BP OIL

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

December 11, 1996

Alameda County Health Care Services Agency
Attention Ms. Susan Hugo
1131 Harbor Bay Parkway, Ste.

RE: BP Oil Site No. 11126
1700 Powell St.
Emeryville, CA

Dear Ms. Hugo:

Enclosed please find a report titled Groundwater Monitoring and Sampling Report, dated September 11, 1996. Upon review of the results, you will note that aromatic hydrocarbons were detected in three of the wells. Liquid petroleum hydrocarbon (0.04 feet) was measured in well MW-9, and was subsequently removed. Plans for the coming quarter include groundwater monitoring and product removal.

You may also note that petroleum hydrocarbon concentrations reported for samples obtained from wells MW-4, MW-6, MW-7, and MW-8 are very low or not detected. We would prefer to sample these wells on a reduced basis, and plan to sample them annually at this time. Quarterly groundwater level measurements will continue. We also plan to eliminate MW-3 testing for halogenated compounds because they have not been detected in the groundwater. I will assume that this will be acceptable unless you indicate otherwise.

Please give me a call if you have any questions, comments or concerns regarding this matter. I can be reached at (206) 251-0689.

Sincerely,

Scott Hooton
Environmental Remediation Management

attachment

cc: A. Lehane - Pacific (w/attachment)
B. Nagle - Alisto
K. Graves - CRWQCB-SFBR

GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11126
1700 Powell Street
Emeryville, California

Project No. 10-061-07-001

SEP 2 0 1996

Prepared for:

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

Prepared by:

Alisto Engineering Group
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Walnut Creek, California

September 11, 1996

William Howell
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GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11126
1700 Powell Street
Emeryville, California

Project No. 10-061-07-001

September 11, 1996

INTRODUCTION

This report presents the results and findings of the July 15 and 16, 1996 groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Company Service Station No. 11126, 1700 Powell Street, Emeryville, 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.

FREE PRODUCT MONITORING AND RECOVERY

A passive product recovery canister has been installed in Monitoring Well MW-9 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 well 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.

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
BP OIL COMPANY SERVICE STATION NO. 11126
1700 POWELL STREET, EMERYVILLE, CALIFORNIA

ALISTO PROJECT NO. 10-061

WELL ID		DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	(a)	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)	TOG (ug/l)	HVOC (ug/l)	(c)	DO (ppm)	LAB
MW-1		11/04/92	7.76		4.96	—	2.80		5300	—	1100	480	ND<0.5	1500	—	—	—		—	PACE
MW-1		10/12/93	7.76		5.26	—	2.50		3600	—	970	71	100	550	—	—	—		—	PACE
MW-1		02/15/94	7.76		4.98	—	2.78		17000	—	4200	510	360	1600	—	—	—		3.9	PACE
MW-1		05/11/94	7.76		4.55	—	3.21		5500	—	2900	37	56	64	—	—	—		8.0	PACE
MW-1		08/01/94	7.76		5.51	—	2.25		15000	—	3600	740	510	2800	—	—	—		2.9	PACE
QC-1	(d)	08/01/94	8.56		—	—	—		16000	—	3600	750	510	2800	—	—	—		—	PACE
MW-1		10/18/94	7.76		5.11	—	2.65		16000	—	1800	61	160	890	—	—	—		2.9	PACE
QC-1	(d)	10/18/94	—		—	—	—		16000	—	1900	64	170	950	—	—	—		—	PACE
MW-1		01/13/95	7.76		3.05	—	4.71		220	—	7	ND<0.5	1	23	—	—	—		6.6	ATI
QC-1	(d)	01/13/95	—		—	—	—		590	—	88	0.7	ND<0.5	55	—	—	—		—	ATI
MW-1		04/13/95	7.76		3.84	—	3.92		9300	—	4000	300	200	950	—	—	—		7.7	ATI
MW-1		07/11/95	7.76		3.60	—	4.16		15000	—	2200	84	ND<25	2500	—	—	—		8.8	ATI
MW-1		11/02/95	7.76		4.58	—	3.18		19000	—	920	ND<100	ND<100	430	52000	—	—		7.3	ATI
MW-1		02/05/96	7.76		4.43	—	3.33		4600	—	1400	330	54	247	8700	—	—		3.2	SPL
MW-1		04/24/96	7.76		4.00	—	3.76		2000	—	510	33	61	228	4500	—	—		7.5	SPL
MW-1		07/15/96	7.76		4.30	—	3.46		—	—	—	—	—	—	—	—	—		—	—
MW-1		07/16/96	7.76		—	—	—		12000	—	2800	170	390	1630	64000	—	—		7.9	SPL
QC-1	(d)	07/16/96	—		—	—	—		12000	—	2800	160	390	1610	63000	—	—		—	SPL
MW-2		11/04/92	8.56		5.88	—	2.68		12000	—	3900	1300	ND<0.5	2300	—	—	—		—	PACE
QC-1	(d)	11/04/92	8.56		5.88	—	2.68		12000	—	3200	980	ND<0.5	1900	—	—	—		—	PACE
MW-2		10/12/93	8.56		6.29	—	2.27		4500	—	3400	180	230	940	—	—	—		—	PACE
MW-2		02/15/94	8.56		5.56	—	3.00		2000	—	430	270	28	390	—	—	—		4.0	PACE
QC-1	(d)	02/15/94	8.56		5.56	—	3.00		1800	—	290	160	14	250	—	—	—		—	PACE
MW-2		05/11/94	8.56		5.17	—	3.39		14000	—	3900	1200	440	1900	—	—	—		8.9	PACE
QC-1	(d)	05/11/94	8.56		—	—	—		15000	—	5600	1500	470	2000	—	—	—		—	PACE
MW-2		08/01/94	8.56		5.43	—	3.13		8200	—	3000	420	230	680	—	—	—		2.6	PACE
MW-2		10/18/94	8.56		5.71	—	2.85		9000	—	2000	140	150	420	—	—	—		7.2	PACE
MW-2		01/13/95	8.56		4.67	—	3.89		7900	—	2200	42	ND<5	770	—	—	—		6.8	ATI
MW-2		04/13/95	8.56		4.37	—	4.19		33000	—	8000	2500	1100	6600	—	—	—		7.5	ATI
QC-1	(d)	04/13/95	8.56		—	—	—		25000	—	6500	1500	110	5300	—	—	—		—	ATI
MW-2		07/11/95	8.56		4.51	—	4.05		19000	—	3300	99	75	4600	—	—	—		7.8	ATI
QC-1	(d)	07/11/95	—		—	—	—		28000	—	6800	1000	900	4900	—	—	—		—	ATI
MW-2		11/02/95	8.56		5.55	—	3.01		20000	—	3800	1200	570	2700	15000	—	—		7.3	ATI
QC-1	(d)	11/02/95	—		—	—	—		22000	—	4000	1200	600	2700	19000	—	—		—	ATI
MW-2		02/05/96	8.56		5.10	—	3.46		1200	—	320	220	26	187	99	—	—		2.2	SPL
QC-1	(d)	02/05/96	—		—	—	—		910	—	290	180	19	137	93	—	—		—	SPL
MW-2		04/24/96	8.56		4.95	—	3.61		ND<500	—	70	22	ND<10	61	ND<50	—	—		7.0	SPL
QC-1	(d)	04/24/96	—		—	—	—		ND<500	—	100	30	ND<10	71	ND<100	—	—		—	SPL
MW-2		07/15/96	8.56		5.40	—	3.16		—	—	—	—	—	—	—	—	—		—	—
MW-2		07/16/96	8.56		—	—	—		12000	—	3300	1400	250	2610	1400	—	—		7.8	SPL
MW-3		11/04/92	8.25		6.38	—	1.87		200	690	1.6	ND<0.5	ND<0.5	1.1	—	ND<5000	ND		—	PACE
MW-3		10/12/93	8.25		5.84	—	2.41		270	2100	5.0	0.7	ND<0.5	2.6	—	ND<5000	ND		—	PACE
QC-1	(d)	10/12/93	8.25		5.84	—	2.41		150	—	5.6	0.6	ND<0.5	1.6	—	—	—		—	PACE
MW-3		02/15/94	8.25		6.60	—	1.65		140	2.3	5.7	ND<0.5	ND<0.5	ND<0.5	—	90	ND		3.9	PACE
MW-3		05/11/94	8.25		5.86	—	2.39		190	2500	2.7	1.9	ND<0.5	1.9	—	ND<5000	ND		9.2	PACE
MW-3		08/01/94	8.25		6.13	—	2.12		120	1300	1.3	ND<0.5	0.5	1.1	—	ND<5000	ND		2.9	PACE
MW-3		10/18/94	8.25		6.39	—	1.86		100	2200	2.3	ND<0.5	ND<0.5	ND<0.5	—	ND<5000	ND		3.6	PACE
MW-3		01/13/95	8.25		5.47	—	2.78		ND<50	970	0.8	ND<0.5	ND<0.5	ND<1	—	—	ND		7.7	ATI
MW-3		04/13/95	8.25		5.17	—	3.08		530	ND<500	8.7	1.9	ND<0.5	3.9	—	2100	ND		8.4	ATI
MW-3		07/11/95	8.25		5.37	—	2.88		78	2100	0.57	ND<0.50	ND<0.50	ND<1.0	—	1900	ND		8.3	ATI
MW-3		11/02/95	8.25		6.29	—	1.96		250	2000	0.73	ND<0.50	ND<0.50	1.8	270	1400	ND		8.3	ATI
MW-3		02/05/96	8.25		5.80	—	2.45		ND<50	1600	ND<0.5	ND<1	ND<1	2.7	11	9000	ND		3.5	SPL
MW-3		04/24/96	8.25		5.69	—	2.56		ND<50	2800	ND<5	ND<10	ND<10	ND<10	150	6000	ND		8.6	SPL
MW-3		07/15/96	8.25		6.18	—	2.07		ND<250	3700	ND<2.5	ND<5	ND<5	ND<5	ND<50	1000	ND		7.7	SPL

