BP OIL

ENVIRONMENTAL PROTECTION

95 AUG 16 PM 1:51

Scott T. Hooton
Environmental Resources Management

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Rec 8/17/95

August 14, 1995

Alameda County Health Care Services Agency
Attention Ms. Eva Chu
1131 Harbor Bay Parkway, Room 250
Alameda, CA 94502-6577

> 120 days for Qmpl
consider ORC only in MW-1 and RW-1 - can measure DO in MW-2 and 6 to see dispersion of O_2 in GW.

RE: BP Site No. 11266
Lincoln & Park
Alameda, CA

Dear Ms. Chu:

Enclosed please find a report titled Groundwater Monitoring and Sampling Report, dated June 1, 1995. Please give me a call if you have any questions or concerns regarding this submission.

Confirming the discussion that took place during our July 19, 1995 meeting, Alisto Engineering Group will place a source of oxygen in wells MW-1, RW-1, MW-2 and MW-6. This will be performed in order to enhance the degradation of dissolved petroleum hydrocarbons by stimulating the growth of petroleum-metabolizing microorganisms. The source of dissolved oxygen will be an Oxygen Release Compound (ORC™) that is a very fine, insoluble solid magnesium peroxide which is formulated to release oxygen at a controlled rate when hydrated. The products of hydration are oxygen and magnesium hydroxide. The oxygen is consumed and the insoluble magnesium hydroxide is removed.

By copy of this letter to Brady Nagle at Alisto Engineering Group, you should be provided with a schedule for the installation of ORC in wells MW-1, RW-1, MW-2 and MW-6.

Sincerely,

Scott Hooton
Environmental Remediation Management

cc: Mr. E. So, CRWQCB-SFBR, 2101 Webster Street, Ste. 500, Oakland, CA 94612
(w/attachment)
site file
B. Nagle - Alisto

attachment

GROUNDWATER MONITORING AND SAMPLING REPORT

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

Project No. 10-050-04-004

Prepared for:

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

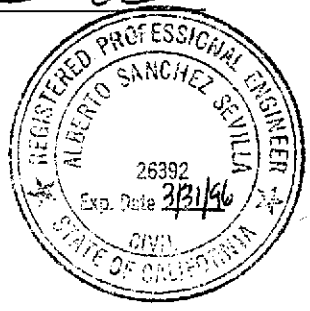
Prepared by:

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

June 1, 1995

William Howell
Project Manager

Al Sevilla, P.E.
Principal



GROUNDWATER MONITORING AND SAMPLING REPORT

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

Project No. 10-050-04-004

June 1, 1995

INTRODUCTION

This report presents the results and findings of the April 12, 1995 groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Company Service Station No. 11266, 1541 Park Street, Alameda, 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.

