



**BP OIL**

*Responset  
11/18/99*

S. T. Hooton  
Team Leader  
Environmental Remediation Management

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

September 28, 1999

Alameda County Health Care Services Agency  
Attention Mr. Amir K. Gholami - REHS  
1131 Harbor Bay Parkway, STE 250  
Alameda, CA 94502-6677

RE: Former BP Oil Site No. 11107  
18501 Hesperian Boulevard  
San Lorenzo, CA

*STID 780*

Dear Mr. Gholami:

This transmits the *Third Quarter 1999 Groundwater Monitoring* report prepared on behalf of BP by Blaine Tech Services. The report summarizes chemical data obtained since 1992, including results associated with samples obtained on 20 July 1999.

The enclosed report shows that aromatic petroleum hydrocarbons and TPHg was not detected in samples obtained from the four wells sampled on 20 July 1999. The highest MTBE concentrations are associated with samples obtained from well MW-6. Please contact me at (425) 251-0689 if you have questions.

Sincerely,

  
Scott Hooton

attachment

cc: site file  
David Camille - Tosco (w/attachment)  
Khaled Rahman - Cambria (w/attachment)

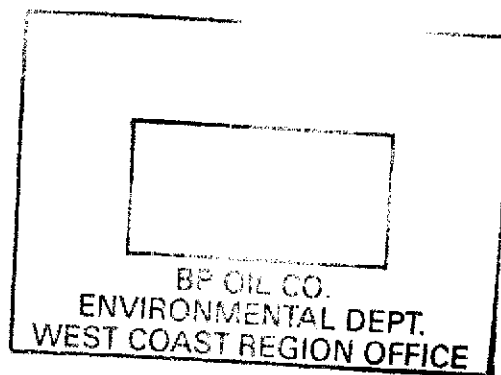
ENVIRONMENTAL  
PROTECTION  
99 OCT -4 PM 4:37



1680 ROGERS AVENUE  
SAN JOSE, CALIFORNIA 95112-1105  
(408) 573-7771 FAX  
(408) 573-0555 PHONE

September 15, 1999

Scott Hooton  
BP Oil Company  
295 SW 41st Street, Bldg. 13, Suite N  
Renton, WA 98055-4931



### 3rd Quarter 1999 Monitoring at 11107

Third Quarter 1999 Groundwater Monitoring  
BP Service Station Number 11107  
18501 Hesperian Boulevard  
San Lorenzo, CA

Monitoring Performed on July 20, 1999

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#### Groundwater Sampling Report 990720-D-1

This report covers the routine monitoring of groundwater wells at this BP facility. Blaine Tech Services, Inc.'s work at the site includes inspection, gauging, evacuation, purgewater containment, sample collection and sample handling in accordance with standard procedures that conform to Regional Water Quality Control Board requirements.

Routine field data collection includes depth to water, total well depth, thickness of any separate immiscible layer, water column volume, the appropriate calculated purge volume, elapsed evacuation time, total volume of water removed, and standard water parameter instrument readings. Sample material is collected, contained, stored, and transported to the laboratory in conformance with EPA standards. Purgewater is, likewise, collected and transported to Seaport Petroleum Corporation for disposal.

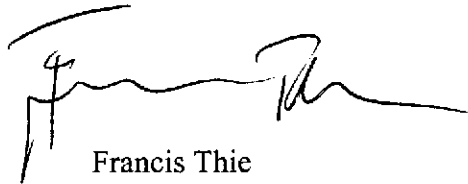
Basic field information is presented alongside analytical values excerpted from the laboratory report in the cumulative table of **WELL DATA AND ANALYTICAL RESULTS**. The full analytical report for the most recent samples is located in the **Analytical Appendix**. The **Professional Engineering Appendix** contains a **Groundwater Elevation Map** and a **Dissolved Petroleum Hydrocarbon Concentration Map**.

At a minimum, Blaine Tech Services, Inc. field personnel are certified upon completion of a forty-hour Hazardous Materials and Emergency Response training course per 29 CFR 1910.120. Field personnel are also enrolled in annual eight hour refresher courses.

Blaine Tech Services, Inc. conducts sampling and documentation assignments of this type as an independent third party. In order to avoid compromising the objectivity necessary for the proper and disinterested performance of this work, Blaine Tech Services, Inc. concentrates on objective data collection and does not participate in the interpretation of analytical results, the definition of geological or hydrological conditions, the formulation of recommendations, or the marketing of remedial systems.

Please call if you have any questions.

Yours truly,

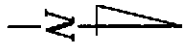
A handwritten signature in black ink, appearing to read 'Francis Thie', with a stylized flourish at the end.

Francis Thie  
Vice President

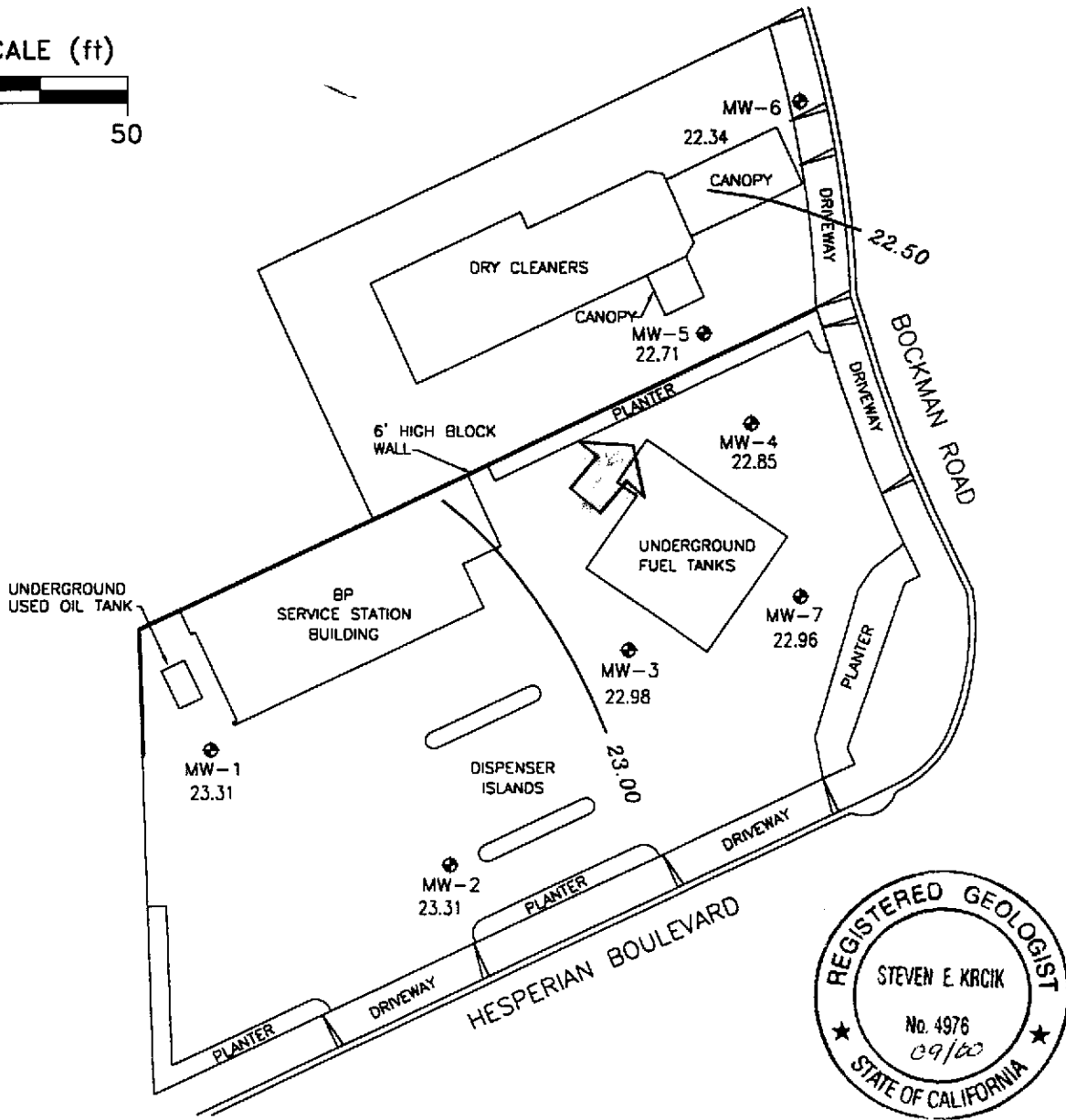
FPT/ck

attachments: Professional Engineering Appendix  
Cumulative Table of Well Data and Analytical Results  
Analytical Appendix  
Field Data Sheets

