



BP OIL

ALCO
HAZMAT

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

May 26, 1994

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


RE: BP OIL FACILITY #11127
5425 Martin Luther King, Jr. Way
Oakland, CA

Dear Mr. Shahid:

Attached please find our GROUNDWATER MONITORING AND SAMPLING REPORT DATED MAY 18, 1994 for the above referenced facility.

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

Respectfully,


Scott T. Hooton
Environmental Resources Management
Group Leader

STH:jc ERM11127

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

Mr. Brady Nagle, Alisto Engineering, 1777 Oakland Blvd., Suite 200, Walnut Creek, CA 94596

Site file

GROUNDWATER MONITORING AND SAMPLING REPORT

**BP Oil Company Service Station No. 11127
5425 Martin Luther King, Jr. Way
Oakland, California**

Project No. 10-022-03-002

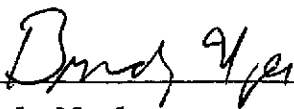
Prepared for:

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

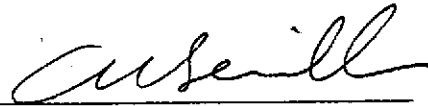
Prepared by:

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

May 18, 1994



**Brady Nagle
Project Manager**



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



GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11127
5425 Martin Luther King, Jr. Way
Oakland, California

Project No. 10-022-03-002

May 18, 1994

INTRODUCTION

This report presents the results and findings of the March 14, 1994 groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Company Service Station No. 11127, 5425 Martin Luther King, Jr. Way, 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

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. 11127
 5425 MARTIN LUTHER KING, JR. WAY, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-022

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ppb)	TPH-D (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	TOG (ppb)	1,1-DCA (ppb)	1,2-DCA (ppb)	1,1,1-TCA (ppb)	LAB
MW-1	08/29/91	82.35	10.54	71.81	ND<50	—	ND<0.3	ND<0.3	ND<0.3	ND<0.3	—	—	—	—	—
MW-1	11/20/91	82.35	10.24	72.11	55	—	ND<0.3	ND<0.3	ND<0.3	ND<0.3	—	—	—	—	—
MW-1	02/28/92	82.35	8.17	74.18	400	—	6.7	0.7	11	170	—	—	—	—	SUP
MW-1	06/08/92	82.35	10.25	72.10	250	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	ND<0.5	ND<0.5	ND<0.5	ANA
MW-1	09/03/92	82.35	10.68	71.67	190	—	1.2	3.8	1.7	5.4	—	—	—	—	ANA
QC-1 (c)	09/03/92	—	—	—	190	—	0.7	2.6	1.3	5.2	—	—	—	—	ANA
MW-1	11/12/92 (d)	82.35	10.22	72.13	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-1 (c)	11/12/92	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
MW-1	02/05/93	82.35	8.77	73.58	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-1 (c)	02/05/93	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
MW-1	08/16/93	82.35	10.25	72.10	300	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
MW-1	03/14/94	82.35	9.53	72.82	130	—	ND<0.5	ND<0.5	0.8	2.7	—	—	—	—	PACE
MW-2	08/29/91	83.49	11.56	71.93	950	66	ND<0.3	ND<0.3	17	50	—	ND	ND	ND	—
MW-2	11/20/91	83.49	11.25	72.24	1400	ND<50	0.3	ND<0.3	32	90	—	ND	0.8	0.7	—
MW-2	02/28/92	83.49	9.02	74.47	2300	70	4.2	1.8	47	360	—	ND	ND	4.1	SUP
MW-2	06/08/92	83.49	11.37	72.12	470	—	ND<0.5	ND<0.5	7.7	12	—	6.6	ND<0.5	4.2	ANA
MW-2	09/03/92	83.49	11.81	71.68	530	—	1.6	3.5	23	46	—	ND<0.5	ND<0.5	ND<0.5	ANA
MW-2	11/12/92	83.48	11.27	72.21	250	88	ND<0.5	ND<0.5	5.0	10	ND<5000	ND<0.5	0.5	ND<0.5	PACE
MW-2	02/05/93	83.48	9.85	73.63	330	ND<50	0.7	ND<0.5	3.6	15	—	ND<0.5	0.9	8.3	PACE
MW-2	08/16/93	83.48	11.33	72.15	270	—	ND<0.5	ND<0.5	ND<0.5	19	—	—	—	—	PACE
MW-2	03/14/94	83.48	10.80	72.68	ND<50	ND<50	ND<0.5	ND<0.5	0.8	3.1	ND<5000	0.8	0.7	1.3	PACE
QC-1 (c)	03/14/94	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
MW-3	11/12/92	84.96	12.24	72.72	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
MW-3	02/05/93	84.96	10.95	74.01	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
MW-3	08/16/93	84.96	12.46	72.50	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
MW-3	03/14/94	84.96	11.61	73.35	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
MW-4	11/12/92	82.70	10.44	72.26	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
MW-4	02/05/93	82.70	9.14	73.56	92	—	0.7	ND<0.5	ND<0.5	1.2	—	—	—	—	PACE
MW-4	08/16/93	82.70	10.57	72.13	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-1 (c)	08/16/93	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
MW-4	03/14/94	82.70	9.70	73.00	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2 (e)	09/03/92	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	ANA
QC-2 (e)	11/12/92	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2 (e)	02/05/93	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2 (e)	08/16/93	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2 (e)	03/14/94	—	—	—	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
TOG	Total oil and grease
1,1-DCA	1,1-Dichloroethane
1,2-DCA	1,2-Dichloroethane
1,1,1-TCA	1,1,1-Trichloroethane
ppb	Parts per billion
ND	Not detected above reported detection limit
—	Not analyzed/applicable
SUP	Superior Analytical Laboratory
ANA	Anametrix, Inc.
PACE	Pace, Inc.

