



**BP OIL**

March 19, 1997

ENVIRONMENTAL  
CORPORATION

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BP Oil Company  
Environmental Resources Management  
Building 13, Suite N  
295 SW 41st Street  
Renton, Washington 98055-4931  
(206) 251-0667  
Fax No: (206) 251-0736

Ms. Eva Chu  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Room 250  
Alameda, CA 94542-6577

**RE: BP OIL FACILITY #11133  
2220 98th Avenue  
Oakland CA**

Dear Ms Chu:

Attached please find our **GROUNDWATER MONITORING AND SAMPLING REPORT, Dated FEBRUARY 25, 1997** for the above referenced facility. Plans for the following quarter include additional groundwater monitoring.

On a final note, please note that BP and Mobil Oil Corporation have an agreement to cooperate in the filing for reimbursement applications to the UST Cleanup Fund. If you become aware of any notices or proposals to withdraw a Letter of Commitment for this site, please give me a call to let me know immediately. *Her was out from SWRCB on Jan 30, 1995 on a memo, 1995*

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\ERM11133

cc: Mr. Brady Nagle, Alisto Engineering Group, 1575 Treat Blvd., Ste 201, Walnut Creek, CA 94598

TOSCO Northwest Co., 601 Union Street, Suite 2500, Seattle, WA 98101

Mr. Richard Hiatt, CRWQCB, San Francisco Bay Region, 2101 Webster Street, Suite 500, Oakland CA 94612 (without attachment)

Site File

**GROUNDWATER MONITORING AND SAMPLING REPORT**

**BP Oil Company Service Station No. 11133  
2220 98th Avenue  
Oakland, California**

**Project No. 10-025-13-002**

**MAR 3 1997**

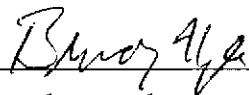
**Prepared for:**

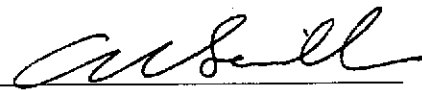
**BP Oil Company  
Environmental Resources Management  
295 S.W. 41st Street  
Building 13, Suite N  
Renton, Washington**

**Prepared by:**

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

**February 25, 1997**

  
\_\_\_\_\_  
**Brady Nagle  
Project Manager**

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



# GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11133  
2220 98th Avenue  
Oakland, California

Project No. 10-025-13-002

February 25, 1997

## INTRODUCTION

This report presents the results and findings of the January 2, 1997 groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Company Service Station No. 11133, 2220 98th 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 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.

## FREE PRODUCT MONITORING AND RECOVERY

A product recovery canister has been installed in Monitoring Well MW-1 to recover liquid-phase product. Product thicknesses for this and previous monitoring events are presented in Table 1. The volume of product recovered 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. 11133  
 2220 98TH AVENUE, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-025

WELL ID	DATE OF MONITORING/ SAMPLING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
MW-1	04/05/91	34.46	---	---	---	---	---	---	---	---	---	---	---
MW-1	04/01/92	34.46	11.25	0.01	23.22	---	---	---	---	---	---	---	---
MW-1	07/06/92	34.46	13.61	0.02	20.87	---	---	---	---	---	---	---	---
MW-1	10/07/92	34.46	15.15	0.09	19.38	---	---	---	---	---	---	---	---
MW-1	01/14/93	34.46	10.73	0.01	23.74	---	---	---	---	---	---	---	---
MW-1	04/22/93	34.46	11.84	0.16	22.94	---	---	---	---	---	---	---	---
MW-1	07/15/93	34.46	13.50	1.11	21.79	---	---	---	---	---	---	---	---
MW-1	10/21/93	34.46	15.21	1.00	20.00	---	---	---	---	---	---	---	---
MW-1	01/27/94	34.46	17.48	0.81	17.59	---	---	---	---	---	---	---	---
MW-1	04/21/94	34.46	10.94	---	23.52	110000	1400	9100	3400	30000	---	1.6	PACE
MW-1	09/09/94	34.46	13.80	---	20.86	---	---	---	---	---	---	---	---
MW-1	12/21/94	34.46	12.60	0.02	21.88	---	---	---	---	---	---	---	---
MW-1	01/30/95	34.46	---	---	---	---	---	---	---	---	---	---	---
MW-1	04/10/95	34.46	10.62	---	23.84	---	---	---	---	---	---	---	---
MW-1	06/29/95	34.46	18.72	---	15.74	---	---	---	---	---	---	---	---
MW-1	09/18/95	34.46	12.92	---	21.54	---	---	---	---	---	---	---	---
MW-1	12/07/95	34.46	13.82	---	20.64	---	---	---	---	---	---	---	---
MW-1	03/28/96	34.46	10.03	0.01	24.44	---	---	---	---	---	---	---	---
MW-1	06/20/96	34.46	11.29	0.02	23.19	---	---	---	---	---	---	---	---
MW-1	10/11/96	34.46	14.86	0.01	19.61	---	---	---	---	---	---	---	---
MW-1	01/02/97	34.46	11.03	0.01	23.44	---	---	---	---	---	---	---	---
MW-2	04/05/91	35.50	16.62	---	18.88	ND<50	0.6	0.9	ND<0.3	ND<0.3	---	---	SUP
MW-2	04/01/92	35.50	11.25	---	24.25	---	---	---	---	---	---	---	---
MW-2	04/02/92	35.50	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	APP
MW-2	07/06/92	35.50	12.72	---	22.78	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-2	10/07/92	35.50	15.08	---	20.42	ND<50	ND<0.5	1.8	ND<0.5	2.3	---	---	ANA
MW-2	01/14/93	35.50	9.69	---	25.81	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-2	04/22/93	35.50	10.46	---	25.04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-2	07/15/93	35.50	12.02	---	23.48	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-2	10/21/93	35.50	13.12	---	22.38	ND<50	0.7	0.9	ND<0.5	0.9	---	---	PACE
MW-2	01/27/94	35.50	12.01	---	23.49	ND<50	0.6	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-2	04/21/94	35.50	10.60	---	24.90	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	1.1	PACE
MW-2	09/09/94	35.50	12.42	---	23.08	ND<50	ND<0.5	ND<0.5	ND<0.5	0.6	---	2.2	PACE
MW-2	12/21/94	35.50	10.85	---	24.85	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	1.2	PACE
MW-2	01/30/95	35.50	8.38	---	27.12	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	1.7	ATI
MW-2	04/10/95	35.50	9.00	---	26.50	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	7.8	ATI
MW-2	06/29/95	35.50	9.91	---	25.59	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	9.1	ATI
MW-2	09/18/95	35.50	10.98	---	24.52	---	---	---	---	---	---	---	---
MW-2	09/19/95	35.50	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	7.2	ATI
MW-2	12/07/95	35.50	12.30	---	23.20	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	2.4	ATI
MW-2	03/28/96	35.50	8.57	---	26.93	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	3.2	SPL
MW-2	06/20/96	35.50	9.77	---	25.73	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	4.2	SPL
MW-2	10/11/96	35.50	13.32	---	22.18	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	8.3	SPL
MW-2	01/02/97	35.50	9.60	---	25.90	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	6.7	SPL

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING  
 BP OIL COMPANY SERVICE STATION NO. 11133  
 2220 98TH AVENUE, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-025

