QUARTERLY GROUNDWATER MONITORING AND SAMPLING REPORT

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

Project No. 10-014

Prepared for:

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November 23, 1992

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INTRODUCTION

This report presents the results and findings of the October 8, 1992 quarterly 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 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 the 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.

Groundwater elevation data collected concurrently at neighboring Chevron Service Station No. 9-0076, 4625 Foothill Boulevard, are presented in Table 2.

Before sample collection, each well was purged of 3 casing volumes, while recording field readings of pH, temperature, and electrical conductivity, unless the monitoring well would not produce sufficient groundwater. 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 carefully transferred from the bailer into the appropriate clean glass containers. The water sampling field survey forms are presented in Appendix A.

SAMPLING AND ANALYTICAL RESULTS

The results of monitoring and laboratory analysis of the groundwater samples for this and previous quarters are summarized in Table 1. The potentiometric groundwater elevations and gradient direction as interpreted from the results of this monitoring event are shown in Figure 2. Isoconcentration maps of total petroleum hydrocarbons as gasoline (TPH-G) and benzene are shown in Figures 3 and 4. The laboratory report and chain of custody record are presented in Appendix B.

SUMMARY OF FINDINGS

The findings of the October 8, 1992 groundwater monitoring and sampling event are summarized as follows:

- Free product at a thickness of 0.92 foot was observed in Monitoring Well MW-5.
- Groundwater elevation data indicate a gradient of approximately 0.07 foot/foot in a general northwest direction across the site.
- Groundwater elevation data collected from the Chevron site indicate a gradient of approximately 0.05 foot per foot in a general southwest direction.
- Dissolved-phase petroleum hydrocarbon constituents were detected only in groundwater samples from MW-3, MW-4, and MW-7 at concentrations of up to 1,400 and 49 parts per billion TPH-G and benzene.

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

ALISTO PROJECT NO. 10-014

WELL ID	DATE OF SAMPLING/ MONITORING (a)	CASING ELEVATION (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	38.21	21.91	0.00	16.30	1300	---	14	ND<1.0	9	13	---	---	SUP
MW-2	02/14/91	38.21	21.16	0.00	17.05	ND<50	ND<10000	ND<0.3	ND<0.3	ND<0.3	ND<0.3	51 (d)	ND<5000	SUP
MW-2	05/13/91	38.21	21.32	0.00	16.89	ND<50	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3	0.5 (e)	6000	SUP
MW-2	07/24/91	38.21	22.92	0.00	15.29	---	---	---	---	---	---	---	---	---
MW-2	10/03/91	38.21	24.90	0.00	13.31	ND<50	ND<50	ND<0.3	0.8	ND<0.3	ND<0.3	0.7 (e)	ND<5000	SUP
MW-2	10/15/91	38.21	24.10	0.00	14.11	---	---	---	---	---	---	---	---	---
MW-2	12/04/91	38.21	INACCESSIBLE	---	---	---	---	---	---	---	---	---	---	---
MW-2	12/16/91	38.21	23.95	0.00	14.26	---	---	---	---	---	---	---	---	---
MW-2	01/06/92	38.21	23.30	0.00	14.91	ND<50	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND	ND<5000	ANA
MW-2	01/22/92	38.21	23.14	0.00	15.07	---	---	---	---	---	---	---	---	---
MW-2	01/28/92	38.21	22.99	0.00	15.22	---	---	---	---	---	---	---	---	---
MW-2	02/05/92	38.21	22.63	0.00	15.58	---	---	---	---	---	---	---	---	---
MW-2	02/12/92	38.21	22.04	0.00	16.17	---	---	---	---	---	---	---	---	---
MW-2	02/17/92	38.21	20.84	0.00	17.37	---	---	---	---	---	---	---	---	---
MW-2	04/03/92	38.21	18.29	0.00	19.92	---	---	---	---	---	---	---	---	ANA
MW-2	04/08/92	38.21	18.86	0.00	19.35	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---
MW-2	04/14/92	38.21	19.45	0.00	18.76	---	---	---	---	---	---	---	---	---
MW-2	04/29/92	38.21	20.35	0.00	17.86	---	---	---	---	---	---	---	---	---
MW-2	05/07/92	38.21	20.84	0.00	17.37	---	---	---	---	---	---	---	---	---
MW-2	07/03/92	38.21	22.34	0.00	15.87	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-2	10/08/92	38.21	23.73	0.00	14.48	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-3	02/05/90	37.74	17.45	0.00	20.29	1400	---	15	ND<2.5	11	8	---	---	SUP
MW-3	02/14/91	37.74	18.52	0.00	19.22	320	---	8	ND<0.3	8	1	---	---	SUP
MW-3	05/13/91	37.74	19.32	0.00	18.42	640	---	13	ND<0.3	18	1	---	---	SUP
MW-3	07/24/91	37.74	20.69	0.00	17.05	---	---	---	---	---	---	---	---	---
MW-3	10/03/91	37.74	19.47	0.00	18.27	940	---	21	ND<0.3	23	2.1	---	---	SUP
MW-3	10/15/91	37.74	20.46	0.00	17.28	---	---	---	---	---	---	---	---	---
MW-3	12/04/91	37.74	18.29	0.00	19.45	---	---	---	---	---	---	---	---	---
MW-3	12/16/91	37.74	18.34	0.00	19.40	---	---	---	---	---	---	---	---	---
MW-3	01/06/92	37.74	18.50	0.00	19.24	580	---	6.1	1	6.1	7.1	---	---	ANA
MW-3	01/22/92	37.74	17.86	0.00	19.88	---	---	---	---	---	---	---	---	---
MW-3	01/28/92	37.74	15.84	0.00	21.90	---	---	---	---	---	---	---	---	---
MW-3	02/05/92	37.74	17.53	0.00	20.21	---	---	---	---	---	---	---	---	---
MW-3	02/12/92	37.74	17.15	0.00	20.59	---	---	---	---	---	---	---	---	---
MW-3	02/17/92	37.74	16.18	0.00	21.56	---	---	---	---	---	---	---	---	---
MW-3	04/03/92	37.74	14.80	0.00	22.94	---	---	---	---	---	---	---	---	ANA
MW-3	04/08/92	37.74	17.06	0.00	20.68	1100	---	30	4.6	32	11	---	---	---
MW-3	04/14/92	37.74	15.22	0.00	22.52	---	---	---	---	---	---	---	---	---
MW-3	04/29/92	37.74	15.90	0.00	21.84	---	---	---	---	---	---	---	---	---
MW-3	05/07/92	37.74	16.35	0.00	21.39	---	---	38	ND<2.5	24	ND<2.5	---	---	ANA
MW-3	07/03/92	37.74	17.74	0.00	20.00	1200	---	31	ND<0.5	25	13	---	---	ANA
MW-3	10/08/92	37.74	19.06	0.00	18.68	1400	---							