# **Professional Engineering Appendix**



SCALE (ft)



EXPLANATION

- ⊕ GROUNDWATER MONITORING WELL
- 23.31 GROUNDWATER ELEVATION (FT, MSL)
- 22.50 — GROUNDWATER ELEVATION CONTOUR (FT, MSL)
- APPROXIMATE GROUNDWATER FLOW DIRECTION;  
APPROXIMATE GRADIENT = 0.004

Ref. 111107bm.dwg  
Basemap from Alista Engineering Group

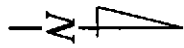
PREPARED BY

**RRM**  
engineering contracting firm

**BP Service Station No. 1107**  
18501 Hesperian Boulevard  
San Lorenzo, California

**GROUNDWATER ELEVATION CONTOUR MAP,**  
**JULY 20, 1999**

**FIGURE:**  
**1**  
**PROJECT:**  
**DAC04**



SCALE (ft)

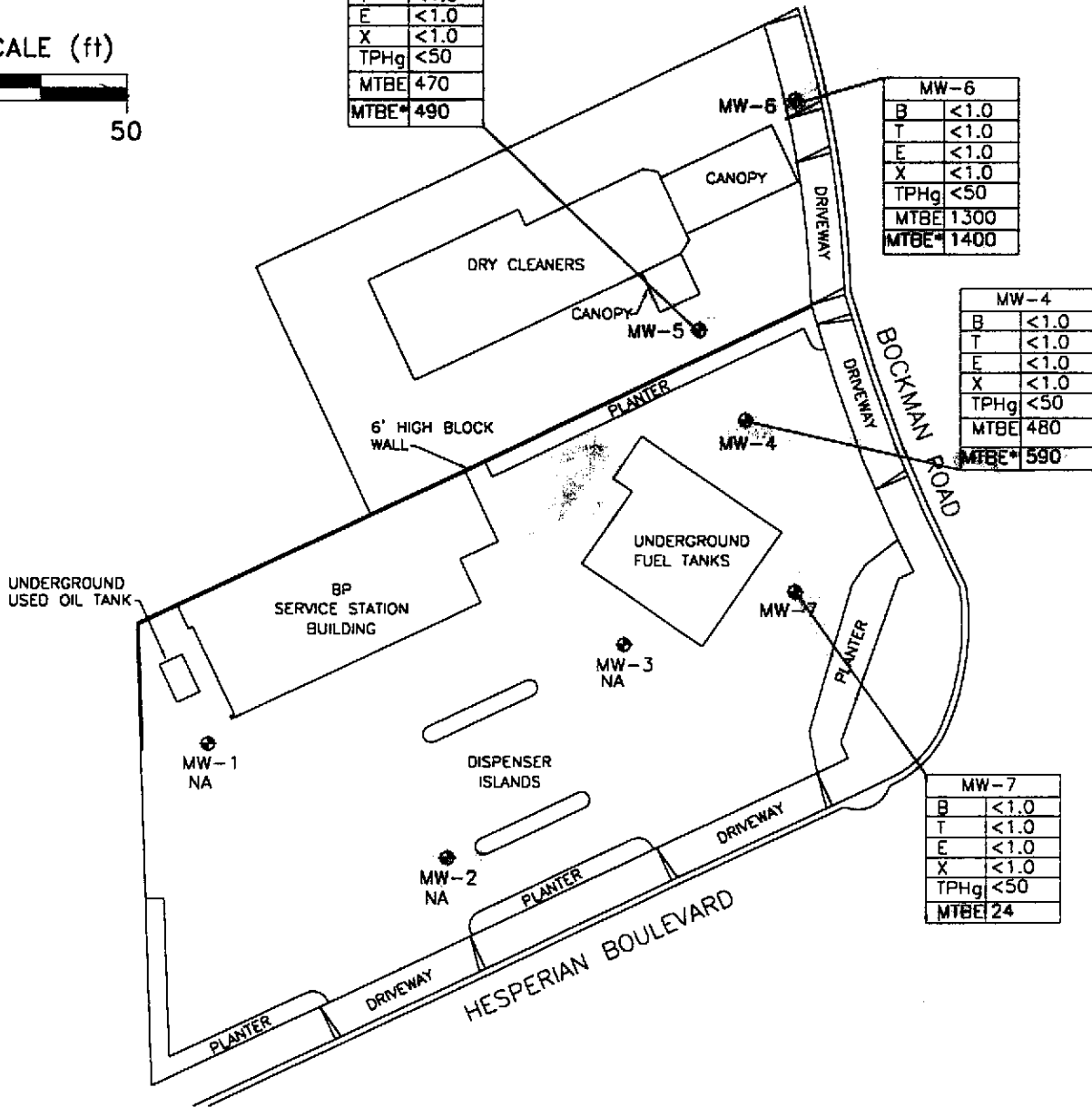


MW-5	
B	<1.0
T	<1.0
E	<1.0
X	<1.0
TPHg	<50
MTBE	470
MTBE*	490

MW-6	
B	<1.0
T	<1.0
E	<1.0
X	<1.0
TPHg	<50
MTBE	1300
MTBE*	1400

MW-4	
B	<1.0
T	<1.0
E	<1.0
X	<1.0
TPHg	<50
MTBE	480
MTBE*	590

MW-7	
B	<1.0
T	<1.0
E	<1.0
X	<1.0
TPHg	<50
MTBE	24



**EXPLANATION**

- ⊕ GROUNDWATER MONITORING WELL
- TPHg TOTAL PETROLEUM HYDROCARBON CALCULATED AS GASOLINE IN PARTS PER BILLION (ppb)
- B BENZENE, ppb
- T TOLUENE, ppb
- E ETHYLBENZENE, ppb
- X XYLENE, ppb
- MTBE METHYL-TERT-BUTYL-ETHER, ppb
- MTBE\* MTBE BY 8260
- NA DATA NOT AVAILABLE

Ref. 111107b1ex.dwg  
 Basemap from Alisto Engineering Group

PREPARED BY



**BP Service Station No. 1107**  
 18501 Hesperian Boulevard  
 San Lorenzo, California

**HYDROCARBON CONCENTRATION MAP,  
 JULY 20, 1999**

**FIGURE:  
 2**

**PROJECT:  
 DAC04**

# **Table of Well Data and Analytical Results**

Table 1 - Summary of Results of Groundwater Sampling

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO GROUNDWATER WATER (Feet)	ELEVATION (Feet)	TPH-G (b) (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	TOG (ug/l)	1,1,1-TCA (ug/l)	PCE (ug/l)	DO (ppm)	LAB
MW-1	11/04/92	41.07	20.78	20.29	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	ND<5000	2.8	ND	---	PACE
QC-1 (c)	11/04/92	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	PACE
MW-1	02/24/94	41.07	20.70	20.37	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	ND<5000	1.5	0.9	---	PACE
MW-1	05/12/94	41.07	18.12	22.95	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	ND<5000	1.0	ND<0.5	7	PACE
MW-1	09/09/94	41.07	21.74	19.33	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	ND<5000	ND<0.5	ND<0.5	2.3	PACE
MW-1	11/03/94	41.07	20.01	21.06	ND<50	50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	ND<5000	ND<0.5	ND<0.5	4.3	PACE
MW-1	03/01/95	41.07	17.44	23.63	ND<50	ND<500	ND<50	ND<0.50	ND<0.50	ND<1.0	---	420	0.54	0.3	2.3	ATI
MW-1	06/06/95	41.07	17.55	23.52	---	---	---	---	---	---	---	---	---	---	---	---
MW-1	09/01/95	41.07	18.19	22.88	ND<50	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	60	---	---	8.8	ATI
MW-1	11/29/95	41.07	18.84	22.23	---	---	---	---	---	---	---	---	---	---	---	---
MW-1	03/23/96	41.07	16.97	24.10	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	---	---	9.6	SPL
MW-1	09/05/96	41.07	17.74	23.33	110	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	---	---	3.6	SPL
MW-1	03/11/97	41.07	17.62	23.45	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	---	---	5.2	SPL
MW-1	12/08/97	41.07	16.30	24.77	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	---	---	---	---
MW-1	07/08/98	41.07	16.66	24.41	---	---	---	---	---	---	---	---	---	---	---	---
MW-1	12/07/98	41.07	17.80	23.27	---	---	---	---	---	---	---	---	---	---	---	---
MW-1	01/19/99	41.07	17.18	23.89	---	---	---	---	---	---	---	---	---	---	---	---
MW-1	04/23/99	41.07	17.40	23.67	---	---	---	---	---	---	---	---	---	---	---	---
MW-1	07/20/99	41.07	17.76	23.31	---	---	---	---	---	---	---	---	---	---	---	---



