



BP OIL

ENVIRONMENTAL PROTECTION

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BP Oil Company
Environmental Resources Management
Building 13, Suite N
295 SW 41st Street
Renton, Washington 98055-4931
(206) 251-0667
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March 14, 1997

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

RE: Former BP Oil Site No. 11266
Lincoln & Park 1541 Park St.
Alameda, CA

Dear Ms. Chu:

Enclosed please find Groundwater Monitoring and Sampling Report, dated 28 February 1997. This report summarizes groundwater elevation and chemical data collected since March, 1988.

The enclosed report shows that aromatic hydrocarbons were detected in one of the seven monitoring wells sampled this quarter (MW-1). You will also note that the benzene (180 µg/L) was reported in well MW-1, located immediately adjacent to the underground storage tanks and the northern dispenser island. The results, in aggregate, reflect a stable plume, particularly in considerations of the results from well MW-1, which appears to represent a stable, isolated area with higher concentrations of petroleum hydrocarbons.

I believe that you can agree that the sampling of wells MW-3, MW-4, MW-5 and RW-1 can be discontinued at this time. I will assume that this is acceptable absent contrary direction from the Alameda County Health Care Services Agency. ok

The report also includes MTBE concentration beginning during the September, 1995 sampling event. MTBE was detected in samples obtained from wells MW-1, MW-2, and MW-6. Below find a bar chart summarizing MTBE concentration data.

MTBE Concentration Data(ug/l)



GROUNDWATER MONITORING AND SAMPLING REPORT

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

WR - 6 1997

Project No. 10-050-07-002

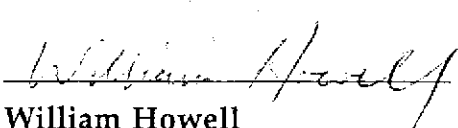
Prepared for:

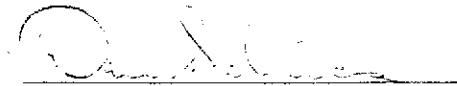
**BP Oil Company
Environmental Resources Management
295 S.W. 41st Street
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Renton, Washington**

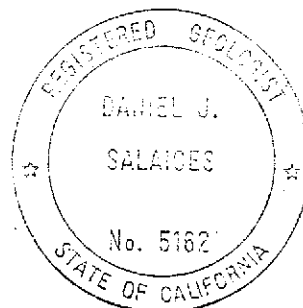
Prepared by:

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

February 28, 1997


**William Howell
Project Manager**


**Dan Salaires
Registered Geologist**



GROUNDWATER MONITORING AND SAMPLING REPORT

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

Project No. 10-050-07-002

February 28, 1997

INTRODUCTION

This report presents the results and findings of the January 17, 1997 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 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 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 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.



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)	MTBE (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-1	09/13/95	19.19	9.58	9.61	5800	110	110	510	830	4300	5.2	ATI
QC-1 (c)	09/13/95	--	--	--	5800	110	100	490	800	4500	--	ATI
MW-1	01/11/96	19.19	8.95	10.24	5400	91	130	510	1000	1700	5.2	ATI
QC-1 (c)	01/11/96	--	--	--	5100	89	120	490	950	2000	--	ATI
MW-1	04/18/96	19.19	8.40	10.79	12000	190	420	1100	1560	2100	4.5	SPL
QC-1 (c)	04/18/96	--	--	--	12000	190	390	1100	1440	2000	--	SPL
MW-1	06/28/96	19.19	9.08	10.11	11000	100	130	670	1180	4600	--	SPL
QC-1 (c)	06/28/96	--	--	--	11000	100	140	690	1290	4600	--	SPL
MW-1	11/05/96	19.19	9.81	9.38	8800	55	28	520	430	5700	5.5	SPL
QC-1 (c)	11/05/96	--	--	--	8800	48	ND<25	490	413	5600	--	SPL
MW-1	01/17/97	19.19	7.81	11.38	12000	180	160	1200	1650	3200	8.0	SPL
QC-1 (c)	01/17/97	--	--	--	13000	190	160	1200	1770	3200	--	SPL

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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)	MTBE (ug/l)	DO (ppm)	LAB
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
MW-2	09/13/95	19.32	10.19	9.13	480	ND<2.5	ND<2.5	ND<2.5	ND<5.0	2300	7.8	ATI
MW-2	01/11/96	19.32	9.59	9.73	3400	ND<25	ND<25	ND<25	ND<50	11000	5.4	ATI
MW-2	04/18/96	19.32	9.04	10.28	130	ND<0.5	ND<1	ND<1	ND<1	170	5.5	SPL
MW-2	06/28/96	19.32	9.72	9.60	300	ND<0.5	ND<1	ND<1	ND<1	430	4.9	SPL
MW-2	11/05/96	19.32	10.43	8.89	710	ND<2.5	ND<5.0	ND<5.0	ND<5.0	960	5.3	SPL
MW-2	01/17/97	19.32	8.80	10.52	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	24	5.3	SPL

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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-3	09/13/95	19.99	10.70	9.29	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	5.7	ATI
MW-3	01/11/96	19.99	10.18	9.81	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	5.5	ATI
MW-3	04/18/96	19.99	9.53	10.46	---	---	---	---	---	---	---	---
MW-3	06/28/96	19.99	9.21	10.78	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	4.3	SPL
MW-3	11/05/96	19.99	9.94	10.05	---	---	---	---	---	---	---	---
MW-3	01/17/97	19.99	9.29	10.70	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	5.0	SPL

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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)	MTBE (ug/l)	DO (ppm)	LAB
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	---	---	---	---	---	---	---	---
MW-4	09/13/95	20.17	10.20	9.97	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	4.3	ATI
MW-4	01/11/96	20.17	9.57	10.60	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	5.1	ATI
MW-4	04/18/96	20.17	9.03	11.14	---	---	---	---	---	---	---	---
MW-4	06/28/96	20.17	8.73	11.44	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	4.6	SPL
MW-4	11/05/96	20.17	9.47	10.70	---	---	---	---	---	---	---	---
MW-4	01/17/97	20.17	8.79	11.38	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	5.4	SPL

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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-5	09/13/95	19.41	9.49	9.92	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	4.9	ATI
MW-5	01/11/96	19.41	8.82	10.59	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	4.9	ATI
MW-5	04/18/96	19.41	8.30	11.11	---	---	---	---	---	---	---	---
MW-5	06/28/96	19.41	8.96	10.45	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	4.2	SPL
MW-5	11/05/96	19.41	9.69	9.72	---	---	---	---	---	---	---	---
MW-5	01/17/97	19.41	9.02	10.39	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	5.2	SPL

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)	MTBE (ug/l)	DO (ppm)	LAB
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
MW-6	09/13/95	19.40	10.05	9.35	180	ND<1.0	ND<1.0	ND<1.0	ND<2.0	770	4.9	ATI
MW-6	01/11/96	19.40	9.52	9.88	670	ND<2.5	ND<2.5	ND<2.5	ND<5.0	2400	4.6	ATI
MW-6	04/18/96	19.40	9.03	10.37	560	ND<0.5	ND<1	ND<1	ND<1	860	5.1	SPL
MW-6	06/28/96	19.40	8.76	10.64	620	ND<0.5	ND<1	ND<1	ND<1	540	4.9	SPL
MW-6	11/05/96	19.40	9.48	9.92	810	ND<5	ND<10	ND<10	ND<10	970	4.8	SPL
MW-6	01/17/97	19.40	8.58	10.82	830	ND<0.5	ND<1.0	ND<1.0	ND<1.0	960	8.9	SPL

