BP OIL

BP Oil Marketing Co.
Aetna Bldg., Suite 360
2868 Prospect Park Drive
Rancho Cordova, CA 95670-6020
(916) 631-0733

92 OCT -5 PM 2:17

September 30, 1992

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

RE: BP OIL FACILITY #11266
1541 PARK STREET
ALAMEDA, CA

Dear Mr. So,

Attached please find the Quarterly Groundwater Monitoring and Sampling Report for above referenced facility. The sampling event occurred on July 2, 1992.

Please call me at (206) 394-5246 with any questions regarding this submission.

Respectfully,

Peter J. DeSantis

Peter J. DeSantis SML
Environmental Resources Management

PJD:sml

cc: Brady Nagle - Alisto Engineering
Brian Oliva - Alameda County Health Care Services Agency
Markus Niebanck - HETI
David Baker - Mobil Oil Co.
Site File

QUARTERLY GROUNDWATER MONITORING AND SAMPLING REPORT

Prepared for

BP Oil Company Service Station No. 11266
1541 Park Street
Alameda, California

Project No. 10-050

Prepared by

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

September 3, 1992

Brady Nagle
Project Manager

Al Sevilla, P.E.
Principal

QUARTERLY GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11266
1541 Park Street
Alameda, California

Project No. 10-050

September 3, 1992

INTRODUCTION

This report presents the results and findings of the July 2, 1992 quarterly groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Service Station No. 11266, located at 1541 Park Street, Alameda, 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 Regional Water Quality Control Board, San Francisco Bay Region, and the Alameda County Health Care Services Agency.

Prior to 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 ground water and the top of casing elevation data were used to calculate the ground water elevation within each well in reference to mean sea level. The survey data and ground water elevation measurements collected to date are presented in Table 1.

Prior to sample collection, each well was purged of three casing volumes, while recording field readings of pH, temperature, and electrical conductivity. Ground water samples for laboratory analysis were collected 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

The results of the monitoring and laboratory analyses 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 quarterly monitoring event are depicted in Figure 2. A map showing the lateral distribution of petroleum hydrocarbon constituents

detected in groundwater samples is presented as Figure 3. Laboratory reports and the chain of custody record are presented in Appendix B.

SUMMARY OF FINDINGS

The findings of the ground water monitoring and sampling events conducted during this quarter are summarized below:

- No product or sheen was detected in any of the monitoring wells on July 2 or July 22, 1992.
- Groundwater elevation data collected on July 2, 1992 indicate a gradient of approximately 0.009 ft./ft. in a general east-southeast direction across the site.
- Dissolved-phase total petroleum hydrocarbons as gasoline (TPH-G) and benzene, toluene, ethylbenzene, and total xylenes (BTEX) constituents were detected in the groundwater samples collected from Monitoring Wells MW-1 and MW-2, sampled on July 2, 1992, and RW-1, sampled on July 22, 1992, at concentrations up to 13,000 parts per billion (ppb) TPH-G and 1,000 ppb benzene.

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
BP OIL COMPANY SERVICE STATION NO. 11266
1541 PARK STREET, ALAMEDA, CALIFORNIA

ALISTO PROJECT NO. 10-050

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUND WATER ELEVATION (b) (Feet)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	LAB
MW-1	03/04/88	22.63	---	---	95000	2000	5900	1100	10000	---
MW-1	03/29/89	22.63	---	---	25000	930	2600	24	3100	---
MW-1	11/28/89	22.63	---	---	15000	280	880	340	1200	---
MW-1	02/13/91	22.63	---	---	25000	680	2700	1100	3200	---
MW-1	01/08/92	22.63	---	---	10000	260	1100	570	2000	---
MW-1	03/30/92	22.63	8.15	14.48	5800	290	570	500	1100	PACE
MW-1	07/02/92	22.63	9.38	13.25	2500	170	60	310	300	ANA
MW-1	07/22/92	22.63	9.62	13.01	---	---	---	---	---	---
MW-2	03/04/88	22.75	---	---	ND	ND	ND	ND	ND	---
MW-2	03/29/89	22.75	---	---	ND	1.1	0.78	ND	1.7	---
MW-2	11/28/89	22.75	---	---	170	ND	ND	ND	ND	---
MW-2	02/13/91	22.75	---	---	150	1.4	ND	ND	0.9	---
MW-2	01/08/92	22.75	---	---	ND	1.4	ND	ND	1.1	---
MW-2	03/30/92	22.75	9.03	13.72	91	0.7	ND	ND	ND	PACE
MW-2	07/02/92	22.75	9.96	12.79	150	3.1	0.6	0.6	1.1	ANA
MW-2	07/22/92	22.75	10.12	12.63	---	---	---	---	---	---
MW-3	03/04/88	23.45	---	---	ND	ND	ND	ND	ND	---
MW-3	03/29/89	23.45	---	---	ND	ND	ND	ND	ND	---
MW-3	11/28/89	23.45	---	---	ND	ND	ND	ND	ND	---
MW-3	02/13/91	23.45	---	---	ND	ND	ND	ND	ND	---
MW-3	01/08/92	23.45	---	---	ND	ND	ND	ND	ND	---
MW-3	03/30/92	23.45	9.71	13.74	ND	ND	ND	ND	ND	PACE
MW-3	07/02/92	23.45	10.52	12.93	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
MW-3	07/22/92	23.45	10.62	12.83	---	---	---	---	---	---

