S.[illegible]oton
Te[illegible]eader
Environmental Remediation Management

BP Exploration & Oil Inc.
295 SW 41st Street, Bldg., 13, STE N
Renton, WA 98055-4931
Phone: 425-251-0689
Fax: 425-251-0736

BP OIL

March 2, 2000

Washington Department of Ecology
Attention Ms. Lynn Gooding
PO Box 47775
Olympia, WA 98504

RE: Former BP Oil Site No. 11085
728 Meridian Street East
Puyallup, WA

Dear Ms. Gooding:

This transmits the 24 September 1999 *Groundwater Monitoring and Sampling Report* prepared by Alisto Engineering Group on behalf of BP. The report summarizes analytical data obtained from monitoring wells beginning in 1992, and includes results associated with samples collected on 30 June 1999.

You will note that aromatic petroleum hydrocarbons were detected in samples obtained from four of the six wells sampled on 30 June 1999. The highest benzene concentration (140 ug/l) was detected in a sample obtained from well MW-3, located in the backfill for the former location of underground storage tanks.

Please give me a call at (425) 251-0689 if you have questions.

Sincerely,

Scott Hooton

attachment

cc: site file
Tim Johnson - Tosco
Tacoma Pierce County Health Department, Attention Brad Harp, 3629 South D Street, Tacoma, WA 98408 (w/attachment)

GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11085
728 Meridian Street E.
Puyallup, Washington

Project No. 20-45-02-002

Prepared for:

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

Prepared by:

Alisto Engineering Group
1145 - 12th Avenue NW, Suite C-4A
Issaquah, Washington

September 24, 1999

Bill Dougherty
Project Engineer

Dave Cooper, P.G.
Supervising Geologist

GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11085
728 Meridian Street E.
Puyallup, Washington

Project No. 20-45-02-002

September 24, 1999

INTRODUCTION

This report presents the results and findings of the June 30, 1999 groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Company Service Station No. 11085, 728 Meridian Street E, Puyallup, Washington. A site vicinity map is shown on Figure 1.

FIELD PROCEDURES

Field activities were performed in accordance with the procedures and guidelines of the Washington State Department of Ecology.

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 an arbitrary datum. 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, decontaminated bailer to just below the water level in the well. The samples were transferred from the bailer into laboratory-supplied containers and immediately placed in a chilled cooler for transport. The field report and sampling data sheets 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 calculated 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. 11085
728 MERIDIAN STREET EAST, PUYALLUP, WASHINGTON

ALISTO PROJECT NO. 20-045

WELL ID		DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	PRODUCT THICKNESS (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (Feet) (a)	WTPH-D (ug/l)	WTPH-G (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethyl-Benzene (ug/l)	Total Xylenes (ug/l)	MTBE (ug/l)	Total Lead (ug/l)	PCE (b) (ug/l)	TCE (b) (ug/l)	1,2-DCE (b) (ug/l)	Vinyl Chloride (ug/l)	Dissolved Oxygen (%-ppm)	Lab
MW-1		4/2/92	350.90	0	4.84	346.06	269	190	4.5	<1.0	<1.0	<1.0	---	2.8	57	5.4	---	<1.0	---	---
MW-1		5/7/92		0	4.75	346.15	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-1		6/9/92		0	5.25	345.65	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-1		7/20/94		0	5.65	345.25	<250	<100	16	<0.5	<0.5	<0.5	---	---	---	---	---	---	---	---
MW-1		11/1/94		0	6.46	344.44	---	130	100	1.4	2.1	6.2	---	---	---	---	---	---	7	---
MW-1		1/11/95		0	4.96	345.94	---	---	---	---	---	---	---	---	---	---	---	---	9	---
MW-1		4/12/95		0	4.06	346.84	---	270	100	2.4	2.4	3.7	---	---	---	---	---	---	---	---
MW-1		7/11/95		0	5.08	345.82	---	130	36	<0.5	1.7	1.2	---	---	---	---	---	---	9	---
MW-1		10/2/95		0	5.98	344.92	---	240	27	0.61	2.2	<0.5	---	---	---	---	---	---	10	---
MW-1		1/5/96		0	4.36	346.54	---	140	43	<0.5	<0.5	<0.5	---	---	---	---	---	---	8	---
MW-1		3/29/96		0	3.35	347.55	---	300	180	<0.5	2.7	13	---	---	---	---	---	---	3	---
MW-1		7/15/96		0	4.40	346.50	---	200	58	0.5	8.1	0.6	---	---	29	23	---	<1.0	5	---
MW-1		10/16/96		0	5.79	345.11	---	200	42	<0.5	9.2	<0.5	5.3	---	43	26	---	<1.0	6	---
MW-1		1/3/97		0	2.65	348.25	---	310	57	0.5	<0.5	2.3	<10	---	20	22	---	<1.0	3	---
MW-1		4/25/97		0	3.33	347.57	---	280	110	0.5	8.9	1.7	<5	---	49	37	---	<0.5	3	---
MW-1		7/2/97		0	4.31	346.59	---	230	18	<0.5	3.4	<1.5	<5	---	16	50	---	<2	6%	---
MW-1		9/25/97		0	5.46	345.44	---	140	27	1.1	4.4	<1.5	<5	---	54	86	---	<10	---	---
MW-1		3/19/98		0	4.22	346.68	---	160	72	0.51	0.56	<1.5	<2	---	87	33	---	<2	0.6ppm	AEN
MW-1		6/18/98		0	5.19	345.71	---	120	19	0.62	1.4	<1.5	6.4	---	73	<1.0	---	<2.0	0.5ppm	AEN
MW-1		12/17/98		0	5.37	345.53	---	<100	<1.0	<1.0	<1.0	<1.0	<1.0	---	29	26	<1.0	<1.0	---	SPL
MW-1		6/30/99		0	4.33	346.57	---	<100	12	<1.0	1.9	<1.0	<1.0	---	---	---	---	---	---	SPL
MW-2		4/2/92	352.23	0	5.12	347.11	340	1700	100	260	30	230	---	3.6	48	7.4	---	<1.0	---	---
MW-2		5/7/92		0	5.11	347.12	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2		6/9/92		0	5.59	346.64	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	(c)	7/20/94		0.08	6.05	346.24	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	(c)	11/1/94		0.1	8.01	344.30	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	(c)	1/11/95		Sheen	5.19	347.04	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	(c)	4/12/95		<.01	6.48	345.75	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	(c)	7/11/95		<.01	5.61	346.62	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	(c)	10/2/95		0.01	6.53	345.71	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	(c)	1/5/96		0.01	4.65	347.59	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	(c)	3/29/96	352.04	Sheen	3.52	348.52	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	(c)	7/15/96		<.01	4.44	347.60	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	(c)	10/16/96		Sheen	6.92	345.12	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	(c)	1/3/97		sheen	3.02	349.02	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	(c)(d)	4/25/97		sheen	3.60	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	(c)(d)	7/2/97		sheen	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	(c)(d)	9/25/97		sheen	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	(d)	3/19/98		sheen	4.50	---	---	37000	70	1600	600	3900	<2	---	130	6.3	---	<2	---	AEN
MW-2	(c)(d)	6/18/98		sheen	5.20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	(d)	12/17/98		<0.01	5.80	---	---	74000	56	2800	1500	8900	<25	---	<100	<100	<100	<100	---	SPL
MW-2	(d)	6/30/99		Sheen	4.50	---	---	15000	46	940	400	2500	<25	---	---	---	---	---	---	SPL
MW-3		4/2/92	350.50	0	6.31	344.19	450	870	190	8.0	74	100	---	2.4	8.2	2.7	---	12	---	---
MW-3		5/7/92		0	6.20	344.30	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-3		6/9/92		0	6.56	343.94	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-3		7/20/94		0	6.73	343.77	730	1400	200	9.1	130	120	---	---	---	---	---	---	---	---
MW-3		11/1/94		0	7.12	343.38	---	1800	160	6.9	150	100	---	---	---	---	---	---	18	---
MW-3		1/11/95		0	6.34	344.16	---	---	---	---	---	---	---	---	---	---	---	---	23	---
MW-3		4/12/95		0	5.74	344.76	---	5300	560	81	390	440	---	---	---	---	---	---	---	---
MW-3		7/11/95		0	6.18	344.32	---	4700	610	35	420	410	---	---	---	---	---	---	8	---
MW-3		10/2/95		0	6.68	343.82	---	3700	480	9.1	310	250	---	---	---	---	---	---	6	---
MW-3		1/5/96		0.01	5.78	344.73	---	5000	520	11	470	420	---	---	---	---	---	---	4	---
MW-3		3/29/96		0	5.36	345.14	---	3100	430	13	430	290	---	---	---	---	---	---	3	---
MW-3		7/15/96		0	5.78	344.72	---	3300	420	7.8	400	250	---	---	3.8	0.6	---	10	4	---
MW-3		10/16/96		0	6.54	343.96	---	3700	300	8.4	300	190	31	---	1	0.2	---	12	7	---
MW-3		1/3/97		0	4.81	345.59	---	2600	220	16	210	180	<10	---	14	1.7	---	9.5	3	---
MW-3		4/25/97		0	5.19	345.31	---	4100	290	20	340	230	<50	---	4.1	0.4	---	20	3	---
MW-3		7/2/97		0	5.58	344.92	---	5000	340	23	470	350	58	---	<10	<10	---	<20	5%	---
MW-3		9/25/97		0	6.28	344.22	---	3800	240	15	350	230	<100	---	7.9	<1	---	37	---	---
MW-3		3/19/98		0	5.70	344.80	---	3600	210	13	440	180	<2	---	8.6	1.2	---	15	0.5ppm	AEN
MW-3		6/18/98		0	6.31	344.19	---	5200	180	18	400	320	52	---	3.9	<1.0	---	<2.0	0.6ppm	AEN
MW-3		12/17/98		0	6.39	344.11	---	4300	110	18	380	260	2.2	---	7.1	<5.0	<5.0	6.9	---	SPL
MW-3		6/30/99		0	5.75	344.75	---	4700	140	17	460	330	<1.0	---	---	---	---	---	---	SPL

