



BP OIL

BP Oil Company
16400 Southcenter Parkway, Suite 301
Tukwila, Washington 98188
(206) 575-4077

93 AUG -9 PM 1:18

August 9, 1993

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

RE: BP OIL FACILITY #11133
2220 98th Avenue
Oakland, California

Dear Mr. Hiett:

Attached please find our GROUND WATER MONITORING AND SAMPLING REPORT for the above referenced facility.

Please call me at (206) 394-5243 with questions regarding this submission.

Respectfully,


Scott T. Hooton
Environmental Resources Management

STH:jc ERM11133

cc: Mr. Barney Chan, Alameda County Health Care Service Agency,
80 Swan Way, Room 200, Oakland, CA 94621

MR. Keith Romstad, Resna, Inc. 73 Digital Drive, Novato, Ca
94949

Mr. Al Sevilla, Alisto, 1777 Oakland Blvd., Suite 200,
Walnut Creek, CA 94596

Mr. Robert Merriken, Mobil Oil Corp, 3225 Gallows Road,
Fairfax, VA 22037

Site file

*let them know you're the
case worker
BC*

GROUNDWATER MONITORING AND SAMPLING REPORT

**BP Oil Company Service Station No. 11133
2220 98th Avenue
Oakland, California**

Project No. 10-025-01-004

Prepared for:

**BP Oil Company
Environmental Resource Management
16400 Southcenter Parkway, Suite 301
Tukwila, Washington**




Prepared by:

**Alisto Engineering Group
1777 Oakland Boulevard, Suite 200
Walnut Creek, California**

July 26, 1993



**Brady Nagle
Project Manager**



**Al Sevilla, P.E.
Principal**



GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11133
2220 98th Avenue
Oakland, California

Project No. 10-025-01-004

July 26, 1993

INTRODUCTION

This report presents the results and findings of the April 22, 1993 groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Company Service Station No. 11133, 2220 98th Avenue, Oakland, California. A site vicinity map is shown in Figure 1.

FIELD PROCEDURES

Field activities were performed in accordance with the procedures and guidelines of the Alameda County Health Care Services Agency and the California Regional Water Quality Control Board, San Francisco Bay Region.

Before purging and sampling, the groundwater level in each well was measured from a permanent mark on top of the casing to the nearest 0.01 foot using an electronic sounder. The depth to groundwater and top of casing elevation data were used to calculate the groundwater elevation in each well in reference to mean sea level. The survey data and groundwater elevation measurements collected to date are presented in Table 1.

Before sample collection, each well was purged of 3 casing volumes, while recording field readings of pH, temperature, and electrical conductivity. Groundwater samples were collected for laboratory analysis by lowering a bottom-fill, disposable bailer to just below the water level in the well. The samples were transferred from the bailer into laboratory-supplied containers. The water sampling field survey forms are presented in Appendix A.

SAMPLING AND ANALYTICAL RESULTS

Results of monitoring and laboratory analysis of the groundwater samples for this and previous quarters are summarized in Table 1. The potentiometric groundwater elevations as interpreted from the results of this monitoring event are shown in Figure 2. Isoconcentration maps of total petroleum hydrocarbons as gasoline and benzene are shown in Figures 3 and 4. The laboratory report and chain of custody record are presented in Appendix B.



TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
 BP OIL COMPANY SERVICE STATION NO. 11133
 2220 98TH AVENUE, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-025

WELL ID	DATE OF MONITORING/SAMPLING	CASING ELEVATION (a)	DEPTH TO WATER	PRODUCT THICKNESS	GROUNDWATER ELEVATION (b)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	LAB
MW-1	04/05/91	34.46	--	--	--	--	--	--	--	--	--
MW-1	04/01/92	34.46	11.25	0.01	23.22	--	--	--	--	--	--
MW-1	07/06/92	34.46	13.61	0.02	20.87	--	--	--	--	--	--
MW-1	10/07/92	34.46	15.15	0.09	19.38	--	--	--	--	--	--
MW-1	01/14/93	34.46	10.73	0.01	23.74	--	--	--	--	--	--
MW-1	04/22/93	34.46	11.64	0.16	22.94	--	--	--	--	--	--
MW-2	04/05/91	35.50	16.62	0.00	18.88	ND<50	0.6	0.9	ND<0.3	ND<0.3	SUP
MW-2	04/01/92	35.50	11.25	0.00	24.25	--	--	--	--	--	--
MW-2	04/02/92	35.50	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	APP
MW-2	07/06/92	35.50	12.72	0.00	22.78	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
MW-2	10/07/92	35.50	15.08	0.00	20.42	ND<50	ND<0.5	1.8	ND<0.5	2.3	ANA
MW-2	01/14/93	35.50	9.69	0.00	25.81	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	PACE
MW-2	04/22/93	35.50	10.46	0.00	25.04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	PACE
MW-3	04/05/91	36.53	17.84	0.00	18.69	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3	SUP
MW-3	04/01/92	36.53	15.64	0.00	20.89	--	--	--	--	--	--
MW-3	04/02/92	36.53	--	--	--	ND<50	1.4	ND<0.5	ND<0.5	ND<0.5	APP
MW-3	07/06/92	36.53	19.03	0.00	17.50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
MW-3	10/07/92	36.53	21.83	0.00	14.70	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
MW-3	01/14/93	36.53	15.96	0.00	20.57	--	ND<0.5	ND<0.5	ND<0.5	ND<0.5	PACE
MW-3	04/22/93	36.53	16.20	0.00	20.33	2800	ND<0.5	ND<0.5	ND<0.5	ND<0.5	PACE
AW-1	04/05/91	38.11	25.44	0.00	12.67	4100	1500	69	100	83	SUP
AW-1	04/01/92	38.11	23.22	0.00	14.89	--	--	--	--	--	--
AW-1	04/02/92	38.11	--	--	--	11000	1800	210	210	490	APP
AW-1	07/06/92	38.11	24.89	0.00	13.22	8500	4000	40	290	530	ANA
AW-1	10/07/92	38.11	26.55	0.00	11.56	4700	1500	41	47	300	ANA
QC-1 (c)	10/07/92	38.11	26.55	0.00	11.56	2900	1200	25	37	210	ANA
AW-1	01/14/93	38.11	23.73	0.00	14.38	2800	830	31	140	240	PACE
QC-1 (c)	01/14/93	38.11	23.73	0.00	14.38	4100	1700	28	130	230	PACE
AW-1	04/22/93	38.11	22.29	0.00	15.82	39000	14000	530	1800	6100	PACE
AW-2	04/05/91	36.83	22.36	0.00	14.47	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3	SUP
AW-2	04/01/92	36.83	20.81	0.00	16.02	--	--	--	--	--	--
AW-2	04/02/92	36.83	--	--	--	130	25	2.3	0.7	2.1	APP
AW-2	07/06/92	36.83	23.57	0.00	13.26	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
AW-2	10/07/92	36.83	25.24	0.00	11.59	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
AW-2	01/14/93	36.83	20.82	0.00	16.01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	PACE
AW-2	04/22/93	36.83	19.37	0.00	17.46	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	PACE
AW-3	04/05/91	39.13	23.90	0.00	15.23	5200	980	450	95	310	SUP
AW-3	04/01/92	39.13	22.50	0.00	16.63	4700	890	47	43	110	APP
AW-3	07/06/92	39.13	23.26	0.00	15.87	3900	3100	30	80	99	ANA
AW-3	10/07/92	39.13	24.75	0.00	14.38	5000	2600	ND<0.5	ND<0.5	59	ANA
AW-3	01/14/93	39.13	23.59	0.00	15.54	350	250	ND<0.5	ND<0.5	ND<0.5	PACE
AW-3	04/22/93	39.13	19.42	0.00	19.71	240	71	2.4	0.6	4.0	PACE

