



ALISTO ENGINEERING GROUP

Bo-191

March 27, 2002

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Ms. Eva Chu
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Room 250
Alameda, California 94502-6577

10-210-18-001

Subject: Groundwater Monitoring and Sampling Report
Xtra Oil Company Service Station (dba Shell)
1701 Park Street
Alameda, California

Dear Ms. Chu:

On Behalf of Xtra Oil Company, Alisto Engineering Group is pleased to submit this groundwater monitoring and sampling report for the Xtra Oil Company service station (dba Shell), 1701 Park Street, Alameda, California.

Please call if you have questions or comments.

Sincerely,

ALISTO ENGINEERING GROUP

Brady Nagle
Project Manager

Enclosure

cc: Mr. Keith Simas, Xtra Oil Company (with enclosure)
Ms. Ade Fagorala, California Regional Water Quality Control Board, San Francisco Bay
Region (with enclosure)

GROUNDWATER MONITORING AND SAMPLING REPORT

**Xtra Oil Company Service Station (dba Shell)
1701 Park Street
Alameda, California**

Project No. 10-210-18-001

Prepared for:

**Xtra Oil Company
2307 Pacific Avenue
Alameda, California**

Prepared by:

**Alisto Engineering Group
3732 Mt. Diablo Boulevard, Suite 270
Lafayette, California**

March 20, 2002



**Brady Nagle
Project Manager**



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



GROUNDWATER MONITORING AND SAMPLING REPORT

Xtra Oil Company Service Station (dba Shell)
1701 Park Street
Alameda, California

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March 20, 2002

INTRODUCTION

This report presents the results and findings of the February 4, 2002 groundwater monitoring and sampling conducted by Alisto Engineering Group at the Xtra Oil Company service station (dba Shell), 1701 Park Street, Alameda, California. A site vicinity map is shown on Figure 1.

FIELD PROCEDURES

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

Before purging and sampling, the groundwater level in each well was measured from a permanent mark on top of the casing to the nearest 0.01 foot using an electronic sounder. The depth to groundwater and top of casing elevation data were used to calculate the groundwater elevation in each well in reference to mean sea level. The survey data and groundwater elevation measurements collected to date are presented in Table 1.

Before sample collection, each well was purged of three 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 each well. The samples were transferred from the bailer into laboratory-supplied containers. The water sampling field survey forms are presented in Appendix A. Groundwater monitoring was performed concurrently at former Exxon Service Station 7-0104, 1725 Park Street, Alameda, California, the results of which are presented in Table 2.

SAMPLING AND ANALYTICAL RESULTS

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



FINDINGS

The findings of the February 4, 2002 groundwater monitoring and sampling event are as follows:

- Groundwater gradient as interpreted from the monitoring data ranged from 0.007 to 0.028 foot per foot in a general northeasterly direction across the Xtra Oil and former Exxon sites, except at the south eastern portion of the Xtra Oil site, which was in a northwesterly direction.
- Analysis of the samples detected dissolved-phase petroleum hydrocarbons in Monitoring Wells MW-1, MW-2, and MW-4 at concentrations of up to 50000 micrograms per liter (ug/l) total petroleum hydrocarbons as gasoline in Well MW-4 and up to 3600 ug/l benzene in Well MW-2.
- Total petroleum hydrocarbons as diesel was detected in samples from Wells MW-1, MW-2, and MW-4 at concentrations ranging from 1800 to 35000 ug/l.
- Methyl tert-butyl ether (MTBE) was detected in the samples from Wells MW-1 and MW-2 at concentrations of 140 ug/l and 1200 ug/l, respectively.
- Dissolved-phase petroleum hydrocarbons, including MTBE, were not detected in the sample collected from Well MW-3.



