GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11117
7210 Bancroft Avenue
Oakland, California

Project No. 10-018-05-004

Prepared for:

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August 25, 1997

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STATE OF CALIFORNIA

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INTRODUCTION

This report presents the results and findings of the July 1, 1997 groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Company Service Station No. 11117, 7210 Bancroft Avenue, Oakland, California. A site vicinity map is shown on 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 relative 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 passive product recovery canister has been installed in Monitoring Well MW-2 to recover liquid-phase product. Product thicknesses for this and previous monitoring events are presented in Table 1. The volume of free product recovered from the wells is presented in Table 2.

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 on Figure 2. The results of groundwater analysis are shown on Figure 3. The laboratory report and chain of custody record are presented in Appendix B. Historical methyl tert butyl ether (MTBE) laboratory analysis data not previously tabulated are now included in Table 1. Copies of the MTBE documentation are included in Appendix C of this report only.

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
BP OIL COMPANY SERVICE STATION NO. 11117
7210 BANCROFT AVENUE, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-018

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	Organic Lead (ug/l)	DO (ppm)	LAB
MW-1	01/05/92	49.81	33.16	---	16.65	57000	50000	2400	1000	1100	3100	—	ND	---	---
MW-1	01/10/92	49.81	33.16	—	16.65	---	---	---	---	---	---	---	---	---	—
MW-1	06/05/92	49.81	29.01	---	20.80	31000	---	2800	2100	800	2300	---	---	---	---
MW-1	07/24/92	49.80	29.45	---	20.35	---	---	---	---	---	---	---	---	---	—
MW-1	07/27/92	49.80	29.45	---	20.35	—	—	---	---	---	---	---	---	---	---
MW-1	09/15/92	49.80	30.53	—	19.27	40000	1200 (c)	3400	3000	1300	3400	---	---	---	ANA
QC-1 (d)	09/15/92	---	---	---	---	36000	—	3800	3400	1400	3800	---	---	---	ANA
MW-1	12/15/92	49.80	31.26	---	18.54	27000	1100 (c)	1700	580	700	1900	---	---	---	ANA
QC-1 (d)	12/15/92	---	---	---	---	22000	---	1500	440	510	1300	---	---	—	ANA
MW-1	03/15/93	49.80	24.80	—	25.00	17000	580	1700	1200	590	1800	---	---	—	PACE
QC-1 (d)	03/15/93	---	---	---	---	15000	---	1100	860	440	1400	---	—	—	PACE
MW-1	06/07/93	49.80	25.01	—	24.79	750	100	0.8	0.8	ND<0.5	ND<0.5	---	---	---	PACE
QC-1 (d)	06/07/93	---	---	---	---	720	---	0.7	0.7	ND<0.5	ND<0.5	---	---	---	PACE
MW-1	09/23/93	49.80	28.70	---	21.10	40000	770	4000	500	920	3000	6600	—	—	PACE
MW-1	12/27/93	49.80	28.66	—	21.14	27000	---	2000	400	940	2600	14000	---	---	PACE
QC-1 (d)	12/27/93	---	---	---	---	21000	---	1700	380	830	2400	9200	---	---	PACE
MW-1	04/05/94	49.80	26.37	—	23.43	27000	---	3400	930	950	2900	8600	---	—	PACE
QC-1 (d)	04/05/94	---	---	---	---	29000	—	3700	1000	1000	3100	9700	—	1.3	PACE
MW-1	07/22/94	49.80	26.54	---	23.26	1700	---	220	2.3	2.0	3.4	220	---	2.0	PACE
MW-1	10/13/94	49.80	27.46	---	22.34	1200	---	250	21	ND<0.5	3.2	320	—	2.6	PACE
MW-1	01/25/95	49.80	20.96	---	28.84	1000	—	420	8	13	4	---	---	---	ATI
MW-1	04/19/95	49.80	19.59	---	30.21	5200	---	420	51	230	340	---	—	6.0	ATI
MW-1	07/05/95	49.80	19.61	---	30.19	320	---	4.2	ND<0.50	ND<0.50	ND<1.0	---	---	4.6	ATI
MW-1	10/05/95	49.80	24.40	---	25.40	5800	---	1000	40	31	180	7800	---	2.3	ATI
MW-1	01/12/96	49.80	25.44	---	24.36	370	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	3.7	ATI
MW-1	04/22/96	49.80	18.02	---	31.78	ND<50	—	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	3.9	SPL
MW-1	07/02/96	49.80	19.72	---	30.08	---	---	---	---	---	---	---	---	---	---
MW-1	07/03/96	49.80	---	---	---	ND<250	---	ND<2.5	ND<5	ND<5	ND<5	ND<50	---	3.6	SPL
MW-1	11/08/96	49.80	19.98	---	29.82	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	4.3	SPL
MW-1	01/03/97	49.80	19.49	---	30.31	ND<50	---	ND<0.5	14	ND<1.0	ND<1.0	ND<10	---	4.6	SPL
MW-1	04/28/97	49.80	20.20	---	29.60	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	3.9	SPL
MW-1	07/01/97	49.80	22.53	---	27.27	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	3.9	SPL

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BP OIL COMPANY SERVICE STATION NO. 11117
7210 BANCROFT AVENUE, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-018

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	Organic Lead (ug/l)	DO (ppm)	LAB
MW-2	01/05/92	51.07	DRY	---	DRY	---	---	---	---	---	---	---	---	---	---
MW-2	01/10/92	51.06	DRY	---	DRY	---	---	---	---	---	---	---	---	---	---
MW-2	06/05/92	51.06	30.05	---	21.01	11000	---	2000	180	490	1900	---	---	---	---
MW-2	07/24/92	51.07	30.72	---	20.35	---	---	---	---	---	---	---	---	---	---
MW-2	07/27/92	51.07	30.52	---	20.55	---	---	---	---	---	---	---	---	---	---
MW-2	09/15/92	51.07	31.56	---	19.51	75000	3200 (c)	2000	6500	2300	13000	---	---	---	ANA
MW-2	12/15/92	51.07	32.40	---	18.67	34000	1600 (c)	6200	8900	2000	7900	---	---	---	ANA
MW-2	03/15/93	51.07	26.14	---	24.93	150000	8400	12000	18000	3200	22000	82000	---	---	PACE
MW-2 (e)	06/07/93	51.07	26.38	SHEEN	24.69	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	09/23/93	51.07	31.43	1.92	21.08	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	12/27/93	51.07	34.07	1.07	17.80	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	04/05/94	51.07	30.44	3.30	23.11	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	07/22/94	51.07	28.51	0.80	23.16	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	10/13/94	51.07	29.33	0.70	22.27	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	01/25/95	51.07	25.55	4.25	28.71	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	04/19/95	51.07	19.78	0.12	31.38	---	---	---	---	---	---	---	---	---	---
MW-2	07/05/95	51.07	20.88	0.09	30.26	140000	---	14000	30000	3500	26000	---	---	---	ATI
MW-2 (e)	10/05/95	51.07	24.68	0.10	26.47	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	01/12/96	51.07	25.72	0.06	25.40	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	04/22/96	51.07	19.33	0.08	31.80	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	07/02/96	51.07	20.01	0.04	31.09	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	11/08/96	51.07	20.28	0.01	30.80	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	01/03/97	51.07	19.87	0.02	31.22	---	---	---	---	---	---	---	---	---	---
MW-2	04/28/97	51.07	20.59	0.01	30.49	560000	---	1200	1300	290	2310	6100	---	3.9	SPL
MW-2	07/01/97	51.07	22.90	0.01	28.18	24000	---	15000	16000	4900	24400	63000	---	3.7	SPL
QC-1 (d)	07/01/97	---	---	---	---	150000	---	14000	13000	1800	14200	57000	---	---	SPL

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ALISTO PROJECT NO. 10-018

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MW-3	01/05/92	49.95	33.69	---	16.26	7400	4000	790	23	210	40	---	ND	---	---
MW-3	01/10/92	50.00	33.74	---	16.26	---	---	---	---	---	---	---	---	---	---
MW-3	06/05/92	50.00	29.65	---	20.35	2000	---	130	5.3	93	20	---	---	---	---
MW-3	07/24/92	49.95	30.14	---	19.81	---	---	---	---	---	---	---	---	---	---
MW-3	07/27/92	49.95	30.14	---	19.81	---	---	---	---	---	---	---	---	---	---
MW-3	09/15/92	49.95	31.07	---	18.88	450	ND<50	55	3.1	34	7.1	---	---	---	ANA
MW-3	12/15/92	49.95	31.93	---	18.02	12000	710 (c)	940	ND<50	310	120	---	---	---	ANA
MW-3	03/15/93	49.95	25.71	---	24.24	ND<50	60	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
MW-3	06/07/93	49.95	25.80	---	24.15	150	ND<50	3.6	ND<0.5	0.9	1.3	---	---	---	PACE
MW-3	09/23/93	49.95	29.18	---	20.77	---	---	---	---	---	---	---	---	---	---
MW-3	09/24/93	---	---	---	---	160	ND<50	8.4	ND<0.5	3.7	1.3	---	---	---	PACE
MW-3	12/27/93	49.95	29.25	---	20.70	9400	---	1100	48	530	120	2700	---	---	PACE
MW-3	04/05/94	49.95	26.84	---	23.11	7000	---	860	19	330	52	---	---	2.0	PACE
MW-3	07/22/94	49.95	26.90	---	23.11	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	2.1	PACE
MW-3	10/13/94	49.95	27.83	---	22.12	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	2.6	PACE
MW-3	01/25/95	49.95	21.65	---	28.30	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	---	ATI
MW-3	04/19/95	49.95	19.33	---	30.62	2400	---	170	8.0	130	27	---	---	5.0	ATI
MW-3	07/05/95	49.95	20.27	---	29.68	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	4.4	ATI
MW-3	10/05/95	49.95	23.73	---	26.22	2300	---	210	3.1	10	5.1	2400	---	4.2	ATI
MW-3	01/12/96	49.95	24.84	---	25.11	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	4.1	ATI
MW-3	04/22/96	49.95	18.60	---	31.35	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	4.4	SPL
MW-3	07/02/96	49.95	18.88	---	31.07	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	4.2	SPL
MW-3	11/08/96	49.95	19.14	---	30.81	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	4.4	SPL
MW-3	01/03/97	49.95	18.72	---	31.23	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	4.6	SPL
MW-3	04/28/97	49.95	19.38	---	30.57	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	4.2	SPL
MW-3	07/01/97	49.95	21.65	---	28.30	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	3.8	SPL

