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Groundwater Monitoring Results
Second Semi-Annual 2009 Monitoring Period
Cargill Salt – Alameda Facility
Alameda, California



CRAWFORD
CONSULTING
INC.



November 11, 2009

Alameda County Environmental Health Services
Environmental Protection
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577
Attn: Jerry Wickham

**RE: Groundwater Monitoring Results, Second Semi-Annual 2009 Monitoring Period,
Cargill Salt – Alameda Facility, Alameda, California,
SLIC Case No. RO0002480**

Dear Mr. Wickham,

The attached report presents the groundwater monitoring results for the second semi-annual 2009 monitoring period for the Cargill Salt Alameda facility. This report presents the results of groundwater monitoring data collected during the third quarter of 2009. For the third quarter event, groundwater levels in the site monitoring wells were measured, groundwater samples were collected and analyzed, and the groundwater flow direction and gradient were determined. Groundwater sampling and analysis is being reduced from quarterly to semi-annually in response to your September 30, 2009 letter. Groundwater sampling and analysis will be performed during the first and third quarters.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached report are true and correct to the best of my knowledge.

Should you have any questions concerning the report, please don't hesitate to call me at (510) 790-8182.

Sincerely,

A handwritten signature in blue ink, appearing to read "Sean Riley".

Sean Riley
Environmental Manager

**Groundwater Monitoring Results
Second Semi-Annual 2009 Monitoring Period
Cargill Salt – Alameda Facility
Alameda, California**

**Prepared for:
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Newark, California 94560**

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**Project No. CS1605
November 11, 2009**

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(presented in electronic format only)

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- Appendix C. Certified Analytical Reports and Chain-of-Custody Documentation

Electronic File

Entire report presented in electronic file format (pdf) on CD-ROM inside back cover.

1 Introduction

Crawford Consulting, Inc. (Crawford) has prepared this report on behalf of Cargill Salt for the Cargill Salt Dispensing Systems Division facility (hereafter, the Site) in Alameda, California.

Results of groundwater transect sampling and the initial sampling of three groundwater monitoring wells installed in November 1999 were presented in the January 31, 2000 report, *Groundwater Characterization and Monitoring Well Installation, Cargill Salt – Alameda Facility, Alameda, California* (Crawford Consulting, Inc. and Conor Pacific/EFW). The purpose of the groundwater transect sampling and the monitoring well installation and sampling was to help characterize and monitor the occurrence of volatile organic compounds (VOCs), primarily tetrachloroethene (PCE) and its breakdown product, trichloroethene (TCE), previously detected in groundwater at the Site.

One of the recommendations in the report was to confirm the groundwater analytical results of the newly installed monitoring wells (wells MW-1, MW-2, and MW-3) and the groundwater flow direction and gradient via quarterly monitoring. Cargill Salt began groundwater monitoring on a quarterly basis after the initial groundwater monitoring well sampling event in November 1999. For 2000 through 2005, reporting was performed on an annual basis. Cargill began reporting on a semi-annual basis in 2006.

Cargill Salt conducted additional characterization activities in November and December 2001 to evaluate the off-site extent of VOCs in the soil and groundwater. Soil and groundwater samples were collected and analyzed from a neighboring residential property and along Clement Avenue, slug tests were performed in the three existing monitoring wells, and a groundwater monitoring well (MW-4) was installed in Clement Avenue.

A phytoremediation project was implemented at the Site in June 2005. Based on reductions in PCE concentrations in groundwater since 2006, Alameda County Environmental Health suggested in a September 30, 2009 letter that Cargill Salt reduce the groundwater monitoring frequency from quarterly to semi-annually. The second half of 2009 is the first semi-annual monitoring period under the reduced monitoring frequency. Groundwater sampling and analysis will now be performed during the first and third quarters.

1.1 Reporting Period Activities

This report presents the results of groundwater monitoring data collected during the third quarter of 2009. For the quarterly period, groundwater levels in the Site monitoring wells were measured, groundwater samples were collected and analyzed, and the groundwater flow direction and gradient were determined. The quarterly monitoring event for the second semi-annual 2009 monitoring period was conducted on September 3, 2009.

Supervision of the quarterly monitoring event was conducted for Cargill Salt by Crawford. Groundwater level measurements and collection of groundwater samples were conducted by

Field Solutions, Inc. The groundwater samples for the third quarter of 2009 were analyzed by TestAmerica Laboratories, Inc., a state-certified laboratory in Pleasanton, California.

1.2 Background Information

A description of the Site and a summary of the development of characterization and monitoring programs for the Site are presented in this section.

1.2.1 Site Description

Alameda is an island on the east side of San Francisco Bay, separated from Oakland by a tidal canal (Figure 1). The Cargill Salt Dispensing Systems Division facility is located on a rectangular lot in an industrial and residential neighborhood. The facility building occupies approximately one-third of the Site and is separated from the vacant, unpaved side of the lot by an asphalt driveway (Figure 2). The Site is bordered by a sheet-metal shop and a residential lot to the northwest, an apartment complex to the southwest, and a residential lot to the southeast.

From 1951 to 1978, the Alameda facility produced salt-dispensing units, which required casting and milling aluminum parts.

Constituents of concern associated with site operations have included casting sands with elevated concentrations of metals, and solvents, machine oils, and grease used in casting and milling operations. As discussed below, previous investigations and remedial activities have investigated and remediated metals and solvents (VOCs) in vadose-zone soil.

1.2.2 Summary of Investigative and Remedial Activities

Cargill Salt initiated site investigative activities in 1993 to determine if facility operations had impacted site soils. Cargill Salt submitted the results of the soil sampling investigation to the Alameda County Environmental Health Services (ACEHS) in October 1993 along with a workplan for excavation and disposal of impacted soils and assessment of potential impact to groundwater (Groundworks Environmental, Inc. [Groundworks], 1993).

After approval of the workplan by ACEHS, Cargill Salt conducted several phases of soil remediation and groundwater characterization. Surficial soils impacted by metals were excavated for disposal off site. Vadose-zone soils with the highest degree of impact by VOCs were also excavated for off-site disposal (see “Soil excavation area” on Figure 2).

The results of these activities were submitted to the ACEHS in a report, *Soil and Groundwater Investigations and Remedial Activities, July 1993 – September 1994, Cargill Salt – Alameda Facility, Alameda, California* (Groundworks, 1995). Recommendations for additional work to further delineate the lateral and vertical extent of VOCs in groundwater beneath the Site were presented in the report.

A workplan for the additional delineation of VOCs in groundwater, *Workplan for Groundwater Characterization and Monitoring Well Installation, 2016 Clement Avenue, Alameda, California* (CCI), was submitted to the ACEHS in July 1999.

After approval of the workplan by the ACEHS, Cargill Salt conducted groundwater sampling and well installation activities during August and November of 1999. The results of these activities were

submitted to the ACEHS in a report, *Groundwater Characterization and Monitoring Well Installation, Cargill Salt – Alameda Facility, Alameda, California* (Crawford Consulting, Inc. and Conor Pacific/EFW, dated January 31, 2000). After the initial groundwater monitoring well sampling event in November 1999, Cargill Salt began groundwater monitoring on a quarterly basis.

A work plan for remedial investigation activities, *Workplan for Off-Site Characterization, Cargill Salt – Alameda Facility, Alameda, California* (Conor Pacific/EFW), was submitted to the ACEHS in June 2001. After approval of the workplan by the ACEHS, Cargill Salt conducted characterization activities in November and December 2001 to evaluate off-site extent of VOCs in the soil and groundwater. Soil and groundwater samples were collected and analyzed from a neighboring residential property and along Clement Avenue, slug tests were performed in the three existing monitoring wells, and a groundwater monitoring well (MW-4) was installed in Clement Avenue. The results of these activities were submitted to the ACEHS in the August 21, 2002 submittal *Off-Site Groundwater Characterization, Cargill Salt – Alameda Facility, Alameda, California*, prepared by Conor Pacific/EFW.

A phytoremediation project was implemented at the Site in June 2005. The project involved planting 96 bare-root hybrid poplar trees in a grid of 24 rows. The rows are generally 6 feet apart with trees on 7-foot centers on each row. Selection of the phytoremediation approach and implementation of the project were described in the October 20, 2006 report, *Groundwater Monitoring Results, First through Fourth Quarter 2005, Cargill Salt – Alameda Facility, Alameda, California* prepared by Crawford Consulting, Inc. In April 2008, seven additional saplings were planted in the rear of the property near monitoring well MW-2.

1.2.3 Source of VOC Impact

As discussed in the 1995 report, the occurrence of VOCs in soils and groundwater at the Site appears to be the result of a discharge or spill to surficial soils at a location near the rear property line at the southwestern corner of the property. The area with the highest degree of chemical impact was delineated prior to excavation and was then excavated using a backhoe and transported off-site for appropriate disposal. It is possible that the VOCs detected in soils and groundwater at this location were associated with waste products from facility operations. The VOCs may be associated with solvents previously used for degreasing operations at the facility, although there are no records indicating use of PCE. Site records indicate that the solvents used for degreasing operations were not PCE-based solvents.

It is also possible that the VOCs and oil and grease are associated with waste products discarded from neighboring properties. There is an apartment complex next to the rear property line of the facility, and the laundry room for this complex is in the utility shed immediately adjacent to the rear property line. This laundry room is only 4 feet away from the area of highest impact to soil. If PCE associated with laundry cleaning products were spilled in this laundry room, it is possible that it could have drained onto the Cargill Salt property.

2 Groundwater Flow Analysis

Groundwater levels were measured and a groundwater contour map was prepared for the third quarter 2009 monitoring event.

2.1 Water-Level Measurement

Water levels in groundwater monitoring wells (MW-1, MW-2, MW-3, and MW-4) were measured on September 3, 2009, before any of the groundwater monitoring wells were purged for sampling for the semi-annual monitoring event. The groundwater monitoring well locations are shown on Figure 2. The water levels were measured with an electric sounder. The depth to water at each well was recorded on a *Water Level Field Data* sheet (see Appendix A).

The water-level data through the third quarter of 2009 are shown on Table 1. The data in Table 1 include the date and time of measurement, the well casing elevation, the measured depth to groundwater, the groundwater elevation, and the change in elevation from the previous measurement. A plot of historical groundwater elevations is shown in Figure 3.

The Site groundwater monitoring wells were re-surveyed in September 2006 by CSS Environmental Services in order to provide Geotracker-compliant survey data. Results of the casing elevation survey indicate that each well is approximately 6.4 feet higher than the previous survey conducted in 1999. This difference is due to the use of different datum for the 2006 and 1999 surveys. The casing elevations from the September 2006 survey are shown on Table 1.

Groundwater levels in the on-site monitoring wells (MW-1, MW-2, and MW-3) showed a similar seasonal pattern in the second semi-annual period of 2009 as in the previous nine years (see Figure 3). Groundwater levels fell across the Site between the second and third quarter 2009 measurements, reflecting dissipation of winter-season discharge. Groundwater levels fell in off-site well MW-4 between the second and third quarter 2009 measurements, similar to the pattern exhibited by the on-site wells.

2.2 Groundwater Flow Direction and Gradient

A groundwater contour map based on the September 2009 water-level data is shown on Figure 4.

The groundwater flow direction determined for the third quarter of 2009 was to the northeast, consistent with the groundwater flow direction determined previously for the Site. The horizontal hydraulic gradient measured for the third quarter of 2009 was 0.012.

2.3 Groundwater Velocity

Average linear groundwater flow velocities (V) were calculated using a form of Darcy's Law,

$$V = Ki/n,$$

where “K” is the hydraulic conductivity, “i” is the horizontal hydraulic gradient, and “n” is the effective porosity. The groundwater velocity calculations for the third quarter of 2009 groundwater data are presented in Appendix B.

Using hydraulic conductivity and porosity values determined for saturated native materials at the Site [based on slug tests and laboratory soil testing, respectively (Conor Pacific/EFW, 2002)], and the horizontal hydraulic gradients determined from the third quarter 2009 groundwater contour map, the groundwater flow velocity beneath the Site is calculated to be approximately 0.75 feet per year (ft/yr) for the third quarter 2009 measurements.

3 Groundwater Sampling and Analysis

This section summarizes the sample collection and analytical methods, presents an evaluation of quality control data, and summarizes the results of the sampling events.

3.1 Sample Collection and Analysis

Groundwater samples were collected September 3, 2009 from groundwater monitoring wells MW-1, MW-2, MW-3, and MW-4. Dedicated tubing was installed in wells MW-1, MW-2, and MW-3 prior to the first quarter 2000 sampling event and on December 17, 2001 in well MW-4 to facilitate sampling with a peristaltic pump. Dedicated fluorinated ethylene propylene resin (FEP)-lined polyethylene tubing was installed in each monitoring well. The tubing intake was placed about one foot above the well bottom in each of the wells. Viton[®] dedicated check valves were installed on the tubing intakes to prevent back-flow of water into the well. A short length of dedicated Viton[®] tubing was installed at the well head for use in a peristaltic pump head. Prior to sample collection for each quarterly monitoring event, the wells were purged using a peristaltic pump. Field parameters (pH, electrical conductivity, temperature, and turbidity) were measured in purged groundwater from each well prior to sampling; these data are recorded on the Sample Collection Field Data sheets presented in Appendix A. After purging, groundwater samples were collected using the peristaltic pump and the dedicated Viton[®] pump head discharge tubing.

The groundwater samples were analyzed for VOCs using U.S. Environmental Protection Agency (USEPA) Method 8260. Results for all Method 8010 analytes were reported. The groundwater samples for the third quarter 2009 were delivered with appropriate chain-of-custody documentation to TestAmerica Laboratories, Inc., a state-certified laboratory in Pleasanton, California, for chemical analysis.

3.2 Analytical Results

The results of field and laboratory quality control measures and the results of the groundwater monitoring well samples are reviewed in this section. The certified analytical reports and chain-of-custody documentation are presented in Appendix C.

3.2.1 Quality Control

Quality control (QC) samples were analyzed as part of the sampling and analysis program to evaluate the precision and accuracy of the reported groundwater chemistry data. QC samples included both field and laboratory samples. Descriptions of the purpose of specific field and laboratory QC samples used during the sampling and analysis program and an evaluation of field and laboratory QC results are presented below.

Field Quality Control Samples

A field duplicate was used during the third quarter 2009 sampling program for the Site. A field duplicate is used to assess sampling and analytical precision. The duplicate is collected at a selected well (MW-2) and then submitted "blind" to the laboratory for analysis with the same batch as the regular sample for the selected well. An estimate of precision is obtained by calculating the relative percent difference (RPD) between the regular sample and the duplicate sample using the following formula:

$$\text{RPD} = \frac{[x - y] 100}{0.5 (x + y)}$$

where: $[x - y]$ = the absolute value of the difference in concentration between the regular sample (x) and the duplicate sample (y).