WELL ID	DATE OF MONITORING/SAMPLING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
MW-3	04/05/91	36.53	17.84	--	18.89	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3	--	--	SUP
MW-3	04/01/92	36.53	15.64	---	20.89	---	---	---	---	---	---	---	---
MW-3	04/02/92	36.53	---	---	---	ND<50	1.4	ND<0.5	ND<0.5	ND<0.5	---	---	APP
MW-3	07/06/92	36.53	19.03	---	17.50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-3	10/07/92	36.53	21.83	---	14.70	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-3	01/14/93	36.53	15.96	---	20.57	350	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-3	04/22/93	36.53	18.20	---	20.33	2800	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-3	07/15/93	36.53	16.82	---	19.71	1400	1.2	ND<0.5	2.0	3.5	---	---	PACE
MW-3	10/21/93	36.53	18.84	---	17.69	370	2.1	2.3	2.3	6.0	---	---	PACE
MW-3	01/27/94	36.53	18.00	---	18.53	1300	6.3	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-3	04/21/94	36.53	16.82	---	19.91	2000	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	1.4	PACE
MW-3	09/09/94	36.53	18.38	---	18.15	1300	ND<0.5	ND<0.5	0.5	1.2	---	3.0	PACE
MW-3	12/21/94	36.53	15.28	---	21.25	420	16	0.7	3.5	5.9	---	1.9	PACE
MW-3	01/30/95	36.53	12.62	---	23.91	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	2.5	ATI
MW-3	04/10/95	36.53	12.41	---	24.12	150	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	6.9	ATI
MW-3	06/29/95	36.53	14.95	---	21.58	100	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	6.4	ATI
MW-3	09/18/95	36.53	15.82	---	20.71	---	---	---	---	---	---	---	---
MW-3	09/19/95	36.53	---	---	---	82	ND<0.50	ND<0.50	ND<0.50	ND<1.0	260	7.0	ATI
MW-3	12/07/95	36.53	17.09	---	19.44	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	91	4.5	ATI
MW-3	03/28/96	36.53	11.90	---	24.63	ND<50	ND<0.5	ND<1	ND<1	ND<1	230	4.2	SPL
MW-3	06/20/96	36.53	12.66	---	23.87	260	ND<0.5	ND<1	ND<1	ND<1	370	4.4	SPL
MW-3	10/11/96	36.53	16.23	---	20.30	330	ND<0.5	ND<1.0	ND<1.0	ND<1.0	440	5.8	SPL
MW-3	01/02/97	36.53	12.17	---	24.36	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	140	6.0	SPL
AW-1	04/05/91	38.11	25.44	---	12.67	4100	1500	69	100	83	---	---	SUP
AW-1	04/01/92	38.11	23.22	---	14.89	---	---	---	---	---	---	---	---
AW-1	04/02/92	38.11	---	---	---	11000	1800	210	210	490	---	---	APP
AW-1	07/06/92	38.11	24.89	---	13.22	6500	4000	40	290	530	---	---	ANA
AW-1	10/07/92	38.11	26.55	---	11.56	4700	1500	41	47	300	---	---	ANA
QC-1 (c)	10/07/92	---	---	---	---	2900	1200	25	37	210	---	---	ANA
AW-1	01/14/93	38.11	23.73	---	14.38	2800	830	31	140	240	---	---	PACE
QC-1 (c)	01/14/93	---	---	---	---	4100	1700	28	130	230	---	---	PACE
AW-1	04/22/93	38.11	---	---	38.11	39000	14000	530	1800	6100	---	---	PACE
AW-1	07/15/93	38.11	22.50	---	15.61	6200	2200	28	210	540	---	---	PACE
AW-1	10/21/93	38.11	24.32	---	13.79	2400	820	13	55	120	---	---	PACE
AW-1	01/27/94	38.11	23.72	---	14.39	3500	1400	26	130	220	---	---	PACE
AW-1	04/21/94	38.11	22.48	---	15.63	40000	12000	1900	1600	5000	---	1.4	PACE
AW-1	09/09/94	38.11	23.04	---	15.07	3500	1800	5.0	200	250	---	2.1	PACE
QC-1 (c)	09/09/94	---	---	---	---	3900	1900	5.5	190	240	---	---	PACE
AW-1	12/21/94	38.11	21.70	---	16.41	7600	3100	36	370	320	---	1.8	PACE
AW-1	01/30/95	38.11	17.71	---	20.4	35000	23000	650	3200	4100	---	1.7	ATI
AW-1	04/10/95	38.11	20.04	---	18.07	60000	18000	2000	4300	11000	---	7.9	ATI
QC-1 (c)	04/10/95	---	---	---	---	56000	17000	2000	3900	10000	---	---	ATI
AW-1	06/29/95	38.11	20.60	---	17.51	72000	10000	7300	4200	15000	---	6.2	ATI
QC-1 (c)	06/29/95	---	---	---	---	86000	12000	8400	4800	18000	---	---	ATI
AW-1	09/18/95	38.11	21.87	---	16.24	---	---	---	---	---	---	---	---
AW-1	09/19/95	38.11	---	---	---	65000	12000	3100	4400	14000	1000	8.5	ATI
AW-1	12/07/95	38.11	22.06	---	16.05	25000	8700	ND<50	2500	1300	1100	2.9	ATI
AW-1	03/28/96	38.11	16.91	---	21.20	24000	11000	ND<100	3200	3390	ND<1000	6.6	SPL
AW-1	06/20/96	38.11	20.82	---	17.29	38000	6900	1100	3200	7300	ND<100	6.4	SPL
AW-1	10/11/96	38.11	23.20	---	14.91	33000	8500	69	3300	4230	580	6.3	SPL
AW-1	01/02/97	38.11	20.41	---	17.70	32000	8000	ND<50	3100	2300	700	6.7	SPL

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING  
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WELL ID	DATE OF MONITORING/ SAMPLING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
AW-2	04/05/91	36.83	22.36	---	14.47	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3	---	---	SUP
AW-2	04/01/92	36.83	20.81	---	16.02	---	---	---	---	---	---	---	---
AW-2	04/02/92	36.83	---	---	---	130	25	2.3	0.7	2.1	---	---	APP
AW-2	07/06/92	36.83	23.57	---	13.26	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
AW-2	10/07/92	36.83	25.24	---	11.59	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
AW-2	01/14/93	36.83	20.82	---	16.01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
AW-2	04/22/93	36.83	19.37	---	17.46	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
AW-2	07/15/93	36.83	21.29	---	15.54	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
AW-2	10/21/93	36.83	23.14	---	13.69	ND<50	1.3	1.1	---	2.1	---	---	PACE
AW-2	01/27/94	36.83	22.34	---	14.49	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
AW-2	04/21/94	36.83	21.15	---	15.68	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	2.0	PACE
AW-2	09/09/94	36.83	22.09	---	14.74	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	4.1	PACE
AW-2	12/21/94	36.83	20.12	---	16.71	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	2.0	PACE
AW-2	01/30/95	36.83	16.65	---	20.18	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	2.5	ATI
AW-2	04/10/95	36.83	16.22	---	20.61	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	4.4	ATI
AW-2	06/29/95	36.83	17.55	---	19.28	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	7.8	ATI
AW-2	09/18/95	36.83	19.87	---	16.96	---	---	---	---	---	---	---	---
AW-2	09/19/95	36.83	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	4.5	ATI
QC-1 (c)	09/19/95	---	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	ATI
AW-2	12/07/95	36.83	21.31	---	15.52	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	4.9	ATI
AW-2	03/28/96	36.83	15.61	---	21.22	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	4.1	SPL
AW-2	06/20/96	36.83	16.30	---	20.53	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	5.2	SPL
AW-2	10/11/96	36.83	19.60	---	17.23	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	6.0	SPL
AW-2	01/02/97	36.83	15.97	---	20.86	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	6.1	SPL
AW-3	04/05/91	39.13	23.90	---	15.23	5200	980	450	95	310	---	---	SUP
AW-3	04/01/92	39.13	22.50	---	16.63	4700	890	47	43	110	---	---	APP
AW-3	07/06/92	39.13	23.26	---	15.87	3900	3100	30	80	99	---	---	ANA
AW-3	10/07/92	39.13	24.75	---	14.38	5000	2600	ND<0.5	ND<0.5	59	---	---	ANA
AW-3	01/14/93	39.13	23.59	---	15.54	350	250	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
AW-3	04/22/93	39.13	19.42	---	19.71	240	71	2.4	0.6	4.0	---	---	PACE
AW-3	07/15/93	39.13	20.09	---	19.04	650	71	2.8	1.5	1.1	---	---	PACE
AW-3	10/21/93	39.13	21.88	---	17.25	160	4.8	1.7	1.6	3.6	---	---	PACE
QC-1 (c)	10/21/93	---	---	---	---	170	6.1	2.0	1.7	4.4	---	---	PACE
AW-3	01/27/94	39.13	22.33	---	16.80	92	2.1	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-1 (c)	01/27/94	---	---	---	---	90	2.9	0.5	ND<0.5	ND<0.5	---	---	PACE
AW-3	04/21/94	39.13	20.96	---	18.17	150	3.6	0.8	0.9	2.5	---	1.3	PACE
AW-3	09/09/94	39.13	21.60	---	17.53	53	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	1.9	PACE
AW-3 (d)	12/21/94	39.13	---	---	---	---	---	---	---	---	---	---	---
AW-3 (d)	01/30/95	39.13	---	---	---	---	---	---	---	---	---	---	---
AW-3 (d)	04/10/95	39.13	---	---	---	---	---	---	---	---	---	---	---
AW-3	06/29/95	39.13	15.41	---	23.72	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	8.0	ATI
AW-3	09/18/95	39.13	17.83	---	21.30	---	---	---	---	---	---	---	---
AW-3	09/19/95	39.13	---	---	---	61000	11000	2900	4100	13000	790	7.4	ATI
AW-3	12/07/95	39.13	19.27	---	19.86	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	3.4	ATI
QC-1 (c)	12/07/95	---	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	ATI
AW-3	03/28/96	39.13	13.85	---	25.28	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	4.1	SPL
QC-1 (c)	03/28/96	---	---	---	---	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	SPL
AW-3	06/20/96	39.13	14.47	---	24.66	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	4.2	SPL
QC-1 (c)	06/20/96	---	---	---	---	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	SPL
AW-3	10/11/96	39.13	17.97	---	21.16	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	4.7	SPL
QC-1 (c)	10/11/96	---	---	---	---	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	SPL
AW-3	01/02/97	39.13	13.00	---	26.13	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	5.6	SPL

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING  
 BP OIL COMPANY SERVICE STATION NO. 11133  
 2220 98TH AVENUE, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-025

