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

CRAWFORD
CONSULTING
INC.

Cargill

September 30, 2009

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

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

Dear Mr. Wickham,

The attached report presents the groundwater monitoring results for the first semi-annual 2009 monitoring period for the Cargill Salt Alameda facility. This report presents the results of groundwater monitoring data collected during the first and second quarters of 2009. For each quarterly period, groundwater levels in the site monitoring wells were measured, groundwater samples were collected and analyzed, and the groundwater flow direction and gradient were determined.

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

Should you have any questions concerning the report, please don't hesitate to call me at (510) 790-8625.

Sincerely,

Sean Riley
Environmental Manager

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

Prepared for:

Cargill Salt
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Project No. CS1605
September 30, 2009

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

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

1.1 Reporting Period Activities

This report presents the results of groundwater monitoring data collected during the first and second quarters of 2009. For each quarterly period, groundwater levels in the Site monitoring wells were measured, groundwater samples were collected and analyzed, and the groundwater flow direction and gradient were determined. The quarterly monitoring schedule for the first semi-annual 2009 monitoring period is shown below.

Quarter of 2009	Field Dates
First	March 5, 2009
Second	June 11, 2009

Supervision of the quarterly monitoring events was conducted for Cargill Salt by Crawford. Groundwater level measurements and collection of groundwater samples were conducted by Field Solutions, Inc. The groundwater samples for the first through second quarters of 2009 were analyzed by TestAmerica Laboratories, Inc., a state-certified laboratory in Pleasanton, California.

1.2 Background Information

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

1.2.1 Site Description

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

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

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

1.2.2 Summary of Investigative and Remedial Activities

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

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

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

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

After approval of the workplan by the ACEHS, Cargill Salt conducted groundwater sampling and well installation activities during August and November of 1999. The results of these activities were submitted to the ACEHS in a report, *Groundwater Characterization and Monitoring Well Installation, Cargill Salt – Alameda Facility, Alameda, California* (Crawford Consulting, Inc. and

Conor Pacific/EFW, dated January 31, 2000). After the initial groundwater monitoring well sampling event in November 1999, Cargill Salt began groundwater monitoring on a quarterly basis.

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

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

1.2.3 Source of VOC Impact

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

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

2 Groundwater Flow Analysis

Groundwater levels were measured quarterly and groundwater contour maps were prepared for the first and second quarter 2009 monitoring events.

2.1 Water-Level Measurement

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

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

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

Groundwater levels in the on-site monitoring wells (MW-1, MW-2, and MW-3) showed a similar seasonal pattern in the first semi-annual period of 2009 as in the previous nine years (see Figure 3). Groundwater levels rose across the Site between the fourth quarter 2008 and first quarter 2009 measurements, reflecting winter-season recharge. Groundwater levels fell between the first and second quarter 2009 measurements, reflecting dissipation of winter-season discharge. Groundwater levels rose in off-site well MW-4 between the fourth quarter 2008 and first quarter 2009 measurements and fell between the first and second quarter 2009 measurements, similar to the pattern exhibited by the on-site wells.

2.2 Groundwater Flow Direction and Gradient

Groundwater contour maps for the first and second quarters of 2009 based on the March and June 2009 water-level data are shown on Figures 4 and 5.

The groundwater flow direction determined for the first and second quarters of 2009 was to the northeast and north-northeast, respectively, consistent with the groundwater flow direction determined previously for the Site. The horizontal hydraulic gradient measured for the first quarter of 2009 was 0.023 and for the second quarter of 2009 was 0.020.

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 and second quarters of 2009 groundwater data are presented in Appendix B.

Using hydraulic conductivity and porosity values determined for saturated native materials at the Site [based on slug tests and laboratory soil testing, respectively (Conor Pacific/EFW, 2002)], and the horizontal hydraulic gradients determined from the first and second quarters 2009 groundwater contour maps, groundwater flow velocities beneath the Site are calculated to be approximately 1.4 feet per year (ft/yr) for the first quarter 2009 measurements and 1.2 ft/yr for the second quarter 2009 measurements.

3 Groundwater Sampling and Analysis

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

3.1 Sample Collection and Analysis

Groundwater samples were collected March 5, 2009 and June 11, 2009 from groundwater monitoring wells MW-1, MW-2, MW-3, and MW-4. Dedicated tubing was installed in wells MW-1, MW-2, and MW-3 prior to the first quarter 2000 sampling event and on December 17, 2001 in well MW-4 to facilitate sampling with a peristaltic pump. Dedicated fluorinated ethylene propylene resin (FEP)-lined polyethylene tubing was installed in each monitoring well. The tubing intake was placed about one foot above the well bottom in each of the wells. Viton® dedicated check valves were installed on the tubing intakes to prevent back-flow of water into the well. A short length of dedicated Viton® tubing was installed at the well head for use in a peristaltic pump head. Prior to sample collection for each quarterly monitoring event, the wells were purged using a peristaltic pump. Field parameters (pH, electrical conductivity, temperature, and turbidity) were measured in purged groundwater from each well prior to sampling; these data are recorded on the Sample Collection Field Data sheets presented in Appendix A. After purging, groundwater samples were collected using the peristaltic pump and the dedicated Viton® pump head discharge tubing.

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

3.2 Analytical Results

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

3.2.1 Quality Control

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

Field Quality Control Samples

A field duplicate was used during the first through second quarter 2009 sampling program for the Site. A field duplicate is used to assess sampling and analytical precision. The duplicate is collected at a selected well (MW-2 [first and second quarters 2009]) 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 through second quarter 2009 analytical program for the Site:

- surrogate spikes
- matrix spikes/duplicate matrix spikes

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

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

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

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

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

First Quarter 2009 Field QC Results

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

Second Quarter 2009 Field QC Results

One field duplicate (DUP-1) was analyzed as part of the second quarter 2009 sampling event at the Site. The duplicate sample was collected at groundwater monitoring well MW-2 and was analyzed for halogenated VOCs using USEPA Method 8260B (8010 list). Table 2 summarizes the calculated RPDs for MW-2 and MW-2 duplicate (DUP-1). The one parameter (PCE) for which RPDs could be calculated (see Table 2) exhibits a medium RPD value (i.e., 11-25%) indicative of fair precision.

First through Second Quarter 2009 Laboratory QC Results

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

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

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

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

3.2.2 Groundwater Results

The results of VOC analyses for each quarter for 2000 through second quarter 2009 are summarized in Table 3, which also shows the VOC results for the initial sampling event for monitoring wells MW-1, MW-2, and MW-3 in November 1999. The results for the first and second quarter 2908 monitoring events are also shown on Figures 6 and 7.

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

For the first and second quarters of 2009, the concentrations of PCE detected were:

- 68 and 300 micrograms per liter (μg/L) in monitoring well MW-1
- 2,300 and 1,500 μg/L in MW-2
- not detected and not detected in MW-3
- 0.62 and 0.70 μg/L in MW-4.

The concentrations of TCE detected were 6.5 and 40 μg/L in monitoring well MW-1. TCE was not detected in MW-2, MW-3 or MW-4.

Chloroform and cis-1,2-Dichloroethene were detected in monitoring well MW-1 at 1.9 and 0.62 μg/L for the first quarter 2009. DCE was not detected in monitoring well MW-3 during the first quarter of 2009 and detected at 0.95 μg/L for the second quarter of 2009. DCE was not detected in MW-1, MW-2, or MW-4 during the first and second quarters of 2009.

3.3 Discussion

Variations in VOC concentrations at monitoring well MW-2, the well with 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 8). The variations in VOC concentrations sometimes lag one quarter behind the variations in groundwater elevation.

The results for VOC concentrations reported for the first through second quarter 2009 quarterly monitoring events are generally similar to the results reported since the second quarter of 2006 (see Figure 7).

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 seven of the sampling events since March 2006 have had lower PCE concentrations reported for the well than for each of the twenty-five events from March 2000 to March 2006. Also, the annual highs have been lower in 2007, 2008, and 2009 than in the previous years.

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

4 Phytoremediation Project Status Update

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

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

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

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

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

June 2007 - View from driveway towards rear of property

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

June 2007 - View of front planting strip at Clement Avenue

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

Professional Certification

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

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

Dana C. Johnston
Project Manager

Mark C. Wheeler
Principal Geologist
P.G. 4563

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Limitations

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

Table 1. Groundwater Level Data

Well/ Piezometer	Date	Time	Casing Elevation (feet, MSL)	Depth to Water (feet)	Water Elevation (feet, MSL)	Elev. Change from Last Measurement (feet)
MW-1	11/16/1999	09:56	13.16	3.75	9.41	NA
MW-1	3/30/2000	10:09	13.16	2.81	10.35	0.94
MW-1	5/16/2000	09:43	13.16	3.32	9.84	-0.51
MW-1	7/28/2000	09:11	13.16	3.58	9.58	-0.26
MW-1	11/30/2000	08:36	13.16	3.52	9.64	0.06
MW-1	3/26/2001	08:47	13.16	3.15	10.01	0.37
MW-1	6/25/2001	10:19	13.16	3.53	9.63	-0.38
MW-1	9/28/2001	09:32	13.16	3.96	9.20	-0.43
MW-1	12/17/2001	10:47	13.16	3.23	9.93	0.73
MW-1	3/21/2002	07:28	13.16	2.89	10.27	0.34
MW-1	6/6/2002	08:03	13.16	3.50	9.66	-0.61
MW-1	9/20/2002	08:30	13.16	3.86	9.30	-0.36
MW-1	12/19/2002	08:38	13.16	3.13	10.03	0.73
MW-1	3/4/2003	10:31	13.16	3.08	10.08	0.05
MW-1	6/9/2003	08:32	13.16	3.29	9.87	-0.21
MW-1	9/8/2003	10:02	13.16	3.79	9.37	-0.50
MW-1	12/1/2003	10:16	13.16	3.78	9.38	0.01
MW-1	3/4/2004	09:31	13.16	2.88	10.28	0.90
MW-1	6/2/2004	08:42	13.16	3.45	9.71	-0.57
MW-1	9/14/2004	08:01	13.16	3.87	9.29	-0.42
MW-1	12/8/2004	07:44	13.16	3.23	9.93	0.64
MW-1	3/3/2005	08:07	13.16	2.01	11.15	1.22
MW-1	6/10/2005	07:05	13.16	2.90	10.26	-0.89
MW-1	9/16/2005	08:00	13.16	3.62	9.54	-0.72
MW-1	12/6/2005	08:00	13.16	3.28	9.88	0.34
MW-1	3/10/2006	07:40	13.16	2.28	10.88	1.00
MW-1	6/9/2006	09:45	13.16	3.09	10.07	-0.81
MW-1	9/11/2006	10:24	13.16	3.70	9.46	-0.61
MW-1	12/15/2006	07:34	13.16	2.94	10.22	0.76
MW-1	3/6/2007	09:18	13.16	2.87	10.29	0.07
MW-1	6/15/2007	07:29	13.16	3.30	9.86	-0.43
MW-1	9/11/2007	08:05	13.16	3.85	9.31	-0.55
MW-1	12/4/2007	08:53	13.16	3.58	9.58	0.27
MW-1	3/20/2008	08:13	13.16	3.00	10.16	0.58
MW-1	6/18/2008	08:22	13.16	3.73	9.43	-0.73
MW-1	9/3/2008	08:06	13.16	3.93	9.23	-0.20
MW-1	12/4/2008	08:12	13.16	3.71	9.45	0.22
MW-1	3/5/2009	09:18	13.16	1.83	11.33	1.88
MW-1	6/11/2009	08:40	13.16	3.52	9.64	-1.69
MW-2	11/16/1999	11:15	16.22	5.22	11.00	NA
MW-2	3/30/2000	10:05	16.22	2.80	13.42	2.42
MW-2	5/16/2000	09:35	16.22	4.13	12.09	-1.33
MW-2	7/28/2000	09:17	16.22	4.85	11.37	-0.72
MW-2	11/30/2000	08:32	16.22	4.75	11.47	0.10
MW-2	3/26/2001	08:40	16.22	3.28	12.94	1.47
MW-2	6/25/2001	12:12	16.22	4.75	11.47	-1.47
MW-2	9/28/2001	12:20	16.22	5.41	10.81	-0.66
MW-2	12/17/2001	10:44	16.22	4.07	12.15	1.34
MW-2	3/28/2002	09:37	16.22	3.40	12.82	0.67
MW-2	6/6/2002	08:11	16.22	4.70	11.52	-1.30

