



ALISTO ENGINEERING GROUP

January 9, 2002

JAN 11 2002

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

10-210-14-003

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)



**ALISTO ENGINEERING GROUP**

January 9, 2002

**JAN 11 2002**

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

10-210-17-003

Subject: Additional Investigation 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 additional investigation report documenting the results and findings of the offsite assessment performed at Xtra Oil Company service station (dba Shell) at 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. 10-210-14-004**

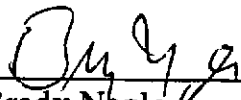
**Prepared for:**


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


**Prepared by:**

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

**February 19, 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

Project No. 10-210-14-004

February 19, 2002

## INTRODUCTION

This report presents the results and findings of the December 21, 2001 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 3 casing volumes while recording field readings of pH, temperature and electrical conductivity. Groundwater samples were collected for laboratory analysis by lowering a bottom-fill, disposable bailer to just below the water level in each well. The samples were transferred from the bailer into laboratory-supplied 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 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 December 21, 2001 groundwater monitoring and sampling event are as follows:

- A hydrocarbon sheen was observed on the groundwater samples collected from Monitoring Wells MW-2 and MW-4.
- Groundwater elevation data indicates a gradient of approximately 0.019 foot per foot in a southeasterly direction across the site.
- Analysis of the samples detected dissolved-phase petroleum hydrocarbons in Monitoring Wells MW-1, MW-2, and MW-4 at concentrations of up to 58000 micrograms per liter (ug/l) total petroleum hydrocarbons as gasoline in Well MW-1 and up to 3000 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 5500 to 18000 ug/l.
- Methyl tert-butyl ether (MTBE) was not detected at or above the method detection limit in any of the well samples analyzed.
- 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	6.10	---	13.50	---	---	---	---	---	---	---	---	---	---	---	---
MW-1	02/24/95	19.60	6.57	---	13.03	58000	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	---	13.06	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	7.56	---	12.04	76000	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	---	13.88	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	3600	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	---	12.69	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	2800	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

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-2	11/04/94	20.31	9.12	0.16	11.31	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	01/11/95	20.31	6.75	---	13.58	---	---	---	---	---	---	---	---	---	---	---	---
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	---	---	---	---	---
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	---	---	---	---	---	---
MW-2	05/09/97	20.31	6.11	0.21	14.38	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	---	---	---	---	---
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	6.29	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	6600	---	---	---	0.7	MCC
MW-2	09/20/01	20.31	8.10	---	12.21	28000	64000	4600	78	870	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-3	11/04/94	20.57	8.92	---	11.85	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	---	14.48	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	MCC
MW-3	05/25/95	20.57	8.24	---	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	7.87	---	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	7.64	---	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

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-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	08/23/98	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	3600	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	460	1300	1700	6700	1000	---	---	---	2.0	MCC
MW-4	12/21/01	19.69	4.55	---	15.14	11000	5600	130	250	480	2400	ND<320	---	---	---	1.6	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