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
BP OIL COMPANY SERVICE STATION NO. 11266
1541 PARK STREET, ALAMEDA, CALIFORNIA

ALISTO PROJECT NO. 10-050

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUND WATER ELEVATION (b) (Feet)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	LAB
MW-4	03/04/88	23.63	---	---	ND	ND	ND	ND	ND	---
MW-4	03/29/89	23.63	---	---	ND	ND	ND	ND	ND	---
MW-4	11/28/89	23.63	---	---	430	6.2	0.6	12	3.3	---
MW-4	02/13/91	23.63	---	---	ND	ND	ND	ND	ND	---
MW-4	01/08/92	23.63	---	---	ND	ND	ND	ND	ND	---
MW-4	03/30/92	23.63	8.73	14.90	ND	ND	ND	ND	ND	PACE
MW-4	07/02/92	23.63	10.04	13.59	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
MW-4	07/22/92	23.63	10.26	13.37	---	---	---	---	---	---
MW-5	03/04/88	22.87	---	---	ND	ND	ND	ND	ND	---
MW-5	03/29/89	22.87	---	---	ND	ND	ND	ND	ND	---
MW-5	11/28/89	22.87	---	---	ND	ND	ND	ND	ND	---
MW-5	02/13/91	22.87	---	---	ND	ND	ND	ND	ND	---
MW-5	01/08/92	22.87	---	---	ND	ND	ND	ND	ND	---
MW-5	03/30/92	22.87	7.85	15.02	ND	ND	ND	ND	ND	PACE
MW-5	07/02/92	22.87	9.27	13.60	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
MW-5	07/22/92	22.87	9.55	13.32	---	---	---	---	---	---
MW-6	03/04/88	22.85	---	---	ND	ND	ND	ND	ND	---
MW-6	03/29/89	22.85	---	---	ND	ND	ND	ND	ND	---
MW-6	11/28/89	22.85	---	---	ND	ND	ND	ND	ND	---
MW-6	02/13/91	22.85	---	---	ND	ND	ND	ND	ND	---
MW-6	01/08/92	22.85	---	---	ND	ND	ND	ND	ND	---
MW-6	03/30/92	22.85	8.86	13.99	ND	ND	ND	ND	ND	PACE
MW-6	07/02/92	22.85	9.94	12.91	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ANA
MW-6	07/22/92	22.85	10.10	12.75	---	---	---	---	---	---
RW-1	07/22/92	---	9.66	---	13000	1000	3400	380	2800	ANA

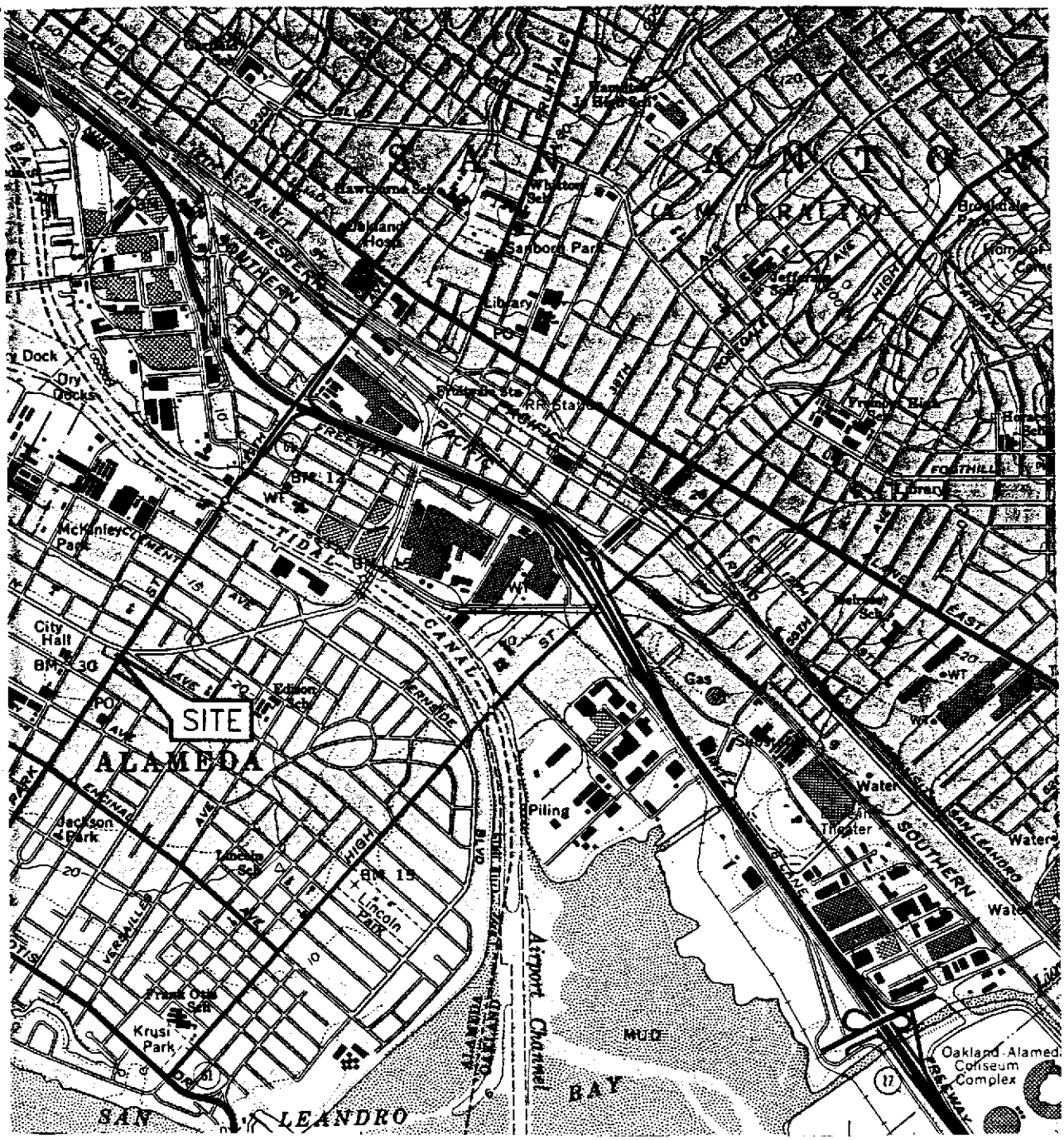
ABBREVIATIONS:

TPH-G	Total Petroleum Hydrocarbons as Gasoline
B	Benzene
T	Toluene
E	Ethylbenzene
X	Xylenes
ND	Not detected above reported detection limits
ANA	Anametrix, Inc.
PACE	Pace Inc.(Novato)
(ppb)	Parts per billion
---	Not analyzed / not available

NOTES:

(a) Casing elevations surveyed to nearest 0.01 foot above Mean Sea Level.

(b) Ground water elevation in feet above Mean Sea Level.



N

0 1000' 2000'

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

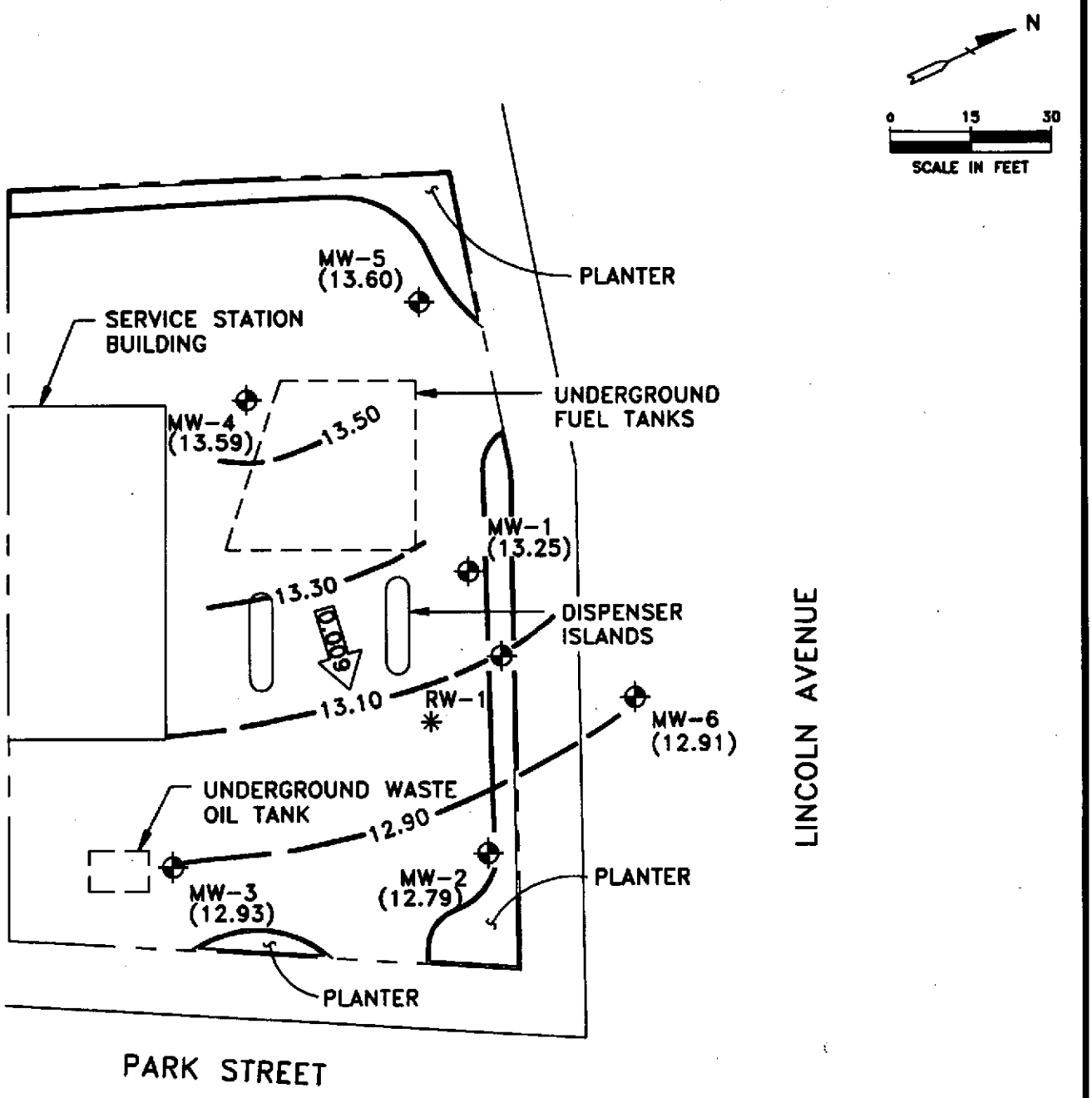
FIGURE 1

SITE VICINITY MAP

BP OIL SERVICE STATION NO. 11266
1541 PARK STREET
ALAMEDA, CALIFORNIA

ALISTO PROJECT NO. 10-050

ALISTO ENGINEERING GROUP
CONCORD, CALIFORNIA



LEGEND:

