BP OIL

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

September 21, 1994

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

RE: BP OIL FACILITY #11107
18501 Hesperian Blvd.
San Lorenzo, California

Dear Mr. So:

Attached please find our **GROUNDWATER MONITORING AND SAMPLING REPORT DATED AUGUST 10, 1994** for the above referenced facility.

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

Respectfully,

Scott T. Hooton
Environmental Resources Management

STH:mu ERM11107

cc: Ms. Juliet Shin, Alameda County Health Care Service Agency, 80 Swan Way, Room 200, Oakland, CA 94621

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

Site file

GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11107
18501 Hesperian Boulevard
San Lorenzo, California

Project No. 10-060-03-002

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

August 10, 1994

Brady Nagle
Project Manager

Al Sevilla, P.E.
Principal

REGISTERED PROFESSIONAL ENGINEER
ALBERTO SANCHEZ SEVILLA
29332
Exp. Date 3/31/96
CIVIL
STATE OF CALIFORNIA

GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11107
18501 Hesperian Boulevard
San Lorenzo, California

Project No. 10-060-03-002

August 10, 1994

INTRODUCTION

This report presents the results and findings of the May 12, 1994 groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Company Service Station No. 11107, 18501 Hesperian Boulevard, San Lorenzo, 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.

SAMPLING AND ANALYTICAL RESULTS

The results of monitoring and laboratory analysis of the groundwater samples collected during 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 laboratory 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. 11107
18501 HESPERIAN BOULEVARD, SAN LORENZO, CALIFORNIA

ALISTO PROJECT NO. 10-060

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)	1,1,1-TCA (ppb)	PCE (ppb)	DO (ppm)	LAB
MW-1	11/04/92	41.07	20.78	20.29	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5000	2.8	ND	—	PACE
QC-1 (c)	11/04/92	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
MW-1	02/24/94	41.07	20.70	20.37	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5000	1.5	0.9	—	PACE
MW-1	05/12/94	41.07	18.12	22.95	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5000	1.0	ND<0.5	7.0	PACE
MW-2	11/04/92	40.56	20.16	20.40	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
MW-2	02/24/94	40.56	20.12	20.44	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
MW-2	05/12/94	40.56	17.49	23.07	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	7.4	PACE
MW-3	11/04/92	40.45	20.23	20.22	760	—	3.7	15	1.9	57	—	—	—	—	PACE
MW-3	02/24/94	40.45	20.24	20.21	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
MW-3	05/12/94	40.45	17.61	22.84	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	7.3	PACE
MW-4	11/04/92	39.24	19.18	20.06	900	—	150	4.1	0.8	53	—	—	—	—	PACE
MW-4	02/24/94	39.24	19.22	20.02	240	—	110	3.8	1.8	11	—	—	—	—	PACE
QC-1 (c)	02/24/94	—	—	—	310	slow discrepancy	95	5.3	2.2	17	—	—	—	—	PACE
MW-4	05/12/94	39.24	16.62	22.62	ND<50	—	2.2	1.0	ND<0.5	ND<0.5	—	—	—	7.3	PACE
QC-1 (c)	05/12/94	—	—	—	430	—	2.6	1.3	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2 (d)	11/04/92	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2 (d)	11/04/92	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2 (d)	05/12/94	—	—	—	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
1,1,1-TCA	1,1,1-Trichloroethane
PCE	Tetrachloroethene
DO	Dissolved oxygen
ppb	Parts per billion
ppm	Parts per million
ND	Not detected above reported detection limit
—	Not analyzed/applicable/measured
PACE	Pace, Inc.

NOTES:

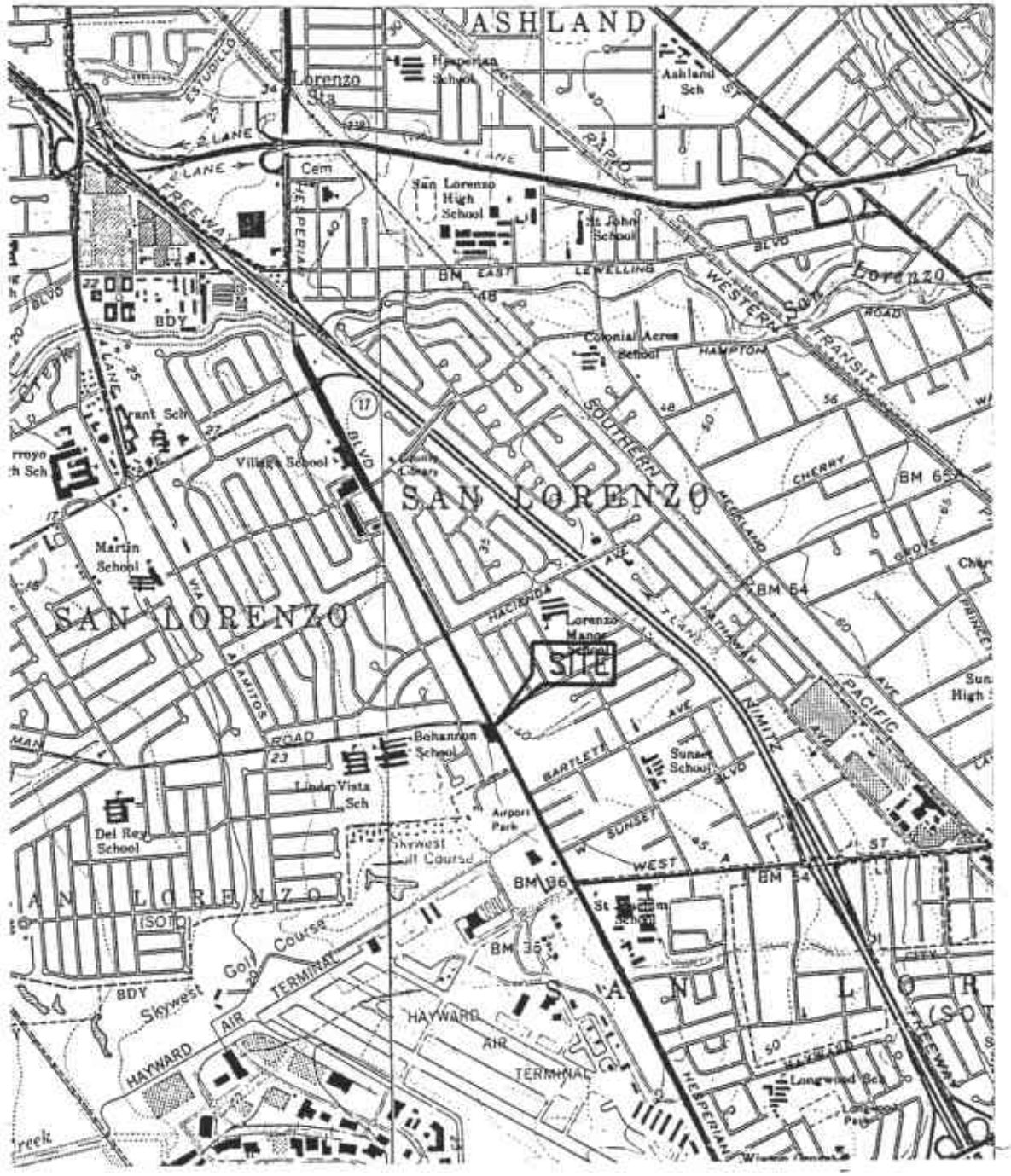
(a) Top of casing elevations surveyed relative to an established benchmark with an elevation of 39.95 feet above mean sea level.

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

(c) Blind duplicate.

(d) Travel blank.

E:\10\10-060\060-3-2.WQ1



SOURCE:
USGS MAP, HAYWARD & SAN LEANDRO QUADRANGLES,
7.5 MINUTE SERIES. 1959,
PHOTOREVISED 1980.

N

0 1000' 2000'