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
 BP OIL COMPANY SERVICE STATION NO. 11133
 2220 98TH AVENUE, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-025

WELL ID	DATE OF MONITORING/ SAMPLING	CASING ELEVATION (a)	DEPTH TO WATER	PRODUCT THICKNESS	GROUNDWATER ELEVATION (b)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	LAB
AW-4	04/05/91	39.08	25.12	0.00	13.96	110000	40000	13000	2000	5500	SUP
AW-4	04/01/92	39.08	23.56	0.00	15.52	230000	57000	31000	2900	7600	APP
AW-4	04/01/92	39.08	23.56	0.00	15.52	210000	55000	23000	2900	7000	APP
AW-4	07/06/92	39.08	25.87	0.00	13.21	38000	16000	5400	2000	6100	ANA
AW-4	10/07/92	39.08	27.53	0.00	11.55	120000	41000	26000	4700	13000	ANA
AW-4	01/14/93	39.08	24.12	0.00	14.96	62000	18000	14000	2700	7700	PACE
AW-4	04/22/93	39.08	21.47	0.00	17.61	18000	1100	2100	320	3500	PACE
AW-5	04/05/91	38.51	25.48	0.00	13.03	420	31	7.5	20	68	SUP
AW-5	04/01/92	38.51	23.95	0.00	14.56	—	—	—	—	—	—
AW-5	04/02/92	38.51	—	—	—	4000	270	63	190	290	APP
AW-5	07/06/92	38.51	26.48	0.00	12.03	1400	160	ND<2.5	250	58	ANA
AW-5	10/07/92	38.51	28.18	0.00	10.33	360	12	0.6	8.7	5	ANA
AW-5	01/14/93	38.51	24.15	0.00	14.36	1700	270	7.5	130	62	PACE
AW-5	04/22/93	38.51	22.43	0.00	16.08	2700	780	30	220	180	PACE
QC-1	04/22/93	38.51	22.43	0.00	16.08	3500	780	29	240	210	PACE
AW-6	04/05/91	37.08	22.48	0.00	14.60	1100	80	19	1.4	230	SUP
AW-6	04/01/92	37.08	22.50	0.00	14.58	—	—	—	—	—	—
AW-6	04/02/92	37.08	—	—	—	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	APP
AW-6	07/06/92	37.08	22.74	0.00	14.34	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
AW-6	10/07/92	37.08	24.64	0.00	12.44	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
AW-6	01/14/93	37.08	22.36	0.00	14.72	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	PACE
AW-6	04/22/93	37.08	22.62	0.00	14.26	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	PACE
AW-7	04/05/91	37.60	23.38	0.00	14.22	ND<50	0.4	0.7	ND<0.3	ND<0.3	SUP
AW-7	04/01/92	37.60	21.92	0.00	15.68	—	—	—	—	—	—
AW-7	04/02/92	37.60	—	—	—	ND<50	ND<0.5	3.2	1.0	5.4	APP
AW-7	07/06/92	37.60	24.50	0.00	13.10	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
AW-7	10/07/92	37.60	26.18	0.00	11.42	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
AW-7	01/14/93	37.60	22.03	0.00	15.57	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	PACE
AW-7	04/22/93	37.60	21.18	0.00	16.42	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	PACE
AW-8	04/05/91	40.86	26.68	0.00	14.18	80	1.9	2.2	0.5	1.3	SUP
AW-8	04/01/92	40.86	25.11	0.00	15.75	73	ND<0.5	0.7	ND<0.5	0.6	APP
AW-8	07/06/92	40.86	26.43	0.00	14.43	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
AW-8	10/07/92	40.86	28.59	0.00	12.27	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
AW-8	01/14/93	40.86	25.55	0.00	15.31	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	PACE
AW-8	04/22/93	40.86	22.29	0.00	18.57	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	PACE
RW-1	04/05/91	37.73	—	0.00	—	—	—	—	—	—	—
RW-1	04/01/92	37.73	22.81	0.30	15.14	—	—	—	—	—	—
RW-1	07/06/92	37.73	26.92	0.41	11.12	—	—	—	—	—	—
RW-1	10/07/92	37.73	28.51	1.26	10.16	—	—	—	—	—	—
RW-1	01/14/93	37.73	23.75	0.25	14.17	—	—	—	—	—	—
RW-1	04/22/93	37.73	22.70	1.38	16.07	—	—	—	—	—	—

