BP OIL

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

May 18, 1993

STID 3105

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** 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. Hugh Murphy, Hayward Fire Department, 25151 Clawiter Road, Hayward, CA 94545-2731

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

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

April 21, 1993

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

April 21, 1993

INTRODUCTION

This report presents the results and findings of the February 5, 1993 groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Company Service Station No. 11127, located at 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 guidelines and procedures 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 the 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 within 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 the groundwater monitoring event are shown in Figure 2. Concentrations of petroleum hydrocarbons in the groundwater 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. 11127
5425 MARTIN LUTHER KING, JR. WAY, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-022

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	PRODUCT THICKNESS (b) (Feet)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	TPH-D (ppb)	TOG (ppb)	1,1-DCA	1,2-DCA	1,1,1-TCA	LAB
MW-1	08/29/91	82.35	10.54	71.81	0.00	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	0.00	55	ND<0.3	ND<0.3	ND<0.3	ND<0.3	---	---	---	---	---	---
MW-1	02/28/92	82.35	8.17	74.18	0.00	400	6.7	0.7	11	170	---	---	---	---	---	SUP
MW-1	06/08/92	82.35	10.25	72.10	0.00	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	0.00	160	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	82.35	10.22	72.13	SHEEN	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	0.00	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-2	08/29/91	83.49	11.56	71.93	0.00	950	ND<0.3	ND<0.3	17	50	66	---	ND	ND	ND	---
MW-2	11/20/91	83.49	11.25	72.24	0.00	1400	0.3	ND<0.3	32	90	ND<50	---	ND	0.8	0.7	---
MW-2	02/28/92	83.49	9.02	74.47	0.00	2300	4.2	1.8	47	360	70	---	ND	ND	4.1	SUP
MW-2	06/08/92	83.49	11.37	72.12	0.00	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	0.00	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	0.00	250	ND<0.5	ND<0.5	5.0	10	88	ND<5,000	ND<0.5	0.5	ND<0.5	PACE
MW-2	02/05/93	83.48	9.85	73.63	0.00	390	0.7	ND<0.5	3.6	15	ND<50	---	ND<0.5	0.9	8.3	PACE
MW-3	11/12/92	84.96	12.24	72.72	0.00	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	0.00	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	0.00	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	0.00	92	0.7	ND<0.5	ND<0.5	1.2	---	---	---	---	---	PACE
QC-2 (d)	09/03/92	---	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	ANA
QC-2 (d)	11/12/92	---	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	PACE
QC-2 (d)	02/05/93	---	---	---	---	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
TPH-D	Total petroleum hydrocarbons as diesel
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 limits
ANA	Anametrix, Inc.
SUP	Superior Analytical Laboratory
PACE	Pace, Inc.

NOTES:

(a) Top of casing elevation for all wells surveyed in reference to the City of Oakland Benchmark No. 1967, located on the curb at the southwest corner of Martin Luther King, Jr. Way and 55th Street.

(b) Groundwater elevation in feet above mean sea level.

(c) Blind duplicate of sample collected from MW-1.

(d) Travel blank.

N

0 1000' 2000'

