BP OIL

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

December 15, 1992

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

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

Dear Mr. Hiett:

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

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

Respectfully,

Scott T. Hooton
Environmental Resources Management

STH:jc ERM11133

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

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

Mr. Al Sevilla, Alisto, 1000 Burnett Ave., Concord, CA 94520 Suite 420

Mr. David Baker, Mobil Oil Corp, 3225 Gallows Road, Fairfax, VA 22037

Site file

QUARTERLY GROUNDWATER MONITORING AND SAMPLING REPORT

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

Project No. 10-025

Prepared for:

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

Prepared by:

Alisto Engineering Group
1000 Burnett Avenue, Suite 420
Concord, California

November 18, 1992

Brady Nagle
Project Manager

Al Sevilla, P.E.
Principal

QUARTERLY GROUNDWATER MONITORING AND SAMPLING REPORT

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

Project No. 10-025

November 18, 1992

INTRODUCTION

This report presents the results and findings of the October 7, 1992 quarterly groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Company Service Station No. 11133, 2220 98th Avenue, Oakland, California. A site vicinity map is shown in Figure 1.

FIELD PROCEDURES

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

Before purging and sampling, the ground water 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 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 carefully transferred from the bailer into the appropriate clean glass containers. The water sampling field survey forms are presented in Appendix A.

SAMPLING AND ANALYTICAL RESULTS

Results of the 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 depicted in Figure 2.

Isoconcentration maps of total petroleum hydrocarbons as gasoline (TPH-G) and benzene are shown in Figures 3 and 4. The laboratory report and chain of custody record are presented in Appendix B.

SUMMARY OF FINDINGS

The findings of the November 7, 1992 ground water monitoring and sampling event are summarized below:

- Free product of up to 1.26 feet thick was detected in Monitoring Wells MW-1 and RW-1.
- Groundwater elevation data indicate a varying gradient and flow direction at the site ranging from 0.022 to 0.13 foot per foot.
- Dissolved-phase TPH-G and benzene, toluene, ethylbenzene, and total xylenes (BTEX) constituents were detected in MW-2, AW-1, AW-3, AW-4, and AW-5 at concentrations of up to 120,000 and 41,000 parts per billion TPH-G and benzene.
- TPH-G and BTEX constituents were not detected above reported detection limits in samples collected from MW-3, AW-2, and AW-6 through AW-8.

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

ALISTO PROJECT NO. 10-025

WELL ID	DATE OF SAMPLING/	CASING ELEVATION (a)	DEPTH TO WATER	PRODUCT THICKNESS	GROUNDWATER ELEVATION (b)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	LAB
MW-1	04/05/91	34.46	----	----	----	----	----	----	----	----	---
MW-1	04/01/92	34.46	11.25	0.01	23.22	FP	FP	FP	FP	FP	---
MW-1	07/06/92	34.46	13.61	0.02	20.87	FP	FP	FP	FP	FP	---
MW-1	10/07/92	34.46	15.15	0.09	19.38	FP	FP	FP	FP	FP	---
MW-2	04/05/91	35.50	16.62	0.00	18.88	ND<50	0.6	0.9	ND<0.3	ND<0.3	SUP
MW-2 (c)	04/01/92	35.50	11.25	0.00	24.25	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	APP
MW-2	07/06/92	35.50	12.72	0.00	22.78	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
MW-2	10/07/92	35.50	15.08	0.00	20.42	ND<50	ND<0.5	1.8	ND<0.5	2.3	ANA
MW-3	04/05/91	36.53	17.84	0.00	18.69	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3	SUP
MW-3 (c)	04/01/92	36.53	15.64	0.00	20.89	ND<50	1.4	ND<0.5	ND<0.5	ND<0.5	APP
MW-3	07/06/92	36.53	19.03	0.00	17.50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
MW-3	10/07/92	36.53	21.83	0.00	14.70	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
AW-1	04/05/91	38.11	25.44	0.00	12.67	4100	1500	69	100	83	SUP
AW-1 (c)	04/01/92	38.11	23.22	0.00	14.89	11000	1800	210	210	490	APP
AW-1	07/06/92	38.11	24.89	0.00	13.22	6500	4000	40	290	530	ANA
AW-1	10/07/92	38.11	26.55	0.00	11.56	4700	1500	41	47	300	ANA
QC-1 (d)	10/07/92	38.11	26.55	0.00	11.56	2900	1200	25	37	210	ANA
AW-2	04/05/91	36.83	22.36	0.00	14.47	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3	SUP
AW-2 (c)	04/01/92	36.83	20.81	0.00	16.02	130	25	2.3	0.7	2.1	APP
AW-2	07/06/92	36.83	23.57	0.00	13.26	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
AW-2	10/07/92	36.83	25.24	0.00	11.59	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
AW-3	04/05/91	39.13	23.90	0.00	15.23	5200	980	450	95	310	SUP
AW-3	04/01/92	39.13	22.50	0.00	16.63	4700	890	47	43	110	APP
AW-3	07/06/92	39.13	23.26	0.00	15.87	3900	3100	30	80	99	ANA
AW-3	10/07/92	39.13	24.75	0.00	14.38	5000	2600	ND<0.5	ND<0.5	59	ANA
AW-4	04/05/91	39.08	25.12	0.00	13.96	110000	40000	13000	2000	5500	SUP
AW-4	04/01/92	39.08	23.56	0.00	15.52	230000	57000	31000	2900	7600	APP
AW-4 (e)	04/01/92	39.08	23.56	0.00	15.52	210000	55000	23000	2900	7000	APP
AW-4	07/06/92	39.08	25.87	0.00	13.21	38000	16000	5400	2000	6100	ANA
AW-4	10/07/92	39.08	27.53	0.00	11.55	120000	41000	26000	4700	13000	ANA
AW-5	04/05/91	38.51	25.48	0.00	13.03	420	31	7.5	20	68	SUP
AW-5 (c)	04/01/92	38.51	23.95	0.00	14.56	4000	270	63	190	290	APP
AW-5	07/06/92	38.51	26.48	0.00	12.03	1400	160	ND<2.5	250	58	ANA
AW-5	10/07/92	38.51	28.18	0.00	10.33	360	12	0.6	8.7	5	ANA

