# Groundwater Monitoring Results
# First Semi-Annual 2010 Monitoring Period
## Cargill Salt – Alameda Facility
## Alameda, California

CRAWFORD
CONSULTING
INC.

Cargill

May 12, 2010

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

**RE: Groundwater Monitoring Results, First Semi-Annual 2010 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 first semi-annual 2010 monitoring period for the Cargill Salt Alameda facility. Groundwater sampling and analysis has been reduced from quarterly to semi-annually in response to your September 30, 2009 letter. Groundwater sampling and analysis will be performed during the first and third quarters. This report presents the results of groundwater monitoring data collected during the first quarter of 2010. 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) 790-8182.

Sincerely,

Sean Riley
Environmental Manager

# Groundwater Monitoring Results
# First Semi-Annual 2010 Monitoring Period
## Cargill Salt – Alameda Facility
## Alameda, California

**Prepared for:**

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**7220 Central Avenue**
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**Prepared by:**

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**Project No. CS1605**
**May 12, 2010**

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**(presented in electronic format only)**



# Electronic File

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

# 1 Introduction

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

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

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

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

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

## 1.1 Reporting Period Activities

This report presents the results of groundwater monitoring data collected during the first quarter of 2010. 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 monitoring event for the first semi-annual 2010 monitoring period was conducted on March 2, 2010.

Supervision of the monitoring event was conducted for Cargill Salt by Crawford. Groundwater level measurements and collection of groundwater samples were conducted by Field Solutions, Inc. The groundwater samples were analyzed by TestAmerica Laboratories, Inc., a state-certified laboratory in Pleasanton, California.

## 1.2 Background Information

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

### 1.2.1 Site Description

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

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

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

### 1.2.2 Summary of Investigative and Remedial Activities

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

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

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

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

After approval of the workplan by the ACEHS, Cargill Salt conducted groundwater sampling and well installation activities during August and November of 1999. The results of these activities were submitted to the ACEHS in a report, *Groundwater Characterization and Monitoring Well Installation, Cargill Salt – Alameda Facility, Alameda, California* (Crawford Consulting, Inc. and Conor Pacific/EFW, dated January 31, 2000). After the initial groundwater monitoring well sampling event in November 1999, Cargill Salt began groundwater monitoring on a quarterly basis.

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

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

### 1.2.3 Source of VOC Impact

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

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

# 2 Groundwater Flow Analysis

Groundwater levels were measured and a groundwater contour map was prepared for the first semi-annual 2010 monitoring event.

## 2.1 Water-Level Measurement

Water levels in groundwater monitoring wells (MW-1, MW-2, MW-3, and MW-4) were measured on March 2, 2010, before any of the groundwater monitoring wells were purged for sampling for the semi-annual monitoring event. The groundwater monitoring well locations are shown on Figure 2. The water levels were measured with an electric sounder. The depth to water at each well was recorded on a *Water Level Field Data* sheet (see Appendix A).

The water-level data through the first quarter of 2010 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 first semi-annual period of 2010 as in the previous nine years (see Figure 3). Groundwater levels rose across the Site between the third quarter 2009 and first quarter 2010 measurements, reflecting winter-season recharge. Groundwater levels rose in off-site well MW-4 between the third quarter 2009 and first quarter 2010 measurements, similar to the pattern exhibited by the on-site wells.

## 2.2 Groundwater Flow Direction and Gradient

A groundwater contour map based on the March 2010 water-level data is shown on Figure 4.

The groundwater flow direction determined for the first quarter of 2010 was to the northeast. The horizontal hydraulic gradient measured for the first quarter of 2010 was 0.021. The groundwater flow direction and horizontal hydraulic gradient were consistent with those previous determined for the Site.

## 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 first quarter of 2010 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 first quarter 2010 groundwater contour map, the groundwater flow velocity beneath the Site is calculated to be approximately 1 foot per year (ft/yr) for the first quarter 2010 measurements. This groundwater flow velocity is within the range of values previously determined for the Site.

# 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 March 2, 2010 from groundwater monitoring wells MW-1, MW-2, MW-3, and MW-4. Dedicated tubing was installed in wells MW-1, MW-2, and MW-3 prior to the first quarter 2000 sampling event and on December 17, 2001 in well MW-4 to facilitate sampling with a peristaltic pump. Dedicated fluorinated ethylene propylene resin (FEP)-lined polyethylene tubing was installed in each monitoring well. The tubing intake was placed about one foot above the well bottom in each of the wells. Viton® dedicated check valves were installed on the tubing intakes to prevent back-flow of water into the well. A short length of dedicated Viton® tubing was installed at the well head for use in a peristaltic pump head. Prior to sample collection for each quarterly monitoring event, the wells were purged using a peristaltic pump. Field parameters (pH, electrical conductivity, temperature, and turbidity) were measured in purged groundwater from each well prior to sampling; these data are recorded on the Sample Collection Field Data sheets presented in Appendix A. After purging, groundwater samples were collected using the peristaltic pump and the dedicated Viton® pump head discharge tubing.

The groundwater samples were analyzed for VOCs using U.S. Environmental Protection Agency (USEPA) Method 8260. Results for all Method 8010 analytes were reported. The groundwater samples for the first semi-annual 2010 event were delivered with appropriate chain-of-custody documentation to TestAmerica Laboratories, Inc., a state-certified laboratory in Pleasanton, California, for chemical analysis.

## 3.2 Analytical Results

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

### 3.2.1 Quality Control

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

Field Quality Control Samples

A field duplicate was used during the first semi-annual 2010 sampling event for the Site. A field duplicate is used to assess sampling and analytical precision. The duplicate is collected at a selected well (MW-2) and then submitted "blind" to the laboratory for analysis with the same batch as the regular sample for the selected well. An estimate of precision is obtained by calculating the relative percent difference (RPD) between the regular sample and the duplicate sample using the following formula:

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

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 first semi-annual 2010 analytical program for the Site:

- surrogate spikes
- matrix spikes/duplicate matrix spikes

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

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

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

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

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

First Quarter 2010 Field QC Results

One field duplicate (DUP-1) was analyzed as part of the first quarter 2010 sampling event at the Site. The duplicate sample was collected at groundwater monitoring well MW-2 and was analyzed for halogenated VOCs using USEPA Method 8260B (8010 list). Table 2 summarizes the calculated RPDs for MW-2 and MW-2 duplicate (DUP-1). The three parameters (cis-1,2-DCE, TCE, and PCE) for which RPDs could be calculated (see Table 2) exhibit low RPD values (i.e., less than 10%) indicative of good precision.

First Semi-Annual 2010 Laboratory QC Results

A review of the first semi-annual 2010 field data sheets and laboratory reports (presented in Appendices A and C, respectively) indicates that all analyses were performed within USEPA or California Department of Health Services (DHS) recommended maximum sample holding times.

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

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

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

### 3.2.2 Groundwater Results

The results for the first semi-annual 2010 monitoring event are shown on Table 3a and Figure 5. The results of historical VOC analyses for each quarter for 2000 through first quarter 2010 are summarized in Table 3b, which also shows the VOC results for the initial sampling event for monitoring wells MW-1, MW-2, and MW-3 in November 1999. Historical VOC results for all the wells are plotted on Figure 6.

Consistent with previous monitoring events, PCE and its breakdown product TCE were detected in Site groundwater samples from the first quarter 2010 monitoring event. Cis-1,2-DCE was also detected in MW-2 during the first quarter 2010 monitoring event.

For the first semi-annual 2010 event, the concentrations of PCE detected were:

- 170 micrograms per liter ($\mu$g/L) in monitoring well MW-1
- 860 $\mu$g/L in MW-2

- not detected in MW-3
- 0.78 µg/L in MW-4.

TCE was detected at 27 µg/L in monitoring well MW-1 and 9.5 µg/L in monitoring well MW-2. TCE was not detected in MW-3 or MW-4.

Cis-1,2-DCE was detected at 8.0 µg/L in monitoring well MW-2 but was not detected in monitoring wells MW-1, MW-3, or MW-4.

## 3.3 Discussion

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

The results for VOC concentrations reported for the first semi-annual 2010 quarterly monitoring event are generally similar to the results reported since the second quarter of 2006 (see Figure 6), with the exceptions that the concentrations of PCE reported for well MW-2 during the last two events (410 µg/L for September 2009 and 860 µg/L for March 2010) are the two lowest concentrations reported since the second quarter of 2006 and are the two lowest consecutive values ever reported for MW-2 during the Site's monitoring history.

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

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

# 4 Phytoremediation Project Status Update

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

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

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

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

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

June 2007 - View from driveway towards rear of property

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

June 2007 - View of front planting strip at Clement Avenue

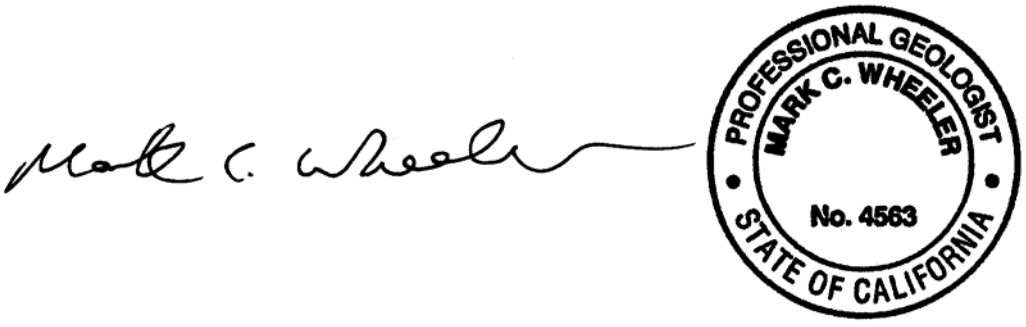
September 2009 - View of front planting strip at Clement Avenue.
Note relative height of gate vs. trees in the pictures above.

# Professional Certification

**Groundwater Monitoring Results**
**First Semi-Annual 2010 Monitoring Period**
**Cargill Salt – Alameda Facility**
**Alameda, California**

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

Dana C. Johnston
Project Manager




Mark C. Wheeler
Principal Geologist
P.G. 4563

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# Limitations

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

Table 1. Groundwater Level Data

| Well/ Piezometer | Date | Time | Casing Elevation (feet, MSL) | Depth to Water (feet) | Water Elevation (feet, MSL) | Elev. Change from Last Measurement (feet) |
|---|---|---|---|---|---|---|
| MW-1 | 11/16/1999 | 09:56 | 13.16 | 3.75 | 9.41 | NA |
| MW-1 | 3/30/2000 | 10:09 | 13.16 | 2.81 | 10.35 | 0.94 |
| MW-1 | 5/16/2000 | 09:43 | 13.16 | 3.32 | 9.84 | -0.51 |
| MW-1 | 7/28/2000 | 09:11 | 13.16 | 3.58 | 9.58 | -0.26 |
| MW-1 | 11/30/2000 | 08:36 | 13.16 | 3.52 | 9.64 | 0.06 |
| MW-1 | 3/26/2001 | 08:47 | 13.16 | 3.15 | 10.01 | 0.37 |
| MW-1 | 6/25/2001 | 10:19 | 13.16 | 3.53 | 9.63 | -0.38 |
| MW-1 | 9/28/2001 | 09:32 | 13.16 | 3.96 | 9.20 | -0.43 |
| MW-1 | 12/17/2001 | 10:47 | 13.16 | 3.23 | 9.93 | 0.73 |
| MW-1 | 3/21/2002 | 07:28 | 13.16 | 2.89 | 10.27 | 0.34 |
| MW-1 | 6/6/2002 | 08:03 | 13.16 | 3.50 | 9.66 | -0.61 |
| MW-1 | 9/20/2002 | 08:30 | 13.16 | 3.86 | 9.30 | -0.36 |
| MW-1 | 12/19/2002 | 08:38 | 13.16 | 3.13 | 10.03 | 0.73 |
| MW-1 | 3/4/2003 | 10:31 | 13.16 | 3.08 | 10.08 | 0.05 |
| MW-1 | 6/9/2003 | 08:32 | 13.16 | 3.29 | 9.87 | -0.21 |
| MW-1 | 9/8/2003 | 10:02 | 13.16 | 3.79 | 9.37 | -0.50 |
| MW-1 | 12/1/2003 | 10:16 | 13.16 | 3.78 | 9.38 | 0.01 |
| MW-1 | 3/4/2004 | 09:31 | 13.16 | 2.88 | 10.28 | 0.90 |
| MW-1 | 6/2/2004 | 08:42 | 13.16 | 3.45 | 9.71 | -0.57 |
| MW-1 | 9/14/2004 | 08:01 | 13.16 | 3.87 | 9.29 | -0.42 |
| MW-1 | 12/8/2004 | 07:44 | 13.16 | 3.23 | 9.93 | 0.64 |
| MW-1 | 3/3/2005 | 08:07 | 13.16 | 2.01 | 11.15 | 1.22 |
| MW-1 | 6/10/2005 | 07:05 | 13.16 | 2.90 | 10.26 | -0.89 |
| MW-1 | 9/16/2005 | 08:00 | 13.16 | 3.62 | 9.54 | -0.72 |
| MW-1 | 12/6/2005 | 08:00 | 13.16 | 3.28 | 9.88 | 0.34 |
| MW-1 | 3/10/2006 | 07:40 | 13.16 | 2.28 | 10.88 | 1.00 |
| MW-1 | 6/9/2006 | 09:45 | 13.16 | 3.09 | 10.07 | -0.81 |
| MW-1 | 9/11/2006 | 10:24 | 13.16 | 3.70 | 9.46 | -0.61 |
| MW-1 | 12/15/2006 | 07:34 | 13.16 | 2.94 | 10.22 | 0.76 |
| MW-1 | 3/6/2007 | 09:18 | 13.16 | 2.87 | 10.29 | 0.07 |
| MW-1 | 6/15/2007 | 07:29 | 13.16 | 3.30 | 9.86 | -0.43 |
| MW-1 | 9/11/2007 | 08:05 | 13.16 | 3.85 | 9.31 | -0.55 |
| MW-1 | 12/4/2007 | 08:53 | 13.16 | 3.58 | 9.58 | 0.27 |
| MW-1 | 3/20/2008 | 08:13 | 13.16 | 3.00 | 10.16 | 0.58 |
| MW-1 | 6/18/2008 | 08:22 | 13.16 | 3.73 | 9.43 | -0.73 |
| MW-1 | 9/3/2008 | 08:06 | 13.16 | 3.93 | 9.23 | -0.20 |
| MW-1 | 12/4/2008 | 08:12 | 13.16 | 3.71 | 9.45 | 0.22 |
| MW-1 | 3/5/2009 | 09:18 | 13.16 | 1.83 | 11.33 | 1.88 |
| MW-1 | 6/11/2009 | 08:40 | 13.16 | 3.52 | 9.64 | -1.69 |
| MW-1 | 9/3/2009 | 07:57 | 13.16 | 3.98 | 9.18 | -0.46 |
| MW-1 | 3/2/2010 | 08:10 | 13.16 | 2.37 | 10.79 | 1.61 |
| | | | | | | |
| 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 |