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ALISTO PROJECT NO. 10-014

WELL ID	DATE OF SAMPLING/ MONITORING (a)	CASING ELEVATION (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-4	02/05/90	37.09	20.75	0.00	16.34	620	---	ND<0.5	9	ND<0.5	10	---	---	SUP
MW-4	02/14/91	37.09	21.73	0.00	15.36	180	---	ND<0.3	ND<0.3	0.4	2	---	---	SUP
MW-4	05/13/91	37.09	18.55	0.00	18.54	72	---	0.7	ND<0.3	ND<0.3	ND<0.3	---	---	SUP
MW-4	07/24/91	37.09	21.31	0.00	15.78	---	---	---	---	---	---	---	---	---
MW-4	10/03/91	37.09	22.57	0.00	14.52	57	---	ND<0.3	ND<0.3	ND<0.3	ND<0.3	---	---	SUP
MW-4	10/15/91	37.09	22.88	0.00	14.21	---	---	---	---	---	---	---	---	---
MW-4	12/04/91	37.09	22.54	0.00	14.55	---	---	---	---	---	---	---	---	---
MW-4	12/16/91	37.09	22.59	0.00	14.50	---	---	---	---	---	---	---	---	---
MW-4	01/06/92	37.09	22.00	0.00	15.09	480	---	0.8	3.2	1.9	7.7	---	---	ANA
MW-4	01/22/92	37.09	21.58	0.00	15.51	---	---	---	---	---	---	---	---	---
MW-4	01/28/92	37.09	21.42	0.00	15.67	---	---	---	---	---	---	---	---	---
MW-4	02/05/92	37.09	21.10	0.00	15.99	---	---	---	---	---	---	---	---	---
MW-4	02/12/92	37.09	20.74	0.00	16.35	---	---	---	---	---	---	---	---	---
MW-4	02/17/92	37.09	19.78	0.00	17.31	---	---	---	---	---	---	---	---	---
MW-4	04/03/92	37.09	16.80	0.00	20.29	---	---	---	---	---	---	---	---	---
MW-4	04/08/92	37.09	17.13	0.00	19.96	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-4	04/14/92	37.09	17.74	0.00	19.35	---	---	---	---	---	---	---	---	---
MW-4	04/29/92	37.09	18.56	0.00	18.53	---	---	---	---	---	---	---	---	---
MW-4	05/07/92	37.09	19.10	0.00	17.99	---	---	---	---	---	---	---	---	---
MW-4	07/03/92	37.09	20.71	0.00	16.38	ND<50	---	0.6	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-4	10/08/92	37.09	22.43	0.00	14.66	270	---	ND<0.5	2.1	2.5	3.2	---	---	ANA
MW-5	10/03/91	36.55	18.08	0.00	18.47	79000	---	13000	7400	1400	6200	---	---	SUP
MW-5	10/15/91	36.55	18.55	0.00	18.00	---	---	---	---	---	---	---	---	---
MW-5	12/04/91	36.55	18.44	0.13	18.21	---	---	---	---	---	---	---	---	---
MW-5	12/16/91	36.55	18.66	0.01	17.90	---	---	---	---	---	---	---	---	---
MW-5	01/06/92 (f)	36.55	19.12	0.11	17.51	---	---	---	---	---	---	---	---	---
MW-5	01/22/92	36.55	14.59	0.00	21.96	---	---	---	---	---	---	---	---	---
MW-5	01/28/92	36.55	15.25	0.00	21.30	---	---	---	---	---	---	---	---	---
MW-5	02/05/92	36.55	15.58	SHEEN	20.97	---	---	---	---	---	---	---	---	---
MW-5	02/12/92	36.55	15.54	0.01	21.02	---	---	---	---	---	---	---	---	---
MW-5	02/17/92	36.55	13.98	SHEEN	22.57	---	---	---	---	---	---	---	---	---
MW-5	04/03/92	36.55	13.63	0.04	22.95	---	---	---	---	---	---	---	---	---
MW-5	04/08/92 (f)	36.55	13.17	0.01	23.39	---	---	---	---	---	---	---	---	---
MW-5	04/14/92	36.55	13.45	0.01	23.11	---	---	---	---	---	---	---	---	---
MW-5	04/29/92	36.55	13.75	0.07	22.85	---	---	---	---	---	---	---	---	---
MW-5	05/07/92	36.55	16.15	0.04	20.43	---	---	---	---	---	---	---	---	---
MW-5	07/03/92 (f)	36.55	17.67	0.08	18.94	---	---	---	---	---	---	---	---	---
MW-5	09/01/92	36.55	17.83	0.5	19.10	---	---	---	---	---	---	---	---	---
MW-5	10/08/92 (f)	36.55	17.86	0.92	19.38	---	---	---	---	---	---	---	---	---

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ALISTO PROJECT NO. 10-014

WELL ID	DATE OF SAMPLING/ MONITORING (a)	CASING ELEVATION (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-6	10/03/91	38.57	20.73	0.00	17.84	ND<50	---	0.7	0.8	ND<0.3	1.3	---	---	SUP
MW-6	10/15/91	38.57	21.20	0.00	17.37	---	---	---	---	---	---	---	---	---
MW-6	12/04/91	38.57	21.26	0.00	17.31	---	---	---	---	---	---	---	---	---
MW-6	12/16/91	38.57	21.12	0.00	17.45	---	---	---	---	---	---	---	---	---
MW-6	01/06/92	38.57	20.29	0.00	18.28	ND<50	---	ND<0.5	ND<0.5	ND<0.5	1.6	---	---	ANA
MW-6	01/22/92	38.57	20.12	0.00	18.45	---	---	---	---	---	---	---	---	---
MW-6	01/28/92	38.57	20.20	0.00	18.37	---	---	---	---	---	---	---	---	---
MW-6	02/05/92	38.57	20.09	0.00	18.48	---	---	---	---	---	---	---	---	---
MW-6	02/12/92	38.57	19.15	0.00	19.42	---	---	---	---	---	---	---	---	---
MW-6	02/17/92	38.57	18.02	0.00	20.55	---	---	---	---	---	---	---	---	---
MW-6	04/03/92	38.57	16.62	0.00	21.95	---	---	---	---	---	---	---	---	---
MW-6	04/08/92	38.57	17.06	0.00	21.51	ND<50	---	0.6	ND<0.5	0.8	ND<0.5	---	---	ANA
MW-6	04/14/92	38.57	17.23	0.00	21.34	---	---	---	---	---	---	---	---	---
MW-6	04/29/92	38.57	18.12	0.00	20.45	---	---	---	---	---	---	---	---	---
MW-6	05/07/92	38.57	18.52	0.00	20.05	---	---	---	---	---	---	---	---	---
MW-6	07/03/92	38.57	19.71	0.00	18.86	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-6	10/08/92	38.57	21.22	0.00	17.35	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
QC-1 (g)	10/08/92	38.57	21.22	0.00	17.35	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-7	10/03/91	37.64	14.93	0.00	22.71	360	---	62	13	3.4	20	---	---	SUP
MW-7	10/15/91	37.64	15.16	0.00	22.48	---	---	---	---	---	---	---	---	---
MW-7	12/04/91	37.64	15.41	0.00	22.23	---	---	---	---	---	---	---	---	---
MW-7	12/16/91	37.64	15.21	0.00	22.43	---	---	---	---	---	---	---	---	---
MW-7	01/06/92	37.64	14.56	0.00	23.08	1100	---	170	ND<0.5	24	23	---	---	ANA
MW-7	01/22/92	37.64	14.63	0.00	23.01	---	---	---	---	---	---	---	---	---
MW-7	01/28/92	37.64	14.73	0.00	22.91	---	---	---	---	---	---	---	---	---
MW-7	02/05/92	37.64	14.58	0.00	23.06	---	---	---	---	---	---	---	---	---
MW-7	02/12/92	37.64	13.94	0.00	23.70	---	---	---	---	---	---	---	---	---
MW-7	02/17/92	37.64	13.10	0.00	24.54	---	---	---	---	---	---	---	---	---
MW-7	04/03/92	37.64	12.66	0.00	24.98	---	---	---	---	---	---	---	---	---
MW-7	04/08/92	37.64	12.77	0.00	24.87	750	---	150	ND<0.5	23	9.9	---	---	ANA
MW-7	04/14/92	37.64	13.02	0.00	24.62	---	---	---	---	---	---	---	---	---
MW-7	04/29/92	37.64	13.59	0.00	24.05	---	---	---	---	---	---	---	---	---
MW-7	05/07/92	37.64	13.95	0.00	23.69	---	---	---	---	---	---	---	---	---
MW-7	07/03/92	37.64	14.73	0.00	22.91	660	---	210	ND<2.5	33	8	---	---	ANA
MW-7	10/08/92	37.64	15.75	0.00	21.89	320	---	49	1.4	13	6.2	---	---	ANA

