BP OIL

BP Oil Company
Environmental Remediation Management
295 SW 41st Street
Renton, Washington 98055-4931
(425) 251-0667
Fax No· (425) 251-0736

April 10, 1998

Alameda County Health Care Services Agency
Attention Ms. Susan Hugo
1131 Harbor Bay Parkway, Ste. 250
Alameda, CA 94502-6577

RE: BP Oil Site No. 11126
1700 Powell St. (at Christie)
Emeryville, CA

Dear Ms. Hugo:

Enclosed please find the 13 March 1998 Groundwater Monitoring and Sampling Report prepared on behalf of BP by Alisto Engineering Group.

Aromatic petroleum constituents were detected in the subsurface when a soil gas survey was performed in conjunction with BP's 1989 acquisition of the site from Mobil Oil Corporation. The release of aromatic petroleum constituents was confirmed during 1992 when soil and groundwater samples were obtained in support of BP's plans to withdraw from the retail market in California. BP subsequently sold the business and related improvements were sold to the current operator (Tosco Corporation) in 1994, and is continuing to monitor the groundwater.

The cause and origin of the petroleum release(s) at this site has not – to the best of my knowledge – been established. The existing single-wall-fiberglass fuel tanks are believed to have been installed by Mobil Oil Corporation during 1982. Soil or groundwater data associated with the 1982 tank replacement was not reported to have been obtained when BP acquired the site from Mobil in 1989. While the UST system passed required precision tightness tests prior to and during BP's operation of the site, it is also noted that the underground storage tank system will require upgrading to comply with 1998 federal requirements for leak detection and prevention. I understand that this will include the installation of turbine riser sumps, dispenser pans and spill buckets around the fill tubes for the underground storage tanks.

The report shows that aromatic petroleum constituents were detected in groundwater samples collected from four of the five monitoring wells sampled on 29 January 1998. The highest benzene concentration (20,000 ug/l) was reported in a sample obtained from well MW-9, located between the underground storage tanks and the product dispensers. It is also noted that MTBE was detected in samples obtained from three of the monitoring wells sampled on 29 January 1998. The highest MTBE concentration this quarter (110,000 ug/l)

was reported in a sample obtained from well MW-9, located between the underground storage tanks and the dispenser islands.

By copy of this letter to Tosco, please forward daily and monthly inventory reconciliation records and tightness testing results necessary to confirm that the underground storage tank system was operated within acceptable tolerances since Tosco's acquisition of the facility.

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: B. Nagle - Alisto
K. Graves - CRWQCB-SFBR
T. Berry - Tosco (w/attachment)

GROUNDWATER MONITORING AND SAMPLING REPORT

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

Project No. 10-061-08-003

Prepared for:

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

Prepared by:

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

March 13, 1998

Brady Nagle
Project Manager

Al Sevilla, P.E.
Principal

GROUNDWATER MONITORING AND SAMPLING REPORT

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

Project No. 10-061-08-003

March 13, 1998

INTRODUCTION

This report presents the results and findings of the January 29, 1998 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.

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	9700	(d)	—	—	2.9	PACE
QC-1	(e)	08/01/94	—	—	—	—	16000	—	3600	750	510	2800	9800	(d)	—	—	—	PACE
MW-1		10/18/94	7.76	5.11	—	2.65	16000	—	1800	61	160	890	—		—	—	2.9	PACE
QC-1	(e)	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	(e)	01/13/95	—	—	—	—	590	—	88	0.7	ND<0.5	55	—		—	—	—	ATI
MW-1		04/13/95	7.76	3.84	—	3.92	8300	—	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	(e)	07/16/96	—	—	—	—	12000	—	2800	160	390	1610	63000		—	—	—	SPL
MW-1		07/30/96	7.76	4.64	—	3.12	—	—	—	—	—	—	—		—	—	—	—
MW-1		08/12/96	7.76	—	—	—	11000	—	2500	160	ND<10	1740	440000		—	—	7.0	SPL
MW-1		11/04/96	7.76	5.98	—	1.78	—	—	—	—	—	—	—		—	—	—	—
MW-1		11/05/96	7.76	—	—	—	53000	—	1300	43	100	349	42000/190000	(f)	—	—	6.6	SPL
MW-1		05/17/97	7.76	4.65	—	3.11	52000	—	1958	55	305	1216	140198		—	—	5.7	SPL
MW-1		08/11/97	7.76	4.90	—	2.86	25000	—	540	6.7	ND<5.0	57	360000		—	—	7.9	SPL
MW-1		11/17/97	7.76	6.12	—	1.64	93000	—	1200	31	180	40	400000		—	—	7.6	SPL
MW-1		01/29/98	7.76	4.90	—	2.86	4800	—	320	24	52	19.9	ND<50		—	—	6.6	SPL
MW-2		11/04/92	8.56	5.88	—	2.68	12000	—	3900	1300	ND<0.5	2300	—		—	—	—	PACE
QC-1	(e)	11/04/92	—	—	—	0.00	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	(e)	02/15/94	—	—	—	0.00	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	(e)	05/11/94	—	—	—	—	15000	—	5600	1500	470	2000	740	(d)	—	—	—	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	(e)	04/13/95	—	—	—	—	25000	—	6500	1500	110	5300	—		—	—	—	ATI
MW-2		07/11/95	8.56	4.51	—	4.05	19000	—	3300	99	7.5	4600	—		—	—	7.8	ATI
QC-1	(e)	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	(e)	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	(e)	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	(e)	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-2		07/30/96	8.56	5.44	—	3.12	—	—	—	—	—	—	—		—	—	—	—
MW-2		11/04/96	8.56	7.06	—	1.50	—	—	—	—	—	—	—		—	—	—	—
MW-2		11/05/96	8.56	—	—	—	7200	—	1400	230	38	2110	1100		—	—	7.4	SPL
QC-1	(e)	11/05/96	—	—	—	—	9200	—	1300	170	ND<25	2240	1100		—	—	—	SPL
MW-2		05/17/97	8.56	5.77	—	2.79	570	—	42	ND<5.0	5.0	60	210		—	—	6.9	SPL
MW-2		08/11/97	8.56	5.71	—	2.85	6300	—	1800	130	86	397	2400		—	—	8.5	SPL
MW-2		11/17/97	8.56	6.91	—	1.65	2400	—	220	30	33	259	130		—	—	7.9	SPL
MW-2		01/29/98	8.56	4.61	—	3.95	ND<50	—	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10		—	—	6.2	SPL