TABLE 1 - SUMMARY OF GROUNDWATER SAMPLING
 XTRA OIL COMPANY SERVICE STATION
 1701 PARK STREET, ALAMEDA, CALIFORNIA

ALISTO PROJECT NO. 10-210

WELL ID	DATE OF MONITORING/ SAMPLING	CASING ELEVATION (Feet)	DEPTH TO WATER (a) (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	OTHER SVOCs (ug/l)	NAPHTHALENE (ug/l)	BENZO-PYRENE (ug/l)	DO (ppm)	LAB
MW-1	11/04/94	19.60	8.6	---	10.96	60000	6400	13000	4900	1300	5500	---	---	---	---	---	MCC
QC-1 (c)	11/04/94	---	---	---	---	54000	---	12000	4500	1200	5200	---	---	---	---	---	MCC
MW-1	01/11/95	19.60	8.10	---	13.50	---	---	---	---	---	---	---	---	---	---	---	---
MW-1	02/24/95	19.60	6.57	---	13.03	56000	4400	13000	7000	1400	5100	---	---	---	---	---	MCC
QC-1 (c)	02/24/95	---	---	---	---	43000	---	8900	4600	970	3300	---	---	---	---	---	MCC
MW-1	05/25/95	19.60	6.54	---	13.08	53000	4700	11000	5700	1200	4000	---	---	---	---	4.3	MCC
QC-1 (c)	05/25/95	---	---	---	---	48000	---	11000	5300	1200	3800	---	---	---	---	---	MCC
MW-1	08/30/95	19.60	8.15	---	11.45	14000	3700	5000	1100	3900	103	---	---	---	---	2.8	MCC
QC-1 (c)	08/30/95	---	---	---	---	57000	---	17000	7000	1500	5200	---	---	---	---	---	MCC
MW-1	11/16/95	19.60	8.79	---	10.81	100000	5900	22000	17000	2100	8500	---	---	---	---	---	MCC
QC-1 (c)	11/16/95	---	---	---	---	95000	---	20000	15000	1800	7800	---	---	---	---	---	MCC
MW-1	03/20/96	19.60	6.45	---	13.15	46000	3300	10000	6200	1100	3200	---	---	---	---	---	MCC
QC-1 (c)	03/20/96	---	---	---	---	42000	---	9800	5800	970	3000	---	---	---	---	---	MCC
MW-1	06/13/96	19.60	7.14	---	12.46	44000	5400	9500	5500	1100	4000	19000	---	---	---	---	MCC
QC-1 (c)	06/13/96	---	---	---	---	48000	---	9300	5600	1000	3800	17000	---	---	---	---	MCC
MW-1	09/23/96	19.60	7.58	---	12.04	78000	14000	14000	11000	1600	7100	17000	---	---	---	6.1	MCC
MW-1	12/19/96	19.60	7.08	---	12.52	46000	---	12000	5500	1200	4100	---	---	---	---	---	MCC
MW-1	05/09/97	19.60	7.39	---	12.21	80000	7500	14000	12000	1700	7600	14000	ND	280	ND<2	2.7	MCC/CHR
MW-1	09/11/97	19.60	7.50	---	12.10	100000	7700	19000	19000	2400	11000	ND<2100	---	---	---	7.2	MCC
MW-1	12/15/97	19.60	7.61	---	11.99	45000	3500	11000	5300	1500	5200	13000	---	---	---	6.8	MCC
QC-1 (c)	12/15/97	---	---	---	---	45000	---	11000	5400	1400	5100	14000	---	---	---	---	MCC
MW-1	03/11/98	19.60	5.35	---	14.25	40000	3600	5900	3900	1300	4900	8700	---	---	---	6	MCC
QC-1 (c)	03/11/98	---	---	---	---	43000	---	7200	5000	1400	5300	14000	---	---	---	---	MCC
MW-1	06/23/98	19.60	6.63	---	12.97	44000	3700	5900	6200	1800	6200	870	---	---	---	6.2	MCC