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ALISTO PROJECT NO. 10-018

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MW-4	07/24/92	50.76	30.02	---	20.74	42000	---	3200	3600	1400	4100	---	---	---	---
MW-4	07/27/92	50.76	30.02	---	20.74	---	---	---	---	---	---	---	---	---	---
MW-4	09/15/92	50.76	31.14	---	19.62	55000	1700 (c)	7600	13000	2800	9500	---	---	---	ANA
MW-4	12/15/92	50.76	31.98	---	18.78	36000	2200 (c)	3700	4700	1200	4000	---	---	---	ANA
MW-4	03/15/93	50.76	25.34	---	25.42	69000	1200	7600	15000	2500	11000	---	---	---	PACE
MW-4	06/07/93	50.76	25.67	---	25.09	73000	2500	10000	19000	3400	14000	---	---	---	PACE
MW-4	09/23/93	50.76	29.37	---	21.39	---	---	---	---	---	---	---	---	---	---
MW-4	09/24/93	---	---	---	---	68000	5700	11000	2100	8600	990	---	---	---	PACE
QC-1 (d)	09/24/93	---	---	---	---	59000	---	5300	10000	2200	8400	---	---	---	PACE
MW-4	12/27/93	50.76	29.40	---	21.36	32000	---	2500	4400	1300	4400	---	---	---	PACE
MW-4	04/05/94	50.76	27.09	---	23.67	64000	---	6500	14000	1900	9600	---	---	1.4	PACE
MW-4	07/22/94	50.76	27.33	---	23.43	85000	---	10000	20000	3200	13000	---	---	0.8	PACE
QC-1 (d)	07/22/94	---	---	---	---	85000	---	11000	21000	3300	14000	---	---	---	PACE
MW-4	10/13/94	50.76	28.25	---	22.51	51000	---	7100	13000	2100	8900	790	---	2.9	PACE
QC-1 (d)	10/13/94	---	---	---	---	51000	---	7400	13000	2100	9100	---	---	---	PACE
MW-4	01/25/95	50.76	21.85	---	28.91	26000	---	3600	9600	1200	6400	---	---	---	ATI
QC-1 (d)	01/25/95	---	---	---	---	28000	---	4200	12000	1500	7800	---	---	---	ATI
MW-4	04/19/95	50.76	19.44	---	31.32	89000	---	12000	24000	3500	18000	---	---	5.1	ATI
QC-1 (d)	04/19/95	---	---	---	---	100000	---	12000	26000	3800	21000	---	---	---	ATI
MW-4	07/05/95	50.76	20.52	---	30.24	130000	---	13000	29000	3300	25000	---	---	4.3	ATI
MW-4	10/05/95	50.76	24.23	---	26.53	110000	---	10000	23000	3600	17000	34000	---	2.1	ATI
MW-4	01/12/96	50.76	25.34	---	25.42	46000	---	3500	8300	1100	8000	3000	---	3.3	ATI
QC-1 (d)	01/12/96	---	---	---	---	40000	---	3500	9000	1200	8700	4300	---	---	ATI
MW-4	04/22/96	50.76	19.13	---	31.63	40000	---	5100	9600	980	11800	29000	---	3.2	SPL
QC-1 (d)	04/22/96	---	---	---	---	61000	---	8300	16000	1600	15200	36000	---	---	SPL
MW-4	07/02/96	50.76	20.67	---	30.09	74000	---	9800	21000	2100	16600	41000	---	3.4	SPL
QC-1 (d)	07/02/96	---	---	---	---	78000	---	9800	21000	1900	15300	42000	---	---	SPL
MW-4	11/08/96	50.76	20.95	---	29.81	100000	---	7900	16000	2500	13700	37000	---	3.7	SPL
QC-1 (d)	11/08/96	---	---	---	---	110000	---	9100	20000	3000	15400	39000	---	---	SPL
MW-4	01/03/97	50.76	20.54	---	30.22	99000	---	17000	30000	4300	22700	79000	---	4.2	SPL
QC-1 (d)	01/03/97	---	---	---	---	66000	---	12000	19000	2900	15000	69000	---	---	SPL
MW-4	04/28/97	50.76	21.28	---	29.48	130000	---	12000	28000	3800	21000	37000	---	3.9	SPL
QC-1 (d)	04/28/97	---	---	---	---	110000	---	11000	26000	3200	18200	34000	---	---	SPL
MW-4	07/01/97	50.76	23.61	---	27.15	110000	---	16000	25000	4900	24400	37000	---	3.6	SPL

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WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	Organic Lead (ug/l)	DO (ppm)	LAB
MW-6	07/24/92	50.32	30.63	---	19.69	ND	---	1.6	ND	ND	ND	---	---	---	---
MW-6	07/27/92	50.32	30.63	---	19.69	---	---	---	---	---	---	---	---	---	---
MW-6	09/15/92	50.32	31.52	---	18.80	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	ANA
MW-6	12/15/92	50.32	32.42	---	17.90	58	ND<50	1.3	ND<0.5	ND<0.5	ND<0.5	---	---	---	ANA
MW-6	03/15/93	50.32	26.29	---	24.03	ND<50	ND<50	ND<0.5	0.6	ND<0.5	0.7	---	---	---	PACE
MW-6	06/07/93	50.32	26.33	---	23.99	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	1.5	---	---	---	PACE
MW-6	09/23/93	50.32	29.64	---	20.68	---	---	---	---	---	---	---	---	---	---
MW-6	09/24/93	---	---	---	---	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
MW-6	12/27/93	50.32	29.75	---	20.57	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	55	---	---	PACE
MW-6	04/05/94	50.32	27.26	---	23.06	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	300	---	1.7	PACE
MW-6	07/22/94	50.32	27.34	---	22.98	350	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	800	---	4.5	PACE
MW-6 (f)	10/13/94	50.32	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-6	01/25/95	50.32	22.16	---	28.16	240	---	6	ND<0.5	ND<0.5	ND<1	---	---	---	ATI
MW-6 (f)	04/19/95	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-6	07/05/95	50.32	20.80	---	29.52	180	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	4.9	ATI
MW-6	10/05/95	50.32	24.20	---	26.12	860	---	ND<5.0	ND<5.0	ND<5.0	ND<10	3600	---	2.8	ATI
MW-6	01/12/96	50.32	25.30	---	25.02	860	---	ND<5.0	ND<5.0	ND<5.0	ND<10	2800	---	4.2	ATI
MW-6	04/22/96	50.32	19.13	---	31.19	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	470	---	4.3	SPL
MW-6	07/02/96	50.32	20.66	---	29.66	100	---	ND<0.5	ND<1	ND<1	ND<1	1100	---	4.2	SPL
MW-6	11/08/96	50.32	20.98	---	29.34	1100	---	ND<5	ND<10	ND<10	ND<10	1500	---	4.3	SPL
MW-6	01/03/97	50.32	20.53	---	29.79	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	450	---	4.5	SPL
MW-6	04/28/97	50.32	21.25	---	29.07	1400	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	3500	---	4.4	SPL
MW-6	07/01/97	50.32	23.40	---	26.92	6100	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	9100	---	3.9	SPL
MW-7	01/25/95	51.4	21.67	---	29.73	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	7.0	ATI
MW-7	04/19/95	51.4	25.27	---	26.13	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	5.0	ATI
MW-7	07/05/95	51.4	24.63	---	26.77	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	4.2	ATI
MW-7	10/05/95	51.4	28.21	---	23.19	83	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	77	---	4.5	ATI
MW-7	01/12/96	51.4	29.29	---	22.11	63	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	120	---	4.8	ATI
MW-7	04/22/96	51.4	23.11	---	28.29	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	13	---	4.8	SPL
MW-7	07/02/96	51.4	23.56	---	27.84	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	4.8	SPL
MW-7	11/08/96	51.4	20.06	---	31.34	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	5.1	SPL
MW-7	01/03/97	51.4	23.42	---	27.98	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	4.7	SPL
MW-7	04/28/97	51.4	24.12	---	27.28	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	3.9	SPL
MW-7	07/01/97	51.4	26.40	---	25.00	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	4.2	SPL

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
BP OIL COMPANY SERVICE STATION NO. 11117
7210 BANCROFT AVENUE, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-018

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	Organic Lead (ug/l)	DO (ppm)	LAB
MW-8	01/25/95	50.88	31.59	---	19.29	54	---	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	7.1	ATI
MW-8	04/19/95	50.88	19.18	---	31.70	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	5.1	ATI
MW-8	07/05/95	50.88	19.03	---	31.85	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	4.5	ATI
MW-8	10/05/95	50.88	24.40	---	26.48	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	4.1	ATI
MW-8	01/12/96	50.88	25.51	---	25.37	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	4.6	ATI
MW-8	04/22/96	50.88	18.00	---	32.88	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	4.8	SPL
MW-8	07/02/96	50.88	19.83	---	31.05	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	4.5	SPL
MW-8	11/08/96	50.88	20.09	---	30.79	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	4.7	SPL
MW-8	01/03/97	50.88	19.72	---	31.16	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	4.4	SPL
MW-8	04/28/97	50.88	20.44	---	30.44	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	4.1	SPL
MW-8	07/01/97	50.88	22.72	---	28.16	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	3.8	SPL
MW-9	01/25/95	51.05	22.32	---	28.73	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	7.4	ATI
MW-9	04/19/95	51.05	19.86	---	31.19	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	5.2	ATI
MW-9	07/05/95	51.05	20.78	---	30.27	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	4.4	ATI
MW-9	10/05/95	51.05	24.33	---	26.72	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	2.3	ATI
QC-1 (d)	10/05/95	---	---	---	---	52	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	160	---	---	ATI
MW-9	01/12/96	51.05	25.44	---	25.61	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	3.2	ATI
MW-9	04/22/96	51.05	18.01	---	33.04	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	11	---	3.5	SPL
MW-9	07/02/96	51.05	19.70	---	31.35	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	3.3	SPL
MW-9	11/08/96	51.05	19.96	---	31.09	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	3.7	SPL
MW-9	01/03/97	51.05	19.52	---	31.53	ND<250	---	ND<2.5	ND<5.0	ND<5.0	ND<5.0	ND<50	---	4.4	SPL
MW-9	04/28/97	51.05	20.22	---	30.83	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	4.0	SPL
MW-9	07/01/97	51.05	22.59	---	28.46	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	3.9	SPL
QC-2 (g)	09/15/92	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	ANA
QC-2 (g)	12/15/92	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	ANA
QC-2 (g)	03/15/93	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
QC-2 (g)	06/07/93	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
QC-2 (g)	09/24/93	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
QC-2 (g)	12/27/93	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
QC-2 (g)	04/05/94	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
QC-2 (g)	07/22/94	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
QC-2 (g)	10/13/94	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
QC-2 (g)	01/25/95	---	---	---	---	ND<50	---	ND<0.5	2	0.6	1	---	---	---	ATI
QC-2 (g)	04/19/95	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	ATI
QC-2 (g)	07/05/95	---	---	---	---	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	---	ATI
QC-2 (g)	10/05/95	---	---	---	---	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	---	ATI
QC-2 (g)	01/12/96	---	---	---	---	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	---	ATI
QC-2 (g)	04/22/96	---	---	---	---	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	---	SPL
QC-2 (g)	07/02/96	---	---	---	---	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	---	SPL