Table 1 - Summary of Results of Groundwater Sampling

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO GROUNDWATER WATER (Feet)	ELEVATION (Feet)	TPH-G (b) (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	TOG (ug/l)	1,1,1-TCA (ug/l)	PCE (ug/l)	DO (ppm)	LAB
MW-2	11/04/92	40.56	20.16	20.40	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	PACE
MW-2	02/24/94	40.56	20.12	20.44	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	PACE
MW-2	05/12/94	40.56	17.49	23.07	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	7.4	PACE
MW-2	09/09/94	40.56	21.12	19.44	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	2.1	PACE
MW-2	11/03/94	40.56	19.36	21.20	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	4.2	PACE
MW-2	03/01/95	40.56	16.83	23.73	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	---	---	2.2	AT'
MW-2	06/06/95	40.56	16.96	23.60	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	09/01/95	40.56	17.54	23.02	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	---	---	7.9	ATI
MW-2	11/29/95	40.56	18.19	22.37	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	03/23/96	40.56	16.35	24.21	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	---	---	8.5	SPL
MW-2	09/05/96	40.56	17.55	23.01	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	---	---	3.2	SPL
MW-2	03/11/97	40.56	16.95	23.61	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	---	---	2.9	SPL
MW-2	12/08/97	40.56	16.01	24.55	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	---	---	3.0	SPL
MW-2	07/08/98	40.56	16.41	24.15	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	12/07/98	40.56	17.15	23.41	---	---	---	---	---	---	---	---	---	---	---	SPL
MW-2	01/19/99	40.56	17.15	23.41	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	04/23/99	40.56	16.89	23.67	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	07/20/99	40.56	17.25	23.31	---	---	---	---	---	---	---	---	---	---	---	---

Table 1 - Summary of Results of Groundwater Sampling

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO GROUNDWATER WATER (Feet)	ELEVATION (Feet)	TPH-G (b) (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	TOG (ug/l)	1,1,1-TCA (ug/l)	PCE (ug/l)	DO (ppm)	LAB
MW-3	11/04/92	40.45	20.23	20.22	760	---	3.7	15	1.9	57	---	---	---	---	---	PACE
MW-3	02/24/94	40.45	20.24	20.21	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	PACE
MW-3	05/12/94	40.45	17.61	22.84	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	7.3	PACE
MW-3	09/09/94	40.45	21.22	19.23	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	2	PACE
MW-3	11/03/94	40.45	19.48	20.97	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	3.6	PACE
MW-3	03/01/95	40.45	17.08	23.37	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	---	---	1.9	ATI
MW-3	06/06/95	40.45	17.21	23.24	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	09/01/95	40.45	17.69	22.76	200	---	2.7	33	7.2	43	ND<5.0	---	---	---	7.8	ATI
MW-3	09/01/95	40.45	18.29	22.16	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	03/23/96	40.45	16.59	23.86	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	---	---	7.3	SPL
MW-3	09/05/96	40.45	17.71	22.74	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	---	---	3.2	SPL
MW-3	03/11/97	40.45	17.17	23.28	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	---	---	1.5	SPL
MW-3	12/08/97	40.45	16.12	24.33	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	---	---	1.9	SPL
MW-3	07/08/98	40.45	16.40	24.05	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	12/07/98	40.45	17.32	23.13	---	---	---	---	---	---	---	---	---	---	---	SPL
MW-3	01/19/99	40.45	17.30	23.15	---	---	---	---	---	---	---	---	---	---	---	SPL
MW-3	04/23/99	40.45	17.07	23.38	---	---	---	---	---	---	---	---	---	---	---	SPL
MW-3	07/20/99	40.45	17.47	22.98	---	---	---	---	---	---	---	---	---	---	---	SPL

Table 1 - Summary of Results of Groundwater Sampling

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO GROUNDWATER WATER (Feet)	TPH-G ELEVATION (b) (Feet)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	TOG (ug/l)	1,1,1-TCA (ug/l)	PCE (ug/l)	DO (ppm)	LAB
MW-4	11/04/92	39.24	19.18	20.06	900	---	150	4.1	0.8	53	---	---	---	---	PACE
MW-4	02/24/94	39.24	19.22	20.02	240	---	110	3.8	1.8	11	1400 (d)	---	---	---	PACE
QC-1 (c)	02/24/94	---	---	---	310	---	95	5.3	2.2	17	1500 (d)	---	---	---	PACE
MW-4	05/12/94	39.24	16.62	22.62	ND<50	---	2.2	1.0	ND<0.5	ND<0.5	860 (d)	---	---	7.3	PACE
QC-1 (c)	05/12/94	---	---	---	430	---	2.6	1.3	ND<0.5	ND<0.5	780 (d)	---	---	---	PACE
MW-4	09/09/94	39.24	20.27	18.97	240	---	9.1	1.3	0.6	2.5	---	---	---	2.2	PACE
QC-1 (c)	09/09/94	---	---	---	57	---	1.7	ND<0.5	ND<0.5	0.5	---	---	---	---	PACE
MW-4	11/03/94	39.24	18.46	20.78	250	---	3.1	2.8	1.0	3.3	---	---	---	3.2	PACE
QC-1 (c)	11/03/94	---	---	---	110	---	2.4	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	PACE
MW-4	03/01/95	39.24	16.15	23.09	8900	---	1800	26	450	400	---	---	---	2.0	ATI
QC-1 (c)	03/01/95	---	---	---	7600	---	1700	25	410	370	---	---	---	---	ATI
MW-4	06/06/95	39.24	16.28	22.96	3100	(e)	530	25	170	85	---	---	---	---	ATI
QC-1 (c)	06/06/95	---	---	---	3000	---	530	27	170	92	---	---	---	---	ATI
MW-4 (f)	09/01/95	39.24	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	11/29/95	39.24	17.31	21.93	ND<50	---	1.8	ND<0.50	ND<0.50	ND<1.0	440	---	---	3.2	ATI
QC-1 (c)	11/29/95	---	---	---	ND<50	---	1.5	ND<0.50	ND<0.50	ND<1.0	490	---	---	---	ATI
MW-4	03/23/96	39.24	15.74	23.50	2700	---	480	ND<25	180	176	13000	---	---	7.8	SPL
MW-4	09/05/96	39.24	16.75	22.49	1100	---	ND<12	ND<25	ND<25	ND<25	3200	---	---	4.0	SPL
MW-4	03/11/97	39.24	16.10	23.14	2400	---	46	ND<10	66	106	3400	---	---	4.0	SPL
MW-4	12/08/97	39.24	15.96	23.28	590	---	11	ND<1.0	ND<1.0	ND<1.0	1200	---	---	4.4	SPL
QC-1 (c)	12/08/97	---	---	---	620	---	11	ND<1.0	ND<1.0	ND<1.0	1100	---	---	---	SPL
MW-4	07/08/98	39.24	16.28	22.96	1700	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	1200	---	---	3.9	SPL
QC-1 (c)	07/08/98	---	---	---	1600	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	1100	---	---	---	SPL
MW-4	12/07/98	39.24	16.47	22.77	530	---	ND<2.5	ND<5.0	ND<5.0	ND<5.0	680/910 (h)	---	---	---	SPL
MW-4	01/19/99	39.24	16.40	22.84	570	---	ND<1.0	ND<1.0	ND<1.0	ND<1.0	660	---	---	---	SPL
MW-4	04/23/99	39.24	16.17	23.07	ND<50	---	ND<1.0	ND<1.0	1.8	1.3	1100/810 (h)	---	---	---	SPL
MW-4	07/20/99	39.24	16.39	22.85	ND<50	---	ND<1.0	ND<1.0	ND<1.0	ND<1.0	480	---	---	---	SPL