SAMPLING AND ANALYTICAL RESULTS

The 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. 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)	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	03/04/88	19.19	—	—	95000	2000	5900	1100	10000	—	—
MW-1	03/29/89	19.19	—	—	25000	930	2600	24	3100	—	—
MW-1	11/28/89	19.19	—	—	15000	280	880	340	1200	—	—
MW-1	02/13/91	19.19	—	—	25000	680	2700	1100	3200	—	—
MW-1	01/08/92	19.19	—	—	10000	260	1100	570	2000	—	—
MW-1	03/30/92	19.19	8.15	11.04	5800	290	570	500	1100	—	PACE
MW-1	07/02/92	19.19	9.38	9.81	2500	170	60	310	300	—	ANA
MW-1	07/22/92	19.19	9.62	9.57	—	—	—	—	—	—	—
MW-1	10/02/92	19.19	9.98	9.21	4000	86	190	270	350	—	ANA
QC-1 (c)	10/02/92	—	—	—	3600	89	180	270	340	—	ANA
MW-1	12/14/92	19.19	9.90	9.29	6800	75	540	200	670	—	ANA
QC-1 (c)	12/14/92	—	—	—	5900	68	480	190	600	—	ANA
MW-1	03/24/93	19.19	8.52	10.67	6400	150	310	370	710	—	PACE
MW-1	06/17/93	19.19	9.37	9.82	3800	110	160	310	480	—	PACE
MW-1	09/29/93	19.19	10.80	8.39	1100	22	16	54	110	—	PACE
MW-1	12/28/93	19.19	9.27	9.92	1800	26	110	77	300	—	PACE
MW-1	03/29/94	19.19	8.77	10.42	22000	990	560	970	2000	3.1	PACE
MW-1	07/07/94	19.19	9.18	10.01	18000	67	32	250	140	—	PACE
MW-1	10/18/94	19.19	9.85	9.34	270	1.9	0.6	ND<0.5	3.2	3.6	PACE
MW-1	02/01/95	19.19	7.04	12.15	5400	260	350	1100	980	6.5	ATI
MW-1	04/12/95	19.19	7.74	11.45	13000	260	620	960	2600	5.0	ATI
MW-2	03/04/88	19.32	—	—	ND	ND	ND	ND	ND	—	—
MW-2	03/29/89	19.32	—	—	ND	1.1	0.78	ND	1.7	—	—
MW-2	11/28/89	19.32	—	—	170	ND	ND	ND	ND	—	—
MW-2	02/13/91	19.32	—	—	150	1.4	ND	ND	0.9	—	—
MW-2	01/08/92	19.32	—	—	ND	1.4	ND	ND	1.1	—	—
MW-2	03/30/92	19.32	9.03	10.29	91	0.7	ND	ND	ND	—	PACE
MW-2	07/02/92	19.32	9.96	9.36	150	3.1	0.6	0.6	1.1	—	ANA
MW-2	07/22/92	19.32	10.12	9.20	—	—	—	—	—	—	—
MW-2	10/02/92	19.32	10.42	8.90	56	ND<0.5	0.8	0.8	1.2	—	ANA
MW-2	12/14/92	19.32	10.77	8.55	210	1.5	ND<0.5	0.9	2.7	—	ANA
MW-2	03/24/93	19.32	9.33	9.99	94	0.8	ND<0.5	ND<0.5	0.9	—	PACE
QC-1 (c)	03/24/93	—	—	—	150	1.8	0.6	1.3	1.3	—	PACE
MW-2	06/17/93	19.32	9.91	9.41	ND<50	ND<0.5	ND<0.5	ND<0.5	0.7	—	PACE
MW-2	09/29/93	19.32	11.39	7.93	68	ND<0.5	0.9	0.7	1.9	—	PACE
MW-2	12/28/93	19.32	9.75	9.57	260	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
QC-1 (c)	12/28/93	—	—	—	240	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
MW-2	03/29/94	19.32	9.39	9.93	150	ND<0.5	ND<0.5	ND<0.5	ND<0.5	4.9	PACE
QC-1 (c)	03/29/94	—	—	—	140	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
MW-2	07/07/94	19.32	9.68	9.64	1100	0.6	1.7	0.6	3.2	—	PACE
MW-2	10/18/94	19.32	10.22	9.10	290	3.1	0.8	ND<0.5	5.1	3.3	PACE
MW-2	02/01/95	19.32	8.03	11.29	100	ND<0.5	ND<0.5	ND<0.5	ND<1	6.0	ATI
MW-2	04/12/95	19.32	8.71	10.61	1200	ND<1.0	ND<1.0	ND<1.0	ND<2.0	8.3	ATI

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ALISTO PROJECT NO. 10-050

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (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-3	03/04/88	19.99	—	—	ND	ND	ND	ND	ND	—	—
MW-3	03/29/89	19.99	—	—	ND	ND	ND	ND	ND	—	—
MW-3	11/28/89	19.99	—	—	ND	ND	ND	ND	ND	—	—
MW-3	02/13/91	19.99	—	—	ND	ND	ND	ND	ND	—	—
MW-3	01/08/92	19.99	—	—	ND	ND	ND	ND	ND	—	—
MW-3	03/30/92	19.99	9.71	10.28	ND	ND	ND	ND	ND	—	PACE
MW-3	07/02/92	19.99	10.52	9.47	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	ANA
MW-3	07/22/92	19.99	10.62	9.37	—	—	—	—	—	—	—
MW-3	10/02/92	19.99	10.86	9.13	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	ANA
MW-3	12/14/92	19.99	10.53	9.46	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	ANA
MW-3	03/24/93	19.99	9.06	10.93	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
MW-3	06/17/93	19.99	10.44	9.55	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
MW-3	09/29/93	19.99	11.06	8.93	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
MW-3	12/28/93	19.99	9.43	10.56	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
MW-3	03/29/94	19.99	10.01	9.98	—	—	—	—	ND<0.5	—	—
MW-3	07/07/94	19.99	10.14	9.85	ND<50	ND<0.5	0.7	ND<0.5	ND<0.5	—	PACE
QC-1 (c)	07/07/94	—	—	—	ND<50	ND<0.5	0.7	ND<0.5	ND<0.5	—	PACE
MW-3	10/18/94	19.99	10.56	9.43	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3.2	PACE
MW-3	02/01/95	19.99	8.98	11.01	ND<50	ND<0.5	1.0	0.5	1.9	5.9	ATI
MW-3	04/12/95	19.99	9.70	10.29	—	—	—	—	—	—	—
MW-4	03/04/88	20.17	—	—	ND	ND	ND	ND	ND	—	—
MW-4	03/29/89	20.17	—	—	ND	ND	ND	ND	ND	—	—
MW-4	11/28/89	20.17	—	—	430	6.2	0.6	12	3.3	—	—
MW-4	02/13/91	20.17	—	—	ND	ND	ND	ND	ND	—	—
MW-4	01/08/92	20.17	—	—	ND	ND	ND	ND	ND	—	—
MW-4	03/30/92	20.17	8.73	11.44	ND	ND	ND	ND	ND	—	PACE
MW-4	07/02/92	20.17	10.04	10.13	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	ANA
MW-4	07/22/92	20.17	10.26	9.91	—	—	—	—	—	—	—
MW-4	10/02/92	20.17	10.63	9.54	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	ANA
MW-4	12/14/92	20.17	10.02	10.15	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	ANA
MW-4	03/24/93	20.17	9.08	11.09	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
MW-4	06/17/93	20.17	10.03	10.14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
MW-4	09/29/93	20.17	10.96	9.21	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
MW-4	12/28/93	20.17	9.33	10.84	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
MW-4	03/29/94	20.17	9.42	10.75	—	—	—	—	—	—	—
MW-4	07/07/94	20.17	9.82	10.35	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
MW-4	10/18/94	20.17	10.36	9.81	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3.1	PACE
MW-4	02/01/95	20.17	7.50	12.67	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	9.3	ATI
MW-4	04/12/95	20.17	8.21	11.96	—	—	—	—	—	—	—