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 | 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 |
| MW-2 | 6/10/2005 | 07:09 | 16.22 | 3.74 | 12.48 | -1.84 |
| MW-2 | 9/16/2005 | 08:08 | 16.22 | 4.92 | 11.30 | -1.18 |
| MW-2 | 12/6/2005 | 10:58 | 16.22 | 4.39 | 11.83 | 0.53 |
| MW-2 | 3/10/2006 | 07:47 | 16.22 | 2.13 | 14.09 | 2.26 |
| MW-2 | 6/9/2006 | 10:03 | 16.22 | 3.75 | 12.47 | -1.62 |
| MW-2 | 9/11/2006 | 10:22 | 16.22 | 4.94 | 11.28 | -1.19 |
| MW-2 | 12/15/2006 | 07:32 | 16.22 | 4.08 | 12.14 | 0.86 |
| MW-2 | 3/6/2007 | 09:13 | 16.22 | 3.27 | 12.95 | 0.81 |
| MW-2 | 6/15/2007 | 07:31 | 16.22 | 4.57 | 11.65 | -1.30 |
| MW-2 | 9/11/2007 | 08:07 | 16.22 | 5.60 | 10.62 | -1.03 |
| MW-2 | 12/4/2007 | 08:47 | 16.22 | 4.99 | 11.23 | 0.61 |
| MW-2 | 3/20/2008 | 08:17 | 16.22 | 3.48 | 12.74 | 1.51 |
| MW-2 | 6/18/2008 | 08:27 | 16.22 | 4.93 | 11.29 | -1.45 |
| MW-2 | 9/3/2008 | 08:08 | 16.22 | 5.58 | 10.64 | -0.65 |
| MW-2 | 12/4/2008 | 08:14 | 16.22 | 5.07 | 11.15 | 0.51 |
| MW-2 | 3/5/2009 | 11:10 | 16.22 | 2.30 | 13.92 | 2.77 |
| MW-2 | 6/11/2009 | 08:41 | 16.22 | 4.44 | 11.78 | -2.14 |
| MW-2 | 9/3/2009 | 08:01 | 16.22 | 5.55 | 10.67 | -1.11 |
| MW-2 | 3/2/2010 | 08:12 | 16.22 | 2.88 | 13.34 | 2.67 |
| | | | | | | |
| 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 |

Table 1. Groundwater Level Data

| Well/ Piezometer | Date | Time | Casing Elevation (feet, MSL) | Depth to Water (feet) | Water Elevation (feet, MSL) | Elev. Change from Last Measurement (feet) |
|---|---|---|---|---|---|---|
| MW-3 | 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-3 | 3/6/2007 | 09:16 | 13.34 | 3.04 | 10.30 | 0.06 |
| MW-3 | 6/15/2007 | 07:27 | 13.34 | 3.60 | 9.74 | -0.56 |
| MW-3 | 9/11/2007 | 08:03 | 13.34 | 3.87 | 9.47 | -0.27 |
| MW-3 | 12/4/2007 | 08:50 | 13.34 | 3.62 | 9.72 | 0.25 |
| MW-3 | 3/20/2008 | 08:15 | 13.34 | 3.13 | 10.21 | 0.49 |
| MW-3 | 6/18/2008 | 08:24 | 13.34 | 3.90 | 9.44 | -0.77 |
| MW-3 | 9/3/2008 | 08:02 | 13.34 | 3.92 | 9.42 | -0.02 |
| MW-3 | 12/4/2008 | 08:10 | 13.34 | 3.59 | 9.75 | 0.33 |
| MW-3 | 3/5/2009 | 09:23 | 13.34 | 2.79 | 10.55 | 0.80 |
| MW-3 | 6/11/2009 | 08:38 | 13.34 | 3.14 | 10.20 | -0.35 |
| MW-3 | 9/3/2009 | 07:55 | 13.34 | 4.31 | 9.03 | -1.17 |
| MW-3 | 3/2/2010 | 08:09 | 13.34 | 2.94 | 10.40 | 1.37 |
| | | | | | | |
| MW-4 | 12/17/2001 | 10:40 | 12.43 | 2.55 | 9.88 | NA |
| MW-4 | 3/28/2002 | 08:05 | 12.43 | 3.06 | 9.37 | -0.51 |
| MW-4 | 6/6/2002 | 07:57 | 12.43 | 2.85 | 9.58 | 0.21 |
| MW-4 | 9/20/2002 | 08:28 | 12.43 | 3.21 | 9.22 | -0.36 |
| MW-4 | 12/19/2002 | 08:53 | 12.43 | 3.70 | 8.73 | -0.49 |
| MW-4 | 3/4/2003 | 10:34 | 12.43 | 3.14 | 9.29 | 0.56 |
| MW-4 | 6/9/2003 | 08:29 | 12.43 | 2.82 | 9.61 | 0.32 |
| MW-4 | 9/8/2003 | 10:04 | 12.43 | 3.43 | 9.00 | -0.61 |
| MW-4 | 12/1/2003 | 10:14 | 12.43 | 3.12 | 9.31 | 0.31 |
| MW-4 | 3/4/2004 | 09:27 | 12.43 | 2.81 | 9.62 | 0.31 |
| MW-4 | 6/2/2004 | 08:44 | 12.43 | 3.34 | 9.09 | -0.53 |
| MW-4 | 9/14/2004 | 08:03 | 12.43 | 3.51 | 8.92 | -0.17 |
| MW-4 | 12/8/2004 | 07:36 | 12.43 | 3.10 | 9.33 | 0.41 |
| MW-4 | 3/3/2005 | 07:44 | 12.43 | 2.48 | 9.95 | 0.62 |
| MW-4 | 6/10/2005 | 07:02 | 12.43 | 2.47 | 9.96 | 0.01 |
| MW-4 | 9/16/2005 | 08:12 | 12.43 | 3.23 | 9.20 | -0.76 |
| MW-4 | 12/6/2005 | 07:50 | 12.43 | 3.17 | 9.26 | 0.06 |
| MW-4 | 3/10/2006 | 07:37 | 12.43 | 3.77 | 8.66 | -0.60 |
| MW-4 | 6/9/2006 | 07:30 | 12.43 | 2.49 | 9.94 | 1.28 |
| MW-4 | 9/11/2006 | 10:17 | 12.43 | 3.19 | 9.24 | -0.70 |
| MW-4 | 12/21/2006 | NR | 12.43 | 2.90 | 9.53 | 0.29 |
| MW-4 | 3/6/2007 | 09:20 | 12.43 | 2.54 | 9.89 | 0.36 |
| MW-4 | 6/15/2007 | 07:33 | 12.43 | 3.03 | 9.40 | -0.49 |
| MW-4 | 9/11/2007 | 08:11 | 12.43 | 3.27 | 9.16 | -0.24 |
| MW-4 | 12/4/2007 | 08:55 | 12.43 | 3.25 | 9.18 | 0.02 |
| MW-4 | 3/20/2008 | 08:20 | 12.43 | 2.65 | 9.78 | 0.60 |
| MW-4 | 6/18/2008 | 08:31 | 12.43 | 3.35 | 9.08 | -0.70 |

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 | 9/3/2008 | 07:58 | 12.43 | 3.28 | 9.15 | 0.07 |
| MW-4 | 12/4/2008 | 08:17 | 12.43 | 3.12 | 9.31 | 0.16 |
| MW-4 | 3/5/2009 | 09:27 | 12.43 | 2.16 | 10.27 | 0.96 |
| MW-4 | 6/11/2009 | 08:43 | 12.43 | 2.84 | 9.59 | -0.68 |
| MW-4 | 9/3/2009 | 08:04 | 12.43 | 3.49 | 8.94 | -0.65 |
| MW-4 | 3/2/2010 | 08:14 | 12.43 | 2.32 | 10.11 | 1.17 |

**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

First Quarter 2010

| Analysis | Well MW-2 Results | Duplicate (DUP-1) Results | RPD[1] (%) |
|---|---|---|---|
| **Volatile Organic Compounds (µg/L)** | | | |
| cis-1,2-dichloroethene | 8.0 | 8.1 | 1.2 |
| Trichloroethene (TCE) | 9.5 | 9.3 | 2.1 |
| Tetrachloroethene (PCE) | 860 | 870 | 1.2 |

[1] RPD = relative percent difference

[2] NM = not meaningful; RPD cannot be accurately calculated where one or both values are below the method reporting limit.

All other 8010 list analytes not detected (by 8260).

Table 3a. Summary of Groundwater Monitoring Well Data - First Quarter 2010

| Well No.<br>Field Date | **MW-1**<br>3/2/10 | **MW-2**<br>3/2/10 | **MW-3**<br>3/2/10 | **MW-4**<br>3/2/10 | <br>MCL[1] |
|---|---|---|---|---|---|
| cis-1,2-DCE | <5.0 | **8.0** | <0.5 | <0.5 | ne[2] |
| TCE[3] | **27** | **9.5** | <0.5 | <0.5 | 5 |
| PCE[4] | **170** | **860** | <0.5 | **0.78** | 5 |
| Other analytes[5] | nd[6] | nd | nd | nd | nd |

Notes:
Results measured in micrograms per liter ($\mu$g/L)