Table 1 - Summary of Results of Groundwater Sampling

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO GROUNDWATER WATER (Feet)	ELEVATION (Feet)	TPH-G (b) (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	TOG (ug/l)	1,1,1-TCA (ug/l)	PCE (ug/l)	DO (ppm)	LAB
MW-5	06/06/95	39.07	16.16	22.91	1100	---	(e) 42	ND<2.5	15	4.0	---	---	---	---	---	ATI
MW-5	09/01/95	39.07	16.63	22.44	1600	---	55	ND<2.5	15	8.0	1200	---	---	---	7.4	ATI
QC-1 (c)	09/01/95	---	---	---	1200	---	64	ND<2.5	14	3.1	---	---	---	---	---	ATI
MW-5	11/29/95	39.07	17.19	21.88	2300	---	140	4.0	36	11	1500	---	---	---	4.1	ATI
MW-5	03/23/96	39.07	15.54	23.53	90	---	2.8	ND<1	ND<1	ND<1	1500	---	---	---	7.5	SPL
MW-5	09/05/96	39.07	16.72	22.35	2300	---	5.1	ND<1.0	ND<1.0	ND<1.0	3300	---	---	---	3.2	SPL
QC-1 (c)	09/05/96	---	---	---	2000	---	4.9	ND<1.0	ND<1.0	ND<1.0	2900	---	---	---	---	SPL
MW-5	03/11/97	39.07	16.12	22.95	470	---	ND<5.0	ND<5.0	ND<5.0	ND<5.0	580	---	---	---	3.0	SPL
QC-1 (c)	03/11/97	---	---	---	460	---	ND<5.0	ND<5.0	ND<5.0	ND<5.0	540	---	---	---	---	SPL
MW-5	12/08/97	39.07	15.85	23.22	370	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	840	---	---	---	3.0	SPL
MW-5	07/08/98	39.07	16.11	22.96	430	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	330	---	---	---	2.5	SPL
MW-5	12/07/98	39.07	16.27	22.80	220	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	290/410 (h)	---	---	---	---	SPL
MW-5	01/19/99	39.07	16.31	22.76	490	---	ND<1.0	ND<1.0	ND<1.0	ND<1.0	490/440 (h)	---	---	---	---	SPL
MW-5	04/23/99	39.07	16.00	23.07	ND<50	---	ND<1.0	ND<1.0	ND<1.0	ND<1.0	310/210 (h)	---	---	---	---	SPL
MW-5	07/20/99	39.07	16.36	22.71	ND<50	---	ND<1.0	ND<1.0	ND<1.0	ND<1.0	470	---	---	---	---	SPL

Table 1 - Summary of Results of Groundwater Sampling

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO GROUNDWATER WATER (Feet)	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)	1,1,1-TCA (ug/l)	PCE (ug/l)	DO (ppm)	LAB
MW-6	03/01/95	38.46	15.66	22.80	270	---	11	ND<0.50	ND<0.50	ND<1.0	---	---	---	---	1.6	ATI
MW-6	06/06/95	38.46	15.82	22.64	220	---	(e) 2.3	ND<0.50	ND<0.50	ND<1.0	---	---	---	---	---	ATI
MW-6	09/01/95	38.46	16.25	22.21	780	---	ND<2.5	ND<2.5	ND<2.5	ND<5.0	2800	---	---	---	7.5	ATI
MW-6	11/29/95	38.46	16.80	21.66	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	1100	---	---	---	3.9	ATI
MW-6	03/23/96	38.46	15.27	23.19	50	---	ND<0.5	ND<1	ND<1	ND<1	910	---	---	---	8.0	SPL
MW-6	09/05/96	38.46	16.30	22.16	4400	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	7400	---	---	---	3.0	SPL
MW-6	03/11/97	38.46	15.75	22.71	1100	---	ND<5.0	ND<5.0	ND<5.0	ND<5.0	2000	---	---	---	3.1	SPL
MW-6	12/08/97	38.46	15.51	22.95	150	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	140	---	---	---	3.4	SPL
MW-6	07/08/98	38.46	15.78	22.68	370	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	250	---	---	---	3.6	SPL
MW-6	12/07/98	38.46	15.95	22.51	440	---	ND<1.0	ND<1.0	ND<1.0	ND<1.0	630/820 (h)	---	---	---	---	---
MW-6	01/19/99	38.46	15.97	22.49	950	---	ND<1.0	ND<1.0	ND<1.0	ND<1.0	950/810 (h)	---	---	---	---	SPL
MW-6	04/23/99	38.46	15.74	22.72	ND<50	---	ND<1.0	ND<1.0	ND<1.0	ND<1.0	310/220 (h)	---	---	---	---	SPL
MW-6	07/20/99	38.46	16.12	22.34	ND<50	---	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1300	---	---	---	---	SPL

Table 1 - Summary of Results of Groundwater Sampling

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO GROUNDWATER WATER (Feet)	ELEVATION (Feet)	TPH-G (b) (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	TOG (ug/l)	1,1,1-TCA (ug/l)	PCE (ug/l)	DO (ppm)	LAB
MW-7	03/01/95	39.50	16.21	23.29	1400	--	14	ND<1.0	14	27	--	--	--	--	1.8	ATI
MW-7	06/06/95	39.50	16.34	23.16	540	-- (e)	5.5	ND<0.50	15	1.1	--	--	--	--	--	ATI
MW-7	09/01/95	39.50	16.74	22.76	190	--	2.8	ND<0.50	5.0	ND<1.0	10	--	--	--	7.5	ATI
MW-7	11/29/95	39.50	17.33	22.17	230	--	31	ND<0.50	3.8	1.9	ND<5.0	--	--	--	4.6	ATI
MW-7	03/23/96	39.50	15.86	23.64	ND<50	--	5.0	ND<1	ND<1	ND<1	330	--	--	--	7.2	SPL
QC-1 (c)	03/23/96	--	--	--	60	--	7.6	ND<1	ND<1	ND<1	360	--	--	--	--	SPL
MW-7	09/05/96	39.50	16.80	22.70	200	--	ND<0.5	ND<1.0	ND<1.0	ND<1.0	430	--	--	--	3.1	SPL
MW-7	03/11/97	39.50	18.32	21.18	120	--	ND<0.5	ND<1.0	ND<1.0	ND<1.0	140	--	--	--	4.7	SPL
MW-7	12/08/97	39.50	16.02	23.48	240	--	0.8	ND<1.0	ND<1.0	ND<1.0	200	--	--	--	5.2	SPL
MW-7	07/08/98	39.50	16.32	23.18	270	--	ND<0.5	ND<1.0	ND<1.0	ND<1.0	170	--	--	--	4.8	SPL
MW-7	12/07/98	39.50	16.43	23.07	100	--	ND<0.5	ND<1.0	ND<1.0	ND<1.0	120	--	--	--	--	SPL
MW-7	01/19/99	39.50	16.41	23.09	80	--	ND<1.0	ND<1.0	ND<1.0	ND<1.0	80	--	--	--	--	SPL
MW-7	04/23/99	39.50	16.21	23.29	ND<50	--	ND<1.0	ND<1.0	ND<1.0	ND<1.0	20	--	--	--	--	SPL
MW-7	07/20/99	39.50	16.54	22.96	ND<50	--	ND<1.0	ND<1.0	ND<1.0	ND<1.0	24	--	--	--	--	SPL