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

ALISTO PROJECT NO. 10-025

WELL ID	DATE OF SAMPLING/	CASING ELEVATION (a)	DEPTH TO WATER	PRODUCT THICKNESS	GROUNDWATER ELEVATION (b)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	LAB
AW-6	04/05/91	37.08	22.48	0.00	14.60	1100	80	19	1.4	230	SUP
AW-6 (c)	04/01/92	37.08	22.50	0.00	14.58	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	APP
AW-6	07/06/92	37.08	22.74	0.00	14.34	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
AW-6	10/07/92	37.08	24.64	0.00	12.44	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
AW-7	04/05/91	37.60	23.38	0.00	14.22	ND<50	0.4	0.7	ND<0.3	ND<0.3	SUP
AW-7 (c)	04/01/92	37.60	21.92	0.00	15.68	ND<50	ND<0.5	3.2	1.0	5.4	APP
AW-7	07/06/92	37.60	24.50	0.00	13.10	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
AW-7	10/07/92	37.60	26.18	0.00	11.42	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
AW-8	04/05/91	40.86	26.68	0.00	14.18	80	1.9	2.2	0.5	1.3	SUP
AW-8	04/01/92	40.86	25.11	0.00	15.75	73	ND<0.5	0.7	ND<0.5	0.6	APP
AW-8	07/06/92	40.86	26.43	0.00	14.43	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
AW-8	10/07/92	40.86	28.59	0.00	12.27	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
RW-1	04/05/91	37.73	----	0.00	----	----	----	----	----	----	SUP
RW-1	04/01/92	37.73	22.81	0.30	15.14	FP	FP	FP	FP	FP	---
RW-1	07/06/92	37.73	26.92	0.41	11.12	FP	FP	FP	FP	FP	---
RW-1	10/07/92	37.73	28.51	1.26	10.16	FP	FP	FP	FP	FP	---
QC-2 (f)	10/07/92	----	----	----	----	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA

ABBREVIATIONS:

TPH-G	Total petroleum hydrocarbons as gasoline
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total xylenes
(ppb)	Parts per billion
FP	Not sampled due to the presence of free product
----	Not analyzed/not available
ND	Not detected above reported detection limits
SUP	Superior Analytical Laboratories, Inc.
APP	Applied Analytical
ANA	Anametrix, Inc.

NOTES:

(a) Top of casing elevations were surveyed to the nearest 0.01 foot above mean sea level.

(b) Groundwater elevations were adjusted assuming a specific gravity of 0.75 for the free product.

(c) Groundwater was monitored on April 1, 1992 and sampled on April 2, 1992.

(d) Blind duplicate of AW-1.

(e) Blind duplicate of AW-4.

(f) Travel blank.

N

SOURCE:
USGS MAP, OAKLAND EAST AND SAN LEANDRO
QUADRANGLE, CALIFORNIA, 7.5 MINUTE SERIES, 1959.
PHOTOREVERSED 1980.

0 1000' 2000'

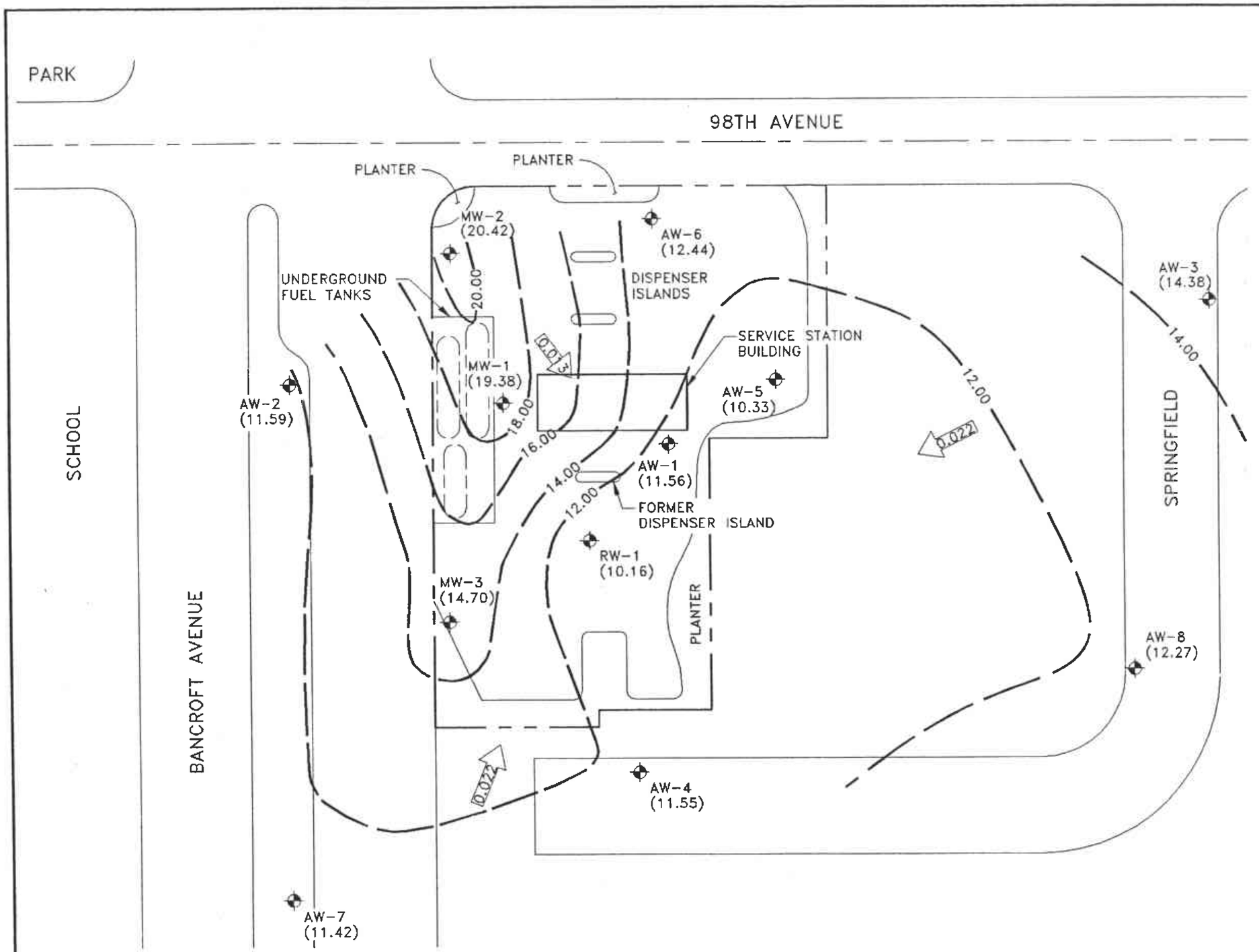
FIGURE 1

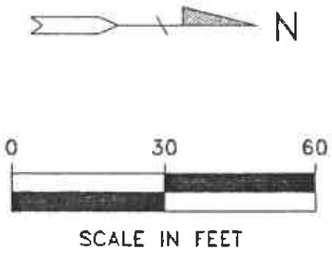
SITE VICINITY MAP

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

ALISTO PROJECT NO. 10-025

ALISTO ENGINEERING GROUP
CONCORD, CALIFORNIA





LEGEND:

