

GROUNDWATER MONITORING AND SAMPLING REPORT

**BP Oil Company Service Station No. 11109
4280 Foothill Boulevard
Oakland, California**

Project No. 10-014-02-003

Prepared for:

**BP Oil Company
Environmental Resources Management
295 S.W. 41st Street
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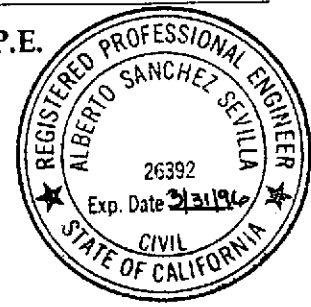
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January 31, 1994

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INTRODUCTION

This report presents the results and findings of the December 17 and 23, 1993 groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Company Service Station No. 11109, 4280 Foothill Boulevard, Oakland, California. A site vicinity map is shown in 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, and electrical conductivity. 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 canisters has been installed in Monitoring Well MW-5 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 well 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 in Figure 2. The results of a groundwater analysis are shown in 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. 11109
 4280 FOOTHILL BOULEVARD, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-014

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ppb)	TPH-D (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	TOG (ppb)	HVOC (ppb)	LAB
MW-1	01/31/90	38.19	15.41	0.00	22.78	--	--	--	--	--	--	--	--	--
MW-1 (c)	02/05/90	--	--	0.00	--	--	--	--	--	--	--	--	--	--
MW-2	02/05/90	41.22	21.91	0.00	19.31	1300	--	14	ND<1.0	9	13	--	--	SUP
MW-2	02/14/91	41.22	21.16	0.00	20.06	ND<50	ND<10000	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<5000	51 (d)	SUP
MW-2	05/13/91	41.22	21.32	0.00	19.90	ND<50	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3	6000	0.5 (e)	SUP
MW-2	07/24/91	41.22	22.92	0.00	18.30	--	--	--	--	--	--	--	--	--
MW-2	10/03/91	41.22	24.90	0.00	16.32	ND<50	ND<50	ND<0.3	0.8	ND<0.3	ND<0.3	ND<5000	0.7 (e)	SUP
MW-2	10/15/91	41.22	24.10	0.00	17.12	--	--	--	--	--	--	--	--	--
MW-2	12/04/91	41.22	INACCESSIBLE	--	--	--	--	--	--	--	--	--	--	--
MW-2	12/16/91	41.22	23.95	0.00	17.27	--	--	--	--	--	--	--	--	--
MW-2	01/06/92	41.22	23.30	0.00	17.92	ND<50	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<5000	ND	ANA
MW-2	01/22/92	41.22	23.14	0.00	18.08	--	--	--	--	--	--	--	--	--
MW-2	01/28/92	41.22	22.99	0.00	18.23	--	--	--	--	--	--	--	--	--
MW-2	02/05/92	41.22	22.63	0.00	18.59	--	--	--	--	--	--	--	--	--
MW-2	02/12/92	41.22	22.04	0.00	19.18	--	--	--	--	--	--	--	--	--
MW-2	02/17/92	41.22	20.84	0.00	20.38	--	--	--	--	--	--	--	--	--
MW-2	04/03/92	41.22	18.29	0.00	22.93	--	--	--	--	--	--	--	--	--
MW-2	04/08/92	41.22	18.86	0.00	22.36	ND<50	63	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5000	ND	ANA
MW-2	04/14/92	41.22	19.45	0.00	21.77	--	--	--	--	--	--	--	--	--
MW-2	04/29/92	41.22	20.35	0.00	20.87	--	--	--	--	--	--	--	--	--
MW-2	05/07/92	41.22	20.84	0.00	20.38	--	--	--	--	--	--	--	--	--
MW-2	07/03/92	41.22	22.34	0.00	18.88	ND<50	--	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	ANA
MW-2	10/08/92	41.22	23.73	0.00	17.49	ND<50	--	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	ANA
MW-2	12/31/92	41.22	21.12	0.00	20.10	ND<50	--	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	ANA
MW-2	04/21/93	41.22	17.68	0.00	23.54	ND<50	ND<50 (f)	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5000	ND	PACE
MW-2	07/07/93	41.22	20.30	0.00	20.92	ND<50	--	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	1.0 (e)	PACE
MW-2	09/21/93	41.22	21.93	0.00	19.29	ND<50	--	0.9	0.7	0.7	2.6	--	--	PACE
MW-2	12/17/93	41.22	21.48	--	19.74	--	--	--	--	--	--	--	--	--
MW-2	12/23/93	--	--	--	--	ND<50	--	ND<0.5	ND<0.5	ND<0.5	0.7	--	--	PACE

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
 BP OIL COMPANY SERVICE STATION NO. 11109
 4280 FOOTHILL BOULEVARD, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-014

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ppb)	TPH-D (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	TOG (ppb)	HVOC (ppb)	LAB
MW-3	02/05/90	40.74	17.45	0.00	23.29	1400	--	15	ND<2.5	11	8	--	--	SUP
MW-3	02/14/91	40.74	18.52	0.00	22.22	320	--	8	ND<0.3	8	1	--	--	SUP
MW-3	05/13/91	40.74	19.32	0.00	21.42	640	--	13	ND<0.3	18	1	--	--	SUP
MW-3	07/24/91	40.74	20.69	0.00	20.05	--	--	--	--	--	--	--	--	--
MW-3	10/03/91	40.74	19.47	0.00	21.27	940	--	21	ND<0.3	23	2.1	--	--	SUP
MW-3	10/15/91	40.74	20.46	0.00	20.28	--	--	--	--	--	--	--	--	--
MW-3	12/04/91	40.74	18.29	0.00	22.45	--	--	--	--	--	--	--	--	--
MW-3	12/16/91	40.74	18.34	0.00	22.40	--	--	--	--	--	--	--	--	--
MW-3	01/06/92	40.74	18.50	0.00	22.24	580	--	6.1	1	6.1	7.1	--	--	ANA
MW-3	01/22/92	40.74	17.86	0.00	22.88	--	--	--	--	--	--	--	--	--
MW-3	01/28/92	40.74	15.84	0.00	24.90	--	--	--	--	--	--	--	--	--
MW-3	02/05/92	40.74	17.53	0.00	23.21	--	--	--	--	--	--	--	--	--
MW-3	02/12/92	40.74	17.15	0.00	23.59	--	--	--	--	--	--	--	--	--
MW-3	02/17/92	40.74	16.18	0.00	24.56	--	--	--	--	--	--	--	--	--
MW-3	04/03/92	40.74	14.80	0.00	25.94	--	--	--	--	--	--	--	--	--
MW-3	04/08/92	40.74	17.06	0.00	23.68	1100	--	30	4.6	32	11	--	--	ANA
MW-3	04/14/92	40.74	15.22	0.00	25.52	--	--	--	--	--	--	--	--	--
MW-3	04/29/92	40.74	15.90	0.00	24.84	--	--	--	--	--	--	--	--	--
MW-3	05/07/92	40.74	16.35	0.00	24.39	--	--	--	--	--	--	--	--	--
MW-3	07/03/92	40.74	17.74	0.00	23.00	1200	--	38	ND<2.5	24	ND<2.5	--	--	ANA
MW-3	10/08/92	40.74	19.06	0.00	21.68	1400	--	31	ND<0.5	25	13	--	--	ANA
MW-3	12/31/92	40.74	16.61	0.00	24.13	820	--	12	4.1	13	5.9	--	--	ANA
QC-1	(g) 12/31/92	--	--	--	--	960	--	11	3.6	10	3.8	--	--	ANA
MW-3	04/21/93	40.74	14.24	0.00	26.50	420	--	5.6	ND<0.5	3.9	1.4	--	--	PACE
QC-1	(g) 04/21/93	--	--	--	--	390	--	5.0	ND<0.5	3.7	1.5	--	--	PACE
MW-3	07/07/93	40.13	(h) 15.19	0.00	24.94	54	--	0.6	0.6	ND<0.5	ND<0.5	--	--	PACE
MW-3	09/21/93	40.13	16.58	0.00	23.55	540	--	7.9	0.9	4.7	2.4	--	--	PACE
MW-3	12/17/93	40.13	15.82	--	24.31	--	--	--	--	--	--	--	--	--
MW-3	12/23/93	--	--	--	--	500	--	9.8	1.5	3.3	2.1	--	--	PACE
QC-1	(g) 12/23/93	--	--	--	--	480	--	9.2	ND<0.5	5.4	5.3	--	--	PACE

