



**BP OIL**

BP Oil Company  
Environmental Resources Management  
Building 13, Suite N  
295 SW 41st Street  
Renton, Washington 98055-4931  
(206) 251-0667  
Fax No: (206) 251-0736

October 30, 1995

Ms. Eva Chu  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Room 250  
Alameda, CA 94542-6577

12 hours SVE  
24 " GW Extraction - only from Part 1  
when double-paned windows  
are up, can do 24 hr SVE.


**RE: BP OIL FACILITY #11133  
2220 98th Avenue  
Oakland CA**

Dear Ms Chu:

Attached please find our **GROUNDWATER MONITORING AND SAMPLING REPORT DATED September 20, 1995** for the above referenced facility. Please note that the soil and groundwater remediation system continues to operate. BP has contracted an acoustic engineering firm to propose sound control measures for the vapor extraction unit. We hope that these measures will allow us to operate the vapor extraction system continuously without disturbing neighboring residents.

If you should have any questions regarding this site, I may be reached at (206) 251-0689.

Respectfully,

  
Scott T. Hooton  
Environmental Resources Management

STH:mu msword\ERM11133

cc: Mr. Brady Nagle, Alisto Engineering Group, 1575 Treat Blvd., Ste 201, Walnut Creek, CA 94598

Mr. Larry Silva, TOSCO Northwest Co., 601 Union Street, Suite 2500, Seattle, WA 98101

Mr. Richard Hiett, CRWQCB, San Francisco Bay Region, 2101 Webster Street, Suite 500, Oakland CA 94612

Site File

SEP 26 1995

GROUNDWATER MONITORING AND SAMPLING REPORT

ENVIRONMENTAL DEPT.  
WEST COAST REGION OFFICE

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

Project No. 10-025-08-001

Prepared for:

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

Prepared by:

Alisto Engineering Group  
1575 Treat Boulevard, Suite 201  
Walnut Creek, California

September 20, 1995



Ken Simas  
Project Manager



Al Sevilla, P.E.  
Principal



# GROUNDWATER MONITORING AND SAMPLING REPORT

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

Project No. 10-025-08-001

September 20, 1995

## INTRODUCTION

This report presents the results and findings of the June 29, 1995 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 Alameda County Health Care Services Agency and the California Regional Water Quality Control Board, San Francisco Bay Region.

Before purging and sampling, the groundwater level in each well was measured from a permanent mark on top of the casing to the nearest 0.01 foot using an electronic sounder. The depth to groundwater and top of casing elevation data were used to calculate the groundwater elevation in each well in reference to mean sea level. The survey data and groundwater elevation measurements collected to date are presented in Table 1.

Before sample collection, each well was purged of 3 casing volumes, while recording field readings of pH, temperature, electrical conductivity, and dissolved oxygen. 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.

## FREE PRODUCT MONITORING AND RECOVERY

A product recovery canister has been installed in Monitoring Well MW-1 to recover liquid-phase product. Product thicknesses for this and previous monitoring events are presented in Table 1. The volume of product recovered is presented in Table 2.



## SAMPLING AND ANALYTICAL RESULTS

Results of monitoring and laboratory analysis of the groundwater samples for this and previous quarters are summarized in Table 1. The potentiometric groundwater elevations as interpreted from the results of this monitoring event are shown in Figure 2. The results of groundwater analysis are shown in Figure 3. The laboratory report and chain of custody record are presented in Appendix B.



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

ALISTO PROJECT NO. 10-025

WELL ID	DATE OF MONITORING/ SAMPLING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	DO (ppm)	LAB
MW-1	04/05/91	34.46	---	---	---	---	---	---	---	---	---	---
MW-1	04/01/92	34.46	11.25	0.01	23.22	---	---	---	---	---	---	---
MW-1	07/06/92	34.46	13.61	0.02	20.87	---	---	---	---	---	---	---
MW-1	10/07/92	34.46	15.15	0.09	19.38	---	---	---	---	---	---	---
MW-1	01/14/93	34.46	10.73	0.01	23.74	---	---	---	---	---	---	---
MW-1	04/22/93	34.46	11.64	0.16	22.94	---	---	---	---	---	---	---
MW-1	07/15/93	34.46	13.50	1.11	21.79	---	---	---	---	---	---	---
MW-1	10/21/93	34.46	15.21	1.00	20.00	---	---	---	---	---	---	---
MW-1	01/27/94	34.46	17.48	0.81	17.59	---	---	---	---	---	---	---
MW-1	04/21/94	34.46	10.94	---	23.52	110000	1400	9100	3400	30000	1.6	PACE
MW-1	09/09/94	34.46	13.80	---	20.66	---	---	---	---	---	---	---
MW-1	12/21/94	34.46	12.60	0.02	21.88	---	---	---	---	---	---	---
MW-1	01/30/95	34.46	---	---	---	---	---	---	---	---	---	---
MW-1	04/10/95	34.46	10.62	---	23.84	---	---	---	---	---	---	---
MW-1	06/29/95	34.46	18.72	---	15.74	---	---	---	---	---	---	---
MW-2	04/05/91	35.50	16.62	---	18.88	ND<50	0.6	0.9	ND<0.3	ND<0.3	---	SUP
MW-2	04/01/92	35.50	11.25	---	24.25	---	---	---	---	---	---	---
MW-2	04/02/92	35.50	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	APP
MW-2	07/06/92	35.50	12.72	---	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	---	20.42	ND<50	ND<0.5	1.8	ND<0.5	2.3	---	ANA
MW-2	01/14/93	35.50	9.69	---	25.81	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
MW-2	04/22/93	35.50	10.46	---	25.04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
MW-2	07/15/93	35.50	12.02	---	23.48	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
MW-2	10/21/93	35.50	13.12	---	22.38	ND<50	0.7	0.9	ND<0.5	0.9	---	PACE
MW-2	01/27/94	35.50	12.01	---	23.49	ND<50	0.6	ND<0.5	ND<0.5	ND<0.5	---	PACE
MW-2	04/21/94	35.50	10.60	---	24.90	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.1	PACE
MW-2	09/09/94	35.50	12.42	---	23.08	ND<50	ND<0.5	ND<0.5	ND<0.5	0.6	2.2	PACE
MW-2	12/21/94	35.50	10.85	---	24.65	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.2	PACE
MW-2	01/30/95	35.50	8.39	---	27.12	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	1.7	ATI
MW-2	04/10/95	35.50	9.00	---	26.50	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	7.8	ATI
MW-2	06/29/95	35.50	9.91	---	25.59	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	9.1	ATI
MW-3	04/05/91	36.53	17.84	---	18.69	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3	---	SUP
MW-3	04/01/92	36.53	15.64	---	20.89	---	---	---	---	---	---	---
MW-3	04/02/92	36.53	---	---	---	ND<50	1.4	ND<0.5	ND<0.5	ND<0.5	---	APP
MW-3	07/06/92	36.53	19.03	---	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	---	14.70	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	ANA
MW-3	01/14/93	36.53	15.96	---	20.57	350	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
MW-3	04/22/93	36.53	16.20	---	20.33	2800	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
MW-3	07/15/93	36.53	16.82	---	19.71	1400	1.2	ND<0.5	2.0	3.5	---	PACE
MW-3	10/21/93	36.53	18.84	---	17.69	370	2.1	2.3	2.3	6.0	---	PACE
MW-3	01/27/94	36.53	18.00	---	18.53	1300	6.3	ND<0.5	ND<0.5	ND<0.5	---	PACE
MW-3	04/21/94	36.53	16.62	---	19.91	2000	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.4	PACE
MW-3	09/09/94	36.53	18.38	---	18.15	1300	ND<0.5	ND<0.5	0.5	1.2	3.0	PACE
MW-3	12/21/94	36.53	15.28	---	21.25	420	16	0.7	3.5	5.9	1.9	PACE
MW-3	01/30/95	36.53	12.62	---	23.91	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	2.5	ATI
MW-3	04/10/95	36.53	12.41	---	24.12	150	ND<0.50	ND<0.50	ND<0.50	ND<1.0	6.9	ATI
MW-3	06/29/95	36.53	14.95	---	21.58	100	ND<0.50	ND<0.50	ND<0.50	ND<1.0	6.4	ATI

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 2220 98TH AVENUE, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-025