WELL ID	DATE OF MONITORING/ SAMPLING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB	
AW-4	04/05/91	39.08	25.12	---	13.96	110000	40000	13000	2000	5500	---	---	SUP	
AW-4	04/01/92	39.08	23.56	---	15.52	230000	57000	31000	2900	7600	---	---	APP	
AW-4 (a)	04/01/92	39.08	23.56	---	15.52	210000	55000	23000	2900	7000	---	---	APP	
AW-4	07/06/92	39.08	25.87	---	13.21	38000	16000	5400	2000	6100	---	---	ANA	
AW-4	10/07/92	39.08	27.53	---	11.55	120000	41000	26000	4700	13000	---	---	ANA	
AW-4	01/14/93	39.08	24.12	---	14.96	62000	18000	14000	2700	7700	---	---	PACE	
AW-4	04/22/93	39.08	21.47	---	17.61	18000	1100	2100	320	3500	---	---	PACE	
AW-4	07/15/93	39.08	23.30	---	15.78	21000	820	2300	590	3800	---	---	PACE	
AW-4	10/21/93	39.08	25.08	---	14.00	11000	570	83	630	2300	---	---	PACE	
AW-4	01/27/94	39.08	24.61	---	14.47	12000	420	460	600	2200	---	---	PACE	
AW-4	04/21/94	39.08	22.96	---	16.12	12000	110	250	150	1900	---	1.5	PACE	
QC-1 (c)	04/21/94	---	---	---	---	14000	71	160	29	1200	---	---	PACE	
AW-4	09/09/94	39.08	23.85	---	15.23	9700	75	64	280	2000	---	2.1	PACE	
AW-4 (d)	12/21/94	---	---	---	---	---	---	---	---	---	---	---	---	
AW-4 (d)	01/30/95	---	---	---	---	---	---	---	---	---	---	---	---	
AW-4	04/10/95	39.08	18.07	---	21.01	3700	69	8.7	44	130	---	8.5	ATI	
AW-4	06/29/95	39.08	19.25	---	19.83	8000	62	190	190	1100	---	7.5	ATI	
AW-4	09/18/95	39.08	20.73	---	18.35	---	---	---	---	---	---	---	---	
AW-4	09/19/95	39.08	---	---	---	12000	680	1600	200	1900	7100	8.3	ATI	
AW-4	12/07/95	39.08	22.49	---	16.59	41000	8400	7200	710	6300	5200	3.6	ATI	
AW-4 (d)	03/28/96	39.08	16.49	---	22.59	---	---	---	---	---	---	---	---	
AW-4	06/20/96	39.08	16.00	---	23.08	ND<50	ND<0.5	ND<1	ND<1	ND<1	12	---	SPL	
AW-4	10/11/96	39.08	19.52	---	19.56	36000	12000	5500	ND<25	3800	880/1000	(f)	6.2	SPL
AW-4	01/02/97	39.08	15.80	---	23.28	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	22	---	6.4	SPL
QC-1 (c)	01/02/97	---	---	---	---	ND<50	61	3.8	3.5	8.1	110	---	---	SPL
AW-5	04/05/91	38.51	25.48	---	13.03	420	31	7.5	20	68	---	---	SUP	
AW-5	04/01/92	38.51	23.95	---	14.56	---	---	---	---	---	---	---	---	
AW-5	04/02/92	38.51	---	---	---	4000	270	63	190	290	---	---	APP	
AW-5	07/06/92	38.51	26.48	---	12.03	1400	160	ND<2.5	250	58	---	---	ANA	
AW-5	10/07/92	38.51	28.18	---	10.33	360	12	0.6	8.7	5	---	---	ANA	
AW-5	01/14/93	38.51	24.15	---	14.36	1700	270	7.5	130	62	---	---	PACE	
AW-5	04/22/93	38.51	22.43	---	16.08	2700	780	30	220	180	---	---	PACE	
QC-1 (c)	04/22/93	38.51	---	---	---	3500	780	29	240	210	---	---	PACE	
AW-5	07/15/93	38.51	24.31	---	14.20	1300	69	16	67	120	---	---	PACE	
QC-1 (c)	07/15/93	38.51	---	---	---	1300	68	8.3	64	99	---	---	PACE	
AW-5	10/21/93	38.51	26.05	---	12.46	510	9.6	1.5	17	45	---	---	PACE	
AW-5	10/21/93	38.51	26.05	---	12.46	510	9.6	1.5	17	45	---	---	PACE	
AW-5	01/27/94	38.51	26.42	---	12.09	420	3.3	ND<0.5	1.0	0.9	---	---	PACE	
AW-5	04/21/94	38.51	24.36	---	14.15	1000	110	25	56	27	---	1.3	PACE	
AW-5	09/09/94	38.51	24.55	---	13.96	210	ND<0.5	ND<0.5	0.5	0.9	---	2.7	PACE	
AW-5	12/21/94	38.51	22.30	---	16.21	410	ND<0.5	20	4.3	1.4	---	1.1	PACE	
QC-1 (c)	12/21/94	38.51	---	---	---	340	ND<0.5	15	3.3	1.4	---	---	PACE	
AW-5	01/30/95	38.51	18.88	---	19.63	210	0.6	11	8.8	2	---	1.5	ATI	
AW-5	04/10/95	38.51	18.44	---	20.07	500	1.4	0.59	6.5	4.3	---	8.3	ATI	
AW-5	06/29/95	38.51	19.92	---	18.59	490	1.2	0.58	7.3	2.2	---	6.9	ATI	
AW-5	09/18/95	38.51	22.15	---	16.36	---	---	---	---	---	---	---	---	
AW-5	09/19/95	38.51	---	---	---	280	0.62	ND<0.50	3.1	1.1	110	8.2	ATI	
AW-5	12/07/95	38.51	23.75	---	14.76	80	ND<0.50	ND<0.50	ND<0.50	ND<1.0	210	4.3	ATI	
AW-5	03/28/96	38.51	17.76	---	20.75	ND<50	ND<0.5	ND<1	ND<1	ND<1	63	3.0	SPL	
AW-5	06/20/96	38.51	18.46	---	20.05	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	3.6	SPL	
AW-5	10/11/96	38.51	21.84	---	16.67	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	4.5	SPL	
AW-5	01/02/97	38.51	18.01	---	20.50	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	4.6	SPL	



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 BP OIL COMPANY SERVICE STATION NO. 11133  
 2220 98TH AVENUE, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-025

WELL ID	DATE OF MONITORING/ SAMPLING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
AW-6	04/05/91	37.08	22.48	---	14.60	1100	80	19	1.4	230	---	---	SUP
AW-6	04/01/92	37.08	22.50	---	14.58	---	---	---	---	---	---	---	---
AW-6	04/02/92	37.08	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	APP
AW-6	07/06/92	37.08	22.74	---	14.34	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
AW-6	10/07/92	37.08	24.64	---	12.44	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
AW-6	01/14/93	37.08	22.36	---	14.72	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
AW-6	04/22/93	37.08	22.62	---	14.26	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
AW-6	07/15/93	37.08	20.49	---	16.59	ND<50	ND<0.5	ND<0.5	ND<0.5	0.8	---	---	PACE
AW-6	10/21/93	37.08	22.84	---	14.24	ND<50	0.5	0.6	ND<0.5	0.7	---	---	PACE
AW-6	01/27/94	37.08	22.33	---	14.75	ND<50	ND<0.5	0.9	3.1	12	---	---	PACE
AW-6	04/21/94	37.08	20.66	---	16.42	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	1.7	PACE
AW-6	09/09/94	37.08	21.57	---	15.51	ND<50	0.9	ND<0.5	ND<0.5	0.5	---	2.9	PACE
AW-6	12/21/94	37.08	19.40	---	17.88	ND<50	1.8	0.8	0.8	3.2	---	1.1	PACE
AW-6	01/30/95	37.08	18.74	---	20.34	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	2.2	ATI
QC-1 (c)	01/30/95	38.51	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	ATI
AW-6	04/10/95	37.08	16.01	---	21.07	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	8.6	ATI
AW-6	06/29/95	37.08	17.54	---	19.54	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	6.3	ATI
AW-6	09/18/95	37.08	19.65	---	17.43	---	---	---	---	---	---	---	---
AW-6	09/19/95	37.08	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	25	8.3	ATI
AW-6	12/07/95	37.08	20.35	---	16.73	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	16	4.7	ATI
AW-6	03/28/96	37.08	14.99	---	22.09	ND<50	ND<0.5	ND<0.5	ND<1	ND<1	ND<10	4.0	SPL
AW-6	06/20/96	37.08	15.59	---	21.49	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	4.6	SPL
AW-6	10/11/96	37.08	19.09	---	17.99	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	5.3	SPL
AW-6	01/02/97	37.08	15.11	---	21.97	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	5.5	SPL
AW-7	04/05/91	37.60	23.38	---	14.22	ND<50	0.4	0.7	ND<0.3	ND<0.3	---	---	SUP
AW-7	04/01/92	37.60	21.92	---	15.68	---	---	---	---	---	---	---	---
AW-7	04/02/92	37.60	---	---	---	ND<50	ND<0.5	3.2	1.0	5.4	---	---	APP
AW-7	07/06/92	37.60	24.50	---	13.10	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
AW-7	10/07/92	37.60	26.18	---	11.42	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
AW-7	01/14/93	37.60	22.03	---	15.57	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
AW-7	04/22/93	37.60	21.18	---	16.42	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
AW-7	07/15/93	37.60	22.09	---	15.51	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
AW-7	10/21/93	37.60	24.05	---	13.55	51	5.0	4.2	3.5	8.2	---	---	PACE
AW-7	01/27/94	37.60	23.40	---	14.20	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
AW-7	04/21/94	37.60	22.24	---	15.36	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	2.5	PACE
AW-7	09/09/94	37.60	22.94	---	14.66	ND<50	ND<0.5	ND<0.5	ND<0.5	0.5	---	4.3	PACE
AW-7	12/21/94	37.60	20.86	---	16.74	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	2.2	PACE
AW-7	01/30/95	37.60	17.51	---	20.09	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	2.7	ATI
AW-7	04/10/95	37.60	16.69	---	20.91	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	4.8	ATI
AW-7	06/29/95	37.60	18.33	---	19.27	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	7.6	ATI
AW-7	09/18/95	37.60	20.68	---	16.92	---	---	---	---	---	---	---	---
AW-7	09/19/95	37.60	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	5.1	ATI
AW-7	12/07/95	37.60	22.15	---	15.45	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	5.2	ATI
AW-7	03/28/96	37.60	16.38	---	21.22	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	3.9	SPL
AW-7	06/20/96	37.60	17.02	---	20.58	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	5.0	SPL
AW-7	10/11/96	37.60	20.47	---	17.13	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	6.3	SPL
AW-7	01/02/97	37.60	16.70	---	20.90	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	6.2	SPL