- ⊕ GROUNDWATER MONITORING WELL
- (12.44) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 12.00 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL – 2.00 FOOT)
- 0.022 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE

FIGURE 2

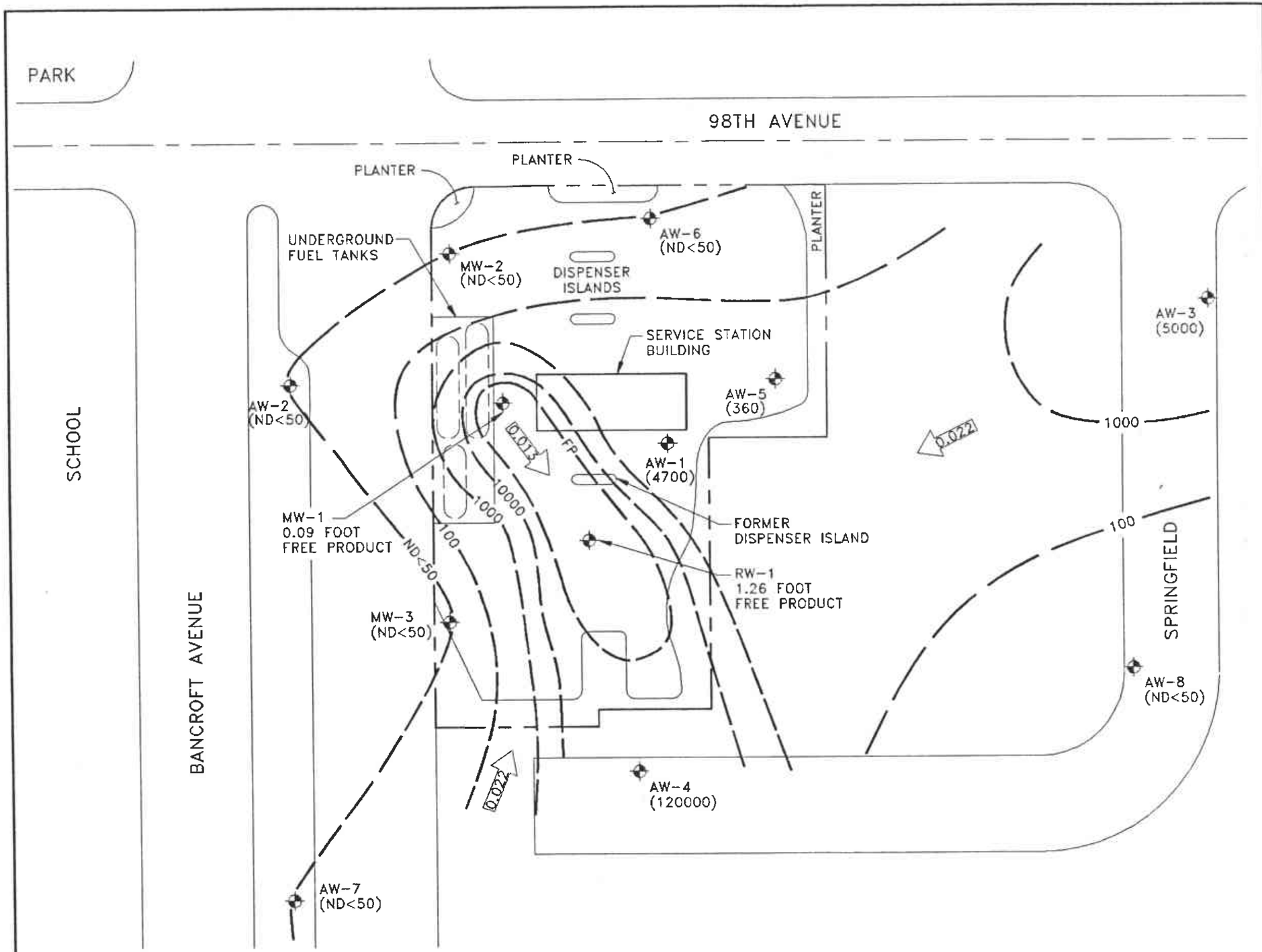
POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP (OCTOBER 7, 1992)

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

PROJECT NO. 10-025

ALISTO ENGINEERING GROUP
CONCORD, CALIFORNIA

10025028.DWG 11-4-92 JWB 1=360



N

0 30 60

SCALE IN FEET

LEGEND:

- GROUNDWATER MONITORING WELLS
- (360) TOTAL PETROLEUM HYDROCARBONS AS GASOLINE CONCENTRATION IN PARTS PER BILLION
- 1000 TOTAL PETROLEUM HYDROCARBONS AS GASOLINE ISOCONCENTRATION CONTOUR IN PARTS PER BILLION
- 0.022 CALCULATED GROUNDWATER GRADIENT DRECTION AND MAGNITUDE IN FOOT PER FOOT
- FP FREE PRODUCT