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)	MTBE (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
RW-1	09/13/95	19.27	9.84	9.43	920	140	60	34	110	1200	5.1	ATI
RW-1	01/11/96	19.27	9.25	10.02	ND<50	0.95	0.61	ND<0.50	2.1	43	5.4	ATI
RW-1	04/18/96	19.27	8.73	10.54	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	4.7	SPL
RW-1	06/28/96	19.27	9.40	9.87	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	4.5	SPL
RW-1	11/05/96	19.27	10.12	9.15	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	4.9	SPL
RW-1	01/17/97	19.27	8.10	11.17	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	4.8	SPL
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
QC-2 (d)	09/13/95	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	ATI
QC-2 (d)	01/11/96	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	ATI
QC-2 (d)	04/18/96	---	---	---	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	SPL
QC-2 (d)	06/28/96	---	---	---	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. 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 (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
---------	---------------------------------	--------------------------------	--------------------------	---------------------------------	-----------------	-------------	-------------	-------------	-------------	----------------	-------------	-----

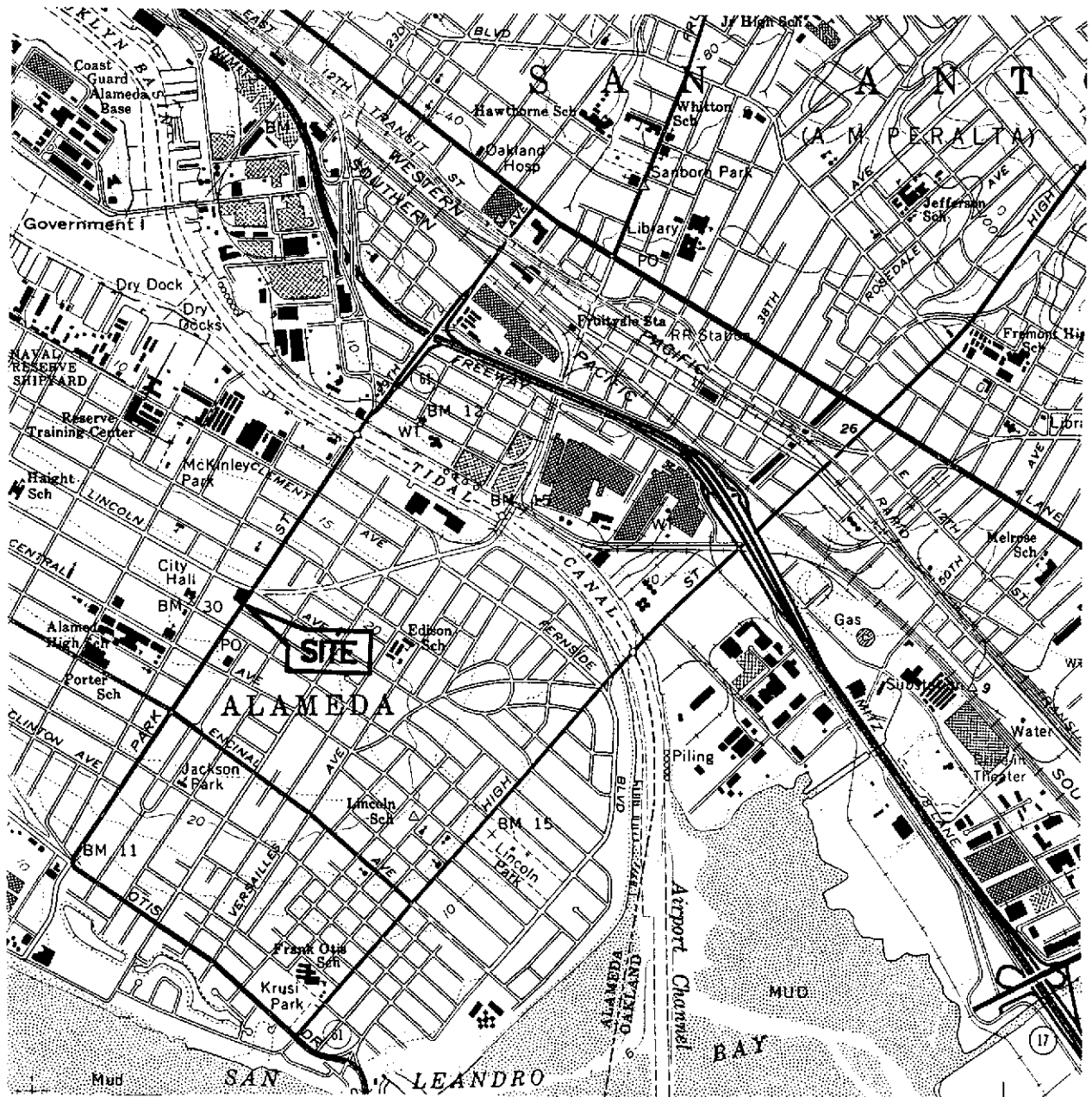
ABBREVIATIONS:

TPH-G Total petroleum hydrocarbons as gasoline
 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
 --- Not measured/applicable/analyzed
 ND Not detected above reported detection limit
 PACE Pace, Inc.
 ANA Anametrix, Inc.
 ATI Analytical Technologies, Inc.
 SPL Southern Petroleum Laboratories

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.