Laboratory Quality Control Samples

The following types of laboratory QC samples were used during the third quarter 2009 analytical program for the Site:

- surrogate spikes
- matrix spikes/duplicate matrix spikes

A surrogate spike is a check standard added to a sample in a known amount prior to analysis. Surrogate spikes consist of analytes not normally found in environmental samples and not targeted by the analytical procedure. Surrogate spikes provide information on recovery efficiency by comparing the percent recovery of specific surrogate analyses to statistically derived acceptance limits developed by the USEPA or the laboratory (provided such laboratory-specific limits are stricter than those developed by the USEPA). If the recoveries fall within the acceptance limits for the analytes, the analysis exhibits acceptable recovery efficiency. Recoveries that fall outside the acceptance limits indicate a potential problem with the recovery efficiency of analytes, which in turn indicates a potential bias with respect to the reported concentration of the environmental samples analyzed in the same batch.

Matrix spikes and duplicate matrix spikes are analyzed by the laboratory for the purpose of providing a quantitative measure of accuracy and precision, and to document the effect that the sample matrix has on the analysis. A selected sample is spiked in duplicate with known concentrations of analytes. The recoveries of the spiked analytes are compared to statistically derived acceptance limits developed by the USEPA or the laboratory (provided such laboratory-specific limits are stricter than those developed by the USEPA). If the recoveries fall within the acceptance limits for the analytes, the analysis has no statistically significant bias (i.e., the analysis is accurate). Recoveries that fall outside of the acceptance limits have a positive or negative bias, depending on whether the recovery is greater or less than the upper or lower acceptance limit, respectively. Analyses where analyte recoveries fall outside the acceptance limits should be regarded as estimates only.

Precision for matrix spikes is measured by calculating the relative percent differences (RPDs) between the measured concentration of analytes in the matrix and the duplicate matrix spike. The following equation is used for matrix spikes:

$$\text{RPD} = \frac{[\text{MS} - \text{MSD}] 100}{0.5 (\text{MS} + \text{MSD})}$$

where: [MS - MSD] = the absolute value of the difference in concentration between the matrix spike (MS) and the matrix spike duplicate (MSD)

Third Quarter 2009 Field QC Results

One field duplicate (DUP-1) was analyzed as part of the third quarter 2009 sampling event at the Site. The duplicate sample was collected at groundwater monitoring well MW-2 and was analyzed for halogenated VOCs using USEPA Method 8260B (8010 list). Table 2 summarizes the calculated RPDs for MW-2 and MW-2 duplicate (DUP-1). The one parameter (PCE) for which RPDs could be calculated (see Table 2) exhibits a low RPD value (i.e., less than 10%) indicative of good precision.

Third Quarter 2009 Laboratory QC Results

A review of the third quarter 2009 field data sheets and laboratory reports (presented in Appendices A and C, respectively) indicates that all analyses were performed within USEPA or California Department of Health Services (DHS) recommended maximum sample holding times.

QC data on surrogate spike recoveries and matrix spike recoveries are presented in the laboratory reports. These data indicate: (1) no surrogate spike recoveries were outside of the laboratory's acceptance limits; (2) RPD values for the matrix spikes and duplicate matrix spikes indicate a high overall degree of analytical precision.

No matrix spike or duplicate matrix spike recoveries were outside of the laboratory's control limits.

The laboratory QC data indicate that the results reported herein are of adequate quality for evaluation of site groundwater conditions.

3.2.2 Groundwater Results

The results for the third quarter 2009 monitoring event are shown on Table 3a and Figure 5. The results of historical VOC analyses for each quarter for 2000 through third quarter 2009 are summarized in Table 3b, which also shows the VOC results for the initial sampling event for monitoring wells MW-1, MW-2, and MW-3 in November 1999. Historical VOC results for all the wells are plotted on Figure 6.

Consistent with previous monitoring events, PCE and its breakdown products TCE and 1,1-dichloroethene (DCE) were detected in Site groundwater samples from the third quarter 2009 monitoring event.

For the third quarter of 2009, the concentrations of PCE detected were:

- 640 micrograms per liter ($\mu\text{g/L}$) in monitoring well MW-1
- 410 $\mu\text{g/L}$ in MW-2
- not detected in MW-3

- 0.79 $\mu\text{g/L}$ in MW-4.

TCE was detected at 68 $\mu\text{g/L}$ in monitoring well MW-1. TCE was not detected in MW-2, MW-3 or MW-4.

Dichloroethene (DCE) was detected in monitoring well MW-3 at 0.51 $\mu\text{g/L}$. DCE was not detected in MW-1, MW-2, or MW-4.

3.3 Discussion

Variations in VOC concentrations at monitoring well MW-2, the well with historically the highest reported PCE concentrations at the site, generally correlate with variations in groundwater elevations at the Site. An increase in VOC concentrations generally follows a rise in groundwater elevations, and a decrease in VOC concentration generally follows a fall in groundwater levels (see Figure 7). The variations in VOC concentrations sometimes lag one quarter behind the variations in groundwater elevation.

The results for VOC concentrations reported for the third quarter 2009 quarterly monitoring event are generally similar to the results reported since the second quarter of 2006 (see Figure 6), with the exception that the concentration of PCE reported for well MW-2 (410 $\mu\text{g/L}$) is the lowest concentration ever reported for the well.

The average seasonal concentration of PCE reported for groundwater monitoring well MW-2 has been lower since the second quarter of 2006 (June 2006 event) compared to results reported since monitoring began in 1999. The concentration of PCE reported for MW-2 decreased from 5,200 $\mu\text{g/L}$ in March 2006 to 1,600 $\mu\text{g/L}$ in June 2006. The concentrations of PCE reported for MW-2 for eight of the sampling events since March 2006 have had lower PCE concentrations reported for the well than for each of the twenty-five events from March 2000 to March 2006. Also, the annual highs have been lower in 2007, 2008, and 2009 than in the previous years.

The PCE concentrations reported for MW-2 since June 2006 appear to be an indication that the phytoremediation project implemented in June 2005 has reduced the average seasonal concentration of PCE at the site. Continued monitoring will be required to assess the effectiveness of the phytoremediation project in further reducing the PCE concentrations in groundwater.

4 Phytoremediation Project Status Update

A phytoremediation project was implemented at the Site in June 2005. The project involved planting 96 bare-root hybrid poplar trees in a grid on the unpaved portion of the site. Selection of the phytoremediation approach and implementation of the project were described in the report, *Groundwater Monitoring Results, First through Fourth Quarter 2005, Cargill Salt – Alameda Facility, Alameda, California* (Crawford Consulting, Inc., October 20, 2006).

A tree monitoring and maintenance program is being conducted by a landscaping contractor. This program involves monthly inspection of the trees during the growing season, inspection and maintenance of the drip irrigation system, and weed control.

The trees were 4-ft-tall, bare-root poles with no foliage when planted in June 2005. During the first two years of growth, the trees developed foliage and most grew 3 to 10 additional feet in height. Photos comparing the appearance of the trees just after planting in 2005, in June 2007, and in September 2009 are show below and on the following pages. After three years, most of the trees had grown to heights of 10 to 25 feet. After four years, most of the trees have grown to heights of 20 to 35 feet. In April 2008, seven additional saplings were planted in the rear of the property near monitoring well MW-2.

As discussed in Section 3.3, the PCE concentrations reported for monitoring well MW-2 since June 2006 appear to be an indication that the phytoremediation project has been effective at reducing the average seasonal VOC concentration in groundwater at the site. Tree growth and VOC concentrations will be monitored and evaluated to determine the effectiveness of the phytoremediation project in further reducing VOC concentrations.



Bare-root trees planted in June 2005 - View towards rear of property



June 2007 - View from driveway towards rear of property



September 2009 - View from street towards driveway and rear of property



June 2007 - View of front planting strip at Clement Avenue



September 2009 - View of front planting strip at Clement Avenue.
Note relative height of gate vs. trees in the pictures above.

Professional Certification

**Groundwater Monitoring Results
Second Semi-Annual 2009 Monitoring Period
Cargill Salt – Alameda Facility
Alameda, California**

This report has been prepared by CRAWFORD CONSULTING, INC. with the professional certification of the California professional geologist whose signature appears below.



Dana C. Johnston
Project Manager



Mark C. Wheeler
Principal Geologist
P.G. 4563

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Limitations

This report and the evaluations presented herein have been prepared in accordance with generally accepted professional standards and is based solely on the scope of work and services described herein. This report has been prepared solely for the use of Cargill Salt for the purposes noted herein. Any use of this report, in whole or in part, by a third party for other than the purposes noted herein is at such party's sole risk.

Table 1. Groundwater Level Data

Well/ Piezometer	Date	Time	Casing Elevation (feet, MSL)	Depth to Water (feet)	Water Elevation (feet, MSL)	Elev. Change from Last Measurement (feet)
MW-1	11/16/1999	09:56	13.16	3.75	9.41	NA
MW-1	3/30/2000	10:09	13.16	2.81	10.35	0.94
MW-1	5/16/2000	09:43	13.16	3.32	9.84	-0.51
MW-1	7/28/2000	09:11	13.16	3.58	9.58	-0.26
MW-1	11/30/2000	08:36	13.16	3.52	9.64	0.06
MW-1	3/26/2001	08:47	13.16	3.15	10.01	0.37
MW-1	6/25/2001	10:19	13.16	3.53	9.63	-0.38
MW-1	9/28/2001	09:32	13.16	3.96	9.20	-0.43
MW-1	12/17/2001	10:47	13.16	3.23	9.93	0.73
MW-1	3/21/2002	07:28	13.16	2.89	10.27	0.34
MW-1	6/6/2002	08:03	13.16	3.50	9.66	-0.61
MW-1	9/20/2002	08:30	13.16	3.86	9.30	-0.36
MW-1	12/19/2002	08:38	13.16	3.13	10.03	0.73
MW-1	3/4/2003	10:31	13.16	3.08	10.08	0.05
MW-1	6/9/2003	08:32	13.16	3.29	9.87	-0.21
MW-1	9/8/2003	10:02	13.16	3.79	9.37	-0.50
MW-1	12/1/2003	10:16	13.16	3.78	9.38	0.01
MW-1	3/4/2004	09:31	13.16	2.88	10.28	0.90
MW-1	6/2/2004	08:42	13.16	3.45	9.71	-0.57
MW-1	9/14/2004	08:01	13.16	3.87	9.29	-0.42
MW-1	12/8/2004	07:44	13.16	3.23	9.93	0.64
MW-1	3/3/2005	08:07	13.16	2.01	11.15	1.22
MW-1	6/10/2005	07:05	13.16	2.90	10.26	-0.89
MW-1	9/16/2005	08:00	13.16	3.62	9.54	-0.72
MW-1	12/6/2005	08:00	13.16	3.28	9.88	0.34
MW-1	3/10/2006	07:40	13.16	2.28	10.88	1.00
MW-1	6/9/2006	09:45	13.16	3.09	10.07	-0.81
MW-1	9/11/2006	10:24	13.16	3.70	9.46	-0.61
MW-1	12/15/2006	07:34	13.16	2.94	10.22	0.76
MW-1	3/6/2007	09:18	13.16	2.87	10.29	0.07
MW-1	6/15/2007	07:29	13.16	3.30	9.86	-0.43
MW-1	9/11/2007	08:05	13.16	3.85	9.31	-0.55
MW-1	12/4/2007	08:53	13.16	3.58	9.58	0.27
MW-1	3/20/2008	08:13	13.16	3.00	10.16	0.58
MW-1	6/18/2008	08:22	13.16	3.73	9.43	-0.73
MW-1	9/3/2008	08:06	13.16	3.93	9.23	-0.20
MW-1	12/4/2008	08:12	13.16	3.71	9.45	0.22
MW-1	3/5/2009	09:18	13.16	1.83	11.33	1.88
MW-1	6/11/2009	08:40	13.16	3.52	9.64	-1.69
MW-1	9/3/2009	07:57	13.16	3.98	9.18	-0.46
MW-2	11/16/1999	11:15	16.22	5.22	11.00	NA
MW-2	3/30/2000	10:05	16.22	2.80	13.42	2.42
MW-2	5/16/2000	09:35	16.22	4.13	12.09	-1.33
MW-2	7/28/2000	09:17	16.22	4.85	11.37	-0.72
MW-2	11/30/2000	08:32	16.22	4.75	11.47	0.10
MW-2	3/26/2001	08:40	16.22	3.28	12.94	1.47
MW-2	6/25/2001	12:12	16.22	4.75	11.47	-1.47
MW-2	9/28/2001	12:20	16.22	5.41	10.81	-0.66
MW-2	12/17/2001	10:44	16.22	4.07	12.15	1.34
MW-2	3/28/2002	09:37	16.22	3.40	12.82	0.67

Table 1. Groundwater Level Data

Well/ Piezometer	Date	Time	Casing Elevation (feet, MSL)	Depth to Water (feet)	Water Elevation (feet, MSL)	Elev. Change from Last Measurement (feet)
MW-2	6/6/2002	08:11	16.22	4.70	11.52	-1.30
MW-2	9/20/2002	08:34	16.22	5.28	10.94	-0.58
MW-2	12/19/2002	08:45	16.22	3.37	12.85	1.91
MW-2	3/4/2003	10:26	16.22	3.11	13.11	0.26
MW-2	6/9/2003	08:31	16.22	4.16	12.06	-1.05
MW-2	9/8/2003	10:08	16.22	5.26	10.96	-1.10
MW-2	12/1/2003	10:20	16.22	5.05	11.17	0.21
MW-2	3/4/2004	09:34	16.22	2.86	13.36	2.19
MW-2	6/2/2004	08:53	16.22	4.47	11.75	-1.61
MW-2	9/14/2004	07:59	16.22	5.26	10.96	-0.79
MW-2	12/8/2004	08:00	16.22	4.20	12.02	1.06
MW-2	3/3/2005	08:04	16.22	1.90	14.32	2.30
MW-2	6/10/2005	07:09	16.22	3.74	12.48	-1.84
MW-2	9/16/2005	08:08	16.22	4.92	11.30	-1.18
MW-2	12/6/2005	10:58	16.22	4.39	11.83	0.53
MW-2	3/10/2006	07:47	16.22	2.13	14.09	2.26
MW-2	6/9/2006	10:03	16.22	3.75	12.47	-1.62
MW-2	9/11/2006	10:22	16.22	4.94	11.28	-1.19
MW-2	12/15/2006	07:32	16.22	4.08	12.14	0.86
MW-2	3/6/2007	09:13	16.22	3.27	12.95	0.81
MW-2	6/15/2007	07:31	16.22	4.57	11.65	-1.30
MW-2	9/11/2007	08:07	16.22	5.60	10.62	-1.03
MW-2	12/4/2007	08:47	16.22	4.99	11.23	0.61
MW-2	3/20/2008	08:17	16.22	3.48	12.74	1.51
MW-2	6/18/2008	08:27	16.22	4.93	11.29	-1.45
MW-2	9/3/2008	08:08	16.22	5.58	10.64	-0.65
MW-2	12/4/2008	08:14	16.22	5.07	11.15	0.51
MW-2	3/5/2009	11:10	16.22	2.30	13.92	2.77
MW-2	6/11/2009	08:41	16.22	4.44	11.78	-2.14
MW-2	9/3/2009	08:01	16.22	5.55	10.67	-1.11
MW-3	11/16/1999	15:43	13.34	4.34	9.00	NA
MW-3	3/30/2000	10:01	13.34	2.77	10.57	1.57
MW-3	5/16/2000	09:46	13.34	3.44	9.90	-0.67
MW-3	7/28/2000	09:05	13.34	3.72	9.62	-0.28
MW-3	11/30/2000	08:34	13.34	3.73	9.61	-0.01
MW-3	3/26/2001	08:54	13.34	3.51	9.83	0.22
MW-3	6/25/2001	10:21	13.34	3.65	9.69	-0.14
MW-3	9/28/2001	09:30	13.34	3.96	9.38	-0.31
MW-3	12/17/2001	10:38	13.34	3.28	10.06	0.68
MW-3	3/21/2002	07:28	13.34	3.10	10.24	0.18
MW-3	6/6/2002	08:07	13.34	3.63	9.71	-0.53
MW-3	9/20/2002	08:25	13.34	3.82	9.52	-0.19
MW-3	12/19/2002	08:42	13.34	3.10	10.24	0.72
MW-3	3/4/2003	10:36	13.34	3.29	10.05	-0.19
MW-3	6/9/2003	08:28	13.34	3.41	9.93	-0.12
MW-3	9/8/2003	10:00	13.34	3.85	9.49	-0.44
MW-3	12/1/2003	10:30	13.34	3.90	9.44	-0.05
MW-3	3/4/2004	09:22	13.34	3.11	10.23	0.79
MW-3	6/2/2004	08:46	13.34	3.53	9.81	-0.42
MW-3	9/14/2004	08:05	13.34	4.07	9.27	-0.54