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1700 POWELL STREET, EMERYVILLE, CALIFORNIA

ALISTO PROJECT NO. 10-061

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)	TOG (ug/l)	HVOC (ug/l) (c)	DO (ppm)	LAB
MW-4	11/04/92	8.12	6.66	—	1.46	340	—	4.5	ND<0.5	4.3	ND<0.5	—	—	—	—	PACE
MW-4	10/12/93	8.12	6.87	—	1.25	160	—	5.8	1.4	0.8	2.7	—	—	—	—	PACE
MW-4	02/15/94	8.12	6.61	—	1.51	110	—	4.4	0.7	ND<0.5	2.5	—	—	—	4.3	PACE
MW-4	05/11/94	8.12	5.89	—	2.23	120	—	0.5	0.8	ND<0.5	ND<0.5	—	—	—	9.3	PACE
MW-4	08/01/94	8.12	6.87	—	1.25	140	—	0.7	2.0	5.2	15	—	—	—	3.3	PACE
MW-4	10/18/94	8.12	6.62	—	1.50	140	—	3.5	ND<0.5	0.5	ND<0.5	—	—	—	3.0	PACE
MW-4	01/13/95	8.12	7.27	—	0.85	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<1	—	—	—	7.9	ATI
MW-4	04/13/95	8.12	6.51	—	1.61	73	—	1.2	ND<0.5	ND<0.5	ND<1	—	—	—	9.9	ATI
MW-4	07/11/95	8.12	6.21	—	1.91	82	—	0.57	ND<0.50	ND<0.50	ND<1.0	—	—	—	7.2	ATI
MW-4	11/02/95	8.12	6.78	—	1.34	71	—	1.4	0.96	0.99	2.8	140	—	—	8.6	ATI
MW-4	02/05/96	8.12	6.41	—	1.71	ND<50	—	ND<5	ND<10	ND<10	ND<10	200	—	—	4.4	SPL
MW-4	04/24/96	8.12	6.18	—	1.94	ND<250	—	ND<2.5	ND<5	ND<5	ND<5	510	—	—	8.3	SPL
MW-4	07/15/96	8.12	6.63	—	1.49	ND<50	—	5.7	ND<1	ND<1	ND<1	550	—	—	7.4	SPL
MW-5	10/12/93	7.69	6.01	—	1.68	—	—	—	—	—	—	—	—	—	—	—
MW-5	10/13/93	—	—	—	—	2300	—	160	10	ND<0.5	26	—	—	—	—	PACE
MW-5	02/15/94	7.69	5.74	—	1.95	5100	—	710	16	33	35	—	—	—	4.0	PACE
MW-5	05/11/94	7.69	5.28	—	2.41	11000	—	1100	39	110	57	—	—	—	8.0	PACE
MW-5	08/01/94	7.69	5.84	—	1.85	9000	—	730	35	61	41	—	—	—	2.6	PACE
MW-5	10/18/94	7.69	6.01	—	1.68	7800	—	330	30	27	27	—	—	—	5.6	PACE
MW-5	01/13/95	7.69	4.74	—	2.95	ND<500	—	290	6	ND<5	18	—	—	—	6.8	ATI
MW-5	04/13/95	7.69	5.50	—	2.19	9100	—	400	15	52	27	—	—	—	7.4	ATI
MW-5	07/11/95	7.69	5.75	—	1.94	7300	—	390	13	28	23	—	—	—	7.2	ATI
MW-5	11/03/95	7.69	6.65	—	1.04	7200	—	270	15	38	23	200	—	—	8.4	ATI
MW-5	02/05/96	7.69	4.83	—	2.86	4600	—	370	15	53	28	ND<50	—	—	1.9	SPL
MW-5	04/24/96	7.69	6.09	—	1.60	3000	—	180	ND<10	32	14	ND<100	—	—	8.1	SPL
MW-5	07/15/96	7.69	6.57	—	1.12	—	—	—	—	—	—	—	—	—	—	—
MW-5	07/16/96	7.69	—	—	—	ND<500	—	190	ND<10	31	16	ND<100	—	—	8.3	SPL
MW-6	10/12/93	8.52	6.59	—	1.93	63	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
MW-6	02/15/94	8.52	6.31	—	2.21	68	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	3.1	PACE
MW-6	05/11/94	8.52	6.15	—	2.37	68	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	8.7	PACE
MW-6	08/01/94	8.52	6.46	—	2.06	91	—	ND<0.5	ND<0.5	ND<0.5	0.6	—	—	—	2.4	PACE
MW-6	10/18/94	8.52	6.72	—	1.80	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	6.0	PACE
MW-6	01/13/95	8.52	5.95	—	2.57	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<1	—	—	—	7.0	ATI
MW-6	04/13/95	8.52	5.44	—	3.08	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<1	—	—	—	8.5	ATI
MW-6	07/11/95	8.52	5.68	—	2.84	ND<50	—	ND<0.50	ND<0.50	ND<0.50	ND<1.0	—	—	—	8.4	ATI
MW-6	11/02/95	8.52	6.57	—	1.95	ND<50	—	ND<0.50	ND<0.50	ND<0.50	ND<1.0	35	—	—	8.3	ATI
MW-6	02/05/96	8.52	6.27	—	2.25	ND<50	—	ND<5	ND<10	ND<10	ND<10	ND<100	—	—	2.2	SPL
MW-6	04/24/96	8.52	5.95	—	2.57	ND<250	—	ND<2.5	ND<5	ND<5	ND<5	62	—	—	8.0	SPL
MW-6	07/15/96	8.52	6.39	—	2.13	ND<250	—	ND<2.5	ND<5	ND<5	ND<5	ND<50	—	—	8.0	SPL