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
BP OIL COMPANY SERVICE STATION NO. 11085
728 MERIDIAN STREET EAST, PUYALLUP, WASHINGTON

ALISTO PROJECT NO. 20-045

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	PRODUCT THICKNESS (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (Feet) (a)	WTPH-D (ug/l)	WTPH-G (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethyl-Benzene (ug/l)	Total Xylenes (ug/l)	MTBE (ug/l)	Total Lead (ug/l)	PCE (ug/l) (b)	TCE (ug/l) (b)	1,2-DCE (ug/l) (b)	Vinyl Chloride (ug/l)	Dissolved Oxygen (%-ppm)	Lab
MW-4	10/16/96	355.01	0	8.54	346.47	---	100	<1.0	<0.5	<0.5	<0.5	<1.0	---	200	6.6	---	<1	25	---
MW-4	1/3/97		0	5.41	349.60	---	<100	<0.5	<0.5	<0.5	<0.5	<10	---	110	1.8	---	<1	56	---
MW-4	4/25/97		0	5.88	349.13	---	<100	<0.5	<0.5	<0.5	<0.5	<5	---	520	9.4	---	<0.5	25	---
MW-4	6/2/97		0	6.75	348.26	---	260	<0.5	<0.5	<0.5	<1.5	<5	---	550	7.6	---	<2	22%	---
MW-4	9/25/97		0	7.81	347.20	---	190	<0.5	<0.5	<0.5	<1.5	<5	---	420	5.9	---	<2	---	---
MW-4	3/19/98		0	6.60	348.41	---	<100	<0.5	<0.5	<0.5	<1.5	<2	---	190	3.4	---	<2	8.1ppm	---
MW-4	6/18/98		0	7.58	347.43	---	<100	<0.5	<0.5	<0.5	<1.5	<5.0	---	200	3.8	---	<2.0	7.5ppm	AEN
MW-4	12/17/98		0	8.29	346.72	---	<100	<1.0	<1.0	<1.0	<1.0	<1.0	---	110	2.4	<1.0	<1.0	---	SPL
MW-4	6/30/99		0	7.09	347.92	---	<100	<1.0	<1.0	<1.0	<1.0	<1.0	---	---	---	---	---	---	SPL

MW-5	7/2/97	348.18	0	5.18	343.00	---	4300	32	<5.0	35	57	<50	---	<1.0	<1.0	---	<2	7%	---
MW-5	9/25/97		0	6.13	342.05	---	2600	60	32	21	26	<50	---	<1	<1	---	<2	---	---
MW-5	3/19/98		0	5.18	343.00	---	2000	22	19	10	21	<2	---	<1	<1	---	<2	0.7ppm	---
MW-5	6/18/98		0	5.77	342.41	---	2300	42	19	9.4	24	42	---	73	36	---	<2.0	0.6ppm	---
MW-5	12/17/98		0	5.65	342.53	---	2200	<5.0	<5.0	25	15	<5.0	---	<1.0	<1.0	2.7	<1.0	---	SPL
MW-5	6/30/99		0	5.30	342.88	---	990	32	1.1	6.5	5.1	<1.0	---	---	---	---	---	---	SPL