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WELL ID	DATE OF SAMPLING/ MONITORING (a)	CASING ELEVATION (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	35.18	22.37	0.00	12.81	ND<50	---	ND<0.3	0.6	ND<0.3	0.9	---	---	SUP
MW-8	10/15/91	35.18	22.70	0.00	12.48	---	---	---	---	---	---	---	---	---
MW-8	12/04/91	35.18	22.44	0.00	12.74	---	---	---	---	---	---	---	---	---
MW-8	12/16/91	35.18	22.47	0.00	12.71	---	---	---	---	---	---	---	---	---
MW-8	01/06/92	35.18	21.94	0.00	13.24	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-8	01/22/92	35.18	21.44	0.00	13.74	---	---	---	---	---	---	---	---	---
MW-8	01/28/92	35.18	21.20	0.00	13.98	---	---	---	---	---	---	---	---	---
MW-8	02/05/92	35.18	20.88	0.00	14.30	---	---	---	---	---	---	---	---	---
MW-8	02/12/92	35.18	20.54	0.00	14.64	---	---	---	---	---	---	---	---	---
MW-8	02/17/92	35.18	19.99	0.00	15.19	---	---	---	---	---	---	---	---	---
MW-8	04/03/92	35.18	16.75	0.00	18.43	---	---	---	---	---	---	---	---	---
MW-8	04/08/92	35.18	16.57	0.00	18.61	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-8	04/14/92	35.18	INACCESSIBLE	---	---	---	---	---	---	---	---	---	---	---
MW-8	04/29/92	35.18	18.61	0.00	16.57									
MW-8	05/07/92	35.18	18.41	0.00	16.77									
MW-8	07/03/92	35.18	20.35	0.00	14.83	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-8 (h)	10/08/92	35.18	21.74	0.00	13.44	---	---	---	---	---	---	---	---	---

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4280 FOOTHILL BOULEVARD, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-014

WELL ID	DATE OF SAMPLING/ MONITORING (a)	CASING ELEVATION (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-9	10/03/91	38.24	14.12	0.00	24.12	ND<50	---	ND<0.3	0.4	ND<0.3	ND<0.3	---	---	SUP
MW-9	10/15/91	38.24	14.27	0.00	23.97	---	---	---	---	---	---	---	---	---
MW-9	12/04/91	38.24	13.84	0.00	24.40	---	---	---	---	---	---	---	---	---
MW-9	12/16/91	38.24	14.18	0.00	24.06	---	---	---	---	---	---	---	---	---
MW-9	01/06/92	38.24	13.42	0.00	24.82	ND<50	---	ND<0.5	ND<0.5	ND<0.5	0.9	---	---	ANA
MW-9	01/22/92	38.24	13.75	0.00	24.49	---	---	---	---	---	---	---	---	---
MW-9	01/28/92	38.24	14.76	0.00	23.48	---	---	---	---	---	---	---	---	---
MW-9	02/05/92	38.24	13.38	0.00	24.86	---	---	---	---	---	---	---	---	---
MW-9	02/12/92	38.24	11.86	0.00	26.38	---	---	---	---	---	---	---	---	---
MW-9	02/17/92	38.24	10.78	0.00	27.46	---	---	---	---	---	---	---	---	---
MW-9	04/03/92	38.24	11.63	0.00	26.61	---	---	---	---	---	---	---	---	---
MW-9	04/08/92	38.24	12.25	0.00	25.99	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-9	04/14/92	38.24	12.32	0.00	25.92	---	---	---	---	---	---	---	---	---
MW-9	04/29/92	38.24	13.07	0.00	25.17									
MW-9	05/07/92	38.24	14.43	0.00	23.81									
MW-9	07/03/92	38.24	13.85	0.00	24.39	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
MW-9	10/08/92	38.24	14.89	0.00	23.35	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA
QC-2 (i)	10/08/92	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	ANA

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
ND	Not detected above reported detection limits
----	Not analyzed/applicable
ANA	Anametrix, Inc.
SUP	Superior Analytical Laboratory

NOTES:

(a) Top of casing elevations for all wells are surveyed relative to the City of Oakland survey station, with an elevation of 42.19 feet above mean sea level.

(b) Groundwater elevations in feet above mean sea level.

(c) Monitoring Well MW-1 was destroyed during tank removal activities in November 1990.

(d) Methylene chloride.

(e) 1,2-dichloroethane.

(f) Well was not sampled due to the presence of free product. Groundwater elevations were adjusted assuming a specific gravity of 0.75 for the free product.

(g) Blind duplicate of MW-6.

(h) MW-8 was not sampled due to an abandoned vehicle parked over the well.

(i) Travel blank.

TABLE 2 - SUMMARY OF RESULTS OF GROUNDWATER MONITORING
CHEVRON U.S.A. PRODUCTS COMPANY SERVICE STATION NO. 9-0076
4625 FOOTHILL BOULEVARD, OAKLAND CALIFORNIA

ALISTO PROJECT NO. 10-014

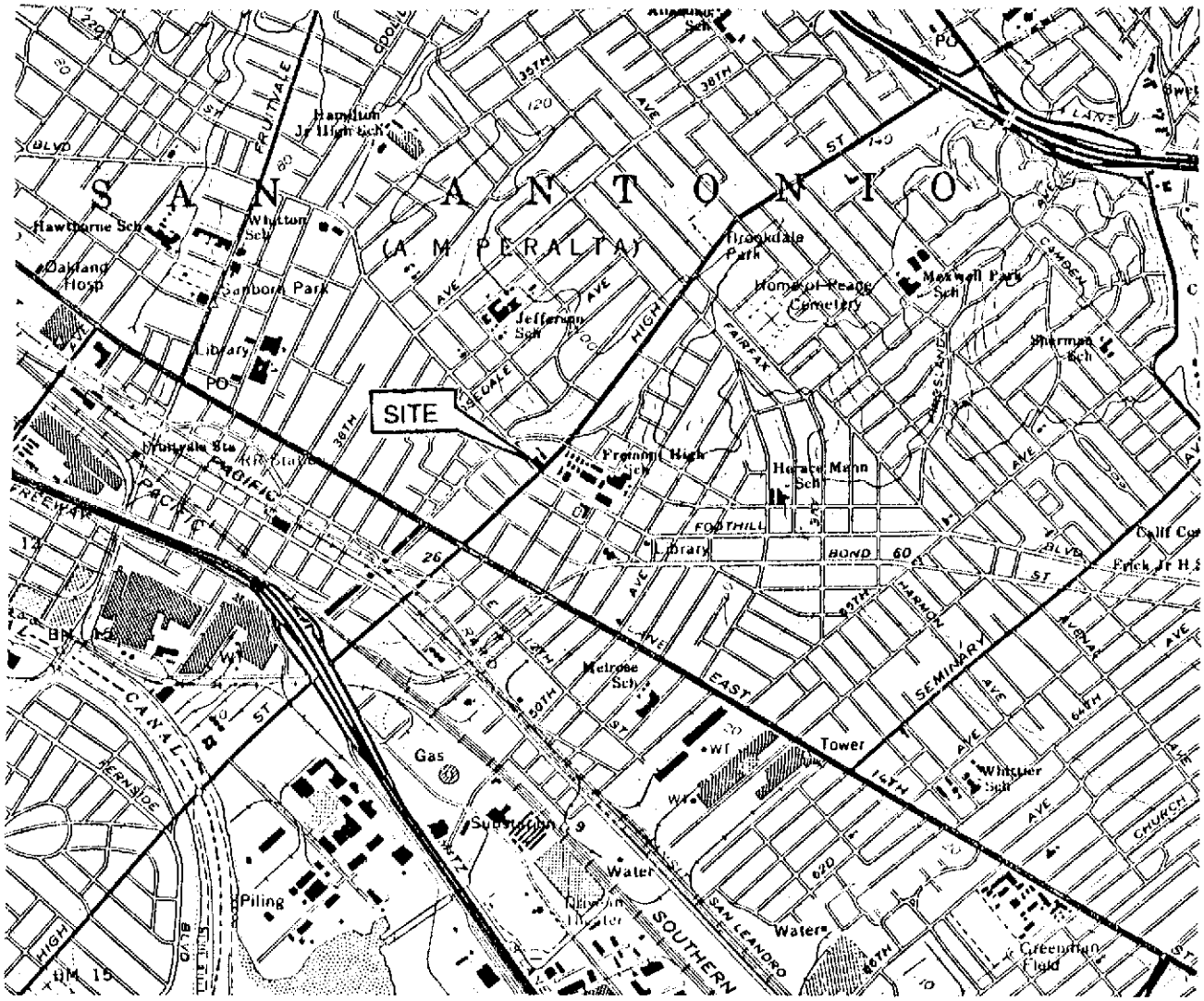
WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)
C-1	07/14/92	35.42	27.61	0.00	7.81
C-1	10/08/92	35.42	24.44	0.00	10.98
C-2	07/14/92	35.18	NM	NM	NM
C-2	10/08/92	35.18	NM	NM	NM
C-3	07/14/92	35.3	27.87	0.00	7.43
C-3	10/08/92	35.3	28.55	0.00	6.75
C-4	07/14/92	33.48	26.89	0.00	6.59
C-4	10/08/92	33.48	27.79	0.00	5.69
C-5	07/14/92	35.5	28	0.00	7.50
C-5	10/08/92	35.5	28.65	0.00	6.85
C-6	07/14/92	32.4	38.89	0.00	-6.49
C-6	10/08/92	32.4	38.67	0.00	-6.27
C-7	07/14/92	32.17	39.77	0.00	-7.60
C-7	10/08/92	32.17	39.14	0.00	-6.97
C-8	07/14/92	30.68	39.02	0.00	-8.34
C-8	10/08/92	30.68	38.68	0.00	-8.00