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
 BP OIL COMPANY SERVICE STATION NO. 11133
 2220 98TH AVENUE, OAKLAND, CALIFORNIA

ALJSTO PROJECT NO. 10-025

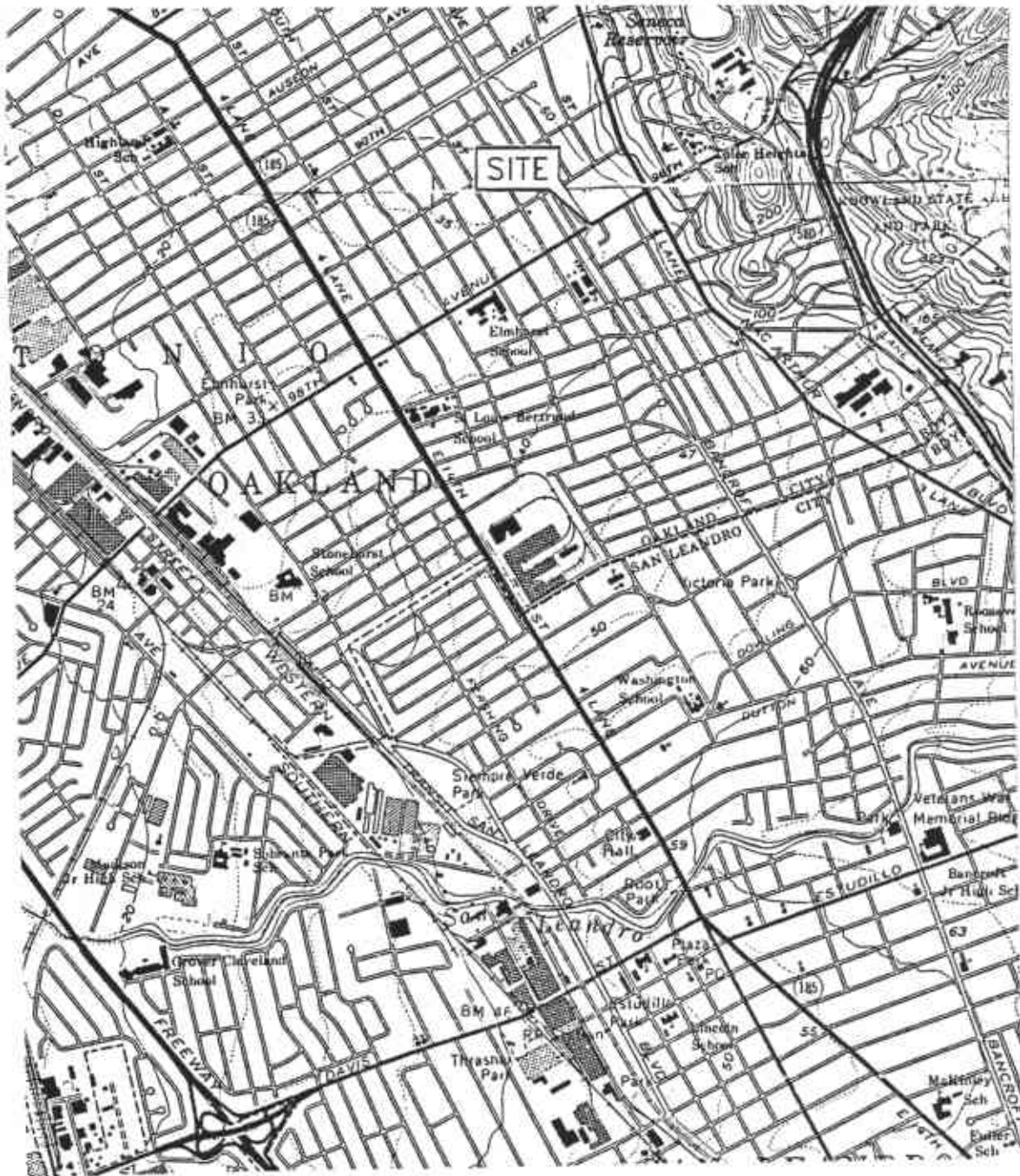
WELL ID	DATE OF MONITORING/SAMPLING	CASING ELEVATION (a)	DEPTH TO WATER	PRODUCT THICKNESS	GROUNDWATER ELEVATION (b)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	LAB
QC-2	(e) 10/07/92	---	---	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
QC-2	(e) 01/14/93	---	---	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	PACE
QC-2	(e) 04/22/93	---	---	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	PACE

ABBREVIATIONS:

TPH-G Total petroleum hydrocarbons as gasoline
 B Benzene
 T Toluene
 E Ethylbenzene
 X Total xylenes
 ppb Parts per billion
 --- Not analyzed/available
 ND Not detected above reported detection limit
 SUP Superior Analytical Laboratories, Inc.
 APP Applied Analytical
 ANA Anamatrix, Inc.
 PACE Pace, Inc.

NOTES:

(a) Top of casing elevations surveyed to the nearest 0.01 foot above mean sea level.
 (b) Groundwater elevations were adjusted assuming a specific gravity of 0.75 for free product.
 (c) Blind duplicate sample.
 (d) Duplicate sample.
 (e) Travel blank.



SOURCE:
 USGS MAP, OAKLAND EASE AND SAN LEANDRO
 QUADRANGLES, CALIFORNIA. 7.5 MINUTE SERIES. 1956.
 PHOTOREVISED 1980.

