



BP OIL

ENVIRONMENTAL
PROTECTION

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

January 14, 1999

Alameda County Health Care Services Agency
Attention Mr. Brian Oliva
1131 Harbour Bay Parkway, Room 250
Alameda, CA 94505-6577

RE: Former BP Oil Site No. 11107
18501 Hesperian Boulevard (at Bockman)
San Lorenzo, CA
STID 780

Dear Mr. Oliva:

This letter transmits the 8 January 1999 *Groundwater Monitoring and Sampling Report* prepared by Alisto Engineering Group on behalf of BP.

The petroleum release at this site was documented during 1992 when BP performed a site assessment in support of plans to withdraw from the California retail market.

The enclosed report shows that aromatic petroleum hydrocarbons were detected in groundwater samples obtained from four the monitoring wells sampled on 5 November 1998. The highest benzene concentration was detected in a sampled obtained from well MW-4 (7.7 ug/l).

Please contact me at (425) 251-0689 if you have questions regarding this matter.

Sincerely,

Scott Hooton

attachment

cc: site file
Dave Camille - Tosco (w/attachment)
Fran Thie - Blaine (w/attachment)

GROUNDWATER MONITORING AND SAMPLING REPORT

**BP Oil Company Service Station No. 11107
18501 Hesperian Boulevard
San Lorenzo, California**

Project No. 10-060-09-001

JAN 12 1999

BP OIL CO
BP ENVIRONMENTAL UNIT
SOUTH COAST REGION OFFICE

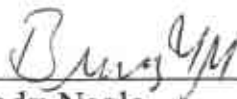
Prepared for:

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

Prepared by:

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

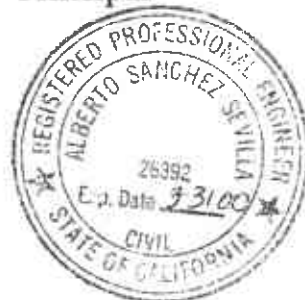
January 8, 1999



**Brady Nagle
Project Manager**



**Al Sevilla, P.E.
Principal**



GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11107
18501 Hesperian Boulevard
San Lorenzo, California

Project No. 10-060-09-001

January 8, 1999

INTRODUCTION

This report presents the results of the November 5, 1998 groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Company Service Station No. 11107, 18501 Hesperian Boulevard, San Lorenzo, California. A site vicinity map is shown on Figure 1.

FIELD PROCEDURES

Field activities were performed in accordance with the procedures and guidelines of the Alameda County Health Care Services Agency and the California Regional Water Quality Control Board, San Francisco Bay Region.

Before purging and sampling, the groundwater level in each well was measured from a permanent mark on top of the casing to the nearest 0.01 foot using an electronic sounder. The depth to groundwater and top of casing elevation data were used to calculate the groundwater elevation in each well in reference to mean sea level. The survey data and groundwater elevation measurements collected to date are presented in Table 1.

Before sample collection, each well was purged of 3 casing volumes while recording field readings of pH, temperature, electrical conductivity, and dissolved oxygen. Groundwater samples were collected for laboratory analysis by lowering a bottom-fill, disposable bailer to just below the water level in the well. The samples were transferred from the bailer into laboratory-supplied containers. The water sampling field survey forms are presented in Appendix A.

SAMPLING AND ANALYTICAL RESULTS

The results of monitoring and laboratory analysis of the groundwater samples collected during this and previous quarters are summarized in Table 1. The potentiometric groundwater elevations as interpreted from the results of this monitoring event are shown on Figure 2. The results of laboratory 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. 11107
 18501 HESPERIAN BOULEVARD, SAN LORENZO, CALIFORNIA

ALISTO PROJECT NO. 10-060

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	DEPTH TO WATER (a) (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	TOG (ug/l)	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	7.0	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<0.5	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	ND<1	ND<1	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	---	---	---	5.3	SPL
MW-1	07/08/98	41.07	16.66	24.41	---	---	---	---	---	---	---	---	---	---	---	---
MW-1	11/05/98	41.07	17.89	23.18	---	---	---	---	---	---	---	---	---	---	---	---
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	ATI
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	11/05/98	40.56	17.27	23.29	---	---	---	---	---	---	---	---	---	---	---	---
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	---	---	---	---	2.0	PACE
MW-3	11/03/94	40.45	19.40	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	11/05/98	40.45	17.42	23.03	---	---	---	---	---	---	---	---	---	---	---	---

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 BP OIL COMPANY SERVICE STATION NO. 11107
 18501 HESPERIAN BOULEVARD, SAN LORENZO, CALIFORNIA

ALISTO PROJECT NO. 10-060

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (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-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	---	---	---	---	---	---	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	11/05/98	39.24	16.50	22.74	1100	---	7.7	ND<1.0	54	55.6	550	---	---	---	5.8	SPL
QC-1 (c)	11/05/98	---	---	---	1100	---	7.6	ND<1.0	53	54.8	560	---	---	---	---	SPL
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	11/05/98	39.07	16.40	22.67	430	---	1.8	ND<1.0	3.3	1.3	340	---	---	---	6.0	SPL
MW-6	03/01/95	38.46	15.66	22.80	270	---	(e) 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	---	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	11/05/98	38.46	16.03	22.43	1600	---	2.7	ND<1.0	ND<1.0	ND<1.0	1300	---	---	---	6.5	SPL