NOTES:

(a) Casing Elevation above mean sea level.

(b) Groundwater elevations in feet above mean sea level.

Source: Groundwater data collected by Groundwater Technology, Inc.



N

0 1000 2000

SCALE IN FEET

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

FIGURE 1

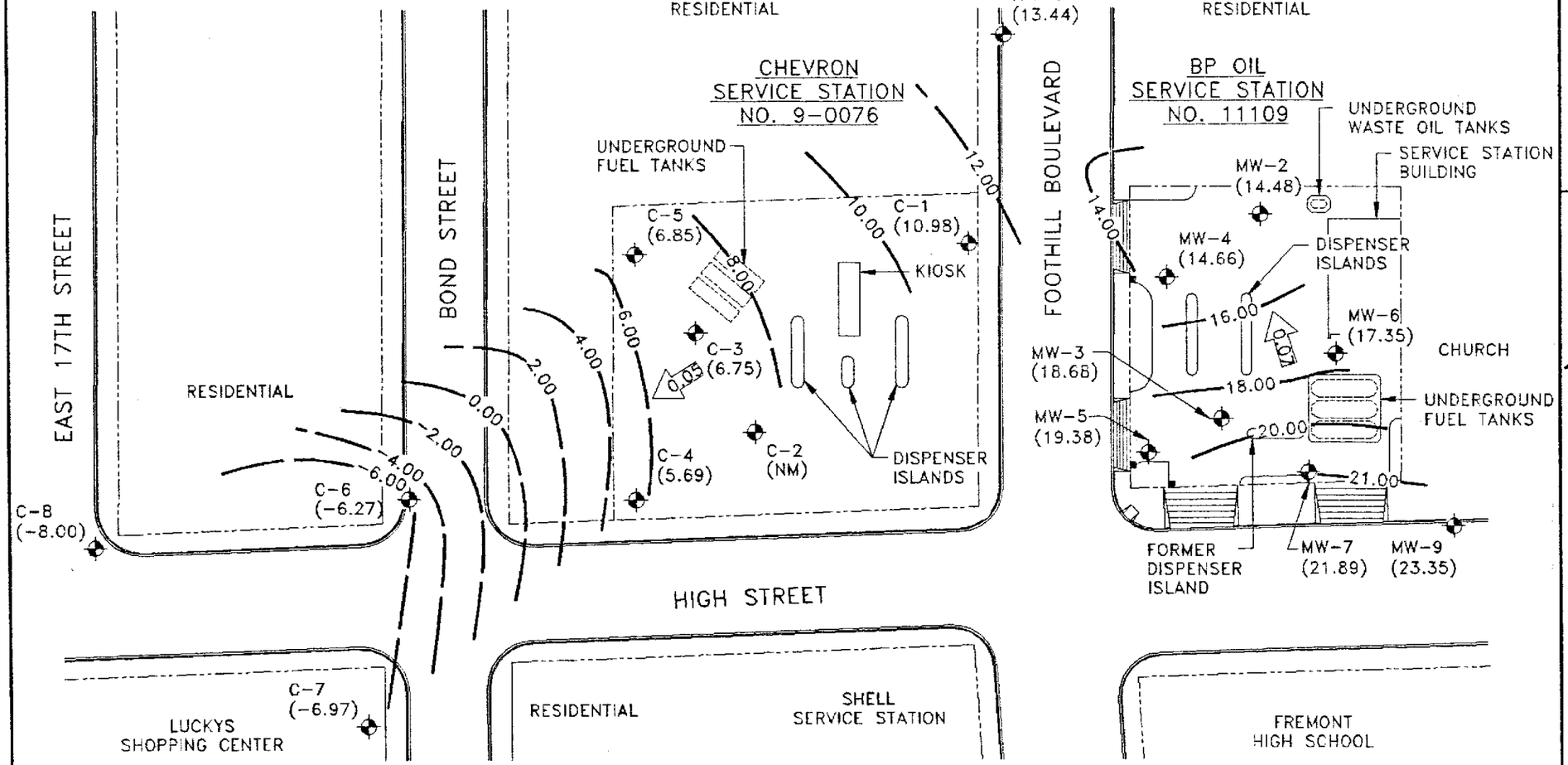
SITE VICINITY MAP

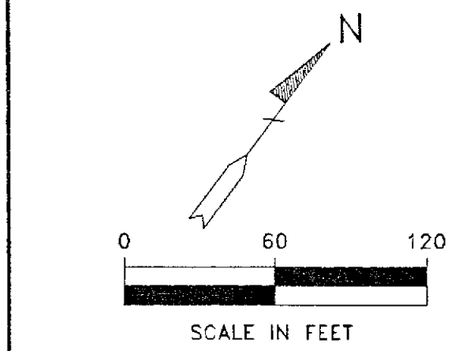
BP OIL SERVICE STATION NO. 11109
4280 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-014

ALISTO ENGINEERING GROUP
CONCORD, CALIFORNIA

10014012.DWG 8-24-92 JMB 1:1





LEGEND:

- ◆ GROUNDWATER MONITORING WELL
- (6.85) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 14.00 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL – 2.00 FEET)
- 0.05 → CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE
- NM NOT MEASURED