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

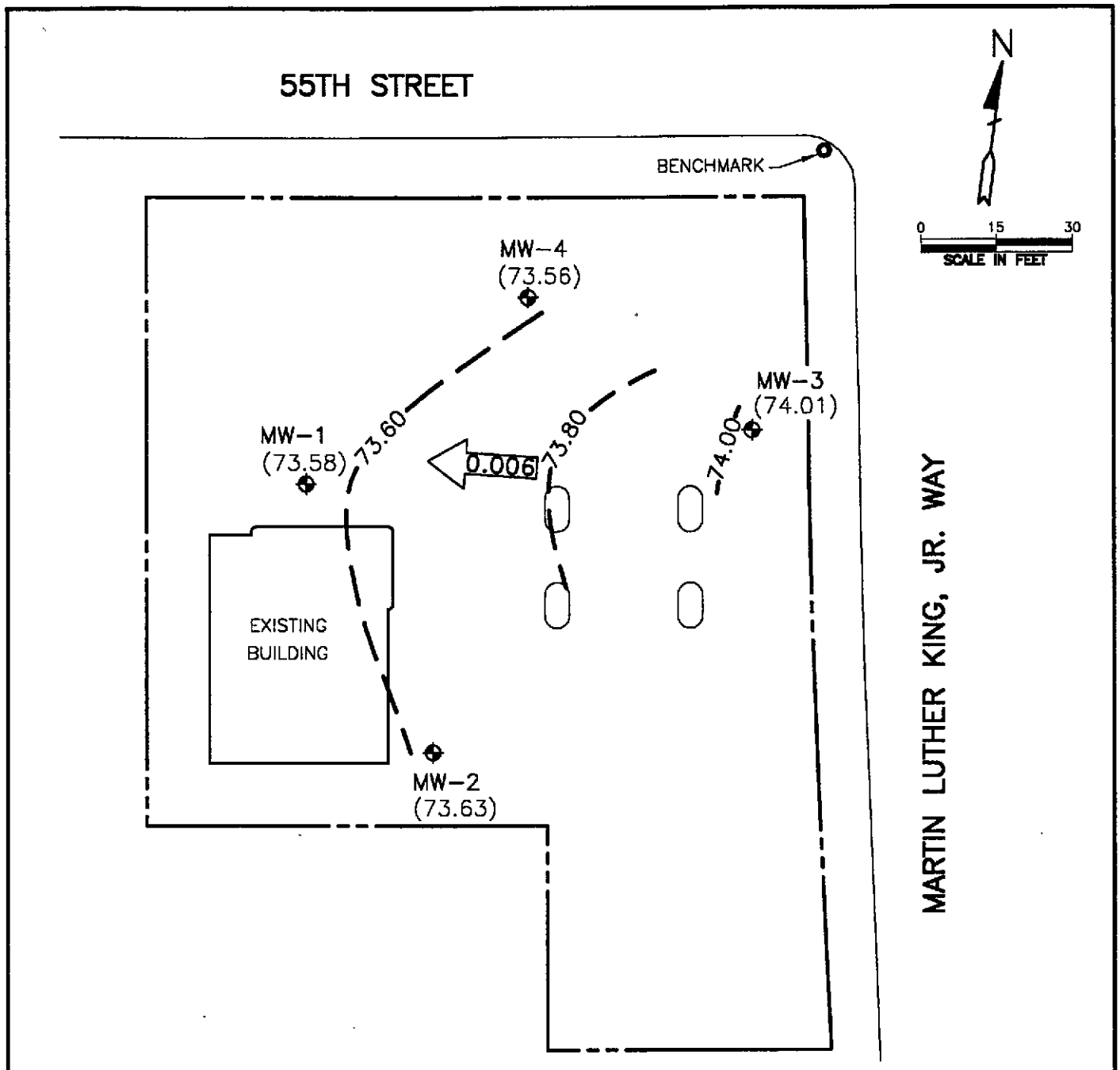
FIGURE 1

SITE VICINITY MAP

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

ALISTO PROJECT NO. 10-022

ALISTO ENGINEERING GROUP
CONCORD, CALIFORNIA



LEGEND:

- ◆ GROUNDWATER MONITORING WELL
- (73.58) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- -74.00- GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL – 0.20 FOOT)
- 0.006 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE

FIGURE 2

POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP

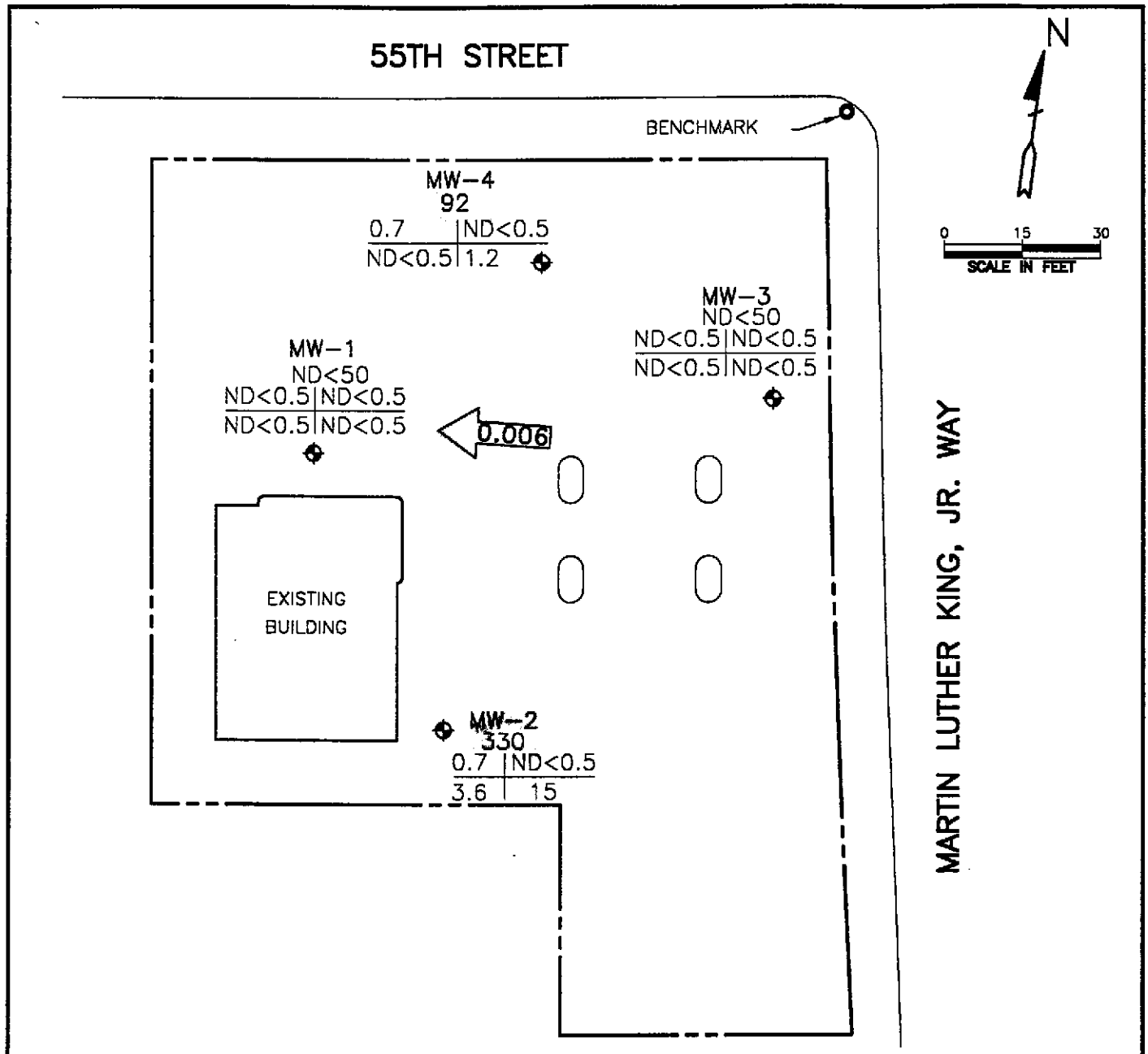
FEBRUARY 5, 1993

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

PROJECT NO. 10-022

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10022D-F.DWG 4-20-93 RMS 1=30



LEGEND:

⊕	GROUNDWATER MONITORING WELL
TPH-G / B | T / E | X	CONCENTRATION OF CONSTITUENTS IN PARTS PER BILLION
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

FIGURE 3

CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER

FEBRUARY 5, 1993

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

PROJECT NO. 10-022

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10022E-E.DWG 4-20-93 RMS 1=30