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
BP OIL COMPANY SERVICE STATION NO. 11117
7210 BANCROFT AVENUE, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-018

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (Feet)	(b)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	Organic Lead (ug/l)	DO (ppm)	LAB

ABBREVIATIONS:

TPH-G	Total petroleum hydrocarbons as gasoline
TPH-D	Total petroleum hydrocarbons as diesel
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total xylenes
MTBE	Methyl tert butyl ether
DO	Dissolved oxygen
ug/l	Micrograms per liter
ppm	Parts per million
ND	Not detected above reported detection limit
---	Not analyzed/applicable/measurable
ANA	Anametrix, Inc.
PACE	Pace, Inc.
ATI	Analytical Technologies, Inc.
SPL	Southern Petroleum Laboratories

NOTES:

(a) Casing elevations surveyed to the nearest 0.01 foot relative to mean sea level.

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

(c) Concentrations reported as diesel from MW-1, MW-2 and MW-4 are primarily due to the presence of a lighter petroleum product, possibly gasoline or kerosene.

(d) Blind duplicate.

(e) Well not sampled due to presence of free product.

(f) Well inaccessible.

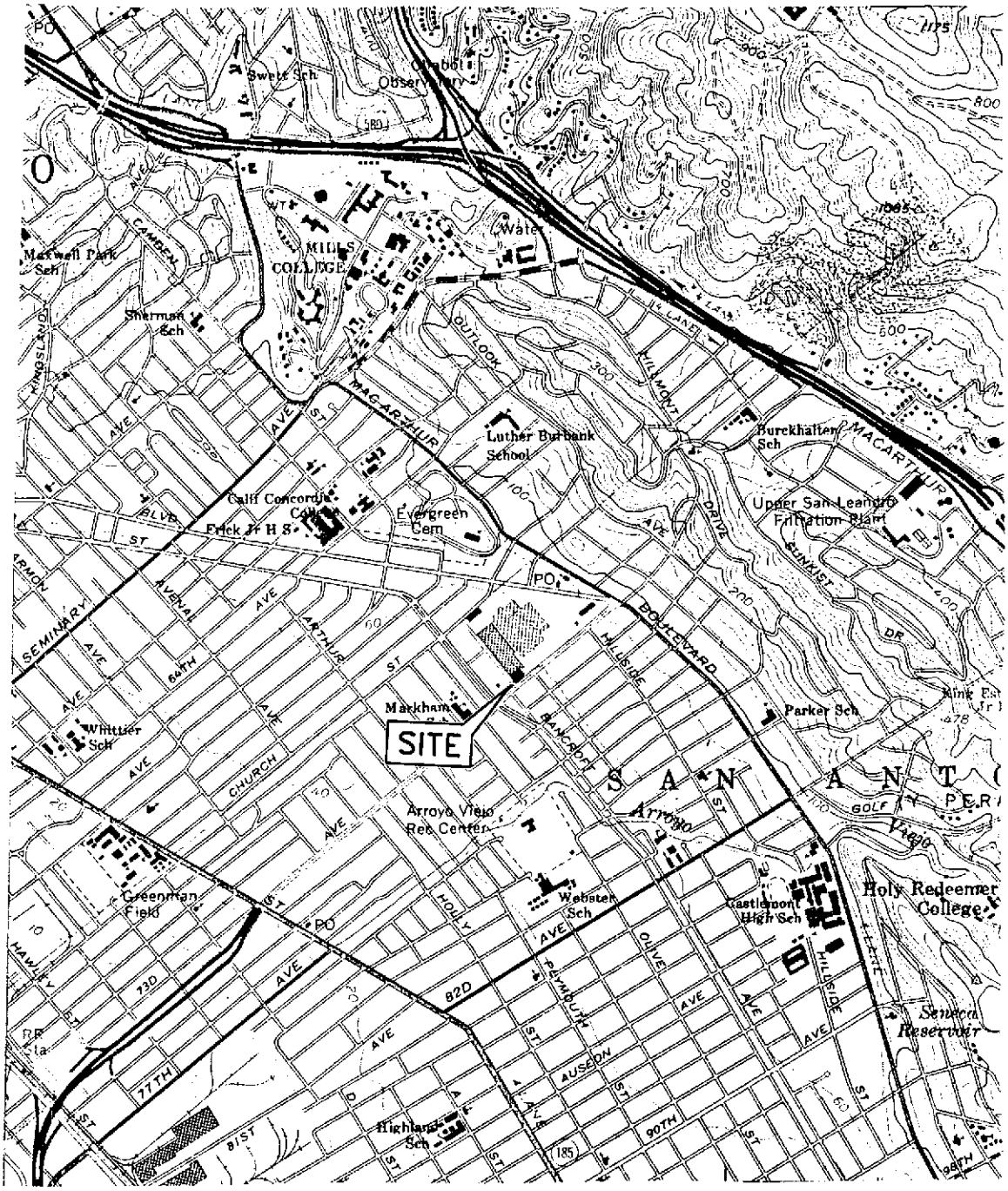
(g) Travel blank.

F:\0\10-018\018-5-4.WQ2

TABLE 2 - PRODUCT REMOVAL STATUS
BP OIL COMPANY SERVICE STATION NO. 11117
7210 BANCROFT AVENUE, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-018

WELL ID	DATE	PRODUCT THICKNESS	PRODUCT REMOVED (Gallons)	PRODUCT REMOVED CUMULATIVE (Gallons)
MW-2	02/01/94	1.78	<0.01	<0.01
MW-2	02/11/94	1.55	0.10	0.10
MW-2	02/18/94	1.62	0.90	1.00
MW-2	02/25/94	3.21	0.10	1.10
MW-2	03/04/94	3.92	0.10	1.20
MW-2	03/30/94	4.06	2.60	3.80
MW-2	04/13/95	3.10	0.10	3.90
MW-2	04/21/94	2.88	0.10	4.00
MW-2	04/24/95	6.00	0.10	4.10
MW-2	05/06/94	8.00	0.60	4.70
MW-2	05/13/94	7.00	0.10	4.80
MW-2	05/20/94	7.38	2.10	6.90
MW-2	05/26/94	2.00	2.00	8.90
MW-2	06/02/94	1.09	1.00	9.90
MW-2	06/09/94	1.70	1.00	10.90
MW-2	06/16/94	1.13	1.00	11.90
MW-2	06/23/94	1.24	0.75	12.65
MW-2	06/29/94	0.72	0.60	13.25
MW-2	07/07/94	0.56	0.50	13.75
MW-2	07/12/94	1.00	1.10	14.85
MW-2	07/20/94	0.72	0.75	15.60
MW-2	07/29/94	1.42	1.10	16.70
MW-2	08/05/94	1.04	0.76	17.46
MW-2	08/12/94	1.22	0.76	18.22
MW-2	08/18/94	1.33	0.43	18.65
MW-2	09/16/94	0.42	0.76	19.41
MW-2	09/23/94	0.19	0.17	19.58
MW-2	10/26/94	1.13	0.76	20.34
MW-2	11/03/94	0.77	1.10	21.44
MW-2	11/12/94	0.64	0.60	22.04
MW-2	11/16/94	0.67	0.67	22.71
MW-2	11/23/94	0.56	0.50	23.21
MW-2	12/01/94	0.49	0.60	23.81
MW-2	12/08/94	0.61	0.76	24.57
MW-2	04/19/05	0.12	<0.01	24.57
MW-2	05/23/95	SHEEN	<0.01	24.57
MW-2	06/15/95	0.10	<0.01	24.57
MW-2	10/05/95	0.10	0.25	24.82
MW-2	01/12/96	0.06	0.01	24.83
MW-2	02/08/96	0.06	0.01	24.84
MW-2	04/22/96	0.08	0.01	24.85
MW-2	07/02/96	0.04	<0.01	24.85
MW-2	11/08/96	0.01	<0.01	24.85
MW-2	01/03/97	0.02	<0.01	24.85
MW-2	04/28/97	0.01	<0.01	24.85
MW-2	07/01/97	0.26	0.05	24.90



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

N

0 1000' 2000'