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

[2] ne = not established or none applicable

[3] TCE = Trichloroethene

[4] PCE = Tetrachloroethene

[5] All other 8010 list analytes

[6] nd = not detected above laboratory reporting limit

Table 3b. Historical Summary of Groundwater Monitoring Well Data

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

| Well No. | MW-1 | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Field Date | 11/16/99 | 3/30/00 | 5/16/00 | 7/28/00 | 11/30/00 | 3/26/01 | 6/25/01 | 9/28/01 | 12/17/01 | 3/21/02 | 6/6/02 | 9/20/02 | 12/19/02 | 3/4/03 | 6/9/03 | 9/8/03 | 12/1/03 | 3/4/04 | 6/2/04 | 9/14/04 | 12/8/04 | 3/3/05 | 6/10/05 | 9/16/05 | MCL[1] |
| DCE[2] | <50.0 | **13** | <10 | **15** | **14** | <13 | **14** | **15** | <13 | <13 | <13 | <13 | <13 | <10 | **12** | **5.2** | **8.4** | <5.0 | **5.8** | **6.6** | <5.0 | <5.0 | <2.0 | <5.0 | 6 |
| CFC 113[3] | na[4] | **1.4** | <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 | ne[5] |
| DCA[6] | <50.0 | **0.8** | <10 | <10 | <4.2 | <13 | <13 | <13 | <13 | <13 | <13 | <13 | <13 | <10 | <10 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <2.0 | <5.0 | 5 |
| Chloroform | <50.0 | **0.6*** | <10 | <10 | <8.3 | <13 | <13 | <13 | <13 | <13 | <13 | <13 | <13 | <10 | <10 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <2.0 | <10 | ne |
| cis-1,2-DCE | <10 | <10 | <10 | <10 | <4.2 | <13 | <13 | <13 | <13 | <13 | <13 | <13 | <13 | <10 | <10 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <2.0 | <5.0 | ne |
| TCA[7] | <50.0 | **1.6** | <10 | <10 | <4.2 | <13 | <13 | <13 | <13 | <13 | <13 | <13 | <13 | <10 | <10 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <2.0 | <5.0 | 200 |
| TCE[8] | **178** | **150** | **190** | **170** | **130** | **180** | **250** | **210** | **190** | **160** | **140** | **190** | **68** | **97** | **90** | **110** | **130** | **53** | **72** | **81** | **39** | **15** | **23** | **34** | 5 |
| PCE[9] | **906** | **1,400** | **1,900** | **1,200** | **880** | **1,000** | **1,400** | **1,000** | **1,400** | **1,100** | **980** | **1,100** | **600** | **730** | **770** | **780** | **850** | **370** | **490** | **620** | **380** | **160** | **180** | **240** | 5 |
| Other analytes[10] | nd[11] | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | -- |

| Well No. | MW-2 | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | MCL[1] |
| DCE[2] | <50.0 | <0.5 | <25 | <25 | <8.3 | <25 | <25 | <25 | <25 | <25 | <25 | <25 | <25 | <20 | <20 | <20 | <20 | <20 | <25 | <25 | <20 | <50 | <25 | <20 | 6 |
| CFC 113[3] | na | <0.5 | <25 | <25 | <17 | <100 | <100 | <100 | <100 | <25 | <25 | <25 | <25 | <20 | <20 | <20 | <20 | <20 | <25 | <25 | <20 | <50 | <25 | <20 | ne[5] |
| DCA[6] | <50.0 | <0.5 | <25 | <25 | <8.3 | <25 | <25 | <25 | <25 | <25 | <25 | <25 | <25 | <20 | <20 | <20 | <20 | <20 | <25 | <25 | <20 | <50 | <25 | <20 | 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 | ne |
| cis-1,2-DCE | <50.0 | <0.5 | <25 | <25 | <8.3 | <25 | <25 | <25 | <25 | <25 | <25 | <25 | <25 | <20 | <20 | <20 | <20 | <20 | <25 | <25 | <20 | <50 | <25 | <20 | ne |
| TCA[7] | <50.0 | **5.0** | <25 | <25 | <8.3 | <25 | <25 | <25 | <25 | <25 | <25 | <25 | <25 | <20 | <20 | <20 | <20 | <20 | <25 | <25 | <20 | <50 | <25 | <20 | 200 |
| TCE[8] | <50 | **29** | **53** | <25 | **20** | **40** | **78** | <25 | <25 | **49** | **52** | **32** | <25 | **58** | **41** | **28** | **25** | **39** | **49** | **37** | **30** | **78** | **43** | **29** | 5 |
| PCE[9] | **840** | **3,600** | **3,200** | **3,300** | **1,700** | **2,200** | **4,400** | **1,700** | **1,700** | **3,500** | **3,800** | **2,100** | **1,800** | **3,900** | **3,800** | **2,500** | **2,500** | **3,000** | **4,100** | **3,800** | **2,800** | **7,300** | **3,600** | **2,500** | 5 |
| Other analytes[10] | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | -- |

Notes:

[1] MCL = California Primary Drinking Water Standard - Maximum Contaminant Level (in micrograms per liter [$\mu$g/L])

[2] DCE = 1,1-Dichloroethene

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

[4] na = not analyzed

[5] ne = not established or none applicable

[6] DCA = 1,1-Dichloroethane

[7] TCA = 1,1,1-Trichloroethane

[8] TCE = Trichloroethene

[9] PCE = Tetrachloroethene

[10] All other 8010 list analytes

[11] nd = not detected above laboratory reporting limit

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

Table 3b. Historical Summary of Groundwater Monitoring Well Data

| Well No. | MW-1 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Field Date | 12/6/05 | 3/10/06 | 6/9/06 | 9/11/06 | 12/15/06 | 3/6/07 | 6/15/07 | 9/11/07 | 12/4/07 | 3/20/08 | 6/18/08 | 9/3/08 | 12/4/08 | 3/5/09 | 6/11/09 | 9/3/09 | 3/2/10 | MCL[1] |
| DCE[2] | <2.0 | <0.5 | <2.0 | **3.3** | <2.0 | <2.0 | **3.0** | <5.0 | <5.0 | <2.0 | <5.0 | <5.0 | <5.0 | <0.5 | <2.5 | <10 | <5.0 | 6 |
| CFC 113[3] | <2.0 | <0.5 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <5.0 | <5.0 | <2.0 | <5.0 | <5.0 | <5.0 | <0.5 | <2.5 | <10 | <5.0 | ne[5] |
| DCA[6] | <2.0 | <0.5 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <5.0 | <5.0 | <2.0 | <5.0 | <5.0 | <5.0 | <0.5 | <2.5 | <10 | <5.0 | 5 |
| Chloroform | <4.0 | **1.4** | <4.0 | <4.0 | <4.0 | <4.0 | <4.0 | <10 | <10 | <4.0 | <10 | <10 | <10 | **1.9** | <5.0 | <20 | <10 | ne |
| cis-1,2-DCE | <2.0 | <0.5 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <5.0 | <5.0 | <2.0 | <5.0 | <5.0 | <5.0 | **0.62** | <2.5 | <10 | <5.0 | ne |
| TCA[7] | <2.0 | <0.5 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <5.0 | <5.0 | <2.0 | <5.0 | <5.0 | <5.0 | <0.5 | <2.5 | <10 | <5.0 | 200 |
| TCE[8] | **16** | **3.4** | **22** | **47** | **20** | **17** | **38** | **51** | **29** | **18** | **42** | **65** | **42** | **6.5** | **40** | **68** | **27** | 5 |
| PCE[9] | **140** | **39** | **140** | **400** | **210** | **170** | **310** | **430** | **330** | **170** | **390** | **620** | **320** | **68** | **300** | **640** | **170** | 5 |
| Other analytes[10] | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | -- |

| Well No. | MW-2 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Field Date | 12/6/05 | 3/10/06 | 6/9/06 | 9/11/06 | 12/15/06 | 3/6/07 | 6/15/07 | 9/11/07 | 12/4/07 | 3/20/08 | 6/18/08 | 9/3/08 | 12/4/08 | 3/5/09 | 6/11/09 | 9/3/09 | 3/2/10 | MCL[1] |
| DCE[2] | <25 | <25 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <25 | <5.0 | <5.0 | 6 |
| CFC 113[3] | <25 | <25 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <25 | <5.0 | <5.0 | ne[5] |
| DCA[6] | <25 | <25 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <25 | <5.0 | <5.0 | 5 |
| Chloroform | <50 | <50 | <40 | <20 | <40 | <40 | <40 | <40 | <40 | <40 | <40 | <40 | <40 | <40 | <50 | <10 | <10 | ne |
| cis-1,2-DCE | <25 | <25 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <25 | <5.0 | **8.0** | ne |
| TCA[7] | <25 | <25 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <25 | <5.0 | <5.0 | 200 |
| TCE[8] | **45** | **59** | <20 | <20 | <20 | <20 | **22** | **31** | <20 | <20 | **21** | <20 | <20 | <20 | <25 | <5.0 | **9.5** | 5 |
| PCE[9] | **3,300** | **5,200** | **1,600** | **990** | **1,000** | **1,600** | **2,400** | **1,700** | **1,100** | **2,900** | **1,700** | **1,600** | **2,000** | **2,300** | **1,500** | **410** | **860** | 5 |
| Other analytes[10] | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | -- |

Notes:

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

[2] DCE = 1,1-Dichloroethene

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

[4] na = not analyzed

[5] ne = not established or none applicable

[6] DCA = 1,1-Dichloroethane

[7] TCA = 1,1,1-Trichloroethane

[8] TCE = Trichloroethene

[9] PCE = Tetrachloroethene

[10] All other 8010 list analytes

[11] nd = not detected above laboratory reporting limit

Table 3b. Historical Summary of Groundwater Monitoring Well Data

Results measured in micrograms per liter (µg/L)

| Well No. | MW-3 | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Field Date | 11/16/99 | 3/30/00 | 5/16/00 | 7/28/00 | 11/30/00 | 3/26/01 | 6/25/01 | 9/28/01 | 12/17/01 | 3/21/02 | 6/6/02 | 9/20/02 | 12/19/02 | 3/4/03 | 6/9/03 | 9/8/03 | 12/1/03 | 3/4/04 | 6/2/04 | 9/14/04 | 12/8/04 | 3/3/05 | 6/10/05 | 9/16/05 | 12/6/05 | 3/10/06 | 6/9/06 | MCL[1] |
| DCE[2] | <0.500 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.51** | <0.5 | **0.81** | <0.5 | <0.5 | **0.68** | **2.4** | **1.5** | **1.1** | **0.86** | **4.3** | 6 |
| CFC 113[3] | na | <0.5 | <0.5 | <0.5 | <1.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | ne[5] |
| DCA[6] | <0.500 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.50** | 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 | ne |
| cis-1,2-DCE | <0.500 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | ne |
| TCA[7] | <0.500 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **1.0** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 200 |
| TCE[8] | <0.500 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 5 |
| PCE[9] | <0.500 | <0.5 | <0.5 | **0.8** | <0.5 | <0.5 | <0.5 | <0.5 | **0.81** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.90** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 5 |
| Other analytes[10] | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | -- |

| Well No. | MW-4 | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Field Date | 12/17/01 | 3/28/02 | 6/6/02 | 9/20/02 | 12/19/02 | 3/4/03 | 6/9/03 | 9/8/03 | 12/1/03 | 3/4/04 | 6/2/04 | 9/14/04 | 12/8/04 | 3/3/05 | 6/10/05 | 9/16/05 | 12/6/05 | 3/10/06 | 6/9/06 | 9/11/06 | 12/21/06 | 3/6/07 | 6/15/07 | 9/11/07 | 12/4/07 | 3/20/08 | 6/18/08 | MCL[1] |
| DCE[2] | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 6 |
| CFC 113[3] | <2.0 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | ne[5] |
| DCA[6] | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 5 |
| Chloroform | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | ne |
| cis-1,2-DCE | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | ne |
| TCA[7] | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 200 |
| TCE[8] | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 5 |
| PCE[9] | **2.6** | **2.8** | **2.0** | **2.5** | **1.1** | **2.1** | **2.1** | **1.6** | **1.6** | **1.7** | **1.4** | **1.3** | **1.2** | **0.93** | **0.98** | **0.8** | **1.1** | **0.79** | **0.64** | **0.70** | **0.63** | **0.70** | **0.75** | **0.86** | **0.92** | **0.91** | **0.86** | 5 |
| Other analytes[10] | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | -- |

Notes:

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

[2] DCE = 1,1-Dichloroethene

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

[4] na = not analyzed

[5] ne = not established or none applicable

[6] DCA = 1,1-Dichloroethane

[7] TCA = 1,1,1-Trichloroethane

[8] TCE = Trichloroethene

[9] PCE = Tetrachloroethene

[10] All other 8010 list analytes

[11] nd = not detected above laboratory reporting limit

Table 3b. Historical Summary of Groundwater Monitoring Well Data

| Well No. | MW-3 | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Field Date | 9/11/06 | 12/15/06 | 3/6/07 | 6/15/07 | 9/11/07 | 12/4/07 | 3/20/08 | 6/18/08 | 9/3/08 | 12/4/08 | 3/5/09 | 6/11/09 | 9/3/09 | 3/2/10 | MCL[1] |
| DCE[2] | **2.8** | **1.6** | **1.5** | **2.4** | **1.4** | **1.1** | **1.0** | **1.4** | **0.79** | **0.59** | <0.5 | **0.95** | **0.51** | <0.5 | 6 |
| CFC 113[3] | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | ne[5] |
| DCA[6] | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 5 |
| Chloroform | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | ne |
| cis-1,2-DCE | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | ne |
| TCA[7] | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 200 |
| TCE[8] | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 5 |
| PCE[9] | <0.5 | **0.56** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | 5 |
| Other analytes[10] | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | -- |

| Well No. | MW-4 | | | | | | |
|---|---|---|---|---|---|---|---|
| Field Date | 9/3/08 | 12/4/08 | 3/5/09 | 6/11/09 | 9/3/09 | 3/2/10 | MCL[1] |
| DCE[2] | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 6 |
| CFC 113[3] | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | ne[5] |
| DCA[6] | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 5 |
| Chloroform | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | ne |
| cis-1,2-DCE | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | ne |
| TCA[7] | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 200 |
| TCE[8] | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 5 |
| PCE[9] | **0.84** | **0.65** | **0.62** | **0.70** | **0.79** | **0.78** | 5 |
| Other analytes[10] | nd | nd | nd | nd | nd | nd | -- |

Notes:

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

[2] DCE = 1,1-Dichloroethene

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

[4] na = not analyzed

[5] ne = not established or none applicable

[6] DCA = 1,1-Dichloroethane

[7] TCA = 1,1,1-Trichloroethane

[8] TCE = Trichloroethene

[9] PCE = Tetrachloroethene

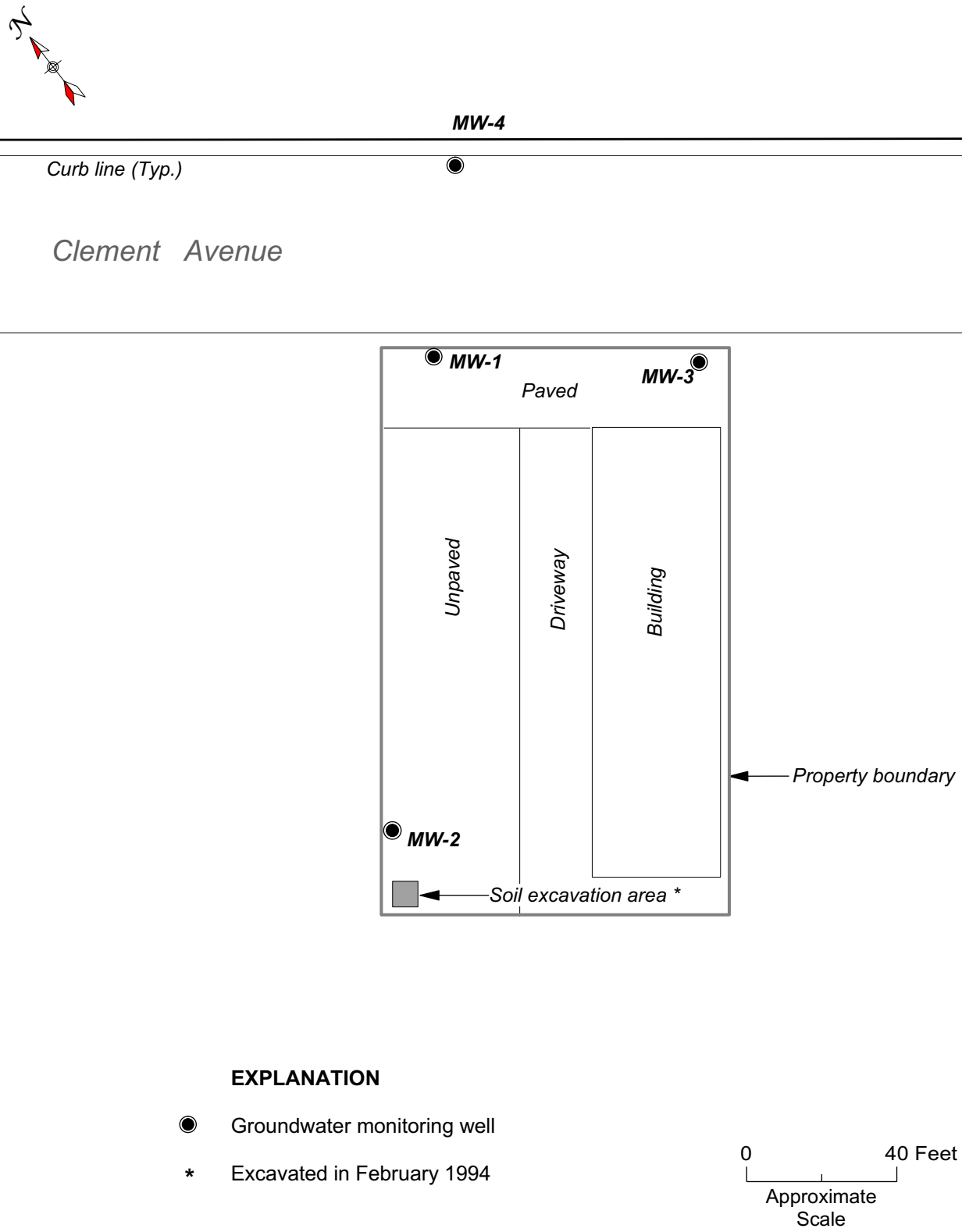
[10] All other 8010 list analytes

[11] nd = not detected above laboratory reporting limit


CRAWFORD CONSULTING INC.

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

1605fig104.dsf 12/8/04




1605fig210Q1.dsf 4/26/10

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

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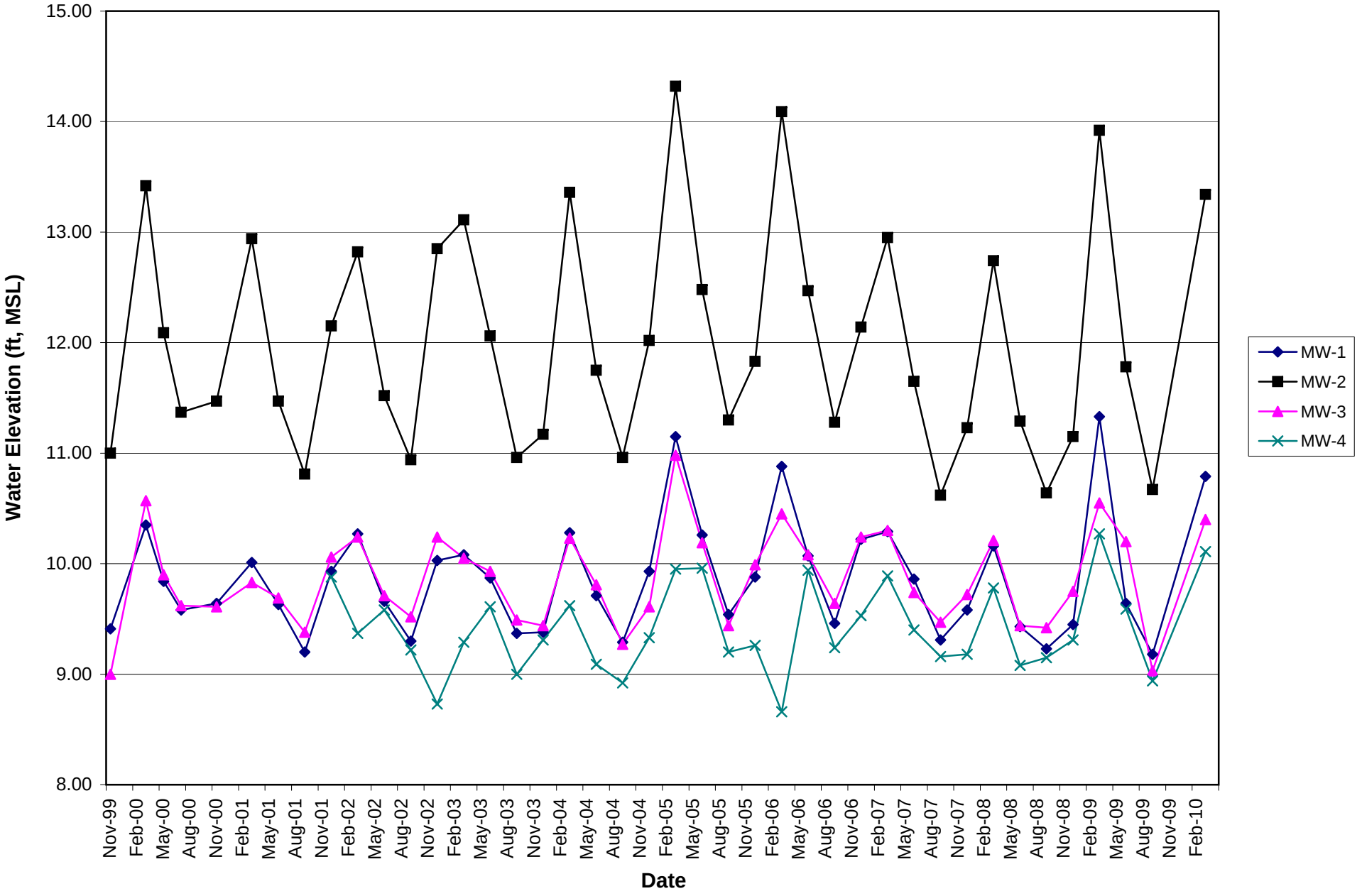
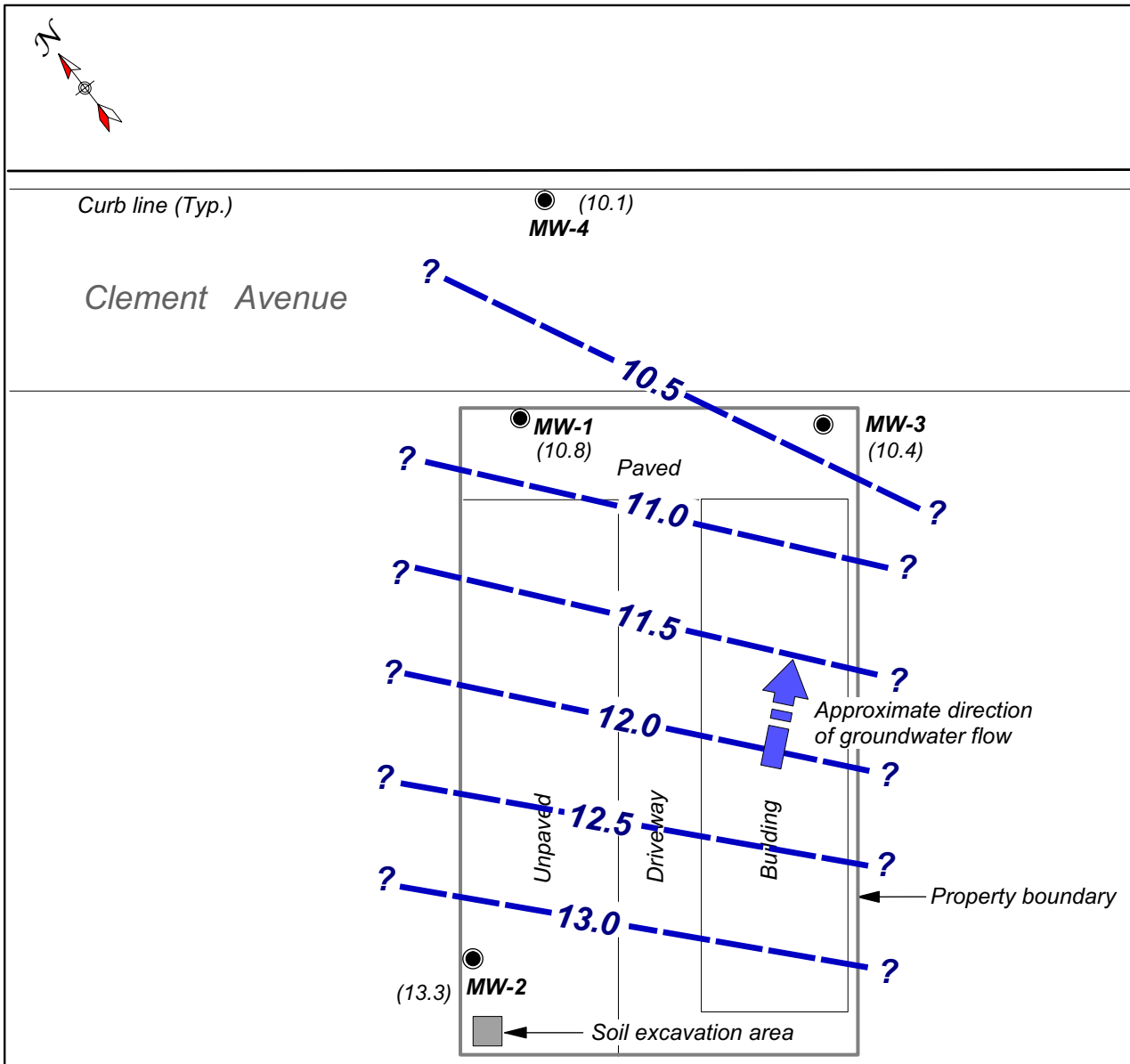
Cargill Salt Dispensing Systems Division
2016 Clement Avenue, Alameda, California
**Figure 2. Groundwater Monitoring Well Locations**

## Figure 3. Graphical Summary of Groundwater Elevations






**EXPLANATION**

- Monitoring well
- (10.4) Groundwater elevation (Ft.-MSL); measured 3/2/10
- Groundwater elevation contour (Ft.-MSL)