FIGURE 1

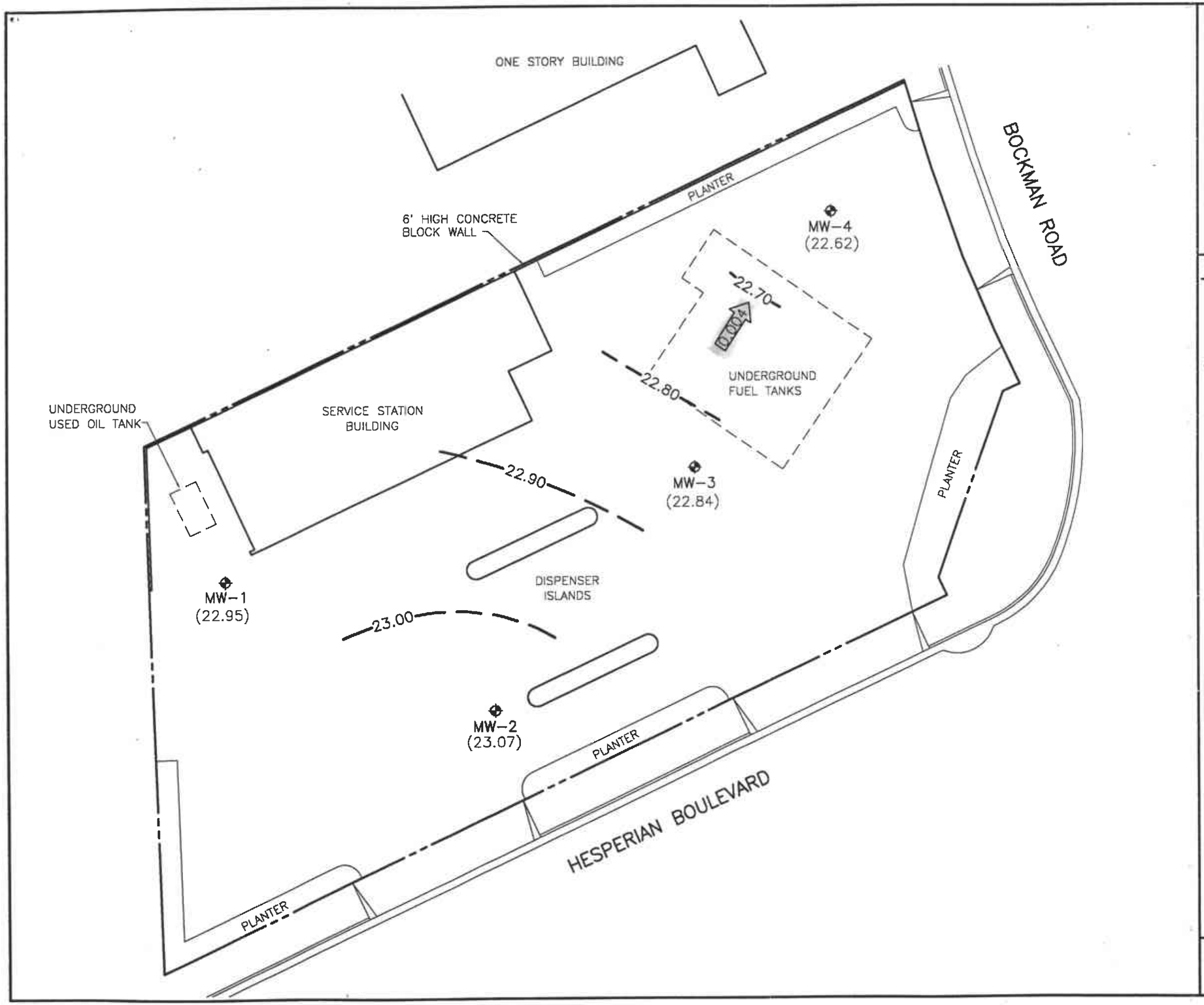
VICINITY MAP

BP OIL SERVICE STATION NO. 11107
18501 HESPERIAN BOULEVARD
SAN LORENZO, CALIFORNIA

PROJECT NO. 10-060

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10060B — DWG 3-12-94 RHW 1=1



N

0 20 40

SCALE IN FEET

LEGEND

- ◆ GROUNDWATER MONITORING WELL
- (22.62) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 22.70 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL—0.10 FOOT)
- 0.004 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 2