Table 1. Groundwater Level Data

Well/ Piezometer	Date	Time	Casing Elevation (feet, MSL)	Depth to Water (feet)	Water Elevation (feet, MSL)	Elev. Change from Last Measurement (feet)
MW-3	12/8/2004	07:40	13.34	3.73	9.61	0.34
MW-3	3/3/2005	07:53	13.34	2.36	10.98	1.37
MW-3	6/10/2005	07:14	13.34	3.15	10.19	-0.79
MW-3	9/16/2005	08:04	13.34	3.90	9.44	-0.75
MW-3	12/6/2005	08:04	13.34	3.35	9.99	0.55
MW-3	3/10/2006	07:43	13.34	2.89	10.45	0.46
MW-3	6/9/2006	09:33	13.34	3.26	10.08	-0.37
MW-3	9/11/2006	10:19	13.34	3.70	9.64	-0.44
MW-3	12/15/2006	07:37	13.34	3.10	10.24	0.60
MW-3	3/6/2007	09:16	13.34	3.04	10.30	0.06
MW-3	6/15/2007	07:27	13.34	3.60	9.74	-0.56
MW-3	9/11/2007	08:03	13.34	3.87	9.47	-0.27
MW-3	12/4/2007	08:50	13.34	3.62	9.72	0.25
MW-3	3/20/2008	08:15	13.34	3.13	10.21	0.49
MW-3	6/18/2008	08:24	13.34	3.90	9.44	-0.77
MW-3	9/3/2008	08:02	13.34	3.92	9.42	-0.02
MW-3	12/4/2008	08:10	13.34	3.59	9.75	0.33
MW-3	3/5/2009	09:23	13.34	2.79	10.55	0.80
MW-3	6/11/2009	08:38	13.34	3.14	10.20	-0.35
MW-3	9/3/2009	07:55	13.34	4.31	9.03	-1.17
MW-4	12/17/2001	10:40	12.43	2.55	9.88	NA
MW-4	3/28/2002	08:05	12.43	3.06	9.37	-0.51
MW-4	6/6/2002	07:57	12.43	2.85	9.58	0.21
MW-4	9/20/2002	08:28	12.43	3.21	9.22	-0.36
MW-4	12/19/2002	08:53	12.43	3.70	8.73	-0.49
MW-4	3/4/2003	10:34	12.43	3.14	9.29	0.56
MW-4	6/9/2003	08:29	12.43	2.82	9.61	0.32
MW-4	9/8/2003	10:04	12.43	3.43	9.00	-0.61
MW-4	12/1/2003	10:14	12.43	3.12	9.31	0.31
MW-4	3/4/2004	09:27	12.43	2.81	9.62	0.31
MW-4	6/2/2004	08:44	12.43	3.34	9.09	-0.53
MW-4	9/14/2004	08:03	12.43	3.51	8.92	-0.17
MW-4	12/8/2004	07:36	12.43	3.10	9.33	0.41
MW-4	3/3/2005	07:44	12.43	2.48	9.95	0.62
MW-4	6/10/2005	07:02	12.43	2.47	9.96	0.01
MW-4	9/16/2005	08:12	12.43	3.23	9.20	-0.76
MW-4	12/6/2005	07:50	12.43	3.17	9.26	0.06
MW-4	3/10/2006	07:37	12.43	3.77	8.66	-0.60
MW-4	6/9/2006	07:30	12.43	2.49	9.94	1.28
MW-4	9/11/2006	10:17	12.43	3.19	9.24	-0.70
MW-4	12/21/2006	NR	12.43	2.90	9.53	0.29
MW-4	3/6/2007	09:20	12.43	2.54	9.89	0.36
MW-4	6/15/2007	07:33	12.43	3.03	9.40	-0.49
MW-4	9/11/2007	08:11	12.43	3.27	9.16	-0.24
MW-4	12/4/2007	08:55	12.43	3.25	9.18	0.02
MW-4	3/20/2008	08:20	12.43	2.65	9.78	0.60
MW-4	6/18/2008	08:31	12.43	3.35	9.08	-0.70
MW-4	9/3/2008	07:58	12.43	3.28	9.15	0.07
MW-4	12/4/2008	08:17	12.43	3.12	9.31	0.16
MW-4	3/5/2009	09:27	12.43	2.16	10.27	0.96

Table 1. Groundwater Level Data

Well/ Piezometer	Date	Time	Casing Elevation (feet, MSL)	Depth to Water (feet)	Water Elevation (feet, MSL)	Elev. Change from Last Measurement (feet)
MW-4	6/11/2009	08:43	12.43	2.84	9.59	-0.68
MW-4	9/3/2009	08:04	12.43	3.49	8.94	-0.65

Key:

NA = Not available

feet, MSL = feet, relative to Mean Sea Level

Casing elevations for all wells were resurveyed on September 6, 2006 by CSS Environmental Services for Geotracker compliance.

Table 2.
Relative Percent Difference Based on Duplicate Samples

Third Quarter 2009

Analysis	Well MW-2 Results	Duplicate (DUP-1) Results	RPD ¹ (%)
Volatile Organic Compounds ($\mu\text{g/L}$)			
Trichloroethene (TCE)	< 5.0	< 5.0	NM
Tetrachloroethene (PCE)	410	410	0
¹ RPD = relative percent difference ² NM = not meaningful; RPD cannot be accurately calculated where one or both values are below the method reporting limit. All other 8010 list analytes not detected (by 8260).			

Table 3a. Summary of Groundwater Monitoring Well Data - Third Quarter 2009

Well No. Field Date	MW-1 9/3/09	MW-2 9/3/09	MS-3 9/3/09	MW-4 9/3/09	MCL ¹
DCE ²	< 10	< 5.0	0.51	< 0.5	6
CFC 113 ³	< 10	< 5.0	< 0.5	< 0.5	ne ⁴
DCA ⁵	< 10	< 5.0	< 0.5	< 0.5	5
Chloroform	< 20	< 10	< 1.0	< 1.0	ne
cis-1,2-DCE	< 10	< 5.0	< 0.5	< 0.5	ne
TCA ⁶	< 10	< 5.0	< 0.5	< 0.5	200
TCE ⁷	68	< 5.0	< 0.5	< 0.5	< 0.500
PCE ⁸	640	410	< 0.5	0.79	< 0.500
Other analytes ⁹	nd ¹⁰	nd	nd	nd	nd

Notes:

Results measured in micrograms per liter ($\mu\text{g/L}$)

¹ MCL = California Primary Drinking Water Standard - Maximum Contaminant Level

² DCE = 1,1-Dichloroethene

³ CFC 113 = Trichlorotrifluoroethane (1,1,2-Trichloro-1,2,2-trifluoroethane)

⁴ ne = not established or none applicable

⁵ DCA = 1,1-Dichloroethane

⁶ TCA = 1,1,1-Trichloroethane

⁷ TCE = Trichloroethene

⁸ PCE = Tetrachloroethene

⁹ All other 8010 list analytes

¹⁰ nd = not detected above laboratory reporting limit

Table 3b. Historical Summary of Groundwater Monitoring Well Data

Results measured in micrograms per liter (µg/L)																																											
Well No.	MW-1																													MCL ¹													
Field Date	11/16/99	3/30/00	5/16/00	7/28/00	11/30/00	3/26/01	6/25/01	9/28/01	12/17/01	3/21/02	6/6/02	9/20/02	12/19/02	3/4/03	6/9/03	9/8/03	12/1/03	3/4/04	6/2/04	9/14/04	12/8/04	3/3/05	6/10/05	9/16/05	12/6/05	3/10/06	6/9/06	9/11/06	12/15/06	3/6/07	6/15/07	9/11/07	12/4/07	3/20/08	6/18/08	9/3/08	12/4/08	3/5/09	6/11/09	9/3/09	MCL ¹		
DCE ²	<50.0	13	<10	15	14	<13	14	15	<13	<13	<13	<13	<13	<10	12	5.2	8.4	<5.0	5.8	6.6	<5.0	<5.0	<2.0	<5.0	<2.0	<0.5	<2.0	3.3	<2.0	<2.0	3.0	<5.0	<5.0	<2.0	<5.0	<5.0	<2.0	<5.0	<5.0	<0.5	<2.5	<10	6
CFC 113 ³	na ⁴	1.4	<10	<10	<8.3	<50	<50	<50	<13	<13	<13	<13	<13	<10	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<2.0	<0.5	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<5.0	<5.0	<5.0	<0.5	<2.5	<10	ne ⁵		
DCA ⁶	<50.0	0.8	<10	<10	<4.2	<13	<13	<13	<13	<13	<13	<13	<13	<10	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<2.0	<0.5	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<5.0	<5.0	<5.0	<0.5	<2.5	<10	5			
Chloroform	<50.0	0.6*	<10	<10	<8.3	<13	<13	<13	<13	<13	<13	<13	<13	<10	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<10	<4.0	<1.4	<4.0	<4.0	<4.0	<4.0	<4.0	<10	<10	<4.0	<10	<10	<1.9	<5.0	<20	ne				
cis-1,2-DCE	<10	<10	<10	<10	<4.2	<13	<13	<13	<13	<13	<13	<13	<13	<10	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<2.0	<0.5	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<5.0	<5.0	<5.0	0.62	<2.5	<10	ne			
TCA ⁷	<50.0	1.6	<10	<10	<4.2	<13	<13	<13	<13	<13	<13	<13	<13	<10	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<2.0	<0.5	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<5.0	<5.0	<5.0	<0.5	<2.5	<10	200			
TCE ⁸	178	150	190	170	130	180	250	210	190	160	140	190	68	97	90	110	130	53	72	81	39	15	23	34	16	3.4	22	47	20	17	38	51	29	18	42	65	42	6.5	40	68	5		
PCE ⁹	906	1,400	1,900	1,200	880	1,000	1,400	1,000	1,400	1,100	980	1,100	600	730	770	780	850	370	490	620	380	160	180	240	140	39	140	400	210	170	310	430	330	170	390	620	320	68	300	640	5		
Other analytes ¹⁰	nd ¹¹	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	--	

Results measured in micrograms per liter (µg/L)																																											
Well No.	MW-2																													MCL ¹													
Field Date	11/16/99	3/30/00	5/16/00	7/28/00	11/30/00	3/26/01	6/25/01	9/28/01	12/17/01	3/28/02	6/6/02	9/20/02	12/30/02	3/4/03	6/9/03	9/8/03	12/1/03	3/4/04	6/2/04	9/14/04	12/8/04	3/3/05	6/10/05	9/16/05	12/6/05	3/10/06	6/9/06	9/11/06	12/15/06	3/6/07	6/15/07	9/11/07	12/4/07	3/20/08	6/18/08	9/3/08	12/4/08	3/5/09	6/11/09	9/3/09	MCL ¹		
DCE ²	<50.0	<0.5	<25	<25	<8.3	<25	<25	<25	<25	<25	<25	<25	<25	<20	<20	<20	<20	<20	<25	<25	<20	<50	<25	<20	<25	<25	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<25	<5.0	6	
CFC 113 ³	na	<0.5	<25	<25	<17	<100	<100	<100	<100	<25	<25	<25	<25	<20	<20	<20	<20	<20	<25	<25	<20	<50	<25	<20	<25	<25	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<25	<5.0	ne ⁵
DCA ⁶	<50.0	<0.5	<25	<25	<8.3	<25	<25	<25	<25	<25	<25	<25	<25	<20	<20	<20	<20	<20	<25	<25	<20	<50	<25	<20	<25	<25	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<25	<5.0	5
Chloroform	<50.0	<0.5	<25	<25	<17	<25	<25	<25	<25	<25	<25	<25	<25	<20	<20	<20	<20	<20	<25	<25	<20	<50	<25	<40	<50	<50	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<50	<10	ne	
cis-1,2-DCE	<50.0	<0.5	<25	<25	<8.3	<25	<25	<25	<25	<25	<25	<25	<25	<20	<20	<20	<20	<20	<25	<25	<20	<50	<25	<20	<25	<25	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<25	<5.0	ne	
TCA ⁷	<50.0	5.0	<25	<25	<8.3	<25	<25	<25	<25	<25	<25	<25	<25	<20	<20	<20	<20	<20	<25	<25	<20	<50	<25	<20	<25	<25	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<25	<5.0	200	
TCE ⁸	<50	29	53	<25	20	40	78	<25	<25	49	52	32	<25	58	41	28	25	39	49	37	30	78	43	29	45	59	<20	<20	<20	<20	<20	22	31	<20	<20	21	<20	<20	<20	<25	<5.0	5	
PCE ⁹	840	3,600	3,200	3,300	1,700	2,200	4,400	1,700	1,700	3,500	3,800	2,100	1,800	3,900	3,800	2,500	2,500	3,000	4,100	3,800	2,800	7,300	3,600	2,500	3,300	5,200	1,600	990	1,000	1,600	2,400	1,700	1,100	2,900	1,700	1,600	2,000	2,300	1,500	410	5		
Other analytes ¹⁰	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	--	