FIGURE 2

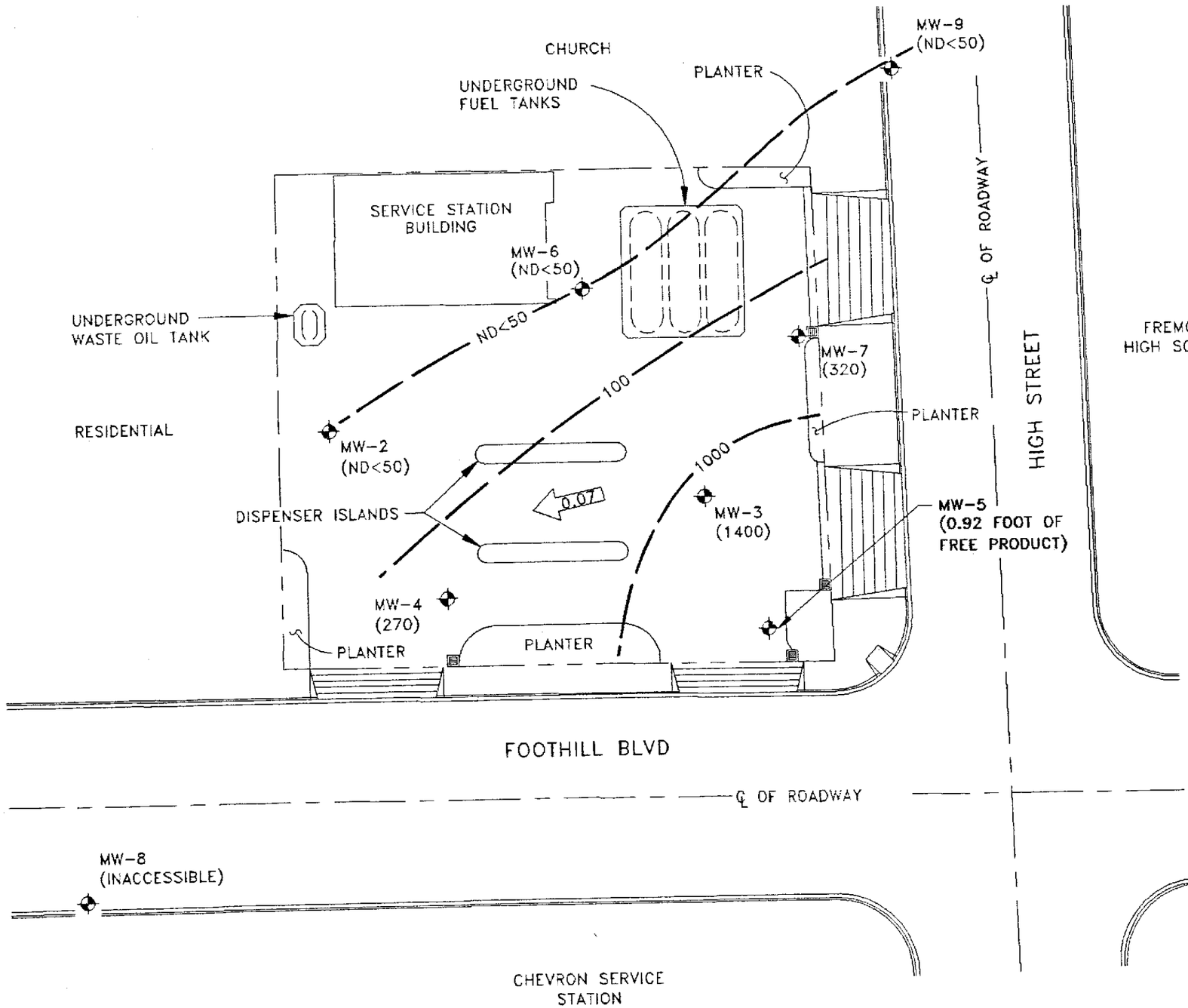
POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP (OCTOBER 8, 1992)

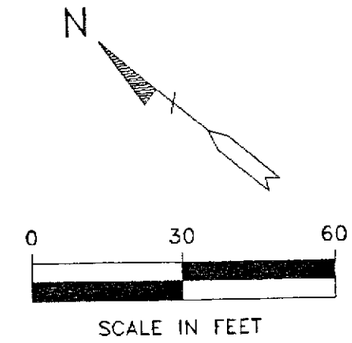
BP OIL SERVICE STATION NO. 11109
4280 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA

PROJECT NO. 10-014

ALISTO ENGINEERING GROUP
CONCORD, CALIFORNIA

10014072.DWG 11-15-92 JWR 1"=120'





LEGEND:

- ⊕ GROUNDWATER MONITORING WELL
- (320) TOTAL PETROLEUM HYDROCARBONS AS GASOLINE CONCENTRATION IN PARTS PER BILLION
- 1000 TOTAL PETROLEUM HYDROCARBONS AS GASOLINE ISOCONCENTRATION CONTOUR IN PARTS PER BILLION
- 0.07 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE

FIGURE 3

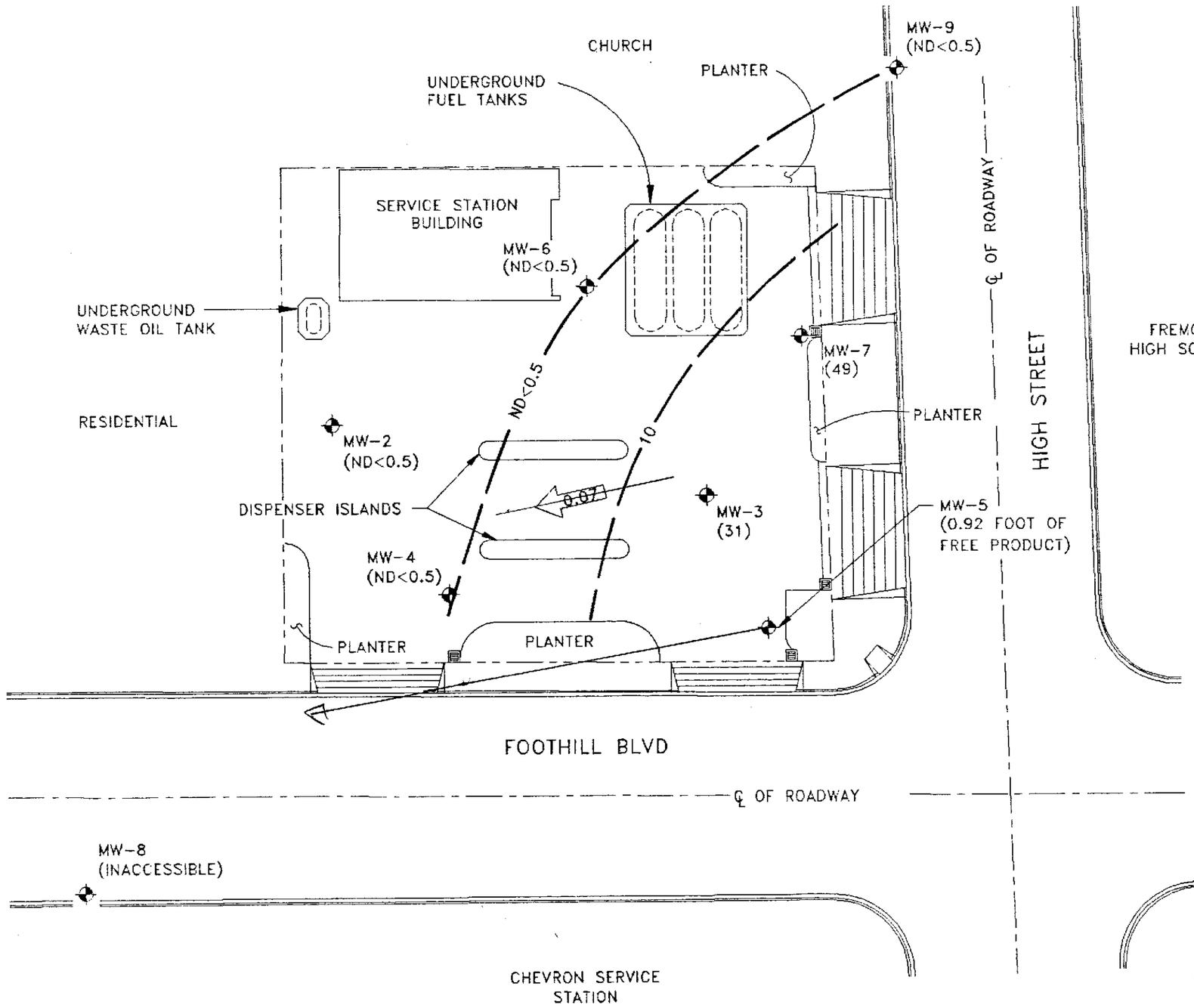
TOTAL PETROLEUM HYDROCARBONS AS GASOLINE ISOCONCENTRATION MAP (OCTOBER 8, 1992)

