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**Groundwater Monitoring Results**  
**Second Semi-Annual 2006 Monitoring Period**  
**Cargill Salt – Alameda Facility**  
**Alameda, California**



CRAWFORD  
CONSULTING  
INC.



February 28, 2007

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 2006 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 2006 Monitoring Period for the Cargill Salt Alameda facility. This report presents the results of groundwater monitoring data collected during the third and fourth quarters of 2006. For each 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.

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) 790-8625.

Sincerely,

A handwritten signature in black ink, appearing to read "Teri Peterson".

Teri Peterson  
Environmental Manager

**Groundwater Monitoring Results  
Second Semi-Annual 2006 Monitoring Period  
Cargill Salt – Alameda Facility  
Alameda, California**

**Prepared for:  
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**Project No. CS1605  
February 28, 2007**

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**(presented in electronic format only)**

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## **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. Reporting is now being performed on a semi-annual basis.

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.

## 1.1 Reporting Period Activities

This report presents the results of groundwater monitoring data collected during the third and fourth quarters of 2006. For each 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 schedule for the second semi-annual 2006 monitoring period is shown below.

<b>Quarter of 2006</b>	<b>Field Dates</b>
Third	September 11, 2006
Fourth	December 15 and 21, 2006

Supervision of the quarterly monitoring events 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 through fourth quarters of 2006 were analyzed by STL San Francisco, 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.

### **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 quarterly and groundwater contour maps were prepared for the third and fourth quarter 2006 monitoring events.

### 2.1 Water-Level Measurement

Water levels in groundwater monitoring wells (MW-1, MW-2, MW-3, and MW-4) were measured each quarter, before any of the groundwater monitoring wells were purged for sampling for the quarterly 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 fourth quarter of 2006 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 2006 as in the previous six years (see Figure 3). Groundwater levels fell across the Site between the second quarter 2006 and third quarter 2006 measurements, reflecting dissipation of winter-season discharge. Groundwater levels rose between the third and fourth quarter 2006 measurements, reflecting winter-season recharge.

### 2.2 Groundwater Flow Direction and Gradient

Groundwater contour maps for the third and fourth quarters of 2006 based on the September and December 2006 water-level data are shown on Figures 4 and 5.

The groundwater flow direction determined for the third and fourth quarters of 2006 was to the northeast, consistent with the groundwater flow direction determined previously for the Site. The horizontal hydraulic gradients measured for the third and fourth quarters of 2006 were 0.014 and 0.015, respectively.

## 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 and fourth quarters of 2006 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 and fourth quarters 2006 groundwater contour maps, groundwater flow velocities beneath the Site are calculated to be approximately 1 foot per year.

## **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 11, 2006 and December 15 and 21, 2006 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<sup>®</sup> dedicated check valves were installed on the tubing intakes to prevent back-flow of water into the well. A short length of dedicated Viton<sup>®</sup> 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<sup>®</sup> pump head discharge tubing.

The groundwater samples were analyzed for VOCs using U.S. Environmental Protection Agency (USEPA) Method 8021B. Results for all Method 8010 analytes were reported. The groundwater samples for third through fourth quarter 2006 were delivered with appropriate chain-of-custody documentation to STL San Francisco, 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 through fourth quarter 2006 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 [third and fourth quarters 2006]) 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 through fourth quarter 2006 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 an 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 2006 Field QC Results

One field duplicate (DUP-1) was analyzed as part of the third quarter 2006 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 8021B (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.

### Fourth Quarter 2006 Field QC Results

One field duplicate (DUP-1) was analyzed as part of the fourth quarter 2006 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 8021B (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 through Fourth Quarter 2006 Laboratory QC Results

A review of the third through fourth quarter 2006 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) no matrix spike or duplicate matrix spike recoveries were outside of the laboratory's control limits; and (3) RPD values for the matrix spikes and duplicate matrix spikes indicate a high overall degree of analytical precision. 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 of VOC analyses for each quarter for 2000 through fourth quarter 2006 are summarized in Table 3, which also shows the VOC results for the initial sampling event for monitoring wells MW-1, MW-2, and MW-3 in November 1999. The results for the third and fourth quarter 2006 monitoring events are also shown on Figures 6 and 7.

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 and fourth quarter 2006 monitoring events.

For the third and fourth quarters of 2006, the concentrations of PCE detected were 400 and 210 µg/L in monitoring well MW-1, 990 and 1,000 µg/L in MW-2, not detected and 0.56 µg/L in MW-3, and 0.70 and 0.63 µg/L in MW-4.

The concentrations of TCE detected were 47 and 20 µg/L in monitoring well MW-1. TCE was not detected in MW-2, MW-3 or MW-4.

DCE was detected in monitoring well MW-1 at 3.3 µg/L for the third quarter 2006 event but was not detected in the fourth quarter 2006. DCE was detected in MW-3 at 2.8 and 1.6 µg/L during the third and fourth quarters 2006, respectively. DCE was not detected in MW-2 or MW-4.

### **3.3 Discussion**

The results for the third through fourth quarter 2006 quarterly monitoring events are generally similar to the results reported for the years 2000 through second quarter 2006 quarterly monitoring programs (see Figure 7). Variations in VOC concentrations at monitoring well MW-2, the well with the highest reported PCE concentrations at the site, 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 8). The variations in VOC concentrations sometimes lag one quarter behind the variations in groundwater elevation.

The concentrations of PCE reported for groundwater monitoring well MW-2 for the June, September, and December 2006 sampling events were the lowest PCE concentrations reported for the well since the initial sampling event in November 1999. The PCE concentrations reported for MW-2 for the last three quarters may be an indication that the phytoremediation project is beginning to be effective at reducing VOC concentrations in groundwater at the site. However, it may be premature to correlate these PCE concentrations to the effectiveness of the phytoremediation project as the trees have only been growing for one-and-a-half years (see Section 4). Continued monitoring will be required before a definitive correlation can be made.

As shown on Figure 7, the concentrations of PCE reported for groundwater monitoring well MW-1 show an overall decreasing trend for the last several years.

## 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.

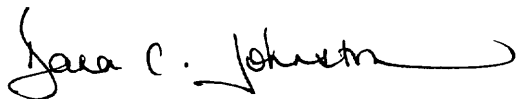
The end of the first semi-annual monitoring period of 2006 marks the first 18 months of the phytoremediation project. The trees were 4-ft-tall, bare-root poles with no foliage when planted in June 2005. During the first year and a half of growth, the trees developed foliage and grew several feet in height.

It is expected that it will take two to three years after planting for the trees and root systems to become well established and for the trees to start having a significant effect on VOC concentrations in groundwater at the Site. Tree growth and VOC concentrations will be monitored and evaluated to determine the effectiveness of the phytoremediation project.

## Professional Certification

**Groundwater Monitoring Results  
Second Semi-Annual 2006 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-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
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

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	6/10/2005	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-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
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-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

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	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

**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

Analysis	Third Quarter 2006			Fourth Quarter 2006		
	Well MW-2 Results	Duplicate (DUP-1) Results	RPD <sup>1</sup> (%)	Well MW-2 Results	Duplicate (DUP-1) Results	RPD <sup>1</sup> (%)
<b>Organic Compounds (µg/L)</b>						
1,1-Dichloroethene (DCE)	<20	<20	NM <sup>2</sup>	<20	<20	NM
1,1,1-Trichloroethane (TCA)	<20	<20	NM	<20	<20	NM
Trichloroethene (TCE)	<20	<20	NM	<20	<20	NM
Tetrachloroethene (PCE)	990	950	4.1	1,000	910	9.4
<sup>1</sup> RPD = relative percent difference <sup>2</sup> NM = not meaningful; RPD cannot be accurately calculated where one or both values are below the method reporting limit. All other 8010 analytes not detected (by 8021B).						

Table 3. Summary of Groundwater Monitoring Well Data

Results measured in micrograms per liter (µg/L)

Well No.	MW-1																												MCL <sup>1</sup>	
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	MCL <sup>1</sup>
DCE <sup>2</sup>	<50.0	<b>13</b>	<10	<b>15</b>	<b>14</b>	<13	<b>14</b>	<b>15</b>	<13	<13	<13	<13	<13	<10	<b>12</b>	<b>5.2</b>	<b>8.4</b>	<5.0	<b>5.8</b>	<b>6.6</b>	<5.0	<5.0	<2.0	<5.0	<2.0	<0.5	<2.0	<b>3.3</b>	<2.0	6
CFC 113 <sup>3</sup>	na <sup>4</sup>	<b>1.4</b>	<10	<10	<8.3	<50	<50	<50	<50	<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	ne <sup>5</sup>
DCA <sup>6</sup>	<50.0	<b>0.8</b>	<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	5
Chloroform	<50.0	<b>0.6*</b>	<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	<5.0	<2.0	<10	<4.0	<b>1.4</b>	<4.0	<4.0	<4.0	ne
TCA <sup>7</sup>	<50.0	<b>1.6</b>	<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	200
TCE <sup>8</sup>	<b>178</b>	<b>150</b>	<b>190</b>	<b>170</b>	<b>130</b>	<b>180</b>	<b>250</b>	<b>210</b>	<b>190</b>	<b>160</b>	<b>140</b>	<b>190</b>	<b>68</b>	<b>97</b>	<b>90</b>	<b>110</b>	<b>130</b>	<b>53</b>	<b>72</b>	<b>81</b>	<b>39</b>	<b>15</b>	<b>23</b>	<b>34</b>	<b>16</b>	<b>3.4</b>	<b>22</b>	<b>47</b>	<b>20</b>	5
PCE <sup>9</sup>	<b>906</b>	<b>1,400</b>	<b>1,900</b>	<b>1,200</b>	<b>880</b>	<b>1,000</b>	<b>1,400</b>	<b>1,000</b>	<b>1,400</b>	<b>1,100</b>	<b>980</b>	<b>1,100</b>	<b>600</b>	<b>730</b>	<b>770</b>	<b>780</b>	<b>850</b>	<b>370</b>	<b>490</b>	<b>620</b>	<b>380</b>	<b>160</b>	<b>180</b>	<b>240</b>	<b>140</b>	<b>39</b>	<b>140</b>	<b>400</b>	<b>210</b>	5
Other analytes <sup>10</sup>	nd <sup>11</sup>	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	--

Well No.	MW-2																												MCL <sup>1</sup>	
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	MCL <sup>1</sup>
DCE <sup>2</sup>	<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	6
CFC 113 <sup>3</sup>	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	ne <sup>5</sup>
DCA <sup>6</sup>	<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	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	<20	<40	ne
TCA <sup>7</sup>	<50.0	<b>5.0</b>	<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	200
TCE <sup>8</sup>	<50	<b>29</b>	<b>53</b>	<25	<b>20</b>	<b>40</b>	<b>78</b>	<25	<25	<b>49</b>	<b>52</b>	<b>32</b>	<25	<b>58</b>	<b>41</b>	<b>28</b>	<b>25</b>	<b>39</b>	<b>49</b>	<b>37</b>	<b>30</b>	<b>78</b>	<b>43</b>	<b>29</b>	<b>45</b>	<b>59</b>	<20	<20	<20	5
PCE <sup>9</sup>	<b>840</b>	<b>3,600</b>	<b>3,200</b>	<b>3,300</b>	<b>1,700</b>	<b>2,200</b>	<b>4,400</b>	<b>1,700</b>	<b>1,700</b>	<b>3,500</b>	<b>3,800</b>	<b>2,100</b>	<b>1,800</b>	<b>3,900</b>	<b>3,800</b>	<b>2,500</b>	<b>2,500</b>	<b>3,000</b>	<b>4,100</b>	<b>3,800</b>	<b>2,800</b>	<b>7,300</b>	<b>3,600</b>	<b>2,500</b>	<b>3,300</b>	<b>5,200</b>	<b>1,600</b>	<b>990</b>	<b>1,000</b>	5
Other analytes <sup>10</sup>	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:

<sup>1</sup> MCL = California Primary Drinking Water Standard - Maximum Contaminant Level (in micrograms per liter [µg/L]).

<sup>2</sup> DCE = 1,1-Dichloroethene

<sup>3</sup> CFC 113 = Trichlorotrifluoroethane (1,1,2-Trichloro-1,2,2-trifluoroethane)

<sup>4</sup> na = not analyzed

<sup>5</sup> ne = not established or none applicable

<sup>6</sup> DCA = 1,1-Dichloroethane

<sup>7</sup> TCA = 1,1,1-Trichloroethane

<sup>8</sup> TCE = Trichloroethene

<sup>9</sup> PCE = Tetrachloroethene

<sup>10</sup> All other Method 8010/8021B analytes

<sup>11</sup> nd = not detected above laboratory reporting limit

\* Chloroform detected in equipment blank at 1.6 µg/L for 3/30/00 event.

Table 3. Summary of Groundwater Monitoring Well Data

Results measured in micrograms per liter (µg/L)

Well No.	MW-3																												MCL <sup>1</sup>	
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	MCL <sup>1</sup>
DCE <sup>2</sup>	<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	<b>0.51</b>	<0.5	<b>0.81</b>	<0.5	<0.5	<b>0.68</b>	<b>2.4</b>	<b>1.5</b>	<b>1.1</b>	<b>0.86</b>	<b>4.3</b>	<b>2.8</b>	<b>1.6</b>	6
CFC 113 <sup>3</sup>	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	ne <sup>5</sup>
DCA <sup>6</sup>	<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	<b>0.50</b>	<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	ne
TCA <sup>7</sup>	<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	<b>1.0</b>	<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 <sup>8</sup>	<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	5
PCE <sup>9</sup>	<0.500	<0.5	<0.5	<b>0.8</b>	<0.5	<0.5	<0.5	<0.5	<b>0.81</b>	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<b>0.90</b>	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<b>0.56</b>	5
Other analytes <sup>10</sup>	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	--

Well No.	MW-4																					MCL <sup>1</sup>
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	MCL <sup>1</sup>
DCE <sup>2</sup>	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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 <sup>3</sup>	<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	ne <sup>5</sup>
DCA <sup>6</sup>	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	ne
TCA <sup>7</sup>	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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 <sup>8</sup>	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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 <sup>9</sup>	<b>2.6</b>	<b>2.8</b>	<b>2.0</b>	<b>2.5</b>	<b>1.1</b>	<b>2.1</b>	<b>2.1</b>	<b>1.6</b>	<b>1.6</b>	<b>1.7</b>	<b>1.4</b>	<b>1.3</b>	<b>1.2</b>	<b>0.93</b>	<b>0.98</b>	<b>0.8</b>	<b>1.1</b>	<b>0.79</b>	<b>0.64</b>	<b>0.70</b>	<b>0.63</b>	5
Other analytes <sup>10</sup>	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	--

Notes:

<sup>1</sup> MCL = California Primary Drinking Water Standard - Maximum Contaminant Level (in micrograms per liter [µg/L]).