WELL ID	DATE OF MONITORING/ SAMPLING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	DO (ppm)	LAB
AW-1	04/05/91	38.11	25.44	---	12.67	4100	1500	69	100	83	---	SUP
AW-1	04/01/92	38.11	23.22	---	14.89	---	---	---	---	---	---	---
AW-1	04/02/92	38.11	---	---	---	11000	1800	210	210	490	---	APP
AW-1	07/06/92	38.11	24.89	---	13.22	6500	4000	40	290	530	---	ANA
AW-1	10/07/92	38.11	26.55	---	11.56	4700	1500	41	47	300	---	ANA
QC-1 (c)	10/07/92	38.11	---	---	---	2900	1200	25	37	210	---	ANA
AW-1	01/14/93	38.11	23.73	---	14.38	2800	830	31	140	240	---	PACE
QC-1 (c)	01/14/93	38.11	---	---	---	4100	1700	28	130	230	---	PACE
AW-1	04/22/93	38.11	22.29	---	15.82	39000	14000	530	1800	6100	---	PACE
AW-1	07/15/93	38.11	22.50	---	15.61	6200	2200	28	210	540	---	PACE
AW-1	10/21/93	38.11	24.32	---	13.79	2400	820	13	55	120	---	PACE
AW-1	01/27/94	38.11	23.72	---	14.39	3500	1400	26	130	220	---	PACE
AW-1	04/21/94	38.11	22.48	---	15.63	40000	12000	1900	1600	5000	1.4	PACE
AW-1	09/09/94	38.11	23.04	---	15.07	3500	1600	5.0	200	250	2.1	PACE
QC-1 (c)	09/09/94	38.11	---	---	---	3900	1900	5.5	190	240	---	PACE
AW-1	12/21/94	38.11	21.70	---	16.41	7600	3100	36	370	320	1.6	PACE
AW-1	01/30/95	38.11	17.71	---	20.4	35000	23000	650	3200	4100	1.7	ATI
AW-1	04/10/95	38.11	20.04	---	18.07	60000	18000	2000	4300	11000	7.9	ATI
QC-1 (c)	04/10/95	38.11	---	---	---	56000	17000	2000	3900	10000	---	ATI
AW-1	06/29/95	38.11	20.60	---	17.51	72000	10000	7300	4200	15000	6.2	ATI
QC-1 (c)	06/29/95	38.11	---	---	---	86000	12000	8400	4800	18000	---	ATI
AW-2	04/05/91	36.83	22.36	---	14.47	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3	---	SUP
AW-2	04/01/92	36.83	20.81	---	16.02	---	---	---	---	---	---	---
AW-2	04/02/92	36.83	---	---	---	130	25	2.3	0.7	2.1	---	APP
AW-2	07/06/92	36.83	23.57	---	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	---	11.59	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	ANA
AW-2	01/14/93	36.83	20.82	---	16.01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
AW-2	04/22/93	36.83	19.37	---	17.46	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
AW-2	07/15/93	36.83	21.29	---	15.54	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
AW-2	10/21/93	36.83	23.14	---	13.69	ND<50	1.3	1.1	0.9	2.1	---	PACE
AW-2	01/27/94	36.83	22.34	---	14.49	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
AW-2	04/21/94	36.83	21.15	---	15.68	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	2.0	PACE
AW-2	09/09/94	36.83	22.09	---	14.74	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	4.1	PACE
AW-2	12/21/94	36.83	20.12	---	16.71	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	2.0	PACE
AW-2	01/30/95	36.83	16.65	---	20.18	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	2.5	ATI
AW-2	04/10/95	36.83	16.22	---	20.61	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	4.4	ATI
AW-2	06/29/95	36.83	17.55	---	19.28	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	7.8	ATI
AW-3	04/05/91	39.13	23.90	---	15.23	5200	980	450	95	310	---	SUP
AW-3	04/01/92	39.13	22.50	---	16.63	4700	890	47	43	110	---	APP
AW-3	07/06/92	39.13	23.26	---	15.87	3900	3100	30	80	99	---	ANA
AW-3	10/07/92	39.13	24.75	---	14.38	5000	2800	ND<0.5	ND<0.5	59	---	ANA
AW-3	01/14/93	39.13	23.59	---	15.54	350	250	ND<0.5	ND<0.5	ND<0.5	---	PACE
AW-3	04/22/93	39.13	19.42	---	19.71	240	71	2.4	0.6	4.0	---	PACE
AW-3	07/15/93	39.13	20.09	---	19.04	650	71	2.8	1.5	1.1	---	PACE
AW-3	10/21/93	39.13	21.88	---	17.25	160	4.8	1.7	1.8	3.6	---	PACE
QC-1 (c)	10/21/93	39.13	---	---	---	170	6.1	2.0	1.7	4.4	---	PACE
AW-3	01/27/94	39.13	22.33	---	16.80	92	2.1	ND<0.5	ND<0.5	ND<0.5	---	PACE
QC-1 (c)	01/27/94	39.13	---	---	---	90	2.9	0.5	ND<0.5	ND<0.5	---	PACE
AW-3	04/21/94	39.13	20.96	---	18.17	150	3.6	0.8	0.9	2.5	1.3	PACE
AW-3	09/09/94	39.13	21.60	---	17.53	63	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.9	PACE
AW-3 (d)	12/21/94	39.13	---	---	---	---	---	---	---	---	---	---
AW-3 (d)	01/30/95	39.13	---	---	---	---	---	---	---	---	---	---
AW-3 (d)	04/10/95	39.13	---	---	---	---	---	---	---	---	---	---
AW-3	06/29/95	39.13	15.41	---	23.72	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	8.0	ATI