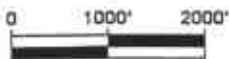
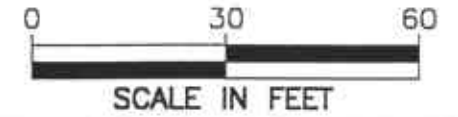
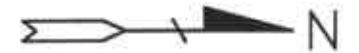
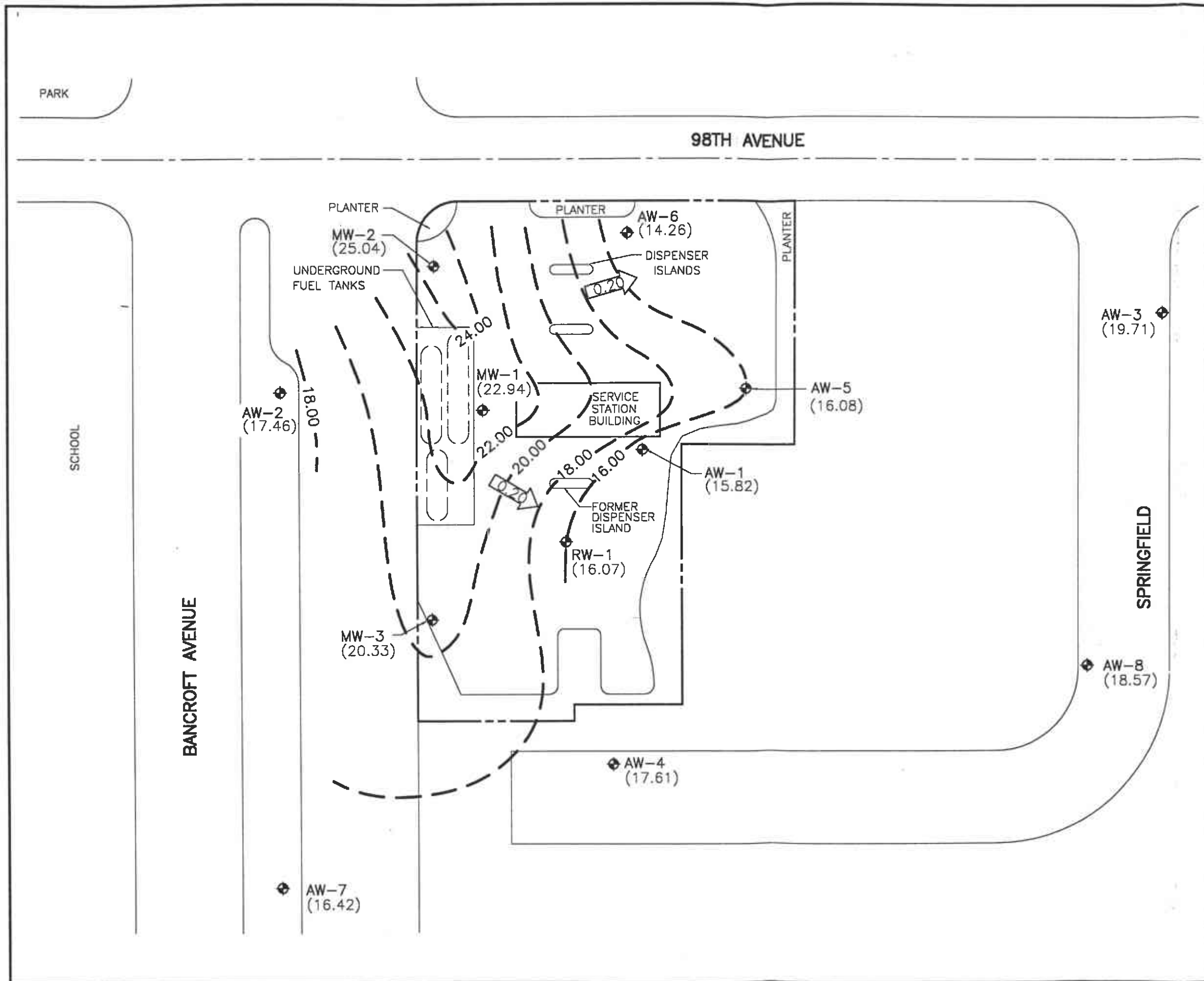