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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-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	(e)	10/12/93	—		—	—	0.00		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	51	(d)	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
MW-3		07/30/96	8.25		6.04	—	2.21		—	—	—	—	—	—	—		—	—		—	—
MW-3		11/04/96	8.25		7.84	—	0.41		—	—	—	—	—	—	—		—	—		—	—
MW-3		11/05/96	8.25		—	—	—		90	890	ND<0.5	ND<1.0	ND<1.0	ND<1.0	30		2000	ND		6.8	SPL
MW-3		05/17/97	8.25		6.49	—	1.76		ND<50	2100	ND<0.5	ND<1.0	ND<1.0	ND<1.0	52		700	ND		6.3	SPL
MW-3		08/11/97	8.25		6.15	—	2.10		490	1900	ND<2.5	ND<5.0	ND<5.0	ND<5.0	170		ND<5000	ND		7.4	SPL
MW-3		11/17/97	8.25		7.15	—	1.10		120	2500	ND<0.5	ND<1.0	ND<1.0	ND<1.0	46		ND<5000	ND		7.0	SPL
MW-3		01/29/98	8.25		5.10	—	3.15		270	1700	0.53	ND<1.0	ND<1.0	ND<1.0	330		2000	ND		6.4	SPL
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	120	(d)	—	—		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	140	(d)	—	—		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-4		07/30/96	8.12		6.34	—	1.78		—	—	—	—	—	—	—		—	—		—	—
MW-4		11/04/96	8.12		8.27	—	-0.15		—	—	—	—	—	—	—		—	—		—	—
MW-4		11/05/96	8.12		—	—	—		460	—	ND<2.5	11	ND<5.0	ND<5.0	620/610	(f)	—	—		7.3	SPL
MW-4		05/17/97	8.12		7.00	—	1.12		—	—	—	—	—	—	—		—	—		—	—
MW-4		08/11/97	8.12		6.81	—	1.31		—	—	—	—	—	—	—		—	—		—	—
MW-4		11/17/97	8.12		9.19	—	-1.07		840	—	ND<0.5	ND<1.0	ND<1.0	ND<1.0	880		—	—		7.3	SPL
MW-4		01/29/98	8.12		7.94	—	0.18		—	—	—	—	—	—	—		—	—		—	—
MW-5		10/12/93	7.69		6.01	—	1.68		—	—	—	—	—	—	—		—	—		—	—
MW-5		10/13/93	7.69		—	—	—		2300	—	160	10	ND<0.5	26	—		—	—		—	PACE
MW-5		02/15/94	7.69		5.74	—	1.95		5100	—	710	16	33	35	100	(d)	—	—		4.0	PACE
MW-5		05/11/94	7.69		5.28	—	2.41		11000	—	1100	39	110	57	160	(d)	—	—		8.0	PACE
MW-5		08/01/94	7.69		5.84	—	1.85		9000	—	730	36	61	41	200	(d)	—	—		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<50	—	190	ND<10	31	16	ND<100		—	—		8.3	SPL
MW-5		07/30/96	7.69		5.61	—	2.08		—	—	—	—	—	—	—		—	—		—	—
MW-5		08/12/96	7.69		—	—	—		2000	—	150	12	25	18.2	ND<50		—	—		7.6	SPL
MW-5		11/04/96	7.69		8.25	—	-0.56		—	—	—	—	—	—	—		—	—		—	—
MW-5		11/05/96	7.69		—	—	—		5200	—	42	5.5	13	ND<5.0	1700		—	—		7.4	SPL
MW-5		05/17/97	7.69		6.95	—	0.74		80	—	0.56	ND<1.0	ND<1.0	ND<1.0	46		—	—		6.7	SPL
MW-5		08/11/97	7.69		6.72	—	0.97		2700	—	20	12	6.7	9.7	1900		—	—		8.5	SPL
MW-5		11/17/97	7.69		9.49	—	-1.80		8400	—	25	12	8.7	5.4	13000		—	—		7.9	SPL
MW-5		01/29/98	7.69		7.88	—	-0.19		110000	—	2500	110	180	589	180000		—	—		6.8	SPL

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

ALISTO PROJECT NO. 10-081

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-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	38 (d)	---	---	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	48 (d)	---	---	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
MW-6	07/30/96	8.52	6.44	---	2.08	---	---	---	---	---	---	---	---	---	---	---
MW-6	11/04/96	8.52	8.05	---	0.47	---	---	---	---	---	---	---	---	---	---	---
MW-6	11/05/96	8.52	---	---	---	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	---	7.3	SPL
MW-6	05/17/97	8.52	6.75	---	1.77	---	---	---	---	---	---	---	---	---	---	---
MW-6	08/11/97	8.52	6.48	---	2.04	---	---	---	---	---	---	---	---	---	---	---
MW-6	11/17/97	8.52	9.27	---	-0.75	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	---	7.7	SPL
MW-6	01/29/98	8.52	7.98	---	0.54	---	---	---	---	---	---	---	---	---	---	---
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-7	07/30/96	7.61	6.04	---	1.57	---	---	---	---	---	---	---	---	---	---	---
MW-7	11/04/96	7.61	7.76	---	-0.15	---	---	---	---	---	---	---	---	---	---	---
MW-7	11/05/96	7.61	---	---	---	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	---	7.8	SPL
MW-7	05/17/97	7.61	6.42	---	1.19	---	---	---	---	---	---	---	---	---	---	---
MW-7	08/11/97	7.61	6.06	---	1.55	---	---	---	---	---	---	---	---	---	---	---
MW-7	11/17/97	7.61	9.07	---	-1.46	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	---	7.1	SPL
MW-7	01/29/98	7.61	7.44	---	0.17	---	---	---	---	---	---	---	---	---	---	---
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-8	07/30/96	8.60	6.64	---	1.96	---	---	---	---	---	---	---	---	---	---	---
MW-8	11/04/96	8.60	8.36	---	0.24	---	---	---	---	---	---	---	---	---	---	---
MW-8	11/05/96	8.60	---	---	---	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	---	7.2	SPL
MW-8	05/17/97	8.60	7.03	---	1.57	---	---	---	---	---	---	---	---	---	---	---
MW-8	08/11/97	8.60	6.05	---	2.55	---	---	---	---	---	---	---	---	---	---	---
MW-8	11/17/97	8.60	9.14	---	-0.54	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	---	7.7	SPL
MW-8	01/29/98	8.60	7.90	---	0.70	---	---	---	---	---	---	---	---	---	---	---