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WELL ID	DATE OF MONITORING/ SAMPLING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	DO (ppm)	LAB
AW-4	04/05/91	39.08	25.12	---	13.96	110000	40000	13000	2000	5500	---	SUP
AW-4	04/01/92	39.08	23.56	---	15.52	230000	57000	31000	2900	7600	---	APP
AW-4 (e)	04/01/92	39.08	23.56	---	15.52	210000	55000	29000	2900	7000	---	APP
AW-4	07/06/92	39.08	25.87	---	13.21	38000	16000	5400	2000	6100	---	ANA
AW-4	10/07/92	39.08	27.53	---	11.55	120000	41000	26000	4700	13000	---	ANA
AW-4	01/14/93	39.08	24.12	---	14.96	62000	18000	14000	2700	7700	---	PACE
AW-4	04/22/93	39.08	21.47	---	17.61	18000	1100	2100	320	3500	---	PACE
AW-4	07/15/93	39.08	23.30	---	15.78	21000	820	2300	590	3800	---	PACE
AW-4	10/21/93	39.08	25.08	---	14.00	11000	570	83	630	2300	---	PACE
AW-4	01/27/94	39.08	24.61	---	14.47	12000	420	460	600	2200	---	PACE
AW-4	04/21/94	39.08	22.96	---	16.12	12000	110	250	150	1900	1.5	PACE
QC-1 (c)	04/21/94	39.13	---	---	---	14000	71	160	29	1200	---	PACE
AW-4	09/09/94	39.08	23.85	---	15.23	9700	75	64	280	2000	2.1	PACE
AW-4 (d)	12/21/94	---	---	---	---	---	---	---	---	---	---	---
AW-4 (d)	01/30/95	---	---	---	---	---	---	---	---	---	---	---
AW-4	04/10/95	39.08	18.07	---	21.01	3700	69	8.7	44	130	8.5	ATI
AW-4	06/29/95	39.08	19.25	---	19.83	8000	62	190	190	1100	7.5	ATI
AW-5	04/05/91	38.51	25.48	---	13.03	420	31	7.5	20	68	---	SUP
AW-5	04/01/92	38.51	23.95	---	14.58	---	---	---	---	---	---	---
AW-5	04/02/92	38.51	---	---	---	4000	270	63	190	290	---	APP
AW-5	07/06/92	38.51	26.48	---	12.03	1400	160	ND<2.5	250	58	---	ANA
AW-5	10/07/92	38.51	28.18	---	10.33	360	12	0.6	8.7	5	---	ANA
AW-5	01/14/93	38.51	24.15	---	14.36	1700	270	7.5	130	62	---	PACE
AW-5	04/22/93	38.51	22.43	---	16.08	2700	780	30	220	180	---	PACE
QC-1 (c)	04/22/93	38.51	---	---	---	3500	780	29	240	210	---	PACE
AW-5	07/15/93	38.51	24.31	---	14.20	1300	69	16	67	120	---	PACE
QC-1 (c)	07/15/93	38.51	---	---	---	1300	68	8.3	64	99	---	PACE
AW-5	10/21/93	38.51	26.05	---	12.46	510	9.6	1.5	17	45	---	PACE
AW-5	10/21/93	38.51	26.05	---	12.46	510	9.6	1.5	17	45	---	PACE
AW-5	01/27/94	38.51	26.42	---	12.09	420	3.3	ND<0.5	1.0	0.9	---	PACE
AW-5	04/21/94	38.51	24.38	---	14.15	1000	110	25	56	27	1.3	PACE
AW-5	09/09/94	38.51	24.55	---	13.96	210	ND<0.5	ND<0.5	0.5	0.9	2.7	PACE
AW-5	12/21/94	38.51	22.30	---	16.21	410	ND<0.5	20	4.3	1.4	1.1	PACE
QC-1 (c)	12/21/94	38.51	---	---	---	340	ND<0.5	15	3.3	1.4	---	PACE
AW-5	01/30/95	38.51	18.88	---	19.63	210	0.6	11	8.8	2	1.5	ATI
AW-5	04/10/95	38.51	18.44	---	20.07	500	1.4	0.59	6.5	4.3	8.3	ATI
AW-5	06/29/95	38.51	19.92	---	18.59	490	1.2	0.58	7.3	2.2	6.9	ATI
AW-6	04/05/91	37.08	22.48	---	14.60	1100	80	19	1.4	230	---	SUP
AW-6	04/01/92	37.08	22.50	---	14.58	---	---	---	---	---	---	---
AW-6	04/02/92	37.08	---	---	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	APP
AW-6	07/06/92	37.08	22.74	---	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	---	12.44	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	ANA
AW-6	01/14/93	37.08	22.36	---	14.72	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
AW-6	04/22/93	37.08	22.82	---	14.26	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
AW-6	07/15/93	37.08	20.49	---	16.59	ND<50	ND<0.5	ND<0.5	ND<0.5	0.8	---	PACE
AW-6	10/21/93	37.08	22.84	---	14.24	ND<50	0.5	0.6	ND<0.5	0.7	---	PACE
AW-6	01/27/94	37.08	22.33	---	14.75	ND<50	ND<0.5	0.9	3.1	12	---	PACE
AW-6	04/21/94	37.08	20.66	---	16.42	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.7	PACE
AW-6	09/09/94	37.08	21.57	---	15.51	ND<50	0.9	ND<0.5	ND<0.5	0.5	2.9	PACE
AW-6	12/21/94	37.08	19.40	---	17.68	ND<50	1.8	0.8	0.8	3.2	1.1	PACE
AW-6	01/30/95	37.08	16.74	---	20.34	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	2.2	ATI
QC-1 (c)	01/30/95	38.51	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	ATI
AW-6	04/10/95	37.08	16.01	---	21.07	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	8.6	ATI
AW-6	06/29/95	37.08	17.54	---	19.54	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	6.3	ATI

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 MONITORING/ SAMPLING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	DO (ppm)	LAB
AW-7	04/05/91	37.60	23.38	---	14.22	ND<50	0.4	0.7	ND<0.3	ND<0.3	---	SUP
AW-7	04/01/92	37.60	21.92	---	15.68	---	---	---	---	---	---	---
AW-7	04/02/92	37.60	---	---	---	ND<50	ND<0.5	3.2	1.0	5.4	---	APP
AW-7	07/08/92	37.60	24.50	---	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	---	11.42	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	ANA
AW-7	01/14/93	37.60	22.03	---	15.57	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
AW-7	04/22/93	37.60	21.18	---	16.42	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
AW-7	07/15/93	37.60	22.09	---	15.51	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
AW-7	10/21/93	37.60	24.05	---	13.55	51	5.0	4.2	3.5	8.2	---	PACE
AW-7	01/27/94	37.60	23.40	---	14.20	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
AW-7	04/21/94	37.60	22.24	---	15.36	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	2.5	PACE
AW-7	09/09/94	37.60	22.94	---	14.66	ND<50	ND<0.5	ND<0.5	ND<0.5	0.5	4.3	PACE
AW-7	12/21/94	37.60	20.86	---	16.74	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	2.2	PACE
AW-7	01/30/95	37.60	17.51	---	20.09	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	2.7	ATI
AW-7	04/10/95	37.60	16.69	---	20.91	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	4.8	ATI
AW-7	06/29/95	37.60	18.33	---	19.27	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	7.6	ATI
AW-8	04/05/91	40.86	26.68	---	14.18	80	1.9	2.2	0.5	1.3	---	SUP
AW-8	04/01/92	40.86	25.11	---	15.75	73	ND<0.5	0.7	ND<0.5	0.6	---	APP
AW-8	07/08/92	40.86	26.43	---	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	---	12.27	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	ANA
AW-8	01/14/93	40.86	25.55	---	15.31	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
AW-8	04/22/93	40.86	22.29	---	18.57	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
AW-8	07/15/93	40.86	23.42	---	17.44	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	PACE
AW-8	10/21/93	40.86	25.15	---	15.71	ND<50	1.9	1.8	1.3	3.3	---	PACE
AW-8	01/27/94	40.86	25.42	---	15.44	ND<50	ND<0.5	0.5	0.6	8.5	---	PACE
AW-8	04/21/94	40.86	24.14	---	16.72	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.5	PACE
AW-8	09/09/94	40.86	24.56	---	16.31	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	2.4	PACE
AW-8	12/21/94	40.86	22.72	---	18.14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.1	PACE
AW-8	01/30/95	40.86	19.75	---	21.11	ND<50	ND<0.50	1	ND<0.50	1	0.8	ATI
AW-8	04/10/95	40.86	17.78	---	23.08	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	8.3	ATI
AW-8	06/29/95	40.86	18.18	---	22.68	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	8.3	ATI
RW-1	04/05/91	37.73	---	---	---	---	---	---	---	---	---	---
RW-1	04/01/92	37.73	22.81	0.30	15.14	---	---	---	---	---	---	---
RW-1	07/08/92	37.73	26.92	0.41	11.12	---	---	---	---	---	---	---
RW-1	10/07/92	37.73	28.51	1.26	10.16	---	---	---	---	---	---	---
RW-1	01/14/93	37.73	23.75	0.25	14.17	---	---	---	---	---	---	---
RW-1	04/22/93	37.73	22.70	1.38	16.07	---	---	---	---	---	---	---
RW-1	07/15/93	37.73	26.10	0.81	12.24	---	---	---	---	---	---	---
RW-1	10/21/93	37.73	25.40	0.49	12.70	---	---	---	---	---	---	---
RW-1	10/21/93	37.73	25.40	0.49	12.70	---	---	---	---	---	---	---
RW-1	01/27/94	37.73	28.02	0.37	9.99	---	---	---	---	---	---	---
RW-1	04/21/94	37.73	23.10	0.91	15.31	---	---	---	---	---	---	---
RW-1	09/09/94	37.73	24.39	1.04	14.12	---	---	---	---	---	---	---
RW-1 (f)	12/21/94	37.73	---	---	---	---	---	---	---	---	---	---



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 MONITORING/ SAMPLING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	DO (ppm)	LAB
QC-2 (g)	10/07/92	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	ANA
QC-2 (g)	01/14/93	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	PACE
QC-2 (g)	04/22/93	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	PACE
QC-2 (g)	07/15/93	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	PACE
QC-2 (g)	10/21/93	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	PACE
QC-2 (g)	01/27/94	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	PACE
QC-2 (g)	04/21/94	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	PACE
QC-2 (g)	09/09/94	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	PACE
QC-2 (g)	12/21/94	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	PACE
QC-2 (g)	01/30/95	--	--	--	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ATI
QC-2 (g)	04/10/95	--	--	--	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ATI
QC-2 (g)	06/27/95	--	--	--	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ATI

ABBREVIATIONS:

TPH-G Total petroleum hydrocarbons as gasoline  
 B Benzene  
 T Toluene  
 E Ethylbenzene  
 X Total xylenes  
 DO Dissolved oxygen  
 ug/l Micrograms per liter  
 ppm Parts per million  
 --- Not available/applicable/measurable  
 ND Not detected above reported detection limit  
 PACE Pace, Inc.  
 SUP Superior Analytical Laboratories, Inc.  
 APP Applied Analytical Laboratory  
 ANA Anametrix, Inc.  
 ATI Analytical Technologies, Inc.