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MW-4	02/05/90	40.11	20.75	0.00	19.36	620	---	ND<0.5	9	ND<0.5	10	---	---	SUP
MW-4	02/14/91	40.11	21.73	0.00	18.38	180	---	ND<0.3	ND<0.3	0.4	2	---	---	SUP
MW-4	05/13/91	40.11	18.55	0.00	21.56	72	---	0.7	ND<0.3	ND<0.3	ND<0.3	---	---	SUP
MW-4	07/24/91	40.11	21.31	0.00	18.80	---	---	---	---	---	---	---	---	---
MW-4	10/03/91	40.11	22.57	0.00	17.54	57	---	ND<0.3	ND<0.3	ND<0.3	ND<0.3	---	---	SUP
MW-4	10/15/91	40.11	22.88	0.00	17.23	---	---	---	---	---	---	---	---	---
MW-4	12/04/91	40.11	22.54	0.00	17.57	---	---	---	---	---	---	---	---	---
MW-4	12/16/91	40.11	22.59	0.00	17.52	---	---	---	---	---	---	---	---	---
MW-4	01/06/92	40.11	22.00	0.00	18.11	480	---	0.8	3.2	1.9	7.7	---	---	ANA
MW-4	01/22/92	40.11	21.58	0.00	18.53	---	---	---	---	---	---	---	---	---
MW-4	01/28/92	40.11	21.42	0.00	18.69	---	---	---	---	---	---	---	---	---
MW-4	02/05/92	40.11	21.10	0.00	19.01	---	---	---	---	---	---	---	---	---
MW-4	02/12/92	40.11	20.74	0.00	19.37	---	---	---	---	---	---	---	---	---
MW-4	02/17/92	40.11	19.78	0.00	20.33	---	---	---	---	---	---	---	---	---
MW-4	04/03/92	40.11	16.80	0.00	23.31	---	---	---	---	---	---	---	---	---
MW-4	04/08/92	40.11	17.13	0.00	22.98	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-4	04/14/92	40.11	17.74	0.00	22.37	---	---	---	---	---	---	---	---	---
MW-4	04/29/92	40.11	18.56	0.00	21.55	---	---	---	---	---	---	---	---	---
MW-4	05/07/92	40.11	19.10	0.00	21.01	---	---	---	---	---	---	---	---	---
MW-4	07/03/92	40.11	20.71	0.00	19.40	ND<50	---	0.6	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-4	10/08/92	40.11	22.43	0.00	17.68	270	---	ND<0.5	2.1	2.5	3.2	---	---	ANA
MW-4	12/31/92	40.11	19.58	0.00	20.53	150	---	ND<0.5	ND<0.5	ND<0.5	1.3	---	---	ANA
MW-4	04/21/93	40.11	17.79	0.00	22.32	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-4	07/07/93	40.11	18.44	0.00	21.67	160	---	1.2	5.4	3.8	19	---	---	PACE
MW-4	09/21/93	40.11	20.14	0.00	19.97	71	---	ND<0.5	1.9	ND<0.5	2.1	---	---	PACE
MW-4	12/17/93	40.11	19.80	---	20.31	---	---	---	---	---	---	---	---	---
MW-4	12/23/93	---	---	---	---	ND<50	---	3.1	1.6	0.8	3.8	---	---	PACE
MW-5	10/03/91	39.55	18.08	0.00	21.47	79000	---	13000	7400	1400	6200	---	---	SUP
MW-5	10/15/91	39.55	18.55	0.00	21.00	---	---	---	---	---	---	---	---	---
MW-5	12/04/91	39.55	18.44	0.13	21.21	---	---	---	---	---	---	---	---	---
MW-5	12/16/91	39.55	18.66	0.01	20.90	---	---	---	---	---	---	---	---	---
MW-5	01/06/92	39.55	19.12	0.11	20.51	---	---	---	---	---	---	---	---	---
MW-5	01/22/92	39.55	14.59	0.00	24.96	---	---	---	---	---	---	---	---	---
MW-5	01/28/92	39.55	15.25	0.00	24.30	---	---	---	---	---	---	---	---	---
MW-5	02/05/92	39.55	15.58	SHEEN	23.97	---	---	---	---	---	---	---	---	---
MW-5	02/12/92	39.55	15.54	0.01	24.02	---	---	---	---	---	---	---	---	---
MW-5	02/17/92	39.55	13.98	SHEEN	25.57	---	---	---	---	---	---	---	---	---
MW-5	04/03/92	39.55	13.63	0.04	25.95	---	---	---	---	---	---	---	---	---
MW-5	04/08/92	39.55	13.17	0.01	26.39	---	---	---	---	---	---	---	---	---
MW-5	04/14/92	39.55	13.45	0.01	26.11	---	---	---	---	---	---	---	---	---
MW-5	04/29/92	39.55	13.75	0.07	25.85	---	---	---	---	---	---	---	---	---
MW-5	05/07/92	39.55	16.15	0.04	23.43	---	---	---	---	---	---	---	---	---
MW-5	07/03/92	39.55	17.67	0.08	21.94	---	---	---	---	---	---	---	---	---
MW-5	09/01/92	39.55	17.83	0.50	22.10	---	---	---	---	---	---	---	---	---
MW-5	10/08/92	39.55	17.86	0.92	22.38	---	---	---	---	---	---	---	---	---
MW-5	12/31/92	39.55	15.20	SHEEN	24.35	---	---	---	---	---	---	---	---	---
MW-5	04/21/93	39.55	12.64	0.02	26.93	---	---	---	---	---	---	---	---	---
MW-5	07/07/93	39.14	12.68	0.82	27.08	---	---	---	---	---	---	---	---	---
MW-5	09/21/93	39.14	14.35	SHEEN	24.79	---	---	---	---	---	---	---	---	---
MW-5	12/17/93	39.14	12.61	0.41	26.84	---	---	---	---	---	---	---	---	---