<sup>2</sup> DCE = 1,1-Dichloroethene

<sup>3</sup> CFC 113 = Trichlorotrifluoroethane (1,1,2-Trichloro-1,2,2-trifluoroethane)

<sup>4</sup> na = not analyzed

<sup>5</sup> ne = not established or none applicable

<sup>6</sup> DCA = 1,1-Dichloroethane

<sup>7</sup> TCA = 1,1,1-Trichloroethane

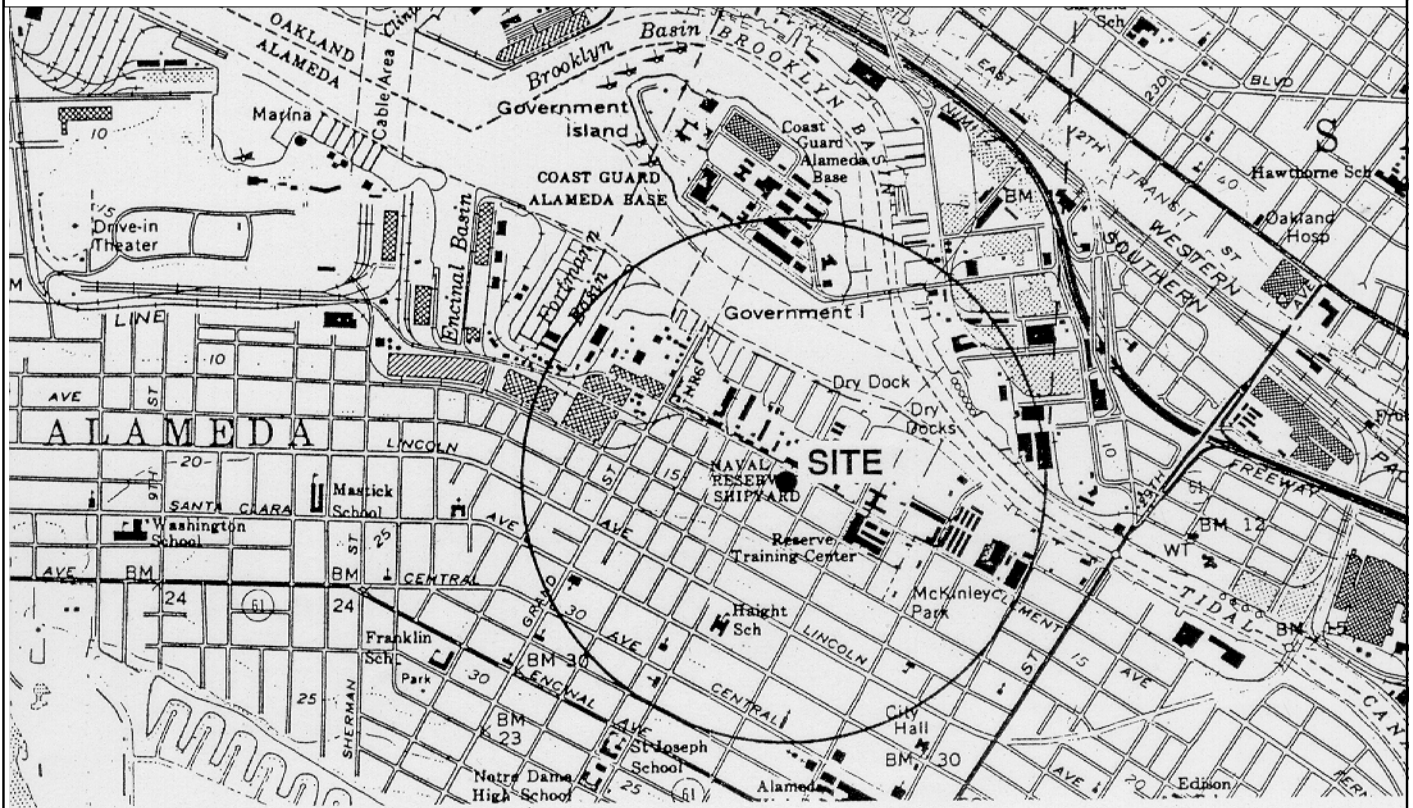
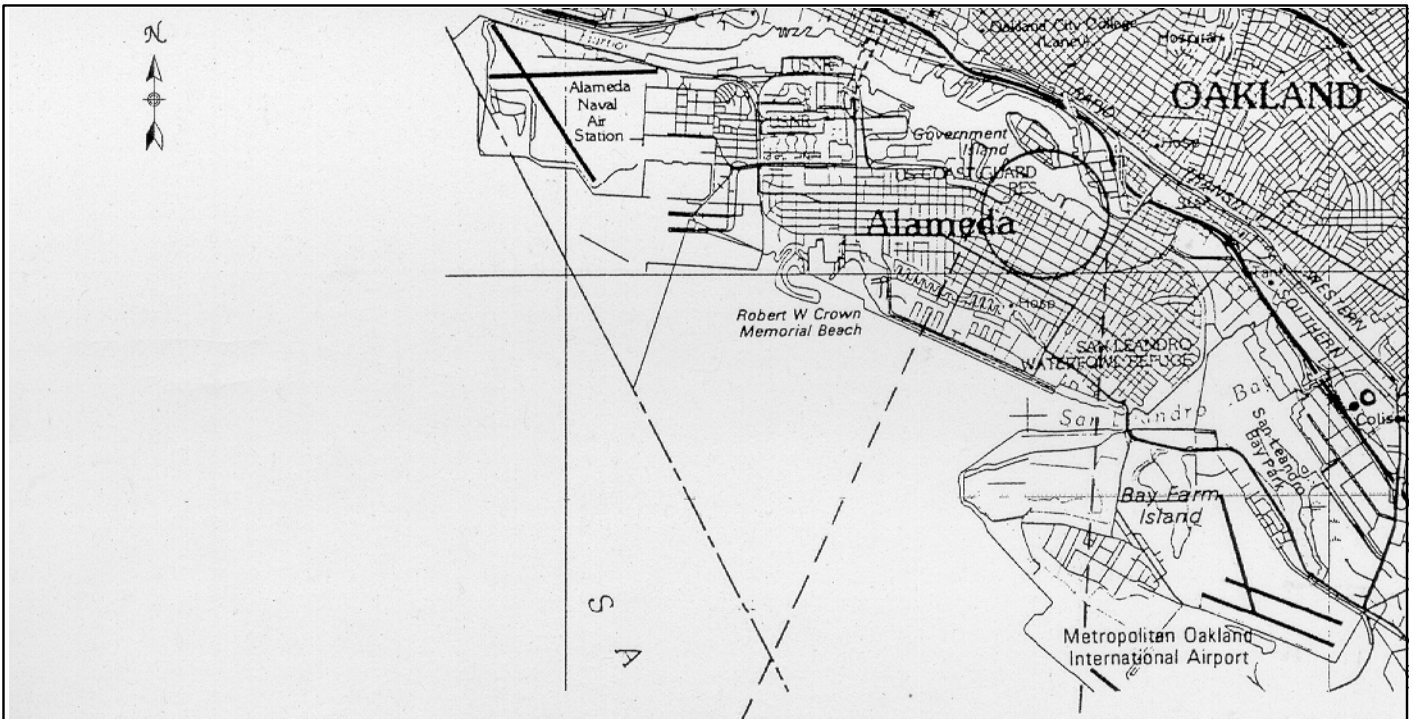
<sup>8</sup> TCE = Trichloroethene

<sup>9</sup> PCE = Tetrachloroethene

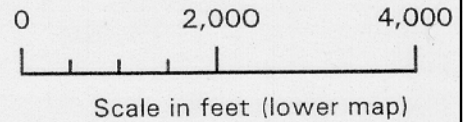
<sup>10</sup> All other Method 8010/8021B analytes

<sup>11</sup> 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.



**CRAWFORD  
 CONSULTING  
 INC.**

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

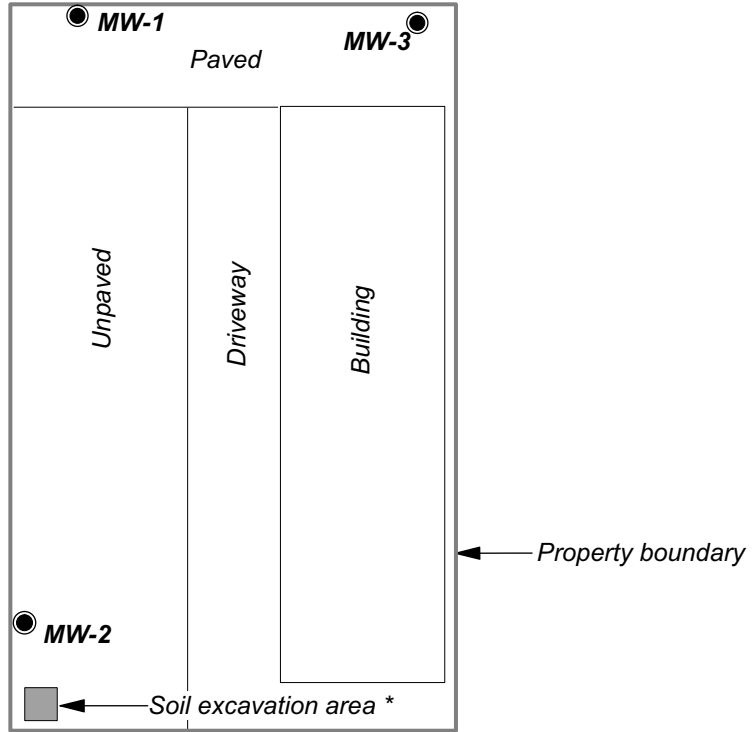


MW-4

Curb line (Typ.)

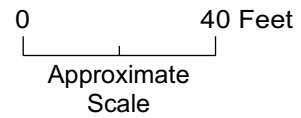


Clement Avenue



**EXPLANATION**

- Groundwater monitoring well
- \* Excavated in February 1994



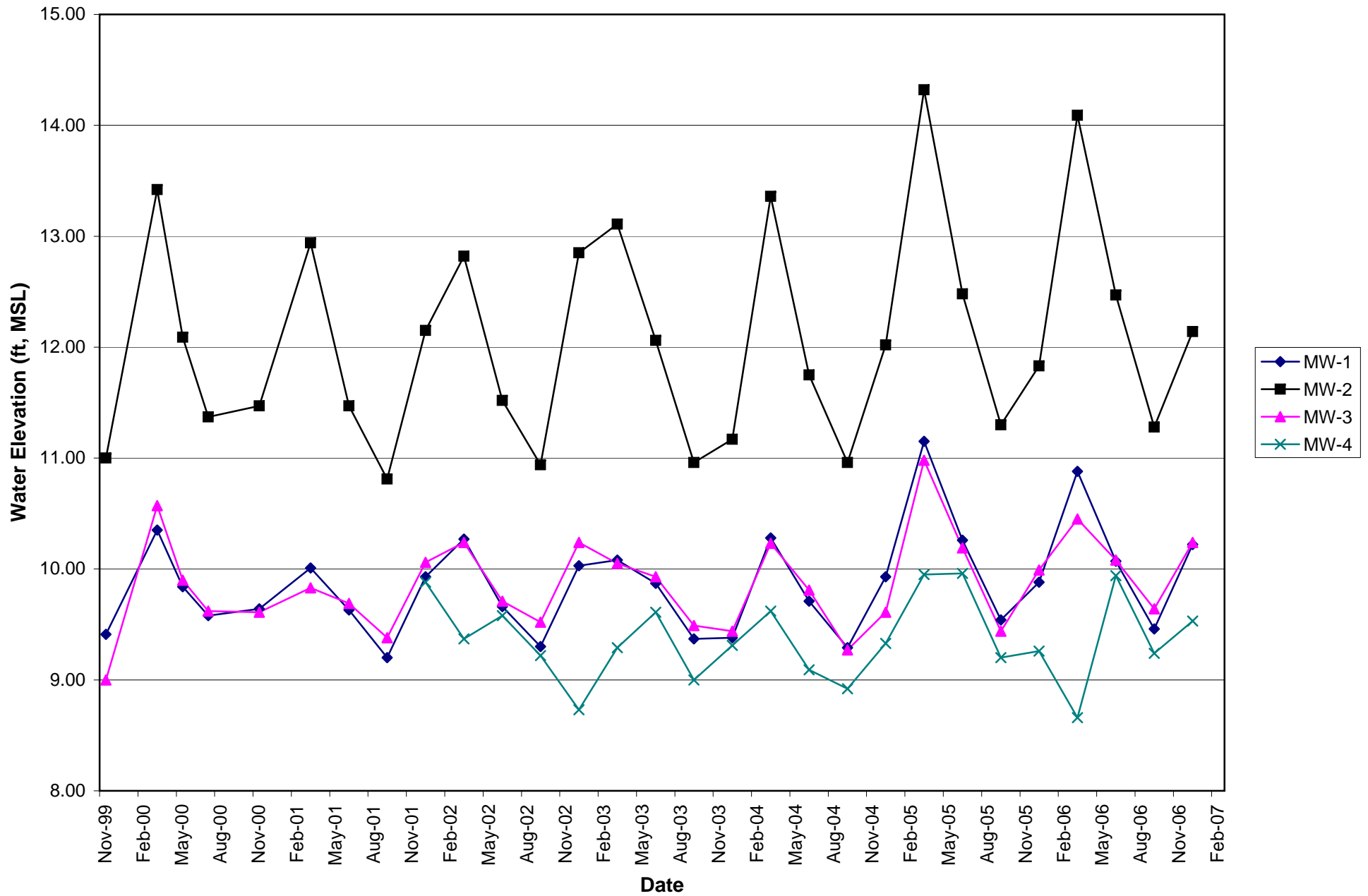
1605fig206Q4.dsf 2/6/07

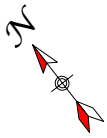
Base map from Conor Pacific/EFW, Office  
Groundwater Characterization, August 21, 2002.