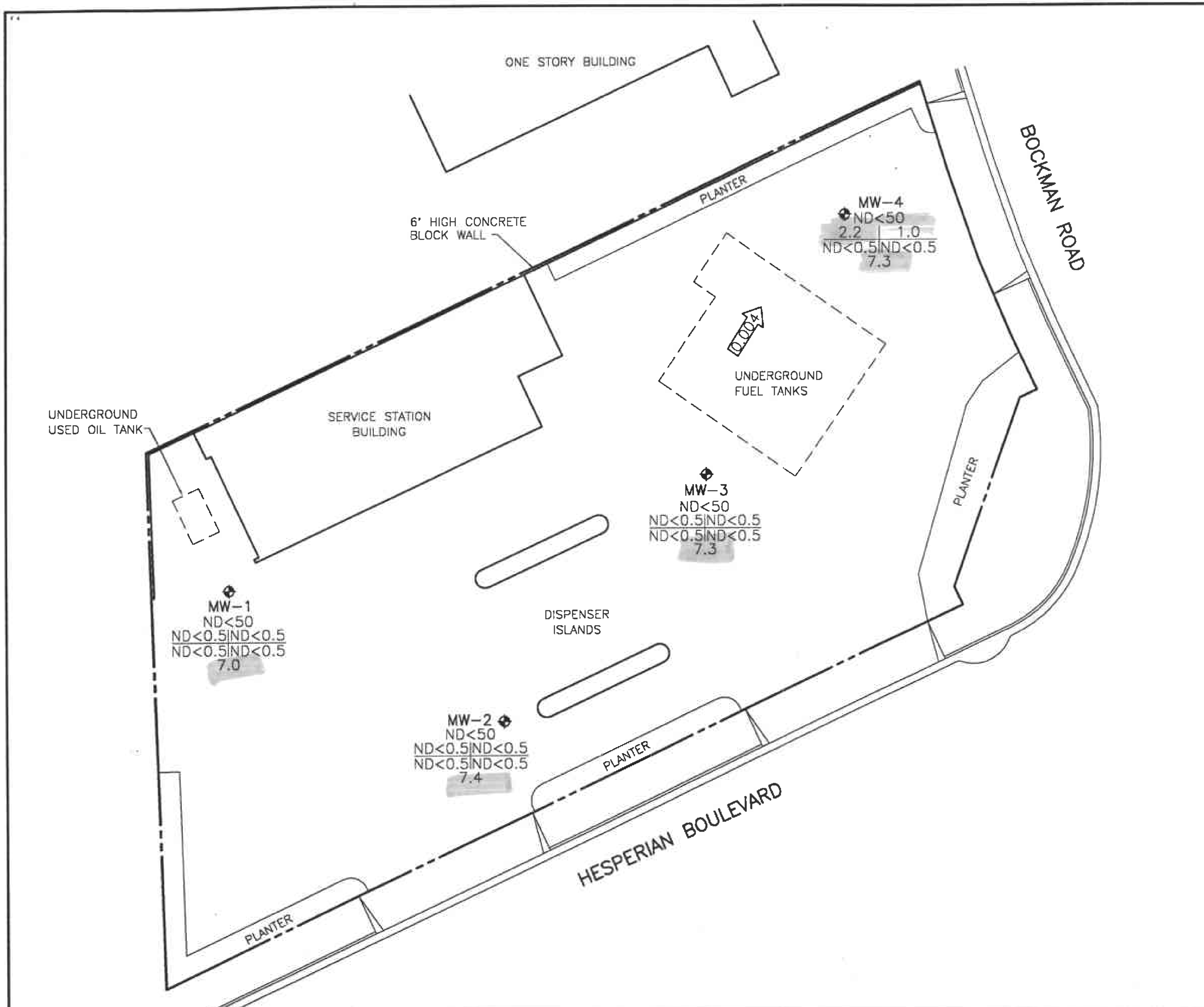
POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP

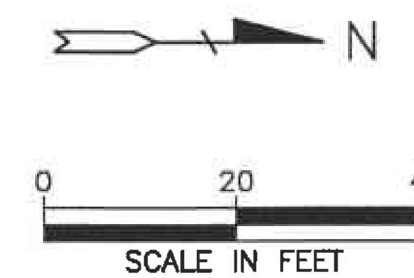
MAY 12, 1994

BP OIL SERVICE STATION NO. 11107
18501 HESPERIAN BOULEVARD
SAN LORENZO, CALIFORNIA

PROJECT NO. 10-060

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA





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
⇦ 0.004	CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 3

CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER

MAY 12, 1994

BP OIL SERVICE STATION NO. 11107
18501 HESPERIAN BOULEVARD
SAN LORENZO, CALIFORNIA

PROJECT NO. 10-060

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

APPENDIX A

WATER SAMPLING FIELD SURVEY FORMS

ALISTO ENGINEERING GROUP
GROUNDWATER MONITORING

Client: BP
Alisto Project No: 10-060-3-2
Service Station No: 11107

Date: 5/12/94
Field Personnel: DC
Site Address: San Leandro

FIELD ACTIVITY:

✓ Groundwater Monitoring
✓ Groundwater Sampling
___ Well Development

QUALITY CONTROL SAMPLES:

MW4 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"	1	30.70	18.12	Ø	Ø	hand bailed bay
MW-2	↓	2	25.0	17.49	↓	↓	
MW-3		3	25.20	17.61			hand bailed bay
MW-4		4	25.32	16.62			hand bailed bay

Notes:

FORM: FS2/121592

ALISTO ENGINEERING GROUP
Groundwater Development and Sampling Form

Client: BP
Alisto Project No: 10-060-3-2
Service Station No: 111-07

Date: 5/12/94
Field Personnel: DC
Address: San Lorenzo

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:
- 0 Depth to Product
- 0 Product Thickness
- 17.49 Depth to Water

