BP OIL

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

August 28, 1995

>120 days for QMR

95 AUG 31 AM 11:05

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

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

Dear Ms Chu:

Attached please find our **GROUNDWATER MONITORING AND SAMPLING REPORT DATED July 20, 1995** for the above referenced facility. Please note that we are continuing to operate the groundwater and vapor extraction systems. I anticipate evaluating the migration control effectiveness sometime within the next two calendar quarters.

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

Respectfully,

Scott T. Hooton
Environmental Resources Management
Group Leader

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

GROUNDWATER MONITORING AND SAMPLING REPORT

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

Project No. 10-025-04-004

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

July 20, 1995

Brady Nagle
Project Manager

Al Sevilla, P.E.
Principal

REGISTERED PROFESSIONAL ENGINEER
ALBERTO SANCHEZ SEVILLA
26392
Exp. Date 3/31/96
CIVIL
STATE OF CALIFORNIA

GROUNDWATER MONITORING AND SAMPLING REPORT

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

Project No. 10-025-04-004

July 20, 1995

INTRODUCTION

This report presents the results and findings of the April 10, 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-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	0.8	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	8.38	---	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-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	16.84	---	17.69	370	2.1	2.3	2.3	6.0	---	PACE
MW-3	01/27/94	36.53	16.00	---	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

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-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-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<0.6	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-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	2600	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	1.6	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	53	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	---	---	---	---	---	---	---	---	---	---

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-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	23000	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-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	—	14.56	---	---	---	---	---	—	---
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	24.36	—	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-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<50	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

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
BP OIL COMPANY SERVICE STATION NO. 11133
2220 96TH 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	23.36	—	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	07/06/92	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-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	07/06/92	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	24.55	—	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
RW-1	04/05/91	37.73	—	—	—	—	—	—	—	—	—	—
RW-1	04/01/92	37.73	22.81	0.30	15.14	—	—	—	—	—	—	—
RW-1	07/06/92	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

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 measured/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.