NOTES:

(a) Top of casing elevations surveyed to the nearest 0.01 foot above mean sea level.  
 (b) Groundwater elevations adjusted assuming a specific gravity of 0.75 for free product.  
 (c) Blind duplicate.  
 (d) Inaccessible; car parked over well.  
 (e) Duplicate.  
 (f) Well not monitored or sampled due to vapor extraction system.  
 (g) Travel blank.

EL010-025025-4-4-WQ2

TABLE 2 - PRODUCT REMOVAL STATUS

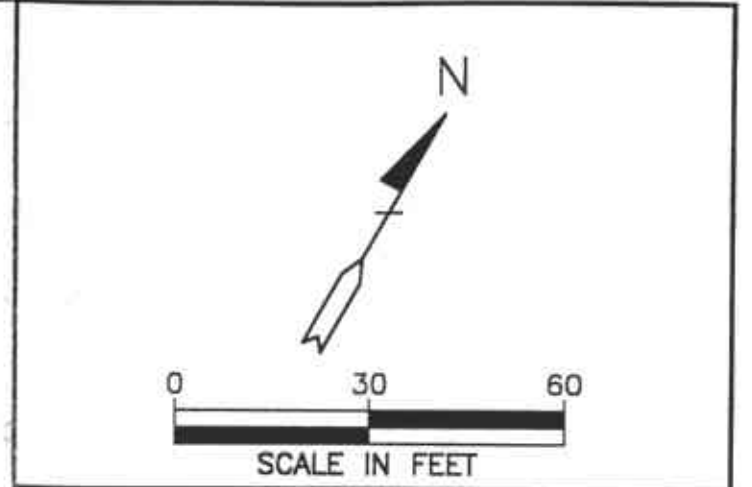
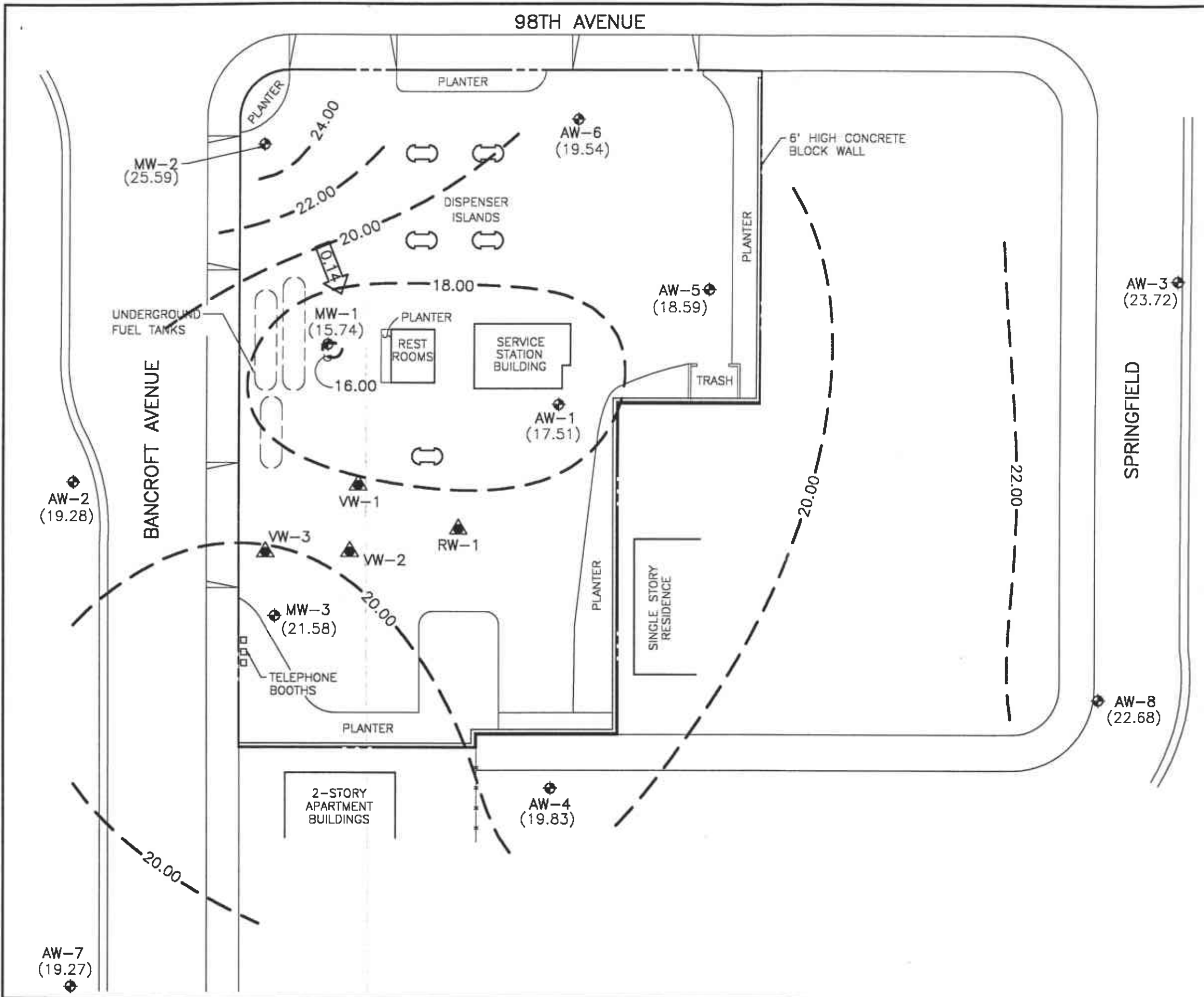
BP OIL COMPANY SERVICE STATION NO. 11133  
2220 98TH STREET, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-025

WELL ID	DATE	PRODUCT REMOVED (Gallons)	PRODUCT REMOVED CUMULATIVE (Gallons)
RW-1	10/06/93	1.00	1.00
	10/14/94	1.00	2.00
	10/20/94	18.00	20.00
	10/26/94	3.00	23.00
	11/02/93	5.00	28.00
	11/10/94	6.00	34.00
	11/16/94	2.50	36.50
	11/23/94	5.00	41.50
	11/30/93	2.00	43.50
	12/07/93	4.00	47.50
	12/17/93	1.50	49.00
	01/04/94	5.00	54.00
	01/12/94	3.50	57.50
	01/20/94	2.50	60.00
	02/11/94	4.00	64.00
	02/18/93	3.50	67.50
	02/25/94	3.00	70.50
	03/04/94	3.50	74.00
	03/18/94	5.50	79.50
	03/30/94	4.00	83.50
	04/13/94	4.60	88.10
	04/21/94	4.20	92.30
	04/29/94	4.50	96.80
	05/06/94	5.50	102.30
	05/13/94	3.50	105.80
	05/20/94	3.50	109.30
	05/26/94	4.50	113.80
	06/02/94	3.50	117.30
	06/09/94	2.50	119.80
	06/16/94	3.50	123.30
06/23/94	4.00	127.30	
06/29/94	2.50	129.80	
07/07/94	2.00	131.80	
07/12/94	3.00	134.80	
07/20/94	1.50	136.30	
07/29/94	3.50	139.80	
08/05/94	1.50	141.30	
08/12/94	2.00	143.30	
08/18/94	2.50	145.80	
09/09/94	3.50	149.30	
09/16/94	4.00	153.30	
09/23/94	2.00	155.30	
MW-1	10/20/93	0.10	0.1
	11/10/93	0.10	0.2
	09/09/94	SHEEN	0.2
	10/26/94	SHEEN	0.2
	11/16/94	SHEEN	0.2
	12/21/94	0.25	0.45
	02/08/95	0.00	0.45
	04/10/95	0.25	0.70
06/29/95	SHEEN	0.70	