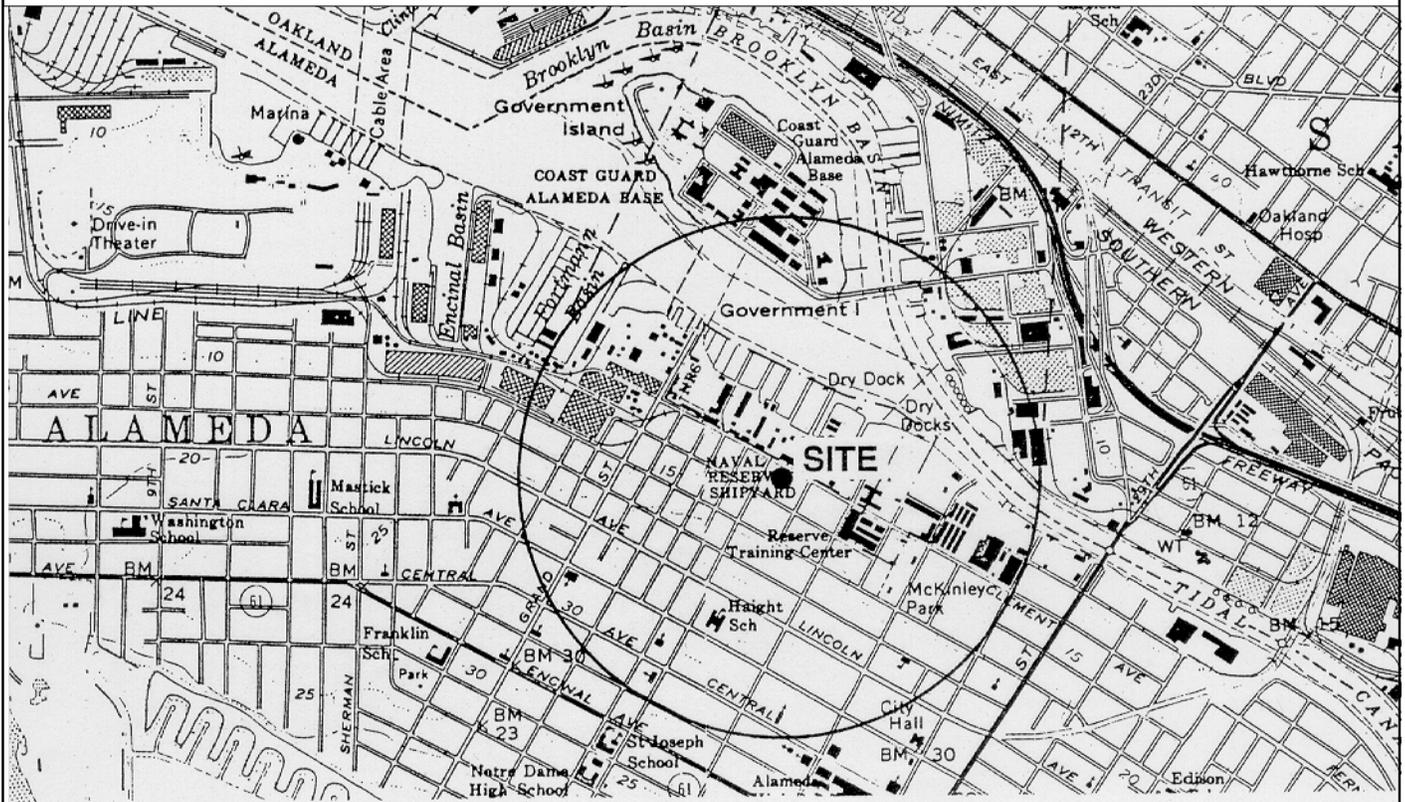
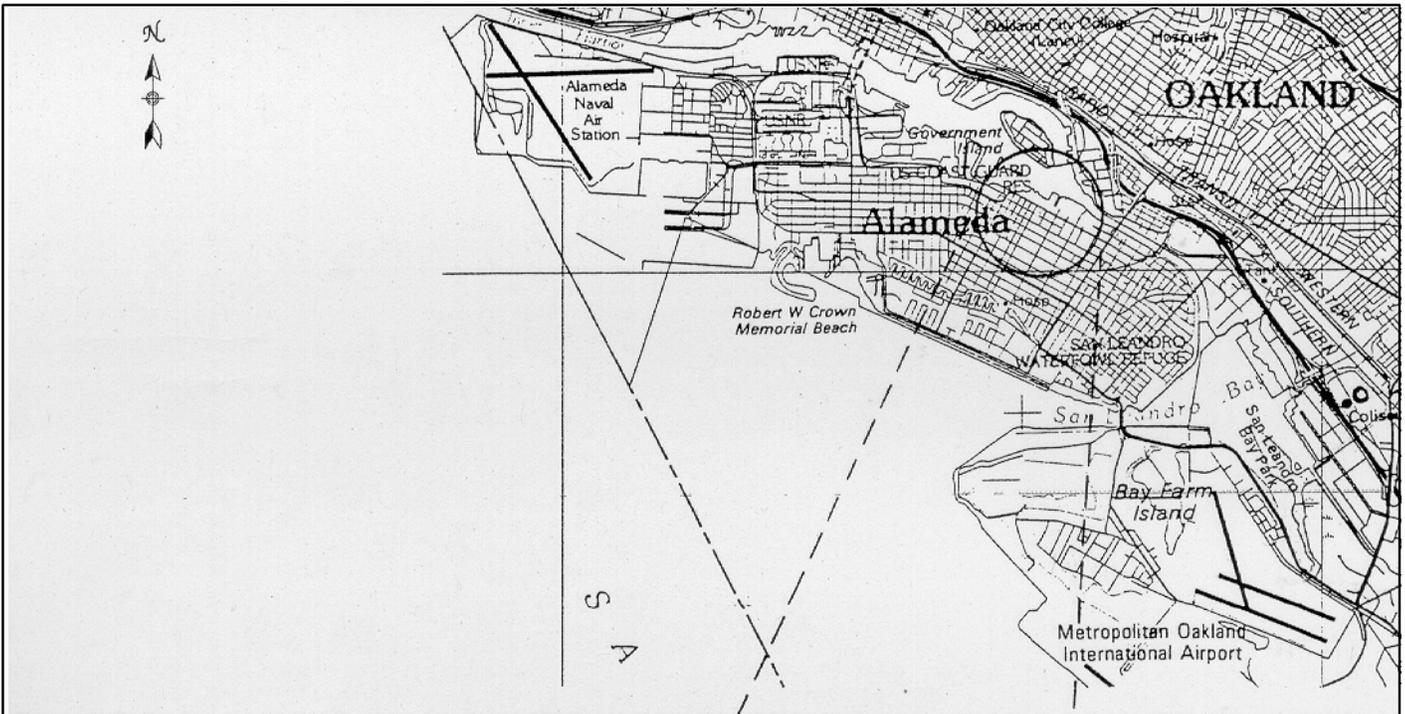
Notes:
¹ MCL = California Primary Drinking Water Standard - Maximum Contaminant Level (in micrograms per liter [µg/L])
² DCE = 1,1-Dichloroethene
³ CFC 113 = Trichlorotrifluoroethane (1,1,2-Trichloro-1,2,2-trifluoroethane)
⁴ na = not analyzed
⁵ ne = not established or none applicable
⁶ DCA = 1,1-Dichloroethane
⁷ TCA = 1,1,1-Trichloroethane
⁸ TCE = Trichloroethene
⁹ PCE = Tetrachloroethene
¹⁰ All other 8010 list analytes
¹¹ nd = not detected above laboratory reporting limit
 * Chloroform detected in equipment blank at 1.6 µg/L for 3/30/00 event.

Table 3b. Historical Summary of Groundwater Monitoring Well Data

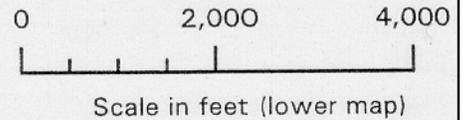
Results measured in micrograms per liter (µg/L)																																														
Well No.	MW-3																																													
Field Date	11/16/99	3/30/00	5/16/00	7/28/00	11/30/00	3/26/01	6/25/01	9/28/01	12/17/01	3/21/02	6/6/02	9/20/02	12/19/02	3/4/03	6/9/03	9/8/03	12/1/03	3/4/04	6/2/04	9/14/04	12/8/04	3/3/05	6/10/05	9/16/05	12/6/05	3/10/06	6/9/06	9/11/06	12/15/06	3/6/07	6/15/07	9/11/07	12/4/07	3/20/08	6/18/08	9/3/08	12/4/08	3/5/09	6/11/09	9/3/09	MCL ¹					
DCE ²	<0.500	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.51	<0.5	0.81	<0.5	<0.5	0.68	2.4	1.5	1.1	0.86	4.3	2.8	1.6	1.5	2.4	1.4	1.1	1.0	1.4	0.79	0.59	<0.5	0.95	0.51	6					
CFC 113 ³	na	<0.5	<0.5	<0.5	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ne ⁵		
DCA ⁶	<0.500	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5	
Chloroform	<0.500	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	ne		
cis-1,2-DCE	<0.500	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ne		
TCA ⁷	<0.500	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	200	
TCE ⁸	<0.500	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5	
PCE ⁹	<0.500	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	0.81	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5	
Other analytes ¹⁰	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	--

Results measured in micrograms per liter (µg/L)																																														
Well No.	MW-4																																													
Field Date	12/17/01	3/28/02	6/6/02	9/20/02	12/19/02	3/4/03	6/9/03	9/8/03	12/1/03	3/4/04	6/2/04	9/14/04	12/8/04	3/3/05	6/10/05	9/16/05	12/6/05	3/10/06	6/9/06	9/11/06	12/21/06	3/6/07	6/15/07	9/11/07	12/4/07	3/20/08	6/18/08	9/3/08	12/4/08	3/5/09	6/11/09	9/3/09	MCL ¹													
DCE ²	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6			
CFC 113 ³	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ne ⁵		
DCA ⁶	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5	
Chloroform	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ne	
cis-1,2-DCE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ne	
TCA ⁷	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	200	
TCE ⁸	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5
PCE ⁹	2.6	2.8	2.0	2.5	1.1	2.1	2.1	1.6	1.6	1.7	1.4	1.3	1.2	0.93	0.98	0.8	1.1	0.79	0.64	0.70	0.63	0.70	0.75	0.86	0.92	0.91	0.86	0.84	0.65	0.62	0.70	0.79										5				
Other analytes ¹⁰	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	--														

Notes:
¹ MCL = California Primary Drinking Water Standard - Maximum Contaminant Level (in micrograms per liter [µg/L])
² DCE = 1,1-Dichloroethene
³ CFC 113 = Trichlorotrifluoroethane (1,1,2-Trichloro-1,2,2-trifluoroethane)
⁴ na = not analyzed
⁵ ne = not established or none applicable
⁶ DCA = 1,1-Dichloroethane
⁷ TCA = 1,1,1-Trichloroethane
⁸ TCE = Trichloroethene
⁹ PCE = Tetrachloroethene
¹⁰ All other 8010 list analytes
¹¹ nd = not detected above laboratory reporting limit



Base map (upper): U.S.G.S. 1:1,000,000-scale series (Topographic)
 San Francisco Quadrangle, California, 1978.
 Base map (lower): U.S.G.S. 7.5 minute series (Topographic)
 Oakland East and Oakland West Quadrangles, California,
 1959, Photorevised 1980.



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Project No. CS1605
 Cargill Salt Dispensing Systems Division
 2016 Clement Avenue, Alameda, California
Figure 1. Site Location

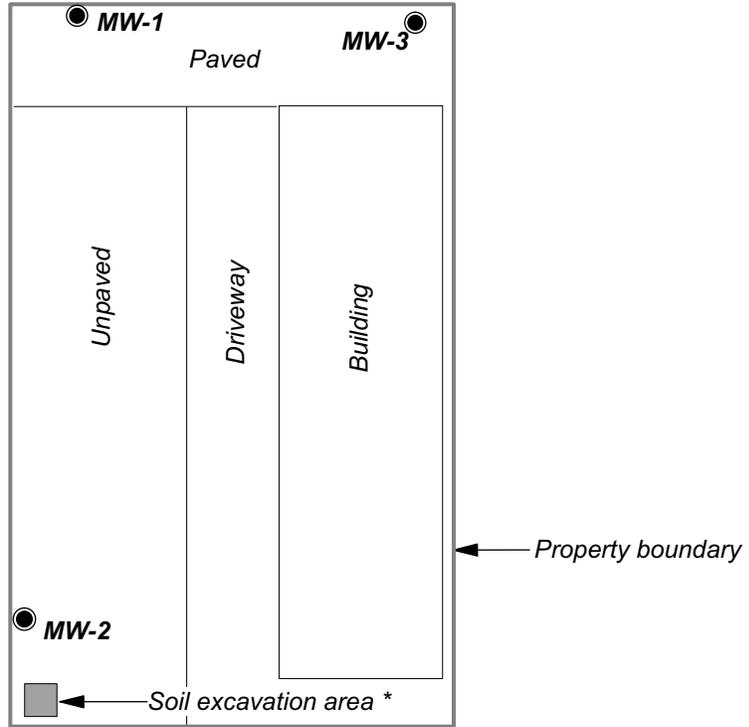


MW-4

Curb line (Typ.)

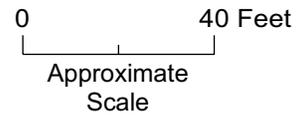


Clement Avenue



EXPLANATION

- Groundwater monitoring well
- * Excavated in February 1994



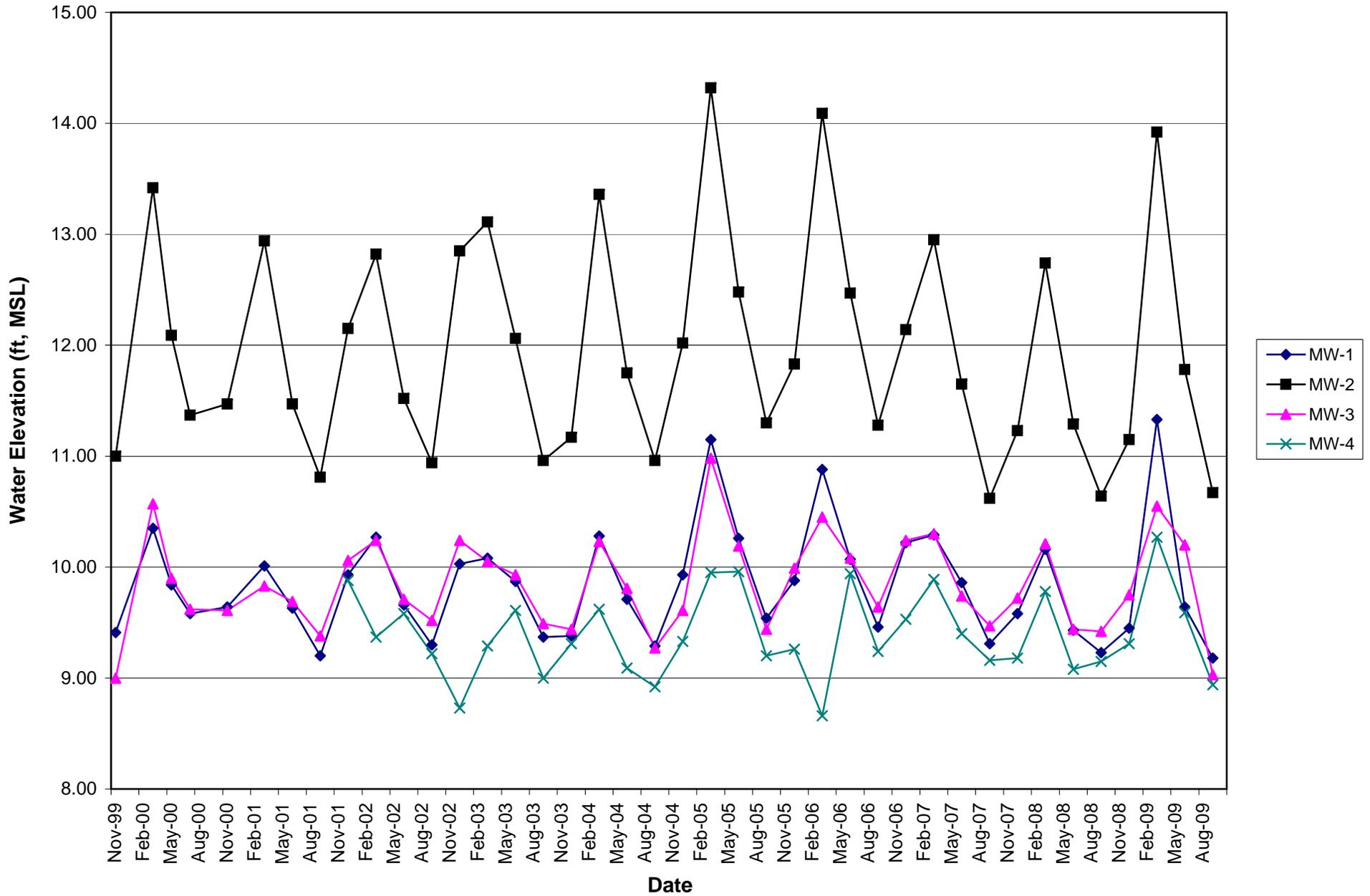
1605fig207Q4.dsf 2/22/08

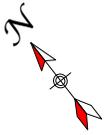
Base map from Conor Pacific/EFW, Off-Site Groundwater Characterization, August 21, 2002.