FIGURE 3

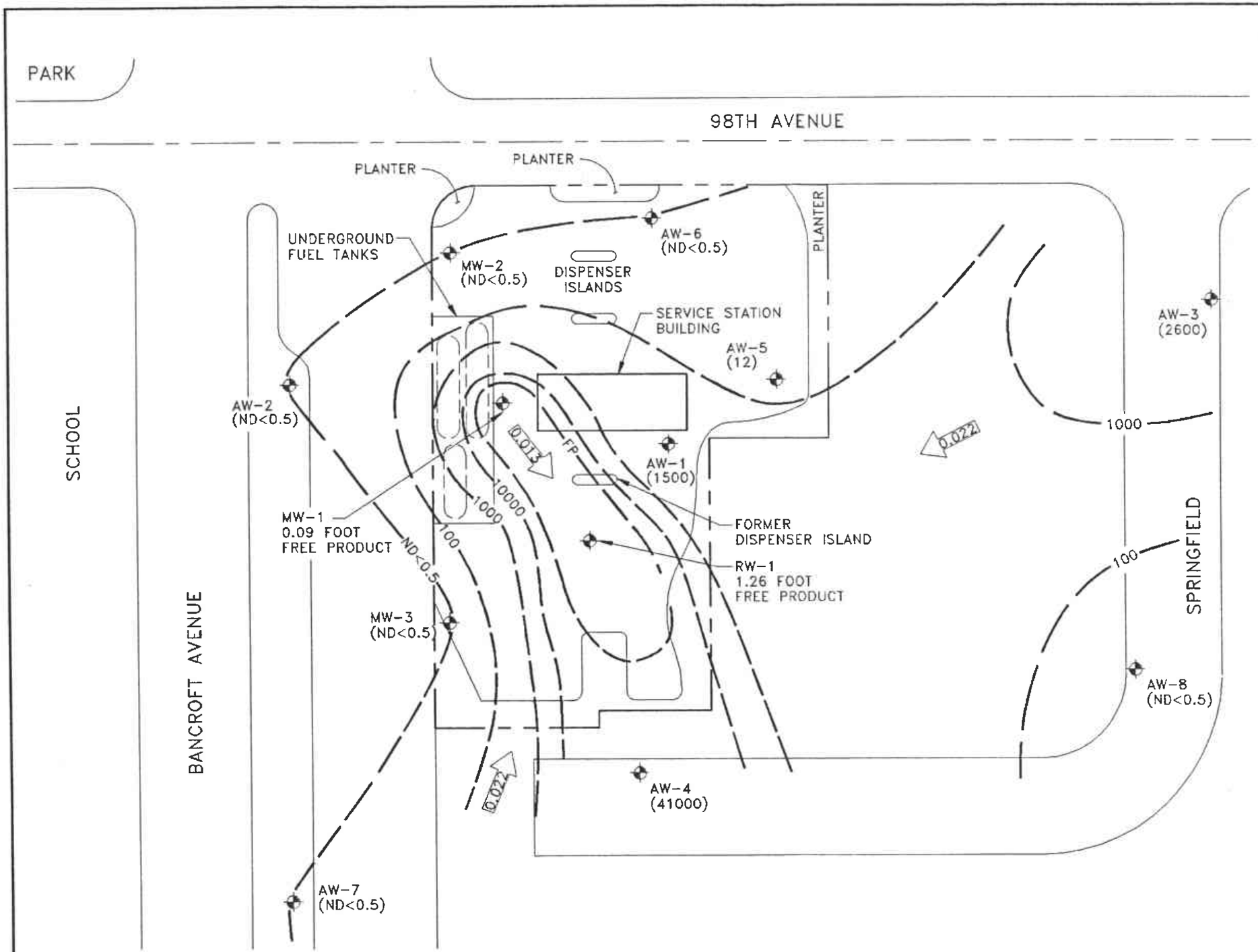
TOTAL PETROLEUM HYDROCARBONS AS GASOLINE ISOCONCENTRATION MAP (OCTOBER 7, 1992)

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

PROJECT NO. 10-025

ALISTO ENGINEERING GROUP
CONCORD, CALIFORNIA

10025D2C.DWG 11-5-92 JWB 1:360



N

0 30 60

SCALE IN FEET

LEGEND:

- GROUNDWATER MONITORING WELLS
- (1500) BENZENE CONCENTRATION IN PARTS PER BILLION
- 1000 BENZENE ISOCONCENTRATION IN PARTS PER BILLION
- 0.022 CALCULATED GROUNDWATER GRADIENT DRECTION AND MAGNITUDE IN FOOT PER FOOT
- FP FREE PRODUCT

FIGURE 4

BENZENE ISOCONCENTRATION CONTOUR MAP (OCTOBER 7, 1992)

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

PROJECT NO. 10-025

ALISTO ENGINEERING GROUP
CONCORD, CALIFORNIA

10025D2E.DWG 11-5-92 JWB 1=30

APPENDIX A

WATER SAMPLING FIELD SURVEY FORMS

Birch Technical Services

Field Report / Data Sheet

☒ Groundwater Sampling ○ Groundwater Monitoring ○ Well Development ○ Drill Support ○ Stockpile Sampling

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

Firm: Alisto
Project Number: 10-025
Date: 01/19/92
Field Technician: Dan Birch
Station #: BP111 33
Address: 2220 98th ave Oakland
Day: M Tu (W) Th F
Weather: 16°
Milage: 89 mi

Equipment List:

☒ Water Guage (½) day
☒ Parameter Kit (1) day
☒ Disposable Bailers (14)
○ Plug(s)(__)(__in)
○ Honda Pump (__) day
○ Poly Tubing (__ ft)
☒ Dolphin Lock(s) (2)
☒ Nitrile Gloves (1 pair)
○ _____ (__)
○ _____ (__)

Travel Time: 1.5 hrs
Time at Site: 7.5 hrs
Total Time: 9 hrs

DTWorder	Well ID	Diam	Lock	Exp Cap	Total Depth (feet)	1st Depth to Water (feet)	2nd Depth to Water (feet)	Depth to Product (feet)	Product Thickness	Comments
	AW-1	2	ok	ok	38.6	26.55	26.55	—	—	
	AW-2	2	ok	ok	35.2	25.24	25.24	—	—	
	AW-3	2	ok	ok	35.8	24.75	24.75	—	—	
	AW-4	2	ok	ok	32.9	27.53	27.53	—	—	
	AW-5	4	ok	ok	42.9	28.18	28.18	—	—	
	AW-6	4	ok	ok	34.2	24.64	24.64	—	—	
	AW-7	2	ok	ok	32.3	26.18	26.18	—	—	
	AW-8	2	ok	ok	39.2	28.59	28.59	—	—	
	MW-1	2	ok	ok	NM	15.15	15.15	15.06	0.09	NOT SAMPLED.
	MW-2	2	ok	ok	31.4	15.08	15.08	—	—	
	MW-3	2	ok	ok	34.1	21.83	21.83	—	—	
	RW-1	6	no	ok	NM	28.51	28.51	27.25	1.26	NOT SAMPLED.

Notes: Arrive at 1200, Calibrate Hydak then open wells. Measure DTW in order listed. Prepare paperwork then start sampling as shown on "Groundwater Sampling forms". Leave site at 7:30. Travel until 8:30.

Page ___ of ___ Inv#: _____

Birch Technical Services
116 Liberty Street
Santa Cruz, Ca 95060
(408) 459-0718

GROUND-WATER SAMPLING FORM

Well Number: MW-1

Project Number: 10-025
Station Number: 11133
Date: 10/7/92

Well Type: XMonitor OExtraction O_____

Sampled by: DAN BIRCH

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) / Volume Factors:

X2"	O3"	O4"	O4.5"	O6"	O____
0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) _____ Initial Water Level: 15.15

Total Volume Purged: _____ Time Elapsed: _____

PURGE METHOD:
O Honda Pump
ODisposable PolyTubing(____ft)
ODisposable PVC Bailer(s)(____)
OOther_____

Calculated Purge Volume:

_____ - 15.15 = _____ x _____ = _____ x _____ = _____(gallons)
Total Depth | Water Level | Well Vol. Fac. | #of vol. to Purge | Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN: XYes ONo
Depth of Product: _____(ft)
Emulsion: OYes ONo

COMMENTS: 0.09' of black product measured on the groundwater. Well MW-1 was not sampled.

