BP OIL

BP Oil Company
Environmental Resources Management
Building 13, Suite N
295 SW 41st Street
Renton, Washington 98055-4931
(206) 251-0667

July 6, 1994

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

RE: BP OIL FACILITY # 11117
7210 Bancroft Avenue
Oakland, California

Attached please find our **GROUNDWATER MONITORING AND SAMPLING REPORT DATED JUNE 27, 1994** for the above referenced facility.

If you have any questions, please call me at (206)251-0689.

Respectfully,

Scott T. Hooton
Environmental Resources Management

STH:mu ERM11117

cc: Mr. Eddy So, California Regional Water Quality Control Board, San Francisco Bay Region, 2101 Webster Street, Suite 500, Oakland, CA 94612

Mr. Scott Kellstedt, Hydro Environmental Technologies, 2363 Mariner Square Drive, Suite 243, Alameda, CA 94501

Mr. Robert K Barth, Bancroft Oakland Investment Company, 9454 Wilshire Boulevard, Suite 901, Beverly Hills, CA 90212

Brady Nagle, ALISTO Engineering Group, 1777 Oakland Blvd, Suite 200, Walnut Creek, CA 94596

Site file

GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11117
7210 Bancroft Avenue
Oakland, California

Project No. 10-018-02-003

Prepared for:

BP Oil Company
Environmental Resources Management
295 S.W. 41st Street
Building 13, Suite N
Renton, Washington

Prepared by:

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

June 27, 1994

Brady Nagle
Project Manager

Al Sevilla, P.E.
Principal

GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11117
7210 Bancroft Avenue
Oakland, California

Project No. 10-018-02-003

June 27, 1994

INTRODUCTION

This report presents the results and findings of the April 5, 1994 groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Company Service Station No. 11117, 7210 Bancroft 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. 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.

FREE PRODUCT MONITORING AND RECOVERY

A passive product recovery canister has been installed in Monitoring Well MW-2 to recover liquid-phase product. Product thicknesses for this and previous monitoring events are presented in Table 1. The volume of free product recovered from the wells is presented in Table 2.

SAMPLING AND ANALYTICAL RESULTS

The 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. The results of groundwater analysis are shown in Figure 3. 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. 11117
7210 BANCROFT AVENUE, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-018

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ppb)	TPH-D (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	Organic Lead (ppb)	DO (ppm)	LAB
MW-1	01/05/92	49.81	33.16	---	16.65	57000	50000	2400	1000	1100	3100	ND	—	---
MW-1	01/10/92	49.81	33.16	---	16.65	---	---	---	---	---	---	---	—	---
MW-1	06/05/92	49.81	29.01	---	20.80	31000	---	2800	2100	800	2300	---	—	---
MW-1	07/24/92	49.80	29.45	---	20.35	---	---	---	---	---	---	---	—	---
MW-1	07/27/92	49.80	29.45	---	20.35	---	---	---	---	---	---	---	---	---
MW-1	09/15/92	49.80	30.53	---	19.27	40000	1200 (c)	3400	3000	1300	3400	---	---	ANA
QC-1 (d)	09/15/92	---	---	---	---	36000	---	3800	3400	1400	3800	---	---	ANA
MW-1	12/15/92	49.80	31.26	---	18.54	27000	1100 (c)	1700	580	700	1900	---	---	ANA
QC-1 (d)	12/15/92	---	---	---	---	22000	---	1500	440	510	1300	---	---	ANA
MW-1	03/15/93	49.80	24.80	---	25.00	17000	580	1700	1200	590	1800	---	---	PACE
QC-1 (d)	03/15/93	---	---	---	---	15000	---	1100	860	440	1400	---	---	PACE
MW-1	06/07/93	49.80	25.01	---	24.79	750	100	0.8	0.8	ND<0.5	ND<0.5	---	---	PACE
QC-1 (d)	06/07/93	---	---	---	---	720	---	0.7	0.7	ND<0.5	ND<0.5	---	---	PACE
MW-1	09/23/93	49.80	28.70	---	21.10	---	---	---	---	---	---	---	---	---
MW-1	09/23/93	---	---	---	---	40000	770	4000	500	920	3000	---	---	PACE
MW-1	12/27/93	49.80	28.66	---	21.14	27000	---	2000	400	940	2600	---	---	PACE
QC-1 (d)	12/27/93	---	---	---	---	21000	---	1700	380	830	2400	---	---	PACE
MW-1	04/05/94	49.80	26.37	---	23.43	27000	---	3400	930	950	2900	---	---	PACE
QC-1 (d)	04/05/94		---	---	---	29000	---	3700	1000	1000	3100	---	1.3	PACE
MW-2	01/05/92	51.07	DRY	---	DRY	---	---	---	---	---	---	---	---	---
MW-2	01/10/92	51.06	DRY	---	DRY	---	---	---	---	---	---	---	---	---
MW-2	06/05/92	51.06	30.05	---	21.01	11000	---	2000	180	490	1900	---	---	---
MW-2	07/24/92	51.07	30.72	---	20.35	---	---	---	---	---	---	---	---	---
MW-2	07/27/92	51.07	30.52	---	20.55	---	---	---	---	---	---	---	---	---
MW-2	09/15/92	51.07	31.56	---	19.51	75000	3200 (c)	2000	6500	2300	13000	---	---	ANA
MW-2	12/15/92	51.07	32.40	---	18.67	34000	1600 (c)	6200	8900	2000	7900	---	---	ANA
MW-2	03/15/93	51.07	26.14	---	24.93	150000	8400	12000	18000	3200	22000	---	---	PACE
MW-2 (e)	06/07/93	51.07	26.38	SHEEN	24.69	---	---	---	---	---	---	---	---	---
MW-2 (e)	09/23/93	51.07	31.43	1.92	21.08	---	---	---	---	---	---	---	---	---
MW-2 (e)	12/27/93	51.07	34.07	1.07	17.80	---	---	---	---	---	---	---	---	---
MW-2 (e)	04/05/94	51.07	30.44	3.30	23.11	---	---	---	---	---	---	---	---	---
MW-3	01/05/92	49.95	33.69	---	16.26	7400	4000	790	23	210	40	ND	---	---
MW-3	01/10/92	50.00	33.74	---	16.26	---	---	---	---	---	---	---	---	---
MW-3	06/05/92	50.00	29.65	---	20.35	2000	---	130	5.3	93	20	---	---	---
MW-3	07/24/92	49.95	30.14	---	19.81	---	---	---	---	---	---	---	---	---
MW-3	07/27/92	49.95	30.14	---	19.81	---	---	---	---	---	---	---	---	---
MW-3	09/15/92	49.95	31.07	---	18.88	450	ND<50	55	3.1	34	7.1	---	---	ANA
MW-3	12/15/92	49.95	31.93	---	18.02	12000	710 (c)	940	ND<50	310	120	---	---	ANA
MW-3	03/15/93	49.95	25.71	---	24.24	ND<50	60	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-3	06/07/93	49.95	25.80	---	24.15	150	ND<50	3.6	ND<0.5	0.9	1.3	---	---	PACE
MW-3	09/23/93	49.95	29.18	---	20.77	---	---	---	---	---	---	---	---	---
MW-3	09/24/93	---	---	---	---	160	ND<50	8.4	ND<0.5	3.7	1.3	---	---	PACE
MW-3	12/27/93	49.95	29.25	---	20.70	9400	---	1100	48	530	120	---	---	PACE
MW-3	04/05/94	49.95	26.84	---	23.11	7000	---	860	19	330	52	---	2.0	PACE