Project No. CS1605
 Cargill Salt Dispensing Systems Division
 2016 Clement Avenue, Alameda, California
Figure 2. Groundwater Monitoring Well Locations

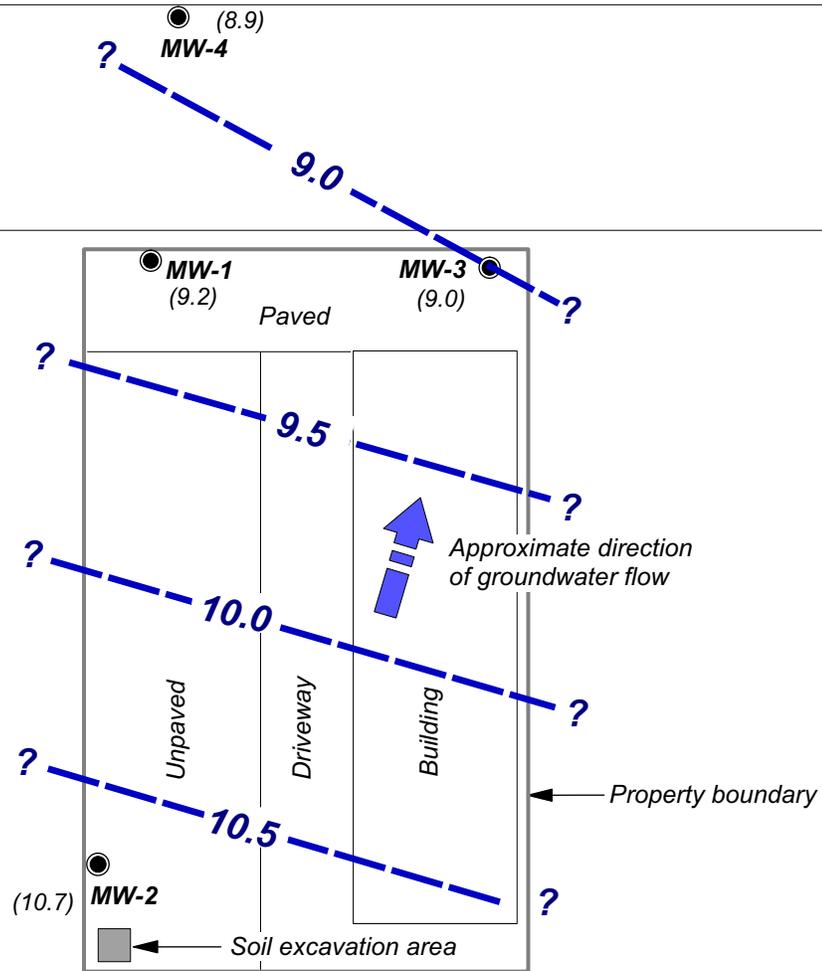
Figure 3. Graphical Summary of Groundwater Elevations





Curb line (Typ.)

Clement Avenue

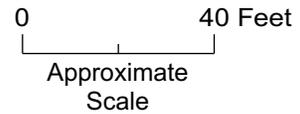


EXPLANATION

● Monitoring well

(9.2) Groundwater elevation (Ft.-MSL);
measured 9/3/09

?-10- Groundwater elevation contour
(Ft.-MSL)



1605fig409Q3.dsf 11/9/09

Base map from Conor Pacific/EFW, Off-Site
Groundwater Characterization, August 21, 2002.



Project No. CS1605
Cargill Salt Dispensing Systems Division
2016 Clement Avenue, Alameda, California
Figure 4. Groundwater Elevation Contours - September 2009



Curb line (Typ.)

Clement Avenue

MW-4

DCE	<0.5
TCE	<0.5
PCE	0.79

MW-1

Paved

MW-3

DCE	<10
TCE	68
PCE	640

DCE	0.51
TCE	<0.5
PCE	<0.5

Unpaved

Driveway

Building

DCE	<5.0
TCE	<5.0
PCE	410

Property boundary

MW-2

Soil excavation area

EXPLANATION



Groundwater monitoring well location

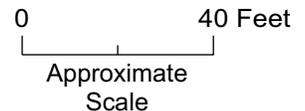
All concentrations reported in micrograms per liter ($\mu\text{g/L}$), in groundwater. All other 8010 list analytes were below detection limits.

Analyte concentration

DCE = 1,1-Dichloroethene
 PCE = Tetrachloroethene
 TCE = Trichloroethene
 VOCs = Volatile organic compounds

DCE	<10
TCE	68
PCE	640

Analytical parameter



1605fig509Q3.dsf 11/10/09

Base map from Conor Pacific/EFW, Off-Site Groundwater Characterization, August 21, 2002.



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 Cargill Salt Dispensing Systems Division
 2016 Clement Avenue, Alameda, California
**Figure 5. VOC Concentrations in Groundwater –
 September 2009**

Figure 6. Graphical Summary of PCE Concentrations

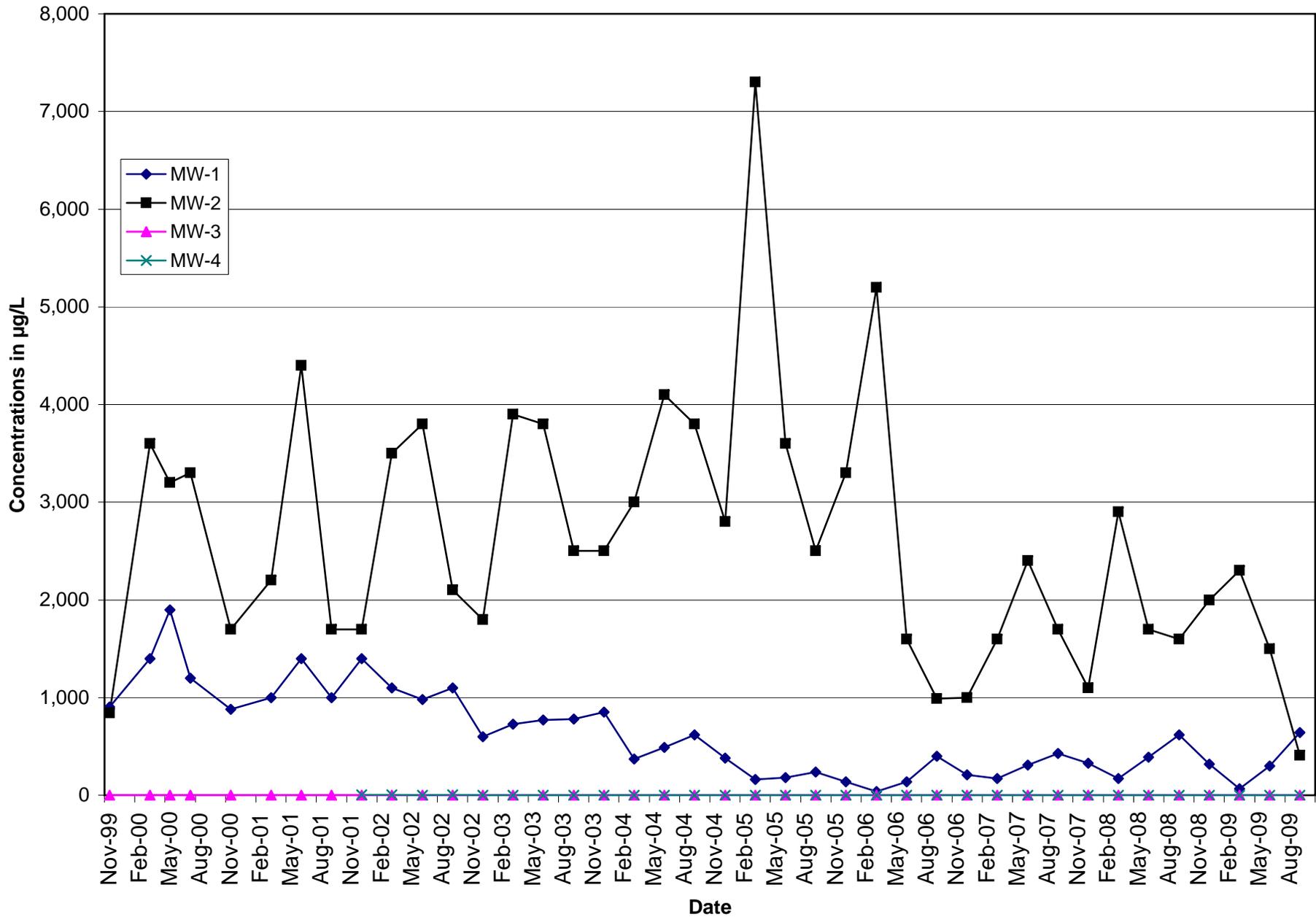
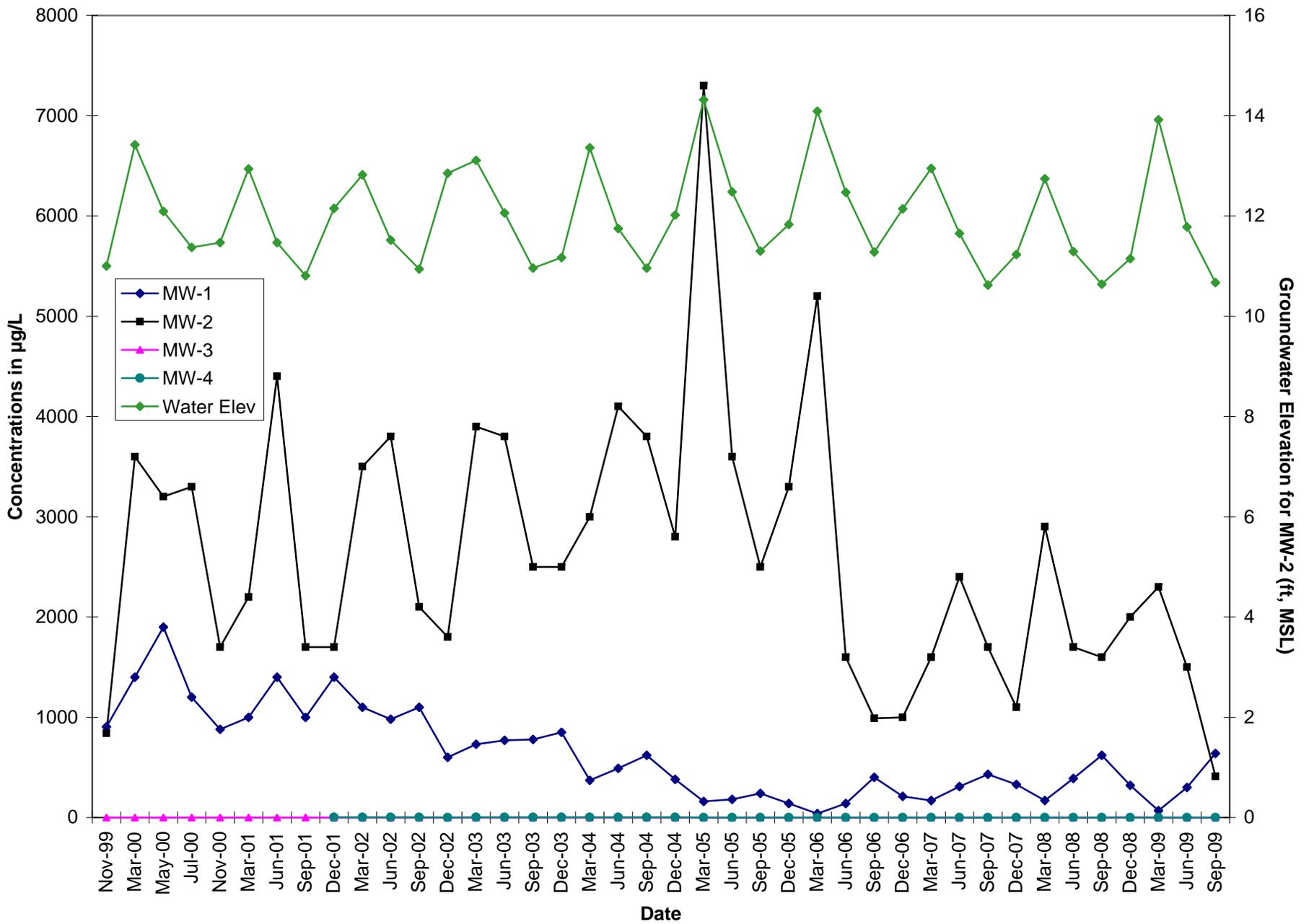


Figure 7. PCE Concentrations vs. Groundwater Elevation



Appendix A
Field Data Sheets

WATER LEVEL FIELD DATA

Cargill Salt
 Alameda Facility
 Alameda, California
 Project No. CS1605

Well ID	Date	Time	Depth to Water (1st Msmt.) (feet)	Depth to Water (2nd Msmt.) (feet)	Comments
MW-1	9/3/09	0757	3.58	3.98	well ok
MW-2	9/3/09	0801	5.55	5.55	well ok, water in box
MW-3	9/3/09	0755	4.31	4.31	well ok
MW-4	9/3/09	0804	3.49	3.49	well ok

Data Collection

Field measurements by: Print: <u>Ruben Guevara</u> Signature: <u>[Signature]</u> Date: <u>9/3/09</u>	Reviewed by: Print: <u>Jim Butera</u> Signature: <u>[Signature]</u> Date: <u>9/10/09</u>
---	---