Table 1 - Summary of Results of Groundwater Sampling

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO GROUNDWATER WATER (Feet)	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)	1,1,1-TCA (ug/l)	PCE (ug/l)	DO (ppm)	LAB
QC-2 (g)	11/04/92	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	PACE
QC-2 (g)	11/04/92	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	PACE
QC-2 (g)	03/01/95	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<1.0	---	---	---	---	---	PACE
QC-2 (g)	05/12/94	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	PACE
QC-2 (g)	09/09/94	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	PACE
QC-2 (g)	11/03/94	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	PACE
QC-2 (g)	06/06/95	---	---	---	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	---	---	---	ATI
QC-2 (g)	09/01/95	---	---	---	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	---	---	---	ATI
QC-2 (g)	11/29/95	---	---	---	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	---	---	---	ATI
QC-2 (g)	03/23/96	---	---	---	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	---	---	---	SPL

Table 1 - Summary of Results of Groundwater Sampling

WELL ID	DATE OF SAMPLING/ MONITORING	1,2-DCA by 8010 (ug/l)	EDB by 8010 (ug/l)	MTBE by 8260 (ug/l)	DIPE by 8260 (ug/l)	ETBE by 8260 (ug/l)	TBA by 8260 (ug/l)	TAME by 8260 (ug/l)
MW-4	07/20/99	ND<1.0	ND<1.0	590	ND<10	ND<5.0	ND<500	ND<5.0
MW-5	07/20/99	---	---	490	ND<10	ND<10	ND<500	ND<10
MW-6	07/20/99	---	---	1400	ND<10	ND<10	ND<500	ND<10



Table 1 - Summary of Results of Groundwater Sampling

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
1,1,1-TCA	1,1,1-Trichloroethane
PCE	Tetrachloroethene
1,2-DCA	1,2-Dichloroethane
EDB	1,2-Dibromoethane
DIPE	Di-isopropyl Ether
ETBE	tert-Butyl Ethyl Ether
TBA	t-Butyl Alcohol
TAME	tert-Amyl Methyl Ether
DO	Dissolved oxygen
ug/l	Micrograms per liter
ppm	Parts per million
ND	Not detected above reported detection limit
---	Not measured/analyzed/applicable
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 39.95 feet above mean sea level.
- (b) Groundwater elevations in feet above mean sea level.
- (c) Blind duplicate.
- (d) A copy of the documentation for this data is included in Appendix C of Alisto report 10-060-07-001.
- (e) MTBE peak present. See documentation in Appendix C of Alisto report 10-060-07-001.
- (f) Well inaccessible.
- (g) Travel blank.

# Analytical Appendix



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

August 2, 1999

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

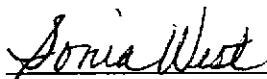
The following report contains analytical results for the sample(s) received at Southern Petroleum Laboratories (SPL) on July 22, 1999. The sample(s) was assigned to Certificate of Analysis No. (s) 9907828 and analyzed for all parameters as listed on the chain of custody.

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

Southern Petroleum Laboratories, Inc.

Certificate of Analysis Number: 99-07-828

Approved for Release by:

*Sonia West*

\_\_\_\_\_  
Sonia West, Senior Project Manager

*8-4-99*

\_\_\_\_\_  
Date

Joel Grice  
Laboratory Director

Ted Yen  
Corporate Quality Assurance Director

The attached analytical data package may not be reproduced except in full without the express written approval of this laboratory.  
The results relate only to the samples tested.  
Results reported on a Wet Weight Basis unless otherwise noted.



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

Certificate of Analysis No. H9-9907828-01

BP Oil Company  
 295 SW 41 Street Bldg.13, SteN  
 Renton, WA 98055  
 ATTN: Scott Hooton

P.O.#  
 N/A, COC#118682  
 DATE: 08/02/99

PROJECT: #11107, 18501 Hesperian  
 SITE: San Lorenzo  
 SAMPLED BY: Blaine Tech Services  
 SAMPLE ID: A

PROJECT NO: 990720-D1  
 MATRIX: WATER  
 DATE SAMPLED: 07/20/99 11:17:00  
 DATE RECEIVED: 07/22/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	24	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

<b>Surrogate</b>	<b>% Recovery</b>
1,4-Difluorobenzene	100
4-Bromofluorobenzene	100

Method 8020A \*\*\*

Analyzed by: CJ  
 Date: 07/30/99

Gasoline Range Organics	ND	0.05 P	mg/L
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<b>Surrogate</b>	<b>% Recovery</b>
1,4-Difluorobenzene	90
4-Bromofluorobenzene	93

California LUFT Manual for Gasoline  
 Analyzed by: CJ  
 Date: 07/30/99 19:40:00

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

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

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



HOUSTON LABORATORY

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

Certificate of Analysis No. H9-9907828-02

BP Oil Company  
295 SW 41 Street Bldg.13, SteN  
Renton, WA 98055  
ATTN: Scott Hooton

P.O.#  
N/A, COC#118682  
DATE: 08/02/99

PROJECT: #11107, 18501 Hesperian  
SITE: San Lorenzo  
SAMPLED BY: Blaine Tech Services  
SAMPLE ID: B

PROJECT NO: 990720-D1  
MATRIX: WATER  
DATE SAMPLED: 07/20/99 12:30:00  
DATE RECEIVED: 07/22/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	1300	10 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	100
4-Bromofluorobenzene	97

Method 8020A \*\*\*  
Analyzed by: CJ  
Date: 08/01/99

Gasoline Range Organics	ND	0.05 P	mg/L
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Surrogate	% Recovery
1,4-Difluorobenzene	93
4-Bromofluorobenzene	97

California LUFT Manual for Gasoline  
Analyzed by: CJ  
Date: 07/30/99 20:10:00

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

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

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.  
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HOUSTON LABORATORY  
 8880 INTERCHANGE DRIVE  
 HOUSTON, TEXAS 77054  
 PHONE (713) 660-0901

Certificate of Analysis No. H9-9907828-02

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

P.O.#  
 N/A, COC#118682  
 08/02/99

PROJECT: #11107, 18501 Hesperian  
 SITE: San Lorenzo  
 SAMPLED BY: Blaine Tech Services  
 SAMPLE ID: B

PROJECT NO: 990720-D1  
 MATRIX: WATER  
 DATE SAMPLED: 07/20/99 12:30:00  
 DATE RECEIVED: 07/22/99

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Methyl t-Butyl Ether	1400	100	ug/L
Di-isopropyl Ether	ND	10	ug/L
tert-Butyl Ethyl Ether	ND	10	ug/L
t-Butyl Alcohol	ND	500	ug/L
tert-Amyl Methyl Ether	ND	10	ug/L

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50 ug/L	90	80	120
Toluene-d8	50 ug/L	92	88	110
4-Bromofluorobenzene	50 ug/L	100	86	115

ANALYZED BY: LT DATE/TIME: 07/23/99 12:39:00  
 METHOD: 8260 Water, 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.  
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**HOUSTON LABORATORY**  
 8880 INTERCHANGE DRIVE  
 HOUSTON, TEXAS 77054  
 PHONE (713) 660-0901

Certificate of Analysis No. H9-9907828-03

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

P.O.#  
 N/A, COC#118682  
 DATE: 08/02/99

PROJECT: #11107, 18501 Hesperian  
 SITE: San Lorenzo  
 SAMPLED BY: Blaine Tech Services  
 SAMPLE ID: C

PROJECT NO: 990720-D1  
 MATRIX: WATER  
 DATE SAMPLED: 07/20/99 11:59:00  
 DATE RECEIVED: 07/22/99

**ANALYTICAL DATA**

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	470	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

<b>Surrogate</b>	<b>% Recovery</b>
1,4-Difluorobenzene	100
4-Bromofluorobenzene	100

Method 8020A \*\*\*

Analyzed by: CJ

Date: 08/01/99

Gasoline Range Organics	ND	0.05 P	mg/L
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<b>Surrogate</b>	<b>% Recovery</b>
1,4-Difluorobenzene	90
4-Bromofluorobenzene	97

California LUFT Manual for Gasoline

Analyzed by: CJ

Date: 07/30/99 20:41:00

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

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

**QUALITY ASSURANCE:** These analyses are performed in accordance with EPA guidelines for quality assurance.  
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HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907828-03

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

P.O.#  
N/A, COC#118682  
08/02/99

PROJECT: #11107, 18501 Hesperian  
SITE: San Lorenzo  
SAMPLED BY: Blaine Tech Services  
SAMPLE ID: C

