



**BP OIL**

ENVIRONMENTAL  
PROTECTION

97 FEB -6 PM 2:51

BP Oil Company  
Environmental Resources Management  
Building 13, Suite N  
295 SW 41st Street  
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February 4, 1997

Ms Juliet Shin  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway  
Alameda CA 94502-6577

RE: BP OIL FACILITY #11117  
7210 Bancroft Avenue  
Oakland, CA ~~94621~~ 94605

Attached please find our **GROUNDWATER MONITORING AND SAMPLING REPORT DATED December 26, 1996** for the above referenced facility. Plans for the following quarter include additional groundwater monitoring.

If you should have any questions regarding this site, I may be reached at (206) 251-0689.

Respectfully,

Scott T. Hooton  
Environmental Resources Management  
Corrective Action Manager

STH:sb msword\ERM11117

cc: Mr. Ed So, CRWQCB, San Francisco Bay Region, 2101 Webster Street, Suite 500  
Oakland CA 94612

Mr. Brady Nagle, Alisto, 1575 Treat Blvd, Ste 201, Walnut Creek, CA 94596

Mr. Robert K. Barth, Bancroft Oakland Investment Company, 9454 Wilshire Blvd, Ste 901  
Beverly Hills CA 98212

TOSCO Northwest, 601 Union St, Ste 2500, Seattle WA 98101

Site File

**GROUNDWATER MONITORING AND SAMPLING REPORT**

**BP Oil Company Service Station No. 11117  
7210 Bancroft Avenue  
Oakland, California**

**Project No. 10-018-05-001**

**Prepared for:**

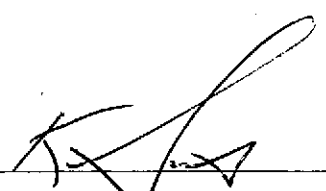
**BP Oil Company  
Environmental Resources Management  
295 S.W. 41st Street  
Building 13, Suite N  
Renton, Washington**

ENVIRONMENTAL DEPT.  
SOUTH COAST REGION OFFICE

**Prepared by:**

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

**December 26, 1996**



**Ken Simas  
Project Manager**



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



# GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11117  
7210 Bancroft Avenue  
Oakland, California

Project No. 10-018-05-001

December 26, 1996

## INTRODUCTION

This report presents the results and findings of the November 8, 1996 groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Company Service Station No. 11117, 7210 Bancroft Avenue, Oakland, 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 relative to mean sea level. The survey data and groundwater elevation measurements collected to date are presented in Table 1.

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

## FREE PRODUCT MONITORING AND RECOVERY

A passive product recovery canister has been installed in Monitoring Well MW-2 to recover liquid-phase product. Product thicknesses for this and previous monitoring events are presented in Table 1. The volume of free product recovered from the wells is presented in Table 2.



## SAMPLING AND ANALYTICAL RESULTS

The results of monitoring and laboratory analysis of the groundwater samples for this and previous quarters are summarized in Table 1. The potentiometric groundwater elevations as interpreted from the results of this monitoring event are shown on Figure 2. The results of groundwater analysis are shown on Figure 3. The laboratory report and chain of custody record are presented in Appendix B.



TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING  
 BP OIL COMPANY SERVICE STATION NO. 11117  
 7210 BANCROFT AVENUE, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-018

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (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)	Organic Lead (ug/l)	DO (ppm)	LAB
MW-1	01/05/92	49.81	33.16	---	16.65	57000	50000	2400	1000	1100	3100	---	ND	---	---
MW-1	01/10/92	49.81	33.16	---	16.65	---	---	---	---	---	---	---	---	---	---
MW-1	06/05/92	49.81	29.01	---	20.80	31000	---	2800	2100	800	2300	---	---	---	---
MW-1	07/24/92	49.80	29.45	---	20.35	---	---	---	---	---	---	---	---	---	---
MW-1	07/27/92	49.80	29.45	---	20.35	---	---	---	---	---	---	---	---	---	---
MW-1	09/15/92	49.80	30.53	---	19.27	40000	1200 (c)	3400	3000	1300	3400	---	---	---	ANA
QC-1 (d)	09/15/92	---	---	---	---	36000	---	3800	3400	1400	3800	---	---	---	ANA
MW-1	12/15/92	49.80	31.26	---	18.54	27000	1100 (c)	1700	580	700	1900	---	---	---	ANA
QC-1 (d)	12/15/92	---	---	---	---	22000	---	1500	440	510	1300	---	---	---	ANA
MW-1	03/15/93	49.80	24.80	---	25.00	17000	580	1700	1200	590	1800	---	---	---	PACE
QC-1 (d)	03/15/93	---	---	---	---	15000	---	1100	860	440	1400	---	---	---	PACE
MW-1	06/07/93	49.80	25.01	---	24.79	750	100	0.8	0.8	ND<0.5	ND<0.5	---	---	---	PACE
QC-1 (d)	06/07/93	---	---	---	---	720	---	0.7	0.7	ND<0.5	ND<0.5	---	---	---	PACE
MW-1	09/23/93	49.80	28.70	---	21.10	---	---	---	---	---	---	---	---	---	---
MW-1	09/23/93	---	---	---	---	40000	770	4000	500	920	3000	---	---	---	PACE
MW-1	12/27/93	49.80	28.66	---	21.14	27000	---	2000	400	940	2600	---	---	---	PACE
QC-1 (d)	12/27/93	---	---	---	---	21000	---	1700	380	830	2400	---	---	---	PACE
MW-1	04/05/94	49.80	26.37	---	23.43	27000	---	3400	930	950	2900	---	---	---	PACE
QC-1 (d)	04/05/94	---	---	---	---	29000	---	3700	1000	1000	3100	---	---	1.3	PACE
MW-1	07/22/94	49.80	26.54	---	23.26	1700	---	220	2.3	2.0	3.4	---	---	2.0	PACE
MW-1	10/13/94	49.80	27.46	---	22.34	1200	---	250	21	ND<0.5	3.2	---	---	2.6	PACE
MW-1	01/25/95	49.80	20.96	---	28.84	1000	---	420	8	13	4	---	---	---	ATI
MW-1	04/19/95	49.80	19.59	---	30.21	5200	---	420	51	230	340	---	---	6.0	ATI
MW-1	07/05/95	49.80	19.61	---	30.19	320	---	4.2	ND<0.50	ND<0.50	ND<1.0	---	---	4.6	ATI
MW-1	10/05/95	49.80	24.40	---	25.40	5800	---	1000	40	31	180	7800	---	2.3	ATI
MW-1	01/12/96	49.80	25.44	---	24.36	370	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	3.7	ATI
MW-1	04/22/96	49.80	18.02	---	31.78	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	3.9	SPL
MW-1	07/02/96	49.80	19.72	---	30.08	---	---	---	---	---	---	---	---	---	---
MW-1	07/03/96	49.80	---	---	---	ND<250	---	ND<2.5	ND<5	ND<5	ND<5	ND<50	---	3.6	SPL
MW-1	11/08/96	49.80	19.98	---	29.82	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	4.3	SPL
MW-2	01/05/92	51.07	DRY	---	DRY	---	---	---	---	---	---	---	---	---	---
MW-2	01/10/92	51.06	DRY	---	DRY	---	---	---	---	---	---	---	---	---	---
MW-2	06/05/92	51.06	30.05	---	21.01	11000	---	2000	180	490	1900	---	---	---	---
MW-2	07/24/92	51.07	30.72	---	20.36	---	---	---	---	---	---	---	---	---	---
MW-2	07/27/92	51.07	30.52	---	20.55	---	---	---	---	---	---	---	---	---	---
MW-2	09/15/92	51.07	31.56	---	19.51	75000	3200 (c)	2000	6500	2300	13000	---	---	---	ANA
MW-2	12/15/92	51.07	32.40	---	18.67	34000	1600 (c)	6200	8900	2000	7900	---	---	---	ANA
MW-2	03/15/93	51.07	26.14	---	24.93	150000	8400	12000	18000	3200	22000	---	---	---	PACE
MW-2 (e)	06/07/93	51.07	26.38	SHEEN	24.69	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	09/23/93	51.07	31.43	1.92	21.08	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	12/27/93	51.07	34.07	1.07	17.80	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	04/05/94	51.07	30.44	3.30	23.11	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	07/22/94	51.07	28.51	0.80	23.16	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	10/13/94	51.07	29.33	0.70	22.27	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	01/25/95	51.07	25.55	4.25	28.71	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	04/19/95	51.07	19.78	0.12	31.38	---	---	---	---	---	---	---	---	---	---
MW-2	07/05/95	51.07	20.88	0.09	30.26	140000	---	14000	30000	3500	26000	---	---	---	ATI
MW-2 (e)	10/05/95	51.07	24.68	0.10	26.47	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	01/12/96	51.07	25.72	0.06	25.40	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	04/22/96	51.07	19.33	0.08	31.80	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	07/02/96	51.07	20.01	0.04	31.09	---	---	---	---	---	---	---	---	---	---
MW-2 (e)	11/08/96	51.07	20.28	0.01	30.80	---	---	---	---	---	---	---	---	---	---

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING  
 BP OIL COMPANY SERVICE STATION NO. 11117  
 7210 BANCROFT AVENUE, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-016