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ALISTO PROJECT NO. 10-050

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (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-5	03/04/88	19.41	—	—	ND	ND	ND	ND	ND	—	—
MW-5	03/29/89	19.41	—	—	ND	ND	ND	ND	ND	—	—
MW-5	11/28/89	19.41	—	—	ND	ND	ND	ND	ND	—	—
MW-5	02/13/91	19.41	—	—	ND	ND	ND	ND	ND	—	—
MW-5	01/08/92	19.41	—	—	ND	ND	ND	ND	ND	—	—
MW-5	03/30/92	19.41	7.85	11.56	ND	ND	ND	ND	ND	—	PACE
MW-5	07/02/92	19.41	9.27	10.14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	ANA
MW-5	07/22/92	19.41	9.55	9.86	—	—	—	—	—	—	—
MW-5	10/02/92	19.41	9.97	9.44	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	ANA
MW-5	12/14/92	19.41	9.14	10.27	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	ANA
MW-5	03/24/93	19.41	8.17	11.24	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
MW-5	06/17/93	19.41	8.29	11.12	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
QC-1 (c)	06/17/93	—	—	—	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
MW-5	09/29/93	19.41	10.31	9.10	ND<50	ND<0.5	ND<0.5	ND<0.5	0.6	—	PACE
MW-5	12/28/93	19.41	8.91	10.50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
MW-5	03/29/94	19.41	8.50	10.91	—	—	—	—	—	—	—
MW-5	07/07/94	19.41	8.99	10.42	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
MW-5	10/18/94	19.41	9.61	9.80	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3.5	PACE
MW-5	02/01/95	19.41	6.55	12.86	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	7.6	ATI
MW-5	04/12/95	19.41	7.27	12.14	—	—	—	—	—	—	—
MW-6	03/04/88	19.40	—	—	ND	ND	ND	ND	ND	—	—
MW-6	03/29/89	19.40	—	—	ND	ND	ND	ND	ND	—	—
MW-6	11/28/89	19.40	—	—	ND	ND	ND	ND	ND	—	—
MW-6	02/13/91	19.40	—	—	ND	ND	ND	ND	ND	—	—
MW-6	01/08/92	19.40	—	—	ND	ND	ND	ND	ND	—	—
MW-6	03/30/92	19.40	8.86	10.54	ND	ND	ND	ND	ND	—	PACE
MW-6	07/02/92	19.40	9.94	9.46	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	ANA
MW-6	07/22/92	19.40	10.10	9.30	—	—	—	—	—	—	—
MW-6	10/02/92	19.40	10.48	8.92	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	ANA
MW-6	12/14/92	19.40	10.76	8.64	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	ANA
MW-6	03/24/93	19.40	9.19	10.21	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
MW-6	06/17/93	19.40	9.91	9.49	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
MW-6	09/29/93	19.40	11.49	7.91	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
MW-6	12/28/93	19.40	9.88	9.52	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
MW-6	03/29/94	19.40	9.36	10.04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	5.0	PACE
MW-6	07/07/94	19.40	9.75	9.65	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
MW-6	10/18/94	19.40	10.30	9.10	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3.3	PACE
MW-6	02/01/95	19.40	7.92	11.48	ND<50	ND<0.5	0.9	ND<0.5	1.1	5.4	ATI
MW-6	04/12/95	19.40	8.41	10.99	220	ND<0.50	ND<0.50	ND<0.50	ND<1.0	4.7	ATI