PARAMETER EQUIPMENT CALIBRATION

pH Meter #:_____ Time:_____
Solution pH 4.00 _____at _____
Solution pH 10.00_____at _____
Solution pH 7.00 _____ at _____
Water Level Meter#:_____

SAMPLING METHOD

OPVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr) _____

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
	TPH-G/BTEX		VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

Birch Technical Services

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

GROUND-WATER SAMPLING FORM

Well Number: MW-2

Project Number: 10-025
Station Number: BP11133
Date: 10/7/92

Well Type: XMonitor OExtraction O_____

Sampled by: DAN BIRCH

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) / Volume Factors:

X 2"	O3"	O4"	O4.5"	O6"	O____
0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) 31.4

Initial Water Level: 12.72

Total Volume Purged: 9

Time Elapsed: 10

PURGE METHOD:
O Honda Pump
ODisposable PolyTubing(____ft)
XDisposable PVC Bailer(s)(1)
OOther_____

Calculated Purge Volume:

31.4 (Total Depth) - 12.72 (Water Level) = 18.7 x .16 (Well Vol. Fac.) = 2.99 x 3 (#of vol. to Purge) = 8.9 (gallons) Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN OYes XNo | Depth of Product _____(ft) | Emulsion OYes XNo

COMMENTS:

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 70.1
Solution pH 4.00 4 at 70.1
Solution pH 10.00 10 at 70.1
Solution pH 7.00 7 at 70.1
Water Level Meter#: 10337

SAMPLING METHOD

XPVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr): 1500

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)
2	1450	75.8	6.91	0.21
6	1455	74.1	6.99	0.22
9	1500	74.0	6.98	0.21

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
X	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

Birch Technical Services

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

GROUND-WATER SAMPLING FORM

Well Number: MW-3

Project Number: 10-025
Station Number: 11133
Date: 10/21/92

Well Type: XMonitor OExtraction O_____

Sampled by: DAN BIRCH

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) / Volume Factors:

X2"	O3"	O4"	O4.5"	O6"	O____
0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) 34.1
Initial Water Level: 21.83
Total Volume Purged: 6
Time Elapsed: 12

PURGE METHOD:
O Honda Pump
ODisposable PolyTubing(____ft)
XDisposable PVC Bailer(s)(1)
OOther_____

Calculated Purge Volume:

34.1 (Total Depth) - 21.83 (Water Level) = 12.3 x .16 (Well Vol. Fac.) = 1.9 x 3 (#of vol. to Purge) = 6 (gallons) Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN OYes XNo
Depth of Product _____(ft)
Emulsion OYes XNo

COMMENTS:

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1701
Solution pH 4.00 4 at 70.1
Solution pH 10.00 10 at 70.1
Solution pH 7.00 7 at 70.1
Water Level Meter#: 10337

SAMPLING METHOD

XPVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr): 1545

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)
2	1530	76.1	7.03	0.25
4	1535	74.7	7.00	0.26
6	1541	74.6	7.01	0.29

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
X	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

Birch Technical Services

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

GROUND-WATER SAMPLING FORM

Well Number: AW-1

Project Number: 10-025
Station Number: 11133
Date: 10/7/92

Well Type: ⊗Monitor OExtraction O_____

Sampled by: Dan Birch

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) / Volume Factors:

⊗2"	O3"	O4"	O4.5"	O6"	O_____
0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) 38.6
Initial Water Level: 26.55
Total Volume Purged: 6
Time Elapsed: 14

PURGE METHOD:
O Honda Pump
ODisposable PolyTubing(____ft)
⊗Disposable PVC Bailer(s)(1)
OOther_____

Calculated Purge Volume:

38.6 (Total Depth) - 26.55 (Water Level) = 12.05 x .16 (Well Vol. Fac.) = 1.9 x 3 (#of vol. to Purge) = 5.8 (gallons) Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN OYes ⊗No
Depth of Product _____(ft)
Emulsion OYes ⊗No

COMMENTS: QC-1 duplicate Sample collected from AW-1.

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1201
Solution pH 4.00 4 at 70.1
Solution pH 10.00 10 at 70.1
Solution pH 7.00 7 at 70.1
Water Level Meter#: 10337

SAMPLING METHOD

⊗PVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr): 1720

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)
2	1705	72.1	6.91	0.51
4	1712	71.9	6.90	0.55
6	1717	71.9	6.87	0.61

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
X	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

Birch Technical Services

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Santa Cruz, Ca 95060
(408) 459-0718

GROUND-WATER SAMPLING FORM

Well Number: AW-2

Project Number: 10-025
Station Number: 11133
Date: 10/21/92

Well Type: XMonitor OExtraction O_____

Sampled by: DAN BIECH

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) / Volume Factors:

X 2"	O3"	O4"	O4.5"	O6"	O____
0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) 35.2

Initial Water Level: 25.24

Total Volume Purged: 5

Time Elapsed: 12

PURGE METHOD:
O Honda Pump
ODisposable PolyTubing(____ft)
XDisposable PVC Bailer(s)(1)
OOther_____

Calculated Purge Volume:

35.2 (Total Depth) - 25.24 (Water Level) = 9.96 x .16 (Well Vol. Fac.) = 1.6 x 3 (#of vol. to Purge) = 4.8 (gallons) (Calculated Purge Volume)

Subjective Analysis Prior to Purging

SHEEN OYes XNo | Depth of Product _____(ft) | Emulsion OYes XNo

COMMENTS:

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1201
Solution pH 4.00 4 at 70.1
Solution pH 10.00 10 at 70.1
Solution pH 7.00 7 at 70.1
Water Level Meter#: 10337

SAMPLING METHOD

XPVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr): 1615

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)
1	1559	69.9	7.01	0.71
3	1606	70.7	7.04	0.73
5	1612	70.5	7.03	0.74

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
X	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

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GROUND-WATER SAMPLING FORM

Well Number: AW-3

Project Number: 10-025
Station Number: BP11133
Date: 10/7/92

Well Type: XMonitor OExtraction O_____

Sampled by: DAN BIRCH

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) / Volume Factors:

X2"	O3"	O4"	O4.5"	O6"	O_____
0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) 35.8 Initial Water Level: 24.75

Total Volume Purged: 6 Time Elapsed: 16

PURGE METHOD:
O Honda Pump
ODisposable PolyTubing(_____ft)
XDisposable PVC Bailer(s)(1)
OOther_____

Calculated Purge Volume:

35.8 - 24.75 = 11.05 x .16 = 1.8 x 3 = 5.4 (gallons)

Total Depth - Water Level = Well Vol. Fac. x #of vol. to Purge = Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN OYes XNo | Depth of Product _____(ft) | Emulsion OYes XNo

COMMENTS:

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1201
Solution pH 4.00 4 at 70.1
Solution pH 10.00 10 at 70.1
Solution pH 7.00 7 at 70.1
Water Level Meter#: 10337

SAMPLING METHOD

XPVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr): 1811

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)
1	1755	74.1	6.90	0.57
2	1759	73.9	6.92	0.59
4	1807	72.6	6.93	0.57
6	1811	72.6	6.97	0.57