F:\010-050\050-7-2.WQ2



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

FIGURE 1

SITE VICINITY MAP

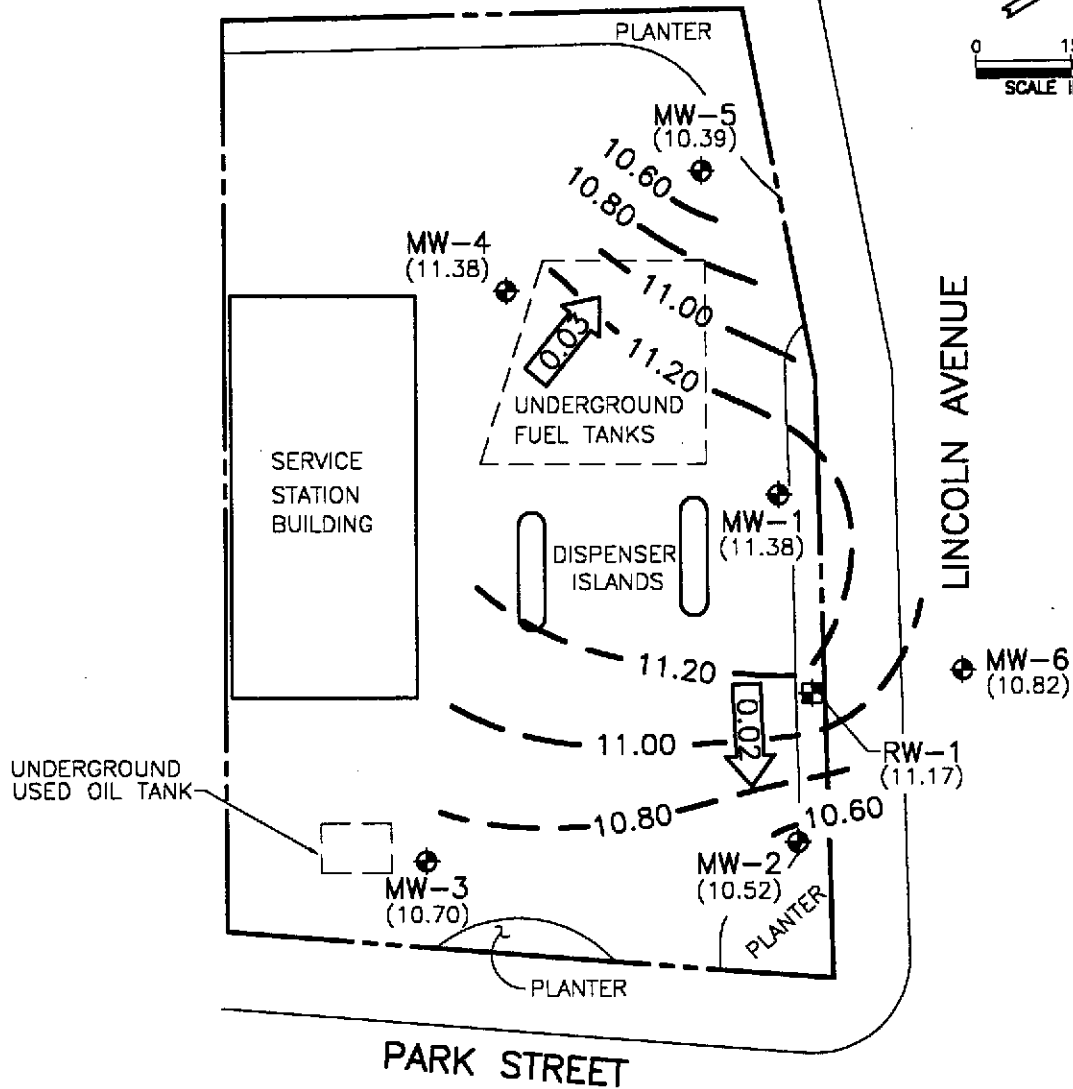
BP OIL SERVICE STATION NO. 11266

**1541 PARK STREET
 ALAMEDA, CALIFORNIA**

PROJECT NO. 10-050



ALISTO ENGINEERING GROUP
 WALNUT CREEK, CALIFORNIA



LEGEND

⊕ GROUNDWATER MONITORING WELL

⊞ GROUNDWATER RECOVERY WELL

(10.82) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL

11.00 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL-0.20 FOOT)

←0.02 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 2

POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP

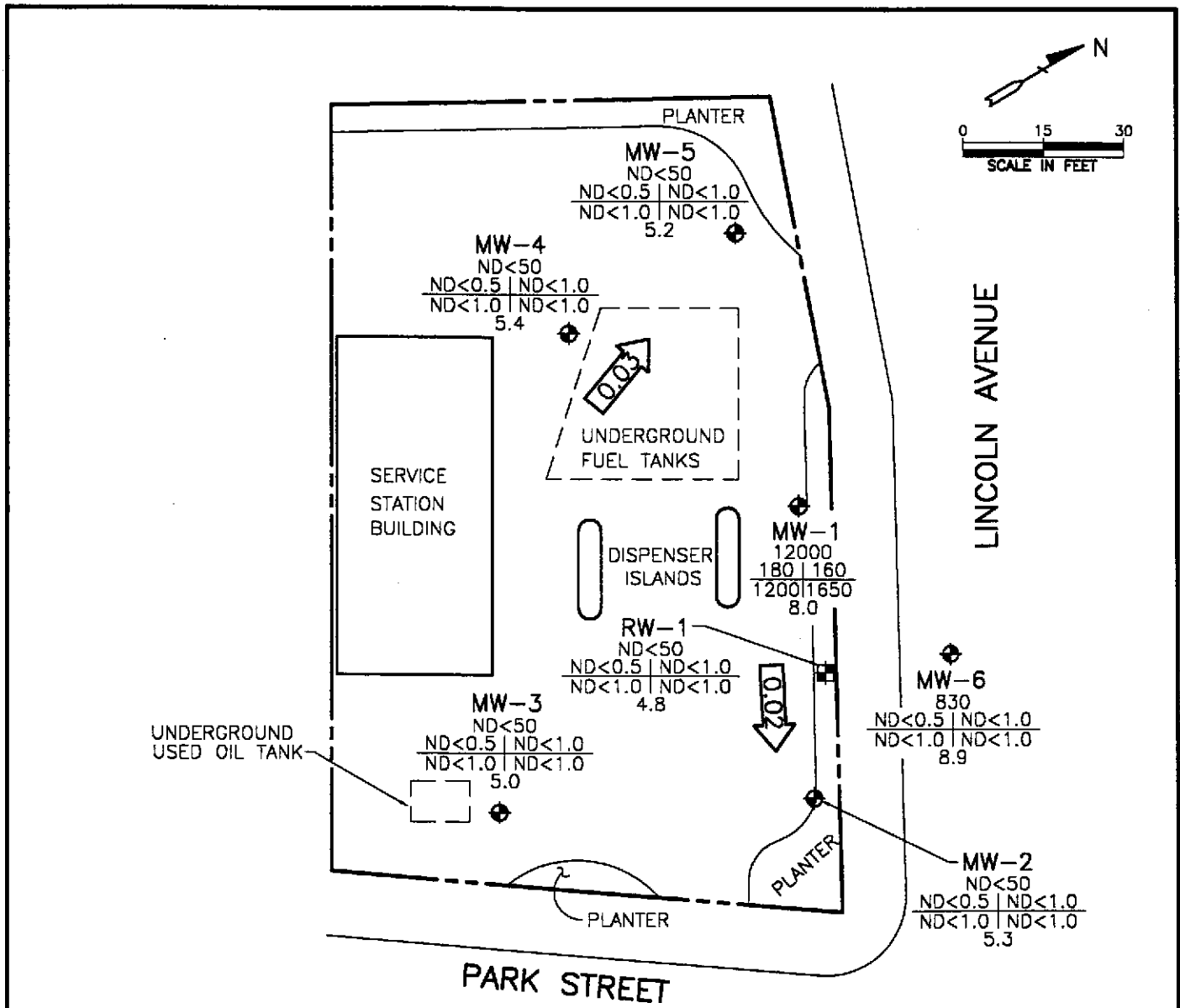
JANUARY 17, 1997

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

PROJECT NO. 10-050



ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA



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
B
T
E
X
DO
TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
- B BENZENE
- T TOLUENE
- E ETHYLBENZENE
- X TOTAL XYLENES
- DO DISSOLVED OXYGEN
- ND NOT DETECTED ABOVE REPORTED DETECTION LIMIT
- ← 0.02
CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 3
CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER
JANUARY 17, 1997
 BP OIL SERVICE STATION NO. 11266
 1541 PARK STREET
 ALAMEDA, CALIFORNIA
 PROJECT NO. 10-050



APPENDIX A
WATER SAMPLING FIELD SURVEY FORMS

ALISTO

Field Report / Sampling Data Sheet

ENGINEERING
GROUP
1575 TREAT BOULEVARD, SUITE 201

Project No. 10-050-07-002 Date: 11/7/97
Address 1541 Park St. Day: M T W T H (F)
Contract No. G797621 City: Alameda
Station No. BP 11266 Sampler: LCB

DEPTH TO GROUNDWATER SUMMARY

WELL ID	SAMPLE ID	WELL DIAM	TOTAL DEPTH	DEPTH TO WATER	PRODUCT THICKNESS	TIME MONITORED	COMMENTS:
MW-1	S-7	2"	21.88	7.81	Ø	1124	INSTALL ORC Qc-1 Dup(S-8) From this well
MW-2	S-6	1"	21.88	8.80	↓	1121	
MW-3	S-1	1"	30.00	9.29	↓	1107	SEMI/JUNE-DEC
MW-4	S-7	1"	30.00	8.79	↓	1110	SEMI/JUNE-DEC
MW-5	S-3	1"	30.00	8.02	↓	1113	SEMI/JUNE-DEC
MW-6	S-5	1"	24.24	8.58	↓	1118	INSTALL ORC
RW-1	S-4	6"	29.54	8.10	↓	1116	