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MW-6	10/03/91	41.59	20.73	0.00	20.86	ND<50	---	0.7	0.8	ND<0.3	1.3	---	---	SUP
MW-6	10/15/91	41.59	21.20	0.00	20.39	---	---	---	---	---	---	---	---	---
MW-6	12/04/91	41.59	21.26	0.00	20.33	---	---	---	---	---	---	---	---	---
MW-6	12/16/91	41.59	21.12	0.00	20.47	---	---	---	---	---	---	---	---	---
MW-6	01/06/92	41.59	20.29	0.00	21.30	ND<50	---	ND<0.5	ND<0.5	ND<0.5	1.6	---	---	ANA
MW-6	01/22/92	41.59	20.12	0.00	21.47	---	---	---	---	---	---	---	---	---
MW-6	01/28/92	41.59	20.20	0.00	21.39	---	---	---	---	---	---	---	---	---
MW-6	02/05/92	41.59	20.09	0.00	21.50	---	---	---	---	---	---	---	---	---
MW-6	02/12/92	41.59	19.15	0.00	22.44	---	---	---	---	---	---	---	---	---
MW-6	02/17/92	41.59	18.02	0.00	23.57	---	---	---	---	---	---	---	---	---
MW-6	04/03/92	41.59	16.62	0.00	24.97	---	---	---	---	---	---	---	---	---
MW-6	04/08/92	41.59	17.06	0.00	24.53	ND<50	---	0.6	ND<0.5	0.8	ND<0.5	---	---	ANA
MW-6	04/14/92	41.59	17.23	0.00	24.36	---	---	---	---	---	---	---	---	---
MW-6	04/29/92	41.59	18.12	0.00	23.47	---	---	---	---	---	---	---	---	---
MW-6	05/07/92	41.59	18.52	0.00	23.07	---	---	---	---	---	---	---	---	---
MW-6	07/03/92	41.59	19.71	0.00	21.88	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-6	10/08/92	41.59	21.22	0.00	20.37	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
QC-1 (g)	10/08/92	41.59	21.22	0.00	20.37	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-6	12/31/92	41.59	21.33	0.00	20.26	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-6	04/21/93	41.59	16.45	0.00	25.14	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-6	07/07/93	41.59	18.68	0.00	22.91	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-6	09/21/93	41.59	19.64	0.00	21.95	ND<50	---	ND<0.5	ND<0.5	ND<0.5	1.6	---	---	PACE
MW-6	12/17/93	41.59	21.08	---	20.51	---	---	---	---	---	---	---	---	---
MW-6	12/23/93	---	---	---	---	ND<50	---	ND<0.5	0.5	ND<0.5	0.6	---	---	PACE
MW-7	10/03/91	40.64	14.93	0.00	25.71	360	---	62	13	3.4	20	---	---	SUP
MW-7	10/15/91	40.64	15.16	0.00	25.48	---	---	---	---	---	---	---	---	---
MW-7	12/04/91	40.64	15.41	0.00	25.23	---	---	---	---	---	---	---	---	---
MW-7	12/16/91	40.64	15.21	0.00	25.43	---	---	---	---	---	---	---	---	---
MW-7	01/06/92	40.64	14.56	0.00	26.08	1100	---	170	ND<0.5	24	23	---	---	ANA
MW-7	01/22/92	40.64	14.63	0.00	26.01	---	---	---	---	---	---	---	---	---
MW-7	01/28/92	40.64	14.73	0.00	25.91	---	---	---	---	---	---	---	---	---
MW-7	02/05/92	40.64	14.58	0.00	26.06	---	---	---	---	---	---	---	---	---
MW-7	02/12/92	40.64	13.94	0.00	26.70	---	---	---	---	---	---	---	---	---
MW-7	02/17/92	40.64	13.10	0.00	27.54	---	---	---	---	---	---	---	---	---
MW-7	04/03/92	40.64	12.66	0.00	27.98	---	---	---	---	---	---	---	---	---
MW-7	04/08/92	40.64	12.77	0.00	27.87	750	---	150	ND<0.5	23	9.9	---	---	ANA
MW-7	04/14/92	40.64	13.02	0.00	27.62	---	---	---	---	---	---	---	---	---
MW-7	04/29/92	40.64	13.59	0.00	27.05	---	---	---	---	---	---	---	---	---
MW-7	05/07/92	40.64	13.95	0.00	26.69	---	---	---	---	---	---	---	---	---
MW-7	07/03/92	40.64	14.73	0.00	25.91	660	---	210	ND<2.5	33	8	---	---	ANA
MW-7	10/08/92	40.64	15.75	0.00	24.89	320	---	49	1.4	13	6.2	---	---	ANA
MW-7	12/31/92	40.64	13.57	0.00	27.07	900	---	100	ND<2.5	28	4.3	---	---	ANA
MW-7	04/21/93	40.64	14.56	0.00	26.08	510	---	83	1.2	10	5.8	---	---	PACE
MW-7	07/07/93	40.32 (h)	13.40	0.00	26.92	1100	---	160	2.0	27	4.0	---	---	PACE
QC-1 (g)	07/07/93	---	---	---	---	1100	---	170	1.9	29	2.8	---	---	PACE
MW-7	09/21/93	40.32	14.40	0.00	25.92	690	---	150	3.1	26	5.7	---	---	PACE
QC-1 (g)	09/21/93	---	---	---	---	640	---	140	1.7	23	2.4	---	---	PACE
MW-7	12/17/93	40.32	13.65	---	26.67	---	---	---	---	---	---	---	---	---
MW-7	12/23/93	---	---	---	---	250	---	64	1.2	9.0	1.8	---	---	PACE

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
 BP OIL COMPANY SERVICE STATION NO. 11109
 4280 FOOTHILL BOULEVARD, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-014