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WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	DO (ppm)	LAB
RW-1	07/22/92	—	9.66	---	13000	1000	3400	380	2800	—	ANA
RW-1	10/02/92	—	10.28	---	---	---	---	---	---	—	---
RW-1	12/14/92	—	23.28	---	---	---	---	---	---	—	---
RW-1	03/24/93	—	8.93	---	660	21	25	8.3	100	—	PACE
RW-1	06/17/93	—	9.66	---	850	13	1.0	15	100	—	PACE
RW-1	09/29/93	19.27	23.40	-4.13	1200	26	27	11	150	—	PACE
QC-1 (c)	09/29/93	—	—	—	1200	26	28	11	160	—	PACE
RW-1	12/28/93	19.27	9.76	9.51	3500	300	220	180	480	—	PACE
RW-1	03/29/94	19.27	8.93	10.34	12000	640	1700	450	2200	6.3	PACE
RW-1	07/07/94	19.27	9.45	9.82	7600	530	1100	380	1800	---	PACE
RW-1	10/18/94	19.27	10.11	9.16	5300	47	100	150	280	3.4	PACE
QC-1 (c)	10/18/94	—	—	—	430	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
RW-1	02/01/95	19.27	8.54	10.73	27000	2400	6100	1800	5300	4.5	ATI
QC-1 (c)	02/01/95	---	---	---	15000	1300	3300	970	2900	—	ATI
RW-1	04/12/95	19.27	8.21	11.06	6200	330	910	350	1500	5.2	ATI
QC-1 (c)	04/12/95	—	—	—	7600	400	1100	440	1900	—	ATI
QC-2 (d)	10/02/92	—	—	—	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	ANA
QC-2 (d)	12/14/92	—	—	—	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	ANA
QC-2 (d)	03/24/93	—	—	—	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
QC-2 (d)	06/17/93	—	—	—	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
QC-2 (d)	09/29/93	—	—	—	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
QC-2 (d)	12/28/93	—	—	—	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
QC-2 (d)	03/29/94	—	—	—	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
QC-2 (d)	07/07/94	—	—	—	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
QC-2 (d)	10/18/94	—	—	—	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	PACE
QC-2 (d)	02/01/95	—	—	—	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	—	ATI
QC-2 (d)	04/12/95	—	—	—	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/applicable/analyzed
ND	Not detected above reported detection limit
PACE	Pace, Inc.
ANA	Anametrix, Inc.
ATI	Analytical Technologies, Inc.

NOTES:

(a) Casing elevations surveyed to nearest 0.01 foot above mean sea level, with an assigned elevation of 22.82 feet (City datum).

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

(c) Blind duplicate.

(d) Travel blank.

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

N

0 1000' 2000'