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (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)	Organic Lead (ug/l)	DO (ppm)	LAB
MW-3	01/05/92	49.95	33.69	---	16.26	7400	4000	790	23	210	40	---	ND	---	---
MW-3	01/10/92	50.00	33.74	---	16.26	---	---	---	---	---	---	---	---	---	---
MW-3	06/05/92	50.00	29.65	---	20.35	2000	---	130	5.3	93	20	---	---	---	---
MW-3	07/24/92	49.95	30.14	---	19.81	---	---	---	---	---	---	---	---	---	---
MW-3	07/27/92	49.95	30.14	---	19.81	---	---	---	---	---	---	---	---	---	---
MW-3	09/15/92	49.95	31.07	---	18.88	450	ND<50	65	3.1	34	7.1	---	---	---	ANA
MW-3	12/15/92	49.95	31.93	---	18.02	12000	710 (c)	940	ND<50	310	120	---	---	---	ANA
MW-3	03/15/93	49.95	25.71	---	24.24	ND<50	60	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
MW-3	06/07/93	49.95	25.80	---	24.15	150	ND<50	3.6	ND<0.5	0.9	1.3	---	---	---	PACE
MW-3	09/23/93	49.95	29.18	---	20.77	---	---	---	---	---	---	---	---	---	---
MW-3	09/24/93	---	---	---	---	160	ND<50	8.4	ND<0.5	3.7	1.3	---	---	---	PACE
MW-3	12/27/93	49.95	29.25	---	20.70	9400	---	1100	48	530	120	---	---	---	PACE
MW-3	04/05/94	49.95	26.84	---	23.11	7000	---	860	19	330	52	---	---	2.0	PACE
MW-3	07/22/94	49.95	26.90	---	23.11	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	2.1	PACE
MW-3	10/13/94	49.95	27.83	---	22.12	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	2.6	PACE
MW-3	01/25/95	49.95	21.65	---	28.30	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	---	ATI
MW-3	04/19/95	49.95	19.33	---	30.82	2400	---	170	8.0	130	27	---	---	5.0	ATI
MW-3	07/05/95	49.95	20.27	---	29.68	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	4.4	ATI
MW-3	10/05/95	49.95	23.73	---	26.22	2300	---	210	3.1	10	5.1	2400	---	4.2	ATI
MW-3	01/12/96	49.95	24.84	---	25.11	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	4.1	ATI
MW-3	04/22/96	49.95	18.60	---	31.35	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	4.4	SPL
MW-3	07/02/96	49.95	18.88	---	31.07	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	4.2	SPL
MW-3	11/08/96	49.95	19.14	---	30.81	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	4.4	SPL
MW-4	07/24/92	50.76	30.02	---	20.74	42000	---	3200	3600	1400	4100	---	---	---	---
MW-4	07/27/92	50.76	30.02	---	20.74	---	---	---	---	---	---	---	---	---	---
MW-4	09/15/92	50.76	31.14	---	19.82	55000	1700 (c)	7600	13000	2800	9500	---	---	---	ANA
MW-4	12/15/92	50.76	31.98	---	18.78	36000	2200 (c)	3700	4700	1200	4000	---	---	---	ANA
MW-4	03/15/93	50.76	25.34	---	25.42	69000	1200	7600	15000	2500	11000	---	---	---	PACE
MW-4	06/07/93	50.76	25.67	---	25.09	73000	2500	10000	19000	3400	14000	---	---	---	PACE
MW-4	09/23/93	50.76	29.37	---	21.39	---	---	---	---	---	---	---	---	---	---
MW-4	09/24/93	---	---	---	---	68000	5700	11000	2100	8600	990	---	---	---	PACE
QC-1 (d)	09/24/93	---	---	---	---	59000	---	5300	10000	2200	8400	---	---	---	PACE
MW-4	12/27/93	50.76	29.40	---	21.38	32000	---	2500	4400	1300	4400	---	---	---	PACE
MW-4	04/05/94	50.76	27.09	---	23.67	64000	---	6500	14000	1900	9600	---	---	1.4	PACE
MW-4	07/22/94	50.76	27.33	---	23.43	85000	---	10000	20000	3200	13000	---	---	0.8	PACE
QC-1 (d)	07/22/94	---	---	---	---	85000	---	11000	21000	3300	14000	---	---	---	PACE
MW-4	10/13/94	50.76	28.25	---	22.51	51000	---	7100	13000	2100	8900	---	---	2.9	PACE
QC-1 (d)	10/13/94	---	---	---	---	51000	---	7400	13000	2100	9100	---	---	---	PACE
MW-4	01/25/95	50.76	21.85	---	28.91	26000	---	3600	9600	1200	8400	---	---	---	ATI
QC-1 (d)	01/25/95	---	---	---	---	28000	---	4200	12000	1500	7800	---	---	---	ATI
MW-4	04/19/95	50.76	19.44	---	31.32	89000	---	12000	24000	3500	18000	---	---	5.1	ATI
QC-1 (d)	04/19/95	---	---	---	---	100000	---	12000	26000	3800	21000	---	---	---	ATI
MW-4	07/05/95	50.76	20.52	---	30.24	130000	---	13000	29000	3300	25000	---	---	4.3	ATI
MW-4	10/05/95	50.76	24.23	---	26.53	110000	---	10000	23000	3600	17000	34000	---	2.1	ATI
MW-4	01/12/96	50.76	25.34	---	25.42	46000	---	3500	8300	1100	8000	3000	---	3.3	ATI
QC-1 (d)	01/12/96	---	---	---	---	40000	---	3500	9000	1200	8700	4300	---	---	ATI
MW-4	04/22/96	50.76	19.13	---	31.63	40000	---	5100	9600	980	11800	29000	---	3.2	SPL
QC-1 (d)	04/22/96	---	---	---	---	61000	---	8300	16000	1600	15200	36000	---	---	SPL
MW-4	07/02/96	50.76	20.87	---	30.09	74000	---	9800	21000	2100	16600	41000	---	3.4	SPL
QC-1 (d)	07/02/96	---	---	---	---	78000	---	9800	21000	1900	15300	42000	---	---	SPL
MW-4	11/08/96	50.76	20.95	---	29.81	100000	---	7900	16000	2500	13700	37000	---	3.7	SPL
QC-1 (d)	11/08/96	---	---	---	---	110000	---	9100	20000	3000	15400	39000	---	---	SPL

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING  
 BP OIL COMPANY SERVICE STATION NO. 11117  
 7210 BANCROFT AVENUE, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-018

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (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)	Organic Lead (ug/l)	DO (ppm)	LAB
MW-6	07/24/92	50.32	30.63	---	19.89	ND	---	1.6	ND	ND	ND	---	---	---	---
MW-6	07/27/92	50.32	30.63	---	19.89	---	---	---	---	---	---	---	---	---	---
MW-6	09/15/92	50.32	31.52	---	18.80	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	ANA
MW-6	12/15/92	50.32	32.42	---	17.90	58	ND<50	1.3	ND<0.5	ND<0.5	ND<0.5	---	---	---	ANA
MW-6	03/15/93	50.32	26.29	---	24.03	ND<50	ND<50	ND<0.5	0.6	ND<0.5	0.7	---	---	---	PACE
MW-6	08/07/93	50.32	26.33	---	23.99	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	1.5	---	---	---	PACE
MW-6	09/23/93	50.32	29.64	---	20.68	---	---	---	---	---	---	---	---	---	---
MW-6	09/24/93	---	---	---	---	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
MW-6	12/27/93	50.32	29.75	---	20.57	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
MW-6	04/05/94	50.32	27.26	---	23.06	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	1.7	PACE
MW-6	07/22/94	50.32	27.34	---	22.98	350	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	4.5	PACE
MW-6 (f)	10/13/94	50.32	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-6	01/25/95	50.32	22.16	---	28.16	240	---	6	ND<0.5	ND<0.5	ND<1	---	---	---	ATI
MW-6 (f)	04/19/95	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-6	07/05/95	50.32	20.80	---	29.52	180	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	4.9	ATI
MW-6	10/05/95	50.32	24.20	---	26.12	860	---	ND<5.0	ND<5.0	ND<5.0	ND<10	3600	---	2.8	ATI
MW-8	01/12/96	50.32	25.30	---	25.02	860	---	ND<5.0	ND<5.0	ND<5.0	ND<10	2800	---	4.2	ATI
MW-8	04/22/96	50.32	19.13	---	31.19	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	470	---	4.3	SPL
MW-6	07/02/96	50.32	20.66	---	29.66	100	---	ND<0.5	ND<1	ND<1	ND<1	1100	---	4.2	SPL
MW-6	11/08/96	50.32	20.98	---	29.34	1100	---	ND<5	ND<10	ND<10	ND<10	1500	---	4.3	SPL
MW-7	01/25/95	51.4	21.67	---	29.73	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	7.0	ATI
MW-7	04/19/95	51.4	25.27	---	26.13	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	5.0	ATI
MW-7	07/05/95	51.4	24.63	---	28.77	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	4.2	ATI
MW-7	10/05/95	51.4	28.21	---	23.19	83	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	77	---	4.5	ATI
MW-7	01/12/96	51.4	29.29	---	22.11	63	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	120	---	4.8	ATI
MW-7	04/22/96	51.4	23.11	---	28.29	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	13	---	4.8	SPL
MW-7	07/02/96	51.4	23.56	---	27.84	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	4.8	SPL
MW-7	11/08/96	51.4	20.06	---	31.34	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	5.1	SPL
MW-8	01/25/95	50.88	31.59	---	19.29	54	---	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	7.1	ATI
MW-8	04/19/95	50.88	19.18	---	31.70	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	5.1	ATI
MW-8	07/05/95	50.88	19.03	---	31.85	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	4.5	ATI
MW-8	10/05/95	50.88	24.40	---	26.48	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	4.1	ATI
MW-8	01/12/96	50.88	25.51	---	25.37	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	4.6	ATI
MW-8	04/22/96	50.88	18.00	---	32.88	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	4.8	SPL
MW-8	07/02/96	50.88	19.83	---	31.05	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	4.5	SPL
MW-8	11/08/96	50.88	20.09	---	30.79	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	4.7	SPL
MW-9	01/25/95	51.05	22.32	---	28.73	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	7.4	ATI
MW-9	04/19/95	51.05	19.85	---	31.19	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	5.2	ATI
MW-9	07/05/95	51.05	20.78	---	30.27	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	4.4	ATI
MW-9	10/05/95	51.05	24.33	---	28.72	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	2.9	ATI
QC-1 (d)	10/05/95	---	---	---	---	52	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	160	---	---	ATI
MW-9	01/12/96	51.05	25.44	---	25.61	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	3.2	ATI
MW-9	04/22/96	51.05	18.01	---	33.04	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	11	---	3.5	SPL
MW-9	07/02/96	51.05	19.70	---	31.35	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	3.3	SPL
MW-9	11/08/96	51.05	19.96	---	31.09	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	3.7	SPL

