BP OIL

BP Oil Company
Aetna Bldg., Suite 360
2868 Prospect Park Drive
Rancho Cordova, California 95670-6020
(916) 631-0733

September 11, 1992

Mr. Brian Oliva
Alameda County Health Agency
80 Swan Way, Room 200
Oakland, California 94621

FILE

RE: BP OIL FACILITY #11109
4280 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA

Dear Mr. Oliva,

Attached please find the Quarterly Groundwater Monitoring and Sampling Report for above referenced facility. The sampling event occurred on July 3, 1992.

Please call me at (206) 394-5246 with any questions regarding this submission.

Respectfully,

Peter J. DeSantis

Peter J. DeSantis SML
Environmental Resources Management

PJD:sml

cc: Mr. Eddy So - RWQCB San Francisco Bay Region
David Baker - Mobil Oil Co.
Site File
BRADY NAGLE - ALISTO ENGINEERING

#102

QUARTERLY GROUNDWATER MONITORING AND SAMPLING REPORT

Prepared for

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

Project No. 10-014

Prepared by

Alisto Engineering Group
1000 Burnett Avenue, Suite 420
Concord, California

August 29, 1992

Ted Morse (for)

Brady Nagle
Project Manager

Al Sevilla, P.E.
Principal

QUARTERLY GROUNDWATER MONITORING AND SAMPLING REPORT

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

Project No. 10-014

August 29, 1992

INTRODUCTION

This report presents the results and findings of the July 3, 1992 quarterly groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Service Station No. 11109, located at 4280 Foothill Boulevard, Oakland, California. A site vicinity map is shown in Figure 1.

FIELD PROCEDURES

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

Prior to 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 the top of casing elevation data were used to calculate the groundwater elevation within each well in reference to Mean Sea Level. The survey data and groundwater elevation measurements collected to date are presented in Table 1.

Prior to sample collection, each well was purged of three casing volumes, while recording field readings of pH, temperature, and electrical conductivity. Ground water samples for laboratory analysis were collected 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 the monitoring and laboratory analyses 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 quarterly sampling event are depicted in Figure 2. Groundwater elevation data, collected by Groundwater Technology, Inc. on

July 14, 1992 for the Chevron site across Foothill Boulevard, was not included in Figure 2 , as the groundwater beneath the Chevron site was approximately seven feet lower than at the BP Oil site. The groundwater elevation data provided to Alisto Engineering Group for the neighboring Chevron site is presented in Appendix B. Isoconcentration maps of total petroleum hydrocarbons as gasoline (TPH-G) and benzene in groundwater samples are shown in Figures 3 and 4. Laboratory reports and the chain of custody record are presented in Appendix C.

SUMMARY OF FINDINGS

The findings of the June 3, 1992 groundwater monitoring and sampling event are summarized below:

- **Free product at a thickness of 0.08 foot was detected in Monitoring Well MW-5.**
- Groundwater elevation data indicate a gradient of approximately 0.06 foot per foot in a general west-northwest direction across the study area.
- Dissolved-phase TPH-G and benzene, toluene, ethylbenzene, and total xylenes (BTEX) constituents were detected in groundwater samples collected from Monitoring Wells MW-3, MW-4, and MW-7. TPH-G and benzene were detected at concentrations of up to 1,200 and 210 parts per billion, respectively. The groundwater sample collected from Monitoring Well MW-4 did not contain TPH-G or BTEX above reported method detection limits with the exception of 0.6 ppb benzene.

TABLE 1 - SUMMARY OF RESULTS OF GROUND WATER 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	---	---	---	---	---	---	---	---	---
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	---	---	ANA
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-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	---	---	---	---	---	---	---	---	---
MW-3	04/08/92	37.74	17.06	0.00	20.68	1100	---	30	4.6	32	11	---	---	ANA
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	---	---	---	---	---	---	---	---	---
MW-3	07/03/92	37.74	17.74	0.00	20.00	1200	---	38	ND<2.5	24	ND<2.5	---	---	ANA

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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-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-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 (f)	01/06/92	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 (f)	04/08/92	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 (f)	07/03/92	36.55	17.67	0.08	18.94	Free product								
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

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4280 FOOTHILL BOULEVARD, OAKLAND, CALIFORNIA

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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-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-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

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4280 FOOTHILL BOULEVARD, OAKLAND, CALIFORNIA

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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-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

ABBREVIATIONS:

TPH-G	Total Petroleum Hydrocarbons as Gasoline
TPH-D	Total Petroleum Hydrocarbons as Diesel
B	Benzene
T	Toluene
E	Ethylbenzene
X	Xylenes
TOG	Total Oil and Grease
HVOC	Halogenated Volatile Organic Compounds
ND	Not detected above reported detection limits
---	Not analyzed/not 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.