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-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	—	—	—	—	—	—	—	—	—	—	—
MW-9		07/30/96	8.08	5.15	—	2.93	—	—	—	—	—	—	—	—	—	—	—
MW-9		11/04/96	8.08	6.75	0.01	1.34	—	—	—	—	—	—	—	—	—	—	—
MW-9		05/17/97	8.08	5.42	—	2.66	—	—	—	—	—	—	—	—	—	—	—
QC-1	(e)	05/17/97	—	—	—	—	97000	—	16000	7700	2300	18400	40000	—	—	7.0	SPL
MW-9		08/11/97	8.08	5.37	—	2.71	97000	—	16000	8200	2300	17300	39000	—	—	—	SPL
QC-1	(e)	08/11/97	—	—	—	—	71000	—	12000	340	2100	4300	26000	—	—	9.1	SPL
MW-9		11/17/97	8.08	5.62	Sheen	2.46	100000	—	14000	360	3200	5790	27000	—	—	—	SPL
QC-1	(e)	11/17/97	—	—	—	—	100000	—	22000	4800	3100	17900	32000	—	—	8.3	SPL
MW-9		01/29/98	8.08	4.07	Sheen	4.01	100000	—	24000	5300	3500	19300	35000	—	—	—	SPL
QC-1	(e)	01/29/98	—	—	—	—	250000	—	20000	21000	3100	18500	110000	—	—	6.6	SPL
							250000	—	20000	20000	3100	18400	110000	—	—	—	SPL
QC-2	(g)	11/05/92	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2	(g)	10/12/93	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2	(g)	02/15/94	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2	(g)	05/11/94	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2	(g)	08/01/94	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2	(g)	10/18/94	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2	(g)	01/13/95	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2	(g)	04/13/95	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<1	—	—	—	—	ATI
QC-2	(g)	07/11/95	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<1	—	—	—	—	ATI
QC-2	(g)	11/02/95	—	—	—	—	ND<50	—	ND<0.50	ND<0.50	ND<0.50	ND<1.0	—	—	—	—	ATI
QC-2	(g)	02/05/96	—	—	—	—	ND<50	—	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	—	—	—	ATI
QC-2	(g)	04/24/96	—	—	—	—	ND<50	—	ND<0.5	ND<1	ND<1	ND<1	ND<10	—	—	—	SPL
QC-2	(g)	07/16/96	—	—	—	—	ND<50	—	ND<0.5	ND<1	ND<1	ND<1	ND<10	—	—	—	SPL
							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) A copy of the documentation for this data is included in Appendix C of Alisto report 10-061-07-004.

(e) Blind duplicate

(f) EPA Methods 8020/8260 used

(g) Travel blank.

F:\0\10-061\10-061GW WQ2

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

N

0 1000' 2000'