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
X	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

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Project Number: 10-025
Station Number: BF11133
Date: 10/7/92

GROUND-WATER SAMPLING FORM

Well Number: AW-4

Well Type: XMonitor OExtraction O_____

Sampled by: DAN Birch

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) / Volume Factors:

X 2"	O3"	O4"	O4.5"	O6"	O____
0.1632	0.3672	0.6528	0.826	1.469	____

Total Depth of Well (BOW) 32.9

Initial Water Level: 27.53

Total Volume Purged: 3

Time Elapsed: 5

PURGE METHOD:
O Honda Pump
ODisposable PolyTubing(____ft)
XDisposable PVC Bailer(s)(1)
OOther_____

Calculated Purge Volume:

32.9 (Total Depth) - 27.53 (Water Level) = 5.37 x .16 (Well Vol. Fac.) = .85 x 3 (#of vol. to Purge) = 2.6 (gallons) Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN OYes XNo | Depth of Product _____(ft) | Emulsion OYes XNo

COMMENTS:

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1201
Solution pH 4.00 4 at 70.1
Solution pH 10.00 10 at 70.1
Solution pH 7.00 7 at 70.1
Water Level Meter#: 10337

SAMPLING METHOD

XPVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr) 1910

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)
1	1857	73.1	7.11	0.71
2	1905	72.5	7.09	0.73
3	1907	72.4	7.08	0.72

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
X	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

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GROUND-WATER SAMPLING FORM

Well Number: AW-5

Project Number: 10-025
Station Number: BP11133
Date: 10/7/92

Well Type: XMonitor OExtraction O_____

Sampled by: Dan Birch

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) / Volume Factors:

O 2"	O3"	X4"	O4.5"	O6"	O____
0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) 42.9
Initial Water Level: 28.18
Total Volume Purged: 30
Time Elapsed: 22

PURGE METHOD:
O Honda Pump
ODisposable PolyTubing(____ft)
XDisposable PVC Bailer(s)(3)
OOther_____

Calculated Purge Volume:

42.9 (Total Depth) - 28.18 (Water Level) = 14.7 x .65 (Well Vol. Fac.) = 9.6 x 3 (#of vol. to Purge) = 28 (gallons) Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN OYes XNo
Depth of Product _____(ft)
Emulsion OYes XNo

COMMENTS:

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1201
Solution pH 4.00 4 at 70.1
Solution pH 10.00 10 at 70.1
Solution pH 7.00 7 at 70.1
Water Level Meter#: 10337

SAMPLING METHOD

XPVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr) 1415

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)
5	1350	73.9	7.11	0.52
10	1357	71.6	6.99	0.50
20	1405	71.4	6.98	0.46
30	1412	71.3	6.98	0.47

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
X	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

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GROUND-WATER SAMPLING FORM

Well Number: AW-6

Project Number: 10-025
Station Number: BP11133
Date: 10/2/92

Well Type: XMonitor OExtraction O_____

Sampled by: DAN BIRCH

WELL PURGING

PURGE VOLUME

Casing Diameter (inches)	O 2"	O3"	X4"	O4.5"	O6"	O____
Volume Factors:	0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) 34.2 Initial Water Level: 24.64

Total Volume Purged: 20 Time Elapsed: 20

PURGE METHOD:
O Honda Pump
ODisposable PolyTubing(____ft)
XDisposable PVC Bailer(s)(3)
OOther_____

Calculated Purge Volume:

34.2 (Total Depth) - 24.64 (Water Level) = 9.56 x .65 (Well Vol. Fac.) = 6.2 x 3 (#of vol. to Purge) = 18.6 (gallons) Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN OYes XNo Depth of Product _____(ft) Emulsion OYes XNo

COMMENTS:

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1201
Solution pH 4.00 4 at 70.1
Solution pH 10.00 10 at 70.1
Solution pH 7.00 7 at 70.1
Water Level Meter#: 10337

SAMPLING METHOD

XPVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr) 1440

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)
5	1422	73.1	6.77	0.53
10	1430	72.7	6.70	0.45
15	1435	72.5	6.71	0.45
20	1440	72.3	6.72	0.46

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
X	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

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GROUND-WATER SAMPLING FORM

Well Number: AW-7

Project Number: 10-005
Station Number: 1133
Date: 10/21/97

Well Type: X Monitor O Extraction O_____

Sampled by: Dan Birch

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) / Volume Factors:

O 2"	O3"	O4"	O4.5"	O6"	O____
0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) 32.3

Initial Water Level: 26.18

Total Volume Purged: 3

Time Elapsed: 24

PURGE METHOD:
O Honda Pump
O Disposable PolyTubing(____ft)
X Disposable PVC Bailer(s)(____)
O Other_____

Calculated Purge Volume:

32.3 (Total Depth) - 26.18 (Water Level) = 6.12 x .16 (Well Vol. Fac.) = .98 x 3 (#of vol. to Purge) = ~3 (gallons) Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN OYes ONo | Depth of Product _____(ft) | Emulsion OYes ONo

COMMENTS: Off site well located in median

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1201
Solution pH 4.00 4 at 70.1
Solution pH 10.00 10 at 70.1
Solution pH 7.00 7 at 70.1
Water Level Meter#: 10337

SAMPLING METHOD

X PVC Disposable Bailer
O Teflon Bailer
O Other:_____

Time Sampled (24 hr): ~~1445~~ 1645

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)
1	1621	72.1	6.90	0.45
2	1633	72.2	6.91	0.49
3	1645	72.7	6.95	0.55

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
X	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

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GROUND-WATER SAMPLING FORM

Well Number: AW-B

Project Number: 10-025
Station Number: BP11133
Date: 10/2/92

Well Type: XMonitor OExtraction O_____

Sampled by: [illegible]

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) / Volume Factors:

X 2"	O3"	O4"	O4.5"	O6"	O____
0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) 39.2 Initial Water Level: 28.59

Total Volume Purged: 6 Time Elapsed: 20

PURGE METHOD:
O Honda Pump
ODisposable PolyTubing(____ft)
XDisposable PVC Bailer(s)(1)
OOther_____

Calculated Purge Volume:

39.2 - 28.59 = 10.61 x ~~1.7~~ 1.6 = 17 x 3 = 5.1 (gallons)

Total Depth | Water Level | Well Vol. Fac. | #of vol. to Purge | Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN OYes XNo | Depth of Product _____(ft) | Emulsion OYes XNo

COMMENTS: Street paving occuring near the three wells on this street.