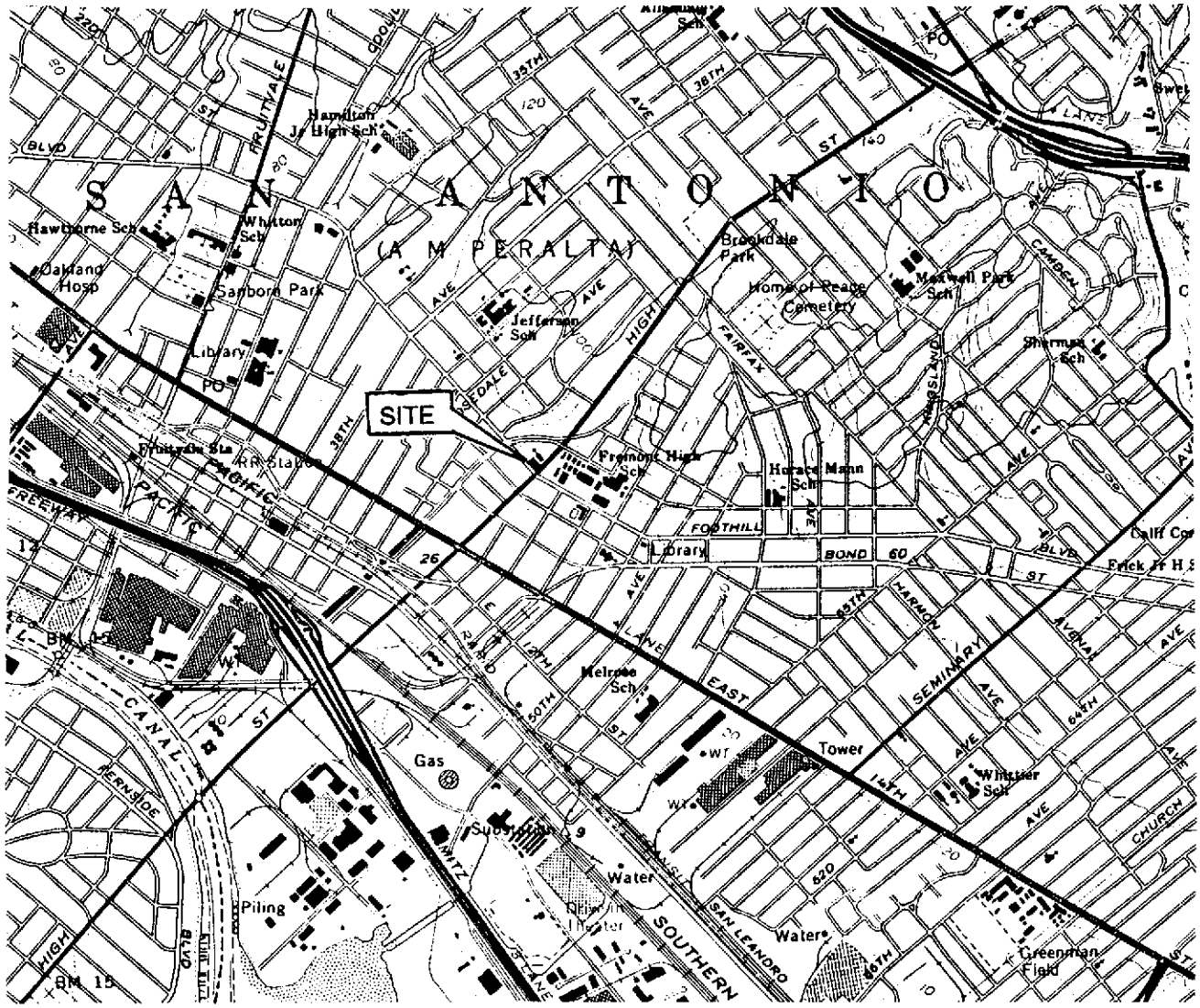
(b) Groundwater elevations in feet above Mean Sea Level.

(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.