FIELD INSTRUMENT CALIBRATION DATA

pH METER Tem 4.00 4 7.00 7 10.00 10 TEMPERATURE COMPENSATED Y N TIME 1100
D.O. METER Tem ZERO d.O. SOLUTION _____ BAROMETRIC PRESSURE 760 TEMP 60 WEATHER cloudy
CONDUCTIVITY METER Tem 10,000 _____ TURBIDITY METER _____ 5.0 NTU _____ OTHER X
LEAK DETECTOR: _____ 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-3	9.29	2"	OK	Ø	Y (N)	3	1136	65.3	7.71	793 µs	4.7	<input type="checkbox"/> EPA 601 _____ <input checked="" type="checkbox"/> TPH-G/BTEX <u>Hel</u> <input type="checkbox"/> TPH Diesel _____ <input type="checkbox"/> TOG 5520 _____
Total Depth - Water Level = x Well Vol. Factor = x #vol. to Purge: Purge Vol.						7		66.7	7.43	772 µs		
- 30.00 - 9.29 = 20.71 x .16 = 3.31 x 3 = 9.93						10	1144	67.0	7.38	764 µs	5.0	<input type="checkbox"/> TIME/SAMPLE ID
Purge Method: O Surface Pump O Disp. Tube O Winch O Disp. Bailer(s) _____ O Sys Port												
Comments:												1146
MW-4	8.79	2"	OK	Ø	Y (N)	3	1155	64.7	7.52	684 µs	5.2	<input type="checkbox"/> EPA 601 _____ <input checked="" type="checkbox"/> TPH-G/BTEX <u>Hel</u> <input type="checkbox"/> TPH Diesel _____ <input type="checkbox"/> TOG 5520 _____
Total Depth - Water Level = x Well Vol. Factor = x #vol. to Purge: Purge Vol.						7		65.5	7.30	672 µs		
- 30.00 - 8.79 = 21.21 x .16 = 3.39 x 3 = 10.17						11	1204	66.3	7.21	660 µs	5.4	<input type="checkbox"/> TIME/SAMPLE ID
Purge Method: O Surface Pump O Disp. Tube O Winch O Disp. Bailer(s) _____ O Sys Port												
Comments:												1207

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.

10-050-07-002

Address

1541 Park St.

Contract No.

G797621

Station No.

BP 11266

Sampler:

Date:

1/17/97

Day:

MTWTHF

City:

Alameda

LCB

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	PH	E.C.	D.O.
MW-5	9.02	2"	OK	Ø	Y (N)	4	1315	64.0	811µs	7.63	5.0
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge=	PurgeVol.			
30.00 - 9.02 = 20.98						1.16 = 3.36	3 = 10.08	7	66.2	783µs	7.42
Purge Method: OSurface Pump						ODisp. Tube	OWinch	ODisp. Baller(s)	O Sys Port		
Comments:											

- EPA 601
 - TPH-G/BTEX Hcl
 - TPH Diesel
 - TOG 5520
- TIME/SAMPLE ID

1325

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
KW-1	8.10	6"	Repld	Ø	Y (N)	30	1530	65.4	7.82	715µs	4.8
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge=	PurgeVol.			
29.54 - 8.10 = 21.44						1.47 = 31.52	3 = 94.56	62	66.3	7.63	680µs
Purge Method: OSurface Pump						ODisp. Tube	OWinch	ODisp. Baller(s)	O Sys Port		
Comments:											

- EPA 601
 - TPH-G/BTEX Hcl
 - TPH Diesel
 - TOG 5520
- TIME/SAMPLE ID

1602

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
MW-6	8.58	2"	OK	Ø	Y (N)	3	1403	64.6	7.99	822µs	8.6
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge=	PurgeVol.			
24.24 - 8.58 = 15.66						1.16 = 2.51	3 = 7.53	5	65.9	7.80	787µs
Purge Method: OSurface Pump						ODisp. Tube	OWinch	ODisp. Baller(s)	O Sys Port		
Comments:											

- EPA 601
 - TPH-G/BTEX Hcl
 - TPH Diesel
 - TOG 5520
- TIME/SAMPLE ID

1418

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
MW-2	8.80	2"	Repld	Ø	Y (N)	2	1430	65.9	8.11	719µs	5.0
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge=	PurgeVol.			
21.88 - 8.80 = 13.08						1.16 = 2.09	3 = 6.27	7	67.2	7.72	682µs
Purge Method: OSurface Pump						ODisp. Tube	OWinch	ODisp. Baller(s)	O Sys Port		
Comments:											

- EPA 601
 - TPH-G/BTEX Hcl
 - TPH Diesel
 - TOG 5520
- TIME/SAMPLE ID

1445

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
MW-1	7.81	2"	OK	Ø	Y (N)	2	1503	66.7	7.79	717µs	9.7
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge=	PurgeVol.			
21.88 - 7.81 = 14.07						1.16 = 2.25	3 = 6.75	7	67.1	7.54	679µs
Purge Method: OSurface Pump						ODisp. Tube	OWinch	ODisp. Baller(s)	O Sys Port		
Comments:											

- EPA 601
 - TPH-G/BTEX Hcl
 - TPH Diesel
 - TOG 5520
- TIME/SAMPLE ID

1514

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD



HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

January 29, 1997

Mr. Brady Nagle
Alisto Engineering
1575 Treat Boulevard
Walnut Creek, CA 94598

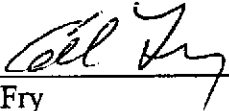
The following report contains analytical results for samples received at Southern Petroleum Laboratories (SPL) on January 21, 1997. The samples were assigned to Certificate of Analysis No. 9701769 and analyzed for all parameters as listed on the chain of custody.

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

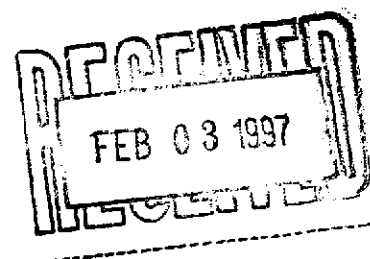
If you have any questions or comments pertaining to this data report, please do not hesitate to contact me. Please reference the above Work Order Number during any inquiries.

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






HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

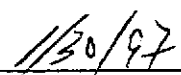
SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate of Analysis Number: 97-01-769

Approved for Release by:



Ed Fry, Project Manager



Date:

Greg Grandits
Laboratory Director

Idelis Williams
Quality Assurance Officer

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Certificate of Analysis No. H9-9701769-01

HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TEXAS 77054
 PHONE (713) 660-0901

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

P.O.#
 G797621 , COC#083215
 DATE: 01/29/97

PROJECT: BP Oil #11266
 SITE: Alameda, CA
 SAMPLED BY: Alisto Engineering
 SAMPLE ID: S-1

PROJECT NO: 10-05-0-7-2
 MATRIX: WATER
 DATE SAMPLED: 01/17/97
 DATE RECEIVED: 01/21/97

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	87

METHOD 8020***

Analyzed by: JZL
 Date: 01/23/97

Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
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Surrogate	% Recovery
1,4-Difluorobenzene	90
4-Bromofluorobenzene	77

CA LUFT - Gasoline
 Analyzed by: JZL
 Date: 01/23/97 06:18:00

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



Certificate of Analysis No. H9-9701769-02

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

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

P.O.#
G797621 , COC#083215
DATE: 01/29/97

PROJECT: BP Oil #11266
SITE: Alameda, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-2

PROJECT NO: 10-05-0-7-2
MATRIX: WATER
DATE SAMPLED: 01/17/97
DATE RECEIVED: 01/21/97

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

100

4-Bromofluorobenzene

93

METHOD 8020***

Analyzed by: JZL

Date: 01/23/97

Total Petroleum Hydrocarbons-Gasoline

ND 0.05 P

mg/L

Surrogate

% Recovery

1,4-Difluorobenzene

90

4-Bromofluorobenzene

77

CA LUFT - Gasoline

Analyzed by: JZL

Date: 01/23/97 06:53:00

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.