FIGURE 1

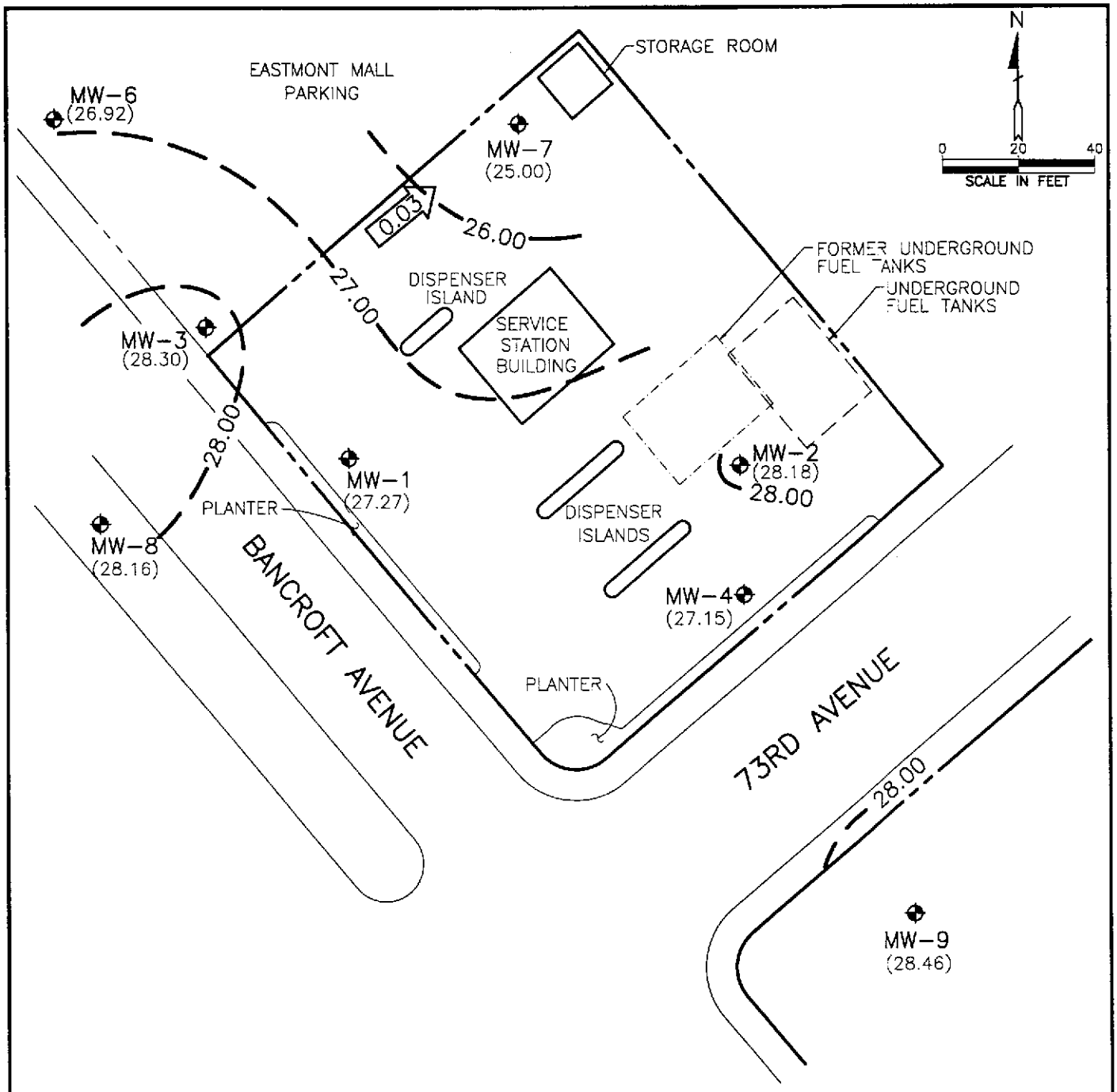
SITE VICINITY MAP

BP OIL SERVICE STATION NO. 11117
7210 BANCROFT AVENUE
OAKLAND, CALIFORNIA

PROJECT NO. 10-018

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10018B — DWG 11-12-03 RKW 1=1



LEGEND

◆	GROUNDWATER MONITORING WELL
(25.00)	GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
26.00	GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL–1.00 FOOT)
0.03	CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 2

POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP

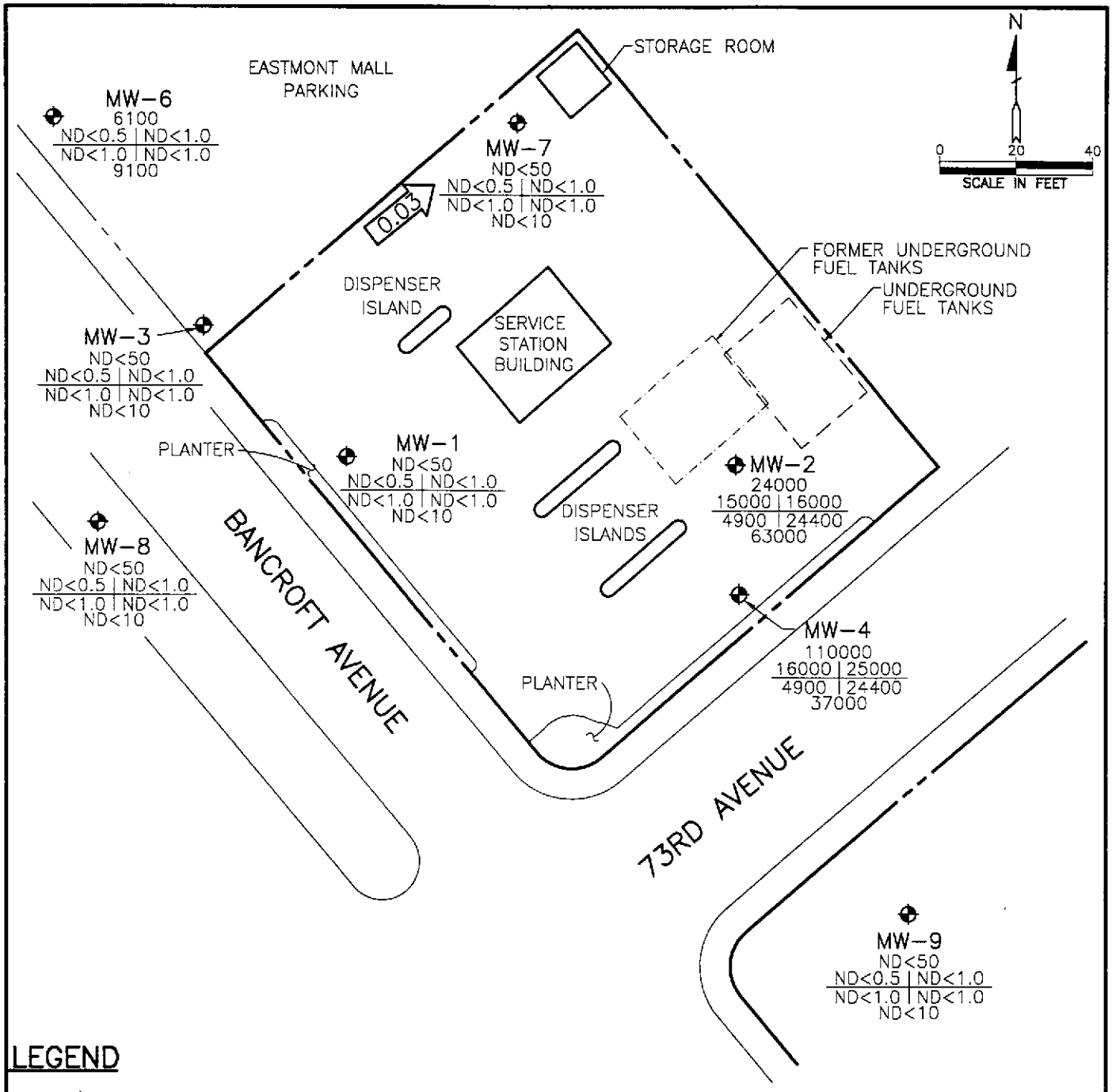
JULY 1, 1997

BP OIL SERVICE STATION NO. 11117
7210 BANCROFT AVENUE
OAKLAND, CALIFORNIA

PROJECT NO. 10–018

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10018D-W.DWG 8-11-97 HKW 1=40



LEGEND

◆	GROUNDWATER MONITORING WELL
TPH-G / B / T / E / X / MTBE	CONCENTRATION OF CONSTITUENTS IN MICROGRAMS PER LITER
TPH-G	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	TOTAL XYLENES
MTBE	METHYL TERT BUTYL ETHER
ND	NOT DETECTED ABOVE REPORTED DETECTION LIMIT
0.03	CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 3

CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER

JULY 1, 1997

BP OIL SERVICE STATION NO. 11117
7210 BANCROFT AVENUE
OAKLAND, CALIFORNIA

PROJECT NO. 10-018

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10018E-W.DWG 8-11-97 RKW 1=40

APPENDIX A

WATER SAMPLING FIELD SURVEY FORMS

ALISTO

Field Report / Sampling Data Sheet

ENGINEERING
GROUP
1575 TREAT BOULEVARD, SUITE 201

Project No. 10-018-05-004 Date: 7/1/97
Address 7210 Bancroft Ave. Day: M T W TH F
Contract No. G797409 City: Oakland
Station No. BP 11117 Sampler: LB

DEPTH TO GROUNDWATER SUMMARY

WELL ID	SAMPLE ID	WELL DIAM	TOTAL DEPTH	DEPTH TO WATER	PRODUCT THICKNESS	TIME MONITORED	COMMENTS:
MW-1	S-1	2"	36.12'	22.53	Ø	1010	
MW-2	S-8	2"	39.56'	22.90	.06	1047	Removed ~.05 gal FP QC-1
MW-3	S-2	2"	42.40'	21.65	Ø	1014	
MW-4	S-7	2"	44.72'	23.61	Ø	1037	
MW-6	S-6	2"	40.00'	23.40		1034	
MW-7	S-3	2"	44.72'	26.40		1019	
MW-8	S-4	2"	39.50'	22.72		1024	
MW-9	S-5	2"	38.86'	22.59		1030	

FIELD INSTRUMENT CALIBRATION DATA

pH METER Ion 4.00 4 7.00 7 10.00 ○ TEMPERATURE COMPENSATED (Y) N TIME 1056
D.O. METER Ion ZERO d.O. SOLUTION ____ BAROMETRIC PRESSURE 760 TEMP 67 WEATHER Clear
CONDUCTIVITY METER Ion 10,000 ____ TURBIDITY METER ____ 5.0 NTU ____ OTHER X
LEAK DETECTOR : ~~Ion~~ ____ ALARM MODE X ____ NON ALARM MODE

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
MW-1	22.53	2"	OK	Ø	Y (N)	3	1111	72.4	7.39	747 µS	3.7
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			5		71.3	7.21	756 µS	
36.12-22.53=13.59X.16=2.17X3=	6.51					7	1120	70.5	7.26	761 µS	3.9

