In a letter dated October 25, 1990, Mr. Gil Wistar, of the Alameda County Department of Environmental Health, requested that Texaco excavate the clay lines and contaminated soil from the surrounding utility trench.

ACCOMPLISHMENTS DURING FIRST QUARTER OF 1991

During the first quarter of 1991, HLA accomplished the following tasks at the 500 Grand Avenue site:

- Purged and sampled four on-site monitoring wells, and five off-site monitoring wells. Water samples were analyzed for BTEX, TPH as gasoline, TPH as diesel fuel, and TPH as motor oil.
- Measured water levels monthly in nine monitoring wells (Table 4).

- Excavated the clay sewer pipes and contaminated soil from an abandoned utility trench near the former waste oil tank location.

- Analyzed soil and water samples from the trench for BTEX, TPH as gasoline, TPH as diesel fuel, and TPH as motor oil. Soil samples were also analyzed for total oil and grease and chlorinated hydrocarbons.

Groundwater Sampling

HLA continued to monitor water levels and groundwater quality at the subject location during the first quarter of 1991. Each well was purged while monitoring temperature, conductivity, and pH of the water. The water samples were collected and transported, under chain-of-custody, to Sequoia Analytical, in Concord, California. The water samples were analyzed for BTEX, TPH as gasoline, TPH as diesel fuel, and TPH as motor oil.

Results of Analyses

Table 3 and Plates 5 and 6 summarize results of the first quarter groundwater analyses. Benzene concentrations exceeded the DWAL (1.0 parts per billion [ppb]) in groundwater from MW-8E, MW-8H, and MW-8I.

High boiling point hydrocarbons were detected in all groundwater samples analyzed this quarter. The laboratory analyst indicated that the chromatograms were not characteristic of either diesel fuel or motor oil, although the results were quantified in terms of those compounds. Concentrations of high boiling point hydrocarbons in groundwater ranged from 69 ppb TPH as motor oil (MW-8J) to 17,000 ppb TPH as diesel fuel (MW-8E). Laboratory results are presented in the Appendix.

Plate 3 is the most recent contour map of the potentiometric groundwater surface, based on water levels measured on March 29, 1991. No significant changes in groundwater flow direction are apparent.

Clay Pipe Excavation

On behalf of Texaco, HLA arranged to have the clay sewer pipes removed and the utility trench overexcavated on January 8, 1990. These clay pipes were discovered approximately 1.5 foot below grade in the northwest and northeast corners of the waste oil tank excavation. 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 7). 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. Plate 7 shows sample locations.

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. Pieces of clay pipe were found around the utility cluster, suggesting that the clay line may have been broken during installation of the utilities. It appears that the clay pipe extends further eastward toward Euclid Avenue.

Water in the clay pipe and surrounding trench backfill was analyzed for BTEX and 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 5. Results of laboratory analyses indicate 100,000 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 6. In general, soil samples contained less than 100 ppm TPH as gasoline, less than 200 ppm TPH as diesel fuel, and less than 800 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, 1991, Mr. Wistar was present at the site and requested that the excavation be continued up to the door of the first service bay. That task was completed on January 9. Additional excavation of contaminated soil to the north and west was not attempted due to the proximity of the service building. On January 9 and 10, HLA removed water from the trench, completed sampling, and backfilled the excavation. Soil from the excavation was disposed of at Liquid Waste in McKittrick, California, a Class II disposal facility. Water from the excavation was hauled to a recycler by Decon Environmental Services, Inc.

ANTICIPATED ACTIVITIES FOR SECOND QUARTER, 1991

Quarterly groundwater samples will be collected and analyzed for BTEX and TPH as gasoline, as diesel fuel, and as motor oil. Water levels will be measured on a monthly basis.

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Table 1. Results of Soil Sample Analyses
(concentrations in mg/kg [ppm])

Boring/ Well Number	Sample Depth (feet)	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH as Gasoline	TPH as Diesel	TPH Other**
B-1	6.5	ND	ND	ND	ND	12	NA	
B-3	4.0	ND	ND	ND	5	520	NA	
B-4	3.5	ND	1	3.5	13	510	NA	
B-5	5.5	ND	ND	ND	ND	<10	NA	
B-5	10.5	ND	ND	ND	ND	ND	NA	
B-5	16.0	ND	ND	ND	ND	ND	NA	
B-6	2.0	ND	0.08	ND	ND	1.0	<100*	<100*
B-6	4.5	ND	0.09	ND	ND	ND	<10	<10
B-7	3.0	ND	6.7	5.1	50	580	<100*	<100*
B-8	2.0	0.05	ND	ND	0.34	3.4	<10	<10
B-9	2.5	0.05	0.32	0.81	6.4	100	460	<100*
B-8K	1.5	ND	ND	ND	ND	2.1		ND
	3.0	ND	0.05	ND	ND	6.6		ND
	5.5	ND	ND	0.08	0.05	84		20
B-10	1.5	0.28	ND	0.20	0.18	8.4		ND
	2.5	0.09	ND	ND	ND	ND		ND
	5.5	ND	ND	ND	ND	ND		ND
	8.5	ND	ND	ND	ND	ND		ND
B-11	1.5	ND	ND	5.4	1.6	2,900		30
	2.5	ND	ND	0.31	0.12	62		11
	5.5	ND	ND	0.06	ND	17		ND
	8.5	ND	ND	ND	ND	ND		ND
B-12	1.0	0.22	0.11	0.18	0.42	13		ND
	2.5	ND	ND	0.19	0.83	49		ND
	4.5	ND	ND	1.27	0.67	1,200		94
	6.0	ND	0.06	ND	ND	ND		ND
B-13	1.5	ND	ND	ND	ND	ND	ND	ND
	2.5	ND	ND	1.7	5.4	130	ND	1,000
	3.5	ND	0.06	0.06	0.30	26	ND	250
B-14	1.5	ND	ND	ND	ND	4.8	ND	85
	3.5	ND	ND	ND	ND	2.3	ND	62
MW-8D	1.3	ND	0.40	ND	0.50	10	NA	
MW-8E	5.5	0.82	6.5	5.5	26	750	NA	
MW-8F	11.0	ND	ND	ND	ND	ND	NA	
MW-8G	6.0	ND	ND	ND	ND	ND	NA	
MW-8H	1.5	ND	0.07	ND	ND	ND		ND
	3.0	ND	0.24	ND	ND	2.6		ND
	5.5	ND	ND	0.30	0.83	550		66
	10.5	ND	ND	ND	ND	ND		ND
MW-8I	1.5	0.10	ND	ND	ND	3.0		ND
	3.5	0.06	ND	ND	0.02	ND		ND
	5.5	ND	ND	2.7	9.2	280		ND
	10.5	ND	ND	ND	ND	ND		ND
MW-8J	1.5	0.18	0.09	0.06	0.05	24		ND
	3.0	0.08	0.14	0.04	ND	13		33
	5.5	ND	ND	25	9.2	2,100		83
	10.5	ND	0.02	ND	ND	8		ND

ND = Not detected
NA = Not analyzed
* Laboratory increased reporting limits because of matrix interference.
** "Heavy" petroleum hydrocarbons such as waste oil, mineral spirits, jet fuel, or fuel oil.

Table 2. Summary of Chemical Analyses
Soil Sample B-13 (2.5 feet deep)

Semivolatile Organics; EPA Test Method 8270

- Analyses for 55 semivolatile organic compounds
- Results were below reporting limit on all except:

Naphthalene	0.90 ppm
2 Methylnapthalene	1.40 ppm
Bis (2-ethylhexyl) phthalate	0.26 ppm

Halogenated Volatile Organics; EPA Test Method 8010

- Analyses for 29 compounds
- Results were below reporting limits on all except:

Trichloroethane	0.06 ppm

Total Oil and Grease (IR); EPA Test Method 413.2 — 5600 ppm

Selected heavy metals - EPA Test Method 6010

Cadmium	Below reporting limit
Chromium	36 ppm
Lead	Below reporting limit
Zinc	41 ppm

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

Well	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH as Gasoline	TPH as Diesel	TPH Other**
MW-8A	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	<0.3	<30	<50	130***
MW-8B	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	<0.3	<30	<50	180***
MW-8C	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	<0.3	<30	76	110***
MW-8E	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	520***

Table 3 (continued)

Well	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH as Gasoline	TPH as Diesel	TPH Other**
MW-8F	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	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	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	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	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	69***

Table 3 (continued)

Well	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH as Gasoline	TPH as Diesel	TPH Other**
OB-3	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	--	--	--	--	--	--	--
OB-4	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	--	--	--	--	--	--	--
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 analyses; analyst did not feel that motor oil was indicted on the chromatogram.

(07/26/90) Sample not analyzed for BTEX and TPH as gasoline within 14-day holding time
-- = Samples not collected/not analyzed for compound

Table 4. Historical Record of Depth to Groundwater

Well		MW-8A	MW-8B	MW-8C	MW-8E	MW-8F	MW-8G	MW-8H	MW-8I	MW-8J
Top of Casing Elev.		99.72	101.11	98.41	99.38	97.94	97.24	98.57	97.94	97.38
Date										
MAR 27, 90	GW ELEV	95.64	100.66	91.24	96.09	88.69	87.45	95.03	92.02	91.58
APR 24, 90	GW ELEV	96.10	100.69	91.51	96.07	88.95	87.59	95.02	91.98	91.39
MAY 29, 90	GW ELEV	97.37	100.84	87.88	96.36	89.67	86.61	PAVED	PAVED	PAVED
JUNE 28, 90	GW ELEV	97.37	100.71	89.79	96.24	88.95	87.45	PAVED	PAVED	PAVED