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	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-3	11/16/1999	15:43	13.34	4.34	9.00	NA
MW-3	3/30/2000	10:01	13.34	2.77	10.57	1.57
MW-3	5/16/2000	09:46	13.34	3.44	9.90	-0.67
MW-3	7/28/2000	09:05	13.34	3.72	9.62	-0.28
MW-3	11/30/2000	08:34	13.34	3.73	9.61	-0.01
MW-3	3/26/2001	08:54	13.34	3.51	9.83	0.22
MW-3	6/25/2001	10:21	13.34	3.65	9.69	-0.14
MW-3	9/28/2001	09:30	13.34	3.96	9.38	-0.31
MW-3	12/17/2001	10:38	13.34	3.28	10.06	0.68
MW-3	3/21/2002	07:28	13.34	3.10	10.24	0.18
MW-3	6/6/2002	08:07	13.34	3.63	9.71	-0.53
MW-3	9/20/2002	08:25	13.34	3.82	9.52	-0.19
MW-3	12/19/2002	08:42	13.34	3.10	10.24	0.72
MW-3	3/4/2003	10:36	13.34	3.29	10.05	-0.19
MW-3	6/9/2003	08:28	13.34	3.41	9.93	-0.12
MW-3	9/8/2003	10:00	13.34	3.85	9.49	-0.44
MW-3	12/1/2003	10:30	13.34	3.90	9.44	-0.05
MW-3	3/4/2004	09:22	13.34	3.11	10.23	0.79
MW-3	6/2/2004	08:46	13.34	3.53	9.81	-0.42
MW-3	9/14/2004	08:05	13.34	4.07	9.27	-0.54
MW-3	12/8/2004	07:40	13.34	3.73	9.61	0.34
MW-3	3/3/2005	07:53	13.34	2.36	10.98	1.37

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	6/10/2005	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-4	12/17/2001	10:40	12.43	2.55	9.88	NA
MW-4	3/28/2002	08:05	12.43	3.06	9.37	-0.51
MW-4	6/6/2002	07:57	12.43	2.85	9.58	0.21
MW-4	9/20/2002	08:28	12.43	3.21	9.22	-0.36
MW-4	12/19/2002	08:53	12.43	3.70	8.73	-0.49
MW-4	3/4/2003	10:34	12.43	3.14	9.29	0.56
MW-4	6/9/2003	08:29	12.43	2.82	9.61	0.32
MW-4	9/8/2003	10:04	12.43	3.43	9.00	-0.61
MW-4	12/1/2003	10:14	12.43	3.12	9.31	0.31
MW-4	3/4/2004	09:27	12.43	2.81	9.62	0.31
MW-4	6/2/2004	08:44	12.43	3.34	9.09	-0.53
MW-4	9/14/2004	08:03	12.43	3.51	8.92	-0.17
MW-4	12/8/2004	07:36	12.43	3.10	9.33	0.41
MW-4	3/3/2005	07:44	12.43	2.48	9.95	0.62
MW-4	6/10/2005	07:02	12.43	2.47	9.96	0.01
MW-4	9/16/2005	08:12	12.43	3.23	9.20	-0.76
MW-4	12/6/2005	07:50	12.43	3.17	9.26	0.06
MW-4	3/10/2006	07:37	12.43	3.77	8.66	-0.60
MW-4	6/9/2006	07:30	12.43	2.49	9.94	1.28
MW-4	9/11/2006	10:17	12.43	3.19	9.24	-0.70
MW-4	12/21/2006	NR	12.43	2.90	9.53	0.29
MW-4	3/6/2007	09:20	12.43	2.54	9.89	0.36
MW-4	6/15/2007	07:33	12.43	3.03	9.40	-0.49
MW-4	9/11/2007	08:11	12.43	3.27	9.16	-0.24
MW-4	12/4/2007	08:55	12.43	3.25	9.18	0.02
MW-4	3/20/2008	08:20	12.43	2.65	9.78	0.60
MW-4	6/18/2008	08:31	12.43	3.35	9.08	-0.70
MW-4	9/3/2008	07:58	12.43	3.28	9.15	0.07
MW-4	12/4/2008	08:17	12.43	3.12	9.31	0.16
MW-4	3/5/2009	09:27	12.43	2.16	10.27	0.96
MW-4	6/11/2009	08:43	12.43	2.84	9.59	-0.68

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)

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 2009			Second Quarter 2009		
Analysis	Well MW-2 Results	Duplicate (DUP-1) Results	RPD[1] (%)	Well MW-2 Results	Duplicate (DUP-1) Results	RPD[1] (%)
Volatile Organic Compounds (µg/L)						
Trichloroethene (TCE)	<20	<20	NM	<25	<25	NM
Tetrachloroethene (PCE)	2,300	2,200	4.44	1,500	1,700	12.5

[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 3. Summary of Groundwater Monitoring Well Data

Results measured in micrograms per liter (μg/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	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	MCL[1]
DCE[2]	<50.0	**13**	<10	**15**	**14**	<13	**14**	**15**	<13	<13	<13	<13	<13	<10	**12**	**5.2**	**8.4**	<5.0	**5.8**	**6.6**	<5.0	<5.0	<2.0	<5.0	<2.0	<0.5	<2.0	**3.3**	<2.0	<2.0	**3.0**	<5.0	<5.0	<2.0	<5.0	<5.0	<5.0	<0.5	<2.5	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	<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	ne[5]
DCA[6]	<50.0	**0.8**	<10	<10	<4.2	<13	<13	<13	<13	<13	<13	<13	<13	<10	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<2.0	<0.5	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<5.0	<5.0	<5.0	<0.5	<2.5	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	<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	ne
cis-1,2-DCE			<10	<10	<4.2	<13	<13	<13	<13	<13	<13	<13	<13	<10	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<2.0	<0.5	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<5.0	<5.0	<5.0	**0.62**	<2.5	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	<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	200
TCE[8]	**178**	**150**	**190**	**170**	**130**	**180**	**250**	**210**	**190**	**160**	**140**	**190**	**68**	**97**	**90**	**110**	**130**	**53**	**72**	**81**	**39**	**15**	**23**	**34**	**16**	**3.4**	**22**	**47**	**20**	**17**	**38**	**51**	**29**	**18**	**42**	**65**	**42**	**6.5**	**40**	5
PCE[9]	**906**	**1,400**	**1,900**	**1,200**	**880**	**1,000**	**1,400**	**1,000**	**1,400**	**1,100**	**980**	**1,100**	**600**	**730**	**770**	**780**	**850**	**370**	**490**	**620**	**380**	**160**	**180**	**240**	**140**	**39**	**140**	**400**	**210**	**170**	**310**	**430**	**330**	**170**	**390**	**620**	**320**	**68**	**300**	5
Other analytes[10]	nd[11]	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	--

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	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	MCL[1]
DCE[2]	<50.0	<0.5	<25	<25	<8.3	<25	<25	<25	<25	<25	<25	<25	<25	<20	<20	<20	<20	<20	<25	<25	<20	<50	<25	<20	<25	<25	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<25	6
CFC 113[3]	na	<0.5	<25	<25	<17	<100	<100	<100	<100	<25	<25	<25	<25	<20	<20	<20	<20	<20	<25	<25	<20	<50	<25	<20	<25	<25	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<25	ne[5]
DCA[6]	<50.0	<0.5	<25	<25	<8.3	<25	<25	<25	<25	<25	<25	<25	<25	<20	<20	<20	<20	<20	<25	<25	<20	<50	<25	<20	<25	<25	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<25	5
Chloroform	<50.0	<0.5	<25	<25	<17	<25	<25	<25	<25	<25	<25	<25	<25	<20	<20	<20	<20	<20	<25	<25	<20	<50	<25	<40	<50	<50	<40	<20	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<50	ne
cis-1,2-DCE	<50.0	<0.5	<25	<25	<8.3	<25	<25	<25	<25	<25	<25	<25	<25	<20	<20	<20	<20	<20	<25	<25	<20	<50	<25	<20	<25	<25	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<25	ne
TCA[7]	<50.0	**5.0**	<25	<25	<8.3	<25	<25	<25	<25	<25	<25	<25	<25	<20	<20	<20	<20	<20	<25	<25	<20	<50	<25	<20	<25	<25	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<25	200
TCE[8]	<50	**29**	**53**	<25	**20**	**40**	**78**	<25	<25	**49**	**52**	**32**	<25	**58**	**41**	**28**	**25**	**39**	**49**	**37**	**30**	**78**	**43**	**29**	**45**	**59**	<20	<20	<20	<20	**22**	**31**	<20	<20	**21**	<20	<20	<20	<25	5
PCE[9]	**840**	**3,600**	**3,200**	**3,300**	**1,700**	**2,200**	**4,400**	**1,700**	**1,700**	**3,500**	**3,800**	**2,100**	**1,800**	**3,900**	**3,800**	**2,500**	**2,500**	**3,000**	**4,100**	**3,800**	**2,800**	**7,300**	**3,600**	**2,500**	**3,300**	**5,200**	**1,600**	**990**	**1,000**	**1,600**	**2,400**	**1,700**	**1,100**	**2,900**	**1,700**	**1,600**	**2,000**	**2,300**	**1,500**	5
Other analytes[10]	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	--

Notes:

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

[2] DCE = 1,1-Dichloroethene

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

[4] na = not analyzed

[5] ne = not established or none applicable

[6] DCA = 1,1-Dichloroethane

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

[8] TCE = Trichloroethene

[9] PCE = Tetrachloroethene

[10] All other 8010 list analytes

[11] nd = not detected above laboratory reporting limit

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

Table 3. Summary of Groundwater Monitoring Well Data

Results measured in micrograms per liter (μg/L)

Well No.	MW-3																																							
Field Date	11/16/99	3/30/00	5/16/00	7/28/00	11/30/00	3/26/01	6/25/01	9/28/01	12/17/01	3/21/02	6/6/02	9/20/02	12/19/02	3/4/03	6/9/03	9/8/03	12/1/03	3/4/04	6/2/04	9/14/04	12/8/04	3/3/05	6/10/05	9/16/05	12/6/05	3/10/06	6/9/06	9/11/06	12/15/06	3/6/07	6/15/07	9/11/07	12/4/07	3/20/08	6/18/08	9/3/08	12/4/08	3/5/09	6/11/09	MCL[1]
DCE[2]	<0.500	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.51**	<0.5	**0.81**	<0.5	<0.5	**0.68**	**2.4**	**1.5**	**1.1**	**0.86**	**4.3**	**2.8**	**1.6**	**1.5**	**2.4**	**1.4**	**1.1**	**1.0**	**1.4**	**0.79**	**0.59**	<0.5	**0.95**	6
CFC 113[3]	na	<0.5	<0.5	<0.5	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ne[5]
DCA[6]	<0.500	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.50**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5
Chloroform	<0.500	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	ne
cis-1,2-DCE	<0.500	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ne
TCA[7]	<0.500	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**1.0**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	200
TCE[8]	<0.500	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	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	<0.5	**0.56**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**1.2**	<0.5	<0.5	5
Other analytes[10]	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	--

Well No.	MW-4																														
Field Date	12/17/01	3/28/02	6/6/02	9/20/02	12/19/02	3/4/03	6/9/03	9/8/03	12/1/03	3/4/04	6/2/04	9/14/04	12/8/04	3/3/05	6/10/05	9/16/05	12/6/05	3/10/06	6/9/06	9/11/06	12/21/06	3/6/07	6/15/07	9/11/07	12/4/07	3/20/08	6/18/08	9/3/08	12/4/08	3/5/09	6/11/09	MCL[1]
DCE[2]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6
CFC 113[3]	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ne[5]
DCA[6]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5
Chloroform	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<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	<0.5	<0.5	<0.5	<0.5	ne
TCA[7]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	200
TCE[8]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5
PCE[9]	**2.6**	**2.8**	**2.0**	**2.5**	**1.1**	**2.1**	**2.1**	**1.6**	**1.6**	**1.7**	**1.4**	**1.3**	**1.2**	**0.93**	**0.98**	**0.8**	**1.1**	**0.79**	**0.64**	**0.70**	**0.63**	**0.70**	**0.75**	**0.86**	**0.92**	**0.91**	**0.86**	**0.84**	**0.65**	**0.62**	**0.70**	5
Other analytes[10]	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	--

Notes:

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

[2] DCE = 1,1-Dichloroethene

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

[4] na = not analyzed

[5] ne = not established or none applicable

[6] DCA = 1,1-Dichloroethane

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

[8] TCE = Trichloroethene

[9] PCE = Tetrachloroethene

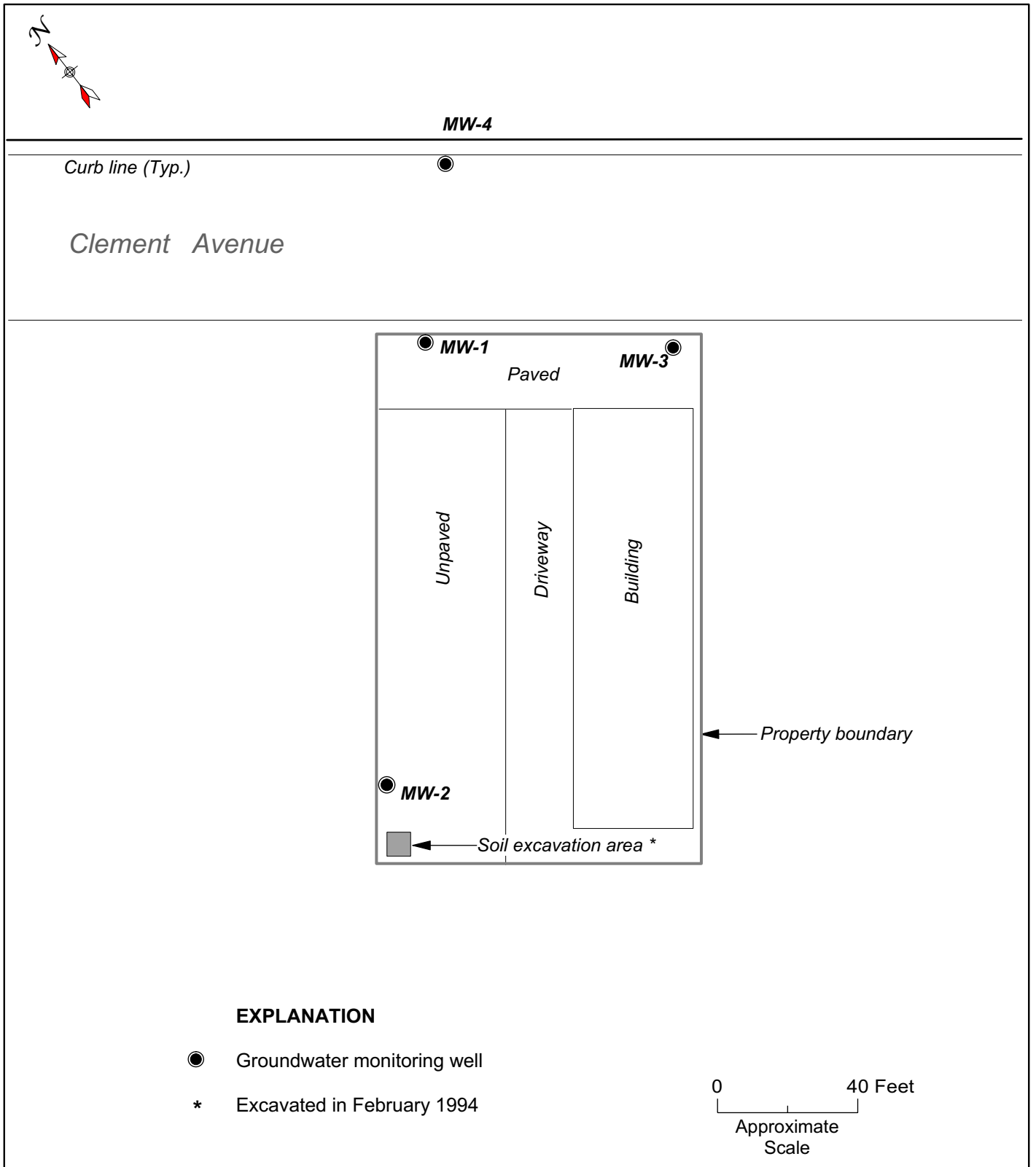
[10] All other 8010 list analytes

[11] nd = not detected above laboratory reporting limit

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



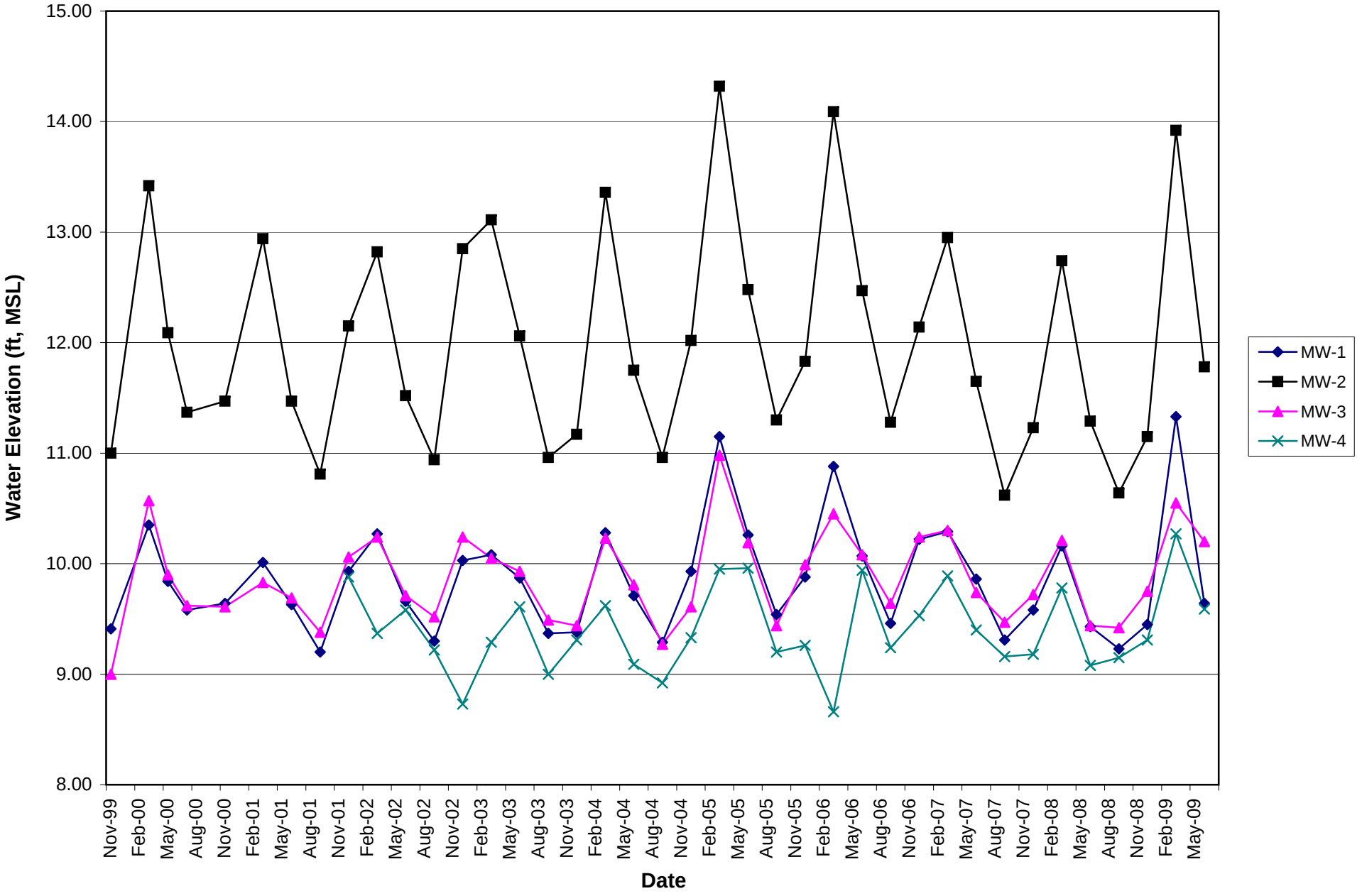
Base map from Conor Pacific/EFW, Off-Site Groundwater Characterization, August 21, 2002.

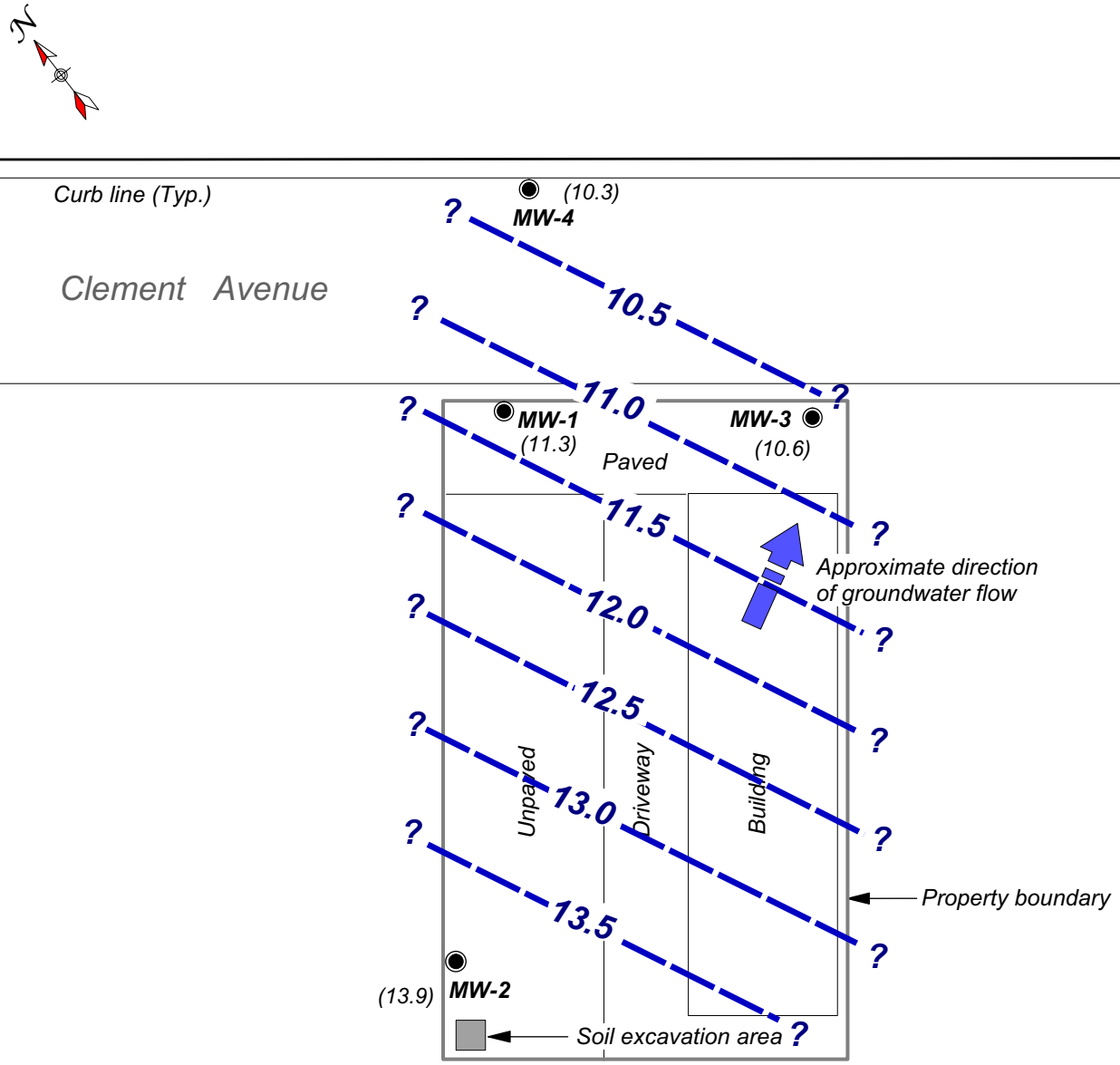
1605fig207Q4.dsf 2/22/08

CRAWFORD CONSULTING INC.