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ALISTO PROJECT NO. 10-025

WELL ID	DATE OF MONITORING/ SAMPLING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
AW-8	04/05/91	40.86	26.68	---	14.18	80	1.9	2.2	0.5	1.3	---	---	SUP
AW-8	04/01/92	40.86	25.11	---	15.75	73	ND<0.5	0.7	ND<0.5	0.6	---	---	APP
AW-8	07/06/92	40.86	26.43	---	14.43	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
AW-8	10/07/92	40.86	28.59	---	12.27	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
AW-8	01/14/93	40.86	25.55	---	15.31	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
AW-8	04/22/93	40.86	22.29	---	18.57	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
AW-8	07/15/93	40.86	23.42	---	17.44	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
AW-8	10/21/93	40.86	25.15	---	15.71	ND<50	1.9	1.8	1.3	3.3	---	---	PACE
AW-8	01/27/94	40.86	25.42	---	15.44	ND<50	ND<0.5	0.5	0.6	8.5	---	---	PACE
AW-8	04/21/94	40.86	24.14	---	16.72	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	1.5	PACE
AW-8	09/09/94	40.86	24.55	---	16.31	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	2.4	PACE
AW-8	12/21/94	40.86	22.72	---	18.14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	1.1	PACE
AW-8	01/30/95	40.86	19.75	---	21.11	ND<50	ND<0.50	1	ND<0.50	1	---	0.8	ATI
AW-8	04/10/95	40.86	17.78	---	23.08	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	8.3	ATI
AW-8	06/29/95	40.86	18.18	---	22.68	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	8.3	ATI
AW-8	09/18/95	40.86	20.20	---	20.66	---	---	---	---	---	---	---	---
AW-8	09/19/95	40.86	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	7.7	ATI
AW-8	12/07/95	40.86	21.54	---	19.32	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	4.4	ATI
AW-8	03/28/96	40.86	15.77	---	25.09	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	3.8	SPL
AW-8	06/20/96	40.86	16.41	---	24.45	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	3.6	SPL
AW-8	10/11/96	40.86	19.90	---	20.96	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	6.4	SPL
AW-8	01/02/97	40.86	15.89	---	24.97	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	5.9	SPL
AW-9	01/02/97	37.78	10.00	---	27.78	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	6.7	SPL
RW-1	04/05/91	37.73	---	---	---	---	---	---	---	---	---	---	---
RW-1	04/01/92	37.73	22.81	0.30	15.14	---	---	---	---	---	---	---	---
RW-1	07/06/92	37.73	26.92	0.41	11.12	---	---	---	---	---	---	---	---
RW-1	10/07/92	37.73	28.51	1.28	10.16	---	---	---	---	---	---	---	---
RW-1	01/14/93	37.73	23.75	0.25	14.17	---	---	---	---	---	---	---	---
RW-1	04/22/93	37.73	22.70	1.38	16.07	---	---	---	---	---	---	---	---
RW-1	07/15/93	37.73	26.10	0.81	12.24	---	---	---	---	---	---	---	---
RW-1	10/21/93	37.73	25.40	0.49	12.70	---	---	---	---	---	---	---	---
RW-1	10/21/93	37.73	25.40	0.49	12.70	---	---	---	---	---	---	---	---
RW-1	01/27/94	37.73	28.02	0.37	9.99	---	---	---	---	---	---	---	---
RW-1	04/21/94	37.73	23.10	0.91	15.31	---	---	---	---	---	---	---	---
RW-1	09/09/94	37.73	24.39	1.04	14.12	---	---	---	---	---	---	---	---
RW-1 (g)	12/21/94	37.73	---	---	---	---	---	---	---	---	---	---	---
RW-1	12/07/95	37.73	25.71	1.04	12.80	150000	34000	35000	4300	21000	2700	---	ATI
RW-1	03/28/96	37.73	16.75	0.18	21.12	---	---	---	---	---	---	---	---
RW-1 (g)	06/20/96	37.73	25.10	0.02	12.64	---	---	---	---	---	---	---	---
RW-1	10/11/96	37.73	25.51	0.00	12.22	130000	20000	32000	2800	20700	1400/1200 (f)	7.4	SPL
RW-1	01/02/97	37.73	24.49	0.01	13.25	---	---	---	---	---	---	---	---

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING  
 BP OIL COMPANY SERVICE STATION NO. 11133  
 2220 98TH AVENUE, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-025

WELL ID	DATE OF MONITORING/ SAMPLING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
QC-2 (h)	10/07/92	---	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
QC-2 (h)	01/14/93	---	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (h)	04/22/93	---	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (h)	07/15/93	---	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (h)	10/21/93	---	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (h)	01/27/94	---	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (h)	04/21/94	---	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (h)	09/08/94	---	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (h)	12/21/94	---	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (h)	01/30/95	---	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	ATI
QC-2 (h)	04/10/95	---	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	ATI
QC-2 (h)	06/27/95	---	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	ATI
QC-2 (h)	09/19/95	---	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	ATI
QC-2 (h)	12/07/95	---	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	ATI
QC-2 (h)	03/28/96	---	---	---	---	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	SPL
QC-2 (h)	06/20/96	---	---	---	---	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	SPL

ABBREVIATIONS:

TPH-G	Total petroleum hydrocarbons as gasoline
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
---	Not available/applicable/measurable
ND	Not detected above reported detection limit
PACE	Pace, Inc.
SUP	Superior Analytical Laboratories, Inc.
APP	Applied Analytical Laboratory
ANA	Anametrix, Inc.
ATI	Analytical Technologies, Inc.
SPL	Southern Petroleum Laboratories

NOTES:

- (a) Top of casing elevations surveyed to the nearest 0.01 foot above mean sea level.
- (b) Groundwater elevations adjusted assuming a specific gravity of 0.75 for free product.
- (c) Blind duplicate.
- (d) Well inaccessible.
- (e) Duplicate.
- (f) EPA Methods 8020/8260 used.
- (g) Well not monitored and/or sampled due to vapor extraction system.
- (h) Travel blank.

F:\010-025025-13-2.W02

TABLE 2 - PRODUCT REMOVAL STATUS  
 BP OIL COMPANY SERVICE STATION NO. 11133  
 2220 98TH STREET, OAKLAND, CALIFORNIA

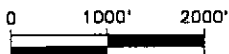
ALISTO PROJECT NO. 10-025

WELL ID	DATE	PRODUCT REMOVED (Gallons)	PRODUCT REMOVED CUMULATIVE (Gallons)
RW-1	10/06/93	1.00	1.00
	10/14/94	1.00	2.00
	10/20/94	18.00	20.00
	10/26/94	3.00	23.00
	11/02/93	5.00	28.00
	11/10/94	6.00	34.00
	11/16/94	2.50	36.50
	11/23/94	5.00	41.50
	11/30/93	2.00	43.50
	12/07/93	4.00	47.50
	12/17/93	1.50	49.00
	01/04/94	5.00	54.00
	01/12/94	3.50	57.50
	01/20/94	2.50	60.00
	02/11/94	4.00	64.00
	02/18/93	3.50	67.50
	02/25/94	3.00	70.50
	03/04/94	3.50	74.00
	03/18/94	5.50	79.50
	03/30/94	4.00	83.50
	04/13/94	4.60	88.10
	04/21/94	4.20	92.30
	04/29/94	4.50	96.80
	05/06/94	5.50	102.30
	05/13/94	3.50	105.80
	05/20/94	3.50	109.30
	05/26/94	4.50	113.80
	06/02/94	3.50	117.30
	06/09/94	2.50	119.80
	06/16/94	3.50	123.30
	06/23/94	4.00	127.30
	06/29/94	2.50	129.80
	07/07/94	2.00	131.80
	07/12/94	3.00	134.80
	07/20/94	1.50	136.30
	07/29/94	3.50	139.80
08/05/94	1.50	141.30	
08/12/94	2.00	143.30	
08/18/94	2.50	145.80	
09/09/94	3.50	149.30	
09/16/94	4.00	153.30	
09/23/94	2.00	155.30	
12/07/95	0.00	155.30	
03/28/96	0.01	155.31	
06/20/96	0.00	155.31	
MW-1	10/20/93	0.10	0.10
	11/10/93	0.10	0.20
	09/09/94	SHEEN	0.20
	10/26/94	SHEEN	0.20
	11/16/94	SHEEN	0.20
	12/21/94	0.25	0.45
	02/08/95	0.00	0.45
	04/10/95	0.25	0.70
	06/29/95	SHEEN	0.70
	09/18/95	SHEEN	0.70
	12/07/95	SHEEN	0.70
	03/28/96	<.001	0.70
	06/20/96	0.002	0.70
	10/11/96	<0.001	0.70
01/02/97	<0.01	0.70	

Note: Groundwater and soil vapor extraction equipment installed in RW-1 in October 1994.



SOURCE:  
 USGS MAP, OAKLAND EAST AND SAN LEANDRO  
 QUADRANGLES, CALIFORNIA. 7.5 MINUTE SERIES. 1956.  
 PHOTOREVISED 1980.