FIGURE 1

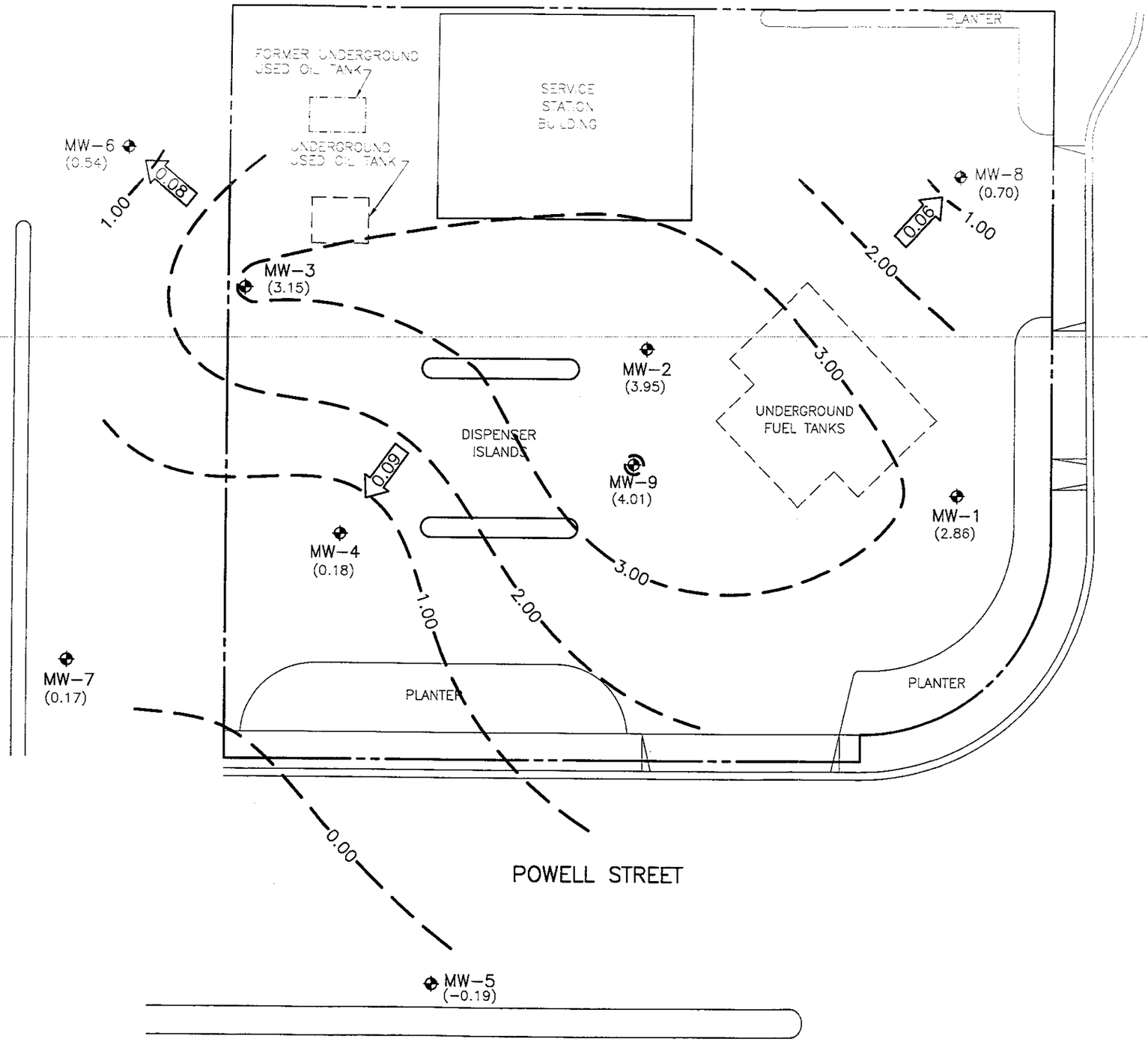
SITE VICINITY MAP

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

PROJECT NO. 10-061

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

100618—DWG 12-30-93 RKW 1=1



N

0 20 40

SCALE IN FEET

LEGEND

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

FIGURE 2

POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP

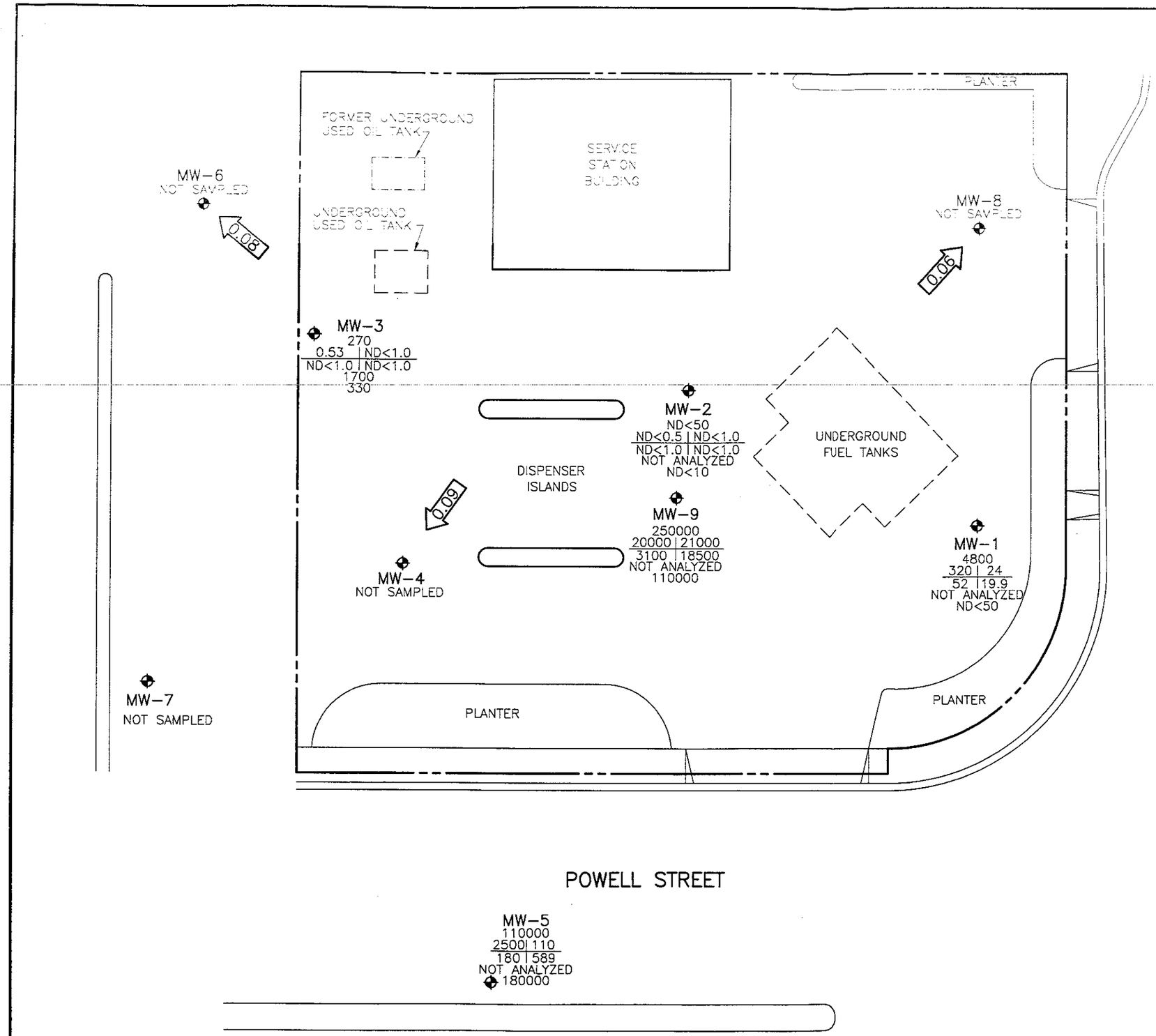
JANUARY 29, 1998

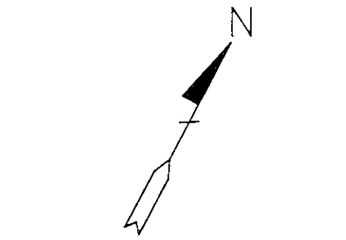
BP OIL SERVICE STATION NO. 11126
1700 POWELL STREET
EMERYVILLE, CALIFORNIA

PROJECT NO. 10–061

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

100610-Y.DWG 2-23-98 RKW 1-20





LEGEND

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

FIGURE 3

CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER

JANUARY 29, 1998

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

PROJECT NO. 10-061

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10061E-Y.DWG 2-23-98 RKW 1=20

APPENDIX A

WATER SAMPLING FIELD SURVEY FORMS

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. 10-061-08-003 Date: 11/29/98
Address 1700 Powell St. Day: M T W TH F
Contract No. H177106 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:
MW-1	S-4	2"	11.62'	4.90	Ø	1110	
MW-2	S-2	2"	11.91'	4.61		1103	
MW-3	S-1	2"	12.08'	5.10		1100	ADDITIONAL ANALYSIS/TPH-D/TOG/HVOC'S
MW-4	NIS	2"	11.06'	7.94		1127	ANNUAL-Do Not Sample
MW-5	S-3	2"	13.70'	7.88		1107	
MW-6	NIS	2"	13.25'	7.98		1111	ANNUAL-Do Not Sample
MW-7	↓	2"	13.72'	7.44		1115	ANNUAL-Do Not Sample
MW-8	↓	2"	13.65'	7.90	↓	1120	ANNUAL-Do Not Sample
MW-9	S-5	4"	13.85'	4.07	irredescence	1115	QC-1 (S-6) From this well

FIELD INSTRUMENT CALIBRATION DATA

pH METER Lcm 4.00 4 7.00 7 10.00 10 TEMPERATURE COMPENSATED (Y) N TIME 1045
D.O. METER Lcm ZERO d.O. SOLUTION _____ BAROMETRIC PRESSURE 760 TEMP _____ WEATHER Cloudy/Rain
CONDUCTIVITY METER Lcm 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	5.10	2"	Replace	Ø	Y (N)	1	1150	60.1	7.42	4.36ms	6.1
						2		61.4	7.20	4.47ms	
						4	1203	61.9	7.12	4.55ms	6.4

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge PurgeVol.
12.08 − 5.10 = 6.98 X .16 = 1.12 X 3 = 3.36
Purge Method: (X)Surface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

(X) EPA 601 _____
(X) TPH-G/BTEX ___
(X) TPH Diesel ____
(X) TOG 5520 ___
TIME/SAMPLE ID
1210

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
MW-2	4.61	2"	Replace	Ø	Y (N)	1	1221	60.0	7.66	.96ms	5.9
						2		61.9	7.53	1.19ms	
						4	1230	61.5	7.46	1.26ms	6.2

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge PurgeVol.
11.91 − 4.61 = 7.30 X .16 = 1.16 X 3 = 3.48
Purge Method: (X)Surface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

O EPA 601 _____
(X) TPH-G/BTEX ___
O TPH Diesel ____
O TOG 5520 ___
TIME/SAMPLE ID
1230

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. 10-061-08-003 Date: 11/29/98
Address 1700 Powell St. Day: M T W (TH) F
Contract No. H177106 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-5	7.88	2"	OK	Ø	Y (N)	1	1257	61.1	7.71	1.62ms	6.3
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			2		61.9	7.47	1.39ms	
13.70 - 7.88 = 5.82 X .16 = .93 X 3 =	2.79					3	1310	62.7	7.50	1.32ms	6.8