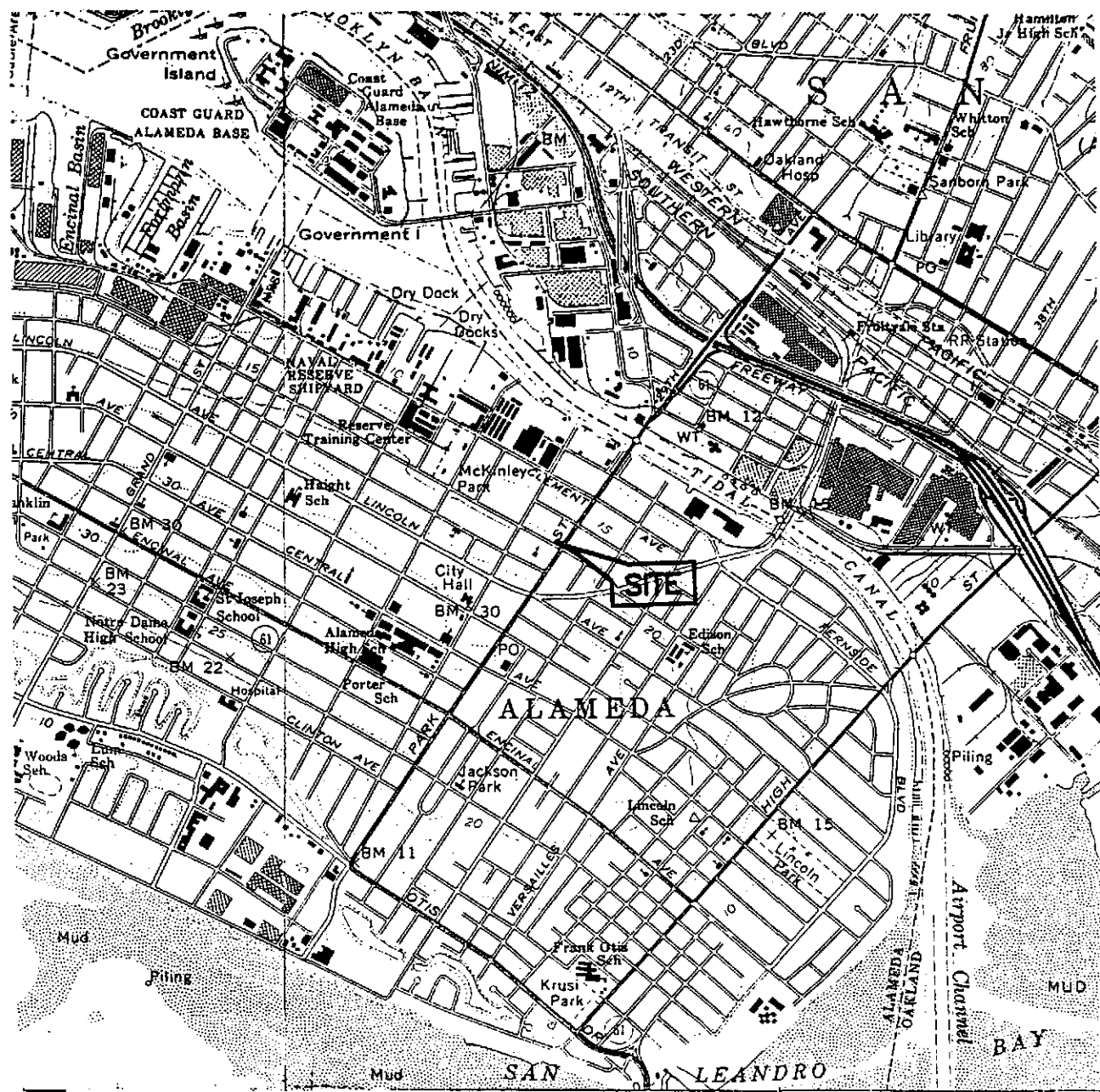
ABBREVIATIONS:

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.

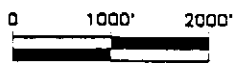
NOTES:

- (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.