QC-1 (c)	06/23/98	---	---	---	---	47000	---	6000	6400	1800	6300	1000	---	---	---	---	MCC
MW-1	12/01/98	19.60	6.48	---	13.12	57000	---	7400	12000	2100	8200	7200	---	---	---	2.4	MCC
QC-1 (c)	12/01/98	---	---	---	---	57000	---	6800	11000	1900	7500	8300	---	---	---	---	MCC
MW-1	03/30/99	19.60	5.74	---	13.86	67000	6500	5700	9400	2500	9400	3200	---	---	---	2.1	MCC
QC-1 (c)	03/30/99	---	---	---	---	64000	6400	5500	9000	2400	9100	3100	---	---	---	---	MCC
MW-1	08/16/99	19.60	7.02	---	12.58	63000	---	3800	9100	2800	11000	ND<1700	---	---	---	1.3	MCC
QC-1 (c)	08/16/99	---	---	---	---	64000	---	3700	8800	2800	11000	ND<1400	---	---	---	---	MCC
MW-1	12/31/99	19.6	7.45	---	12.15	62000	5100	2900	9400	2700	11000	ND<100	---	---	---	8.3	MCC
QC-1 (c)	12/31/99	---	---	---	---	67000	4900	2900	9700	2800	12000	ND<100	---	---	---	---	MCC
MW-1	03/31/00	19.6	5.85	---	13.75	48000	490	3200	5500	2000	6700	520	---	---	---	7.9	MCC
QC-1 (c)	03/31/00	---	---	---	---	54000	3300	3500	6000	2300	7300	730	---	---	---	---	MCC
MW-1	07/14/00	19.6	7.00	---	12.60	78000	5700	5600	14000	2300	9500	ND<200	---	---	---	3.2	MCC
QC-1 (c)	07/14/00	---	---	---	---	72000	---	4900	14000	2100	9200	ND<200	---	---	---	---	MCC
MW-1	10/04/00	19.6	7.60	---	12.00	65000	2900	3800	11000	2400	8200	ND<100	---	---	---	1.4	MCC
QC-1 (c)	10/04/00	---	---	---	---	68000	---	3900	13000	2400	9300	ND<100	---	---	---	---	MCC
MW-1	12/21/00	19.6	6.91	---	12.89	74000	2500	3800	17000	3400	15000	ND<200	---	---	---	1.3	MCC
QC-1 (c)	12/21/00	---	---	---	---	69000	---	2700	12000	2400	11000	ND<550	---	---	---	---	MCC
MW-1	04/13/01	19.6	6.06	---	13.54	55000	2400	2900	7800	2400	9400	ND<900	---	---	---	0.8	MCC
QC-1 (c)	04/13/01	---	---	---	---	51000	---	2300	6100	2000	7900	ND<350	---	---	---	---	MCC
MW-1	06/27/01	19.6	6.54	---	13.06	80000	3600	2800	13000	2300	10000	ND<250	---	---	---	1.1	MCC
QC-1 (c)	06/27/01	---	---	---	---	76000	---	3100	13000	2300	10000	ND<250	---	---	---	---	MCC
MW-1	09/20/01	19.6	7.08	---	12.52	74000	6600	1600	7700	2500	10000	ND<200	---	---	---	0.8	MCC
QC-1 (c)	09/20/01	---	---	---	---	67000	---	1600	7800	2600	10000	ND<200	---	---	---	---	MCC
MW-1	12/21/01	19.6	5.71	---	13.89	58000	5500	2100	11000	2400	10000	ND<720	---	---	---	1.4	MCC
QC-1 (c)	12/21/01	---	---	---	---	56000	---	2100	11000	2300	10000	ND<620	---	---	---	---	MCC
MW-1	02/04/02	19.6	5.01	---	14.59	6500	1800	74	100	230	1500	140	---	---	---	4.1	MCC
QC-1 (c)	02/04/02	---	---	---	---	8000	---	90	130	270	1800	ND<500	---	---	---	---	MCC