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 BP OIL COMPANY SERVICE STATION NO. 11107
 18501 HESPERIAN BOULEVARD, SAN LORENZO, CALIFORNIA

ALISTO PROJECT NO. 10-060

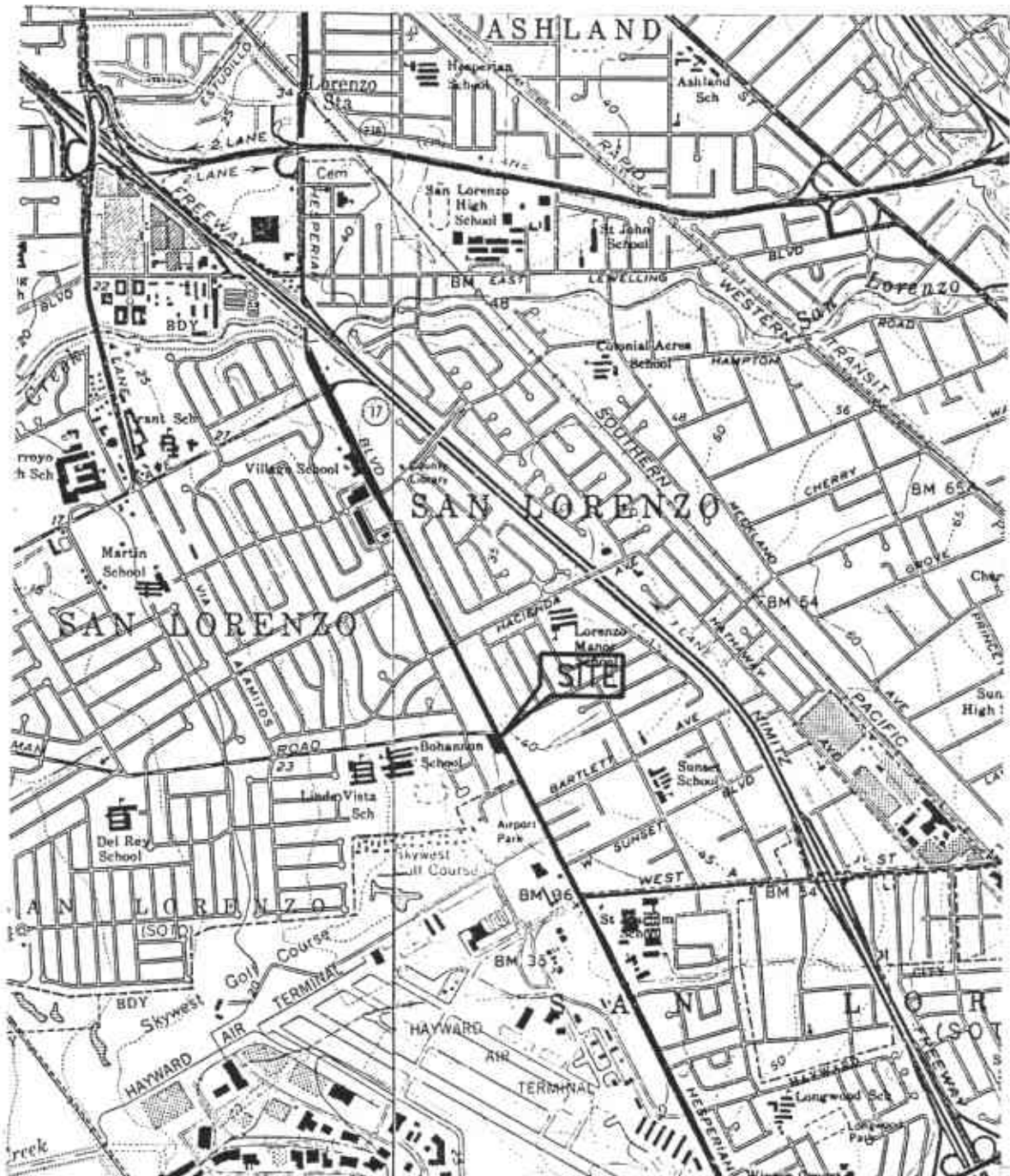
WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	DEPTH TO WATER (Feet) (a)	GROUNDWATER ELEVATION (Feet) (b)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	TOG (ug/l)	1,1,1-TCA (ug/l)	PCE (ug/l)	DO (ppm)	LAB
MW-7	03/01/95	39.50	16.21	23.29	1400	---	14	ND<1.0	14	27	---	---	---	---	1.8	ATI
MW-7	06/06/95	39.50	16.34	23.16	540	---	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	11/05/98	39.50	16.51	22.99	190	---	ND<0.5	ND<1.0	2.2	ND<1.0	110	---	---	---	6.3	SPL
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

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 Tetrachloroethane
 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.



SOURCE:
USGS MAP, HAYWARD & SAN LEANDRO QUADRANGLES,
7.5 MINUTE SERIES, 1959.
PHOTOREVISED 1980.