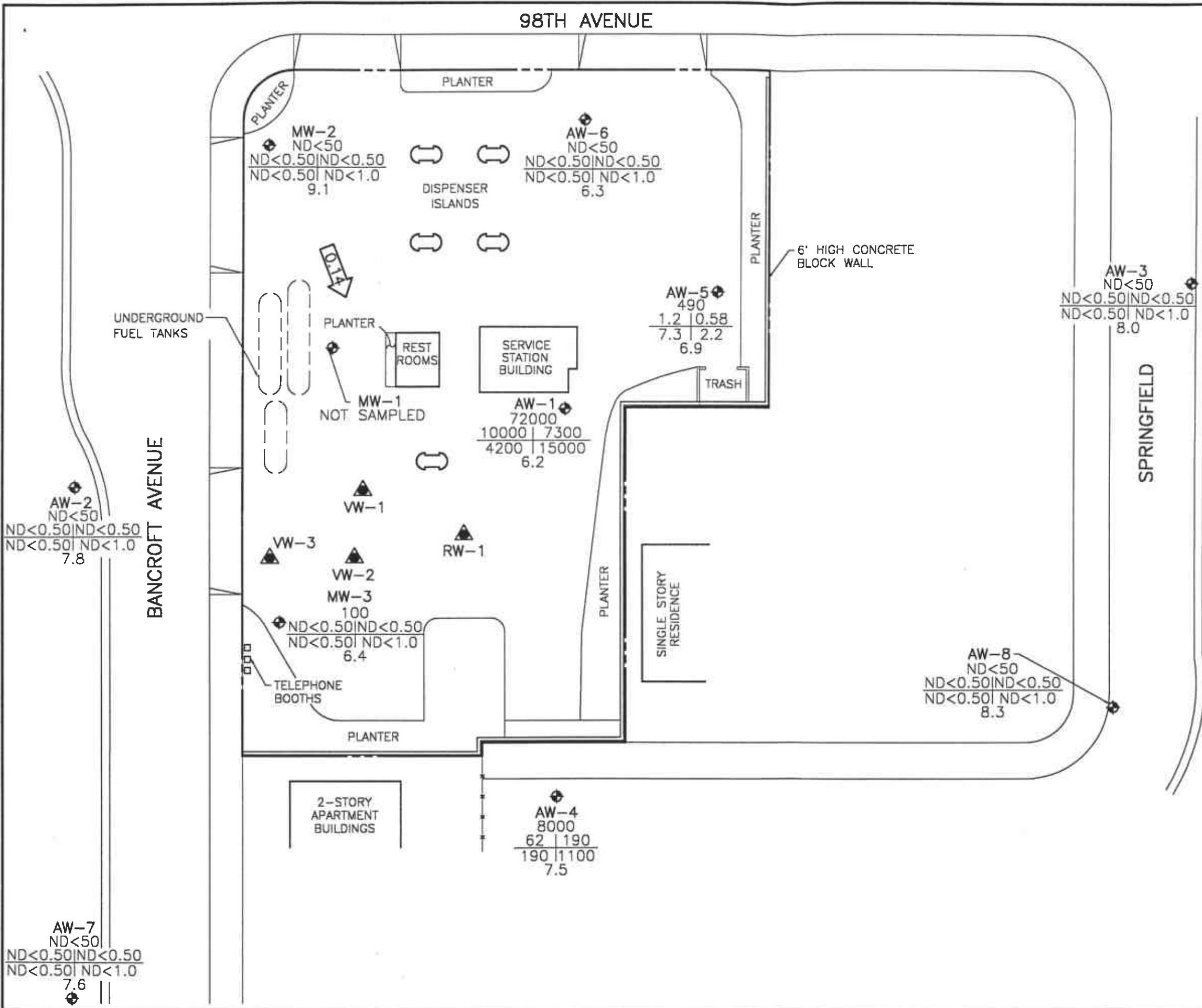
Note: Groundwater and soil vapor extraction equipment installed in RW-1 in October 1994.





- LEGEND**
- ◆ GROUNDWATER MONITORING WELL
  - ▲ VAPOR EXTRACTION WELL
  - (15.74) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
  - 18.00 - GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL - 2.00 FEET)
  - ← 0.14 → CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

**FIGURE 2**  
**POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP**  
**JUNE 29, 1995**  
 BP OIL SERVICE STATION NO. 11133  
 2220 98TH AVENUE  
 OAKLAND, CALIFORNIA  
 PROJECT NO. 10-025



**LEGEND**

- ◆ GROUNDWATER MONITORING WELL
- ▲ VAPOR EXTRACTION WELL
- TPH-G  
B | T  
E | X  
DO  
TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
- B BENZENE
- T TOLUENE
- E ETHYLBENZENE
- X TOTAL XYLENES
- DO DISSOLVED OXYGEN
- ND NOT DETECTED ABOVE REPORTED DETECTION LIMIT
- ← 0.14  
CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

**FIGURE 3**  
**CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER**  
**JUNE 29, 1995**  
 BP OIL SERVICE STATION NO. 11133  
 2220 98TH AVENUE  
 OAKLAND, CALIFORNIA  
 PROJECT NO. 10-025

10025/AM/04C 8-11-95 MW 1-3/95

**APPENDIX A**  
**WATER SAMPLING FIELD SURVEY FORMS**

# ALISTO

## Field Report / Sampling Data Sheet

ENGINEERING  
GROUP  
1575 TREAT BOULEVARD, SUITE 201  
WALNUT CREEK CA 94596 (510) 295-1650 FAX 295-1823

Project No. 10-025-08-001 Date: 6/29/95  
Address 2220 98th Avenue Day: MTWTF  
Contract No. G317873A City: Oakland  
Station No. BP 11133 Sampler: DC

WELL ID	SAMPLE ID	DEPTH TO WATER	TIME	COMMENTS:
AW-1	S-10	20.60	1015	
AW-2	S-2	17.55	0950	
AW-3	S-6	15.41	1002	
AW-4	S-8	19.25	1009	
AW-5	S-9	19.92	1012	
AW-6	S-5	17.54	0958	
AW-7	S-1	18.33	0947	
AW-8	S-2	18.18	1005	
MW-1	Not	18.72	1630	
MW-2	S-4	9.91	0956	
MW-3	S-3	14.95	0952	

### FIELD INSTRUMENT CALIBRATION DATA

pH METER Hydr 4.00  7.00  10.00 \_\_\_\_\_ TEMPERATURE COMPENSATED  N TIME 1045  
D.O. METER Hydr ZERO d.O. SOLUTION  BAROMETRIC PRESSURE 767 TEMP 72°F WEATHER Overcast  
CONDUCTIVITY METER Hydr 10,000  TURBIDITY METER \_\_\_\_\_ 5.0 NTU \_\_\_\_\_ OTHER \_\_\_\_\_

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Irridensence	Gal.	Time	Temp *F	pH	E.C.	D.O.	
AW-7	18.33	2"	OK	P	Y (N)	2.5	1207	69.0	7.26	0.47	7.7	
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge	PurgeVol.				
32.30 - 18.33 = 13.97						x .16 = 2.23	x 3 = 6.70					
Purge Method: O Surface Pump ODisp. Tube OWinch <input checked="" type="checkbox"/> DDisp. Bailer(s) L OSys Port												
Comments:												
											TIME/SAMPLE ID	
											1215 / 5-1	

- EPA 601 \_\_\_\_\_
- TPH-G/BTEX Hydr
- TPH Diesel \_\_\_\_\_
- TOG 5520 \_\_\_\_\_

# ALISTO

## Field Report / Sampling Data Sheet

ENGINEERING

GROUP

1575 TREAT BOULEVARD, SUITE 201

WALNUT CREEK CA 94596 (510) 295-1650 FAX 295-1823

Project No.

10-025-08-001

Date:

6/29/95

Address

2220 98th Avenue

Day:

MTWTF

Contract No.

G317873A

City:

Oakland

Station No.