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

PROJECT NO. 10-014

ALISTO ENGINEERING GROUP
CONCORD, CALIFORNIA

10D14012C.DWG 11-16-92 JWJ 1=30'



N

0 30 60

SCALE IN FEET

LEGEND:

- GROUNDWATER MONITORING WELL
- (49) BENZENE CONCENTRATION IN PARTS PER BILLION
- 10 BENZENE ISOCONCENTRATION CONTOUR IN PARTS PER BILLION
- 0.07 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE

FIGURE 4

BENZENE ISOCONCENTRATION MAP
(OCTOBER 8, 1992)

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

PROJECT NO. 10-014

ALISTO ENGINEERING GROUP
CONCORD, CALIFORNIA

10014072.DWG 11-18-92 JWB 1=60

APPENDIX A

WATER SAMPLING FIELD SURVEY FORMS

Birch Technical Services

Field Report / Data Sheet

X Groundwater Sampling O Groundwater Monitoring O Well Development O Drill Support O Stockpile Sampling

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

Firm: ALISTO
Project Number: 10-014
Date: 10/8/92
Field Technician: DAN BIRCH
Station #: BP11109
Address: 4280 Foothill Blvd Oakland
Day: M Tu W (Th) F
Weather: Hot
Milage: 75 mi

Equipment List:

X Water Guage (1 day)
X Parameter Kit (1 day)
X Disposable Bailers (12)
O Plug(s)( )(in)
X Honda Pump (1 day)
X Poly Tubing (66 ft)
O Dolphin Lock(s) ( )
X Nitrile Gloves (1 pair)
O ( )
O ( )

Travel Time: 3 hrs
Time at Site: 5 hrs
Total Time: 8 hrs

DTW order	Well ID	Diam	Lock	Exp Cap	Total Depth (feet)	1st Depth to Water (feet)	2nd Depth to Water (feet)	Depth to Product (feet)	Product Thickness	Comments
	MW-2	2	OK	OK	30.1	23.73	23.73			
	MW-3	4	OK	OK	31.8	19.06	19.06			
	MW-4	4	OK	OK	34-28	22.43	22.43			
	MW-5	4	OK	OK	NM	17.86	17.86	16.94	0.92	NOT SAMPLED
	MW-6	4	OK	OK	34-28	21.22	21.22			
	MW-7	6	OK	OK	33.42	15.75	15.75			
	MW-8	2	OK	OK	29.71	21.74	21.74			
	MW-9	2	OK	OK	29.31	14.89	14.89			

Notes: Arrive at 1:00 open wells to allow breathing. Measure DTW and a car parked over MW-8 made access extremely difficult. Sampled as described on forms. Bailed 10 gallons product + water (1g/9g) from MW-5. Car over MW-8 prevented sampling. Left site at 6:00. Dropoff samples at Anametrix.

Page ___ of ___ Inv#: ___

Birch Technical Services

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

GROUND-WATER SAMPLING FORM

Well Number: MW-2

Project Number: 10-014
Station Number: BP11109
Date: 10/8/92

Well Type: ⊗Monitor OExtraction O_____

Sampled by: Dan Birch

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) ⊗2" O3" O4" O4.5" O6" O____
Volume Factors: 0.1632 0.3672 0.6528 0.826 1.469 _____

Total Depth of Well (BOW) 30.10
Initial Water Level: 23.73
Total Volume Purged: 4
Time Elapsed: 10

PURGE METHOD:
⊗Honda Pump
⊗Disposable PolyTubing(32 ft)
ODisposable PVC Bailer(s)(____)
OOther_____

Calculated Purge Volume:

30.10 (Total Depth) - 23.73 (Water Level) = 6.37 x .16 (Well Vol. Fac.) = 1.1 x 3 (#of vol. to Purge) = 3.3 (gallons) (Calculated Purge Volume)

Subjective Analysis Prior to Purging

SHEEN, OYes ⊗No
Depth of Product _____(ft)
Emulsion OYes ⊗No

COMMENTS:

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1030
Solution pH 4.00 4 at 70.4
Solution pH 10.00 10 at 70.4
Solution pH 7.00 7 at 70.4
Water Level Meter#: 10337

SAMPLING METHOD

⊗PVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr) 1500

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)
1	1450	75.1	6.91	0.19
2	1455	75.3	6.99	0.22
4	1500	75.2	6.97	0.24

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
X	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

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

GROUND-WATER SAMPLING FORM

Well Number: MW-3

Project Number: 10-014
Station Number: BP11109
Date: 10/8/92

Well Type: ⊗Monitor OExtraction O_____

Sampled by: DAN BIRCL

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) / Volume Factors:

O 2"	O3"	⊗4"	O4.5"	O6"	O____
0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) 31.8 Initial Water Level: 19.06

Total Volume Purged: 25 Time Elapsed: 10

PURGE METHOD:
⊗Honda Pump
ODisposable PolyTubing(33 ft)
ODisposable PVC Bailer(s)(____)
OOther_____

Calculated Purge Volume:

31.8 (Total Depth) - 19.06 (Water Level) = 12.74 x .65 (Well Vol. Fac.) = 8.2 x 3 (#of vol. to Purge) = 25 (gallons) (Calculated Purge Volume)

Subjective Analysis Prior to Purging

SHEEN OYes ⊗No | Depth of Product _____(ft) | Emulsion OYes ⊗No

COMMENTS:

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1030
Solution pH 4.00 4 at 70.4
Solution pH 10.00 10 at 70.4
Solution pH 7.00 7 at 70.4
Water Level Meter#: 10337

SAMPLING METHOD

⊗PVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr): 1625

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)
15	1615	75.1	6.89	1.25
20	1620	74.4	6.83	1.27
25	1625	74.5	6.84	1.31

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
X	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

Birch Technical Services

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

GROUND-WATER SAMPLING FORM

Well Number: MW-4

Project Number: 10-014
Station Number: 11109
Date: 10/8/92

Well Type: ☒Monitor OExtraction O_____

Sampled by: Dan Birch

WELL PURGING

PURGE VOLUME

Casing Diameter (inches)	O 2"	O3"	☒4"	O4.5"	O6"	O____
Volume Factors:	0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) 34.28 Initial Water Level: 22.43

Total Volume Purged: 10 Time Elapsed: 10

PURGE METHOD:
O Honda Pump
ODisposable PolyTubing(____ft)
☒ODisposable PVC Bailer(s)(3)
OOther_____

Calculated Purge Volume:
34.28 (Total Depth) - 22.43 (Water Level) = 11.85 x .65 (Well Vol. Fac.) = 7.7 x 3 (#of vol. to Purge) = 23.1 (gallons) Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN OYes ONo | Depth of Product _____(ft) | Emulsion OYes ONo

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1030
Solution pH 4.00 4 at 70.4
Solution pH 10.00 10 at 70.4
Solution pH 7.00 7 at 70.4
Water Level Meter#: 10337

COMMENTS: Purged dry @ 10 gallons. Allowed to recharge then sampled.

SAMPLING METHOD

☒PVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr) 1717

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)
5	1655	74.9	6.96	0.91
10	1700	74.6	6.91	0.99

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
X	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

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

GROUND-WATER SAMPLING FORM

Well Number: MW-5

Project Number: 10-014
Station Number: 1109
Date: 10/31/92

Well Type: ⊗Monitor OExtraction O_____

Sampled by: DAN BIRCH

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) / Volume Factors:

O 2"	O3"	⊗4"	O4.5"	O6"	O____
0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) _____ Initial Water Level: 17.86

Total Volume Purged: _____ Time Elapsed: _____

PURGE METHOD:
O Honda Pump
ODisposable PolyTubing(____ft)
ODisposable PVC Bailer(s)(____)
OOther_____

Calculated Purge Volume:

_____ - 17.86 = _____ x .65 = _____ x _____ = _____(gallons)

Total Depth | Water Level | Well Vol. Fac. | #of vol. to Purge | Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN OYes ONo | Depth of Product _____(ft) | Emulsion OYes ONo

PARAMETER EQUIPMENT CALIBRATION

pH Meter #:_____ Time:_____
Solution pH 4.00 _____at _____
Solution pH 10.00_____at _____
Solution pH 7.00 _____ at _____
Water Level Meter#:_____

COMMENTS: 0.92' of dark brown product measured on groundwater - MW-5 not sampled. 10 gallons bailed until product was gone.