N

0 1000 2000

SCALE IN FEET

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

FIGURE 1

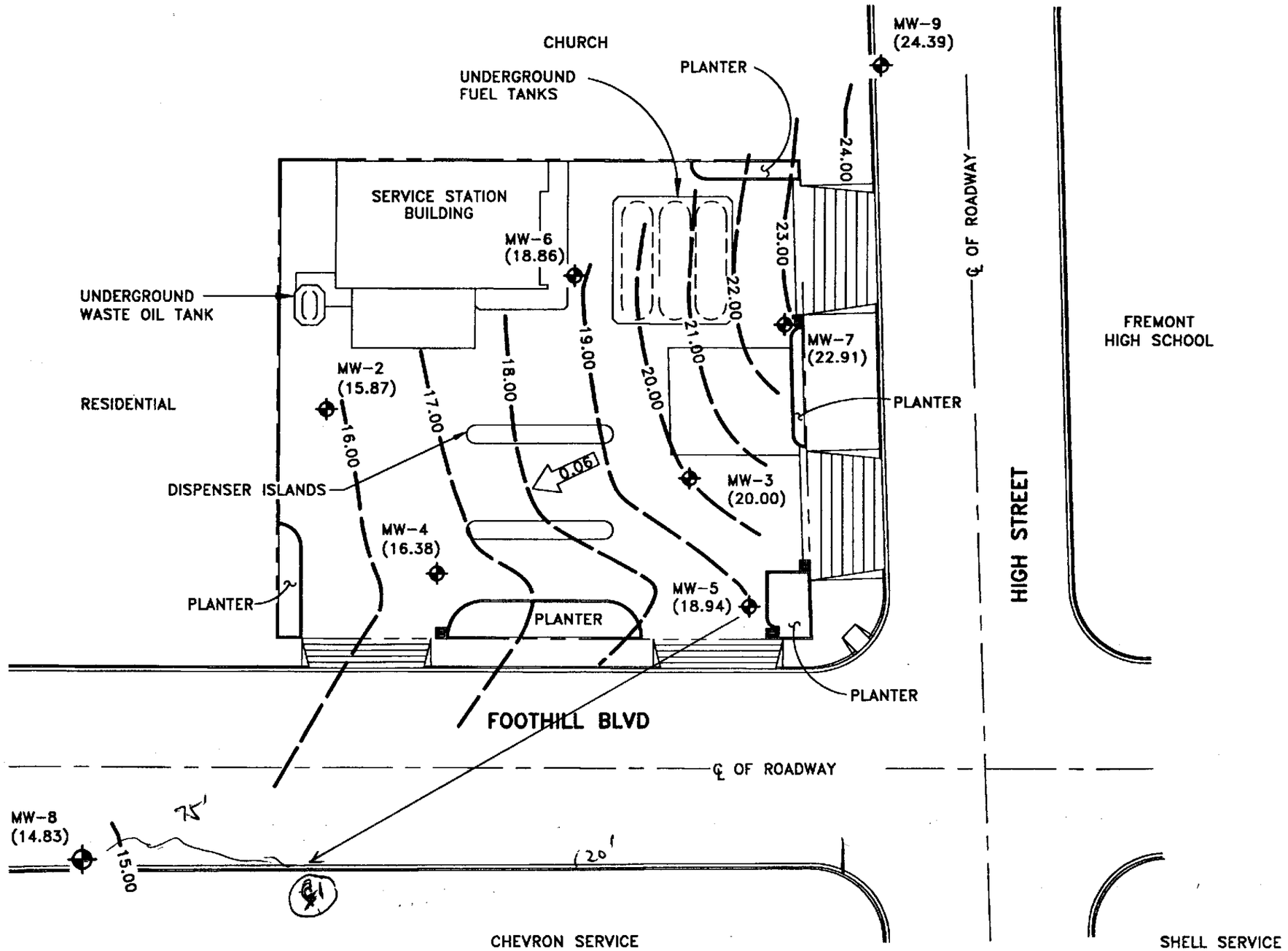
SITE VICINITY MAP

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

ALISTO PROJECT NO. 10-014

ALISTO ENGINEERING GROUP
CONCORD, CALIFORNIA

10014017.DWG 8-24-92 JNB 1:1



N

0 30 60

SCALE IN FEET

LEGEND:

- GROUNDWATER MONITORING WELL
- (24.39) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 20.00 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL – 1.0 FOOT)
- 0.06 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 2

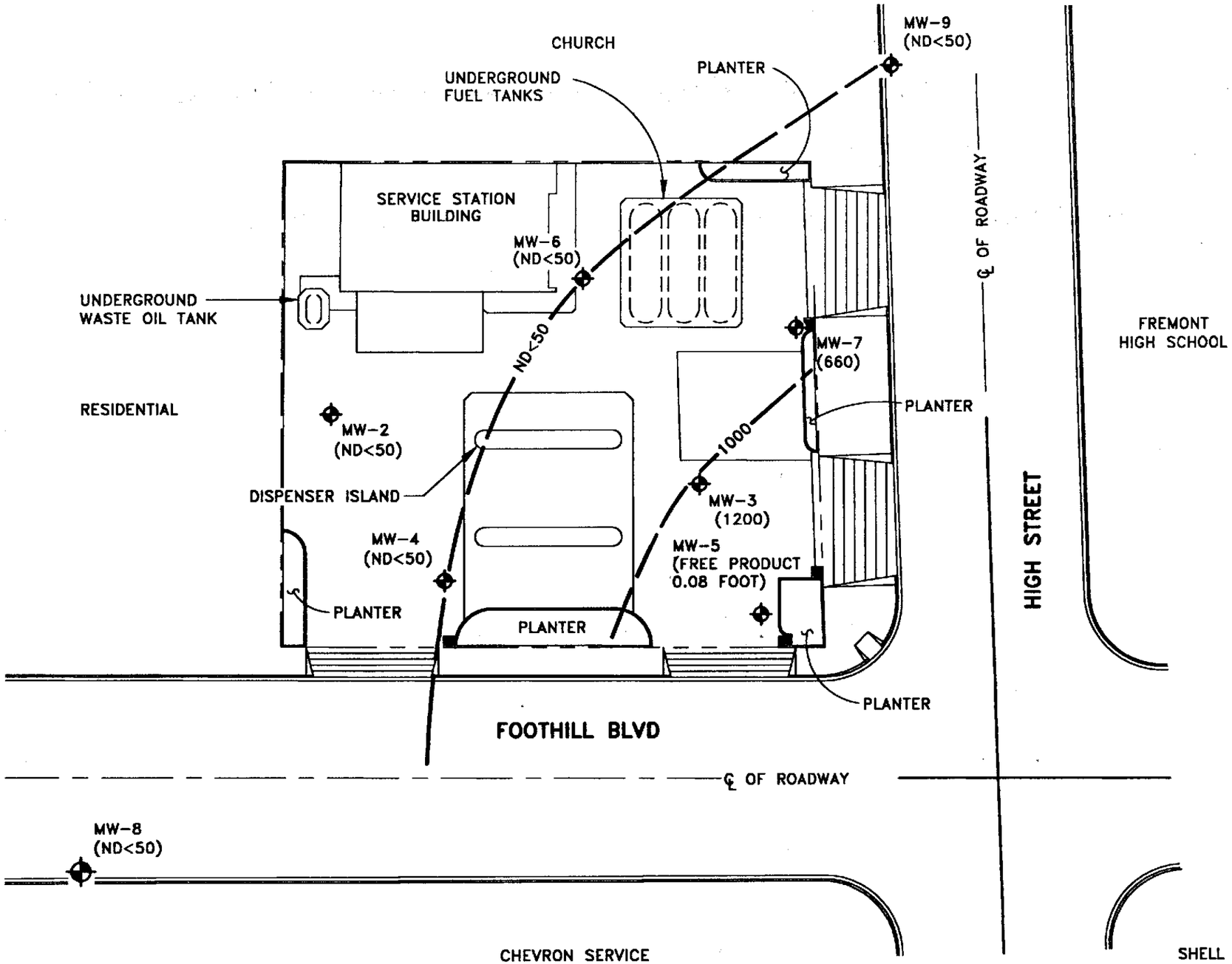
POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP (JULY 3, 1992)