SAMPLE COLLECTION FIELD DATA

Project No.: CS1605
 Project Name: Alameda Facility
 Location: Alameda, CA
 Client: Cargill Salt

Well ID: MW-2
 Sample ID: MW-1
 Start Date: 9/3/09
 Finish Date: 9/3/09

WELL INFORMATION

Casing diameter (in.): 1.0 Depth to water (ft): 4.08 Well depth (ft): 18.3
 One casing volume (gal.): 0.50 Calculated purge volume (gal.) (3 x casing volume): 1.75
 One casing volume = $\pi \times [\text{casing radius (in.)} \times 1 \text{ ft}/12 \text{ in.}]^2 \times [\text{well depth (ft)} - \text{depth to water (ft)}] \times 7.48 \text{ gal/ft}^3$
 Gallons per linear ft for casing diameter of: 1" = 0.041 2" = 0.16 4" = 0.65 5" = 1.0 6" = 1.5 8" = 2.6
 Floating product thickness (ft): ND Method for checking: Interface probe Clear bailer

WELL PURGING

Date purged: 9/3/09 Start time: 1008 End time: 1030
 Purging equipment: Submersible pump Bladder pump Peristaltic pump
 PVC bailer Teflon bailer Other
 Purge rate: 0.58 gpm Well yield (H/L): High yield well
 Purge water disposal: Drummed onsite

Time (2400 hr)	Cumulative Vol. Purged (gal.)	pH (units)	EC ($\mu\text{S/cm}$)	T ($^{\circ}\text{C}$)	Color (Visual)	Turbidity (Visual or NTU)
<u>1018</u>	<u>2.2</u>	<u>7.16</u>	<u>502</u>	<u>21.4</u>	<u>clear</u>	<u>5.03</u>
<u>1024</u>	<u>4.4</u>	<u>6.90</u>	<u>477</u>	<u>21.3</u>	<u>clear</u>	<u>2.34</u>
<u>1030</u>	<u>6.7</u>	<u>6.82</u>	<u>466</u>	<u>21.3</u>	<u>clear</u>	<u>1.76</u>

Total Purged (gal.): 1.75

WELL SAMPLING

Date sampled: 9/3/09 Start time: 1031 End time: 1034
 Sampling equipment: Peristaltic pump Bladder pump Teflon bailer
 PVC bailer Other

Depth to water (ft) before sampling: 6.09

Weather conditions: clear Ambient temperature ($^{\circ}\text{F}$): 70
 Well condition/Remarks: well OK needs well bolts
All samples collected

Meter calibration: EC SEE MW-4 pH
 Temperature Turbidity
 Purged and sampled by (print): A. Newman
 Signature: [Signature] Reviewed by: [Signature]

SAMPLE COLLECTION FIELD DATA

Project No.: CS1605
 Project Name: Alameda Facility
 Location: Alameda, CA
 Client: Cargill Salt

Well ID: MW-2
 Sample ID: MW-2
 Start Date: 9/3/09
 Finish Date: 9/3/09

WELL INFORMATION

Casing diameter (in.): 10.0 Depth to water (ft): 5.76 Well depth (ft): 17.5
 One casing volume (gal.): 0.48 Calculated purge volume (gal.) (3 x casing volume): 1.44
 One casing volume = $\pi \times [\text{casing radius (in.)} \times 1 \text{ ft}/12 \text{ in.}]^2 \times [\text{well depth (ft)} - \text{depth to water (ft)}] \times 7.48 \text{ gal/ft}^3$
 Gallons per linear ft for casing diameter of: 1" = 0.041 2" = 0.16 4" = 0.65 5" = 1.0 6" = 1.5 8" = 2.6
 Floating product thickness (ft): NV Method for checking: Interface probe Clear bailer

WELL PURGING

Date purged: 9/3/09 Start time: 1040 End time: 1100
 Purging equipment: Submersible pump Bladder pump Peristaltic pump
 PVC bailer Teflon bailer Other
 Purge rate: 0.27 gpm Well yield (H/L): Moderate yield well
 Purge water disposal: Drummed onsite

Time (2400 hr)	Cumulative Vol. Purged (gal.)	pH (units)	EC ($\mu\text{S/cm}$)	T ($^{\circ}\text{C}$)	Color (Visual)	Turbidity (Visual or NTU)
<u>1047</u>	<u>1.8</u>	<u>6.62</u>	<u>475</u>	<u>20.4</u>	<u>4.0 tan</u>	<u>46.5</u>
<u>1053</u>	<u>3.6</u>	<u>6.64</u>	<u>513</u>	<u>19.9</u>	<u>Clear</u>	<u>22.7</u>
<u>1100</u>	<u>5.5</u>	<u>6.61</u>	<u>520</u>	<u>19.3</u>	<u>Clear</u>	<u>11.3</u>

Total Purged (gal.): 1.44

WELL SAMPLING

Date sampled: 9/3/09 Start time: 1101 End time: 1111
 Depth to water (ft) before sampling: 7.01
 Sampling equipment: Peristaltic pump Bladder pump Teflon bailer
 PVC bailer Other

Weather conditions: Clear Ambient temperature ($^{\circ}\text{F}$): 70
 Well condition/Remarks: OK, well w/ needs bats
Dup-1 collected
All samples collected

Meter calibration: EC SEE MW-4 pH
 Temperature Turbidity

Purged and sampled by (print): Aguero 9
 Signature: [Signature] Reviewed by: [Signature]

SAMPLE COLLECTION FIELD DATA

Project No.: CS1605
 Project Name: Alameda Facility
 Location: Alameda, CA
 Client: Cargill Salt

Well ID: MW-3
 Sample ID: MW-3
 Start Date: 9/3/09
 Finish Date: 9/3/09

WELL INFORMATION

Casing diameter (in.): 1.0 Depth to water (ft): 39.2 Well depth (ft): 17.0
 One casing volume (gal.): 0.54 Calculated purge volume (gal.) (3 x casing volume): 1.68
 One casing volume = $\pi \times [\text{casing radius (in.)} \times 1 \text{ ft}/12 \text{ in.}]^2 \times [\text{well depth (ft)} - \text{depth to water (ft)}] \times 7.48 \text{ gal/ft}^3$
 Gallons per linear ft for casing diameter of: 1" = 0.041 2" = 0.16 4" = 0.65 5" = 1.0 6" = 1.5 8" = 2.6
 Floating product thickness (ft): ND Method for checking: Interface probe Clear bailer

WELL PURGING

Date purged: 9/3/09 Start time: 0910 End time: 0956
 Purging equipment: Submersible pump Bladder pump Peristaltic pump
 PVC bailer Teflon bailer Other
 Purge rate: 0.048 gpm Well yield (H/L): low yield well
 Purge water disposal: Drummed on site

Time (2400 hr)	Cumulative Vol. Purged (gal.)	pH (units)	EC ($\mu\text{S/cm}$)	T ($^{\circ}\text{C}$)	Color (Visual)	Turbidity (Visual or NTU)
<u>0925</u>	<u>2.1</u>	<u>7.38</u>	<u>601</u>	<u>21.1</u>	<u>clear</u>	<u>7.05</u>
<u>0941</u>	<u>4.2</u>	<u>7.30</u>	<u>595</u>	<u>20.5</u>	<u>clear</u>	<u>10.4</u>
<u>0956</u>	<u>6.4</u>	<u>7.36</u>	<u>596</u>	<u>21.0</u>	<u>clear</u>	<u>13.5</u>

Total Purged (gal.): 1.68

WELL SAMPLING

Date sampled: 9/3/09 Start time: 0957 End time: 1001
 Sampling equipment: Peristaltic pump Bladder pump Teflon bailer
 PVC bailer Other
 Depth to water (ft) before sampling: 16.4

Weather conditions: clear Ambient temperature ($^{\circ}\text{F}$): 70
 Well condition/Remarks: well ok, needs wellhead bolts; tubing stuck in well

All samples collected

Meter calibration: EC SEE MW-4 pH _____
 Temperature _____ Turbidity _____

Purged and sampled by (print): P. Guevarra
 Signature: [Signature] Reviewed by: [Signature]

Appendix B

Groundwater Velocity Calculations

APPENDIX B
GROUNDWATER VELOCITY CALCULATIONS

FOR CARGILL ALAMEDA SITE

GROUNDWATER VELOCITY FORMULA

$V = Ki/n$ where:

V = average linear groundwater velocity i = hydraulic gradient
 K = hydraulic conductivity n = effective porosity

PARAMETERS

Range of hydraulic conductivity values (K) from slug tests:

Material	Well	K (cm/sec)
Silty sand (SM) and Clayey sand (SC)	MW-1	0.00002
Silty sand (SM) and Clayey sand (SC)	MW-2	0.00002
Silty sand (SM) and Clayey sand (SC)	MW-3	0.000003

Highest measured K = 0.00002

Porosity (n) = 33% (from laboratory analysis of boring B21 soil sample)

Hydraulic gradient (i) calculated from groundwater contours:

Sep-09 0.012

UNIT CONVERSIONS

1 day = 86,400 sec 1 cm/sec = 2,834.65 ft/day
 1 foot = 30.48 cm 1 cm/sec = 1,034,645.67 ft/yr

CALCULATED VELOCITIES

Measurement Event	Flow Direction	K (cm/sec)	i (ft/ft)	n	V (ft/yr)
Sep-09	NE	0.00002	0.012	0.33	0.75

Calculations and assumptions prepared by:

Mark C. Wheeler

Date: 11/9/2009

Appendix C

Certified Analytical Reports and Chain-of-Custody Documentation

ANALYTICAL REPORT

Job Number: 720-22356-1

Job Description: Alameda Facility CS 1605

For:

Crawford Consulting Inc
2 North First Street 4th Floor
San Jose, CA 95113-1212

Attention: Mark Wheeler



Approved for release.
Dimple Sharma
Project Manager I
9/10/2009 3:31 PM

Dimple Sharma
Project Manager I
dimple.sharma@testamericainc.com
09/10/2009

cc: Dana Johnston

CA ELAP Certification # 2496

The Chain(s) of Custody are included and are an integral part of this report.

The report shall not be reproduced except in full, without the written approval of the laboratory. The client, by accepting this report, also agrees not to alter any reports whether in the hard copy or electronic format and to use reasonable efforts to preserve the reports in the form and substance originally provided by TestAmerica.

A trip blank is required to be provided for volatile analyses. If trip blank results are not included in the report, either the trip blank was not submitted or requested to be analyzed.

TestAmerica Laboratories, Inc.

TestAmerica San Francisco 1220 Quarry Lane, Pleasanton, CA 94566

Tel (925) 484-1919 Fax (925) 600-3002 www.testamericainc.com

Comments

No additional comments.

Receipt

All samples were received in good condition within temperature requirements.

GC/MS VOA

No analytical or quality issues were noted.

EXECUTIVE SUMMARY - Detections

Client: Crawford Consulting Inc

Job Number: 720-22356-1

Lab Sample ID Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
720-22356-1	MW-1				
Trichloroethene		68	10	ug/L	8260B
Tetrachloroethene		640	10	ug/L	8260B
720-22356-2	MW-2				
Tetrachloroethene		410	5.0	ug/L	8260B
720-22356-3	MW-3				
1,1-Dichloroethene		0.51	0.50	ug/L	8260B
720-22356-4	MW-4				
Tetrachloroethene		0.79	0.50	ug/L	8260B
720-22356-5	DUP-1				
Tetrachloroethene		410	5.0	ug/L	8260B

METHOD SUMMARY

Client: Crawford Consulting Inc

Job Number: 720-22356-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL SF	SW846 8260B	
Purge and Trap	TAL SF		SW846 5030B

Lab References:

TAL SF = TestAmerica San Francisco

Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

SAMPLE SUMMARY

Client: Crawford Consulting Inc

Job Number: 720-22356-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
720-22356-1	MW-1	Water	09/03/2009 1031	09/03/2009 1210
720-22356-2	MW-2	Water	09/03/2009 1101	09/03/2009 1210
720-22356-3	MW-3	Water	09/03/2009 0957	09/03/2009 1210
720-22356-4	MW-4	Water	09/03/2009 0851	09/03/2009 1210
720-22356-5	DUP-1	Water	09/03/2009 0000	09/03/2009 1210
720-22356-6TB	TB-1	Water	09/03/2009 0000	09/03/2009 1210

Analytical Data

Client: Crawford Consulting Inc

Job Number: 720-22356-1

Client Sample ID: MW-1

Lab Sample ID: 720-22356-1

Date Sampled: 09/03/2009 1031

Client Matrix: Water

Date Received: 09/03/2009 1210

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 720-57142	Instrument ID: SAT2K3
Preparation:	5030B		Lab File ID: d:\data\200909\09040
Dilution:	20		Initial Weight/Volume: 40 mL
Date Analyzed:	09/04/2009 2122		Final Weight/Volume: 40 mL
Date Prepared:	09/04/2009 2122		

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	ND		10
1,1-Dichloroethane	ND		10
Dichlorodifluoromethane	ND		10
Vinyl chloride	ND		10
Chloroethane	ND		20
Trichlorofluoromethane	ND		20
Methylene Chloride	ND		100
trans-1,2-Dichloroethene	ND		10
cis-1,2-Dichloroethene	ND		10
Chloroform	ND		20
1,1,1-Trichloroethane	ND		10
Carbon tetrachloride	ND		10
1,2-Dichloroethane	ND		10
Trichloroethene	68		10
1,2-Dichloropropane	ND		10
Dichlorobromomethane	ND		10
trans-1,3-Dichloropropene	ND		10
cis-1,3-Dichloropropene	ND		10
1,1,2-Trichloroethane	ND		10
Tetrachloroethene	640		10
Chlorodibromomethane	ND		10
Chlorobenzene	ND		10
Bromoform	ND		20
1,1,1,2-Tetrachloroethane	ND		10
1,3-Dichlorobenzene	ND		10
1,4-Dichlorobenzene	ND		10
1,2-Dichlorobenzene	ND		10
Chloromethane	ND		20
Bromomethane	ND		20
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		10
EDB	ND		10
1,2,4-Trichlorobenzene	ND		10

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	107		70 - 130
4-Bromofluorobenzene	109		67 - 130
1,2-Dichloroethane-d4 (Surr)	106		67 - 130

Analytical Data

Client: Crawford Consulting Inc

Job Number: 720-22356-1

Client Sample ID: MW-2

Lab Sample ID: 720-22356-2

Date Sampled: 09/03/2009 1101

Client Matrix: Water

Date Received: 09/03/2009 1210

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 720-57149	Instrument ID: HP12
Preparation:	5030B		Lab File ID: 09080915.D
Dilution:	10		Initial Weight/Volume: 10 mL
Date Analyzed:	09/08/2009 1659		Final Weight/Volume: 10 mL
Date Prepared:	09/08/2009 1659		