APPENDIX A

WATER SAMPLING FIELD SURVEY FORMS

ALISTO ENGINEERING GROUP
GROUNDWATER MONITORING

Client: BP
Alisto Project No: 10-022-01
Service Station No: 11127

Date: 2/5/93
Field Personnel: LCB
Site Address: Oakland, Ca

FIELD ACTIVITY:

__ Groundwater Monitoring
X 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-2	4"	1	26.81	9.85	Ø	Ø	
MW-3	2"	2	24.50	10.95			
MW-4	2"	3	24.46	9.14			
MW-1	4"	4	27.55	8.77	↓	↓	

Notes:

2 Water Weiss
2 Soil weiss
2 water alisto

FORM: FS2/121592

ALISTO ENGINEERING GROUP
Groundwater Development and Sampling Form

Client: BP
Alisto Project No: 10-022-01
Service Station No: 11127

Date: 2/5/93
Field Personnel: LCB
Address: Oakland, Ca

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

Casing Diameter:

___2 Inch (0.16 Gal/foot)
___3 Inch (0.37 Gal/foot)
X 4 Inch (0.65 Gal/Foot)
___4.5 Inch (0.83 Gal/foot)
___6 Inch (1.47 Gal/foot)

Purge Method:

X 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
8.77 Depth to Water

Sampling Method:

X Disposable Bailer
___Pump

Decontamination Method:

X Triple Rinse (Liquinox)
___ Steam Cleaned

Calculated Purge Volume

27.55 - 8.77 = 18.78 ft X .65 Gal/Ft = 12.21 Gal X 3 = 36.63

Total Depth of Well - Depth to Water = Water Column X Conversion Factor = Casing Vol X 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.
1137	68.8	8.12	.62	7.50	clear	X TPH-G/BTEX	VOA	HCL
1144	68.6	7.99	.58	15.00		TPH-Diesel	Amber Liter	Solvent Rinsed
1151	68.8	7.88	.63	22.25		EPA 601	VOA	
1158	68.7	7.79	.62	29.75		TOG 5520BF	Amber Liter	H_2SO_4
1205	68.6	7.72	.63	36.75	↓			

Begin 1130 Stop 1205 Sampled 1215

QC-1 Dup also taken from this well

FORM: FS3/121592

ALISTO ENGINEERING GROUP
Groundwater Development and Sampling Form

Client: BP
Alisto Project No: 10-022-01
Service Station No: 11127

Date: 2/5/93
Field Personnel: LCB
Address: Oakland, Ca

Well ID: MW-2 Field Activity: ___Well Development X Well Sampling ___Product Bailing

Casing Diameter:

___2 Inch (0.16 Gal/foot)
___3 Inch (0.37 Gal/foot)
X 4 Inch (0.65 Gal/Foot)
___4.5 Inch (0.83 Gal/foot)
___6 Inch (1.47 Gal/foot)

Purge Method:

X 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
9.85 Depth to Water

Sampling Method:

X Disposable Bailer
___Pump

Decontamination Method:

X Triple Rinse (Liquinox)
___ Steam Cleaned

Calculated Purge Volume

26.81 (Total Depth of Well) - 9.85 (Depth to Water) = 16.96 ft (Water Column) X .65 Gal/Ft (Conversion Factor) = 11.02 Gal (Casing Vol) X 3 (Vols to Purge) = 33.06 (Total Volume)

Well Development/Sampling Parameters

Time	Temp °F	pH	Cond. (umhos /cm)	Purge Vol (Gal)	Comments/ Turbidity	Analysis Required	Container Type	Preserv.
1012	66.5	9.19	.38	6.50	clear	X TPH-G/BTEX	VOA	HCL
1014	67.4	8.72	.36	13.25	"	X TPH-Diesel	Amber Liter	Solvent Rinsed
1016	66.8	8.38	.36	19.75	"	X EPA 601	VOA	
1018	66.7	8.22	.37	26.25	"	X TOG 5520BF	Amber Liter	H_2SO_4
1020	66.5	8.17	.36	33.25	"			