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ALISTO PROJECT NO. 10-061

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)	TOG (ug/l)	HVOC (ug/l) (c)	DO (ppm)	LAB
MW-7	10/12/93	7.61	6.14	---	1.47	ND<50	---	ND<0.5	ND<0.5	ND<0.5	0.7	---	---	---	---	PACE
MW-7	02/15/94	7.61	5.88	---	1.73	78	---	ND<0.5	ND<0.5	ND<0.5	0.6	---	---	---	4.0	PACE
MW-7	05/11/94	7.61	5.76	---	1.85	70	---	ND<0.5	ND<0.5	ND<0.5	0.9	---	---	---	9.1	PACE
MW-7	08/01/94	7.61	5.97	---	1.64	77	---	ND<0.5	ND<0.5	ND<0.5	0.5	---	---	---	2.5	PACE
MW-7	10/18/94	7.61	6.24	---	1.37	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	6.3	PACE
MW-7	01/13/95	7.61	5.39	---	2.22	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	---	8.2	ATI
MW-7	04/13/95	7.61	5.17	---	2.44	63	---	ND<0.5	ND<0.5	ND<0.5	1.4	---	---	---	8.4	ATI
MW-7	07/11/95	7.61	5.25	---	2.36	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	---	7.9	ATI
MW-7	11/02/95	7.61	6.19	---	1.42	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	55	---	---	8.0	ATI
MW-7	02/05/96	7.61	5.69	---	1.92	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	40	---	---	1.9	SPL
MW-7	04/24/96	7.61	5.59	---	2.02	ND<250	---	ND<2.5	ND<5	ND<5	ND<5	53	---	---	8.2	SPL
MW-7	07/15/96	7.61	6.07	---	1.54	ND<250	---	ND<2.5	ND<5	ND<5	ND<5	ND<50	---	---	7.8	SPL
MW-8	10/12/93	8.60	5.86	---	2.74	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	PACE
MW-8	02/15/94	8.60	5.50	---	3.10	380	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	3.3	PACE
MW-8	05/11/94	8.60	5.09	---	3.51	330	---	ND<0.5	1.2	ND<0.5	1.9	---	---	---	8.5	PACE
MW-8	08/01/94	8.60	5.20	---	3.40	260	---	ND<0.5	1.2	2.9	5.8	---	---	---	2.3	PACE
MW-8	10/18/94	8.60	5.70	---	2.90	82	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	6.4	PACE
MW-8	01/13/95	8.60	4.96	---	3.64	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	---	6.9	ATI
MW-8	04/13/95	8.60	5.40	---	3.20	270	---	ND<0.5	ND<0.5	ND<0.5	4.4	---	---	---	8.4	ATI
MW-8	07/11/95	8.60	6.01	---	2.59	320	---	ND<0.50	ND<0.50	ND<0.50	3.5	---	---	---	8.0	ATI
MW-8	11/02/95	8.60	6.81	---	1.79	100	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	---	8.7	ATI
MW-8	02/05/96	8.60	6.12	---	2.48	ND<50	---	ND<5	ND<10	ND<10	ND<10	ND<100	---	---	1.5	SPL
MW-8	04/24/96	8.60	6.23	---	2.37	ND<50	---	ND<5	ND<10	ND<10	ND<10	ND<100	---	---	8.7	SPL
MW-8	07/15/96	8.60	6.70	---	1.90	ND<250	---	ND<2.5	ND<5	ND<5	ND<5	ND<50	---	---	8.4	SPL
MW-9	10/12/93	8.08	5.66	0.08	2.48	---	---	---	---	---	---	---	---	---	---	---
MW-9	02/15/94	8.08	5.32	0.05	2.80	---	---	---	---	---	---	---	---	---	---	---
MW-9	05/11/94	8.08	5.57	---	2.51	---	---	---	---	---	---	---	---	---	---	---
MW-9	08/01/94	8.08	6.25	---	1.83	---	---	---	---	---	---	---	---	---	---	---
MW-9	10/18/94	8.08	5.59	0.13	2.59	---	---	---	---	---	---	---	---	---	---	---
MW-9	01/13/95	8.08	4.42	0.14	3.77	---	---	---	---	---	---	---	---	---	---	---
MW-9	04/13/95	8.08	4.06	0.11	4.10	---	---	---	---	---	---	---	---	---	---	---
MW-9	07/11/95	8.08	4.21	0.08	3.93	---	---	---	---	---	---	---	---	---	---	---
MW-9	11/02/95	8.08	5.22	0.05	2.90	---	---	---	---	---	---	---	---	---	---	---
MW-9	02/05/96	8.08	4.76	0.01	3.33	---	---	---	---	---	---	---	---	---	---	---
MW-9	04/24/96	8.08	4.62	0.09	3.53	---	---	---	---	---	---	---	---	---	---	---
MW-9	07/15/96	8.08	5.11	0.04	3.00	---	---	---	---	---	---	---	---	---	---	---

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
BP OIL COMPANY SERVICE STATION NO. 11126
1700 POWELL STREET, EMERYVILLE, CALIFORNIA

ALISTO PROJECT NO. 10-061

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)	TOG (ug/l)	HVOC (ug/l) (c)	DO (ppm)	LAB
QC-2 (e)	11/05/92	—	—	—	—	ND<50	—	ND<0.5	ND<0 5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2 (e)	10/12/93	—	—	—	—	ND<50	—	ND<0.5	ND<0 5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2 (e)	02/15/94	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2 (e)	05/11/94	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2 (e)	08/01/94	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2 (e)	10/18/94	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2 (e)	01/13/95	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<1	—	—	—	—	ATI
QC-2 (e)	04/13/95	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<1	—	—	—	—	ATI
QC-2 (e)	07/11/95	—	—	—	—	ND<50	—	ND<0.50	ND<0.50	ND<0.50	ND<1.0	—	—	—	—	ATI
QC-2 (e)	11/02/95	—	—	—	—	ND<50	—	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	—	—	—	ATI
QC-2 (e)	02/05/96	—	—	—	—	ND<50	—	ND<0 5	ND<1	ND<1	ND<1	ND<10	—	—	—	SPL
QC-2 (e)	04/24/96	—	—	—	—	ND<50	—	ND<0.5	ND<1	ND<1	ND<1	ND<10	—	—	—	SPL
QC-2 (e)	07/16/96	—	—	—	—	ND<50	—	ND<0.5	ND<1	ND<1	ND<1	ND<10	—	—	—	SPL

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
TOG	Total oil and grease
HVOC	Halogenated volatile organic compounds
DO	Dissolved oxygen
ug/l	Micrograms per liter
ppm	Parts per million
ND	Not detected above reported detection limit
—	Not analyzed/applicable/measurable
PACE	Pace, Inc.
ATI	Analytical Technologies, Inc.
SPL	Southern Petroleum Laboratories

NOTES:

(a) Top of casing elevations surveyed relative to an established benchmark with an elevation of 8.11 feet above mean sea level.

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

(c) Detection limits vary; see laboratory report.

(d) Blind duplicate.

(e) Travel blank.

P:\0\10-061\061-7-1.WQ2

TABLE 2
PRODUCT REMOVAL STATUS
BP OIL COMPANY SERVICE STATION NO. 11126
1700 POWELL STREET, EMERYVILLE, CALIFORNIA

ALISTO PROJECT NO. 10-061

WELL ID	DATE	PRODUCT THICKNESS (Feet)	PRODUCT REMOVED (Gallons)	PRODUCT REMOVED CUMULATIVE (Gallons)
MW-9	12/02/93	4.62	0.15	0.15
MW-9	12/09/93	2.45	0.15	0.30
MW-9	12/30/93	2.39	0.15	0.45
MW-9	01/12/94	2.15	0.02	0.47
MW-9	02/02/94	1.82	Sheen	0.47
MW-9	02/15/94	3.75	0.35	0.82
MW-9	05/11/94	3.00	Sheen	0.82
MW-9	05/27/94	1.50	Sheen	0.82
MW-9	06/25/94	1.32	Sheen	0.82
MW-9	08/01/94	---	Sheen	0.82
MW-9	10/18/94	0.13	---	0.82
MW-9	01/13/95	0.14	---	0.82
MW-9	04/13/95	0.11	---	0.82
MW-9	07/11/95	0.08	0.13	0.95
MW-9	04/24/96	0.09	0.06	1.01
MW-9	07/16/96	0.04	---	1.01

ABBREVIATIONS:

--- Not applicable

E:\0\10-061\PRODUCT.WQ2

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

N

0 1000' 2000'