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ppb)	TPH-D (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	TOG (ppb)	HVOC (ppb)	LAB
MW-8	10/03/91	38.18	22.37	0.00	15.81	ND<50	---	ND<0.3	0.6	ND<0.3	0.9	---	---	SUP
MW-8	10/15/91	38.18	22.70	0.00	15.48	---	---	---	---	---	---	---	---	---
MW-8	12/04/91	38.18	22.44	0.00	15.74	---	---	---	---	---	---	---	---	---
MW-8	12/16/91	38.18	22.47	0.00	15.71	---	---	---	---	---	---	---	---	---
MW-8	01/06/92	38.18	21.94	0.00	16.24	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-8	01/22/92	38.18	21.44	0.00	16.74	---	---	---	---	---	---	---	---	---
MW-8	01/28/92	38.18	21.20	0.00	16.98	---	---	---	---	---	---	---	---	---
MW-8	02/05/92	38.18	20.88	0.00	17.30	---	---	---	---	---	---	---	---	---
MW-8	02/12/92	38.18	20.54	0.00	17.64	---	---	---	---	---	---	---	---	---
MW-8	02/17/92	38.18	19.99	0.00	18.19	---	---	---	---	---	---	---	---	---
MW-8	04/03/92	38.18	16.75	0.00	21.43	---	---	---	---	---	---	---	---	---
MW-8	04/08/92	38.18	16.57	0.00	21.61	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-8	04/14/92	38.18	INACCESSIBLE	---	---	---	---	---	---	---	---	---	---	---
MW-8	04/29/92	38.18	18.61	0.00	19.57	---	---	---	---	---	---	---	---	---
MW-8	05/07/92	38.18	18.41	0.00	19.77	---	---	---	---	---	---	---	---	---
MW-8	07/03/92	38.18	20.35	0.00	17.83	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-8	(i) 10/08/92	38.18	21.74	0.00	16.44	---	---	---	---	---	---	---	---	---
MW-8	12/31/92	38.18	19.09	0.00	19.09	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-8	04/21/93	38.18	18.92	0.00	19.26	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-8	07/07/93	38.18	17.76	0.00	20.42	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-8	09/21/93	38.18	19.71	0.00	18.47	ND<50	---	2.9	2.2	2.2	7.1	---	---	PACE
MW-8	12/17/93	38.18	21.33	---	16.85	---	---	---	---	---	---	---	---	---
MW-8	12/23/93	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	0.6	---	---	PACE
MW-9	10/03/91	41.25	14.12	0.00	27.13	ND<50	---	ND<0.3	0.4	ND<0.3	ND<0.3	---	---	SUP
MW-9	10/15/91	41.25	14.27	0.00	26.98	---	---	---	---	---	---	---	---	---
MW-9	12/04/91	41.25	13.84	0.00	27.41	---	---	---	---	---	---	---	---	---
MW-9	12/16/91	41.25	14.18	0.00	27.07	---	---	---	---	---	---	---	---	---
MW-9	01/06/92	41.25	13.42	0.00	27.83	ND<50	---	ND<0.5	ND<0.5	ND<0.5	0.9	---	---	ANA
MW-9	01/22/92	41.25	13.75	0.00	27.50	---	---	---	---	---	---	---	---	---
MW-9	01/28/92	41.25	14.76	0.00	26.49	---	---	---	---	---	---	---	---	---
MW-9	02/05/92	41.25	13.38	0.00	27.87	---	---	---	---	---	---	---	---	---
MW-9	02/12/92	41.25	11.86	0.00	29.39	---	---	---	---	---	---	---	---	---
MW-9	02/17/92	41.25	10.78	0.00	30.47	---	---	---	---	---	---	---	---	---
MW-9	04/03/92	41.25	11.63	0.00	29.62	---	---	---	---	---	---	---	---	---
MW-9	04/08/92	41.25	12.25	0.00	29.00	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-9	04/14/92	41.25	12.32	0.00	28.93	---	---	---	---	---	---	---	---	---
MW-9	04/29/92	41.25	13.07	0.00	28.18	---	---	---	---	---	---	---	---	---
MW-9	05/07/92	41.25	14.43	0.00	26.82	---	---	---	---	---	---	---	---	---
MW-9	07/03/92	41.25	13.85	0.00	27.40	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-9	10/08/92	41.25	14.89	0.00	26.36	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-9	12/31/92	41.25	11.90	0.00	29.35	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-9	04/21/93	41.25	13.68	0.00	27.57	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-9	07/07/93	41.25	13.12	0.00	28.13	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-9	09/21/93	41.25	14.00	0.00	27.25	ND<50	---	ND<0.5	ND<0.5	ND<0.5	0.9	---	---	PACE
MW-9	12/17/93	41.25	12.98	---	28.27	---	---	---	---	---	---	---	---	---
MW-9	12/23/93	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	0.9	---	---	PACE

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
 BP OIL COMPANY SERVICE STATION NO. 11109
 4280 FOOTHILL BOULEVARD, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-014

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ppb)	TPH-D (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	TOG (ppb)	HVOC (ppb)	LAB
QC-2	(i)	10/08/92	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
QC-2	(i)	12/31/92	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
QC-2	(i)	04/21/93	---	---	---	---	---	---	---	---	---	---	ND	PACE
QC-2	(i)	07/07/93	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	0.6	---	---	PACE
QC-2	(i)	09/21/93	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2	(i)	12/23/93	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE

ABBREVIATIONS:

TPH-G Total petroleum hydrocarbons as gasoline
 TPH-D Total petroleum hydrocarbons as diesel
 B Benzene
 T Toluene
 E Ethylbenzene
 X Total xylenes
 TOG Total oil and grease
 HVOC Halogenated volatile organic compounds
 ppb Parts per billion
 --- Not analyzed/applicable
 ND Not detected above reported detection limit
 SUP Superior Analytical Laboratory
 ANA Anamatrix, Inc.
 PACE Pace, Inc.

NOTES:

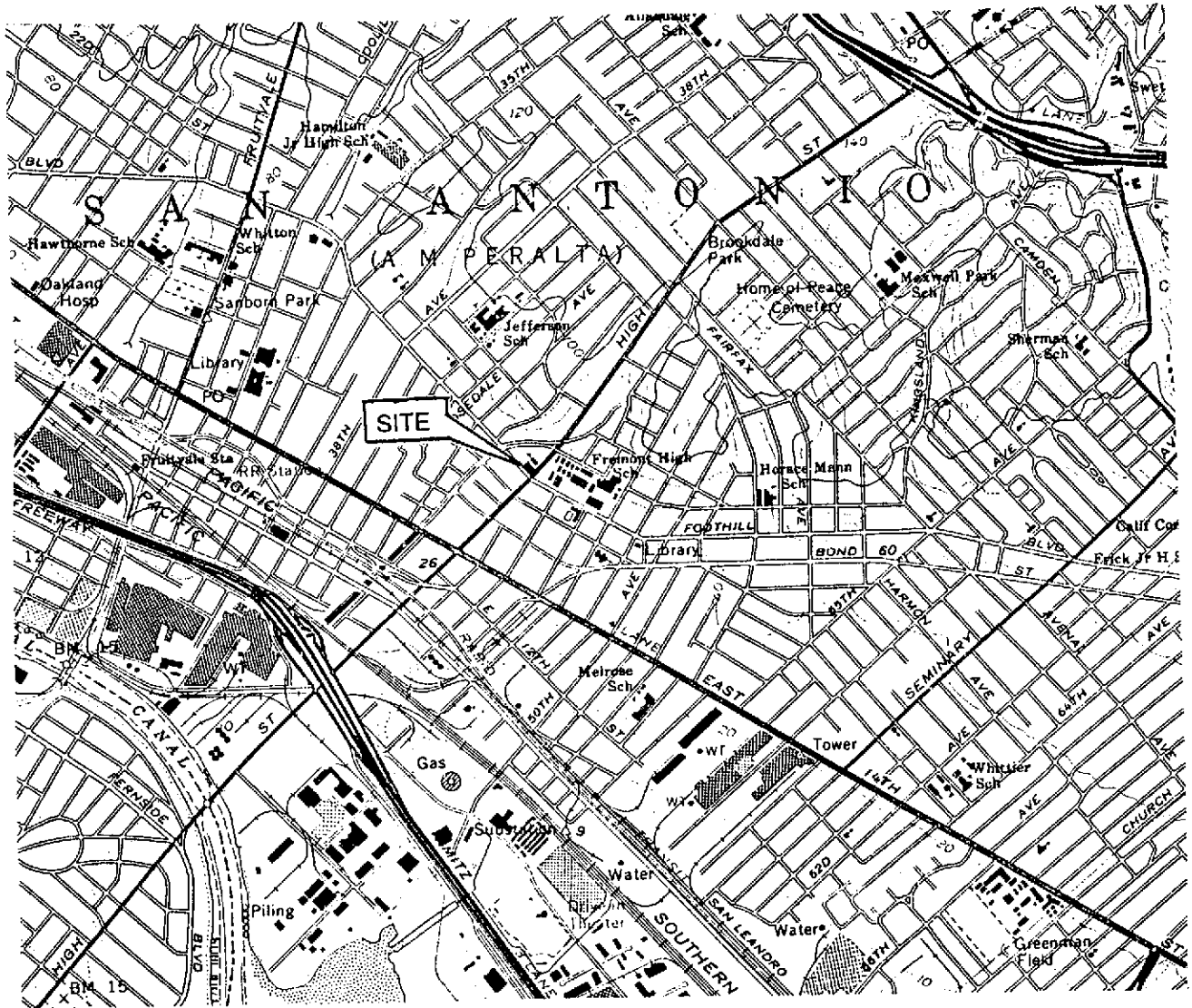
- (a) Top of casing elevations surveyed relative to the NGVD (1929) in feet above mean sea level.
- (b) Groundwater elevations adjusted assuming a specific gravity of 0.75 for free product.
- (c) Well destroyed during tank removal in November 1990.
- (d) Methylene chloride.
- (e) 1,2-dichloroethane.
- (f) Sample collected from MW-2 for TPH-D analysis received in laboratory 7 days after collected; sample exceeded EPA-recommended holding time for TPH-D on a water matrix.
- (g) Blind duplicate.
- (h) Top of casing lowered.
- (i) Not sampled due to abandoned vehicle parked over well.
- (j) Travel blank.