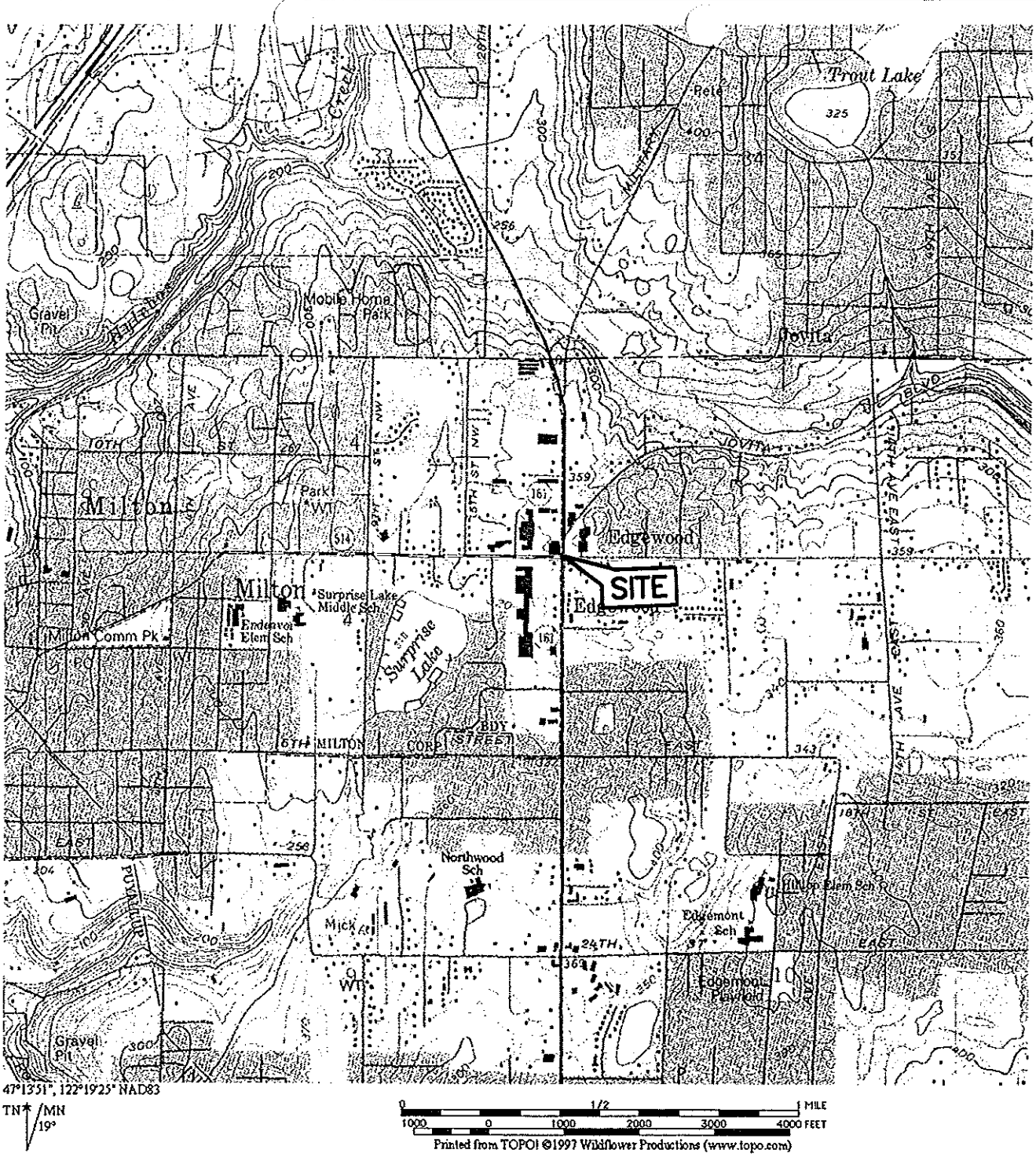
MW-7	7/2/97	341.03	0	6.15	334.88	---	<100	<0.5	<0.5	<0.5	<1.5	<5	---	66	2.6	---	<2	25%	---
MW-7	9/25/97		0	6.19	334.84	---	<100	<0.5	<0.5	<0.5	<1.5	<5	---	49	2.4	---	<2	---	---
MW-7	3/19/98		0	6.03	335.00	---	<100	<0.5	<0.5	<0.5	<1.5	<2	---	25	1.8	---	<2	6.5ppm	AEN
MW-7	6/18/98		0	6.14	334.89	---	<100	<0.5	<0.5	<0.5	<1.5	<5.0	---	21	1.6	---	<2.0	6.3ppm	AEN
MW-7	12/17/98		0	6.15	334.88	---	<100	<1.0	<1.0	<1.0	<1.0	<1.0	---	15	1.1	<1.0	<1.0	---	SPL
MW-7	6/30/99		0	6.03	335.00	---	<100	<1.0	<1.0	<1.0	<1.0	<1.0	---	---	---	---	---	---	SPL
TW-6	4/15/94	---	0	5.07	---	61	15	1.3	<0.5	<0.5	<0.5	---	---	---	---	---	---	---	---
TW-6	7/20/94		0	5.76	---	<250	<100	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	23	---
TW-6	11/1/94	349.69	0	6.12	343.57	---	<100	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	8	---
TW-6	1/11/95		0	5.49	344.20	---	---	---	---	---	---	---	---	---	---	---	---	---	---
TW-6	4/12/95		0	4.95	344.74	---	510	48	4	10	16	---	---	---	---	---	---	8	---
TW-6	7/11/95		0	5.30	344.39	---	140	5	0.58	4.3	7.5	---	---	---	---	---	---	9	---
TW-6	10/2/95		0	5.74	343.95	---	<100	1.2	<0.5	<0.5	<0.5	---	---	---	---	---	---	4	---
TW-6	1/5/96		0	4.92	344.77	---	<100	2	<0.5	<0.5	<0.5	---	---	---	---	---	---	4	---
TW-6	3/29/96		0	4.60	345.09	---	200	3.1	1.6	1.4	6.3	---	---	---	---	---	---	5	---
TW-6	7/15/96		0	4.90	344.79	---	200	2.7	2.5	2	8	---	---	85	5.1	---	<1.0	7	---
TW-6	10/16/96		0	5.50	344.19	---	<100	<1.0	<0.5	<0.5	<0.5	<1.0	---	63	4.4	---	<1.0	6	---
TW-6	1/3/97		0	4.05	345.64	---	230	7.2	6.6	4.6	21	<10	---	60	4.5	---	<1	5	---
TW-6	4/25/97		0	4.39	345.30	---	480	13	20	13	60	<5	---	170	8.2	---	<0.5	4	---
TW-6	7/2/97		0	4.69	345.00	---	<100	<0.5	<0.5	<0.5	<1.5	<5	---	220	6.7	---	<2	4%	---
TW-6	9/25/97		0	5.24	344.45	---	<100	<0.5	0.7	<0.5	<1.5	<5	---	170	5	---	<2	---	---
TW-6	3/19/98		0	4.81	344.88	---	130	3	4.2	2.8	12	<2	---	130	5.3	---	<2	1.7ppm	AEN
TW-6	6/18/98		0	5.15	344.54	---	<100	1.5	2.4	1.8	7.8	<5.0	---	100	<1.0	---	<2.0	3.2ppm	AEN
TW-6	12/17/98		0	5.59	344.10	---	<100	<1.0	<1.0	<1.0	<1.0	<1.0	---	37	3.0	<1.0	<1.0	---	SPL
TW-6	6/30/99		0	4.72	344.97	---	<100	1.1	2.1	1.7	7.6	<1.0	---	---	---	---	---	---	SPL
TB (e)	6/18/98	---	---	---	---	---	<100	<0.5	<0.5	<0.5	<1.5	<5.0	---	<1.0	<1.0	---	<2.0	---	AEN
TB (e)	12/17/98	---	---	---	---	---	<100	<1.0	<1.0	<1.0	<1.0	<1.0	---	<1.0	<1.0	<1.0	<1.0	---	SPL