PROJECT NO: 990720-D1  
MATRIX: WATER  
DATE SAMPLED: 07/20/99 11:59:00  
DATE RECEIVED: 07/22/99

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Methyl t-Butyl Ether	490	50	ug/L
Di-isopropyl Ether	ND	10	ug/L
tert-Butyl Ethyl Ether	ND	10	ug/L
t-Butyl Alcohol	ND	500	ug/L
tert-Amyl Methyl Ether	ND	10	ug/L

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50 ug/L	92	80	120
Toluene-d8	50 ug/L	92	88	110
4-Bromofluorobenzene	50 ug/L	100	86	115

ANALYZED BY: LT

DATE/TIME: 07/23/99 13:06:00

METHOD: 8260 Water, 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. H9-9907828-04

BP Oil Company  
295 SW 41 Street Bldg.13,SteN  
Renton, WA 98055  
ATTN: Scott Hooton

P.O.#  
N/A, COC#118682  
DATE: 08/02/99

PROJECT: #11107, 18501 Hesperian  
SITE: San Lorenzo  
SAMPLED BY: Blaine Tech Services  
SAMPLE ID: D

PROJECT NO: 990720-D1  
MATRIX: WATER  
DATE SAMPLED: 07/20/99 11:30:00  
DATE RECEIVED: 07/22/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	480	5.0 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

<b>Surrogate</b>	<b>% Recovery</b>
1,4-Difluorobenzene	100
4-Bromofluorobenzene	100
Method 8020A ***	
Analyzed by: CJ	
Date: 07/31/99	

Gasoline Range Organics ND 0.05 P mg/L

<b>Surrogate</b>	<b>% Recovery</b>
1,4-Difluorobenzene	90
4-Bromofluorobenzene	93
California LUFT Manual for Gasoline	
Analyzed by: CJ	
Date: 08/02/99 00:02:00	

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

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

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



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

Certificate of Analysis No. H9-9907828-04

BP Oil Company  
 295 SW 41 Street Bldg.13, SteN  
 Renton, WA 98055  
 ATTN: Scott Hooton

P.O.#  
 N/A, COC#118682  
 08/02/99

PROJECT: #11107, 18501 Hesperian  
 SITE: San Lorenzo  
 SAMPLED BY: Blaine Tech Services  
 SAMPLE ID: D

PROJECT NO: 990720-D1  
 MATRIX: WATER  
 DATE SAMPLED: 07/20/99 11:30:00  
 DATE RECEIVED: 07/22/99

PARAMETER	ANALYTICAL DATA		UNITS
	RESULTS	PQL*	
1,2-Dichloroethane	ND	1.0	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
SURROGATES		% RECOVERY	
Fluorobenzene		97	

ANALYZED BY: YN                                      DATE/TIME: 07/29/99 04:06:00  
 METHOD: Mod. 8021B (VOC) [SW 846]  
 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. H9-9907828-04

BP Oil Company  
 295 SW 41 Street Bldg.13,SteN  
 Renton, WA 98055  
 ATTN: Scott Hooton

P.O.#  
 N/A, COC#118682  
 08/02/99

PROJECT: #11107, 18501 Hesperian  
 SITE: San Lorenzo  
 SAMPLED BY: Blaine Tech Services  
 SAMPLE ID: D

PROJECT NO: 990720-D1  
 MATRIX: WATER  
 DATE SAMPLED: 07/20/99 11:30:00  
 DATE RECEIVED: 07/22/99

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Methyl t-Butyl Ether	590	50	ug/L
Di-isopropyl Ether	ND	10	ug/L
tert-Butyl Ethyl Ether	ND	5	ug/L
t-Butyl Alcohol	ND	500	ug/L
tert-Amyl Methyl Ether	ND	5	ug/L

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50 ug/L	88	80	120
Toluene-d8	50 ug/L	92	88	110
4-Bromofluorobenzene	50 ug/L	98	86	115

ANALYZED BY: LT DATE/TIME: 07/23/99 13:34:00  
 METHOD: 8260 Water, 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

*QUALITY CONTROL*

*DOCUMENTATION*



Matrix: Aqueous  
Units: ug/L

Batch Id: HP\_S990729181100

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery %	
MTBE	ND	50	45	90.0	72 - 128
Benzene	ND	50	41	82.0	61 - 119
Toluene	ND	50	41	82.0	65 - 125
EthylBenzene	ND	50	41	82.0	70 - 118
O Xylene	ND	50	42	84.0	72 - 117
M & P Xylene	ND	100	82	82.0	72 - 116

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
			MTBE	220	20	230	NC	240	NC
BENZENE	310	20	270	NC	270	NC	NC	21	32 - 164
TOLUENE	1.1	20	21	99.5	21	99.5	0	20	38 - 159
ETHYLBENZENE	8.8	20	26	86.0	26	86.0	0	19	52 - 142
O XYLENE	ND	20	20	100	21	105	4.88	18	53 - 143
M & P XYLENE	7.8	40	44	90.5	45	93.0	2.72	17	53 - 144

\* = 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 =  $[( <1> - <2> ) / <3> ] \times 100$

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

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

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

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

Analyst: CJ

Sequence Date: 07/29/99

SPL ID of sample spiked: 9907826-07A

Sample File ID: S\_G4077.TX0

Method Blank File ID:

Blank Spike File ID: S\_G4069.TX0

Matrix Spike File ID: S\_G4072.TX0

Matrix Spike Duplicate File ID: S\_G4073.TX0

SAMPLES IN BATCH(SPL ID):

9907826-06A 9907826-10A 9907826-05A 9907826-12A  
 9907826-04A 9907826-08A 9907826-11A 9907828-01A  
 9907828-02A 9907828-04A 9907826-09A 9907826-07A  
 9907826-01A 9907826-02A 9907826-03A



Matrix: Aqueous  
Units: ug/L

Batch Id: HP\_S990730220800

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery %	
MTBE	ND	50	43	86.0	72 - 128
Benzene	ND	50	42	84.0	61 - 119
Toluene	ND	50	42	84.0	65 - 125
EthylBenzene	ND	50	41	82.0	70 - 118
O Xylene	ND	50	42	84.0	72 - 117
M & P Xylene	ND	100	82	82.0	72 - 116

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
MTBE	ND	20	22	110	22	110	0	20	39 - 150
BENZENE	ND	20	19	95.0	19	95.0	0	21	32 - 164
TOLUENE	1.0	20	23	110	23	110	0	20	38 - 159
ETHYLBENZENE	ND	20	18	90.0	18	90.0	0	19	52 - 142
O XYLENE	ND	20	19	95.0	19	95.0	0	18	53 - 143
M & P XYLENE	ND	40	35	87.5	34	85.0	2.90	17	53 - 144

\* = 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)

Analyst: CJ

Sequence Date: 07/30/99

SPL ID of sample spiked: 9907A18-01A

Sample File ID: S\_G4136R.TX0

Method Blank File ID:

Blank Spike File ID: S\_G4109.TX0

Matrix Spike File ID: S\_G4170.TX0

Matrix Spike Duplicate File ID: S\_G4171.TX0

SAMPLES IN BATCH(SPL ID):

9907828-04A 9907828-02A 9907828-03A 9907A82-02A  
 9907A78-01A 9907A78-02A 9907A78-03A 9907A78-04A  
 9907A78-05A 9907A78-06A 9907A78-07A 9907A78-08A  
 9907A82-03A 9907A82-01A 9907A82-02A



\*\* SPL BATCH QUALITY CONTROL REPORT \*\*

California LUFT Manual for Gasoline

HOUSTON LABORATORY

8880 INTERCHANGE DRIVE

HOUSTON, TEXAS 77054

PHONE (713) 660-0901

Matrix: Aqueous

Batch Id: HP\_S990729221800

Units: mg/L

LABORATORY CONTROL SAMPLE

S P I K E C O M P O U N D S	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery %	
Gasoline Range Organics	ND	1.0	0.73	73.0	64 - 131

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		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
			GASOLINE RANGE ORGANICS	ND	0.90	0.63		70.0	0.64

\* = 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 =  $[( <1> - <2> ) / <3> ] \times 100$