FIGURE 1
SITE VICINITY MAP

BP OIL SERVICE STATION NO. 11133
2220 98TH AVENUE
OAKLAND, CALIFORNIA
PROJECT NO. 10-025



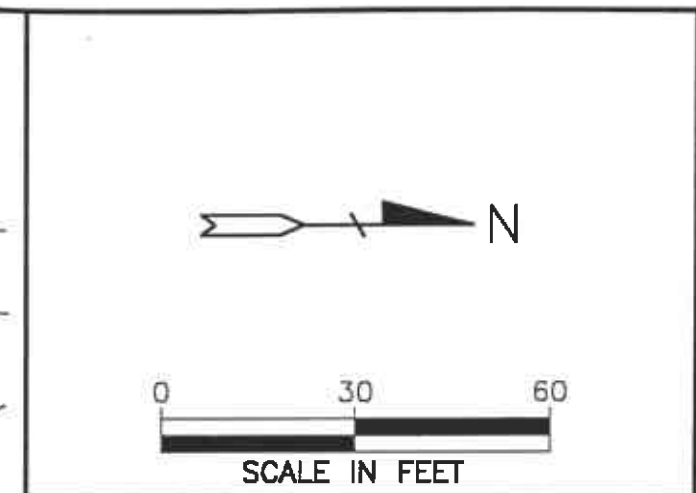
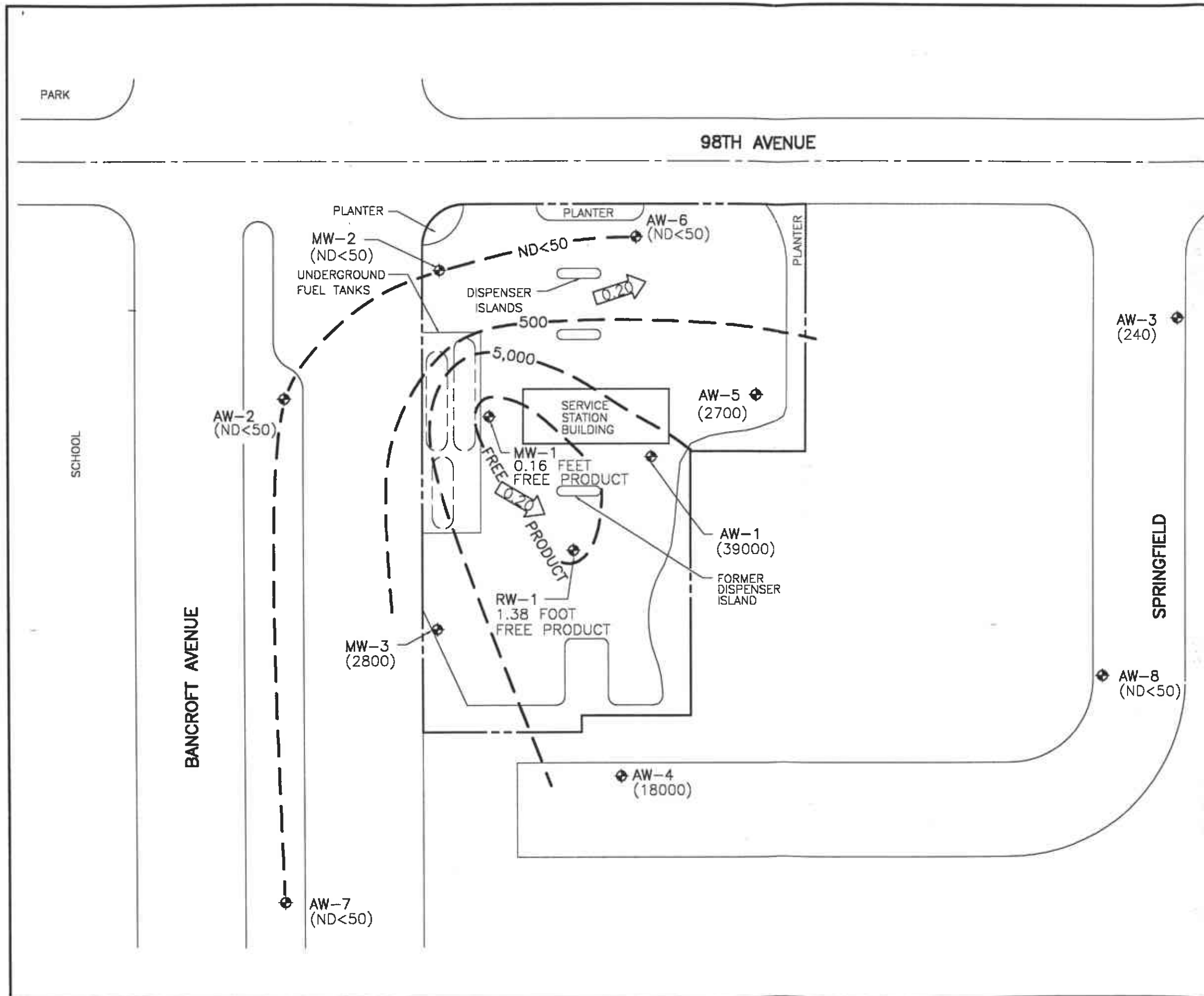
ALISTO ENGINEERING GROUP
 WALNUT CREEK, CALIFORNIA



LEGEND

- ◆ GROUNDWATER MONITORING WELL
- (16.07) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 20.00- GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL-2.00 FOOT)
- ←0.20→ CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 2
POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP
 APRIL 22, 1993
 BP OIL SERVICE STATION NO. 11133
 2220 98TH AVENUE
 OAKLAND, CALIFORNIA
 PROJECT NO. 10-025



- LEGEND**
- ◆ GROUNDWATER MONITORING WELL
 - (240) TOTAL PETROLEUM HYDROCARBONS AS GASOLINE CONCENTRATION IN PARTS PER BILLION
 - 500- TOTAL PETROLEUM HYDROCARBONS AS GASOLINE ISOCONCENTRATION CONTOUR IN PARTS PER BILLION
 - ←0.20→ CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 3
TOTAL PETROLEUM HYDROCARBONS AS GASOLINE ISOCONCENTRATION CONTOUR MAP
APRIL 22, 1993
 BP OIL SERVICE STATION NO. 11133
 2220 98TH AVENUE
 OAKLAND, CALIFORNIA
 PROJECT NO. 10-025

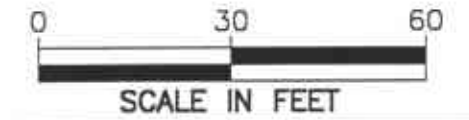
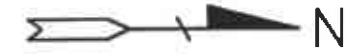
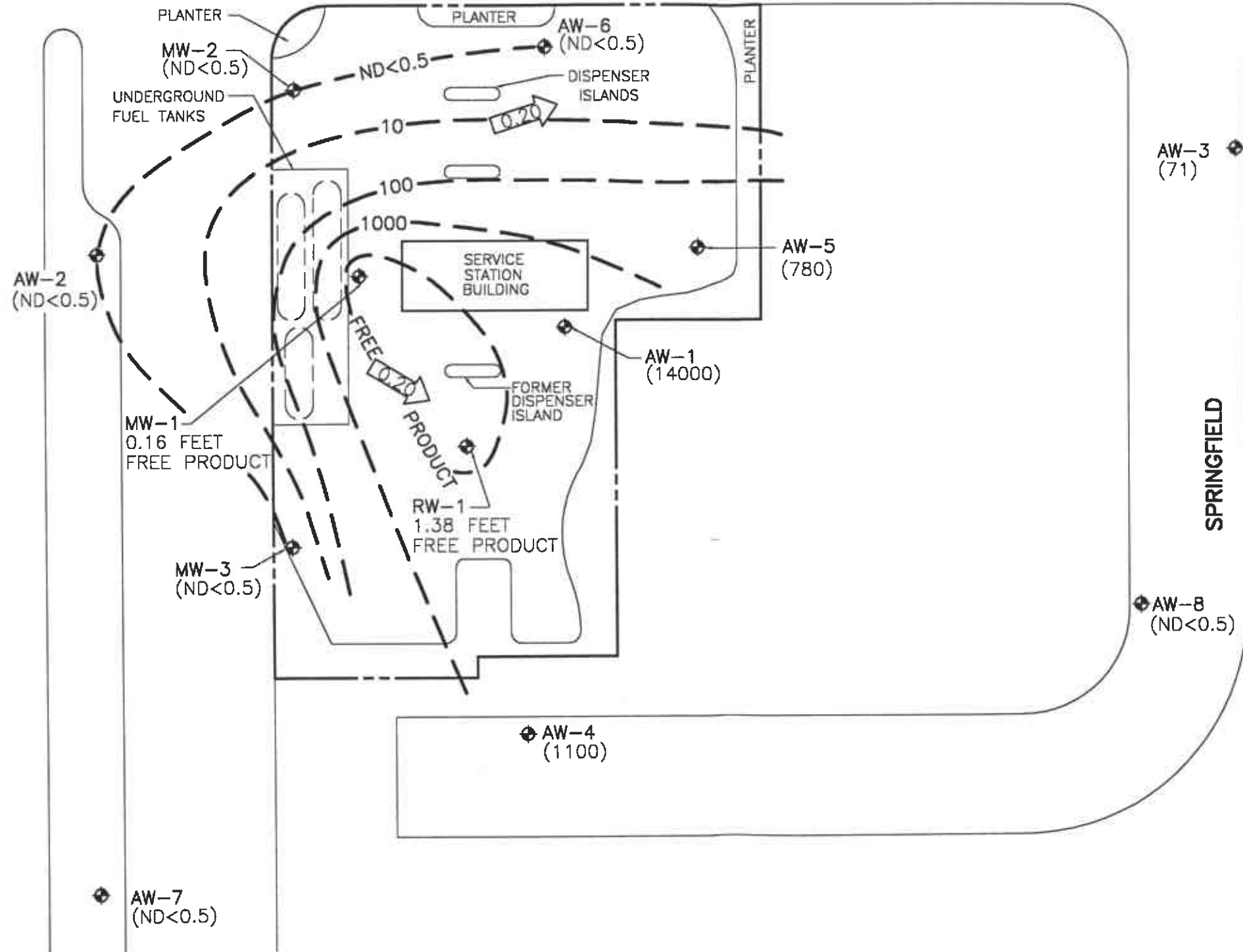
PARK