TABLE 2
PRODUCT REMOVAL STATUS

BP OIL COMPANY SERVICE STATION NO. 11109
4270 FOOTHILL BOULEVARD, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-014

WELL ID	DATE	PRODUCT REMOVED (Gallons)	PRODUCT REMOVED CUMULATIVE (Gallons)
MW-5	11/05/92	0.2	0.2
	02/25/93	0.1	0.3
	03/18/93	0.1	0.4
	04/13/93	0.1	0.5
	04/23/93	13.0	13.5
	05/24/93	0.1	13.6
	10/14/93	0.3	13.9
	11/10/93	0.4	14.3
	12/23/93	0.4	14.7



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

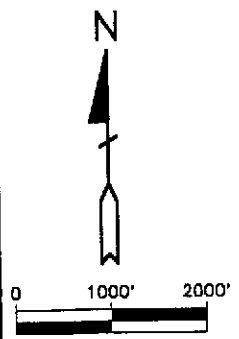
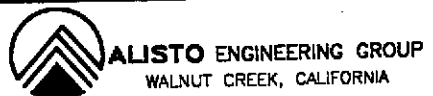
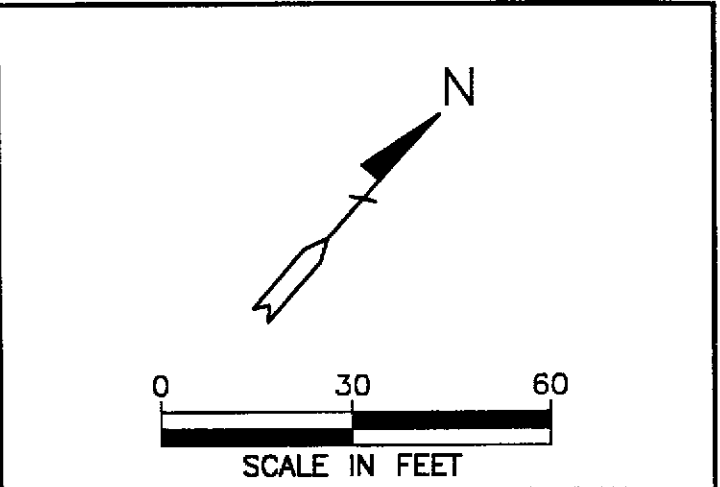
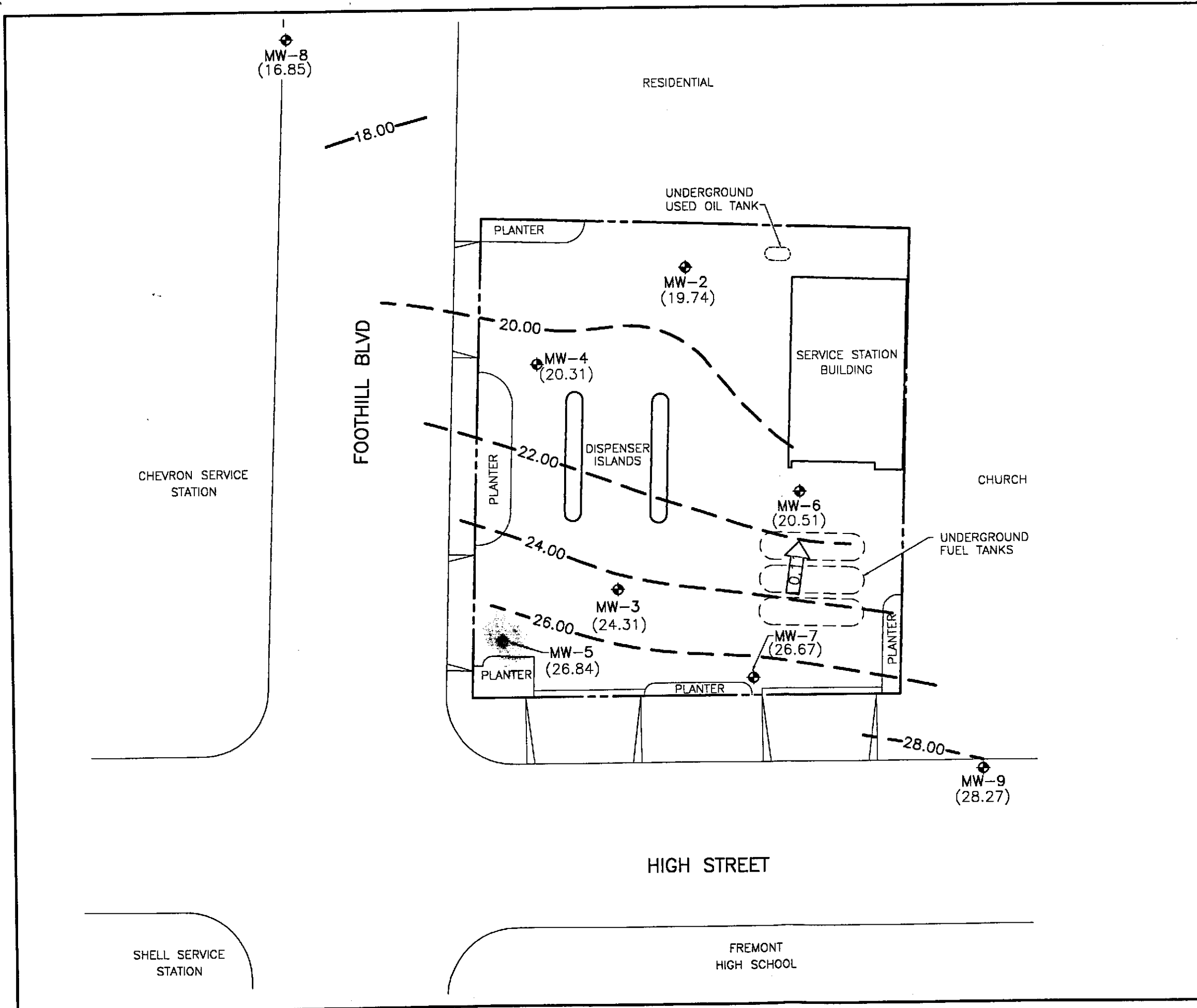


FIGURE 1
SITE VICINITY MAP
 BP OIL SERVICE STATION NO. 11109
 4280 FOOTHILL BOULEVARD
 OAKLAND, CALIFORNIA
 PROJECT NO. 10-014