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HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TEXAS 77054
 PHONE (713) 660-0901

Certificate of Analysis No. H9-9701769-03

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

P.O.#
 G797621 , COC#083215
 DATE: 01/29/97

PROJECT: BP Oil #11266
 SITE: Alameda, CA
 SAMPLED BY: Alisto Engineering
 SAMPLE ID: S-3

PROJECT NO: 10-05-0-7-2
 MATRIX: WATER
 DATE SAMPLED: 01/17/97
 DATE RECEIVED: 01/21/97

PARAMETER	ANALYTICAL DATA		DETECTION LIMIT	UNITS
MTBE	RESULTS		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	100			
4-Bromofluorobenzene	93			
METHOD 8020***				
Analyzed by: JZL				
Date: 01/23/97				
Total Petroleum Hydrocarbons-Gasoline	ND		0.05 P	mg/L
Surrogate	% Recovery			
1,4-Difluorobenzene	87			
4-Bromofluorobenzene	77			
CA LUFT - Gasoline				
Analyzed by: JZL				
Date: 01/23/97 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.

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Certificate of Analysis No. H9-9701769-04

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

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

P.O.#
G797621, COC#083215
DATE: 01/29/97

PROJECT: BP Oil #11266
SITE: Alameda, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-4

PROJECT NO: 10-05-0-7-2
MATRIX: WATER
DATE SAMPLED: 01/17/97
DATE RECEIVED: 01/21/97

ANALYTICAL DATA

Table with 5 columns: PARAMETER, RESULTS, DETECTION LIMIT, UNITS, and % Recovery. Rows include MTBE, Benzene, Toluene, Ethylbenzene, Total Xylene, Surrogate (1,4-Difluorobenzene, 4-Bromofluorobenzene), METHOD 8020***, Total Petroleum Hydrocarbons-Gasoline, and Surrogate (1,4-Difluorobenzene, 4-Bromofluorobenzene) for CA LUFT - Gasoline.

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.

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HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TEXAS 77054
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Certificate of Analysis No. H9-9701769-05

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

P.O.#
 G797621 , COC#083215
 DATE: 01/29/97

PROJECT: BP Oil #11266
 SITE: Alameda, CA
 SAMPLED BY: Alisto Engineering
 SAMPLE ID: S-5

PROJECT NO: 10-05-0-7-2
 MATRIX: WATER
 DATE SAMPLED: 01/17/97
 DATE RECEIVED: 01/21/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	960	50 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
 4-Bromofluorobenzene

100
 90

METHOD 8020***

Analyzed by: fab
 Date: 01/28/97

Total Petroleum Hydrocarbons-Gasoline 0.83 0.05 P mg/L

Surrogate

% Recovery

1,4-Difluorobenzene
 4-Bromofluorobenzene

87
 77

CA LUFT - Gasoline

Analyzed by: JZL
 Date: 01/23/97 09:11:00

(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.

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HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TEXAS 77054
 PHONE (713) 660-0901

Certificate of Analysis No. H9-9701769-06

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

P.O.#
 G797621 , COC#083215
 DATE: 01/29/97

PROJECT: BP Oil #11266
 SITE: Alameda, CA
 SAMPLED BY: Alisto Engineering
 SAMPLE ID: S-6

PROJECT NO: 10-05-0-7-2
 MATRIX: WATER
 DATE SAMPLED: 01/17/97
 DATE RECEIVED: 01/21/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	24	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	83

METHOD 8020***
 Analyzed by: AA
 Date: 01/24/97

Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
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Surrogate	% Recovery
1,4-Difluorobenzene	87
4-Bromofluorobenzene	77

CA LUFT - Gasoline
 Analyzed by: JZL
 Date: 01/23/97 09:46:00

(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.

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Certificate of Analysis No. H9-9701769-07

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

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

P.O.#
G797621 , COC#083215
DATE: 01/29/97

PROJECT: BP Oil #11266
SITE: Alameda, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-7

PROJECT NO: 10-05-0-7-2
MATRIX: WATER
DATE SAMPLED: 01/17/97
DATE RECEIVED: 01/21/97

PARAMETER	ANALYTICAL DATA		DETECTION LIMIT	UNITS
	RESULTS			
MTBE	3200		100 P	µg/L
Benzene	180		5 P	µg/L
Toluene	160		10 P	µg/L
Ethylbenzene	1200		10 P	µg/L
Total Xylene	1650		10 P	µg/L
Surrogate	% Recovery			
1,4-Difluorobenzene	127			
4-Bromofluorobenzene	110			
METHOD 8020***				
Analyzed by: JZL				
Date: 01/23/97				
Total Petroleum Hydrocarbons-Gasoline	12		0.5 P	mg/L
Surrogate	% Recovery			
1,4-Difluorobenzene	83			
4-Bromofluorobenzene	83			
CA LUFT - Gasoline				
Analyzed by: JZL				
Date: 01/23/97 10:20:00				

(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.

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Certificate of Analysis No. H9-9701769-08

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

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

P.O.#
G797621 , COC#083215
DATE: 01/29/97

PROJECT: BP Oil #11266
SITE: Alameda, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-8

PROJECT NO: 10-05-0-7-2
MATRIX: WATER
DATE SAMPLED: 01/17/97
DATE RECEIVED: 01/21/97

ANALYTICAL DATA

Table with 5 columns: PARAMETER, RESULTS, DETECTION LIMIT, UNITS. Rows include MTBE, Benzene, Toluene, Ethylbenzene, Total Xylene.

Surrogate % Recovery
1,4-Difluorobenzene 130
4-Bromofluorobenzene 107
METHOD 8020***
Analyzed by: JZL
Date: 01/24/97

Total Petroleum Hydrocarbons-Gasoline 13 0.5 P mg/L

Surrogate % Recovery
1,4-Difluorobenzene 83
4-Bromofluorobenzene 83
CA LUFT - Gasoline
Analyzed by: JZL
Date: 01/24/97 02:21:00

(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

QUALITY CONTROL

DOCUMENTATION



01/29/97 17:04:23

HOUSTON LABORATORY

8880 INTERCHANGE DRIVE

LIMITS HOUSTON, TEXAS 77054

PHONE (713) 660-0901

AMOUNT ADDED	CONC. MEASURED	RECOVERY	LIMITS
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METHOD 8020***

BATCH#:HP_N970128193300

WORK ORDER: Method Blank

CLIENT SAMPLE ID:

1,4-Difluorobenzene	30	27	90	70- 131
4-Bromofluorobenzene	30	27	90	43- 135

METHOD 8020***

BATCH#:HP_N970128193300

WORK ORDER: LCS

CLIENT SAMPLE ID:

1,4-Difluorobenzene	30	29	96.7	70- 131
4-Bromofluorobenzene	30	27	90.0	43- 135

METHOD 8020***

BATCH#:HP_N970128193300

WORK ORDER: Matrix Spike

CLIENT SAMPLE ID:9701A15-01A

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

METHOD 8020***

BATCH#:HP_N970128193300

WORK ORDER: Matrix Spike Dup.

CLIENT SAMPLE ID:9701A15-01A

1,4-Difluorobenzene	30	28	93	70- 131
4-Bromofluorobenzene	30	27	90	43- 135

METHOD 8020A ***

BATCH#:HP_S970122015000

WORK ORDER: Method Blank

CLIENT SAMPLE ID:

1,4-Difluorobenzene	30	30	100	74- 131
4-Bromofluorobenzene	30	30	100	43- 135

METHOD 8020A ***

BATCH#:HP_S970122015000

WORK ORDER: Matrix Spike

CLIENT SAMPLE ID:9701691-05A

1,4-DIFLUOROBENZENE	30	41	137 <	70- 131
4-BROMOFLUOROBENZENE	30	27	90	43- 135

METHOD 8020A ***

BATCH#:HP_S970122015000

WORK ORDER: Matrix Spike Dup.