FIGURE 1

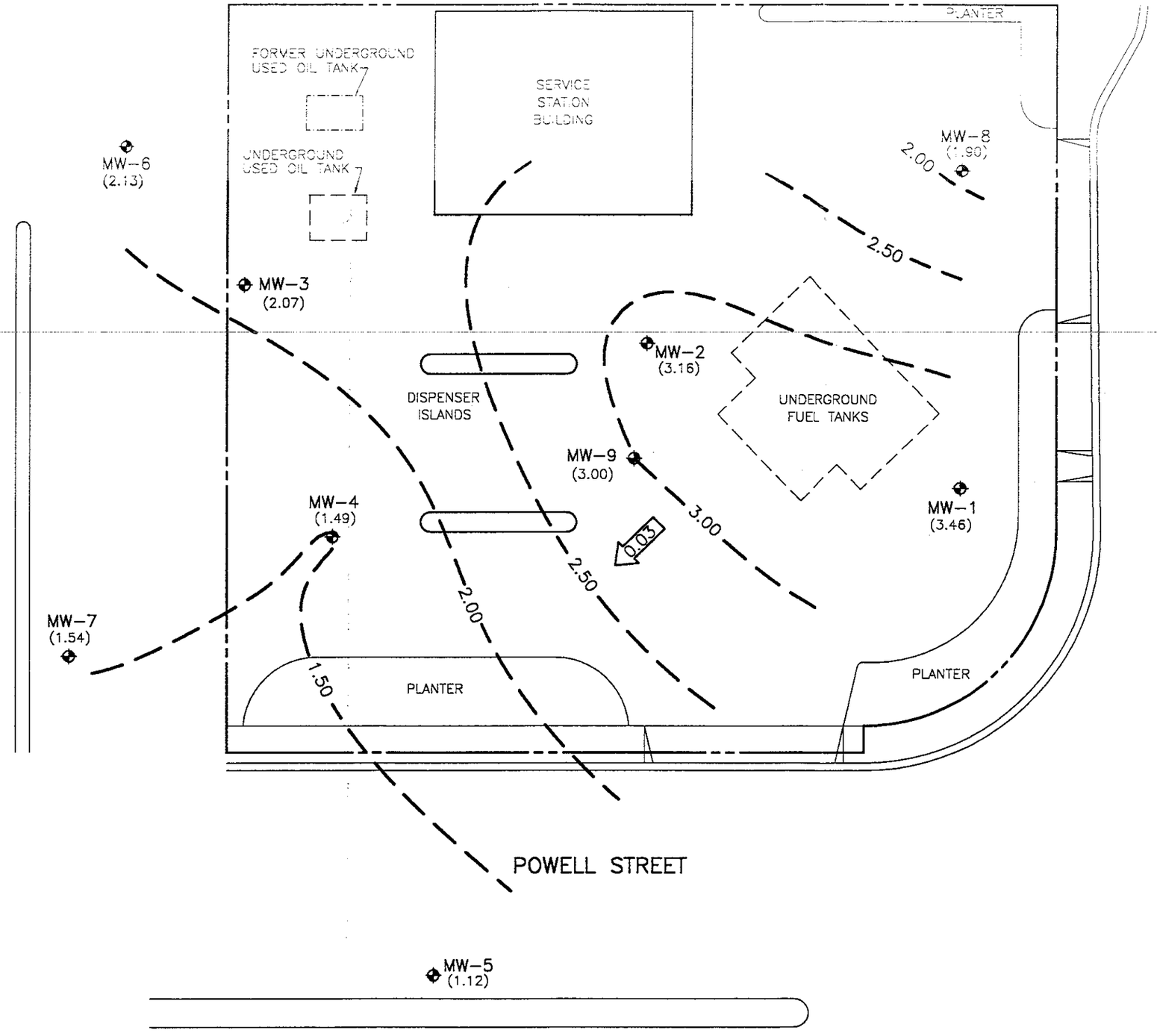
SITE VICINITY MAP

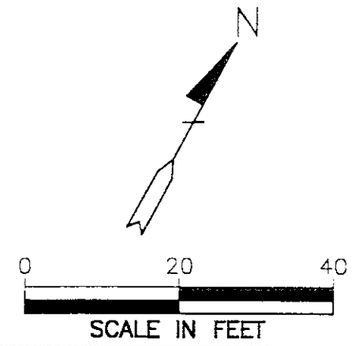
BP OIL SERVICE STATION NO. 11126
1700 POWELL STREET
EMERYVILLE, CALIFORNIA

PROJECT NO. 10-061

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10061B--DWG 12-30-83 RKW 1=1





LEGEND

- ◆ GROUNDWATER MONITORING WELL
- (3.00) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 3.00 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL–0.50 FOOT)
- 0.03 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 2

POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP

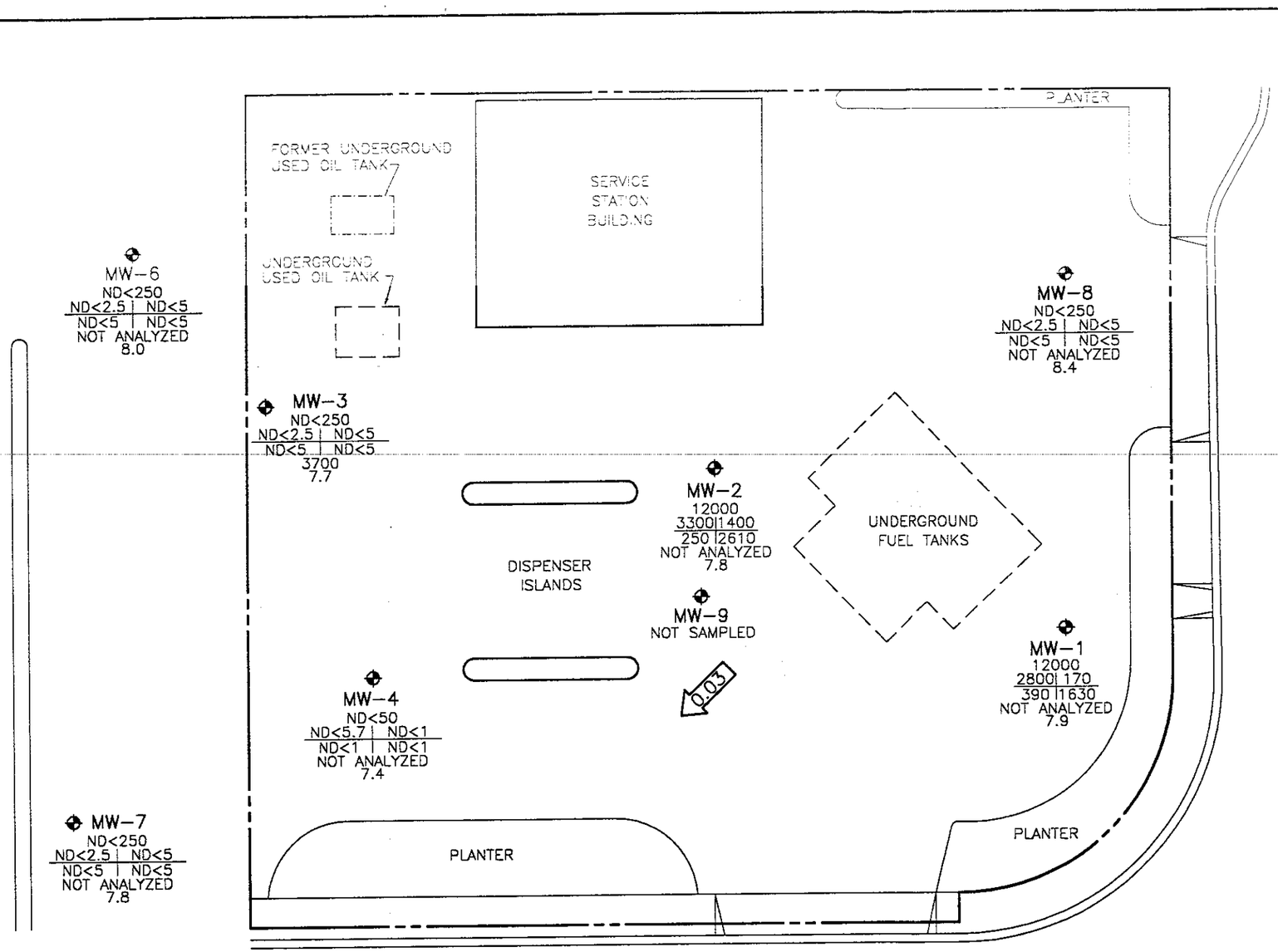
JULY 15 AND 16, 1996

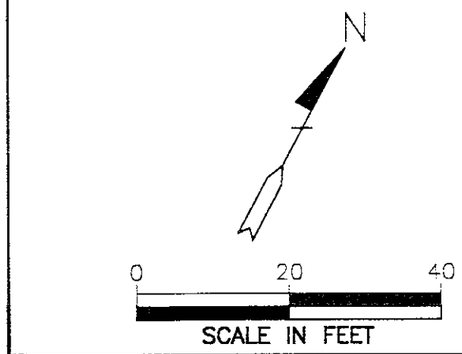
BP OIL SERVICE STATION NO. 11126
1700 POWELL STREET
EMERYVILLE, CALIFORNIA

PROJECT NO. 10–061

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

100610-5.DWG 8-30-96 DDW 1=20





LEGEND

⊕	GROUNDWATER MONITORING WELL
TPH-G / B / T / E / X / TPH-D / DO	CONCENTRATION OF CONSTITUENTS IN MICROGRAMS PER LITER, EXCEPT DISSOLVED OXYGEN, WHICH IS IN PARTS PER MILLION
TPH-G	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	TOTAL XYLENES
TPH-D	TOTAL PETROLEUM HYDROCARBONS AS DIESEL
DO	DISSOLVED OXYGEN
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 15 AND 16, 1996

BP OIL SERVICE STATION NO. 11126
1700 POWELL STREET
EMERYVILLE, CALIFORNIA

PROJECT NO. 10-061

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10081E-S.DWG 8-30-96 DOM 1=20

APPENDIX A

WATER SAMPLING FIELD SURVEY FORMS

ALISTO

Field Report / Sampling Data Sheet

ENGINEERING
GROUP
1575 TREAT BOULEVARD, SUITE 201

Project No. 10-061-07-001 Date: 7/15/96-7/16/96
Address 1700 Powell St. Day: (M) T W TH F
Contract No. Pending City: Emeryville
Station No. BP 11126 Sampler: LB

DEPTH TO GROUNDWATER SUMMARY

WELL ID	SAMPLE ID	WELL DIAM	TOTAL DEPTH	DEPTH TO WATER	PRODUCT THICKNESS	TIME MONITORED	COMMENTS: S-10 = QC-2 TB
MW-1	S-7	2"	11.62	4.30	Ø	1220	QC-1 S-9 from this well
MW-2	S-6		11.83	5.40		1217	
MW-3	S-5		12.08	6.18		1214	
MW-4	S-4		11.06	6.63		1210	
MW-5	S-8		13.70	6.57		1224	
MW-6	S-3		13.25	6.39		1005	
MW-7	S-2		13.72	6.07		1203	
MW-8	S-1	↓	13.65	6.70	↓	1200	
MW-9	NIS	4"	N/M	5.11	.04	1227	FP DTP = 5.07

FIELD INSTRUMENT CALIBRATION DATA

pH METER Aqua Check 4.00 4 7.00 7 10.00 10 TEMPERATURE COMPENSATED (Y) N TIME 1228

D.O. METER Aqua Check ZERO d.O. SOLUTION 0 BAROMETRIC PRESSURE 760 TEMP 64 WEATHER clear/windy