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___ O TPH Diesel___ O TOG 5520___
TIME/SAMPLE ID: 1317

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-1	4.90	2"	OK	Ø	Y (N)	1	1326	60.6	7.49	1.33ms	6.6
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			2		62.0	7.30	1.62ms	
11.62 - 4.90 = 6.72 X .16 =	1.08 X 3 = 3.24					4	1340	62.4	7.24	1.71ms	6.6

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___ O TPH Diesel___ O TOG 5520___
TIME/SAMPLE ID: 1341

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-9	4.07	4"	OK	~~Ø~~	Y (N)	7	1410	58.6	7.67	1.69ms	6.1
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			14		60.6	7.44	~~1.86ms~~	
13.85 - 4.07 = 9.78 X .65 =	6.36 X 3 = 19.08					20	1435	60.8	7.31	1.94ms	6.6

Purge Method: (X)Surface Pump O Disp.Tube O Winch O Disp. Bailer(s)___ O Sys Port
Comments: (2c-1)(5-6) from this well

O EPA 601___ (X) TPH-G/BTEX___ O TPH Diesel___ O TOG 5520___
TIME/SAMPLE ID: 1438

* MW-9 Iridescence Removed < .10 gal FP

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD

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

February 12, 1998

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

The following report contains analytical results for the sample(s) received at Southern Petroleum Laboratories (SPL) on February 2, 1998. The sample(s) was assigned to Certificate of Analysis No.(s) 9802011 and analyzed for all parameters as listed on the chain of custody.

For the Halogenated Volatile Organics (8010) analysis, there were no Matrix Spike and Matrix Spike Duplicate recoveries for the compound 2-Chloroethylvinyl ether (Batch ID:HP_F980209222710). This compound degrades with the presence of acid, therefore, no recovery is expected. The sample spiked was not from your batch of samples. A Laboratory Control Sample (LCS) was analyzed as a Quality Control check for the analytical batch and all recoveries were within acceptable limits.

Any data flag or quality control exception associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s).

If you have any questions or comments pertaining to this data report, please do not hesitate to contact me. Please reference the above Certificate of Analysis No. 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

Joel Grice
Project Manager

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

Southern Petroleum Laboratories, Inc.

Certificate of Analysis Number: 98-02-011

Approved for Release by:

Joel Grice, Project Manager Date: 2/12/98

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. H9-9802011-01

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

P.O.# H177106, COC#085844
DATE: 02/12/98

PROJECT: #11126, N/A
SITE: Emeryville,CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-1

PROJECT NO: 10-061-8-3
MATRIX: WATER
DATE SAMPLED: 01/29/98
DATE RECEIVED: 02/02/98

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	330	10 P	µg/L
Benzene	0.53	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	103		
Method 8020A***			
Analyzed by: SB/			
Date: 02/09/98			
Gasoline Range Organics	0.27	0.050 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	73		
4-Bromofluorobenzene	103		
California LUFT Manual for Gasoline			
Analyzed by: SB/			
Date: 02/09/98 12:21:00			
Diesel Range Organics	1.7	0.2 P	mg/L

(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.

COMMENTS: SAMPLE CONTAINS HYDROCARBONS IN THE C12-C24 RANGE. SAMPLE PATTERN IS NOT SIMILAR TO DIESEL STD PATTERN RANGING FROM C10-C24. JDR

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. H9-9802011-01

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

P.O.# H177106, COC#085844
DATE: 02/12/98

PROJECT: #11126, N/A
SITE: Emeryville,CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-1

PROJECT NO: 10-061-8-3
MATRIX: WATER
DATE SAMPLED: 01/29/98
DATE RECEIVED: 02/02/98

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Surrogate	**% Recovery**		
n-Pentacosane	110		
California LUFT Manual for Diesel Analyzed by: RR Date: 02/04/98 07:18:00			
California TPH-D Extraction Method 3510C *** Analyzed by: AM Date: 02/04/98 08:00:00	02/04/98		
Hydrocarbons by Gravimetry Method 5520 B & F ** Analyzed by: FM Date: 02/11/98 10:00:00	2	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.

COMMENTS: SAMPLE CONTAINS HYDROCARBONS IN THE C12-C24 RANGE. SAMPLE PATTERN IS NOT SIMILAR TO DIESEL STD PATTERN RANGING FROM C10-C24. JDR

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. H9-9802011-01

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

P.O.# H177106, COC#085844
02/12/98

PROJECT: #11126, N/A
SITE: Emeryville,CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-1

PROJECT NO: 10-061-8-3
MATRIX: WATER
DATE SAMPLED: 01/29/98
DATE RECEIVED: 02/02/98

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Dichlorodifluoromethane	ND	1.0	µg/L
Chloromethane	ND	1.0	µg/L
Vinyl chloride	ND	1.0	µg/L
Bromomethane	ND	1.0	µg/L
Chloroethane	ND	1.0	µg/L
Trichlorofluoromethane	ND	1.0	µg/L
1,1-Dichloroethene	ND	1.0	µg/L
Methylene chloride	ND	1.0	µg/L
Trans-1,2-Dichloroethene	ND	1.0	µg/L
1,1-Dichloroethane	ND	1.0	µg/L
Chloroform	ND	1.0	µg/L
1,1,1-Trichloroethane	ND	1.0	µg/L
Carbon tetrachloride	ND	1.0	µg/L
1,2-Dichloroethane	ND	1.0	µg/L
2-Chloroethylvinyl ether	ND	1.0	µg/L
Trichloroethene	ND	1.0	µg/L
1,2-Dichloropropane	ND	1.0	µg/L
Bromodichloromethane	ND	1.0	µg/L
cis-1,3-Dichloropropene	ND	1.0	µg/L
trans-1,3-Dichloropropene	ND	1.0	µg/L
1,1,2-Trichloroethane	ND	1.0	µg/L
Tetrachloroethene	ND	1.0	µg/L
Dibromochloromethane	ND	1.0	µg/L
Chlorobenzene	ND	1.0	µg/L
Bromoform	ND	1.0	µg/L
1,1,2,2-Tetrachloroethane	ND	1.0	µg/L
1,3-Dichlorobenzene	ND	1.0	µg/L
1,4-Dichlorobenzene	ND	1.0	µg/L
1,2-Dichlorobenzene	ND	1.0	µg/L

METHOD: 8010, Halogenated Volatile Organics

(continued on next page)

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

Certificate of Analysis No. H9-9802011-01

BP Oil Company

SAMPLE ID: S-1

SURROGATES	**% RECOVERY**
Fluorobenzene	100

ANALYZED BY: WK DATE/TIME: 02/10/98 07:26:00
METHOD: 8010, 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. H9-9802011-02

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

P.O.# H177106, COC#085844
DATE: 02/12/98

PROJECT: #11126, N/A
SITE: Emeryville,CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-2