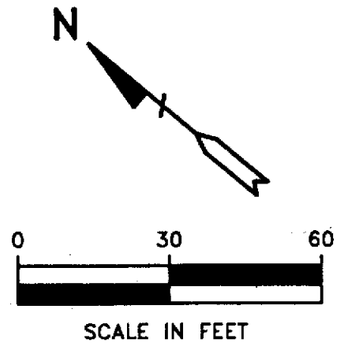
BP OIL SERVICE STATION NO. 11109
4280 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA

PROJECT NO. 10-014

ALISTO ENGINEERING GROUP
CONCORD, CALIFORNIA

81110-2.DWG 7-31-92 JMB 1"=30'





LEGEND:

- ⌖ GROUNDWATER MONITORING WELL
- (660) TOTAL PETROLEUM HYDROCARBONS AS GASOLINE CONCENTRATION IN PARTS PER BILLION
- 1000 TOTAL PETROLEUM HYDROCARBONS AS GASOLINE ISOCONCENTRATION CONTOUR IN PARTS PER BILLION

FIGURE 3

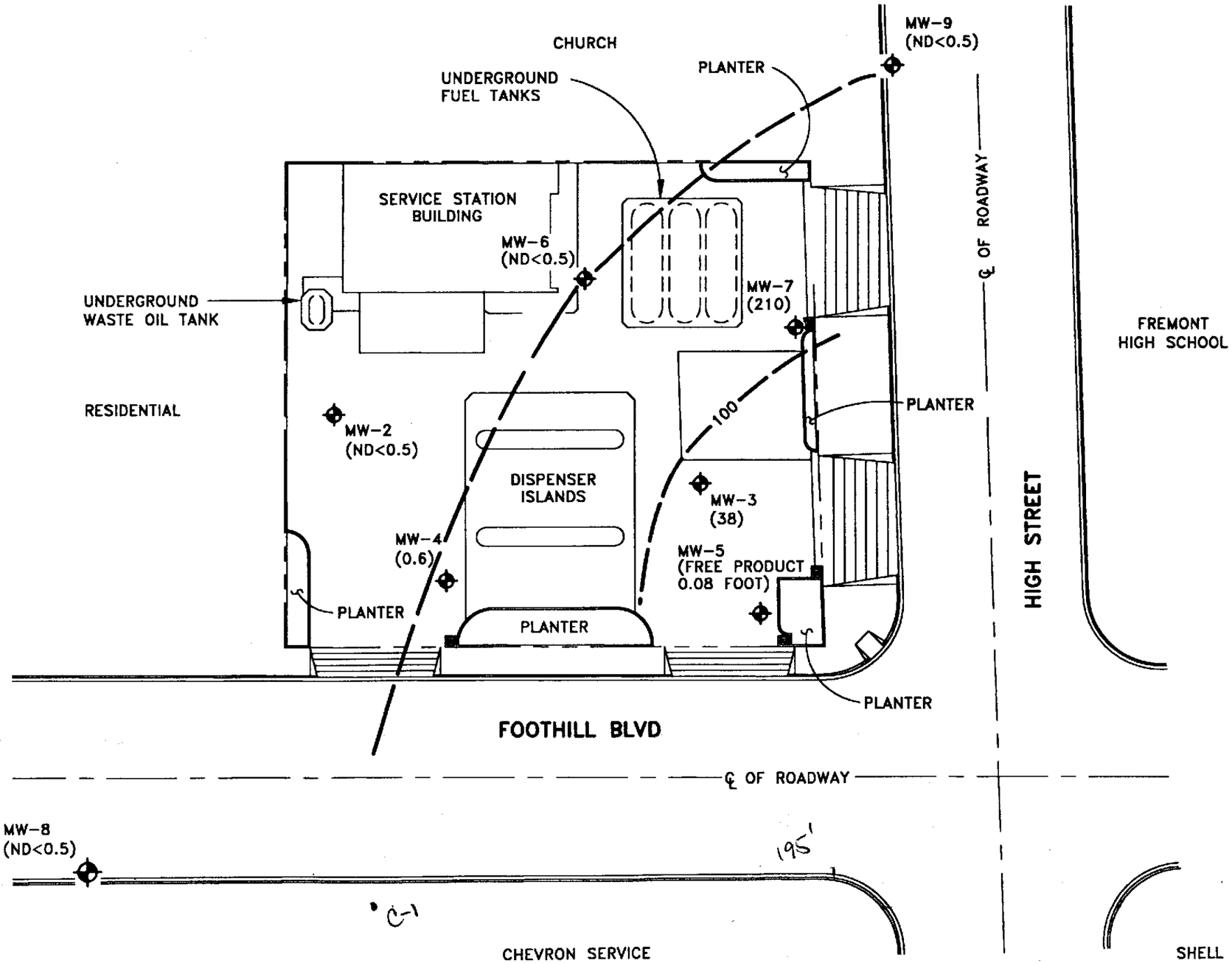
TOTAL PETROLEUM HYDROCARBONS AS GASOLINE ISOCONCENTRATION MAP (JULY 3, 1992)