Well		MW-8A	MW-8B	MW-8C	MW-8E	MW-8F	MW-8G	MW-8H	MW-8I	MW-8J
Top of Casing Elev.		99.72	101.11	98.41	99.38	97.94	97.24	98.90	98.27	97.69
Date										
JUL 24, 90	GW ELEV	97.31	100.62	90.98	96.06	88.74	87.54	95.14	92.05	91.21
AUG 24, 90	GW ELEV	94.74	100.60	90.30	95.90	87.13	86.08	92.14	91.93	93.89
SEPT 25, 90	GW ELEV	95.24	100.56	91.05	95.94	87.25	BLOCKED	95.10	91.90	91.01
OCT 18, 90	GW ELEV	96.11	100.55	90.92	95.86	86.89	85.62	95.07	91.85	90.96
NOV 28, 90	GW ELEV	89.69	100.54	88.60	96.00	87.02	85.57	94.94	92.16	91.01
JAN 08, 91	GW ELEV	93.63	100.57	90.81	95.90	87.98	86.44	94.91	92.10	91.30
FEB 02, 91	GW ELEV	96.98	100.58	91.56	95.93	87.93	86.56	94.89	91.96	91.67
MAR 29, 91	GW ELEV	97.40	100.85	91.94	96.10	89.35	BLOCKED	95.20	92.12	91.98

All measurement are in feet
TOC = Top of casing elevation relative to arbitrary datum of 100 feet
GW Elev = Groundwater elevation relative to arbitrary datum

Table 5. Results of Analyses of Excavation Water
(concentrations in parts per billion [ppb])

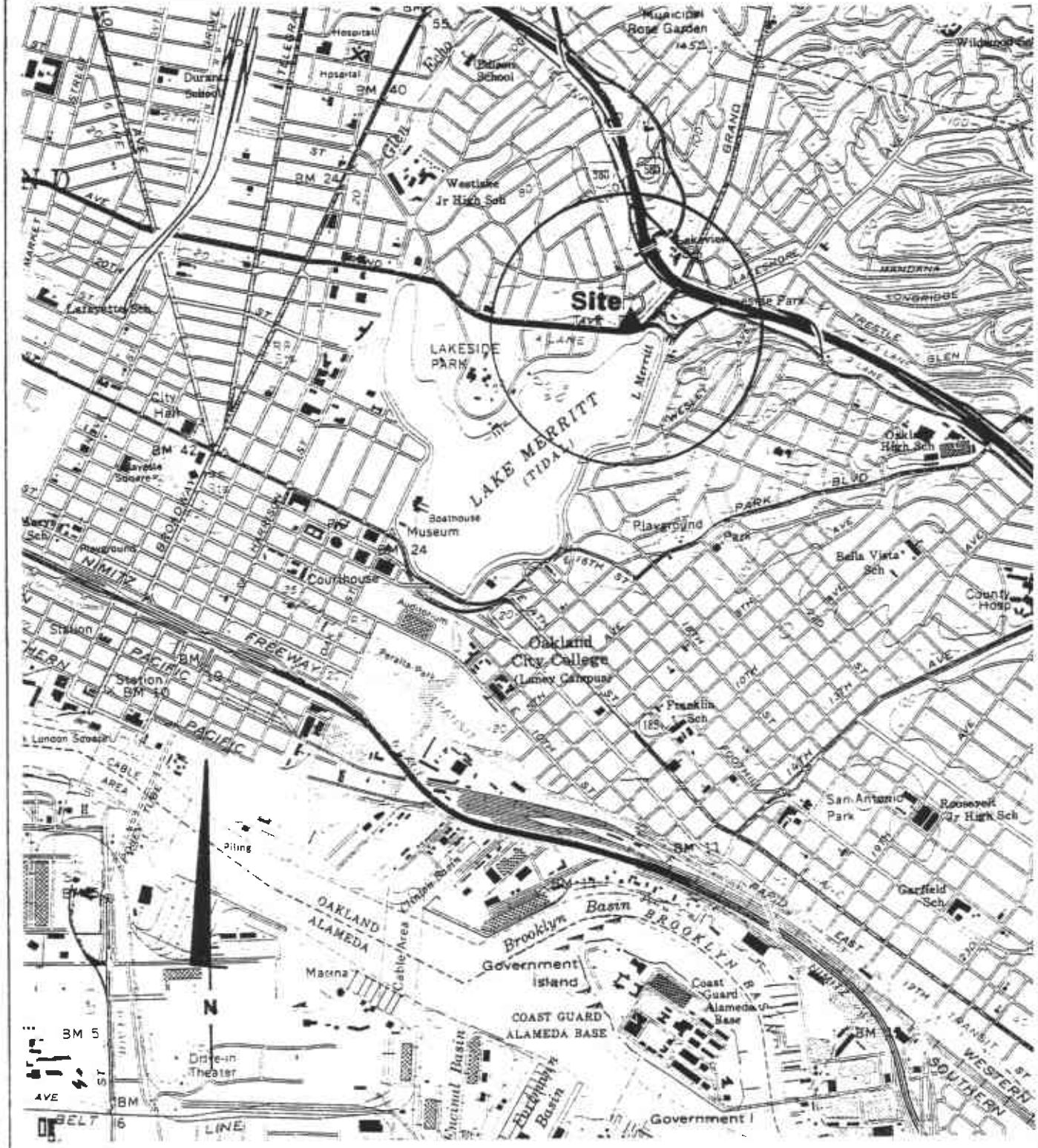
Sample	Location	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH as Gasoline	TPH as Diesel	TPH as Motor Oil	Total oil and Grease	Chlorinated Hydrocarbons
EP-01	west trench, east end	280	300	120	860	5,200	31,000	100,000	NA	NA
WP-01	west trench, west end	320	73	95	48	3,900	13,000	17,000	NA	NA

Table 6. Results of Soil Analyses from Pipe Excavation
(concentrations in parts per million [ppm])

Sample	Depth (feet)	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH as Gasoline	TPH as Diesel	TPH as Motor Oil	Total oil and Grease	Chlorinated Hydrocarbons
PT-NS-7.5	2.5	0.020	<0.005	0.055	0.13	22	28	330	110	ND on all
PT-B-7.5	4.5	<0.005	<0.005	<0.005	<0.005	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

105649



Ref: USGS, 7.5 Minute Topographic Map, Oakland West, California, Photo revised 1980.

Harding Lawson Associates
Engineers and Geoscientists

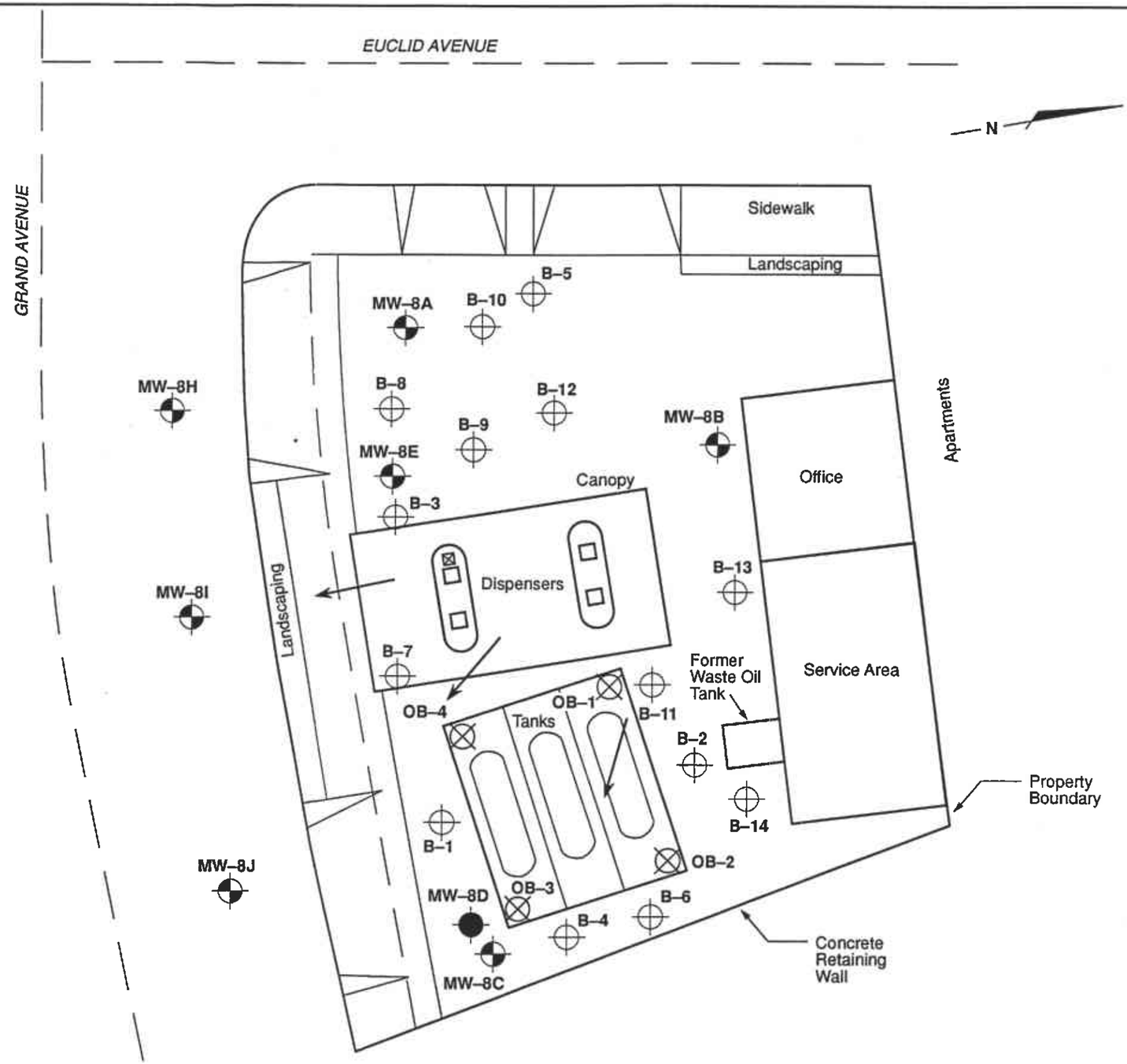
Regional Map
Former Texaco Service Station
500 Grand Avenue
Oakland, California

PLATE **1**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
YC	2251,114.03	dk	5/89		

LEGEND

- Monitoring Well
- Observation Well
- Soil Boring
- Decommissioned Monitoring Well
- Ground-Water flow direction
- Bench Mark (HLA datum el. = 100 Feet)