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

Figure 3. Graphical Summary of Groundwater Elevations





EXPLANATION

- Monitoring well
- (10.5) Groundwater elevation (Ft.-MSL); measured 3/5/09
- 10 Groundwater elevation contour (Ft.-MSL)

0 40 Feet

Approximate Scale

1605fig409Q2.dsf 9/30/09

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

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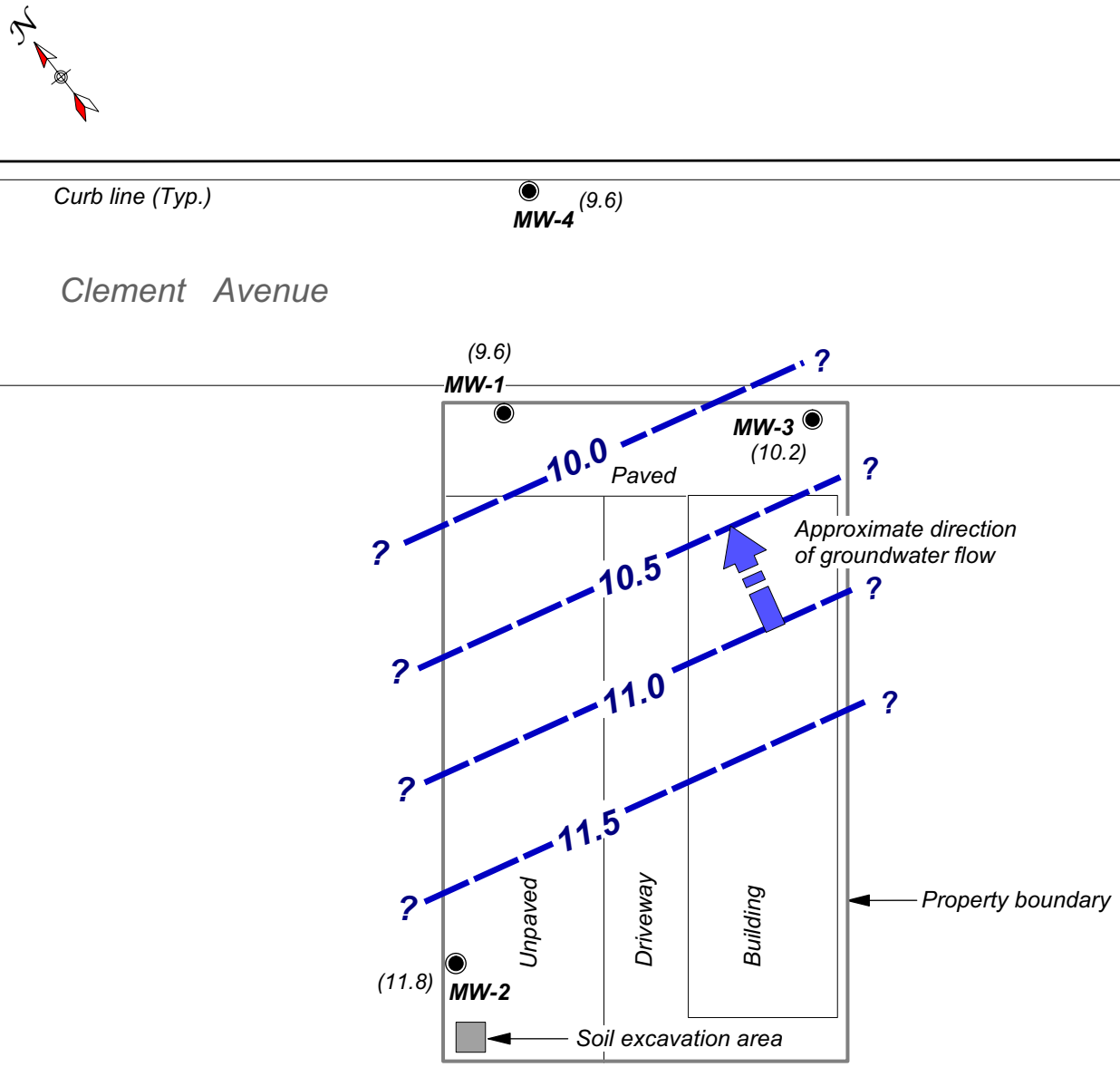
Project No. CS1605
Cargill Salt Dispensing Systems Division
2016 Clement Avenue, Alameda, California
Figure 4. Groundwater Elevation Contours - March 2009



EXPLANATION

- Monitoring well
- (9.6) Groundwater elevation (Ft.-MSL); measured 6/11/09
- ?—11— Groundwater elevation contour (Ft.-MSL)

0 40 Feet

Approximate Scale

1605fig509Q2.dsf 9/30/09

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

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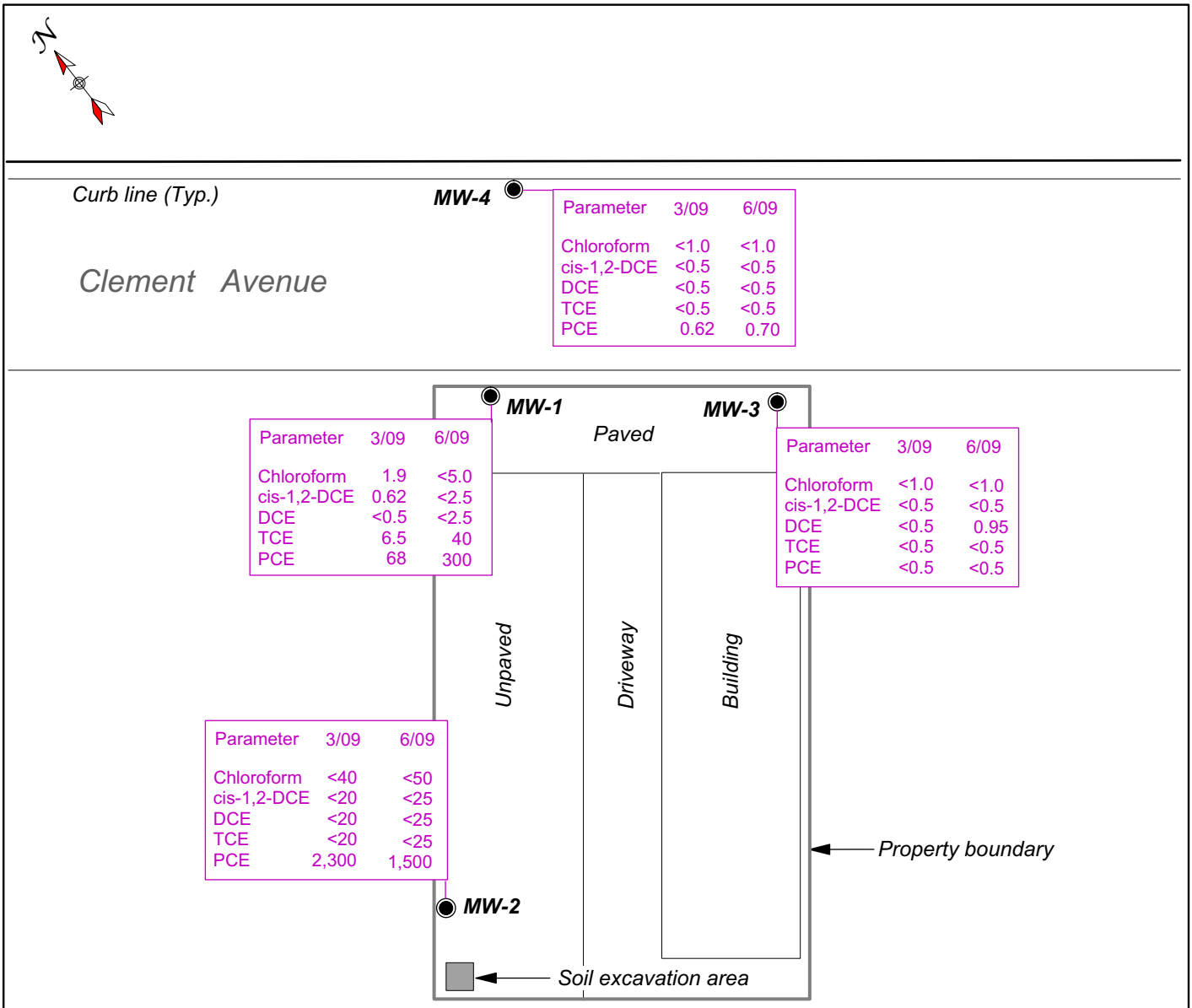
Project No. CS1605
Cargill Salt Dispensing Systems Division
2016 Clement Avenue, Alameda, California
Figure 5. Groundwater Elevation Contours - June 2009



EXPLANATION

Groundwater monitoring well location

DCE <5.0
TCE 6.5
PCE 68

Analyte concentration

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

1605fig609Q2.dsf 9/16/09

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 6. VOC Concentrations in Groundwater – March and June 2009

Figure 7. Graphical Summary of PCE Concentrations

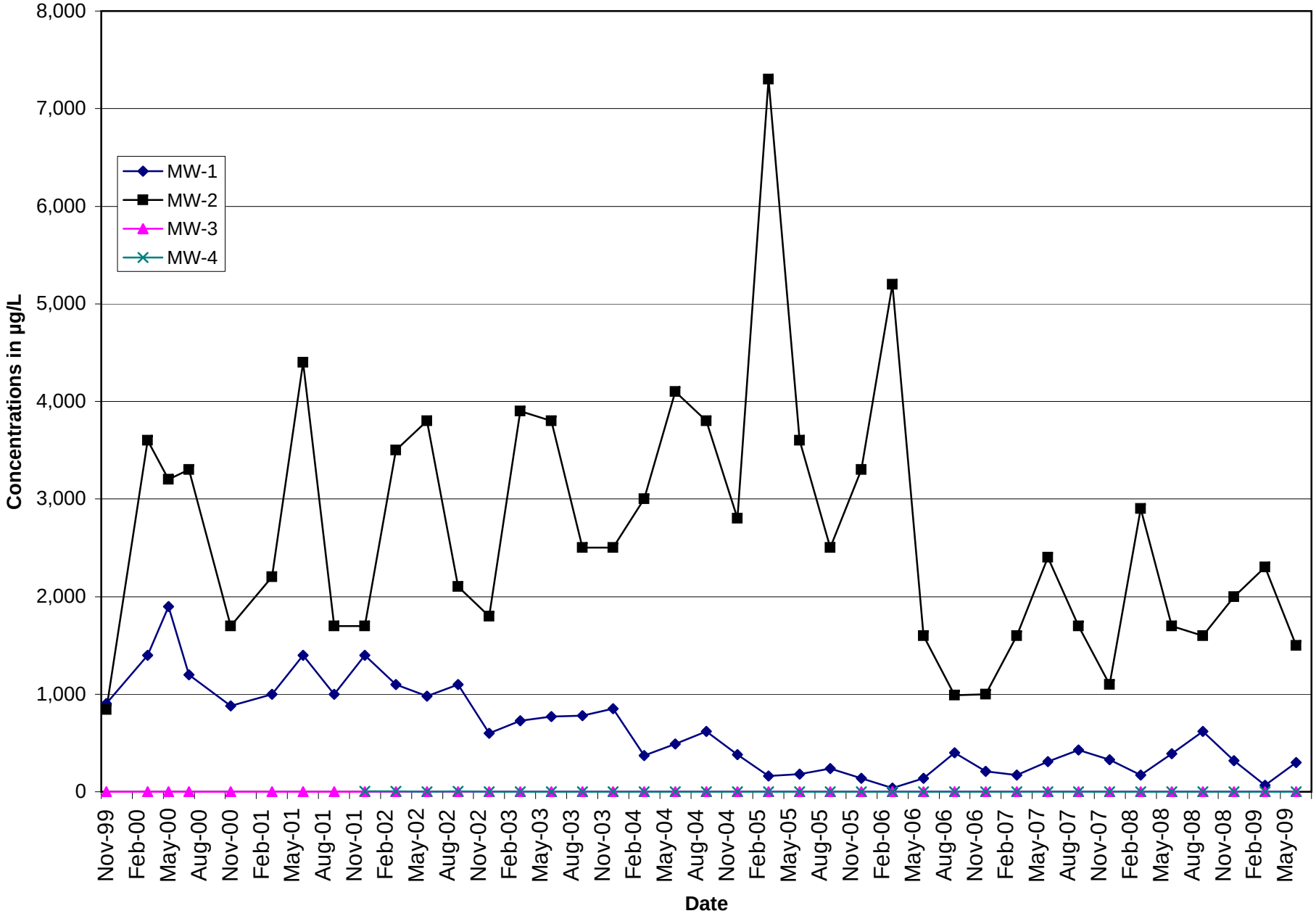
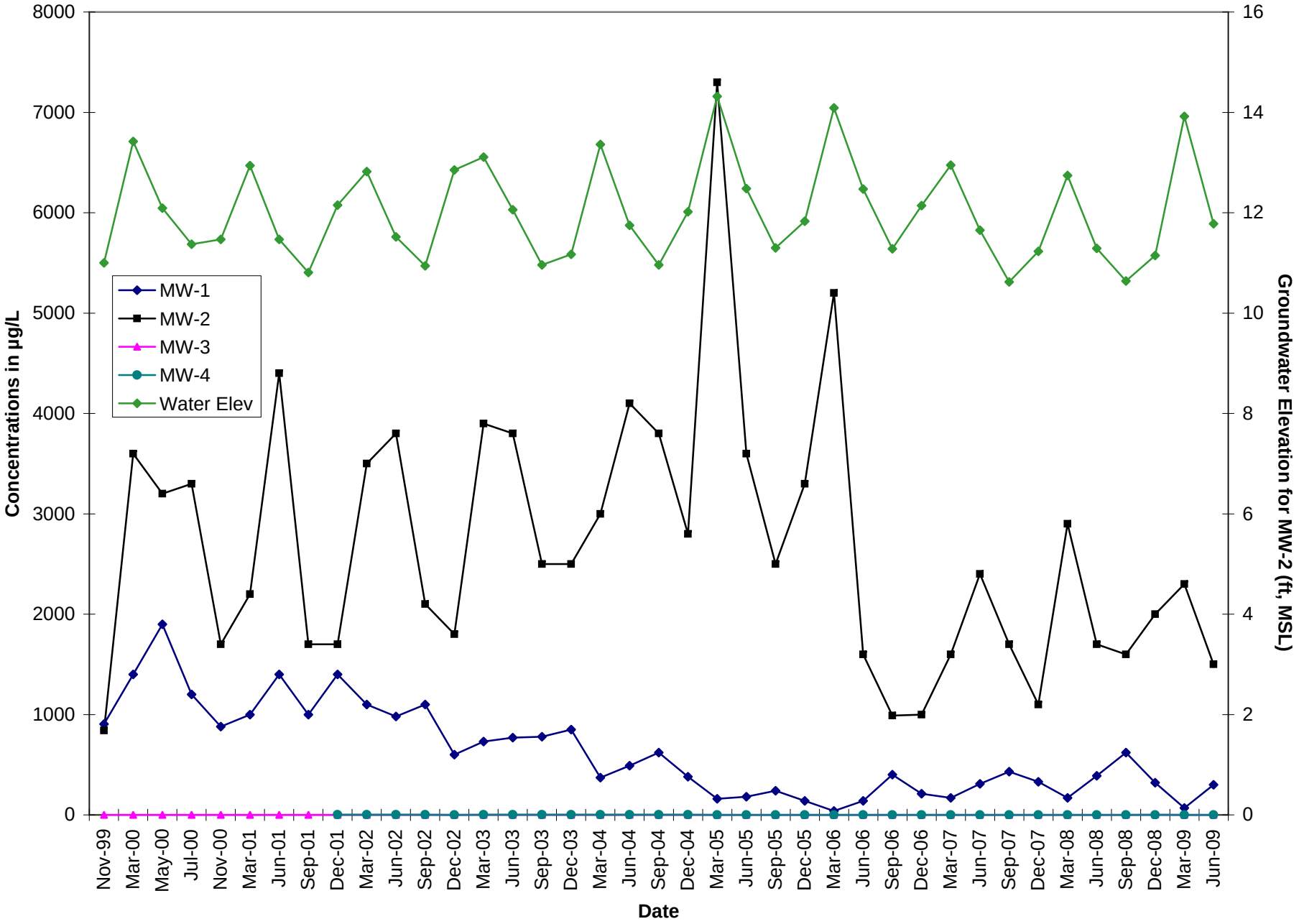