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



QUADRANGLE LOCATION

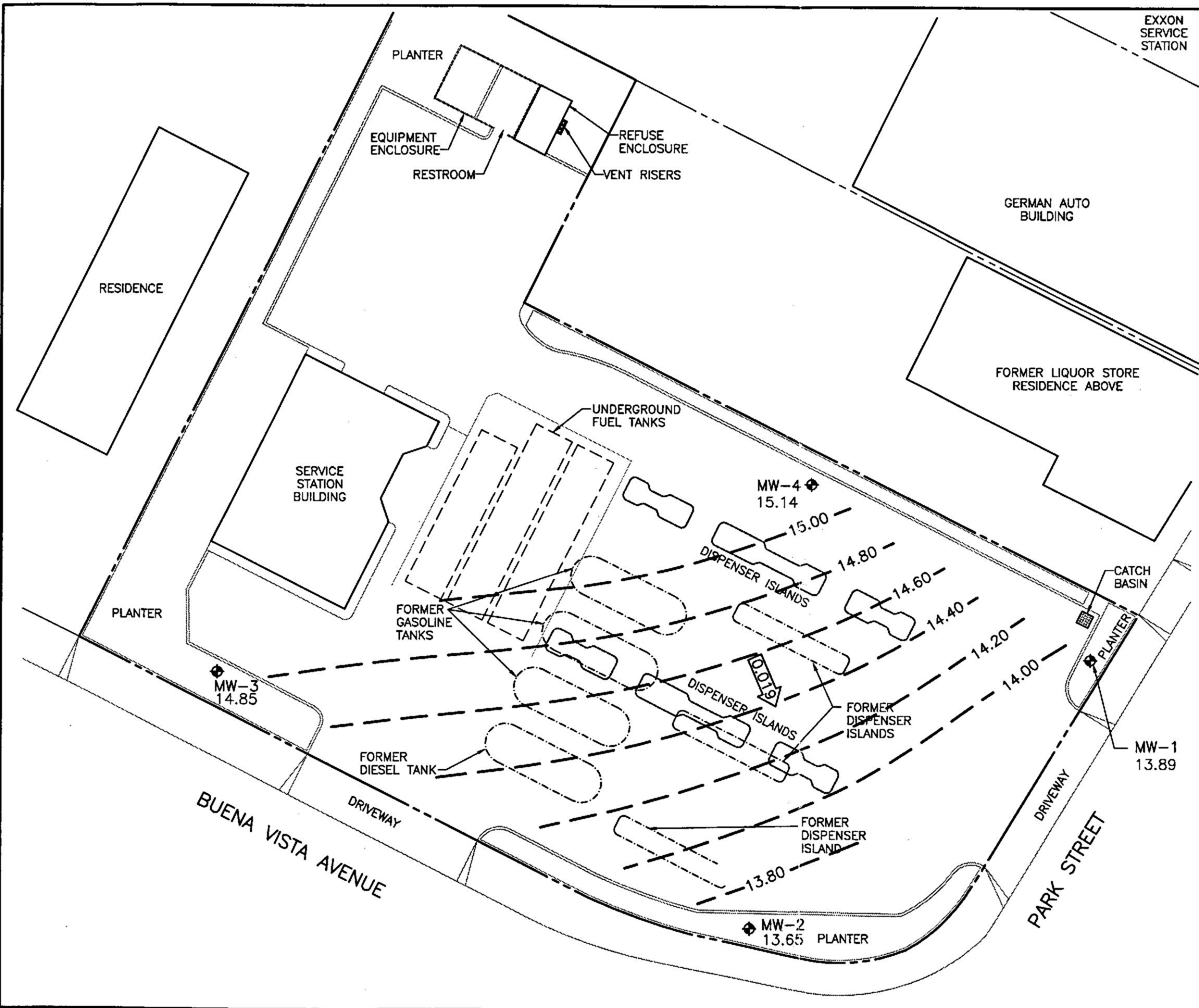
## FIGURE 1 SITE VICINITY MAP

XTRA OIL COMPANY SERVICE STATION  
 1701 PARK STREET  
 ALAMEDA, CALIFORNIA

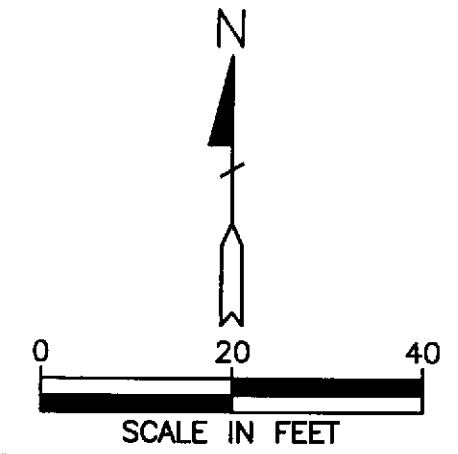
PROJECT NO. 10-210



**ALISTO ENGINEERING GROUP**  
 WALNUT CREEK, CALIFORNIA



EXXON SERVICE STATION



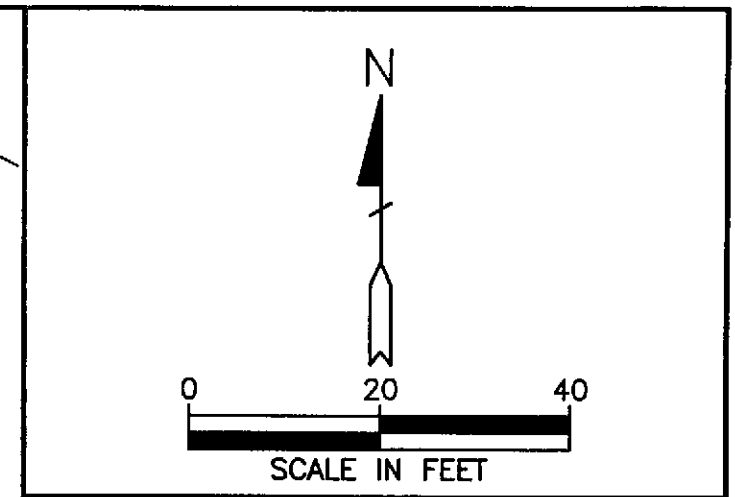
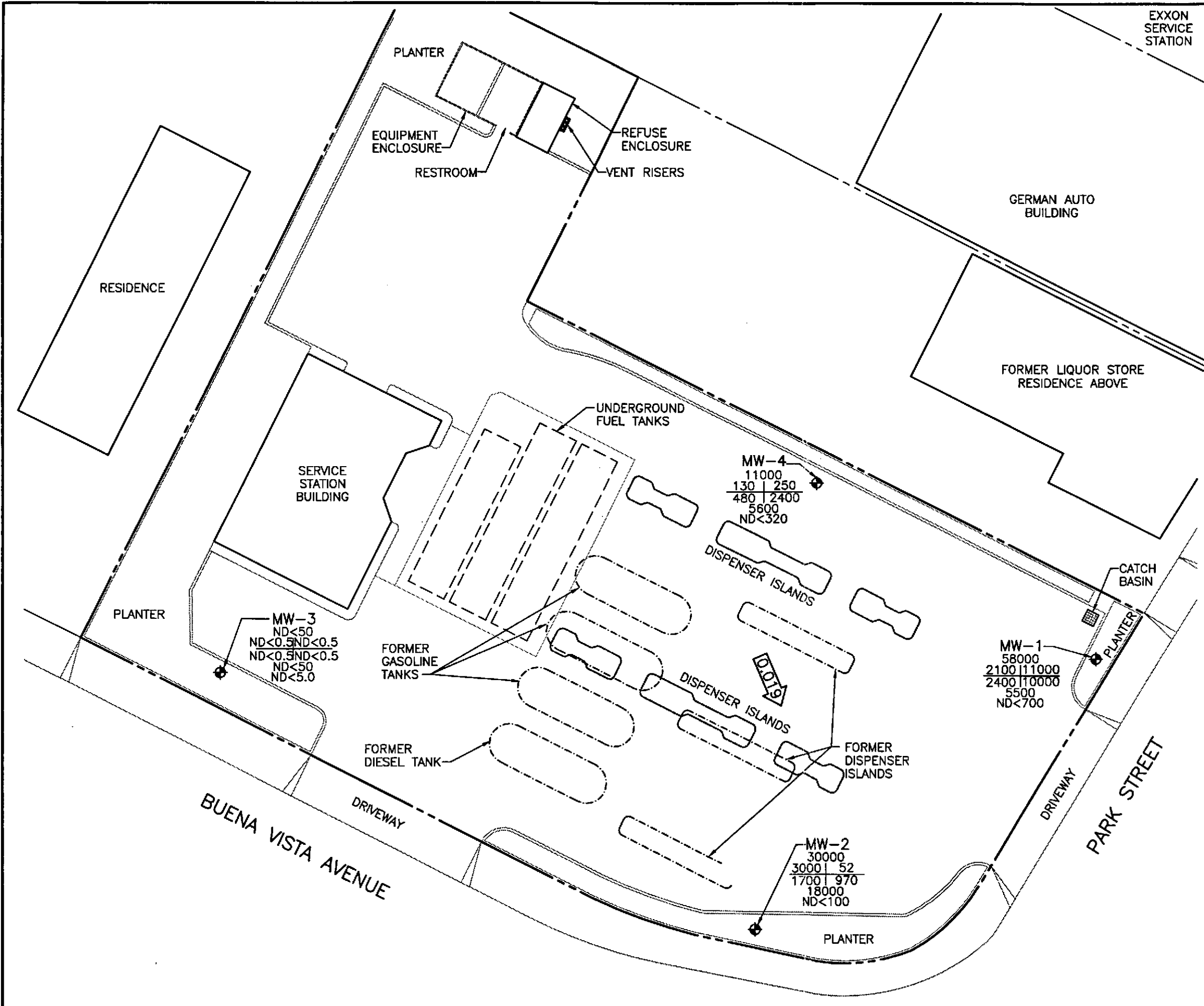
**LEGEND**

- ◆ GROUNDWATER MONITORING WELL
- 13.89 GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 14.20 - GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL=0.20 FOOT)
- ← 0.019 → CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

**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**  
 DECEMBER 21, 2001  
 XTRA OIL COMPANY SERVICE STATION  
 1701 PARK STREET  
 ALAMEDA, CALIFORNIA  
 PROJECT NO. 10-210