E:\0\10-029\025-4-4.WQ2

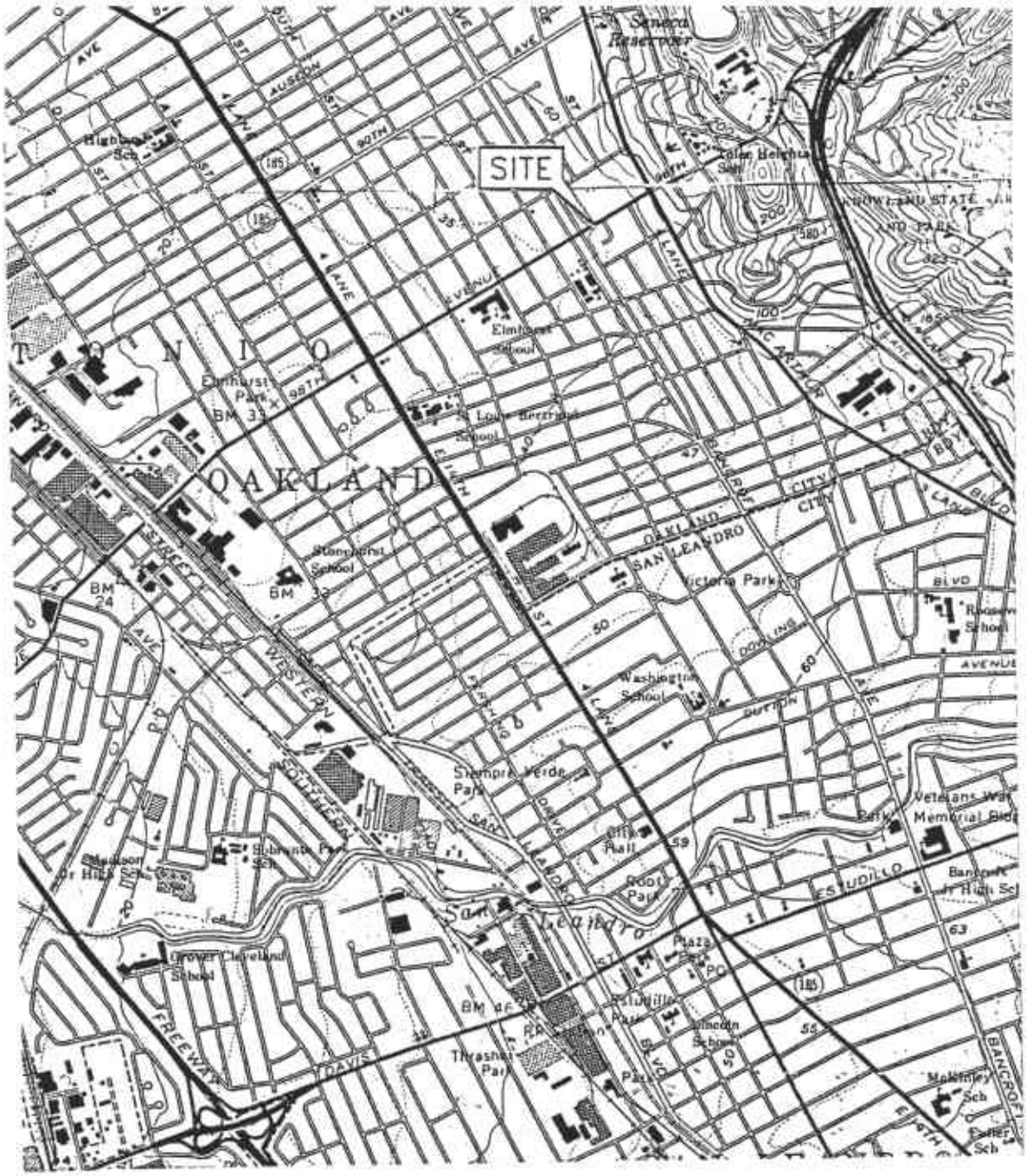
TABLE 2 - PRODUCT REMOVAL STATUS

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

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



SOURCE:
USGS MAP, OAKLAND EAST AND SAN LEANDRO QUADRANGLES, CALIFORNIA. 7.5 MINUTE SERIES. 1956. PHOTOREVISED 1980.

N

0 1000' 2000'