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	ND		5.0
1,1-Dichloroethane	ND		5.0
Dichlorodifluoromethane	ND		5.0
Vinyl chloride	ND		5.0
Chloroethane	ND		10
Trichlorofluoromethane	ND		10
Methylene Chloride	ND		50
trans-1,2-Dichloroethene	ND		5.0
cis-1,2-Dichloroethene	ND		5.0
Chloroform	ND		10
1,1,1-Trichloroethane	ND		5.0
Carbon tetrachloride	ND		5.0
1,2-Dichloroethane	ND		5.0
Trichloroethene	ND		5.0
1,2-Dichloropropane	ND		5.0
Dichlorobromomethane	ND		5.0
trans-1,3-Dichloropropene	ND		5.0
cis-1,3-Dichloropropene	ND		5.0
1,1,2-Trichloroethane	ND		5.0
Tetrachloroethene	410		5.0
Chlorodibromomethane	ND		5.0
Chlorobenzene	ND		5.0
Bromoform	ND		10
1,1,1,2-Tetrachloroethane	ND		5.0
1,3-Dichlorobenzene	ND		5.0
1,4-Dichlorobenzene	ND		5.0
1,2-Dichlorobenzene	ND		5.0
Chloromethane	ND		10
Bromomethane	ND		10
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0
EDB	ND		5.0
1,2,4-Trichlorobenzene	ND		10

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	101		70 - 130
4-Bromofluorobenzene	105		67 - 130
1,2-Dichloroethane-d4 (Surr)	111		67 - 130

Analytical Data

Client: Crawford Consulting Inc

Job Number: 720-22356-1

Client Sample ID: MW-3

Lab Sample ID: 720-22356-3

Date Sampled: 09/03/2009 0957

Client Matrix: Water

Date Received: 09/03/2009 1210

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 720-57142	Instrument ID: SAT2K3
Preparation:	5030B		Lab File ID: d:\data\200909\09040
Dilution:	1.0		Initial Weight/Volume: 40 mL
Date Analyzed:	09/05/2009 0136		Final Weight/Volume: 40 mL
Date Prepared:	09/05/2009 0136		

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	0.51		0.50
1,1-Dichloroethane	ND		0.50
Dichlorodifluoromethane	ND		0.50
Vinyl chloride	ND		0.50
Chloroethane	ND		1.0
Trichlorofluoromethane	ND		1.0
Methylene Chloride	ND		5.0
trans-1,2-Dichloroethene	ND		0.50
cis-1,2-Dichloroethene	ND		0.50
Chloroform	ND		1.0
1,1,1-Trichloroethane	ND		0.50
Carbon tetrachloride	ND		0.50
1,2-Dichloroethane	ND		0.50
Trichloroethene	ND		0.50
1,2-Dichloropropane	ND		0.50
Dichlorobromomethane	ND		0.50
trans-1,3-Dichloropropene	ND		0.50
cis-1,3-Dichloropropene	ND		0.50
1,1,2-Trichloroethane	ND		0.50
Tetrachloroethene	ND		0.50
Chlorodibromomethane	ND		0.50
Chlorobenzene	ND		0.50
Bromoform	ND		1.0
1,1,1,2-Tetrachloroethane	ND		0.50
1,3-Dichlorobenzene	ND		0.50
1,4-Dichlorobenzene	ND		0.50
1,2-Dichlorobenzene	ND		0.50
Chloromethane	ND		1.0
Bromomethane	ND		1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50
EDB	ND		0.50
1,2,4-Trichlorobenzene	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	108		70 - 130
4-Bromofluorobenzene	111		67 - 130
1,2-Dichloroethane-d4 (Surr)	102		67 - 130

Analytical Data

Client: Crawford Consulting Inc

Job Number: 720-22356-1

Client Sample ID: MW-4

Lab Sample ID: 720-22356-4

Date Sampled: 09/03/2009 0851

Client Matrix: Water

Date Received: 09/03/2009 1210

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 720-57142	Instrument ID: SAT2K3
Preparation:	5030B		Lab File ID: d:\data\200909\09040
Dilution:	1.0		Initial Weight/Volume: 40 mL
Date Analyzed:	09/05/2009 0207		Final Weight/Volume: 40 mL
Date Prepared:	09/05/2009 0207		

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	ND		0.50
1,1-Dichloroethane	ND		0.50
Dichlorodifluoromethane	ND		0.50
Vinyl chloride	ND		0.50
Chloroethane	ND		1.0
Trichlorofluoromethane	ND		1.0
Methylene Chloride	ND		5.0
trans-1,2-Dichloroethene	ND		0.50
cis-1,2-Dichloroethene	ND		0.50
Chloroform	ND		1.0
1,1,1-Trichloroethane	ND		0.50
Carbon tetrachloride	ND		0.50
1,2-Dichloroethane	ND		0.50
Trichloroethene	ND		0.50
1,2-Dichloropropane	ND		0.50
Dichlorobromomethane	ND		0.50
trans-1,3-Dichloropropene	ND		0.50
cis-1,3-Dichloropropene	ND		0.50
1,1,2-Trichloroethane	ND		0.50
Tetrachloroethene	0.79		0.50
Chlorodibromomethane	ND		0.50
Chlorobenzene	ND		0.50
Bromoform	ND		1.0
1,1,1,2-Tetrachloroethane	ND		0.50
1,3-Dichlorobenzene	ND		0.50
1,4-Dichlorobenzene	ND		0.50
1,2-Dichlorobenzene	ND		0.50
Chloromethane	ND		1.0
Bromomethane	ND		1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50
EDB	ND		0.50
1,2,4-Trichlorobenzene	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	104		70 - 130
4-Bromofluorobenzene	111		67 - 130
1,2-Dichloroethane-d4 (Surr)	104		67 - 130

Analytical Data

Client: Crawford Consulting Inc

Job Number: 720-22356-1

Client Sample ID: DUP-1

Lab Sample ID: 720-22356-5

Date Sampled: 09/03/2009 0000

Client Matrix: Water

Date Received: 09/03/2009 1210

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 720-57149	Instrument ID: HP12
Preparation:	5030B		Lab File ID: 09080916.D
Dilution:	10		Initial Weight/Volume: 10 mL
Date Analyzed:	09/08/2009 1731		Final Weight/Volume: 10 mL
Date Prepared:	09/08/2009 1731		

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	ND		5.0
1,1-Dichloroethane	ND		5.0
Dichlorodifluoromethane	ND		5.0
Vinyl chloride	ND		5.0
Chloroethane	ND		10
Trichlorofluoromethane	ND		10
Methylene Chloride	ND		50
trans-1,2-Dichloroethene	ND		5.0
cis-1,2-Dichloroethene	ND		5.0
Chloroform	ND		10
1,1,1-Trichloroethane	ND		5.0
Carbon tetrachloride	ND		5.0
1,2-Dichloroethane	ND		5.0
Trichloroethene	ND		5.0
1,2-Dichloropropane	ND		5.0
Dichlorobromomethane	ND		5.0
trans-1,3-Dichloropropene	ND		5.0
cis-1,3-Dichloropropene	ND		5.0
1,1,2-Trichloroethane	ND		5.0
Tetrachloroethene	410		5.0
Chlorodibromomethane	ND		5.0
Chlorobenzene	ND		5.0
Bromoform	ND		10
1,1,1,2-Tetrachloroethane	ND		5.0
1,3-Dichlorobenzene	ND		5.0
1,4-Dichlorobenzene	ND		5.0
1,2-Dichlorobenzene	ND		5.0
Chloromethane	ND		10
Bromomethane	ND		10
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0
EDB	ND		5.0
1,2,4-Trichlorobenzene	ND		10

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	100		70 - 130
4-Bromofluorobenzene	103		67 - 130
1,2-Dichloroethane-d4 (Surr)	101		67 - 130

Analytical Data

Client: Crawford Consulting Inc

Job Number: 720-22356-1

Client Sample ID: TB-1

Lab Sample ID: 720-22356-6TB

Date Sampled: 09/03/2009 0000

Client Matrix: Water

Date Received: 09/03/2009 1210

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 720-57142	Instrument ID: SAT2K3
Preparation:	5030B		Lab File ID: d:\data\200909\09040
Dilution:	1.0		Initial Weight/Volume: 40 mL
Date Analyzed:	09/04/2009 2050		Final Weight/Volume: 40 mL
Date Prepared:	09/04/2009 2050		

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	ND		0.50
1,1-Dichloroethane	ND		0.50
Dichlorodifluoromethane	ND		0.50
Vinyl chloride	ND		0.50
Chloroethane	ND		1.0
Trichlorofluoromethane	ND		1.0
Methylene Chloride	ND		5.0
trans-1,2-Dichloroethene	ND		0.50
cis-1,2-Dichloroethene	ND		0.50
Chloroform	ND		1.0
1,1,1-Trichloroethane	ND		0.50
Carbon tetrachloride	ND		0.50
1,2-Dichloroethane	ND		0.50
Trichloroethene	ND		0.50
1,2-Dichloropropane	ND		0.50
Dichlorobromomethane	ND		0.50
trans-1,3-Dichloropropene	ND		0.50
cis-1,3-Dichloropropene	ND		0.50
1,1,2-Trichloroethane	ND		0.50
Tetrachloroethene	ND		0.50
Chlorodibromomethane	ND		0.50
Chlorobenzene	ND		0.50
Bromoform	ND		1.0
1,1,1,2-Tetrachloroethane	ND		0.50
1,3-Dichlorobenzene	ND		0.50
1,4-Dichlorobenzene	ND		0.50
1,2-Dichlorobenzene	ND		0.50
Chloromethane	ND		1.0
Bromomethane	ND		1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50
EDB	ND		0.50
1,2,4-Trichlorobenzene	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	99		70 - 130
4-Bromofluorobenzene	107		67 - 130
1,2-Dichloroethane-d4 (Surr)	103		67 - 130

DATA REPORTING QUALIFIERS

Client: Crawford Consulting Inc

Job Number: 720-22356-1

Lab Section	Qualifier	Description
GC/MS VOA	F	MS or MSD exceeds the control limits

Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-22356-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-57142					
LCS 720-57142/2	Lab Control Sample	T	Water	8260B	
LCSD 720-57142/1	Lab Control Sample Duplicate	T	Water	8260B	
MB 720-57142/4	Method Blank	T	Water	8260B	
720-22356-1	MW-1	T	Water	8260B	
720-22356-1MS	Matrix Spike	T	Water	8260B	
720-22356-1MSD	Matrix Spike Duplicate	T	Water	8260B	
720-22356-3	MW-3	T	Water	8260B	
720-22356-4	MW-4	T	Water	8260B	
720-22356-6TB	TB-1	T	Water	8260B	
Analysis Batch:720-57149					
LCS 720-57149/4	Lab Control Sample	T	Water	8260B	
LCSD 720-57149/5	Lab Control Sample Duplicate	T	Water	8260B	
MB 720-57149/6	Method Blank	T	Water	8260B	
720-22356-2	MW-2	T	Water	8260B	
720-22356-5	DUP-1	T	Water	8260B	

Report Basis

T = Total

Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-22356-1

Method Blank - Batch: 720-57142

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 720-57142/4
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 09/04/2009 1736
Date Prepared: 09/04/2009 1736

Analysis Batch: 720-57142
Prep Batch: N/A
Units: ug/L

Instrument ID: Saturn 2K3
Lab File ID: d:\data\200909\090409\MB-W
Initial Weight/Volume: 40 mL
Final Weight/Volume: 40 mL

Analyte	Result	Qual	RL
1,1-Dichloroethene	ND		0.50
1,1-Dichloroethane	ND		0.50
Dichlorodifluoromethane	ND		0.50
Vinyl chloride	ND		0.50
Chloroethane	ND		1.0
Trichlorofluoromethane	ND		1.0
Methylene Chloride	ND		5.0
trans-1,2-Dichloroethene	ND		0.50
cis-1,2-Dichloroethene	ND		0.50
Chloroform	ND		1.0
1,1,1-Trichloroethane	ND		0.50
Carbon tetrachloride	ND		0.50
1,2-Dichloroethane	ND		0.50
Trichloroethene	ND		0.50
1,2-Dichloropropane	ND		0.50
Dichlorobromomethane	ND		0.50
trans-1,3-Dichloropropene	ND		0.50
cis-1,3-Dichloropropene	ND		0.50
1,1,2-Trichloroethane	ND		0.50
Tetrachloroethene	ND		0.50
Chlorodibromomethane	ND		0.50
Chlorobenzene	ND		0.50
Bromoform	ND		1.0
1,1,2,2-Tetrachloroethane	ND		0.50
1,3-Dichlorobenzene	ND		0.50
1,4-Dichlorobenzene	ND		0.50
1,2-Dichlorobenzene	ND		0.50
Chloromethane	ND		1.0
Bromomethane	ND		1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50
EDB	ND		0.50
1,2,4-Trichlorobenzene	ND		0.50

Surrogate	% Rec	Acceptance Limits
Toluene-d8 (Surr)	104	70 - 130
4-Bromofluorobenzene	108	67 - 130
1,2-Dichloroethane-d4 (Surr)	102	67 - 130

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-22356-1

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-57142**

**Method: 8260B
Preparation: 5030B**

LCS Lab Sample ID: LCS 720-57142/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 09/04/2009 1807
Date Prepared: 09/04/2009 1807

Analysis Batch: 720-57142
Prep Batch: N/A
Units: ug/L

Instrument ID: Saturn 2K3
Lab File ID: d:\data\200909\090409\ls-wa
Initial Weight/Volume: 40 mL
Final Weight/Volume: 40 mL

LCSD Lab Sample ID: LCSD 720-57142/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 09/04/2009 1839
Date Prepared: 09/04/2009 1839

Analysis Batch: 720-57142
Prep Batch: N/A
Units: ug/L

Instrument ID: Saturn 2K3
Lab File ID: d:\data\200909\090409\LD-WA
Initial Weight/Volume: 40 mL
Final Weight/Volume: 40 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
1,1-Dichloroethene	93	95	76 - 128	1	20		
1,1-Dichloroethane	90	87	80 - 126	3	20		
Dichlorodifluoromethane	62	63	38 - 142	1	20		
Vinyl chloride	88	87	58 - 147	1	20		
Chloroethane	100	103	51 - 149	3	20		
Trichlorofluoromethane	78	80	62 - 136	3	20		
Methylene Chloride	94	96	80 - 128	2	20		
trans-1,2-Dichloroethene	88	89	80 - 125	1	20		
cis-1,2-Dichloroethene	94	95	80 - 136	1	20		
Chloroform	92	94	78 - 129	2	20		
1,1,1-Trichloroethane	97	96	74 - 135	0	20		
Carbon tetrachloride	96	98	69 - 136	1	20		
1,2-Dichloroethane	98	100	70 - 133	1	20		
Trichloroethene	93	96	72 - 138	4	20		
1,2-Dichloropropane	101	103	75 - 138	2	20		
Dichlorobromomethane	105	105	74 - 140	0	20		
trans-1,3-Dichloropropene	100	99	74 - 137	0	20		
cis-1,3-Dichloropropene	106	105	72 - 148	1	20		
1,1,2-Trichloroethane	113	106	67 - 151	6	20		
Tetrachloroethene	94	99	80 - 134	5	20		
Chlorodibromomethane	110	107	68 - 137	2	20		
Chlorobenzene	97	99	80 - 122	2	20		
Bromoform	108	104	56 - 144	4	20		
1,1,2,2-Tetrachloroethane	106	99	72 - 146	8	20		
1,3-Dichlorobenzene	103	107	80 - 128	4	20		
1,4-Dichlorobenzene	98	103	80 - 122	5	20		
1,2-Dichlorobenzene	102	102	80 - 127	0	20		
Chloromethane	96	95	52 - 136	2	20		
Bromomethane	137	149	23 - 171	8	20		
1,1,2-Trichloro-1,2,2-trifluoroethane	88	91	66 - 132	3	20		
EDB	102	98	70 - 143	4	20		
1,2,4-Trichlorobenzene	82	97	70 - 143	17	20		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-22356-1