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WELL ID	DATE OF MONITORING/ SAMPLING	CASING ELEVATION (Feet)	DEPTH TO WATER (a) (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	OTHER SVOCs (ug/l)	NAPHTHALENE (ug/l)	BENZO-PYRENE (ug/l)	DO (ppm)	LAB
MW-2	11/04/94	20.31	9.12	0.16	11.31	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	01/11/95	20.31	6.75	---	13.56	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	02/24/95	20.31	7.11	0.18	13.34	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	05/25/95	20.31	7.01	0.01	13.31	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	08/30/95	20.31	8.58	0.12	11.82	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	11/16/95	20.31	9.07	0.01	11.25	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	03/20/96	20.31	6.79	0.01	13.53	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	06/13/96	20.31	7.41	0.01	12.91	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	09/23/96	20.31	7.83	0.01	12.49	30000	19000	4600	180	1500	4100	2600	---	---	---	5.5	MCC
QC-1 (c)	09/23/96	---	---	---	---	33000	---	4700	170	1600	3900	2400	---	---	---	---	MCC
MW-2	12/19/96	20.31	7.37	0.01	12.95	29000	---	1800	240	1400	5400	---	(d)	420	ND<10	---	MCC
QC-1 (c)	12/19/96	---	---	---	---	29000	---	580	210	1300	5100	---	---	---	---	---	MCC
MW-2	05/09/97	20.31	6.11	0.21	14.36	34000	6700000	4600	260	1500	4300	1600	---	---	---	3.7	MCC
MW-2	09/11/97	20.31	7.70	0.03	12.63	44000	1200000	3900	250	2400	7400	ND<610	---	---	---	6.5	MCC
QC-1 (c)	09/11/97	---	---	---	---	47000	1100000	4000	420	2700	8300	920	---	---	---	---	MCC
MW-2	12/15/97	20.31	7.87	0.03	12.46	32000	68000	4600	130	2200	5400	ND<470	---	---	---	6	MCC
MW-2	03/11/98	20.31	5.61	0.18	14.84	44000	3800	5200	220	2000	5000	1100	---	---	---	6.2	MCC
MW-2	06/23/98	20.31	6.74	0.02	13.59	75000	570000	5900	390	3100	8300	8400	---	---	---	6.3	MCC
MW-2	12/01/98	20.31	7.30	---	13.01	36000	---	3800	73	1500	3900	2000	---	---	---	1.9	MCC
MW-2	03/30/99	20.31	6.51	0.13	13.90	23000	23000	5000	100	610	870	21000	---	---	---	1.7	MCC
MW-2	08/16/99	20.31	8.04	0.21	12.43	30000	---	5200	67	1100	1800	6000	---	---	---	2.6	MCC
MW-2	12/31/99	20.31	8.20	0.01	12.12	43000	340000	7600	97	1400	2500	4300	---	---	---	9.0	MCC
MW-2	03/31/00	20.31	8.29	0.01	14.03	26000	200000	4000	58	1100	1500	13000	---	---	---	8.1	MCC
MW-2	07/14/00	20.31	8.02	---	12.29	35000	170000	5000	76	1100	2500	4900	---	---	---	3.9	MCC
MW-2	10/04/00	20.31	8.62	---	11.69	22000	67000	4700	97	1300	1000	1900	---	---	---	1.8	MCC
MW-2	12/21/00	20.31	7.70	---	12.61	23000	16000	7500	65	770	490	8600	---	220	ND<10	0.6	MCC
MW-2	04/13/01	20.31	7.05	---	13.26	25000	21000	6400	79	790	670	8300	---	---	---	1.1	MCC
MW-2	06/27/01	20.31	7.50	---	12.81	34000	10000	5400	100	520	370	6800	---	---	---	0.7	MCC
MW-2	09/20/01	20.31	8.10	---	12.21	28000	64000	4600	78	670	500	2000	---	---	---	0.4	MCC
MW-2	12/21/01	20.31	6.66	---	13.65	30000	18000	3000	52	1700	970	ND<100	---	---	---	0.9	MCC
MW-2	02/04/02	20.31	6.75	---	13.56	17000	35000	3600	ND<50	960	500	1200	---	---	---	1.3	MCC
MW-3	11/04/94	20.57	8.92	---	11.65	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	MCC
MW-3	01/11/95	20.57	5.67	---	14.90	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	02/24/95	20.57	6.11	---	14.46	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	MCC
MW-3	05/25/95	20.57	6.24	---	14.33	91	ND<50	28.0	12.0	2.1	6.5	---	---	---	---	---	MCC
MW-3	08/30/95	20.57	8.27	---	12.30	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	4.6	MCC
MW-3	11/16/95	20.57	8.82	---	11.75	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	MCC
MW-3	03/20/96	20.57	5.44	---	15.13	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	MCC
MW-3	06/13/96	20.57	6.17	---	14.40	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	---	---	---	---	MCC
MW-3	09/23/96	20.57	6.57	---	14.00	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	---	---	---	4.9	MCC
MW-3	12/19/96	20.57	6.59	---	13.98	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	MCC
MW-3	05/09/97	20.57	7.00	---	13.57	ND<50	59	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	---	---	---	3.3	MCC
MW-3	09/11/97	20.57	6.92	---	13.65	ND<50	82	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	---	---	---	7	MCC
MW-3	12/15/97	20.57	7.03	---	13.54	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	---	---	---	6.5	MCC
MW-3	03/11/98	20.57	4.71	---	15.86	ND<50	ND<50	ND<0.5	1.8	0.6	3.1	ND<5.0	---	---	---	6.1	MCC
MW-3	06/23/98	20.57	6.33	---	14.24	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	---	---	---	5.7	MCC
MW-3	12/01/98	20.57	6.74	---	13.83	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	---	---	---	4	MCC
MW-3	03/30/99	20.57	5.68	---	14.89	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	---	---	---	4.6	MCC
MW-3	08/16/99	20.57	7.67	---	12.90	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	---	---	---	2.7	MCC
MW-3	12/31/99	20.57	8.07	---	12.50	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	---	---	---	9.0	MCC
MW-3	03/31/00	20.57	5.59	---	14.98	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	---	---	---	2.8	MCC
MW-3	07/14/00	20.57	7.84	---	12.93	68	ND<50	0.89	1.7	2.1	9.5	ND<5.0	---	---	---	2.1	MCC
MW-3	10/04/00	20.57	8.34	---	12.23	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	---	---	---	2.0	MCC
MW-3	12/21/00	20.57	7.00	---	13.57	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	---	---	---	1.4	MCC
MW-3	04/13/01	20.57	6.38	---	14.19	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	---	---	---	1.3	MCC
MW-3	06/27/01	20.57	7.37	---	13.20	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	---	---	---	1.9	MCC
MW-3	09/20/01	20.57	8.25	---	12.32	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	---	---	---	2.1	MCC
MW-3	12/21/01	20.57	5.72	---	14.85	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	---	---	---	2.9	MCC
MW-3	02/04/02	20.57	5.85	---	14.72	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	---	---	---	4.1	MCC