Harding Lawson Associates
Engineering and Environmental Services

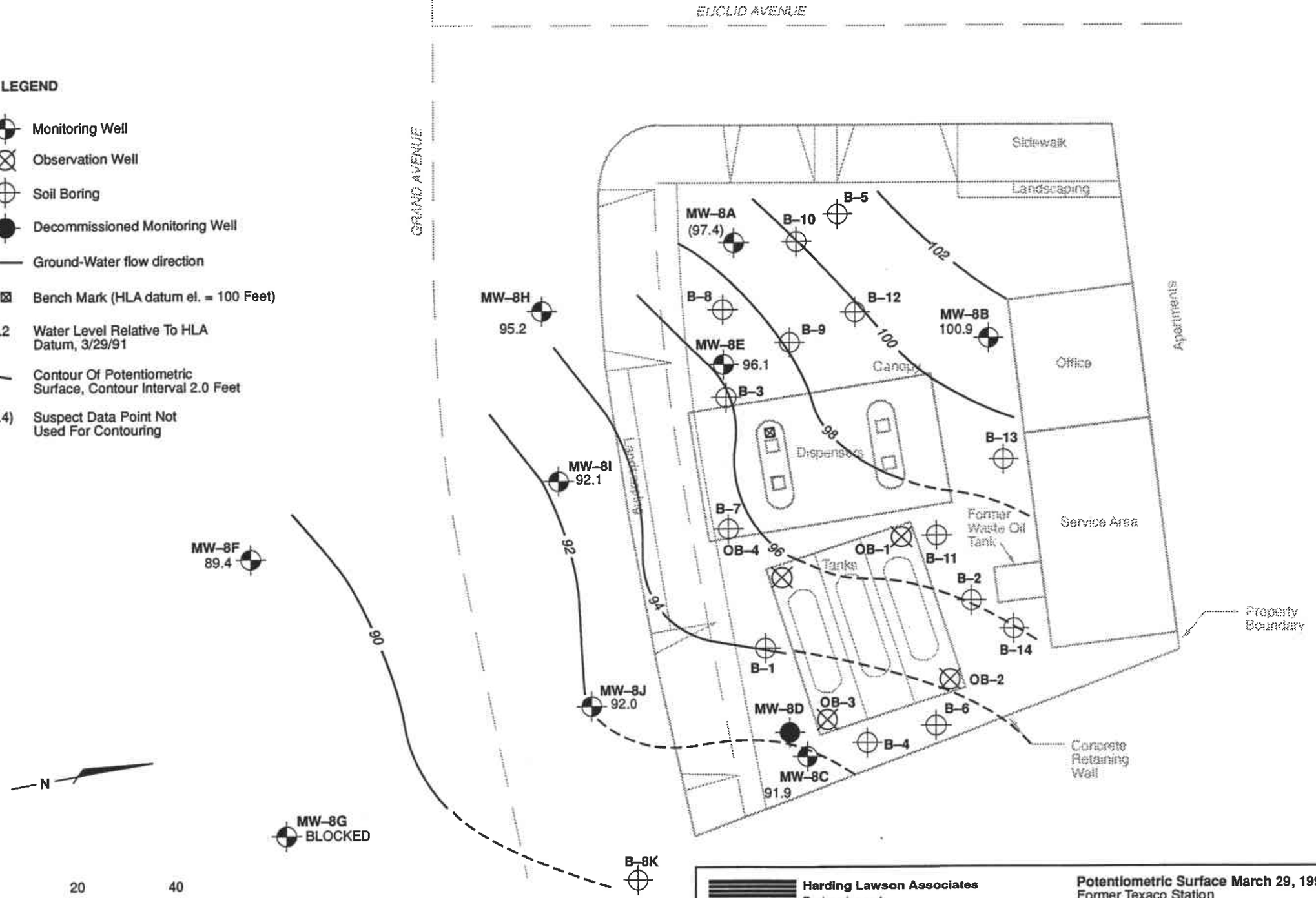
Site Plan
Former Texaco Station
500 Grand Avenue
Oakland, California

PLATE **2**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
S. Patel	2251,114.03	JSH	11/09/90	

LEGEND

- Monitoring Well
- Observation Well
- Soil Boring
- Decommissioned Monitoring Well
- Ground-Water flow direction
- Bench Mark (HLA datum el. = 100 Feet)
- 95.2 — Water Level Relative To HLA Datum, 3/29/91
- *96* — Contour Of Potentiometric Surface, Contour Interval 2.0 Feet
- (97.4) — Suspect Data Point Not Used For Contouring



Harding Lawson Associates
Engineering and Environmental Services

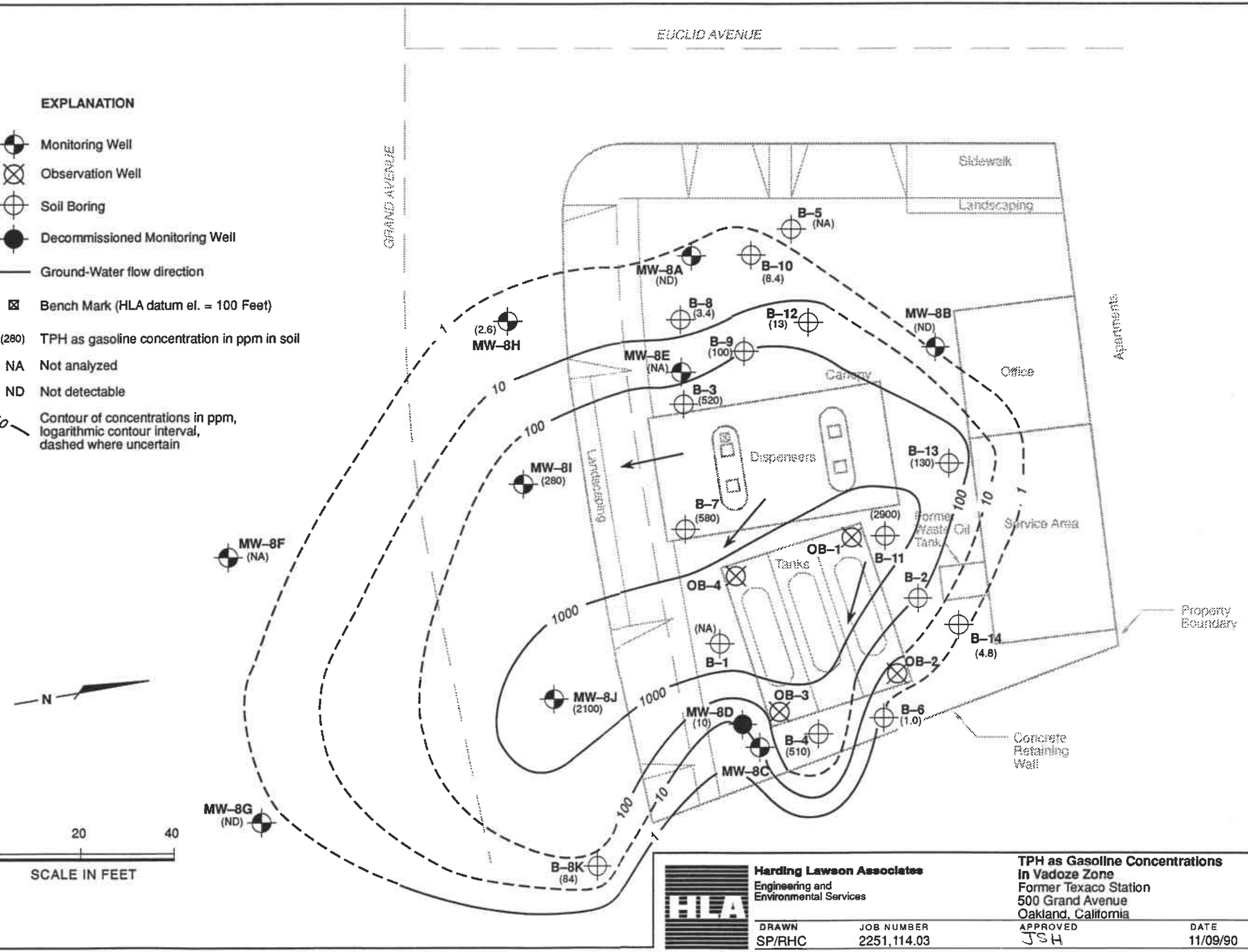
Potentiometric Surface March 29, 1991
Former Texaco Station
500 Grand Avenue
Oakland, California

PLATE **3**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
SP/RHC	2251,114.03	JSH	5/09/91	

EXPLANATION

- Monitoring Well
- Observation Well
- Soil Boring
- Decommissioned Monitoring Well
- Ground-Water flow direction
- Bench Mark (HLA datum el. = 100 Feet)
- (280) TPH as gasoline concentration in ppm in soil
- NA Not analyzed
- ND Not detectable
- 10 Contour of concentrations in ppm, logarithmic contour interval, dashed where uncertain