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

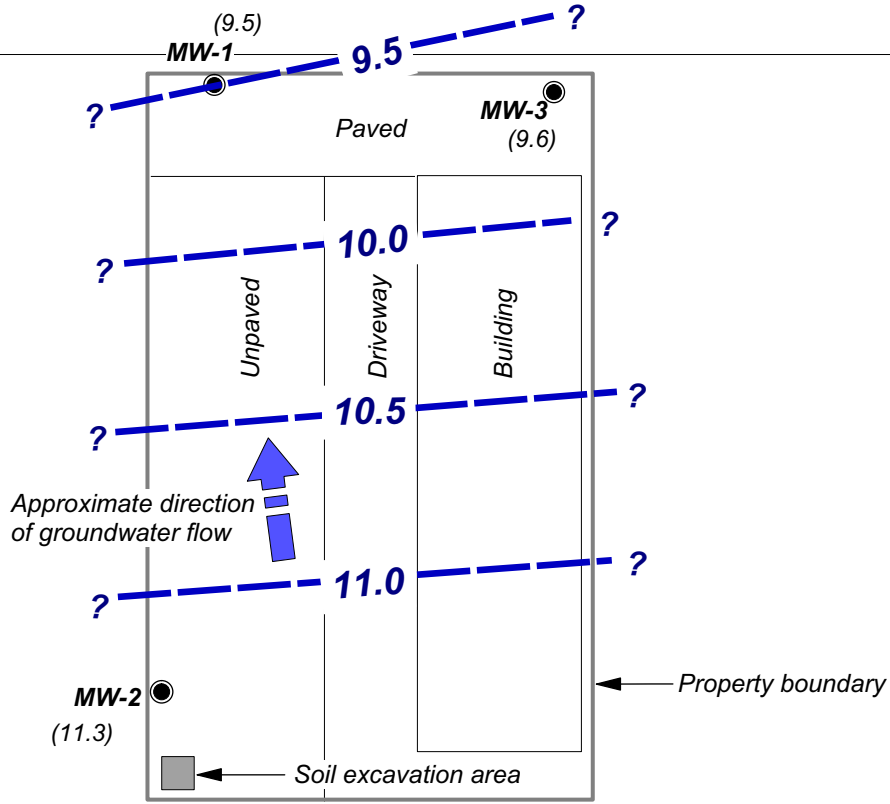




(9.2)  
**MW-4**

Curb line (Typ.)

*Clement Avenue*

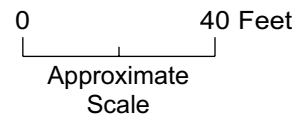


**EXPLANATION**

● Monitoring well

(10.4) Groundwater elevation (Ft.-MSL);  
measured 9/11/06

?-11- Groundwater elevation contour  
(Ft.-MSL)

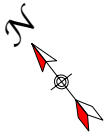


1605fig406Q4.dsf 2/28/07

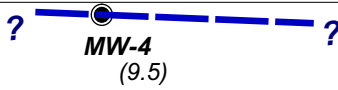
Base map from Conor Pacific/EFW, 0 ft S 10 E  
Groundwater Characterization, August 21, 2002.



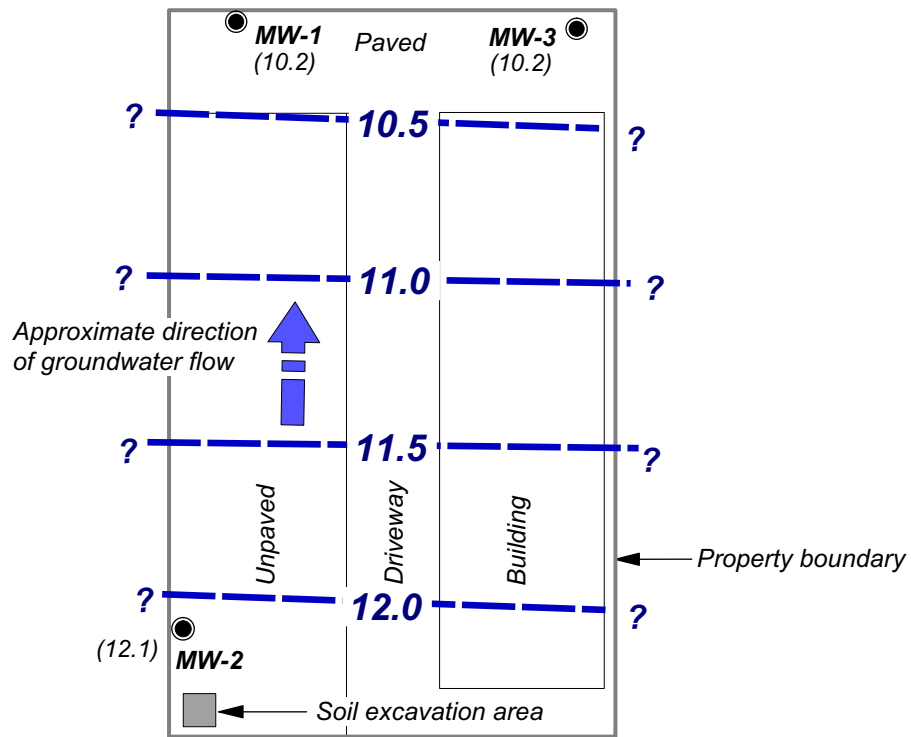
Project No. CS1605  
Cargill Salt Dispensing Systems Division  
2016 Clement Avenue, Alameda, California  
**Figure 4. Groundwater Elevation Contours - September 2006**



Curb line (Typ.)



Clement Avenue

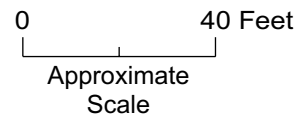


**EXPLANATION**

● Monitoring well

(10.2) Groundwater elevation (Ft.-MSL);  
measured 12/15/06 and 12/21/06

?-11- Groundwater elevation contour  
(Ft.-MSL)



Base map from Conor Pacific/EFW, ORES Inc  
Groundwater Characterization, August 21, 2002.

1605fig506Q4.dsf 2/28/07



Project No. CS1605  
Cargill Salt Dispensing Systems Division  
2016 Clement Avenue, Alameda, California  
**Figure 5. Groundwater Elevation Contours - December 2006**



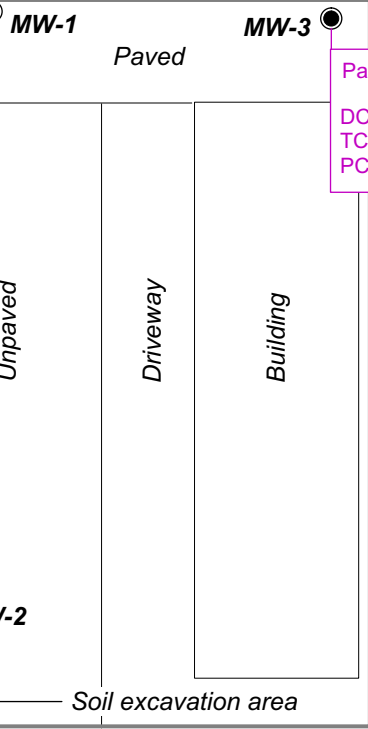
Curb line (Typ.)

Clement Avenue

MW-4

Parameter	9/06	12/06
DCE	<0.5	<0.5
TCE	<0.5	<0.5
PCE	0.70	0.63

Parameter	9/06	12/06
DCE	3.3	<2.0
TCE	47	20
PCE	400	210



Parameter	9/06	12/06
DCE	2.8	1.6
TCE	<0.5	<0.5
PCE	<0.5	0.56

Parameter	9/06	12/06
DCE	<20	<20
TCE	<20	<20
PCE	990	1,000

**EXPLANATION**

● Groundwater monitoring well location

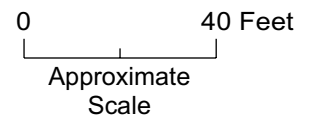
All concentrations reported in micrograms per liter (µg/L), in groundwater. All other 8010 constituents were below detection limits.

— Analyte concentration

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

DCE	3.3
TCE	47
PCE	400

— Analytical parameter



1605fig606Q4.dsf 2/28/07

Base map from Conor Pacific/EPW, OES site Groundwater Characterization, August 21, 2002.



Project No. CS1605  
 Cargill Salt Dispensing Systems Division  
 2016 Clement Avenue, Alameda, California  
**Figure 6. VOC Concentrations in Groundwater – September and December 2006**

Figure 7. Graphical Summary of PCE Concentrations

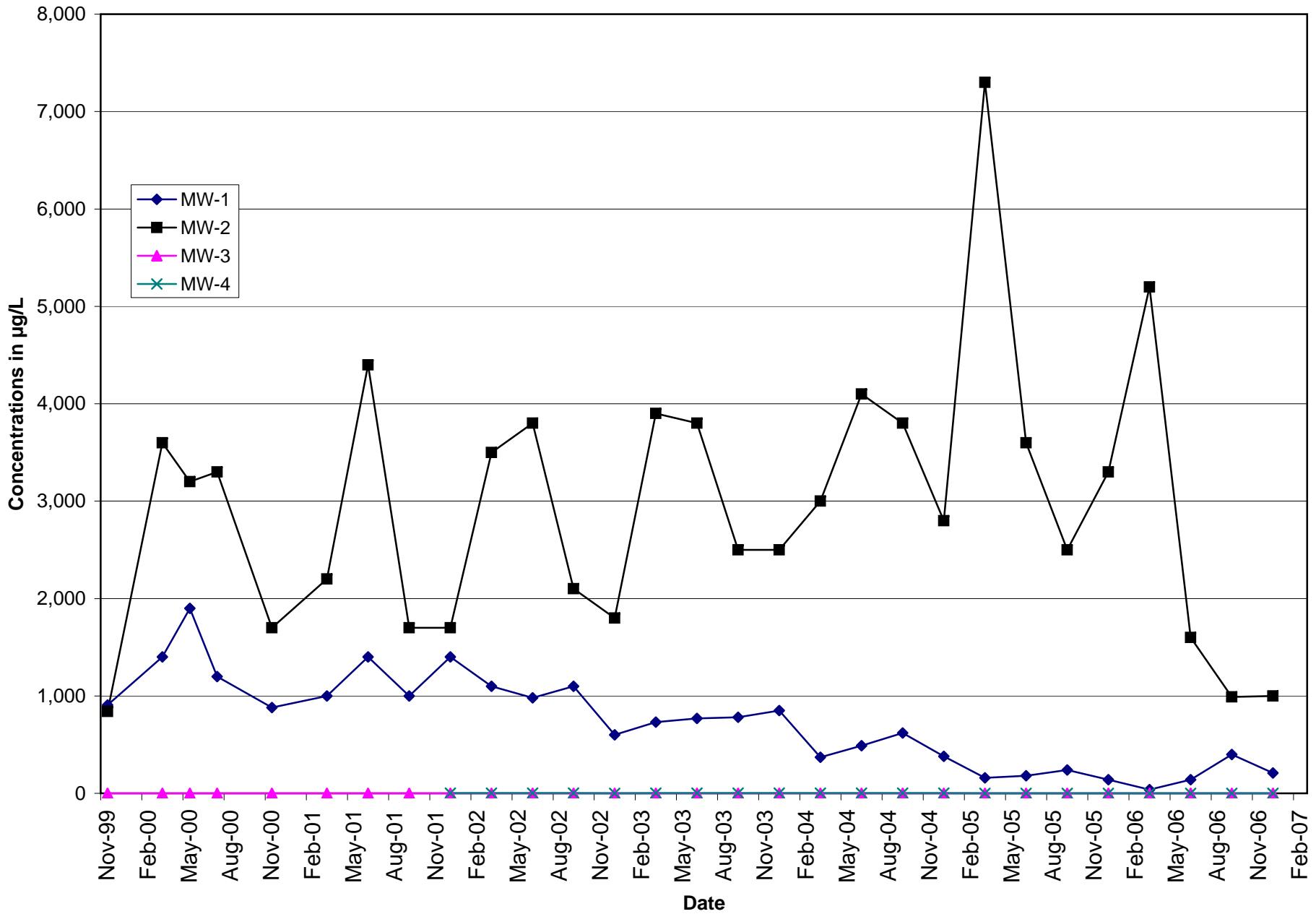
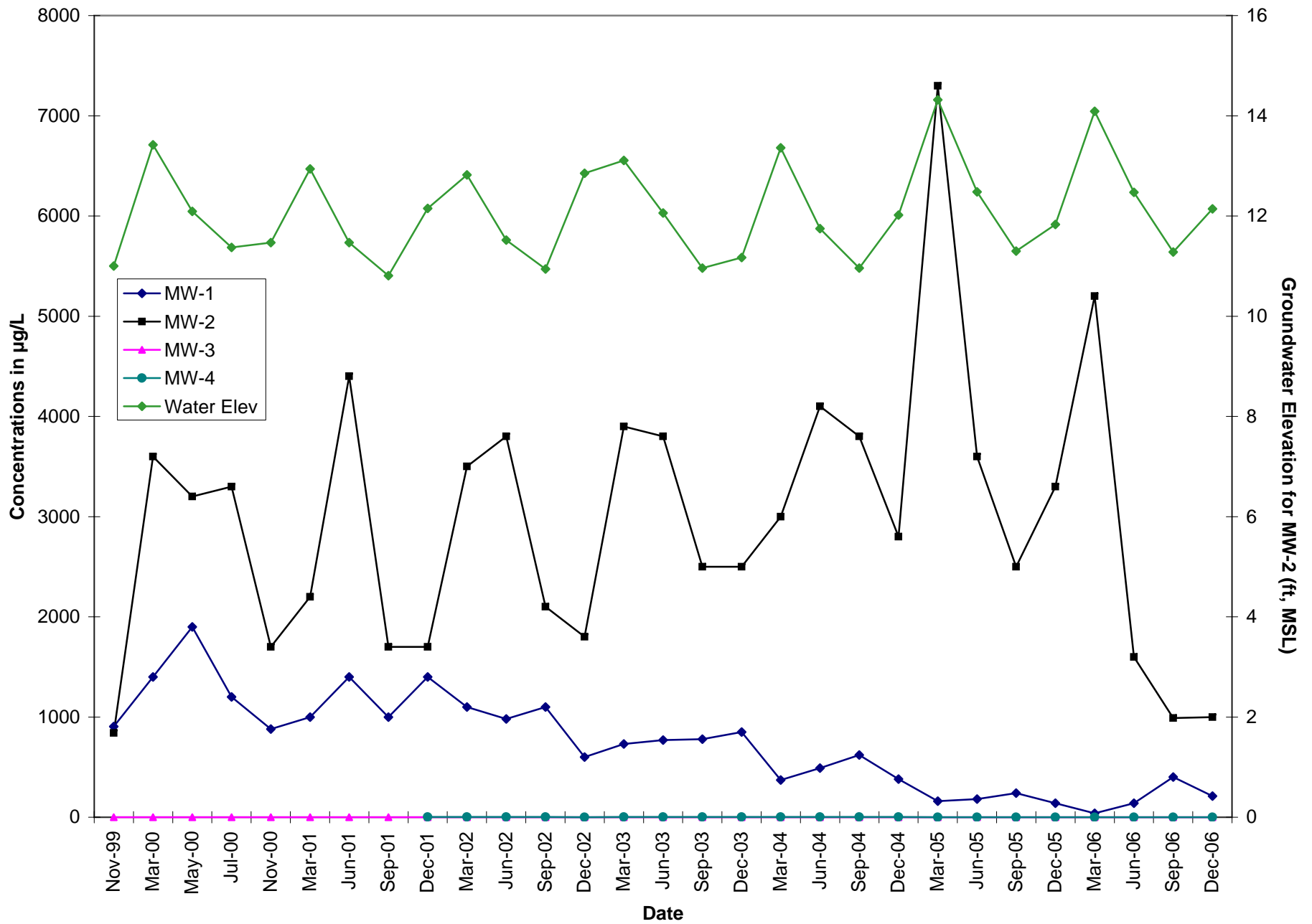