Begin 1010 Stop 1020 Sampled 1025

FORM: FS3/121592

ALISTO ENGINEERING GROUP
Groundwater Development and Sampling Form

Client: BP
Alisto Project No: 10-022-01
Service Station No: 11127

Date: 2/5/93
Field Personnel: LCB
Address: Oakland, CA

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

Casing Diameter:

X 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:

X 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
10.95 Depth to Water

Sampling Method:

X Disposable Bailer
___Pump

Decontamination Method:

X Triple Rinse (Liquinox)
___ Steam Cleaned

Calculated Purge Volume

24.50 (Total Depth of Well) - 10.95 (Depth to Water) = 13.55 ft (Water Column) X .16 Gal/Ft (Conversion Factor) = 2.17 Gal (Casing Vol) X 3 (Vols to Purge) = 6.51 (Total Volume)

Well Development/Sampling Parameters

Time	Temp °F	pH	Cond. (umhos /cm)	Purge Vol (Gal)	Comments/ Turbidity
1029	67.9	8.24	.46	1.25	clear
1031	68.7	8.11	.53	2.75	"
1032	69.4	8.01	.56	4.00	"
1034	69.6	7.96	.58	5.25	"
1035	69.8	7.89	.58	6.75	"

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

Begin 1026 Stop 1035 Sampled 1040

FORM: FS3/121592

ALISTO ENGINEERING GROUP
Groundwater Development and Sampling Form

Client: BP
Alisto Project No: 10-022-01
Service Station No: 11127

Date: 2/5/93
Field Personnel: GCB
Address: Oakland, CA

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

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

Purge Method:
- X 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
- 9.14 Depth to Water

Sampling Method:
- X Disposable Bailer
- ___Pump

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

Calculated Purge Volume

24.46 (Total Depth of Well) - 9.14 (Depth to Water) = 15.32 ft (Water Column) X .16 Gal/Ft (Conversion Factor) = 2.45 Gal (Casing Vol) X 3 (Vols to Purge) = 7.29 (Total Volume)

Well Development/Sampling Parameters

Time	Temp °F	pH	Cond. (umhos /cm)	Purge Vol (Gal)	Comments/ Turbidity	Analysis Required	Container Type	Preserv.
1055	70.5	8.06	.52	1.50	clear	X TPH-G/BTEX	VOA	HCL
1100	69.3	8.00	.59	3.00		TPH-Diesel	Amber Liter	Solvent Rinsed
1105	69.9	7.93	.58	4.50		EPA 601	VOA	
1110	69.7	7.86	.58	6.00		TOG 5520BF	Amber Liter	H_2SO_4
1115	69.5	7.79	.57	7.50	↓			

Begin 1050 Stop 1115 Sampled 1125

FORM: FS3/121592

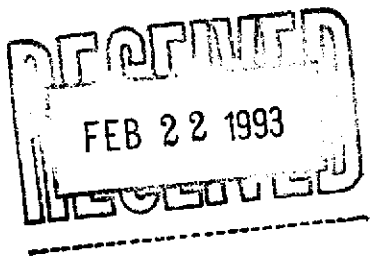
APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD

10-0nn/003

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS



February 19, 1993

Mr. Brady Nagle
Alisto Engineering Group
1000 Burnett Ave., Ste. 420
Concord, CA 94520

RE: PACE Project No. 430208.501
Client Reference: BP Station # 11127

Dear Mr. Nagle:

Enclosed is the report of laboratory analyses for samples received February 08, 1993.