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

PROJECT NO. 10-014

ALISTO ENGINEERING GROUP
CONCORD, CALIFORNIA

10014010.DWG 5-18-92 JWB 1=360



N

0 30 60

SCALE IN FEET

LEGEND:

- ◈ GROUNDWATER MONITORING WELL
- (210) BENZENE CONCENTRATION IN PARTS PER BILLION
- 100 BENZENE ISOCONCENTRATION CONTOUR IN PARTS PER BILLION

FIGURE 4

BENZENE ISOCONCENTRATION CONTOUR MAP (JULY 3, 1992)

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

PROJECT NO. 10-014

ALISTO ENGINEERING GROUP
CONCORD, CALIFORNIA

10014012.DWG 5-18-92 JMW 1=300

APPENDIX A

WATER SAMPLING FORMS

BIRCH TECHNICAL SERVICES

STATION NO.: BP 11109

PROJECT NO.: 10-005 DATE: 4/29/92

CITY: Oakland 4270 Foothill Blvd

WEATHER: High Clouds Hot DAY: Wed

INV1076

FIELD TECHNICIAN: Dan Birch

EQUIPMENT LIST: 1/3 day Water Guage 1 pr gloves.

TOTAL HOURS: 11 - 130 = 2.5 hrs

EXPLAIN:

Arrive @ site 11:45 am Locate wells and open let aerate for 30'. Note: Remediation @ Chevron (across street/site) not running. Measure DTW in each well cleaning the probe w/ TSP/DI solution from high volume sprayer between wells. outgassing @ MW 5 when opened.

gasoline indicator strip (T) to gauge presence of product

Bail 4 gallons MW-5
liquid w/product
No drums @ site -
Close 5 gallon bucket
w/l.d. Leave at
site.
1:15pm leave site

WELL#	GRADE	TOC	DEPTH TO WATER	DEPTH TO PRODUCT	PRODUCT THICKNESS (FEET)	COMMENT
MW-9		X	13.07'	—	NONE	
MW-7		X	13.59'	—	None	
MW-6		X	18.12'	—	None	
MW-2		X	20.35'	—	none	
MW-4		X	18.56'	—	none	
MW-8		X	18.61'	—	none	
MW-3		X	15.90'	—	none	
MW-5		X	13.75'	13.68'	0.07'	Bailed 4 gallons

DO ANY WELLS NEED REPAIR? Y (N) IF YES, WHICH ONES?

EXPLAIN:

G.W. Monitoring

BIRCH TECHNICAL SERVICES

STATION NO.: BP	PROJECT NO.: 10-005 DATE: 5-7-92
CITY: OAKLAND	WEATHER: high clouds DAY: Thurs
FIELD TECHNICIAN: Dan Birch	
EQUIPMENT LIST: Water gauge,	TOTAL HOURS: 9 - 1030 travel EXPLAIN: 1030 - 1200 @ site 12 - 1230 travel

1030 Arrive at site open wells allowing them to breathe.

1100 Measure DTW and check for product in each well.

1130 0.04' product was detected in MW-5. No bailing was done since there was no drums on site.

1200 Pack up, secure wells, leave site.

WELL#	GRADE TOC	DEPTH TO WATER	DEPTH TO PRODUCT	PRODUCT THICKNESS (FEET)	COMMENTS
MW-7	X	13.95			
MW-9	X	14.43			
MW-6	X	18.52			
MW-2	X	20.84			
MW-4	X	19.10'			
(Per Dan Birch) MW-8 ~~MW-4~~	X	18.41'			
MW-3	X	16.35'			
MW-5	X	16.15'	16.11'	0.04'	

DO ANY WELLS NEED REPAIR? Y (N) IF YES, WHICH ONES?
EXPLAIN:

Birch Technical Services

Field Report / Data Sheet

OGroundwater Sampling OGroundwater Monitoring OWell Development ODrill Support OStockpile Sampling

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

Firm: Alisto	Date: 7/3/92	Station #: BP 11109	Day: M Tu W Th (F)	
Project Number: 10-014	Field Technician: Dan Birch	Address: 4280 Foothill Blvd. Oakland	Weather: Cool/Cloudy	Milage: 72 mi

Equipment List:

- O _____(___)
- O _____(___)
- ~~O~~ Water Guage (1/2)day
- ~~O~~ Parameter Kit(1/2)day
- ~~O~~ Disposable Bailers (11)
- O Plug(s)(___)(___in)
- ~~O~~ Honda Pump (1/2)day
- ~~O~~ Poly Tubing (132 ft)
- ~~O~~ Dolphin Lock(s) (2)
- ~~O~~ Nitrile Gloves (2 pair)

Travel Time: 2 hrs
Time at Site: 2.5 hrs
Total Time: 4.5 hrs

DTWorder	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
3	MW-2	2"	O.K	OK.	30.10'	22.34'	22.34			
5	MW-3	4"	OK	OK	31.80'	17.74'	17.74'			
4	MW-4	4"	No	OK	34.28'	20.71'	20.71'			Replace Lock
8	MW-5	4"	OK	OK	NM	17.67'	17.67'	17.59'	0.08'	
6	MW-6	4"	OK	OK	34.28'	19.71'	19.71'			
2	MW-7	6"	OK	OK	33.42'	14.73'	14.73'			
7	MW-8	2"	No	OK	29.71'	20.35	20.35			Replace Lock
1	MW-9	2"	No	OK	29.31'	13.85'	13.85'			

Notes: Arr @ site 12:30 Round of Water levels in site 5:00pm. Two man team sampled site as shown on G-W sampling forms.

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: BP 11109
Date: 7/3/92

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: 22.34'

Total Volume Purged: 4 gal Time Elapsed: 5 min

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

Calculated Purge Volume:

30.10 (Total Depth) - 22.34 (Water Level) = 7.76 x 0.1632 (Well Vol. Fac.) = 1.266 x 3 (#of vol. to Purge) = 4 gal (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: 1024
Solution pH 4.00 4 at 70.6 °C
Solution pH 10.00 10 at 70.6 °C
Solution pH 7.00 7 at 70.6 °C
Water Level Meter#: 10337

SAMPLING METHOD

⊗PVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr) 1527

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp °C	pH	Cond. (umhos/cm)
2	1522	71.2	6.95	1.36
3	1524	70.8	6.80	1.40
4	1525	70.1	6.53	1.20

	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: BP 11109
Date: 7/3/92

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) 31.80 Initial Water Level: 17.74'

Total Volume Purged: 23 Time Elapsed: 18

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

Calculated Purge Volume:

31.80 (Total Depth) - 17.74 (Water Level) = 14.06 x 0.6528 (Well Vol. Fac.) = 9.18 x 3 (#of vol. to Purge) = 27.5 (gallons) Calculated Purge Volume

Subjective Analysis Prior to Purging

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

COMMENTS: Pumped dry at 23g. allowed to recharge then sampled.

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 911 2 Time: 1024
Solution pH 4.00 4 at 70.6 °C
Solution pH 10.00 10 at 70.6 °C
Solution pH 7.00 7 at 70.6 °C
Water Level Meter#: 10337

SAMPLING METHOD

⊗PVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr) 1550

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp °C	pH	Cond. (umhos/cm)
8	1507	76.1	6.48	1.47
18	1520	76.7	6.35	1.70
23	1525	76.7	6.34	1.67

	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

Project Number: 10-014
Station Number: BP 11109
Date: 7/3/92

GROUND-WATER SAMPLING FORM

Well Number: MW-4

Well Type: ⊗Monitor OExtraction O_____

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) 34.28' Initial Water Level: 20.71'

Total Volume Purged: 15 Time Elapsed: 14

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

Calculated Purge Volume:

34.28' - 20.70' = 13.58 x 0.6528 = 8.86 x 3 = 26.6 (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

COMMENTS: Purged dry at 15 gallons. Allowed to recharge then sampled

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1024
Solution pH 4.00 4 at 70.6 °C
Solution pH 10.00 10 at 70.6 °C
Solution pH 7.00 7 at 70.6 °C
Water Level Meter#: 10337

SAMPLING METHOD

~~⊗~~PVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr): 1700

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp °C	pH	Cond. (umhos/cm)
	1615			
12	1625	68.7	7.16	0.86
15	1629	69.0	6.61	0.81

	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-6

Project Number: 10-014
Station Number: BP 11109
Date: 7/31/92

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) 34.28 Initial Water Level: 19.71'

Total Volume Purged: 29 Time Elapsed: 17

PURGE METHOD:
- ~~⊗~~ Honda Pump
- ~~⊗~~ Disposable PolyTubing(~~3~~ ft)
- ⊗ Disposable PVC Bailer(s)(3)
- O Other_____

Calculated Purge Volume:

34.28 (Total Depth) - 19.71 (Water Level) = 14.57 x 0.6528 (Well Vol. Fac.) = 9.51 x 3 (#of vol. to Purge) = 28.5 (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: 1024

Solution pH 4.00 4 at 70.6 °C
Solution pH 10.00 10 at 70.6 °C
Solution pH 7.00 7 at 70.6 °C
Water Level Meter#: 10337

SAMPLING METHOD

⊗PVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr): 1605

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp °C	pH	Cond. (umhos/cm)
5 gal	1550	70.1	7.03	1.26
10	1554	68.9	6.64	1.31
17	1557	68.7	6.54	1.26
23	1600	69.9	6.53	1.42
29	1607	69.8	6.52	1.41