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING  
 BP OIL COMPANY SERVICE STATION NO. 11117  
 7210 BANCROFT AVENUE, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-018

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (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)	Organic Lead (ug/l)	DO (ppm)	LAB
QC-2 (g)	09/15/92	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	ANA
QC-2 (g)	12/15/92	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	ANA
QC-2 (g)	03/15/93	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
QC-2 (g)	06/07/93	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
QC-2 (g)	09/24/93	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
QC-2 (g)	12/27/93	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
QC-2 (g)	04/05/94	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
QC-2 (g)	07/22/94	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
QC-2 (g)	10/13/94	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
QC-2 (g)	01/25/95	---	---	---	---	ND<50	---	ND<0.5	2	0.6	1	---	---	---	ATI
QC-2 (g)	04/19/95	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	ATI
QC-2 (g)	07/05/95	---	---	---	---	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	---	ATI
QC-2 (g)	10/05/95	---	---	---	---	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	---	ATI
QC-2 (g)	01/12/96	---	---	---	---	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	---	ATI
QC-2 (g)	04/22/96	---	---	---	---	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	---	SFL
QC-2 (g)	07/02/96	---	---	---	---	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	---	SFL

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  
 DO Dissolved oxygen  
 ug/l Micrograms per liter  
 ppm Parts per million  
 ND Not detected above reported detection limit  
 --- Not analyzed/applicable/measurable  
 ANA Anematrix, Inc.  
 PACE Pace, Inc.  
 ATI Analytical Technologies, Inc.  
 SPL Southern Petroleum Laboratories

NOTES:

- (a) Casings elevations surveyed to the nearest 0.01 foot relative to mean sea level.  
 (b) Groundwater elevations adjusted assuming a specific gravity of 0.75 for free product.  
 (c) Concentrations reported as diesel from MW-1, MW-2 and MW-4 are primarily due to the presence of a lighter petroleum product, possibly gasoline or kerosene.  
 (d) Blind duplicate.  
 (e) Well not sampled due to presence of free product.  
 (f) Well inaccessible.  
 (g) Travel blank.

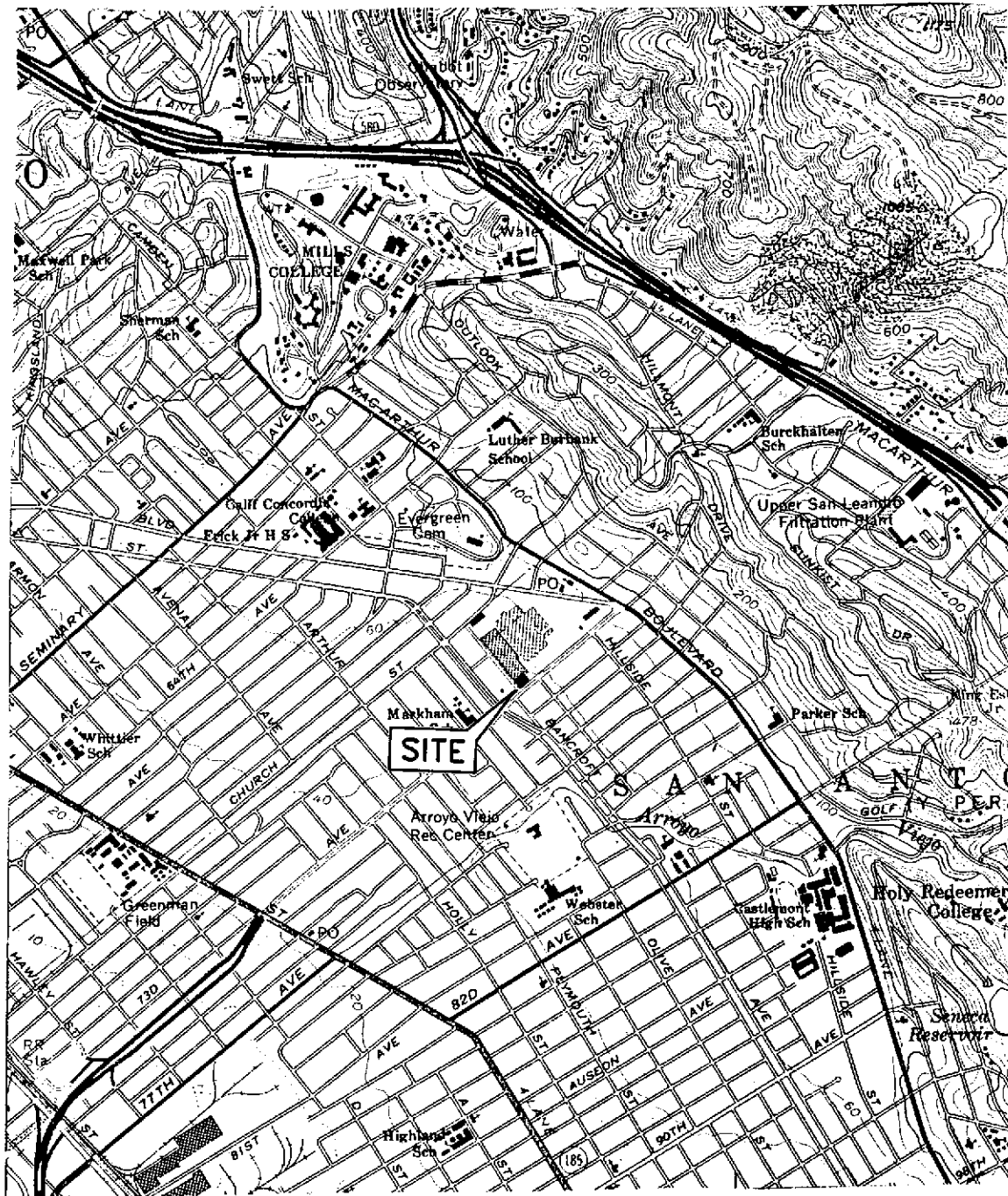
F:\010-018\018-5-1.WQ2



TABLE 2 - PRODUCT REMOVAL STATUS  
 BP OIL COMPANY SERVICE STATION NO. 11117  
 7210 BANCROFT AVENUE, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-018

WELL ID	DATE	PRODUCT THICKNESS	PRODUCT REMOVED (Gallons)	PRODUCT REMOVED CUMULATIVE (Gallons)
MW-2	02/01/94	1.78	<0.01	<0.01
MW-2	02/11/94	1.55	0.10	0.10
MW-2	02/18/94	1.62	0.90	1.00
MW-2	02/25/94	3.21	0.10	1.10
MW-2	03/04/94	3.92	0.10	1.20
MW-2	03/30/94	4.06	2.60	3.80
MW-2	04/13/95	3.10	0.10	3.90
MW-2	04/21/94	2.88	0.10	4.00
MW-2	04/24/95	6.00	0.10	4.10
MW-2	05/06/94	8.00	0.60	4.70
MW-2	05/13/94	7.00	0.10	4.80
MW-2	05/20/94	7.38	2.10	6.90
MW-2	05/26/94	2.00	2.00	8.90
MW-2	06/02/94	1.09	1.00	9.90
MW-2	06/09/94	1.70	1.00	10.90
MW-2	06/16/94	1.13	1.00	11.90
MW-2	06/23/94	1.24	0.75	12.65
MW-2	06/29/94	0.72	0.60	13.25
MW-2	07/07/94	0.56	0.50	13.75
MW-2	07/12/94	1.00	1.10	14.85
MW-2	07/20/94	0.72	0.75	15.60
MW-2	07/29/94	1.42	1.10	16.70
MW-2	08/05/94	1.04	0.76	17.46
MW-2	08/12/94	1.22	0.76	18.22
MW-2	08/18/94	1.33	0.43	18.65
MW-2	09/16/94	0.42	0.76	19.41
MW-2	09/23/94	0.19	0.17	19.58
MW-2	10/26/94	1.13	0.76	20.34
MW-2	11/03/94	0.77	1.10	21.44
MW-2	11/12/94	0.64	0.60	22.04
MW-2	11/16/94	0.67	0.67	22.71
MW-2	11/23/94	0.56	0.50	23.21
MW-2	12/01/94	0.49	0.60	23.81
MW-2	12/08/94	0.61	0.76	24.57
MW-2	04/19/05	0.12	<0.01	24.57
MW-2	05/23/95	SHEEN	<0.01	24.57
MW-2	06/15/95	0.10	<0.01	24.57
MW-2	10/05/95	0.10	0.25	24.82
MW-2	01/12/96	0.06	0.01	24.83
MW-2	02/08/96	0.06	0.01	24.84
MW-2	04/22/96	0.08	0.01	24.85
MW-2	07/02/96	0.04	<0.01	24.85
MW-2	11/08/96	0.01	<0.01	24.85