QUADRANGLE LOCATION

0 1000' 2000'

FIGURE 1

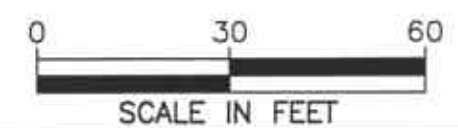
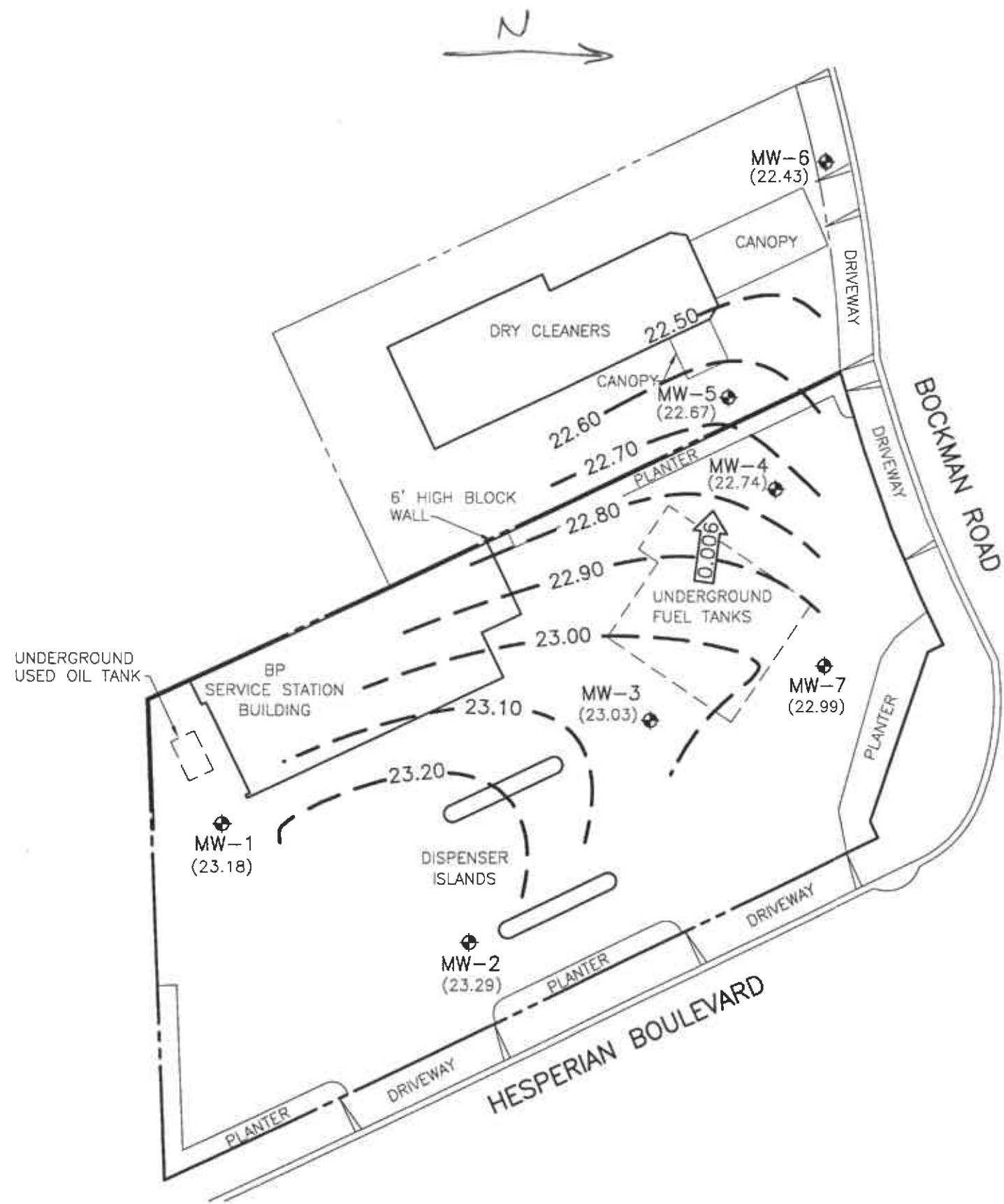
VICINITY MAP