Purge Method: (X)Surface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

O EPA 601 ____
X O TPH-G/BTEX HCl
O TPH Diesel ____
O TOG 5520 ___
TIME/SAMPLE ID
1125

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
MW-3	21.65	2"	OK	Ø	Y (N)	3	1147	71.7	7.77	910 µS	3.8
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			7		70.3	7.62	927 µS	
42.40-21.65=20.75X.16=3.32X3=	9.96					10	1159	70.0	7.56	941 µS	3.8

Purge Method: (X)Surface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

O EPA 601 ____
X O TPH-G/BTEX HCl
O TPH Diesel ____
O TOG 5520 ___
TIME/SAMPLE ID
1204

ALISTO

Field Report / Sampling Data Sheet

ENGINEERING
GROUP
1575 TREAT BOULEVARD, SUITE 201
WALNUT CREEK CA 94598 (510) 295-1650 FAX 295-1823

Project No. 10-018-05-004 | Date:
Address 7210 Bancroft Ave. | Day: M T W TH F
Contract No. G797409 | City: Oakland
Station No. BP 11117 | Sampler:

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-7	26.40	2"	OK	Ø	Y (N)	3	1221	72.4	7.61	1007µS	3.9
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			6		71.9	7.40	1052µS	
44.72-26.40 = 18.32 X .16 = 2.93 X 3 =			8.79			9	1233	70.7	7.34	1100µS	4.2

Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

O EPA 601_____
Ø TPH-G/BTEX HCL
O TPH Diesel____
O TOG 5520 ___
TIME/SAMPLE ID: 1240

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-8	22.72	2"	OK	Ø	Y (N)	3	1247	72.1	7.41	510µS	3.7
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			6		71.3	7.32	537µS	
39.50-22.72 = 16.78 X .16 = 2.68 X 3 =			8.04			9	1256	70.7	7.28	547µS	3.8

Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

O EPA 601_____
Ø TPH-G/BTEX HCL
O TPH Diesel____
O TOG 5520 ___
TIME/SAMPLE ID: 1301

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-9	22.59	2"	OK	Ø	Y (N)	3	1311	71.8	7.93	922µS	3.4
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			5		71.2	7.82	956µS	
38.86-22.59 = 16.27 X .16 = 2.60 X 3 =			7.80			8	1320	70.8	7.76	964µS	3.9

Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

O EPA 601_____
Ø TPH-G/BTEX HCL
O TPH Diesel____
O TOG 5520 ___
TIME/SAMPLE ID: 1322

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-6	23.40	2"	OK	Ø	Y (N)	3	1341	73.7	7.90	1010µS	3.7
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			5		72.4	7.71	1037µS	
40.00-23.40 = 16.60 X .16 = 2.66 X 3 =			7.98			8	1350	71.8	7.64	1044µS	3.9

Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

O EPA 601_____
Ø TPH-G/BTEX HCL
O TPH Diesel____
O TOG 5520 ___
TIME/SAMPLE ID: 1401

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-4	23.61	2"	OK	Ø	Y (N)	4	1413	71.4	7.61	1.07ms	3.6
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			8		70.3	7.34	1.14ms	
44.72-23.61 = 21.11 X .16 = 3.38 X 3 =			10.14			11	1427	70.3	7.27	1.19ms	3.6

Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

O EPA 601_____
Ø TPH-G/BTEX HCL
O TPH Diesel____
O TOG 5520 ___
TIME/SAMPLE ID: 1433

ALISTO

Field Report / Sampling Data Sheet

ENGINEERING
GROUP
1575 TREAT BOULEVARD, SUITE 201
WALNUT CREEK CA 94598 (510) 295-1650 FAX 295-1823

Project No. 10-018-05-004 Date: 7/1/97
Address 7210 Bancroft Ave. Day: M (T) W TH F
Contract No. G797409 City: Oakland
Station No. BP 11117 Sampler: CB

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
MW-2	22.90	2"	OK	22.64	(Y) N	3	1455	72.1	8.13	815µs	3.9
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			6		70.8	7.61	857µs	
39.56-22.90=16.66	X.16 = 2.67	X3=	8.01			9	1510	71.4	7.47	871µs	3.7
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port											
Comments: Purged additional 10 gal of fluids											

O EPA 601_____
X TPH-G/BTEX HCl
O TPH Diesel_____
O TOG 5520 ___
TIME/SAMPLE ID
1520 QC-1

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
					Y N						
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.								
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port											
Comments:											

O EPA 601_____
O TPH-G/BTEX___
O TPH Diesel_____
O TOG 5520 ___
TIME/SAMPLE ID

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD

LABORATORIES

July 16, 1997

Mr. Scott Hooton
BP OIL COMPANY
295 SW 41st ST., Blvd 13, Ste N
Renton, WA 98055

The following report contains analytical results for samples received at Southern Petroleum Laboratories (SPL) on July 8, 1997. The samples were assigned to Certificate of Analysis No(s).9707296 and analyzed for the parameters specified on the chain of custody.

There were no analytical problems encountered with this group of samples and all quality control data was within acceptance limits.

If you have any questions or comments pertaining to this data report, please do not hesitate to contact me. Please reference the above Certificate of Analysis Number(s) during any inquiries.

Again, SPL is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

Southern Petroleum Laboratories

Ed Fry
Project Manager

8880 INTERCHANGE DR.
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(616) 947-5777

1511 E. ORANGETHORPE AVE.
FULLERTON, CA 92631
(714) 447-6868

SPL LABORATORIES

Southern Petroleum Laboratories, Inc.

Certificate of Analysis Number: 97-07-296

Approved for Release by:

Ed Fry, Project Manager

Date: 7/17/97

Greg Grandits
Laboratory Director

Idelis Williams
Quality Assurance Officer

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SPL LABORATORIES

Certificate of Analysis No. H9-9707296-01

BP Oil Company
295 SW 41st St, Bldg 13,Ste N
Renton, WA 98055
ATTN: Scott Hooton

P.O.# G797409 COC#076987
DATE: 07/16/97

PROJECT: BP Oil #11117
SITE: Oakland, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-1

PROJECT NO: 10-018-5-4
MATRIX: WATER
DATE SAMPLED: 07/01/97
DATE RECEIVED: 07/08/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	10 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1.0 P	µg/L
Ethylbenzene	ND	1.0 P	µg/L
Total Xylene	ND	1.0 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	97		
4-Bromofluorobenzene	97		
Method 8020A***			
Analyzed by: HS			
Date: 07/12/97			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	60		
4-Bromofluorobenzene	97		
California LUFT Manual			
Analyzed by: HS			
Date: 07/12/97 07:07:00			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.
SPL California License #1903

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LABORATORIES **Certificate of Analysis No. H9-9707296-02**

BP Oil Company
295 SW 41st St, Bldg 13,Ste N
Renton, WA 98055
ATTN: Scott Hooton

P.O.# G797409 COC#076987
DATE: 07/16/97

PROJECT: BP Oil #11117
SITE: Oakland, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-2

PROJECT NO: 10-018-5-4
MATRIX: WATER
DATE SAMPLED: 07/01/97
DATE RECEIVED: 07/08/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	10 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1.0 P	µg/L
Ethylbenzene	ND	1.0 P	µg/L
Total Xylene	ND	1.0 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	93		
Method 8020A***			
Analyzed by: HS			
Date: 07/12/97			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	63		
4-Bromofluorobenzene	100		
California LUFT Manual			
Analyzed by: HS			
Date: 07/12/97 07:34:00			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.
SPL California License #1903

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LABORATORIES **Certificate of Analysis No. H9-9707296-03**

BP Oil Company
295 SW 41st St, Bldg 13,Ste N
Renton, WA 98055
ATTN: Scott Hooton

P.O.# G797409 COC#076987
DATE: 07/16/97

PROJECT: BP Oil #11117
SITE: Oakland, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-3

PROJECT NO: 10-018-5-4
MATRIX: WATER
DATE SAMPLED: 07/01/97
DATE RECEIVED: 07/08/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	10 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1.0 P	µg/L
Ethylbenzene	ND	1.0 P	µg/L
Total Xylene	ND	1.0 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	93		
Method 8020A***			
Analyzed by: HS			
Date: 07/12/97			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	63		
4-Bromofluorobenzene	100		
California LUFT Manual			
Analyzed by: HS			
Date: 07/12/97 08:02:00			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.
SPL California License #1903

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FULLERTON, CA 92631
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SPL LABORATORIES

Certificate of Analysis No. H9-9707296-04

BP Oil Company
295 SW 41st St, Bldg 13,Ste N
Renton, WA 98055
ATTN: Scott Hooton

P.O.# G797409 COC#076987
DATE: 07/16/97

PROJECT: BP Oil #11117
SITE: Oakland, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-4

PROJECT NO: 10-018-5-4
MATRIX: WATER
DATE SAMPLED: 07/01/97
DATE RECEIVED: 07/08/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	10 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1.0 P	µg/L
Ethylbenzene	ND	1.0 P	µg/L
Total Xylene	ND	1.0 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	97		
4-Bromofluorobenzene	93		
Method 8020A***			
Analyzed by: HS			
Date: 07/12/97			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	63		
4-Bromofluorobenzene	93		
California LUFT Manual			
Analyzed by: HS			
Date: 07/12/97 08:31:00			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.
SPL California License #1903

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SPL LABORATORIES

Certificate of Analysis No. H9-9707296-05

BP Oil Company
295 SW 41st St, Bldg 13,Ste N
Renton, WA 98055
ATTN: Scott Hooton

P.O.# G797409 COC#076987
DATE: 07/16/97

PROJECT: BP Oil #11117
SITE: Oakland, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-5

PROJECT NO: 10-018-5-4
MATRIX: WATER
DATE SAMPLED: 07/01/97
DATE RECEIVED: 07/08/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	10 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1.0 P	µg/L
Ethylbenzene	ND	1.0 P	µg/L
Total Xylene	ND	1.0 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	97		
Method 8020A***			
Analyzed by: HS			
Date: 07/12/97			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	63		
4-Bromofluorobenzene	93		
California LUFT Manual			
Analyzed by: HS			
Date: 07/12/97 09:00:00			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.
SPL California License #1903

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(318) 237-4SPL

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(616) 947-5777

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FULLERTON, CA 92631
(714) 447-6868