NOTES:

- (a) Top of casing elevations surveyed in reference to City of Oakland Benchmark No. 1967, on the curb at the southwest corner of Martin Luther King, Jr. Way and 55th Street.
- (b) Groundwater elevations in feet above mean sea level.
- (c) Blind duplicate.
- (d) A sheen of unknown origin was observed before groundwater purging
- (e) Travel blank.



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

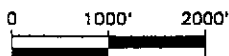


FIGURE 1

SITE VICINITY MAP

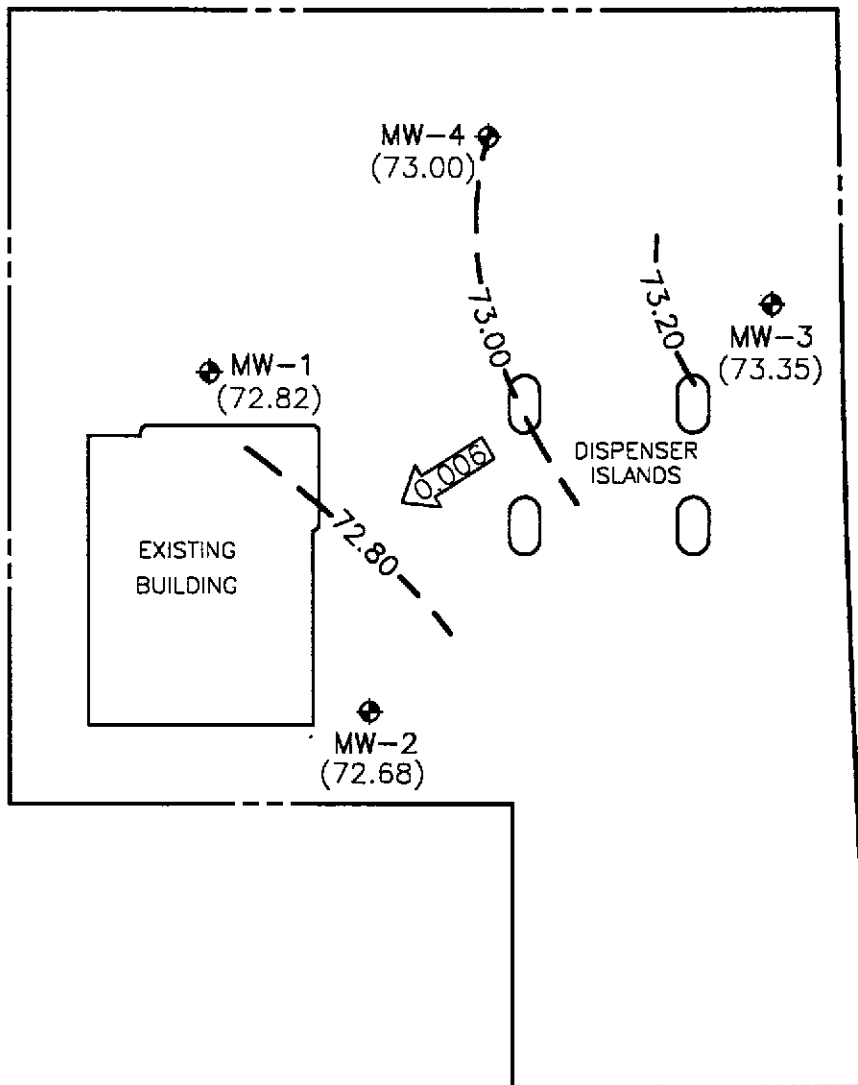
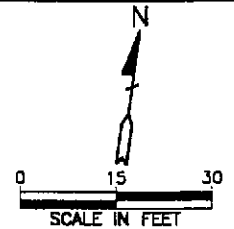
BP OIL SERVICE STATION NO. 11127
 5425 MARTIN LUTHER KING, JR. WAY
 OAKLAND, CALIFORNIA
 PROJECT NO. 10-022