98TH AVENUE

SCHOOL

BANCROFT AVENUE

SPRINGFIELD



LEGEND

- ◆ GROUNDWATER MONITORING WELL
- (71) BENZENE CONCENTRATION IN PARTS PER BILLION
- 10- BENZENE ISOCONCENTRATION CONTOUR IN PARTS PER BILLION
- ←0.20→ CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 4

BENZENE ISOCONCENTRATION CONTOUR MAP

APRIL 22, 1993

BP OIL SERVICE STATION NO. 11133
2220 98TH AVENUE
OAKLAND, CALIFORNIA

PROJECT NO. 10-025



10025-F.DWG 7-12-93 401 1-30

APPENDIX A
WATER SAMPLING FIELD SURVEY FORMS

Groundwater Sampling Groundwater Monitoring Well Development Drill Support Stockpile Sampling

Firm: ALISTO	Date: 4/22/93	Station #: BP11133	Day: M Tu W (Th) F
Project Number: 10-025	Field Technician: DAN BIRCH	Address: 2220 98th AVE OAKLAND	Weather: cool, clouds

116 Liberty st
Santa Cruz, Ca 95060
(408) 459-0718

DTW Order	Well ID	Diag.	Lock	Exp Cap	Total Depth (feet)	1st Depth to Water (feet)	2nd Depth to Water (feet)	Depth to Product (feet)	Product Thickness	Comments
	AW-1	2	ok	ok	38.6	22.29	22.29			
	AW-2	2	ok	ok	35.2	19.37	19.37			
	AW-3	2	ok	ok	35.75	19.42	19.42			springfield / 98th
	AW-4	2	ok	ok	33.9	21.47	21.47			residential street well
	AW-5	4	ok	ok	42.9	22.57	22.57			22.43 DTW
	AW-6	4	ok	ok	34.2	22.82	22.82			
	AW-7	2	ok	ok	32.3	21.18	21.18			
	AW-8	2	ok	ok	39.2	22.29	22.29			residential street well
	MW-1	2	ok	ok	NM	11.64	11.64	11.48	0.16	Dark product - Not Sampled
	MW-2	2	ok	ok	31.4	10.46	10.46			
	MW-3	2	ok	ok	34.1	16.20	16.20			
	RW-1	6	NO	OK	NM	22.70	22.70	21.32	1.38	Dark product - Not Sampled

Notes: Opened wells to allow equilization prior to measuring DTW. Emptied the passive product recovery system in RW-1. The reservoir contained 0.45 gallons water and 0.05 gallons product. The system was raised ~1' to hang slotts in product level.

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD

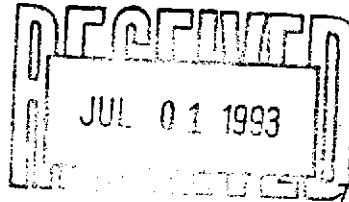
REPORT OF LABORATORY ANALYSIS

Alisto Engineering Group
 1777 Oakland Blvd, Ste. 200
 Walnut Creek, CA 94596

July 01, 1993
 PACE Project Number: 430428508
 PACE WPP# 2424

Attn: Mr. Brady Nagle

Client Reference: BP Station # 11133



PACE Sample Number:
 Date Collected:
 Date Received:
 Client Sample ID:
 Parameter

70 0059550
 04/22/93
 04/28/93
 AW-1

Units MDL DATE ANALYZED

ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):				
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	1200	39000	05/03/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):				
Benzene	ug/L	12	14000	05/03/93
Toluene	ug/L	12	530	05/03/93
Ethylbenzene	ug/L	12	1800	05/03/93
Xylenes, Total				
	ug/L	12	6100	05/03/93

Mr. Brady Nagle
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July 01, 1993
 PACE Project Number: 430428508

Client Reference: BP Station # 11133

PACE Sample Number: 70 0059577
 Date Collected: 04/22/93
 Date Received: 04/28/93
 Client Sample ID: AW-2