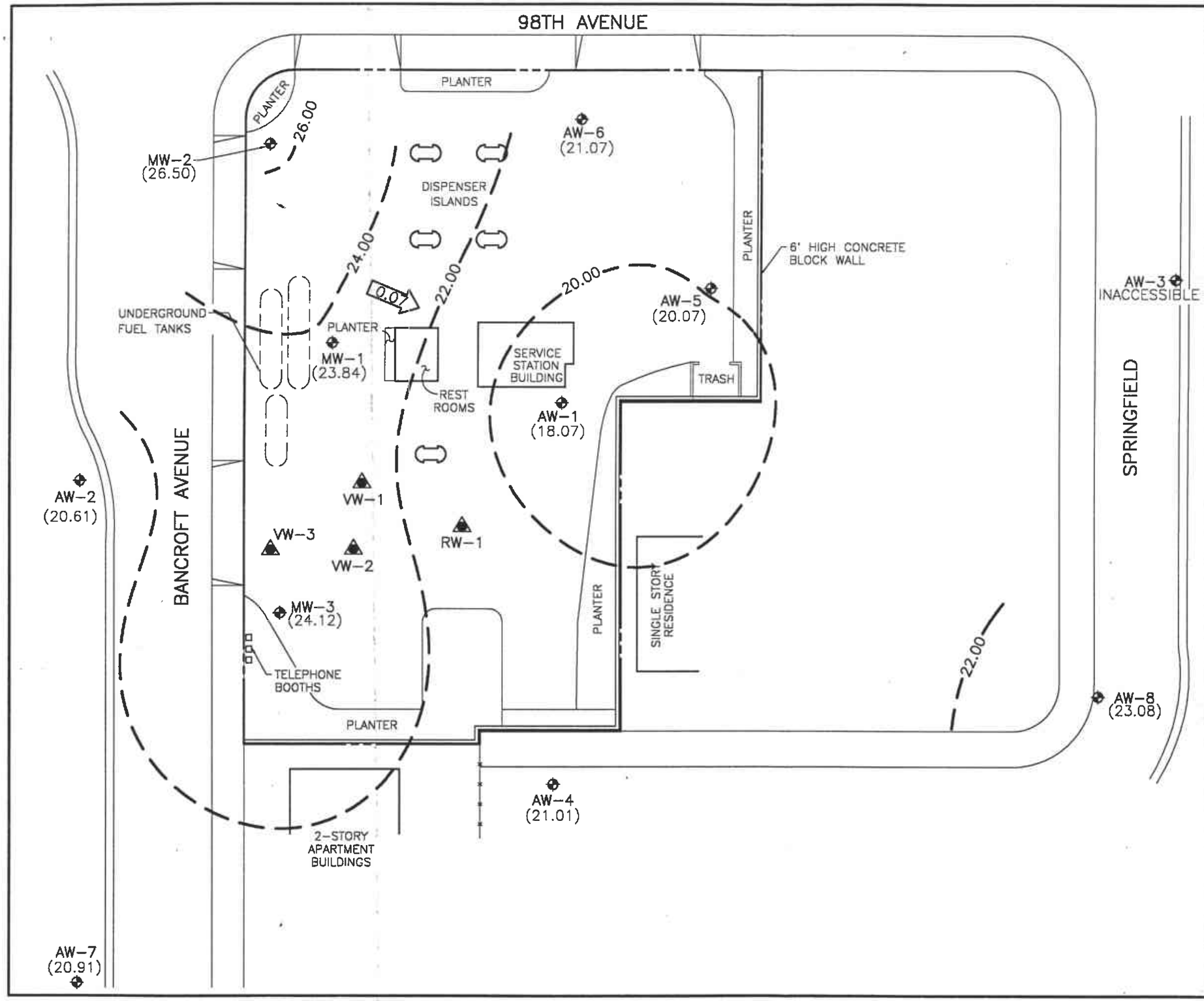
FIGURE 1

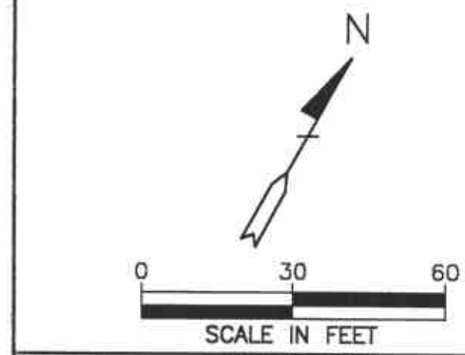
SITE VICINITY MAP

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

PROJECT NO. 10-025

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA





LEGEND

- GROUNDWATER MONITORING WELL
- VAPOR EXTRACTION WELL
- (23.08) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 22.00 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL–2.00 FEET)
- 0.07 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 2

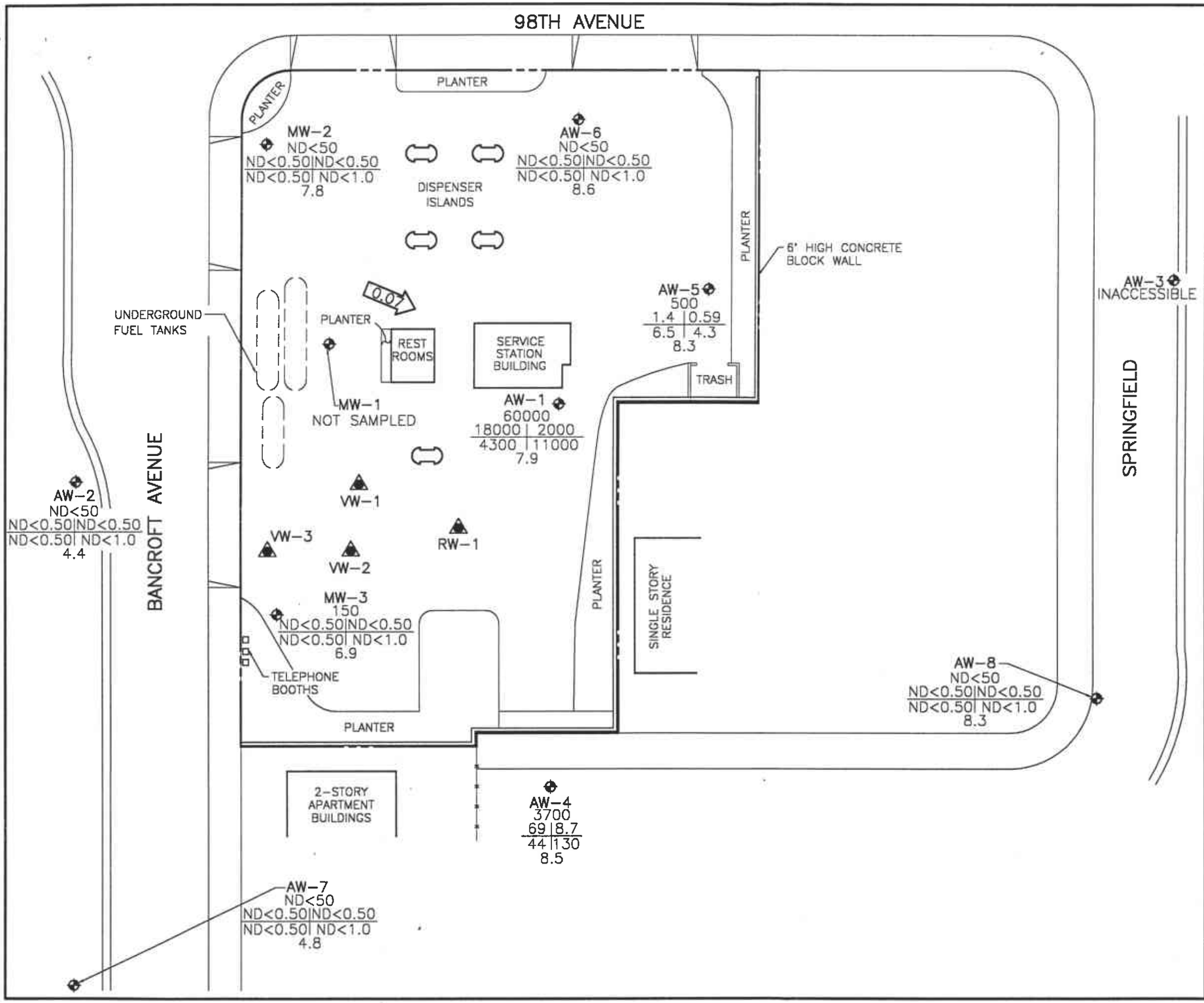
POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP

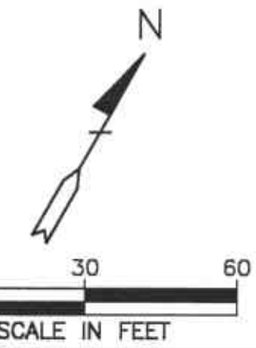
APRIL 10, 1995

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

PROJECT NO. 10–025

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA





LEGEND

- GROUNDWATER MONITORING WELL
- VAPOR EXTRACTION WELL
- TPH-G / B | T / E | X / DO — CONCENTRATION OF CONSTITUENTS IN MICROGRAMS PER LITER, EXCEPT DISSOLVED OXYGEN, WHICH IS IN PARTS PER MILLION
- TPH-G — TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
- B — BENZENE
- T — TOLUENE
- E — ETHYLBENZENE
- X — TOTAL XYLENES
- DO — DISSOLVED OXYGEN
- ND — NOT DETECTED ABOVE REPORTED DETECTION LIMIT
- 0.07 — CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 3

CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER

APRIL 10, 1995

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

PROJECT NO. 10-025

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

APPENDIX A

WATER SAMPLING FIELD SURVEY FORMS

ALISTO

ENGINEERING GROUP
1777 OAKLAND BLVD, STE 200
WALNUT CREEK CA 94596 (510) 295-1650 FAX 295-1823

Field Report / Sampling Data Sheet

○ Groundwater Sampling

Date: 4/10/95 Project No. 10-025-04-003
Day: (M) T W Th F Facility No. 11133
Barometric pres. 760 Temp. 68°F Address 2220 98th Ave, Oakland
SAMPLER: DC

Well ID	SAMPLE #	WATER time	Well ID	SAMPLE #	WATER/ time	Well ID	SAMPLE	WATER / time
AW-7	S-1	16.69 / 1101	AW-3	inaccess.	—	MW-1	not	10.62 / 1130
AW-2	S-2	16.22 / 1104	AW-8	S-6	17.78 / 1120			
MW-3	S-3	12.41 / 1107	AW-4	S-7	18.07 / 1122			
MW-2	S-4	9.00 / 1112	AW-5	S-8	18.44 / 1126			
AW-6	S-5	16.01 / 1116	AW-1	S-9	20.04 / 1128			

FIELD INSTRUMENT CALIBRATION DATA

PH METER Hydac 4.00 ✓ 7.00 ✓ 10.00 ___ TIME 1140 TEMPERATURE COMPENSATED (Y) N
TURBIDI METER ___ 5.0 NTU STANDARD ___ OTHER ___ Icm DO meter OSOH ✓ @ 1145
CONDUCTIVITY METER Hydac 10,000 ✓ OTHER ___

Well ID	Depth to Water	Diam	Cap/Lock	Depth to prod.	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.	
AW-7	16.69	2"	OK	ϕ	Y (N)	3	1153	68.2	7.43	0.50	5.6	○ EPA 601 ___
						6	1157	66.8	7.23	0.42		⊗ TPH-G/BTEX Hcl
						7.5	1201	66.6	7.17	0.40	4.8	○ TPH Diesel ___
												○ TOG 5520 ___

Total Depth - Water Level = x Well Vol. Factor = x #vol. to Purge = PurgeVol.
32.30 - 16.69 = 15.61 x .16 = 2.5 x 3 = 7.5
Purge Method: OSurface Pump ODisp.Tube OWinch ⊗ Disp. Bailer(s) OSys Port
Comments: Time/Sample 1203 / S-1

Well ID	Depth to Water	Diam	Cap/Lock	Depth to prod.	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.	
AW-2	16.22	2"	OK	ϕ	Y (N)	3	1207	67.1	6.91	0.41	4.7	○ EPA 601 ___
						6	1212	66.7	6.74	0.33		○ TPH-G/BTEX ___
						9.25	1217	66.3	6.70	0.32	4.4	○ TPH Diesel ___
												○ TOG 5520 ___

Total Depth - Water Level = x Well Vol. Factor = x #vol. to Purge = PurgeVol.
35.20 - 16.22 = 18.98 = 3.03 x 3 = 9.11
Purge Method: OSurface Pump ODisp.Tube OWinch ⊗ Disp. Bailer(s) OSys Port
Comments: Time/ Sample 1220 / S-2

Well ID	Depth to Water	Diam	Cap/Lock	Depth to prod.	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.	
MW-3	12.41	2"	OK	ϕ	Y (N)	2	1240	67.3	7.56	0.39	7.3	⊗ EPA 601 ___
						4	1243	66.5	7.47	0.31		⊗ TPH-G/BTEX Hcl
						4.75	1247	66.4	7.55	0.31	6.9	○ TPH Diesel ___
												○ TOG 5520 ___