CLIENT SAMPLE ID:9701691-05A

1,4-Difluorobenzene	30	41	137 <	70- 131
4-Bromofluorobenzene	30	27	90	43- 135

METHOD 8020***

BATCH#:HP_S970122015011

WORK ORDER: 9701769-01A

CLIENT SAMPLE ID:S-1

1,4-Difluorobenzene	30	29	97	70- 131
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AMOUNT CONC. RECOVERY
ADDED MEASURED

LIMITS

4-Bromofluorobenzene	30	26	87	43-	135
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METHOD 8020***

BATCH#:HP_S970122015011

WORK ORDER: 9701769-02A

CLIENT SAMPLE ID:S-2

1,4-Difluorobenzene	30	30	100	70-	131
4-Bromofluorobenzene	30	28	93	43-	135

METHOD 8020A ***

BATCH#:HP_S970122015011

WORK ORDER: Method Blank

CLIENT SAMPLE ID:

1,4-Difluorobenzene	30	31	103	74-	131
4-Bromofluorobenzene	30	32	107	43-	135

METHOD 8020A ***

BATCH#:HP_S970122015011

WORK ORDER: Matrix Spike

CLIENT SAMPLE ID:9701691-05A

1,4-DIFLUOROBENZENE	30	64	213 <	70-	131
4-BROMOFLUOROBENZENE	30	33	110	43-	135

METHOD 8020A ***

BATCH#:HP_S970122015011

WORK ORDER: Matrix Spike Dup.

CLIENT SAMPLE ID:9701691-05A

1,4-Difluorobenzene	30	63	210 <	70-	131
4-Bromofluorobenzene	30	31	103	43-	135

CA LUFT - Gasoline

BATCH#:HP_S970122101400

WORK ORDER: 9701769-01A

CLIENT SAMPLE ID:S-1

1,4-Difluorobenzene	30	27	90	50-	150
4-Bromofluorobenzene	30	23	77	50-	150

CA LUFT - Gasoline

BATCH#:HP_S970122101400

WORK ORDER: 9701769-02A

CLIENT SAMPLE ID:S-2

1,4-Difluorobenzene	30	27	90	50-	150
4-Bromofluorobenzene	30	23	77	50-	150

CA LUFT - Gasoline

BATCH#:HP_S970122101400

WORK ORDER: Method Blank

CLIENT SAMPLE ID:

1,4-Difluorobenzene	30	26	87	50-	150
4-Bromofluorobenzene	30	26	87	50-	150



AMOUNT CONC. RECOVERY
ADDED MEASURED

LIMITS

CA LUFT - Gasoline BATCH#:HP_S970122101400
WORK ORDER: LCS CLIENT SAMPLE ID:

1,4-Difluorobenzene	30	27	90.0	50-	150
4-Bromofluorobenzene	30	26	86.7	50-	150

CA LUFT - Gasoline BATCH#:HP_S970122101400
WORK ORDER: Matrix Spike CLIENT SAMPLE ID:9701769-01A

1,4-Difluorobenzene	30	27	90	50-	150
4-Bromofluorobenzene	30	29	97	50-	150

CA LUFT - Gasoline BATCH#:HP_S970122101400
WORK ORDER: Matrix Spike Dup. CLIENT SAMPLE ID:9701769-01A

1,4-Difluorobenzene	30	27	90	50-	150
4-Bromofluorobenzene	30	28	93	50-	150

CA LUFT - Gasoline BATCH#:HP_S970123015100
WORK ORDER: 9701769-03A CLIENT SAMPLE ID:S-3

1,4-Difluorobenzene	30	26	87	50-	150
4-Bromofluorobenzene	30	23	77	50-	150

CA LUFT - Gasoline BATCH#:HP_S970123015100
WORK ORDER: 9701769-04A CLIENT SAMPLE ID:S-4

1,4-Difluorobenzene	30	26	87	50-	150
4-Bromofluorobenzene	30	23	77	50-	150

CA LUFT - Gasoline BATCH#:HP_S970123015100
WORK ORDER: 9701769-05A CLIENT SAMPLE ID:S-5

1,4-Difluorobenzene	30	26	87	50-	150
4-Bromofluorobenzene	30	23	77	50-	150

CA LUFT - Gasoline BATCH#:HP_S970123015100
WORK ORDER: 9701769-06A CLIENT SAMPLE ID:S-6

1,4-Difluorobenzene	30	26	87	50-	150
4-Bromofluorobenzene	30	23	77	50-	150

CA LUFT - Gasoline BATCH#:HP_S970123015100
WORK ORDER: 9701769-07A CLIENT SAMPLE ID:S-7

1,4-Difluorobenzene	30	25.0000	83	50-	150
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AMOUNT CONC. RECOVERY
ADDED MEASURED

LIMITS

4-Bromofluorobenzene	30	25.0000	83	50- 150
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CA LUFT - Gasoline

BATCH#:HP_S970123015100

WORK ORDER: 9701769-08A

CLIENT SAMPLE ID:S-8

1,4-Difluorobenzene	30	25.0000	83	50- 150
4-Bromofluorobenzene	30	25.0000	83	50- 150

CA LUFT - Gasoline

BATCH#:HP_S970123015100

WORK ORDER: Method Blank

CLIENT SAMPLE ID:

1,4-Difluorobenzene	30	26	87	50- 150
4-Bromofluorobenzene	30	24	80	50- 150

CA LUFT - Gasoline

BATCH#:HP_S970123015100

WORK ORDER: Matrix Spike

CLIENT SAMPLE ID:9701769-04A

1,4-Difluorobenzene	30	27	90	50- 150
4-Bromofluorobenzene	30	29	97	50- 150

CA LUFT - Gasoline

BATCH#:HP_S970123015100

WORK ORDER: Matrix Spike Dup.

CLIENT SAMPLE ID:9701769-04A

1,4-Difluorobenzene	30	27	90	50- 150
4-Bromofluorobenzene	30	25	83	50- 150

METHOD 8020A ***

BATCH#:HP_S970123091000

WORK ORDER: 9701769-03A

CLIENT SAMPLE ID:S-3

1,4-Difluorobenzene	30	30	100	70- 131
4-Bromofluorobenzene	30	28	93	43- 135

METHOD 8020***

BATCH#:HP_S970123091000

WORK ORDER: 9701769-04A

CLIENT SAMPLE ID:S-4

1,4-Difluorobenzene	30	30	100	70- 131
4-Bromofluorobenzene	30	26	87	43- 135

METHOD 8020***

BATCH#:HP_S970123091000

WORK ORDER: 9701769-05A

CLIENT SAMPLE ID:S-5

1,4-Difluorobenzene	30	30	100	70- 131
4-Bromofluorobenzene	30	27	90	43- 135



01/29/97 17:04:23

HOUSTON LABORATORY

8880 INTERCHANGE DRIVE

HOUSTON, TEXAS 77054

PHONE (713) 660-0901

AMOUNT	CONC.	RECOVERY	LIMITS
ADDED	MEASURED		

METHOD 8020***

BATCH#:HP_S970123091000

WORK ORDER: 9701769-07A

CLIENT SAMPLE ID:S-7

1,4-Difluorobenzene	30	38.0000	127	70-	131
4-Bromofluorobenzene	30	33.0000	110	43-	135

METHOD 8020***

BATCH#:HP_S970123091000

WORK ORDER: 9701769-08A

CLIENT SAMPLE ID:S-8

1,4-Difluorobenzene	30	39.0000	130	70-	131
4-Bromofluorobenzene	30	32.0000	107	43-	135

METHOD 8020A ***

BATCH#:HP_S970123091000

WORK ORDER: Method Blank

CLIENT SAMPLE ID:

1,4-Difluorobenzene	30	30	100	74-	131
4-Bromofluorobenzene	30	28	93	43-	135

METHOD 8020A ***

BATCH#:HP_S970123091000

WORK ORDER: LCS

CLIENT SAMPLE ID:

1,4-Difluorobenzene	30	30	100	70-	131
4-Bromofluorobenzene	30	29	97	43-	135

METHOD 8020A ***

BATCH#:HP_S970123091000

WORK ORDER: Matrix Spike

CLIENT SAMPLE ID:9701769-03A

1,4-DIFLUORO BENZENE	30	30	100	70-	131
4-BROMOFLUORO BENZENE	30	30	100	43-	135

METHOD 8020A ***

BATCH#:HP_S970123091000

WORK ORDER: Matrix Spike Dup.