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS			
TOTAL FUEL HYDROCARBONS, (LIGHT):		-	04/30/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND 04/30/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			
Benzene	ug/L	0.5	ND 04/30/93
Toluene	ug/L	0.5	ND 04/30/93
Ethylbenzene	ug/L	0.5	ND 04/30/93
Xylenes, Total	ug/L	0.5	ND 04/30/93

Mr. Brady Nagle
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July 01, 1993
 PACE Project Number: 430428508

Client Reference: BP Station # 11133

PACE Sample Number: 70 0059585
 Date Collected: 04/22/93
 Date Received: 04/28/93
 Client Sample ID: AW-3

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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ORGANIC ANALYSIS

<u>PURGEABLE FUELS AND AROMATICS</u>			
TOTAL FUEL HYDROCARBONS, (LIGHT):			04/30/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	240
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			04/30/93
Benzene	ug/L	0.5	71
Toluene	ug/L	0.5	2.4
Ethylbenzene	ug/L	0.5	0.6
Xylenes, Total	ug/L	0.5	4.0

Mr. Brady Nagle
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July 01, 1993
 PACE Project Number: 430428508

Client Reference: BP Station # 11133

PACE Sample Number: 70 0059607
 Date Collected: 04/22/93
 Date Received: 04/28/93
 Client Sample ID: AW-4

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS			
TOTAL FUEL HYDROCARBONS, (LIGHT):		-	05/04/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	250 18000	05/04/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):		-	05/04/93
Benzene	ug/L	2.5 1100	05/04/93
Toluene	ug/L	2.5 2100	05/04/93
Ethylbenzene	ug/L	2.5 320	05/04/93
Xylenes, Total	ug/L	2.5 3500	05/04/93

Mr. Brady Nagle
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July 01, 1993
 PACE Project Number: 430428508

Client Reference: BP Station # 11133

PACE Sample Number: 70 0059615
 Date Collected: 04/22/93
 Date Received: 04/28/93
 Client Sample ID: AW-5

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS			
TOTAL FUEL HYDROCARBONS, (LIGHT):			
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	500	2700
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			
Benzene	ug/L	5.0	780
Toluene	ug/L	5.0	30
Ethylbenzene	ug/L	5.0	220
Xylenes, Total	ug/L	5.0	180

Mr. Brady Nagle
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July 01, 1993
 PACE Project Number: 430428508

Client Reference: BP Station # 11133

PACE Sample Number: 70 0059623
 Date Collected: 04/22/93
 Date Received: 04/28/93
 Client Sample ID: AW-6

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS

TOTAL FUEL HYDROCARBONS, (LIGHT):			-	05/03/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	05/03/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	05/03/93
Benzene	ug/L	0.5	ND	05/03/93
Toluene	ug/L	0.5	ND	05/03/93
Ethylbenzene	ug/L	0.5	ND	05/03/93
Xylenes, Total	ug/L	0.5	ND	05/03/93

Mr. Brady Nagle
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July 01, 1993
 PACE Project Number: 430428508

Client Reference: BP Station # 11133

PACE Sample Number: 70 0059631
 Date Collected: 04/22/93
 Date Received: 04/28/93
 Client Sample ID: AW-7

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS			
TOTAL FUEL HYDROCARBONS, (LIGHT):			05/03/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			05/03/93
Benzene	ug/L	0.5	ND
Toluene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND

Mr. Brady Nagle
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July 01, 1993
 PACE Project Number: 430428508

Client Reference: BP Station # 11133

PACE Sample Number: 70 0059640
 Date Collected: 04/22/93
 Date Received: 04/28/93
 Client Sample ID: AW-8

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS

TOTAL FUEL HYDROCARBONS, (LIGHT):			-	05/04/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	05/04/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	05/04/93
Benzene	ug/L	0.5	ND	05/04/93
Toluene	ug/L	0.5	ND	05/04/93
Ethylbenzene	ug/L	0.5	ND	05/04/93
Xylenes, Total	ug/L	0.5	ND	05/04/93

Mr. Brady Nagle
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July 01, 1993
 PACE Project Number: 430428508

Client Reference: BP Station # 11133

PACE Sample Number: 70 0059658
 Date Collected: 04/22/93
 Date Received: 04/28/93
 Client Sample ID: MW-2

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS

TOTAL FUEL HYDROCARBONS, (LIGHT):			-	05/03/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	05/03/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	05/03/93
Benzene	ug/L	0.5	ND	05/03/93
Toluene	ug/L	0.5	ND	05/03/93
Ethylbenzene	ug/L	0.5	ND	05/03/93
Xylenes, Total	ug/L	0.5	ND	05/03/93

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July 01, 1993
 PACE Project Number: 430428508

Client Reference: BP Station # 11133

PACE Sample Number: 70 0059666
 Date Collected: 04/22/93
 Date Received: 04/28/93
 Client Sample ID: MW-3

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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ORGANIC ANALYSIS

<u>PURGEABLE FUELS AND AROMATICS</u>			
TOTAL FUEL HYDROCARBONS, (LIGHT):		-	05/04/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	2800
PURGEABLE AROMATICS (BTXE BY EPA 8020M):		-	05/04/93
Benzene	ug/L	0.5	ND
Toluene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND

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July 01, 1993
 PACE Project Number: 430428508

Client Reference: BP Station # 11133

PACE Sample Number: 70 0059674
 Date Collected: 04/22/93
 Date Received: 04/28/93
 Client Sample ID: QC-1

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS			
TOTAL FUEL HYDROCARBONS, (LIGHT):			05/05/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	250	3500
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			05/05/93
Benzene	ug/L	2.5	780
Toluene	ug/L	2.5	29
Ethylbenzene	ug/L	2.5	240
Xylenes, Total	ug/L	2.5	210



REPORT OF LABORATORY ANALYSIS

Mr. Brady Nagle
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July 01, 1993
PACE Project Number: 430428508

Client Reference: BP Station # 11133

PACE Sample Number:	70 0059682
Date Collected:	04/22/93
Date Received:	04/28/93
Client Sample ID:	QC-2
<u>Parameter</u>	<u>Units</u> <u>MDL</u> _____ <u>DATE ANALYZED</u>

ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	05/04/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	05/04/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):				
Benzene	ug/L	0.5	ND	05/04/93
Toluene	ug/L	0.5	ND	05/04/93
Ethylbenzene	ug/L	0.5	ND	05/04/93
Xylenes, Total	ug/L	0.5	ND	05/04/93

These data have been reviewed and are approved for release.