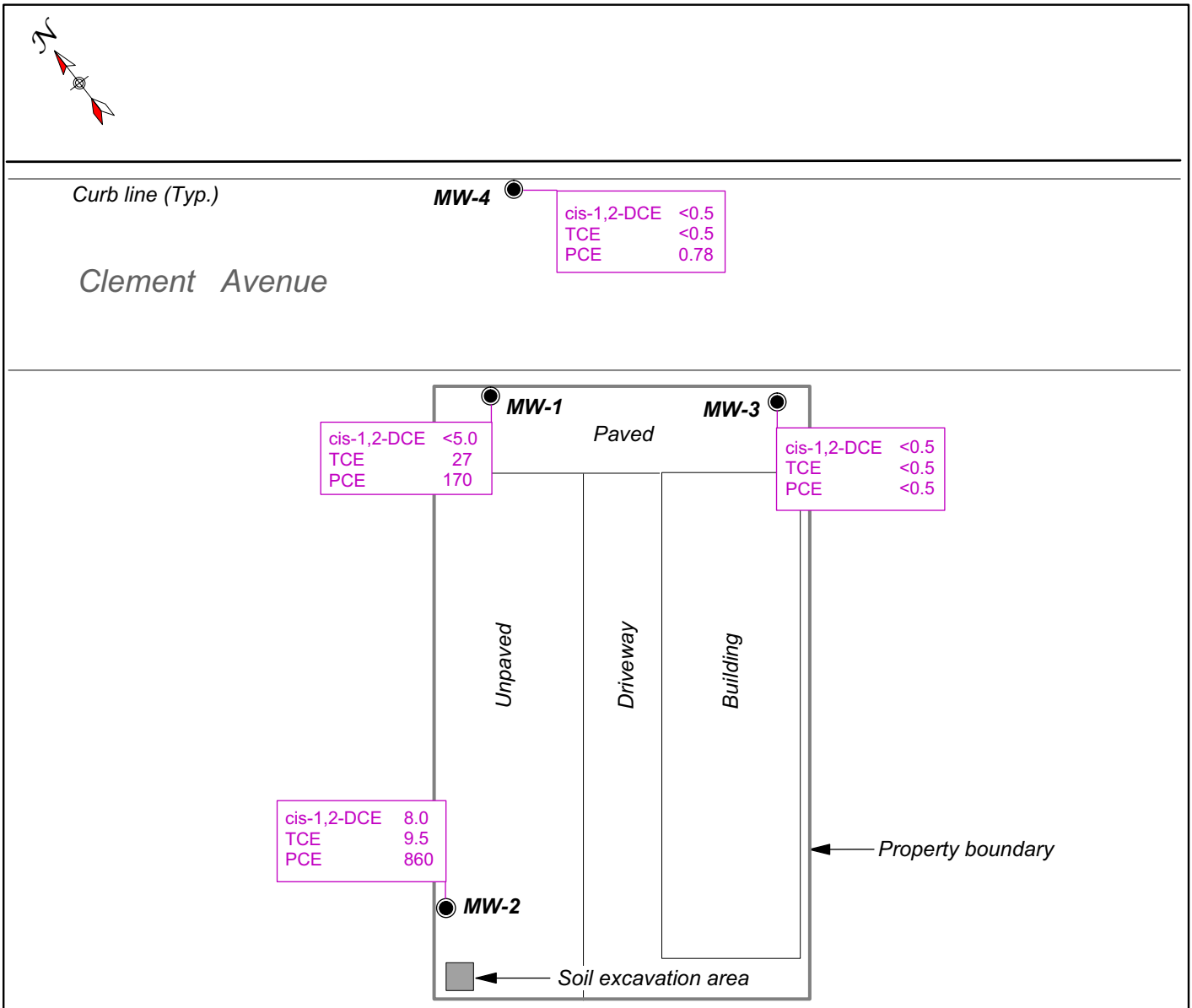
0 40 Feet
Approximate Scale

1605fig410Q1.dsf 5/5/10

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

CRAWFORD CONSULTING INC.

Project No. CS1605
Cargill Salt Dispensing Systems Division
2016 Clement Avenue, Alameda, California
**Figure 4. Groundwater Elevation Contours - March 2010**




**EXPLANATION**

Groundwater monitoring well location

Analyte concentration

cis-1,2-DCE 8.0
TCE 9.5
PCE 860

Analytical parameter

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

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

0 40 Feet
Approximate Scale

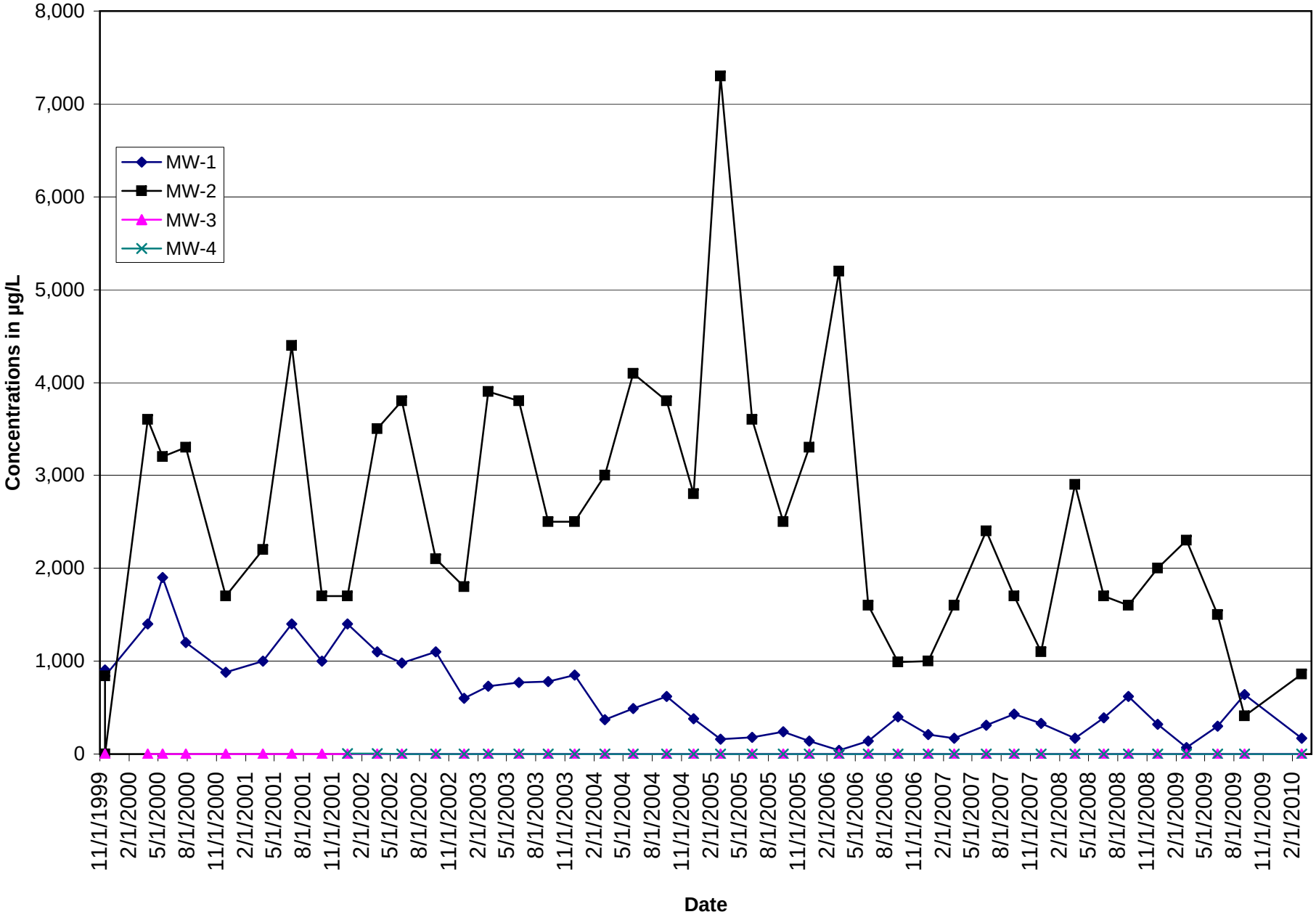
1605fig510Q1.dsf 4/26/10

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

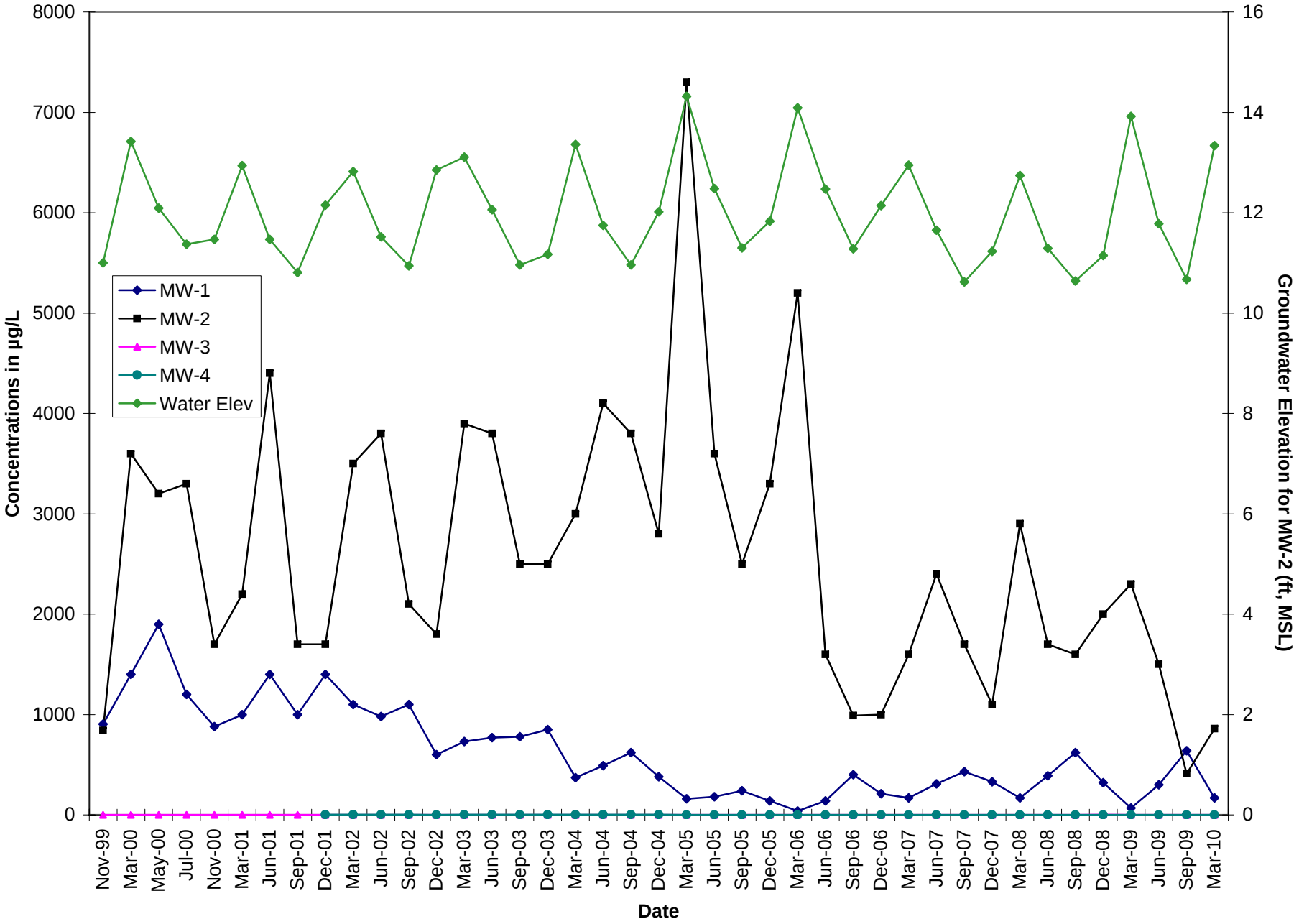
CRAWFORD CONSULTING INC.