CLIENT SAMPLE ID:9701769-03A

1,4-Difluorobenzene	30	30	100	70-	131
4-Bromofluorobenzene	30	27	90	43-	135

METHOD 8020***

BATCH#:HP_S970124032100

WORK ORDER: 9701769-06A

CLIENT SAMPLE ID:S-6

1,4-Difluorobenzene	30	28	93	70-	131
4-Bromofluorobenzene	30	25	83	43-	135

METHOD 8020A ***

BATCH#:HP_S970124032100

WORK ORDER: Method Blank

CLIENT SAMPLE ID:

1,4-Difluorobenzene	30	30	100	74-	131
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AMOUNT CONC. RECOVERY
ADDED MEASURED

4-Bromofluorobenzene	30	28	93	43-	135
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METHOD 8020A *** BATCH#:HP_S970124032100
WORK ORDER: Matrix Spike CLIENT SAMPLE ID:9701822-02A

1,4-DIFLUOROBENZENE	30	29	97	70-	131
4-BROMOFLUOROBENZENE	30	23	77	43-	135

METHOD 8020A *** BATCH#:HP_S970124032100
WORK ORDER: Matrix Spike Dup. CLIENT SAMPLE ID:9701822-02A

1,4-Difluorobenzene	30	29	97	70-	131
4-Bromofluorobenzene	30	25	83	43-	135

Modified 8015 - Gasoline BATCH#:HP_S970124041700
WORK ORDER: Method Blank CLIENT SAMPLE ID:

4-Bromofluorobenzene	30	27	90	52-	152
1,4-Difluorobenzene	30	30	100	54-	137

Modified 8015 - Gasoline BATCH#:HP_S970124041700
WORK ORDER: Matrix Spike CLIENT SAMPLE ID:9701822-02A

4-Bromofluorobenzene	30	28	93	52-	152
1,4-Difluorobenzene	30	31	103	54-	137

Modified 8015 - Gasoline BATCH#:HP_S970124041700
WORK ORDER: Matrix Spike Dup. CLIENT SAMPLE ID:9701822-02A

4-Bromofluorobenzene	30	30	100	52-	152
1,4-Difluorobenzene	30	29	97	54-	137

METHOD 8020A *** BATCH#:HP_S970126111500
WORK ORDER: Method Blank CLIENT SAMPLE ID:

1,4-Difluorobenzene	30	30	100	74-	131
4-Bromofluorobenzene	30	23	77	43-	135

METHOD 8020A *** BATCH#:HP_S970126111500
WORK ORDER: Matrix Spike CLIENT SAMPLE ID:9701776-05A

1,4-DIFLUOROBENZENE	30	29	97	70-	131
4-BROMOFLUOROBENZENE	30	27	90	43-	135



01/29/97 17:04:23

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

AMOUNT CONC. RECOVERY
ADDED MEASURED

LIMITS

METHOD 8020A ***

BATCH#:HP_S970126111500

WORK ORDER: Matrix Spike Dup.

CLIENT SAMPLE ID:9701776-05A

1,4-Difluorobenzene	30	28	93	70- 131
4-Bromofluorobenzene	30	27	90	43- 135

Method Modified 5030A/8015A ***

BATCH#:HP_S970126111510

WORK ORDER: Method Blank

CLIENT SAMPLE ID:

1,4-Difluorobenzene	30	30	100	54- 137
4-Bromofluorobenzene	30	25	83	52- 152

Method Modified 5030A/8015A ***

BATCH#:HP_S970126111510

WORK ORDER: Matrix Spike

CLIENT SAMPLE ID:9701776-05A

1,4-Difluorobenzene	30	30	100	54- 137
4-Bromofluorobenzene	30	29	97	52- 152

Method Modified 5030A/8015A ***

BATCH#:HP_S970126111510

WORK ORDER: Matrix Spike Dup.

CLIENT SAMPLE ID:9701776-05A

1,4-Difluorobenzene	30	28	93	54- 137
4-Bromofluorobenzene	30	29	97	52- 152

< = 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



Matrix: Aqueous
Units: µg/L

Batch Id: HP_S970122015011

LABORATORY CONTROL SAMPLE

S P I K E C O M P O U N D S	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery %	
MTBE	ND	50	35	70.0	63 - 120
Benzene	ND	50	39	78.0	62 - 121
Toluene	ND	50	42	84.0	66 - 136
EthylBenzene	ND	50	42	84.0	70 - 136
O Xylene	ND	50	45	90.0	74 - 134
M & P Xylene	ND	100	90	90.0	77 - 140

MATRIX SPIKES

S P I K E C O M P O U N D S	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
			MTBE	4500	20	4600	NC	4400	NC
BENZENE	810	20	870	NC	850	NC	NC	25	39 - 150
TOLUENE	80	20	110	150 *	100	100	40.0 *	26	56 - 134
ETHYLBENZENE	23	20	47	120	44	105	13.3	38	61 - 128
O XYLENE	14	20	39	125	37	115	8.33	29	40 - 130
M & P XYLENE	140	40	210	175 *	190	125	33.3 *	20	43 - 152

Analyst: HS

Sequence Date: 01/22/97

SPL ID of sample spiked: 9701691-05A

Sample File ID: SSA7232.TX0

Method Blank File ID:

Blank Spike File ID: SSA7227.TX0

Matrix Spike File ID: SSA7229.TX0

Matrix Spike Duplicate File ID: SSA7230.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: SPL-Houston Historical Data (3rd Q '95)

(***) = Source: SPL-Houston Historical Data (2nd Q '95)

SAMPLES IN BATCH(SPL ID):

9701759-03A 9701798-01A 9701798-02A 9701798-03A
9701760-04A 9701760-01A 9701760-03A 9701771-01A
9701752-03A 9701769-01A 9701769-02A 9701759-01A



Matrix: Aqueous
Units: µg/L

Batch Id: HP_S970123091000

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery %	
MTBE	ND	50.0	40	80.0	63 - 120
Benzene	ND	50.0	41	82.0	62 - 121
Toluene	ND	50.0	44	88.0	66 - 136
EthylBenzene	ND	50.0	44	88.0	70 - 136
O Xylene	ND	50.0	47	94.0	74 - 134
M & P Xylene	ND	100.0	92	92.0	77 - 140

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
MTBE	ND	20.0	19	95.0	16	80.0	17.1	20	39 - 150
BENZENE	ND	20.0	18	90.0	16	80.0	11.8	25	39 - 150
TOLUENE	ND	20.0	17	85.0	18	90.0	5.71	26	56 - 134
ETHYLBENZENE	ND	20.0	17	85.0	16	80.0	6.06	38	61 - 128
O XYLENE	ND	20.0	16	80.0	14	70.0	13.3	29	40 - 130
M & P XYLENE	ND	40.0	14	35.0 *	12	30.0 *	15.4	20	43 - 152

Analyst: JZL

Sequence Date: 01/23/97

SPL ID of sample spiked: 9701769-03A

Sample File ID: SSA7273.TX0

Method Blank File ID:

Blank Spike File ID: SSA7264.TX0

Matrix Spike File ID: SSA7266.TX0

Matrix Spike Duplicate File ID: SSA7267.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: SPL-Houston Historical Data (3rd Q '95)

(***) = Source: SPL-Houston Historical Data (2nd Q '95)

SAMPLES IN BATCH(SPL ID):