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
BP OIL COMPANY SERVICE STATION NO. 11117
7210 BANCROFT AVENUE, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-018

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ppb)	TPH-D (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	Organic Lead (ppb)	DO (ppm)	LAB
MW-4	07/24/92	50.76	30.02	---	20.74	42000	---	3200	3600	1400	4100	---	---	---
MW-4	07/27/92	50.76	30.02	---	20.74	---	---	---	---	---	---	---	---	---
MW-4	09/15/92	50.76	31.14	---	19.62	55000	1700 (c)	7600	13000	2800	9500	---	---	ANA
MW-4	12/15/92	50.76	31.98	---	18.78	36000	2200 (c)	3700	4700	1200	4000	---	---	ANA
MW-4	03/15/93	50.76	25.34	---	25.42	69000	1200	7600	15000	2500	11000	---	---	PACE
MW-4	06/07/93	50.76	25.67	---	25.09	73000	2500	10000	19000	3400	14000	---	---	PACE
MW-4	09/23/93	50.76	29.37	---	21.39	---	---	---	---	---	---	---	---	---
MW-4	09/24/93	---	---	---	---	68000	5700	11000	2100	8600	990	---	---	PACE
QC-1 (d)	09/24/93	---	---	---	---	59000	---	5300	10000	2200	8400	---	---	PACE
MW-4	12/27/93	50.76	29.40	---	21.36	32000	---	2500	4400	1300	4400	---	---	PACE
MW-4	04/05/94	50.76	27.09	---	23.67	64000	---	6500	14000	1900	9600	---	1.4	PACE
MW-6	07/24/92	50.32	30.63	---	19.69	ND	---	1.6	ND	ND	ND	---	---	---
MW-6	07/27/92	50.32	30.63	---	19.69	---	---	---	---	---	---	---	---	---
MW-6	09/15/92	50.32	31.52	---	18.80	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-6	12/15/92	50.32	32.42	---	17.90	58	ND<50	1.3	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-6	03/15/93	50.32	26.29	---	24.03	ND<50	ND<50	ND<0.5	0.6	ND<0.5	0.7	---	---	PACE
MW-6	06/07/93	50.32	26.33	---	23.99	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	1.5	---	---	PACE
MW-6	09/23/93	50.32	29.64	---	20.68	---	---	---	---	---	---	---	---	---
MW-6	09/24/93	---	---	---	---	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-6	12/27/93	50.32	29.75	---	20.57	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-6	04/05/94	50.32	27.26	---	23.06	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	1.7	PACE
QC-2 (f)	09/15/92	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
QC-2 (f)	12/15/92	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
QC-2 (f)	03/15/93	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (f)	06/07/93	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (f)	09/24/93	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (f)	12/27/93	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (f)	04/05/94	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE

ABBREVIATIONS:

TPH-G	Total petroleum hydrocarbons as gasoline
TPH-D	Total petroleum hydrocarbons as diesel
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total xylenes
DO	Dissolved oxygen
ppb	Parts per billion
ppm	Parts per million
ND	Not detected above reported detection limit
---	Not analyzed/applicable
ANA	Anametrix, Inc.
PACE	Pace, Inc.