FIGURE 1

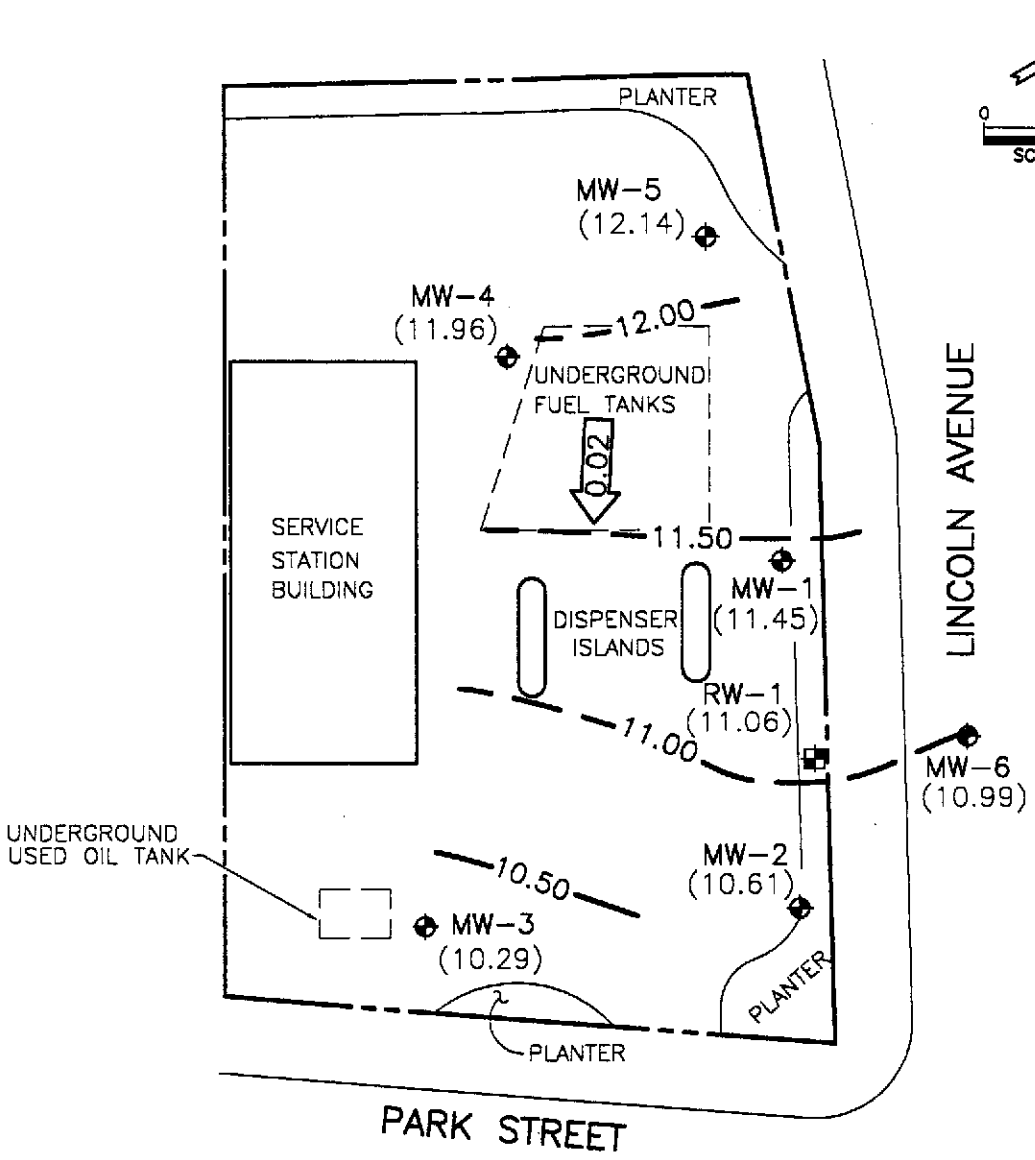
SITE VICINITY MAP

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

PROJECT NO. 10-050

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

100508---.DWG 8-4-93 KH 1=1



LEGEND

- ⊕ GROUNDWATER MONITORING WELL
- ⊡ GROUNDWATER RECOVERY WELL
- (11.96) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 12.00 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL–0.50 FOOT)
- 0.02 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 2

POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP

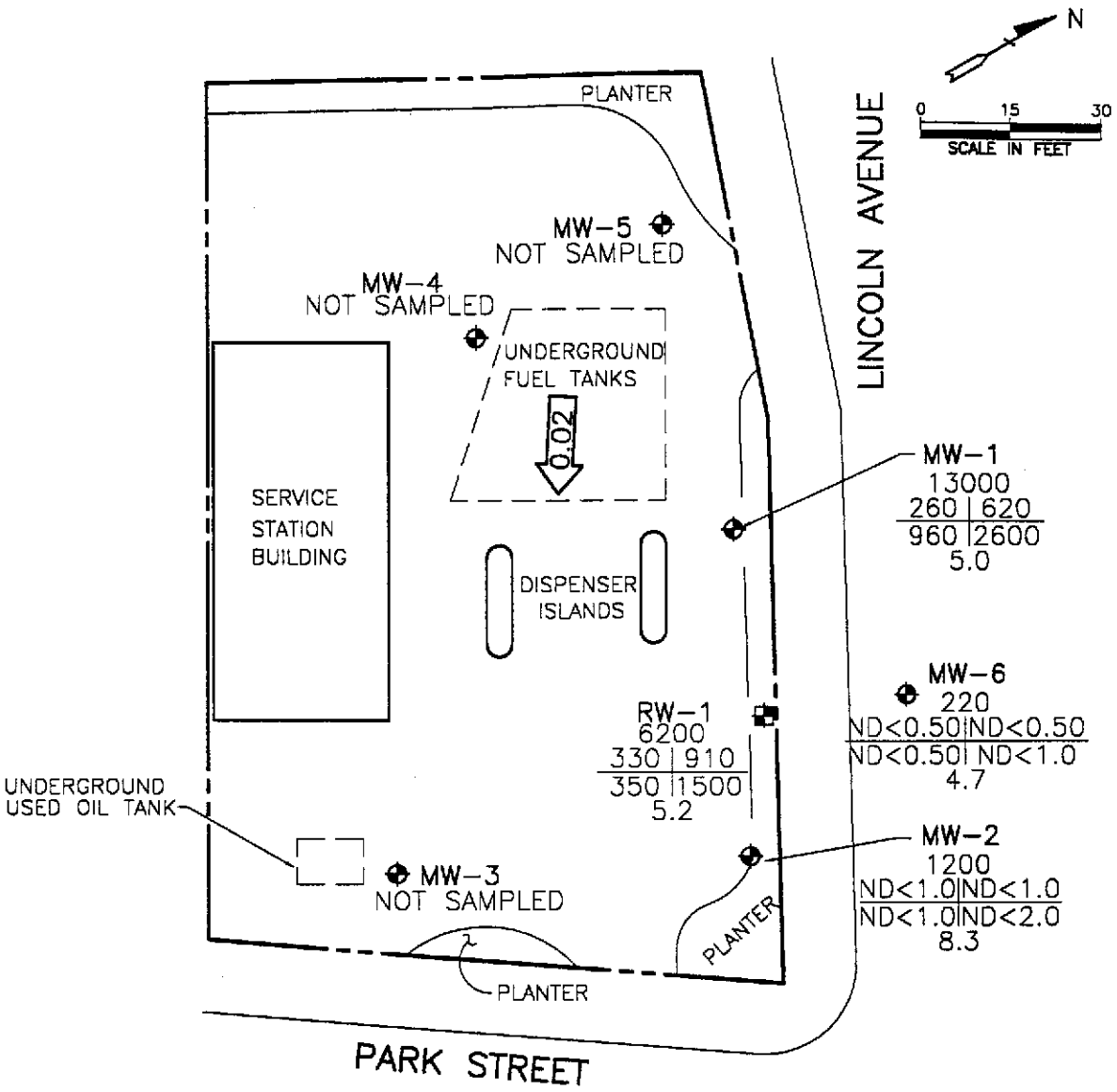
APRIL 12, 1995

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

PROJECT NO. 10–050

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10050-N.DWG 5-24-95 RKW 1=30



LEGEND

⊕	GROUNDWATER MONITORING WELL
■	GROUNDWATER RECOVERY 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
← 0.02	CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 3

CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER

APRIL 12, 1995

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

PROJECT NO. 10-050

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10050E-N.DWG 5-24-95 RKW 1=30

APPENDIX A

WATER SAMPLING FIELD SURVEY FORMS

ALISTO ENGINEERING GROUP
GROUNDWATER MONITORING

Client: BP
Alisto Project No: 10-050-04-004
Service Station No: 11266

Date: 4/12/95
Field Personnel: LCB
Site Address: Alameda, Ca

FIELD ACTIVITY:

X Groundwater Monitoring
X Groundwater Sampling
___Well Development

QUALITY CONTROL SAMPLES:

RW-1 QC-1 Sample Duplicate (Well ID) S-5
X QC-2 Trip Blank S-6
___ QC-3 Rinsate Blank

Well ID	Well Diam	Order Measured/ Sampled	Total Depth	Depth to Water	Depth to Product	Product Thick-ness	Comments Sample I.D.
MW-4	2"	1	N/M	8.21	Ø	Ø	N/S
MW-5	↓	2	↓	7.27	↓	↓	↓
MW-3	↓	3	↓	9.70	↓	↓	↓
MW-6	↓	4	24.24	8.41	↓	↓	S-1
MW-2	↓	5	21.88	8.71	↓	↓	S-2
MW-1	↓	6	21.88	7.74	↓	↓	S-3
* RW-1	6"	7	29.54	8.21	↓	↓	S-4

Notes:

* RW-1 Not Operating

Barrels: ____Soil ____Water ____Dbl Contained ____Empty _____Soil Pile (Cu Yds)

FORM: FS2/121592

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: 4/12/95 Project No. 10-050-04-004
Day: Wed. Station No. 11266
Weather: Cloudy Address Alameda, Ca
SAMPLER: LCB

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness
MW-6	8.41	2"	OK	∅	∅

Total Depth - Water Level = x Well Vol. Factor = x#vol. to Purge = PurgeVol.
24.24 - 8.41 = 15.83 X .16 = 2.53 X 3 = 7.59
Purge Method: ☒Surface Pump ODisp.Tube OWinch ODisp. Bailer(s) OSys Port
Comments:

Gal.	Time	Temp °F	pH	E.C.	D.O.
3	1210	66.5	7.70	579 µS	4.1
5		65.9	7.63	567 µS	
8	1220	65.4	7.55	563 µS	4.7

O EPA 601
☒ TPH-G/BTEX HCl
O TPH Diesel
O TOG 5520
Time Sampled: 1224 / S-1

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness
MW-2	8.71	2"	OK	∅	∅

Total Depth - Water Level = x Well Vol. Factor = x#vol. to Purge = PurgeVol.
21.88 - 8.71 = 13.17 X .16 = 2.11 X 3 = 6.33
Purge Method: ☒Surface Pump ODisp.Tube OWinch ODisp. Bailer(s) OSye Port
Comments:

Gal.	Time	Temp °F	pH	E.C.	D.O.
2	1229	70.7	8.65	552 µS	7.1
4		68.5	8.35	513 µS	
6.5	1240	68.3	8.31	511 µS	8.3

O EPA 601
☒ TPH-G/BTEX HCl
O TPH Diesel
O TOG 5520
Time Sampled: 1245 / S-2

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness
MW-	7.74	2"	OK	∅	∅

Total Depth - Water Level = x Well Vol. Factor = x#vol. to Purge = PurgeVol.
21.88 - 7.74 = 14.14 X .16 = 2.26 X 3 = 6.78
Purge Method: ☒Surface Pump ODisp.Tube OWinch ODisp. Bailer(s) OSye Port
Comments:

Gal.	Time	Temp °F	pH	E.C.	D.O.
2	1254	66.6	8.04	472 µS	4.8
5		65.0	7.78	460 µS	
7	1300	64.7	7.72	458 µS	5.0

O EPA 601
☒ TPH-G/BTEX HCl
O TPH Diesel
O TOG 5520
Time Sampled: 1302 / S-3

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness
RW-1	8.21	6"	OK	∅	∅

Total Depth - Water Level = x Well Vol. Factor = x#vol. to Purge = PurgeVol.
29.54 - 8.21 = 21.33 X 1.47 = 31.36 X 3 = 94.08
Purge Method: ☒Surface Pump ODisp.Tube OWinch ODisp. Bailer(s) OSye Port
Comments: QC-1 Dup. taken From this well

Gal.	Time	Temp °F	pH	E.C.	D.O.
31	1309	65.2	7.75	442 µS	5.0
63	1318	64.7	7.63	429 µS	
94.5	1326	64.6	7.57	426 µS	5.2

O EPA 601
☒ TPH-G/BTEX HCl
O TPH Diesel
O TOG 5520
Time Sampled: 1345 / S-4

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:

Gal.	Time	Temp °F	pH	E.C.	D.O.

O EPA 601
O TPH-G/BTEX
O TPH Diesel
O TOG 5520
Time Sampled:

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.: 504144

May 25, 1995

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

Project Name: BP SITE #11266/ALAMEDA, CA
Project # : G317931/10-050-04/004

Attention: BILL HOWELL

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

Date Received	Quantity	Matrix
April 14, 1995	6	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.

Please note Alisto Engineering samples S-1 and S-2 contain an MTBE peak.

GARY STEWART
VOLATILES SUPERVISOR

ALAN J. KLEINSCHMIDT
LABORATORY MANAGER

RECEIVED
MAY 26 1995

Analytical Technologies, Inc.

SAMPLE CROSS REFERENCE

Client : ALISTO ENGINEERING
Project # : G317931/10-050-04/004
Project Name: BP SITE #11266/ALAMEDA, CA

Report Date: April 24, 1995
ATI I.D. : 504144

ATI #	Client Description	Matrix	Date Collected
1	S-1	WATER	12-APR-95
2	S-2	WATER	12-APR-95
3	S-3	WATER	12-APR-95
4	S-4	WATER	12-APR-95
5	S-5	WATER	12-APR-95
6	S-6	WATER	12-APR-95

---TOTALS---

Matrix	# Samples
WATER	6

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 SCHEDULE

Client : ALISTO ENGINEERING
Project # : G317931/10-050-04/004
Project Name: BP SITE #11266/ALAMEDA, CA

ATI I.D.: 504144

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
Project # : G317931/10-050-04/004
Project Name: BP SITE #11266/ALAMEDA, CA

ATI I.D. : 504144

Sample #	Client ID	Matrix	Date Sampled	Date Extracted	Date Analyzed	Dil. Factor
1	S-1	WATER	12-APR-95	N/A	20-APR-95	1.00
2	S-2	WATER	12-APR-95	N/A	20-APR-95	2.00
3	S-3	WATER	12-APR-95	N/A	20-APR-95	25.00

Parameter	Units	1	2	3
BENZENE	UG/L	<0.50	<1.0	260
TOLUENE	UG/L	<0.50	<1.0	620
ETHYLBENZENE	UG/L	<0.50	<1.0	960
XYLENES (TOTAL)	UG/L	<1.0	<2.0	2600
FUEL HYDROCARBONS	UG/L	220	1200	13000
HYDROCARBON RANGE		C6-C12	C6-C12	C6-C12
HYDROCARBONS QUANTITATED USING		GASOLINE	GASOLINE	GASOLINE
SURROGATES				
TRIFLUOROTOLUENE	%	98	91	96