PROJECT NO: 10-061-8-3
MATRIX: WATER
DATE SAMPLED: 01/29/98
DATE RECEIVED: 02/02/98

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	103		
4-Bromofluorobenzene	100		
Method 8020A***			
Analyzed by: SB/			
Date: 02/09/98			
Gasoline Range Organics	ND	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	73		
4-Bromofluorobenzene	103		
California LUFT Manual for Gasoline			
Analyzed by: SB/			
Date: 02/09/98 02:39:00			

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. H9-9802011-03

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

P.O.# H177106, COC#085844
DATE: 02/12/98

PROJECT: #11126, N/A
SITE: Emeryville,CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-3

PROJECT NO: 10-061-8-3
MATRIX: WATER
DATE SAMPLED: 01/29/98
DATE RECEIVED: 02/02/98

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	180000	10000 P	µg/L
Benzene	2500	25.0 P	µg/L
Toluene	110	50 P	µg/L
Ethylbenzene	180	50 P	µg/L
Total Xylene	589	50 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	100		
4-Bromofluorobenzene	107		
Method 8020A***			
Analyzed by: SB/			
Date: 02/09/98			
Gasoline Range Organics	110	2.50 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	73		
4-Bromofluorobenzene	100		
California LUFT Manual for Gasoline			
Analyzed by: SB/			
Date: 02/09/98 12:49:00			

(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. H9-9802011-04

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

P.O.# H177106, COC#085844
DATE: 02/12/98

PROJECT: #11126, N/A
SITE: Emeryville,CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-4

PROJECT NO: 10-061-8-3
MATRIX: WATER
DATE SAMPLED: 01/29/98
DATE RECEIVED: 02/02/98

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	50 P	µg/L
Benzene	320	2.5 P	µg/L
Toluene	24	5.0 P	µg/L
Ethylbenzene	52	5.0 P	µg/L
Total Xylene	19.9	5.0 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	120		
4-Bromofluorobenzene	100		
Method 8020A***			
Analyzed by: SB/			
Date: 02/10/98			
Gasoline Range Organics	4.8	1.25 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	75		
4-Bromofluorobenzene	93		
California LUFT Manual for Gasoline			
Analyzed by: SB/			
Date: 02/09/98 01:16:00			

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. H9-9802011-05

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

P.O.# H177106, COC#085844
DATE: 02/12/98

PROJECT: #11126, N/A
SITE: Emeryville,CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-5

PROJECT NO: 10-061-8-3
MATRIX: WATER
DATE SAMPLED: 01/29/98
DATE RECEIVED: 02/02/98

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	110000	5000 P	µg/L
Benzene	20000	250 P	µg/L
Toluene	21000	500 P	µg/L
Ethylbenzene	3100	500 P	µg/L
Total Xylene	18500	500 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	100		
4-Bromofluorobenzene	100		
Method 8020A***			
Analyzed by: SB/			
Date: 02/09/98			
Gasoline Range Organics	250	25.0 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	73		
4-Bromofluorobenzene	100		
California LUFT Manual for Gasoline			
Analyzed by: SB/			
Date: 02/09/98 01:44:00			

(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. H9-9802011-06

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

P.O.# H177106, COC#085844
DATE: 02/12/98

PROJECT: #11126, N/A
SITE: Emeryville,CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-6

PROJECT NO: 10-061-8-3
MATRIX: WATER
DATE SAMPLED: 01/29/98
DATE RECEIVED: 02/02/98

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	110000	2500 P	µg/L
Benzene	20000	125 P	µg/L
Toluene	20000	250 P	µg/L
Ethylbenzene	3100	250 P	µg/L
Total Xylene	18400	250 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	107		
4-Bromofluorobenzene	97		
Method 8020A***			
Analyzed by: SB/			
Date: 02/09/98			
Gasoline Range Organics	250	12.5 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	72		
4-Bromofluorobenzene	99		
California LUFT Manual for Gasoline			
Analyzed by: SB/			
Date: 02/09/98 02:11:00			

(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

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

** SPL BATCH QUALITY CONTROL REPORT **
METHOD 8020

Batch Id: HP_0980208094200

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	72 - 128
Benzene	ND	50	52	104	61 - 119
Toluene	ND	50	55	110	65 - 125
EthylBenzene	ND	50	52	104	70 - 118
O Xylene	ND	50	53	106	72 - 117
M & P Xylene	ND	100	110	110	72 - 116

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	2300	20	2300	NC	2400	NC	NC	20	39 - 150
BENZENE	5.2	20	25	99.0	26	104	4.93	21	32 - 164
TOLUENE	ND	20	25	125	25	125	0	20	38 - 159
ETHYL_BENZENE	ND	20	22	110	24	120	8.70	19	52 - 142
O-XYLENE	ND	20	22	110	24	120	8.70	18	53 - 143
M AND P XYLENE	ND	40	44	85.0	48	95.0	11.1	17	53 - 144

Analyst: SB/
Sequence Date: 02/08/98
SPL ID of sample spiked: 9802009-08A
Sample File ID: O_B1241.TX0
Method Blank File ID:
Blank Spike File ID: O_B1233.TX0
Matrix Spike File ID: O_B1236.TX0
Matrix Spike Duplicate File ID: O_B1237.TX0

* = Values outside QC Range due to Matrix Interference (except RPD)
« = 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 (1st Q '97)
(***) = Source: SPL-Houston Historical Data (1ST Q '97)

SAMPLES IN BATCH(SPL ID): 9802009-11A 9802009-12A 9802009-13A 9802011-01A 9802011-03A 9802011-05A 9802011-06A 9802011-02A 9801329-01A 9802009-08A 9802009-07A 9802009-09A 9802009-10A

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8880 INTERCHANGE DRIVE
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PHONE (713) 660-0901

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

Batch Id: HP_0980209042900

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	47	94.0	72 - 128
Benzene	ND	50	51	102	61 - 119
Toluene	ND	50	54	108	65 - 125
Ethyl_Benzene	ND	50	50	100	70 - 118
O-Xylene	ND	50	51	102	72 - 117
M and P Xylene	ND	100	100	100	72 - 116

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	21	105	21	105	0	20	39 - 150
BENZENE	ND	20.00	19	95.0	19	95.0	0	21	32 - 164
TOLUENE	ND	20.0	20	100	21	105	4.88	20	38 - 159
ETHYL_BENZENE	ND	20.0	19	95.0	19	95.0	0	19	52 - 142
O-XYLENE	ND	20.0	20	100	20	100	0	18	53 - 143
M AND P XYLENE	ND	40.0	39	97.5	39	97.5	0	17	53 - 144

Analyst: SB/
Sequence Date: 02/09/98
SPL ID of sample spiked: 9802143-01A
Sample File ID: O_B2008.TX0
Method Blank File ID:
Blank Spike File ID: O_B2002.TX0
Matrix Spike File ID: O_B2004.TX0
Matrix Spike Duplicate File ID: O_B2005.TX0