BP OIL SERVICE STATION NO. 11107
18501 HESPERIAN BOULEVARD
SAN LORENZO, CALIFORNIA

PROJECT NO. 10-060



ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA



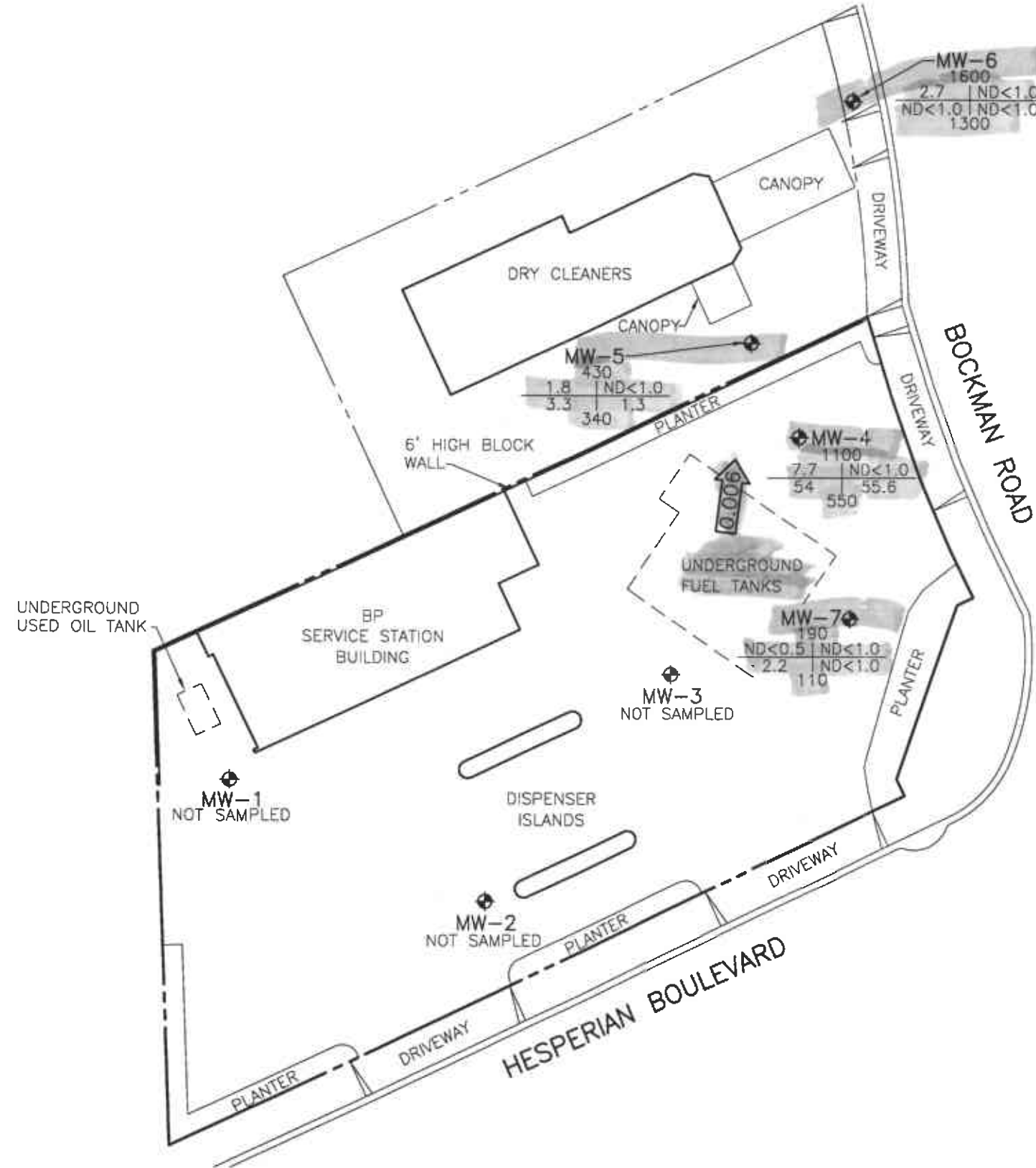
LEGEND

- ◆ GROUNDWATER MONITORING WELL
- (22.43) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- - - 22.50 - - - GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL=0.10 FOOT)
- ← 0.006 ← CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

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

FIGURE 2
POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP
 NOVEMBER 5, 1998
 BP OIL SERVICE STATION NO. 11107
 18501 HESPERIAN BOULEVARD
 SAN LORENZO, CALIFORNIA
 PROJECT NO. 10-060

10/060-3.DWG: 12-21-98 TML 1-30



LEGEND

- GROUNDWATER MONITORING WELL
- 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
- CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 3
CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER
NOVEMBER 5, 1998
 BP OIL SERVICE STATION NO. 11107
 18501 HESPERIAN BOULEVARD
 SAN LORENZO, CALIFORNIA
 PROJECT NO. 10-060

APPENDIX A
WATER SAMPLING FIELD SURVEY FORMS

ALISTO

Field Report / Sampling Data Sheet

ENGINEERING

GROUP

1575 TREAT BOULEVARD, SUITE 201

WALNUT CREEK CA 94598 (925) 295-1650 FAX 295-1823

Project No. 10-060-09-001

Address 18501 Hesperian Blvd

Contract No. H451304

Station No. BP 11107

Date: 11/5/98

Day: M T W T H F

City: San Lorenzo

Sampler: LORTCER

DEPTH TO GROUNDWATER SUMMARY

WELL ID	SAMPLE ID	WELL DIAM	TOTAL DEPTH	DEPTH TO WATER	PRODUCT THICKNESS	TIME MONITORED	COMMENTS: DBA DBA:
MW-1	S-1	2"	30.70	17.89	Ø	0955	Annual/ Do Not Sample TD = 30.55'
MW-2	S-2	2"	25.00	17.27		1001	Annual/ Do Not Sample TD = 24.76'
MW-3	S-3	2"	25.00	17.42		1007	Annual/ Do Not Sample TD = 24.99'
MW-4	S-4	2"	26.00	16.50		1030	S-4 QC-1(S-5) From this well TD = 25.05'
MW-5	S-5	2"	26.00	16.40		1020	S-2 TD = 24.40'
MW-6	S-4	2"	26.00	16.03		1015	S-1 TD = 24.78'
MW-7	S-6	2"	26.00	16.51	✓	1025	S-3 TD = 24.32'