CONDUCTIVITY METER Aqua Check 10,000 _____ TURBIDITY METER _____ 5.0 NTU _____ OTHER X

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-8	6.70	2"	O/C	Ø	Y (N)	1	1342	70.9	7.98	2.12ms	7.9
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			2		69.2	7.87	2.03ms	
13.65-6.70 = 6.95 X.16 = 1.11 X3 = 3.33						3.5	1350	68.7	7.70	1.97ms	8.4

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

O EPA 601____
(X) TPH-G/BTEX HCl
O TPH Diesel____
O TOG 5520 ___
TIME/SAMPLE ID: 1352

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-7	6.07	2"	O/C	Ø	Y (N)	1	1404	70.3	7.54	3.62ms	6.3
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			2		69.6	7.42	3.42ms	
13.72 - 6.07 = 7.65 X.16 = 1.22 X3 = 3.66						4	1410	69.2	7.37	3.35ms	7.8

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

O EPA 601____
(X) TPH-G/BTEX HCl
O TPH Diesel____
O TOG 5520 ___
TIME/SAMPLE ID: 1413

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. 10-061-07-001 Date: 7/15/96 - 7/16/96
Address 1700 Powell St. Day: (M) T W TH F
Contract No. Pending City: Emeryville
Station No. BP 11126 Sampler: LB

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-6	6.39	2"	OK	Ø	Y (N)	1	1420	68.4	7.40	4.03ms	7.2
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			2		68.0	7.34	3.87ms	
13.25-6.39=6.86	X.16=1.10	X3=	3.30			3.5	1431	67.4	7.26	3.77ms	8.0
Purge Method: (X) Surface Pump O Disp.Tube O Winch O Disp. Bailer(s)___ O Sys Port											
Comments:											

O EPA 601___
(X) TPH-G/BTEX HCL
O TPH Diesel___
O TOG 5520___
TIME/SAMPLE ID
1435

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-4	6.63	2"	OK	Ø	Y (N)	1	1442	69.4	7.50	4.12ms	6.8
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			2		68.5	7.43	3.92ms	
11.06-6.63=4.43	X.16=.71	X3=	2.13			2.5	1449	67.7	7.39	3.84ms	7.4
Purge Method: (X) Surface Pump O Disp.Tube O Winch O Disp. Bailer(s)___ O Sys Port											
Comments:											

O EPA 601___
(X) TPH-G/BTEX HCL
O TPH Diesel___
O TOG 5520___
TIME/SAMPLE ID
1453

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-3	6.18	2"	OK	Ø	Y (N)	1	1501	68.9	7.50	4.92ms	6.3
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			2		68.0	7.43	4.80ms	
12.08-6.18=5.90	X.16=.94	X3=	2.82			3	1509	67.3	7.36	4.71ms	7.7
Purge Method: (X) Surface Pump O Disp.Tube O Winch O Disp. Bailer(s)___ O Sys Port											
Comments:											

(X) EPA 601 HCL
(X) TPH-G/BTEX HCL
(X) TPH Diesel HCL
(X) TOG 5520 HCL
TIME/SAMPLE ID
1515

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-2	5.40	2"	OK	Ø	Y (N)	1	1521	70.4	7.92	1.87ms	7.1
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			2		69.4	7.63	1.62ms	
11.83-5.40=6.43	X.16=1.03	X3=	3.09			3	1527	69.0	7.59	1.55ms	7.8
Purge Method: (X) Surface Pump O Disp.Tube O Winch O Disp. Bailer(s)___ O Sys Port											
Comments:											

(X) EPA 601___
(X) TPH-G/BTEX HCL
O TPH Diesel___
O TOG 5520___
TIME/SAMPLE ID
0830 7/16/96

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-1	4.30	2"	OK	Ø	Y (N)	1	1541	69.7	7.77	1.92ms	5.9
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			2		69.0	7.62	1.63ms	
11.62-4.30=7.32	X.16=1.17	X3=	3.51			4	1550	68.4	7.54	1.57ms	7.9
Purge Method: (X) Surface Pump O Disp.Tube O Winch O Disp. Bailer(s)___ O Sys Port											
Comments: QC-1 5-9 from this well											

(X) EPA 601___
(X) TPH-G/BTEX HCL
O TPH Diesel___
O TOG 5520___
TIME/SAMPLE ID
0852 7/16/96

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. 10-061-07-001
Date: 7/15/96 - 7/16/96
Address 1700 Powell St.
Day: (M) T W TH F
Contract No. Pending
City: Emeryville
Station No. BP 11126
Sampler: LCB

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
MW-5	6.57	2"	OK	Ø	Y (N)	1	1601	70.3	7.59	3.63 ms	7.4
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			2		69.0	7.21	3.42 ms	
13.70 - 6.57 = 7.13 x .16 = 1.14 x 3 = 3.42						3.5	1607	68.3	7.14	3.33 ms	8.3

Purge Method: (X) Surface Pump O Disp.Tube O Winch O Disp. Bailer(s)___ O Sys Port

Comments:

O EPA 601_____
(X) TPH-G/BTEX HCL
O TPH Diesel____
O TOG 5520 ___

TIME/SAMPLE ID: 0910 7/16/96

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: O Surface Pump O Disp.Tube O Winch O Disp. Bailer(s)___ O Sys 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

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

Southern Petroleum Laboratories, Inc.

Certificate of Analysis Number: 96-07-859

Approved for Release by:

Ed Fry, Project Manager

Date: 7/30/96

Greg Grandits
Laboratory Director

Idelis Williams
Quality Assurance Officer

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

Certificate of Analysis No. H9-9607859-01

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

P.O.# G797467,COC#082681
DATE: 07/30/96

PROJECT: BP Oil #11126
SITE: Emeryville, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-1

PROJECT NO: 10-061-7-1
MATRIX: WATER
DATE SAMPLED: 07/15/96
DATE RECEIVED: 07/18/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	50 P	µg/L
Benzene	ND	2.5 P	µg/L
Toluene	ND	5 P	µg/L
Ethylbenzene	ND	5 P	µg/L
Total Xylene	ND	5 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	87		
4-Bromofluorobenzene	87		
METHOD 8020***			
Analyzed by: RL			
Date: 07/23/96			
Total Petroleum Hydrocarbons-Gasoline	ND	0.25 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	107		
4-Bromofluorobenzene	73		
CA LUFT - Gasoline			
Analyzed by: RL			
Date: 07/23/96 03:13:00			

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

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

Certificate of Analysis No. H9-9607859-02

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

P.O.# G797467,COC#082681
DATE: 07/30/96

PROJECT: BP Oil #11126
SITE: Emeryville, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-2

PROJECT NO: 10-061-7-1
MATRIX: WATER
DATE SAMPLED: 07/15/96
DATE RECEIVED: 07/18/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	50 P	µg/L
Benzene	ND	2.5 P	µg/L
Toluene	ND	5 P	µg/L
Ethylbenzene	ND	5 P	µg/L
Total Xylene	ND	5 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	87		
4-Bromofluorobenzene	87		
METHOD 8020***			
Analyzed by: RL			
Date: 07/23/96			
Total Petroleum Hydrocarbons-Gasoline	ND	0.25 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	107		
4-Bromofluorobenzene	80		
CA LUFT - Gasoline			
Analyzed by: RL			
Date: 07/23/96 02:44:00			

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

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

Certificate of Analysis No. H9-9607859-03

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

P.O.# G797467,COC#082681
DATE: 07/30/96

PROJECT: BP Oil #11126
SITE: Emeryville, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-3

PROJECT NO: 10-061-7-1
MATRIX: WATER
DATE SAMPLED: 07/15/96
DATE RECEIVED: 07/18/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	50 P	µg/L
Benzene	ND	2.5 P	µg/L
Toluene	ND	5 P	µg/L
Ethylbenzene	ND	5 P	µg/L
Total Xylene	ND	5 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	87		
4-Bromofluorobenzene	93		
METHOD 8020***			
Analyzed by: RL			
Date: 07/23/96			
Total Petroleum Hydrocarbons-Gasoline	ND	0.25 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	107		
4-Bromofluorobenzene	73		
CA LUFT - Gasoline			
Analyzed by: RL			
Date: 07/23/96 03:43:00			

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

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

Certificate of Analysis No. H9-9607859-04

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

P.O.# G797467,COC#082681
DATE: 07/30/96

PROJECT: BP Oil #11126
SITE: Emeryville, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-4

PROJECT NO: 10-061-7-1
MATRIX: WATER
DATE SAMPLED: 07/15/96
DATE RECEIVED: 07/18/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	550	100 P	µg/L
Benzene	5.7	0.5 P	µg/L
Toluene	ND	1 P	µg/L
Ethylbenzene	ND	1 P	µg/L
Total Xylene	ND	1 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	87		
4-Bromofluorobenzene	87		
METHOD 8020***			
Analyzed by: AA			
Date: 07/22/96			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	107		
4-Bromofluorobenzene	70		
CA LUFT - Gasoline			
Analyzed by: AA			
Date: 07/20/96 05:30:00			

(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

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

Certificate of Analysis No. H9-9607859-05

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

P.O.# G797467,COC#082681
DATE: 07/30/96

PROJECT: BP Oil #11126
SITE: Emeryville, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-5

PROJECT NO: 10-061-7-1
MATRIX: WATER
DATE SAMPLED: 07/15/96
DATE RECEIVED: 07/18/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	50 P	µg/L
Benzene	ND	2.5 P	µg/L
Toluene	ND	5 P	µg/L
Ethylbenzene	ND	5 P	µg/L
Total Xylene	ND	5 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	87		
4-Bromofluorobenzene	87		
METHOD 8020***			
Analyzed by: RL			
Date: 07/23/96			
Total Petroleum Hydrocarbons-Gasoline	ND	0.25 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	107		
4-Bromofluorobenzene	67		
CA LUFT - Gasoline			
Analyzed by: RL			
Date: 07/23/96 04:12:00			
Total Petroleum Hydrocarbons-Diesel	3.7	0.050 P	mg/L
Surrogate	**% Recovery**		
o-Terphenyl	213 «		
2-Fluorobiphenyl	25		
CA LUFT - Diesel			
Analyzed by: RR			
Date: 07/25/96 06:27:00			

ND - Not detected. (P) - Practical Quantitation Limit
« - Recovery beyond control limits.