- ⊕ GROUNDWATER MONITORING WELL
- ✳ TOP OF CASING ELEVATION NOT AVAILABLE
- (12.93) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 12.90 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL – 0.2 FOOT)
- 0.009 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 2

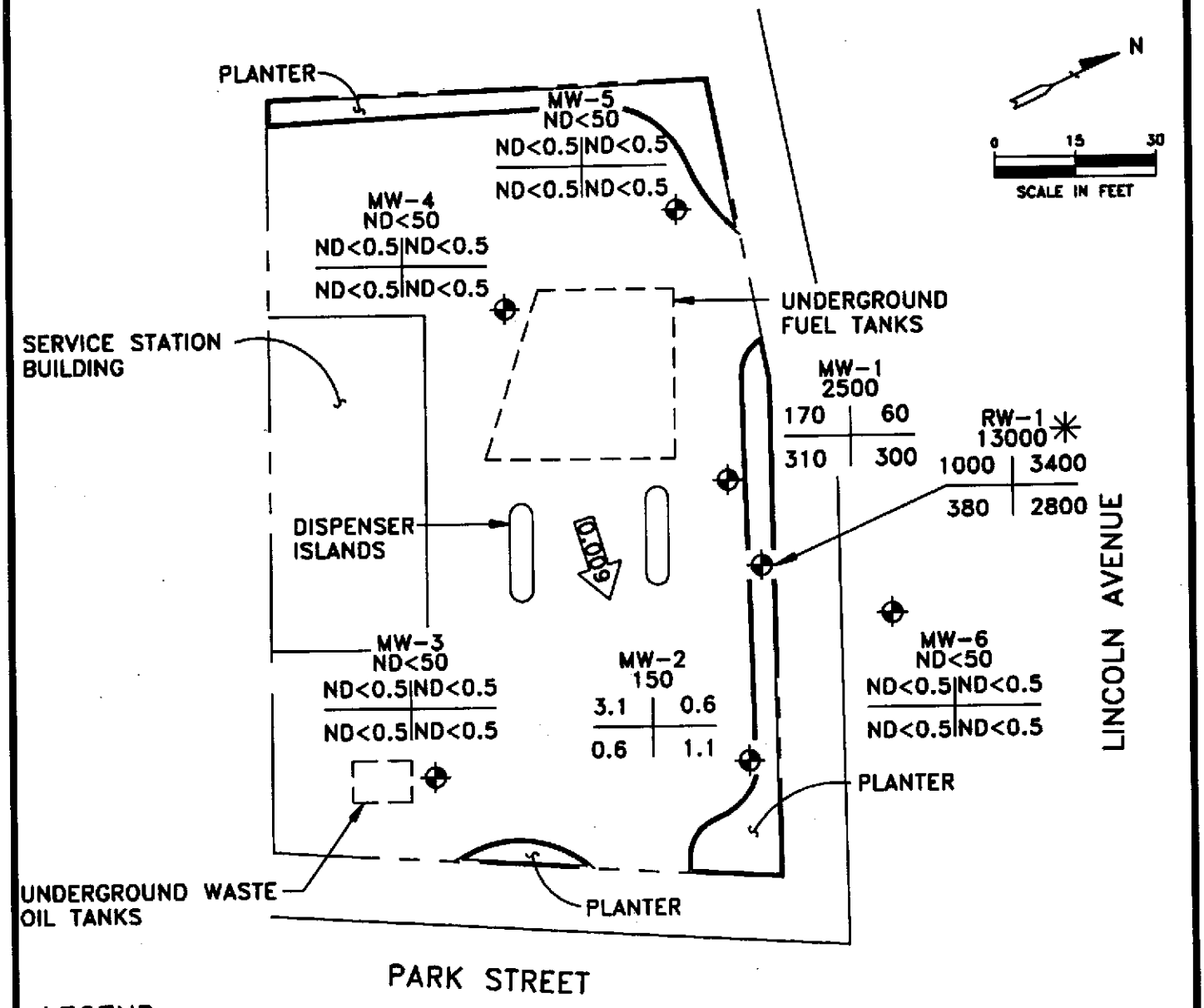
POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP (JULY 2, 1992)

BP OIL SERVICE STATION NO. 11266
1541 PARK STREET
ALAMEDA, CALIFORNIA

PROJECT NO. 10-050

ALISTO ENGINEERING GROUP
CONCORD, CALIFORNIA

10050010.DWG 6-29-92 JMB 1:360



LEGEND:

- GROUNDWATER MONITORING WELL
- SAMPLED ON JULY 22, 1992
- TPH-G / B | T / E | X — CONCENTRATION OF CONSTITUENTS IN PARTS PER BILLION (PPB)
- TPH-G — TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
- B — BENZENE
- T — TOLUENE
- E — ETHYLBENZENE
- X — TOTAL XYLENES
- ND — NOT DETECTED ABOVE REPORTED DETECTION LIMIT
- 0.009 — CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 3

CONCENTRATION OF PETROLEUM HYDROCARBONS IN GROUNDWATER (JULY 2, 1992)

BP OIL SERVICE STATION NO. 11266
1541 PARK STREET
ALAMEDA, CALIFORNIA

PROJECT NO. 10-050

ALISTO ENGINEERING GROUP
CONCORD, CALIFORNIA

10050011F.DWG 7-20-92 JNB 1=30

APPENDIX A

WATER SAMPLING FORMS

Birch Technical Services

Field Report / Data Sheet

OGroundwater Sampling X Groundwater Monitoring OWell Development ODrill Support OStockpile Sampling

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

Firm: Alisto
Project Number: 10-050
Date: 7/2/92
Field Technician: Dan Birch
Station #: BP 11266
Day: M Tu W (Th) F
Address: 1541 Park Street Alameda
Weather: Hot clear
Milage: 110 mi

Equipment List:

- O _____ ( )
- O _____ ( )
- Ø Water Guage (½)day
- Ø Parameter Kit(1)day
- Ø Disposable Bailers (6)
- Ø Plug(s)(2)(2 in)
- Ø Honda Pump (1)day
- Ø Poly Tubing (135 ft)
- O Dolphin Lock(s) ( )
- Ø Nitrile Gloves (1 pair)

Travel Time: 2 hrs
Time at Site: 2.5 hrs
Total Time: 4.5 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
6	MW-1				~~9.38~~	~~9.38~~				✓
5	MW-2	2"	OK	OK	23.01	9.96'	9.96'			
4	MW-3	2"	OK	OK	19.59	10.52'	10.52'			~~4" support to 2" well~~
3	MW-4	2"	~~No~~	~~No~~	19.92	10.04'	10.04'			Replace 2" plug
2	MW-5	2"	OK	OK	24.24	9.27'	9.27'			
1	MW-6	2"	OK	OK	16.95'	9.94'	9.94'			
6	MW-1	2"	No	No	21.88	9.38'	9.38'			Replace 2" plug MW-1

Notes: Open wells and allow to breath. DTW measured as shown above. Sample MW-1-6 as shown on well sampling form. All samples stored on ice immediately. Make labels for VOAs. Clean up on site. 7:30 pm arrive @ Lab @ 8:00 travel to office 8:30. Note: Prior to site visit I went to Heti to pick-up keys. This side trip took an additional hour.

Inv#: 1114

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

GROUND-WATER SAMPLING FORM

Well Number: MW-1

Project Number: 10-050
Station Number: BP11266
Date: 7/21/92

Well Type: XMonitor OExtraction O_____

Sampled by: DAN BIRCH

WELL PURGING

PURGE VOLUME

Casing Diameter (inches)	X2"	O3"	O4"	O4.5"	O6"	O____
Volume Factors:	0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) 21.88 Initial Water Level: 9.38

Total Volume Purged: 10 Time Elapsed: 8 min.

PURGE METHOD:
XHonda Pump
ODisposable PolyTubing(23 ft)
ODisposable PVC Bailer(s)(____)
OOther_____

Calculated Purge Volume:

21.88 (Total Depth) - 9.38 (Water Level) = 12.5 x .16 (Well Vol. Fac.) = 2 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: 1730
Solution pH 4.00 4 at 67 °C
Solution pH 10.00 10 at 67 °C
Solution pH 7.00 7 at 67 °C
Water Level Meter#: 10337

SAMPLING METHOD

XPVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr) 18:03

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp °C	pH	Cond. (umhos/cm)
1	17:55	74.9	6.90	0.95
4	17:57	73.8	6.53	0.93
6	17:58	73.0	6.48	0.94
10	17:59	72.3	6.45	0.92

	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-2

Project Number: 10-050
Station Number: BP11266
Date: 7/2/92

Well Type: XMonitor OExtraction O_____

Sampled by: Dan Birch

WELL PURGING

PURGE VOLUME

Casing Diameter (inches): X2" O3" O4" O4.5" O6" O____
Volume Factors: 0.1632 0.3672 0.6528 0.826 1.469 _____

Total Depth of Well (BOW) 23.01
Initial Water Level: 9.96
Total Volume Purged: 10
Time Elapsed: 5

PURGE METHOD:
XHonda Pump
XDisposable PolyTubing(24 ft)
ODisposable PVC Bailer(s)(____)
OOther_____

Calculated Purge Volume:

23.01 (Total Depth) - 9.96 (Water Level) = 13.05 x .16 (Well Vol. Fac.) = 2.1 x 3 (#of vol. to Purge) = 6.3 (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: 1730
Solution pH 4.00 4 at 67 °C
Solution pH 10.00 10 at 67 °C
Solution pH 7.00 7 at 67 °C
Water Level Meter#: 16337