BP 11133

Sampler:

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Irridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.	
AW-2	17.55	2"	OK	Φ	Y (N)	3	67.7	1220	7.12	0.41	7.4	<input type="radio"/> EPA 601
Total Depth - Water Level=						6	67.1	1224	7.14	0.38		<input checked="" type="radio"/> TPH-G/BTEX <i>HW</i>
35.20 - 17.55 = 17.65 x .16 = 2.82 x 3 = 8.47						9.5	67.3	1227	7.15	0.36	7.8	<input type="radio"/> TPH Diesel
Purge Method: <input checked="" type="checkbox"/> Surface Pump <input type="checkbox"/> Disp. Tube <input type="checkbox"/> Winch <input checked="" type="checkbox"/> Disp. Bailer(s) <input type="checkbox"/> OSys Port												<input type="radio"/> TOG 5520
Comments:												TIME/SAMPLE ID
												1730 / 5-2
MW-3	14.95	2"	OK	Φ	Y (N)	1	1127	67.9	6.54	0.51	5.9	<input type="radio"/> EPA 601
Total Depth - Water Level=						2	1130	66.8	6.87	0.44		<input checked="" type="radio"/> TPH-G/BTEX <i>HW</i>
21.83 - 14.95 = 6.88 x .16 = 1.10 x 3 = 3.30						3.5	1138	66.6	6.92	0.42	6.4	<input type="radio"/> TPH Diesel
Purge Method: <input type="checkbox"/> Surface Pump <input type="checkbox"/> Disp. Tube <input type="checkbox"/> Winch <input checked="" type="checkbox"/> Disp. Bailer(s) <input type="checkbox"/> OSys Port												<input type="radio"/> TOG 5520
Comments:												TIME/SAMPLE ID
												1140 / 5-3
MW-2	9.91	2"	OK	Φ	Y (N)	4	1249	68.4	7.61	0.36	8.1	<input type="radio"/> EPA 601
Total Depth - Water Level=						7	1252	67.6	7.68	0.35		<input checked="" type="radio"/> TPH-G/BTEX <i>HW</i>
34.10 - 9.91 = 24.19 x .16 = 3.87 x 3 = 11.61						12	1256	67.7	7.71	0.34	9.1	<input type="radio"/> TPH Diesel
Purge Method: <input checked="" type="checkbox"/> Surface Pump <input type="checkbox"/> Disp. Tube <input type="checkbox"/> Winch <input type="checkbox"/> Disp. Bailer(s) <input type="checkbox"/> OSys Port												<input type="radio"/> TOG 5520
Comments:												TIME/SAMPLE ID
												1300 / 5-4
AW-6	17.54	4"	OK	Φ	Y (N)	10	1312	68.9	7.15	0.42	6.6	<input type="radio"/> EPA 601
Total Depth - Water Level=						20	1317	68.1	7.17	0.39		<input checked="" type="radio"/> TPH-G/BTEX <i>HW</i>
34.20 - 17.54 = 16.66 x .65 = 10.83 x 3 = 32.49						32.5	1324	67.7	7.14	0.38	6.3	<input type="radio"/> TPH Diesel
Purge Method: <input type="checkbox"/> Surface Pump <input type="checkbox"/> Disp. Tube <input type="checkbox"/> Winch <input type="checkbox"/> Disp. Bailer(s) <input type="checkbox"/> OSys Port												<input type="radio"/> TOG 5520
Comments:												TIME/SAMPLE ID
												1325 / 5-5
AW-5	15.41	4"	OK	Φ	Y (N)	3	1340	66.2	7.04	0.47	7.9	<input type="radio"/> EPA 601
Total Depth - Water Level=						6	1346	66.3	7.13	0.48		<input checked="" type="radio"/> TPH-G/BTEX <i>HW</i>
35.00 - 15.41 = 19.59 x .16 = 3.13 x 3 = 9.40						9.5	1353	65.6	7.18	0.47	8.0	<input type="radio"/> TPH Diesel
Purge Method: <input type="checkbox"/> Surface Pump <input type="checkbox"/> Disp. Tube <input type="checkbox"/> Winch <input checked="" type="checkbox"/> Disp. Bailer(s) <input type="checkbox"/> OSys Port												<input type="radio"/> TOG 5520
Comments:												TIME/SAMPLE ID
												1404 / 5-6



# ALISTO

## Field Report / Sampling Data Sheet

ENGINEERING

GROUP

1575 TREAT BOULEVARD, SUITE 201

WALNUT CREEK CA 94596 (510) 295-1650 FAX 295-1823

Project No.

10-025-08-001

Address

2220 98th Avenue

Contract No.

G317873A

Station No.

BP 11133

Sampler:

Date:

6/29/95

Day:

MTWTF

City:

Oakland

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Irridensence	Gal.	Time	Temp *F	pH	E.C.	D.O.	
AW-8	18.18	2"	OL	Φ	Y (N)	4	1415	67.9	7.81	0.53	8.2	<input type="radio"/> EPA 601 _____
Total Depth - Water Level=						8	1420	66.9	7.77	0.54		<input checked="" type="radio"/> TPH-G/BTEX <i>HW</i>
39.20 - 18.18 = 21.02 x .16 = 3.36 x 3 = 10.09						10.25	1430	66.5	7.71	0.54	8.3	<input type="radio"/> TPH Diesel _____
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Baller(s) OSys Port												<input type="radio"/> TOG 5520 _____
Comments:												TIME/SAMPLE ID
												1435 / 3-7
AW-4	19.25	2"	OL	Φ	Y (N)	3	1440	67.4	7.23	0.55	7.5	<input type="radio"/> EPA 601 _____
Total Depth - Water Level=						6	1445	67.1	7.24	0.55		<input checked="" type="radio"/> TPH-G/BTEX <i>HW</i>
35.00 - 19.25 = 15.75 x .14 = 2.52 x 3 = 7.56						8	1449	66.9	7.21	0.55	7.5	<input type="radio"/> TPH Diesel _____
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Baller(s) OSys Port												<input type="radio"/> TOG 5520 _____
Comments: <i>2200 to 1800 ft</i>												TIME/SAMPLE ID
												1455 / 3-8
AW-5	19.92	4"	refused	Φ	Y (N)	15	1510	72.0	7.71	0.46	7.1	<input type="radio"/> EPA 601 _____
Total Depth - Water Level=						30	1519	68.2	7.59	0.44		<input checked="" type="radio"/> TPH-G/BTEX <i>HW</i>
42.90 - 19.92 = 22.98 x .05 = 14.93 x 3 = 44.81						45	1577	67.6	7.53	0.42	6.9	<input type="radio"/> TPH Diesel _____
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Baller(s) OSys Port												<input type="radio"/> TOG 5520 _____
Comments: <i>Two stage pump used</i>												TIME/SAMPLE ID
												1530 / 3-9
AW-1	20.60	2"	OL	Φ	Y (N)	3	1545	68.8	7.06	0.49	6.4	<input type="radio"/> EPA 601 _____
Total Depth - Water Level=						6	1551	67.6	7.11	0.46		<input checked="" type="radio"/> TPH-G/BTEX <i>HW</i>
38.60 - 20.60 = 18 x .16 = 2.88 x 3 = 8.64						8.75	1556	66.5	7.17	0.45	6.2	<input type="radio"/> TPH Diesel _____
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Baller(s) OSys Port												<input type="radio"/> TOG 5520 _____
Comments: <i>OL - 1 from this well (5-11)</i>												TIME/SAMPLE ID
												1605 / 3-10
MW-1	19.72	2"	OL	19.50	Y N							<input type="radio"/> EPA 601 _____
Total Depth - Water Level=												<input type="radio"/> TPH-G/BTEX _____
<i>W/M</i>												<input type="radio"/> TPH Diesel _____
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Baller(s) OSys Port												<input type="radio"/> TOG 5520 _____
Comments: <i>1/165 had 1/4 Gall - drilled w/ Shear</i>												TIME/SAMPLE ID
												1615

**APPENDIX B**

**LABORATORY REPORT AND CHAIN OF CUSTODY RECORD**



Client : ALISTO ENGINEERING  
 Project # : G317873A/10-025-08-001  
 Project Name: BP SITE#11133/2220 98TH AVE. OAKLAND, CA

Report Date: July 13, 1995  
 ATI I.D. : 506388

ATI #	Client Description	Matrix	Date Collected
1	S-1	WATER	29-JUN-95
2	S-2	WATER	29-JUN-95
3	S-3	WATER	29-JUN-95
4	S-4	WATER	29-JUN-95
5	S-5	WATER	29-JUN-95
6	S-6	WATER	29-JUN-95
7	S-7	WATER	29-JUN-95
8	S-8	WATER	29-JUN-95
9	S-9	WATER	29-JUN-95
10	S-10	WATER	29-JUN-95
11	S-11	WATER	29-JUN-95
12	S-12	WATER	29-JUN-95

---TOTALS---

<u>Matrix</u>	<u># Samples</u>
WATER	12

ATI STANDARD DISPOSAL PRACTICE

The sample(s) from this project will be disposed of in twenty-one (21) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.