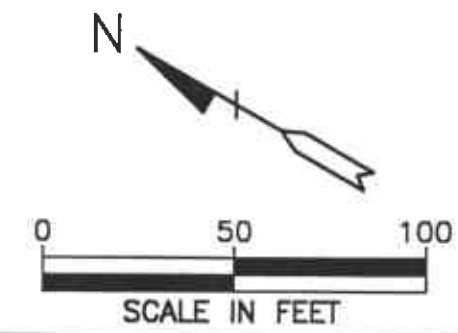
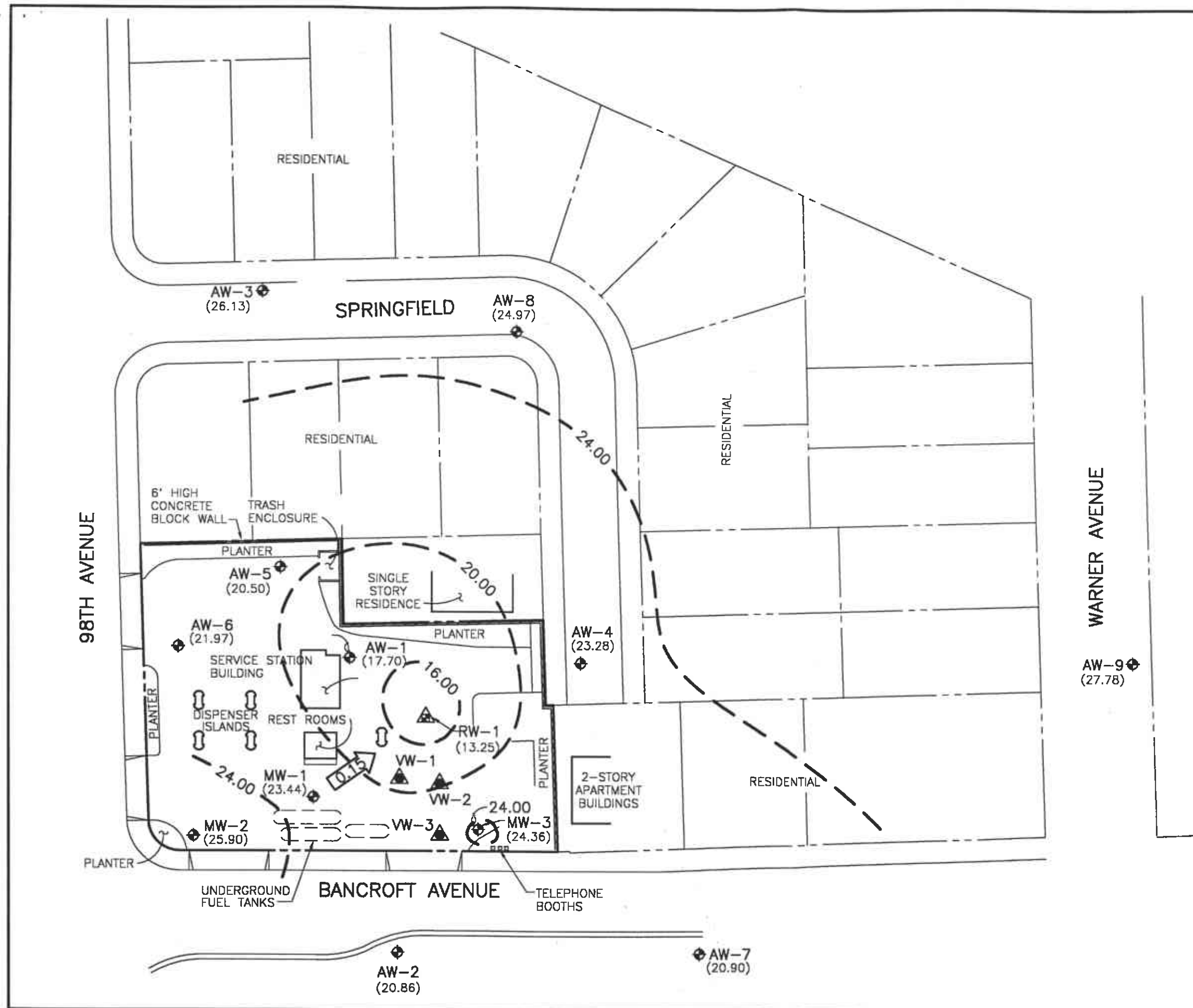
**FIGURE 1**

**SITE VICINITY MAP**

BP OIL SERVICE STATION NO. 11133  
 2220 98TH AVENUE  
 OAKLAND, CALIFORNIA  
 PROJECT NO. 10-025



**ALISTO ENGINEERING GROUP**  
 WALNUT CREEK, CALIFORNIA

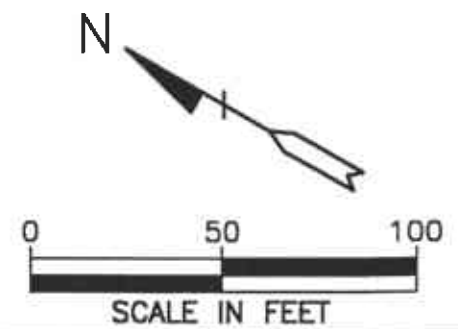
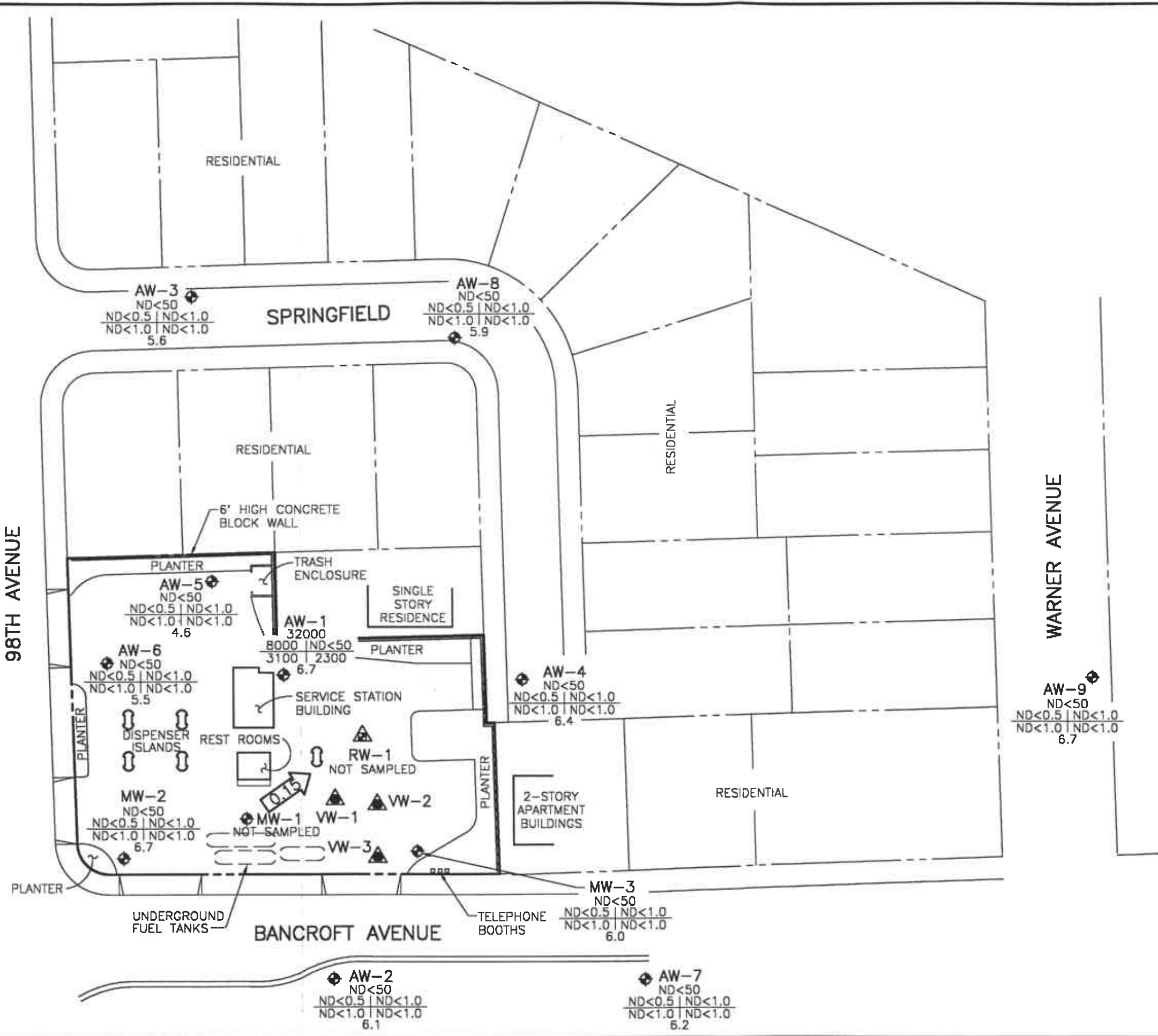


- LEGEND**
- ◆ GROUNDWATER MONITORING WELL
  - ▲ VAPOR EXTRACTION WELL
  - ▲ COMBINED GROUNDWATER RECOVERY/VAPOR EXTRACTION WELL
  - (24.97) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
  - 24.00 - GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL-2.00 FEET)
  - ← 0.015 → CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

**FIGURE 2**  
**POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP**  
**JANUARY 2, 1997**  
 BP OIL SERVICE STATION NO. 11133  
 2220 98TH AVENUE  
 OAKLAND, CALIFORNIA  
 PROJECT NO. 10-025



100230-UJWG 2-18-97 DSM 1-30



**LEGEND**

- ◆ GROUNDWATER MONITORING WELL
- ▲ VAPOR EXTRACTION WELL
- ▲ COMBINED GROUNDWATER RECOVERY/VAPOR EXTRACTION WELL

TPH-G	CONCENTRATION OF CONSTITUENTS IN MICROGRAMS PER LITER, EXCEPT DISSOLVED OXYGEN, WHICH IS IN PARTS PER MILLION
B	
T	
E	
X	
DO	DISSOLVED OXYGEN
ND	NOT DETECTED ABOVE REPORTED DETECTION LIMIT