	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-7

Project Number: 10-014
Station Number: BP 11109
Date: 7/3/92

Well Type: ⊗Monitor OExtraction O_____

Sampled by: Dan Birch

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) / Volume Factors:

O 2"	O3"	O4"	O4.5"	⊗6"	O____
0.1632	0.3672	0.6528	0.826	1.469	_____

Total Depth of Well (BOW) 33.42
Initial Water Level: 14.73
Total Volume Purged: 83
Time Elapsed: 53

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

Calculated Purge Volume:

33.42 (Total Depth) - 14.73 (Water Level) = 18.69 x 1.469 (Well Vol. Fac.) = 27.45 x 3 (#of vol. to Purge) = 82.4 (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: 1024
Solution pH 4.00 4 at 70.6 °C
Solution pH 10.00 10 at 70.6 °C
Solution pH 7.00 7 at 70.6 °C
Water Level Meter#: 10337

SAMPLING METHOD

⊗PVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr): 1500

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp °C	pH	Cond. (umhos/cm)
15	1400	74.8	6.72	1.19
30	1406	75.1	6.55	1.11
50	1435	74.2	6.50	1.11
70	1445	74.3	6.51	1.12
83	1453	74.3	6.51	1.11

	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: BP 11109
Date: 7/31/92

Well Type: XMonitor OExtraction O_____

Sampled by: DAN BIRCH

WELL PURGING

PURGE VOLUME

Casing Diameter (inches)	~~O2"~~	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: 20.35

Total Volume Purged: 5 Time Elapsed: 10

PURGE METHOD:
O Honda Pump
ODisposable PolyTubing(____ft)
X Disposable PVC Bailer(s)(1)
OOther_____

Calculated Purge Volume:
29.71 - 20.35 = 9.36 x .16 = 1.49 x 3 = 4.5 (gallons)
Total Depth | Water Level | Well Vol. Fac. | #of vol. to Purge | Calculated Purge Volume

Subjective Analysis Prior to Purging

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

COMMENTS:

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1024
Solution pH 4.00 4 at 70.6 °C
Solution pH 10.00 10 at 70.6 °C
Solution pH 7.00 7 at 70.6 °C
Water Level Meter#: 10337

SAMPLING METHOD

X PVC Disposable Bailer
OTeflon Bailer
OOther:_____

Time Sampled (24 hr): 1650

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp °C	pH	Cond. (umhos/cm)
2	1635	67.6	6.59	0.81
4	1640	67.1	6.89	0.78
5	1645	67.8	6.99	0.74

	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: 8/31/92

Well Type: XMonitor OExtraction O_____

Sampled by: DAN BIRCH

WELL PURGING

PURGE VOLUME

Casing Diameter (inches) / Volume Factors:

X 2"	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: 13.85

Total Volume Purged: 8

Time Elapsed: 12

PURGE METHOD:
X Honda Pump
X Disposable PolyTubing(32 ft)
O Disposable PVC Bailer(s)(____)
O Other_____

Calculated Purge Volume:

29.31 (Total Depth) - 13.85 (Water Level) = 15.46 x 0.1632 (Well Vol. Fac.) = 2.52 x 3 (#of vol. to Purge) = 7.6 (gallons) Calculated Purge Volume

Subjective Analysis Prior to Purging

SHEEN: X Yes O No
Depth of Product: _____(ft)
Emulsion: O Yes X No

COMMENTS:

PARAMETER EQUIPMENT CALIBRATION

pH Meter #: 9112 Time: 1024
Solution pH 4.00 4 at 20.6 °C
Solution pH 10.00 10 at 20.6 °C
Solution pH 7.00 7 at 20.6 °C
Water Level Meter#: 10337

SAMPLING METHOD

X PVC Disposable Bailer
O Teflon Bailer
O Other:_____

Time Sampled (24 hr): 1435

WELL SAMPLING PARAMETERS

Gallons Removed	Time	Temp °C	pH	Cond. (umhos/cm)
2	1418	73.7	6.91	0.77
4	1422	72.6	6.61	0.78
8	1430	72.4	6.62	0.78

	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

GROUNDWATER ELEVATION DATA PROVIDED TO ALISTO ENGINEERING GROUP FOR THE NEIGHBORING CHEVRON SITE

GROUNDWATER GAUGING FORM

JOB NAME: CHV/ 4625 Foothill Blvd/ Oakland
JOB NUMBER: 020302227.061004
IP#: 1-7
DATE: 7-14-92
MEASURED TO TOC OR GRADE? TOC

WELL I.D.	WELL ELEV TOC	DTW	DTW After Sampling	PT	WATER ELEV.	DTB In ft	WELL DIA.	BAIL VOL.	AMT. BAILED	Product Order Y/ N	COMMENTS Please note if well needs locking cap or street box repair.
C-5	35.50	28.00	28.16			44.8	2	7.6	8	N	
C-8	30.68	39.02	39.06			59.0	2	9.6	10	N	Needs new lock
C-3	35.30	27.87	28.31			39.9	3	12	11	N	Obstruction in well prevented further bailing or sent DBT
C-1	35.42	27.61	28.56			37.8	3	9.7	10	Y	
C-6	32.40	38.89	39.31			55.2	2	7.7	6	Y	dk grey- Black Bio g Very strong odor
C-4	33.48	26.89	31.15			40.4	3	6.2	8	Y	
C-7	32.17	39.77				54.76	2	7.2	8	Y	Strong odor
C-2	35.18	N/A	N/A	N/A		35.03		N/A	N/A	N/A	Pump in well
			/								

APPENDIX C

LABORATORY REPORTS AND CHAIN OF CUSTODY RECORDS

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

REPORT

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

Workorder # : 9207048
Date Received : 07/06/92
Project ID : 10-014
Purchase Order: N/A

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

ANAMETRIX ID	CLIENT SAMPLE ID
9207048- 1	MW-2
9207048- 2	MW-3
9207048- 3	MW-4
9207048- 4	MW-6
9207048- 5	MW-7
9207048- 6	MW-8
9207048- 7	MW-9

This report consists of 5 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.