Client : ALISTO ENGINEERING  
Project # : G317873A/10-025-08-001  
Project Name: BP SITE#11133/2220 98TH AVE. OAKLAND, CA

ATI I.D.: 506388

Analysis	Technique/Description
MOD EPA 8015-CDOHS/8020 (HYDROCARBONS C6-C12/BTXE)	GC/FLAME ION./PHOTO IONIZATION DETECTOR



Test : MOD EPA 8015-CDOHS/8020 (HYDROCARBONS C6-C12/BTXE)  
 Client : ALISTO ENGINEERING ATI I.D. : 506388  
 Project # : G317873A/10-025-08-001  
 Project Name: BP SITE#111133/2220 98TH AVE. OAKLAND, CA

Sample #	Client ID	Matrix	Date Sampled	Date Extracted	Date Analyzed	Dil. Factor
1	S-1	WATER	29-JUN-95	N/A	11-JUL-95	1.00
2	S-2	WATER	29-JUN-95	N/A	11-JUL-95	1.00
3	S-3	WATER	29-JUN-95	N/A	11-JUL-95	1.00

Parameter	Units	1	2	3
BENZENE	UG/L	<0.50	<0.50	<0.50
TOLUENE	UG/L	<0.50	<0.50	<0.50
ETHYLBENZENE	UG/L	<0.50	<0.50	<0.50
XYLENES (TOTAL)	UG/L	<1.0	<1.0	<1.0
FUEL HYDROCARBONS	UG/L	<50	<50	100
HYDROCARBON RANGE		C6-C12	C6-C12	C6-C12
HYDROCARBONS QUANTITATED USING		GASOLINE	GASOLINE	GASOLINE
<u>SURROGATES</u>				
TRIFLUOROTOLUENE	%	104	105	100



Test : MOD EPA 8015-CDOHS/8020 (HYDROCARBONS C6-C12/BTXE)  
 Client : ALISTO ENGINEERING ATI I.D. : 506388  
 Project # : G317873A/10-025-08-001  
 Project Name: BP SITE#11133/2220 98TH AVE. OAKLAND, CA

Sample #	Client ID	Matrix	Date Sampled	Date Extracted	Date Analyzed	Dil. Factor
4	S-4	WATER	29-JUN-95	N/A	11-JUL-95	1.00
5	S-5	WATER	29-JUN-95	N/A	11-JUL-95	1.00
6	S-6	WATER	29-JUN-95	N/A	11-JUL-95	1.00

Parameter	Units	4	5	6		
BENZENE	UG/L	<0.50	<0.50	<0.50		
TOLUENE	UG/L	<0.50	<0.50	<0.50		
ETHYLBENZENE	UG/L	<0.50	<0.50	<0.50		
XYLENES (TOTAL)	UG/L	<1.0	<1.0	<1.0		
FUEL HYDROCARBONS	UG/L	<50	<50	<50		
HYDROCARBON RANGE		C6-C12	C6-C12	C6-C12		
HYDROCARBONS QUANTITATED USING		GASOLINE	GASOLINE	GASOLINE		
<u>SURROGATES</u>						
TRIFLUOROTOLUENE	%	103	103	103		



Test : MOD EPA 8015-CDOHS/8020 (HYDROCARBONS C6-C12/BTXE)  
 Client : ALISTO ENGINEERING ATI I.D. : 506388  
 Project # : G317873A/10-025-08-001  
 Project Name: BP SITE#11133/2220 98TH AVE. OAKLAND, CA

Sample #	Client ID	Matrix	Date Sampled	Date Extracted	Date Analyzed	Dil. Factor
7	S-7	WATER	29-JUN-95	N/A	11-JUL-95	1.00
8	S-8	WATER	29-JUN-95	N/A	11-JUL-95	50.00
9	S-9	WATER	29-JUN-95	N/A	12-JUL-95	1.00

Parameter	Units	7	8	9
BENZENE	UG/L	<0.50	62	1.2@E
TOLUENE	UG/L	<0.50	190	0.58@E
ETHYLBENZENE	UG/L	<0.50	190	7.3
XYLENES (TOTAL)	UG/L	<1.0	1100	2.2
FUEL HYDROCARBONS	UG/L	<50	8000	490
HYDROCARBON RANGE		C6-C12	C6-C12	C6-C12
HYDROCARBONS QUANTITATED USING		GASOLINE	GASOLINE	GASOLINE
<u>SURROGATES</u>				
TRIFLUOROTOLUENE	%	105	104	107



Test : MOD EPA 8015-CDOHS/8020 (HYDROCARBONS C6-C12/BTXE)  
 Client : ALISTO ENGINEERING ATI I.D. : 506388  
 Project # : G317873A/10-025-08-001  
 Project Name: BP SITE#11133/2220 98TH AVE. OAKLAND, CA

Sample #	Client ID	Matrix	Date Sampled	Date Extracted	Date Analyzed	Dil. Factor
10	S-10	WATER	29-JUN-95	N/A	12-JUL-95	200.00
11	S-11	WATER	29-JUN-95	N/A	11-JUL-95	500.00
12	S-12	WATER	29-JUN-95	N/A	11-JUL-95	1.00

Parameter	Units	10	11	12
BENZENE	UG/L	10000	12000	<0.50
TOLUENE	UG/L	7300	8400	<0.50
ETHYLBENZENE	UG/L	4200	4800	<0.50
XYLENES (TOTAL)	UG/L	15000	18000	<1.0
FUEL HYDROCARBONS	UG/L	72000	86000	<50
HYDROCARBON RANGE		C6-C12	C6-C12	C6-C12
HYDROCARBONS QUANTITATED USING		GASOLINE	GASOLINE	GASOLINE
<u>SURROGATES</u>				
TRIFLUOROTOLUENE	%	100	103	97





## REAGENT BLANK

Page 7

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)  
Blank I.D. : 36022  
Client : ALISTO ENGINEERING  
Project # : G317873A/10-025-08-001  
Project Name: BP SITE#111133/2220 98TH AVE. OAKLAND, CA

ATI I.D. : 506388  
Date Extracted: N/A  
Date Analyzed : 11-JUL-95  
Dil. Factor : 1.00

Parameters	Units	Results
BENZENE	UG/L	<0.50
TOLUENE	UG/L	<0.50
ETHYLBENZENE	UG/L	<0.50
XYLENES (TOTAL)	UG/L	<1.0
FUEL HYDROCARBONS	UG/L	<50
HYDROCARBON RANGE		C6-C12
HYDROCARBONS QUANTITATED USING		GASOLINE
<u>SURROGATES</u>		
TRIFLUOROTOLUENE	%	98



REAGENT BLANK

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)  
Blank I.D. : 36026  
Client : ALISTO ENGINEERING  
Project # : G317873A/10-025-08-001  
Project Name: BP SITE#11133/2220 98TH AVE. OAKLAND, CA

ATI I.D. : 506388  
Date Extracted: N/A  
Date Analyzed : 11-JUL-95  
Dil. Factor : 1.00

Parameters	Units	Results
BENZENE	UG/L	<0.50
TOLUENE	UG/L	<0.50
ETHYLBENZENE	UG/L	<0.50
XYLENES (TOTAL)	UG/L	<1.0
FUEL HYDROCARBONS	UG/L	<50
HYDROCARBON RANGE		C6-C12
HYDROCARBONS QUANTITATED USING		GASOLINE
<u>SURROGATES</u>		
TRIFLUOROTOLUENE	%	99



## REAGENT BLANK

Page 9

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)  
Blank I.D. : 36027  
Client : ALISTO ENGINEERING  
Project # : G317873A/10-025-08-001  
Project Name: BP SITE#11133/2220 98TH AVE. OAKLAND, CA

ATI I.D. : 506388  
Date Extracted: N/A  
Date Analyzed : 12-JUL-95  
Dil. Factor : 1.00

Parameters	Units	Results
BENZENE	UG/L	<0.50
TOLUENE	UG/L	<0.50
ETHYLBENZENE	UG/L	<0.50
XYLENES (TOTAL)	UG/L	<1.0
FUEL HYDROCARBONS	UG/L	<50
HYDROCARBON RANGE		C6-C12
HYDROCARBONS QUANTITATED USING		GASOLINE
<u>SURROGATES</u>		
TRIFLUOROTOLUENE	%	102



## MSMSD

Page 10

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)  
 MSMSD # : 77044  
 Client : ALISTO ENGINEERING