Project No. CS1605
Cargill Salt Dispensing Systems Division
2016 Clement Avenue, Alameda, California
**Figure 5. VOC Concentrations in Groundwater – March 2010**

## Figure 6. Graphical Summary of PCE Concentrations



## Figure 7. PCE Concentrations vs. Groundwater Elevation



# Appendix A

# Field Data Sheets

**First Quarter 2010**

# 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 | 3/2/10 | 0810 | 2.37 | 2.37 | Water in box |
| MW-2 | 3/2/10 | 0812 | 2.88 | 2.88 | water in box |
| MW-3 | 3/2/10 | 0809 | 2.94 | 2.94 | water in box |
| MW-4 | 3/2/10 | 0814 | 2.32 | 2.32 | Water in box |

**Data Collection**

| | |
|---|---|
| Field measurements by: | Reviewed by: |
| Print: Ruben Guevara | Print: Jim Butler |
| Signature: RG | Signature: JButler |
| Date: 3/2/10 | Date: 3/2/16 |

# 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: 3/2/10
Finish Date: 3/2/10

**WELL INFORMATION**

Casing diameter (in.): 1.0 Depth to water (ft): 2.32 Well depth (ft): 18.3
One casing volume (gal.): 0.65 Calculated purge volume (gal.) *(3 x casing volume)*: 1.96
*One casing volume = π 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): ND Method for checking: Interface probe ✗ Clear bailer

**WELL PURGING**

Date purged: 3/2/10 Start time: 1050 End time: 1118
Purging equipment: Submersible pump Bladder pump Peristaltic pump ✗
PVC bailer Teflon bailer Other
Purge rate: 0.26 lpm Well yield (H/L): L
Purge water disposal: Drummed onsite

| Time (2400 hr) | Cumulative Vol. Purged ~~(gal.)~~ L | pH (units) | EC (µS/cm) | T (° C) | Color (Visual) | Turbidity (Visual or NTU) |
|---|---|---|---|---|---|---|
| 1101 | 2.5 | 6.75 | 455.9 | 14.3 | clear | 0.00 |
| 1109 | 5.0 | 6.63 | 437.5 | 14.5 | clear | 0.00 |
| 1118 | 7.4 | 6.65 | 434.4 | 14.6 | clear | 0.00 |

Total Purged (gal.): 1.96

**WELL SAMPLING**

Date sampled: 3/2/10 Start time: 1119 End time: 1123
Depth to water (ft) before sampling: 4.21
Sampling equipment: Peristaltic pump ✗ Bladder pump Teflon bailer
PVC bailer Other

Weather conditions: Rain Ambient temperature (° F): 55
Well condition/Remarks: Yellow Needs bolts

All samples collected

Meter calibration: EC SEE MW-4 pH
Temperature Turbidity

Purged and sampled by (print): R. Speegarg
Signature: Reviewed by:

# 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: 3/2/10
Finish Date: 3/2/10

**WELL INFORMATION**

Casing diameter (in.): 10 Depth to water (ft): 2.83 Well depth (ft): 17.5
One casing volume (gal.): 0.60 Calculated purge volume (gal.) *(3 x casing volume)*: 1.80
*One casing volume = π 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): ND Method for checking: Interface probe + Clear bailer

**WELL PURGING**

Date purged: 3/2/10 Start time: 1142 End time: 1200
Purging equipment: Submersible pump Bladder pump Peristaltic pump +
PVC bailer Teflon bailer Other
Purge rate: 0.1 Well yield (H/L): H/M
Purge water disposal: Drummed onsite

| Time (2400 hr) | Cumulative Vol. Purged (gal.) | pH (units) | EC (µS/cm) | T (° C) | Color (Visual) | Turbidity (Visual or NTU) |
|---|---|---|---|---|---|---|
| 1148 | 2.3 | 6.61 | 513.1 | 14.7 | Clear | 2.39 |
| 1154 | 4.6 | 6.65 | 512.2 | 14.8 | Clear | 1.56 |
| 1200 | 6.8 | 6.63 | 510.1 | 14.7 | Clear | 1.39 |

Total Purged (gal.): 1.8

**WELL SAMPLING**

Date sampled: 3/2/10 Start time: 1201 End time: 1210
Depth to water (ft) before sampling: 4.21
Sampling equipment: Peristaltic pump X Bladder pump Teflon bailer
PVC bailer Other

Weather conditions: Rainy Ambient temperature (° F): 55
Well condition/Remarks: Dup-1 collected

All Samples collected

Meter calibration: EC SEE MW-4 pH
Temperature Turbidity

Purged and sampled by (print): R. Sweeney
Signature:
Reviewed by:

# 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: 3/2/10
Finish Date: 3/2/10

**WELL INFORMATION**

Casing diameter (in.): 1.0 Depth to water (ft): 26.1 Well depth (ft): 17.6
One casing volume (gal.): 0.61 Calculated purge volume (gal.) *(3 x casing volume)*: 1.84
*One casing volume = π x [casing radius (in.) x 1 ft/12 in.]² x [well depth (ft) - depth to water (ft)] x 7.48 gal/ft³*
*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): NM Method for checking: Interface probe X Clear bailer

**WELL PURGING**

Date purged: 3/2/10 Start time: 0928 End time: 1028
Purging equipment: Submersible pump Bladder pump Peristaltic pump +
PVC bailer Teflon bailer Other
Purge rate: 0.03 gpm Well yield (H/L): Low
Purge water disposal: Drummed on site

| Time (2400 hr) | Cumulative Vol. Purged (gal.) L | pH (units) | EC (µS/cm) | T (° C) | Color (Visual) | Turbidity (Visual or NTU) |
|---|---|---|---|---|---|---|
| 0947 | 2.3 | 7.39 | 561.7 | 13.4 | clear | 2.86 |
| 1007 | 4.6 | 7.34 | 562.9 | 13.7 | clear | 3.58 |
| 1028 | 7.0 | 7.33 | 560.1 | 14.3 | clear | 2.40 |

Total Purged ~~(gal.)~~ L: 7.0

**WELL SAMPLING**

Date sampled: 3/2/10 Start time: 1029 End time: 1033
Depth to water (ft) before sampling: 14.37
Sampling equipment: Peristaltic pump + Bladder pump Teflon bailer
PVC bailer Other

Weather conditions: Rainy Ambient temperature (° F): 54
Well condition/Remarks: well needs bolts

All Sample Collected

Meter calibration: EC SEE MW-4 pH
Temperature Turbidity

Purged and sampled by (print): R Gueverra
Signature:
Reviewed by:

# SAMPLE COLLECTION FIELD DATA



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

Well ID: MW-4
Sample ID: MW4
Start Date: 3/2/10
Finish Date: 3/2/10

**WELL INFORMATION**

Casing diameter (in.): 1.0 Depth to water (ft): 2.32 Well depth (ft): 19.0
One casing volume (gal.): 0.63 Calculated purge volume (gal.) *(3 x casing volume)*: 2.05
*One casing volume = π 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): ND Method for checking: Interface probe X Clear bailer

**WELL PURGING**

Date purged: 3/2/10 Start time: 0826 End time: 0904
Purging equipment: Submersible pump Bladder pump Peristaltic pump X
PVC bailer Teflon bailer Other
Purge rate: .05 Well yield (H/L): medium
Purge water disposal: Drummed onsite

| Time (2400 hr) | Cumulative Vol. Purged (gal.) L | pH (units) | EC (µS/cm) | T (° C) | Color (Visual) | Turbidity (Visual or NTU) |
|---|---|---|---|---|---|---|
| 0837 | 2.4 | 6.67 | 1547 | 16.2 | clear | 9.18 |
| 0851 | 4.8 | 7.10 | 657.8 | 16.4 | clear | 1.95 |
| 0904 | 7.8 | 7.19 | 647.3 | 16.5 | clear | 0.00 |

Total Purged (gal.):

**WELL SAMPLING**

Date sampled: 3/2/10 Start time: 0905 End time: 0908
Depth to water (ft) before sampling: 10.98
Sampling equipment: Peristaltic pump X Bladder pump Teflon bailer
PVC bailer Other

Weather conditions: Rainy, Cloudy Ambient temperature (° F): 55
Well condition/Remarks: Well needs new locketts,
All samples collected

Meter calibration: EC 15,050, 15,000 pH (7.00, 7.00) (10.01, 10.00) (387, 401)
Temperature 12.6, 12.6 Turbidity 18, 20

Purged and sampled by (print): R Schwarz
Signature:
Reviewed by:

# 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:

March 2010 0.021

## UNIT CONVERSIONS

1 day = 86,400 sec
1 foot = 30.48 cm
1 cm/sec = 2,834.65 ft/day
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) |
|---|---|---|---|---|---|
| March 2010 | NE | 0.00002 | 0.021 | 0.33 | 1 |

Calculations and assumptions prepared by: Mark C. Wheeler

Date: May 11, 2010

# Appendix C

# Certified Analytical Reports and Chain-of-Custody Documentation

**First Quarter 2010**

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

# ANALYTICAL REPORT

Job Number: 720-26253-1

Job Description: Alameda Facility  CS 1605

For:
Crawford Consulting Inc
4 North First Street  Suite 650
San Jose, CA  95113-1326

Attention:  Dana Johnston

Approved for release.
Dimple Sharma
Project Manager I
3/8/2010 3:05 PM

Dimple Sharma
Project Manager I
dimple.sharma@testamericainc.com
03/08/2010

CA ELAP Certification # 2496
The Chain(s) of Custody are included and are an integral part of this report.

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

**TestAmerica Laboratories, Inc.**
TestAmerica San Francisco  1220 Quarry Lane, Pleasanton, CA  94566
Tel (925) 484-1919  Fax (925) 600-3002  www.testamericainc.com

**Comments**
No additional comments.

**Receipt**
All samples were received in good condition within temperature requirements.

**GC/MS VOA**
No analytical or quality issues were noted.

## EXECUTIVE SUMMARY - Detections

Client: Crawford Consulting Inc

Job Number: 720-26253-1

| Lab Sample ID / Analyte | Client Sample ID | Result / Qualifier | Reporting Limit | Units | Method |
|---|---|---|---|---|---|
| **720-26253-1** | **MW-1** | | | | |
| Trichloroethene | | 27 | 5.0 | ug/L | 8260B |
| Tetrachloroethene | | 170 | 5.0 | ug/L | 8260B |
| **720-26253-2** | **MW-2** | | | | |
| cis-1,2-Dichloroethene | | 8.0 | 5.0 | ug/L | 8260B |
| Trichloroethene | | 9.5 | 5.0 | ug/L | 8260B |
| Tetrachloroethene | | 860 | 5.0 | ug/L | 8260B |
| **720-26253-4** | **MW-4** | | | | |
| Tetrachloroethene | | 0.78 | 0.50 | ug/L | 8260B |
| **720-26253-5** | **DUP-1** | | | | |
| cis-1,2-Dichloroethene | | 8.1 | 5.0 | ug/L | 8260B |
| Trichloroethene | | 9.3 | 5.0 | ug/L | 8260B |
| Tetrachloroethene | | 870 | 5.0 | ug/L | 8260B |

# METHOD SUMMARY

Client: Crawford Consulting Inc

Job Number: 720-26253-1

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

**Lab References:**

TAL SF = TestAmerica San Francisco

**Method References:**

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

## SAMPLE SUMMARY

Client: Crawford Consulting Inc

Job Number: 720-26253-1

| Lab Sample ID | Client Sample ID | Client Matrix | Date/Time Sampled | Date/Time Received |
|---|---|---|---|---|
| 720-26253-1 | MW-1 | Water | 03/02/2010 1119 | 03/02/2010 1310 |
| 720-26253-2 | MW-2 | Water | 03/02/2010 1201 | 03/02/2010 1310 |
| 720-26253-3 | MW-3 | Water | 03/02/2010 1029 | 03/02/2010 1310 |
| 720-26253-4 | MW-4 | Water | 03/02/2010 0905 | 03/02/2010 1310 |
| 720-26253-5 | DUP-1 | Water | 03/02/2010 0000 | 03/02/2010 1310 |
| 720-26253-6TB | TB-1 | Water | 03/02/2010 0000 | 03/02/2010 1310 |

Client: Crawford Consulting Inc

Job Number: 720-26253-1

**Client Sample ID:** **MW-1**

Lab Sample ID: 720-26253-1
Client Matrix: Water

Date Sampled: 03/02/2010 1119
Date Received: 03/02/2010 1310

**8260B Volatile Organic Compounds (GC/MS)**

| | | | |
|---|---|---|---|
| Method: | 8260B | Analysis Batch: 720-66893 | Instrument ID: HP12 |
| Preparation: | 5030B | | Lab File ID: 03031013.D |
| Dilution: | 10 | | Initial Weight/Volume: 10 mL |
| Date Analyzed: | 03/03/2010 1600 | | Final Weight/Volume: 10 mL |
| Date Prepared: | 03/03/2010 1600 | | |

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| 1,1-Dichloroethene | ND | | 5.0 |
| 1,1-Dichloroethane | ND | | 5.0 |
| Dichlorodifluoromethane | ND | | 5.0 |
| Vinyl chloride | ND | | 5.0 |
| Chloroethane | ND | | 10 |
| Trichlorofluoromethane | ND | | 10 |
| Methylene Chloride | ND | | 50 |
| trans-1,2-Dichloroethene | ND | | 5.0 |
| cis-1,2-Dichloroethene | ND | | 5.0 |
| Chloroform | ND | | 10 |
| 1,1,1-Trichloroethane | ND | | 5.0 |
| Carbon tetrachloride | ND | | 5.0 |
| 1,2-Dichloroethane | ND | | 5.0 |
| Trichloroethene | 27 | | 5.0 |
| 1,2-Dichloropropane | ND | | 5.0 |
| Dichlorobromomethane | ND | | 5.0 |
| trans-1,3-Dichloropropene | ND | | 5.0 |
| cis-1,3-Dichloropropene | ND | | 5.0 |
| 1,1,2-Trichloroethane | ND | | 5.0 |
| Tetrachloroethene | 170 | | 5.0 |
| Chlorodibromomethane | ND | | 5.0 |
| Chlorobenzene | ND | | 5.0 |
| Bromoform | ND | | 10 |
| 1,1,2,2-Tetrachloroethane | ND | | 5.0 |
| 1,3-Dichlorobenzene | ND | | 5.0 |
| 1,4-Dichlorobenzene | ND | | 5.0 |
| 1,2-Dichlorobenzene | ND | | 5.0 |
| Chloromethane | ND | | 10 |
| Bromomethane | ND | | 10 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | ND | | 5.0 |
| EDB | ND | | 5.0 |
| 1,2,4-Trichlorobenzene | ND | | 10 |

| Surrogate | %Rec | Qualifier | Acceptance Limits |
|---|---|---|---|
| Toluene-d8 (Surr) | 96 | | 70 - 130 |
| 4-Bromofluorobenzene | 92 | | 67 - 130 |
| 1,2-Dichloroethane-d4 (Surr) | 100 | | 67 - 130 |