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

Certificate of Analysis No. H9-9607859-05

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

P.O.# G797467,COC#082681
DATE: 07/30/96

PROJECT: BP Oil #11126
SITE: Emeryville, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-5

PROJECT NO: 10-061-7-1
MATRIX: WATER
DATE SAMPLED: 07/15/96
DATE RECEIVED: 07/18/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Liquid-liquid extraction METHOD 3510B *** Analyzed by: LD Date: 07/22/96 12:00:00	07/22/96		
Hydrocarbons by Gravimetry Method 5520 B & F ** Analyzed by: GB Date: 07/29/96 10:00:00	1	0.5	mg/L

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

Certificate of Analysis No. H9-9607859-05

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

P.O.# G797467,COC#082681
07/30/96

PROJECT: BP Oil #11126
SITE: Emeryville, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-5

PROJECT NO: 10-061-7-1
MATRIX: WATER
DATE SAMPLED: 07/15/96
DATE RECEIVED: 07/18/96

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Dichlorodifluoromethane	ND	1	µg/L
Chloromethane	ND	1	µg/L
Vinyl chloride	ND	1	µg/L
Bromomethane	ND	1	µg/L
Chloroethane	ND	1	µg/L
Trichlorofluoromethane	ND	1	µg/L
1,1-Dichloroethene	ND	1	µg/L
Methylene chloride	ND	1	µg/L
Trans-1,2-Dichloroethene	ND	1	µg/L
1,1-Dichloroethane	ND	1	µg/L
Chloroform	ND	1	µg/L
1,1,1-Trichloroethane	ND	1	µg/L
Carbon tetrachloride	ND	1	µg/L
1,2-Dichloroethane	ND	1	µg/L
2-Chloroethylvinyl ether	ND	1	µg/L
Trichloroethene	ND	1	µg/L
1,2-Dichloropropane	ND	1	µg/L
Bromodichloromethane	ND	1	µg/L
cis-1,3-Dichloropropene	ND	1	µg/L
trans-1,3-Dichloropropene	ND	1	µg/L
1,1,2-Trichloroethane	ND	1	µg/L
Tetrachloroethene	ND	1	µg/L
Dibromochloromethane	ND	1	µg/L
Chlorobenzene	ND	1	µg/L
Bromoform	ND	1	µg/L
1,1,2,2-Tetrachloroethane	ND	1	µg/L
1,3-Dichlorobenzene	ND	1	µg/L
1,4-Dichlorobenzene	ND	1	µg/L
1,2-Dichlorobenzene	ND	1	µg/L

METHOD: 601, Halogenated Volatile Organics

(continued on next page)

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

Certificate of Analysis No. H9-9607859-05

BP Oil Company

SAMPLE ID: S-5

SURROGATES	% RECOVERY
1-Chloro-2-Fluorobenzene	112

ANALYZED BY: DAO DATE/TIME: 07/25/96 08:32:00
METHOD: 601, Halogenated Volatile Organics
NOTES: * - Practical Quantitation Limit ND - Not Detected
NA - Not Analyzed

COMMENTS:

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

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

Certificate of Analysis No. H9-9607859-06

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

P.O.# G797467,COC#082681
DATE: 07/30/96

PROJECT: BP Oil #11126
SITE: Emeryville, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-6

PROJECT NO: 10-061-7-1
MATRIX: WATER
DATE SAMPLED: 07/16/96
DATE RECEIVED: 07/18/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	1400	500 P	µg/L
Benzene	3300	25 P	µg/L
Toluene	1400	50 P	µg/L
Ethylbenzene	250	50 P	µg/L
Total Xylene	2610	50 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	107		
4-Bromofluorobenzene	87		
METHOD 8020***			
Analyzed by: RL			
Date: 07/23/96			
Total Petroleum Hydrocarbons-Gasoline	12	2.5 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	120		
4-Bromofluorobenzene	80		
CA LUFT - Gasoline			
Analyzed by: RL			
Date: 07/23/96 05:36:00			

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

Certificate of Analysis No. H9-9607859-07

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

P.O.# G797467,COC#082681
DATE: 07/30/96

PROJECT: BP Oil #11126
SITE: Emeryville, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-7

PROJECT NO: 10-061-7-1
MATRIX: WATER
DATE SAMPLED: 07/16/96
DATE RECEIVED: 07/18/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	64000	5000 P	µg/L
Benzene	2800	25 P	µg/L
Toluene	170	50 P	µg/L
Ethylbenzene	390	50 P	µg/L
Total Xylene	1630	50 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	93		
METHOD 8020***			
Analyzed by: RL			
Date: 07/26/96			
Total Petroleum Hydrocarbons-Gasoline	12	2.5 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	113		
4-Bromofluorobenzene	87		
CA LUFT - Gasoline			
Analyzed by: RL			
Date: 07/24/96 10:43:00			

(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

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

Certificate of Analysis No. H9-9607859-08

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

P.O.# G797467,COC#082681
DATE: 07/30/96

PROJECT: BP Oil #11126
SITE: Emeryville, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-8

PROJECT NO: 10-061-7-1
MATRIX: WATER
DATE SAMPLED: 07/16/96
DATE RECEIVED: 07/18/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	100 P	µg/L
Benzene	190	5 P	µg/L
Toluene	ND	10 P	µg/L
Ethylbenzene	31	10 P	µg/L
Total Xylene	16	10 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	113		
4-Bromofluorobenzene	130		
METHOD 8020***			
Analyzed by: RL			
Date: 07/23/96			
Total Petroleum Hydrocarbons-Gasoline	ND	0.5 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	117		
4-Bromofluorobenzene	147		
CA LUFT - Gasoline			
Analyzed by: RL			
Date: 07/23/96 05:06:00			

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

Certificate of Analysis No. H9-9607859-09

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

P.O.# G797467,COC#082681
DATE: 07/30/96

PROJECT: BP Oil #11126
SITE: Emeryville, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-9

PROJECT NO: 10-061-7-1
MATRIX: WATER
DATE SAMPLED: 07/16/96
DATE RECEIVED: 07/18/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	63000	5000 P	µg/L
Benzene	2800	25 P	µg/L
Toluene	160	50 P	µg/L
Ethylbenzene	390	50 P	µg/L
Total Xylene	1610	50 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	87		
METHOD 8020***			
Analyzed by: RL			
Date: 07/26/96			
Total Petroleum Hydrocarbons-Gasoline	12	2.5 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	113		
4-Bromofluorobenzene	93		
CA LUFT - Gasoline			
Analyzed by: RL			
Date: 07/24/96 10:14:00			

(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

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

Certificate of Analysis No. H9-9607859-10

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

P.O.# G797467,COC#082681
DATE: 07/30/96

PROJECT: BP Oil #11126
SITE: Emeryville, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-10

PROJECT NO: 10-061-7-1
MATRIX: WATER
DATE SAMPLED: 07/16/96
DATE RECEIVED: 07/18/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	10 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1 P	µg/L
Ethylbenzene	ND	1 P	µg/L
Total Xylene	ND	1 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	90		
4-Bromofluorobenzene	83		
METHOD 8020***			
Analyzed by: RL			
Date: 07/23/96			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	103		
4-Bromofluorobenzene	67		
CA LUFT - Gasoline			
Analyzed by: RL			
Date: 07/23/96 11:51:00			