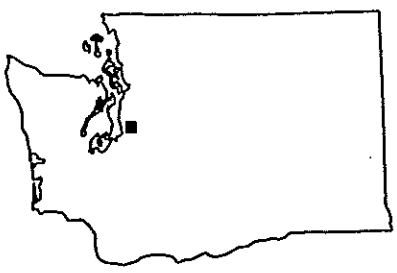
ABBREVIATIONS:

WTPH-D	Washington Total Petroleum Hydrocarbons as Diesel, Ecology Method
WTPH-G	Washington Total Petroleum Hydrocarbons as Gasoline, Ecology Method
BTEX	Benzene, Toluene, Ethyl-benzene, total Xylenes by EPA Method 8020
MTBE	Methyl-Tert-Butyl-Ether by EPA Method 8015M
Lead	Total and dissolved lead by EPA Method 7421.
PCE	Tetrachloroethene
TCE	Trichloroethene
1,2-DCE	1,2-Dichlorobenzene
ug/l	Micrograms per liter
ppm	Parts per million
---	Not applicable/analyzed/measured
<	Concentrations preceded by a "<" are laboratory method detection limits. The method detection limit may vary depending on the laboratory used and sample characteristics.
AEN	American Environmental Network, Inc.

NOTES:

(a) Groundwater elevation established relative to an arbitrary datum of 100.00 feet. Groundwater elevation is corrected for the effects of LPH using the following formula: TOC - [DTW - (PT)(0.80)] were TOC=Top of Casing, DTW=Depth to Water, PT=Product Thickness, and 0.80=Typical Specific Gravity for Gasoline.
(b) Significant results shown in summary. For additional VOC details see analytical report from lab.
(c) Not sampled or monitored, product present
(d) Sorbent tube in place
(e) Trip blank.