Figure 8. PCE Concentrations vs. Groundwater Elevation





**Appendix A**  
**Field Data Sheets**

**Third Quarter 2006**

## 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	9/11/06	10:24	3.70	3.70	
MW-2	9/11/06	10:22	4.94	4.94	
MW-3	9/11/06	10:19	3.70	3.70	
MW-4	9/11/06	10:17	3.19	3.19	

### Data Collection

Field measurements by: Print: <u>Manuel L. Gallegos</u> Signature: <u>[Signature]</u> Date: <u>9/11/06</u>	Reviewed by: Print: <u>J. Butera</u> Signature: <u>[Signature]</u> Date: <u>9/21/06</u>
---	--

**SAMPLE COLLECTION FIELD DATA**

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

Well ID: MW-1  
 Sample ID: MW-1  
 Start Date: 9-11-04  
 Finish Date: 9-11-04

**WELL INFORMATION**

Casing diameter (in.): 1.0 ~~2.0~~ Depth to water (ft): 3.70 Well depth (ft): 18.3  
 One casing volume (gal.): 0.59 Calculated purge volume (gal.) (3 x casing volume): 1.79  
 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): N/A Method for checking: Interface probe  Clear bailer

**WELL PURGING**

Date purged: 9-11-04 Start time: 12:00 End time: 1225  
 Purging equipment: Submersible pump  Bladder pump  Peristaltic pump   
 PVC bailer  Teflon bailer  Other   
 Purge rate: 0.26 l/hrs Well yield (H/L): 1.9h  
 Purge water disposal: 5 gallon buckets 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>1209</u>	<u>2.2</u>	<u>7.25</u>	<u>439</u>	<u>21.8</u>	<u>Clear</u>	<u>5.9</u>
<u>1217</u>	<u>4.4</u>	<u>7.05</u>	<u>400</u>	<u>22.1</u>	<u>Clear</u>	<u>1.00</u>
<u>1225</u>	<u>6.6</u>	<u>7.04</u>	<u>397</u>	<u>22.1</u>	<u>Clear</u>	<u>1.00</u>

Total Purged (gal.): 6.6 liters

**WELL SAMPLING**

Date sampled: 9-11-04 Start time: 1225 End time: 1227  
 Depth to water (ft) before sampling: 5.12  
 Sampling equipment: Peristaltic pump  Bladder pump  Teflon bailer   
 PVC bailer  Other

Weather conditions: Sunny / clear Ambient temperature ( $^{\circ}\text{F}$ ): 75  
 Well condition/Remarks: All samples taken

Meter calibration: EC \_\_\_\_\_ pH \_\_\_\_\_  
 Temperature \_\_\_\_\_ Turbidity \_\_\_\_\_

Purged and sampled by (print): Manuel L. Callegos  
 Signature: [Signature] Reviewed by: Serena Fuentes

**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: 9-11-06  
 Finish Date: 9-11-06

**WELL INFORMATION**

Casing diameter (in.): 10 Depth to water (ft): 4.93 Well depth (ft): 17.5  
 One casing volume (gal.): 0.51 Calculated purge volume (gal.) (3 x casing volume): 1.54  
 $One\ casing\ volume = \pi \times [casing\ radius\ (in.) \times 1\ ft/12\ in.]^2 \times [well\ depth\ (ft) - depth\ to\ water\ (ft)] \times 7.48\ gal/ft^3$   
 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: 9-11-06 Start time: 12:35 End time: 1257  
 Purging equipment: Submersible pump  Bladder pump  Peristaltic pump   
 PVC bailer  Teflon bailer  Other   
 Purge rate: 0.25 l/min Well yield (H/L): High  
 Purge water disposal: 5 gallon buckets on site

Time (2400 hr)	Cumulative Vol. Purged (gal.)	pH (units)	EC (μS/cm)	T (° C)	Color (Visual)	Turbidity (Visual or NTU)
<u>12:43</u>	<u>1.9</u>	<u>6.99</u>	<u>382</u>	<u>20.3</u>	<u>Clear</u>	<u>4.5</u>
<u>12:50</u>	<u>3.8</u>	<u>6.99</u>	<u>393</u>	<u>20.1</u>	<u>Clear</u>	<u>1.1</u>
<u>12:57</u>	<u>5.7</u>	<u>6.98</u>	<u>394</u>	<u>20.1</u>	<u>Clear</u>	<u>0.95</u>

Total Purged (gal.): 5.7 l/min

**WELL SAMPLING**

Date sampled: 9-11-06 Start time: 1257 End time: 1259  
 Depth to water (ft) before sampling: 5.92  
 Sampling equipment: Peristaltic pump  Bladder pump  Teflon bailer   
 PVC bailer  Other

Weather conditions: Sunny / Clear Ambient temperature (° F): 78  
 Well condition/Remarks: All samples taken

\*DUP-1 @ this well.

Meter calibration: EC \_\_\_\_\_ pH \_\_\_\_\_  
 Temperature \_\_\_\_\_ Turbidity \_\_\_\_\_

Purged and sampled by (print): Manuel L. Gallagos  
 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: 9-11-04  
 Finish Date: 9-11-04

**WELL INFORMATION**

Casing diameter (in.): 1.0 Depth to water (ft): 3.67 Well depth (ft): 17.6  
 One casing volume (gal.): 0.57 Calculated purge volume (gal.) (3 x casing volume): 1.71  
 $One\ casing\ volume = \pi \times [casing\ radius\ (in.) \times 1\ ft/12\ in.]^2 \times [well\ depth\ (ft) - depth\ to\ water\ (ft)] \times 7.48\ gal/ft^3$   
 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): None Method for checking: Interface probe  Clear bailer

**WELL PURGING**

Date purged: 9-11-04 Start time: 1113 End time: 1149  
 Purging equipment: Submersible pump  Bladder pump  Peristaltic pump   
 PVC bailer  Teflon bailer  Other   
 Purge rate: 0.17 l/min Well yield (H/L): Low  
 Purge water disposal: 5 gallon buckets on site

Time (2400 hr)	Cumulative Vol. Purged (gal.)	pH (units)	EC (μS/cm)	T (° C)	Color (Visual)	Turbidity (Visual or NTU)
<u>1122</u>	<u>2.1</u>	<u>7.54</u>	<u>583</u>	<u>20.3</u>	<u>Cloudy</u>	<u>80</u>
<u>1135</u>	<u>4.2</u>	<u>7.53</u>	<u>585</u>	<u>20.2</u>	<u>Cloudy</u>	<u>120</u>
<u>1149</u>	<u>6.3</u>	<u>7.60</u>	<u>590</u>	<u>20.1</u>	<u>Cloudy</u>	<u>140</u>

Total Purged (gal.): 6.3 liters

**WELL SAMPLING**

Date sampled: 9-11-04 Start time: 1149 End time: 1152  
 Depth to water (ft) before sampling: 15.77  
 Sampling equipment: Peristaltic pump  Bladder pump  Teflon bailer   
 PVC bailer  Other

Weather conditions: Sunny/Cloud Ambient temperature (° F): 75  
 Well condition/Remarks: All Samples taken

Meter calibration: EC \_\_\_\_\_ pH \_\_\_\_\_  
 Temperature \_\_\_\_\_ Turbidity \_\_\_\_\_

Purged and sampled by (print): Manuel L Gallegos  
 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-4  
 Sample ID: MW-4  
 Start Date: 9-11-06  
 Finish Date: 9-11-06

**WELL INFORMATION**

Casing diameter (in.): 1.0 Depth to water (ft): 3.19 Well depth (ft): 18.5  
 One casing volume (gal.): 0.63 Calculated purge volume (gal.) (3 x casing volume): 1.9  
 $One\ casing\ volume = \pi \times [casing\ radius\ (in.) \times 1\ ft/12\ in.]^2 \times [well\ depth\ (ft) - depth\ to\ water\ (ft)] \times 7.48\ gal/ft^3$   
 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: 9-11-06 Start time: 10:27 End time: 1054  
 Purging equipment: Submersible pump  Bladder pump  Peristaltic pump   
 PVC bailer  Teflon bailer  Other   
 Purge rate: 0.23 liters Well yield (H/L): High  
 Purge water disposal: 5 gallon buckets on site

Time (2400 hr)	Cumulative Vol. Purged (gal.)	pH (units)	EC ( $\mu$ S/cm)	T ( $^{\circ}$ C)	Color (Visual)	Turbidity (Visual or NTU)
<u>1034</u>	<u>2.3</u>	<u>7.35</u>	<u>619</u>	<u>21.8</u>	<u>Clear</u>	<u>3.6</u>
<u>1044</u>	<u>4.6</u>	<u>7.44</u>	<u>608</u>	<u>21.4</u>	<u>Clear</u>	<u>3.4</u>
<u>PSL</u>	<u>6.9</u>	<u>7.42</u>	<u>623</u>	<u>21.3</u>	<u>Clear</u>	<u>3.9</u>

Total Purged (gal.): 6.9

**WELL SAMPLING**

Date sampled: 9-11-06 Start time: 1056 End time: 1058  
 Depth to water (ft) before sampling: 11.42  
 Sampling equipment: Peristaltic pump  Bladder pump  Teflon bailer   
 PVC bailer  Other

Weather conditions: Clear/sunny Ambient temperature ( $^{\circ}$  F): 75  
 Well condition/Remarks: All samples taken

Meter calibration: EC 14,832/15,000 pH 709-700, 957-1000, 434/404  
 Temperature 19.5 Turbidity \_\_\_\_\_

Purged and sampled by (print): Manuel L Gallegos  
 Signature: [Signature] Reviewed by: [Signature]

**Fourth Quarter 2006**



## 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	12/15/06	0734	2.94	2.94	Water in box
MW-2	12/15/06	0732	4.08	4.08	Water in box
MW-3	12/15/06	0737	3.10	3.10	Water in box
MW-4	12/15/06	NR	NR	NR	Car parked on well.