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

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

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

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

Analyst: CJ

Sequence Date: 08/02/99

SPL ID of sample spiked: 9907826-09A

Sample File ID: SSG4078.TX0

Method Blank File ID:

Blank Spike File ID: SSH1003.TX0

Matrix Spike File ID: SSG4074.TX0

Matrix Spike Duplicate File ID: SSG4075.TX0

SAMPLES IN BATCH(SPL ID):

9907826-06A 9907826-10A 9907826-05A 9907826-12A  
 9907826-04A 9907826-08A 9907826-11A 9907828-01A  
 9907828-02A 9907828-03A 9907828-04A 9907826-07A  
 9907826-09A 9907826-01A 9907826-02A 9907826-03A





\*\* SPL BATCH QUALITY CONTROL REPORT \*\*  
Method 8021B \*\*\*

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

Matrix: Aqueous  
Units: ug/L

Batch Id: HP\_X990728132511

LABORATORY CONTROL SAMPLE

S P I K E C O M P O U N D S	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery %	
1,2-Dichloroethane	ND	20	18	90.0	70 - 130
1,2-Dibromoethane	ND	20	20	100	70 - 130

MATRIX SPIKES

S P I K E C O M P O U N D S	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
1,2-DICHLOROETHANE	ND	20	23	115	23	115	0	13	75 - 123
1,2-DIBROMOETHANE	ND	20	26	130	25	125	3.92	33	67 - 135

Analyst: YN

Sequence Date: 07/28/99

SPL ID of sample spiked: 9907887-03A

Sample File ID: XYG3074.TX0

Method Blank File ID:

Blank Spike File ID: XYG3067.TX0

Matrix Spike File ID: XYG3068.TX0

Matrix Spike Duplicate File ID: XYG3069.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 =  $((<1> - <2>) / <3>) \times 100$

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

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

(\*\*) = Source: Default limits 8021B

(\*\*\*) = Source: SPL Historicals for 1st Qtr. '97

SAMPLES IN BATCH(SPL ID): 9907826-02B 9907828-04B

3A  
 WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL

Contract:

Lab Code:

Case No.: 9907828

SAS No.:

SDG No.:

Matrix Spike - EPA Sample No.: D

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	50	0	45	90	61-145
Trichloroethene	50	0	53	106	71-120
Benzene	50	0	50	100	76-127
Toluene	50	0	43	86	76-125
Chlorobenzene	50	0	46	92	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
1,1-Dichloroethene	50	42	84	7	14	61-145
Trichloroethene	50	49	98	8	14	71-120
Benzene	50	46	92	8	11	76-127
Toluene	50	40	80	7	13	76-125
Chlorobenzene	50	43	86	7	13	75-130

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC limits due to matrix interference

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

SPL Houston Labs

RECOVERY REPORT

Client Name: Client SDG: 1990723  
 Sample Matrix: LIQUID Fraction: VOA  
 Lab Smp Id: METHSPIKE-8260W/1X  
 Level: LOW Operator: LT  
 Data Type: MS DATA SampleType: METHSPIKE  
 SpikeList File: 8260\_water.spk Quant Type: ISTD  
 Sublist File: 8260\_lcs.sub  
 Method File: /var/chem/1.i/1990723.b/l8260aw.m  
 Misc Info: L204W1/L204B01/L204CW1

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
8 1,1-Dichloroethene	50	44	88.00	61-145
29 Trichloroethene	50	54	108.00	71-120
25 Benzene	50	50	100.00	76-127
37 Toluene	50	46	92.00	76-125
45 Chlorobenzene	50	49	98.00	75-130

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
\$ 21 1,2-Dichloroethane	50	46	92.00	80-120
\$ 36 Toluene-d8	50	47	94.00	88-110
\$ 56 Bromofluorobenzene	50	50	100.00	86-115



SPL Blank QC Report

Matrix: Aqueous  
Sample ID: VLBLK  
Batch: L990723104642

Reported on: 07/29/99 11:18  
Analyzed on: 07/23/99 10:50  
Analyst: LT

METHOD 8260 L204B01

Compound	Result	Detection Limit	Units
Methyl t-Butyl Ether	ND	10	ug/L
t-Butyl Alcohol	ND	500	ug/L
Di-isopropyl Ether	ND	10	ug/L
tert-Butyl Ethyl Ether	ND	10	ug/L
tert-Amyl Methyl Ether	ND	10	ug/L

Surrogate	Result	QC Criteria	Units
1,2-Dichloroethane-d4	90	80-120	% Recovery
Toluene-d8	92	88-110	% Recovery
Bromofluorobenzene	100	86-115	% Recovery

Samples in Batch 9907828-02 9907828-03 9907828-04

Notes

ND - Not detected.

*CHAIN OF CUSTODY*  
*AND*  
*SAMPLE RECEIPT CHECKLIST*



9907828

CHAIN OF CUSTODY

No. 118682

CONSULTANT'S NAME <b>Blain Tech Services, Inc.</b>		CONSULTANT'S ADDRESS <b>1680 Rogers Ave., San Jose, CA 95112</b>	
BP SITE NUMBER <b>11107</b>	BP SITE / FACILITY ADDRESS <b>18501 Hesperian, San Lorenzo</b>		CONSULTANT PROJECT NUMBER <b>990720-01</b>
CONSULTANT PROJECT MANGER <b>Doug Sanders</b> <i>Morgan Hargrave</i>		PHONE NUMBER <b>(408) 573-0555 X218</b>	FAX NUMBER <b>(408) 573-7771</b>
BP CONTACT <b>Scott Hooton</b>	BP ADDRESS <b>295 SW 41st St., Renton, WA</b>	PHONE NUMBER <b>(425) 251-0689</b>	FAX NO. <b>(425) 251-0736</b>
LAB CONTACT <b>SPL - Sonia West</b>	LABORATORY ADDRESS <b>P.O. Box 20807, Houston, TX</b>	PHONE NUMBER <b>(800) 969-6775</b>	FAX NO. <b>(713) 660-8975</b>
BP CONTACT REQUESTING RUSH TAT (Print BP Contact Name)		RUSH REQUESTED OF (Print Consultant Contact Name)	DATE/TIME
			SHIPMENT DATE
			SHIPMENT METHOD
			AIRBILL NUMBER

TAT:  24 Hours  48 Hours  72 Hours  Standard 7 or 14 Days **AS Contracted**

ANALYSIS REQUIRED

SAMPLE DESCRIPTION	COLLECTION DATE	COLLECTION TIME	MATRIX SOIL/WATER	CONTAINERS		PRESERVATIVE	TPH-6	WTR	DTE	1/2 OGA	2000	67	6000	Ethanol	Oxyg	6260	6260	COMMENTS
				NO.	TYPE (VOL.)	LAB SAMPLE #												
A	7-20-99	11:17	water	3	Hel		X											
B		12:30		6	40 ml		X							X				
C		11:59		6			X							X				
D		11:30		9			X		X					X				

SAMPLED BY (Please Print Name) <b>Layne Row</b>			SAMPLED BY (Signature) <i>Layne Row</i>			ADDITIONAL COMMENTS <b>4°C</b>		
RELINQUISHED BY / AFFILIATION (Print Name / Signature)	DATE	TIME	ACCEPTED BY / AFFILIATION (Print Name / Signature)	DATE	TIME	<b>813420764759</b>		
<i>Layne Row</i>	7-21-99	4:15						
			<i>Julia</i>	7/22/99	10:00			

# SPL Houston Environmental Laboratory

## Sample Login Checklist

Date: <u>7/22/99</u>	Time: <u>1000</u>
----------------------	-------------------

SPL Sample ID:  <u>9907828</u>
--------------------------------------

		<u>Yes</u>	<u>No</u>
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:	<u>4° C</u>	
10	Method of sample delivery to SPL:	SPL Delivery	
		Client Delivery	
		FedEx Delivery (airbill #)	<u>813420764759</u>
		Other:	
11	Method of sample disposal:	SPL Disposal	
		HOLD	
		Return to Client	