QUADRANGLE LOCATION

FIGURE 1

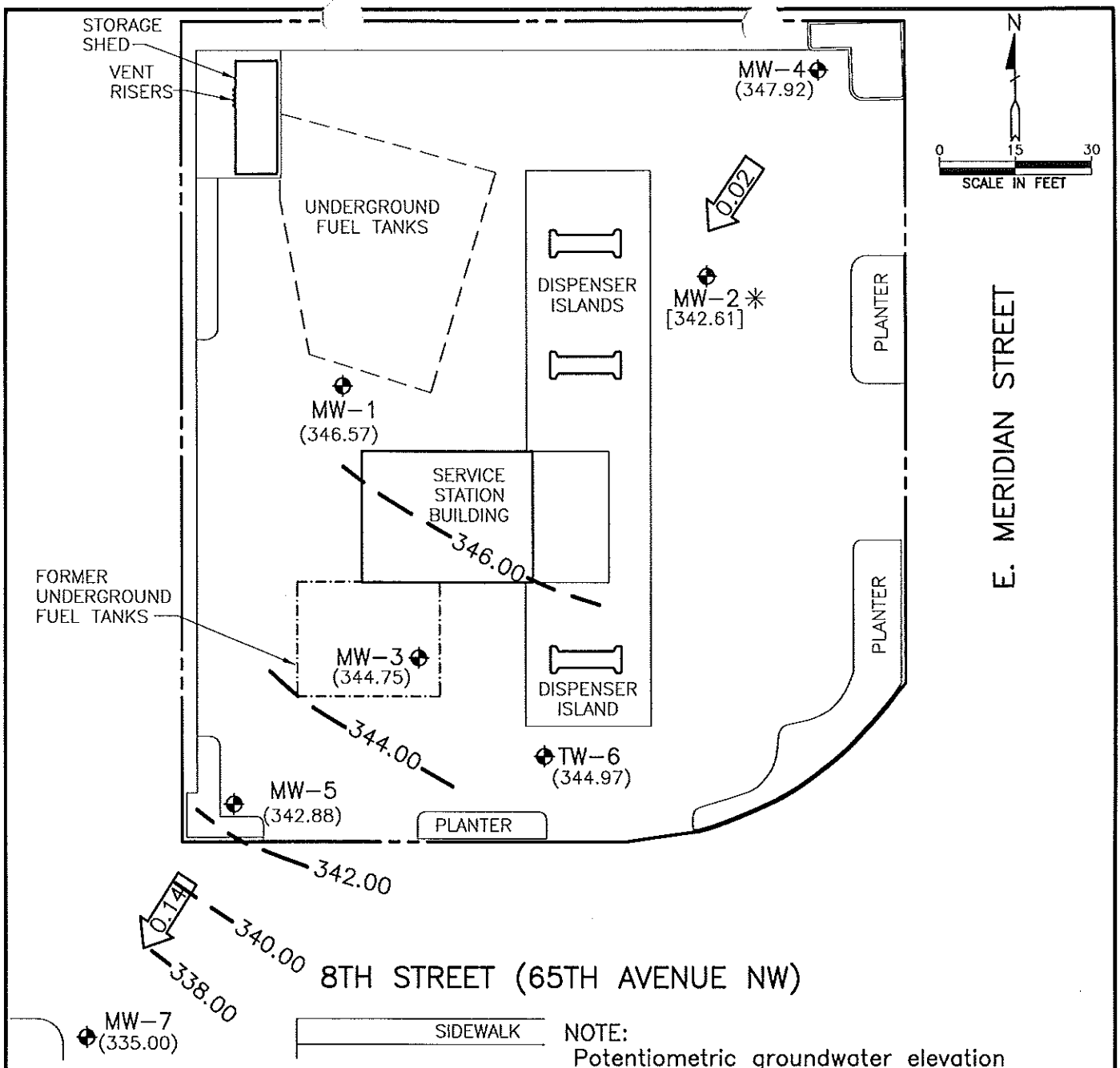
SITE VICINITY MAP

BP OIL SERVICE STATION NO. 11085
728 E. MERIDIAN STREET
MILTON, WASHINGTON

PROJECT NO. 20-045

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

20045B-----.DWG 3-4-98 RKW 1=1



NOTE:
Potentiometric groundwater elevation contours were generated with Quicksurf using the Kriging method with a spherical variogram on a triangulated grid surface.

LEGEND

◆	GROUNDWATER MONITORING WELL
(335.00)	GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
346.00	GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL–2.00 FEET)
0.02	CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT
[342.61]	GROUNDWATER ELEVATION NOT USED IN PREPARING CONTOURS
*	SORBENT TUBE IN PLACE

FIGURE 2

POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP

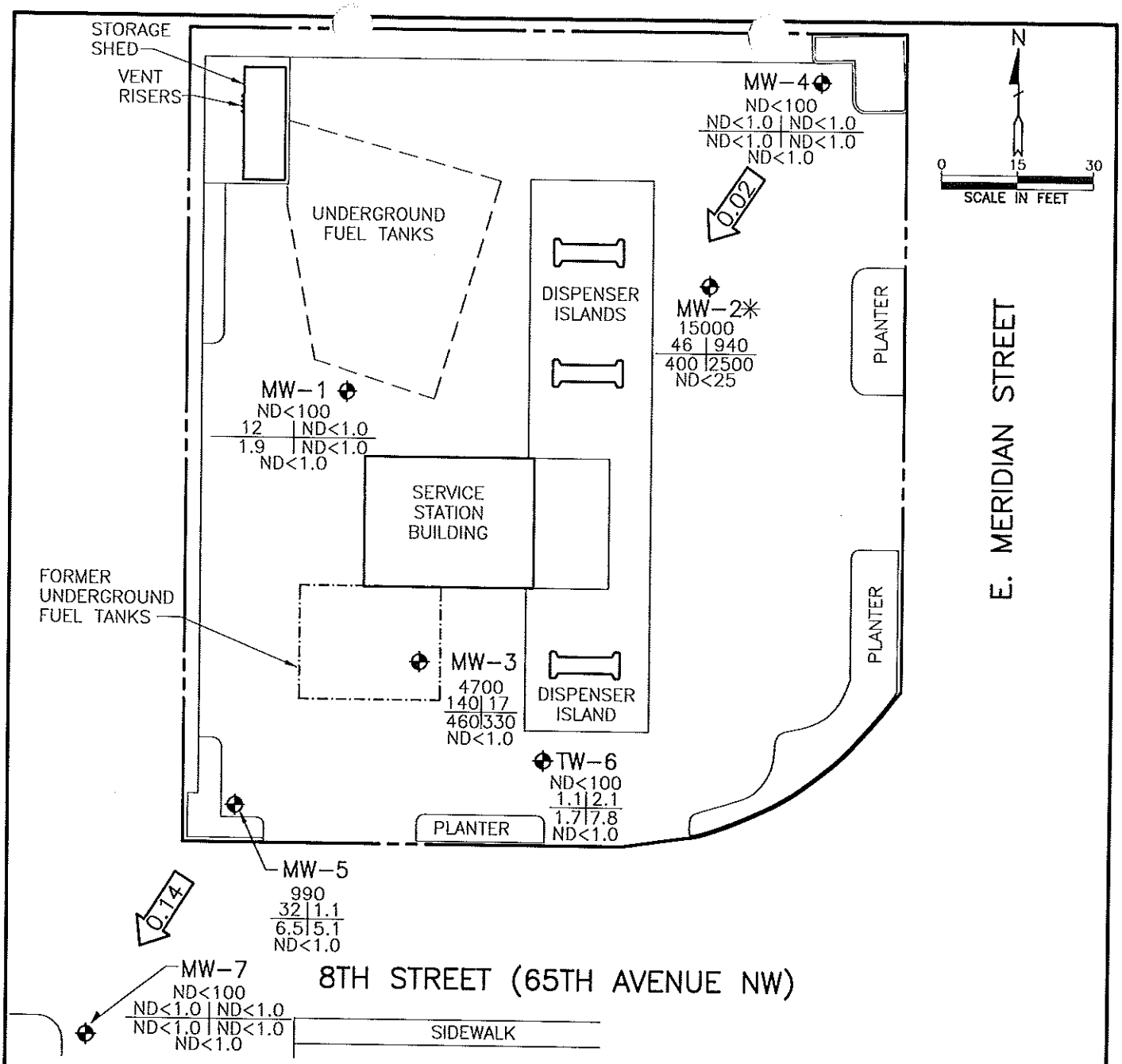
JUNE 30, 1999

BP OIL SERVICE STATION 11085
728 E. MERIDIAN STREET
MILTON, WASHINGTON

PROJECT NO. 20–045

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

20045D-4.DWG 8-17-99 JRW 1=30



LEGEND

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

FIGURE 3

CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER

JUNE 30, 1999

BP OIL SERVICE STATION 11085
728 E. MERIDIAN STREET
MILTON, WASHINGTON

PROJECT NO. 20-045

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

20045E-4.DWG 8-17-99 JRW 1=30

APPENDIX A

FIELD REPORT / SAMPLING DATA SHEETS

ALISTO ENGINEERING GROUP

1145 - 12th AVENUE NW, SUITE C-4A
ISSAQUAH, WA 98027, (425) 837-3944, fax 837-8543

Field Report / Sampling Data Sheet

Station No: 11085 Date: 6-30-99
Project No.: 200045-02-02 Day: S/M T/W/TH F SA
Address: 8th + Meridian City: Puyallup
Contract No.: 064843 Sampler: JC

DEPTH TO GROUNDWATER SUMMARY

WELL ID	DEPTH TO WATER	PRODUCT THICKNESS	LEVEL TIME	WELL ID	DEPTH TO WATER	PRODUCT THICKNESS	LEVEL TIME	WELL ID	DEPTH TO WATER	PRODUCT THICKNESS	LEVEL TIME
MW-7	6.03	—	3:45	MW-2	4.50	SHEEN	6:00				
MW-1	4.33	—	4:15								
MW-6	4.72	—	4:40								
MW-4	7.09	—	5:00								
MW-5	5.30	—	5:20								
MW-3	5.75		5:40								

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-7	6.03	2	✓	—	Y (N)	6	3:45				

Tot. Depth - Water Level= 18.7 x Well Vol. Factor= x#vol. to Purge= 6 PurgeVol.
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments: Very sandy - silty. Developed ?