* = Values outside QC Range due to Matrix Interference (except RPD)
« = 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 (1ST Q '97)
(***) = Source: SPL-Houston Historical Data (1ST Q '97)

SAMPLES IN BATCH(SPL ID): 9802009-10A 9802009-11A 9802009-12A 9802009-13A 9802011-03A 9802011-04A 9802323-01A 9802143-01A 9802327-01A 9802327-01A

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** SPL BATCH QUALITY CONTROL REPORT **

California LUFT Manual for Gasoline

Batch Id: HP_0980208103200

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
Gasoline Range Organics	ND	1.0	1.0	100	64 - 131

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 RANGE ORGANICS	0.27	0.90	0.76	54.4	0.69	46.7	15.2	36	36 - 160

Analyst: SB/

Sequence Date: 02/08/98

SPL ID of sample spiked: 9802011-01A

Sample File ID: OOB1258.TX0

Method Blank File ID:

Blank Spike File ID: OOB1253.TX0

Matrix Spike File ID: OOB1255.TX0

Matrix Spike Duplicate File ID: OOB1256.TX0

* = Values outside QC Range due to Matrix Interference (except RPD)

« = 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 (1st Q '97)

(***) = Source: SPL-Houston Historical Data (1st Q '97)

SAMPLES IN BATCH(SPL ID): 9802011-02A 9802011-01A 9802011-03A 9802011-04A 9802011-05A 9802011-06A

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** SPL BATCH QUALITY CONTROL REPORT **

California LUFT Manual for Diesel

Batch Id: HPTT980204064000

Matrix: 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
Diesel	ND	5.0	4.4	88.0	53 - 148

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	1.7	5.0	6.1	88.0	5.3	72.0	20.0	39	21 - 175

Analyst. RR

Sequence Date: 02/04/98

SPL ID of sample spiked: 9802011-01C

Sample File ID: TTA4090.TX0

Method Blank File ID:

Blank Spike File ID: TTA4089.TX0

Matrix Spike File ID: TTA4091.TX0

Matrix Spike Duplicate File ID: TTA4092.TX0

* = Values outside QC Range due to Matrix Interference (except RPD)

« = 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 Historical Limits (4th Qtr'97)

(***) = Source: SPL Historical Limits (4th Qtr.'97)

SAMPLES IN BATCH(SPL ID): 9802011-01C

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** SPL BATCH QUALITY CONTROL REPORT **
METHOD 8010***

Batch Id: HP_F980209222710

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
Dichlorodifluoromethane	ND	20	7.4	37.0	9 - 168
Chloromethane	ND	20	9.8	49.0	11 - 139
Vinyl chloride	ND	20	13	65.0	51 - 126
Bromomethane	ND	20	14	70.0	34 - 141
Chloroethane	ND	20	16	80.0	27 - 174
Trichlorofluoromethane	ND	20	17	85.0	60 - 140
1,1-Dichloroethene	ND	20	18	90.0	51 - 132
Methylene chloride	ND	20	18	90.0	44 - 151
Trans-1,2-Dichloroethene	ND	20	18	90.0	50 - 155
1,1-Dichloroethane	ND	20	18	90.0	52 - 132
Chloroform	ND	20	18	90.0	75 - 124
1,1,1-Trichloroethane	ND	20	18	90.0	41 - 138
Carbon tetrachloride	ND	20	18	90.0	61 - 124
1,2-Dichloroethane	ND	20	18	90.0	79 - 121
2-Chloroethylvinyl ether	ND	20	17	85.0	38 - 122
Trichloroethene	ND	20	19	95.0	36 - 146
1,2-Dichloropropane	ND	20	17	85.0	44 - 151
Bromodichloromethane	ND	20	18	90.0	65 - 135
cis-1,3-Dichloropropene	ND	20	17	85.0	59 - 149
trans-1,3-Dichloropropene	ND	20	17	85.0	79 - 121
1,1,2-Trichloroethane	ND	20	17	85.0	66 - 129
Tetrachloroethene	ND	20	17	85.0	79 - 121
Dibromochloromethane	ND	20	18	90.0	52 - 148
Chlorobenzene	ND	20	19	95.0	84 - 126
Bromoform	ND	20	17	85.0	48 - 132
1,1,2,2-Tetrachloroethane	ND	20	15	75.0	51 - 151
1,3-Dichlorobenzene	ND	20	17	85.0	75 - 124
1,4-Dichlorobenzene	ND	20	18	90.0	72 - 125
1,2-Dichlorobenzene	ND	20	18	90.0	20 - 190

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	6.2	31.0 *	7.1	35.5 *	13.5	48	36 - 152
CHLOROMETHANE	ND	20	9.3	46.5	9.7	48.5	4.21	29	39 - 175
VINYL CHLORIDE	ND	20	13	65.0	13	65.0	0	44	32 - 156
BROMOMETHANE	ND	20	14	70.0	15	75.0	6.90	52	26 - 180
CHLOROETHANE	ND	20	15	75.0	16	80.0	6.45	42	27 - 174

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** SPL BATCH QUALITY CONTROL REPORT **
METHOD 8010***

Batch Id: HP_F980209222710

Units: µg/L

M A T R I X S P I K E S

S P I K E C O M P O U N D S	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	17	85.0	17	85.0	0	38	36 - 163
1,1-DICHLOROETHENE	ND	20	18	90.0	19	95.0	5.41	42	57 - 140
METHYLENE CHLORIDE	ND	20	19	95.0	19	95.0	0	32	67 - 137
TRANS-1,2-DICHLOROETHENE	ND	20	18	90.0	19	95.0	5.41	31	58 - 154
1,1-DICHLOROETHANE	ND	20	19	95.0	19	95.0	0	50	47 - 132
CHLOROFORM	ND	20	21	105	22	110	4.65	40	53 - 132
1,1,1-TRICHLOROETHANE	ND	20	18	90.0	19	95.0	5.41	27	34 - 135
CARBON TETRACHLORIDE	ND	20	19	95.0	19	95.0	0	32	54 - 111
1,2-DICHLOROETHANE	ND	20	19	95.0	20	100	5.13	50	49 - 155
2-CHLOROETHYLVINYL ETHER	ND	20	0	0 *	0	0 *	0	20	38 - 152
TRICHLOROETHENE	ND	20	18	90.0	19	95.0	5.41	29	30 - 146
1,2-DICHLOROPROPANE	ND	20	18	90.0	19	95.0	5.41	41	44 - 123
BROMODICHLOROMETHANE	ND	20	18	90.0	19	95.0	5.41	38	49 - 179
CIS-1,3-DICHLOROPROPENE	ND	20	17	85.0	18	90.0	5.71	34	38 - 137
TRANS-1,3-DICHLOROPROPENE	ND	20	18	90.0	18	90.0	0	47	38 - 164
1,1,2-TRICHLOROETHANE	ND	20	19	95.0	19	95.0	0	43	45 - 128
TETRACHLOROETHENE	ND	20	16	80.0	17	85.0	6.06	38	17 - 138
DIBROMOCHLOROMETHANE	ND	20	18	90.0	19	95.0	5.41	41	38 - 162
CHLOROBENZENE	ND	20	18	90.0	18	90.0	0	50	58 - 122
BROMOFORM	ND	20	18	90.0	19	95.0	5.41	49	31 - 174
1,1,2,2-TETRACHLOROETHANE	ND	20	20	100	20	100	0	50	21 - 181
1,3-DICHLOROBENZENE	ND	20	17	85.0	18	90.0	5.71	36	24 - 151
1,4-DICHLOROBENZENE	ND	20	18	90.0	18	90.0	0	12	46 - 150
1,2-DICHLOROBENZENE	ND	20	19	95.0	18	90.0	5.41	12	44 - 153