Client: Crawford Consulting Inc

Job Number: 720-26253-1

**Client Sample ID:** **MW-2**

Lab Sample ID: 720-26253-2
Client Matrix: Water

Date Sampled: 03/02/2010 1201
Date Received: 03/02/2010 1310

**8260B Volatile Organic Compounds (GC/MS)**

| | | | |
|---|---|---|---|
| Method: | 8260B | Analysis Batch: 720-66893 | Instrument ID: HP12 |
| Preparation: | 5030B | | Lab File ID: 03031014.D |
| Dilution: | 10 | | Initial Weight/Volume: 10 mL |
| Date Analyzed: | 03/03/2010 1631 | | Final Weight/Volume: 10 mL |
| Date Prepared: | 03/03/2010 1631 | | |

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| 1,1-Dichloroethene | ND | | 5.0 |
| 1,1-Dichloroethane | ND | | 5.0 |
| Dichlorodifluoromethane | ND | | 5.0 |
| Vinyl chloride | ND | | 5.0 |
| Chloroethane | ND | | 10 |
| Trichlorofluoromethane | ND | | 10 |
| Methylene Chloride | ND | | 50 |
| trans-1,2-Dichloroethene | ND | | 5.0 |
| cis-1,2-Dichloroethene | 8.0 | | 5.0 |
| Chloroform | ND | | 10 |
| 1,1,1-Trichloroethane | ND | | 5.0 |
| Carbon tetrachloride | ND | | 5.0 |
| 1,2-Dichloroethane | ND | | 5.0 |
| Trichloroethene | 9.5 | | 5.0 |
| 1,2-Dichloropropane | ND | | 5.0 |
| Dichlorobromomethane | ND | | 5.0 |
| trans-1,3-Dichloropropene | ND | | 5.0 |
| cis-1,3-Dichloropropene | ND | | 5.0 |
| 1,1,2-Trichloroethane | ND | | 5.0 |
| Tetrachloroethene | 860 | | 5.0 |
| Chlorodibromomethane | ND | | 5.0 |
| Chlorobenzene | ND | | 5.0 |
| Bromoform | ND | | 10 |
| 1,1,2,2-Tetrachloroethane | ND | | 5.0 |
| 1,3-Dichlorobenzene | ND | | 5.0 |
| 1,4-Dichlorobenzene | ND | | 5.0 |
| 1,2-Dichlorobenzene | ND | | 5.0 |
| Chloromethane | ND | | 10 |
| Bromomethane | ND | | 10 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | ND | | 5.0 |
| EDB | ND | | 5.0 |
| 1,2,4-Trichlorobenzene | ND | | 10 |

| Surrogate | %Rec | Qualifier | Acceptance Limits |
|---|---|---|---|
| Toluene-d8 (Surr) | 96 | | 70 - 130 |
| 4-Bromofluorobenzene | 93 | | 67 - 130 |
| 1,2-Dichloroethane-d4 (Surr) | 100 | | 67 - 130 |

Client: Crawford Consulting Inc

Job Number: 720-26253-1

**Client Sample ID:** **MW-3**

Lab Sample ID: 720-26253-3
Client Matrix: Water

Date Sampled: 03/02/2010 1029
Date Received: 03/02/2010 1310

**8260B Volatile Organic Compounds (GC/MS)**

| | | | |
|---|---|---|---|
| Method: | 8260B | Analysis Batch: 720-66893 | Instrument ID: HP12 |
| Preparation: | 5030B | | Lab File ID: 03031015.D |
| Dilution: | 1.0 | | Initial Weight/Volume: 10 mL |
| Date Analyzed: | 03/03/2010 1702 | | Final Weight/Volume: 10 mL |
| Date Prepared: | 03/03/2010 1702 | | |

| 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 | Qualifier | Acceptance Limits |
|---|---|---|---|
| Toluene-d8 (Surr) | 95 | | 70 - 130 |
| 4-Bromofluorobenzene | 93 | | 67 - 130 |
| 1,2-Dichloroethane-d4 (Surr) | 102 | | 67 - 130 |

Client: Crawford Consulting Inc

Job Number: 720-26253-1

**Client Sample ID:** **MW-4**

Lab Sample ID: 720-26253-4
Client Matrix: Water

Date Sampled: 03/02/2010 0905
Date Received: 03/02/2010 1310

**8260B Volatile Organic Compounds (GC/MS)**

| | | | |
|---|---|---|---|
| Method: | 8260B | Analysis Batch: 720-66893 | Instrument ID: HP12 |
| Preparation: | 5030B | | Lab File ID: 03031010.D |
| Dilution: | 1.0 | | Initial Weight/Volume: 10 mL |
| Date Analyzed: | 03/03/2010 1424 | | Final Weight/Volume: 10 mL |
| Date Prepared: | 03/03/2010 1424 | | |

| 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 | 0.78 | | 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 | Qualifier | Acceptance Limits |
|---|---|---|---|
| Toluene-d8 (Surr) | 97 | | 70 - 130 |
| 4-Bromofluorobenzene | 95 | | 67 - 130 |
| 1,2-Dichloroethane-d4 (Surr) | 103 | | 67 - 130 |

Client: Crawford Consulting Inc

Job Number: 720-26253-1

**Client Sample ID:** **DUP-1**

Lab Sample ID: 720-26253-5
Client Matrix: Water

Date Sampled: 03/02/2010 0000
Date Received: 03/02/2010 1310

**8260B Volatile Organic Compounds (GC/MS)**

| | | | |
|---|---|---|---|
| Method: | 8260B | Analysis Batch: 720-66893 | Instrument ID: HP12 |
| Preparation: | 5030B | | Lab File ID: 03031016.D |
| Dilution: | 10 | | Initial Weight/Volume: 10 mL |
| Date Analyzed: | 03/03/2010 1733 | | Final Weight/Volume: 10 mL |
| Date Prepared: | 03/03/2010 1733 | | |

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| 1,1-Dichloroethene | ND | | 5.0 |
| 1,1-Dichloroethane | ND | | 5.0 |
| Dichlorodifluoromethane | ND | | 5.0 |
| Vinyl chloride | ND | | 5.0 |
| Chloroethane | ND | | 10 |
| Trichlorofluoromethane | ND | | 10 |
| Methylene Chloride | ND | | 50 |
| trans-1,2-Dichloroethene | ND | | 5.0 |
| cis-1,2-Dichloroethene | 8.1 | | 5.0 |
| Chloroform | ND | | 10 |
| 1,1,1-Trichloroethane | ND | | 5.0 |
| Carbon tetrachloride | ND | | 5.0 |
| 1,2-Dichloroethane | ND | | 5.0 |
| Trichloroethene | 9.3 | | 5.0 |
| 1,2-Dichloropropane | ND | | 5.0 |
| Dichlorobromomethane | ND | | 5.0 |
| trans-1,3-Dichloropropene | ND | | 5.0 |
| cis-1,3-Dichloropropene | ND | | 5.0 |
| 1,1,2-Trichloroethane | ND | | 5.0 |
| Tetrachloroethene | 870 | | 5.0 |
| Chlorodibromomethane | ND | | 5.0 |
| Chlorobenzene | ND | | 5.0 |
| Bromoform | ND | | 10 |
| 1,1,2,2-Tetrachloroethane | ND | | 5.0 |
| 1,3-Dichlorobenzene | ND | | 5.0 |
| 1,4-Dichlorobenzene | ND | | 5.0 |
| 1,2-Dichlorobenzene | ND | | 5.0 |
| Chloromethane | ND | | 10 |
| Bromomethane | ND | | 10 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | ND | | 5.0 |
| EDB | ND | | 5.0 |
| 1,2,4-Trichlorobenzene | ND | | 10 |

| Surrogate | %Rec | Qualifier | Acceptance Limits |
|---|---|---|---|
| Toluene-d8 (Surr) | 95 | | 70 - 130 |
| 4-Bromofluorobenzene | 92 | | 67 - 130 |
| 1,2-Dichloroethane-d4 (Surr) | 100 | | 67 - 130 |

Client: Crawford Consulting Inc

Job Number: 720-26253-1

**Client Sample ID:** **TB-1**

Lab Sample ID: 720-26253-6TB
Client Matrix: Water

Date Sampled: 03/02/2010 0000
Date Received: 03/02/2010 1310

**8260B Volatile Organic Compounds (GC/MS)**

| | | | |
|---|---|---|---|
| Method: | 8260B | Analysis Batch: 720-66893 | Instrument ID: HP12 |
| Preparation: | 5030B | | Lab File ID: 03031009.D |
| Dilution: | 1.0 | | Initial Weight/Volume: 10 mL |
| Date Analyzed: | 03/03/2010 1353 | | Final Weight/Volume: 10 mL |
| Date Prepared: | 03/03/2010 1353 | | |

| 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 | Qualifier | Acceptance Limits |
|---|---|---|---|
| Toluene-d8 (Surr) | 96 | | 70 - 130 |
| 4-Bromofluorobenzene | 92 | | 67 - 130 |
| 1,2-Dichloroethane-d4 (Surr) | 99 | | 67 - 130 |

## DATA REPORTING QUALIFIERS

| Lab Section | Qualifier | Description |
|---|---|---|

Client: Crawford Consulting Inc

Job Number: 720-26253-1

## QC Association Summary

| Lab Sample ID | Client Sample ID | Report Basis | Client Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| **GC/MS VOA** | | | | | |
| **Analysis Batch:720-66893** | | | | | |
| LCS 720-66893/5 | Lab Control Sample | T | Water | 8260B | |
| LCSD 720-66893/6 | Lab Control Sample Duplicate | T | Water | 8260B | |
| MB 720-66893/4 | Method Blank | T | Water | 8260B | |
| 720-26253-1 | MW-1 | T | Water | 8260B | |
| 720-26253-2 | MW-2 | T | Water | 8260B | |
| 720-26253-3 | MW-3 | T | Water | 8260B | |
| 720-26253-4 | MW-4 | T | Water | 8260B | |
| 720-26253-4MS | Matrix Spike | T | Water | 8260B | |
| 720-26253-4MSD | Matrix Spike Duplicate | T | Water | 8260B | |
| 720-26253-5 | DUP-1 | T | Water | 8260B | |
| 720-26253-6TB | TB-1 | T | Water | 8260B | |

**Report Basis**

T = Total

Client: Crawford Consulting Inc

Job Number: 720-26253-1

**Method Blank - Batch: 720-66893**

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

Lab Sample ID: MB 720-66893/4
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/03/2010 1113
Date Prepared: 03/03/2010 1113

Analysis Batch: 720-66893
Prep Batch: N/A
Units: ug/L

Instrument ID: HP12
Lab File ID: 03031004.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

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

| Surrogate | % Rec | Acceptance Limits |
|---|---|---|
| Toluene-d8 (Surr) | 97 | 70 - 130 |
| 4-Bromofluorobenzene | 92 | 67 - 130 |
| 1,2-Dichloroethane-d4 (Surr) | 97 | 67 - 130 |

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

Client: Crawford Consulting Inc

Job Number: 720-26253-1

**Lab Control Sample/**
**Lab Control Sample Duplicate Recovery Report - Batch: 720-66893**

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

| | | | | | |
|---|---|---|---|---|---|
| LCS Lab Sample ID: | LCS 720-66893/5 | Analysis Batch: | 720-66893 | Instrument ID: | HP12 |
| Client Matrix: | Water | Prep Batch: | N/A | Lab File ID: | 03031005.D |
| Dilution: | 1.0 | Units: | ug/L | Initial Weight/Volume: | 10 mL |
| Date Analyzed: | 03/03/2010 1144 | | | Final Weight/Volume: | 10 mL |
| Date Prepared: | 03/03/2010 1144 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| LCSD Lab Sample ID: | LCSD 720-66893/6 | Analysis Batch: | 720-66893 | Instrument ID: | HP12 |
| Client Matrix: | Water | Prep Batch: | N/A | Lab File ID: | 03031006.D |
| Dilution: | 1.0 | Units: | ug/L | Initial Weight/Volume: | 10 mL |
| Date Analyzed: | 03/03/2010 1215 | | | Final Weight/Volume: | 10 mL |
| Date Prepared: | 03/03/2010 1215 | | | | |