⊗ TPH-G/BTEX___ ⊗ MTBE___ O TPH Diesel___ O ___
TIME/SAMPLE ID: 4:00

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-1	4.33	4	✓	—	Y (N)	28	4:15				

Tot. Depth - Water Level= 18.2 x Well Vol. Factor= x#vol. to Purge= 28 PurgeVol.
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

⊗ TPH-G/BTEX___ ⊗ MTBE___ O TPH Diesel___ O ___
TIME/SAMPLE ID: 4:30

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
TW-6	4.72	2	✓	—	Y (N)	7.5	4:40				

Tot. Depth - Water Level= 18.3 x Well Vol. Factor= x#vol. to Purge= 7.5 PurgeVol.
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

⊗ TPH-G/BTEX___ ⊗ MTBE___ O TPH Diesel___ O ___
TIME/SAMPLE ID: 4:50

FIELD INSTRUMENT CALIBRATION DATA

pH METER ___ 4.00 ___ 7.00 ___ 10.00 ___ TEMPERATURE COMPENSATED Y N TIME___
D.O. METER ___ ZERO d.O. SOLUTION___ BAROMETRIC PRESSURE ___ TEMP ___ WEATHER___
CONDUCTIVITY METER ___ 10,000 ___ TURBIDITY METER ___ 5.0 NTU ___ OTHER ___
LEAK DETECTOR : ___ ALARM MODE ___ NON ALARM MODE

ALISTO

Field Report / Sampling Data Sheet

ENGINEERING GROUP
1145 - 12th AVENUE NW, SUITE C-4A
ISSAQUAH, WA 98027, (425) 837-3944, fax 837-8543

Station No: 11085 **Date:** 6-30-99
Project No.: **Day:** S M T (W) TH F SA
Address: **City:** Puyallup
Contract No.: **Sampler:** JC

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.	TIME/SAMPLE ID
MW-4	7.09	2	✓	—	Y (N)	4	5:00					5:15
MW-5	5.30	4	✓	—	Y (N)	6	5:20					5:30
MW-3	5.75	4	✓	—	Y (N)	23	5:40					5:50
MW-2	4.50	4	✓	—	(Y) N	38	6:00					6:15
					Y N							

Well ID	Tot. Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge=	PurgeVol.
MW-4	14.6			4
MW-5	12.8	Bailed dry		15
MW-3	19.8	Bailed dry		28
MW-2	23.8			38

Well ID	Purge Method	Comments	TPH-G/BTEX	MTBE	TPH Diesel	
MW-4	OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port		⊗	⊗	O	O
MW-5	OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port		⊗	⊗	O	O
MW-3	OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port		⊗	⊗	O	O
MW-2	OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port	Product Film	⊗	⊗	O	O
	OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port		O	O	O	O

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD

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

July 8, 1999

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

The following report contains analytical results for the sample(s) received at Southern Petroleum Laboratories (SPL) on July 2, 1999. The sample(s) was assigned to Certificate of Analysis No. (s) 9907099 analyzed for all parameters as listed on the chain of custody.

Any data flags or quality control exceptions associated with this report will be footnoted in the analytical result 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

Sonia West
Senior Project Manager

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

Certificate of Analysis No. H9-9907099-02

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

P.O.# J064843, COC#117872
DATE: 07/07/99

PROJECT: #11085, 8th & Meridian
SITE: Puyallup
SAMPLED BY: Alisto Engineering
SAMPLE ID: MW-1

PROJECT NO: 200045-02-02
MATRIX: WATER
DATE SAMPLED: 06/30/99 16:30:00
DATE RECEIVED: 07/02/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	1.0 P	ug/L
BENZENE	12	1.0 P	ug/L
TOLUENE	ND	1.0 P	ug/L
ETHYLBENZENE	1.9	1.0 P	ug/L
TOTAL XYLENE	ND	1.0 P	ug/L
TOTAL VOLATILE AROMATIC HYDROCARBONS	13.9		ug/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	103		
4-Bromofluorobenzene	100		
Method 8020A ***			
Analyzed by: CJ			
Date: 07/06/99			
Gasoline Range Organics	ND	0.10	mg/L
Washington Method NWTPH-Gx			
Analyzed by: CJ			
Date: 07/06/99 16:11:00			

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 Washington Certification # C156

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

Certificate of Analysis No. H9-9907099-07

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

P.O.# J064843, COC#117872
DATE: 07/07/99

PROJECT: #11085, 8th & Meridian
SITE: Puyallup
SAMPLED BY: Alisto Engineering
SAMPLE ID: MW-2

PROJECT NO: 200045-02-02
MATRIX: WATER
DATE SAMPLED: 06/30/99 18:15:00
DATE RECEIVED: 07/02/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	25 P	ug/L
BENZENE	46	25 P	ug/L
TOLUENE	940	25 P	ug/L
ETHYLBENZENE	400	25 P	ug/L
TOTAL XYLENE	2500	25 P	ug/L
TOTAL VOLATILE AROMATIC HYDROCARBONS	3886		ug/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	97		
4-Bromofluorobenzene	101		
Method 8020A ***			
Analyzed by: CJ			
Date: 07/07/99			
Gasoline Range Organics	15	2.5	mg/L
Washington Method NWTPH-Gx			
Analyzed by: CJ			
Date: 07/07/99 02:40:00			

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 Washington Certification # C156

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

Certificate of Analysis No. H9-9907099-06

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

P.O.# J064843, COC#117872
DATE: 07/07/99

PROJECT: #11085, 8th & Meridian
SITE: Puyallup
SAMPLED BY: Alisto Engineering
SAMPLE ID: MW-3

PROJECT NO: 200045-02-02
MATRIX: WATER
DATE SAMPLED: 06/30/99 17:50:00
DATE RECEIVED: 07/02/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	1.0 P	ug/L
BENZENE	140	1.0 P	ug/L
TOLUENE	17	1.0 P	ug/L
ETHYLBENZENE	460	1.0 P	ug/L
TOTAL XYLENE	330	1.0 P	ug/L
TOTAL VOLATILE AROMATIC HYDROCARBONS	947		ug/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	110		
4-Bromofluorobenzene	177MI		
Method 8020A ***			
Analyzed by: CJ			
Date: 07/07/99			
Gasoline Range Organics	4.7	0.10	mg/L
Washington Method NWTPH-Gx			
Analyzed by: CJ			
Date: 07/07/99 01:43:00			