Analyst: WK
Sequence Date: 02/09/98
SPL ID of sample spiked: 9802098-11A
Sample File ID: FFB2018.TX0
Method Blank File ID:
Blank Spike File ID: FFB2013.TX0
Matrix Spike File ID: FFB2014.TX0
Matrix Spike Duplicate File ID: FFB2015.TX0

* = Values outside QC Range due to Matrix Interference (except RPD)
« = 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 Limits (1st Q '97)
(***) = Source: SPL-Houston Historicals 1st Quarter'97

SAMPLES IN BATCH(SPL ID): 9802332-02A 9802332-03A 9802332-04A 9802332-01A 9802332-05A 9802011-01B

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** SPL QUALITY CONTROL REPORT **

Matrix: Aqueous

Reported on: 02/11/98
Analyzed on: 02/11/98
Analyst: FM

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	Method Blank mg/L	Sample Result mg/L	Spike Added mg/L	Matrix Spike Result mg/L	Matrix Spike Recovery %	Matrix Spike Duplicate Result mg/L	Matrix Spike Duplicate Recovery %	RPD (%)	QC LIMITS (Advisory) RPD Max	QC LIMITS (Advisory) % REC
BLANK	ND	ND	40	37	92.5	38	95.0	2.7	7.9	84 -108

980211FM -9802495

Samples in batch:

9802011-01D 9802133-01D 9802138-01D 9802141-02E
9802148-02E 9802229-03E 9802232-01E 9802438-02E

COMMENTS:

CHAIN OF CUSTODY

AND

SAMPLE RECEIPT CHECKLIST

SPL Houston Environmental Laboratory

Sample Login Checklist

Date: 2/02/98	Time: 1040

SPL Sample ID: 9802011

			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 #)	384847228 3	
		Other:		
11	Method of sample disposal:	SPL Disposal	✓	
		HOLD		
		Return to Client		

Name: Ruben Ortiz	Date: 2/02/98

9802011

CHAIN OF CUSTODY

No. 085844

Page 1 of 1

CONSULTANT'S NAME: Alisto Engineering	CONSULTANT'S ADDRESS: 1575 Treat Blvd #201 W.C. Ca 94598		
BP SITE NUMBER: 11126	BP SITE / FACILITY ADDRESS: Emeryville, Ca		CONSULTANT PROJECT NUMBER: 10-061-8-3
CONSULTANT PROJECT MANGER: Brady Nagle	PHONE NUMBER: (510) 295-1650	FAX NUMBER: 295-1823	CONSULTANT CONTRACT NUMBER: H177106
BP CONTACT: Scott Hooton	BP ADDRESS: Renton, WA	PHONE NUMBER: —	FAX NO.: —
LAB CONTACT: SPL	LABORATORY ADDRESS: Texas	PHONE NUMBER: —	FAX NO.: —
BP CONTACT REQUESTING RUSH TAT (Print BP Contact Name)	RUSH REQUESTED OF (Print Consultant Contact Name) / DATE/TIME	SHIPMENT DATE: 1-30-98	SHIPMENT METHOD: Fed Ex

TAT: ☐ 24 Hours ☐ 48 Hours ☐ 72 Hours ☒ Standard 7 or 14 Days

AIRBILL NUMBER: 3848472283

ANALYSIS REQUIRED

SAMPLE DESCRIPTION	COLLECTION DATE	COLLECTION TIME	MATRIX SOIL/WATER	CONTAINERS NO	CONTAINERS TYPE (VOL)	PRESERVATIVE LAB SAMPLE #	TPH-G/BTEX	MTBE	HVOCs	TPH-D	TOG (5520)						COMMENTS
S-1	1/29/98		W	10	*		X	X	X	X	X						* 2 HCL Pres Liters HCL Pres. VOAS ~~Various Pressure~~ 2 unpres. Liters
S-2	↓		↓	3	HCL		↓	↓									
S-3	↓		↓	↓	↓		↓	↓									
S-4	↓		↓	↓	↓		↓	↓									
S-5	↓		↓	↓	↓		↓	↓									
S-6	↓		↓	↓	↓		↓	↓									
																	intact ROT 4°C

SAMPLED BY (Please Print Name)

SAMPLED BY (Signature)

ADDITIONAL COMMENTS

RELINQUISHED BY / AFFILIATION (Print Name / Signature)	DATE	TIME	ACCEPTED BY /AFFILIATION (Print Name / Signature)	DATE	TIME
[signature]	1/30/98		Patricia Yelton	1/30/98	
P Yelton	1/30/98		[signature]	2/02/98	1000

CLV-16722-A (8/96)
PKG/50

DISTRIBUTION: WHITE - ORIGINAL (WITH DATA) YELLOW - BP PINK - LAB BLUE - CONSULTANT FIELD STAFF

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

BP Site Number:	11126
ERM Contact:	H177106
Sampling Date:	1/29/98
Matrix Description:	Water
Date Final Report Received:	2/17/98
Laboratory & Location:	SPL, Houston, Texas

		Yes	No	N/A
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 (i.e., trip or equipment)?	____	____	_X_
6.	Are duplicate water samples within 30%?	_X_	____	____
7.	Are holding times met?	_X_	____	____
8.	Are surrogates within limits using laboratory criteria?	_X_	____	____
9.	Are MS/MSD acceptable using laboratory criteria?	See Below	____	____
10.	Are LCS results acceptable using laboratory criteria?	_X_	____	____

MS/MSD recovery and relative % difference for one of two matrix spikes for MTBE not calculated due to sample exceeding spike by a factor of 4 or more. MS/MSD limits are advisory only; as stated in SW-846, Section 8.7 to 8.8, if the MS/MSD results fall outside the advisable ranges, a laboratory control samples (LCS) must be analyzed and fall within those ranges. LCS results are within quality control limits.

Data Validation Completed by: Brady Nagle

(signature): Brady Nagle

Date: 3/12/98