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

←0.15→ CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

**FIGURE 3**  
**CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER**  
**JANUARY 2, 1997**  
 BP OIL SERVICE STATION NO. 11133  
 2220 98TH AVENUE  
 OAKLAND, CALIFORNIA  
 PROJECT NO. 10-025

10020C-U.DWG 2-18-97 00M 1-50

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



# ALISTO

## Field Report / Sampling Data Sheet

ENGINEERING  
GROUP  
1575 TREAT BOULEVARD, SUITE 201

Project No. 10-025-013-002 Date: 1/2/27  
Address 2220 98TH Ave. Day: M T W ~~TH~~  
Contract No. G797553 City: Oakland  
Station No. BP 11133 Sampler: *LS*

### DEPTH TO GROUNDWATER SUMMARY

WELL ID	SAMPLE ID	WELL DIAM	TOTAL DEPTH	DEPTH TO WATER	PRODUCT THICKNESS	TIME MONITORED	COMMENTS:
MW-1	NIS	2"	34'	11.03	.01	1135	PPRS Serviced removed 2 gal TF <.01 gal FP
MW-2	S-2	2"	34.10'	9.60	∅	1042	
MW-3	S-11	2"	21.83'	12.17		1126	
AW-1	S-9	2"	38.60'	20.41		1117	
AW-2	S-3	2"	35.20'	15.97		1047	
AW-3	S-5	2"	45'	13.00		1053	Dup must be from this well
AW-4	S-10	2"	35'	15.80		1122	QC-1 S-12 Fran this well
AW-5	S-5	4"	42.90'	18.01		1056	
AW-6	S-6	4"	34.20'	15.11		1101	
AW-7	S-7	2"	32.30'	16.70		1107	
AW-8	S-8	2"	39.20'	15.89		1111	
AW-9	S-1	2"	40	10.00		1035	
RW-1	NIS	4"	26.19	26.19	.01	1144	Sample through dip tube F.P.

### FIELD INSTRUMENT CALIBRATION DATA

pH METER *Jun* 4.00 *4* 7.00 *7* 10.00 *10* TEMPERATURE COMPENSATED *ON* TIME *1150*  
D.O. METER *Jun* ZERO d.O. SOLUTION *0* BAROMETRIC PRESSURE *760* TEMP *60* WEATHER *Clear Rain*  
CONDUCTIVITY METER *Jun* 10,000 TURBIDITY METER 5.0 NTU OTHER *X*  
LEAK DETECTOR: ALARM MODE *X* NON ALARM MODE

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.	
Aw-9	10.00	2"	OK	∅	Y (N)	5	1215	65.3	7.42	417µs	6.3	
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge	Purge Vol.				
40.00 - 10.00 = 30.00						x .16 = 4.80	x 3 = 14.40					
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s) OSys Port												
Comments:												

- EPA 601
- TPH-G/BTEX *HCL*
- 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-2	9.60	2"	OK	∅	Y (N)	4	1244	64.7	7.31	305µs	4.9
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge	Purge Vol.			
34.10 - 9.60 = 24.50						x .16 = 3.92	x 3 = 11.76				
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s) OSys Port											

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

1301

# 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. 10-025-013-002

Address 2220 98TH Ave.

Contract No. G797553

Station No. BP 11133

Date: 1/2/96

Day: M T W T F

City: Oakland

Sampler: LR

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.		
AW-2	15.97	2"	OK	Ø	Y (N)	3	1317	65.7	7.22	271µs	4.6	<input type="radio"/> EPA 601 _____	
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge	Purge Vol.					<input checked="" type="radio"/> TPH-G/BTEX HCL
35.20 - 15.97 = 19.23 x .16 = 3.08 x 3 = 9.24						9.5	1326	66.6	7.09	253µs		<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. Baller(s)	<input type="checkbox"/> OSys Port			<input type="radio"/> TOG 5520 _____	
Comments:												TIME/SAMPLE ID	
												1330	
AW-3	13.00	2"	OK	Ø	Y (N)	5	1337	64.7	7.61	106µs	4.7	<input type="radio"/> EPA 601 _____	
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge	Purge Vol.					<input checked="" type="radio"/> TPH-G/BTEX HCL
45.00 - 13.00 = 32.00 x .16 = 5.12 x 3 = 15.36						16	1349	65.6	7.40	98µs		<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. Baller(s)	<input type="checkbox"/> OSys Port			<input type="radio"/> TOG 5520 _____	
Comments:												TIME/SAMPLE ID	
												1355	
AW-5	18.01	4"	OK	Ø	Y (N)	16	1410	65.3	7.21	48µs	4.1	<input type="radio"/> EPA 601 _____	
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge	Purge Vol.					<input checked="" type="radio"/> TPH-G/BTEX HCL
42.90 - 18.01 = 24.89 x .65 = 16.18 x 3 = 48.54						32	1427	66.9	7.06	46µs		<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. Baller(s)	<input type="checkbox"/> OSys Port			<input type="radio"/> TOG 5520 _____	
Comments:												TIME/SAMPLE ID	
												1433	
AW-6	15.11	4"	OK	Ø	Y (N)	12	1446	64.2	7.07	315µs	3.9	<input type="radio"/> EPA 601 _____	
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge	Purge Vol.					<input checked="" type="radio"/> TPH-G/BTEX HCL
34.20 - 15.11 = 19.09 x .65 = 12.41 x 3 = 37.23						25	1459	65.3	6.93	297µs		<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. Baller(s)	<input type="checkbox"/> OSys Port			<input type="radio"/> TOG 5520 _____	
Comments:												TIME/SAMPLE ID	
												1507	
AW-7	16.70	2"	OK	Ø	Y (N)	2.5	1515	63.7	7.39	355µs	5.3	<input type="radio"/> EPA 601 _____	
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge	Purge Vol.					<input checked="" type="radio"/> TPH-G/BTEX HCL
32.30 - 16.70 = 15.60 x .16 = 2.50 x 3 = 7.50						5.0	1521	64.9	7.17	321µs		<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. Baller(s)	<input type="checkbox"/> OSys Port			<input type="radio"/> TOG 5520 _____	
Comments:												TIME/SAMPLE ID	
												1536	

# 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. 10-025-013-002

Address 2220 98TH Ave.

Contract No. G797553

Station No. BP 11133

Date: 11/2/97

Day: M T W ~~T~~ F

City: Oakland

Sampler: Lab

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.	
Aw-8	15.89	2"	OK	Ø	Y (N)	3	1547	66.1	7.79	1092µs	3.9	<input type="radio"/> EPA 601 _____
Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge PurgeVol.						8		67.3	7.50	1039µs		<input checked="" type="radio"/> TPH-G/BTEX HCL
39.20 - 15.89 = 23.31 x .16 = 3.73 x 3 = 11.13						11.5	1600	67.8	7.43	021µs	5.9	<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) ___ O Sys Port												<input type="radio"/> TOG 5520 _____
Comments:												TIME/SAMPLE ID
												1604
Aw-1	20.41	2"	OK	Ø	Y (N)	3	1617	64.3	6.92	723µs	5.5	<input type="radio"/> EPA 601 _____
Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge PurgeVol.						6		65.9	6.71	709µs		<input checked="" type="radio"/> TPH-G/BTEX HCL
39.60 - 20.41 = 19.19 x .16 = 3.07 x 3 = 9.23						9	1626	66.9	6.75	709µs	6.7	<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) ___ O Sys Port												<input type="radio"/> TOG 5520 _____
Comments:												TIME/SAMPLE ID
												1630

Aw-4 2" dia.

$$35.00 - 15.80 = 19.20 \times .16 = 3.07 \times 3 = 9.21 \text{ gal}$$

Time	Temp	Cond	pH	D.O.	Gal
1636	64.9	529µs	7.71	5.3	3
	65.7	510µs	7.59		6
1644	66.8	503µs	7.43	6.4	9.5

Sampled @ 1646

QC-1 (S-12) from this well

Aw-3 2" dia

$$21.83 - 12.17 = 9.66 \times .16 = 1.55 \times 3 = 4.65 \text{ gal}$$

Time	Temp	Cond.	pH	D.O.	Gal
1650	66.6	517µs	7.09	5.3	2
	67.4	487µs	7.00		4
1657	67.9	481µs	6.94	6.0	5

Sampled @ 1659

**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: 97-01-119

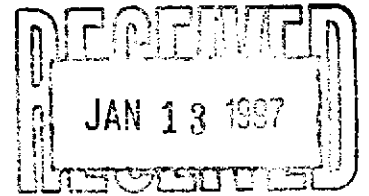
Approved for Release by:

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

11/7/97  
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. H9-9701119-01

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

P.O.#  
 , COC#071242  
 DATE: 01/07/97

PROJECT: BP Oil #11133  
 SITE: Oakland, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-1

PROJECT NO: 10-025-13/002  
 MATRIX: WATER  
 DATE SAMPLED: 01/02/97  
 DATE RECEIVED: 01/04/97

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 100  
 4-Bromofluorobenzene 103  
 METHOD 8020\*\*\*  
 Analyzed by: VHZ  
 Date: 01/06/97

Total Petroleum Hydrocarbons-Gasoline ND 0.05 P mg/L

Surrogate % Recovery  
 1,4-Difluorobenzene 103  
 4-Bromofluorobenzene 120  
 CA LUFT - Gasoline  
 Analyzed by: VHZ  
 Date: 01/05/97 09:29:00

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.