| | % Rec. | | | | | | |
|---|---|---|---|---|---|---|---|
| Analyte | LCS | LCSD | Limit | RPD | RPD Limit | LCS Qual | LCSD Qual |
| 1,1-Dichloroethene | 102 | 95 | 64 - 128 | 8 | 20 | | |
| 1,1-Dichloroethane | 102 | 96 | 70 - 130 | 6 | 20 | | |
| Dichlorodifluoromethane | 90 | 85 | 42 - 188 | 6 | 20 | | |
| Vinyl chloride | 103 | 97 | 65 - 156 | 7 | 20 | | |
| Chloroethane | 115 | 108 | 73 - 150 | 6 | 20 | | |
| Trichlorofluoromethane | 105 | 98 | 70 - 130 | 7 | 20 | | |
| Methylene Chloride | 99 | 93 | 73 - 147 | 7 | 20 | | |
| trans-1,2-Dichloroethene | 94 | 88 | 82 - 114 | 6 | 20 | | |
| cis-1,2-Dichloroethene | 111 | 105 | 70 - 130 | 6 | 20 | | |
| Chloroform | 106 | 100 | 70 - 130 | 6 | 20 | | |
| 1,1,1-Trichloroethane | 115 | 108 | 70 - 130 | 7 | 20 | | |
| Carbon tetrachloride | 124 | 116 | 77 - 146 | 6 | 20 | | |
| 1,2-Dichloroethane | 107 | 100 | 75 - 145 | 6 | 20 | | |
| Trichloroethene | 114 | 107 | 70 - 130 | 6 | 20 | | |
| 1,2-Dichloropropane | 107 | 101 | 70 - 130 | 6 | 20 | | |
| Dichlorobromomethane | 122 | 115 | 70 - 130 | 5 | 20 | | |
| trans-1,3-Dichloropropene | 120 | 113 | 70 - 130 | 6 | 20 | | |
| cis-1,3-Dichloropropene | 121 | 114 | 70 - 130 | 6 | 20 | | |
| 1,1,2-Trichloroethane | 109 | 103 | 86 - 135 | 6 | 20 | | |
| Tetrachloroethene | 115 | 107 | 70 - 130 | 7 | 20 | | |
| Chlorodibromomethane | 125 | 118 | 78 - 145 | 5 | 20 | | |
| Chlorobenzene | 100 | 95 | 70 - 130 | 5 | 20 | | |
| Bromoform | 117 | 112 | 68 - 136 | 4 | 20 | | |
| 1,1,2,2-Tetrachloroethane | 97 | 95 | 70 - 130 | 2 | 20 | | |
| 1,3-Dichlorobenzene | 102 | 97 | 70 - 130 | 4 | 20 | | |
| 1,4-Dichlorobenzene | 99 | 96 | 87 - 120 | 3 | 20 | | |
| 1,2-Dichlorobenzene | 100 | 97 | 70 - 130 | 4 | 20 | | |
| Chloromethane | 109 | 104 | 52 - 175 | 5 | 20 | | |
| Bromomethane | 112 | 105 | 43 - 151 | 7 | 20 | | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 111 | 105 | 42 - 162 | 6 | 20 | | |
| EDB | 116 | 109 | 70 - 130 | 6 | 20 | | |
| 1,2,4-Trichlorobenzene | 110 | 104 | 86 - 118 | 5 | 20 | | |

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

Client: Crawford Consulting Inc

Job Number: 720-26253-1

**Lab Control Sample/**
**Lab Control Sample Duplicate Recovery Report - Batch: 720-66893**

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

| | | | | | |
|---|---|---|---|---|---|
| LCS Lab Sample ID: | LCS 720-66893/5 | Analysis Batch: | 720-66893 | Instrument ID: | HP12 |
| Client Matrix: | Water | Prep Batch: | N/A | Lab File ID: | 03031005.D |
| Dilution: | 1.0 | Units: | ug/L | Initial Weight/Volume: | 10 mL |
| Date Analyzed: | 03/03/2010 1144 | | | Final Weight/Volume: | 10 mL |
| Date Prepared: | 03/03/2010 1144 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| LCSD Lab Sample ID: | LCSD 720-66893/6 | Analysis Batch: | 720-66893 | Instrument ID: | HP12 |
| Client Matrix: | Water | Prep Batch: | N/A | Lab File ID: | 03031006.D |
| Dilution: | 1.0 | Units: | ug/L | Initial Weight/Volume: | 10 mL |
| Date Analyzed: | 03/03/2010 1215 | | | Final Weight/Volume: | 10 mL |
| Date Prepared: | 03/03/2010 1215 | | | | |

| Analyte | % Rec. LCS | % Rec. LCSD | Limit | RPD | RPD Limit | LCS Qual | LCSD Qual |
|---|---|---|---|---|---|---|---|

| Surrogate | LCS % Rec | LCSD % Rec | Acceptance Limits |
|---|---|---|---|
| Toluene-d8 (Surr) | 99 | 98 | 70 - 130 |
| 4-Bromofluorobenzene | 91 | 92 | 67 - 130 |
| 1,2-Dichloroethane-d4 (Surr) | 97 | 92 | 67 - 130 |

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

Client: Crawford Consulting Inc

Job Number: 720-26253-1

**Matrix Spike/**
**Matrix Spike Duplicate Recovery Report - Batch: 720-66893**

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

| | | | | | |
|---|---|---|---|---|---|
| MS Lab Sample ID: | 720-26253-4 | Analysis Batch: | 720-66893 | Instrument ID: | HP12 |
| Client Matrix: | Water | Prep Batch: | N/A | Lab File ID: | 03031011.D |
| Dilution: | 1.0 | | | Initial Weight/Volume: | 10 mL |
| Date Analyzed: | 03/03/2010 1455 | | | Final Weight/Volume: | 10 mL |
| Date Prepared: | 03/03/2010 1455 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| MSD Lab Sample ID: | 720-26253-4 | Analysis Batch: | 720-66893 | Instrument ID: | HP12 |
| Client Matrix: | Water | Prep Batch: | N/A | Lab File ID: | 03031012.D |
| Dilution: | 1.0 | | | Initial Weight/Volume: | 10 mL |
| Date Analyzed: | 03/03/2010 1526 | | | Final Weight/Volume: | 10 mL |
| Date Prepared: | 03/03/2010 1526 | | | | |

| | % Rec. | | | | | | |
|---|---|---|---|---|---|---|---|
| Analyte | MS | MSD | Limit | RPD | RPD Limit | MS Qual | MSD Qual |
| 1,1-Dichloroethene | 95 | 98 | 60 - 140 | 4 | 20 | | |
| 1,1-Dichloroethane | 101 | 102 | 60 - 140 | 1 | 20 | | |
| Dichlorodifluoromethane | 82 | 85 | 38 - 140 | 3 | 20 | | |
| Vinyl chloride | 97 | 105 | 58 - 140 | 8 | 20 | | |
| Chloroethane | 106 | 111 | 51 - 140 | 5 | 20 | | |
| Trichlorofluoromethane | 98 | 102 | 60 - 140 | 5 | 20 | | |
| Methylene Chloride | 101 | 100 | 40 - 140 | 1 | 20 | | |
| trans-1,2-Dichloroethene | 91 | 93 | 60 - 140 | 3 | 20 | | |
| cis-1,2-Dichloroethene | 112 | 111 | 60 - 140 | 0 | 20 | | |
| Chloroform | 107 | 106 | 60 - 140 | 1 | 20 | | |
| 1,1,1-Trichloroethane | 111 | 114 | 60 - 140 | 2 | 20 | | |
| Carbon tetrachloride | 119 | 121 | 60 - 140 | 2 | 20 | | |
| 1,2-Dichloroethane | 111 | 107 | 60 - 140 | 4 | 20 | | |
| Trichloroethene | 109 | 111 | 60 - 140 | 2 | 20 | | |
| 1,2-Dichloropropane | 109 | 109 | 60 - 140 | 1 | 20 | | |
| Dichlorobromomethane | 127 | 123 | 60 - 140 | 3 | 20 | | |
| trans-1,3-Dichloropropene | 125 | 120 | 60 - 140 | 4 | 20 | | |
| cis-1,3-Dichloropropene | 125 | 122 | 60 - 140 | 3 | 20 | | |
| 1,1,2-Trichloroethane | 114 | 110 | 60 - 140 | 4 | 20 | | |
| Tetrachloroethene | 108 | 110 | 60 - 140 | 2 | 20 | | |
| Chlorodibromomethane | 129 | 124 | 60 - 140 | 4 | 20 | | |
| Chlorobenzene | 99 | 100 | 60 - 140 | 1 | 20 | | |
| Bromoform | 119 | 115 | 56 - 140 | 3 | 20 | | |
| 1,1,2,2-Tetrachloroethane | 102 | 98 | 60 - 140 | 4 | 20 | | |
| 1,3-Dichlorobenzene | 101 | 103 | 60 - 140 | 3 | 20 | | |
| 1,4-Dichlorobenzene | 99 | 101 | 60 - 140 | 2 | 20 | | |
| 1,2-Dichlorobenzene | 100 | 102 | 60 - 140 | 2 | 20 | | |
| Chloromethane | 95 | 98 | 52 - 140 | 2 | 20 | | |
| Bromomethane | 103 | 108 | 23 - 140 | 5 | 20 | | |

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

Client: Crawford Consulting Inc

Job Number: 720-26253-1

**Matrix Spike/**
**Matrix Spike Duplicate Recovery Report - Batch: 720-66893**

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

| | | | | | |
|---|---|---|---|---|---|
| MS Lab Sample ID: | 720-26253-4 | Analysis Batch: | 720-66893 | Instrument ID: | HP12 |
| Client Matrix: | Water | Prep Batch: | N/A | Lab File ID: | 03031011.D |
| Dilution: | 1.0 | | | Initial Weight/Volume: | 10 mL |
| Date Analyzed: | 03/03/2010 1455 | | | Final Weight/Volume: | 10 mL |
| Date Prepared: | 03/03/2010 1455 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| MSD Lab Sample ID: | 720-26253-4 | Analysis Batch: | 720-66893 | Instrument ID: | HP12 |
| Client Matrix: | Water | Prep Batch: | N/A | Lab File ID: | 03031012.D |
| Dilution: | 1.0 | | | Initial Weight/Volume: | 10 mL |
| Date Analyzed: | 03/03/2010 1526 | | | Final Weight/Volume: | 10 mL |
| Date Prepared: | 03/03/2010 1526 | | | | |

| | % Rec. | | | | | | |
|---|---|---|---|---|---|---|---|
| Analyte | MS | MSD | Limit | RPD | RPD Limit | MS Qual | MSD Qual |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 104 | 107 | 60 - 140 | 3 | 20 | | |
| EDB | 118 | 113 | 60 - 140 | 4 | 20 | | |
| 1,2,4-Trichlorobenzene | 110 | 110 | 60 - 140 | 0 | 20 | | |

| Surrogate | MS % Rec | MSD % Rec | Acceptance Limits |
|---|---|---|---|
| Toluene-d8 (Surr) | 98 | 97 | 70 - 130 |
| 4-Bromofluorobenzene | 91 | 90 | 67 - 130 |
| 1,2-Dichloroethane-d4 (Surr) | 98 | 94 | 67 - 130 |

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

720-26253

122604

# Test America

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

## CHAIN OF CUSTODY / LABORATORY ANALYSIS REQUEST FORM

Service Request: _____ Date: 3/2/10

**Project Name:** Alameda Facility
**Project Number:** CS1605
**Project Manager:** Dana Johnston
**Company/Address:** Crawford Consulting, Inc.
4 North Second Street, Suite 650
San Jose, CA 95113
**Phone:** (408) 287-9934
**Fax:** (408) 287-9937

**Sampler's Signature:** RS

| Sample I.D. | Date | Time | LAB I.D. | Sample Matrix | Number of Containers | Volatile Organics (VOCs) (EPA 8021B) | Pb (7421); As (7060) Same as Metals | COD, TKN 500 ml plastic $H_2SO_4$ | Chloride, Nitrate 500 ml plastic NP | pH, Conductivity 500 ml plastic NP | Total Phenols 2 x 500 ml glass $H_2SO_4$ | **Volatile Organics (8010) 3 x 40 ml vial** | TPHgBTEX 2 x 40 ml vial HCl | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 | 3/2/10 | 1119 | 1 | Water | 3 | | | | | | | X | | | | |
| MW-2 | 3/2/10 | 1201 | 2 | Water | 3 | | | | | | | X | | | | |
| MW-3 | 3/2/10 | 1029 | 3 | Water | 3 | | | | | | | X | | | | |
| MW-4 | 3/2/10 | 0905 | 4 | Water | 3 | | | | | | | X | | | | |
| DUP-1 | 3/2/10 | — | 5 | Water | 3 | | | | | | | X | | | | |
| TB-1 | 3/2/10 | — | 6 | Water | 3 | | | | | | | X | | | | |

| Relinquished By | Received By |
|---|---|
| Signature: RS | Signature: John Mullery |
| Printed Name: Rebecca Gwerder | Printed Name: Mullery |
| Firm: F-S-F | Firm: Test America |
| Date/Time: 3/2/10 1310 | Date/Time: 3-2-10 1310 |
| Relinquished By | Received By |
| Signature: | Signature: |
| Printed Name: | Printed Name: |
| Firm: | Firm: |
| Date/Time: | Date/Time: |

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

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

**INVOICE INFORMATION**
P.O. #: _____
Bill to: _____

**SAMPLE RECEIPT**
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

6c

# Login Sample Receipt Check List

Client: Crawford Consulting Inc

Job Number: 720-26253-1

**Login Number: 26253**

**List Source: TestAmerica San Francisco**

**Creator: Mullen, Joan**

**List Number: 1**

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