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1201
Solution pH 4.00 4 at 70.1
Solution pH 10.00 10 at 70.1
Solution pH 7.00 7 at 70.1
Water Level Meter#: 10337

SAMPLING METHOD

XPVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr): 1840

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)
1	1820	75.1	6.91	0.24
2	1827	76.2	6.95	0.29
4	1835	75.5	6.99	0.31
6	1840	75.1	6.98	0.33

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
X	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

Birch Technical Services

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GROUND-WATER SAMPLING FORM

Well Number: RW-1

Project Number:_____
Station Number:_____
Date:____/____/____

Well Type: OMonitor ⊗Extraction O_____

Sampled by: DAN BIRCH

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) O 2" O3" O4" O4.5" O6" O____
Volume Factors: 0.1632 0.3672 0.6528 0.826 1.469 _____

Total Depth of Well (BOW) _____ Initial Water Level:_____

Total Volume Purged:_____ Time Elapsed:_____

PURGE METHOD:
O Honda Pump
ODisposable PolyTubing(____ft)
ODisposable PVC Bailer(s)(____)
OOther_____

Calculated Purge Volume:

_____ - _____ = _____ x _____ = _____ x _____ = _____(gallons)
Total Depth | Water Level | Well Vol. Fac. | #of vol. to Purge | Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN OYes ONo | Depth of Product _____(ft) | Emulsion OYes ONo

COMMENTS: 1.26' of black product measured on groundwater. Well RW-1 was NOT sampled

PARAMETER EQUIPMENT CALIBRATION

pH Meter #:_____ Time:_____
Solution pH 4.00 _____at _____
Solution pH 10.00_____at _____
Solution pH 7.00 _____ at _____
Water Level Meter#:_____

SAMPLING METHOD

OPVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr) NOT

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)

Analysis Required	No. of	Container Type	Preservatives
EPA 601		VOA's	
TPH-G/BTEX		VOA's	HCl
TPH- Diesel		Amber Liter	
TOG 5520 BF		Amber Liter	H_2NO_3

Birch Technical Services

116 Liberty Street
Santa Cruz, Ca 95060
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GROUND-WATER SAMPLING FORM

Project Number: 10-025
Station Number: BP1133
Date: 10/7/92

~~Well~~ SAMPLE Number: QC-1
~~Well~~ Type: OMonitor OExtraction X DUPLICATE
Sampled by: DAN BIRCH

WELL PURGING

PURGE VOLUME

Casing Diameter (inches)	O 2"	O3"	O4"	O4.5"	O6"	O____
Volume Factors:	0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) _____ Initial Water Level:_____

Total Volume Purged:_____ Time Elapsed:_____

PURGE METHOD:
O Honda Pump
ODisposable PolyTubing(____ft)
XDisposable PVC Bailer(s)(1)
OOther_____

Calculated Purge Volume:

_____ - _____ = _____ x _____ = _____ x _____ = _____(gallons)
Total Depth | Water Level | Well Vol. Fac. | #of vol. to Purge | Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN OYes ONo | Depth of Product _____(ft) | Emulsion OYes ONo

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1201
Solution pH 4.00 4 at 20.1
Solution pH 10.00 10 at 20.1
Solution pH 7.00 7 at 20.1
Water Level Meter#: 10337

COMMENTS: Duplicate of well #AW-1. Subjective, parameter and sampling data from AW-1 applies to this sample.

SAMPLING METHOD

OPVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr) 1725

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
X	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

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

Project Number: 10-025
Station Number: BP11133
Date: 10/7/92

GROUND-WATER SAMPLING FORM

Well Number: QC-2

~~SAMPLE~~
Well Type: OMonitor OExtraction X TRIP BLANK

Sampled by: DAN BIRCL

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) O 2" O3" O4" O4.5" O6" O____
Volume Factors: 0.1632 0.3672 0.6528 0.826 1.469 ____

Total Depth of Well (BOW) _____ Initial Water Level:_____

Total Volume Purged:_____ Time Elapsed:_____

PURGE METHOD:
O Honda Pump
ODisposable PolyTubing(____ft)
ODisposable PVC Bailer(s)(____)
OOther_____

Calculated Purge Volume:

_____ - _____ = _____ x _____ = _____ x _____ = _____(gallons)
Total Depth | Water Level | Well Vol. Fac. | #of vol. to Purge | Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN OYes ONo | Depth of Product _____(ft) | Emulsion OYes ONo

COMMENTS: TRIP BLANK Supplied by Anametrix. Relabelled QC-2; 1400.

PARAMETER EQUIPMENT CALIBRATION

pH Meter #:_____ Time:_____
Solution pH 4.00 _____at _____
Solution pH 10.00_____at _____
Solution pH 7.00 _____ at _____
Water Level Meter#:_____

SAMPLING METHOD

OPVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr) 1400

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
X	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD

ANAMETRIX INC
Environmental & Analytical Chemistry

Part of INCHCAPE ENVIRONMENTAL

REPORT

MR. BRADY NAGLE
ALISTO ENGINEERING GROUP
1000 BURNETT AVENUE, SUITE 150
CONCORD, CA 94520

Workorder # : 9210131
Date Received : 10/08/92
Project ID : 10-025
Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9210131- 1	AW-1
9210131- 2	AW-2
9210131- 3	AW-3
9210131- 4	AW-4
9210131- 5	AW-5
9210131- 6	AW-6
9210131- 7	AW-7
9210131- 8	AW-8
9210131- 9	MW-2
9210131-10	MW-3
9210131-11	QC-1
9210131-12	QC-2

This report consists of 8 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Sarah Schoen, Ph.D.
Laboratory Director

10-22-92
Date

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MR. BRADY NAGLE
ALISTO ENGINEERING GROUP
1000 BURNETT AVENUE, SUITE 150
CONCORD, CA 94520

Workorder # : 9210131
Date Received : 10/08/92
Project ID : 10-025
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9210131- 1	AW-1	WATER	10/07/92	TPHg/BTEX
9210131- 2	AW-2	WATER	10/07/92	TPHg/BTEX
9210131- 3	AW-3	WATER	10/07/92	TPHg/BTEX
9210131- 4	AW-4	WATER	10/07/92	TPHg/BTEX
9210131- 5	AW-5	WATER	10/07/92	TPHg/BTEX
9210131- 6	AW-6	WATER	10/07/92	TPHg/BTEX
9210131- 7	AW-7	WATER	10/07/92	TPHg/BTEX
9210131- 8	AW-8	WATER	10/07/92	TPHg/BTEX
9210131- 9	MW-2	WATER	10/07/92	TPHg/BTEX
9210131-10	MW-3	WATER	10/07/92	TPHg/BTEX
9210131-11	QC-1	WATER	10/07/92	TPHg/BTEX
9210131-12	QC-2	WATER	10/07/92	TPHg/BTEX

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MR. BRADY NAGLE
ALISTO ENGINEERING GROUP
1000 BURNETT AVENUE, SUITE 150
CONCORD, CA 94520

Workorder # : 9210131
Date Received : 10/08/92
Project ID : 10-025
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for these samples.