Harding Lawson Associates
Engineering and Environmental Services

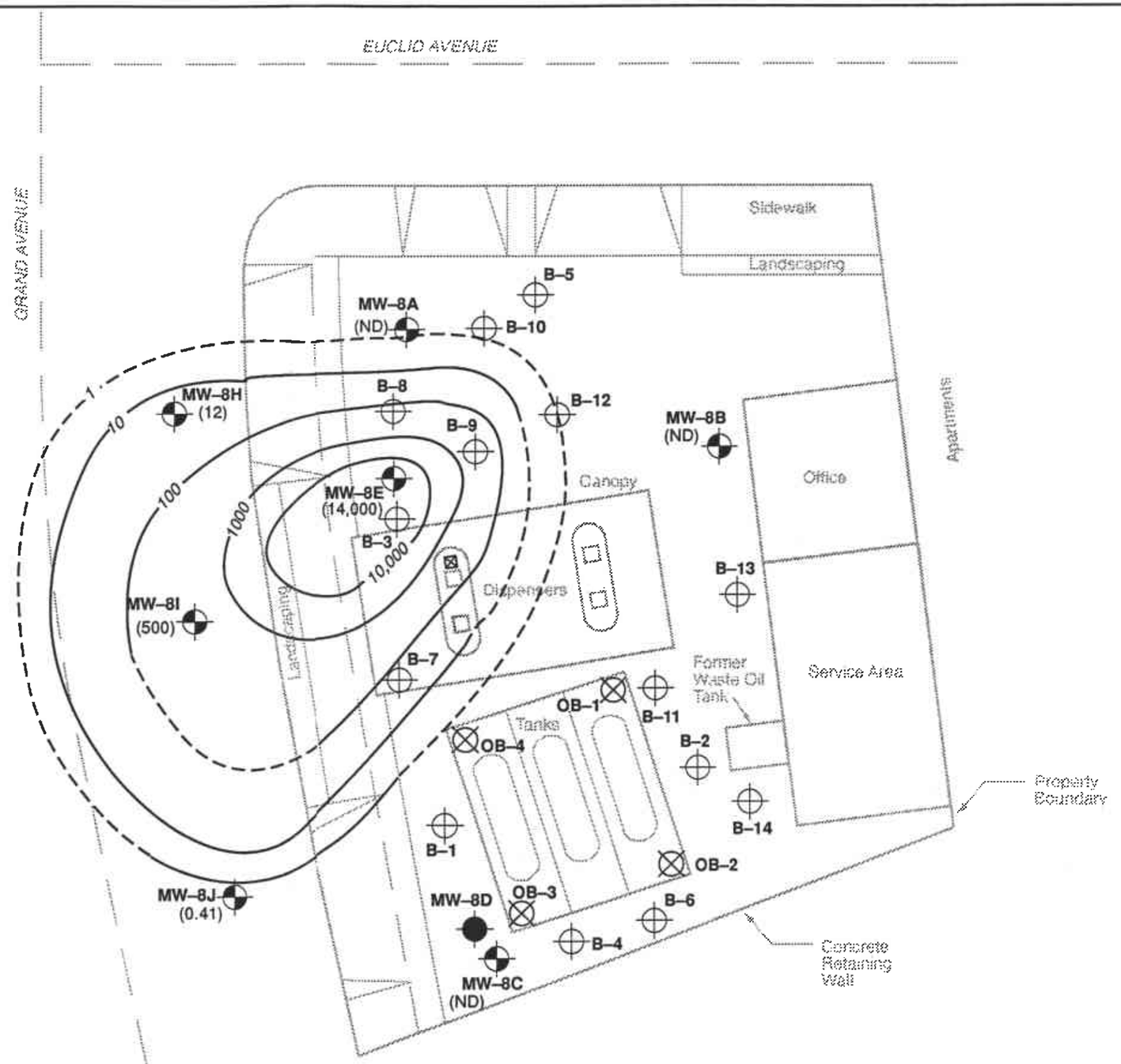
TPH as Gasoline Concentrations in Vadoze Zone
Former Texaco Station
500 Grand Avenue
Oakland, California

PLATE **4**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
SP/RHC	2251,114.03	JSH	11/09/90	5/10/91

LEGEND

- Monitoring Well
- Observation Well
- Soil Boring
- Decommissioned Monitoring Well
- Ground-Water flow direction
- Bench Mark (HLA datum el. = 100 Feet)
- (500) Benzene concentration in ppb 1/8/91
- ND Not detectable (concentration < 0.3 ppb)
- *10* Contour of concentrations in ppb, logarithmic contour interval, dashed where uncertain



Harding Lawson Associates
Engineering and Environmental Services

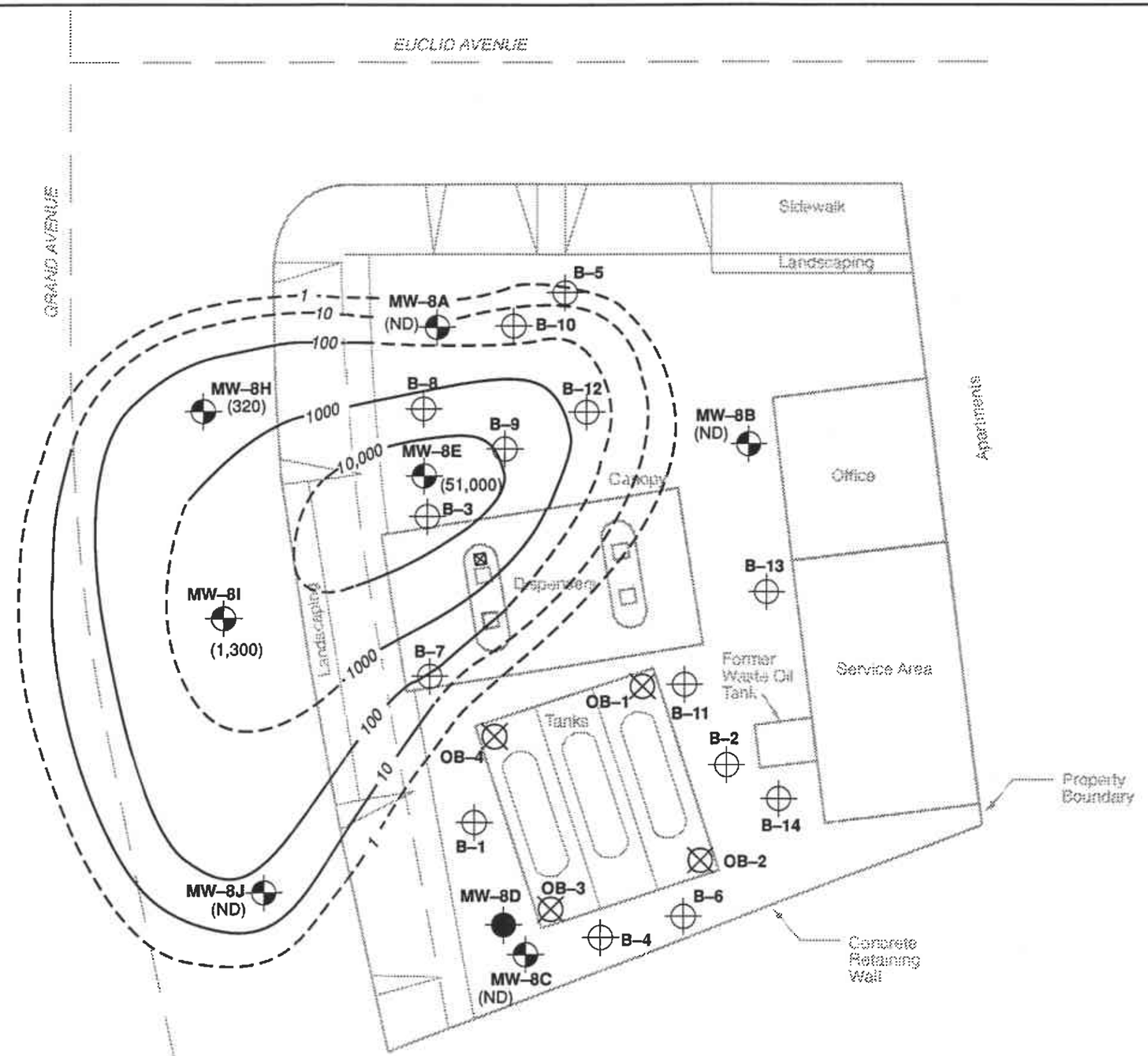
Benzene Concentrations in Groundwater
Former Texaco Station
500 Grand Avenue
Oakland, California

PLATE **5**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
SP/RHC	2251,114.03	JSH	5/09/91	05/10/91

LEGEND

- Monitoring Well
- Observation Well
- Soil Boring
- Decommissioned Monitoring Well
- Ground-Water flow direction
- Bench Mark (HLA datum el. = 100 Feet)
- (320) TPH as gasoline concentration in ppb 1/8/91
- ND Not detectable (concentration < 50 ppb)
- 10 Contour of concentrations in ppb, logarithmic contour interval, dashed where uncertain



Harding Lawson Associates
Engineering and Environmental Services

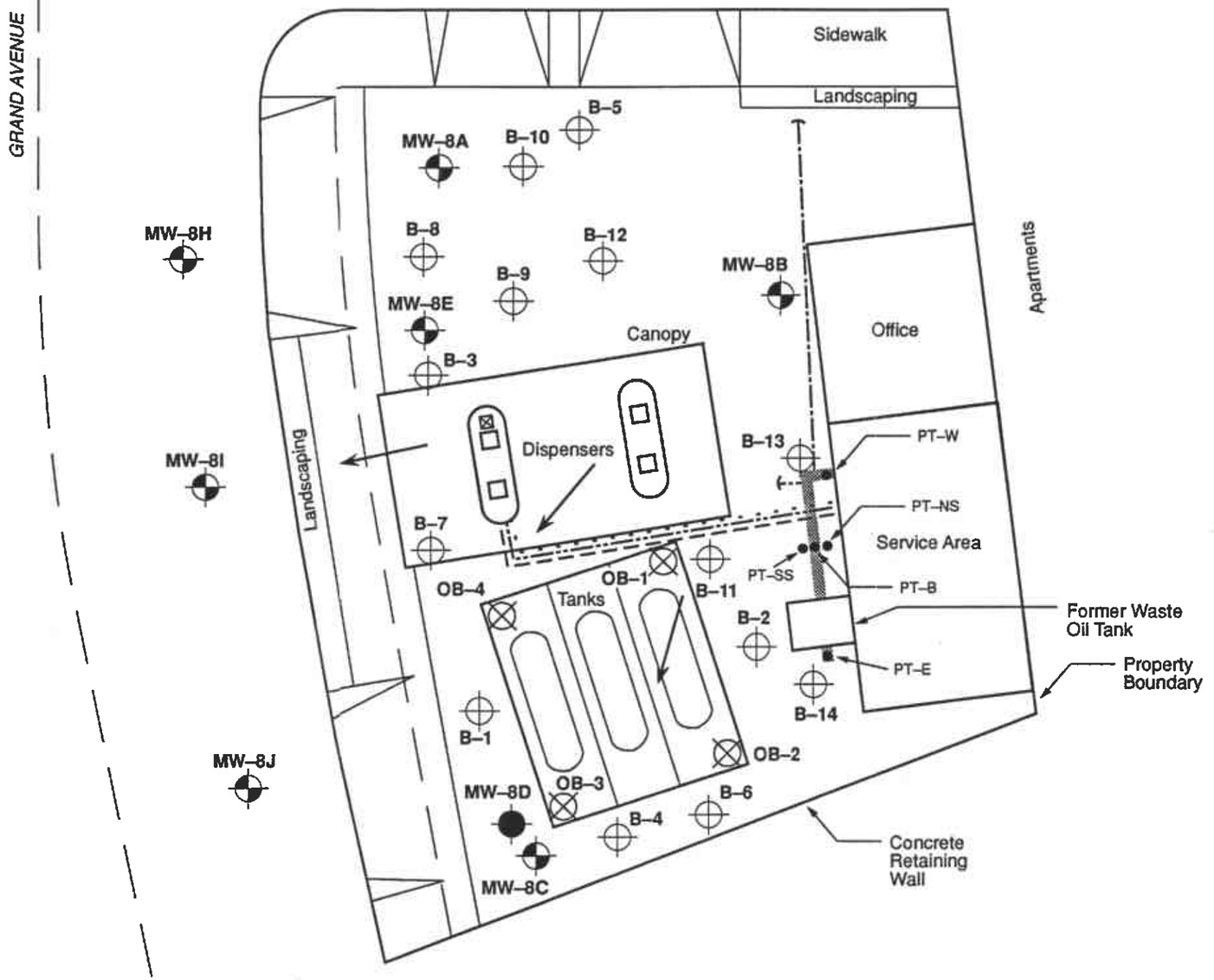
TPH as Gasoline Concentrations In Groundwater
Former Texaco Station
500 Grand Avenue
Oakland, California