Total Depth - Water Level = x Well Vol. Factor = x #vol. to Purge = PurgeVol.
21.93 * 12.41 = 9.42 x .16 = 1.5 x 3 = 4.52
Purge Method: ⊗ Surface Pump ODisp.Tube OWinch ODisp. Bailer(s) OSys Port
Comments: Time /Sample 1252 / S-3

ALISTO

ENGINEERING GROUP
1777 OAKLAND BLVD, STE 200
WALNUT CREEK CA 94596 (510) 295-1650 FAX 295-1823

Field Report / Sampling Data Sheet

X Groundwater Sampling

Date: 4/10/95 Project No. 10-025-04-004
Day: MSM Station No. ~~11~~ 11133
Weather: Sunny Address 22098th Ave, Oakland Ca
SAMPLER: JDC

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.	
MW-2	9.00	2"	OK	Ø	Ø	4	1257	65.5	7.67	0.26	7.3	O EPA 601 ____
						8	1300	65.9	7.71	0.24		X TPH-G/BTEX Hcl
						12	1303	66.1	7.68	0.24	7.8	O TPH Diesel ____
												O TOG 5520 __
												Time Sampled
												1305 / S-4

Total Depth - Water Level = x Well Vol. Factor = x#vol. to Purge = PurgeVol.
34.10 - 9.00 = 25.1 x .16 = 4.02 x 3 = 12.05
Purge Method: X Surface Pump O Disp.Tube O Winch O Disp. Bailer(s) ___ O Sys Port
Comments:

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.	
AW-6	16.01	4"	OK	Ø	Ø	10	1319	66.4	7.65	0.36	8.5	O EPA 601 ____
						20	1324	66.2	7.77	0.37		X TPH-G/BTEX Hcl
						25	1327	65.8	7.81	0.37	8.6	O TPH Diesel ____
												O TOG 5520 __
												Time Sampled
												1330 / S-5

Total Depth - Water Level = x Well Vol. Factor = x#vol. to Purge = PurgeVol.
34.20 - 16.01 = 18.19 x .65 = 11.82 x 3 = 35.47
Purge Method: X Surface Pump O Disp.Tube O Winch O Disp. Bailer(s) ___ O Sys Port
Comments: Stable @ 25 gals

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.	
AW-8	17.78	2"	OK	Ø	Ø	4	1352	68.8	7.92	0.55	7.7	O EPA 601 ____
						8	1357	66.9	7.67	0.49		X TPH-G/BTEX Hcl
						10	1402	66.7	7.62	0.47	8.3	O TPH Diesel ____
												O TOG 5520 __
												Time Sampled
												1404 / S-6

Total Depth - Water Level = x Well Vol. Factor = x#vol. to Purge = PurgeVol.
39.20 - 17.78 = 21.42 x .16 = 3.42 x 3 = 10.28
Purge Method: X Surface Pump O Disp.Tube O Winch O Disp. Bailer(s) ___ O Sys Port
Comments:

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.	
AW-4	18.07	2"	OK	Ø	Ø	3	1412	68.8	8.01	0.51	9.4	O EPA 601 ____
						6	1417	67.2	7.87	0.52		X TPH-G/BTEX Hcl
						8.25	1422	66.9	7.84	0.52	8.5	O TPH Diesel ____
												O TOG 5520 __
												Time Sampled
												1425 / S-7

Total Depth - Water Level = x Well Vol. Factor = x#vol. to Purge = PurgeVol.
35.00 - 18.07 = 16.93 x .16 = 2.71 x 3 = 8.13
Purge Method: X Surface Pump O Disp.Tube O Winch O Disp. Bailer(s) ___ O Sys Port
Comments:

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.	
AW-5	18.44	4"	RL Well	Ø	Ø	15	1449	71.9	7.93	0.44	8.5	O EPA 601 ____
						30	1504	69.8	7.81	0.40		X TPH-G/BTEX Hcl
						45	1512	69.2	7.78	0.40	8.3	O TPH Diesel ____
												O TOG 5520 __
												Time Sampled
												1515 / S-8

Total Depth - Water Level = x Well Vol. Factor = x#vol. to Purge = PurgeVol.
42.90 - 18.44 = 24.46 x .65 = 15.9 x 3 = 47.69
Purge Method: X Surface Pump O Disp.Tube O Winch O Disp. Bailer(s) ___ O Sys Port
Comments:

ALISTO

Field Report / Sampling Data Sheet

ENGINEERING GROUP
1777 OAKLAND BLVD, STE 200
WALNUT CREEK CA 94596 (510) 295-1650 FAX 295-1823

Groundwater Sampling

Date: 4/10/95 Project No. 10-025-04-004
Day: Mon Station No. 11133
Weather: Sunny Address 2220 98th Ave, Oakland
SAMPLER: JC