ND - Not detected.
MI - Matrix interference.
(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 Washington Certification # C156

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

Certificate of Analysis No. H9-9907099-04

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

P.O.# J064843, COC#117872
DATE: 07/07/99

PROJECT: #11085, 8th & Meridian
SITE: Puyallup
SAMPLED BY: Alisto Engineering
SAMPLE ID: MW-4

PROJECT NO: 200045-02-02
MATRIX: WATER
DATE SAMPLED: 06/30/99 17:15:00
DATE RECEIVED: 07/02/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	1.0 P	ug/L
BENZENE	ND	1.0 P	ug/L
TOLUENE	ND	1.0 P	ug/L
ETHYLBENZENE	ND	1.0 P	ug/L
TOTAL XYLENE	ND	1.0 P	ug/L
TOTAL VOLATILE AROMATIC HYDROCARBONS	ND		ug/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	97		
4-Bromofluorobenzene	100		
Method 8020A ***			
Analyzed by: CJ			
Date: 07/07/99			
Gasoline Range Organics	ND	0.10	mg/L
Washington Method NWTPH-Gx			
Analyzed by: CJ			
Date: 07/07/99 00:45:00			

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 Washington Certification # C156

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

Certificate of Analysis No. H9-9907099-05

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

P.O.# J064843, COC#117872
DATE: 07/07/99

PROJECT: #11085, 8th & Meridian
SITE: Puyallup
SAMPLED BY: Alisto Engineering
SAMPLE ID: MW-5

PROJECT NO: 200045-02-02
MATRIX: WATER
DATE SAMPLED: 06/30/99 17:30:00
DATE RECEIVED: 07/02/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	1.0 P	ug/L
BENZENE	32	1.0 P	ug/L
TOLUENE	1.1	1.0 P	ug/L
ETHYLBENZENE	6.5	1.0 P	ug/L
TOTAL XYLENE	5.1	1.0 P	ug/L
TOTAL VOLATILE AROMATIC HYDROCARBONS	44.7		ug/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	123		
4-Bromofluorobenzene	130		
Method 8020A ***			
Analyzed by: CJ			
Date: 07/07/99			
Gasoline Range Organics	0.99	0.10	mg/L
Washington Method NWTPH-Gx			
Analyzed by: CJ			
Date: 07/07/99 01:14:00			

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 Washington Certification # C156

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

Certificate of Analysis No. H9-9907099-03

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

P.O.# J064843, COC#117872
DATE: 07/07/99

PROJECT: #11085, 8th & Meridian
SITE: Puyallup
SAMPLED BY: Alisto Engineering
SAMPLE ID: TW-6

PROJECT NO: 200045-02-02
MATRIX: WATER
DATE SAMPLED: 06/30/99 16:45:00
DATE RECEIVED: 07/02/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	1.0 P	ug/L
BENZENE	1.1	1.0 P	ug/L
TOLUENE	2.1	1.0 P	ug/L
ETHYLBENZENE	1.7	1.0 P	ug/L
TOTAL XYLENE	7.8	1.0 P	ug/L
TOTAL VOLATILE AROMATIC HYDROCARBONS	12.7		ug/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	97		
4-Bromofluorobenzene	100		
Method 8020A ***			
Analyzed by: CJ			
Date: 07/07/99			
Gasoline Range Organics	ND	0.10	mg/L
Washington Method NWTPH-Gx			
Analyzed by: CJ			
Date: 07/07/99 00:17:00			

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 Washington Certification # C156

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

Certificate of Analysis No. H9-9907099-01

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

P.O.# J064843, COC#117872
DATE: 07/07/99

PROJECT: #11085, 8th & Meridian
SITE: Puyallup
SAMPLED BY: Alisto Engineering
SAMPLE ID: MW-7

PROJECT NO: 200045-02-02
MATRIX: WATER
DATE SAMPLED: 06/30/99 16:00:00
DATE RECEIVED: 07/02/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	1.0 P	ug/L
BENZENE	ND	1.0 P	ug/L
TOLUENE	ND	1.0 P	ug/L
ETHYLBENZENE	ND	1.0 P	ug/L
TOTAL XYLENE	ND	1.0 P	ug/L
TOTAL VOLATILE AROMATIC HYDROCARBONS	ND		ug/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	97		
4-Bromofluorobenzene	100		
Method 8020A ***			
Analyzed by: CJ			
Date: 07/06/99			
Gasoline Range Organics	ND	0.10	mg/L
Washington Method NWTPH-Gx			
Analyzed by: CJ			
Date: 07/06/99 15:43:00			

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 Washington Certification # C156

QUALITY CONTROL

DOCUMENTATION

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

** SPL BATCH QUALITY CONTROL REPORT **
METHOD 8020

Matrix: Aqueous
Units: ug/L

Batch Id: HP_S990706080100

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	46	92.0	72 - 128
Benzene	ND	50	45	90.0	61 - 119
Toluene	ND	50	44	88.0	65 - 125
EthylBenzene	ND	50	43	86.0	70 - 118
O Xylene	ND	50	46	92.0	72 - 117
M & P Xylene	ND	100	87	87.0	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	23	115	22	110	4.44	20	39 - 150
BENZENE	12	20	31	95.0	30	90.0	5.41	21	32 - 164
TOLUENE	ND	20	20	100	20	100	0	20	38 - 159
ETHYLBENZENE	1.9	20	21	95.5	21	95.5	0	19	52 - 142
O XYLENE	ND	20	21	105	21	105	0	18	53 - 143
M & P XYLENE	ND	40	39	97.5	40	100	2.53	17	53 - 144

Analyst: CJ
Sequence Date: 07/06/99
SPL ID of sample spiked: 9907099-02A
Sample File ID: S_G1014.TX0
Method Blank File ID:
Blank Spike File ID: S_G1006.TX0
Matrix Spike File ID: S_G1008.TX0
Matrix Spike Duplicate File ID: S_G1009.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):

9906B24-02A 9907098-02A 9907098-03A 9907098-04A
9907098-06A 9907098-07A 9907098-08A 9907099-03A
9907099-04A 9907099-05A 9907099-06A 9907098-05A
9907099-07A 9907098-01A 9906B79-04A 9907099-01A
9907099-02A 9906B25-01A