FIELD INSTRUMENT CALIBRATION DATA

pH METER Hydak 4.00 4 7.00 7 10.00 10 TEMPERATURE COMPENSATED Y N TIME 1000 WEATHER Clear

D.O. METER Lim ZERO d.O. SOLUTION _____ BAROMETRIC PRESSURE 760 TEMP 64

CONDUCTIVITY METER Hydak 10,000 X TURBIDITY METER _____ 5.0 NTU _____ OTHER _____

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
MW-6	16.03	2"	OK	Ø	Y (N)	1		72.1	7.17	80µs	6.1
Total Depth - Water Level =						2		70.6	7.08	706µs	
Purge Method: <input checked="" type="checkbox"/> Surface Pump <input type="checkbox"/> Disp. Tube <input type="checkbox"/> Winch <input type="checkbox"/> Disp. Bailer(s) <input type="checkbox"/> OSys Port						5		69.7	7.04	701µs	6.5
Comments:											

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

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
MW-5	16.40	2"	OK	Ø	Y (N)	1		68.4	6.75	735µs	5.7
Total Depth - Water Level =						2		69.6	7.02	755µs	
Purge Method: <input type="checkbox"/> Surface Pump <input type="checkbox"/> Disp. Tube <input type="checkbox"/> Winch <input type="checkbox"/> Disp. Bailer(s) <input type="checkbox"/> OSys Port						4		69.9	7.07	762µs	6.0
Comments:											

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

ALISTO

Field Report / Sampling Data Sheet

ENGINEERING

GROUP

1575 TREAT BOULEVARD, SUITE 201

WALNUT CREEK CA 94598 (925) 295-1650 FAX 295-1823

Project No. 10-060-09-001

Address 18501 Hesperian Blvd

Contract No. H451304

Station No. BP 11107

Date: 11/5/98

Day: M T W T F

City: San Lorenzo

Sampler: LUB/CFR

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.		
MW-7	16.51	2"	OK	Ø	Y <input checked="" type="radio"/> N	1		69.3	6.74	714µs	6.3	<input type="radio"/> EPA 601	
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge	PurgeVol.					<input checked="" type="radio"/> TPH-G/BTEX
24.32 - 16.51 = 7.81 x .16 = 1.25 x 3 = 3.75						2	7	70.0	7.02	762µs		<input type="radio"/> TPH Diesel	
Purge Method: <input checked="" type="checkbox"/> Surface Pump <input type="checkbox"/> ODisp.Tube <input type="checkbox"/> OWinch <input type="checkbox"/> ODisp. Bailer(s) <input type="checkbox"/> OSys Port												<input type="radio"/> TOG 5520	
Comments:												TIME/SAMPLE ID	

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.		
MW-4	16.50	2"	OK	Ø	Y <input checked="" type="radio"/> N	1		68.8	6.82	754µs	5.5	<input type="radio"/> EPA 601	
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge	PurgeVol.					<input checked="" type="radio"/> TPH-G/BTEX
25.05 - 16.50 = 8.55 x .16 = 1.37 x 3 = 4.11						2	5	70.6	7.82	782µs		<input type="radio"/> TPH Diesel	
Purge Method: <input checked="" type="checkbox"/> Surface Pump <input type="checkbox"/> ODisp.Tube <input type="checkbox"/> OWinch <input type="checkbox"/> ODisp. Bailer(s) <input type="checkbox"/> OSys Port												<input type="radio"/> TOG 5520	
Comments: QC-1 (S-5) From this well												TIME/SAMPLE ID	

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.		
					Y <input type="radio"/> N							<input type="radio"/> EPA 601	
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge	PurgeVol.					<input type="radio"/> TPH-G/BTEX
Purge Method: <input type="checkbox"/> Surface Pump <input type="checkbox"/> ODisp.Tube <input type="checkbox"/> OWinch <input type="checkbox"/> ODisp. Bailer(s) <input type="checkbox"/> OSys Port												<input type="radio"/> TPH Diesel	
Comments:												<input type="radio"/> TOG 5520	
												TIME/SAMPLE ID	

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.		
					Y <input type="radio"/> N							<input type="radio"/> EPA 601	
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge	PurgeVol.					<input type="radio"/> TPH-G/BTEX
Purge Method: <input type="checkbox"/> Surface Pump <input type="checkbox"/> ODisp.Tube <input type="checkbox"/> OWinch <input type="checkbox"/> ODisp. Bailer(s) <input type="checkbox"/> OSys Port												<input type="radio"/> TPH Diesel	
Comments:												<input type="radio"/> TOG 5520	
												TIME/SAMPLE ID	

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.		
					Y <input type="radio"/> N							<input type="radio"/> EPA 601	
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge	PurgeVol.					<input type="radio"/> TPH-G/BTEX
Purge Method: <input type="checkbox"/> Surface Pump <input type="checkbox"/> ODisp.Tube <input type="checkbox"/> OWinch <input type="checkbox"/> ODisp. Bailer(s) <input type="checkbox"/> OSys Port												<input type="radio"/> TPH Diesel	
Comments:												<input type="radio"/> TOG 5520	
												TIME/SAMPLE ID	

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD



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

November 20, 1998

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

The following report contains analytical results for the sample(s) received at Southern Petroleum Laboratories (SPL) on November 12, 1998. The sample(s) was assigned to Certificate of Analysis No.(s) 9811535 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 results page(s) or the quality control summary page(s).