SAMPLING METHOD

XPVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr): 1852

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp °C	pH	Cond. (umhos/cm)
0	1842	70.5	6.74	0.95
3	1844	70.5	6.74	0.91
6	1846	70.4	6.85	0.88
10	1847	70.4	6.84	0.88

	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: 10-050
Station Number: BP 11266
Date: 7/2/92

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) 19.59 Initial Water Level: 10.52

Total Volume Purged: 8 Time Elapsed: 3

PURGE METHOD:
⊗Honda Pump
⊗Disposable PolyTubing(2/ ft)
ODisposable PVC Bailer(s)(____)
OOther_____

Calculated Purge Volume:

19.59 (Total Depth) − 10.52 (Water Level) = 9.07 × .16 (Well Vol. Fac.) = 1.4 × 3 (#of vol. to Purge) = 4.6 (gallons) Calculated Purge Volume

Subjective Analysis Prior to Purging

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

COMMENTS:

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1730
Solution pH 4.00 4 at 67 °C
Solution pH 10.00 10 at 67 °C
Solution pH 7.00 7 at 67 °C
Water Level Meter#: 16337

SAMPLING METHOD

⊗PVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr): 1906

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp °C	pH	Cond. (umhos/cm)
2	1900	69.3	6.78	.94
5	1902	70.7	6.76	0.94
8	1903	70.9	6.77	0.97

	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-4

Project Number: 10-050
Station Number: BP 11266
Date: 7/21/92

Well Type: ⊠Monitor OExtraction O_____

Sampled by: DAN BIRCH

WELL PURGING

PURGE VOLUME

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

Total Depth of Well (BOW) 19.92' Initial Water Level: 10.04'

Total Volume Purged: 10 Time Elapsed: 5

PURGE METHOD:
⊠Honda Pump
⊠Disposable PolyTubing(23 ft)
ODisposable PVC Bailer(s)(____)
OOther_____

Calculated Purge Volume:

19.92 (Total Depth) - 10.04 (Water Level) = 18.9 x .16 (Well Vol. Fac.) = 3.0 x 3 (#of vol. to Purge) = 9 (gallons) Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN OYes ⊠No | Depth of Product _____(ft) | Emulsion OYes ⊠No

COMMENTS:

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1730
Solution pH 4.00 4 at 67 °C
Solution pH 10.00 10 at 67 °C
Solution pH 7.00 7 at 67 °C
Water Level Meter#: 10337

SAMPLING METHOD

⊠PVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr) 1820

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp °C	pH	Cond. (umhos/cm)
1	1813	75.4	6.82	0.88
6	1815	74.6	6.85	0.83
11	1817	74.6	6.86	0.83

	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-5

Project Number: 10-050
Station Number: BP 11266
Date: 7/2/92

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) 24.24 Initial Water Level: 9.27

Total Volume Purged: 10 Time Elapsed: 5

PURGE METHOD:
☒Honda Pump
☒Disposable PolyTubing(26 ft)
ODisposable PVC Bailer(s)(____)
OOther_____

Calculated Purge Volume:

24.24 (Total Depth) - 9.27 (Water Level) = 14.97 x .16 (Well Vol. Fac.) = 2.4 x 3 (#of vol. to Purge) = 7.2 (gallons) Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN OYes ☒No | Depth of Product _____(ft) | Emulsion OYes ☒No

COMMENTS:

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1730
Solution pH 4.00 4 at 67 °C
Solution pH 10.00 10 at 67 °C
Solution pH 7.00 7 at 67 °C
Water Level Meter#: 10337

SAMPLING METHOD

☒PVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr): 18:35

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp °C	pH	Cond. (umhos/cm)
2	1826	74.4	~~7~~9.74	0.98
4	1828	73.2	6.71	0.95
6	1830	73.1	6.71	0.94
10	1831	73.1	6.71	0.91

	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-6

Project Number: 10-050
Station Number: BD1266
Date: 7/2/92

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) 16.95

Initial Water Level: 9.38

Total Volume Purged: 8gal

Time Elapsed: 5min

PURGE METHOD:
☒Honda Pump
☒Disposable PolyTubing(18 ft)
ODisposable PVC Bailer(s)(____)
OOther_____

Calculated Purge Volume:

16.95 (Total Depth) - 9.38 (Water Level) = 7.57 x 0.1632 (Well Vol. Fac.) = 1.23 x 3. (#of vol. to Purge) = 3.7 (gallons) Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN OYes ☒No | Depth of Product _____(ft) | Emulsion OYes ☒No

COMMENTS:

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1730
Solution pH 4.00 4 at 67 °C
Solution pH 10.00 10 at 67 °C
Solution pH 7.00 7 at 67 °C
Water Level Meter#: 10337

SAMPLING METHOD

☒PVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr): 1920

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp °C	pH	Cond. (umhos/cm)
2	1915	70.2	6.65	1.03
5	1917	71.2	6.59	1.00
8	1918	71.6	6.59	0.97

	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

Field Report / Data Sheet

X Groundwater Sampling O Groundwater Monitoring O Well Development O Drill Support O Stockpile Sampling

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

Firm: ALISTO
Project Number: 10-050
Date: 7/22/92
Field Technician: DAN BIRCH
Station #: BP/1266
Day: M Tu (W) Th F
Address: 1541 PARK Street Alameda
Weather: Cool / Clear
Milage: 40 mi