### Data Collection

Field measurements by: Print: <u>Manuel L Gallegos</u> Signature: <u>[Signature]</u> Date: <u>12/15/06</u>	Reviewed by: Print: <u>Serenat Fuentes</u> Signature: <u>[Signature]</u> Date: <u>12/19/06</u>
---	---

**SAMPLE COLLECTION FIELD DATA**

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

Well ID: MW-1  
 Sample ID: MW-1  
 Start Date: 12-15-04  
 Finish Date: 12-15-04

**WELL INFORMATION**

Casing diameter (in.): 1.0 Depth to water (ft): 296 Well depth (ft): 18.3  
 One casing volume (gal.): 0.62 Calculated purge volume (gal.) (3 x casing volume): 1.86  
 $One\ casing\ volume = \pi \times [casing\ radius\ (in.) \times 1\ ft/12\ in.]^2 \times [well\ depth\ (ft) - depth\ to\ water\ (ft)] \times 7.48\ gal/ft^3$   
 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: 12-15-04 Start time: 0844 End time: 0917  
 Purging equipment: Submersible pump \_\_\_\_\_ Bladder pump \_\_\_\_\_ Peristaltic pump   
 PVC bailer \_\_\_\_\_ Teflon bailer \_\_\_\_\_ Other \_\_\_\_\_  
 Purge rate: 0.22 Well yield (H/L): H:9h  
 Purge water disposal: Drum on site

Time (2400 hr)	Cumulative Vol. Purged (gal.)	pH (units)	EC ( $\mu S/cm$ )	T ( $^{\circ}C$ )	Color (Visual)	Turbidity (Visual or NTU)
<u>0856</u>	<u>2.3</u>	<u>7.17</u>	<u>445</u>	<u>15.8</u>	<u>Clear</u>	<u>4.9</u>
<u>0907</u>	<u>4.4</u>	<u>7.08</u>	<u>434</u>	<u>15.9</u>	<u>Clear</u>	<u>1.9</u>
<u>0917</u>	<u>6.9</u>	<u>7.03</u>	<u>434</u>	<u>15.8</u>	<u>Clear</u>	<u>1.2</u>

Total Purged (gal.): 6.9 liters

**WELL SAMPLING**

Date sampled: 12-15-04 Start time: 0918 End time: 0920  
 Depth to water (ft) before sampling: 4.15  
 Sampling equipment: Peristaltic pump  Bladder pump \_\_\_\_\_ Teflon bailer \_\_\_\_\_  
 PVC bailer \_\_\_\_\_ Other \_\_\_\_\_

Weather conditions: cloudy Ambient temperature ( $^{\circ}F$ ): 60  
 Well condition/Remarks: All samples taken

Meter calibration: EC \_\_\_\_\_ pH \_\_\_\_\_  
 Temperature \_\_\_\_\_ Turbidity \_\_\_\_\_

Purged and sampled by (print): Manuel L Gallegos  
 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: 12-15-06  
 Finish Date: 12-15-06

**WELL INFORMATION**

Casing diameter (in.): 1.0      Depth to water (ft): 4.08      Well depth (ft): 17.5  
 One casing volume (gal.): 0.55      Calculated purge volume (gal.) (3 x casing volume): 1.65  
*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: 12-15-06      Start time: 0934      End time: 0955  
 Purging equipment: Submersible pump     Bladder pump     Peristaltic pump   
                                  PVC bailer     Teflon bailer     Other   
 Purge rate: 0.28      Well yield (H/L): High  
 Purge water disposal: Drums 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>0942</u>	<u>2.0</u>	<u>7.07</u>	<u>462</u>	<u>15.4</u>	<u>Clear</u>	<u>3.1</u>
<u>0949</u>	<u>4.0</u>	<u>7.06</u>	<u>464</u>	<u>15.7</u>	<u>Clear</u>	<u>1.5</u>
<u>0955</u>	<u>6.0</u>	<u>7.05</u>	<u>468</u>	<u>15.8</u>	<u>Clear</u>	<u>0.05</u>

Total Purged (gal.): 6.0 l. hrs

**WELL SAMPLING**

Date sampled: 12-15-06      Start time: 0956      End time: 0958  
 Depth to water (ft) before sampling: 5.12  
 Sampling equipment: Peristaltic pump     Bladder pump     Teflon bailer   
                                  PVC bailer     Other

Weather conditions: Cloudy/sunny      Ambient temperature ( $^{\circ}\text{F}$ ): 60  
 Well condition/Remarks: All samples collected

*\* DUP @ this well.*

Meter calibration:      EC      pH  
                                  Temperature      Turbidity

Purged and sampled by (print): Manuel L. Gallegos  
 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: 12-15-04  
 Finish Date: 12-15-04

**WELL INFORMATION**

Casing diameter (in.): 1.0 Depth to water (ft): 3.10 Well depth (ft): 17.4  
 One casing volume (gal.): 0.59 Calculated purge volume (gal.) (3 x casing volume): 1.77  
 $One\ casing\ volume = \pi \times [casing\ radius\ (in.) \times 1\ ft/12\ in.]^2 \times [well\ depth\ (ft) - depth\ to\ water\ (ft)] \times 7.48\ gal/ft^3$   
 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): NA Method for checking: Interface probe  Clear bailer

**WELL PURGING**

Date purged: 12-15-04 Start time: 0744 End time: 0833  
 Purging equipment: Submersible pump \_\_\_\_\_ Bladder pump \_\_\_\_\_ Peristaltic pump   
 PVC bailer \_\_\_\_\_ Teflon bailer \_\_\_\_\_ Other \_\_\_\_\_  
 Purge rate: 0.14 Well yield (H/L): Low  
 Purge water disposal: Drum on site

Time (2400 hr)	Cumulative Vol. Purged (gals)	pH (units)	EC ( $\mu S/cm$ )	T ( $^{\circ}C$ )	Color (Visual)	Turbidity (Visual or NTU)
<u>0757</u>	<u>2.2</u>	<u>7.49</u>	<u>646</u>	<u>15.5</u>	<u>Clear</u>	<u>30</u>
<u>0815</u>	<u>4.4</u>	<u>7.66</u>	<u>647</u>	<u>15.4</u>	<u>Clear</u>	<u>24</u>
<u>0833</u>	<u>6.6</u>	<u>7.61</u>	<u>643</u>	<u>15.3</u>	<u>Clear</u>	<u>21</u>

Total Purged (gals.): 6.6 liters

**WELL SAMPLING**

Date sampled: 12-15-04 Start time: 0833 End time: 0837  
 Depth to water (ft) before sampling: 13.75  
 Sampling equipment: Peristaltic pump  Bladder pump \_\_\_\_\_ Teflon bailer \_\_\_\_\_  
 PVC bailer \_\_\_\_\_ Other \_\_\_\_\_

Weather conditions: Cloudy Ambient temperature ( $^{\circ}F$ ): 58  
 Well condition/Remarks: All samples collected

Meter calibration: EC 14,000/15,000 pH 6.91-7.00/99.8-100.0/109.400  
 Temperature 13.8 Turbidity 1.0/1.0

Purged and sampled by (print): Manuel Gallias  
 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-4
Sample ID: NA
Start Date: 12-15-06
Finish Date: NA

WELL INFORMATION

Casing diameter (in.): NA Depth to water (ft): NA Well depth (ft): NA
One casing volume (gal.): NA Calculated purge volume (gal.) (3 x casing volume): NA
One casing volume = pi x [casing radius (in.) x 1 ft/12 in.]^2 x [well depth (ft) - depth to water (ft)] x 7.48 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): NA Method for checking: Interface probe NA Clear bailer

WELL PURGING

Date purged: Start time: End time:
Purging equipment: Submersible pump Bladder pump Peristaltic pump
PVC bailer Teflon bailer Other
Purge rate: Well yield (H/L):
Purge water disposal:

Table with 7 columns: Time (2400 hr), Cumulative Vol. Purged (gal.), pH (units), EC (uS/cm), T (C), Color (Visual), Turbidity (Visual or NTU). Handwritten note: NO samples taken car parked on top of well.

WELL SAMPLING

Date sampled: Start time: End time:
Sampling equipment: Peristaltic pump Bladder pump Teflon bailer
PVC bailer Other

Weather conditions: Ambient temperature (F):
Well condition/Remarks:

Meter calibration: EC pH
Temperature Turbidity
Purged and sampled by (print): [Signature]
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-4  
 Sample ID: MW-4  
 Start Date: 12-21-04  
 Finish Date: 12-21-04

**WELL INFORMATION**

Casing diameter (in.): 1.0 Depth to water (ft): 2.90 Well depth (ft): 18.5  
 One casing volume (gal.): 0.43 Calculated purge volume (gal.) (3 x casing volume): 1.91  
 $One\ casing\ volume = \pi \times [casing\ radius\ (in.) \times 1\ ft/12\ in.]^2 \times [well\ depth\ (ft) - depth\ to\ water\ (ft)] \times 7.48\ gal/ft^3$   
 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): NO Method for checking: Interface probe  Clear bailer

**WELL PURGING**

Date purged: 12-21-04 Start time: 0728 End time: 0758  
 Purging equipment: Submersible pump \_\_\_\_\_ Bladder pump \_\_\_\_\_ Peristaltic pump   
 PVC bailer \_\_\_\_\_ Teflon bailer \_\_\_\_\_ Other \_\_\_\_\_  
 Purge rate: 0.23 Well yield (H/L): High  
 Purge water disposal: Drum on site.

Time (2400 hr)	Cumulative Vol. Purged (gal.)	pH (units)	EC ( $\mu$ S/cm)	T ( $^{\circ}$ C)	Color (Visual)	Turbidity (Visual or NTU)
<u>0738</u>	<u>2.3</u>	<u>7.31</u>	<u>616</u>	<u>18.8</u>	<u>Clear</u>	<u>4.0</u>
<u>0747</u>	<u>4.4</u>	<u>7.50</u>	<u>618</u>	<u>18.9</u>	<u>Clear</u>	<u>2.4</u>
<u>0758</u>	<u>6.9</u>	<u>7.54</u>	<u>615</u>	<u>18.6</u>	<u>Clear</u>	<u>0.45</u>

Total Purged (gal.): 6.9

**WELL SAMPLING**

Date sampled: 12-21-04 Start time: 0758 End time: 0800  
 Depth to water (ft) before sampling: 11.27  
 Sampling equipment: Peristaltic pump  Bladder pump \_\_\_\_\_ Teflon bailer \_\_\_\_\_  
 PVC bailer \_\_\_\_\_ Other \_\_\_\_\_

Weather conditions: Cloudy cold Ambient temperature ( $^{\circ}$  F): 44  
 Well condition/Remarks: Removed LWC let well settle for 15 minutes prior to taking water level. All samples taken

Meter calibration: EC 14,980-15,000 pH 703-700/994/1000/388-400  
 Temperature 25C Turbidity 1.0-1.0

Purged and sampled by (print): Manuel L. Carreras  
 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:

September 2006    0.014  
 December 2006    0.015

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)
September 2006	NE	0.00002	0.014	0.33	1
December 2006	NE	0.00002	0.015	0.33	1

Calculations and assumptions prepared by:

*Handwritten signature: Mark C. Wheeler*

Date: 2/27/2007



## **Appendix C**

### **Certified Analytical Reports and Chain-of-Custody Documentation**

**Third Quarter 2006**



## ANALYTICAL REPORT

Job Number: 720-5426-1

Job Description: Alameda Facility CS 1605

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

Attention: Mark Wheeler

A handwritten signature in black ink that reads "D Sharma".

---

Dimple Sharma  
Project Manager I  
dsharma@stl-inc.com  
09/14/2006

cc: Dana Johnston

Project Manager: Dimple Sharma

**Severn Trent Laboratories, Inc.**

STL San Francisco 1220 Quarry Lane, Pleasanton, CA 94566  
Tel (925) 484-1919 Fax (925) 484-1096 www.stl-inc.com

## METHOD SUMMARY

Client: Crawford Consulting Inc

Job Number: 720-5426-1

Description	Lab Location	Method	Preparation Method
<b>Matrix:</b> Water			
Volatile Organic Compounds by GC/MS (Low Level)	STL SF	SW846 8260B	
Purge-and-Trap	STL SF		SW846 5030B

### LAB REFERENCES:

STL SF = STL 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: 720-5426-1

<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Client Matrix</b>	<b>Date/Time Sampled</b>	<b>Date/Time Received</b>
720-5426-1	MW-1	Water	09/11/2006 1225	09/11/2006 1400
720-5426-2	MW-2	Water	09/11/2006 1257	09/11/2006 1400
720-5426-3	MW-3	Water	09/11/2006 1149	09/11/2006 1400
720-5426-4	MW-4	Water	09/11/2006 1056	09/11/2006 1400
720-5426-5	DUP-1	Water	09/11/2006 0000	09/11/2006 1400
720-5426-6TB	TB-1	Water	09/11/2006 0000	09/11/2006 1400

## Analytical Data

Client: Crawford Consulting Inc

Job Number: 720-5426-1

**Client Sample ID: MW-1**

Lab Sample ID: 720-5426-1  
Client Matrix: Water

Date Sampled: 09/11/2006 1225  
Date Received: 09/11/2006 1400

### 8260B Volatile Organic Compounds by GC/MS (Low Level)

Method: 8260B	Analysis Batch: 720-13073	Instrument ID: Saturn 2K3
Preparation: 5030B		Lab File ID: d:\data\200609\091206\SA-
Dilution: 4.0		Initial Weight/Volume: 40 mL
Date Analyzed: 09/12/2006 1356		Final Weight/Volume: 40 mL
Date Prepared: 09/12/2006 1356		

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	3.3		2.0
1,1-Dichloroethane	ND		2.0
Dichlorodifluoromethane	ND		2.0
Vinyl chloride	ND		2.0
Chloroethane	ND		4.0
Trichlorofluoromethane	ND		4.0
Methylene Chloride	ND		20
trans-1,2-Dichloroethene	ND		2.0
cis-1,2-Dichloroethene	ND		2.0
Chloroform	ND		4.0
1,1,1-Trichloroethane	ND		2.0
Carbon tetrachloride	ND		2.0
1,2-Dichloroethane	ND		2.0
Trichloroethene	47		2.0
1,2-Dichloropropane	ND		2.0
Dichlorobromomethane	ND		2.0
trans-1,3-Dichloropropene	ND		2.0
cis-1,3-Dichloropropene	ND		2.0
1,1,2-Trichloroethane	ND		2.0
Tetrachloroethene	400		2.0
Chlorodibromomethane	ND		2.0
Chlorobenzene	ND		2.0
Bromoform	ND		4.0
1,1,2,2-Tetrachloroethane	ND		2.0
1,3-Dichlorobenzene	ND		2.0
1,4-Dichlorobenzene	ND		2.0
1,2-Dichlorobenzene	ND		2.0
Chloromethane	ND		4.0
Bromomethane	ND		4.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0
EDB	ND		2.0
1,2,4-Trichlorobenzene	ND		4.0
Surrogate	%Rec	Acceptance Limits	
Toluene-d8 (Surr)	104	77 - 121	
4-Bromofluorobenzene	104	79 - 118	
1,2-Dichloroethane-d4 (Surr)	109	78 - 117	