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-57142**

**Method: 8260B
Preparation: 5030B**

LCS Lab Sample ID: LCS 720-57142/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 09/04/2009 1807
Date Prepared: 09/04/2009 1807

Analysis Batch: 720-57142
Prep Batch: N/A
Units: ug/L

Instrument ID: Saturn 2K3
Lab File ID: d:\data\200909\090409\ls-wa
Initial Weight/Volume: 40 mL
Final Weight/Volume: 40 mL

LCSD Lab Sample ID: LCSD 720-57142/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 09/04/2009 1839
Date Prepared: 09/04/2009 1839

Analysis Batch: 720-57142
Prep Batch: N/A
Units: ug/L

Instrument ID: Saturn 2K3
Lab File ID: d:\data\200909\090409\LD-WA
Initial Weight/Volume: 40 mL
Final Weight/Volume: 40 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits				
Toluene-d8 (Surr)	100	102	70 - 130				
4-Bromofluorobenzene	108	109	67 - 130				
1,2-Dichloroethane-d4 (Surr)	108	109	67 - 130				

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-22356-1

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 720-57142**

**Method: 8260B
Preparation: 5030B**

MS Lab Sample ID: 720-22356-1
Client Matrix: Water
Dilution: 5.0
Date Analyzed: 09/04/2009 1915
Date Prepared: 09/04/2009 1915

Analysis Batch: 720-57142
Prep Batch: N/A

Instrument ID: Saturn 2K3
Lab File ID: d:\data\200909\090409\SA-V
Initial Weight/Volume: 40 mL
Final Weight/Volume: 40 mL

MSD Lab Sample ID: 720-22356-1
Client Matrix: Water
Dilution: 5.0
Date Analyzed: 09/04/2009 1946
Date Prepared: 09/04/2009 1946

Analysis Batch: 720-57142
Prep Batch: N/A

Instrument ID: Saturn 2K3
Lab File ID: d:\data\200909\090409\SA-W
Initial Weight/Volume: 40 mL
Final Weight/Volume: 40 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
1,1-Dichloroethene	100	104	60 - 140	4	20		
1,1-Dichloroethane	95	100	60 - 140	5	20		
Dichlorodifluoromethane	54	55	38 - 140	1	20		
Vinyl chloride	83	86	58 - 140	4	20		
Chloroethane	102	105	51 - 140	3	20		
Trichlorofluoromethane	93	95	60 - 140	2	20		
Methylene Chloride	100	103	40 - 140	3	20		
trans-1,2-Dichloroethene	98	97	60 - 140	0	20		
cis-1,2-Dichloroethene	104	106	60 - 140	2	20		
Chloroform	101	102	60 - 140	1	20		
1,1,1-Trichloroethane	109	106	60 - 140	3	20		
Carbon tetrachloride	108	105	60 - 140	3	20		
1,2-Dichloroethane	106	103	60 - 140	3	20		
Trichloroethene	107	102	60 - 140	2	20		
1,2-Dichloropropane	114	111	60 - 140	3	20		
Dichlorobromomethane	112	107	60 - 140	5	20		
trans-1,3-Dichloropropene	105	106	60 - 140	0	20		
cis-1,3-Dichloropropene	117	109	60 - 140	7	20		
1,1,2-Trichloroethane	122	120	60 - 140	2	20		
Tetrachloroethene	299	240	60 - 140	4	20	F	F
Chlorodibromomethane	121	120	60 - 140	0	20		
Chlorobenzene	104	101	60 - 140	3	20		
Bromoform	116	118	56 - 140	2	20		
1,1,2,2-Tetrachloroethane	115	109	60 - 140	5	20		
1,3-Dichlorobenzene	112	110	60 - 140	2	20		
1,4-Dichlorobenzene	100	96	60 - 140	3	20		
1,2-Dichlorobenzene	113	109	60 - 140	3	20		
Chloromethane	85	87	52 - 140	3	20		
Bromomethane	135	156	23 - 140	15	20		F

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-22356-1

Matrix Spike/

Matrix Spike Duplicate Recovery Report - Batch: 720-57142

Method: 8260B

Preparation: 5030B

MS Lab Sample ID: 720-22356-1
 Client Matrix: Water
 Dilution: 5.0
 Date Analyzed: 09/04/2009 1915
 Date Prepared: 09/04/2009 1915

Analysis Batch: 720-57142
 Prep Batch: N/A

Instrument ID: Saturn 2K3
 Lab File ID: d:\data\200909\090409\SA-V
 Initial Weight/Volume: 40 mL
 Final Weight/Volume: 40 mL

MSD Lab Sample ID: 720-22356-1
 Client Matrix: Water
 Dilution: 5.0
 Date Analyzed: 09/04/2009 1946
 Date Prepared: 09/04/2009 1946

Analysis Batch: 720-57142
 Prep Batch: N/A

Instrument ID: Saturn 2K3
 Lab File ID: d:\data\200909\090409\SA-W
 Initial Weight/Volume: 40 mL
 Final Weight/Volume: 40 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
1,1,2-Trichloro-1,2,2-trifluoroethane	106	107	60 - 140	1	20		
EDB	107	106	60 - 140	1	20		
1,2,4-Trichlorobenzene	94	91	60 - 140	3	20		
Surrogate	MS % Rec		MSD % Rec		Acceptance Limits		
Toluene-d8 (Surr)	92		88		70 - 130		
4-Bromofluorobenzene	100		96		67 - 130		
1,2-Dichloroethane-d4 (Surr)	97		101		67 - 130		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-22356-1

Method Blank - Batch: 720-57149

**Method: 8260B
Preparation: 5030B**

Lab Sample ID: MB 720-57149/6
 Client Matrix: Water
 Dilution: 1.0
 Date Analyzed: 09/08/2009 1447
 Date Prepared: 09/08/2009 1447

Analysis Batch: 720-57149
 Prep Batch: N/A
 Units: ug/L

Instrument ID: Chenstation 3
 Lab File ID: 09080912.D
 Initial Weight/Volume: 10 mL
 Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
1,1-Dichloroethene	ND		0.50
1,1-Dichloroethane	ND		0.50
Dichlorodifluoromethane	ND		0.50
Vinyl chloride	ND		0.50
Chloroethane	ND		1.0
Trichlorofluoromethane	ND		1.0
Methylene Chloride	ND		5.0
trans-1,2-Dichloroethene	ND		0.50
cis-1,2-Dichloroethene	ND		0.50
Chloroform	ND		1.0
1,1,1-Trichloroethane	ND		0.50
Carbon tetrachloride	ND		0.50
1,2-Dichloroethane	ND		0.50
Trichloroethene	ND		0.50
1,2-Dichloropropane	ND		0.50
Dichlorobromomethane	ND		0.50
trans-1,3-Dichloropropene	ND		0.50
cis-1,3-Dichloropropene	ND		0.50
1,1,2-Trichloroethane	ND		0.50
Tetrachloroethene	ND		0.50
Chlorodibromomethane	ND		0.50
Chlorobenzene	ND		0.50
Bromoform	ND		1.0
1,1,2,2-Tetrachloroethane	ND		0.50
1,3-Dichlorobenzene	ND		0.50
1,4-Dichlorobenzene	ND		0.50
1,2-Dichlorobenzene	ND		0.50
Chloromethane	ND		1.0
Bromomethane	ND		1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50
EDB	ND		0.50
1,2,4-Trichlorobenzene	ND		1.0

Surrogate	% Rec	Acceptance Limits
Toluene-d8 (Surr)	101	70 - 130
4-Bromofluorobenzene	103	67 - 130
1,2-Dichloroethane-d4 (Surr)	102	67 - 130

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-22356-1

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-57149**

**Method: 8260B
Preparation: 5030B**

LCS Lab Sample ID: LCS 720-57149/4
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 09/08/2009 1342
Date Prepared: 09/08/2009 1342

Analysis Batch: 720-57149
Prep Batch: N/A
Units: ug/L

Instrument ID: Chenstation 3
Lab File ID: 09080910.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

LCSD Lab Sample ID: LCSD 720-57149/5
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 09/08/2009 1415
Date Prepared: 09/08/2009 1415

Analysis Batch: 720-57149
Prep Batch: N/A
Units: ug/L

Instrument ID: Chenstation 3
Lab File ID: 09080911.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
1,1-Dichloroethene	120	119	76 - 128	1	20		
1,1-Dichloroethane	113	107	80 - 126	5	20		
Dichlorodifluoromethane	118	115	38 - 142	3	20		
Vinyl chloride	101	104	58 - 147	3	20		
Chloroethane	110	106	51 - 149	3	20		
Trichlorofluoromethane	113	109	62 - 136	3	20		
Methylene Chloride	118	106	80 - 128	10	20		
trans-1,2-Dichloroethene	112	108	80 - 125	4	20		
cis-1,2-Dichloroethene	117	110	80 - 136	6	20		
Chloroform	115	107	78 - 129	7	20		
1,1,1-Trichloroethane	109	106	74 - 135	3	20		
Carbon tetrachloride	110	106	69 - 136	4	20		
1,2-Dichloroethane	117	104	70 - 133	12	20		
Trichloroethene	113	108	72 - 138	5	20		
1,2-Dichloropropane	118	108	75 - 138	9	20		
Dichlorobromomethane	127	113	74 - 140	11	20		
trans-1,3-Dichloropropene	125	110	74 - 137	13	20		
cis-1,3-Dichloropropene	127	113	72 - 148	12	20		
1,1,2-Trichloroethane	132	115	67 - 151	14	20		
Tetrachloroethene	110	106	80 - 134	4	20		
Chlorodibromomethane	128	110	68 - 137	15	20		
Chlorobenzene	112	108	80 - 122	4	20		
Bromoform	113	102	56 - 144	10	20		
1,1,2,2-Tetrachloroethane	128	119	72 - 146	8	20		
1,3-Dichlorobenzene	113	110	80 - 128	3	20		
1,4-Dichlorobenzene	111	107	80 - 122	3	20		
1,2-Dichlorobenzene	113	108	80 - 127	4	20		
Chloromethane	119	116	52 - 136	3	20		
Bromomethane	112	106	23 - 171	5	20		
1,1,2-Trichloro-1,2,2-trifluoroethane	111	108	66 - 132	2	20		
EDB	129	112	70 - 143	14	20		
1,2,4-Trichlorobenzene	111	106	70 - 143	5	20		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-22356-1

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-57149**

**Method: 8260B
Preparation: 5030B**

LCS Lab Sample ID: LCS 720-57149/4
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 09/08/2009 1342
Date Prepared: 09/08/2009 1342

Analysis Batch: 720-57149
Prep Batch: N/A
Units: ug/L

Instrument ID: Chenstation 3
Lab File ID: 09080910.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

LCSD Lab Sample ID: LCSD 720-57149/5
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 09/08/2009 1415
Date Prepared: 09/08/2009 1415

Analysis Batch: 720-57149
Prep Batch: N/A
Units: ug/L

Instrument ID: Chenstation 3
Lab File ID: 09080911.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits				
Toluene-d8 (Surr)	102	101	70 - 130				
4-Bromofluorobenzene	104	102	67 - 130				
1,2-Dichloroethane-d4 (Surr)	108	97	67 - 130				

Calculations are performed before rounding to avoid round-off errors in calculated results.

720-22356

118814

Test America

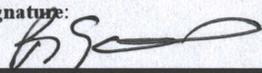
CHAIN OF CUSTODY / LABORATORY ANALYSIS REQUEST FORM

1220 Quarry Lane, Pleasanton, CA 94566
 (925) 484-1919 FAX (925) 484-1096

Service Request: _____

Date: 9/3/09

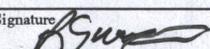
Project Name: Alameda Facility
Project Number: CS1605
Project Manager: Dana Johnston
Company/Address: Crawford Consulting, Inc.
 2 North First St, 4th Floor
 San Jose, CA 95113
Phone: (408) 287-9934
Fax: (408) 287-9937

Sampler's Signature: 

Number of Containers	Analysis Requested										REMARKS
	Volatiles Organics (VOCs) (EPA 8021B)	Pb (7421); As (7060) Same as Metals	COD, TKN	500 ml plastic H ₂ SO ₄ Chloride, Nitrate	500 ml plastic NP pH, Conductivity	500 ml plastic NP	Total Phenols	2 x 500 ml glass H ₂ SO ₄	Volatiles Organics (8010) 3 x 40 ml vial	TPH/BTEX 2 x 40 ml vial HCl	
											2.9°C

Sample I.D.	Date	Time	LAB I.D.	Sample Matrix
MW-1	9/3/09	1031		water
MW-2	9/3/09	1101		water
MW-3	9/3/09	0957		water
MW-4	9/3/09	0851		water
DUP-1	9/3/09	—		water
TB-1	9/3/09	—		water

Page 22 of 23

Relinquished By		Received By		TURNAROUND REQUIREMENTS		REPORT REQUIREMENTS		INVOICE INFORMATION		SAMPLE RECEIPT	
Signature: 		Signature: 		<input checked="" type="checkbox"/> 24 hr _____ 48 hr _____ 5 day _____ <input checked="" type="checkbox"/> Standard (5 working days) <input type="checkbox"/> Provide Verbal Preliminary Results <input checked="" type="checkbox"/> Provide pdf Results		<input checked="" type="checkbox"/> I. Routine Report <input type="checkbox"/> II. Report (includes DUP, MS MSD, as required, may be charged as samples) <input type="checkbox"/> III. Data Validation Report (includes All Raw Data) RWQCB (MDLs/PQLs/TRACE#)		P.O. # _____ Bill to: _____ _____ _____		Shipping VIA: _____ Shipping #: _____ Condition: _____ _____ _____	
Printed Name: <u>Ruben Escobar</u>		Printed Name: <u>Bryan Thomas</u>		Due Date: _____							
Firm: <u>F.S.I.</u>		Firm: <u>Test America</u>									
Date/Time: <u>9/3/09 1120</u>		Date/Time: <u>9/3/09 1210</u>									

Relinquished By		Received By	
Signature	Signature	Signature	Signature
Printed Name	Printed Name	Printed Name	Printed Name
Firm	Firm	Firm	Firm
Date/Time	Date/Time	Date/Time	Date/Time

Special Instructions/Comments:

Please report MRLs only

Please pdf results to: Dana Johnston at dana@crawfordconsulting.com

Please provide EDF for Geotracker. Global ID is SL0600177511

Login Sample Receipt Check List

Client: Crawford Consulting Inc

Job Number: 720-22356-1

Login Number: 22356
Creator: Thomas, Bryan
List Number: 1

List Source: TestAmerica San Francisco

Question	T / F / NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified	True	