NOTES:

(a) Casing elevations surveyed to the nearest 0.01 foot relative to mean sea level.

(b) Groundwater elevations in feet relative to mean sea level.

(c) Concentrations reported as diesel from MW-1, MW-2, and MW-4 are primarily due to the presence of a lighter petroleum product, possibly gasoline or kerosene.

(d) Blind duplicate.

(e) Well not sampled due to presence of free product.

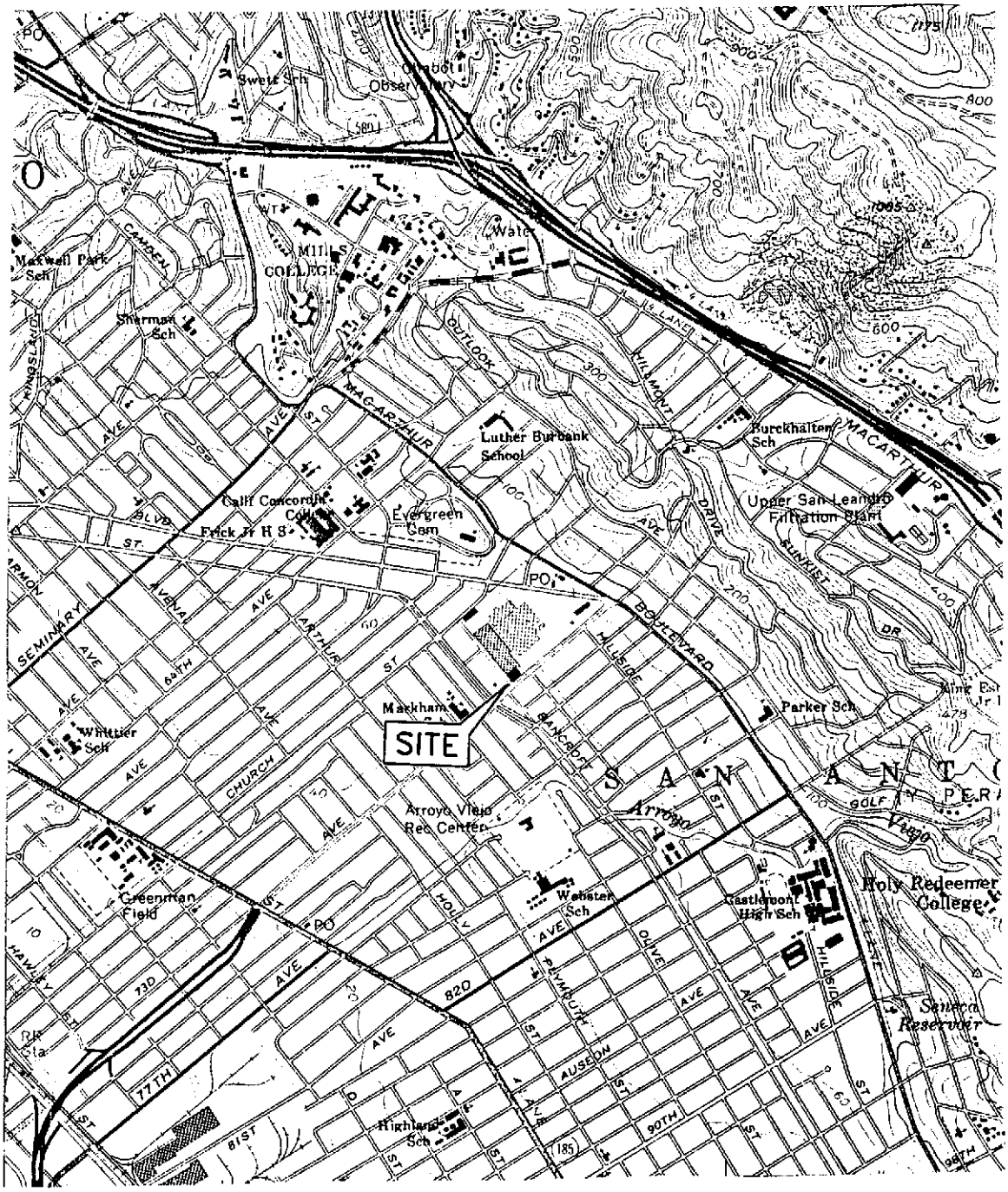
(f) Travel blank.

TABLE 2
PRODUCT REMOVAL STATUS

BP OIL COMPANY SERVICE STATION NO. 11117
7210 BANCROFT STREET, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-018

WELL ID	DATE	PRODUCT REMOVED (Gallons)	PRODUCT REMOVED CUMULATIVE (Gallons)
MW-2	02/11/94	0.1	0.1
	02/18/94	0.9	1.0
	02/25/94	0.1	1.1
	03/04/94	0.1	1.2
	03/30/94	2.6	3.8
	04/05/94	4.0	7.8
	04/13/94	0.1	7.9
	04/21/94	0.1	8.0
	04/29/94	0.3	8.3
	05/06/94	0.6	8.9
	05/13/94	0.1	9.0
	05/20/94	1.1	10.1
	05/26/94	2.0	12.1
	06/02/94	1.0	13.1
	06/09/94	1.0	14.1
	06/16/94	1.1	15.2
	06/23/94	0.9	16.1



SOURCE:
USGS MAP, OAKLAND EAST QUADRANGLE, CALIFORNIA, 7.5 MINUTE SERIES, 1959, PHOTOREVISED 1980.