Footnotes are given at the end of the report.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

Stephanie Matzo
Project Manager

Enclosures

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

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Alisto Engineering Group
1000 Burnett Ave., Ste. 420
Concord, CA 94520

February 19, 1993
PACE Project Number: 430208501

Attn: Mr. Brady Nagle

Client Reference: BP Station # 11127

PACE Sample Number:			70 0006597	
Date Collected:			02/05/93	
Date Received:			02/08/93	
Client Sample ID:			QC-2	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	02/10/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	02/10/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	02/10/93
Benzene	ug/L	0.5	ND	02/10/93
Toluene	ug/L	0.5	ND	02/10/93
Ethylbenzene	ug/L	0.5	ND	02/10/93
Xylenes, Total	ug/L	0.5	ND	02/10/93

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

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Mr. Brady Nagle
Page 2

February 19, 1993
PACE Project Number: 430208501

Client Reference: BP Station # 11127

PACE Sample Number:			70 0006600	
Date Collected:			02/05/93	
Date Received:			02/08/93	
Client Sample ID:			MW-2	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	02/10/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	330	02/10/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	02/10/93
Benzene	ug/L	0.5	0.7	02/10/93
Toluene	ug/L	0.5	ND	02/10/93
Ethylbenzene	ug/L	0.5	3.6	02/10/93
Xylenes, Total	ug/L	0.5	15	02/10/93
EXTRACTABLE FUELS EPA 3510/8015				
Extractable Fuels, as Diesel	mg/L	0.05	ND	02/15/93
Date Extracted			02/12/93	
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
Dichlorodifluoromethane	ug/L	2.0	ND	02/12/93
Chloromethane	ug/L	2.0	ND	02/12/93
Vinyl Chloride	ug/L	2.0	ND	02/12/93
Bromomethane	ug/L	2.0	ND	02/12/93
Chloroethane	ug/L	2.0	ND	02/12/93
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	02/12/93
1,1-Dichloroethene	ug/L	0.5	ND	02/12/93
Methylene Chloride	ug/L	2.0	ND	02/12/93
trans-1,2-Dichloroethene	ug/L	0.5	ND	02/12/93
cis-1,2-Dichloroethene	ug/L	0.5	ND	02/12/93
1,1-Dichloroethane	ug/L	0.5	ND	02/12/93
Chloroform	ug/L	0.5	ND	02/12/93
1,1,1-Trichloroethane (TCA)	ug/L	0.5	8.3	02/12/93
Carbon Tetrachloride	ug/L	0.5	ND	02/12/93
1,2-Dichloroethane (EDC)	ug/L	0.5	0.9	02/12/93
Trichloroethene (TCE)	ug/L	0.5	ND	02/12/93
1,2-Dichloropropane	ug/L	0.5	ND	02/12/93
Bromodichloromethane	ug/L	0.5	ND	02/12/93
2-Chloroethylvinyl ether	ug/L	0.5	ND	02/12/93

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REPORT OF LABORATORY ANALYSIS

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February 19, 1993
PACE Project Number: 430208501

Client Reference: BP Station # 11127

PACE Sample Number:			70 0006600	
Date Collected:			02/05/93	
Date Received:			02/08/93	
Client Sample ID:			MW-2	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
cis-1,3-Dichloropropene	ug/L	0.5	ND	02/12/93
trans-1,3-Dichloropropene	ug/L	0.5	ND	02/12/93
1,1,2-Trichloroethane	ug/L	0.5	ND	02/12/93
Tetrachloroethene	ug/L	0.5	ND	02/12/93
Dibromochloromethane	ug/L	0.5	ND	02/12/93
Chlorobenzene	ug/L	0.5	ND	02/12/93
Bromoform	ug/L	0.5	ND	02/12/93
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	02/12/93
1,3-Dichlorobenzene	ug/L	0.5	ND	02/12/93
1,4-Dichlorobenzene	ug/L	0.5	ND	02/12/93
1,2-Dichlorobenzene	ug/L	0.5	ND	02/12/93
Bromochloromethane (Surrogate Recovery)			83%	02/12/93
1,4-Dichlorobutane (Surrogate Recovery)			89%	02/12/93
OIL AND GREASE, SILICA GEL (LUFT)				
Oil and Grease, Gravimetric (SM5520)	mg/L	5.0	ND	02/15/93
Date Extracted			02/13/93	

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REPORT OF LABORATORY ANALYSIS