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

** SPL BATCH QUALITY CONTROL REPORT **
METHOD WTPH-G

Matrix: Aqueous
Units: mg/L

Batch Id: HP_S990706082910

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
WTPHGW	ND	0.9	0.89	98.9	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
WTPHGW	ND	0.9	0.8	88.9	0.82	91.1	2.44	36	36 - 160

Analyst: CJ
Sequence Date: 07/07/99
SPL ID of sample spiked: 9907099-01A
Sample File ID: SSG1013.TX0
Method Blank File ID:
Blank Spike File ID: SSG1046.TX0
Matrix Spike File ID: SSG1010.TX0
Matrix Spike Duplicate File ID: SSG1011.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 1st Qtr.'97
(***) = Source: SPL Historical Limits for 1st Qtr.'97

SAMPLES IN BATCH(SPL ID):

9907098-06A 9907098-07A 9907098-08A 9907099-03A
9907099-04A 9907099-05A 9907099-06A 9907098-05A
9907099-07A 9907099-02A 9907099-01A 9907098-01A
9907098-02A 9907098-03A 9907098-04A

CHAIN OF CUSTODY

AND

SAMPLE RECEIPT CHECKLIST

CHAIN OF CUSTODY

9907094

No. 117872

Page 1 of 1

CONSULTANT'S NAME: Aztec Engineering	CONSULTANT'S ADDRESS: 1145-12th Ave NW, C4A, Issaquah WA		
BP SITE NUMBER: 11085	BP SITE / FACILITY ADDRESS: 8th + Meridian, Puyallup		CONSULTANT PROJECT NUMBER: 200045-02-02
CONSULTANT PROJECT MANGER: Dave Cooper	PHONE NUMBER: 425-837-3944	FAX NUMBER: 837-8543	CONSULTANT CONTRACT NUMBER: 1064843
BP CONTACT: Scott Hooton	BP ADDRESS: 295 SW 41st, Renton	PHONE NUMBER: 425-251-0689	FAX NO.: 251-0736
LAB CONTACT: Sonia West	LABORATORY ADDRESS: SPL Houston	PHONE NUMBER: 713-660-0901	FAX NO.: 660-8975
BP CONTACT REQUESTING RUSH TAT (Print BP Contact Name)	RUSH REQUESTED OF (Print Consultant Contact Name)	DATE/TIME	SHIPMENT DATE: 7-1-99 / SHIPMENT METHOD: FEDEX

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

ANALYSIS REQUIRED

AIRBILL NUMBER: 806949044461

SAMPLE DESCRIPTION	COLLECTION DATE	COLLECTION TIME	MATRIX SOIL/WATER	CONTAINERS NO.	CONTAINERS TYPE (VOL.)	PRESERVATIVE LAB SAMPLE #	WTPH-G	BTEX	MTBE	COMMENTS
MW-7	6-30	4:00	W	3	VOA					
MW-1	"	4:30	"	"	"					
TW-6	"	4:50	"	"	"					
MW-4	"	5:15	"	"	"					
MW-5	"	5:30	"	"	"					
MW-3	"	5:50	"	"	"					
MW-2	"	6:15	"	"	"					

FAX'D

SAMPLED BY (Please Print Name)

SAMPLED BY (Signature)

ADDITIONAL COMMENTS: 4°C

RELINQUISHED BY / AFFILIATION (Print Name / Signature)	DATE	TIME	ACCEPTED BY /AFFILIATION (Print Name / Signature)	DATE	TIME
James D Copperwell / [signature]	7-1-99	8:00			
			Randy Turnell / [signature]	7-2-99	10:00

CLV-16722-A (2/97)
PKG/50

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

SPL Houston Environmental Laboratory

Sample Login Checklist

Date:	Time:
7-2-99	1000

SPL Sample ID: 9907099

			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 #)	806949044461	
		Other:		
11	Method of sample disposal:	SPL Disposal	—	
		HOLD		
		Return to Client		

Name:	Date:
[signature]	7-2-99

☒ 8880 Interchange Dr.
Houston, TX 77054
ph: (713) 660-0901
fax: (713) 660-8975

☐ 500 Ambassador Caffery Pkwy.
Scott, LA 70583-8544
ph: (318) 237-4775
fax: (318) 237-7080

☐ 459 Hughes Rd.
Traverse City, MI 49684
ph: (616) 947-5777
fax: (616) 947-7455

SOUTHERN PETROLEUM LABORATORIES

BOTTLE ORDER AND PROJECT FORM FOR BP

SHIP TO: Alisto Engineering	BILL TO:
STREET: 20828 45th Ave. S.E.	BP OIL COMPANY
CITY: Othell	STREET: 7 4158 7460 8586
STATE: WA	CITY, STATE:
ZIP: 98021	ZIP:
ATTN: Jim Copper	ATTN: (BP-PM)
PHONE: (425)402-6915	PHONE:
CONSULTANT PROJECT #:	DATE/TIME ORDER NEEDED: 6-24-99
BP SITE #: 11085	INITIATED BY (SPL-PM): SW DATE: 6-22-99
BP CONTRACT #: J064843	SAMPLE ARRIVAL DATE: W/O 6-28-99

NUMBER OF SAMPLES	MATRIX	BOTTLE TYPE	PRESERVATIVE	METHOD AND ANALYSIS
8	Water	VOA	HCL	BTEX/MTBE, WTPH-GRO
1	Water	VOA	HCL	TRIP BLANK (GC)

LAB COMMENTS: _____

FILLED BY: _____

DATE: 6-22-99

MODE OF KIT DELIVERY (CHECK BOX):

☐ PR FEDEX ☐ STD FEDEX ☒ 2 DAY FEDEX ☐ UPS 3 DAY ☐ UPS 5 DAY ☐ OTHER

SHIPPED BY: _____

CONSULTANTS: PLEASE INSPECT THE ENCLOSED BOTTLE ORDER. SIGN AND DATE AFTER INSPECTION. PLEASE RETURN THIS FORM WITH SAMPLES (COOLER).

BP CONSULTANT NAME (PRINT) AND SIGNATURE

DATE AND TIME BOTTLE KIT EXAMINED

CONSULTANT COMMENTS: _____

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

BP Site Number: 11085
ERM Contact: S. HOUTON
Sampling Date: 6/30/99
Matrix Desription: WATER
Date Final Report Received: 7/8/99
Laboratory & Location: SPL HOUSTON

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

Notes/Comments: * MW-3 4-BROMOFLUOROBENZENE RECOVERY OUT OF LIMITS

Data Validation Completed by (print): D. Cooper
(signature): D. Cooper
Date: 7/15/99