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1701 PARK STREET, ALAMEDA, CALIFORNIA

ALISTO PROJECT NO. 10-210

WELL ID	DATE OF MONITORING/ SAMPLING	CASING ELEVATION (Feet)	DEPTH TO WATER (a) (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	OTHER SVOCs (ug/l)	NAPHTHALENE (ug/l)	BENZO-PYRENE (ug/l)	DO (ppm)	LAB
MW-4	05/09/97	19.69	7.17	---	12.52	31000	15000	540	1300	1000	4500	1900	ND	2.1	ND<2	3.1	MCC/CHR
MW-4	09/11/97	19.69	7.71	---	11.98	40000	6500	2000	3100	1700	7700	3400	---	---	---	6.4	MCC
MW-4	12/15/97	19.69	7.87	---	11.82	14000	2100	910	690	390	2700	1700	---	---	---	6	MCC
MW-4	03/11/98	19.69	3.51	---	16.18	2800	780	68	94	72	430	140	---	---	---	5.5	MCC
MW-4	06/23/98	19.69	5.21	---	14.48	15000	2800	240	630	720	2700	370	---	---	---	5.4	MCC
MW-4	12/01/98	19.69	6.45	---	13.24	21000	---	580	1000	530	3800	1700	---	---	---	4.4	MCC
MW-4	03/30/99	19.69	5.41	---	14.28	41000	3600	3100	3400	1700	6700	5700	---	---	---	4.6	MCC
MW-4	08/16/99	19.69	7.35	---	12.34	24000	---	4600	940	1200	2700	9700	---	---	---	3.4	MCC
MW-4	12/31/99	19.69	7.71	---	11.98	14000	2000	510	630	600	3100	3500	---	---	---	10.1	MCC
MW-4	03/31/00	19.69	5.22	---	14.47	14000	1400	470	480	580	2200	2000	---	---	---	6.8	MCC
MW-4	07/14/00	19.69	7.31	---	12.38	37000	4300	770	1500	1800	7200	1700	---	---	---	3.3	MCC
MW-4	10/04/00	19.69	7.11	---	12.58	47000	3200	870	2000	2600	9800	ND<1500	---	---	---	1.7	MCC
MW-4	12/21/00	19.69	6.86	---	12.83	13000	1800	370	410	460	2300	1500	---	88	ND<10	0.6	MCC
MW-4	04/13/01	19.69	6.02	---	13.67	20000	2800	710	640	620	2900	2300	---	---	---	1.0	MCC
MW-4	06/27/01	19.69	6.72	---	12.97	23000	2100	510	1100	1100	4300	1400	---	---	---	1.0	MCC
MW-4	09/20/01	19.69	7.30	---	12.39	36000	4400	480	1300	1700	6700	1000	---	---	---	2.0	MCC
MW-4	12/21/01	19.69	4.55	---	15.14	11000	5800	130	250	480	2400	ND<320	---	---	---	1.6	MCC
MW-4	02/04/02	19.69	5.82	---	13.87	50000	12000	3000	8100	1900	7600	ND<500	---	---	---	2.0	MCC
QC-2 (e)	11/04/94	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	MCC
QC-2 (e)	02/24/95	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	MCC
QC-2 (e)	05/25/95	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	MCC
QC-2 (e)	08/30/95	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	MCC
QC-2 (e)	11/16/95	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	MCC
QC-2 (e)	03/20/96	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	MCC
QC-2 (e)	06/13/96	---	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	MCC

ABBREVIATIONS:

TPH-G Total petroleum hydrocarbons as gasoline using EPA Methods 5030/8015
 TPH-D Total petroleum hydrocarbons as diesel using EPA Methods 3510/8015
 B Benzene using EPA Methods 5030/8020
 T Toluene using EPA Methods 5030/8020
 E Ethylbenzene using EPA Methods 5030/8020
 X Total xylenes using EPA Methods 5030/8020
 MTBE Methyl tert butyl ether using EPA Methods 5030/8020
 SVOCs Semivolatile organic compounds using EPA Method 8270
 DO Dissolved oxygen
 ug/l Micrograms per liter
 ppm Parts per million
 --- Not analyzed/applicable/measurable
 ND Not detected above reported detection limit
 MCC McCampbell Analytical, Inc.
 CHR Chromalab, Inc.

NOTES:

(a) Top of casing surveyed relative to mean sea level.
 (b) Groundwater elevations expressed in feet above mean sea level, and adjusted assuming a specific gravity of 0.75 for free product.
 (c) Blind duplicate.
 (d) Other SVOCs detected at concentrations of 200 ug/l 2-methylnaphthalene and 14 ug/l phenanthrene.
 (e) Travel blank.

TABLE 2 - SUMMARY OF GROUNDWATER SAMPLING
 FORMER EXXON SERVICE STATION 7-0104
 1725 PARK STREET, ALAMEDA, CALIFORNIA

ALISTO PROJECT NO. 10-210

WELL ID	DATE OF MONITORING/ SAMPLING	CASING ELEVATION (Feet)	(a)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (Feet)	(b)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	LAB
MW-1	02/04/02	17.29		5.00	12.29		75.0	52.0	0.70	ND<0.50	0.50	ND<0.50	67.1	TAI
MW-2	02/04/02	16.39		4.71	11.68		122.0	69.0	31.4	5.40	9.10	10.4	7.10	TAI
MW-3	02/04/02	17.02		4.59	12.43		8830	402	2300	166	150	158	1420	TAI
MW-4	02/04/02	17.29		4.35	12.94		1250	774	124	4.40	46.7	43.5	46.1	TAI
MW-5	02/04/02	16.64		4.69	11.95		4380	976	1440	38.0	84.0	50.0	620	TAI
MW-6	02/04/02	17.31		4.24	13.07		14800	168	425	120	1480	4030	545	TAI
MW-7	02/04/02	17.06		3.81	13.25		928	88.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	610	TAI
MW-8	02/04/02	(c) 16.24		---	---		---	---	---	---	---	---	---	---
MW-9	02/04/02	15.56		4.77	10.79		ND<50.0	ND<50.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	0.50	TAI
MW-11	02/04/02	17.98		5.14	12.84		37800	2430	3340	3550	1450	6480	1910	TAI
MW-12	02/04/02	(c) 16.15		---	---		---	---	---	---	---	---	---	---

ABBREVIATIONS:

TPH-G Total petroleum hydrocarbons as gasoline using EPA Methods 8015m/5030
 TPH-D Total petroleum hydrocarbons as diesel using EPA Methods 8015B/3510
 B Benzene using EPA Methods 8121B
 T Toluene using EPA Methods 8121B
 E Ethylbenzene using EPA Methods 8121B
 X Total xylenes using EPA Methods 8121B
 MTBE Methyl tert butyl ether using EPA Methods 8121B
 ug/l Micrograms per liter
 --- Not analyzed/applicable/measurable
 ND Not detected above reported detection limit
 TAI Test America Incorporated

NOTES:

(a) Top of casing surveyed relative to mean sea level.
 (b) Groundwater elevations expressed in feet above mean sea level.
 (c) Well inaccessible



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



QUADRANGLE LOCATION

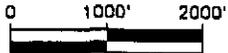


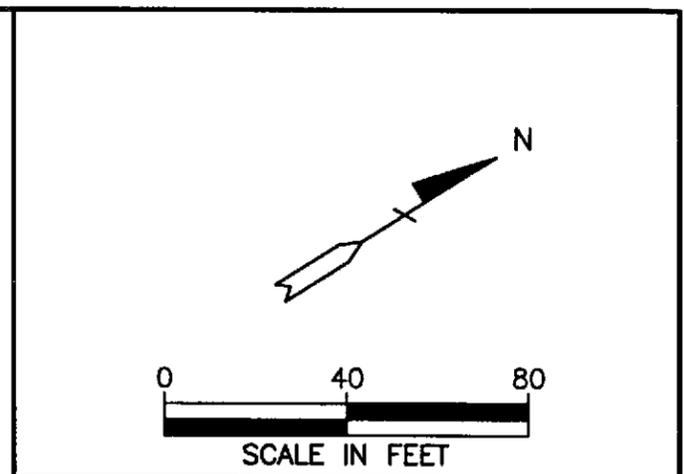
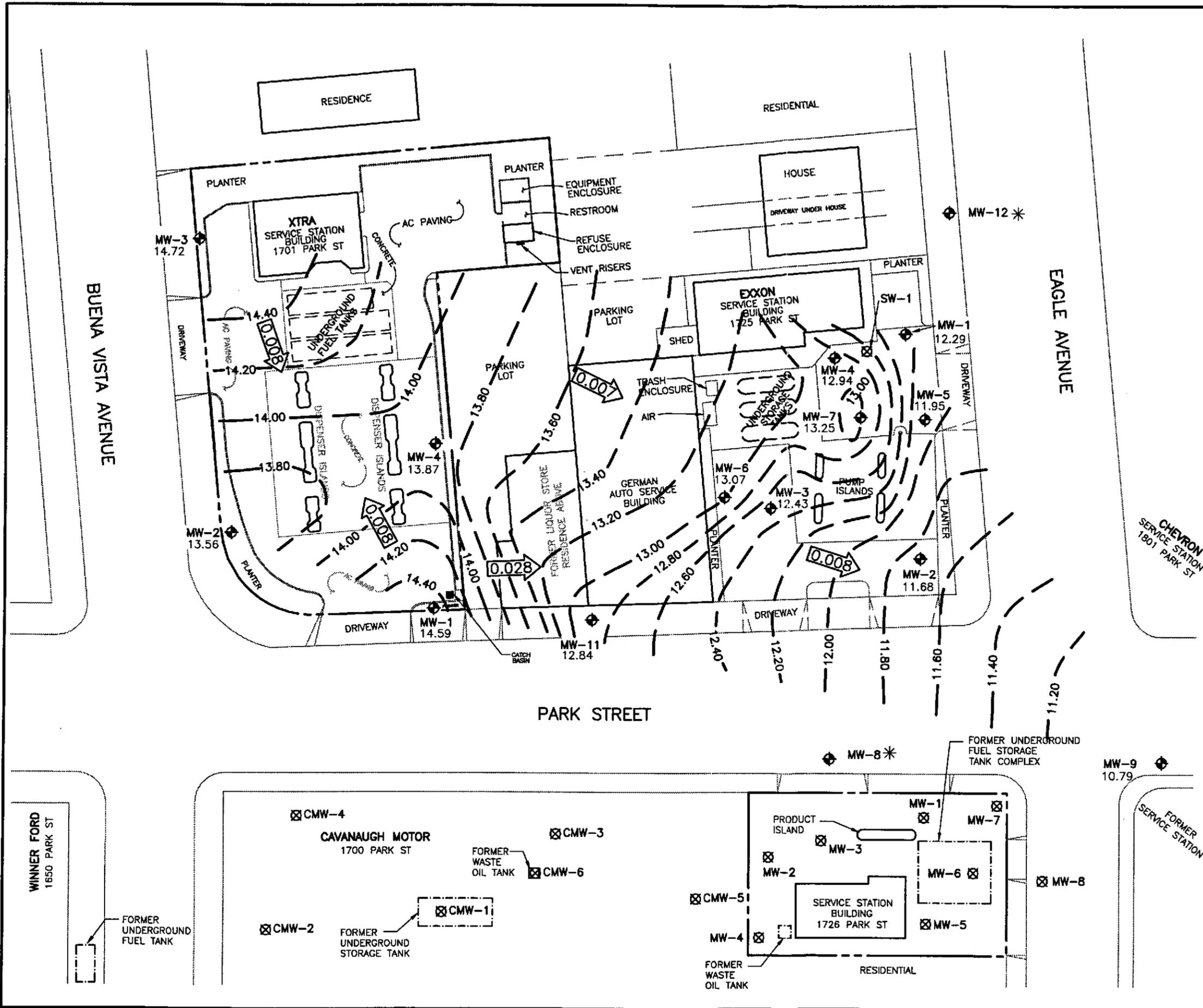
FIGURE 1
SITE VICINITY MAP