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



Certificate of Analysis No. H9-9701119-02

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

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

P.O.#  
, COC#071242  
DATE: 01/07/97

PROJECT: BP Oil #11133  
SITE: Oakland, CA  
SAMPLED BY: Alisto Engineering  
SAMPLE ID: S-2

PROJECT NO: 10-025-13/002  
MATRIX: WATER  
DATE SAMPLED: 01/02/97  
DATE RECEIVED: 01/04/97

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

100

4-Bromofluorobenzene

103

METHOD 8020\*\*\*

Analyzed by: VHZ

Date: 01/06/97

Total Petroleum Hydrocarbons-Gasoline

ND 0.05 P

mg/L

Surrogate

% Recovery

1,4-Difluorobenzene

97

4-Bromofluorobenzene

133

CA LUFT - Gasoline

Analyzed by: VHZ

Date: 01/05/97 09:57:00

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

Certificate of Analysis No. H9-9701119-03

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

P.O.#  
 , COC#071242  
 DATE: 01/07/97

PROJECT: BP Oil #11133  
 SITE: Oakland, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-3

PROJECT NO: 10-025-13/002  
 MATRIX: WATER  
 DATE SAMPLED: 01/02/97  
 DATE RECEIVED: 01/04/97

**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

97

4-Bromofluorobenzene

100

METHOD 8020\*\*\*

Analyzed by: VHZ

Date: 01/06/97

Total Petroleum Hydrocarbons-Gasoline

ND 0.05 P

mg/L

**Surrogate**

**% Recovery**

1,4-Difluorobenzene

97

4-Bromofluorobenzene

137

CA LUFT - Gasoline

Analyzed by: VHZ

Date: 01/05/97 10:25:00

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

Certificate of Analysis No. H9-9701119-04

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

P.O.#  
 , COC#071242  
 DATE: 01/07/97

PROJECT: BP Oil #11133  
 SITE: Oakland, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-4

PROJECT NO: 10-025-13/002  
 MATRIX: WATER  
 DATE SAMPLED: 01/02/97  
 DATE RECEIVED: 01/04/97

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	100
4-Bromofluorobenzene	103

METHOD 8020\*\*\*

Analyzed by: VHZ

Date: 01/06/97

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

Surrogate	% Recovery
1,4-Difluorobenzene	93
4-Bromofluorobenzene	130

CA LUFT - Gasoline

Analyzed by: VHZ

Date: 01/05/97 10:53:00

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

Certificate of Analysis No. H9-9701119-05

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

P.O.#  
 , COC#071242  
 DATE: 01/07/97

PROJECT: BP Oil #11133  
 SITE: Oakland, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-5

PROJECT NO: 10-025-13/002  
 MATRIX: WATER  
 DATE SAMPLED: 01/02/97  
 DATE RECEIVED: 01/04/97

**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

100

4-Bromofluorobenzene

103

METHOD 8020\*\*\*

Analyzed by: VHZ

Date: 01/06/97

Total Petroleum Hydrocarbons-Gasoline

ND

0.05 P

mg/L

**Surrogate**

**% Recovery**

1,4-Difluorobenzene

103

4-Bromofluorobenzene

130

CA LUFT - Gasoline

Analyzed by: VHZ

Date: 01/05/97 11:21:00

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

Certificate of Analysis No. H9-9701119-06

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

P.O.#  
 , COC#071242  
 DATE: 01/07/97

PROJECT: BP Oil #11133  
 SITE: Oakland, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-6

PROJECT NO: 10-025-13/002  
 MATRIX: WATER  
 DATE SAMPLED: 01/02/97  
 DATE RECEIVED: 01/04/97

**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	97
4-Bromofluorobenzene	103

METHOD 8020\*\*\*  
 Analyzed by: VHZ  
 Date: 01/06/97

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

<b>Surrogate</b>	<b>% Recovery</b>
1,4-Difluorobenzene	100
4-Bromofluorobenzene	127

CA LUFT - Gasoline  
 Analyzed by: VHZ  
 Date: 01/06/97 12:46:00

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

Certificate of Analysis No. H9-9701119-07

BP Oil Company  
295 SW 41st St, Bldg 13, Ste N  
Renton, WA 98055  
ATTN: Scott HootonP.O.#  
, COC#071242  
DATE: 01/07/97PROJECT: BP Oil #11133  
SITE: Oakland, CA  
SAMPLED BY: Alisto Engineering  
SAMPLE ID: S-7PROJECT NO: 10-025-13/002  
MATRIX: WATER  
DATE SAMPLED: 01/02/97  
DATE RECEIVED: 01/04/97**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  
4-Bromofluorobenzene100  
103

METHOD 8020\*\*\*

Analyzed by: VHZ

Date: 01/06/97

Total Petroleum Hydrocarbons-Gasoline

ND 0.05 P

mg/L

**Surrogate****% Recovery**1,4-Difluorobenzene  
4-Bromofluorobenzene103  
130

CA LUFT - Gasoline

Analyzed by: VHZ

Date: 01/06/97 01:14:00

ND - Not detected.

(P) - Practical Quantitation Limit

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.**QUALITY ASSURANCE:** These analyses are performed in accordance with EPA guidelines for quality assurance.  
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HOUSTON LABORATORY  
 8880 INTERCHANGE DRIVE  
 HOUSTON, TEXAS 77054  
 PHONE (713) 660-0901

Certificate of Analysis No. H9-9701119-08

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

P.O.#  
 , COC#071242  
 DATE: 01/07/97

PROJECT: BP Oil #11133  
 SITE: Oakland, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-8

PROJECT NO: 10-025-13/002  
 MATRIX: WATER  
 DATE SAMPLED: 01/02/97  
 DATE RECEIVED: 01/04/97

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	93
4-Bromofluorobenzene	103

METHOD 8020\*\*\*

Analyzed by: VHZ

Date: 01/07/97

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

<b>Surrogate</b>	<b>% Recovery</b>
1,4-Difluorobenzene	100
4-Bromofluorobenzene	113

CA LUFT - Gasoline

Analyzed by: VHZ

Date: 01/06/97 01:41:00

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

Certificate of Analysis No. H9-9701119-09

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

P.O.#  
 , COC#071242  
 DATE: 01/07/97

PROJECT: BP Oil #11133  
 SITE: Oakland, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-9

PROJECT NO: 10-025-13/002  
 MATRIX: WATER  
 DATE SAMPLED: 01/02/97  
 DATE RECEIVED: 01/04/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	700	500 P	µg/L
Benzene	8000	25 P	µg/L
Toluene	ND	50 P	µg/L
Ethylbenzene	3100	50 P	µg/L
Total Xylene	2300	50 P	µg/L

Surrogate % Recovery  
 1,4-Difluorobenzene 127  
 4-Bromofluorobenzene 100

METHOD 8020\*\*\*  
 Analyzed by: VHZ  
 Date: 01/06/97

Total Petroleum Hydrocarbons-Gasoline 32 2.5 P mg/L

Surrogate % Recovery  
 1,4-Difluorobenzene 113  
 4-Bromofluorobenzene 107

CA LUFT - Gasoline  
 Analyzed by: VHZ  
 Date: 01/06/97 02:37:00

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

Certificate of Analysis No. H9-9701119-10

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

P.O.#  
 , COC#071242  
 DATE: 01/07/97

PROJECT: BP Oil #11133  
 SITE: Oakland, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-10

PROJECT NO: 10-025-13/002  
 MATRIX: WATER  
 DATE SAMPLED: 01/02/97  
 DATE RECEIVED: 01/04/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	22	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	97
4-Bromofluorobenzene	100

METHOD 8020\*\*\*

Analyzed by: VHZ

Date: 01/06/97

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

Surrogate	% Recovery
1,4-Difluorobenzene	100
4-Bromofluorobenzene	103

CA LUFT - Gasoline

Analyzed by: VHZ

Date: 01/06/97 09:14:00

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

Certificate of Analysis No. H9-9701119-11

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

P.O.#  
 , COC#071242  
 DATE: 01/07/97

PROJECT: BP Oil #11133  
 SITE: Oakland, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-11

PROJECT NO: 10-025-13/002  
 MATRIX: WATER  
 DATE SAMPLED: 01/02/97  
 DATE RECEIVED: 01/04/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	140	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	97
4-Bromofluorobenzene	107

METHOD 8020\*\*\*

Analyzed by: VHZ  
 Date: 01/06/97

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

Surrogate	% Recovery
1,4-Difluorobenzene	100
4-Bromofluorobenzene	103

CA LUFT - Gasoline  
 Analyzed by: VHZ  
 Date: 01/06/97 09:42:00

(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. H9-9701119-12

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

P.O.#  
 , COC#071242  
 DATE: 01/07/97

PROJECT: BP Oil #11133  
 SITE: Oakland, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-12

PROJECT NO: 10-025-13/002  
 MATRIX: WATER  
 DATE SAMPLED: 01/02/97  
 DATE RECEIVED: 01/04/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	110	10 P	µg/L
Benzene	61	0.5 P	µg/L
Toluene	3.8	1.0 P	µg/L
Ethylbenzene	3.5	1.0 P	µg/L
Total Xylene	8.1	1.0 P	µg/L

Surrogate % Recovery  
 1,4-Difluorobenzene 110  
 4-Bromofluorobenzene 100

METHOD 8020\*\*\*  
 Analyzed by: VHZ  
 Date: 01/06/97

Total Petroleum Hydrocarbons-Gasoline ND 0.05 P mg/L

Surrogate % Recovery  
 1,4-Difluorobenzene 107  
 4-Bromofluorobenzene 107

CA LUFT - Gasoline  
 Analyzed by: VHZ  
 Date: 01/06/97 10:10:00

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

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

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.  
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*QUALITY CONTROL*