ATI I.D. : 506388  
 Date Extracted: N/A  
 Date Analyzed : 11-JUL-95  
 Sample Matrix : WATER  
 REF I.D. : 506388-01

Project # : G317873A/10-025-08-001  
 Project Name: BP SITE#11133/2220 98TH AVE. OAKLAND, CA

Parameters	Units	Sample Result	Conc Spike	Spiked Sample	% Rec	Dup Spike	Dup % Rec	RPD
BENZENE	UG/L	<0.50	5.0	4.5	90	4.5	90	0
TOLUENE	UG/L	<0.50	5.0	4.7	94	4.7	94	0

% Recovery = (Spike Sample Result - Sample Result)\*100/Spike Concentration

RPD (Relative % Difference) = (Spiked Sample Result - Duplicate Spike Result)\*100/Average Result



BLANK SPIKE

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)  
 Blank Spike #: 57579  
 Client : ALISTO ENGINEERING  
 Project # : G317873A/10-025-08-001  
 Project Name : BP SITE#11133/2220 98TH AVE. OAKLAND, CA

ATI I.D. : 506388  
 Date Extracted: N/A  
 Date Analyzed : 11-JUL-95  
 Sample Matrix : WATER

Parameters	Units	Blank Result	Spiked Sample	Spike Conc.	% Rec
BENZENE	UG/L	<0.50	5.1	5.0	102
TOLUENE	UG/L	<0.50	5.2	5.0	104

% Recovery = (Spike Sample Result - Sample Result)\*100/Spike Concentration  
 RPD (Relative % Difference) = (Spiked Sample - Blank Result)\*100/Average Result



## BLANK SPIKE

Page 12

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)  
Blank Spike #: 57583  
Client : ALISTO ENGINEERING  
Project # : G317873A/10-025-08-001  
Project Name : BP SITE#11133/2220 98TH AVE. OAKLAND, CA

ATI I.D. : 506388  
Date Extracted: N/A  
Date Analyzed : 11-JUL-95  
Sample Matrix : WATER

Parameters	Units	Blank Result	Spiked Sample	Spike Conc.	% Rec
BENZENE	UG/L	<0.50	4.7	5.0	94
TOLUENE	UG/L	<0.50	4.8	5.0	96

% Recovery = (Spike Sample Result - Sample Result)\*100/Spike Concentration

RPD (Relative % Difference) = (Spiked Sample - Blank Result)\*100/Average Result



BLANK SPIKE

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)  
 Blank Spike #: 57586  
 Client : ALISTO ENGINEERING  
 Project # : G317873A/10-025-08-001  
 Project Name : BP SITE#11133/2220 98TH AVE. OAKLAND, CA

ATI I.D. : 506388  
 Date Extracted: N/A  
 Date Analyzed : 12-JUL-95  
 Sample Matrix : WATER

Parameters	Units	Blank Result	Spiked Sample	Spike Conc.	% Rec
BENZENE	UG/L	<0.50	4.5	5.0	90
TOLUENE	UG/L	<0.50	4.9	5.0	98

% Recovery = (Spike Sample Result - Sample Result)\*100/Spike Concentration  
 RPD (Relative % Difference) = (Spiked Sample - Blank Result)\*100/Average Result

**ATI-SanDiego**  
**SAMPLE CONDITION UPON RECEIPT CHECKLIST**  
**(FOR RE-ACCESSIONS, COMPLETE #7 THRU #9)**

1	Does this project require special handling according to NFESC Levels C, D, AFCEE or CLP protocols? If yes, complete a) and b) a) pH sample aliquoted: yes / no / na b) Either 1) Record Bottle Lot #'s: Or 2) Attach Sample Kit Request Form(s)	YES	<input checked="" type="radio"/> NO
2	Number of Coolers Received If more than one cooler received attach Multiple Cooler Documentation Form (MCD) Indicate "see MCD" on Item 11 below	7	
3	Are custody seals required for this project ?  a) are Custody Seals present on Cooler(s) ?  If yes, are seals intact ?  b) are Custody Seals present on the sample ?  If yes, are seals intact ?	YES	<input checked="" type="radio"/> N/A
		YES	<input checked="" type="radio"/> NO
		YES	NO
		YES	<input checked="" type="radio"/> NO
		YES	NO
4	Is there a Chain-Of-Custody (COC)* per cooler ? if not, if a problem is found indicate which samples/test were in the affected cooler on the MCD.	<input checked="" type="radio"/> YES	NO
5	Is the COC* complete per cooler ? Relinquished: <input checked="" type="radio"/> yes / no Requested analysis: <input checked="" type="radio"/> yes / no	<input checked="" type="radio"/> YES	NO
6	Is the COC* in agreement with the samples received? # Samples: <input checked="" type="radio"/> yes / no Sample ID's: <input checked="" type="radio"/> yes / no Date sampled: <input checked="" type="radio"/> yes / no Matrix: <input checked="" type="radio"/> yes / no # containers: <input checked="" type="radio"/> yes / no	<input checked="" type="radio"/> YES	NO
7	Are the samples preserved correctly?	<input checked="" type="radio"/> YES	NO
8	Is there enough sample for all the requested analyses?	<input checked="" type="radio"/> YES	NO
9	Are all samples within holding times for the requested analyses?	<input checked="" type="radio"/> YES	NO
10	Record cooler temperature. Contact PM if temperature is not 4°C ± 2°C.  Is ice present in cooler?	2.4 °C	
		<input checked="" type="radio"/> YES	NO
11	Were all sample containers received intact (ie. not broken, leaking, etc.)?	<input checked="" type="radio"/> YES	NO
12	Are samples requiring no headspace, headspace free? <span style="float: right;">N/A</span>	<input checked="" type="radio"/> YES	NO
13	Are VOA 1st stickers required?	YES	<input checked="" type="radio"/> NO
14	Are there special comments on the Chain of Custody which require client contact?	YES	<input checked="" type="radio"/> N/A
15	If yes, was ATI Project Manager notified?	YES	NO

Describe "no" items: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Was client contacted? yes / no  
 If yes, Date: \_\_\_\_\_ Name of Person contacted:  
 Describe actions taken or client instructions: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

\*Or other representative documents, letters, and/or shipping memos





ATL# 506388

CHAIN OF CUSTODY

No 055824

Page 1 of 1

CONSULTANT'S NAME: Aliso Engineering ADDRESS: 1575 Trent Blvd CITY: West Coast Creek CA STATE: CA ZIP CODE: 94598

BP SITE NUMBER: 11133 BP CORNER ADDRESS/CITY: 2220 98th Ave, Oakland CA CONSULTANT PROJECT NUMBER: 10-035-08-001

CONSULTANT PROJECT MANAGER: Bill Howell PHONE NUMBER: (510) 295 1650 FAX NUMBER: (510) 295 1823 CONSULTANT CONTRACT NUMBER: 0317873A

BP CONTACT: Santa Monica BP ADDRESS: Renton WA PHONE NUMBER: \_\_\_\_\_ FAX NO.: \_\_\_\_\_

LAB CONTACT: ATI, Inc LABORATORY ADDRESS: San Diego CA PHONE NUMBER: \_\_\_\_\_ FAX NO.: \_\_\_\_\_

SAMPLED BY (Please Print Name): Dave Casare SAMPLED BY (Signature): [Signature] SHIPMENT DATE: \_\_\_\_\_ SHIPMENT METHOD: Road FedEx

TAT:  24 Hours  48 Hours  1 Week  Standard 2 Weeks

ANALYSIS REQUIRED

AIRBILL NUMBER: 1818920983

SAMPLE DESCRIPTION	COLLECTION DATE	MATRIX SOIL/WATER	CONTAINERS		PRESERVATIVE	COMMENTS
	COLLECTION TIME		NO.	TYPE (VOL.)	LAB SAMPLE #	
S-1 1215	6/29/95	H2O	2	Voa	01	Heu TPH GAS Bref X
S-2 1230	↓	↓	↓	↓	02	↓
S-3 1140					03	
S-4 1300					04	
S-5 1325					05	
S-6 1404					06	
S-7 1435					07	
S-8 1455					08	
S-9 1530					09	
S-10 1605					10	
S-11 -					11	
S-12 -					12	

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	ADDITIONAL COMMENTS
<u>[Signature]</u> West Coast Creek Aliso	6/30/95	10:00	<u>[Signature]</u>			
/	/	/	<u>[Signature]</u> (ATI)	7-1-95	09:00	2.40