Sampling Method:
- ✓ Disposable Bailer
- ___Pump

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

Calculated Purge Volume

25.0 (Total Depth of Well) - 17.49 (Depth to Water) = 7.5 ft (Water Column) X .16 (Conversion Factor) Gal/Ft = 1.22 Gal (Casing Vol) X 3 (Vols to Purge) = 3.65 (Total Volume)

Well Development/Sampling Parameters

Time	Temp °F	pH	Cond. (umhos /cm)	Purge Vol (Gal)	Comments/ Turbidity	Analysis Required	Container Type	Preserv.
	75.0	8.03	1.14	1.5	clear	TPH-G/BTEX	VOA	HCL
	73.6	7.88	1.11	2.5	↓	TPH-Diesel	Amber Liter	Solvent Rinsed
	73.7	7.85	1.13	3.75	↓	EPA 601	VOA	
						TOG 5520BF	Amber Liter	H_2SO_4

FORM: FS3/121592

DO begin 7.3
end - 7.4

ALISTO ENGINEERING GROUP
Groundwater Development and Sampling Form

Client: BP
Alisto Project No: 10-060-3-2
Service Station No: 1107

Date: 5/12/94
Field Personnel: DC
Address: San Leandro

Well ID: MW3 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:
- 9 Depth to Product
- 0 Product Thickness
- ___Depth to Water

Sampling Method:
- ✓Disposable Bailer
- ___Pump

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

Calculated Purge Volume

25.20 (Total Depth of Well) - 17.61 (Depth to Water) = 7.59 ft (Water Column) X .16 (Conversion Factor) Gal/Ft = 1.21 Gal (Casing Vol) X 3 (Vols to Purge) = 3.64 (Total Volume)

Well Development/Sampling Parameters

Time	Temp °F	pH	Cond. (umhos /cm)	Purge Vol (Gal)	Comments/ Turbidity	Analysis Required	Container Type	Preserv.
	72.9	7.88	1.08	1.5	clear	TPH-G/BTEX	VOA	HCL
	71.3	7.79	1.06	2.5	↓	TPH-Diesel	Amber Liter	Solvent Rinsed
	70.9	8.02	1.07	3.75	↓	EPA 601	VOA	
						TOG 5520BF	Amber Liter	H_2SO_4

DO begin 7.4
end 7.3

FORM: FS3/121592

ALISTO ENGINEERING GROUP
Groundwater Development and Sampling Form

Client: BP
Alisto Project No: 10-060-3-2
Service Station No: 11107

Date: 5/12/94
Field Personnel: DC
Address: San Lorenzo

Well ID: MW4 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
___Depth to Water

Sampling Method:

✓Disposable Bailer
___Pump

Decontamination Method:

✓ Triple Rinse (Liquinox)
___ Steam Cleaned

Calculated Purge Volume

25.32 (Total Depth of Well) - 16.62 (Depth to Water) = 8.7 ft (Water Column) X .16 Gal/Ft (Conversion Factor) = 1.39 Gal (Casing Vol) X 3 (Vols to Purge) = 4.18 (Total Volume)

Well Development/Sampling Parameters

Time	Temp °F	pH	Cond. (umhos /cm)	Purge Vol (Gal)	Comments/ Turbidity	Analysis Required	Container Type	Preserv.
	74.7	8.23	1.21	1.5	clear	TPH-G/BTEX	VOA	HCL
	74.4	8.01	1.25	3	↓	TPH-Diesel	Amber Liter	Solvent Rinsed
	74.8	8.01	1.29	4.25	↓	EPA 601	VOA	
						TOG 5520BF	Amber Liter	H_2SO_4