SAMPLING METHOD

OPVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr) _____

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
	TPH-G/BTEX		VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

Birch Technical Services

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

Project Number: 10-014
Station Number: 11109
Date: 10/8/92

GROUND-WATER SAMPLING FORM

Well Number: MW-6

Well Type: ☒Monitor OExtraction O_____

Sampled by: DAN BIRCH

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) Volume Factors:

O 2"	O3"	☒4"	O4.5"	O6"	O____
0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) 34.28 Initial Water Level: 21.22

Total Volume Purged:_____ Time Elapsed:_____

PURGE METHOD:
O Honda Pump
ODisposable PolyTubing(____ft)
☒Disposable PVC Bailer(s)(3)
OOther_____

Calculated Purge Volume:

34.28 - 21.22 = 13.06 x .65 = 8.5 x 3 = 25.5 (gallons)

Total Depth | Water Level | Well Vol. Fac. | #of vol. to Purge | Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN	Depth of Product	Emulsion
OYes ONo	_____(ft)	OYes ONo

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1030
Solution pH 4.00 4 at 70.4
Solution pH 10.00 10 at 70.4
Solution pH 7.00 7 at 70.4
Water Level Meter#: 10337

COMMENTS:

Duplicate QC-1 was collected from this well. Well dry @ 23 gallons.

SAMPLING METHOD

☒PVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr): 1555

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)
10	1530	74.9	6.71	1.09
20	1537	73.8	6.78	1.15
23	1542	73.6	6.79	1.15
26	1555	73.7	6.81	1.05

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
☒	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

Birch Technical Services

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

GROUND-WATER SAMPLING FORM

Well Number: MW-7

Project Number: 10-014
Station Number: 1109
Date: 10/8/92

Well Type: ⊗Monitor OExtraction O_____

Sampled by: Dan Birch

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) O 2" O3" O4" O4.5" ⊗6" O____
Volume Factors: 0.1632 0.3672 0.6528 0.826 1.469 _____

Total Depth of Well (BOW) 33.12 Initial Water Level: 15.57

Total Volume Purged: 40 Time Elapsed: 60

PURGE METHOD:
⊗Honda Pump
⊗Disposable PolyTubing(35ft)
⊗Disposable PVC Bailer(s)(____)
OOther_____

Calculated Purge Volume:

33.12 - 15.57 = 17.9 x ~~1.5~~ 1.5 = 26.7 x 3 = 80 (gallons)

Total Depth | Water Level | Well Vol. Fac. | #of vol. to Purge | Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN OYes ⊗No | Depth of Product _____(ft) | Emulsion OYes ⊗No

COMMENTS: Parameters stabilized sample after 40 gallons.

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1030
Solution pH 4.00 4 at 70.4
Solution pH 10.00 10 at 70.4
Solution pH 7.00 7 at 70.4
Water Level Meter#: 1033 7

SAMPLING METHOD

⊗PVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr): 1610

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)
10	1515	78.4	7.14	0.92
30	1525	76.1	7.10	0.84
35	1650	75.5	7.09	0.83
38	1600	75.7	7.11	0.84
40	1610	75.5	7.10	0.82

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
X	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

Birch Technical Services

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

GROUND-WATER SAMPLING FORM

Well Number: MW-9

Project Number: 10-014
Station Number: BP11109
Date: 10/8/92

Well Type: XMonitor OExtraction O_____

Sampled by: Dan Birch

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) / Volume Factors:

X2"	O3"	O4"	O4.5"	O6"	O____
0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) 29.31
Initial Water Level: 14.89
Total Volume Purged: 7
Time Elapsed: 20

PURGE METHOD:
X Honda Pump
O Disposable PolyTubing(31 ft)
O Disposable PVC Bailer(s)(____)
O Other_____

Calculated Purge Volume:

29.31 (Total Depth) - 14.89 (Water Level) = 14.42 x .16 (Well Vol. Fac.) = 2.3 x 3 (#of vol. to Purge) = 6.9 (gallons) Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN OYes XNo
Depth of Product _____(ft)
Emulsion OYes XNo

COMMENTS:

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 911 2 Time: 1030
Solution pH 4.00 4 at 70.4
Solution pH 10.00 10 at 70.4
Solution pH 7.00 7 at 70.4
Water Level Meter#: 10332

SAMPLING METHOD

XRVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr) 1530

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)
2	1510	75.7	6.99	0.19
4	1520	74.6	6.90	0.17
7	1530	74.9	6.91	0.19

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
X	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

Birch Technical Services

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

GROUND-WATER SAMPLING FORM

Project Number: 10-014
Station Number: BP11109
Date: 10/8/92

Well Number: QC-1
~~Well~~ SAMPLE Type: OMonitor OExtraction X Duplicate of MW-6

Sampled by: Dan Birch

WELL PURGING

PURGE VOLUME

Casing Diameter (inches)	O 2"	O3"	O4"	O4.5"	O6"	O____
Volume Factors:	0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) _____ Initial Water Level:_____

Total Volume Purged:_____ Time Elapsed:_____

PURGE METHOD:
O Honda Pump
ODisposable PolyTubing(____ft)
ODisposable PVC Bailer(s)(____)
OOther_____

Calculated Purge Volume:

_____ - _____ = _____ x _____ = _____ x _____ = _____(gallons)
Total Depth | Water Level | Well Vol. Fac. | #of vol. to Purge | Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN OYes ONo | Depth of Product _____(ft) | Emulsion OYes ONo

PARAMETER EQUIPMENT CALIBRATION

pH Meter #:_____ Time:_____
Solution pH 4.00 _____at _____
Solution pH 10.00_____at _____
Solution pH 7.00 _____ at _____
Water Level Meter#:_____

COMMENTS:

Duplicate sample of MW-6. Purging, parameter and Sampling data from MW6 applies to this sample.

SAMPLING METHOD

OPVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr) 1550

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
X	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

Birch Technical Services

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

GROUND-WATER SAMPLING FORM

~~Well~~ Number: QC-2

SAMPLE
~~Well~~ Type: OMonitor OExtraction ⊗ TRIP BLANK

Project Number: 10-014
Station Number: BP 11109
Date: 10/8/92

Sampled by: Dan Birch

WELL PURGING

PURGE VOLUME

Casing Diameter (inches)	O 2"	O3"	O4"	O4.5"	O6"	O____
Volume Factors:	0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) _____ Initial Water Level:_____

Total Volume Purged:_____ Time Elapsed:_____

PURGE METHOD:
O Honda Pump
ODisposable PolyTubing(____ft)
ODisposable PVC Bailer(s)(____)
OOther_____

Calculated Purge Volume:

_____ - _____ = _____ x _____ = _____ x _____ = _____(gallons)
Total Depth | Water Level | Well Vol. Fac. | #of vol. to Purge | Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN	Depth of Product	Emulsion
OYes ONo	_____(ft)	OYes ONo

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: NA Time:_____
Solution pH 4.00 _____at _____
Solution pH 10.00_____at _____
Solution pH 7.00 _____ at _____
Water Level Meter#:_____

COMMENTS: Trip blank was supplied by Anametrix. Samples were relabelled QC-2; 1115.