PLATE **6**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
SP/RHC	2251,114.03	JSH	5/09/91	05/10/91

EXPLANATION

- 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



Harding Lawson Associates
Engineering and Environmental Services

Site Plan Showing Area of Trench Excavation and Sample Locations
Former Texaco Station
500 Grand Avenue
Oakland, California

PLATE **7**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
S. Patel	2251,114.03	JSH	5/10/91	

APPENDIX

LABORATORY RESULTS OF GROUNDWATER ANALYSES

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

HARDING ASSOC.
JSH
JAN 25 1991

Harding Lawson Associates	Client Project ID:	#2251,081.03/Texaco - Oakland	Sampled: Jan 8, 1991
1355 Willow Way, Suite 109	Matrix Descript:	Water	Received: Jan 9, 1991
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Analyzed: Jan 9, 1991
Attention: Jeanna Hudson	First Sample #:	101-0093 A-B	Reported: Jan 18, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons µg/L (ppb)	Benzene µg/L (ppb)	Toluene µg/L (ppb)	Ethyl Benzene µg/L (ppb)	Xylenes µg/L (ppb)
101-0093 A-B	MW-8A	N.D.	N.D.	N.D.	N.D.	N.D.
101-0094 A-B	MW-8B	N.D.	N.D.	N.D.	N.D.	N.D.
101-0095 A-B	MW-8C	N.D.	N.D.	N.D.	N.D.	N.D.
101-0097 A-B	MW-8F	N.D.	N.D.	N.D.	N.D.	N.D.
101-0098 A-B	MW-8G	N.D.	N.D.	N.D.	N.D.	N.D.
101-0099 A-B	MW-8H	320	12	2.2	6.4	4.0
101-0100 A-B	MW-8I	1,300	500	4.3	36	26
101-0101 A-B	MW-8J	71	0.41	N.D.	N.D.	0.52
Detection Limits:		**30**	**0.30**	**0.30**	**0.30**	**0.30**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

1010093.HAO <1>

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates	Client Project ID:	#2251,081.03/Texaco - Oakland	Sampled:	Jan 8, 1991
1355 Willow Way, Suite 109	Matrix Descript:	Water	Received:	Jan 9, 1991
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jan 9, 1991
Attention: Jeanna Hudson	First Sample #:	101-0096 A-B	Reported:	Jan 18, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons µg/L (ppb)	Benzene µg/L (ppb)	Toluene µg/L (ppb)	Ethyl Benzene µg/L (ppb)	Xylenes µg/L (ppb)
101-0096 A-B	MW-8E	51,000	14,000	5,400	860	1,700
Detection Limits:		**300**	**3.0**	**3.0**	**3.0**	**3.0**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

for Arthur G. Burton
Laboratory Director

1010093.HAO <8>

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Jeanna Hudson

Client Project ID: #2251,081.03/Texaco - Oakland

QC Sample Group: 1010093-101

Reported: Jan 18, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	E. Hamilton	E. Hamilton	E. Hamilton	E. Hamilton
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Jan 9, 1991	Jan 9, 1991	Jan 9, 1991	Jan 9, 1991
QC Sample #:	012-0630	012-0630	012-0630	012-0630
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60
Conc. Matrix Spike:	18	19	18	56
Matrix Spike % Recovery:	91	93	91	94
Conc. Matrix Spike Dup.:	18	18	18	54
Matrix Spike Duplicate % Recovery:	88	89	88	91
Relative % Difference:	3.4	3.7	2.8	3.3

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates	Client Project ID:	#2251,081.03/Texaco - Oakland	Sampled:	Jan 8, 1991
1355 Willow Way, Suite 109	Matrix Descript:	Water	Received:	Jan 9, 1991
Concord, CA 94520	Analysis Method:	EPA 3510/8015	Extracted:	Jan 10, 1991
Attention: Jeanna Hudson	First Sample #:	101-0093 C	Analyzed:	1/15-16/91
			Reported:	Jan 18, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons µg/L (ppb)
101-0093 C	MW-8A	N.D.
101-0094 C	MW-8B	N.D.
101-0095 C	MW-8C	76
101-0097 C	MW-8F	380
101-0098 C	MW-8G	220
101-0099 C	MW-8H	180
101-0100 C	MW-8I	710
101-0101 C	MW-8J	N.D.

Detection Limits:	**50**

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

Please Note:
The above samples do not appear to contain diesel.

1010093.HAO <3>

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates	Client Project ID:	#2251,081.03/Texaco - Oakland	Sampled:	Jan 8, 1991
1355 Willow Way, Suite 109	Matrix Descript:	Water	Received:	Jan 9, 1991
Concord, CA 94520	Analysis Method:	EPA 3510/8015	Extracted:	Jan 10, 1991
Attention: Jeanna Hudson	First Sample #:	101-0096 C	Analyzed:	1/15-16/91
			Reported:	Jan 18, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons µg/L (ppb)
101-0096 C	MW-8E	17,000

Detection Limits:	500

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

Please Note:
The above sample does not appear to contain diesel.

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

HARDING ASSOC.
JSH
MAY 7 1991

Harding Lawson Associates	Client Project ID:	#2251,081.03/Texaco - Oakland	Sampled:	Jan 8, 1991
1355 Willow Way, Suite 109	Matrix Descript:	Water	Received:	Jan 9, 1991
Concord, CA 94520	Analysis Method:	EPA 3510/8015	Extracted:	Jan 10, 1991
Attention: Jeanna Hudson	First Sample #:	101-0093 C	Analyzed:	1/15-1/16/91
			Reported:	Jan 18, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015) AS MOTOR OIL

Sample Number	Sample Description	High B.P. Hydrocarbons µg/L (ppb)
101-0093 C	MW-8A	130
101-0094 C	MW-8B	180
101-0095 C	MW-8C	110
101-0097 C	MW-8F	620
101-0098 C	MW-8G	260
101-0099 C	MW-8H	89
101-0100 C	MW-8I	210
101-0101 C	MW-8J	69

Detection Limits:	50

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

Please Note:
The above samples do not appear to contain motor oil.
Ammended report dated: 5-3-91.

1010093.HAO <5>

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates	Client Project ID:	#2251,081.03/Texaco - Oakland	Sampled:	Jan 8, 1991
1355 Willow Way, Suite 109	Matrix Descript:	Water	Received:	Jan 9, 1991
Concord, CA 94520	Analysis Method:	EPA 3510/8015	Extracted:	Jan 10, 1991
Attention: Jeanna Hudson	First Sample #:	101-0096 C	Analyzed:	1/15-16/91
			Reported:	Jan 18, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015) AS MOTOR OIL

Sample Number	Sample Description	High B.P. Hydrocarbons µg/L (ppb)
101-0096 C	MW-8E	520

Detection Limits:	**500**

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

for Belinda C. Vega
Laboratory Director

Please Note:
The above sample does not appear to contain motor oil.
Ammended report dated: 5-3-91.

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Jeanna Hudson

Client Project ID: #2251,081.03/Texaco - Oakland

QC Sample Group: 1010093-101

Reported: Jan 18, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Diesel
Method:	EPA 8015
Analyst:	K. Lee
Reporting Units:	µg/L
Date Analyzed:	Jan 16, 1991
QC Sample #:	Matrix BLK011091
Sample Conc.:	N.D.
Spike Conc. Added:	300
Conc. Matrix Spike:	230
Matrix Spike % Recovery:	77
Conc. Matrix Spike Dup.:	270
Matrix Spike Duplicate % Recovery:	90
Relative % Difference:	16

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}}$	x 100
Relative % Difference:	$\frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}}$	x 100

1010093.HAO <7>

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, California 94520
415/687-9660
Telecopy: 415/687-9673

CHAIN OF CUSTODY FORM

Lab: SEQUOIA

Samplers: JOHN DYE

Job Number: 2251.081.03

Name/Location: TEXACO-500 GRAND, OAKLAND

Project Manager: JEANNA HUDSON

Recorder: J. R. Dye (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	HCl	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES
23	X				1			2			MW-8A	91	01	08		1010093 A-C
											MW-8B					094
											MW-8C					095
											MW-8E					096
											MW-8F					097
											MW-8G					098
											MW-8H					099
											MW-8I					100
											MW-8J					101

ANALYSIS REQUESTED

EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	ICP METALS	EPA 8015M/TPH	BTEX, TPH-GAS	TPH-DIESEL/WASTE OIL
					X	X	X
					X	X	

LAB NUMBER: Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE

MISCELLANEOUS: DO NOT MISS HOLD TIME
Routine TAT (10d)

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature) J. R. Dye	RECEIVED BY: (Signature) J. R. Malerba	DATE/TIME 1/9/91 835AM
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature) DATE/TIME	RECEIVED FOR LAB BY: (Signature) Jan Winer 1/9	DATE/TIME 8:50AM
METHOD OF SHIPMENT		

Laboratory Copy White — Project Office Copy Yellow — Field Office Copy Pink

6533

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates	Client Project ID:	#2251,081.03	Sampled:	Jan 8, 1991
1355 Willow Way, Suite 109	Matrix Descript:	Water	Received:	Jan 9, 1991
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jan 9, 1991
Attention: Jeanna Hudson	First Sample #:	101-0068 A-B	Reported:	Jan 14, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons µg/L (ppb)	Benzene µg/L (ppb)	Toluene µg/L (ppb)	Ethyl Benzene µg/L (ppb)	Xylenes µg/L (ppb)
101-0068 A-B	WP-01	3,900	320	73	95	48
101-0069 A-B	EP-01	5,200	280	300	120	860
Detection Limits:		**30**	**0.30**	**0.30**	**0.30**	**0.30**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

Please Note:
The above samples appear to contain gasoline.