Mr. Brady Nagle
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February 19, 1993
PACE Project Number: 43020850l

Client Reference: BP Station # 11127

PACE Sample Number:			70 0006619	
Date Collected:			02/05/93	
Date Received:			02/08/93	
Client Sample ID:			MW-3	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	02/10/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	02/10/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	02/10/93
Benzene	ug/L	0.5	ND	02/10/93
Toluene	ug/L	0.5	ND	02/10/93
Ethylbenzene	ug/L	0.5	ND	02/10/93
Xylenes, Total	ug/L	0.5	ND	02/10/93

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February 19, 1993
PACE Project Number: 430208501

Client Reference: BP Station # 11127

PACE Sample Number:			70 0006627	
Date Collected:			02/05/93	
Date Received:			02/08/93	
Client Sample ID:			MW-4	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	02/10/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	92	02/10/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	02/10/93
Benzene	ug/L	0.5	0.7 (MT)	02/10/93
Toluene	ug/L	0.5	ND	02/10/93
Ethylbenzene	ug/L	0.5	ND	02/10/93
Xylenes, Total	ug/L	0.5	1.2	02/10/93

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February 19, 1993
PACE Project Number: 430208501

Client Reference: BP Station # 11127

PACE Sample Number:			70 0006635	
Date Collected:			02/05/93	
Date Received:			02/08/93	
Client Sample ID:			MW-1	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	02/10/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	02/10/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	02/10/93
Benzene	ug/L	0.5	ND	02/10/93
Toluene	ug/L	0.5	ND	02/10/93
Ethylbenzene	ug/L	0.5	ND	02/10/93
Xylenes, Total	ug/L	0.5	ND	02/10/93

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February 19, 1993
PACE Project Number: 430208501

Client Reference: BP Station # 11127

PACE Sample Number:			70 0006643	
Date Collected:			02/05/93	
Date Received:			02/08/93	
Client Sample ID:			QC-1	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	02/10/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	02/10/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	02/10/93
Benzene	ug/L	0.5	ND	02/10/93
Toluene	ug/L	0.5	ND	02/10/93
Ethylbenzene	ug/L	0.5	ND	02/10/93
Xylenes, Total	ug/L	0.5	ND	02/10/93

These data have been reviewed and are approved for release.

Darrell C. Cain
Regional Director

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Client Reference: BP Station # 11127

MDL Method Detection Limit
ND Not detected at or above the MDL.
(MT) A peak eluting earlier than Benzene and suspected to be methyl tert butyl ether (MTBE) was present at approximately 110 ppb.

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QUALITY CONTROL DATA

February 19, 1993
PACE Project Number: 430208501

Client Reference: BP Station # 11127

EXTRACTABLE FUELS EPA 3510/8015
Batch: 70 18766
Samples: 70 0006600

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	64%	55%	15%

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QUALITY CONTROL DATA

February 19, 1993
PACE Project Number: 43020850l

Client Reference: BP Station # 11127

OIL AND GREASE, SILICA GEL (LUFT)
Batch: 70 18772
Samples: 70 0006600

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	Dupl Recv	RPD
Oil and Grease, Gravimetric (SM5520)	mg/L	5.0	20.0	85%	80%	6%

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QUALITY CONTROL DATA

February 19, 1993
PACE Project Number: 430208501

Client Reference: BP Station # 11127

PURGEABLE FUELS AND AROMATICS
Batch: 70 18680
Samples: 70 0006597, 70 0006643

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 Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M	ug/L	50	1000	106%	111%	4%
Benzene	ug/L	0.5	40.0	107%	109%	1%
Toluene	ug/L	0.5	40.0	107%	108%	0%
Ethylbenzene	ug/L	0.5	40.0	108%	110%	1%
Xylenes, Total	ug/L	0.5	120	117%	119%	1%

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QUALITY CONTROL DATA

February 19, 1993
PACE Project Number: 430208501

Client Reference: BP Station # 11127

PURGEABLE FUELS AND AROMATICS
Batch: 70 18699
Samples: 70 0006600, 70 0006619, 70 0006627, 70 0006635