- LEGEND**
- ◆ GROUNDWATER MONITORING WELL
 - (20.51) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
 - - - 22.00 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL - 2.00 FEET)
 - ← 0.11 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 2
POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP
DECEMBER 17, 1993
 BP OIL SERVICE STATION NO. 11109
 4280 FOOTHILL BOULEVARD
 OAKLAND, CALIFORNIA
 PROJECT NO. 10-014

MW-8
 ND<50
 ND<0.5 | ND<0.5
 ND<0.5 | 0.6

RESIDENTIAL

UNDERGROUND
 USED OIL TANK

PLANTER

MW-2
 ND<50
 ND<0.5 | ND<0.5
 ND<0.5 | 0.7

SERVICE STATION
 BUILDING

MW-4
 ND<50
 3.1 | 1.6
 0.8 | 3.8

DISPENSER
 ISLANDS

MW-6
 ND<50
 ND<0.5 | 0.5
 ND<0.5 | 0.6

CHURCH

UNDERGROUND
 FUEL TANKS

MW-3
 500
 9.8 | 1.5
 3.3 | 2.1

MW-5
 NOT SAMPLED
F. Product

MW-7
 250
 64 | 1.2
 9.0 | 1.8

PLANTER

PLANTER

PLANTER

MW-9
 ND<50
 ND<0.5 | ND<0.5
 ND<0.5 | 0.9

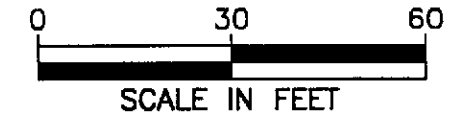
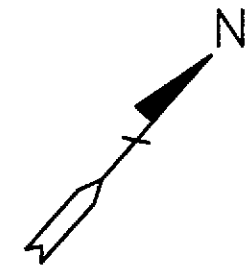
HIGH STREET

FREMONT
 HIGH SCHOOL

CHEVRON SERVICE
 STATION

FOOTHILL BLVD

SHELL SERVICE
 STATION



LEGEND

- ◆ GROUNDWATER MONITORING WELL
- TPH-G
B | T
E | X CONCENTRATION OF CONSTITUENTS
IN PARTS PER BILLION
- TPH-G TOTAL PETROLEUM
HYDROCARBONS AS GASOLINE
- B BENZENE
- T TOLUENE
- E ETHYLBENZENE
- X TOTAL XYLENES
- ND NOT DETECTED ABOVE REPORTED
DETECTION LIMIT
- ←0.11 CALCULATED GROUNDWATER
GRADIENT DIRECTION AND
MAGNITUDE IN FOOT PER FOOT

FIGURE 3

CONCENTRATIONS OF PETROLEUM
 HYDROCARBONS IN GROUNDWATER

DECEMBER 23, 1993

BP OIL SERVICE STATION NO. 11109
 4280 FOOTHILL BOULEVARD
 OAKLAND, CALIFORNIA

PROJECT NO. 10-014



APPENDIX A
WATER SAMPLING FIELD SURVEY FORMS

Birch Technical Services

Field Report / Data Sheet

Groundwater Sampling Groundwater Monitoring Well Development Drill Support Stockpile Sampling

116 Liberty St Santa Cruz, Ca 95060 (408) 459-0718	Firm: ALISTO	Date: <u>12/17/93</u>	Station #: <u>BP11/09</u>	Day: M Tu W Th F
	Project Number: <u>10-014-02-03</u>	Field Technician: <u>DJ BIRCH</u>	Address: <u>4280</u> <u>FOOTHILL BLVD.</u> <u>DAKLAND</u>	Weather: <u>OVERCAST</u>

DT/Order	Well ID	Lock	Exp Cap	Total Depth (feet)	1st Depth to Water (feet)	2nd Depth to Water (feet)	Depth to Product Product Thickness (feet)	Comments
3	MW-2	ok	ok	30.1	21.18	21.48		2"
6	MW-3	ok	ok	31.8	15.82	15.82		QC-1 was taken from MW-3 4"
9	MW-4	ok	ok	31.28	19.80	19.80		4"
8	MW-5	ok	ok	NM	12.61	12.61	12.20 0.41	Product 4
5	MW-6	ok	ok	34.28	21.08	21.08		strong outgassing. 4
7	MW-7	ok	ok	33.48	13.65	13.65		6
2	MW-8	ok	ok	21.74	21.33	21.33		2
1	MW-9	ok	ok	29.31	12.98	12.98		2

Notes: Three drums of water existed upon arrival.
Two Full drums were left at the site leaving
5 total.

1025

CALIBRATION pH 7.00 7.00 pH 4.00 _____ pH 10.00 10 at 71 °F

116 Liberty Street
 Santa Cruz, Ca 95060
 (408) 459-0718

Well Number: MW-3

Project Number: 10-014-02-02

Sample Type: Groundwater Trip Blank Duplicate of _____

Station Number: 11109

Date: 12 / 23 / 93

Sampled by: DAN Riech

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) 0 2" 0 3" 4" 0 4.5" 0 6" 0 _____
 Volume Factors: 0.1632 0.3672 0.6528 0.826 1.469 _____

Total Depth of Well 31.8

Initial Water Level: 15.82

PURGE METHOD:

Total Volume Purged: 22 gal.

Time Elapsed: 20 MIN

- Honda Pump
- Disposable Poly Tubing (____ ft)
- Speed Winch
- Disposable PVC Bailer(s) (____)
- Other _____

Calculated Purge Volume:

$$\frac{31.8}{\text{Total Depth}} - \frac{15.82}{\text{Water Level}} = \frac{15.98}{\text{Well Vol. Fac.}} \times \frac{.65}{\text{\# of vol. to Purge}} = \frac{10.3}{\text{Calculated Purge Volume}} \times \frac{3}{\text{}} = \frac{31.1}{\text{}} \text{ (gallons)}$$

COMMENTS:

Well was purged day after
 20 gal. were removed.

Subjective Analysis Prior to Purging

SHEEN Depth to Product Product Thickness
 O Yes No _____ (ft) _____ (ft)

Well was purged day again
 after 22 gal were removed
 & the sample was collected.

SAMPLING METHOD

PRS system temporarily removed
 for sampling.

- PVC Disposable Bailer
- Teflon Bailer
- Other: _____

Time Sampled
 (24 hour clock)
1440

WELL SAMPLING PARAMETERS

Gallons Removed	Time	pH	Temp °F	Cond. (umhos/cm)
5	1418	6.31	68.6	1.01
16	1423	6.31	68.2	0.99
15	1427	6.30	64.0	0.97
20	1430	6.29	67.1	0.99
22	1440	6.20	69.1	1.01

Analysis Required	No. of	Container Type	Preservatives
EPA 601		VOA's	
<input checked="" type="checkbox"/> TPH-G/BTEX	3	VOA's	HCl
TPH- Diesel		Amber Liter	
TOG 5520 BF		Amber Liter	H ₂ SO ₄

116 Liberty Street
 Santa Cruz, Ca 95060
 (408) 459-0718

Well Number: MW-7

Project Number: 10-014

Sample Type: Groundwater Trip Blank Duplicate of _____

Station Number: 11109

Sampled by: DAN Birch

Date: 12 / 23 / 93

WELL PURGING

PURGE VOLUME Casing Diameter (inches) 0 2" 0 3" 0 4" 0 4.5" 0 6" 0 _____
 Volume Factors: 0.1632 0.3672 0.6528 0.826 1.469 _____

Total Depth of Well 33.42 Initial Water Level: 13.65

Total Volume Purged: 20 gal. Time Elapsed: 15 min

Calculated Purge Volume:

PURGE METHOD:
 Honda Pump
 Disposable Poly Tubing (____ ft)
 Speed Winch
 Disposable PVC Bailer(s) (____)
 Other _____

$$\frac{33.42}{\text{Total Depth}} - \frac{13.65}{\text{Water Level}} = \frac{19.77}{\text{Well Vol. Fac.}} \times \frac{1.4}{\text{Well Vol. Fac.}} = \frac{27.6}{\text{Well Vol. Fac.}} \times \frac{3}{\text{No of vol. to Purge}} = \frac{83.0}{\text{Calculated Purge Volume}} \text{ (gallons)}$$

COMMENTS:

Parameters were stabilized after 20 gal. were removed & the sample was collected.