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Jeanna Hudson

Client Project ID: #2251,081.03

QC Sample Group: 1010068-69

Reported: Jan 14, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	E. Hamilton	E. Hamilton	E. Hamilton	E. Hamilton
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Jan 9, 1991	Jan 9, 1991	Jan 9, 1991	Jan 9, 1991
QC Sample #:	012-0630	012-0630	012-0630	012-0630
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60
Conc. Matrix Spike:	18	19	18	56
Matrix Spike % Recovery:	90	95	90	93
Conc. Matrix Spike Dup.:	18	18	18	54
Matrix Spike Duplicate % Recovery:	90	90	90	90
Relative % Difference:	0	5.4	0	3.6

SEQUOIA ANALYTICAL

For Julia R. Malerstein
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates	Client Project ID:	#2251,081.03	Sampled:	Jan 8, 1991
1355 Willow Way, Suite 109	Matrix Descript:	Water	Received:	Jan 9, 1991
Concord, CA 94520	Analysis Method:	EPA 3510/8015	Extracted:	Jan 9, 1991
Attention: Jeanna Hudson	First Sample #:	101-0068 C	Analyzed:	Jan 11, 1991
			Reported:	Jan 14, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015) AS DIESEL

Sample Number	Sample Description	High B.P. Hydrocarbons µg/L (ppb)
101-0068 c	WP-01	13,000
101-0069 C	EP-01	31,000

Detection Limits:	**1,000**

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

for Julia R. Malerstein
Project Manager

Please Note:
The above samples appear to contain a small amount of diesel.

SEQUOIA ANALYTICAL

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Harding Lawson Associates	Client Project ID:	#2251,081.03	Sampled:	Jan 8, 1991
1355 Willow Way, Suite 109	Matrix Descript:	Water	Received:	Jan 9, 1991
Concord, CA 94520	Analysis Method:	EPA 3510/8015	Extracted:	Jan 9, 1991
Attention: Jeanna Hudson	First Sample #:	101-0069 C	Analyzed:	Jan 11, 1991
			Reported:	Jan 14, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons µg/L (ppb)
101-0069 C	EP-01	100,000

Detection Limits:	**5,000**

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

For Julia R. Malerstein
Project Manager

Please Note:
The above sample appears to contain oil.

1010068.HAO <5>

SEQUOIA ANALYTICAL

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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Jeanna Hudson

Client Project ID: #2251,081.03

QC Sample Group: 1010068-69

Reported: Jan 14, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Diesel
Method:	EPA 8015
Analyst:	K. Lee
Reporting Units:	µg/L
Date Analyzed:	Jan 11, 1991
QC Sample #:	BLK010991
Sample Conc.:	N.D.
Spike Conc. Added:	300
Conc. Matrix Spike:	200
Matrix Spike % Recovery:	65
Conc. Matrix Spike Dup.:	200
Matrix Spike Duplicate % Recovery:	65
Relative % Difference:	0

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, California 94520
415/687-9660
Telecopy: 415/687-9673

CHAIN OF CUSTODY FORM

Lab: SEQUOIA

Job Number: 2251,081.03

Name/Location: TEXACO 500 GRAND AVE

Project Manager: JEANNA HUDSON

Samplers: M. CHAMBERLAIN

Recorder: [signature] *(Signature Required)*

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	HCL	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES	EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	ICP METALS	EPA 8015M/TPH	TPH AS GAS	BTEX	TPH AS DIESEL	TPH AS WASTE OIL
1	X							2	WP	–	01	91	01	08		1010068 AC							X	X		
↓	X				1				WP	–	01														X	X
↓	X							2	EP	–	01	↓				1010069 AC							X	X		
10	X				1				EP	–	01	91	01	08											X	X

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
						STANDARD TURNAROUND

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: *(Signature)*	RECEIVED BY: *(Signature)*	DATE/TIME
[signature]	[signature]	1-8-91 / 19:31
RELINQUISHED BY: *(Signature)*	RECEIVED BY: *(Signature)*	DATE/TIME
RELINQUISHED BY: *(Signature)*	RECEIVED BY: *(Signature)*	DATE/TIME
RELINQUISHED BY: *(Signature)*	RECEIVED BY: *(Signature)*	DATE/TIME
DISPATCHED BY: *(Signature)* DATE/TIME	RECEIVED FOR LAB BY: *(Signature)* [signature]	DATE/TIME 1/9 8:00am
METHOD OF SHIPMENT		

[redacted] orat[redacted] py White [redacted] Offi[redacted] y Yellow [redacted] r Off[redacted] py Pink [redacted]

6533

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
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Harding Lawson Associates	Client Project ID:	#2251, 081.03/Texaco-Oakland	Sampled:	Jan 8, 1991
1355 Willow Way, Suite 109	Matrix Descript:	Soil	Received:	Jan 9, 1991
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jan 9, 1991
Attention: Jeanna Hudson	First Sample #:	101-0065	Reported:	Jan 10, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
101-0065	PT-B-7.5	5.7	N.D.	N.D.	N.D.	N.D.
101-0066	PT-SS-7.5	100	0.071	0.071	0.30	0.63
Detection Limits:		**1.0**	**0.0050**	**0.0050**	**0.0050**	**0.0050**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

1010065.HAO <1>

SEQUOIA ANALYTICAL

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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Jeanna Hudson

Client Project ID: #2251, 081.03/Texaco-Oakland

QC Sample Group: 101-0065

Reported: Jan 10, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8015/8020	EPA 8015/8020	PA 8015/802	PA 8015/8020
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha
Reporting Units:	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Date Analyzed:	Jan 9, 1991	Jan 9, 1991	Jan 9, 1991	Jan 9, 1991
QC Sample #:	101-0051	101-0051	101-0051	101-0051
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.36	0.38	0.37	1.1
Matrix Spike % Recovery:	90	95	93	92
Conc. Matrix Spike Dup.:	0.36	0.38	0.37	1.1
Matrix Spike Duplicate % Recovery:	90	95	93	92
Relative % Difference:	0	0	0	0

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

$$\text{\% Recovery:} \quad \frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$$

$$\text{Relative \% Difference:} \quad \frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$$

1010065.HAO <2>

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates	Client Project ID:	#2251, 081.03/Texaco-Oakland	Sampled:	Jan 8, 1991
1355 Willow Way, Suite 109	Matrix Descript:	Soil	Received:	Jan 9, 1991
Concord, CA 94520	Analysis Method:	EPA 3550/8015	Extracted:	Jan 9, 1991
Attention: Jeanna Hudson	First Sample #:	101-0065	Analyzed:	Jan 9, 1991
			Reported:	Jan 10, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
101-0065	DT-B-7.5	8.1
101-0066	PT-SS-7.5	17
101-0067	PT-NS-7.5	28

Detection Limits:	**1.0**

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

Please Note:
The above samples do not appear to contain diesel.

1010065.HAO <3>

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates	Client Project ID:	#2251, 081.03/Texaco-Oakland	Sampled:	Jan 8, 1991
1355 Willow Way, Suite 109	Matrix Descript:	Soil	Received:	Jan 9, 1991
Concord, CA 94520	Analysis Method:	EPA 3550/8015	Extracted:	Jan 9, 1991
Attention: Jeanna Hudson	First Sample #:	101-0065	Analyzed:	Jan 9, 1991
			Reported:	Jan 10, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015) AS MOTOR OIL

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
101-0065	PT-B-7.5	93
101-0066	PT-SS-7.5	160
101-0067	PT-NS-7.5	330

Detection Limits:	**1.0**

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

1010065.HAO <4>

SEQUOIA ANALYTICAL

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(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Jeanna Hudson

Client Project ID: #2251, 081.03/Texaco-Oakland

QC Sample Group: 1010065-67

Reported: Jan 10, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Diesel
Method:	EPA 8015
Analyst:	K. Lee
Reporting Units:	mg/kg
Date Analyzed:	Jan 9, 1991
QC Sample #:	BLK010991
Sample Conc.:	N.D.
Spike Conc. Added:	10
Conc. Matrix Spike:	7.2
Matrix Spike % Recovery:	72
Conc. Matrix Spike Dup.:	7.4
Matrix Spike Duplicate % Recovery:	74
Relative % Difference:	2.7

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

SEQUOIA ANALYTICAL

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Harding Lawson Associates	Client Project ID:	#2251, 081.03/Texaco-Oakland	Sampled:	Jan 8, 1991
1355 Willow Way, Suite 109	Matrix Descript:	Soil	Received:	Jan 9, 1991
Concord, CA 94520	Analysis Method:	SM 503 D&E (Gravimetric)	Extracted:	Jan 9, 1991
Attention: Jeanna Hudson	First Sample #:	101-0065	Analyzed:	Jan 9, 1991
			Reported:	Jan 10, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
101-0065	PT-B-7.5	150
101-0066	PT-SS-7.5	630
101-0067	PT-NS-7.5	110

Detection Limits:	**30**

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

1010065.HAO <6>

SEQUOIA ANALYTICAL

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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Jeanna Hudson

Client Project ID: #2251, 081.03/Texaco-Oakland

QC Sample Group: 1010065-67

Reported: Jan 10, 1991

QUALITY CONTROL DATA REPORT

ANALYTE
Oil & Grease

Method:	503 D & E
Analyst:	R. Halsne
Reporting Units:	mg/kg
Date Analyzed:	Jan 9, 1991
QC Sample #:	Matrix BLK010991

Sample Conc.:	N.D.
Spike Conc. Added:	5,000
Conc. Matrix Spike:	4,500
Matrix Spike % Recovery:	91
Conc. Matrix Spike Dup.:	4,200
Matrix Spike Duplicate % Recovery:	84
Relative % Difference:	7.4