Figure 8. PCE Concentrations vs. Groundwater Elevation



Appendix A

Field Data Sheets

First Quarter 2009

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	3/5/09	0925	1.83	1.83	water in box no bolts
MW-2	3/5/09	~~0927~~ 1110	~~2.16~~ 2.30	~~2.16~~ 2.30	water in box no bolts
MW-3	3/5/09	09/23	2.79	2.79	water in box no bolts
MW-4	3/5/09	0927	2.16	2.16	water in box no bolts

Data Collection

Field measurements by:
Print: L. Bruk
Signature: L. Bruk
Date: 3/5/09

Reviewed by:
Print: J. Butler
Signature: J. Butler
Date: 3/9/09

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: 3/5/09
Finish Date: 3/5/09

WELL INFORMATION

Casing diameter (in.): 1.0 Depth to water (ft): 1.83 Well depth (ft): 18.3
One casing volume (gal.): 0.68 Calculated purge volume (gal.) *(3 x casing volume)*: 2.03
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: 3/5/09 Start time: 1059 End time: 1138
Purging equipment: Submersible pump ____ Bladder pump ____ Peristaltic pump X
PVC bailer ____ Teflon bailer ____ Other ____
Purge rate: 0.05 gpm Well yield (H/L): Low Yield Well
Purge water disposal: Drummed on site in 55gal drum

Time (2400 hr)	Cumulative Vol. Purged ~~(gal.)~~ L	pH (units)	EC (µS/cm)	T (° C)	Color (Visual)	Turbidity (Visual or NTU)
1113	2.6	6.88	371.5	15.9	Clear	5.7
1126	5.2	6.65	359.6	15.2	Clear	3.7
1137	7.8	6.70	360.8	14.9	Clear	2.9

Total Purged (gal.): 2.2gal 8.4L

WELL SAMPLING

Date sampled: 3/5/09 Start time: 1139 End time: 1143
Depth to water (ft) before sampling: 3.29
Sampling equipment: Peristaltic pump X Bladder pump ____ Teflon bailer ____
PVC bailer ____ Other ____

Weather conditions: Sunny, Clear Ambient temperature (° F): 55
Well condition/Remarks: water in box ; no bolts

All samples collected. Will need peristaltic tubing for this well next time (small hole in tubing).

Meter calibration: EC See MW-3 pH ____
Temperature ____ Turbidity ____

Purged and sampled by (print): L. Bruk
Signature: [signature] Reviewed ~~by~~: [signature]

SAMPLE COLLECTION FIELD DATA

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

Well ID: MW-2
Sample ID: MW-2
Start Date: 3/5/09
Finish Date: 3/5/09

WELL INFORMATION

Casing diameter (in.): 1.0 Depth to water (ft): 2.30 Well depth (ft): 17.5
One casing volume (gal.): 0.62 Calculated purge volume (gal.) *(3 x casing volume)*: 1.88
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: 3/5/09 Start time: 1256 End time: 1331
Purging equipment: Submersible pump ____ Bladder pump ____ Peristaltic pump X
PVC bailer ____ Teflon bailer ____ Other ____
Purge rate: 0.06 gpm Well yield (H/L): Low Yield
Purge water disposal: Drummed on site in 55 gal drum

Time (2400 hr)	Cumulative Vol. Purged (gal.) L	pH (units)	EC (µS/cm)	T (° C)	Color (Visual)	Turbidity (Visual or NTU)
1308	2.4	~~6.94~~	330.6	15.2	Clear	60
1321	4.8	6.77	333.9	15.3	Clear	20
1329	7.1	6.74	331.9	15.4	Clear	14

Total Purged (gal.): 1.98 7.5 L

WELL SAMPLING

Date sampled: 3/5/09 Start time: 1332 End time: 1336
Depth to water (ft) before sampling: 3.10
Sampling equipment: Peristaltic pump X Bladder pump ____ Teflon bailer ____
PVC bailer ____ Other ____

Weather conditions: Partly Cloudy Ambient temperature (° F): 55
Well condition/Remarks: Water in well box; no bolts

DUP-1 collected. All samples collected.

Meter calibration: EC see MW-3 pH ____
Temperature ____ Turbidity ____

Purged and sampled by (print): L. Bruk
Signature: L. Bruk Reviewed by: JB

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: 3/5/09
Finish Date: 3/5/09

WELL INFORMATION

Casing diameter (in.): 1.0 Depth to water (ft): 2.79 Well depth (ft): 17.6
One casing volume (gal.): 0.61 Calculated purge volume (gal.) *(3 x casing volume)*: 1.82
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: 3/5/09 Start time: 0935 End time: 1041
Purging equipment: Submersible pump ____ Bladder pump ____ Peristaltic pump X
PVC bailer ____ Teflon bailer ____ Other ____
Purge rate: 0.02 gpm Well yield (H/L): Low Yield Well
Purge water disposal: Stored and Drummed onsite in 55 gal drum

Time (2400 hr)	Cumulative Vol. Purged (gal.) L	pH (units)	EC (µS/cm)	T (° C)	Color (Visual)	Turbidity (Visual or NTU)
0953	2.34	7.67	405.6	14.5	Clear	9.0
1020	4.7	7.10	426.9	16.5	Clear	11
1041	7.0	7.15	414.0	15.7	Clear	22

Total Purged (gal.): 1.96 7.4L

WELL SAMPLING

Date sampled: 3/5/09 Start time: 1043 End time: 1046
Depth to water (ft) before sampling: 10.78
Sampling equipment: Peristaltic pump X Bladder pump ____ Teflon bailer ____
PVC bailer ____ Other ____

Weather conditions: Sunny / Clear Ambient temperature (° F): 60
Well condition/Remarks: Water in Box; no bolts.
All samples collected.

Meter calibration: EC 14,970/15,000 pH 6.93/7.00, 4.01/4.00, 9.87/10.00
Temperature 12.2 Turbidity 22

Purged and sampled by (print): L. Bruk
Signature: [signature] Reviewed by: JB

SAMPLE COLLECTION FIELD DATA

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

Well ID: MW-4
Sample ID: MW-4
Start Date: 3/5/09
Finish Date: 3/5/09

WELL INFORMATION

Casing diameter (in.): 1.0 Depth to water (ft): 2.52 Well depth (ft): 19.0
One casing volume (gal.): 0.68 Calculated purge volume (gal.) *(3 x casing volume)*: 2.03
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: 3/5/09 Start time: 1158 End time: 1234
Purging equipment: Submersible pump ____ Bladder pump ____ Peristaltic pump X
PVC bailer ~~X~~ Teflon bailer ____ Other ____
Purge rate: 0.06 gpm Well yield (H/L): Low Yield
Purge water disposal: Drummed on site in 55 gal drum

Time (2400 hr)	Cumulative Vol. Purged ~~(gal.)~~ L	pH (units)	EC (µS/cm)	T (° C)	Color (Visual)	Turbidity (Visual or NTU)
1211	2.6	7.33	618.1	17.8	Clear	2.3
1224	5.1	7.30	618.2	18.2	Clear	1.5
1233	7.7	7.32	616.1	18.4	Clear	1.9

Total Purged (gal.): 2.1 8L

WELL SAMPLING

Date sampled: 3/5/09 Start time: 1235 End time: 1239
Depth to water (ft) before sampling: 11.52
Sampling equipment: Peristaltic pump X Bladder pump ____ Teflon bailer ____
PVC bailer ____ Other ____

Weather conditions: Partly Cloudy Ambient temperature (° F): 54
Well condition/Remarks: water in Box; no bolts

All samples collected.

Meter calibration: EC See well MW-3 pH ____
Temperature ____ Turbidity ____

Purged and sampled by (print): L. Bruk
Signature: L. Bruk Reviewed by: JB

Second Quarter 2009

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	6/11/09	0840	3.52	3.52	water in Box
MW-2	6/11/09	0841	4.44	4.44	water in Box
MW-3	6/11/09	0838	~~3.14~~	~~3.14~~	water in Box (3.14)
MW-4	6/11/09	0843	2.84	2.84	

Data Collection

Field measurements by:
Print: R. Guevara
Signature: [signature]
Date: 6/11/09

Reviewed by:
Print: J. Butera
Signature: J Butera
Date: 6/22/09

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: 6/11/09
Finish Date: 6/11/09

WELL INFORMATION

Casing diameter (in.): 1.0 Depth to water (ft): 3.52 Well depth (ft): 18.3
One casing volume (gal.): .96 Calculated purge volume (gal.) *(3 x casing volume)*: 1.8
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: 6/11/09 Start time: 1115 End time: 1138
Purging equipment: Submersible pump ____ Bladder pump ____ Peristaltic pump +
PVC bailer ____ Teflon bailer ____ Other ____
Purge rate: .09 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)
1124	2.3	6.95	4316	17.4	clear	8.76
1131	4.6	6.75	395	17.5	clear	5.23
1138	6.8	6.78	389	17.5	clear	1.48

Total Purged ~~(gal.)~~: 6.8 Liters / 2.0 gal

WELL SAMPLING

Date sampled: 6/11/09 Start time: 1139 End time: 1145
Depth to water (ft) before sampling: 5.19
Sampling equipment: Peristaltic pump X Bladder pump ____ Teflon bailer ____
PVC bailer ____ Other ____

Weather conditions: Cloudy Ambient temperature (° F): 60
Well condition/Remarks: well OK, needs bolts

All Samples Collected

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

Purged and sampled by (print): R Guevara
Signature: [signature] Reviewed by: [signature]

SAMPLE COLLECTION FIELD DATA

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

Well ID: MW-2
Sample ID: MW-2
Start Date: 6/11/09
Finish Date: 6/11/09

WELL INFORMATION

Casing diameter (in.): 2.0 Depth to water (ft): 4.44 Well depth (ft): 17.5
One casing volume (gal.): .053 Calculated purge volume (gal.) *(3 x casing volume)*: 1.6
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: 6/11/09 Start time: 1148 End time: 1219
Purging equipment: Submersible pump ____ Bladder pump ____ Peristaltic pump +
PVC bailer ____ Teflon bailer ____ Other ____
Purge rate: .06 gpm Well yield (H/L): moderate yield
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)
1200	2.0	6.75	357	16.9	TAN	73.8
1210	4.0	6.68	375	16.8	clear	23.9
1219	6.0	6.69	386	17.0	clear	39.2

Total Purged ~~(gal.)~~: 6.0 L or 1.6 gallons

WELL SAMPLING

Date sampled: 6/11/09 Start time: 1220 End time: 1225
Depth to water (ft) before sampling: 5.52
Sampling equipment: Peristaltic pump + Bladder pump ____ Teflon bailer ____
PVC bailer ____ Other ____

Weather conditions: cloudy Ambient temperature (° F): 60
Well condition/Remarks: well ok, needs new bolts
Dup-1 collected
All samples collected