ALISTO ENGINEERING GROUP
 WALNUT CREEK, CALIFORNIA

55TH STREET

BENCHMARK



MARTIN LUTHER KING, JR. WAY

LEGEND

- ◆ GROUNDWATER MONITORING WELL
- (73.35) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 73.20 - GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL-0.20 FOOT)
- ← 0.006 → CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 2

POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP

MARCH 14, 1994

BP OIL SERVICE STATION NO. 11127
5425 MARTIN LUTHER KING, JR. WAY
OAKLAND, CALIFORNIA

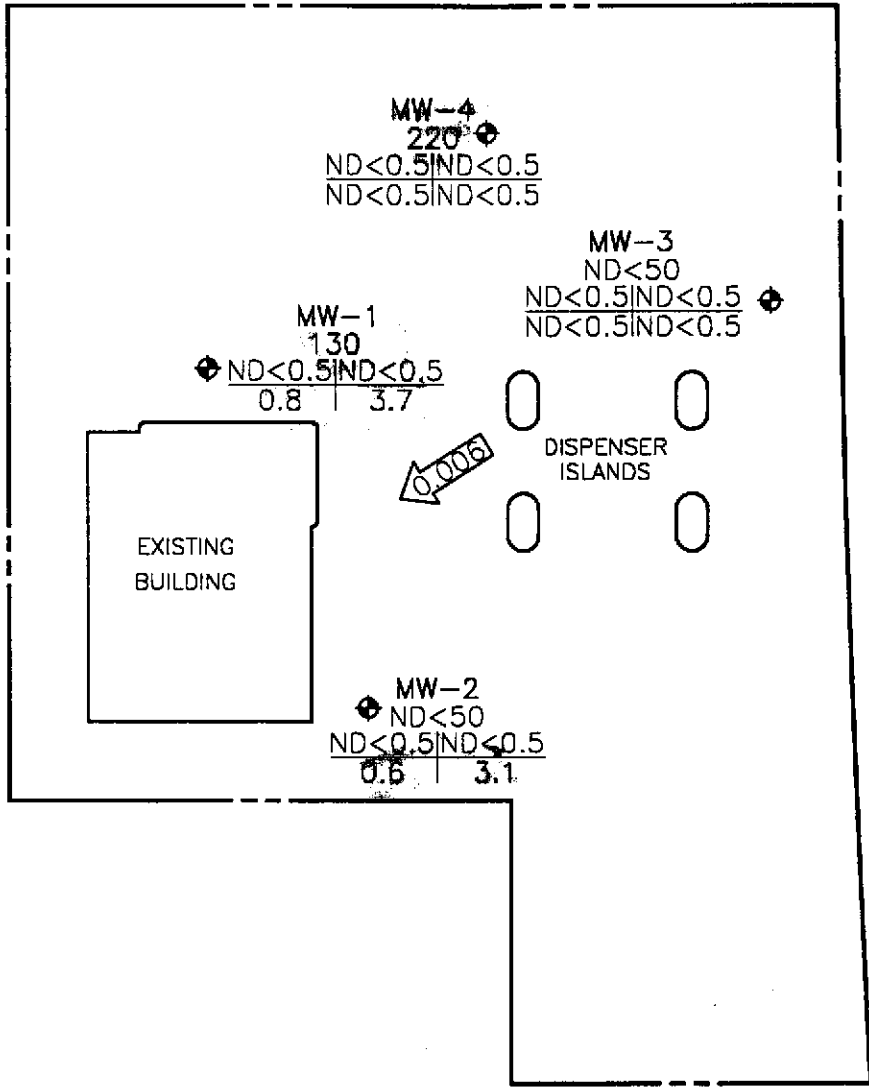
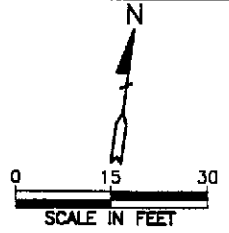
PROJECT NO. 10-022



ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

55TH STREET

BENCHMARK



MARTIN LUTHER KING, JR. WAY

LEGEND

- ◆ GROUNDWATER MONITORING WELL
- TPH-G CONCENTRATION OF CONSTITUENTS IN PARTS PER BILLION
- B | T
- E | X
- TPH-G TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
- B BENZENE
- T TOLUENE
- E ETHYLBENZENE
- X TOTAL XYLENES
- ND NOT DETECTED ABOVE REPORTED DETECTION LIMIT
- ← 0.006 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 3
CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER
MARCH 14, 1994
 BP OIL SERVICE STATION NO. 11127
 5425 MARTIN LUTHER KING, JR. WAY
 OAKLAND, CALIFORNIA
 PROJECT NO. 10-022



APPENDIX A
WATER SAMPLING FIELD SURVEY FORMS

ALISTO ENGINEERING GROUP GROUNDWATER MONITORING

Client: BP
 Alisto Project No: 10-022-03/002
 Service Station No: 11127

Date: 3/14/94
 Field Personnel: LCB
 Site Address: Oakland, Ca

FIELD ACTIVITY:

- Groundwater Monitoring
- Groundwater Sampling
- Well Development

QUALITY CONTROL SAMPLES:

- MW-2 QC-1 Sample Duplicate (Well ID)
- 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	4"	4	27.55	9.53	✓	✓	
MW-2	4"	1	26.81	10.80	↓	↓	
MW-3	2"	2	24.76	11.61	↓	↓	
MW-4	2"	3	24.75	9.70	↓	↓	

Notes:
Disssolved Oxygen Meter not working properly, could not
Record D.O. readings

ALISTO ENGINEERING GROUP

Groundwater Development and Sampling Form

Client: BP
 Alisto Project No: 10-022
 Service Station No: 1127

Date: 3/14/94
 Field Personnel: LOB
 Address: Oakland, CA

Well ID: MW-2 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
- 10.80 Depth to Water

Sampling Method:

- Disposable Bailer
- Pump

Decontamination Method:

- Triple Rinse (Liquinox)
- Steam Cleaned

Calculated Purge Volume

$$\frac{26.81 - 10.80}{16.01 \text{ ft} \times 0.65 \text{ Gal/Ft}} = 10.41 \text{ Gal} \times 3 = 31.23$$

Total Depth of Well Depth to Water Water Column Conversion Factor Casing Vol Vols to Purge Total Volume

Well Development/Sampling Parameters

Time	Temp °F	pH	Cond. (umhos/cm)	Purge Vol (Gal)	Comments/Turbidity	Analysis Required	Container Type	Preserv
1010	65.9	6.55	88	6	clear	<input checked="" type="checkbox"/> TPH-G/BTEX	VOA	HCL
1015	66.2	6.73	86	12		<input checked="" type="checkbox"/> TPH-Diesel	Amber Liter	Solvent Rinsed
1020	65.3	6.77	83	18		<input checked="" type="checkbox"/> EPA 601	VOA	
1025	65.0	6.69	83	25		<input checked="" type="checkbox"/> TOG 5520BF	Amber Liter	H ₂ SO ₄
1030	65.2	6.62	83	31.25	↓			

begin 1005 stop 1030 Sampled 1045 QC-1 From this well

ALISTO ENGINEERING GROUP

Groundwater Development and Sampling Form

Client: BP
 Alisto Project No: 10-022
 Service Station No: 112-7

Date: 3/14/94
 Field Personnel: LCB
 Address: Oakville, G

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:

- Depth to Product
- Product Thickness
- 11.61 Depth to Water

Sampling Method:

- Disposable Bailer
- Pump

Decontamination Method:

- Triple Rinse (Liquinox)
- Steam Cleaned

Calculated Purge Volume

$$\frac{24.76 - 11.61}{13.15 \text{ ft} \times 0.16 \text{ Gal/Ft}} = 2.10 \text{ Gal} \times 3 = 6.30$$

Total Depth of Well Depth to Water Water Column Conversion Factor Casing Vol Vols to Purge Total Volume

Well Development/Sampling Parameters

Time	Temp °F	pH	Cond. (umhos/cm)	Purge Vol (Gal)	Comments/Turbidity	Analysis Required	Container Type	Preserv
1103	67.4	7.27	1.20	1	Lt. Brown	<input checked="" type="checkbox"/> TPH-G/BTEX	VOA	HCL
1106	66.6	6.51	1.04	3		TPH-Diesel	Amber Liter	Solvent Rinsed
1109	66.2	6.45	1.01	4		EPA 601	VOA	
1112	66.0	6.48	.99	5		TOG 5520BF	Amber Liter	H ₂ SO ₄
1115	66.0	6.48	.99	6.50	✓			

Begin 1100 Stop 1115 Sampled 1120

ALISTO ENGINEERING GROUP

Groundwater Development and Sampling Form

Client: BP
 Alisto Project No: 10-022
 Service Station No: 1127

Date: 3/14/94
 Field Personnel: LCB
 Address: Oakland, CA

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:

- Depth to Product
 Product Thickness
 9.70 Depth to Water

Sampling Method:

- Disposable Bailer
 Pump

Decontamination Method:

- Triple Rinse (Liquinox)
 Steam Cleaned

Calculated Purge Volume

$\frac{24.75}{9.70} = 2.55 \text{ ft} \times 1.66 \text{ Gal/Ft} = 4.23 \text{ Gal} \times 3 = 12.69$

Total Depth of Well Depth to Water Water Column Conversion Factor Casing Vol Vols to Purge Total Volume

Well Development/Sampling Parameters

Time	Temp °F	pH	Cond. (umhos/cm)	Purge Vol (Gal)	Comments/Turbidity	Analysis Required	Container Type	Preserv
1133	65.8	7.00	.97	1	Clear	<input checked="" type="checkbox"/> TPH-G/BTEX	VOA	HCL
1136	66.3	6.93	.96	3		TPH-Diesel	Amber Liter	Solvent Rinsed
1139	66.0	6.86	.93	5		EPA 601	VOA	
1142	65.6	6.80	.93	6		TOG 5520BF	Amber Liter	H ₂ SO ₄
1145	65.2	6.80	.92	7.25	✓			

Begin 1130 Stop 1145 Sampled 1155

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

March 24, 1994
PACE Project Number: 440316511

Attn: Mr. Bill Howell

Client Reference: BP Station # 11127/10-022-03/002

PACE Sample Number: 70 0287693
Date Collected: 03/14/94
Date Received: 03/16/94
Client Sample ID: MW-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):				
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	130	03/20/94
PURGEABLE AROMATICS (BTXE BY EPA 8020M):				
Benzene	ug/L	0.5	ND	03/20/94
Toluene	ug/L	0.5	ND	03/20/94
Ethylbenzene	ug/L	0.5	0.8	03/20/94
Xylenes, Total	ug/L	0.5	2.7	03/20/94

Mr. Bill Howell
 Page 2

March 24, 1994
 PACE Project Number: 440316511

Client Reference: BP Station # 11127/10-022-03/002

PACE Sample Number: 70 0287707
 Date Collected: 03/14/94
 Date Received: 03/16/94
 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):			-	03/20/94
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	03/20/94
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	03/20/94
Benzene	ug/L	0.5	ND	03/20/94
Toluene	ug/L	0.5	ND	03/20/94
Ethylbenzene	ug/L	0.5	0.6	03/20/94
Xylenes, Total	ug/L	0.5	3.1	03/20/94