Subjective Analysis Prior to Purging

SHEEN Depth to Product Product Thickness
 Yes No _____ (ft) _____ (ft)

SAMPLING METHOD

PVC Disposable Bailer Teflon Bailer Other: _____
 Time Sampled (24 hour clock) 1530

WELL SAMPLING PARAMETERS

Gallons Removed	Time	pH	Temp °F	Cond. (umhos/cm)
5	1456	6.40	60.7	0.89
10	1500	6.46	60.9	0.90
15	1504	6.42	56.0	0.72
17	1506	6.36	56.1	0.72
20	1510	6.36	56.0	0.72

Analysis Required	No. of	Container Type	Preservatives
EPA 601		VOA's	
<input checked="" type="checkbox"/> TPH-G/BTEX	3	VOA's	HCl
TPH- Diesel		Amber Liter	
TOG 5520 BF		Amber Liter	H ₂ SO ₄

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD



REPORT OF LABORATORY ANALYSIS

Alisto Engineering Group
 1777 Oakland Blvd., Ste. 200
 Walnut Creek, CA 94596

January 07, 1994
 PACE Project Number: 431229503

Attn: Mr. Bill Howell

Client Reference: BP Station # 11109/CP# 10-014-02-03

PACE Sample Number: 70 0222109
 Date Collected: 12/23/93
 Date Received: 12/29/93
 MW-2

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
<u>ORGANIC ANALYSIS</u>			
PURGEABLE FUELS AND AROMATICS			
TOTAL FUEL HYDROCARBONS, (LIGHT):			12/30/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND 12/30/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			12/30/93
Benzene	ug/L	0.5	ND 12/30/93
Toluene	ug/L	0.5	ND 12/30/93
Ethylbenzene	ug/L	0.5	ND 12/30/93
Xylenes, Total	ug/L	0.5	0.7 12/30/93

REPORT OF LABORATORY ANALYSIS

Mr. Bill Howell
 Page 2

January 07, 1994
 PACE Project Number: 431229503

Client Reference: BP Station # 11109/CP# 10-014-02-03

PACE Sample Number: 70 0222117
 Date Collected: 12/23/93
 Date Received: 12/29/93
 Client Sample ID: MW-3

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS			
TOTAL FUEL HYDROCARBONS, (LIGHT):			12/30/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	500
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			
Benzene	ug/L	0.5	9.8
Toluene	ug/L	0.5	1.5
Ethylbenzene	ug/L	0.5	3.3
Xylenes, Total	ug/L	0.5	2.1

Mr. Bill Howell
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January 07, 1994
 PACE Project Number: 431229503

Client Reference: BP Station # 11109/CP# 10-014-02-03

PACE Sample Number:			70 0222125	
Date Collected:			12/23/93	
Date Received:			12/29/93	
Client Sample ID:			MW-4	
<u>Parameter</u>	<u>Units</u>	<u>MDL</u>		<u>DATE ANALYZED</u>

ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):				
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	12/30/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):				
Benzene	ug/L	0.5	3.1	12/30/93
Toluene	ug/L	0.5	1.6	12/30/93
Ethylbenzene	ug/L	0.5	0.8	12/30/93
Xylenes, Total	ug/L	0.5	3.8	12/30/93

REPORT OF LABORATORY ANALYSIS

Mr. Bill Howell
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January 07, 1994
 PACE Project Number: 431229503

Client Reference: BP Station # 11109/CP# 10-014-02-03

70 0222133
 12/23/93
 12/29/93
 MW-6

PACE Sample Number:
 Date Collected:
 Date Received:
 Client Sample ID:
 Parameter

Units MDL DATE ANALYZED

ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):				
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	12/30/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):				
Benzene	ug/L	0.5	ND	12/30/93
Toluene	ug/L	0.5	0.5	12/30/93
Ethylbenzene	ug/L	0.5	ND	12/30/93
Xylenes, Total	ug/L	0.5	0.6	12/30/93

REPORT OF LABORATORY ANALYSIS

Mr. Bill Howell
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January 07, 1994
 PACE Project Number: 431229503

Client Reference: BP Station # 11109/CP# 10-014-02-03

PACE Sample Number:			70 0222141	
Date Collected:			12/23/93	
Date Received:			12/29/93	
Client Sample ID:			MW-7	
<u>Parameter</u>	<u>Units</u>	<u>MDL</u>		<u>DATE ANALYZED</u>

ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	01/04/94
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	250	01/04/94
PURGEABLE AROMATICS (BTXE BY EPA 8020M):				01/04/94
Benzene	ug/L	0.5	64	01/04/94
Toluene	ug/L	0.5	1.2	01/04/94
Ethylbenzene	ug/L	0.5	9.0	01/04/94
Xylenes, Total	ug/L	0.5	1.8	01/04/94

REPORT OF LABORATORY ANALYSIS

Mr. Bill Howell
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January 07, 1994
 PACE Project Number: 431229503

Client Reference: BP Station # 11109/CP# 10-014-02-03

PACE Sample Number:
 Date Collected:
 Date Received:
 Client Sample ID:
 Parameter

70 0222150
 12/23/93
 12/29/93
 MW-8

Units MDL DATE ANALYZED

ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS

TOTAL FUEL HYDROCARBONS, (LIGHT):

Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	-	12/30/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):				12/30/93
Benzene	ug/L	0.5	ND	12/30/93
Toluene	ug/L	0.5	ND	12/30/93
Ethylbenzene	ug/L	0.5	ND	12/30/93
Xylenes, Total	ug/L	0.5	0.6	12/30/93

REPORT OF LABORATORY ANALYSIS

Mr. Bill Howell
 Page 7

January 07, 1994
 PACE Project Number: 431229503

Client Reference: BP Station # 11109/CP# 10-014-02-03

PACE Sample Number:
 Date Collected:
 Date Received:
 Client Sample ID:
 Parameter

70 0222168
 12/23/93
 12/29/93
 MW-9

Units MDL DATE ANALYZED

ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):				
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	-	12/30/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			ND	12/30/93
Benzene	ug/L	0.5	-	12/30/93
Toluene	ug/L	0.5	ND	12/30/93
Ethylbenzene	ug/L	0.5	ND	12/30/93
Xylenes, Total	ug/L	0.5	0.9	12/30/93

REPORT OF LABORATORY ANALYSIS

Mr. Bill Howell
 Page 8

January 07, 1994
 PACE Project Number: 431229503

Client Reference: BP Station # 11109/CP# 10-014-02-03

PACE Sample Number:			70 0222176	
Date Collected:			12/23/93	
Date Received:			12/29/93	
Client Sample ID:			QC-1	
<u>Parameter</u>	<u>Units</u>	<u>MDL</u>		<u>DATE ANALYZED</u>

ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):				
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	-	01/04/94
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			480	01/04/94
Benzene	ug/L	0.5	9.2	01/04/94
Toluene	ug/L	0.5	ND	01/04/94
Ethylbenzene	ug/L	0.5	5.4	01/04/94
Xylenes, Total	ug/L	0.5	5.3	01/04/94

Mr. Bill Howell
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January 07, 1994
 PACE Project Number: 431229503

Client Reference: BP Station # 11109/CP# 10-014-02-03

PACE Sample Number:
 Date Collected:
 Date Received:
 Client Sample ID:
 Parameter

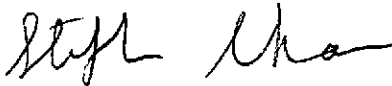
70 0222184
 12/23/93
 12/29/93
 QC-2

Units MDL DATE ANALYZED

ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):				
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND	01/04/94
PURGEABLE AROMATICS (BTXE BY EPA 8020M):				
Benzene	ug/L	0.5	ND	01/04/94
Toluene	ug/L	0.5	ND	01/04/94
Ethylbenzene	ug/L	0.5	ND	01/04/94
Xylenes, Total	ug/L	0.5	ND	01/04/94

These data have been reviewed and are approved for release.



for Darrell C. Cain
 Regional Director

Mr. Bill Howell
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FOOTNOTES
for pages 1 through 9

January 07, 1994
PACE Project Number: 431229503

Client Reference: BP Station # 11109/CP# 10-014-02-03

MDL Method Detection Limit
ND Not detected at or above the MDL.

Mr. Bill Howell
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QUALITY CONTROL DATA

January 07, 1994
PACE Project Number: 431229503

Client Reference: BP Station # 11109/CP# 10-014-02-03

PURGEABLE FUELS AND AROMATICS

Batch: 70 27367
Samples: 70 0222109

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/L	0.5	ND
Toluene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dup1 Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	1000	92%	95%	3%
Benzene	ug/L	0.5	40	102%	103%	0%
Toluene	ug/L	0.5	40	100%	104%	3%
Ethylbenzene	ug/L	0.5	40	94%	100%	6%
Xylenes, Total	ug/L	0.5	124	98%	103%	4%

REPORT OF LABORATORY ANALYSIS

Mr. Bill Howell
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QUALITY CONTROL DATA

January 07, 1994
PACE Project Number: 431229503

Client Reference: BP Station # 11109/CP# 10-014-02-03

PURGEABLE FUELS AND AROMATICS

Batch: 70 27402
Samples: 70 0222117, 70 0222125

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/L	0.5	ND
Toluene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	1000	97%	91%	6%
Benzene	ug/L	0.5	40	101%	99%	2%
Toluene	ug/L	0.5	40	99%	94%	5%
Ethylbenzene	ug/L	0.5	40	96%	86%	10%
Xylenes, Total	ug/L	0.5	120	102%	92%	10%

REPORT OF LABORATORY ANALYSIS

Mr. Bill Howell
 Page 13

QUALITY CONTROL DATA

January 07, 1994
 PACE Project Number: 431229503

Client Reference: BP Station # 11109/CP# 10-014-02-03

PURGEABLE FUELS AND AROMATICS

Batch: 70 27443
 Samples: 70 0222133, 70 0222150, 70 0222168

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/L	0.5	ND
Toluene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	1000	102%	101%	0%
Benzene	ug/L	0.5	40	95%	93%	2%
Toluene	ug/L	0.5	40	100%	94%	6%
Ethylbenzene	ug/L	0.5	40	101%	93%	8%
Xylenes, Total	ug/L	0.5	120	99%	92%	7%

REPORT OF LABORATORY ANALYSIS

Mr. Bill Howell
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QUALITY CONTROL DATA

January 07, 1994
PACE Project Number: 431229503

Client Reference: BP Station # 11109/CP# 10-014-02-03

PURGEABLE FUELS AND AROMATICS

Batch: 70 27509
Samples: 70 0222141, 70 0222176, 70 0222184

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/L	0.5	ND
Toluene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Methyl tert-Butyl Ether (MTBE)	ug/L	5.0	ND
Xylene (total)	ug/L	0.5	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	50	1000.0	98%	91%	7%
Benzene	ug/L	0.5	40.0	97%	94%	3%
Toluene	ug/L	0.5	40.0	99%	96%	3%
Ethylbenzene	ug/L	0.5	40.0	99%	97%	2%
Methyl tert-Butyl Ether (MTBE)	ug/L	5.0	40.0	94%	100%	6%
Xylene (total)	ug/L	0.5	120.0	97%	94%	3%

Mr. Bill Howell
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FOOTNOTES
for pages 11 through 14

January 07, 1994
PACE Project Number: 431229503

Client Reference: BP Station # 11109/CP# 10-014-02-03

MDL Method Detection Limit
ND Not detected at or above the MDL.
RPD Relative Percent Difference



CHAIN OF CUSTODY

431229.523

No. 051371 Page 1 of 1

CONSULTANT'S NAME Alisto		ADDRESS 1777 OAKLAND Blvd. Suite 200 Walnut Creek Ca.		CITY	STATE	ZIP CODE
BP SITE NUMBER 11109	BP CORNER ADDRESS/CITY 4280 Foathill Blvd.			CONSULTANT PROJECT NUMBER 10-014-07-03		
CONSULTANT PROJECT MANAGER Bill Howell		PHONE NUMBER 510 295 1650	FAX NUMBER 510 295 1823		CONSULTANT CONTRACT NUMBER	
BP CONTACT Scott Houston	BP ADDRESS 16460 South Center		PHONE NUMBER 206 394 5243	FAX NO. 206-394-5280		
LAB CONTACT Jim O'neal	LABORATORY ADDRESS 11 Digital Drive Novato		PHONE NUMBER 415 883 6100	FAX NO.		
SAMPLED BY (Please Print Name) DAN BUNCH		SAMPLED BY (Signature) <i>[Signature]</i>		SHIPMENT DATE 12-29-93		SHIPMENT METHOD COURIER

TAT: 24 Hours 48 Hours 1 Week Standard 2 Weeks

ANALYSIS REQUIRED

AIRBILL NUMBER

SAMPLE DESCRIPTION	COLLECTION DATE	MATRIX SOIL/WATER	CONTAINERS		PRESERVATIVE	TPH	GAS TEST									COMMENTS
	COLLECTION TIME		NO.	TYPE (VOL.)	LAB SAMPLE #											
	12-23-93	Water	3		HCL											
MW-2 1334	↓	↓	↓		↓	X										
MW-3 1440	↓	↓	↓		↓	X										
MW-4 1320	↓	↓	↓		↓	X										
MW-6 1345	↓	↓	↓		↓	X										
MW-7 1530	↓	↓	↓		↓	X										
MW-8 1215	↓	↓	↓		↓	X										
MW-9 1100	↓	↓	↓		↓	X										
QC-1 1445	↓	↓	↓		↓	X										
QC-2	↓	↓	1		↓	X										

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	ADDITIONAL COMMENTS
<i>[Signature]</i> BTS	12/21/93	0800	Mary Reid	12/21/93	0800	FA73456
Mary Reid	12/24/93	1417	Steven Pore	12/29/93	1417	