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

Purged and sampled by (print): R Guevara
Signature: [signature] Reviewed by: [signature]

SAMPLE COLLECTION FIELD DATA

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

Well ID: MW-3
Sample ID: MW3
Start Date: 6/11/09
Finish Date: 6/11/09

WELL INFORMATION

Casing diameter (in.): 1.0 Depth to water (ft): 3.12 Well depth (ft): 17.6
One casing volume (gal.): .59 Calculated purge volume (gal.) *(3 x casing volume)*: 1.78
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: 6/11/09 Start time: 1001 End time: 1058
Purging equipment: Submersible pump ____ Bladder pump ____ Peristaltic pump +
PVC bailer ____ Teflon bailer ____ Other ____
Purge rate: .04 gpm Well yield (H/L): Low Yield
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)
1022	2.9	7.23	567	17.0	clear	48.5
1041	4.4	7.33	586	17.0	TAN	127
1058	6.7	7.35	589	17.0	clear	17.4

Total Purged (gal.): 2.0 gal or 6.7 Liters

WELL SAMPLING

Date sampled: 6/11/09 Start time: 1059 End time: 1105
Depth to water (ft) before sampling: 15.32
Sampling equipment: Peristaltic pump X Bladder pump ____ Teflon bailer ____
PVC bailer ____ Other ____

Weather conditions: Cloudy Ambient temperature (° F): 60
Well condition/Remarks: Well OK needs bolts, Tubing stuck in well, replaced with new teflon tubing
All samples collected

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

Purged and sampled by (print): RSullivan
Signature: RS Reviewed by: JB

SAMPLE COLLECTION FIELD DATA

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

Well ID: MW-4
Sample ID: MW-4
Start Date: 6/11/05
Finish Date: 6/11/05

WELL INFORMATION

Casing diameter (in.): 1.0 Depth to water (ft): 2.84 Well depth (ft): 19.0
One casing volume (gal.): .66 Calculated purge volume (gal.) *(3 x casing volume)*: 1.98
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: 6/11/05 Start time: 0847 End time: 0937
Purging equipment: Submersible pump ____ Bladder pump ____ Peristaltic pump +
PVC bailer ____ Teflon bailer ____ Other ____
Purge rate: .04 gpm Well yield (H/L): Low/Hand well
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)
0905	2.4	6.81	618	18.3	clear	5.22
0920	4.8	7.11	616	18.4	clear	4.45
0937	7.6	7.20	616	18.3	clear	1.32
	7.6 liters					
Total Purged (gal.):	2.0 gallons					

WELL SAMPLING

Date sampled: 6/11/05 Start time: 0938 End time: 0942
Depth to water (ft) before sampling: 10.18
Sampling equipment: Peristaltic pump + Bladder pump ____ Teflon bailer ____
PVC bailer ____ Other ____

Weather conditions: cloudy Ambient temperature (° F): 60
Well condition/Remarks: well OK, needs new bolts for well/lid

Meter calibration: EC 15.00 / 15.00 pH (7.05 7.00) (10.02 10.00) (3.97 4.00)
Temperature 16 / Turbidity 8.7, 10.0

Purged and sampled by (print): R Gilmore
Signature: [signature] Reviewed by: [signature]

Appendix B

Groundwater Velocity Calculations

APPENDIX B
GROUNDWATER VELOCITY CALCULATIONS

FOR CARGILL ALAMEDA SITE

GROUNDWATER VELOCITY FORMULA

$V = Ki/n$ where:

V = average linear groundwater velocity
K = hydraulic conductivity
i = hydraulic gradient
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 2009	0.023
June 2009	0.020

UNIT CONVERSIONS

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

CALCULATED VELOCITIES

Measurement Event	Flow Direction	K (cm/sec)	i (ft/ft)	n	V (ft/yr)
March 2009	NE	0.00002	0.023	0.33	1.4
June 2009	NE	0.00002	0.020	0.33	1.2

Calculations and assumptions prepared by: Mark C. Wheeler

Date: 9/28/2009

Appendix C

Certified Analytical Reports and Chain-of-Custody Documentation

First Quarter 2009

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 720-18412-1

Job Description: Alameda Facility CS 1605

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

Attention: Mark Wheeler

Surinder Sidhu

Approved for release.
Surinder Sidhu
Customer Service Manager
3/12/2009 3:19 PM

Designee for
Dimple Sharma
Project Manager I
dimple.sharma@testamericainc.com
03/12/2009

cc: Dana Johnston

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: 720-18412-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
720-18412-1	**MW-1**				
cis-1,2-Dichloroethene		0.62	0.50	ug/L	8260B
Chloroform		1.9	1.0	ug/L	8260B
Trichloroethene		6.5	0.50	ug/L	8260B
Tetrachloroethene		68	0.50	ug/L	8260B
720-18412-2	**MW-2**				
Tetrachloroethene		2300	20	ug/L	8260B
720-18412-4	**MW-4**				
Tetrachloroethene		0.62	0.50	ug/L	8260B
720-18412-5	**DUP-1**				
Tetrachloroethene		2200	20	ug/L	8260B

METHOD SUMMARY

Client: Crawford Consulting Inc

Job Number: 720-18412-1

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: 720-18412-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
720-18412-1	MW-1	Water	03/05/2009 1139	03/05/2009 1450
720-18412-2	MW-2	Water	03/05/2009 1332	03/05/2009 1450
720-18412-3	MW-3	Water	03/05/2009 1043	03/05/2009 1450
720-18412-4	MW-4	Water	03/05/2009 1235	03/05/2009 1450
720-18412-5	DUP-1	Water	03/05/2009 0000	03/05/2009 1450
720-18412-6TB	TB-1	Water	03/05/2009 0000	03/05/2009 1450

Client: Crawford Consulting Inc | Job Number: 720-18412-1

Client Sample ID: **MW-1**

Lab Sample ID: 720-18412-1 | Date Sampled: 03/05/2009 1139
Client Matrix: Water | Date Received: 03/05/2009 1450

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B | Analysis Batch: 720-47600 | Instrument ID: Saturn 2K3
Preparation: 5030B | Lab File ID: d:\data\200903\031209\SA-
Dilution: 1.0 | Initial Weight/Volume: 40 mL
Date Analyzed: 03/12/2009 1309 | Final Weight/Volume: 40 mL
Date Prepared: 03/12/2009 1309

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	0.62		0.50
Chloroform	1.9		1.0
1,1,1-Trichloroethane	ND		0.50
Carbon tetrachloride	ND		0.50
1,2-Dichloroethane	ND		0.50
Trichloroethene	6.5		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	68		0.50
Chlorodibromomethane	ND		0.50
Chlorobenzene	ND		0.50
Bromoform	ND		1.0
1,1,2,2-Tetrachloroethane	ND		0.50
1,3-Dichlorobenzene	ND		0.50
1,4-Dichlorobenzene	ND		0.50
1,2-Dichlorobenzene	ND		0.50
Chloromethane	ND		1.0
Bromomethane	ND		1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50
EDB	ND		0.50
1,2,4-Trichlorobenzene	ND		1.0

Surrogate	%Rec	Acceptance Limits
Toluene-d8 (Surr)	102	82 - 120
4-Bromofluorobenzene	99	74 - 131
1,2-Dichloroethane-d4 (Surr)	85	76 - 132

Client: Crawford Consulting Inc | Job Number: 720-18412-1

Client Sample ID: **MW-2**

Lab Sample ID: 720-18412-2 | Date Sampled: 03/05/2009 1332
Client Matrix: Water | Date Received: 03/05/2009 1450

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B | Analysis Batch: 720-47518 | Instrument ID: Saturn 2K3
Preparation: 5030B | Lab File ID: d:\data\200903\031009\SA-
Dilution: 40 | Initial Weight/Volume: 40 mL
Date Analyzed: 03/10/2009 1739 | Final Weight/Volume: 40 mL
Date Prepared: 03/10/2009 1739

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	ND		20
1,1-Dichloroethane	ND		20
Dichlorodifluoromethane	ND		20
Vinyl chloride	ND		20
Chloroethane	ND		40
Trichlorofluoromethane	ND		40
Methylene Chloride	ND		200
trans-1,2-Dichloroethene	ND		20
cis-1,2-Dichloroethene	ND		20
Chloroform	ND		40
1,1,1-Trichloroethane	ND		20
Carbon tetrachloride	ND		20
1,2-Dichloroethane	ND		20
Trichloroethene	ND		20
1,2-Dichloropropane	ND		20
Dichlorobromomethane	ND		20
trans-1,3-Dichloropropene	ND		20
cis-1,3-Dichloropropene	ND		20
1,1,2-Trichloroethane	ND		20
Tetrachloroethene	2300		20
Chlorodibromomethane	ND		20
Chlorobenzene	ND		20
Bromoform	ND		40
1,1,2,2-Tetrachloroethane	ND		20
1,3-Dichlorobenzene	ND		20
1,4-Dichlorobenzene	ND		20
1,2-Dichlorobenzene	ND		20
Chloromethane	ND		40
Bromomethane	ND		40
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		20
EDB	ND		20
1,2,4-Trichlorobenzene	ND		40

Surrogate	%Rec	Acceptance Limits
Toluene-d8 (Surr)	103	82 - 120
4-Bromofluorobenzene	94	74 - 131
1,2-Dichloroethane-d4 (Surr)	79	76 - 132

Client: Crawford Consulting Inc | Job Number: 720-18412-1

Client Sample ID: **MW-3**

Lab Sample ID: 720-18412-3 | Date Sampled: 03/05/2009 1043
Client Matrix: Water | Date Received: 03/05/2009 1450

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B | Analysis Batch: 720-47518 | Instrument ID: Saturn 2K3
Preparation: 5030B | Lab File ID: d:\data\200903\031009\sa-
Dilution: 1.0 | Initial Weight/Volume: 40 mL
Date Analyzed: 03/10/2009 1247 | Final Weight/Volume: 40 mL
Date Prepared: 03/10/2009 1247

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

Surrogate	%Rec	Acceptance Limits
Toluene-d8 (Surr)	110	82 - 120
4-Bromofluorobenzene	97	74 - 131
1,2-Dichloroethane-d4 (Surr)	90	76 - 132

Client: Crawford Consulting Inc | Job Number: 720-18412-1

Client Sample ID: **MW-4**

Lab Sample ID: 720-18412-4 | Date Sampled: 03/05/2009 1235
Client Matrix: Water | Date Received: 03/05/2009 1450

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B | Analysis Batch: 720-47582 | Instrument ID: Saturn 2K3
Preparation: 5030B | Lab File ID: d:\data\200903\031109\SA-
Dilution: 1.0 | Initial Weight/Volume: 40 mL
Date Analyzed: 03/11/2009 1801 | Final Weight/Volume: 40 mL
Date Prepared: 03/11/2009 1801

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	0.62		0.50
Chlorodibromomethane	ND		0.50
Chlorobenzene	ND		0.50
Bromoform	ND		1.0
1,1,2,2-Tetrachloroethane	ND		0.50
1,3-Dichlorobenzene	ND		0.50
1,4-Dichlorobenzene	ND		0.50
1,2-Dichlorobenzene	ND		0.50
Chloromethane	ND		1.0
Bromomethane	ND		1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50
EDB	ND		0.50
1,2,4-Trichlorobenzene	ND		1.0

Surrogate	%Rec	Acceptance Limits
Toluene-d8 (Surr)	105	82 - 120
4-Bromofluorobenzene	100	74 - 131
1,2-Dichloroethane-d4 (Surr)	96	76 - 132

Client: Crawford Consulting Inc | Job Number: 720-18412-1

Client Sample ID: **DUP-1**

Lab Sample ID: 720-18412-5 | Date Sampled: 03/05/2009 0000
Client Matrix: Water | Date Received: 03/05/2009 1450

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B | Analysis Batch: 720-47518 | Instrument ID: Saturn 2K3
Preparation: 5030B | Lab File ID: d:\data\200903\031009\SA-
Dilution: 40 | Initial Weight/Volume: 40 mL
Date Analyzed: 03/10/2009 1811 | Final Weight/Volume: 40 mL
Date Prepared: 03/10/2009 1811

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	ND		20
1,1-Dichloroethane	ND		20
Dichlorodifluoromethane	ND		20
Vinyl chloride	ND		20
Chloroethane	ND		40
Trichlorofluoromethane	ND		40
Methylene Chloride	ND		200
trans-1,2-Dichloroethene	ND		20
cis-1,2-Dichloroethene	ND		20
Chloroform	ND		40
1,1,1-Trichloroethane	ND		20
Carbon tetrachloride	ND		20
1,2-Dichloroethane	ND		20
Trichloroethene	ND		20
1,2-Dichloropropane	ND		20
Dichlorobromomethane	ND		20
trans-1,3-Dichloropropene	ND		20
cis-1,3-Dichloropropene	ND		20
1,1,2-Trichloroethane	ND		20
Tetrachloroethene	2200		20
Chlorodibromomethane	ND		20
Chlorobenzene	ND		20
Bromoform	ND		40
1,1,2,2-Tetrachloroethane	ND		20
1,3-Dichlorobenzene	ND		20
1,4-Dichlorobenzene	ND		20
1,2-Dichlorobenzene	ND		20
Chloromethane	ND		40
Bromomethane	ND		40
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		20
EDB	ND		20
1,2,4-Trichlorobenzene	ND		40