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
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Harding Lawson Associates	Client Project ID:	#2251, 081.03/Texaco-Oakland	Sampled:	Jan 8, 1991
1355 Willow Way, Suite 109	Sample Descript:	Soil, PT-B-7.5	Received:	Jan 9, 1991
Concord, CA 94520	Analysis Method:	EPA 5030/8010	Analyzed:	Jan 9, 1991
Attention: Jeanna Hudson	Lab Number:	101-0065	Reported:	Jan 10, 1991

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Bromodichloromethane	5.0	N.D.
Bromoform	5.0	N.D.
Bromomethane	5.0	N.D.
Carbon tetrachloride	5.0	N.D.
Chlorobenzene	5.0	N.D.
Chloroethane	25	N.D.
2-Chloroethylvinyl ether	5.0	N.D.
Chloroform	5.0	N.D.
Chloromethane	5.0	N.D.
Dibromochloromethane	5.0	N.D.
1,2-Dichlorobenzene	10	N.D.
1,3-Dichlorobenzene	10	N.D.
1,4-Dichlorobenzene	10	N.D.
1,1-Dichloroethane	5.0	N.D.
1,2-Dichloroethane	5.0	N.D.
1,1-Dichloroethene	5.0	N.D.
Total 1,2-Dichloroethene	5.0	N.D.
1,2-Dichloropropane	5.0	N.D.
cis-1,3-Dichloropropene	5.0	N.D.
trans-1,3-Dichloropropene	5.0	N.D.
Methylene chloride	10	N.D.
1,1,2,2-Tetrachloroethane	5.0	N.D.
Tetrachloroethene	5.0	N.D.
1,1,1-Trichloroethane	5.0	N.D.
1,1,2-Trichloroethane	5.0	N.D.
Trichloroethene	5.0	N.D.
Trichlorofluoromethane	5.0	N.D.
Vinyl chloride	10	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
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Harding Lawson Associates	Client Project ID:	#2251, 081.03/Texaco-Oakland	Sampled:	Jan 8, 1991
1355 Willow Way, Suite 109	Sample Descript:	Soil, PT-SS-7.5	Received:	Jan 9, 1991
Concord, CA 94520	Analysis Method:	EPA 5030/8010	Analyzed:	Jan 9, 1991
Attention: Jeanna Hudson	Lab Number:	101-0066	Reported:	Jan 10, 1991

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Bromodichloromethane	50	N.D.
Bromoform	50	N.D.
Bromomethane	50	N.D.
Carbon tetrachloride	50	N.D.
Chlorobenzene	50	N.D.
Chloroethane	250	N.D.
2-Chloroethylvinyl ether	50	N.D.
Chloroform	50	N.D.
Chloromethane	50	N.D.
Dibromochloromethane	50	N.D.
1,2-Dichlorobenzene	100	N.D.
1,3-Dichlorobenzene	100	N.D.
1,4-Dichlorobenzene	100	N.D.
1,1-Dichloroethane	50	N.D.
1,2-Dichloroethane	50	N.D.
1,1-Dichloroethene	50	N.D.
Total 1,2-Dichloroethene	50	N.D.
1,2-Dichloropropane	50	N.D.
cis-1,3-Dichloropropene	50	N.D.
trans-1,3-Dichloropropene	50	N.D.
Methylene chloride	100	N.D.
1,1,2,2-Tetrachloroethane	50	N.D.
Tetrachloroethene	50	N.D.
1,1,1-Trichloroethane	50	N.D.
1,1,2-Trichloroethane	50	N.D.
Trichloroethene	50	N.D.
Trichlorofluoromethane	50	N.D.
Vinyl chloride	100	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates	Client Project ID:	#2251, 081.03/Texaco-Oakland	Sampled:	Jan 8, 1991
1355 Willow Way, Suite 109	Sample Descript:	Soil, PT-NS-7.5	Received:	Jan 9, 1991
Concord, CA 94520	Analysis Method:	EPA 5030/8010	Analyzed:	Jan 9, 1991
Attention: Jeanna Hudson	Lab Number:	101-0067	Reported:	Jan 10, 1991

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Bromodichloromethane	5.0	N.D.
Bromoform	5.0	N.D.
Bromomethane	5.0	N.D.
Carbon tetrachloride	5.0	N.D.
Chlorobenzene	5.0	N.D.
Chloroethane	25	N.D.
2-Chloroethylvinyl ether	5.0	N.D.
Chloroform	5.0	N.D.
Chloromethane	5.0	N.D.
Dibromochloromethane	5.0	N.D.
1,2-Dichlorobenzene	10	N.D.
1,3-Dichlorobenzene	10	N.D.
1,4-Dichlorobenzene	10	N.D.
1,1-Dichloroethane	5.0	N.D.
1,2-Dichloroethane	5.0	N.D.
1,1-Dichloroethene	5.0	N.D.
Total 1,2-Dichloroethene	5.0	N.D.
1,2-Dichloropropane	5.0	N.D.
cis-1,3-Dichloropropene	5.0	N.D.
trans-1,3-Dichloropropene	5.0	N.D.
Methylene chloride	10	N.D.
1,1,2,2-Tetrachloroethane	5.0	N.D.
Tetrachloroethene	5.0	N.D.
1,1,1-Trichloroethane	5.0	N.D.
1,1,2-Trichloroethane	5.0	N.D.
Trichloroethene	5.0	N.D.
Trichlorofluoromethane	5.0	N.D.
Vinyl chloride	10	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

1010065.HAO <10>

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Jeanna Hudson

Client Project ID: #2251, 081.03/Texaco-Oakland

QC Sample Group: 1010065-67

Reported: Jan 10, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	1,1-Dichloroethene	Trichloro-ethene	Chloro-benzene	Benzene	Toluene	Chloro-benzene (PID)
Method:	EPA 8010	EPA 8010	EPA 8010	EPA 8020	EPA 8020	EPA 8020
Analyst:	E. Hamilton	E. Hamilton	E. Hamilton	E. Hamilton	E. Hamilton	E. Hamilton
Reporting Units:	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Date Analyzed:	Jan 9, 1991	Jan 9, 1991	Jan 9, 1991	Jan 9, 1991	Jan 9, 1991	Jan 9, 1991
QC Sample #:	101-0624	101-0624	101-0624	101-0624	101-0624	101-0624
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	10	10	10	10	10	10
Conc. Matrix Spike:	9.8	9.3	11	9.4	8.7	9.5
Matrix Spike % Recovery:	98	93	110	94	87	95
Conc. Matrix Spike Dup.:	8.9	9.8	12	9.7	9.1	9.8
Matrix Spike Duplicate % Recovery:	89	98	120	97	91	98
Relative % Difference:	9.5	5.2	6.8	3.1	4.5	3.1

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

1010065.HAO <11>

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates	Client Project ID:	#2251, 081.03/Texaco-Oakland	Sampled:	Jan 8, 1991
1355 Willow Way, Suite 109	Matrix Descript:	Soil	Received:	Jan 9, 1991
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jan 9, 1991
Attention: Jeanna Hudson	First Sample #:	101-0067	Reported:	Jan 10, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
101-0067	PT-NS-7.5	22	0.020	N.D.	0.055	0.13
Detection Limits:		**2.0**	**0.010**	**0.010**	**0.010**	**0.010**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, California 94520
415/687-9660
Telecopy: 415/687-9673

CHAIN OF CUSTODY FORM

Lab: SEQUOIA

Samplers: M CHAMBERLAIN

Job Number: 2251, 081.03

Name/Location: TEXACO 500 GRAND AVE OAKLAND

Project Manager: JEANNA HUDSON

Recorder: _____ (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	SAMPLE NUMBER OR LAB NUMBER	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES
40			X		X			PT-B-7.5	91	01	08		
↓			X		X			PT-SS-7.5		↓			
40			X		X			PT-NS-7.5	91	01	08		24 HR TURNAROUND

ANALYSIS REQUESTED

EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	ICP METALS	EPA 8015M/TPH	TPH AS GAS	TPH AS DIESEL	TPH AS WASTE OIL	BTEX	TOTAL OIL & GREASE	CHLORINATED HYDROCARBONS
						X	X	X	X	X	X
						X	X	X	X	X	X
						X	X	X	X	X	X

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature) John R. Dye	RECEIVED BY: (Signature) Ed Hamilton	DATE/TIME 1-8-91 19:35
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature) DATE/TIME	RECEIVED FOR LAB BY: (Signature) [illegible]	DATE/TIME 1/9 8:00
METHOD OF SHIPMENT		

Laboratory Copy White — Project Office Copy Yellow — Field Office Copy Pink

6533

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Jeanna Hudson

Client Project ID: #2251,114.03/Exxon - Oakland

QC Sample Group: 1010124-25

Reported: Jan 17, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	E. Hamilton	E. Hamilton	E. Hamilton	E. Hamilton
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Jan 15, 1991	Jan 15, 1991	Jan 15, 1991	Jan 15, 1991
QC Sample #:	101-0124	101-0124	101-0124	101-0124
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.30	0.33	0.33	1.0
Matrix Spike % Recovery:	75	83	83	83
Conc. Matrix Spike Dup.:	0.30	0.32	0.32	1.0
Matrix Spike Duplicate % Recovery:	75	80	80	83
Relative % Difference:	0	3.1	3.1	0

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

$$\text{\% Recovery:} \quad \frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$$

$$\text{Relative \% Difference:} \quad \frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$$

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates	Client Project ID:	#2251,114.03/Exxon - Oakland	Sampled:	Jan 9, 1991
1355 Willow Way, Suite 109	Matrix Descript:	Soil	Received:	Jan 9, 1991
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jan 15, 1991
Attention: Jeanna Hudson	First Sample #:	101-0124	Reported:	Jan 17, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
101-0124	PT-E-1.5	1.1	N.D.	N.D.	N.D.	N.D.
101-0125	PT-W-1.5	3.8	N.D.	0.014	N.D.	0.024
Detection Limits:		**1.0**	**0.0050**	**0.0050**	**0.0050**	**0.0050**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

Please Note:
The above samples do not appear to contain gasoline.