N

0 1000' 2000'

FIGURE 1

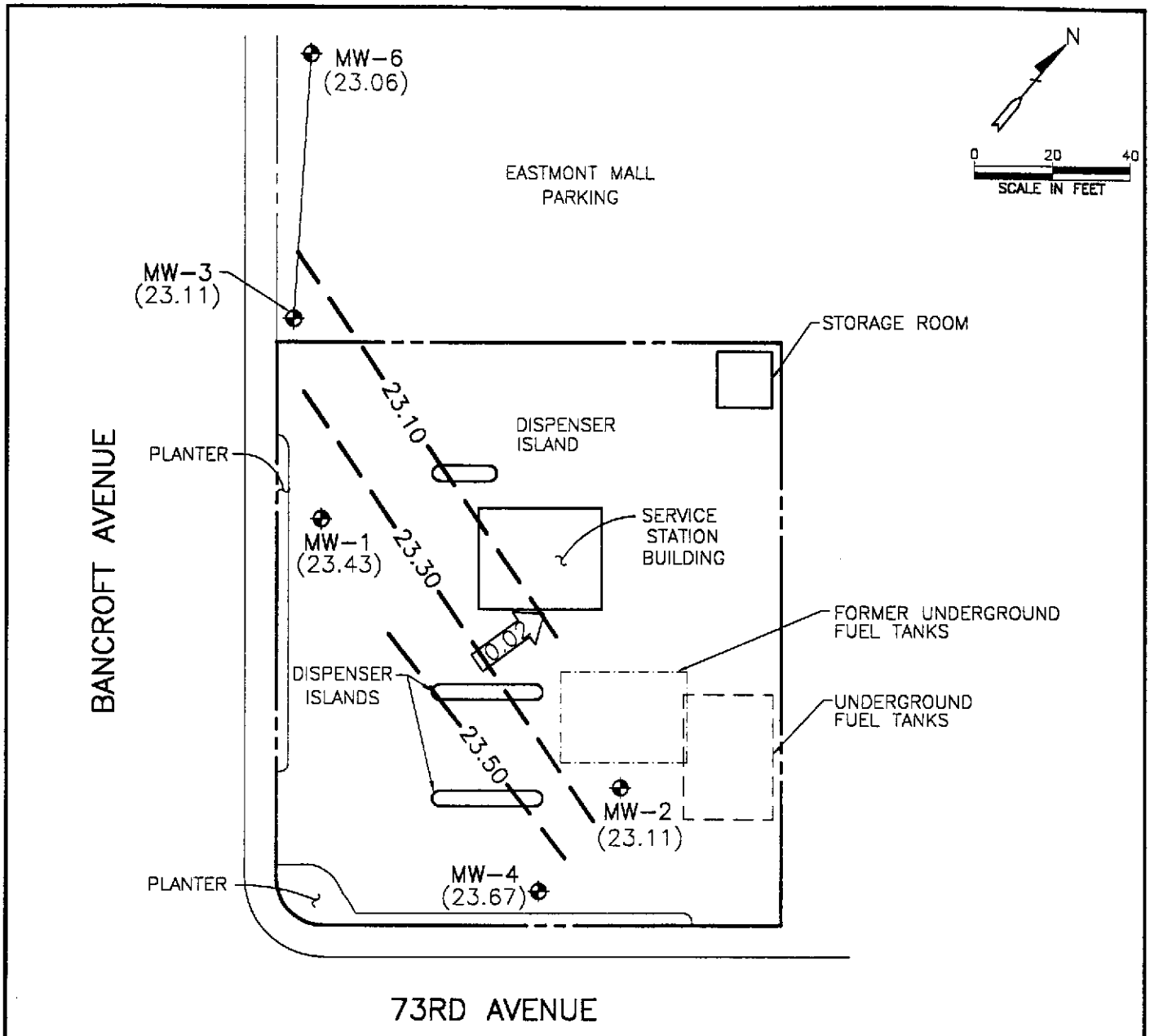
SITE VICINITY MAP

BP OIL SERVICE STATION NO. 11117
7210 BANCROFT AVENUE
OAKLAND, CALIFORNIA

PROJECT NO. 10-018

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10018G---.DWG 11-12-93 RKW 1-1



LEGEND

⊕	GROUNDWATER MONITORING WELL
(23.06)	GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
23.10	GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL–0.20 FOOT)
0.02	CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 2

POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP

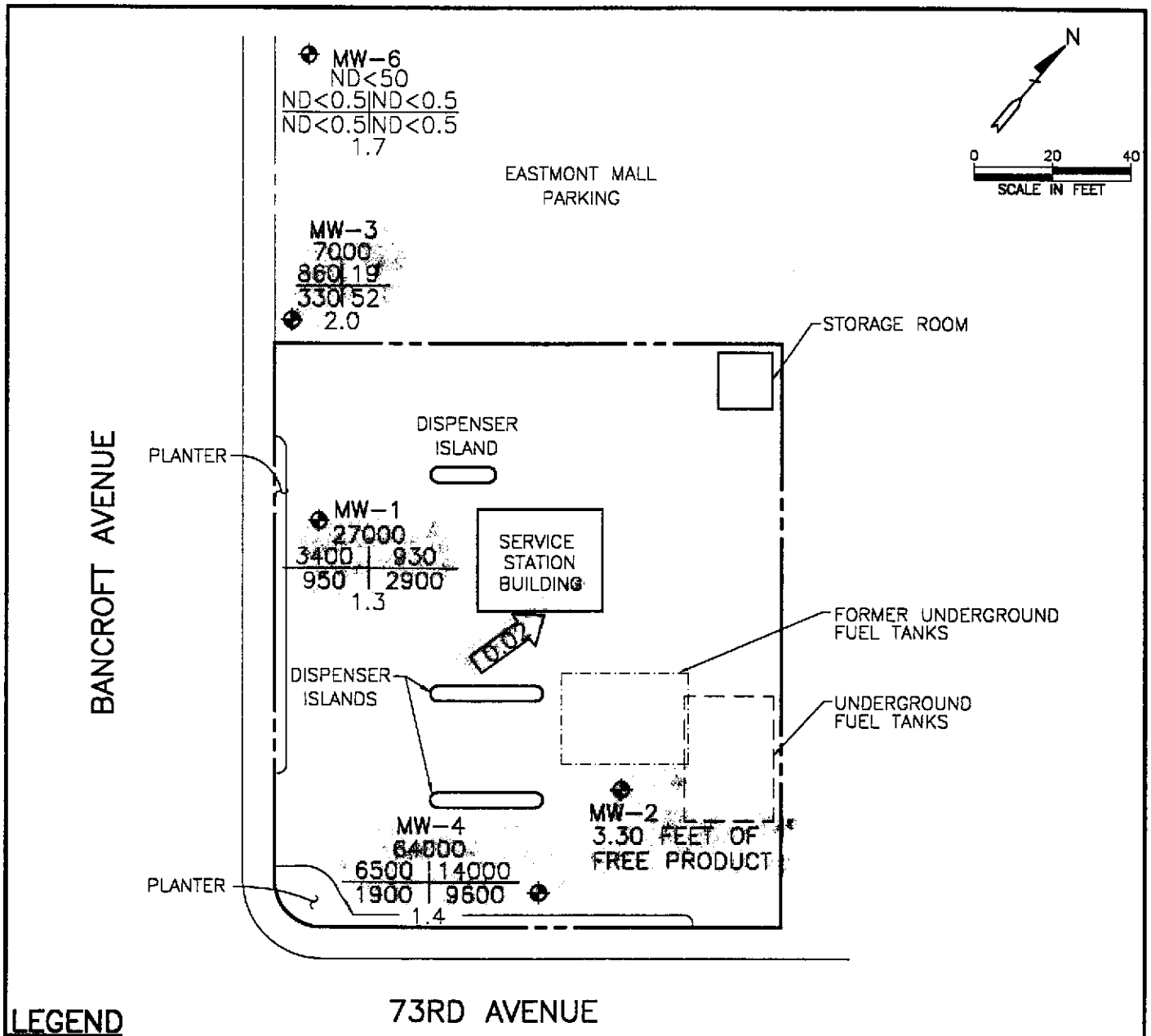
APRIL 5, 1994

BP OIL SERVICE STATION NO. 11117
7210 BANCROFT AVENUE
OAKLAND, CALIFORNIA

PROJECT NO. 10–018

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10018D-JDWG 6-15-94 RKW 1=40



LEGEND

◆	GROUNDWATER MONITORING WELL
TPH-G / B | T / E | X / DO	CONCENTRATION OF CONSTITUENTS IN PARTS PER BILLION, EXCEPT DISSOLVED OXYGEN WHICH IS IN PARTS PER MILLION
TPH-G	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	TOTAL XYLENES
DO	DISSOLVED OXYGEN
ND	NOT DETECTED ABOVE REPORTED DETECTION LIMIT
← 0.02	CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 3

CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER

APRIL 5, 1994

BP OIL SERVICE STATION NO. 11117
7210 BANCROFT AVENUE
OAKLAND, CALIFORNIA

PROJECT NO. 10-018

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10018L-7.DWG 4-26-94 RKW 1-40

APPENDIX A

WATER SAMPLING FIELD SURVEY FORMS

018-2-3

ALISTO ENGINEERING GROUP
GROUNDWATER MONITORING

Client: BP Oil
Alisto Project No: 10-018-02-003
Service Station No: 1117

Date: 4/5/94
Field Personnel: DAVE C
Site Address: Bancroft, Oakland

FIELD ACTIVITY:

___Groundwater Monitoring
__✓Groundwater Sampling
___Well Development

QUALITY CONTROL SAMPLES:

MW-1 QC-1 Sample Duplicate (Well ID)
__X QC-2 Trip Blank
___ QC-3 Rinsate Blank

Well ID	Well Diam	Order Measured/ Sampled	Total Depth	Depth to Water	Depth to Product	Product Thick-ness	Comments
MW-1	2"	5	39.52	26.37			Bailed out bad QC-1
MW-2	↓	3	39.56	30.44	23.07	3.30	Took out ppts emptied
MW-3		2	43.36	26.84			
MW-4		4	40.00	27.09			
MW-5		1	40.40	27.26			

Notes:

MW-2 : emptied ≅ 1/4 gal from PPRS. In addition bailed ≅ 4.5 gallons of which 4 was product ≅ 0.5 was H2O