*DOCUMENTATION*



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

METHOD 8020/602

HOUSTON LABORATORY

8880 INTERCHANGE DRIVE

HOUSTON, TEXAS 77054

PHONE (713) 660-0901

Batch Id: HP\_N970105234900

Matrix: Aqueous

Units: µg/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	47	94.0	63 - 120
Benzene	ND	50	44	88.0	62 - 121
Toluene	ND	50	50	100	66 - 136
EthylBenzene	ND	50	48	96.0	70 - 136
O Xylene	ND	50	48	96.0	74 - 134
M & P Xylene	ND	100	97	97.0	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	16		80.0	16
BENZENE	ND	20	18	90.0	18	90.0	0	25	39 - 150
TOLUENE	ND	20	22	110	23	115	4.44	26	56 - 134
ETHYLBENZENE	ND	20	18	90.0	18	90.0	0	38	61 - 128
O XYLENE	ND	20	19	95.0	18	90.0	5.41	29	40 - 130
M & P XYLENE	ND	40	37	92.5	38	95.0	2.67	20	43 - 152

Analyst: VHZ

Sequence Date: 01/05/97

SPL ID of sample spiked: 9701119-01A

Sample File ID: N\_A7158.TX0

Method Blank File ID:

Blank Spike File ID: N\_A7131.TX0

Matrix Spike File ID: N\_A7135.TX0

Matrix Spike Duplicate File ID: N\_A7136.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> ] 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 (3rd Q '95)

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

SAMPLES IN BATCH(SPL ID):

9701119-01A 9701119-02A 9701119-03A 9701119-04A  
 9701119-05A 9701119-06A 9701119-07A 9701119-09A  
 9612E75-06A



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

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

Batch Id: HP\_N970106162400

Matrix: Aqueous  
Units: µg/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	44	88.0	63 - 120
Benzene	ND	50	39	78.0	62 - 121
Toluene	ND	50	46	92.0	66 - 136
EthylBenzene	ND	50	44	88.0	70 - 136
O Xylene	ND	50	43	86.0	74 - 134
M & P Xylene	ND	100	86	86.0	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	22	20	27		30.0 *	27
BENZENE	ND	20	18	90.0	18	90.0	0	25	39 - 150
TOLUENE	ND	20	23	115	24	120	4.26	26	56 - 134
ETHYLBENZENE	ND	20	18	90.0	19	95.0	5.41	38	61 - 128
O XYLENE	ND	20	18	90.0	19	95.0	5.41	29	40 - 130
M & P XYLENE	ND	40	37	92.5	37	92.5	0	20	43 - 152

Analyst: VHZ

Sequence Date: 01/06/97

SPL ID of sample spiked: 9701119-10A

Sample File ID: N\_A7178.TX0

Method Blank File ID:

Blank Spike File ID: N\_A7170.TX0

Matrix Spike File ID: N\_A7173.TX0

Matrix Spike Duplicate File ID: N\_A7174.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):**

9701119-10A 9701119-11A 9701119-12A 9701120-01A  
9701180-01A 9612E75-07A 9612E75-09A 9612E75-04A  
9612E75-03A 9701119-08A 9701120-03A 9701120-02A  
9701120-04A 9701120-06A



\*\* SPL BATCH QUALITY CONTROL REPORT \*\*  
CA LUFT

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

Batch Id: HP\_N970105183900

Matrix: Aqueous  
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 ‡	
Petroleum Hydrocarbons-Gas	ND	1.0	0.88	88.0	50 - 150

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
			PETROLEUM HYDROCARBONS-GAS	ND	0.9	0.85		94.4	0.79

Analyst: VHZ

Sequence Date: 01/05/97

SPL ID of sample spiked: 9701119-02A

Sample File ID: NNA7141.TX0

Method Blank File ID:

Blank Spike File ID: NNA7133.TX0

Matrix Spike File ID: NNA7137.TX0

Matrix Spike Duplicate File ID: NNA7138.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> ] x 100

LCS ‡ Recovery = ( <1> / <3> ) x 100

Relative Percent Difference = [ ( <4> - <5> ) / [ ( <4> + <5> ) x 0.5 ] ] x 100

(\*\*) = Source: Temporary Limits

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

SAMPLES IN BATCH(SPL ID):

9701119-03A 9701119-04A 9701119-05A 9701119-06A  
9701119-07A 9701119-08A 9701119-09A 9701119-01A  
9701119-02A



\*\* 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\_N970106182100

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 %	
Petroleum Hydrocarbons-Gas	ND	1.0	0.87	87.0	50 - 150

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
			PETROLEUM HYDROCARBONS-GAS	ND	0.9	0.78			

Analyst: VHZ

Sequence Date: 01/06/97

SPL ID of sample spiked: 9701119-11A

Sample File ID: NNA7179.TX0

Method Blank File ID:

Blank Spike File ID: NNA7171.TX0

Matrix Spike File ID: NNA7175.TX0

Matrix Spike Duplicate File ID: NNA7176.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):

9701119-12A 9701120-01A 9701120-03A 9701120-02A  
9701120-04A 9701120-06A 9701119-10A 9701119-11A

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



97-01-119

### CHAIN OF CUSTODY

No. 071242

Page 1 of 1

CONSULTANT'S NAME <b>Alisto Engineering</b>		ADDRESS <b>1575 Trent Blvd #201 W.C.</b>		CITY <b>G</b>	STATE <b>CA</b>	ZIP CODE <b>94596</b>
BP SITE NUMBER <b>11133</b>	BP CORNER ADDRESS/CITY <b>Oakland, CA</b>			CONSULTANT PROJECT NUMBER <b>10-025-13/002</b>		
CONSULTANT PROJECT MANAGER <b>Brady Wyle</b>		PHONE NUMBER <b>(510) 295-1650</b>	FAX NUMBER <b>215-1823</b>		CONSULTANT CONTRACT NUMBER	
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 Buenavida</b>		SAMPLED BY (Signature) <i>[Signature]</i>		SHIPMENT DATE		SHIPMENT METHOD <b>FedEx</b>
TAT: <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 1 Week <input checked="" type="checkbox"/> Standard 2 Weeks				ANALYSIS REQUIRED		AIRBILL NUMBER

SAMPLE DESCRIPTION	COLLECTION DATE	MATRIX SOIL/WATER	CONTAINERS		PRESERVATIVE	COMMENTS
	COLLECTION TIME		NO.	TYPE (VOL.)	LAB SAMPLE #	
S-1	1/2/97	W	3		X (PH-G) X (6) (EX) X (RTBE)	
S-2						
S-3						
S-4						
S-5						
S-6						
S-7						
S-8						
S-9						
S-10						
S-11						
S-12						

RELINQUISHED BY / AFFILIATION <i>[Signature]</i>	DATE <b>1/3/97</b>	TIME	ACCEPTED BY / AFFILIATION <i>[Signature]</i> / SPL	DATE <b>1-4-97</b>	TIME <b>1000</b>	ADDITIONAL COMMENTS <b>Ref ex: 940 4779042</b>
			<b>30C ROE, intact</b>			



# SPL Houston Environmental Laboratory

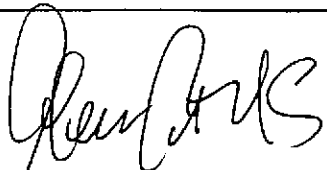
## Sample Login Checklist

Date: <span style="font-size: 1.2em; margin-left: 20px;">1-4-97</span>	Time: <span style="font-size: 1.2em; margin-left: 20px;">1000</span>
---	---

SPL Sample ID:

97-01-119

		<u>Yes</u>	<u>No</u>	
1	Chain-of-Custody (COC) form is present.	✓		
2	COC is properly completed.	✓		
3	If no, Non-Conformance Worksheet has been completed.			
4	Custody seals are present on the shipping container.	✓		
5	If yes, custody seals are intact.	✓		
6	All samples are tagged or labeled.	✓		
7	If no, Non-Conformance Worksheet has been completed.			
8	Sample containers arrived intact	✓		
9	Temperature of samples upon arrival:	30 C		
10	Method of sample delivery to SPL:	SPL Delivery		
		Client Delivery		
		FedEx Delivery (airbill #)	9404779042	
		Other:		
11	Method of sample disposal:	SPL Disposal		
		HOLD		
		Return to Client		

Name: <div style="font-size: 1.5em; margin-left: 20px; text-align: center;">  </div>	Date: <span style="font-size: 1.2em; margin-left: 20px;">1-4-97</span>
--	---

Calculation of RPD  
for BP Oil QA/QC Program  
BP Oil Station No. 11133 01/02/97 Event

Analytical Data	TPH-G	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
Primary Sample	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	22
QC-1 Duplicate	ND<50	61	3.8	3.5	8.1	110
Sample Mean	50	30.75	2	2	4.55	66
RPD	0.00%	-196.75%	-116.67%	-111.11%	-156.04%	-133.33%
Significant Result?	NO	YES	YES	YES	YES	YES

Notes:

- (1) Significance is defined as an RPD greater than 30% (or less than -30).
- (2) "A negative" RPD will result if the value of the Primary Sample Result is smaller than QC-1.  
The determination of Significant Result is not affected by sign of RPD.

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

BP Site Number: BP 11133  
 ERM Contact: Scott Houston  
 Sampling Date: 1/12/97  
 Matrix Description: Water  
 Date Final Report Received: 1/13/97  
 Laboratory & Location: SPL, Houston

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

Notes: MS/MSD values for MTBE outside GC range.  
Primary sample was via, but blind dup had detectable  
BTEX

Data Validation Completed by (print): Brady Niggitt  
 (signature): [Signature]  
 Date: 2/19/97