Name:	Date:
-------	-------

# **Field Data Sheets**





## WELL MONITORING DATA SHEET

Project #: <u>990720-01</u>	Client: <u>BP 11107</u>
Sampler: <u>Layne</u>	Start Date: <u>7-20-99</u>
Well I.D.: <u>MW-4</u>	Well Diameter: <u>2</u> 3 4 6 8 _____
Total Well Depth: <u>25.21</u>	Depth to Water: <u>16.39</u>
Before: _____ After: _____	Before: _____ After: _____
Depth to Free Product: _____	Thickness of Free Product (feet): _____
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH

Purge Method: Bailer  
Disposable Bailer  
 Middleburg  
 Electric Submersible  
 Extraction Pump  
 Other: \_\_\_\_\_

Sampling Method: Bailer  
Disposable Bailer  
 Extraction Port  
 Other: \_\_\_\_\_

1.4 (Gals.) X 3 = 4.2 Gals.  
 1 Case Volume      Specified Volumes      Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
2"	0.16	5"	1.02
3"	0.37	6"	1.47
4"	0.65	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
<u>11:22</u>	<u>69.2</u>	<u>6.8</u>	<u>903</u>	<u>&gt;200</u>	<u>1.5</u>	
<u>11:25</u>	<u>69.0</u>	<u>6.8</u>	<u>905</u>	<u>184</u>	<u>3</u>	
<u>11:28</u>	<u>69.2</u>	<u>6.8</u>	<u>908</u>	<u>&gt;200</u>	<u>4.5</u>	

Did well dewater? Yes  No  Gallons actually evacuated: 4.5

Sampling Time: 11:30 Sampling Date: 7-20-99

Sample I.D.: 0 Laboratory: SPL

Analyzed for: TPH-G BTEX MTBE TPH-D Other: 1.2 OCA & EOB by 8010  
Ether oxygenates by 8260

Equipment Blank I.D.: \_\_\_\_\_ @ \_\_\_\_\_ Time Duplicate I.D.: \_\_\_\_\_

Analyzed for: TPH-G BTEX MTBE TPH-D Other: \_\_\_\_\_

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
ORP (if req'd):	Pre-purge:	mV	Post-purge:	mV

## WELL MONITORING DATA SHEET

Project #: <u>990720-01</u>	Client: <u>BP 11107</u>
Sampler: <u>Layne</u>	Start Date: <u>7-20-99</u>
Well I.D.: <u>MW-5</u>	Well Diameter: <u>0</u> 3 4 6 8 <u>    </u>
Total Well Depth: <u>24.55</u>	Depth to Water: <u>16.36</u>
Before:                      After:	Before:                      After:
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd):                      YSI                      HACH

Purge Method: Bailer  
Disposable Bailer  
 Middleburg  
 Electric Submersible  
 Extraction Pump

Sampling Method: Bailer  
Disposable Bailer  
 Extraction Port  
 Other: \_\_\_\_\_

Other: \_\_\_\_\_

1.3 (Gals.) X 3 = 3.9 Gals.  
 1 Case Volume                      Specified Volumes                      Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
2"	0.16	5"	1.02
3"	0.37	6"	1.47
4"	0.65	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
<u>11:45</u>	<u>68.3</u>	<u>6.9</u>	<u>887</u>	<u>&gt;200</u>	<u>1.5</u>	
<u>11:50</u>	<u>67.7</u>	<u>6.8</u>	<u>887</u>	<u>&gt;200</u>	<u>3</u>	
<u>11:55</u>	<u>67.4</u>	<u>6.8</u>	<u>886</u>	<u>&gt;200</u>	<u>4</u>	

Did well dewater? Yes  No  Gallons actually evacuated: 4

Sampling Time: 11:59 Sampling Date: 7-20-99

Sample I.D.: C Laboratory: SPL

Analyzed for: TPH-G BTEX MTBE TPH-D Other: Ether oxygenates by 8260

Equipment Blank I.D.: \_\_\_\_\_ @ \_\_\_\_\_ Time Duplicate I.D.: \_\_\_\_\_

Analyzed for: TPH-G BTEX MTBE TPH-D Other: \_\_\_\_\_

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
ORP (if req'd):	Pre-purge:	mV	Post-purge:	mV

## WELL MONITORING DATA SHEET

Project #: <u>990720-01</u>	Client: <u>BP 11107</u>
Sampler: <u>Layne</u>	Start Date: <u>7-20-99</u>
Well I.D.: <u>MW-6</u>	Well Diameter: <u>2</u> 3 4 6 8 <u>   </u>
Total Well Depth: <u>24.95</u>	Depth to Water: <u>16.12</u>
Before:                      After:	Before:                      After:
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd):              YSI              HACH

Purge Method:

Bailer  
 Disposable Bailer  
 Middleburg  
 Electric Submersible  
 Extraction Pump

Sampling Method:

Bailer  
 Disposable Bailer  
 Extraction Port  
 Other: \_\_\_\_\_

Other: \_\_\_\_\_

Well Diameter	Multiplier	Well Diameter	Multiplier
2"	0.16	5"	1.02
3"	0.37	6"	1.47
4"	0.65	Other	radius <sup>2</sup> * 0.163

<u>1.4</u>	(Gals.) X	<u>3</u>	=	<u>4.2</u>	Gals.
1 Case Volume		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
<u>12:15</u>	<u>67.6</u>	<u>7.0</u>	<u>903</u>	<u>&gt;200</u>	<u>1.5</u>	
<u>12:20</u>	<u>67.3</u>	<u>6.8</u>	<u>900</u>	<u>&gt;200</u>	<u>3</u>	
<u>12:25</u>	<u>67.2</u>	<u>6.8</u>	<u>898</u>	<u>&gt;200</u>	<u>4.5</u>	

Did well dewater? Yes  No  Gallons actually evacuated: 4.5

Sampling Time: 12:30 Sampling Date: 7-20-99

Sample I.D.: B Laboratory: SPL

Analyzed for: TPH-G BTEX MTBE TPH-D Other: Ether oxygenates by 8260

Equipment Blank I.D.: \_\_\_\_\_ @ \_\_\_\_\_ Time Duplicate I.D.: \_\_\_\_\_

Analyzed for: TPH-G BTEX MTBE TPH-D Other: \_\_\_\_\_

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
ORP (if req'd):	Pre-purge:	mV	Post-purge:	mV

## WELL MONITORING DATA SHEET

Project #: <u>990720-01</u>	Client: <u>B811107</u>
Sampler: <u>Layne</u>	Start Date: <u>7-20-99</u>
Well I.D.: <u>MW-7</u>	Well Diameter: <u>2</u> 3 4 6 8
Total Well Depth: <u>24.45</u>	Depth to Water: <u>16.54</u>
Before:                      After:	Before:                      After:
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd):                      YSI                      HACH

Purge Method:                      Bailer  
Disposable Bailer  
Middleburg  
Electric Submersible  
Extraction Pump  
 Other: \_\_\_\_\_

Sampling Method:                      Bailer  
Disposable Bailer  
Extraction Port  
 Other: \_\_\_\_\_

<u>1.3</u>	(Gals.) X	<u>3</u>	=	<u>3.9</u>	Gals.
1 Case Volume		Specified Volumes		Calculated Volume	

Well Diameter	Multiplier	Well Diameter	Multiplier
2"	0.16	5"	1.02
3"	0.37	6"	1.47
4"	0.65	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
<u>11:10</u>	<u>68.8</u>	<u>6.7</u>	<u>1056</u>	<u>&gt;200</u>	<u>1.5</u>	
<u>11:13</u>	<u>68.0</u>	<u>6.8</u>	<u>899</u>	<u>&gt;200</u>	<u>3</u>	
<u>11:15</u>	<u>67.8</u>	<u>6.8</u>	<u>882</u>	<u>&gt;200</u>	<u>4</u>	

Did well dewater? Yes  No  Gallons actually evacuated: 4

Sampling Time: 11:17                      Sampling Date: 7-20-99

Sample I.D.: A                      Laboratory: SPL

Analyzed for: TPH-G BTEX MTBE ~~TPH-D~~ Other: \_\_\_\_\_

Equipment Blank I.D.: \_\_\_\_\_ @ \_\_\_\_\_ Time                      Duplicate I.D.: \_\_\_\_\_

Analyzed for: TPH-G BTEX MTBE TPH-D Other: \_\_\_\_\_

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
ORP (if req'd):	Pre-purge:	mV	Post-purge:	mV