FORM: [redacted]

ALISTO ENGINEERING GROUP
Groundwater Development and Sampling Form

Client: BP Oil
Alisto Project No: 10-018-02-003
Service Station No: 11117

Date: 4/15/94
Field Personnel: Dave
Address: Bancroft Oakland

Well ID: MW6 Field Activity: ___Well Development ✓Well Sampling ___Product Bailing

Casing Diameter:

✓ 2 Inch (0.16 Gal/foot)
___3 Inch (0.37 Gal/foot)
___4 Inch (0.65 Gal/Foot)
___4.5 Inch (0.83 Gal/foot)
___6 Inch (1.47 Gal/foot)

Purge Method:

___Pump (dispos. Poly Tubing)
✓ Disposable Bailers
___Other
___1.66 PVC Standard Bailer
___3.50 PVC Standard Bailer

Well Data:

✓ Depth to Product
___Product Thickness
___Depth to Water

Sampling Method:

✓ Disposable Bailer
___Pump

Decontamination Method:

✓ Triple Rinse (Liquinox)
___ Steam Cleaned

Calculated Purge Volume

40.40 (Total Depth of Well) − 27.26 (Depth to Water) = 13.14 ft (Water Column) × .16 Gal/Ft (Conversion Factor) = 2.10 Gal (Casing Vol) × 3 (Vols to Purge) = 6.30 (Total Volume)

Well Development/Sampling Parameters

Time	Temp °F	pH	Cond. (umhos/cm)	Purge Vol (Gal)	Comments/ Turbidity	Analysis Required	Container Type	Preserv
	70.2	6.52	0.72	2.5	clear	TPH-G/BTEX	VOA	HCL
	69.0	6.84	0.69	5	↓	TPH-Diesel	Amber Liter	Solvent Rinsed
	68.8	6.86	0.70	6.5	↓	EPA 601	VOA	
						TOG 5520BF	Amber Liter	H_2SO_4

DO2 begin — 1.0
end — 1.7

FORM: FS3/121592

ALISTO ENGINEERING GROUP
Groundwater Development and Sampling Form

Client: BP oil
Alisto Project No: 10-018-02-003
Service Station No: 11117

Date: 4/5/94
Field Personnel: Darec
Address: Bancroft, Oakland

Well ID: MW-3 Field Activity: ___Well Development ✓Well Sampling ___Product Bailing

Casing Diameter:
- ✓ 2 Inch (0.16 Gal/foot)
- ___3 Inch (0.37 Gal/foot)
- ___4 Inch (0.65 Gal/Foot)
- ___4.5 Inch (0.83 Gal/foot)
- ___6 Inch (1.47 Gal/foot)

Purge Method:
- ✓ Pump (dispos. Poly Tubing)
- ___Disposable Bailers
- ___Other
- ___1.66 PVC Standard Bailer
- ___3.50 PVC Standard Bailer

Well Data:
- 0 Depth to Product
- 0 Product Thickness
- 26.84 Depth to Water

Sampling Method:
- ✓ Disposable Bailer
- ___Pump

Decontamination Method:
- ✓ Triple Rinse (Liquinox)
- ___Steam Cleaned

Calculated Purge Volume

43.36 (Total Depth of Well) - 26.84 (Depth to Water) = 16.52 ft (Water Column) X .16 Gal/Ft (Conversion Factor) = 2.64 Gal (Casing Vol) X 3 (Vols to Purge) = 7.93 (Total Volume)

Well Development/Sampling Parameters

Time	Temp °F	pH	Cond. (umhos/cm)	Purge Vol (Gal)	Comments/ Turbidity
	68.7	7.22	0.63	3	Clear
	67.8	7.05	0.70	6	↓
	67.9	7.07	0.72	8	↓

Analysis Required	Container Type	Preserv
TPH-G/BTEX	VOA	HCL
TPH-Diesel	Amber Liter	Solvent Rinsed
EPA 601	VOA	
TOG 5520BF	Amber Liter	H_2SO_4

FORM: FS3/121592

DO2 begin → 1.8
end → 2.0

ALISTO ENGINEERING GROUP
Groundwater Development and Sampling Form

Client: BP oil
Alisto Project No: 10-018-a-003
Service Station No: 11112

Date: 4/5/94
Field Personnel: DAVE
Address: Bancroft, OAKland

Well ID: MW-4 Field Activity: ___Well Development ✓ Well Sampling ___Product Bailing

Casing Diameter:
- ✓ 2 Inch (0.16 Gal/foot)
- ___3 Inch (0.37 Gal/foot)
- ___4 Inch (0.65 Gal/Foot)
- ___4.5 Inch (0.83 Gal/foot)
- ___6 Inch (1.47 Gal/foot)

Purge Method:
- ___Pump (dispos. Poly Tubing)
- ✓ Disposable Bailers
- ___Other
- ___1.66 PVC Standard Bailer
- ___3.50 PVC Standard Bailer

Well Data:
- Ø Depth to Product
- Ø Product Thickness
- 27.09 Depth to Water

Sampling Method:
- ✓ Disposable Bailer
- ___Pump

Decontamination Method:
- ✓ Triple Rinse (Liquinox)
- ___ Steam Cleaned

Calculated Purge Volume

40.00 (Total Depth of Well) − 27.09 (Depth to Water) = 12.91 ft (Water Column) × .16 Gal/Ft (Conversion Factor) = 2.07 Gal (Casing Vol) × 3 (Vols to Purge) = 6.20 (Total Volume)