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



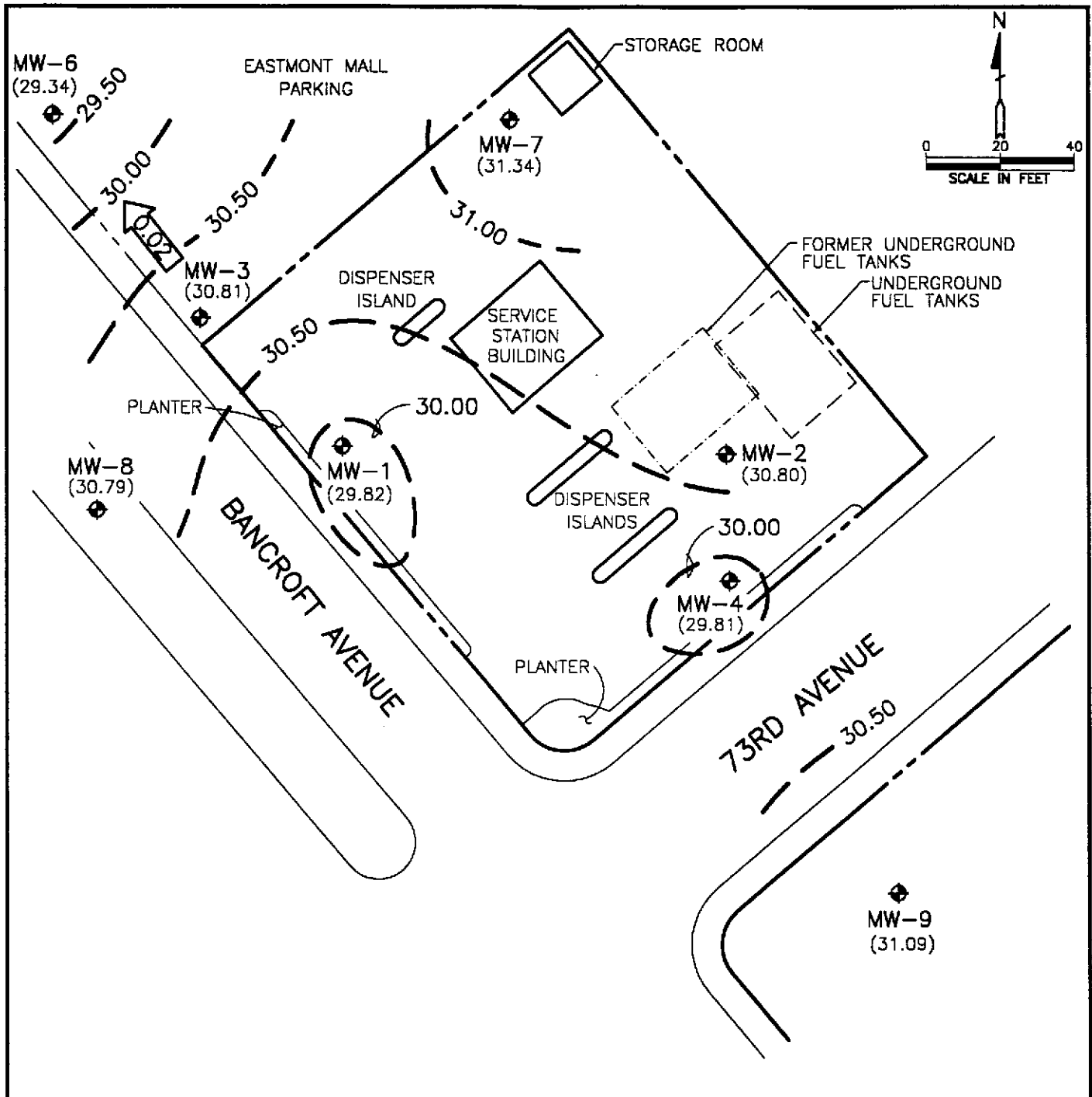
### FIGURE 1

#### SITE VICINITY MAP


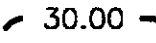

BP OIL SERVICE STATION NO. 11117  
 7210 BANCROFT AVENUE  
 OAKLAND, CALIFORNIA  
 PROJECT NO. 10-018



**ALISTO ENGINEERING GROUP**  
 WALNUT CREEK, CALIFORNIA



**LEGEND**

- 
 GROUNDWATER MONITORING WELL  
 (29.81) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 
 30.00 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL-0.50 FOOT)
- 
 0.02 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

**FIGURE 2**

**POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP**

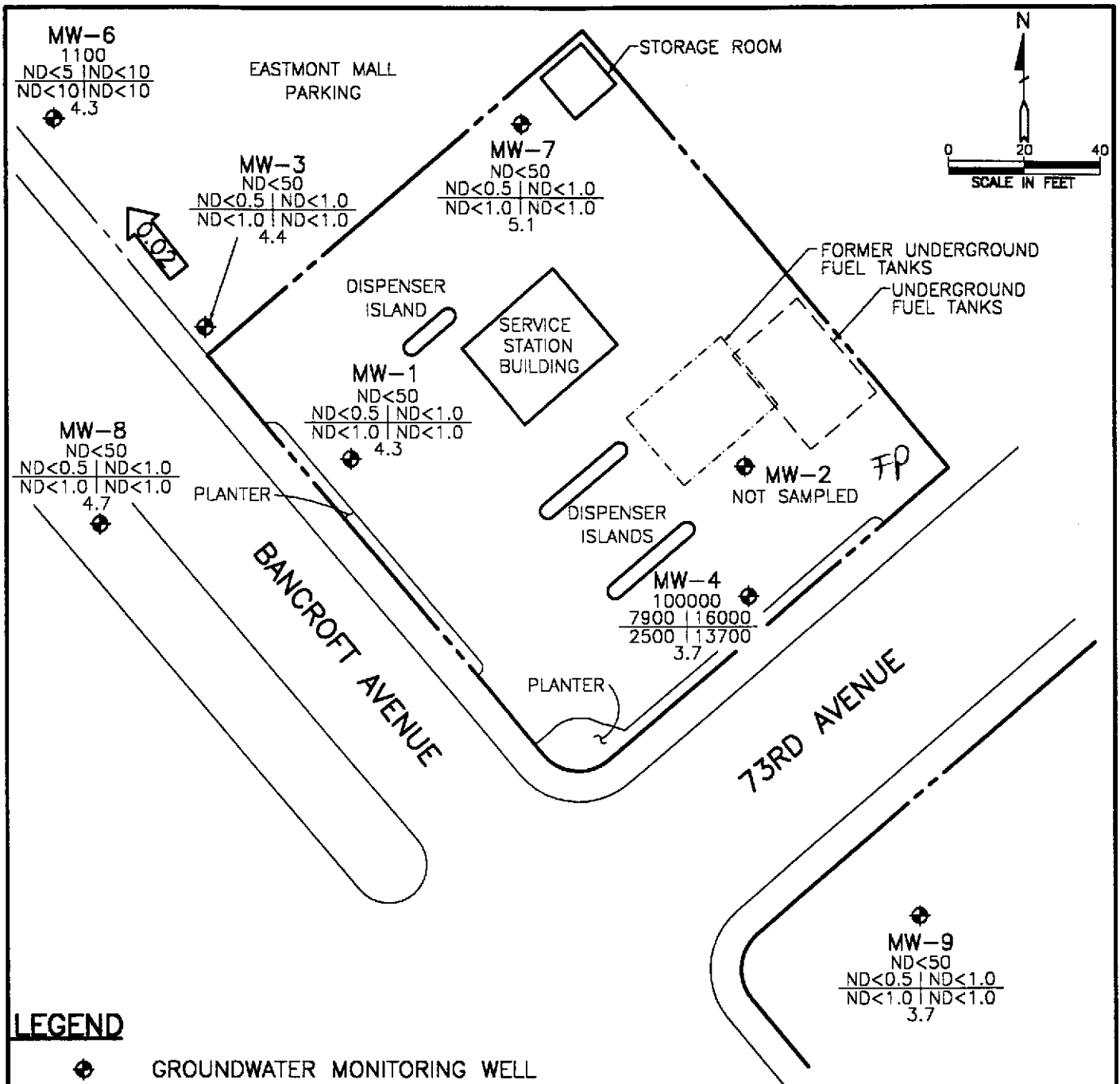
**NOVEMBER 8, 1996**

BP OIL SERVICE STATION NO. 11117  
 7210 BANCROFT AVENUE  
 OAKLAND, CALIFORNIA

PROJECT NO. 10-018



**ALISTO ENGINEERING GROUP**  
 WALNUT CREEK, CALIFORNIA



**LEGEND**

- ◆ GROUNDWATER MONITORING WELL
- TPH-G CONCENTRATION OF CONSTITUENTS IN MICROGRAMS PER LITER, EXCEPT DISSOLVED OXYGEN, WHICH IS IN PARTS PER MILLION
- B | T
- E | X
- DO
- ND
- TPH-G TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
- B BENZENE
- T TOLUENE
- E ETHYLBENZENE
- X TOTAL XYLENES
- DO DISSOLVED OXYGEN
- ND NOT DETECTED ABOVE REPORTED DETECTION LIMIT
- ←0.02 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