10210-14.000 01-11-02 ONE 1 of 2



**LEGEND**

- ◆ GROUNDWATER MONITORING WELL
- TPH-G  
B | T  
E | X  
TPH-D  
MTBE  
CONCENTRATION OF CONSTITUENTS IN MICROGRAMS PER LITER
- TPH-G TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
- B BENZENE
- T TOLUENE
- E ETHYLBENZENE
- X TOTAL XYLENES
- TPH-D TOTAL PETROLEUM HYDROCARBONS AS DIESEL
- MTBE METHYL TERT BUTYL ETHER
- ND NOT DETECTED ABOVE REPORTED DETECTION LIMIT
- ←0.019→ CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

**FIGURE 3**  
**CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER**  
**DECEMBER 21, 2000**  
 XTRA OIL COMPANY SERVICE STATION  
 1701 PARK STREET  
 ALAMEDA, CALIFORNIA  
 PROJECT NO. 10-210

DATE PLOTTED: 1-20-01 10-210-01 1-28

**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. 10-210-14-004 Date: 12-21-01  
Address 1701 Park Street Day: MTWTHF  
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	1	2	20	5.71		10/9	QC-1
MW-2	MW2	2	20	6.66		10/2	
MW-3	MW3	2	20	5.72		10/0	
MW-4	4	2	20	4.55		10/6	

### FIELD INSTRUMENT CALIBRATION DATA

pH METER AGV 4.00 ✓ 7.00 ✓ 10.00 ✓ TEMPERATURE COMPENSATED ON TIME 10:55 WEATHER clearcast  
D.O. METER \_\_\_\_\_ ZERO d.O. SOLUTION NO BAROMETRIC PRESSURE \_\_\_\_\_ TEMP \_\_\_\_\_  
CONDUCTIVITY METER ✓ 10,000 ✓ TURBIDITY METER N/A 5.0 NTU \_\_\_\_\_ OTHER \_\_\_\_\_  
LEAK DETECTOR: NA 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.	
MW-3	5.72	2	pl/dk	—	Y (N)	1100	1	17.2	6.26	242 <u>us</u>	3.5	<input type="checkbox"/> EPA 601 _____
Total Depth - Water Level = x Well Vol. Factor = x #vol. to Purge = Purge Vol.						1103	3	17.9	7.01	251	2.6	<input checked="" type="checkbox"/> TPH-G/BTEX <u>WTR</u>
$20 - 6 = 14 \times 16 \times 3 = 792 \text{ gal}$						1106	7	17.9	7.11	255	2.9	<input checked="" type="checkbox"/> TPH Diesel _____
Purge Method: <input checked="" type="checkbox"/> Surface Pump <input type="checkbox"/> Disp. Tube <input type="checkbox"/> Winch <input checked="" type="checkbox"/> Disp. Bailer(s) <input type="checkbox"/> Sys Port												<input type="checkbox"/> TOG 5520 _____
Comments:												TIME/SAMPLE ID MW3 / 1106

# ALISTO

## Field Report / Sampling Data Sheet

ENGINEERING GROUP

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

Project No. 10-210-14-004  
Address 1701 Park Street  
Contract No. \_\_\_\_\_  
Station No. XTRA Sampler: \_\_\_\_\_

Date: 12-21-01  
Day: M T W T F  
City: Alameda

Well ID	Depth to Water	Diam	Cap/Lock	Product Det	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
MW-2	6.66	2	dr/dk	→	(Y) N	1	7126	19.2	6.36	983 <sup>uS</sup> cm	0.87
Total Depth - Water Level=						3	1130	19.4	7.36	961	0.99
x Well Vol. Factor=						6	1136	19.2	7.41	955	0.90
x#vol. to Purge=						PurgeVol.					

EPA 601 \_\_\_\_\_  
 TPH-G/BTEX 14173E  
 TPH Diesel \_\_\_\_\_  
 TOG 5520 \_\_\_\_\_  
TIME/SAMPLE ID  
MW-2 / 1136

Purge Method:  Surface Pump  Disp. Tube  Winch  Disp. Bailer(s) 1  OSys Port

Comments: SLIGHT SHEEN

Well ID	Depth to Water	Diam	Cap/Lock	Product Det	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
MW4	4.55	2	dr/dk		(Y) N	2	1200	17.1	7.34	418 <sup>uS</sup> cm	1.51
Total Depth - Water Level=						4		16.9	7.39	421	1.6
x Well Vol. Factor=						6	1209	16.9	7.39	417	1.6
x#vol. to Purge=						PurgeVol.					