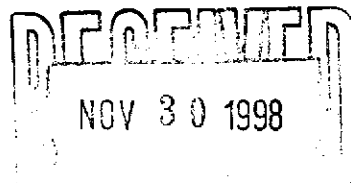
If you have any questions or comments pertaining to this data report, please do not hesitate to contact me. Please reference the above Certificate of Analysis No. during any inquiries.

Again, SPL is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

Southern Petroleum Laboratories



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: 98-11-535

Approved for Release by:

Sonia West

Sonia West, Senior Project Manager

11-20-98

Date

Greg Grandits
Laboratory Director

Cynthia Schreiner
Quality Assurance Officer

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. H9-9811535-01

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

P.O.#
 N/A, COC#095789
 DATE: 11/20/98

PROJECT: #11107, N/A
 SITE: San Lorenzo, CA
 SAMPLED BY: Alisto Engineering
 SAMPLE ID: S-1

PROJECT NO: 10-060-09/001
 MATRIX: WATER
 DATE SAMPLED: 11/05/98
 DATE RECEIVED: 11/12/98

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	1300	100 P	ug/L
Benzene	2.7	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

Surrogate

% Recovery

1,4-Difluorobenzene

97

4-Bromofluorobenzene

107

Method 8020A***

Analyzed by: TB

Date: 11/17/98

Gasoline Range Organics

1.6 0.050 P

mg/L

Surrogate

% Recovery

1,4-Difluorobenzene

103

4-Bromofluorobenzene

100

California LUFT Manual for Gasoline

Analyzed by: TB

Date: 11/17/98 01:43:00

(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. H9-9811535-02

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

P.O.#
 N/A, COC#095789
 DATE: 11/20/98

PROJECT: #11107, N/A
 SITE: San Lorenzo, CA
 SAMPLED BY: Alisto Engineering
 SAMPLE ID: S-2

PROJECT NO: 10-060-09/001
 MATRIX: WATER
 DATE SAMPLED: 11/05/98
 DATE RECEIVED: 11/12/98

PARAMETER	ANALYTICAL DATA			UNITS
	RESULTS	DETECTION LIMIT		
MTBE	340	10 P		ug/L
Benzene	1.8	0.5 P		ug/L
Toluene	ND	1.0 P		ug/L
Ethylbenzene	3.3	1.0 P		ug/L
Total Xylene	1.3	1.0 P		ug/L
Surrogate	% Recovery			
1,4-Difluorobenzene	97			
4-Bromofluorobenzene	110			
Method 8020A***				
Analyzed by: TB				
Date: 11/16/98				
Gasoline Range Organics	0.43	0.05 P		mg/L
Surrogate	% Recovery			
1,4-Difluorobenzene	107			
4-Bromofluorobenzene	100			
California LUFT Manual for Gasoline				
Analyzed by: TB				
Date: 11/16/98 17:03:00				

(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. H9-9811535-03

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

P.O.#
 N/A, COC#095789
 DATE: 11/20/98

PROJECT: #11107, N/A
 SITE: San Lorenzo, CA
 SAMPLED BY: Alisto Engineering
 SAMPLE ID: S-3

PROJECT NO: 10-060-09/001
 MATRIX: WATER
 DATE SAMPLED: 11/05/98
 DATE RECEIVED: 11/12/98

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	110	10 P	ug/L
Benzene	ND	0.5 P	ug/L
Toluene	ND	1.0 P	ug/L
Ethylbenzene	2.2	1.0 P	ug/L
Total Xylene	ND	1.0 P	ug/L

Surrogate

% Recovery

1,4-Difluorobenzene

97

4-Bromofluorobenzene

103

Method 8020A***

Analyzed by: TB

Date: 11/17/98

Gasoline Range Organics

0.19 0.050 P

mg/L

Surrogate

% Recovery

1,4-Difluorobenzene

103

4-Bromofluorobenzene

100

California LUFT Manual for Gasoline

Analyzed by: TB

Date: 11/17/98 02:08:00

(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. H9-9811535-04

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

P.O.#
 N/A, COC#095789
 DATE: 11/20/98

PROJECT: #11107, N/A
 SITE: San Lorenzo, CA
 SAMPLED BY: Alisto Engineering
 SAMPLE ID: S-4