Equipment List:

- X Water Guage (NC) day
- X Parameter Kit (NC) day
- X Disposable Bailers (1)
- X Plug(s) (2) (2in)
- X Honda Pump (NC) day
- X Poly Tubing (30 ft)
- X Dolphin Lock(s) (7)
- O Nitrile Gloves (___ pair)
- O _____ (___)
- O _____ (___)

Travel Time: 1 hrs
Time at Site: 2.75 hrs
Total Time: 3.75 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
0	RW-1	6"			28.4'	~~9.70'~~	~~9.70'~~			9.66', 9.66' @2:30pm
6	MW-1	2	No	OK		9.62'	9.62'			Replace lock
5	MW-2	2"	No	OK		10.12	10.12			Replace lock
1	MW-3	2"	No	OK		10.62'	10.62'			Replace lock
2	MW-4	2"	No	O.K		10.26'	10.26'			Replace cap & lock
3	MW-5	2"	No	No		9.55'	9.55'			Replace cap & lock
4	MW-6	2"	No	OK		10.10'	10.10			Replace lock

Notes: Travel ~~7:30 - 8:30~~ - 10:~~30~~. Arrive at site and check out RW-1. Call in to Brady, leave site at 10:45. Arrive back with drum at 2:30. Measure DTW in all wells purge 55 g from RW-1 and leave site at 4:30. I had to replace all locks at site.

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

GROUND-WATER SAMPLING FORM

Project Number: 10-050
Station Number: BP11266
Date: 7/22/92

Well Number: RW-1
Well Type: OMonitor ⊗Extraction O____
Sampled by: DAN BIRCH

WELL PURGING

PURGE VOLUME

Casing Diameter (inches)	O 2"	O3"	O4"	O4.5"	⊗6"	O____
Volume Factors:	0.1632	0.3672	0.6528	0.826	1.469	____

Total Depth of Well (BOW) 28.4
Initial Water Level: 9.66'
Total Volume Purged: 55g
Time Elapsed: 41

PURGE METHOD:
⊗Honda Pump
⊗Disposable PolyTubing(____ft)
ODisposable PVC Bailer(s)(____)
OOther____

Calculated Purge Volume:
28.4 (Total Depth) - 9.66 (Water Level) = 18.74 x 1.47 (Well Vol. Fac.) = 27 x 3 (#of vol. to Purge) = 82 (gallons) Calculated Purge Volume

Subjective Analysis Prior to Purging
SHEEN ONo OYes | Depth of Product ____(ft) | Emulsion ONo OYes

PARAMETER EQUIPMENT CALIBRATION
pH Meter #: 9112 Time: 1145
Solution pH 4.00 4 at 79.2 °C
Solution pH 10.00 10 at 79.2 °C
Solution pH 7.00 7 at 79.2 °C
Water Level Meter#: 10337

COMMENTS: Parameters are stabilized by 55 gallons so sample was collected

SAMPLING METHOD
⊗PVC Disposable Bailer
OTeflon Bailer
OOther:____

Time Sampled (24 hr): 1600

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp °C	pH	Cond. (umhos/cm)
15	1509	70.1	7.32	0.92
25	1523	73.2	7.37	0.96
40	1535	71.6	7.27	0.92
45	1541	71.6	7.29	0.92
50	1545	71.7	7.27	0.91
55	1550	71.7	7.28	0.91

	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 REPORTS AND CHAIN OF CUSTODY RECORDS

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

REPORT

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

Workorder # : 9207030
Date Received : 07/02/92
Project ID : 10-050
Purchase Order: N/A

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

ANAMETRIX ID	CLIENT SAMPLE ID
9207030- 1	MW-1
9207030- 2	MW-2
9207030- 3	MW-3
9207030- 4	MW-4
9207030- 5	MW-5
9207030- 6	MW-6

This report consists of 5 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.

Larry Kent for
Sarah Schoen, Ph.D.
Laboratory Director

07-15-92
Date

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

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

Workorder # : 9207030
Date Received : 07/02/92
Project ID : 10-050
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9207030- 1	MW-1	WATER	07/02/92	TPHg/BTEX
9207030- 2	MW-2	WATER	07/02/92	TPHg/BTEX
9207030- 3	MW-3	WATER	07/02/92	TPHg/BTEX
9207030- 4	MW-4	WATER	07/02/92	TPHg/BTEX
9207030- 5	MW-5	WATER	07/02/92	TPHg/BTEX
9207030- 6	MW-6	WATER	07/02/92	TPHg/BTEX

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

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

Workorder # : 9207030
Date Received : 07/02/92
Project ID : 10-050
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for these samples.