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

QUALITY CONTROL

DOCUMENTATION

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

** SPL BATCH QUALITY CONTROL REPORT **
METHOD 601** & 8010W

Matrix: Aqueous
Units: µg/L

Batch Id: HP_F960724110700

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Dichlorodifluoromethane	ND	20	26	130	1 - 200
Chloromethane	ND	20	30	150	1 - 193
Vinyl chloride	ND	20	26	130	28 - 163
Bromomethane	ND	20	26	130	1 - 144
Chloroethane	ND	20	24	120	46 - 137
Trichlorofluoromethane	ND	20	26	130	21 - 156
1,1-Dichloroethene	ND	20	21	105	28 - 167
Methylene chloride	ND	20	21	105	25 - 162
Trans-1,2-Dichloroethene	ND	20	20	100	38 - 155
1,1-Dichloroethane	ND	20	20	100	34 - 132
Chloroform	ND	20	19	95.0	49 - 133
1,1,1-Trichloroethane	ND	20	20	100	41 - 138
Carbon tetrachloride	ND	20	20	100	43 - 143
1,2-Dichloroethane	ND	20	20	100	51 - 147
2-Chloroethylvinyl ether	ND	20	20	100	14 - 186
Trichloroethene	ND	20	22	110	35 - 146
1,2-Dichloropropane	ND	20	21	105	44 - 156
Bromodichloromethane	ND	20	19	95.0	42 - 172
cis-1,3-Dichloropropene	ND	20	23	115	22 - 178
trans-1,3-Dichloropropene	ND	20	18	90.0	33 - 178
1,1,2-Trichloroethane	ND	20	20	100	39 - 136
Tetrachloroethene	ND	20	20	100	26 - 162
Dibromochloromethane	ND	20	19	95.0	24 - 191
Chlorobenzene	ND	20	20	100	38 - 150
Bromoform	ND	20	18	90.0	13 - 159
1,1,2,2-Tetrachloroethane	ND	20	19	95.0	8 - 184
1,3-Dichlorobenzene	ND	20	21	105	7 - 187
1,4-Dichlorobenzene	ND	20	22	110	42 - 143
1,2-Dichlorobenzene	ND	20	21	105	1 - 208

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
DICHLORODIFLUOROMETHANE	ND	20	26	130	24	120	8.00	20	1 - 200
CHLOROMETHANE	ND	20	29	145	23	115	23.1 *	20	1 - 193
VINYL CHLORIDE	ND	20	26	130	23	115	12.2	20	28 - 163
BROMOMETHANE	ND	20	32	160 *	29	145 *	9.84	20	1 - 144
CHLOROETHANE	ND	20	26	130	22	110	16.7	20	46 - 137

QC Officer

** SPL BATCH QUALITY CONTROL REPORT **
METHOD 601** & 8010W

Batch Id: HP_F960724110700

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

Aqu ®
Units: µg/L

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
TRICHLOROFLUOROMETHANE	ND	20	26	130	23	115	12.2	20	21 - 156
1,1-DICHLOROETHENE	ND	20	26	130	24	120	8.00	20	28 - 167
METHYLENE CHLORIDE	ND	20	34	170 *	24	120	34.5 *	20	25 - 162
TRANS-1,2-DICHLOROETHENE	ND	20	23	115	23	115	0	20	38 - 155
1,1-DICHLOROETHANE	ND	20	24	120	23	115	4.26	20	47 - 132
CHLOROFORM	ND	20	22	110	21	105	4.65	20	49 - 133
1,1,1-TRICHLOROETHANE	ND	20	24	120	22	110	8.70	20	41 - 138
CARBON TETRACHLORIDE	ND	20	23	115	21	105	9.09	20	43 - 143
1,2-DICHLOROETHANE	ND	20	25	125	23	115	8.33	20	51 - 147
2-CHLOROETHYLVINYL ETHER	ND	20	0	0 *	0	0 *	0	20	14 - 186
TRICHLOROETHENE	ND	20	27	135	25	125	7.69	20	35 - 146
1,2-DICHLOROPROPANE	ND	20	25	125	23	115	8.33	20	44 - 156
BROMODICHLOROMETHANE	ND	20	24	120	21	105	13.3	20	42 - 172
CIS-1,3-DICHLOROPROPENE	ND	20	25	125	21	105	17.4	20	22 - 178
TRANS-1,3-DICHLOROPROPENE	ND	20	23	115	20	100	14.0	20	33 - 178
1,1,2-TRICHLOROETHANE	ND	20	24	120	23	115	4.26	20	39 - 136
TETRACHLOROETHENE	ND	20	24	120	23	115	4.26	20	26 - 162
DIBROMOCHLOROMETHANE	ND	20	22	110	20	100	9.52	20	24 - 191
CHLOROBENZENE	ND	20	25	125	24	120	4.08	20	38 - 150
BROMOFORM	ND	20	20	100	18	90.0	10.5	20	13 - 159
1,1,2,2-TETRACHLOROETHANE	ND	20	22	110	21	105	4.65	20	8 - 184
1,3-DICHLOROBENZENE	ND	20	26	130	23	115	12.2	20	7 - 187
1,4-DICHLOROBENZENE	ND	20	26	130	24	120	8.00	20	42 - 143
1,2-DICHLOROBENZENE	ND	20	26	130	24	120	8.00	20	1 - 208

Analyst: DAO
Sequence Date: 07/25/96
SPL ID of sample spiked: 9607841-09A
Sample File ID: FF__641.TX0
Method Blank File ID:
Blank Spike File ID: FF__633.TX0
Matrix Spike File ID: FF__646.TX0
Matrix Spike Duplicate File ID: FF__647.TX0

* = Values Outside QC Range
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: 601, Table 2
(***) = Source: SPL Temporary Limits

SAMPLES IN BATCH(SPL ID): 9607841-09A 9607846-07B 9607915-09B 9607838-01A 9607915-10B 9607859-05B 9607985-02A 9607985-04A 9607784-07A 9607784-08A 9607841-10A

QC Officer

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

** SPL BATCH QUALITY CONTROL REPORT **
METHOD 8020/602

Aqueous

Batch Id: HP_J960723100200

Units: µg/L

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	49	98.0	20 - 110
Benzene	ND	50	42	84.0	62 - 121
Toluene	ND	50	43	86.0	66 - 136
EthylBenzene	ND	50	43	86.0	70 - 136
O Xylene	ND	50	45	90.0	74 - 134
M & P Xylene	ND	100	91	91.0	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	20	100	20	100	0	20	39 - 150
BENZENE	ND	20	20	100	20	100	0	25	39 - 150
TOLUENE	ND	20	20	100	20	100	0	26	56 - 134
ETHYLBENZENE	ND	20	20	100	20	100	0	38	61 - 128
O XYLENE	ND	20	20	100	20	100	0	29	40 - 130
M & P XYLENE	ND	40	42	105	42	105	0	20	43 - 152

Analyst: RL
Sequence Date: 07/23/96
SPL ID of sample spiked: 9607971-03A
Sample File ID: J___586.TX0
Method Blank File ID:
Blank Spike File ID: J___560.TX0
Matrix Spike File ID: J___577.TX0
Matrix Spike Duplicate File ID: J___578.TX0

* = Values Outside QC Range
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):

9607862-08A 9607859-02A 9607859-01A 9607859-03A
9607859-05A 9607859-08A 9607859-06A 9607971-07A
9607795-16A 9607971-03A 9607844-01A 9607795-14A
9607809-01A 9607846-07A 9607755-04A 9607755-07A
9607755-03A 9607859-10A 9607852-09A 9607862-03A

QC Officer

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SPL BATCH QUALITY CONTROL REPORT **

METHOD 8020/602

PAGE

Batch Id: HP_J960721063300

Matrix: Aqu

Units: µg/L

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	51	102	20 - 110
Benzene	ND	50	44	88.0	62 - 121
Toluene	ND	50	45	90.0	66 - 136
EthylBenzene	ND	50	45	90.0	70 - 136
O Xylene	ND	50	44	88.0	74 - 134
M & P Xylene	ND	100	94	94.0	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	18	90.0	18	90.0	0	25	39 - 150
TOLUENE	ND	20	18	90.0	17	85.0	5.71	26	56 - 134
ETHYLBENZENE	ND	20	17	85.0	16	80.0	6.06	38	61 - 128
O XYLENE	ND	20	16	80.0	15	75.0	6.45	29	40 - 130
M & P XYLENE	ND	40	34	85.0	31	77.5	9.23	20	43 - 152

Analyst: AA

Sequence Date: 07/21/96

SPL ID of sample spiked: 9607856-01A

Sample File ID: J___503.TX0

Method Blank File ID:

Blank Spike File ID: J___491.TX0

Matrix Spike File ID: J___494.TX0

Matrix Spike Duplicate File ID: J___495.TX0

* = Values Outside QC Range

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):

9607856-03A 9607856-01A 9607846-06A 9607862-02A
9607859-04A 9607846-08A 9607834-01A 9607866-01A
9607809-02A 9607852-01A 9607852-02A 9607852-03A
9607852-04A 9607852-05A 9607852-06A 9607862-09A
9607862-10A

QC Officer

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HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **

METHOD 8020/602

Aqu... ®

Batch Id: HP_J960725082700

Units: µg/L

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	49	98.0	20 - 110
Benzene	ND	50	38	76.0	62 - 121
Toluene	ND	50	38	76.0	66 - 136
EthylBenzene	ND	50	40	80.0	70 - 136
O Xylene	ND	50	42	84.0	74 - 134
M & P Xylene	ND	100	83	83.0	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	1.1	20	9.0	39.5	8.1	35.0 *	12.1	20	39 - 150
BENZENE	ND	20	20	100	20	100	0	25	39 - 150
TOLUENE	ND	20	20	100	19	95.0	5.13	26	56 - 134
ETHYLBENZENE	ND	20	20	100	20	100	0	38	61 - 128
O XYLENE	ND	20	18	90.0	17	85.0	5.71	29	40 - 130
M & P XYLENE	ND	40	38	95.0	37	92.5	2.67	20	43 - 152

Analyst: RL
Sequence Date: 07/25/96
SPL ID of sample spiked: 9607842-01A
Sample File ID: J_H6002.TX0
Method Blank File ID:
Blank Spike File ID: J___669.TX0
Matrix Spike File ID: J_H6003.TX0
Matrix Spike Duplicate File ID: J_H6004.TX0

* = Values Outside QC Range
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): 9607859-07A 9607859-09A 9607A60-04A 9607842-01A 9607B22-02A 9607842-06A 9607842-07A 9607A58-02A 9607A60-01A 9607A60-03A 9607A60-05A 9607A70-04A

QC Officer

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** SPL BATCH QUALITY CONTROL REPORT **

CA LUFT

PAGE

Batch Id: HP_J960723063200

Aqueous

Units: mg/L

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	0.96	96.0	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
GASOLINE PETR. HYDROCARBON	ND	0.9	0.86	95.6	0.87	96.7	1.14	22	37 - 169

Analyst: RL

Sequence Date: 07/23/96

SPL ID of sample spiked: 9607844-01A

Sample File ID: JJ__587.TX0

Method Blank File ID:

Blank Spike File ID: JJ__558.TX0

Matrix Spike File ID: JJ__575.TX0

Matrix Spike Duplicate File ID: JJ__576.TX0

* = Values Outside QC Range

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: SPL-Houston Historical Data (3rd Q '95)

SAMPLES IN BATCH(SPL ID):

9607859-02A 9607859-01A 9607859-03A 9607859-05A
9607859-06A 9607844-01A 9607755-03A 9607859-08A
9607859-10A 9607852-09A

QC Officer

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SPL BATCH QUALITY CONTROL REPORT **
Modified 8015 - Gasoline

PAGE

Matrix: Aqueous
Units: mg/L

Batch Id: HP_J960720055600

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Gasoline Petr. Hydrocarbon	ND	1.0	0.9	90.0	56 - 130

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
GASOLINE PETR. HYDROCARBON	ND	0.9	0.82	91.1	0.83	92.2	1.20	22	37 - 169

Analyst: AA
Sequence Date: 07/20/96
SPL ID of sample spiked: 9607834-02A
Sample File ID: JJ__482.TX0
Method Blank File ID:
Blank Spike File ID: JJ__454.TX0
Matrix Spike File ID: JJ__479.TX0
Matrix Spike Duplicate File ID: JJ__480.TX0

* = Values Outside QC Range
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 (3rd Q '95)

SAMPLES IN BATCH(SPL ID): 9607859-04A 9607834-02A

QC Officer

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

** SPL BATCH QUALITY CONTROL REPORT **

CA LUFT

Batch Id: HP_J960724071700

Units: mg/L

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	0.9	90.0	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
GASOLINE PETR. HYDROCARBON	0.76	0.9	1.4	71.1	1.3	60.0	16.9	22	37 - 169

Analyst: RL

Sequence Date: 07/24/96

SPL ID of sample spiked: 9607844-02A

Sample File ID: JJ__621R.TX0

Method Blank File ID:

Blank Spike File ID: JJ__599.TX0

Matrix Spike File ID: JJ__618R.TX0

Matrix Spike Duplicate File ID: JJ__619R.TX0

* = Values Outside QC Range

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: SPL-Houston Historical Data (3rd Q '95)

SAMPLES IN BATCH(SPL ID): 9607844-02A 9607852-08A 9607852-07A 9607852-06A 9607859-09A 9607859-07A

QC Officer

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** SPL BATCH QUALITY CONTROL REPORT **

Mod. 8015 - Diesel

PAGE

Matrix: Aqueous

Batch Id: HPTT960725100100

Units: mg/L

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Diesel Petr. Hydrocarbons	ND	5.0	5.21	104	20 - 130

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
Diesel Petr. Hydrocarbons	ND	5.0	5.19	102	4.95	97.4	4.61	43	20 - 177

Analyst: RR

Sequence Date: 07/25/96

SPL ID of sample spiked: 9607632-03B

Sample File ID: T___139.TX0

Method Blank File ID:

Blank Spike File ID: TT__205.TX0

Matrix Spike File ID: T___140.TX0

Matrix Spike Duplicate File ID: T___141.TX0

* = Values Outside QC Range

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 (2nd Q '94)

(***) = Source: SPL-Houston Historical Data

SAMPLES IN BATCH(SPL ID):

9607916-01B 9607916-03B 9607632-03B 9607912-02B
9607912-03B 9607912-05B 9607912-06B 9607912-07B
9607859-05C

QC Officer

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** SPL QUALITY CONTROL REPORT **

Matrix: Aqueous

Reported on: 07/29/96
Analyzed on: 07/29/96
Analyst: GB

This sample was randomly selected for use in the SPL quality control program. Samples chosen are fortified with a known concentration in duplicate. The results are as follows:

Hydrocarbons by Gravimetry
Method 5520 B & F **

SPL Sample ID Number	Blank Value mg/L	Amt Added mg/L	Matrix Spike Recovery %	Matrix Spike Duplicate Recovery %	Relative Percent Difference %	QC Limits Recovery	RPD Max.
BLANK	ND	4.0	92.5	92.5	0	82. - 112	9.8

960729GB -9607951

Samples in batch:

9607859-05D

COMMENTS:

SPL, Incorporated

QC Officer

CHAIN OF CUSTODY

AND

SAMPLE RECEIPT CHECKLIST

17
7/25

96-07-859

BP

CHAIN OF CUSTODY

No. 082681 Page 1 of 1

CONSULTANT'S NAME	ADDRESS	CITY	STATE	ZIP CODE
Alisto Engineering	1575 Treat Blvd #201	W.C.	Ca	94598

BP SITE NUMBER	BP CORNER ADDRESS/CITY	CONSULTANT PROJECT NUMBER
11126	Emeryville, Ca	~~10-061-6~~ 10-061-7-)

CONSULTANT PROJECT MANAGER	PHONE NUMBER	FAX NUMBER	CONSULTANT CONTRACT NUMBER
Brady Nagle	(510) 295-1650	295-1823	6797467
BP CONTACT	**BP ADDRESS**	**PHONE NUMBER**	**FAX NO.**
Scott Hooton	Renton, WA	—	—
LAB CONTACT	**LABORATORY ADDRESS**	**PHONE NUMBER**	**FAX NO.**
SPL	Texas	(713) 660-0901	—

SAMPLED BY (Please Print Name)	SAMPLED BY (Signature)	SHIPMENT DATE	SHIPMENT METHOD
Larry Buenvenida	[signature]	7-17-96	Fed Ex

AIRBILL NUMBER:

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

ANALYSIS REQUIRED

SAMPLE DESCRIPTION	COLLECTION DATE / COLLECTION TIME	MATRIX SOIL/WATER	CONTAINERS NO.	CONTAINERS TYPE (VOL.)	PRESERVATIVE LAB SAMPLE #	TPH-G/BTEX (pH)	MTBE	LOG/OD	TPH-D (pH)	TOG 5520 (pH)	(13) 7/18					COMMENTS
S-1	7/15/96	W	3	HCL		X	X		1	1						
S-2	↓	↓	↓	↓		1	↓									
S-3						1										
* S-4			↓			pH 7 (13) 7/18/96										
S-5	↓		8			1		X	X 1	X 1						
S-6	7/16/96		3			1										
S-7			↓			1										
S-8						1										
S-9			↓			1										
S-10	↓	↓	2	↓		↓ 1	↓									

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature]	7/16/96		Patricia Yelton	7/17/96	
Patricia Yelton	7/17/96		S. West	7/18/96	1000

ADDITIONAL COMMENTS: ROI 4°c

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:	Time:
7-18-96	1000

SPL Sample ID:
96-07-859

			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 #)	940477888 6	
		Other:		
11	Method of sample disposal:	SPL Disposal	✓	
		HOLD		
		Return to Client		

Name:	Date:
[signature]	7-18-96

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

BP Site Number: 11126
ERM Contact: G797467
Sampling Date: 7/15/96
Matrix Desription: Groundwater
Date Final Report Received: 8/5/96
Laboratory & Location: SPL - Tx

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

Notes/Comments: ~~Some~~ MS/MSD (and LCS) values outside QC limits for some 601 analytes. MS/MSD OK for BTEX, MTBE, +TOG

Data Validation Completed by (print): Bill Howell
(signature): Bill Howell
Date: 9/5/96