SPL LABORATORIES

Certificate of Analysis No. H9-9707296-06

BP Oil Company
295 SW 41st St, Bldg 13,Ste N
Renton, WA 98055
ATTN: Scott Hooton

P.O.# G797409 COC#076987
DATE: 07/16/97

PROJECT: BP Oil #11117
SITE: Oakland, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-6

PROJECT NO: 10-018-5-4
MATRIX: WATER
DATE SAMPLED: 07/01/97
DATE RECEIVED: 07/08/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	9100	250 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1.0 P	µg/L
Ethylbenzene	ND	1.0 P	µg/L
Total Xylene	ND	1.0 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	97		
4-Bromofluorobenzene	97		
Method 8020A***			
Analyzed by: HS			
Date: 07/13/97			
Total Petroleum Hydrocarbons-Gasoline	6.1	1.2 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	61		
4-Bromofluorobenzene	93		
California LUFT Manual			
Analyzed by: HS			
Date: 07/14/97 08:06:00			

(P) - Practical Quantitation Limit ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.
SPL California License #1903

8880 INTERCHANGE DR.
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SPL LABORATORIES

Certificate of Analysis No. H9-9707296-07

BP Oil Company
295 SW 41st St, Bldg 13,Ste N
Renton, WA 98055
ATTN: Scott Hooton

P.O.# G797409 COC#076987
DATE: 07/16/97

PROJECT: BP Oil #11117
SITE: Oakland, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-7

PROJECT NO: 10-018-5-4
MATRIX: WATER
DATE SAMPLED: 07/01/97
DATE RECEIVED: 07/08/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	37000	2500 P	µg/L
Benzene	16000	120 P	µg/L
Toluene	25000	250 P	µg/L
Ethylbenzene	4900	250 P	µg/L
Total Xylene	24400	250 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	95		
4-Bromofluorobenzene	101		
Method 8020A***			
Analyzed by: HS			
Date: 07/13/97			
Total Petroleum Hydrocarbons-Gasoline	110	12 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	64		
4-Bromofluorobenzene	99		
California LUFT Manual			
Analyzed by: HS			
Date: 07/14/97 08:34:00			

(P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.
SPL California License #1903

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SPL LABORATORIES

Certificate of Analysis No. H9-9707296-08

BP Oil Company
295 SW 41st St, Bldg 13,Ste N
Renton, WA 98055
ATTN: Scott Hooton

P.O.# G797409 COC#076987
DATE: 07/16/97

PROJECT: BP Oil #11117
SITE: Oakland, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-8

PROJECT NO: 10-018-5-4
MATRIX: WATER
DATE SAMPLED: 07/01/97
DATE RECEIVED: 07/08/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	63000	2500 P	µg/L
Benzene	15000	120 P	µg/L
Toluene	16000	250 P	µg/L
Ethylbenzene	4900	250 P	µg/L
Total Xylene	24400	250 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	97		
4-Bromofluorobenzene	103		
Method 8020A***			
Analyzed by: HS			
Date: 07/14/97			
Total Petroleum Hydrocarbons-Gasoline	24	2.5 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	63		
4-Bromofluorobenzene	100		
California LUFT Manual			
Analyzed by: HS			
Date: 07/14/97 09:02:00			

(P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.
SPL California License #1903

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1511 E. ORANGETHORPE AVE.
FULLERTON, CA 92631
(714) 447-6868

LABORATORIES

Certificate of Analysis No. H9-9707296-09

BP Oil Company
295 SW 41st St, Bldg 13,Ste N
Renton, WA 98055
ATTN: Scott Hooton

P.O.# G797409 COC#076987
DATE: 07/16/97

PROJECT: BP Oil #11117
SITE: Oakland, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-9

PROJECT NO: 10-018-5-4
MATRIX: WATER
DATE SAMPLED: 07/01/97
DATE RECEIVED: 07/08/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	57000	10000 P	µg/L
Benzene	14000	500 P	µg/L
Toluene	13000	1000 P	µg/L
Ethylbenzene	1800	1000 P	µg/L
Total Xylene	14200	1000 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	100		
4-Bromofluorobenzene	103		
Method 8020A***			
Analyzed by: HS			
Date: 07/14/97			
Total Petroleum Hydrocarbons-Gasoline	150	5 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	67		
4-Bromofluorobenzene	97		
California LUFT Manual			
Analyzed by: HS			
Date: 07/13/97 04:56:00			

(P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.
SPL California License #1903

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QUALITY CONTROL

DOCUMENTATION

CONTROLLED LABORATORIES

	AMOUNT ADDED	CONC. MEASURED	RECOVERY	LIMITS

Method 8020A* BATCH#:HP_S970712121800**
WORK ORDER: 9707296-01A **CLIENT SAMPLE ID:** S-1

1,4-Difluorobenzene	30	29	97	70- 131
4-Bromofluorobenzene	30	29	97	43- 135

Method 8020A* BATCH#:HP_S970712121800**
WORK ORDER: 9707296-02A **CLIENT SAMPLE ID:** S-2

1,4-Difluorobenzene	30	28	93	70- 131
4-Bromofluorobenzene	30	28	93	43- 135

Method 8020A* BATCH#:HP_S970712121800**
WORK ORDER: 9707296-03A **CLIENT SAMPLE ID:** S-3

1,4-Difluorobenzene	30	28	93	70- 131
4-Bromofluorobenzene	30	28	93	43- 135

Method 8020A* BATCH#:HP_S970712121800**
WORK ORDER: 9707296-04A **CLIENT SAMPLE ID:** S-4

1,4-Difluorobenzene	30	29	97	70- 131
4-Bromofluorobenzene	30	28	93	43- 135

Method 8020A* BATCH#:HP_S970712121800**
WORK ORDER: 9707296-05A **CLIENT SAMPLE ID:** S-5

1,4-Difluorobenzene	30	28	93	70- 131
4-Bromofluorobenzene	30	29	97	43- 135

Method 8020A* BATCH#:HP_S970712121800**
WORK ORDER: 9707296-06A **CLIENT SAMPLE ID:** S-6

1,4-Difluorobenzene	30	29	97	70- 131
4-Bromofluorobenzene	30	29	97	43- 135

Method 8020A* BATCH#:HP_S970712121800**
WORK ORDER: 9707296-09A **CLIENT SAMPLE ID:** S-9

1,4-Difluorobenzene	30	30.0000	100	70- 131
4-Bromofluorobenzene	30	30.0000	100	43- 135

Method 8020A* BATCH#:HP_S970712121800**
WORK ORDER: Method Blank **CLIENT SAMPLE ID:**

1,4-Difluorobenzene	30	28	28.1	70- 131

	AMOUNT ADDED	CONC. MEASURED	RECOVERY	LIMITS
4-Bromofluorobenzene	30	29	29.4	43- 135

Method 8020A* BATCH#:HP_S970712121800**
WORK ORDER: LCS **CLIENT SAMPLE ID:**

1,4-Difluorobenzene	30	29	96.7	70- 131
4-Bromofluorobenzene	30	30	100	43- 135

Method 8020A* BATCH#:HP_S970712121800**
WORK ORDER: Matrix Spike **CLIENT SAMPLE ID:**9707296-01A

1,4-DIFLUOROBENZENE	30	28	93	70- 131
4-BROMOFLUOROBENZENE	30	30	100	43- 135

Method 8020A* BATCH#:HP_S970712121800**
WORK ORDER: Matrix Spike Dup. **CLIENT SAMPLE ID:**9707296-01A

1,4-Difluorobenzene	30	29	97	70- 131
4-Bromofluorobenzene	30	29	97	43- 135

California LUFT Manual BATCH#:HP_S970712121810
WORK ORDER: 9707296-01A **CLIENT SAMPLE ID:**S-1

1,4-Difluorobenzene	30	18	60	50- 150
4-Bromofluorobenzene	30	29	97	50- 150

California LUFT Manual BATCH#:HP_S970712121810
WORK ORDER: 9707296-02A **CLIENT SAMPLE ID:**S-2

1,4-Difluorobenzene	30	19	63	50- 150
4-Bromofluorobenzene	30	30	100	50- 150

California LUFT Manual BATCH#:HP_S970712121810
WORK ORDER: 9707296-03A **CLIENT SAMPLE ID:**S-3

1,4-Difluorobenzene	30	19	63	50- 150
4-Bromofluorobenzene	30	30	100	50- 150

California LUFT Manual BATCH#:HP_S970712121810
WORK ORDER: 9707296-04A **CLIENT SAMPLE ID:**S-4

1,4-Difluorobenzene	30	19	63	50- 150
4-Bromofluorobenzene	30	28	93	50- 150

SPL LABORATORIES

	AMOUNT ADDED	CONC. MEASURED	RECOVERY	LIMITS
California LUFT Manual				**BATCH#:**HP_S970712121810
WORK ORDER: 9707296-05A				**CLIENT SAMPLE ID:**S-5
1,4-Difluorobenzene	30	19	63	50- 150
4-Bromofluorobenzene	30	28	93	50- 150
California LUFT Manual				**BATCH#:**HP_S970712121810
WORK ORDER: 9707296-09A				**CLIENT SAMPLE ID:**S-9
1,4-Difluorobenzene	30	20.0000	67	50- 150
4-Bromofluorobenzene	30	2.7000	9 «	50- 150
California LUFT Manual				**BATCH#:**HP_S970712121810
WORK ORDER: Method Blank				**CLIENT SAMPLE ID:**
1,4-Difluorobenzene	30	20	20.3	50- 150
4-Bromofluorobenzene	30	29	29.3	50- 150
California LUFT Manual				**BATCH#:**HP_S970712121810
WORK ORDER: Matrix Spike				**CLIENT SAMPLE ID:**9707296-02A
1,4-Difluorobenzene	30	31	103	50- 150
4-Bromofluorobenzene	30	31	103	50- 150
California LUFT Manual				**BATCH#:**HP_S970712121810
WORK ORDER: Matrix Spike Dup.				**CLIENT SAMPLE ID:**9707296-02A
1,4-Difluorobenzene	30	33	110	50- 150
4-Bromofluorobenzene	30	31	103	50- 150
Method 8020A* **				**BATCH#:**HP_S970713055100
WORK ORDER: 9707296-07A				**CLIENT SAMPLE ID:**S-7
1,4-Difluorobenzene	30	28.4000	95	70- 131
4-Bromofluorobenzene	30	30.4000	101	43- 135
Method 8020A* **				**BATCH#:**HP_S970713055100
WORK ORDER: 9707296-08A				**CLIENT SAMPLE ID:**S-8
1,4-Difluorobenzene	30	29.2000	97	70- 131
4-Bromofluorobenzene	30	30.8000	103	43- 135
Method 8020A* **				**BATCH#:**HP_S970713055100
WORK ORDER: 9707296-09A				**CLIENT SAMPLE ID:**S-9
1,4-Difluorobenzene	30	30.0000	100	70- 131