XTRA OIL COMPANY SERVICE STATION
 1701 PARK STREET
 ALAMEDA, CALIFORNIA

PROJECT NO. 10-210



ALISTO ENGINEERING GROUP
 WALNUT CREEK, CALIFORNIA



- LEGEND**
- ◆ GROUNDWATER MONITORING WELL
 - ⊗ DESTROYED WELL
 - PROPERTY LINE
 - 12.29 GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
 - 13.20 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL-0.20 FOOT)
 - ←0.008→ CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT
 - * INACCESSIBLE

NOTE:
 Potentiometric groundwater elevation contours were generated with Quicksurf using the Kriging method with a piece-wise variogram on a triangulated grid surface.

FIGURE 2
POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP
FEBRUARY 4, 2002
 XTRA OIL COMPANY SERVICE STATION
 1701 PARK STREET
 ALAMEDA, CALIFORNIA
 PROJECT NO. 10-210

APPENDIX A
WATER SAMPLING FIELD SURVEY FORMS

ALISTO

ENGINEERING GROUP

Field Report / Sampling Data Sheet

3732 MT. DIABLO BOULEVARD, SUITE 270
LAFAYETTE CA 94598 (925) 962-6970 FAX 962-6971

Project No. 10-210-18-001 Date: 2-4-02
Address 1701 Park Street Day: (M) T W T H F
Contract No. n/a City: Alameda
Station No. XTRA Sampler: _____

DEPTH TO GROUNDWATER SUMMARY

WELL ID	SAMPLE ID	WELL DIAM	TOTAL DEPTH	DEPTH TO WATER	PRODUCT THICKNESS	TIME MONITORED	COMMENTS:
MW-1			19	5.01			
MW-2			19.0	6.75			
MW-3			19.0	5.85			
MW-4			19	5.82			

FIELD INSTRUMENT CALIBRATION DATA
 pH METER Hanna 4.00 X 7.00 X 10.00 X TEMPERATURE COMPENSATED Y N Auto-CAL TIME 1300 WEATHER _____
 D.O. METER _____ ZERO d.O. SOLUTION _____ BAROMETRIC PRESSURE _____ TEMP _____
 CONDUCTIVITY METER 10,000 TURBIDITY METER _____ 5.0 NTU _____ OTHER _____
 LEAK DETECTOR: _____ ALARM MODE _____ NON ALARM MODE _____

Well ID	Depth to Water	Diam	Cap/Lock	Product Det	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.	
MW3	5.85	2	1/2"		Y (N)	2	1351	16.9	6.79	1366	4.12	<input type="radio"/> EPA 601 _____
Total Depth - Water Level= <u>19.8 - 5.85 = 14</u>						4	1356	16.5	6.77	1372		<input checked="" type="checkbox"/> TPH-G/BTEX _____
x Well Vol. Factor= _____ x#vol. to Purge= _____ PurgeVol. <u>7</u>						6	1400	16.6	6.75	1375		<input checked="" type="checkbox"/> TPH Diesel _____
Purge Method: <input type="radio"/> Surface Pump <input type="radio"/> Disp. Tube <input type="radio"/> Winch <input checked="" type="radio"/> Disp. Bailer(s) <u>2</u> <input type="radio"/> Sys Port												<input type="radio"/> TOG 5520 _____
Comments:											TIME/SAMPLE ID	
											MW3 / 1400	

ALISTO

Field Report / Sampling Data Sheet

2, 4, 02

ENGINEERING GROUP

3732 MT. DIABLO BOULEVARD, SUITE 270
LAFAYETTE CA 94598 (925) 962-6970 FAX 962-6971

Project No. 10-210-18-001
Address 1701 Park Street
Contract No.
Station No. XTRA

Date: _____
Day: M T W T H F
City: Alameda

Well ID	Depth to Water	Diam	Cap/Lock	Product Det	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
MW2	6.75	2			(Y) N	2	1414	17.9	6.96	1.17	1.12
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge=		PurgeVol.		
19 - 6.75 = 12.25						x.16	x 3 = 6				
						4	1421	18.2	6.97	1.15	1.46
						6	1430	18.4	6.97	1.15	1.31

- EPA 601
- TPH-G/BTEX
- TPH Diesel
- TOG 5520

Purge Method: Surface Pump Disp. Tube Winch Disp. Bailer(s) 2 Sys Port

Comments: _____

TIME/SAMPLE ID
MW-2 / 1430

Well ID	Depth to Water	Diam	Cap/Lock	Product Det	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
MW4	5.82	2			(Y) N	2	1442	17.8	7.11	1.502	2.23
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge=		PurgeVol.		
19 - 5.8 = 13.2						x.16	x 3 = 6				
						4	1451	17.4	7.13	1.510	2.11
						6	1500	17.2	7.14	1.511	2.00