Darrell C. Cain
Regional Director

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FOOTNOTES
for pages 1 through 12

July 01, 1993
PACE Project Number: 430428508

Client Reference: BP Station # 11133

MDL Method Detection Limit
ND Not detected at or above the MDL.

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QUALITY CONTROL DATA

July 01, 1993
PACE Project Number: 430428508

Client Reference: BP Station # 11133

PURGEABLE FUELS AND AROMATICS

Batch: 70 20869
Samples: 70 0059577, 70 0059585

METHOD BLANK:

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>Method Blank</u>
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/L	0.5	ND
Toluene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>Reference Value</u>	<u>Recv</u>	<u>Dupl Recv</u>	<u>RPD</u>
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	1000	95%	91%	4%
Benzene	ug/L	0.5	40.0	99%	102%	2%
Toluene	ug/L	0.5	40.0	100%	102%	1%
Ethylbenzene	ug/L	0.5	40.0	102%	100%	1%
Xylenes, Total	ug/L	0.5	120	100%	103%	2%

REPORT OF LABORATORY ANALYSIS

Mr. Brady Nagle
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QUALITY CONTROL DATA

July 01, 1993
 PACE Project Number: 430428508

Client Reference: BP Station # 11133

PURGEABLE FUELS AND AROMATICS

Batch: 70 20879
 Samples: 70 0059550

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/L	0.5	ND
Toluene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference	Dupl		
			Value	Recv	Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	1000	90%	86%	4%
Benzene	ug/L	0.5	40.0	99%	104%	4%
Toluene	ug/L	0.5	40.0	99%	99%	0%
Ethylbenzene	ug/L	0.5	40.0	102%	97%	5%
Xylenes, Total	ug/L	0.5	120	100%	94%	6%

REPORT OF LABORATORY ANALYSIS

Mr. Brady Nagle
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QUALITY CONTROL DATA

July 01, 1993
 PACE Project Number: 430428508

Client Reference: BP Station # 11133

PURGEABLE FUELS AND AROMATICS

Batch: 70 20880

Samples: 70 0059607, 70 0059615, 70 0059623, 70 0059631, 70 0059640
 70 0059658, 70 0059666, 70 0059674, 70 0059682

METHOD BLANK:

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>Method Blank</u>
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/L	0.5	ND
Toluene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>Reference Value</u>	<u>Recy</u>	<u>Dup1 Recy</u>	<u>RPD</u>
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	1000	84%	79%	6%
Benzene	ug/L	0.5	100	97%	106%	8%
Toluene	ug/L	0.5	100	94%	102%	8%
Ethylbenzene	ug/L	0.5	100	108%	106%	1%
Xylenes, Total	ug/L	0.5	300	112%	108%	3%

Mr. Brady Nagle
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FOOTNOTES
for pages 14 through 16

July 01, 1993
PACE Project Number: 430428508

Client Reference: BP Station # 11133

MDL Method Detection Limit
ND Not detected at or above the MDL.
RPD Relative Percent Difference



B.P. OIL COMPANY

16400 Southcenter Parkway, Suite 301, Tukwila, WA 98188

CHAIN OF CUSTODY

450428.508

No 0899

Novato, CA, 11 Digital Drive, 94949
Phone: (415) 883-6100 Fax: (415) 883-2673

Huntington Beach, CA, 5702 Bolsa Avenue, 92649
Phone: (714) 892-2565 Fax: (714) 890-4032

Consultant's Name: **ALISTO ENGINEERING** Consultant Project #: **10-025** Page **1** of **1**

Address: **1777 OAKLAND BLVD., STE 200 WALNUT CREEK**

Project Contact: **BRADY NAOLE** Phone #: **510 296 1750** Fax #: **510 296 1750** Consultant Work Order #: **10-025**

Sampled by (print): **DAN BIRCH** Sampler's Signature: *[Signature]* B.P. Site Location #: **B01133**

Shipment Method: Airbill #: Shipment Date: B.P. Site Location: **98th AVE, OAKLAND**

TAT: 24 hr 48 hr 72 hr Standard (10 day) ANALYSIS REQUIRED

Sample Description	Collection Date/Time	Matrix Soil/Water	Prsv	# of Cont	PACE Sample #	TPH/GAS/BTEX EPA 8015/8020	TPH/Diesel EPA 8015	TRPH EPA 418.1	HVOC 8010											Sample Condition as Received Temperature ° C: _____ Cooler #: _____ Inbound Seal Yes No Outbound Seal Yes No
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Sample Description	Collection Date/Time	Matrix Soil/Water	Prsv	# of Cont	PACE Sample #	TPH/GAS/BTEX EPA 8015/8020	TPH/Diesel EPA 8015	TRPH EPA 418.1	HVOC 8010											COMMENTS			
AW-1	4-22-93	1455	Hcl	3	5955.0	X																	
AW-2	}	1425	}	}	57.7	X																	
AW-3		1259			58.5	X																	
AW-4		1210			60.7	X																	
AW-5		1607			61.5	X																	
AW-6		1700			62.3	X																3 voas rec'd w/ bubbles	
AW-7		1341			63.1	X																	
AW-8		1229			64.0	X																	
MW-2		1734			65.8	X																	
MW-3	1534	66.6	X																	3 voas rec'd w/ bubbles			
QC-1	1610	67.4	X																				
QC-2	1620	68.2	X																	3 voas rec'd w/ bubbles			

Relinquished by/Affiliation	Date	Time	Accepted by/Affiliation	Date	Time	Additional Comments:
<i>[Signature]</i>	4/28/93	1320	<i>[Signature]</i>	4/28/93	1320	
<i>[Signature]</i>	4/28	1630	<i>[Signature]</i>	4/28	1630	