HALOGENATED VOLATILE COMPOUNDS EPA 8010

Dichlorodifluoromethane	ug/L	2.0	ND	03/18/94
Chloromethane	ug/L	2.0	ND	03/18/94
Vinyl Chloride	ug/L	2.0	ND	03/18/94
Bromomethane	ug/L	2.0	ND	03/18/94
Chloroethane	ug/L	2.0	ND	03/18/94
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	03/18/94
1,1-Dichloroethene	ug/L	0.5	ND	03/18/94
Methylene Chloride	ug/L	2.0	ND	03/18/94
trans-1,2-Dichloroethene	ug/L	0.5	ND	03/18/94
cis-1,2-Dichloroethene	ug/L	0.5	ND	03/18/94
1,1-Dichloroethane	ug/L	0.5	0.8	03/18/94
Chloroform	ug/L	0.5	ND	03/18/94
1,1,1-Trichloroethane (TCA)	ug/L	0.5	1.3	03/18/94
Carbon Tetrachloride	ug/L	0.5	ND	03/18/94
1,2-Dichloroethane (EDC)	ug/L	0.5	0.7	03/18/94
Trichloroethene (TCE)	ug/L	0.5	ND	03/18/94
1,2-Dichloropropane	ug/L	0.5	ND	03/18/94
Bromodichloromethane	ug/L	0.5	ND	03/18/94
2-Chloroethylvinyl ether	ug/L	0.5	ND	03/18/94
cis-1,3-Dichloropropene	ug/L	0.5	ND	03/18/94
trans-1,3-Dichloropropene	ug/L	0.5	ND	03/18/94
1,1,2-Trichloroethane	ug/L	0.5	ND	03/18/94
Tetrachloroethene	ug/L	0.5	ND	03/18/94

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March 24, 1994
 PACE Project Number: 440316511

Client Reference: BP Station # 11127/10-022-03/002

PACE Sample Number: 70 0287707
 Date Collected: 03/14/94
 Date Received: 03/16/94
 Client Sample ID: MW-2

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

HALOGENATED VOLATILE COMPOUNDS EPA 8010

Dibromochloromethane	ug/L	0.5	ND	03/18/94
Chlorobenzene	ug/L	0.5	ND	03/18/94
Bromoform	ug/L	0.5	ND	03/18/94
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	03/18/94
1,3-Dichlorobenzene	ug/L	0.5	ND	03/18/94
1,4-Dichlorobenzene	ug/L	0.5	ND	03/18/94
1,2-Dichlorobenzene	ug/L	0.5	ND	03/18/94
Bromochloromethane (Surrogate Recovery)	%		104	03/18/94
1,4-Dichlorobutane (Surrogate Recovery)	%		106	03/18/94

OIL AND GREASE, SILICA GEL (LUFT)

Oil and Grease, Gravimetric (SM5520)	mg/L	5.0	ND	03/23/94
Date Extracted			03/22/94	

EXTRACTABLE FUELS EPA 3510/8015

Extractable Fuels, as Diesel	mg/L	0.05	ND	03/22/94
Date Extracted			03/21/94	

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March 24, 1994
 PACE Project Number: 440316511

Client Reference: BP Station # 11127/10-022-03/002

PACE Sample Number: 70 0287715
 Date Collected: 03/14/94
 Date Received: 03/16/94
 Client Sample ID: MW-3

<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):			-	03/20/94
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	03/20/94
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	03/20/94
Benzene	ug/L	0.5	ND	03/20/94
Toluene	ug/L	0.5	ND	03/20/94
Ethylbenzene	ug/L	0.5	ND	03/20/94
Xylenes, Total	ug/L	0.5	ND	03/20/94

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March 24, 1994
 PACE Project Number: 440316511

Client Reference: BP Station # 11127/10-022-03/002

PACE Sample Number: 70 0287723
 Date Collected: 03/14/94
 Date Received: 03/16/94
 Client Sample ID: MW-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):			
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	220
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

REPORT OF LABORATORY ANALYSIS

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March 24, 1994
 PACE Project Number: 440316511

Client Reference: BP Station # 11127/10-022-03/002

PACE Sample Number: 70 0287731
 Date Collected: 03/14/94
 Date Received: 03/16/94
 Client Sample ID: QC-1

<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):			-	03/20/94
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	03/20/94
<u>PURGEABLE AROMATICS (BTXE BY EPA 8020M):</u>				
Benzene	ug/L	0.5	ND	03/20/94
Toluene	ug/L	0.5	ND	03/20/94
Ethylbenzene	ug/L	0.5	ND	03/20/94
Xylenes, Total	ug/L	0.5	ND	03/20/94

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March 24, 1994
 PACE Project Number: 440316511

Client Reference: BP Station # 11127/10-022-03/002

PACE Sample Number: 70 0287740
 Date Collected: 03/14/94
 Date Received: 03/16/94
 Client Sample ID: QC-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):			-	03/20/94
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	03/20/94
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	03/20/94
Benzene	ug/L	0.5	ND	03/20/94
Toluene	ug/L	0.5	ND	03/20/94
Ethylbenzene	ug/L	0.5	ND	03/20/94
Xylenes, Total	ug/L	0.5	ND	03/20/94

These data have been reviewed and are approved for release.