## Analytical Data

Client: Crawford Consulting Inc

Job Number: 720-5426-1

**Client Sample ID: MW-2**

Lab Sample ID: 720-5426-2  
Client Matrix: Water

Date Sampled: 09/11/2006 1257  
Date Received: 09/11/2006 1400

### 8260B Volatile Organic Compounds by GC/MS (Low Level)

Method: 8260B	Analysis Batch: 720-13073	Instrument ID: Saturn 2K3
Preparation: 5030B		Lab File ID: d:\data\200609\091206\SA-
Dilution: 40		Initial Weight/Volume: 40 mL
Date Analyzed: 09/12/2006 1429		Final Weight/Volume: 40 mL
Date Prepared: 09/12/2006 1429		

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	ND		20
1,1-Dichloroethane	ND		20
Dichlorodifluoromethane	ND		20
Vinyl chloride	ND		20
Chloroethane	ND		40
Trichlorofluoromethane	ND		40
Methylene Chloride	ND		200
trans-1,2-Dichloroethene	ND		20
cis-1,2-Dichloroethene	ND		20
Chloroform	ND		40
1,1,1-Trichloroethane	ND		20
Carbon tetrachloride	ND		20
1,2-Dichloroethane	ND		20
Trichloroethene	ND		20
1,2-Dichloropropane	ND		20
Dichlorobromomethane	ND		20
trans-1,3-Dichloropropene	ND		20
cis-1,3-Dichloropropene	ND		20
1,1,2-Trichloroethane	ND		20
Tetrachloroethene	990		20
Chlorodibromomethane	ND		20
Chlorobenzene	ND		20
Bromoform	ND		40
1,1,2,2-Tetrachloroethane	ND		20
1,3-Dichlorobenzene	ND		20
1,4-Dichlorobenzene	ND		20
1,2-Dichlorobenzene	ND		20
Chloromethane	ND		40
Bromomethane	ND		40
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		20
EDB	ND		20
1,2,4-Trichlorobenzene	ND		40
Surrogate	%Rec		Acceptance Limits
Toluene-d8 (Surr)	103		77 - 121
4-Bromofluorobenzene	105		79 - 118
1,2-Dichloroethane-d4 (Surr)	106		78 - 117

## Analytical Data

Client: Crawford Consulting Inc

Job Number: 720-5426-1

**Client Sample ID: MW-3**

Lab Sample ID: 720-5426-3  
Client Matrix: Water

Date Sampled: 09/11/2006 1149  
Date Received: 09/11/2006 1400

### 8260B Volatile Organic Compounds by GC/MS (Low Level)

Method: 8260B	Analysis Batch: 720-13095	Instrument ID: Varian 3900F
Preparation: 5030B		Lab File ID: c:\saturday\data\200609\09
Dilution: 1.0		Initial Weight/Volume: 40 mL
Date Analyzed: 09/13/2006 1110		Final Weight/Volume: 40 mL
Date Prepared: 09/13/2006 1110		

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	2.8		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)	107		77 - 121
4-Bromofluorobenzene	105		79 - 118
1,2-Dichloroethane-d4 (Surr)	104		78 - 117



## Analytical Data

Client: Crawford Consulting Inc

Job Number: 720-5426-1

**Client Sample ID: MW-4**

Lab Sample ID: 720-5426-4  
Client Matrix: Water

Date Sampled: 09/11/2006 1056  
Date Received: 09/11/2006 1400

### 8260B Volatile Organic Compounds by GC/MS (Low Level)

Method: 8260B	Analysis Batch: 720-13073	Instrument ID: Saturn 2K3
Preparation: 5030B		Lab File ID: d:\data\200609\091206\SA-
Dilution: 1.0		Initial Weight/Volume: 40 mL
Date Analyzed: 09/12/2006 1109		Final Weight/Volume: 40 mL
Date Prepared: 09/12/2006 1109		

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	0.70		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)	106	77 - 121	
4-Bromofluorobenzene	108	79 - 118	
1,2-Dichloroethane-d4 (Surr)	108	78 - 117	

## Analytical Data

Client: Crawford Consulting Inc

Job Number: 720-5426-1

**Client Sample ID: DUP-1**

Lab Sample ID: 720-5426-5  
Client Matrix: Water

Date Sampled: 09/11/2006 0000  
Date Received: 09/11/2006 1400

### 8260B Volatile Organic Compounds by GC/MS (Low Level)

Method: 8260B	Analysis Batch: 720-13073	Instrument ID: Saturn 2K3
Preparation: 5030B		Lab File ID: d:\data\200609\091206\SA-
Dilution: 40		Initial Weight/Volume: 40 mL
Date Analyzed: 09/12/2006 1643		Final Weight/Volume: 40 mL
Date Prepared: 09/12/2006 1643		

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	ND		20
1,1-Dichloroethane	ND		20
Dichlorodifluoromethane	ND		20
Vinyl chloride	ND		20
Chloroethane	ND		40
Trichlorofluoromethane	ND		40
Methylene Chloride	ND		200
trans-1,2-Dichloroethene	ND		20
cis-1,2-Dichloroethene	ND		20
Chloroform	ND		40
1,1,1-Trichloroethane	ND		20
Carbon tetrachloride	ND		20
1,2-Dichloroethane	ND		20
Trichloroethene	ND		20
1,2-Dichloropropane	ND		20
Dichlorobromomethane	ND		20
trans-1,3-Dichloropropene	ND		20
cis-1,3-Dichloropropene	ND		20
1,1,2-Trichloroethane	ND		20
Tetrachloroethene	950		20
Chlorodibromomethane	ND		20
Chlorobenzene	ND		20
Bromoform	ND		40
1,1,2,2-Tetrachloroethane	ND		20
1,3-Dichlorobenzene	ND		20
1,4-Dichlorobenzene	ND		20
1,2-Dichlorobenzene	ND		20
Chloromethane	ND		40
Bromomethane	ND		40
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		20
EDB	ND		20
1,2,4-Trichlorobenzene	ND		40
Surrogate	%Rec		Acceptance Limits
Toluene-d8 (Surr)	105		77 - 121
4-Bromofluorobenzene	111		79 - 118
1,2-Dichloroethane-d4 (Surr)	112		78 - 117

## Analytical Data

Client: Crawford Consulting Inc

Job Number: 720-5426-1

**Client Sample ID: TB-1**

Lab Sample ID: 720-5426-6TB  
 Client Matrix: Water

Date Sampled: 09/11/2006 0000  
 Date Received: 09/11/2006 1400

### 8260B Volatile Organic Compounds by GC/MS (Low Level)

Method: 8260B	Analysis Batch: 720-13073	Instrument ID: Saturn 2K3
Preparation: 5030B		Lab File ID: d:\data\200609\091206\SA-
Dilution: 1.0		Initial Weight/Volume: 40 mL
Date Analyzed: 09/12/2006 1323		Final Weight/Volume: 40 mL
Date Prepared: 09/12/2006 1323		

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	6.1		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)	103		77 - 121
4-Bromofluorobenzene	103		79 - 118
1,2-Dichloroethane-d4 (Surr)	111		78 - 117

## DATA REPORTING QUALIFIERS

<b>Lab Section</b>	<b>Qualifier</b>	<b>Description</b>
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## Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-5426-1

### QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
<b>GC/MS VOA</b>					
<b>Analysis Batch:720-13073</b>					
LCS 720-13073/1	Lab Control Spike	T	Water	8260B	
MB 720-13073/2	Method Blank	T	Water	8260B	
720-5426-1	MW-1	T	Water	8260B	
720-5426-1MS	Matrix Spike	T	Water	8260B	
720-5426-1MSD	Matrix Spike Duplicate	T	Water	8260B	
720-5426-2	MW-2	T	Water	8260B	
720-5426-4	MW-4	T	Water	8260B	
720-5426-5	DUP-1	T	Water	8260B	
720-5426-6TB	TB-1	T	Water	8260B	
<b>Analysis Batch:720-13095</b>					
LCS 720-13095/1	Lab Control Spike	T	Water	8260B	
MB 720-13095/2	Method Blank	T	Water	8260B	
720-5426-3	MW-3	T	Water	8260B	

#### Report Basis

T = Total

## Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-5426-1

**Method Blank - Batch: 720-13073**

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

Lab Sample ID: MB 720-13073/2  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 09/12/2006 1035  
Date Prepared: 09/12/2006 1035

Analysis Batch: 720-13073  
Prep Batch: N/A  
Units: ug/L

Instrument ID: Saturn 2K3  
Lab File ID: d:\data\200609\091206\MB  
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		1.0
Surrogate	% Rec	Acceptance Limits	
Toluene-d8 (Surr)	105	77 - 121	
4-Bromofluorobenzene	109	79 - 118	
1,2-Dichloroethane-d4 (Surr)	109	78 - 117	

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

## Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-5426-1

**Lab Control Spike - Batch: 720-13073**

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

Lab Sample ID: LCS 720-13073/1  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 09/12/2006 1002  
Date Prepared: 09/12/2006 1002

Analysis Batch: 720-13073  
Prep Batch: N/A  
Units: ug/L

Instrument ID: Saturn 2K3  
Lab File ID: d:\data\200609\091206\LS-  
Initial Weight/Volume: 40 mL  
Final Weight/Volume: 40 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
1,1-Dichloroethene	20.0	20.6	103	65 - 125	
Trichloroethene	20.0	18.7	94	74 - 134	
Chlorobenzene	20.0	20.1	100	61 - 121	
<hr/>					
Surrogate			% Rec	Acceptance Limits	
Toluene-d8 (Surr)			108	77 - 121	
4-Bromofluorobenzene			107	79 - 118	
1,2-Dichloroethane-d4 (Surr)			107	78 - 117	

**Matrix Spike/  
Matrix Spike Duplicate Recovery Report - Batch: 720-13073**

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

MS Lab Sample ID: 720-5426-1  
Client Matrix: Water  
Dilution: 4.0  
Date Analyzed: 09/12/2006 1503  
Date Prepared: 09/12/2006 1503

Analysis Batch: 720-13073  
Prep Batch: N/A

Instrument ID: Saturn 2K3  
Lab File ID: d:\data\200609\091206\SA-  
Initial Weight/Volume: 40 mL  
Final Weight/Volume: 40 mL

MSD Lab Sample ID: 720-5426-1  
Client Matrix: Water  
Dilution: 4.0  
Date Analyzed: 09/12/2006 1536  
Date Prepared: 09/12/2006 1536

Instrument ID: Saturn 2K3  
Lab File ID: d:\data\200609\091206\SA-  
Initial Weight/Volume: 40 mL  
Final Weight/Volume: 40 mL

Analyte	<u>% Rec.</u>		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
1,1-Dichloroethene	103	106	65 - 125	3	20		
Trichloroethene	97	100	74 - 134	2	20		
Chlorobenzene	96	98	61 - 121	2	20		
<hr/>							
Surrogate	MS % Rec		MSD % Rec	Acceptance Limits			
Toluene-d8 (Surr)	108		104	77 - 121			
4-Bromofluorobenzene	111		105	79 - 118			
1,2-Dichloroethane-d4 (Surr)	111		103	78 - 117			

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

## Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-5426-1

**Method Blank - Batch: 720-13095**

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

Lab Sample ID: MB 720-13095/2  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 09/13/2006 1036  
Date Prepared: 09/13/2006 1036

Analysis Batch: 720-13095  
Prep Batch: N/A  
Units: ug/L

Instrument ID: Varian 3900F  
Lab File ID: c:\saturnws\data\200609\05  
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		1.0
Surrogate	% Rec	Acceptance Limits	
Toluene-d8 (Surr)	107	77 - 121	
4-Bromofluorobenzene	104	79 - 118	
1,2-Dichloroethane-d4 (Surr)	104	78 - 117	

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



## Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-5426-1

### Lab Control Spike - Batch: 720-13095

Method: 8260B

Preparation: 5030B

Lab Sample ID: LCS 720-13095/1

Client Matrix: Water

Dilution: 1.0

Date Analyzed: 09/13/2006 1002

Date Prepared: 09/13/2006 1002

Analysis Batch: 720-13095

Prep Batch: N/A

Units: ug/L

Instrument ID: Varian 3900F

Lab File ID: c:\saturnws\data\200609\05

Initial Weight/Volume: 40 mL

Final Weight/Volume: 40 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
1,1-Dichloroethene	20.0	19.3	97	65 - 125	
Trichloroethene	20.0	18.0	90	74 - 134	
Chlorobenzene	20.0	19.9	99	61 - 121	
Surrogate		% Rec		Acceptance Limits	
Toluene-d8 (Surr)		106		77 - 121	
4-Bromofluorobenzene		102		79 - 118	
1,2-Dichloroethane-d4 (Surr)		98		78 - 117	

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

STL ChromaLab

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

CHAIN OF CUSTODY / LABORATORY ANALYSIS REQUEST FORM

720-5426

101722

Date: 9/11/06

**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:** *[Signature]*

Sample I.D.	Date	Time	LAB I.D.	Sample Matrix	Number of Containers	Analysis Requested										REMARKS							
						Volatiles Organics (VOCs) (EPA 8021B)	Pb (7421); As (7060)	Same as Metals	COD, TKN	500 ml plastic H <sub>2</sub> SO <sub>4</sub>	Chloride, Nitrate	500 ml plastic NP	pH, Conductivity	500 ml plastic NP	Total Phenols		2 x 500 ml glass H <sub>2</sub> SO <sub>4</sub>	Volatiles Organics (8010)	2 x 40 ml vial	TPHgBTEX	2 x 40 ml vial HCl		
MW-1	9/11/06	1225		Water	3											X							
MW-2	9/11/06	1257		↓	3											X							
MW-3	9/11/06	1149			3												X						
MW-4	9/11/06	1056			3												X						
DUP-1	9/11/06	—			3												X						
TB-1	9/11/06	—			3												X						