DO start → 7.6
end → 7.3

FORM: FS3/1Z1592

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

May 23, 1994
PACE Project Number: 440512511

Attn: Mr. Bill Howell

Client Reference: BP Site #11107/10-60-3-2

PACE Sample Number:			70 0320550	
Date Collected:			05/12/94	
Date Received:			05/13/94	
			MW-1	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	05/16/94
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	05/16/94
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	05/16/94
Benzene	ug/L	0.5	ND	05/16/94
Toluene	ug/L	0.5	ND	05/16/94
Ethylbenzene	ug/L	0.5	ND	05/16/94
Xylenes, Total	ug/L	0.5	ND	05/16/94
HALOGENATED VOLATILE ORGANICS BY 8010				
VOLATILE HALOCARBONS BY EPA 8010			-	05/19/94
Dichlorodifluoromethane	ug/L	2.0	ND	05/19/94
Chloromethane	ug/L	2.0	ND	05/19/94
Vinyl Chloride	ug/L	2.0	ND	05/19/94
Bromomethane	ug/L	2.0	ND	05/19/94
Chloroethane	ug/L	2.0	ND	05/19/94
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	05/19/94
1,1-Dichloroethene	ug/L	0.5	ND	05/19/94
Methylene Chloride	ug/L	2.0	ND	05/19/94
trans-1,2-Dichloroethene	ug/L	0.5	ND	05/19/94
1,1-Dichloroethane	ug/L	0.5	ND	05/19/94
cis-1,2-Dichloroethene	ug/L	0.5	ND	05/19/94
Chloroform	ug/L	0.5	ND	05/19/94
1,1,1-Trichloroethane (TCA)	ug/L	0.5	1.0	05/19/94
Carbon Tetrachloride	ug/L	0.5	ND	05/19/94
1,2-Dichloroethane (EDC)	ug/L	0.5	ND	05/19/94
Trichloroethene (TCE)	ug/L	0.5	ND	05/19/94
1,2-Dichloropropane	ug/L	0.5	ND	05/19/94
Bromodichloromethane	ug/L	0.5	ND	05/19/94
Dibromomethane	ug/L	0.5	ND	05/19/94

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

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THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Mr. Bill Howell
Page 2

May 23, 1994
PACE Project Number: 440512511

Client Reference: BP Site #11107/10-60-3-2

PACE Sample Number:			70 0320550	
Date Collected:			05/12/94	
Date Received:			05/13/94	
Client Sample ID:			MW-1	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
HALOGENATED VOLATILE ORGANICS BY 8010				
2-Chloroethylvinyl ether	ug/L	0.5	ND	05/19/94
cis-1,3-Dichloropropene	ug/L	0.5	ND	05/19/94
trans-1,3-Dichloropropene	ug/L	0.5	ND	05/19/94
1,1,2-Trichloroethane	ug/L	0.5	ND	05/19/94
Tetrachloroethene	ug/L	0.5	ND	05/19/94
Dibromochloromethane	ug/L	0.5	ND	05/19/94
Chlorobenzene	ug/L	0.5	ND	05/19/94
1,1,1,2-Tetrachloroethane	ug/L	0.5	ND	05/19/94
Bromoform	ug/L	0.5	ND	05/19/94
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	05/19/94
1,2,3-Trichloropropane	ug/L	0.5	ND	05/19/94
Bromobenzene	ug/L	0.5	ND	05/19/94
1,3-Dichlorobenzene	ug/L	0.5	ND	05/19/94
1,4-Dichlorobenzene	ug/L	0.5	ND	05/19/94
Benzyl Chloride	ug/L	0.5	ND	05/19/94
1,2-Dichlorobenzene	ug/L	0.5	ND	05/19/94
Bromochloromethane (Surrogate Recovery)	%		102	05/19/94
1,4-Dichlorobutane (Surrogate Recovery)	%		120	05/19/94
EXTRACTABLE FUELS EPA 3510/8015				
Extractable Fuels, as Diesel	mg/L	0.05	ND	05/17/94
Date Extracted			05/16/94	
OIL AND GREASE, SILICA GEL (LUFT)				
Oil and Grease, Gravimetric (SM5520)	mg/L	5.0	ND	05/17/94
Date Extracted			05/17/94	

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THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Mr. Bill Howell
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May 23, 1994
PACE Project Number: 440512511

Client Reference: BP Site #11107/10-60-3-2

PACE Sample Number:			70 0320585	
Date Collected:			05/12/94	
Date Received:			05/13/94	
Client Sample ID:			MW-2	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	05/16/94
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	05/16/94
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	05/16/94
Benzene	ug/L	0.5	ND	05/16/94
Toluene	ug/L	0.5	ND	05/16/94
Ethylbenzene	ug/L	0.5	ND	05/16/94
Xylenes, Total	ug/L	0.5	ND	05/16/94

11 Digital Drive
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THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Mr. Bill Howell
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May 23, 1994
PACE Project Number: 440512511

Client Reference: BP Site #11107/10-60-3-2

PACE Sample Number:			70 0320593	
Date Collected:			05/12/94	
Date Received:			05/13/94	
Client Sample ID:			MW-3	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	05/16/94
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	05/16/94
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	05/16/94
Benzene	ug/L	0.5	ND	05/16/94
Toluene	ug/L	0.5	ND	05/16/94
Ethylbenzene	ug/L	0.5	ND	05/16/94
Xylenes, Total	ug/L	0.5	ND	05/16/94