**FIGURE 3**

**CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER**

**NOVEMBER 8, 1996**

BP OIL SERVICE STATION NO. 11117  
7210 BANCROFT AVENUE  
OAKLAND, CALIFORNIA

PROJECT NO. 10-018



**ALISTO ENGINEERING GROUP**  
WALNUT CREEK, CALIFORNIA

**APPENDIX A**  
**WATER SAMPLING FIELD SURVEY FORMS**

# ALISTO

## Field Report / Sampling Data Sheet

ENGINEERING  
GROUP  
1575 TREAT BOULEVARD, SUITE 201

Project No. 10-018-05-001 Date: 11/7/16  
Address 7210 Bancroft Ave. Day: M T W T H F  
Contract No. G797409 City: Oakland  
Station No. BP 11117 Sampler: LB

### DEPTH TO GROUNDWATER SUMMARY

WELL ID	SAMPLE ID	WELL DIAM	TOTAL DEPTH	DEPTH TO WATER	PRODUCT THICKNESS	TIME MONITORED	COMMENTS:
MW-1	S-6	2"	36.12'	19.98	∅	1047	
MW-2	NIS	2"	39.56'	20.28	.01	1055	DTP = 20.27 removed 2 gal TF < .002 gal FP
MW-3	S-2	2"	42.40'	19.14	∅	1033	
MW-4	S-7	2"	44.72'	20.95	↓	1050	QC-1 (S-8) From this well
MW-6	S-5	2"	40.00'	20.98	↓	1044	
MW-7	S-4	2"	44.72'	20.06	↓	1040	
MW-8	S-1	2"	39.50'	20.09	↓	1031	
MW-9	S-3	2"	38.86'	19.96	↓	1037	

### FIELD INSTRUMENT CALIBRATION DATA

pH METER Tem 4.00 4 7.00 7 10.00 10 TEMPERATURE COMPENSATED ∅ N TIME 1020  
D.O. METER Tem ZERO d.O. SOLUTION ∅ BAROMETRIC PRESSURE 760 TEMP 60 WEATHER Clear  
CONDUCTIVITY METER Tem 10,000 TURBIDITY METER 5.0 NTU OTHER \_\_\_\_\_  
LEAK DETECTOR: \_\_\_\_\_ ALARM MODE X NON ALARM MODE

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.	
MW-8	20.09	2"	OK	∅	Y ⊕	3	1110	70.3	7.63	521 μs	4.2	<input type="checkbox"/> EPA 601 _____
Total Depth - Water Level = x Well Vol. Factor = x#vol. to Purge PurgeVol.						6		69.7	7.42	511 μs		<input checked="" type="checkbox"/> TPH-G/BTEX <u>HCL</u>
$39.50 - 20.09 = 19.41 \times .16 = 3.11 \times 3 = 9.33$						9.5	1120	69.2	7.40	501 μs	4.7	<input type="checkbox"/> TPH Diesel _____
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												<input type="checkbox"/> TOG 5520 _____
Comments:												TIME/SAMPLE ID
											1123	

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.	
MW-3	19.14	2"	OK	∅	Y ⊕	4	1131	68.9	7.82	857 μs	3.5	<input type="checkbox"/> EPA 601 _____
Total Depth - Water Level = x Well Vol. Factor = x#vol. to Purge PurgeVol.						8		68.3	7.69	842 μs		<input checked="" type="checkbox"/> TPH-G/BTEX <u>HCL</u>
$42.40 - 19.14 = 23.26 \times .16 = 3.72 \times 3 = 11.16$						11.5	1144	67.7	7.62	836 μs	4.4	<input type="checkbox"/> TPH Diesel _____
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												<input type="checkbox"/> TOG 5520 _____
Comments:												TIME/SAMPLE ID
											1150	

# ALISTO

## Field Report / Sampling Data Sheet

ENGINEERING  
GROUP

1575 TREAT BOULEVARD, SUITE 201  
WALNUT CREEK CA 94598 (510) 295-1650 FAX 295-1823

Project No.

10-018-05-001

Address

7210 Bancroft Ave.

Contract No.

G797409

Station No.

BP 11117

Sampler:

Date:

11/8/96

Day:

MTWTHF

City:

Oakland

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.	
MW-9	19.96	2"	OK	Ø	Y (N)	3	1256	69.3	7.69	96µs	3.4	<input type="radio"/> EPA 601
Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge PurgeVol.						6		68.6	7.47	930µs		<input checked="" type="radio"/> TPH-G/BTEX HCL
38.86 - 19.96 = 18.90 x .16 = 3.02 x 3 = 9.06						9.5	1310	68.0	7.36	922µs	3.7	<input type="radio"/> TPH Diesel
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s) OSys Port												<input type="radio"/> TOG 5520
Comments:												TIME/SAMPLE ID
												1312
MW-7	20.06	2"	OK	Ø	Y (N)	4	1317	70.7	7.49	1150µs	4.3	<input type="radio"/> EPA 601
Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge PurgeVol.						8		69.1	7.37	1138µs		<input checked="" type="radio"/> TPH-G/BTEX HCL
44.72 - 20.06 = 24.66 x .16 = 3.95 x 3 = 11.85						12	1330	68.5	7.29	1130µs	5.1	<input type="radio"/> TPH Diesel
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s) OSys Port												<input type="radio"/> TOG 5520
Comments:												TIME/SAMPLE ID
												1333
MW-6	20.98	2"	OK	Ø	Y (N)	3	1342	70.3	7.63	987µs	3.6	<input type="radio"/> EPA 601
Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge PurgeVol.						6		69.4	7.40	963µs		<input checked="" type="radio"/> TPH-G/BTEX HCL
40.00 - 20.98 = 19.02 x .16 = 3.04 x 3 = 9.12						9.5	1355	68.7	7.36	955µs	4.3	<input type="radio"/> TPH Diesel
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s) OSys Port												<input type="radio"/> TOG 5520
Comments:												TIME/SAMPLE ID
												1400
MW-1	19.98	2"	OK	Ø	Y (N)	3	1408	68.4	7.71	722µs	4.1	<input type="radio"/> EPA 601
Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge PurgeVol.						5		68.0	7.42	71µs		<input checked="" type="radio"/> TPH-G/BTEX HCL
36.12 - 19.98 = 16.14 x .16 = 2.58 x 3 = 7.74						8	1417	67.4	7.35	715µs	4.3	<input type="radio"/> TPH Diesel
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s) OSys Port												<input type="radio"/> TOG 5520
Comments:												TIME/SAMPLE ID
												1420
MW-4	20.95	2"	OK	Ø	Y (N)	4	1430	68.9	7.97	1.31ms	3.4	<input type="radio"/> EPA 601
Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge PurgeVol.						8		67.6	7.53	1.24ms		<input checked="" type="radio"/> TPH-G/BTEX HCL
44.72 - 20.95 = 23.77 x .16 = 3.80 x 3 = 11.40						11.5	1443	67.3	7.48	1.24ms	3.7	<input type="radio"/> TPH Diesel
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s) OSys Port												<input type="radio"/> TOG 5520
Comments: AC-1 (S-Ø) from this well												TIME/SAMPLE ID
												1445

**APPENDIX B**

**LABORATORY REPORT AND CHAIN OF CUSTODY RECORD**





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

Southern Petroleum Laboratories, Inc.

Certificate of Analysis Number: 96-11-602

Approved for Release by:

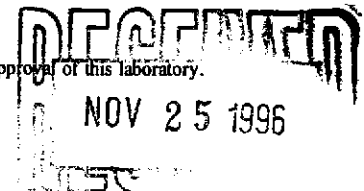
  
\_\_\_\_\_  
Ed Fry, Project Manager

  
\_\_\_\_\_  
Date:

Greg Grandits  
Laboratory Director

Idelis Williams  
Quality Assurance Officer

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

Certificate of Analysis No. H9-9611602-01

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

P.O.#  
 G797409, COC#084392  
 DATE: 11/19/96

PROJECT: BP Oil #11117  
 SITE: Oakland, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-1

PROJECT NO: 10-018-5-1  
 MATRIX: WATER  
 DATE SAMPLED: 11/08/96  
 DATE RECEIVED: 11/12/96

ANALYTICAL DATA

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

Surrogate % Recovery  
 1,4-Difluorobenzene 83  
 4-Bromofluorobenzene 93

METHOD 8020\*\*\*

Analyzed by: AA

Date: 11/15/96

Total Petroleum Hydrocarbons-Gasoline ND 0.05 P mg/L

Surrogate % Recovery  
 1,4-Difluorobenzene 93  
 4-Bromofluorobenzene 103

CA LUFT - Gasoline

Analyzed by: AA

Date: 11/15/96 10:32:00

ND - Not detected.