**Relinquished By:** *[Signature]*  
 Signature: *[Signature]*  
 Printed Name: *[Signature]*  
 Firm: STCSF  
 Date/Time: 9/11/06 1400

**Received By:** *[Signature]*  
 Signature: *[Signature]*  
 Printed Name: *[Signature]*  
 Firm: STCSF  
 Date/Time: 9-11-06 1400

**TURNAROUND REQUIREMENTS**  
 24 hr  48 hr  5 day  
 Standard (5 working days)  
 Provide Verbal Preliminary Results  
 Provide pdf Results  
 Due Date: \_\_\_\_\_

**REPORT REQUIREMENTS**  
 I. Routine Report  
 II. Report (includes DUP, MS MSD, as required, may be charged as samples)  
 III. Data Validation Report (includes All Raw Data)  
 RWQCB  
 (MDLs/PQLs/TRACE#)

**INVOICE INFORMATION**  
 P.O. # \_\_\_\_\_  
 Bill to: \_\_\_\_\_

**SAMPLE RECEIPT**  
 Shipping VIA: \_\_\_\_\_  
 Shipping #: \_\_\_\_\_  
 Condition: \_\_\_\_\_  
 128 4/6/02

**Special Instructions/Comments:**  
 Please refer to Project File for detection limits and report MRLs only  
 Please pdf results to: Dana Johnston  
 dana@crawfordconsulting.com

## LOGIN SAMPLE RECEIPT CHECK LIST

Client: Crawford Consulting Inc

Job Number: 720-5426-1

**Login Number: 5426**

Question	T/F/NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	NA	
The cooler's custody seal, if present, is intact.	NA	
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	

**Fourth Quarter 2006**



## ANALYTICAL REPORT

Job Number: 720-6977-1

Job Description: Alameda Facility CS 1605

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

Attention: Dana Johnston

A handwritten signature in black ink that reads "D Sharma".

---

Dimple Sharma  
Project Manager I  
dsharma@stl-inc.com  
12/22/2006

cc: Mark Wheeler

Project Manager: Dimple Sharma

**Severn Trent Laboratories, Inc.**

STL San Francisco 1220 Quarry Lane, Pleasanton, CA 94566  
Tel (925) 484-1919 Fax (925) 484-1096 www.stl-inc.com

## EXECUTIVE SUMMARY - Detections

Client: Crawford Consulting Inc

Job Number: 720-6977-1

Lab Sample ID Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
<b>720-6977-1</b>	<b>MW-1</b>				
Trichloroethene		20	2.0	ug/L	8260B
Tetrachloroethene		210	2.0	ug/L	8260B
<b>720-6977-2</b>	<b>MW-2</b>				
Tetrachloroethene		1000	20	ug/L	8260B
<b>720-6977-3</b>	<b>MW-3</b>				
1,1-Dichloroethene		1.6	0.50	ug/L	8260B
Tetrachloroethene		0.56	0.50	ug/L	8260B
<b>720-6977-4FD</b>	<b>DUP-1</b>				
Tetrachloroethene		910	20	ug/L	8260B

## METHOD SUMMARY

Client: Crawford Consulting Inc

Job Number: 720-6977-1

Description	Lab Location	Method	Preparation Method
<b>Matrix:</b> Water			
Volatile Organic Compounds by GC/MS (Low Level)	STL SF	SW846 8260B	
Purge-and-Trap	STL SF		SW846 5030B

### LAB REFERENCES:

STL SF = STL 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: 720-6977-1

<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Client Matrix</b>	<b>Date/Time Sampled</b>	<b>Date/Time Received</b>
720-6977-1	MW-1	Water	12/15/2006 0918	12/15/2006 1130
720-6977-2	MW-2	Water	12/15/2006 0956	12/15/2006 1130
720-6977-3	MW-3	Water	12/15/2006 0833	12/15/2006 1130
720-6977-4FD	DUP-1	Water	12/15/2006 0000	12/15/2006 1130
720-6977-5TB	TB-1	Water	12/15/2006 0000	12/15/2006 1130



## Analytical Data

Client: Crawford Consulting Inc

Job Number: 720-6977-1

**Client Sample ID: MW-1**

Lab Sample ID: 720-6977-1  
 Client Matrix: Water

Date Sampled: 12/15/2006 0918  
 Date Received: 12/15/2006 1130

### 8260B Volatile Organic Compounds by GC/MS (Low Level)

Method: 8260B	Analysis Batch: 720-16578	Instrument ID: Varian 3900F
Preparation: 5030B		Lab File ID: c:\saturday\data\200612\12
Dilution: 4.0		Initial Weight/Volume: 40 mL
Date Analyzed: 12/20/2006 2127		Final Weight/Volume: 40 mL
Date Prepared: 12/20/2006 2127		

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	ND		2.0
1,1-Dichloroethane	ND		2.0
Dichlorodifluoromethane	ND		2.0
Vinyl chloride	ND		2.0
Chloroethane	ND		4.0
Trichlorofluoromethane	ND		4.0
Methylene Chloride	ND		20
trans-1,2-Dichloroethene	ND		2.0
cis-1,2-Dichloroethene	ND		2.0
Chloroform	ND		4.0
1,1,1-Trichloroethane	ND		2.0
Carbon tetrachloride	ND		2.0
1,2-Dichloroethane	ND		2.0
Trichloroethene	20		2.0
1,2-Dichloropropane	ND		2.0
Dichlorobromomethane	ND		2.0
trans-1,3-Dichloropropene	ND		2.0
cis-1,3-Dichloropropene	ND		2.0
1,1,2-Trichloroethane	ND		2.0
Tetrachloroethene	210		2.0
Chlorodibromomethane	ND		2.0
Chlorobenzene	ND		2.0
Bromoform	ND		4.0
1,1,2,2-Tetrachloroethane	ND		2.0
1,3-Dichlorobenzene	ND		2.0
1,4-Dichlorobenzene	ND		2.0
1,2-Dichlorobenzene	ND		2.0
Chloromethane	ND		4.0
Bromomethane	ND		4.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0
EDB	ND		2.0
1,2,4-Trichlorobenzene	ND		4.0
Surrogate	%Rec		Acceptance Limits
Toluene-d8 (Surr)	107		77 - 121
4-Bromofluorobenzene	104		79 - 118
1,2-Dichloroethane-d4 (Surr)	104		78 - 117

## Analytical Data

Client: Crawford Consulting Inc

Job Number: 720-6977-1

**Client Sample ID: MW-2**

Lab Sample ID: 720-6977-2  
Client Matrix: Water

Date Sampled: 12/15/2006 0956  
Date Received: 12/15/2006 1130

### 8260B Volatile Organic Compounds by GC/MS (Low Level)

Method: 8260B	Analysis Batch: 720-16603	Instrument ID: Varian 3900F
Preparation: 5030B		Lab File ID: c:\saturday\data\200612\12
Dilution: 40		Initial Weight/Volume: 40 mL
Date Analyzed: 12/21/2006 1745		Final Weight/Volume: 40 mL
Date Prepared: 12/21/2006 1745		

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	ND		20
1,1-Dichloroethane	ND		20
Dichlorodifluoromethane	ND		20
Vinyl chloride	ND		20
Chloroethane	ND		40
Trichlorofluoromethane	ND		40
Methylene Chloride	ND		200
trans-1,2-Dichloroethene	ND		20
cis-1,2-Dichloroethene	ND		20
Chloroform	ND		40
1,1,1-Trichloroethane	ND		20
Carbon tetrachloride	ND		20
1,2-Dichloroethane	ND		20
Trichloroethene	ND		20
1,2-Dichloropropane	ND		20
Dichlorobromomethane	ND		20
trans-1,3-Dichloropropene	ND		20
cis-1,3-Dichloropropene	ND		20
1,1,2-Trichloroethane	ND		20
Tetrachloroethene	1000		20
Chlorodibromomethane	ND		20
Chlorobenzene	ND		20
Bromoform	ND		40
1,1,2,2-Tetrachloroethane	ND		20
1,3-Dichlorobenzene	ND		20
1,4-Dichlorobenzene	ND		20
1,2-Dichlorobenzene	ND		20
Chloromethane	ND		40
Bromomethane	ND		40
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		20
EDB	ND		20
1,2,4-Trichlorobenzene	ND		40
Surrogate	%Rec		Acceptance Limits
Toluene-d8 (Surr)	113		77 - 121
4-Bromofluorobenzene	106		79 - 118
1,2-Dichloroethane-d4 (Surr)	109		78 - 117

## Analytical Data

Client: Crawford Consulting Inc

Job Number: 720-6977-1

**Client Sample ID: MW-3**

Lab Sample ID: 720-6977-3  
 Client Matrix: Water

Date Sampled: 12/15/2006 0833  
 Date Received: 12/15/2006 1130

### 8260B Volatile Organic Compounds by GC/MS (Low Level)

Method: 8260B	Analysis Batch: 720-16603	Instrument ID: Varian 3900F
Preparation: 5030B		Lab File ID: c:\saturday\data\200612\12
Dilution: 1.0		Initial Weight/Volume: 40 mL
Date Analyzed: 12/21/2006 1711		Final Weight/Volume: 40 mL
Date Prepared: 12/21/2006 1711		

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	1.6		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	0.56		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)	110	77 - 121	
4-Bromofluorobenzene	104	79 - 118	
1,2-Dichloroethane-d4 (Surr)	112	78 - 117	

## Analytical Data

Client: Crawford Consulting Inc

Job Number: 720-6977-1

**Client Sample ID: DUP-1**

Lab Sample ID: 720-6977-4FD  
Client Matrix: Water

Date Sampled: 12/15/2006 0000  
Date Received: 12/15/2006 1130

### 8260B Volatile Organic Compounds by GC/MS (Low Level)

Method: 8260B	Analysis Batch: 720-16653	Instrument ID: Varian 3900G
Preparation: 5030B		Lab File ID: c:\saturday\data\200612\12
Dilution: 40		Initial Weight/Volume: 40 mL
Date Analyzed: 12/22/2006 1255		Final Weight/Volume: 40 mL
Date Prepared: 12/22/2006 1255		

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	ND		20
1,1-Dichloroethane	ND		20
Dichlorodifluoromethane	ND		20
Vinyl chloride	ND		20
Chloroethane	ND		40
Trichlorofluoromethane	ND		40
Methylene Chloride	ND		200
trans-1,2-Dichloroethene	ND		20
cis-1,2-Dichloroethene	ND		20
Chloroform	ND		40
1,1,1-Trichloroethane	ND		20
Carbon tetrachloride	ND		20
1,2-Dichloroethane	ND		20
Trichloroethene	ND		20
1,2-Dichloropropane	ND		20
Dichlorobromomethane	ND		20
trans-1,3-Dichloropropene	ND		20
cis-1,3-Dichloropropene	ND		20
1,1,2-Trichloroethane	ND		20
Tetrachloroethene	910		20
Chlorodibromomethane	ND		20
Chlorobenzene	ND		20
Bromoform	ND		40
1,1,2,2-Tetrachloroethane	ND		20
1,3-Dichlorobenzene	ND		20
1,4-Dichlorobenzene	ND		20
1,2-Dichlorobenzene	ND		20
Chloromethane	ND		40
Bromomethane	ND		40
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		20
EDB	ND		20
1,2,4-Trichlorobenzene	ND		40
Surrogate	%Rec		Acceptance Limits
Toluene-d8 (Surr)	106		77 - 121
4-Bromofluorobenzene	113		79 - 118
1,2-Dichloroethane-d4 (Surr)	114		78 - 117

## Analytical Data

Client: Crawford Consulting Inc

Job Number: 720-6977-1

**Client Sample ID: TB-1**

Lab Sample ID: 720-6977-5TB  
 Client Matrix: Water

Date Sampled: 12/15/2006 0000  
 Date Received: 12/15/2006 1130

### 8260B Volatile Organic Compounds by GC/MS (Low Level)

Method: 8260B	Analysis Batch: 720-16603	Instrument ID: Varian 3900F
Preparation: 5030B		Lab File ID: c:\saturday\data\200612\12
Dilution: 1.0		Initial Weight/Volume: 40 mL
Date Analyzed: 12/21/2006 1638		Final Weight/Volume: 40 mL
Date Prepared: 12/21/2006 1638		

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
1,1,2,2-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)	111		77 - 121
4-Bromofluorobenzene	106		79 - 118
1,2-Dichloroethane-d4 (Surr)	107		78 - 117

## DATA REPORTING QUALIFIERS

<b>Lab Section</b>	<b>Qualifier</b>	<b>Description</b>
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## Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-6977-1

### QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
<b>GC/MS VOA</b>					
<b>Analysis Batch:720-16578</b>					
LCS 720-16578/1	Lab Control Spike	T	Water	8260B	
MB 720-16578/2	Method Blank	T	Water	8260B	
720-6977-1	MW-1	T	Water	8260B	
<b>Analysis Batch:720-16603</b>					
LCS 720-16603/1	Lab Control Spike	T	Water	8260B	
MB 720-16603/2	Method Blank	T	Water	8260B	
720-6977-2	MW-2	T	Water	8260B	
720-6977-3	MW-3	T	Water	8260B	
720-6977-5TB	TB-1	T	Water	8260B	
<b>Analysis Batch:720-16653</b>					
LCS 720-16653/1	Lab Control Spike	T	Water	8260B	
MB 720-16653/2	Method Blank	T	Water	8260B	
720-6977-4FD	DUP-1	T	Water	8260B	

#### Report Basis

T = Total

## Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-6977-1

**Method Blank - Batch: 720-16578**

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

Lab Sample ID: MB 720-16578/2  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 12/20/2006 1130  
Date Prepared: 12/20/2006 1130