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THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Mr. Bill Howell
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May 23, 1994
PACE Project Number: 440512511

Client Reference: BP Site #11107/10-60-3-2

PACE Sample Number:			70 0320607	
Date Collected:			05/12/94	
Date Received:			05/13/94	
Client Sample ID:			MW-4	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	05/17/94
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	05/17/94
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	05/17/94
Benzene	ug/L	0.5	2.2	05/17/94
Toluene	ug/L	0.5	1.0	05/17/94
Ethylbenzene	ug/L	0.5	ND	05/17/94
Xylenes, Total	ug/L	0.5	ND	05/17/94

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May 23, 1994
PACE Project Number: 440512511

Client Reference: BP Site #11107/10-60-3-2

PACE Sample Number:			70 0320615	
Date Collected:			05/12/94	
Date Received:			05/13/94	
Client Sample ID:			QC-1	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	05/17/94
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	430	05/17/94
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	05/17/94
Benzene	ug/L	0.5	2.6	05/17/94
Toluene	ug/L	0.5	1.3	05/17/94
Ethylbenzene	ug/L	0.5	ND	05/17/94
Xylenes, Total	ug/L	0.5	ND	05/17/94

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May 23, 1994
PACE Project Number: 440512511

Client Reference: BP Site #11107/10-60-3-2

PACE Sample Number:			70 0320631	
Date Collected:			05/12/94	
Date Received:			05/13/94	
Client Sample ID:			QC-2	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	05/16/94
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	05/16/94
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	05/16/94
Benzene	ug/L	0.5	ND	05/16/94
Toluene	ug/L	0.5	ND	05/16/94
Ethylbenzene	ug/L	0.5	ND	05/16/94
Xylenes, Total	ug/L	0.5	ND	05/16/94

These data have been reviewed and are approved for release.

Darrell E. Cain
Regional Director

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FOOTNOTES
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PACE Project Number: 440512511

Client Reference: BP Site #11107/10-60-3-2

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

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QUALITY CONTROL DATA

May 23, 1994
PACE Project Number: 440512511

Client Reference: BP Site #11107/10-60-3-2

EXTRACTABLE FUELS EPA 3510/8015
Batch: 70 30478
Samples: 70 0320550

METHOD BLANK AND SAMPLE DUPLICATE:

Parameter	Units	MDL	Method Blank	700322022	Duplicate of 70 0322022	RPD
Extractable Fuels, as Diesel	mg/L	0.05	ND	ND	ND	NC
n-Pentacosane (Surrogate Recovery)	%			133	95	33%

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	96%	92%	4%

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QUALITY CONTROL DATA

May 23, 1994
PACE Project Number: 440512511

Client Reference: BP Site #11107/10-60-3-2

HALOGENATED VOLATILE ORGANICS 8010/8020
Batch: 70 30591
Samples: 70 0320550

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
FREON 113	ug/L	1.0	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

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QUALITY CONTROL DATA

May 23, 1994
PACE Project Number: 440512511

Client Reference: BP Site #11107/10-60-3-2

HALOGENATED VOLATILE ORGANICS 8010/8020
Batch: 70 30591
Samples: 70 0320550

METHOD BLANK:

Parameter	Units	MDL	Method Blank
Bromobenzene	ug/L	0.5	ND
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)	%		101
1,4-Dichlorobutane (Surrogate Recovery)	%		116
VOLATILE AROMATICS BY EPA 8020			-
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	%		94

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	MDL	700320356	Spike	Spike Recv	Spike Dupl Recv	RPD
1,1-Dichloroethane	ug/L	0.5	ND	20 -	115%	91%	23%
Trichloroethene (TCE)	ug/L	0.5	ND	20	99%	98%	1%
1,1,2-Trichloroethane	ug/L	0.5	ND	20	106%	102%	4%
Tetrachloroethene	ug/L	0.5	ND	20	107%	106%	1%
Benzene	ug/L	0.3	1.6	20	103%	102%	1%
Toluene	ug/L	0.3	0.8	20	98%	98%	0%
Xylenes, Total	ug/L	0.5	1.9	60	106%	104%	2%