SAMPLING METHOD

OPVC Disposable Bailer
OTeflon Bailer
~~O~~Other: By LAB

Time Sampled (24 hr) 1115

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
X	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

Birch Technical Services

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

GROUND-WATER SAMPLING FORM

Well Number: MW-8

Project Number: 10-014
Station Number: BP11107
Date: 10/3/92

Well Type: XMonitor OExtraction O_____

Sampled by: Dan Birch

WELL PURGING

PURGE VOLUME

Casing Diameter (inches)	X2"	O3"	O4"	O4.5"	O6"	O____
Volume Factors:	0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) 29.71 Initial Water Level:_____

Total Volume Purged:_____ Time Elapsed:_____

PURGE METHOD:
O Honda Pump
ODisposable PolyTubing(____ft)
XDisposable PVC Bailer(s)(4)
OOther_____

Calculated Purge Volume:

29.71 (Total Depth) - _____ (Water Level) = _____ x .16 (Well Vol. Fac.) = _____ x 3 (#of vol. to Purge) = _____(gallons) (Calculated Purge Volume)

Subjective Analysis Prior to Purging

SHEEN OYes XNo | Depth of Product _____(ft) | Emulsion OYes XNo

COMMENTS: Car over well all day long prevented Sampling.

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1030
Solution pH 4.00 4 at 70.4
Solution pH 10.00 10 at 70.4
Solution pH 7.00 7 at 70.4
Water Level Meter#: 10337

SAMPLING METHOD

XPVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr) _____

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp	pH	Cond. (umhos/cm)

	Analysis Required	No. of	Container Type	Preservatives
	EPA 601		VOA's	
X	TPH-G/BTEX	3	VOA's	HCl
	TPH- Diesel		Amber Liter	
	TOG 5520 BF		Amber Liter	H_2NO_3

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD

ANAMETRIX INC
Environmental & Analytical Chemistry

Part of INCHCAPE ENVIRONMENTAL

REPORT

MR. BRADY NAGLE
ALISTO ENGINEERING GROUP
1000 BURNETT AVENUE, SUITE 150
CONCORD, CA 94520

Workorder # : 9210132
Date Received : 10/08/92
Project ID : 10-014
Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9210132- 1	MW-2
9210132- 2	MW-3
9210132- 3	MW-4
9210132- 4	MW-6
9210132- 5	MW-7
9210132- 6	MW-9
9210132- 7	QC-1
9210132- 8	QC-2

This report consists of 6 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Sarah Schoen, Ph.D.
Laboratory Director

10-23-92
Date

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MR. BRADY NAGLE
ALISTO ENGINEERING GROUP
1000 BURNETT AVENUE, SUITE 150
CONCORD, CA 94520

Workorder # : 9210132
Date Received : 10/08/92
Project ID : 10-014
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9210132- 1	MW-2	WATER	10/08/92	TPHg/BTEX
9210132- 2	MW-3	WATER	10/08/92	TPHg/BTEX
9210132- 3	MW-4	WATER	10/08/92	TPHg/BTEX
9210132- 4	MW-6	WATER	10/08/92	TPHg/BTEX
9210132- 5	MW-7	WATER	10/08/92	TPHg/BTEX
9210132- 6	MW-9	WATER	10/08/92	TPHg/BTEX
9210132- 7	QC-1	WATER	10/08/92	TPHg/BTEX
9210132- 8	QC-2	WATER	10/08/92	TPHg/BTEX

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MR. BRADY NAGLE
ALISTO ENGINEERING GROUP
1000 BURNETT AVENUE, SUITE 150
CONCORD, CA 94520

Workorder # : 9210132
Date Received : 10/08/92
Project ID : 10-014
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for these samples.

Cheryl Balmer 10/22/92
Department Supervisor Date

Chemist Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9210132
Matrix : WATER
Date Sampled : 10/08/92

Project Number : 10-014
Date Released : 10/22/92

	Reporting Limit	Sample I.D.# MW-2	Sample I.D.# MW-3	Sample I.D.# MW-4	Sample I.D.# MW-6	Sample I.D.# MW-7
COMPOUNDS	(ug/L)	-01	-02	-03	-04	-05
Benzene	0.5	ND	31	ND	ND	49
Toluene	0.5	ND	ND	2.1	ND	1.4
Ethylbenzene	0.5	ND	25	2.5	ND	13
Total Xylenes	0.5	ND	13	3.2	ND	6.2
TPH as Gasoline	50	ND	1400	270	ND	320
% Surrogate Recovery		81%	113%	101%	85%	105%
Instrument I.D.		HP12	HP12	HP12	HP12	HP12
Date Analyzed		10/14/92	10/14/92	10/14/92	10/14/92	10/14/92
RLMF		1	2	1	1	1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.
RLMF - Reporting Limit Multiplication Factor.

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 53-147%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Analyst 10/22/92 Date

Supervisor 10/22/92 Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9210132 Project Number : 10-014
Matrix : WATER Date Released : 10/22/92
Date Sampled : 10/08/92

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# MW-9 -06	Sample I.D.# QC-1 -07	Sample I.D.# QC-2 -08	Sample I.D.# BO1301E3 BLANK
Benzene	0.5	ND	ND	ND	ND
Toluene	0.5	ND	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND	ND
TPH as Gasoline	50	ND	ND	ND	ND
% Surrogate Recovery		96%	82%	94%	97%
Instrument I.D.		HP12	HP12	HP12	HP12
Date Analyzed		10/14/92	10/14/92	10/14/92	10/13/92
RLMF		1	1	1	1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.
RLMF - Reporting Limit Multiplication Factor.

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 53-147%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Analyst 10/22/92 Date

Supervisor 10/23/92 Date

TOTAL VOLATILE HYDROCARBON MATRIX SPIKE REPORT
EPA METHOD 5030 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 10-014 QC-1
Matrix : WATER
Date Sampled : 10/08/92
Date Analyzed : 10/14/92

Anametrix I.D. : 9210132-07
Analyst : IS
Supervisor : CB
Date Released : 10/22/92
Instrument ID : HP12

COMPOUND	SPIKE AMT (ug/L)	SAMPLE AMT (ug/L)	REC MS (ug/L)	% REC MS	REC MD (ug/L)	% REC MD	RPD	% REC LIMITS
GASOLINE	250	0	240	96%	210	84%	-13%	48-145
P-BFB				90%		81%		53-147

* Limits established by Anametrix, Inc.

TOTAL VOLATILE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 5030 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: LAB CONTROL SAMPLE	Anametrix I.D.	: LCSW1014
Matrix	: WATER	Analyst	: ES
Date Sampled	: N/A	Supervisor	: CB
Date Analyzed	: 10/14/92	Date Released	: 10/22/92
		Instrument I.D.	: HP12

COMPOUND	SPIKE AMT. (ug/L)	REC LCS (ug/L)	%REC LCS	% REC LIMITS
GASOLINE	250	250	100%	56-116
SURROGATE		85%		53-147

* Quality control established by Anametrix, Inc.

ANCHORAGE INC
Environmental & Analytical Chemistry
1961 Concourse Drive, Suite E, San Jose, CA 95131
(408) 432-8192 • Fax (408) 432-8198

21:16 NES 9210132

CHAIN-OF-CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
10-014	BP 11109

Send Report Attention of:	Report Due	Verbal Due
BRADY NAGLE	STD	/ /

	Sample Number	Date	Time	Comp	Matrix	Station Location	Number of Cntnrs	Type of Containers	Type of Analysis: TPH/BTEX	Condition of Samples	Initial
1	MW-2	10/8/92	1500		W	HIGH	3	VOAs	X		
2	MW-3		1625						X		
3	MW-4		1717						X		
4	MW-6		1555						X		
5	MW-7		1610						X		
6	MW-9		1530						X		
7	QC-1		1550						X		
8	QC-2	V	1115		V	V	V	V	X		

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Date/Time	Received by Lab:	Date/Time
[signature]	10/8/92 1915	[signature]	10/8/92 14:45

Remarks:

COMPANY: ALISTO ENGINEERING
ADDRESS:
PHONE: 510 798 4070 FAX: 510 798 4099