CANCHAND LABORATORIES

	AMOUNT ADDED	CONC. MEASURED	RECOVERY	LIMITS
4-Bromofluorobenzene	30	31.0000	103	43- 135

Method 8020A* BATCH#:HP_S970713055100**
WORK ORDER: Method Blank **CLIENT SAMPLE ID:**

1,4-Difluorobenzene	30	29	97	70- 131
4-Bromofluorobenzene	30	29	97	43- 135

Method 8020A* BATCH#:HP_S970713055100**
WORK ORDER: LCS **CLIENT SAMPLE ID:**

1,4-Difluorobenzene	30	28	93.3	70- 131
4-Bromofluorobenzene	30	30	100	43- 135

Method 8020A* BATCH#:HP_S970713055100**
WORK ORDER: Matrix Spike **CLIENT SAMPLE ID:**9707292-01A

1,4-DIFLUOROBENZENE	30	29	97	70- 131
4-BROMOFLUOROBENZENE	30	30	100	43- 135

Method 8020A* BATCH#:HP_S970713055100**
WORK ORDER: Matrix Spike Dup. **CLIENT SAMPLE ID:**9707292-01A

1,4-Difluorobenzene	30	29	97	70- 131
4-Bromofluorobenzene	30	29	97	43- 135

California LUFT Manual BATCH#:HP_S970715135500
WORK ORDER: 9707296-06A **CLIENT SAMPLE ID:**S-6

1,4-Difluorobenzene	30	18.4000	61	50- 150
4-Bromofluorobenzene	30	28.0000	93	50- 150

California LUFT Manual BATCH#:HP_S970715135500
WORK ORDER: 9707296-07A **CLIENT SAMPLE ID:**S-7

1,4-Difluorobenzene	30	19.2000	64	50- 150
4-Bromofluorobenzene	30	29.6000	99	50- 150

California LUFT Manual BATCH#:HP_S970715135500
WORK ORDER: 9707296-08A **CLIENT SAMPLE ID:**S-8

1,4-Difluorobenzene	30	19.0000	63	50- 150
4-Bromofluorobenzene	30	30.0000	100	50- 150

CONTROL LABORATORIES

	AMOUNT ADDED	CONC. MEASURED	RECOVERY	LIMITS
California LUFT Manual **BATCH#:**HP_S970715135500				
WORK ORDER: Method Blank **CLIENT SAMPLE ID:**				
1,4-Difluorobenzene	30	20	19.8	50- 150
4-Bromofluorobenzene	30	29	29.4	50- 150
California LUFT Manual **BATCH#:**HP_S970715135500				
WORK ORDER: Matrix Spike **CLIENT SAMPLE ID:**9707292-08A				
1,4-Difluorobenzene	30	26	87	50- 150
4-Bromofluorobenzene	30	30	100	50- 150
California LUFT Manual **BATCH#:**HP_S970715135500				
WORK ORDER: Matrix Spike Dup. **CLIENT SAMPLE ID:**9707292-08A				
1,4-Difluorobenzene	30	28	93	50- 150
4-Bromofluorobenzene	30	30	100	50- 150

« = Recovery outside of control limits
*** = Methods for Chemical Analysis of Water & Wastes,1983,EPA**
**** = Standard Methods for Examination of Water & Wastewater,17th**
***** = Test Methods for Evaluating Solid Waste,EPA SW846,3rd**

LABORATORIES

** SPL BATCH QUALITY CONTROL REPORT **
METHOD 8020***

Matrix: Aqueous
Units: µg/L

Batch Id: HP_S970712121800

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
MTBE	ND	50	40	80.0	20 - 110
Benzene	ND	50	41	82.0	62 - 121
Toluene	ND	50	45	90.0	66 - 136
Ethyl_Benzene	ND	50	49	98.0	70 - 136
O-Xylene	ND	50	49	98.0	74 - 134
M and P Xylene	ND	100	99	99.0	77 - 140

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
MTBE	ND	20	22	110	19	95.0	14.6	20	39 - 150
BENZENE	ND	20	22	110	18	90.0	20.0	25	39 - 150
TOLUENE	ND	20	22	110	19	95.0	14.6	26	56 - 134
ETHYL_BENZENE	ND	20	22	110	22	110	0	38	61 - 128
O-XYLENE	ND	20	22	110	22	110	0	29	40 - 130
M AND P XYLENE	ND	40	43	108	43	108	0	20	43 - 152

Analyst: HS
Sequence Date: 07/12/97
SPL ID of sample spiked: 9707296-01A
Sample File ID: S_G7443.TXO
Method Blank File ID:
Blank Spike File ID: S_G7433.TXO
Matrix Spike File ID: S_G7437.TXO
Matrix Spike Duplicate File ID: S_G7438.TXO

* = Values Outside QC Range. « = Data outside Method Specification limits.
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source: SPL-Houston Historical Data (4th Q '95)
(***) = Source: SPL-Houston Historical Data (3rd Q '96)

SAMPLES IN BATCH(SPL ID):

9707296-02A 9707296-03A 9707296-04A 9707296-05A
9707296-06A 9707562-13A 9707551-01B 9707199-22A
9707302-01A 9707303-02A 9707199-20A 9707199-21A
9707302-02A 9707296-09A 9707497-01A 9707296-01A

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SPL LABORATORIES

** SPL BATCH QUALITY CONTROL REPORT **
METHOD 8020***

Matrix: Aqueous
Units: µg/L

Batch Id: HP_S970713055100

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
MTBE	ND	50	39	78.0	20 - 110
Benzene	ND	50	41	82.0	62 - 121
Toluene	ND	50	46	92.0	66 - 136
Ethyl_Benzene	ND	50	46	92.0	70 - 136
O-Xylene	ND	50	47	94.0	74 - 134
M and P Xylene	ND	100	96	96.0	77 - 140
Total Xylene	ND	150	0	0	-

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
MTBE	ND	20	22	110	22	110	0	20	39 - 150
BENZENE	ND	20.0	23	115	22	110	4.44	25	39 - 150
TOLUENE	ND	20.0	22	110	21	105	4.65	26	56 - 134
ETHYL_BENZENE	ND	20.0	22	110	21	105	4.65	38	61 - 128
O-XYLENE	ND	20.0	22	110	22	110	0	29	40 - 130
M AND P XYLENE	ND	40.0	44	110	42	105	4.65	20	43 - 152
TOTAL XYLENE	ND	60.0	0	0	0	0	0		-

Analyst: HS
Sequence Date: 07/13/97
SPL ID of sample spiked: 9707292-01A
Sample File ID: S_G7475.TXO
Method Blank File ID:
Blank Spike File ID: S_G7468.TXO
Matrix Spike File ID: S_G7471.TXO
Matrix Spike Duplicate File ID: S_G7472.TXO

* = Values Outside QC Range. « = Data outside Method Specification limits.
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source: SPL-Houston Historical Data (4th Q '95)
(***) = Source: SPL-Houston Historical Data (3rd Q '96)

SAMPLES IN BATCH(SPL ID):

9707292-06A 9707292-09A 9707292-12A 9707500-01A
9707303-01A 9707303-02A 9707296-06A 9707296-08A
9707296-09A 9707292-14A 9707292-11A 9707292-13A
9707296-07A 9707292-01A 9707292-02A 9707292-03A
9707292-04A 9707292-05A

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LABORATORIES

** SPL BATCH QUALITY CONTROL REPORT **
CA LUFT

Matrix: Aqueous
Units: mg/L

Batch Id: HP_S970712121810

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Petroleum Hydrocarbons-Gas	ND	1.0	0.99	99.0	50 - 150

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
PETROLEUM HYDROCARBONS-GAS	ND	0.9	0.87	96.7	0.92	102	5.33	50	50 - 150

Analyst: HS
Sequence Date: 07/12/97
SPL ID of sample spiked: 9707296-02A
Sample File ID: SSG7444.TXO
Method Blank File ID:
Blank Spike File ID: SSG7435.TXO
Matrix Spike File ID: SSG7439.TXO
Matrix Spike Duplicate File ID: SSG7440.TXO

* = Values Outside QC Range. « = Data outside Method Specification limits.
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source: Temporary Limits
(***) = Source: Temporary Limits

SAMPLES IN BATCH(SPL ID): 9707296-04A 9707296-05A 9707296-09A 9707296-01A 9707296-02A 9707296-03A

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LABORATORIES

** SPL BATCH QUALITY CONTROL REPORT **
CA LUFT

Matrix: Aqueous
Units: mg/L

Batch Id: HP_S970715135500

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Petroleum Hydrocarbons-Gas	ND	1.0	0.91	91.0	50 - 150

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
PETROLEUM HYDROCARBONS-GAS	ND	0.9	0.79	87.8	0.86	95.6	8.51	50	50 - 150

Analyst: HS
Sequence Date: 07/14/97
SPL ID of sample spiked: 9707292-08A
Sample File ID: SSG7513.TX0
Method Blank File ID:
Blank Spike File ID: SSG7502.TX0
Matrix Spike File ID: SSG7505.TX0
Matrix Spike Duplicate File ID: SSG7506.TX0

* = Values Outside QC Range. « = Data outside Method Specification limits.
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source: Temporary Limits
(***) = Source: Temporary Limits

SAMPLES IN BATCH(SPL ID): 9707296-07A 9707296-08A 9707292-13A 9707292-14A
9707455-05A 9707455-04A 9707455-02A 9707455-06A
9707292-07A 9707292-08A 9707292-10A 9707296-06A