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QUALITY CONTROL DATA

May 23, 1994
PACE Project Number: 440512511

Client Reference: BP Site #11107/10-60-3-2

HALOGENATED VOLATILE ORGANICS 8010/8020
Batch: 70 30591
Samples: 70 0320550

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
1,1-Dichloroethane	ug/L	0.5	20	91%	77%	17%
Trichloroethene (TCE)	ug/L	0.5	20	97%	96%	1%
1,1,2-Trichloroethane	ug/L	0.5	20	103%	102%	1%
Tetrachloroethene	ug/L	0.5	20	103%	102%	1%
Benzene	ug/L	0.3	20	96%	98%	2%
Toluene	ug/L	0.3	20	95%	98%	3%
Xylenes, Total	ug/L	0.5	60	98%	100%	2%

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QUALITY CONTROL DATA

May 23, 1994
PACE Project Number: 440512511

Client Reference: BP Site #11107/10-60-3-2

OIL AND GREASE, SILICA GEL (LUFT)
Batch: 70 30531
Samples: 70 0320550

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	100%	100%	0%

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QUALITY CONTROL DATA

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PACE Project Number: 440512511

Client Reference: BP Site #11107/10-60-3-2

PURGEABLE FUELS AND AROMATICS
Batch: 70 30479
Samples: 70 0320550, 70 0320585, 70 0320593, 70 0320631

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	700320550 MW-1	Spike	Spike Recv	Spike Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M	ug/L	50	ND	1000	98%	112%	13%

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%	107%	1%

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QUALITY CONTROL DATA

May 23, 1994
PACE Project Number: 440512511

Client Reference: BP Site #11107/10-60-3-2

PURGEABLE FUELS AND AROMATICS
Batch: 70 30488
Samples: 70 0320607, 70 0320615

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	700320623	Spike	Spike Recv	Spike Dupl Recv	RPD
Benzene	ug/L	0.5	ND	100	106%	101%	5%
Toluene	ug/L	0.5	ND	100	105%	100%	5%
Ethylbenzene	ug/L	0.5	ND	100	103%	97%	6%
Xylenes, Total	ug/L	0.5	ND	300	105%	99%	6%

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Benzene	ug/L	0.5	100	104%	104%	0%
Toluene	ug/L	0.5	100	102%	103%	1%
Ethylbenzene	ug/L	0.5	100	104%	103%	1%
Xylenes, Total	ug/L	0.5	300	105%	104%	1%

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FOOTNOTES
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May 23, 1994
PACE Project Number: 440512511

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MDL	Method Detection Limit
NC	No calculation due to value below detection limit.
ND	Not detected at or above the MDL.
RPD	Relative Percent Difference

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440512.511

CHAIN OF CUSTODY

No. 063092 Page 1 of 1

CONSULTANT'S NAME: Alisto Engineering	ADDRESS: 1777 Oakland Blvd, Ste 200	CITY: Walnut Creek	STATE: CA ZIP CODE: 94596
BP SITE NUMBER: 11107	BP CORNER ADDRESS/CITY: 1801 Hesperian, San Lorenzo		CONSULTANT PROJECT NUMBER: 10-060-3-2
CONSULTANT PROJECT MANAGER: Bill Howell	PHONE NUMBER: 510 295 1650	FAX NUMBER: 510 295 1823	CONSULTANT CONTRACT NUMBER:
BP CONTACT: Scott Hooton	BP ADDRESS: Renton WA	PHONE NUMBER:	FAX NO.:
LAB CONTACT: PACE	LABORATORY ADDRESS: Novato CA ~~415 883 6100~~	PHONE NUMBER: 415 883-6100	FAX NO.: 415 883 2673
SAMPLED BY (Please Print Name): David Lusch	SAMPLED BY (Signature): David Lusch	SHIPMENT DATE:	SHIPMENT METHOD: Courier

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

ANALYSIS REQUIRED

AIRBILL NUMBER:

SAMPLE DESCRIPTION	COLLECTION DATE / COLLECTION TIME	MATRIX SOIL/WATER	CONTAINERS NO.	CONTAINERS TYPE (VOL.)	PRESERVATIVE LAB SAMPLE #	HCL TPH GAS Purge	HCL 8010	TPH Diesel	TOG	COMMENTS
MW-1	5/12/94	water	8	3 40V	32055.0	X	X	X	X	
MW-2			3		32058.5	X				
MW-3			3		32059.3	X				
MW-4			3		32060.7	X				
QC-1			3		32061.5	X				
QC-2			2		32063.1	X				

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
David Lusch	5/12/94	1530	Donald Johanski Pace	5/12/94	1530
Donald Johanski Pace	5/12/94	1650	Jan McIntosh PACE	5/12/94	1650

ADDITIONAL COMMENTS

CLV-16722

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

10/Bott N/4