1010124.HAO <1>

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates	Client Project ID:	#2251,114.03/Exxon - Oakland	Sampled:	Jan 9, 1991
1355 Willow Way, Suite 109	Matrix Descript:	Soil	Received:	Jan 9, 1991
Concord, CA 94520	Analysis Method:	EPA 3550/8015	Extracted:	Jan 14, 1991
Attention: Jeanna Hudson	First Sample #:	101-0124	Analyzed:	Jan 16, 1991
			Reported:	Jan 17, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
101-0124	PT-E-1.5	110
101-0125	PT-W-1.5	190

Detection Limits:	**1.0**

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

1010124.HAO <3>

SEQUOIA ANALYTICAL

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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Jeanna Hudson

Client Project ID: #2251,114.03/Exxon - Oakland

QC Sample Group: 1010124-25

Reported: Jan 17, 1991

QUALITY CONTROL DATA REPORT

ANALYTE
Diesel

Method:	EPA 8015
Analyst:	K. Lee
Reporting Units:	mg/kg
Date Analyzed:	Jan 16, 1991
QC Sample #:	Matrix BLK011491

Sample Conc.:	N.D.
Spike Conc. Added:	10
Conc. Matrix Spike:	6.4
Matrix Spike % Recovery:	64
Conc. Matrix Spike Dup.:	7.1
Matrix Spike Duplicate % Recovery:	71
Relative % Difference:	10

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
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Harding Lawson Associates	Client Project ID:	#2251,114.03/Exxon - Oakland	Sampled:	Jan 9, 1991
1355 Willow Way, Suite 109	Matrix Descript:	Soil	Received:	Jan 9, 1991
Concord, CA 94520	Analysis Method:	SM 503 D&E (Gravimetric)	Extracted:	Jan 14, 1991
Attention: Jeanna Hudson	First Sample #:	101-0124	Analyzed:	Jan 14, 1991
			Reported:	Jan 17, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
101-0124	PT-E-1.5	780
101-0125	PT-W-1.5	370

Detection Limits:	**30**

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

1010124.HAO <5>

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Jeanna Hudson

Client Project ID: #2251,114.03/Exxon - Oakland

QC Sample Group: 1010124-25

Reported: Jan 17, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Oil & Grease
Method:	503 D & E
Analyst:	R. Halsne
Reporting Units:	mg/kg
Date Analyzed:	Jan 14, 1991
QC Sample #:	101-0046
Sample Conc.:	100
Spike Conc. Added:	5,300
Conc. Matrix Spike:	5,500
Matrix Spike % Recovery:	100
Conc. Matrix Spike Dup.:	5,500
Matrix Spike Duplicate % Recovery:	100
Relative % Difference:	0.40

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

1010124.HAO <6>

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, California 94520
415/687-9660
Telecopy: 415/687-9673

CHAIN OF CUSTODY FORM

Lab: SEQUOIA

2251, 114.03

Samplers: DAN BERBES

Job Number: ~~4HD7,352.05~~

Name/Location: EXXON 500 GRAND AVE OAKLAND

Project Manager: JEANNINE S. HUDSON

Recorder: (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES
48			X		1			PT	E	1 5					101024
49			X		1			PT	W	1 5					101025 5WK TURNAROUND

ANALYSIS REQUESTED	EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	ICP METALS	EPA 8015M/TPH	BTEX	TPH(g)	TPH(d)	T. Oil and Grease
							X	X	X	X
							X	X	X	X

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature) DATE/TIME	RECEIVED FOR LAB BY: (Signature) Ron Wimer	DATE/TIME 4/9 4:20PM
METHOD OF SHIPMENT		

Laboratory Copy White | Project Office Copy Yellow | Field or Office Copy Pink

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SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates	Client Project ID:	#2251,081.03/Texaco - Oakland	Sampled:	Jan 10, 1991
1355 Willow Way, Suite 109	Sample Descript.:	Soil, SP-1	Received:	Jan 10, 1991
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jan 11, 1991
Attention: Jeanna Hudson	Lab Number:	101-0126	Reported:	Jan 14, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS WITH BTEX DISTINCTION (EPA 8015/8020)

Analyte	Detection Limit mg/kg (ppm)	Sample Results mg/kg (ppm)
Low to Medium Boiling Point Hydrocarbons	1.0	72
Benzene	0.0050	0.064
Toluene	0.0050	0.15
Ethyl Benzene	0.0050	0.53
Xylenes	0.0050	3.7

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

Please Note:
The above samples appear to contain gasoline.

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Jeanna Hudson

Client Project ID: #2251,081.03/Texaco - Oakland

QC Sample Group: 101-0126

Reported: Jan 14, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	E. Hamilton	E. Hamilton	E. Hamilton	E. Hamilton
Reporting Units:	µg/kg	µg/kg	µg/kg	µg/kg
Date Analyzed:	Jan 11, 1991	Jan 11, 1991	Jan 11, 1991	Jan 11, 1991
QC Sample #:	101-0131	101-0131	101-0131	101-0131
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	40	40	40	120
Conc. Matrix Spike:	32	33	33	100
Matrix Spike % Recovery:	80	83	83	83
Conc. Matrix Spike Dup.:	33	34	34	100
Matrix Spike Duplicate % Recovery:	83	85	85	83
Relative % Difference:	3.1	3.0	3.0	0

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
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Harding Lawson Associates	Client Project ID:	#2251,081.03/Texaco - Oakland	Sampled: Jar
1355 Willow Way, Suite 109	Matrix Descript:	Soil	Received: Jar
Concord, CA 94520	Analysis Method:	EPA 3550/8015	Extracted: Jar
Attention: Jeanna Hudson	First Sample #:	101-0126	Analyzed: Jar
			Reported: Jar

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
101-0126	SP-1	360

Detection Limits:	1.0

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

Please Note:
The above sample appears to contain a small amount of diesel.

1010126.H

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Jeanna Hudson

Client Project ID: #2251,081.03/Texaco - Oakland

QC Sample Group: 101-0126

Reported: Jan 14, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Diesel
Method:	EPA 8015
Analyst:	K. Lee
Reporting Units:	mg/kg
Date Analyzed:	Jan 11, 1991
QC Sample #:	BLK011191
Sample Conc.:	N.D.
Spike Conc. Added:	10
Conc. Matrix Spike:	6.6
Matrix Spike % Recovery:	66
Conc. Matrix Spike Dup.:	6.8
Matrix Spike Duplicate % Recovery:	68
Relative % Difference:	3.0

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

$$\text{\% Recovery:} \quad \frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$$

$$\text{Relative \% Difference:} \quad \frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$$

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates	Client Project ID:	#2251,081.03/Texaco - Oakland	Sampled:	Jan 10, 1991
1355 Willow Way, Suite 109	Sample Descript:	Soil, SP-1	Received:	Jan 10, 1991
Concord, CA 94520			Extracted:	Jan 11, 1991
Attention: Jeanna Hudson	Lab Number:	101-0126	Analyzed:	Jan 11, 1991
			Reported:	Jan 14, 1991

LABORATORY ANALYSIS

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Total Lead	0.25	42

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Jeanna Hudson

Client Project ID: #2251,081.03/Texaco - Oakland

QC Sample Group: 101-0126

Reported: Jan 14, 1991

QUALITY CONTROL DATA REPORT

ANALYTE
Lead

Method:	EPA 7420
Analyst:	N. Herrera
Reporting Units:	mg/kg
Date Analyzed:	Jan 11, 1991
QC Sample #:	101-0130

Sample Conc.:	N.D.
Spike Conc. Added:	0.50
Conc. Matrix Spike:	0.43
Matrix Spike % Recovery:	86
Conc. Matrix Spike Dup.:	0.43
Matrix Spike Duplicate % Recovery:	86
Relative % Difference:	0

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, California 94520
415/687-9660
Telecopy: 415/687-9673

CHAIN OF CUSTODY FORM

Lab: SEQUOIA

Samplers: J DYE

Job Number: 2251, 081.03

Name/Location: TEXACO 500 GRAND AVE OAKLAND

Project Manager: JEANNA HUDSON

Recorder: _____ (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES	ANALYSIS REQUESTED: EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	ICP METALS	EPA 8015M/TPH	TPH AS GAS	TPH AS DIESEL	BTEX	TOTAL LEAD
4			X		1			SP	—	1	91	01	10		1010126							X	X	X	X

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
						~~STANDARD TURNAROUND~~ 48 HRS, TURNAROUND

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature) DATE/TIME	RECEIVED FOR LAB BY: (Signature)	DATE/TIME 1/10 2:05
METHOD OF SHIPMENT		

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SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates	Client Project ID:	#2251,081.03	Sampled:	Jan 10, 1991
1355 Willow Way, Suite 109	Sample Descript:	Soil	Relogged:	Jan 16, 1991
Concord, CA 94520	Analysis Method:	California LUFT Manual, 12/87	Extracted:	Jan 17, 1991
Attention: Jeanna Hudson	First Sample #:	101-0126	Analyzed:	Jan 18, 1991
			Reported:	Jan 18, 1991

ORGANIC LEAD

Sample Number	Sample Description	Sample Results mg/kg (ppm)
101-0126	SP-1	N.D.

Detection Limits:	0.050

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, California 94520
415/687-9660
Telecopy: 415/687-9673

CHAIN OF CUSTODY FORM

Lab: SEQUOIA

Samplers: J DYE

Job Number: 2251, 081.03

Name/Location: TEXACO 500 GRAND AVE OAKLAND

Project Manager: JEANNA HUDSON

Recorder: _____ (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES	ANALYSIS REQUESTED: EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	ICP METALS	EPA 8015M/TPH	TPH AS GAS	TPH AS DIESEL	BTEX	TOTAL LEAD
W			X		1			SP	—	1	91	01	11	0	1010126							X	X	X	X

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
						~~STANDARD TURNAROUND~~ 48 HRS. TURNAROUND

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature) DATE/TIME	RECEIVED FOR LAB BY: (Signature)	DATE/TIME 1/10 2:05
METHOD OF SHIPMENT		

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DISTRIBUTION

4 copies: Texaco Refining and Marketing Inc.
108 Cutting Boulevard
Richmond, California 94804
Attention: Mr. R. R. Zielinski

JSH/SJO/mlw 031341T/R46

QUALITY CONTROL REVIEWER

Glenn S. Young
Project Geologist