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 Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M	ug/L	50	1000	102%	101%	0%
Benzene	ug/L	0.5	40.0	99%	99%	0%
Toluene	ug/L	0.5	40.0	96%	97%	1%
Ethylbenzene	ug/L	0.5	40.0	98%	98%	0%
Xylenes, Total	ug/L	0.5	120	97%	97%	0%

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QUALITY CONTROL DATA

February 19, 1993
PACE Project Number: 430208501

Client Reference: BP Station # 11127

VOLATILE HALOCARBONS AND AROMATICS
Batch: 70 18808
Samples: 70 0006600

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	2.0	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
cis-1,2-Dichloroethene	ug/L	0.5	ND
1,1-Dichloroethane	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
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
Bromoform	ug/L	0.5	ND
1,1,2,2-Tetrachloroethane	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
Bromochloromethane (Surrogate Recovery)			96%

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QUALITY CONTROL DATA

February 19, 1993
PACE Project Number: 430208501

Client Reference: BP Station # 11127

VOLATILE HALOCARBONS AND AROMATICS
Batch: 70 18808
Samples: 70 0006600

METHOD BLANK:

Parameter	Units	MDL	Method Blank
1,4-Dichlorobutane (Surrogate Recovery)			109%
VOLATILE AROMATICS BY EPA 8020			-
Benzene	ug/L	0.3	ND
Toluene	ug/L	0.3	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND
Fluorobenzene (Surrogate Recovery)			100%

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
1,1-Dichloroethane	ug/L	0.5	10.00	89%	81%	9%
Trichloroethene (TCE)	ug/L	0.5	10.00	86%	77%	11%
trans-1,3-Dichloropropene	ug/L	0.5	3.8	109%	110%	0%
Tetrachloroethene	ug/L	0.5	10.00	111%	100%	10%
Benzene	ug/L	0.3	10.00	74%	72%	2%
Toluene	ug/L	0.3	10.00	81%	80%	1%
Xylenes, Total	ug/L	0.5	20.00	107%	99%	7%

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FOOTNOTES
for pages 9 through 14

February 19, 1993
PACE Project Number: 430208501

Client Reference: BP Station # 11127

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

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B.P. OIL COMPANY

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CHAIN OF CUSTODY

430208 · 50

№ 0142

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

Consultant's Name: Alisto Engineering Group	Consultant Project #: 10-022-01		Page 1 of 1
Address: 1000 Burnett Ave #420, Concord, Ca 94520			
Project Contact: Brady Nagle	Phone # (510) 798-4070, Fax #: 798-4099		Consultant Work Order #:
Sampled by (print): Larry Bienvenida	Sampler's Signature: [signature]		B.P. Site Location #: 11127
Shipment Method: / Airbill #:	Shipment Date:	B.P. Site Location: Oakland	

TAT: [ ] 24 hr [ ] 48 hr [ ] 72 hr [X] 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	TOG - oil & grease per (SM 5520 B)								
QC-2	2/5/93 / 1022	W	HCl	2	259.7	X												
MW-2	↓ 1025	↓	↓	10	60.0	↓	X		X	X								
MW-3	1040			3	61.9													
MW-4	1125			↓	62.7													
MW-1	1215				63.5													
QC-1	1230	↓	↓	↓	64.3	↓												
10/3, A/2																		

Sample Condition as Received
Temperature ° C: ____
Cooler #: ____
Inbound Seal Yes No
Outbound Seal Yes No

COMMENTS

Relinquished by/Affiliation	Date	Time	Accepted by/Affiliation	Date	Time	Additional Comments:
[signature]	2/7/93	1100	[signature] Pace	2/8	1100	
Ed [signature] - Pace	2/8	1250	J. [signature] / Pace	2/8/93	1255	

Distribution: White - Original Yellow - B.P. Oil Pink - Lab Goldenrod - Consultant Field Staff