(P) - Practical Quantitation Limit

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

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.  
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 SPL, Inc., - Project Manager



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

Certificate of Analysis No. H9-9611602-02

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

P.O.#  
 G797409, COC#084392  
 DATE: 11/19/96

PROJECT: BP Oil #11117  
 SITE: Oakland, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-2

PROJECT NO: 10-018-5-1  
 MATRIX: WATER  
 DATE SAMPLED: 11/08/96  
 DATE RECEIVED: 11/12/96

ANALYTICAL DATA

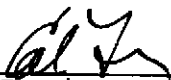
PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	10 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1.0 P	µg/L
Ethylbenzene	ND	1.0 P	µg/L
Total Xylene	ND	1.0 P	µg/L
<b>Surrogate</b>		<b>% Recovery</b>	
1,4-Difluorobenzene		87	
4-Bromofluorobenzene		97	
METHOD 8020***			
Analyzed by: AA			
Date: 11/15/96			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
<b>Surrogate</b>		<b>% Recovery</b>	
1,4-Difluorobenzene		97	
4-Bromofluorobenzene		103	
CA LUFT - Gasoline			
Analyzed by: AA			
Date: 11/15/96 11:01:00			

ND - Not detected.

(P) - Practical Quantitation Limit

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

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 HOUSTON, TEXAS 77054  
 PHONE (713) 660-0901

Certificate of Analysis No. H9-9611602-03

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

P.O.#  
 G797409, COC#084392  
 DATE: 11/19/96

PROJECT: BP Oil #11117  
 SITE: Oakland, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-3

PROJECT NO: 10-018-5-1  
 MATRIX: WATER  
 DATE SAMPLED: 11/08/96  
 DATE RECEIVED: 11/12/96

ANALYTICAL DATA

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

Surrogate	% Recovery
1,4-Difluorobenzene	87
4-Bromofluorobenzene	93

METHOD 8020\*\*\*

Analyzed by: AA

Date: 11/15/96

Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
---------------------------------------	----	--------	------

Surrogate	% Recovery
1,4-Difluorobenzene	97
4-Bromofluorobenzene	103

CA LUFT - Gasoline

Analyzed by: AA

Date: 11/15/96 11:29:00

ND - Not detected.

(P) - Practical Quantitation Limit

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

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

Certificate of Analysis No. H9-9611602-04

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

P.O.#  
 G797409, COC#084392  
 DATE: 11/19/96

PROJECT: BP Oil #11117  
 SITE: Oakland, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-4

PROJECT NO: 10-018-5-1  
 MATRIX: WATER  
 DATE SAMPLED: 11/08/96  
 DATE RECEIVED: 11/12/96

ANALYTICAL DATA

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

Surrogate	% Recovery
1,4-Difluorobenzene	87
4-Bromofluorobenzene	93

METHOD 8020\*\*\*

Analyzed by: AA

Date: 11/16/96

Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
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Surrogate	% Recovery
1,4-Difluorobenzene	90
4-Bromofluorobenzene	103

CA LUFT - Gasoline

Analyzed by: AA


Date: 11/16/96 03:44:00

ND - Not detected.

(P) - Practical Quantitation Limit

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

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

Certificate of Analysis No. H9-9611602-05

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

P.O.#  
 G797409, COC#084392  
 DATE: 11/19/96

PROJECT: BP Oil #11117  
 SITE: Oakland, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-5

PROJECT NO: 10-018-5-1  
 MATRIX: WATER  
 DATE SAMPLED: 11/08/96  
 DATE RECEIVED: 11/12/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	1500	100 P	µg/L
Benzene	ND	5 P	µg/L
Toluene	ND	10 P	µg/L
Ethylbenzene	ND	10 P	µg/L
Total Xylene	ND	10 P	µg/L
<b>Surrogate</b>		<b>% Recovery</b>	
1,4-Difluorobenzene		87	
4-Bromofluorobenzene		90	
METHOD 8020***			
Analyzed by: AA			
Date: 11/17/96			
Total Petroleum Hydrocarbons-Gasoline	1.1	0.5 P	mg/L
<b>Surrogate</b>		<b>% Recovery</b>	
1,4-Difluorobenzene		93	
4-Bromofluorobenzene		110	
CA LUFT - Gasoline			
Analyzed by: AA			
Date: 11/17/96 08:14:00			

(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.

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 HOUSTON, TEXAS 77054  
 PHONE (713) 660-0901

Certificate of Analysis No. H9-9611602-06

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

P.O.#  
 G797409, COC#084392  
 DATE: 11/19/96

PROJECT: BP Oil #11117  
 SITE: Oakland, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-6

PROJECT NO: 10-018-5-1  
 MATRIX: WATER  
 DATE SAMPLED: 11/08/96  
 DATE RECEIVED: 11/12/96

ANALYTICAL DATA

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

Surrogate	% Recovery
1,4-Difluorobenzene	80
4-Bromofluorobenzene	93

METHOD 8020\*\*\*

Analyzed by: AA

Date: 11/17/96

Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
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Surrogate	% Recovery
1,4-Difluorobenzene	93
4-Bromofluorobenzene	107

CA LUFT - Gasoline

Analyzed by: AA

Date: 11/17/96 07:45:00

ND - Not detected.

(P) - Practical Quantitation Limit

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

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Certificate of Analysis No. H9-9611602-07

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

P.O.#  
 G797409, COC#084392  
 DATE: 11/19/96

PROJECT: BP Oil #11117  
 SITE: Oakland, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-7

PROJECT NO: 10-018-5-1  
 MATRIX: WATER  
 DATE SAMPLED: 11/08/96  
 DATE RECEIVED: 11/12/96


ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	37000	5000 P	µg/L
Benzene	7900	250 P	µg/L
Toluene	16000	500 P	µg/L
Ethylbenzene	2500	500 P	µg/L
Total Xylene	13700	500 P	µg/L
<b>Surrogate</b>		<b>% Recovery</b>	
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	93		
METHOD 8020***			
Analyzed by: AA			
Date: 11/16/96			
Total Petroleum Hydrocarbons-Gasoline	100	25 P	mg/L
<b>Surrogate</b>		<b>% Recovery</b>	
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	107		
CA LUFT - Gasoline			
Analyzed by: AA			
Date: 11/16/96 08:00:00			

(P) - Practical Quantitation Limit

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

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

Certificate of Analysis No. H9-9611602-08

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

P.O.#  
 G797409, COC#084392  
 DATE: 11/19/96

PROJECT: BP Oil #11117  
 SITE: Oakland, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-8

PROJECT NO: 10-018-5-1  
 MATRIX: WATER  
 DATE SAMPLED: 11/08/96  
 DATE RECEIVED: 11/12/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	39000	2500 P	µg/L
Benzene	9100	120 P	µg/L
Toluene	20000	250 P	µg/L
Ethylbenzene	3000	250 P	µg/L
Total Xylene	15400	250 P	µg/L

<b>Surrogate</b>	<b>% Recovery</b>
1,4-Difluorobenzene	87
4-Bromofluorobenzene	95

METHOD 8020\*\*\*

Analyzed by: AA

Date: 11/16/96

Total Petroleum Hydrocarbons-Gasoline	110	12 P	mg/L
---------------------------------------	-----	------	------

<b>Surrogate</b>	<b>% Recovery</b>
1,4-Difluorobenzene	92
4-Bromofluorobenzene	104

CA LUFT - Gasoline

Analyzed by: AA

Date: 11/16/96 07:31:00

(P) - Practical Quantitation Limit

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

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.  
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 SPL, Inc., - Project Manager

*QUALITY CONTROL*

*DOCUMENTATION*



AMOUNT CONC. RECOVERY  
ADDED MEASURED

LIMITS

CA LUFT - Gasoline  
WORK ORDER: 9611602-01A

BATCH#:HP\_N961115113500  
CLIENT SAMPLE ID:S-1

1,4-Difluorobenzene	30	28	93	50- 150
4-Bromofluorobenzene	30	31	103	50- 150

CA LUFT - Gasoline  
WORK ORDER: 9611602-02A

BATCH#:HP\_N961115113500  
CLIENT SAMPLE ID:S-2

1,4-Difluorobenzene	30	29	97	50- 150
4-Bromofluorobenzene	30	31	103	50- 150

CA LUFT - Gasoline  
WORK ORDER: 9611602-03A

BATCH#:HP\_N961115113500  
CLIENT SAMPLE ID:S-3

1,4-Difluorobenzene	30	29	97	50- 150
4-Bromofluorobenzene	30	31	103	50- 150

CA LUFT - Gasoline  
WORK ORDER: 9611602-04A

BATCH#:HP\_N961115113500  
CLIENT SAMPLE ID:S-4

1,4-Difluorobenzene	30	27	90	50- 150
4-Bromofluorobenzene	30	31	103	50- 150

CA LUFT - Gasoline  
WORK ORDER: 9611602-05A

BATCH#:HP\_N961115113500  
CLIENT SAMPLE ID:S-5

1,4-Difluorobenzene	30	29	97	50- 150
4-Bromofluorobenzene	30	31	103	50- 150

CA LUFT - Gasoline  
WORK ORDER: 9611602-06A

BATCH#:HP\_N961115113500  
CLIENT SAMPLE ID:S-6

1,4-Difluorobenzene	30	28	93	50- 150
4-Bromofluorobenzene	30	32	107	50- 150

CA LUFT - Gasoline  
WORK ORDER: 9611602-07A

BATCH#:HP\_N961115113500  
CLIENT SAMPLE ID:S-7

1,4-Difluorobenzene	30	28.0000	93	50- 150
4-Bromofluorobenzene	30	32.0000	107	50- 150