Well Development/Sampling Parameters

Time	Temp °F	pH	Cond. (umhos/cm)	Purge Vol (Gal)	Comments/ Turbidity	Analysis Required	Container Type	Preserv
	68.9	6.81	0.98	2.5	Clear	TPH-G/BTEX	VOA	HCL
	69.1	6.80	0.99	5	↓	TPH-Diesel	Amber Liter	Solvent Rinsed
	69.1	6.77	0.95	6.5	↓	EPA 601	VOA	
						TOG 5520BF	Amber Liter	H_2SO_4

Do2 Begin → 1.1
end → 1.4

FORM: FS3/121592

ALISTO ENGINEERING GROUP
Groundwater Development and Sampling Form

Client: BP #1
Alisto Project No: 10-018-02-003
Service Station No: 11117

Date: 4/5/94
Field Personnel: DAR
Address: Bancroft, Oakland

Well ID: MW-1 Field Activity: ___Well Development ✓Well Sampling ___Product Bailing

Casing Diameter:

✓2 Inch (0.16 Gal/foot)
___3 Inch (0.37 Gal/foot)
___4 Inch (0.65 Gal/Foot)
___4.5 Inch (0.83 Gal/foot)
___6 Inch (1.47 Gal/foot)

Purge Method:

___Pump (dispos. Poly Tubing)
✓Disposable Bailers
___Other
___1.66 PVC Standard Bailer
___3.50 PVC Standard Bailer

Well Data:

Ø Depth to Product
Ø Product Thickness
26.37 Depth to Water

Sampling Method:

✓Disposable Bailer
___Pump

Decontamination Method:

✓ Triple Rinse (Liquinox)
___ Steam Cleaned

Calculated Purge Volume

39.52 (Total Depth of Well) - 26.37 (Depth to Water) = 13.15 ft (Water Column) X .16 Gal/Ft (Conversion Factor) = 2.10 Gal (Casing Vol) X 3 (Vols to Purge) = 6.30 (Total Volume)

Well Development/Sampling Parameters

Time	Temp °F	pH	Cond. (umhos/cm)	Purge Vol (Gal)	Comments/ Turbidity	Analysis Required	Container Type	Preserv
	65.4	6.98	0.76	2.5	clear	TPH-G/BTEX	VOA	HCL
	66.0	6.82	0.83	5	blue tint	TPH-Diesel	Amber Liter	Solvent Rinsed
	65.5	6.90	0.83	6.5	↓	EPA 601	VOA	
						TOG 5520BF	Amber Liter	H_2SO_4

QC-1 from this well

DO2 begin → 1.0
:1 end → 1.3

FORM: FS3/121592

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

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

April 15, 1994
PACE Project Number: 440407508

Attn: Mr. Bill Howell

Client Reference: BP Station # 11117/10-018-02-003

PACE Sample Number:			70 0300584	
Date Collected:			04/05/94	
Date Received:			04/07/94	
			MW-1	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	04/13/94
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	500	27000	04/13/94
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	04/13/94
Benzene	ug/L	5.0	3400	04/13/94
Toluene	ug/L	5.0	930	04/13/94
Ethylbenzene	ug/L	5.0	950	04/13/94
Xylenes, Total	ug/L	5.0	2900	04/13/94

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Novato, CA 94949
TEL: 415-883-6100
FAX: 415-883-2673

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

April 15, 1994
PACE Project Number: 440407508

Client Reference: BP Station # 11117/10-018-02-003

PACE Sample Number:			70 0300592	
Date Collected:			04/05/94	
Date Received:			04/07/94	
Client Sample ID:			MW-3	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	04/14/94
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	250	7000	04/14/94
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	04/14/94
Benzene	ug/L	2.5	860	04/14/94
Toluene	ug/L	2.5	19	04/14/94
Ethylbenzene	ug/L	2.5	330	04/14/94
Xylenes, Total	ug/L	2.5	52	04/14/94

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REPORT OF LABORATORY ANALYSIS

Mr. Bill Howell
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April 15, 1994
PACE Project Number: 440407508

Client Reference: BP Station # 11117/10-018-02-003

PACE Sample Number:			70 0300606	
Date Collected:			04/05/94	
Date Received:			04/07/94	
Client Sample ID:			MW-4	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	04/14/94
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	5000	64000	04/14/94
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	04/14/94
Benzene	ug/L	50	6500	04/14/94
Toluene	ug/L	50	14000	04/14/94
Ethylbenzene	ug/L	50	1900	04/14/94
Xylenes, Total	ug/L	50	9600	04/14/94

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REPORT OF LABORATORY ANALYSIS

April 15, 1994
PACE Project Number: 440407508

Client Reference: BP Station # 11117/10-018-02-003

PACE Sample Number:			70 0300614	
Date Collected:			04/05/94	
Date Received:			04/07/94	
Client Sample ID:			MW-6	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	04/13/94
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	04/13/94
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	04/13/94
Benzene	ug/L	0.5	ND	04/13/94
Toluene	ug/L	0.5	ND	04/13/94
Ethylbenzene	ug/L	0.5	ND	04/13/94
Xylenes, Total	ug/L	0.5	ND	04/13/94

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REPORT OF LABORATORY ANALYSIS

