



GROUNDWATER MONITORING REPORT FOR 2013

**BENTLEY MALL EAST SATELLITE, ADEC #102.38.122
FAIRBANKS, ALASKA**

**TAX LOT 217, SECTION 2,
TOWNSHIP 1 SOUTH, RANGE 1 WEST**

March 3, 2014

Prepared for:

Alaska Department of Environmental Conservation
Northern Regional Office
Division of Spill Prevention and Response
Contaminated Sites Program
610 University Avenue
Fairbanks, Alaska 99709

Prepared by:

Environmental Resource Group, Inc.
1038 Redwood Highway, Suite 1
Mill Valley, CA 94941

TABLE OF CONTENTS

<u>SUBJECT</u>	<u>PAGE</u>
1.0 INTRODUCTION	1
2.0 BACKGROUND	1
3.0 GROUNDWATER SAMPLING.....	2
4.0 LABORATORY ANALYSES	2
4.1 Halogenated Compounds and Monitored Natural Attenuation Parameters...	2
4.2 Quality Assurance/Quality Control: Accutest Laboratories	3
4.3 Compound Specific Isotopic Analysis.....	4
4.4 Quality Assurance/Quality Control: Microseeps	5
4.5 Quality Assurance/Quality Control: SunStar Laboratories.....	5
5.0 WELL SURVEY	6
6.0 GROUNDWATER ANALYTICAL RESULTS	6
6.1 Halogenated Volatile Organic Compounds	6
6.2 Compound Specific Isotopic Analysis.....	8
6.3 PCE and TCE Trends.....	9
6.4 Monitored Natural Attenuation.....	10
7.0 RECOMMENDATIONS	13
8.0 REFERENCES	14
9.0 SIGNATURE PAGE	16

TABLE:

Table 1 PCE and TCE Results for Groundwater Samples, 2013

GRAPHS:

- Graph 1 Historical Groundwater Analytical Results for Wells MW-1, MW-2 and MW-4
- Graph 2 Historical Groundwater Analytical Results for Wells SW-2 and SW-4 to SW-8
- Graph 3 Historical Groundwater Analytical Results for Wells MW-5, MW-6 and MW-7
- Graph 4 Historical Groundwater Analytical Results for Wells MW-8, MW-9 and MW-10
- Graph 5 Historical Groundwater Analytical Results for Wells MW-11, MW-12 and MW-13

TABLE OF CONTENTS (CONTINUATION)

APPENDICES:

Appendix A	Figures
Appendix B	Historical Groundwater Analytical Results
Appendix C	Field Data Sheets
Appendix D	Laboratory Analytical Reports
Appendix E	Laboratory Data Review Checklists
Appendix F	Well Survey Report

1.0 INTRODUCTION

This report was prepared by Environmental Resource Group, Inc. (ERG) on behalf of Rawson, Blum and Company (Rawson & Blum) to document groundwater sampling performed in 2013 at the Bentley Mall East Satellite in Fairbanks, Alaska. The site is referenced by the Alaska Department of Environmental Conservation (ADEC) as Bentley Mall East Satellite, ADEC File #102.38.122. The Bentley Mall is improved with the main mall complex in the northern portion, and several satellite buildings in the southern portion of the property. A site vicinity map is presented in Figure A-1 in **Appendix A**.

2.0 BACKGROUND

In April 2003, ADEC added the Bentley Mall to the State's Contaminated Sites Database based on the occurrence of soil and groundwater impact by tetrachloroethene (PCE) and trichloroethene (TCE) near the East Satellite and Wells Fargo Bank buildings in the southern portion of the Bentley Mall property.

The *Bentley Mall Site Characterization Report* (ARES, April 2006) summarizes site history and soil and groundwater investigations completed at the Bentley Mall and vicinity. A historical release of PCE and TCE was alleged in the vicinity of the East Satellite and Wells Fargo Bank buildings. Thirteen (13) groundwater monitoring wells, designated MW-1 to MW-13, were installed in September and October 2005. A plume of groundwater impacted by PCE and TCE was identified encompassing the satellite buildings and extending off-site in the general direction of groundwater flow. Groundwater surface elevations and modeling indicated groundwater flows westward with a gradient of approximately 0.0019 vertical feet/horizontal feet (ARES, April 2006).