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness
AW-1	20.04	2"	replaced	Φ	Φ

Total Depth - Water Level = x Well Vol. Factor = x#vol. to Purge = PurgeVol.
38.60 - 20.04 = 18.56 x .16 = 2.96 x 3 = 9
Purge Method: ASurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSye Port
Comments: Collected from this well (S-10)

Gal.	Time	Temp °F	pH	E.C.	D.O.
3	1524	70.3	7.46	0.50	8.4
6	1529	69.4	7.67	0.49	
9	1535	68.9	7.62	0.49	7.9

O EPA 601___
X TPH-G/BTEX Hue
O TPH Diesel___
O TOG 5520 __
Time Sampled
1542 / S-9

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness
MW-1	10.62	2"	OK	10.56	0.06

Total Depth - Water Level = x Well Vol. Factor = x#vol. to Purge = PurgeVol.
NM
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSye Port
Comments:

O EPA 601___
O TPH-G/BTEX___
O TPH Diesel___
O TOG 5520 __
Time Sampled
NOT

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness

Total Depth - Water Level = x Well Vol. Factor = x#vol. to Purge = PurgeVol.
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSye Port
Comments:

O EPA 601___
O TPH-G/BTEX___
O TPH Diesel___
O TOG 5520 __
Time Sampled

- AW-3 has car parked right over it, inaccessible
- Serviced PPRS in MW-1; had 1/4 gall of H2O with a tiny sheen present.
- MW-5 cap & lock were Jammed into well casing, pried it out & replaced lock & cap

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD

Analytical**Technologies,** Inc. Corporate Offices: 5550 Morehouse Drive San Diego, CA 92121 (619) 458-9141

ATI I.D.: 504109

April 20, 1995

ALISTO ENGINEERING
1777 OAKLAND BOULEVARD, SUITE 200
WALNUT CREEK, CA 94596

Project Name: BP SITE#11133/2220 98TH AVE, OAKLAND CA
Project # : G317873/10-025-04-004

Attention: BILL HOWELL

Analytical Technologies, Inc. has received the following sample(s):

Date Received	Quantity	Matrix
April 12, 1995	11	WATER

The sample(s) were analyzed with EPA methodology or equivalent methods as specified in the enclosed analytical schedule. The symbol for "less than" indicates a value below the reportable detection limit. If any flags appear next to the analytical data in this report, please see the attached list of flag definitions.

The results of these analyses and the quality control data are enclosed. Please note that the Sample Condition Upon Receipt Checklist is included at the end of this report.

GARY STEWART
VOLATILES SUPERVISOR

ALAN J. KLEINSCHMIDT
LABORATORY MANAGER

Analytical Technologies, Inc.

SAMPLE CROSS REFERENCE

Client : ALISTO ENGINEERING
Project # : G317873/10-025-04-004
Project Name: BP SITE#11133/2220 98TH AVE, OAKLAND CA

Report Date: April 20, 1995
ATI I.D. : 504109

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

---TOTALS---

Matrix	# Samples
WATER	11

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.

Analytical Technologies, Inc.

ANALYTICAL SCHEDULE

Client : ALISTO ENGINEERING
Project # : G317873/10-025-04-004 ATI I.D.: 504109
Project Name: BP SITE#11133/2220 98TH AVE, OAKLAND CA

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

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

Test : MOD EPA 8015-CDOHS/8020 (HYDROCARBONS C6-C12/BTXE)
Client : ALISTO ENGINEERING ATI I.D. : 504109
Project # : G317873/10-025-04-004
Project Name: BP SITE#11133/2220 98TH AVE, OAKLAND CA

Sample #	Client ID	Matrix	Date Sampled	Date Extracted	Date Analyzed	Dil. Factor
1	S-1	WATER	10-APR-95	N/A	18-APR-95	1.00
2	S-2	WATER	10-APR-95	N/A	18-APR-95	1.00
3	S-3	WATER	10-APR-95	N/A	18-APR-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	150
HYDROCARBON RANGE		C6-C12	C6-C12	C6-C12
HYDROCARBONS QUANTITATED USING		GASOLINE	GASOLINE	GASOLINE
SURROGATES				
TRIFLUOROTOLUENE	%	110	111	106

GAS CHROMATOGRAPHY RESULTS

Test : MOD EPA 8015-CDOHS/8020 (HYDROCARBONS C6-C12/BTXE)
Client : ALISTO ENGINEERING ATI I.D. : 504109
Project # : G317873/10-025-04-004
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	10-APR-95	N/A	18-APR-95	1.00
5	S-5	WATER	10-APR-95	N/A	18-APR-95	1.00
6	S-6	WATER	10-APR-95	N/A	18-APR-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
SURROGATES				
TRIFLUOROTOLUENE	%	106	96	98