Analysis Batch: 720-16578  
Prep Batch: N/A  
Units: ug/L

Instrument ID: Varian 3900F  
Lab File ID: c:\saturnws\data\200612\12  
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		1.0
Surrogate	% Rec	Acceptance Limits	
Toluene-d8 (Surr)	109	77 - 121	
4-Bromofluorobenzene	109	79 - 118	
1,2-Dichloroethane-d4 (Surr)	101	78 - 117	

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



## Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-6977-1

### Lab Control Spike - Batch: 720-16578

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

Lab Sample ID: LCS 720-16578/1  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 12/20/2006 1057  
Date Prepared: 12/20/2006 1057

Analysis Batch: 720-16578  
Prep Batch: N/A  
Units: ug/L

Instrument ID: Varian 3900F  
Lab File ID: c:\saturnws\data\200612\12  
Initial Weight/Volume: 40 mL  
Final Weight/Volume: 40 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
1,1-Dichloroethene	20.0	17.6	88	65 - 125	
Trichloroethene	20.0	17.6	88	74 - 134	
Chlorobenzene	20.0	18.7	94	61 - 121	
Surrogate			% Rec	Acceptance Limits	
Toluene-d8 (Surr)			108	77 - 121	
4-Bromofluorobenzene			102	79 - 118	
1,2-Dichloroethane-d4 (Surr)			94	78 - 117	

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

## Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-6977-1

**Method Blank - Batch: 720-16603**

**Method: 8260B**

**Preparation: 5030B**

Lab Sample ID: MB 720-16603/2  
 Client Matrix: Water  
 Dilution: 1.0  
 Date Analyzed: 12/21/2006 1034  
 Date Prepared: 12/21/2006 1034

Analysis Batch: 720-16603  
 Prep Batch: N/A  
 Units: ug/L

Instrument ID: Varian 3900F  
 Lab File ID: c:\saturnws\data\200612\12  
 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		1.0
Surrogate	% Rec	Acceptance Limits	
Toluene-d8 (Surr)	103	77 - 121	
4-Bromofluorobenzene	103	79 - 118	
1,2-Dichloroethane-d4 (Surr)	100	78 - 117	

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

## Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-6977-1

### Lab Control Spike - Batch: 720-16603

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

Lab Sample ID: LCS 720-16603/1  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 12/21/2006 1001  
Date Prepared: 12/21/2006 1001

Analysis Batch: 720-16603  
Prep Batch: N/A  
Units: ug/L

Instrument ID: Varian 3900F  
Lab File ID: c:\saturnws\data\200612\12  
Initial Weight/Volume: 40 mL  
Final Weight/Volume: 40 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
1,1-Dichloroethene	20.0	20.0	100	65 - 125	
Trichloroethene	20.0	18.7	94	74 - 134	
Chlorobenzene	20.0	21.5	107	61 - 121	
Surrogate		% Rec		Acceptance Limits	
Toluene-d8 (Surr)		111		77 - 121	
4-Bromofluorobenzene		105		79 - 118	
1,2-Dichloroethane-d4 (Surr)		96		78 - 117	

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

## Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-6977-1

**Method Blank - Batch: 720-16653**

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

Lab Sample ID: MB 720-16653/2  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 12/22/2006 1041  
Date Prepared: 12/22/2006 1041

Analysis Batch: 720-16653  
Prep Batch: N/A  
Units: ug/L

Instrument ID: Varian 3900G  
Lab File ID: c:\saturnws\data\200612\12  
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		1.0
Surrogate	% Rec	Acceptance Limits	
Toluene-d8 (Surr)	102	77 - 121	
4-Bromofluorobenzene	111	79 - 118	
1,2-Dichloroethane-d4 (Surr)	112	78 - 117	

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

## Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-6977-1

### Lab Control Spike - Batch: 720-16653

Method: 8260B

Preparation: 5030B

Lab Sample ID: LCS 720-16653/1

Client Matrix: Water

Dilution: 1.0

Date Analyzed: 12/22/2006 1008

Date Prepared: 12/22/2006 1008

Analysis Batch: 720-16653

Prep Batch: N/A

Units: ug/L

Instrument ID: Varian 3900G

Lab File ID: c:\saturnws\data\200612\12

Initial Weight/Volume: 40 mL

Final Weight/Volume: 40 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
1,1-Dichloroethene	20.0	18.7	93	65 - 125	
Trichloroethene	20.0	17.0	85	74 - 134	
Chlorobenzene	20.0	20.0	100	61 - 121	
Surrogate			% Rec	Acceptance Limits	
Toluene-d8 (Surr)			103	77 - 121	
4-Bromofluorobenzene			115	79 - 118	
1,2-Dichloroethane-d4 (Surr)			116	78 - 117	

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

STL ChromaLab

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

720-6977

CHAIN OF CUSTODY / LABORATORY ANALYSIS REQUEST FORM

Service Request:

Date: 12-15-06

**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:** *[Signature]*

Sample I.D.	Date	Time	LAB I.D.	Sample Matrix	Number of Containers	Analysis Requested										REMARKS					
						Volatiles Organics (VOCs) (EPA 8021B)	Pb (7421), As (7060)	Same as Metals	COD, TKN	500 ml plastic H <sub>2</sub> SO <sub>4</sub>	Chloride, Nitrate	500 ml plastic NP	pH, Conductivity	500 ml plastic NP	Total Phenols		2 x 500 ml glass H <sub>2</sub> SO <sub>4</sub>	Volatiles Organics (8010)	2 x 40 ml vial	TPH/BTEX	2 x 40 ml vial HCl
MW-1	12/15/06	0918		water	3												X				
MW-2	12/15/06	0956		water	3												X				
MW-3	12/15/06	0833		water	3												X				
MW-4	NO	samples collected - car parked on well																			
DUP-1	12/15/06	—		water	3												X				
TB-1	12/15/06	—		water	2												X				

Page 18 of 19

**Relinquished By:** *[Signature]*  
 Signature: *[Signature]*  
 Printed Name: Manuel Challegos  
 Firm: KSS  
 Date/Time: 12/15/06 11:30

**Received By:**  
 Signature: *[Signature]*  
 Printed Name: Payal Patel  
 Firm: STL - SF  
 Date/Time: 12/15/06 11:30

TURNAROUND REQUIREMENTS	REPORT REQUIREMENTS	INVOICE INFORMATION	SAMPLE RECEIPT
24 hr _____ 48 hr _____ 5 day _____ <input checked="" type="checkbox"/> Standard (5 working days) Provide Verbal Preliminary Results <input checked="" type="checkbox"/> Provide pdf Results. Due Date: _____	I. Routine Report <input checked="" type="checkbox"/> II. Report (Includes DUE, MS MSD, as required, may be charged as samples) III. Data Validation Report (includes All Raw Data) RW/QCB (MDLs/PQLs/TRACEs)	P.O.# _____ Bill to: _____ _____ _____	Shipping VIA: _____ Shipping # _____ Condition: _____ _____ _____

**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

18°C *[Signature]*

## LOGIN SAMPLE RECEIPT CHECK LIST

Client: Crawford Consulting Inc

Job Number: 720-6977-1

**Login Number: 6977**

Question	T/F/NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	NA	
The cooler's custody seal, if present, is intact.	NA	
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.	False	no time for DUP-1 or TB-1
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.	False	BOTH TB'S
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	



## ANALYTICAL REPORT

Job Number: 720-7087-1

Job Description: Alameda Facility CS 1605

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

Attention: Mark Wheeler

A handwritten signature in black ink that reads "D Sharma".

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Dimple Sharma  
Project Manager I  
dsharma@stl-inc.com  
01/02/2007

cc: Dana Johnston

Project Manager: Dimple Sharma

**Severn Trent Laboratories, Inc.**

STL San Francisco 1220 Quarry Lane, Pleasanton, CA 94566  
Tel (925) 484-1919 Fax (925) 484-1096 www.stl-inc.com



## EXECUTIVE SUMMARY - Detections

Client: Crawford Consulting Inc

Job Number: 720-7087-1

Lab Sample ID Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
720-7087-1 Tetrachloroethene	MW-4	0.63	0.50	ug/L	8260B

## METHOD SUMMARY

Client: Crawford Consulting Inc

Job Number: 720-7087-1

Description	Lab Location	Method	Preparation Method
<b>Matrix:</b> Water			
Volatile Organic Compounds by GC/MS (Low Level)	STL SF	SW846 8260B	
Purge-and-Trap	STL SF		SW846 5030B

### LAB REFERENCES:

STL SF = STL 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: 720-7087-1

<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Client Matrix</b>	<b>Date/Time Sampled</b>	<b>Date/Time Received</b>
720-7087-1	MW-4	Water	12/21/2006 0758	12/22/2006 0750

## Analytical Data

Client: Crawford Consulting Inc

Job Number: 720-7087-1

**Client Sample ID: MW-4**

Lab Sample ID: 720-7087-1  
Client Matrix: Water

Date Sampled: 12/21/2006 0758  
Date Received: 12/22/2006 0750

### 8260B Volatile Organic Compounds by GC/MS (Low Level)

Method: 8260B	Analysis Batch: 720-16821	Instrument ID: Varian 3900D
Preparation: 5030B		Lab File ID: c:\saturday\data\200612\12
Dilution: 1.0		Initial Weight/Volume: 40 mL
Date Analyzed: 12/28/2006 2301		Final Weight/Volume: 40 mL
Date Prepared: 12/28/2006 2301		

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	0.63		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)	100		77 - 121
4-Bromofluorobenzene	101		79 - 118
1,2-Dichloroethane-d4 (Surr)	99		78 - 117

## DATA REPORTING QUALIFIERS

<b>Lab Section</b>	<b>Qualifier</b>	<b>Description</b>
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## Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-7087-1

### QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
<b>GC/MS VOA</b>					
<b>Analysis Batch:720-16821</b>					
LCS 720-16821/1	Lab Control Spike	T	Water	8260B	
MB 720-16821/2	Method Blank	T	Water	8260B	
720-7087-1	MW-4	T	Water	8260B	

#### Report Basis

T = Total

## Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-7087-1

### Method Blank - Batch: 720-16821

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

Lab Sample ID: MB 720-16821/2  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 12/28/2006 1512  
Date Prepared: 12/28/2006 1512

Analysis Batch: 720-16821  
Prep Batch: N/A  
Units: ug/L

Instrument ID: Varian 3900D  
Lab File ID: c:\saturaws\data\200612\12  
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		1.0
Surrogate	% Rec	Acceptance Limits	
Toluene-d8 (Surr)	102	77 - 121	
4-Bromofluorobenzene	107	79 - 118	
1,2-Dichloroethane-d4 (Surr)	100	78 - 117	

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

## Quality Control Results

Client: Crawford Consulting Inc

Job Number: 720-7087-1

### Lab Control Spike - Batch: 720-16821

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

Lab Sample ID: LCS 720-16821/1  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 12/28/2006 1439  
Date Prepared: 12/28/2006 1439

Analysis Batch: 720-16821  
Prep Batch: N/A  
Units: ug/L

Instrument ID: Varian 3900D  
Lab File ID: c:\saturnws\data\200612\12  
Initial Weight/Volume: 40 mL  
Final Weight/Volume: 40 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
1,1-Dichloroethene	20.0	19.6	98	65 - 125	
Trichloroethene	20.0	18.4	92	74 - 134	
Chlorobenzene	20.0	21.0	105	61 - 121	
Surrogate			% Rec	Acceptance Limits	
Toluene-d8 (Surr)			99	77 - 121	
4-Bromofluorobenzene			105	79 - 118	
1,2-Dichloroethane-d4 (Surr)			94	78 - 117	

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



STL ChromaLab

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

CHAIN OF CUSTODY / LABORATORY ANALYSIS REQUEST FORM

720-7087

103380

Date: 12-22-06

**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:** *[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 <sub>2</sub> SO <sub>4</sub>	Chloride, Nitrate	500 ml plastic NP	pH, Conductivity	500 ml plastic NP	Total Phenols	2 x 500 ml glass H <sub>2</sub> SO <sub>4</sub>		Volatiles Organics (8010)	2 x 40 ml vial

Sample I.D.	Date	Time	LAB I.D.	Sample Matrix	Number of Containers	Volatiles Organics (VOCs) (EPA 8021B)	Pb (7421); As (7060)	Same as Metals	COD, TKN	500 ml plastic H <sub>2</sub> SO <sub>4</sub>	Chloride, Nitrate	500 ml plastic NP	pH, Conductivity	500 ml plastic NP	Total Phenols	2 x 500 ml glass H <sub>2</sub> SO <sub>4</sub>	Volatiles Organics (8010)	2 x 40 ml vial	TPH/BTEX	2 x 40 ml vial HCl	REMARKS		
MW-4	12/21/06	0758		water	3	X												X					

Relinquished By <i>[Signature]</i>	Received By <i>[Signature]</i>
Signature <i>[Signature]</i>	Signature <i>[Signature]</i>
Printed Name F S J	Printed Name Joan Mullen
Firm 12/22/06 0750	Firm SCLSF
Date/Time	Date/Time 12-22-06 750
Relinquished By	Received By
Signature	Signature
Printed Name	Printed Name
Firm	Firm
Date/Time	Date/Time

<b>TURNAROUND REQUIREMENTS</b> 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 Due Date _____	<b>REPORT REQUIREMENTS</b> <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#)	<b>INVOICE INFORMATION</b> P.O. # _____ Bill to: _____ _____ _____	<b>SAMPLE RECEIPT</b> Shipping VIA: _____ Shipping #: _____ Condition: _____ _____ _____
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**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: 720-7087-1

**Login Number: 7087**

<b>Question</b>	<b>T/F/NA</b>	<b>Comment</b>
Radioactivity either was not measured or, if measured, is at or below background	NA	
The cooler's custody seal, if present, is intact.	NA	
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	