Surrogate	%Rec	Acceptance Limits
Toluene-d8 (Surr)	104	82 - 120
4-Bromofluorobenzene	97	74 - 131
1,2-Dichloroethane-d4 (Surr)	92	76 - 132

Client: Crawford Consulting Inc | Job Number: 720-18412-1

Client Sample ID: **TB-1**

Lab Sample ID: 720-18412-6TB | Date Sampled: 03/05/2009 0000
Client Matrix: Water | Date Received: 03/05/2009 1450

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B | Analysis Batch: 720-47600 | Instrument ID: Saturn 2K3
Preparation: 5030B | Lab File ID: d:\data\200903\031209\SA-
Dilution: 1.0 | Initial Weight/Volume: 40 mL
Date Analyzed: 03/12/2009 1341 | Final Weight/Volume: 40 mL
Date Prepared: 03/12/2009 1341

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

Surrogate	%Rec	Acceptance Limits
Toluene-d8 (Surr)	102	82 - 120
4-Bromofluorobenzene	101	74 - 131
1,2-Dichloroethane-d4 (Surr)	89	76 - 132

DATA REPORTING QUALIFIERS

Lab Section	Qualifier	Description

Client: Crawford Consulting Inc

Job Number: 720-18412-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-47518					
LCS 720-47518/3	Lab Control Spike	T	Water	8260B	
LCSD 720-47518/2	Lab Control Spike Duplicate	T	Water	8260B	
MB 720-47518/5	Method Blank	T	Water	8260B	
720-18412-2	MW-2	T	Water	8260B	
720-18412-3	MW-3	T	Water	8260B	
720-18412-3MS	Matrix Spike	T	Water	8260B	
720-18412-3MSD	Matrix Spike Duplicate	T	Water	8260B	
720-18412-5	DUP-1	T	Water	8260B	
Analysis Batch:720-47582					
LCS 720-47582/4	Lab Control Spike	T	Water	8260B	
LCSD 720-47582/3	Lab Control Spike Duplicate	T	Water	8260B	
MB 720-47582/6	Method Blank	T	Water	8260B	
720-18412-4	MW-4	T	Water	8260B	
Analysis Batch:720-47600					
LCS 720-47600/2	Lab Control Spike	T	Water	8260B	
LCSD 720-47600/1	Lab Control Spike Duplicate	T	Water	8260B	
MB 720-47600/4	Method Blank	T	Water	8260B	
720-18412-1	MW-1	T	Water	8260B	
720-18412-6TB	TB-1	T	Water	8260B	

Report Basis

T = Total

Client: Crawford Consulting Inc

Job Number: 720-18412-1

Method Blank - Batch: 720-47518

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 720-47518/5
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/10/2009 0831
Date Prepared: 03/10/2009 0831

Analysis Batch: 720-47518
Prep Batch: N/A
Units: ug/L

Instrument ID: Saturn 2K3
Lab File ID: d:\data\200903\031009\MB-W
Initial Weight/Volume: 40 mL
Final Weight/Volume: 40 mL

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

Surrogate	% Rec	Acceptance Limits
Toluene-d8 (Surr)	104	82 - 120
4-Bromofluorobenzene	96	74 - 131
1,2-Dichloroethane-d4 (Surr)	83	76 - 132

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

Client: Crawford Consulting Inc

Job Number: 720-18412-1

Lab Control Spike/
Lab Control Spike Duplicate Recovery Report - Batch: 720-47518

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-47518/3	Analysis Batch:	720-47518	Instrument ID:	Saturn 2K3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	d:\data\200903\031009\ls-wa
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	40 mL
Date Analyzed:	03/10/2009 0903			Final Weight/Volume:	40 mL
Date Prepared:	03/10/2009 0903				

LCSD Lab Sample ID:	LCSD 720-47518/2	Analysis Batch:	720-47518	Instrument ID:	Saturn 2K3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	d:\data\200903\031009\ld-wa
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	40 mL
Date Analyzed:	03/10/2009 0934			Final Weight/Volume:	40 mL
Date Prepared:	03/10/2009 0934				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
1,1-Dichloroethene	95	94	70 - 130	1	20		
Trichloroethene	99	98	70 - 130	1	20		
Chlorobenzene	116	113	70 - 130	2	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
Toluene-d8 (Surr)	99	93	82 - 120
4-Bromofluorobenzene	100	94	74 - 131
1,2-Dichloroethane-d4 (Surr)	84	80	76 - 132

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

Client: Crawford Consulting Inc

Job Number: 720-18412-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 720-47518

Method: 8260B
Preparation: 5030B

MS Lab Sample ID:	720-18412-3	Analysis Batch:	720-47518	Instrument ID:	Saturn 2K3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	d:\data\200903\031009\SA-V
Dilution:	1.0			Initial Weight/Volume:	40 mL
Date Analyzed:	03/10/2009 1455			Final Weight/Volume:	40 mL
Date Prepared:	03/10/2009 1455				

MSD Lab Sample ID:	720-18412-3	Analysis Batch:	720-47518	Instrument ID:	Saturn 2K3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	d:\data\200903\031009\SA-W
Dilution:	1.0			Initial Weight/Volume:	40 mL
Date Analyzed:	03/10/2009 1527			Final Weight/Volume:	40 mL
Date Prepared:	03/10/2009 1527				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
1,1-Dichloroethene	97	100	70 - 130	3	20		
Trichloroethene	96	98	70 - 130	2	20		
Chlorobenzene	115	116	70 - 130	1	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Toluene-d8 (Surr)	90	95	82 - 120
4-Bromofluorobenzene	90	89	74 - 131
1,2-Dichloroethane-d4 (Surr)	88	87	76 - 132

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

Client: Crawford Consulting Inc

Job Number: 720-18412-1

Method Blank - Batch: 720-47582

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 720-47582/6
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/11/2009 0808
Date Prepared: 03/11/2009 0808

Analysis Batch: 720-47582
Prep Batch: N/A
Units: ug/L

Instrument ID: Saturn 2K3
Lab File ID: d:\data\200903\031109\MB-W
Initial Weight/Volume: 40 mL
Final Weight/Volume: 40 mL

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

Surrogate	% Rec	Acceptance Limits
Toluene-d8 (Surr)	106	82 - 120
4-Bromofluorobenzene	101	74 - 131
1,2-Dichloroethane-d4 (Surr)	85	76 - 132

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

Client: Crawford Consulting Inc

Job Number: 720-18412-1

Lab Control Spike/
Lab Control Spike Duplicate Recovery Report - Batch: 720-47582

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-47582/4	Analysis Batch:	720-47582	Instrument ID:	Saturn 2K3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	d:\data\200903\031109\LS-W/
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	40 mL
Date Analyzed:	03/11/2009 0839			Final Weight/Volume:	40 mL
Date Prepared:	03/11/2009 0839				

LCSD Lab Sample ID:	LCSD 720-47582/3	Analysis Batch:	720-47582	Instrument ID:	Saturn 2K3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	d:\data\200903\031109\LD-WA
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	40 mL
Date Analyzed:	03/11/2009 0911			Final Weight/Volume:	40 mL
Date Prepared:	03/11/2009 0911				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
1,1-Dichloroethene	93	92	70 - 130	1	20		
Trichloroethene	97	100	70 - 130	3	20		
Chlorobenzene	114	117	70 - 130	3	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
Toluene-d8 (Surr)	100	102	82 - 120
4-Bromofluorobenzene	100	101	74 - 131
1,2-Dichloroethane-d4 (Surr)	86	86	76 - 132

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

Client: Crawford Consulting Inc

Job Number: 720-18412-1

Method Blank - Batch: 720-47600

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 720-47600/4
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/12/2009 0950
Date Prepared: 03/12/2009 0950

Analysis Batch: 720-47600
Prep Batch: N/A
Units: ug/L

Instrument ID: Saturn 2K3
Lab File ID: d:\data\200903\031209\MB-W
Initial Weight/Volume: 40 mL
Final Weight/Volume: 40 mL

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

Surrogate	% Rec	Acceptance Limits
Toluene-d8 (Surr)	103	82 - 120
4-Bromofluorobenzene	100	74 - 131
1,2-Dichloroethane-d4 (Surr)	85	76 - 132

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

Client: Crawford Consulting Inc

Job Number: 720-18412-1

Lab Control Spike/
Lab Control Spike Duplicate Recovery Report - Batch: 720-47600

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-47600/2	Analysis Batch:	720-47600	Instrument ID:	Saturn 2K3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	d:\data\200903\031209\LS-W/
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	40 mL
Date Analyzed:	03/12/2009 1022			Final Weight/Volume:	40 mL
Date Prepared:	03/12/2009 1022				

LCSD Lab Sample ID:	LCSD 720-47600/1	Analysis Batch:	720-47600	Instrument ID:	Saturn 2K3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	d:\data\200903\031209\LD-WA
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	40 mL
Date Analyzed:	03/12/2009 1054			Final Weight/Volume:	40 mL
Date Prepared:	03/12/2009 1054				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
1,1-Dichloroethene	82	83	70 - 130	2	20		
Trichloroethene	93	92	70 - 130	0	20		
Chlorobenzene	117	117	70 - 130	0	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
Toluene-d8 (Surr)	83	96	82 - 120
4-Bromofluorobenzene	90	94	74 - 131
1,2-Dichloroethane-d4 (Surr)	78	88	76 - 132

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

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: 3/5/09

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

TO-18412

Sampler's Signature:

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	3/5/09	1139		H_2O	3							X				
MW-2	3/5/09	1332			3							X				
MW-3	3/5/09	1043			3							X				
MW-4	3/5/09	1235			3							X				
DUP-1	3/5/09	—			3							X				
TB-1	3/5/09	—			3							X				

Page 21 of 22

Relinquished By	Received By
Signature:	Signature:
Printed Name: LEON BRUK	Printed Name:
Firm: EST	Firm: MSF
Date/Time: 3/5/09 1450	Date/Time: 3/5/09 1450
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 TRACE)

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

Login Sample Receipt Check List

Client: Crawford Consulting Inc

Job Number: 720-18412-1

Login Number: 18412

List Source: TestAmerica San Francisco

Creator: Lewis, Trenton L

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	

Second Quarter 2009

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 720-20572-1

Job Description: Alameda Facility CS 1605

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

Attention: Mark Wheeler

Approved for release.
Dimple Sharma
Project Manager I
6/18/2009 6:32 PM

Dimple Sharma
Project Manager I
dimple.sharma@testamericainc.com
06/18/2009

cc: Dana Johnston

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: 720-20572-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
720-20572-1	**MW-1**				
Trichloroethene		40	2.5	ug/L	8260B
Tetrachloroethene		300	2.5	ug/L	8260B
720-20572-2	**MW-2**				
Tetrachloroethene		1500	25	ug/L	8260B
720-20572-3	**MW-3**				
1,1-Dichloroethene		0.95	0.50	ug/L	8260B
720-20572-4	**MW-4**				
Tetrachloroethene		0.70	0.50	ug/L	8260B
720-20572-5FD	**DUP-1**				
Tetrachloroethene		1700	25	ug/L	8260B

METHOD SUMMARY

Client: Crawford Consulting Inc

Job Number: 720-20572-1

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: 720-20572-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
720-20572-1	MW-1	Water	06/11/2009 1139	06/11/2009 1330
720-20572-2	MW-2	Water	06/11/2009 1220	06/11/2009 1330
720-20572-3	MW-3	Water	06/11/2009 1059	06/11/2009 1330
720-20572-4	MW-4	Water	06/11/2009 0938	06/11/2009 1330
720-20572-5FD	DUP-1	Water	06/11/2009 0000	06/11/2009 1330
720-20572-6TB	TB-1	Water	06/11/2009 0000	06/11/2009 1330

Client: Crawford Consulting Inc | Job Number: 720-20572-1

Client Sample ID: **MW-1**

Lab Sample ID: 720-20572-1 | Date Sampled: 06/11/2009 1139
Client Matrix: Water | Date Received: 06/11/2009 1330

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B | Analysis Batch: 720-52225 | Instrument ID: Chemstation 3.0 on 95PC
Preparation: 5030B | Lab File ID: 06150915.D
Dilution: 5.0 | Initial Weight/Volume: 10 mL
Date Analyzed: 06/15/2009 1646 | Final Weight/Volume: 10 mL
Date Prepared: 06/15/2009 1646