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

Test : MOD EPA 8015-CDOHS/8020 (HYDROCARBONS C6-C12/BTXE)
Client : ALISTO ENGINEERING ATI I.D. : 504109
Project # : G317873/10-025-04-004
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	10-APR-95	N/A	19-APR-95	5.00
8	S-8	WATER	10-APR-95	N/A	18-APR-95	1.00
9	S-9	WATER	10-APR-95	N/A	19-APR-95	200.00

Parameter	Units	7	8	9
BENZENE	UG/L	69	1.4@E	18000
TOLUENE	UG/L	8.7	0.59@E	2000
ETHYLBENZENE	UG/L	44	6.5	4300
XYLENES (TOTAL)	UG/L	130	4.3	11000
FUEL HYDROCARBONS	UG/L	3700	500	60000
HYDROCARBON RANGE		C6-C12	C6-C12	C6-C12
HYDROCARBONS QUANTITATED USING		GASOLINE	GASOLINE	GASOLINE
SURROGATES				
TRIFLUOROTOLUENE	%	80	206*H	99

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

Test : MOD EPA 8015-CDOHS/8020 (HYDROCARBONS C6-C12/BTXE)
Client : ALISTO ENGINEERING ATI I.D. : 504109
Project # : G317873/10-025-04-004
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	10-APR-95	N/A	19-APR-95	200.00
11	S-11	WATER	10-APR-95	N/A	18-APR-95	1.00

Parameter	Units	10	11
BENZENE	UG/L	17000	<0.50
TOLUENE	UG/L	2000	<0.50
ETHYLBENZENE	UG/L	3900	<0.50
XYLENES (TOTAL)	UG/L	10000	<1.0
FUEL HYDROCARBONS	UG/L	56000	<50
HYDROCARBON RANGE		C6-C12	C6-C12
HYDROCARBONS QUANTITATED USING		GASOLINE	GASOLINE
SURROGATES			
TRIFLUOROTOLUENE	%	94	111

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - QUALITY CONTROL

REAGENT BLANK

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)
Blank I.D. : 35071
Client : ALISTO ENGINEERING
Project # : G317873/10-025-04-004
Project Name: BP SITE#11133/2220 98TH AVE, OAKLAND CA

ATI I.D. : 504109
Date Extracted: N/A
Date Analyzed : 18-APR-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
SURROGATES		
TRIFLUOROTOLUENE	%	107

GAS CHROMATOGRAPHY - QUALITY CONTROL

REAGENT BLANK

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)
Blank I.D. : 35072
Client : ALISTO ENGINEERING
Project # : G317873/10-025-04-004
Project Name: BP SITE#11133/2220 98TH AVE, OAKLAND CA

ATI I.D. : 504109
Date Extracted: N/A
Date Analyzed : 18-APR-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
SURROGATES		
TRIFLUOROTOLUENE	%	102

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - QUALITY CONTROL

REAGENT BLANK

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)
Blank I.D. : 35075
Client : ALISTO ENGINEERING
Project # : G317873/10-025-04-004
Project Name: BP SITE#11133/2220 98TH AVE, OAKLAND CA

ATI I.D. : 504109
Date Extracted: N/A
Date Analyzed : 19-APR-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
SURROGATES		
TRIFLUOROTOLUENE	%	98

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - QUALITY CONTROL

REAGENT BLANK

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)
Blank I.D. : 35076
Client : ALISTO ENGINEERING
Project # : G317873/10-025-04-004
Project Name: BP SITE#11133/2220 98TH AVE, OAKLAND CA

ATI I.D. : 504109
Date Extracted: N/A
Date Analyzed : 19-APR-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
SURROGATES		
TRIFLUOROTOLUENE	%	98

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - QUALITY CONTROL

MSMSD

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)
MSMSD # : 74824
Client : ALISTO ENGINEERING

Project # : G317873/10-025-04-004
Project Name: BP SITE#11133/2220 98TH AVE, OAKLAND CA

ATI I.D. : 504109
Date Extracted: 10-APR-95
Date Analyzed : 14-APR-95
Sample Matrix : WATER
REF I.D. : 504075-08

Parameters	Units	Sample Result	Conc Spike	Spiked Sample	% Rec	Dup Spike	Dup % Rec	RPD
BENZENE	UG/L	<0.50	5.0	5.1	102	5.4	108	6
TOLUENE	UG/L	<0.50	5.0	5.2	104	5.4	108	4

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

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - QUALITY CONTROL

BLANK SPIKE

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)
Blank Spike #: 55896
Client : ALISTO ENGINEERING
Project # : G317873/10-025-04-004
Project Name : BP SITE#11133/2220 98TH AVE, OAKLAND CA

ATI I.D. : 504109
Date Extracted: N/A
Date Analyzed : 18-APR-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	5.0	5.0	100

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

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - QUALITY CONTROL

BLANK SPIKE

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)
Blank Spike #: 55897
Client : ALISTO ENGINEERING
Project # : G317873/10-025-04-004
Project Name : BP SITE#11133/2220 98TH AVE, OAKLAND CA