PROJECT NO: 10-060-09/001
 MATRIX: WATER
 DATE SAMPLED: 11/05/98
 DATE RECEIVED: 11/12/98

PARAMETER	ANALYTICAL DATA			UNITS
	RESULTS	DETECTION LIMIT		
MTBE	550	50 P		ug/L
Benzene	7.7	0.5 P		ug/L
Toluene	ND	1.0 P		ug/L
Ethylbenzene	54	1.0 P		ug/L
Total Xylene	55.6	1.0 P		ug/L
Surrogate	% Recovery			
1,4-Difluorobenzene	93			
4-Bromofluorobenzene	107			
Method 8020A***				
Analyzed by: TB				
Date: 11/17/98				
Gasoline Range Organics	1.1	0.05 P		mg/L
Surrogate	% Recovery			
1,4-Difluorobenzene	107			
4-Bromofluorobenzene	97			
California LUFT Manual for Gasoline				
Analyzed by: TB				
Date: 11/16/98 12:19:00				

(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. H9-9811535-05

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

P.O.#
 N/A, COC#095789
 DATE: 11/20/98

PROJECT: #11107, N/A
 SITE: San Lorenzo, CA
 SAMPLED BY: Alisto Engineering
 SAMPLE ID: S-5

PROJECT NO: 10-060-09/001
 MATRIX: WATER
 DATE SAMPLED: 11/05/98
 DATE RECEIVED: 11/12/98

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	560	50 P	ug/L
Benzene	7.6	0.5 P	ug/L
Toluene	ND	1.0 P	ug/L
Ethylbenzene	53	1.0 P	ug/L
Total Xylene	54.8	1.0 P	ug/L
Surrogate			
	% Recovery		
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	107		
Method 8020A***			
Analyzed by: TB			
Date: 11/17/98			
Gasoline Range Organics	1.1	0.05 P	mg/L
Surrogate			
	% Recovery		
1,4-Difluorobenzene	107		
4-Bromofluorobenzene	100		
California LUFT Manual for Gasoline			
Analyzed by: TB			
Date: 11/16/98 17:28:00			

(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

QUALITY CONTROL

DOCUMENTATION



Batch Id: HP_N981116070000

Units: ug/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 %	
MTBE	ND	50	45	90.0	72 - 128
Benzene	ND	50	48	96.0	61 - 119
Toluene	ND	50	48	96.0	65 - 125
EthylBenzene	ND	50	49	98.0	70 - 118
O Xylene	ND	50	49	98.0	72 - 117
M & P Xylene	ND	100	95	95.0	72 - 116

MATRIX SPIKES

S P I K E C O M P O U N D S	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
			MTBE	ND	20	22	110	21	105
BENZENE	ND	20	20	100	21	105	4.88	21	32 - 164
TOLUENE	ND	20	20	100	21	105	4.88	20	38 - 159
ETHYLBENZENE	ND	20	20	100	21	105	4.88	19	52 - 142
O XYLENE	ND	20	21	105	22	110	4.65	18	53 - 143
M & P XYLENE	ND	40	41	102	41	102	0	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: TB

Sequence Date: 11/16/98

SPL ID of sample spiked: 9811484-01B

Sample File ID: N_K3014.TX0

Method Blank File ID:

Blank Spike File ID: N_K3005.TX0

Matrix Spike File ID: N_K3009.TX0

Matrix Spike Duplicate File ID: N_K3010.TX0

SAMPLES IN BATCH(SPL ID):

9811488-01A 9811488-02A 9811488-03A 9811488-04A
9811488-06A 9811488-05A 9811535-02A 9811535-05A
9811358-05A 9811358-06A 9811535-04A



SPL BATCH QUALITY CONTROL REPORT **

METHOD 8020

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

Batch Id: HP_N981116214200

Units: ug/L

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	47	94.0	61 - 119
Toluene	ND	50	47	94.0	65 - 125
EthylBenzene	ND	50	47	94.0	70 - 118
O Xylene	ND	50	48	96.0	72 - 117
M & P Xylene	ND	100	92	92.0	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	1400	20	1300		NC	1300
BENZENE	2.7	20	23	102	23	102	0	21	32 - 164
TOLUENE	ND	20	20	100	19	95.0	5.13	20	38 - 159
ETHYLBENZENE	ND	20	18	90.0	18	90.0	0	19	52 - 142
O XYLENE	ND	20	21	105	20	100	4.88	18	53 - 143
M & P XYLENE	ND	40	37	92.5	36	90.0	2.74	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: TB

Sequence Date: 11/16/98

SPL ID of sample spiked: 9811535-01A

Sample File ID: N_K3047.TX0

Method Blank File ID:

Blank Spike File ID: N_K3039.TX0

Matrix Spike File ID: N_K3041.TX0

Matrix Spike Duplicate File ID: N_K3042.TX0

SAMPLES IN BATCH(SPL ID):

9811535-03A 9811488-05A 9811488-03A 9811488-04A
9811488-06A 9811535-01A 9811535-04A 9811535-05A
9811684-03A 9811535-01A 9811684-02A 9811684-01A



* SPL BATCH QUALITY CONTROL REPORT **

California LUFT Manual for Gasoline

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

Batch Id: HP_N981116072400

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	0.95	95.0	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	1.1	0.90	2.0			

Analyst: TB

Sequence Date: 11/16/98

SPL ID of sample spiked: 9811535-04A

Sample File ID: NNK3015.TX0

Method Blank File ID:

Blank Spike File ID: NNK3006.TX0

Matrix Spike File ID: NNK3011.TX0

Matrix Spike Duplicate File ID: NNK3012.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):