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	ND		2.5
1,1-Dichloroethane	ND		2.5
Dichlorodifluoromethane	ND		2.5
Vinyl chloride	ND		2.5
Chloroethane	ND		5.0
Trichlorofluoromethane	ND		5.0
Methylene Chloride	ND		25
trans-1,2-Dichloroethene	ND		2.5
cis-1,2-Dichloroethene	ND		2.5
Chloroform	ND		5.0
1,1,1-Trichloroethane	ND		2.5
Carbon tetrachloride	ND		2.5
1,2-Dichloroethane	ND		2.5
Trichloroethene	40		2.5
1,2-Dichloropropane	ND		2.5
Dichlorobromomethane	ND		2.5
trans-1,3-Dichloropropene	ND		2.5
cis-1,3-Dichloropropene	ND		2.5
1,1,2-Trichloroethane	ND		2.5
Tetrachloroethene	300		2.5
Chlorodibromomethane	ND		2.5
Chlorobenzene	ND		2.5
Bromoform	ND		5.0
1,1,2,2-Tetrachloroethane	ND		2.5
1,3-Dichlorobenzene	ND		2.5
1,4-Dichlorobenzene	ND		2.5
1,2-Dichlorobenzene	ND		2.5
Chloromethane	ND		5.0
Bromomethane	ND		5.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.5
EDB	ND		2.5
1,2,4-Trichlorobenzene	ND		5.0

Surrogate	%Rec	Acceptance Limits
Toluene-d8 (Surr)	94	70 - 130
4-Bromofluorobenzene	78	67 - 130
1,2-Dichloroethane-d4 (Surr)	103	67 - 130

Client: Crawford Consulting Inc | Job Number: 720-20572-1

Client Sample ID: **MW-2**

Lab Sample ID: 720-20572-2 | Date Sampled: 06/11/2009 1220
Client Matrix: Water | Date Received: 06/11/2009 1330

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B | Analysis Batch: 720-52225 | Instrument ID: Chemstation 3.0 on 95PC
Preparation: 5030B | Lab File ID: 06150916.D
Dilution: 50 | Initial Weight/Volume: 10 mL
Date Analyzed: 06/15/2009 1719 | Final Weight/Volume: 10 mL
Date Prepared: 06/15/2009 1719

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	ND		25
1,1-Dichloroethane	ND		25
Dichlorodifluoromethane	ND		25
Vinyl chloride	ND		25
Chloroethane	ND		50
Trichlorofluoromethane	ND		50
Methylene Chloride	ND		250
trans-1,2-Dichloroethene	ND		25
cis-1,2-Dichloroethene	ND		25
Chloroform	ND		50
1,1,1-Trichloroethane	ND		25
Carbon tetrachloride	ND		25
1,2-Dichloroethane	ND		25
Trichloroethene	ND		25
1,2-Dichloropropane	ND		25
Dichlorobromomethane	ND		25
trans-1,3-Dichloropropene	ND		25
cis-1,3-Dichloropropene	ND		25
1,1,2-Trichloroethane	ND		25
Tetrachloroethene	1500		25
Chlorodibromomethane	ND		25
Chlorobenzene	ND		25
Bromoform	ND		50
1,1,2,2-Tetrachloroethane	ND		25
1,3-Dichlorobenzene	ND		25
1,4-Dichlorobenzene	ND		25
1,2-Dichlorobenzene	ND		25
Chloromethane	ND		50
Bromomethane	ND		50
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		25
EDB	ND		25
1,2,4-Trichlorobenzene	ND		50

Surrogate	%Rec	Acceptance Limits
Toluene-d8 (Surr)	92	70 - 130
4-Bromofluorobenzene	80	67 - 130
1,2-Dichloroethane-d4 (Surr)	104	67 - 130

Client: Crawford Consulting Inc | Job Number: 720-20572-1

Client Sample ID: **MW-3**

Lab Sample ID: 720-20572-3 | Date Sampled: 06/11/2009 1059
Client Matrix: Water | Date Received: 06/11/2009 1330

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B | Analysis Batch: 720-52225 | Instrument ID: Chemstation 3.0 on 95PC
Preparation: 5030B | Lab File ID: 06150917.D
Dilution: 1.0 | Initial Weight/Volume: 10 mL
Date Analyzed: 06/15/2009 1750 | Final Weight/Volume: 10 mL
Date Prepared: 06/15/2009 1750

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	0.95		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)	91	70 - 130
4-Bromofluorobenzene	81	67 - 130
1,2-Dichloroethane-d4 (Surr)	106	67 - 130

Client: Crawford Consulting Inc | Job Number: 720-20572-1

Client Sample ID: **MW-4**

Lab Sample ID: 720-20572-4 | Date Sampled: 06/11/2009 0938
Client Matrix: Water | Date Received: 06/11/2009 1330

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B | Analysis Batch: 720-52225 | Instrument ID: Chemstation 3.0 on 95PC
Preparation: 5030B | Lab File ID: 06150918.D
Dilution: 1.0 | Initial Weight/Volume: 10 mL
Date Analyzed: 06/15/2009 1822 | Final Weight/Volume: 10 mL
Date Prepared: 06/15/2009 1822

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	ND		0.50
1,1-Dichloroethane	ND		0.50
Dichlorodifluoromethane	ND		0.50
Vinyl chloride	ND		0.50
Chloroethane	ND		1.0
Trichlorofluoromethane	ND		1.0
Methylene Chloride	ND		5.0
trans-1,2-Dichloroethene	ND		0.50
cis-1,2-Dichloroethene	ND		0.50
Chloroform	ND		1.0
1,1,1-Trichloroethane	ND		0.50
Carbon tetrachloride	ND		0.50
1,2-Dichloroethane	ND		0.50
Trichloroethene	ND		0.50
1,2-Dichloropropane	ND		0.50
Dichlorobromomethane	ND		0.50
trans-1,3-Dichloropropene	ND		0.50
cis-1,3-Dichloropropene	ND		0.50
1,1,2-Trichloroethane	ND		0.50
Tetrachloroethene	0.70		0.50
Chlorodibromomethane	ND		0.50
Chlorobenzene	ND		0.50
Bromoform	ND		1.0
1,1,2,2-Tetrachloroethane	ND		0.50
1,3-Dichlorobenzene	ND		0.50
1,4-Dichlorobenzene	ND		0.50
1,2-Dichlorobenzene	ND		0.50
Chloromethane	ND		1.0
Bromomethane	ND		1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50
EDB	ND		0.50
1,2,4-Trichlorobenzene	ND		1.0

Surrogate	%Rec	Acceptance Limits
Toluene-d8 (Surr)	91	70 - 130
4-Bromofluorobenzene	79	67 - 130
1,2-Dichloroethane-d4 (Surr)	106	67 - 130

Client: Crawford Consulting Inc | Job Number: 720-20572-1

Client Sample ID: **DUP-1**

Lab Sample ID: 720-20572-5FD | Date Sampled: 06/11/2009 0000
Client Matrix: Water | Date Received: 06/11/2009 1330

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B | Analysis Batch: 720-52225 | Instrument ID: Chemstation 3.0 on 95PC
Preparation: 5030B | Lab File ID: 06150919.D
Dilution: 50 | Initial Weight/Volume: 10 mL
Date Analyzed: 06/15/2009 1854 | Final Weight/Volume: 10 mL
Date Prepared: 06/15/2009 1854

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	ND		25
1,1-Dichloroethane	ND		25
Dichlorodifluoromethane	ND		25
Vinyl chloride	ND		25
Chloroethane	ND		50
Trichlorofluoromethane	ND		50
Methylene Chloride	ND		250
trans-1,2-Dichloroethene	ND		25
cis-1,2-Dichloroethene	ND		25
Chloroform	ND		50
1,1,1-Trichloroethane	ND		25
Carbon tetrachloride	ND		25
1,2-Dichloroethane	ND		25
Trichloroethene	ND		25
1,2-Dichloropropane	ND		25
Dichlorobromomethane	ND		25
trans-1,3-Dichloropropene	ND		25
cis-1,3-Dichloropropene	ND		25
1,1,2-Trichloroethane	ND		25
Tetrachloroethene	1700		25
Chlorodibromomethane	ND		25
Chlorobenzene	ND		25
Bromoform	ND		50
1,1,2,2-Tetrachloroethane	ND		25
1,3-Dichlorobenzene	ND		25
1,4-Dichlorobenzene	ND		25
1,2-Dichlorobenzene	ND		25
Chloromethane	ND		50
Bromomethane	ND		50
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		25
EDB	ND		25
1,2,4-Trichlorobenzene	ND		50

Surrogate	%Rec	Acceptance Limits
Toluene-d8 (Surr)	90	70 - 130
4-Bromofluorobenzene	77	67 - 130
1,2-Dichloroethane-d4 (Surr)	100	67 - 130

Client: Crawford Consulting Inc

Job Number: 720-20572-1

Client Sample ID: **TB-1**

Lab Sample ID: 720-20572-6TB
Client Matrix: Water

Date Sampled: 06/11/2009 0000
Date Received: 06/11/2009 1330

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B
Preparation: 5030B
Dilution: 1.0
Date Analyzed: 06/15/2009 1926
Date Prepared: 06/15/2009 1926

Analysis Batch: 720-52225

Instrument ID: Chemstation 3.0 on 95PC
Lab File ID: 06150920.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

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

Surrogate	%Rec	Acceptance Limits
Toluene-d8 (Surr)	89	70 - 130
4-Bromofluorobenzene	77	67 - 130
1,2-Dichloroethane-d4 (Surr)	105	67 - 130

DATA REPORTING QUALIFIERS

Lab Section	Qualifier	Description

Client: Crawford Consulting Inc

Job Number: 720-20572-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-52225					
LCS 720-52225/3	Lab Control Sample	T	Water	8260B	
LCSD 720-52225/4	Lab Control Sample Duplicate	T	Water	8260B	
MB 720-52225/5	Method Blank	T	Water	8260B	
720-20572-1	MW-1	T	Water	8260B	
720-20572-2	MW-2	T	Water	8260B	
720-20572-3	MW-3	T	Water	8260B	
720-20572-4	MW-4	T	Water	8260B	
720-20572-5FD	DUP-1	T	Water	8260B	
720-20572-6TB	TB-1	T	Water	8260B	

Report Basis

T = Total

Client: Crawford Consulting Inc

Job Number: 720-20572-1

Method Blank - Batch: 720-52225

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 720-52225/5
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/15/2009 1102
Date Prepared: 06/15/2009 1102

Analysis Batch: 720-52225
Prep Batch: N/A
Units: ug/L

Instrument ID: Chemstation 3.0 on 95PC
Lab File ID: 06150905.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)	94	70 - 130
4-Bromofluorobenzene	87	67 - 130
1,2-Dichloroethane-d4 (Surr)	106	67 - 130

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

Client: Crawford Consulting Inc

Job Number: 720-20572-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-52225

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-52225/3	Analysis Batch:	720-52225	Instrument ID:	Chemstation 3.0 on 95PC
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	06150903.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	06/15/2009 0958			Final Weight/Volume:	10 mL
Date Prepared:	06/15/2009 0958				

LCSD Lab Sample ID:	LCSD 720-52225/4	Analysis Batch:	720-52225	Instrument ID:	Chemstation 3.0 on 95PC
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	06150904.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	06/15/2009 1030			Final Weight/Volume:	10 mL
Date Prepared:	06/15/2009 1030				

	% Rec.					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
1,1-Dichloroethene	111	113	76 - 128	2	20		
Trichloroethene	118	122	72 - 138	3	20		
Chlorobenzene	109	115	80 - 122	5	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
Toluene-d8 (Surr)	95	96	70 - 130
4-Bromofluorobenzene	99	103	67 - 130
1,2-Dichloroethane-d4 (Surr)	96	98	67 - 130

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

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

720-20572

CHAIN OF CUSTODY / LABORATORY ANALYSIS REQUEST FORM

Service Request: 117053 Date: 6/11/09

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

Sampler's Signature:

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 with HCL**	TPHgBTEX 2 x 40 ml vial HCl			REMARKS
MW-1	6/11/09	1135	1	water	3							X				
MW-2	6/11/09	1220	2	water	3							X				
MW-3	6/11/09	1059	3	water	3							X				
MW-4	6/11/09	0938	4	water	3							X				
DUP-1	6/11/09	—	5	Water	3							X				
TB-1	6/11/09	—	6	water	3							X				

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Relinquished By	Received By
Signature:	Signature:
Printed Name: Ruben Guevara	Printed Name: TASF
Firm: ESI	Firm:
Date/Time: 6/11/09 1330	Date/Time: 6/11/09 - 1330
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/TRACE#)

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

5.4°C

Login Sample Receipt Check List

Client: Crawford Consulting Inc

Job Number: 720-20572-1

Login Number: 20572

List Source: TestAmerica San Francisco

Creator: Hoang, Julie

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