Larry Kurt for

Sarah Schoen, Ph.D.
Laboratory Director

07-20-92
Date

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

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

Workorder # : 9207048
Date Received : 07/06/92
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
9207048- 1	MW-2	WATER	07/03/92	TPHg/BTEX
9207048- 2	MW-3	WATER	07/03/92	TPHg/BTEX
9207048- 3	MW-4	WATER	07/03/92	TPHg/BTEX
9207048- 4	MW-6	WATER	07/03/92	TPHg/BTEX
9207048- 5	MW-7	WATER	07/03/92	TPHg/BTEX
9207048- 6	MW-8	WATER	07/03/92	TPHg/BTEX
9207048- 7	MW-9	WATER	07/03/92	TPHg/BTEX

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

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

Workorder # : 9207048
Date Received : 07/06/92
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 Barnes 7/16/92
Department Supervisor Date

Luna Shen 7/16/92
Chemist Date

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

Anametrix W.O.: 9207048
Matrix : WATER
Date Sampled : 07/03/92

Project Number : 10-014
Date Released : 07/16/92

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# MW-2 -01	Sample I.D.# MW-3 -02	Sample I.D.# MW-4 -03	Sample I.D.# MW-6 -04	Sample I.D.# MW-7 -05
Benzene	0.5	ND	38	0.6	ND	210
Toluene	0.5	ND	ND	ND	ND	ND
Ethylbenzene	0.5	ND	24	ND	ND	33
Total Xylenes	0.5	ND	ND	ND	ND	8
TPH as Gasoline	50	ND	1200	ND	ND	660
% Surrogate Recovery		114%	94%	111%	71%	103%
Instrument I.D.		HP4	HP4	HP4	HP4	HP4
Date Analyzed		07/10/92	07/11/92	07/10/92	07/10/92	07/13/92
RLMF		1	5	1	1	5

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 — Date 7/20/92

Supervisor — Date 7/20/92

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

Anametrix W.O.: 9207048
Matrix : WATER
Date Sampled : 07/03/92

Project Number : 10-014
Date Released : 07/16/92

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# MW-8 -06	Sample I.D.# MW-9 -07	Sample I.D.# BL1001E2 BLANK	Sample I.D.# BL1301E2 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		111%	110%	113%	107%
Instrument I.D.		HP4	HP4	HP4	HP4
Date Analyzed		07/11/92	07/11/92	07/10/92	07/13/92
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.

Denise Short 7/17/92
Analyst Date

Cheryl Beckner
Supervisor Date

BTEX MATRIX SPIKE REPORT
EPA METHOD 5030 WITH GC/PID
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 10-014 MW-6
Matrix : WATER
Date Sampled : 07/03/92
Date Analyzed : 07/10/92

Anametrix I.D.: 9207048-04
Analyst : IS
Supervisor : CPS
Date Released : 07/16/92
Instrument ID : HP4

COMPOUND	SPIKE AMT. (ug/L)	MS (ug/L)	REC MS	MSD (ug/L)	REC MSD	RPD	%REC LIMITS
Benzene	20	21.0	105%	20.0	100%	-5%	49-159
Toluene	20	19.0	95%	18.0	90%	-5%	53-156
Ethylbenzene	20	19.0	95%	18.0	90%	-5%	54-151
M+P-Xylenes	13.3	11.7	88%	11.0	83%	-6%	56-157
O-Xylene	6.7	7.5	112%	7.2	107%	-4%	58-154
P-BFB			96%		96%		53-147%

* Limits established by Anametrix, Inc.

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

9207048 (18) 20,20 WK

CHAIN-OF-CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
10-014	BP 11109

Send Report Attention of:	Report Due	Verbal Due
BRADY NAGLE	7/20/92	7/20/92

	Sample Number	Date	Time	Comp	Matrix	Station Location	Number of Cntnrs	Type of Containers	Type of Analysis: TPH6 BTEX	Condition of Samples	Initial
(1)	MW-2	7/3/92	1527		W		3	VOA's	X		
(2)	MW-3	"	1550		"		"	"	X		
(3)	MW-4	"	1700		"		"	"	X		
(4)	MW-6	"	1605		"		"	"	X		
(5)	MW-7	"	1500		"		"	"	X		
(6)	MW-8	"	1650		"		"	"	X		
(7)	MW-9	"	1435		"		"	"	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]	7/6/92 2000	[signature]	7/6/92 20:00

Remarks: Please fax a copy of this Chain of custody to Brady

COMPANY: Alisto Engineering Group
ADDRESS:
PHONE : 510 788 4070 FAX : 510 788 4095