9811488-04A 9811535-02A 9811535-05A 9811535-04A
 9811488-01A 9811488-02A 9811488-03A



* SPL BATCH QUALITY CONTROL REPORT **

California LUFT Manual for Gasoline

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

Units: mg/L

Batch Id: HP_N981116220600

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery %	
Gasoline Range Organics	ND	1.0	0.87	87.0	64 - 131

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
			GASOLINE RANGE ORGANICS	0.19	0.90	0.75		62.2	0.77

Analyst: TB

Sequence Date: 11/16/98

SPL ID of sample spiked: 9811535-03A

Sample File ID: NNK3048.TX0

Method Blank File ID:

Blank Spike File ID: NNK3040.TX0

Matrix Spike File ID: NNK3043.TX0

Matrix Spike Duplicate File ID: NNK3044.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):

9811488-06A 9811535-01A 9811535-03A 9811488-05A

CHAIN OF CUSTODY
AND
SAMPLE RECEIPT CHECKLIST

SPL Houston Environmental Laboratory

Sample Login Checklist

Date: 11-12-98	Time: 1210
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SPL Sample ID: 9811535

		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 #) 805188475298	
		Other:	
11	Method of sample disposal:	✓	
		SPL Disposal	
		HOLD	
	Return to Client		

Name: Gina Cockrum	Date: 11-12-98
--------------------	----------------



9811535

CHAIN OF CUSTODY

No. 095789

CONSULTANT'S NAME <i>Alisto Engineering</i>		CONSULTANT'S ADDRESS <i>1575 Treat Blvd # 201, Walnut Creek, Ca 94598</i>	
BP SITE NUMBER <i>11107</i>	BP SITE / FACILITY ADDRESS <i>San Lorenzo, Ca</i>		CONSULTANT PROJECT NUMBER <i>10-060-09/001</i>
CONSULTANT PROJECT MANGER <i>Brady Nagle</i>	PHONE NUMBER <i>(925) 295-1650</i>	FAX NUMBER <i>295-1823</i>	CONSULTANT CONTRACT NUMBER <i>#</i>
BP CONTACT <i>Scott Hooton</i>	BP ADDRESS <i>Renton, WA</i>	PHONE NUMBER <i>-</i>	FAX NO. <i>-</i>
LAB CONTACT <i>SPL</i>	LABORATORY ADDRESS <i>Texas</i>	PHONE NUMBER <i>-</i>	FAX NO. <i>-</i>
BP CONTACT REQUESTING RUSH TAT (Print BP Contact Name)	RUSH REQUESTED OF (Print Consultant Contact Name)	DATE/TIME <i>11/11/98</i>	SHIPMENT DATE
			SHIPMENT METHOD <i>Fed Ex</i>

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

ANALYSIS REQUIRED

AIRBILL NUMBER *805188475298*

SAMPLE DESCRIPTION	COLLECTION DATE	COLLECTION TIME	MATRIX SOIL/WATER	CONTAINERS		PRESERVATIVE	LAB SAMPLE #	10-HIT	11-11	11-11													COMMENTS	
				NO.	TYPE (VOL.)																			
<i>S-1</i>	<i>11/5/98</i>		<i>H2O</i>	<i>3</i>	<i>Hcl</i>			<i>X</i>	<i>X</i>															
<i>S-2</i>	<i>↓</i>		<i>↓</i>	<i>↓</i>	<i>↓</i>			<i>↓</i>	<i>↓</i>															
<i>S-3</i>	<i>↓</i>		<i>↓</i>	<i>↓</i>	<i>↓</i>			<i>↓</i>	<i>↓</i>															
<i>S-4</i>	<i>↓</i>		<i>↓</i>	<i>↓</i>	<i>↓</i>			<i>↓</i>	<i>↓</i>															
<i>S-5</i>	<i>↓</i>		<i>↓</i>	<i>↓</i>	<i>↓</i>			<i>↓</i>	<i>↓</i>															

SAMPLED BY (Please Print Name)			SAMPLED BY (Signature)			ADDITIONAL COMMENTS					
RELINQUISHED BY / AFFILIATION (Print Name / Signature)	DATE	TIME	ACCEPTED BY / AFFILIATION (Print Name / Signature)	DATE	TIME						
<i>Patricia Zeltman</i>	<i>11/5/98</i>		<i>Patricia Zeltman</i>	<i>11/11/98</i>							
<i>Patricia Zeltman</i>	<i>11/11/98</i>	<i>1500</i>	<i>Vina Lockwood</i>	<i>11-12-98</i>	<i>1000</i>						

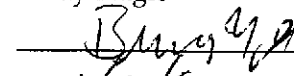
**BP EXPLORATION & OIL, INC.
ENVIRONMENTAL REMEDIATION MANAGEMENT
DATA REVIEW CHECKLIST**

BP Site Number: 11107
ERM Contact: H451304
Sampling Date: 11/5/98
Matrix Description: Water
Date Final Report Received: 11/30/98
Laboratory & Location: SPL, Houston, Texas

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

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

Data Validation Completed by: Brady Nagle

(signature): 
Date: 1/6/99