Cheryl Bacsmer 10/22/92
Department Supervisor Date

Peggie Davison 10/22/92
Chemist Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9210131
Matrix : WATER
Date Sampled : 10/07/92

Project Number : 10-025
Date Released : 10/22/92

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# AW-1 -01	Sample I.D.# AW-2 -02	Sample I.D.# AW-3 -03	Sample I.D.# AW-4 -04	Sample I.D.# AW-5 -05
Benzene	0.5	1500	ND	2600	41000	12
Toluene	0.5	41	ND	ND	26000	0.6
Ethylbenzene	0.5	47	ND	ND	4700	8.7
Total Xylenes	0.5	300	ND	59	13000	5.0
TPH as Gasoline	50	4700	ND	5000	120000	360
% Surrogate Recovery		91%	91%	87%	95%	126%
Instrument I.D.		HP12	HP12	HP12	HP12	HP12
Date Analyzed		10/16/92	10/13/92	10/16/92	10/14/92	10/13/92
RLMF		50	1	50	1000	1

ND - Not detected at or above the practical quantitation limit for the method.

TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.

BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.

RLMF - Reporting Limit Multiplication Factor.

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 53-147%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Reggie Pawson 10/22/92
Analyst Date

Cheryl Balmer 10/22/92
Supervisor Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9210131
Matrix : WATER
Date Sampled : 10/07/92

Project Number : 10-025
Date Released : 10/22/92

	Reporting Limit	Sample I.D.# AW-6	Sample I.D.# AW-7	Sample I.D.# AW-8	Sample I.D.# MW-2	Sample I.D.# MW-3
COMPOUNDS	(ug/L)	-06	-07	-08	-09	-10
Benzene	0.5	ND	ND	ND	ND	ND
Toluene	0.5	ND	ND	ND	1.8	ND
Ethylbenzene	0.5	ND	ND	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND	2.3	ND
TPH as Gasoline	50	ND	ND	ND	ND	ND
% Surrogate Recovery		91%	84%	81%	88%	65%
Instrument I.D.		HP12	HP12	HP12	HP12	HP12
Date Analyzed		10/13/92	10/13/92	10/13/92	10/13/92	10/13/92
RLMF		1	1	1	1	1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.
RLMF - Reporting Limit Multiplication Factor.

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All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Reggie Davison 10/22/92
Analyst Date

Cheryl Bateman 10/22/92
Supervisor Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9210131
Matrix : WATER
Date Sampled : 10/07/92

Project Number : 10-025
Date Released : 10/22/92

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# QC-1 -11	Sample I.D.# QC-2 -12	Sample I.D.# BO1301E3 BLANK	Sample I.D.# BO1401E3 BLANK	Sample I.D.# BO1601E3 BLANK
Benzene	0.5	1200	ND	ND	ND	ND
Toluene	0.5	25	ND	ND	ND	ND
Ethylbenzene	0.5	37	ND	ND	ND	ND
Total Xylenes	0.5	210	ND	ND	ND	ND
TPH as Gasoline	50	2900	ND	ND	ND	ND
% Surrogate Recovery		87%	93%	97%	88%	104%
Instrument I.D.		HP12	HP12	HP12	HP12	HP12
Date Analyzed		10/16/92	10/13/92	10/13/92	10/14/92	10/16/92
RLMF		25	1	1	1	1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.
RLMF - Reporting Limit Multiplication Factor.

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 53-147%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Reggie Davison 10/22/92
Analyst / Date

Cheryl Balmer 10/22/92
Supervisor / Date

TOTAL VOLATILE HYDROCARBON MATRIX SPIKE REPORT
EPA METHOD 5030 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 10-025 AW-2
Matrix : WATER
Date Sampled : 10/07/92
Date Analyzed : 10/13/92

Anametrix I.D. : 9210131-02
Analyst : RD
Supervisor : [illegible]
Date Released : 10/22/92
Instrument ID : HP12

COMPOUND	SPIKE AMT (ug/L)	SAMPLE AMT (ug/L)	REC MS (ug/L)	% REC MS	REC MD (ug/L)	% REC MD	RPD	% REC LIMITS
GASOLINE	250	0	290	116%	330	132%	13%	48-145
P-BFB				88%		101%		53-147

* Limits established by Anametrix, Inc.

TOTAL VOLATILE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 5030 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: LAB CONTROL SAMPLE	Anametrix I.D.	: LCSW1013
Matrix	: WATER	Analyst	: RD
Date Sampled	: N/A	Supervisor	:
Date Analyzed	: 10/13/92	Date Released	: 10/22/92
		Instrument I.D.	: HP12

COMPOUND	SPIKE AMT. (ug/L)	REC LCS (ug/L)	%REC LCS	% REC LIMITS
GASOLINE	250	220	88%	56-116
SURROGATE		94%		53-147

* Quality control established by Anametrix, Inc.

TOTAL VOLATILE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 5030 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE
Matrix : WATER
Date Sampled : N/A
Date Analyzed : 10/13/92

Anametrix I.D. : LCSW1013
Analyst : KD
Supervisor : [illegible]
Date Released : 10/22/92
Instrument I.D.: HP12

COMPOUND	SPIKE AMT. (ug/L)	REC LCS (ug/L)	%REC LCS	% REC LIMITS
GASOLINE	250	220	88%	56-116
SURROGATE		84%		53-147

* Quality control established by Anametrix, Inc.

Environmental & Analytical Chemistry
1961 Concourse Drive, Suite E, San Jose, CA 95131
(408) 432-8192 • Fax (408) 432-8198

9210131

CHAIN-OF-CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
10-025	BP 11133

Send Report Attention of:	Report Due	Verbal Due
BRADY NAGLE	Std	/ /

	Sample Number	Date	Time	Comp	Matrix	Station Location	Number of Cntnrs	Type of Containers	Type of Analysis: TPH/BTEX	Condition of Samples	Initial
1	AW-1	10/7/92	1720		W	98 th	3	VOA's	X		
2	AW-2		1615						X		
3	AW-3		1811						X		
4	AW-4		1910						X		
5	AW-5		1415						X		
6	AW-6		1440						X		
7	AW-7		1645						X		
8	AW-8		1840						X		
9	MW-2		1500						X		
10	MW-3		1545						X		
11	QC-1		1725						X		
12	QC-2	↓	1400		↓	↓	↓	↓	X		

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Date/Time	Received by Lab:	Date/Time
[signature]	10/8/92 1940	[signature]	10/8/92 9:40

Remarks:

COMPANY: ALISTO ENGINEERING
ADDRESS:
PHONE : 510 798 4070 FAX : 510 798 4099