- EPA 601
- TPH-G/BTEX
- TPH Diesel
- TOG 5520

Purge Method: Surface Pump Disp. Tube Winch Disp. Bailer(s) 2 Sys Port

Comments: _____

TIME/SAMPLE ID
MW4 / 1500

Well ID	Depth to Water	Diam	Cap/Lock	Product Det	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
MW-1	5.01	2			(Y) N	2	1515	15.2	7.11	1.351	4.54
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge=		PurgeVol.		
19 -						x.16	x 3 = 6				
						4	1519	15.0	7.04	1.349	4.21
						6	1530	15.3	7.03	1.317	4.11

- EPA 601
- TPH-G/BTEX
- TPH Diesel
- TOG 5520

Purge Method: Surface Pump Disp. Tube Winch Disp. Bailer(s) ___ Sys Port

Comments: _____

TIME/SAMPLE ID
MW-1 / 1530

for UOAS only Q-L-1 / 1535

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD



McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

Alisto Engineering Group 3732 Mt. Diablo Blvd. Ste 270 Lafayette, CA 94549	Client Project ID: #10-210-18-001; Groundwater Sampling	Date Sampled: 02/04/02
		Date Received: 02/06/02
	Client Contact: Brady Nagle	Date Extracted: 02/06/02
	Client P.O:	Date Analyzed: 02/06/02

02/13/02

Dear Brady:

Enclosed are:

- 1). the results of 5 samples from your #10-210-18-001; Groundwater Sampling project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Edward Hamilton, Lab Director



McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

Alisto Engineering Group 3732 Mt. Diablo Blvd. Ste 270 Lafayette, CA 94549	Client Project ID: #10-210-18-001; Groundwater Sampling	Date Sampled: 02/04/02
	Client Contact: Brady Nagle	Date Received: 02/06/02
	Client P.O:	Date Extracted: 02/06-02/07/02
		Date Analyzed: 02/06-02/07/02

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with Methyl tert-Butyl Ether* & BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g) ⁺	MTBE	Benzene	Toluene	Ethyl- benzene	Xylenes	% Recovery Surrogate
89673	MW-1	W	6500,a	140	74	100	230	1500	102
89674	MW-2	W	17,000,a,h	1200	3600	ND<50	960	500	104
89675	MW-3	W	ND	ND	ND	ND	ND	ND	104
89676	MW-4	W	50,000,a	ND<500	3000	8100	1900	7600	103
89677	QC-1	W	8000,a,h	ND<500	90	130	270	1800	101
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W		50 ug/L	5.0	0.5	0.5	0.5	0.5	
	S		1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP and SPLP extracts in ug/L

* cluttered chromatogram; sample peak coelutes with surrogate peak

*The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment; j) no recognizable pattern.

 Edward Hamilton, Lab Director



McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

Alisto Engineering Group 3732 Mt. Diablo Blvd. Ste 270 Lafayette, CA 94549	Client Project ID: #10-210-18-001; Groundwater Sampling	Date Sampled: 02/04/02
	Client Contact: Brady Nagle	Date Received: 02/06/02
	Client P.O:	Date Extracted: 02/06/02
		Date Analyzed: 02/06/-02/13/02

Diesel Range (C10-C23) Extractable Hydrocarbons as Diesel *

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(d) ⁺	% Recovery Surrogate
89673	MW-1	W	1800d,b	105
89674	MW-2	W	35,000,a,d,h	100
89675	MW-3	W	ND	101
89676	MW-4	W	12,000,d,h	100
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W		50 ug/L	
	S		1.0 mg/kg	

* water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP / STLC / SPLP extracts in ug/L

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

⁺The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant); d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel (?); f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment.



QC REPORT

EPA 8015m + 8020

Date: 02/06/02

Matrix: Water

Compound	Concentration: ug/L			%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	

SampleID: 20702

Extraction: EPA 5030

Instrument: GC-7

Surrogate1	ND	112.0	109.0	100.00	112	109	2.7
Xylenes	ND	25.7	28.0	30.00	86	93	8.6
Ethylbenzene	ND	8.6	8.4	10.00	86	84	2.4
Toluene	ND	9.0	9.7	10.00	90	97	7.5
Benzene	ND	8.5	9.2	10.00	85	92	7.9
MTBE	ND	7.9	8.7	10.00	79	87	9.6
TPH (gas)	ND	93.3	90.2	100.00	93	90	3.3

SampleID: 20802

Extraction: EPA 3510

Instrument: GC-11 A

Surrogate1	ND	96.0	95.0	100.00	96	95	1.0
TPH (diesel)	ND	6500.0	6475.0	7500.00	87	86	0.4

$$\% \text{ Recovery} = \frac{(MS - \text{Sample})}{\text{Amount Spiked}} \cdot 100$$

$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2 \cdot 100$$

RPD means Relative Percent Deviation