9701769-03A 9701769-04A 9701769-05A 9701769-07A
 9701763-01A 9701763-02A 9701763-03A 9701763-04A
 9701769-08A 9701776-07A 9701776-03A 9701776-04A
 9701776-01A 9701776-05A 9701776-06A 9701631-03A
 9701631-04A 9701631-05A



Matrix: Aqueous
Units: µg/L

Batch Id: HP_S970124032100

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) ‡ Recovery Range
			Result <1>	Recovery ‡	
MTBE	ND	50	43	86.0	63 - 120
Benzene	ND	50	44	88.0	62 - 121
Toluene	ND	50	48	96.0	66 - 136
EthylBenzene	ND	50	50	100	70 - 136
O Xylene	ND	50	54	108	74 - 134
M & P Xylene	ND	100	110	110	77 - 140

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative ‡ Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
			BENZENE	ND	20	16		80.0	15
TOLUENE	ND	20	13	65.0	13	65.0	0	26	56 - 134
ETHYLBENZENE	ND	20	14	70.0	13	65.0	7.41	38	61 - 128
O XYLENE	ND	20	14	70.0	14	70.0	0	29	40 - 130
M & P XYLENE	ND	40	26	65.0	26	65.0	0	20	43 - 152

Analyst: AA
Sequence Date: 01/24/97
SPL ID of sample spiked: 9701822-02A
Sample File ID: SSA7334.TX0
Method Blank File ID:
Blank Spike File ID: SSA7302.TX0
Matrix Spike File ID: SSA7341.TX0
Matrix Spike Duplicate File ID: SSA7342.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 = $[(<1> - <2>) / <3>] \times 100$
LCS ‡ Recovery = $(<1> / <3>) \times 100$
Relative Percent Difference = $| (<4> - <5>) | / [(<4> + <5>) \times 0.5] \times 100$
(**) = Source: SPL-Houston Historical Data (3rd Q '95)
(***) = Source: SPL-Houston Historical Data (4th Q '94)

SAMPLES IN BATCH(SPL ID):
9701827-02A 9701631-01A 9701631-02A 9701769-06A
9701827-05A 9701822-02A 9701829-01A 9701603-02A
9701603-03A 9701827-01A



* SPL BATCH QUALITY CONTROL REPORT **
CA LUFT

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Matrix: Aqueous
Units: mg/L

Batch Id: HP_S970122101400

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery %	
Petroleum Hydrocarbons-Gas	ND	1.0	1.0	100	50 - 150

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
PETROLEUM HYDROCARBONS-GAS	ND	0.9	0.77	85.6	0.75	83.3	2.72	50	50 - 150

Analyst: JZL

Sequence Date: 01/22/97

SPL ID of sample spiked: 9701769-01A

Sample File ID: S_A7260.TX0

Method Blank File ID:

Blank Spike File ID: S_A7246A.TX0

Matrix Spike File ID: S_A7248.TX0

Matrix Spike Duplicate File ID: S_A7249.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):

9701771-01A 9701752-03A 9701769-01A 9701769-02A



* SPL BATCH QUALITY CONTROL REPORT **

CA LUFT

HOUSTON LABORATORY

8880 INTERCHANGE DRIVE

HOUSTON, TEXAS 77054

PHONE (713) 660-0901

Matrix: Aqueous

Batch Id: HP_S970123015100

Units: mg/L

LABORATORY CONTROL SAMPLE

S P I K E C O M P O U N D S	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) ‡ Recovery Range
			Result <1>	Recovery ‡	
Petroleum Hydrocarbons-Gas	ND	1.0	1.1	110	50 - 150

MATRIX SPIKES

S P I K E C O M P O U N D S	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
			PETROLEUM HYDROCARBONS-GAS	ND	0.9	0.86			

Analyst: JZL

Sequence Date: 01/23/97

SPL ID of sample spiked: 9701769-04A

Sample File ID: S_A7274.TX0

Method Blank File ID:

Blank Spike File ID: S_A7268.TX0

Matrix Spike File ID: S_A7270.TX0

Matrix Spike Duplicate File ID: S_A7271.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 = $[(<1> - <2>) / <3>] \times 100$

LCS ‡ Recovery = $(<1> / <3>) \times 100$

Relative Percent Difference = $|(<4> - <5> | / [(<4> + <5>) \times 0.5] \times 100$

(**) = Source: Temporary Limits

(***) = Source: Temporary Limits

SAMPLES IN BATCH(SPL ID):

9701769-06A 9701769-07A 9701763-01A 9701763-02A
 9701763-03A 9701763-04A 9701769-08A 9701769-03A
 9701769-04A 9701769-05A

CHAIN OF CUSTODY
AND
SAMPLE RECEIPT CHECKLIST



CHAIN OF CUSTODY

9701769

No.083215

Page 1 of 1

CONSULTANT'S NAME: Alisto Engineering ADDRESS: 1575 Treat Blvd # 201 CITY: W.C. STATE: Ca ZIP CODE: 94584

BP SITE NUMBER: 11266 BP CORNER ADDRESS/CITY: Alameda, Ca CONSULTANT PROJECT NUMBER: 10-050-7-2

CONSULTANT PROJECT MANAGER: Brady Nagle PHONE NUMBER: (510) 295-1650 FAX NUMBER: 215-1823 CONSULTANT CONTRACT NUMBER: 6797621

BP CONTACT: Scott Hooton BP ADDRESS: Renton PHONE NUMBER: _____ FAX NO: _____

LAB CONTACT: SPL LABORATORY ADDRESS: Texas PHONE NUMBER: _____ FAX NO: _____

SAMPLED BY (Please Print Name): Larry Buenvenida SAMPLED BY (Signature): [Signature] SHIPMENT DATE: 1-10-97 SHIPMENT METHOD: FedEx

TAT: 24 Hours 48 Hours 1 Week Standard 2 Weeks

ANALYSIS REQUIRED: _____

AIRBILL NUMBER: 9484779915

SAMPLE DESCRIPTION	COLLECTION DATE	MATRIX SOIL/WATER	CONTAINERS		PRESERVATIVE	TPT#	BY	MTBE	PH/Mg	DATE	TIME	COMMENTS
	COLLECTION TIME		NO.	TYPE (VOL.)	LAB SAMPLE #							
S-1	1/17/97	W	3	HCl		X	X					
S-2	↓	↓	↓	↓		---	---					
S-3	↓	↓	↓	↓		---	---					
S-4	↓	↓	↓	↓		---	---					
S-5	↓	↓	↓	↓		---	---					
S-6	↓	↓	↓	↓		---	---					
S-7	↓	↓	↓	↓		---	---					
S-8	↓	↓	↓	↓		---	---					

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	ADDITIONAL COMMENTS
<u>[Signature]</u>	1/20/97		<u>[Signature]</u>	1/20/97	3:40	
<u>[Signature]</u>	1-10-97	3:40	<u>[Signature]</u>	1/21/97	1000	4°C

SPL Houston Environmental Laboratory

Sample Login Checklist

Date: 1/21/97	Time: 1000
---------------	------------

SPL Sample ID:

9701769

		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:		4° C
10	Method of sample delivery to SPL:		
	SPL Delivery		
	Client Delivery		
	FedEx Delivery (airbill #)	9404779915	
	Other:		
11	Method of sample disposal:		
	SPL Disposal	✓	
	HOLD		
	Return to Client		

Name: 1/21/97 S. West	Date: 1/21/97
-----------------------	---------------

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

BP Site Number: 11 266
 ERM Contact: 6797 621
 Sampling Date: 1/17/97
 Matrix Description: groundwater
 Date Final Report Received: 2/3/97
 Laboratory & Location: SPL-TX

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

Notes: ① exceeded for Toluene + Xylenes (not calculated for MTBE + benzene).

Data Validation Completed by (print): Bill Howell
 (signature): Bill Howell
 Date: 2/26/97