Cheryl Bateman 7/14/92
Department Supervisor Date

Reggie Davison 7/14/92
Chemist Date

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

Anametrix W.O.: 9207030
Matrix : WATER
Date Sampled : 07/02/92

Project Number : 10-050
Date Released : 07/14/92

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# MW-1 -01	Sample I.D.# MW-2 -02	Sample I.D.# MW-3 -03	Sample I.D.# MW-4 -04	Sample I.D.# MW-5 -05
Benzene	0.5	170	3.1	ND	ND	ND
Toluene	0.5	60	0.6	ND	ND	ND
Ethylbenzene	0.5	310	0.6	ND	ND	ND
Total Xylenes	0.5	300	1.1	ND	ND	ND
TPH as Gasoline	50	2500	150	ND	ND	ND
% Surrogate Recovery		79%	99%	97%	99%	93%
Instrument I.D.		HP4	HP4	HP4	HP4	HP4
Date Analyzed		07/08/92	07/08/92	07/08/92	07/08/92	07/08/92
RLMF		10	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 7/14/92
Analyst Date

Cheryl Bowman 7/...
Supervisor Date

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

Anametrix W.O.: 9207030
Matrix : WATER
Date Sampled : 07/02/92

Project Number : 10-050
Date Released : 07/14/92

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# MW-6 -06	Sample I.D.# BL0801E2 BLANK
Benzene	0.5	ND	ND
Toluene	0.5	ND	ND
Ethylbenzene	0.5	ND	ND
Total Xylenes	0.5	ND	ND
TPH as Gasoline	50	ND	ND
% Surrogate Recovery		91%	129%
Instrument I.D.		HP4	HP4
Date Analyzed		07/08/92	07/08/92
RLMF		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 7/14/92
Analyst Date

Supervisor Date

BTEX MATRIX SPIKE REPORT
EPA METHOD 5030 WITH GC/PID
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 10-050 MW-3
Matrix : WATER
Date Sampled : 07/02/92
Date Analyzed : 07/08/92

Anametrix I.D.: 9207030-03
Analyst : [illegible]
Supervisor : [illegible]
Date Released : 07/15/92
Instrument ID : HP4

COMPOUND	SPIKE AMT. (ug/L)	MS (ug/L)	REC MS	MD (ug/L)	REC MD	RPD	%REC LIMITS
Benzene	20	25	125%	22	110%	-13%	49-159
Toluene	20	23	115%	20	100%	-14%	53-156
Ethylbenzene	20	22	110%	20	100%	-10%	54-151
M+P-Xylenes	13	14	108%	13	100%	-7%	56-157
O-Xylene	7.0	8.7	124%	8.0	114%	-8%	58-154
P-BFB			101%		93%		53-147

* Limits established by Anametrix, Inc.

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

(10 920105) **CHAIN-OF-CUSTODY RECORD**

PROJECT NUMBER	PROJECT NAME
10-050	BP 11266

Send Report Attention of: Brady Nagle | Report Due: / / | Verbal Due: / /

	Sample Number	Date	Time	Comp	Matrix	Station Location	Number of Cntnrs	Type of Containers	TPH-G/BTEX	Condition of Samples	Initial
(1)	MW-1	7/2/92	1803		W		3	VOAs	X		
(2)	MW-2	7/2/92	1852		W		3	VOAs	X		
(3)	MW-3	7/2/92	1906		W		3	VOAs	X		
(4)	MW-4	7/2/92	1820		W		3	VOAs	X		
(5)	MW-5	7/2/92	1835		W		3	VOAs	X		
(6)	MW-6	7/2/92	1920		W		3	VOAs	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]	7/2/92 2000	[signature]	7/2/92 8PM

Remarks: Please Fax COC to: Brady Nagle
Fax No. 510-798-4099

COMPANY: 1000 Burnett Ave, Suite 420
ADDRESS: Concord, CA 94520
PHONE : 510-798-4070 FAX :

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

REPORT

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

Workorder # : 9207290
Date Received : 07/23/92
Project ID : 10-050
Purchase Order: N/A

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

ANAMETRIX ID	CLIENT SAMPLE ID
9207290- 1	RW-1

This report consists of 3 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

8-11-92
Date

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

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

Workorder # : 9207290
Date Received : 07/23/92
Project ID : 10-050
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9207290- 1	RW-1	WATER	07/22/92	TPHg/BTEX

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

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

Workorder # : 9207290
Date Received : 07/23/92
Project ID : 10-050
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for these samples.

Cheryl Balmer 8/10/92
Department Supervisor Date

Steve Jones 8/10/92
Chemist Date

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

Anametrix W.O.: 9207290
Matrix : WATER
Date Sampled : 07/22/92

Project Number : 10-050
Date Released : 08/10/92

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# RW-1 -01	Sample I.D.# BG0402E3 BLANK
Benzene	0.5	1000	ND
Toluene	0.5	3400	ND
Ethylbenzene	0.5	380	ND
Total Xylenes	0.5	2800	ND
TPH as Gasoline	50	13000	ND
% Surrogate Recovery		83%	99%
Instrument I.D.		HP21	HP21
Date Analyzed		08/04/92	08/04/92
RLMF		100	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.

Luna Shor 8/11/92
Analyst Date

Cheryl Baerner 8/11/92
Supervisor Date

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

9207290 (18)

CHAIN-OF-CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
10-050	BP/1266

Send Report Attention of:	Report Due	Verbal Due
BRADY NAGLE	8/6/92	8/6/92

	Sample Number	Date	Time	Comp	Matrix	Station Location	Number of Cntnrs	Type of Containers	Type of Analysis: TPHG, BTEX	Condition of Samples	Initial
(1)	RW-1	7/23/92	1600		W		3	VOA's	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]	7/23/92 1710	[signature]	7/23/92 1710

Remarks: Please fax a copy of this C-O-C to Brady @ 510 798 4099

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