Mr. Bill Howell
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April 15, 1994
PACE Project Number: 440407508

Client Reference: BP Station # 11117/10-018-02-003

PACE Sample Number:			70 0300622	
Date Collected:			04/05/94	
Date Received:			04/07/94	
Client Sample ID:			QC-1	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	04/13/94
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	500	29000	04/13/94
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	04/13/94
Benzene	ug/L	5.0	3700	04/13/94
Toluene	ug/L	5.0	1000	04/13/94
Ethylbenzene	ug/L	5.0	1000	04/13/94
Xylenes, Total	ug/L	5.0	3100	04/13/94

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REPORT OF LABORATORY ANALYSIS

Mr. Bill Howell
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April 15, 1994
PACE Project Number: 440407508

Client Reference: BP Station # 11117/10-018-02-003

PACE Sample Number:			70 0300630	
Date Collected:			04/05/94	
Date Received:			04/07/94	
Client Sample ID:			QC-2	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	04/13/94
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	04/13/94
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	04/13/94
Benzene	ug/L	0.5	ND	04/13/94
Toluene	ug/L	0.5	ND	04/13/94
Ethylbenzene	ug/L	0.5	ND	04/13/94
Xylenes, Total	ug/L	0.5	ND	04/13/94

These data have been reviewed and are approved for release.

Darrell C. Cain
Regional Director

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Novato, CA 94949
TEL: 415-883-6100
FAX: 415-883-2673

Mr. Bill Howell
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FOOTNOTES
for pages 1 through 6

April 15, 1994
PACE Project Number: 440407508

Client Reference: BP Station # 11117/10-018-02-003

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

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Client Reference: BP Station # 11117/10-018-02-003

PURGEABLE FUELS AND AROMATICS
Batch: 70 29601
Samples: 70 0300584, 70 0300614, 70 0300622

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

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	MDL	700299705	Spike	Spike Recv	Spike Dupl Recv	RPD
Benzene	ug/L	0.5	ND	100	100%	96%	4%
Toluene	ug/L	0.5	1.3	100	101%	95%	6%
Ethylbenzene	ug/L	0.5	ND	100	108%	101%	7%
Xylenes, Total	ug/L	0.5	ND	300	108%	101%	7%

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Benzene	ug/L	0.5	100	107%	102%	5%
Toluene	ug/L	0.5	100	108%	101%	7%
Ethylbenzene	ug/L	0.5	100	111%	104%	7%
Xylenes, Total	ug/L	0.5	300	112%	105%	6%

Client Reference: BP Station # 11117/10-018-02-003

PURGEABLE FUELS AND AROMATICS
Batch: 70 29644
Samples: 70 0300592, 70 0300606, 70 0300630

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
Methyl tert-butyl ether	ug/L	5.0	ND

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	MDL	700297907	Spike	Spike Recv	Spike Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M	ug/L	50	530	1000	97%	88%	10%

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M	ug/L	50	1000	104%	107%	3%

Mr. Bill Howell
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FOOTNOTES
for pages 8 through 9

April 15, 1994
PACE Project Number: 440407508

Client Reference: BP Station # 11117/10-018-02-003

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

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440407.508

CHAIN OF CUSTODY

No. 063078 Page 1 of 1

CONSULTANT'S NAME	ADDRESS	CITY	STATE	ZIP CODE
Alisto Engineering	1777 Oakland Blvd, Ste 200	Walnut Ck	CA	94596

BP SITE NUMBER	BP CORNER ADDRESS/CITY	CONSULTANT PROJECT NUMBER
11117	Bancroft & 73rd Oakland, CA	10-018-03-003

CONSULTANT PROJECT MANAGER	PHONE NUMBER	FAX NUMBER	CONSULTANT CONTRACT NUMBER
Bill Howell	510-295-1650	510-295-1823	
BP CONTACT	**BP ADDRESS**	**PHONE NUMBER**	**FAX NO.**
Scott Hooton	Renton WA		
LAB CONTACT	**LABORATORY ADDRESS**	**PHONE NUMBER**	**FAX NO.**
PACE	Novato CA	[redacted]	[redacted]
SAMPLED BY (Please Print Name)	**SAMPLED BY (Signature)**	**SHIPMENT DATE**	**SHIPMENT METHOD**
David Wsack	[signature]		Courier

TAT: ☐ 24 Hours ☐ 48 Hours ☐ 1 Week ☒ Standard 2 Weeks

ANALYSIS REQUIRED

AIRBILL NUMBER

SAMPLE DESCRIPTION	COLLECTION DATE / TIME	MATRIX SOIL/WATER	CONTAINERS NO.	CONTAINERS TYPE (VOL.)	PRESERVATIVE LAB SAMPLE #	TPH Gas BTEX	COMMENTS
MW-1	4/5/94	Water	3		30058.4	X	
MW-3					30059.2	X	
MW-4					30060.0	X	
MW-6					30061.4	X	
QC-1					30062.2	X	
QC-2			2		30063.0	X	
						17 VOAs	

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature] Alisto	4/7/94	1630	[signature] Pace	4/7/94	1630
[signature] Pace	4/7/94	1730	[signature] Pace	4/7/94	1730

ADDITIONAL COMMENTS

CLV-16722

Distribution: White - Original (with Data)
Yellow - BP
Pink - Lab
Blue - Consultant Field Staff