ATI I.D. : 504109
Date Extracted: N/A
Date Analyzed : 18-APR-95
Sample Matrix : WATER

Parameters	Units	Blank Result	Spiked Sample	Spike Conc.	% Rec
BENZENE	UG/L	<0.50	5.5	5.0	110
TOLUENE	UG/L	<0.50	5.4	5.0	108

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

GAS CHROMATOGRAPHY - QUALITY CONTROL

BLANK SPIKE

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)
Blank Spike #: 55899
Client : ALISTO ENGINEERING
Project # : G317873/10-025-04-004
Project Name : BP SITE#11133/2220 98TH AVE, OAKLAND CA

ATI I.D. : 504109
Date Extracted: N/A
Date Analyzed : 19-APR-95
Sample Matrix : WATER

Parameters	Units	Blank Result	Spiked Sample	Spike Conc.	% Rec
BENZENE	UG/L	<0.50	5.3	5.0	106
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

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - QUALITY CONTROL

BLANK SPIKE

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)
Blank Spike #: 55900
Client : ALISTO ENGINEERING
Project # : G317873/10-025-04-004
Project Name : BP SITE#11133/2220 98TH AVE, OAKLAND CA

ATI I.D. : 504109
Date Extracted: N/A
Date Analyzed : 19-APR-95
Sample Matrix : WATER

Parameters	Units	Blank Result	Spiked Sample	Spike Conc.	% Rec
BENZENE	UG/L	<0.50	5.2	5.0	104
TOLUENE	UG/L	<0.50	5.3	5.0	106

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

ACCESSION #: 504109 10-025-04-004 INITIALS: A.T.

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	(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	1	
3	Are custody seals required for this project ?	YES	(N/A)
	a) are Custody Seals present on Cooler(s) ?	YES	(NO)
	If yes, are seals intact ? (N/A)	YES	NO
	b) are Custody Seals present on the sample ?	YES	(NO)
	If yes, are seals intact ? (N/A)	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.	(YES)	NO
5	Is the COC* complete per cooler ? Relinquished: (yes)/no Requested analysis: (yes)/no	(YES)	NO
6	Is the COC* in agreement with the samples received? # Samples: (yes)/no Sample ID's: (yes)/no Date sampled: (yes)/no Matrix: (yes)/no # containers: (yes)/no	(YES)	NO
7	Are the samples preserved correctly?	(YES)	NO
8	Is there enough sample for all the requested analyses?	(YES)	NO
9	Are all samples within holding times for the requested analyses?	(YES)	NO
10	Record cooler temperature. Contact PM if temperature is not 4°C ± 2°C.	2.0 °C	
	Is ice present in cooler?	(YES)	NO
11	Were all sample containers received intact (ie. not broken, leaking, etc.)?	(YES)	NO
12	Are samples requiring no headspace, headspace free? N/A	(YES)	NO
13	Are VOA 1st stickers required?	YES	(NO)
14	Are there special comments on the Chain of Custody which require client contact?	YES	(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

CHAIN OF CUSTODY

No. 055850 Page 1 of 1

CONSULTANT'S NAME	ADDRESS	CITY	STATE	ZIP CODE
Alisto Engineering	1777 Oakland Blvd	Walnut Creek	CA	94596

BP SITE NUMBER	BP CORNER ADDRESS/CITY	CONSULTANT PROJECT NUMBER
11133	2220 98th Ave, Oakland CA	10-025-04-004

CONSULTANT PROJECT MANAGER	PHONE NUMBER	FAX NUMBER	CONSULTANT CONTRACT NUMBER
Bill Howell	(510) 295 1650	(510) 295 1273	631773

BP CONTACT	BP ADDRESS	PHONE NUMBER	FAX NO.
Scott Haxton	Benicia, CA		

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

SAMPLED BY (Please Print Name)	SAMPLED BY (Signature)	SHIPMENT DATE	SHIPMENT METHOD
Dan Cisco	Dan Cisco		Courier / Fed-Ex

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

ANALYSIS REQUIRED

AIRBILL NUMBER: 453133 1405

SAMPLE DESCRIPTION	COLLECTION DATE / TIME	MATRIX SOIL/WATER	CONTAINERS NO.	CONTAINERS TYPE (VOL.)	PRESERVATIVE LAB SAMPLE #	TPH Gas (8015)	COMMENTS
S-1 1203	4/10/95	H2O	7		01	X	
S-2 1220					02		
S-3 1252					03		
S-4 1305					04		
S-5 1330					05		
S-6 1404					06		
S-7 1425					07		
S-8 1515					08		
S-9 1547					09		
S-10 —					10		
S-11 —					11		

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Scott Haxton Alisto	4/10/95	1600			
			Al Toth	11/12/95	10:15

ADDITIONAL COMMENTS: 504109

2.0°C

CLV-16722

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