CA LUFT - Gasoline  
WORK ORDER: 9611602-08A

BATCH#:HP\_N961115113500  
CLIENT SAMPLE ID:S-8

1,4-Difluorobenzene	30	27.6000	92	50- 150
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AMOUNT CONC. RECOVERY LIMITS  
ADDED MEASURED

4-Bromofluorobenzene	30	31.2000	104	50- 150
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CA LUFT - Gasoline

BATCH#:HP\_N961115113500

WORK ORDER: Method Blank

CLIENT SAMPLE ID:

1,4-Difluorobenzene	30	28		50- 150
4-Bromofluorobenzene	30	30		50- 150

CA LUFT - Gasoline

BATCH#:HP\_N961115113500

WORK ORDER: Matrix Spike

CLIENT SAMPLE ID:9611596-02A

1,4-Difluorobenzene	30	29	97	50- 150
4-Bromofluorobenzene	30	31	103	50- 150

CA LUFT - Gasoline

BATCH#:HP\_N961115113500

WORK ORDER: Matrix Spike Dup.

CLIENT SAMPLE ID:9611596-02A

1,4-Difluorobenzene	30	30	100	50- 150
4-Bromofluorobenzene	30	31	103	50- 150

METHOD 8020\*\*\*

BATCH#:HP\_N961115123200

WORK ORDER: 9611602-01A

CLIENT SAMPLE ID:S-1

1,4-Difluorobenzene	30	25	83	70- 131
4-Bromofluorobenzene	30	28	93	43- 135

METHOD 8020\*\*\*

BATCH#:HP\_N961115123200

WORK ORDER: 9611602-02A

CLIENT SAMPLE ID:S-2

1,4-Difluorobenzene	30	26	87	70- 131
4-Bromofluorobenzene	30	29	97	43- 135

METHOD 8020\*\*\*

BATCH#:HP\_N961115123200

WORK ORDER: 9611602-03A

CLIENT SAMPLE ID:S-3

1,4-Difluorobenzene	30	26	87	70- 131
4-Bromofluorobenzene	30	28	93	43- 135

METHOD 8020\*\*\*

BATCH#:HP\_N961115123200

WORK ORDER: 9611602-04A

CLIENT SAMPLE ID:S-4

1,4-Difluorobenzene	30	26	87	70- 131
4-Bromofluorobenzene	30	28	93	43- 135



11/19/96 13:05:47

HOUSTON LABORATORY

8880 INTERCHANGE DRIVE

HOUSTON, TEXAS 77054

PHONE (713) 660-0901

AMOUNT ADDED	CONC. MEASURED	RECOVERY	LIMITS
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METHOD 8020\*\*\*

BATCH#:HP\_N961115123200

WORK ORDER: 9611602-05A

CLIENT SAMPLE ID:S-5

1,4-Difluorobenzene	30	26	87	70- 131
4-Bromofluorobenzene	30	28	93	43- 135

METHOD 8020\*\*\*

BATCH#:HP\_N961115123200

WORK ORDER: 9611602-07A

CLIENT SAMPLE ID:S-7

1,4-Difluorobenzene	30	28.0000	93	70- 131
4-Bromofluorobenzene	30	28.0000	93	43- 135

METHOD 8020\*\*\*

BATCH#:HP\_N961115123200

WORK ORDER: 9611602-08A

CLIENT SAMPLE ID:S-8

1,4-Difluorobenzene	30	26.0000	87	70- 131
4-Bromofluorobenzene	30	28.4000	95	43- 135

METHOD 8020A \*\*\*

BATCH#:HP\_N961115123200

WORK ORDER: Method Blank

CLIENT SAMPLE ID:

1,4-Difluorobenzene	30	25	83	74- 131
4-Bromofluorobenzene	30	28	93	43- 135

METHOD 8020A \*\*\*

BATCH#:HP\_N961115123200

WORK ORDER: Matrix Spike

CLIENT SAMPLE ID:9611596-01A

1,4-DIFLUOROBENZENE	30	23	77	70- 131
4-BROMOFLUOROBENZENE	30	26	87	43- 135

METHOD 8020A \*\*\*

BATCH#:HP\_N961115123200

WORK ORDER: Matrix Spike Dup.

CLIENT SAMPLE ID:9611596-01A

1,4-Difluorobenzene	30	25	83	70- 131
4-Bromofluorobenzene	30	27	90	43- 135

CA LUFT - Gasoline

BATCH#:HP\_N961117025400

WORK ORDER: 9611602-05A

CLIENT SAMPLE ID:S-5

1,4-Difluorobenzene	30	28.0000	93	50- 150
4-Bromofluorobenzene	30	33.0000	110	50- 150

CA LUFT - Gasoline

BATCH#:HP\_N961117025400

WORK ORDER: 9611602-06A

CLIENT SAMPLE ID:S-6

1,4-Difluorobenzene	30	28	93	50- 150
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**AMOUNT CONC. RECOVERY LIMITS**  
**ADDED MEASURED**

4-Bromofluorobenzene	30	32	107	50- 150
----------------------	----	----	-----	---------

**CA LUFT - Gasoline** BATCH#:HP\_N961117025400  
 WORK ORDER: Method Blank CLIENT SAMPLE ID:

1,4-Difluorobenzene	30	27	26.9	50- 150
4-Bromofluorobenzene	30	30	29.8	50- 150

**CA LUFT - Gasoline** BATCH#:HP\_N961117025400  
 WORK ORDER: Matrix Spike CLIENT SAMPLE ID:9611687-18A

1,4-Difluorobenzene	30	29	97	50- 150
4-Bromofluorobenzene	30	32	107	50- 150

**CA LUFT - Gasoline** BATCH#:HP\_N961117025400  
 WORK ORDER: Matrix Spike Dup. CLIENT SAMPLE ID:9611687-18A

1,4-Difluorobenzene	30	29	97	50- 150
4-Bromofluorobenzene	30	31	103	50- 150

**METHOD 8020\*\*\*** BATCH#:HP\_N961117035200  
 WORK ORDER: 9611602-05A CLIENT SAMPLE ID:S-5

1,4-Difluorobenzene	30	26.0000	87	70- 131
4-Bromofluorobenzene	30	27.0000	90	43- 135

**METHOD 8020\*\*\*** BATCH#:HP\_N961117035200  
 WORK ORDER: 9611602-06A CLIENT SAMPLE ID:S-6

1,4-Difluorobenzene	30	24	80	70- 131
4-Bromofluorobenzene	30	28	93	43- 135

**METHOD 8020A \*\*\*** BATCH#:HP\_N961117035200  
 WORK ORDER: Method Blank CLIENT SAMPLE ID:

1,4-Difluorobenzene	30	24	80	74- 131
4-Bromofluorobenzene	30	26	87	43- 135

**METHOD 8020A \*\*\*** BATCH#:HP\_N961117035200  
 WORK ORDER: Matrix Spike CLIENT SAMPLE ID:9611689-03A

1,4-DIFLUOROBENZENE	30	24	80	70- 131
4-BROMOFLUOROBENZENE	30	28	93	43- 135



**SURROGATE RECOVERY SUMMARY**  
11/19/96 13:05:47

PAGE 5

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

AMOUNT ADDED	CONC. MEASURED	RECOVERY	LIMITS
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METHOD 8020A \*\*\*

BATCH#:HP\_N961117035200

WORK ORDER: Matrix Spike Dup.