Darrell C. Cain
 Regional Director



REPORT OF LABORATORY ANALYSIS

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FOOTNOTES
for pages 1 through 7

March 24, 1994
PACE Project Number: 440316511

Client Reference: BP Station # 11127/10-022-03/002

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



REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

March 24, 1994
PACE Project Number: 440316511

Client Reference: BP Station # 11127/10-022-03/002

EXTRACTABLE FUELS EPA 3510/8015
Batch: 70 29178
Samples: 70 0287707

METHOD BLANK:

Parameter	Units	MDL	Method Blank
Extractable Fuels, as Diesel	mg/L	0.05	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Extractable Fuels, as Diesel	mg/L	0.05	1.00	89%	84%	5%

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QUALITY CONTROL DATA

March 24, 1994
PACE Project Number: 440316511

Client Reference: BP Station # 11127/10-022-03/002

HALOGENATED VOLATILE ORGANICS 8010/8020

Batch: 70 29030
Samples: 70 0287707

METHOD BLANK:

Parameter	Units	MDL	Method Blank
VOLATILE HALOCARBONS BY EPA 8010			
Dichlorodifluoromethane	ug/L	2.0	ND
Chloromethane	ug/L	2.0	ND
Vinyl Chloride	ug/L	0.5	ND
Bromomethane	ug/L	2.0	ND
Chloroethane	ug/L	2.0	ND
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND
1,1-Dichloroethene	ug/L	0.5	ND
Methylene Chloride	ug/L	2.0	ND
trans-1,2-Dichloroethene	ug/L	0.5	ND
1,1-Dichloroethane	ug/L	0.5	ND
cis-1,2-Dichloroethene	ug/L	0.5	ND
Chloroform	ug/L	0.5	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND
Carbon Tetrachloride	ug/L	0.5	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	ND
Trichloroethene (TCE)	ug/L	0.5	ND
1,2-Dichloropropane	ug/L	0.5	ND
Bromodichloromethane	ug/L	0.5	ND
Dibromomethane	ug/L	0.5	ND
2-Chloroethylvinyl ether	ug/L	0.5	ND
cis-1,3-Dichloropropene	ug/L	0.5	ND
trans-1,3-Dichloropropene	ug/L	0.5	ND
1,1,2-Trichloroethane	ug/L	0.5	ND
Tetrachloroethene	ug/L	0.5	ND
Dibromochloromethane	ug/L	0.5	ND
Chlorobenzene	ug/L	0.5	ND
1,1,1,2-Tetrachloroethane	ug/L	0.5	ND
Bromoform	ug/L	0.5	ND
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND
1,2,3-Trichloropropane	ug/L	0.5	ND
Bromobenzene	ug/L	0.5	ND

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

March 24, 1994
PACE Project Number: 440316511

Client Reference: BP Station # 11127/10-022-03/002

HALOGENATED VOLATILE ORGANICS 8010/8020
Batch: 70 29030
Samples: 70 0287707

METHOD BLANK:

Parameter	Units	MDL	Method Blank
1,3-Dichlorobenzene	ug/L	0.5	ND
1,4-Dichlorobenzene	ug/L	0.5	ND
Benzyl Chloride	ug/L	0.5	ND
1,2-Dichlorobenzene	ug/L	0.5	ND
Bromochloromethane (Surrogate Recovery) %			109
1,4-Dichlorobutane (Surrogate Recovery) %			133

VOLATILE AROMATICS BY EPA 8020

Parameter	Units	MDL	Method Blank
Benzene	ug/L	0.3	ND
Toluene	ug/L	0.3	ND
Chlorobenzene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND
1,3-Dichlorobenzene	ug/L	0.5	ND
1,4-Dichlorobenzene	ug/L	0.5	ND
1,2-Dichlorobenzene	ug/L	0.5	ND
a,a,a-Trifluorotoluene (Surro. Recovery) %			102