EPA 601 \_\_\_\_\_  
 TPH-G/BTEX \_\_\_\_\_  
 TPH Diesel \_\_\_\_\_  
 TOG 5520 \_\_\_\_\_  
TIME/SAMPLE ID  
MW4 / 1209

Purge Method:  Surface Pump  Disp. Tube  Winch  Disp. Bailer(s) 1  OSys Port

Comments: SLIGHT SHEEN

Well ID	Depth to Water	Diam	Cap/Lock	Product Det	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
MW-1	5.71	2	dr/dk	—	(Y) N	2	1250	18.8	7.43	423	1.4
Total Depth - Water Level=						4	1255	18.6	7.41	433	1.6
x Well Vol. Factor=						6	1300	18.5	7.42	439	1.4
x#vol. to Purge=						PurgeVol.					

EPA 601 \_\_\_\_\_  
 TPH-G/BTEX \_\_\_\_\_  
 TPH Diesel \_\_\_\_\_  
 TOG 5520 \_\_\_\_\_  
TIME/SAMPLE ID  
MW-1 / 1300

Purge Method:  Surface Pump  Disp. Tube  Winch  Disp. Bailer(s) \_\_\_\_\_  OSys Port

Comments: QC-1

DJP MW-1

QC-1 / 1305

**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](mailto:main@mccampbell.com)

Alisto Engineering Group 3732 Mt. Diablo Blvd. Ste 270 Lafayette, CA 94549	Client Project ID: #10-210-14-3; Xtr Oil	Date Sampled: 12/21/01
		Date Received: 12/21/01
	Client Contact: Brady Nagle	Date Extracted: 12/21/01
	Client P.O:	Date Analyzed: 12/21/01

01/02/02

Dear Brady:

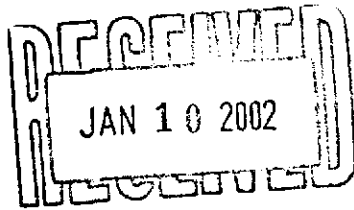
Enclosed are:

- 1). the results of 5 samples from your #10-210-14-3; Xtr Oil 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.

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 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: #10-210-14-3; Xtr Oil	Date Sampled: 12/21/01
		Date Received: 12/21/01
	Client Contact: Brady Nagle	Date Extracted: 12/26-12/27/01
	Client P.O:	Date Analyzed: 12/26-12/27/01

**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)

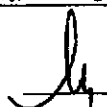
Lab ID	Client ID	Matrix	TPH(g) <sup>+</sup>	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes	% Recovery Surrogate
87283	MW-1	W	58,000,a	ND<700	2100	11,000	2400	10,000	107
87284	MW-2	W	30,000,a	ND<100	3000	52	1700	970	109
87285	MW-3	W	ND	ND	ND	ND	ND	ND	101
87286	MW-4	W	11,000,a	ND<320	130	250	480	2400	105
87287	QC-1	W	56,000,a	ND<620	2100	11,000	2300	10,000	105
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.

DHS Certification No. 1644

 Edward Hamilton, Lab Director





McCAMPBELL ANALYTICAL INC.

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Telephone : 925-798-1620 Fax : 925-798-1622  
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# QC REPORT

## EPA 8015m + 8020

Date: 12/27/01

Extraction: TLC

Matrix: Water

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

SampleID: 1227001

Instrument: GC-12

Surrogate1	ND	99.0	99.0	100.00	99	99	0.0
Xylenes	ND	32.8	31.5	30.00	109	105	4.0
Ethylbenzene	ND	10.7	10.8	10.00	107	108	0.9
Toluene	ND	10.4	10.6	10.00	104	106	1.9
Benzene	ND	10.2	10.3	10.00	102	103	1.0
MTBE	ND	9.7	9.9	10.00	97	99	2.0
TPH (gas)	ND	95.2	94.1	100.00	95	94	1.1

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

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

RPD means Relative Percent Deviation



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# QC REPORT

## EPA 8015m + 8020

Date: 12/21/01

Extraction: TTLC

Matrix: Water

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

SampleID: 122001

Instrument: GC-11 A

Surrogate1	ND	102.0	106.0	100.00	102	106	3.8
TPH (diesel)	ND	7375.0	7225.0	7500.00	98	96	2.1

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

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

RPD means Relative Percent Deviation