CLIENT SAMPLE ID:9611689-03A

1,4-Difluorobenzene	30	27	90	70-	131
4-Bromofluorobenzene	30	28	93	43-	135

◀ = Recovery outside of control limits

\* = Methods for Chemical Analysis of Water & Wastes, 1983, EPA

\*\* = Standard Methods for Examination of Water & Wastewater, 17th

\*\*\* = Test Methods for Evaluating Solid Waste, EPA SW846, 3rd



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

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

Matrix: Aqueous  
Units: µg/L

Batch Id: HP\_N961115123200

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	50	100	63 - 120
Benzene	ND	50	41	82.0	62 - 121
Toluene	ND	50	42	84.0	66 - 136
EthylBenzene	ND	50	42	84.0	70 - 136
O Xylene	ND	50	44	88.0	74 - 134
M & P Xylene	ND	100	84	84.0	77 - 140

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	34	20	55		105	55
BENZENE	ND	20	18	90.0	17	85.0	5.71	25	39 - 150
TOLUENE	ND	20	19	95.0	17	85.0	11.1	26	56 - 134
ETHYLBENZENE	ND	20	18	90.0	17	85.0	5.71	38	61 - 128
O XYLENE	ND	20	18	90.0	17	85.0	5.71	29	40 - 130
M & P XYLENE	ND	40	36	90.0	34	85.0	5.71	20	43 - 152

Analyst: AA

Sequence Date: 11/15/96

SPL ID of sample spiked: 9611596-01A

Sample File ID: N\_K6826.TX0

Method Blank File ID:

Blank Spike File ID: N\_K6819.TX0

Matrix Spike File ID: N\_K6821.TX0

Matrix Spike Duplicate File ID: N\_K6822.TX0

\* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

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

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

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

(\*\*) = Source: SPL-Houston Historical Data (3rd Q '95)

(\*\*\*) = Source: SPL-Houston Historical Data (2nd Q '95)

SAMPLES IN BATCH(SPL ID):

9611596-03A 9611596-05A 9611602-01A 9611602-02A  
 9611602-03A 9611596-04A 9611596-07A 9611596-06A  
 9611602-04A 9611602-05A 9611428-01A 9611498-01A  
 9611498-03A 9611428-04A 9611602-08A 9611602-07A  
 9611596-01A 9611596-02A





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

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 680-0901

Matrix: Aqueous  
Units: µg/L

Batch Id: HP\_N961117035200

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	49	98.0	63 - 120
Benzene	ND	50	41	82.0	62 - 121
Toluene	ND	50	43	86.0	66 - 136
EthylBenzene	ND	50	43	86.0	70 - 136
O Xylene	ND	50	44	88.0	74 - 134
M & P Xylene	ND	100	86	86.0	77 - 140

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	18	90.0	18	90.0	0	20	39 - 150
BENZENE	ND	20	18	90.0	18	90.0	0	25	39 - 150
TOLUENE	ND	20	18	90.0	18	90.0	0	26	56 - 134
ETHYLBENZENE	ND	20	17	85.0	17	85.0	0	38	61 - 128
O XYLENE	ND	20	18	90.0	17	85.0	5.71	29	40 - 130
M & P XYLENE	ND	40	34	85.0	33	82.5	2.99	20	43 - 152

Analyst: AA

Sequence Date: 11/17/96

SPL ID of sample spiked: 9611689-03A

Sample File ID: N\_K6898.TX0

Method Blank File ID:

Blank Spike File ID: N\_K6890.TX0

Matrix Spike File ID: N\_K6892.TX0

Matrix Spike Duplicate File ID: N\_K6893.TX0

\* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

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

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

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

(\*\*) = Source: SPL-Houston Historical Data (3rd Q '95)

(\*\*\*) = Source: SPL-Houston Historical Data (2nd Q '95)

SAMPLES IN BATCH(SPL ID):

9611687-18A 9611689-03A 9611602-06A 9611602-05A  
 9611689-01A 9611687-13A 9611689-04A 9611689-08A  
 9611689-09A 9611689-05A 9611689-11A 9611689-06A  
 9611689-07A 9611689-02A 9611689-12A



SPL BATCH QUALITY CONTROL REPORT \*\*  
CA LUFT

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

Matrix: Aqueous  
Units: mg/L

Batch Id: HP\_N961115113500

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) ‡ Recovery Range
			Result <1>	Recovery ‡	
Petroleum Hydrocarbons-Gas	ND	1.0	0.85	85.0	50 - 150

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
PETROLEUM HYDROCARBONS-GAS	ND	0.90	1.0	111	1.0	111	0	50	50 - 150

Analyst: AA

Sequence Date: 11/15/96

SPL ID of sample spiked: 9611596-02A

Sample File ID: NNK6827.TX0

Method Blank File ID:

Blank Spike File ID: NNK6817.TX0

Matrix Spike File ID: NNK6823.TX0

Matrix Spike Duplicate File ID: NNK6824.TX0

\* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

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

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

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

(\*\*) = Source: Temporary Limits

(\*\*\*) = Source: Temporary Limits

SAMPLES IN BATCH(SPL ID):

9611596-01A 9611596-02A 9611596-03A 9611596-05A  
 9611602-01A 9611602-02A 9611602-03A 9611596-04A  
 9611596-07A 9611596-06A 9611602-04A 9611602-05A  
 9611602-06A 9611428-01A 9611428-04A 9611602-08A  
 9611602-07A



SPL BATCH QUALITY CONTROL REPORT \*\*  
CA LUFT

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

Matrix: Aqueous  
Units: mg/L

Batch Id: HP\_N961117025400

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery %	
Petroleum Hydrocarbons-Gas	ND	1.0	0.79	79.0	50 - 150

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
			PETROLEUM HYDROCARBONS-GAS	ND	0.9	0.94		104	0.95

Analyst: AA

Sequence Date: 11/17/96

SPL ID of sample spiked: 9611687-18A

Sample File ID: NNK6897.TX0

Method Blank File ID:

Blank Spike File ID: NNK6888.TX0

Matrix Spike File ID: NNK6894.TX0

Matrix Spike Duplicate File ID: NNK6895.TX0

\* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

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

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

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

(\*\*) = Source: Temporary Limits

(\*\*\*) = Source: Temporary Limits

SAMPLES IN BATCH(SPL ID):

9611687-18A 9611689-03A 9611602-06A 9611602-05A  
 9611689-01A 9611687-13A 9611689-04A 9611689-08A  
 9611689-09A 9611689-05A 9611689-10A 9611689-11A  
 9611689-06A 9611689-07A 9611689-02A 9611689-12A

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



96-11-602

### CHAIN OF CUSTODY

No. 084392

Page 1 of 1

CONSULTANT'S NAME <b>Alisto Engineering</b>		ADDRESS <b>1575 Treat Blvd #201</b>		CITY <b>W.C.</b>	STATE <b>Ca</b>	ZIP CODE <b>94598</b>
BP SITE NUMBER <b>11117</b>	BP CORNER ADDRESS/CITY <b>Oakland, Ca</b>			CONSULTANT PROJECT NUMBER <b>10-018-5-1</b>		
CONSULTANT PROJECT MANAGER <b>Bruce Nagle</b>		PHONE NUMBER <b>(510) 295-1650</b>	FAX NUMBER <b>295-1823</b>		CONSULTANT CONTRACT NUMBER <b>6797409</b>	
BP CONTACT <b>Scott Hooton</b>		BP ADDRESS <b>Renton, WA</b>	PHONE NUMBER		FAX NO.	
LAB CONTACT <b>SPL</b>		LABORATORY ADDRESS <b>Texas</b>	PHONE NUMBER		FAX NO.	
SAMPLED BY (Please Print Name) <b>Larry Buenavista</b>		SAMPLED BY (Signature) <i>[Signature]</i>		SHIPMENT DATE <b>11/11/96</b>	SHIPMENT METHOD <b>Fed Ex</b>	

TAT:  24 Hours  48 Hours  1 Week  Standard 2 Weeks

ANALYSIS REQUIRED

AIRBILL NUMBER **9404778891**

SAMPLE DESCRIPTION	COLLECTION DATE	MATRIX SOIL/WATER	CONTAINERS		PRESERVATIVE	TPTA-01	BXE	MTBE	11-10-96	PMA IMP									COMMENTS	
	COLLECTION TIME		NO.	TYPE (VOL.)	LAB SAMPLE #															
S-1	11/7/96	W	3	HCL		X	X													
S-2	↓	↓	↓	↓		↓	↓													
S-3	↓	↓	↓	↓		↓	↓													
S-4	↓	↓	↓	↓		↓	↓													
S-5	↓	↓	↓	↓		↓	↓													
S-6	↓	↓	↓	↓		↓	↓													
S-7	↓	↓	↓	↓		↓	↓													
S-8	↓	↓	↓	↓		↓	↓													

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	ADDITIONAL COMMENTS
<i>[Signature]</i>	11/7/96		<i>[Signature]</i>	11/11/96	3:42	4:0 contact
<i>[Signature]</i>	11/11/96	3:42	<i>[Signature]</i>	11-10-96	10:00	

# SPL Houston Environmental Laboratory

## Sample Login Checklist

Date: <div style="text-align: center; font-size: 1.2em;">11-12-96</div>	Time: <div style="text-align: center; font-size: 1.2em;">1000</div>
--	--

SPL Sample ID:  

96-11-602

		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:	40 C		
10	Method of sample delivery to SPL:	SPL Delivery		
		Client Delivery		
		FedEx Delivery (airbill #)	9404778891	
		Other:		
11	Method of sample disposal:	SPL Disposal		
		HOLD		
		Return to Client		

Name: <div style="text-align: center; font-size: 1.5em; margin-top: 10px;">John Smith</div>	Date: <div style="text-align: center; font-size: 1.2em; margin-top: 20px;">11-12-96</div>
--	--

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

BP Site Number: 1117  
 ERM Contact: SCOTT HOOTER  
 Sampling Date: 4/8/96  
 Matrix Description: WATER  
 Date Final Report Received: 11/25/96  
 Laboratory & Location: SPC - TX

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

Notes: 1) ELEVATED MS/MSD FOR SAMPLES S-5 S-7 & S-8 (due to presence of TPH)

\_\_\_\_\_

\_\_\_\_\_

Data Validation Completed by (print): Ken Sintas  
 (signature): *Ken Sintas*  
 Date: 12/17/96