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
1,1-Dichloroethane	ug/L	0.5	20	100%	105%	4%
Trichloroethene (TCE)	ug/L	0.5	20	104%	102%	1%
1,1,2-Trichloroethane	ug/L	0.5	20	102%	94%	8%
Tetrachloroethene	ug/L	0.5	20	103%	102%	0%
Benzene	ug/L	0.3	20	106%	102%	3%
Toluene	ug/L	0.3	20	108%	103%	4%
Xylenes, Total	ug/L	0.5	60	107%	107%	0%

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

March 24, 1994
 PACE Project Number: 440316511

Client Reference: BP Station # 11127/10-022-03/002

OIL AND GREASE, SILICA GEL (LUFT)
 Batch: 70 29053
 Samples: 70 0287707

METHOD BLANK:

Parameter	Units	MDL	Method Blank
Oil and Grease, Gravimetric (SM5520)	mg/L	5.0	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dup1 Recv	RPD
Oil and Grease, Gravimetric (SM5520)	mg/L	5.0	20	100%	90%	10%

Mr. Bill Howell
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QUALITY CONTROL DATA

March 24, 1994
 PACE Project Number: 440316511

Client Reference: BP Station # 11127/10-022-03/002

PURGEABLE FUELS AND AROMATICS

Batch: 70 28876
 Samples: 70 0287693, 70 0287707, 70 0287715, 70 0287723, 70 0287731
 70 0287740

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	700281709	Spike	Spike Recv	Spike Dupl Recv	RPD
Benzene	ug/L	0.5	ND	40	99%	98%	1%
Toluene	ug/L	0.5	ND	40	94%	93%	1%
Ethylbenzene	ug/L	0.5	ND	40	95%	94%	1%
Xylenes, Total	ug/L	0.5	ND	120	95%	94%	1%

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Benzene	ug/L	0.5	40	105%	102%	2%
Toluene	ug/L	0.5	40	103%	98%	4%
Ethylbenzene	ug/L	0.5	40	107%	98%	8%
Xylenes, Total	ug/L	0.5	120	105%	97%	7%

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FOOTNOTES
for pages 9 through 13

March 24, 1994
PACE Project Number: 440316511

Client Reference: BP Station # 11127/10-022-03/002

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



440316.511

CHAIN OF CUSTODY

No.051282

Page 1 of 1

CONSULTANT'S NAME: **Alisto Eng** ADDRESS: **1777 Oakland Blvd # 200** CITY: **Walnut Creek** STATE: **Ca** ZIP CODE: **94596**

BP SITE NUMBER: **11127** BP CORNER ADDRESS/CITY: **Oakland, Ca** CONSULTANT PROJECT NUMBER: **10-022-03/002**

CONSULTANT PROJECT MANAGER: **Bill Howell** PHONE NUMBER: **(570) 295-1650** FAX NUMBER: **295-1823** CONSULTANT CONTRACT NUMBER: **Pace F973501**

BP CONTACT: **Scott Hooton** BP ADDRESS: **WA** PHONE NUMBER: FAX NO.:

LAB CONTACT: **Pace, Inc** LABORATORY ADDRESS: **Nolato, Ca** PHONE NUMBER: **(415) 883-6100** FAX NO.: **883-2673**

SAMPLED BY (Please Print Name): **Larry Buenavida** SAMPLED BY (Signature): *[Signature]* SHIPMENT DATE: SHIPMENT METHOD: **Courier**

TAT: 24 Hours 48 Hours 1 Week Standard 2 Weeks

ANALYSIS REQUIRED

AIRBILL NUMBER

SAMPLE DESCRIPTION	COLLECTION DATE	MATRIX SOIL/WATER	CONTAINERS		PRESERVATIVE	COMMENTS
	COLLECTION TIME		NO.	TYPE (VOL.)	LAB SAMPLE #	
MW-1	3/14/94	W	3	ML	28718.3	4 VOAS
MW-2			3	VOAS	28710.7	
MW-3			3		28711.5	
MW-4					28712.3	
AC-1					28713.1	
AC-2			2		28714.0	

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	ADDITIONAL COMMENTS
<i>[Signature]</i>	3/16/94	1530	Ed Kelly - Pace	3/16/94	1530	10/2 A/1
<i>[Signature]</i>	3/10	1720	Jean McWhorter - Pace	3/16/94	1720	