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CHAIN OF CUSTODY

AND

SAMPLE RECEIPT CHECKLIST

9707296

CHAIN OF CUSTODY

No. 076987 Page 1 of 1

CONSULTANT'S NAME: Alisto Engineering	ADDRESS: 1575 Treat Blvd #201	CITY: W.C.	STATE: Ca	ZIP CODE: 94598
BP SITE NUMBER: 11117	BP CORNER ADDRESS/CITY: Oakland, Ca			CONSULTANT PROJECT NUMBER: 10-018-5-4
CONSULTANT PROJECT MANAGER: Brady Nagle	PHONE NUMBER: (510) 295-1650	FAX NUMBER: 295-1823		CONSULTANT CONTRACT NUMBER: 6797409
BP CONTACT: Scott Hooton	BP ADDRESS: Renton, WA	PHONE NUMBER: —		FAX NO.: —
LAB CONTACT: SPL	LABORATORY ADDRESS: Texas	PHONE NUMBER: —		FAX NO.: —
SAMPLED BY (Please Print Name): Larry Buenvenida	SAMPLED BY (Signature):	SHIPMENT DATE: 7-7-97		SHIPMENT METHOD: Fed Ex

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

ANALYSIS REQUIRED

AIRBILL NUMBER: 384847053 3

SAMPLE DESCRIPTION	COLLECTION DATE / TIME	MATRIX SOIL/WATER	CONTAINERS NO.	CONTAINERS TYPE (VOL.)	PRESERVATIVE LAB SAMPLE #	TPH-G BTEX	TPH-D BTEX	COMMENTS
S-1	7/1/97	W	3	HCL		X	X	
S-2								
S-3								
S-4								
S-5								
S-6								
S-7								
S-8								
S-9								

COMMENTS: 10 of 50

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	7/2/97		Patricia Lyeton	7/7/97	0800
Patricia Lyeton 7/7/97	7/7/97	1400	Allen Sallas	7/8/97	0930

ADDITIONAL COMMENTS

CLV-16722
PKG/50

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

SPL Houston Environmental Laboratory

Sample Login Checklist

Date: 7/8/97	Time: 0930

SPL Sample ID: 9707296

			Yes	No
1	Chain-of-Custody (COC) form is present.		✓	
2	COC is properly completed.		✓	
3	If no, Non-Conformance Worksheet has been completed.			
4	Custody seals are present on the shipping container.		✓	
5	If yes, custody seals are intact.		✓	
6	All samples are tagged or labeled.		✓	
7	If no, Non-Conformance Worksheet has been completed.			
8	Sample containers arrived intact		✓	
9	Temperature of samples upon arrival:		5° C	
10	Method of sample delivery to SPL:	SPL Delivery		
		Client Delivery		
		FedEx Delivery (airbill #)	384847053 3	
		Other:		
11	Method of sample disposal:	SPL Disposal	✓	
		HOLD		
		Return to Client		

Name: Alma Salas	Date: 7/8/97

Calculation of RPD
for BP Oil QA/QC Program
BP Oil Station No. 11117 07/01/97 Event

Analytical Data	TPH-G	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
Primary Sample	24000	15000	16000	4900	24400	63000
QC-1 Duplicate	115000	14000	13000	1800	14200	57000
Sample Mean	69500	14500	14500	3350	19300	60000
RPD	-130.94%	6.90%	20.69%	92.54%	52.85%	10.00%
Significant Result?	YES	NO	NO	YES	YES	NO

Notes:

(1) Significance is defined as an RPD greater than 30% (or less than -30).

(2) "A negative" RPD will result if the value of the Primary Sample Result is smaller than QC-1. The determination of Significant Result is not affected by sign of RPD.

BP EXPLORATION & OIL, INC.
ENVIRONMENTAL REMEDIATION MANAGEMENT
DATA REVIEW CHECKLIST

BP Site Number:	11117
ERM Contact:	G797409
Sampling Date:	07/01/97
Matrix Description:	Water
Date Final Report Received:	07/21/97
Laboratory & Location:	SPL, Houston, Texas

		Yes	No	N/A
1.	Is BP contract release number consistent with analytical report?	✓		
2.	Was report submitted within the specified timeframe?	✓		
3.	Does report agree with the COC?	✓		
4.	Are units consistent with the given matrix?	✓		
5.	Were any target analytes/compounds detected in blanks (i.e., trip or equipment)?			✓
6.	Are duplicate water samples within 30%?		✓	
7.	Are holding times met?	✓		
8.	Are surrogates within limits using laboratory criteria?		✓	
9.	Are MS/MSD acceptable using laboratory criteria?	✓		
10.	Are LCS results acceptable using laboratory criteria?	✓		

Notes: 6) TPH-G, Ethylbenzene, & Xylenes outside RPD

8) One surrogate recovery outside control limits (see lab rpt.)

Data Validation Completed by: Ken Simas

(signature): [signature]

Date: 8/19/97

APPENDIX C

HISTORICAL MTBE DOCUMENTATION

Mr. Brady Nagle
Page 8

FOOTNOTES
for pages 1 through 7

March 29, 1993
PACE Project Number: 430316506

Client Reference: BP Station # 11117

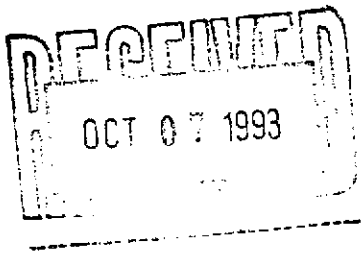
MDL	Method Detection Limit
ND	Not detected at or above the MDL.
(MT)	A peak eluting earlier than Benzene and suspected to be methyl tert butyl ether was present at approximately 82000 ppb.

11 Digital Drive
Novato, CA 94949
TEL: 415-883-6100
FAX: 415-883-2673

10-018-02-001

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS



October 05, 1993

Mr. Bill Howell
Alisto Engineering Group
1777 Oakland Blvd., Ste. 200
Walnut Creek, CA 94596

RE: PACE Project No. 430927.508
Client Reference: BP Station # 11117

Dear Mr. Howell:

Enclosed is the report of laboratory analyses for samples received September 27, 1993.

Please note that methyl tertiary butyl ether (MTBE) was detected in the following sample:

70 0162130/MW-1 6600ug/L

Footnotes are given at the end of the report.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

Jim J. Oys

Jim J. Oys
Project Manager

Enclosures

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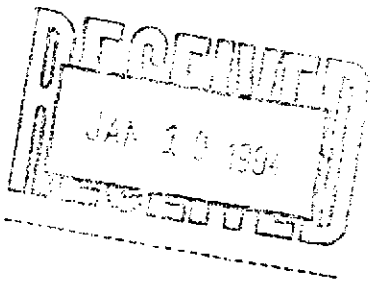
REPORT OF LABORATORY ANALYSIS



January 07, 1994

Mr. Bill Howell
Alisto Engineering Group
1777 Oakland Blvd., Ste. 200
Walnut Creek, CA 94596

RE: PACE Project No. 431229.504
Client Reference: BP Station # 11117/10-018-02-02

Dear Mr. Howell:

Enclosed is the report of laboratory analyses for samples received December 29, 1993.

Please note that methyl tertiary butyl ether (MTBE) was detected in the following samples at the approximate level:

70 0222214/MW-1	14000ug/L
70 0222222/MW-3	2700ug/L
70 0222249/MW-6	55ug/L
70 0222257/QC-1 (mw-1)	9200ug/L

Footnotes are given at the end of the report.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

Jim J. Oys
Project Manager

Enclosures

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Novato, CA 94949
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pace
INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

April 15, 1994

Mr. Bill Howell
Alisto Engineering Group
1777 Oakland Blvd., Ste. 200
Walnut Creek, CA 94596

RE: PACE Project No. 440407.508
Client Reference: BP Station # 11117/10-018-02-003

Dear Mr. Howell:

Enclosed is the report of laboratory analyses for samples received April 07, 1994.

Please note that a peak eluting earlier than Benzene and suspected to be Methyl Tert Butyl Ether was detected in the following samples at the approximated levels:

700300584/MW-1	8600 ug/L
700300614/MW-6	300 ug/L
700300622/QC-1	9700 ug/l

Footnotes are given at the end of the report.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

Ronald M. Chew
Project Manager

Enclosures

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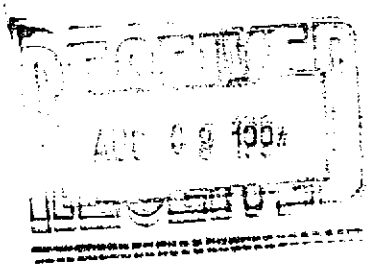
pace
INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

August 01, 1994



Mr. Bill Howell
Alisto Engineering Group
1777 Oakland Blvd., Ste. 200
Walnut Creek, CA 94596

RE: PACE Project No. 440722.510
Client Reference: BP Site #11117/10-018-02-004

Dear Mr. Howell:

Enclosed is the report of laboratory analyses for samples received July 22, 1994.

Please note 1) that thefollowing sample's sample pattern does not match the Gasoline Standard pattern:

700359422/S-1

and 2) that a peak eluting earlier than Benzene and suspected to be Methyl Tert Butyl Ether was detected in the following samples at the approximated levels:

700359422/S-1	800 ug/L
700359449/S-3	220 ug/L

Footnotes are given at the end of the report.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

Ronald M. Chew

Ronald M. Chew
Project Manager

Enclosures

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pace
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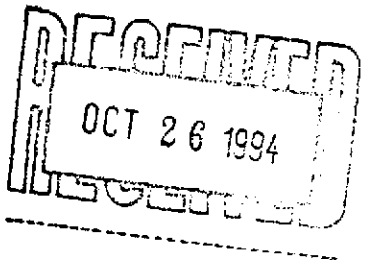
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS



October 24, 1994

Mr. Brady Nagle
Alisto Engineering Group
1777 Oakland Blvd, Ste. 200
Walnut Creek, CA 94596

RE: PACE Project No. 441017.509
Client Reference: BP Site #11117/10-018-03/001

Dear Mr. Nagle:

Enclosed is the report of laboratory analyses for samples received October 17, 1994.

Please note that a peak eluting earlier than Benzene and suspected to be Methyl Tert Butyl Ether was detected in the following samples at the approximated levels:

700424089/S-3	320 ug/L
700424097/S-4	790 ug/L

Footnotes are given at the end of the report.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

Ronald M. Chew

Ronald M. Chew
Project Manager

Enclosures

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