AnalyticalTechnologies,Inc. GAS CHROMATOGRAPHY RESULTS

Test : MOD EPA 8015-CDOHS/8020 (HYDROCARBONS C6-C12/BTXE)
Client : ALISTO ENGINEERING ATI I.D. : 504144
Project # : G317931/10-050-04/004
Project Name: BP SITE #11266/ALAMEDA, CA

Sample #	Client ID	Matrix	Date Sampled	Date Extracted	Date Analyzed	Dil. Factor
4	S-4	WATER	12-APR-95	N/A	20-APR-95	20.00
5	S-5	WATER	12-APR-95	N/A	20-APR-95	20.00
6	S-6	WATER	12-APR-95	N/A	20-APR-95	1.00

Parameter	Units	4	5	6
BENZENE	UG/L	330	400	<0.50
TOLUENE	UG/L	910	1100	<0.50
ETHYLBENZENE	UG/L	350	440	<0.50
XYLENES (TOTAL)	UG/L	1500	1900	<1.0
FUEL HYDROCARBONS	UG/L	6200	7600	<50
HYDROCARBON RANGE		C6-C12	C6-C12	C6-C12
HYDROCARBONS QUANTITATED USING		GASOLINE	GASOLINE	GASOLINE
SURROGATES				
TRIFLUOROTOLUENE	%	97	94	87

GAS CHROMATOGRAPHY - QUALITY CONTROL

REAGENT BLANK

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)
Blank I.D. : 35076
Client : ALISTO ENGINEERING
Project # : G317931/10-050-04/004
Project Name: BP SITE #11266/ALAMEDA, CA

ATI I.D. : 504144
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

REAGENT BLANK

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)
Blank I.D. : 35119
Client : ALISTO ENGINEERING
Project # : G317931/10-050-04/004
Project Name: BP SITE #11266/ALAMEDA, CA

ATI I.D. : 504144
Date Extracted: N/A
Date Analyzed : 20-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

MSMSD

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)
MSMSD # : 75025
Client : ALISTO ENGINEERING

Project # : G317931/10-050-04/004
Project Name: BP SITE #11266/ALAMEDA, CA

ATI I.D. : 504144
Date Extracted: N/A
Date Analyzed : 19-APR-95
Sample Matrix : WATER
REF I.D. : 504152-01

Parameters	Units	Sample Result	Conc Spike	Spiked Sample	% Rec	Dup Spike	Dup % Rec	RPD
BENZENE	UG/L	<0.50	5.0	5.6	112	5.5	110	2
TOLUENE	UG/L	<0.50	5.0	5.3	106	5.4	108	2

% 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 #: 55900
Client : ALISTO ENGINEERING
Project # : G317931/10-050-04/004
Project Name : BP SITE #11266/ALAMEDA, CA

ATI I.D. : 504144
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

BLANK SPIKE

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)
Blank Spike #: 55986
Client : ALISTO ENGINEERING
Project # : G317931/10-050-04/004
Project Name : BP SITE #11266/ALAMEDA, CA

ATI I.D. : 504144
Date Extracted: N/A
Date Analyzed : 20-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

CHAIN OF CUSTODY

No. 058670 | Page 1 of 1

CONSULTANT'S NAME	ADDRESS	CITY	STATE	ZIP CODE
Alisto Engineering	1777 Oakland Blvd #200	Walnut Creek	Ca	94596

BP SITE NUMBER	BP CORNER ADDRESS/CITY	CONSULTANT PROJECT NUMBER
11266	Alameda, Ca	10-050-04/064

CONSULTANT PROJECT MANAGER	PHONE NUMBER	FAX NUMBER	CONSULTANT CONTRACT NUMBER
Bill Howell	(510) 295 1650	295-1823	631731

BP CONTACT	BP ADDRESS	PHONE NUMBER	FAX NO.
Scott Hooton	Renton, WA		

LAB CONTACT	LABORATORY ADDRESS	PHONE NUMBER	FAX NO.
ATT	San Diego, Ca	(619) 458-9141	

SAMPLED BY (Please Print Name)	SAMPLED BY (Signature)	SHIPMENT DATE	SHIPMENT METHOD
Larry Kaminski			Fed Express

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

AIRBILL NUMBER:

ANALYSIS REQUIRED

SAMPLE DESCRIPTION	COLLECTION DATE / TIME	MATRIX SOIL/WATER	CONTAINERS NO.	CONTAINERS TYPE (VOL.)	PRESERVATIVE LAB SAMPLE #	COMMENTS
S-1	4/13/95	W	2	HCl	01	
S-2				Plas	02	
S-3					03	
S-4					04	
S-5					05	
S-6					06	

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	4/13/95				
				4/14/95	0915

ADDITIONAL COMMENTS: 5041944

CLV-16722

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