In September 2006, a soil vapor extraction (SVE) system was installed in the area of the East Satellite and Wells Fargo Bank buildings. The system included sixteen (16) air sparge wells (SW-1 to SW-16) and nine (9) vapor extraction wells (VE-1 to VE-9) along with underground utilities to connect the wells to remediation equipment. System installation was documented in the *Air-Sparging and Vapor-Extraction System Installation and Start-Up Report* (ARES, January 2007). The system layout is presented in Figure A-2, **Appendix A**.

The SVE system operated for five (5) years, from September 2006 to September 2011. By letter dated August 31, 2011, ADEC conditionally approved the shut-down of the SVE system and cessation of active remediation. Although the site had not achieved ADEC cleanup levels outlined in the Record of Decision of March 1, 2007, ADEC approved with conditions a revised cleanup plan and long-term groundwater monitoring plan as proposed by ERG (May 27, 2011), *Schedule, East Satellite Building Site, Bentley Mall*. Groundwater monitoring details were presented in *Groundwater Monitoring Report for September to December 2010, Bentley Mall* (ERG, January 2011). Historical groundwater data are presented in **Appendix B**.

3.0 GROUNDWATER SAMPLING

Two (2) groundwater monitoring events were conducted in 2013: the first one on June 21 and 22, and the second on October 2, 3 and 4. For June 2013, groundwater samples were collected from groundwater monitoring wells MW-1, MW-2, and MW-4, and sparge wells SW-2, SW-4 to SW-8, SW-12, and SW-15. For October 2013, groundwater samples were collected from groundwater monitoring wells MW-1, MW-2, MW-4 to MW-7, MW-9, MW-11, MW-12, and MW-13, and sparge wells SW-2, SW-4 to SW-8, SW-12, and SW-15.

Groundwater sampling generally followed ADEC's *Field Sampling Guidance* dated May 2010, and the groundwater monitoring plan in ERG (January 2011; May 27, 2011). Each well was first purged and then sampled using a peristaltic pump. Dissolved oxygen, temperature, conductivity, and salinity of the well water were recorded using water quality meters. Groundwater samples were collected into laboratory-supplied containers. The containers were labeled and placed in coolers for laboratory analyses submittal. Chain of custody protocol was followed in the transfer of the sample coolers to the laboratory. The field data sheets are presented in **Appendix C**.

Scheduled for sampling in October 2013, wells MW-8 and MW-10 were inaccessible during the October 2013 sampling event. These two (2) groundwater monitoring wells are located in public right-of-way in the Charles Slate subdivision, west to northwest of the Bentley Mall. In October 2013, field personnel discovered that well MW-8 was damaged and the top of the well had been broken-off as a result of recent municipal road construction. Well MW-10 was not evident inasmuch as the area of the well had been graded over. Furthermore, the top of the well casing and well box of each of wells MW-9 and MW-11 were discovered to have been altered by road construction. Despite the alteration, however, wells MW-9 and MW-11 were accessible for groundwater sampling in October 2013.

4.0 LABORATORY ANALYSES

For June and October 2013, groundwater samples were submitted for laboratory analyses to Accutest Laboratories – Northern California (Accutest) of San Jose, California. A duplicate set of groundwater samples, collected in June 2013 from wells MW-1, MW-2 and SW-5, was submitted for compound specific isotopic analysis (CSIA) to Microseeps, Inc. (Microseeps) of Pittsburgh, Pennsylvania. The analytical reports for 2013 are presented in **Appendix D**.

4.1 Halogenated Compounds and Monitored Natural Attenuation Parameters

The groundwater samples submitted to Accutest were analyzed for six (6) halogenated volatile organic compounds (VOCs) by Environmental Protection Agency (EPA) Method 8260B. The halogenated compounds were tetrachloroethene (PCE), trichloroethene (TCE), cis 1,2-dichloroethene (cis 1,2-DCE), trans 1,2-dichloroethene (trans 1,2-DCE), chloroform,

and vinyl chloride (VC). The groundwater samples were also analyzed for the following chemical parameters:

- Methane, ethene, and ethane by RSK Method 175;
- Total organic carbon (TOC) by EPA Method 415.3;
- Total iron by EPA Method 6010B;
- Total alkalinity as CaCO₂ by SM Method 18-2320B;
- Chloride by EPA Method 300/SW846 9056A;
- Sulfide by EPA Method SM18 4500SD; and
- pH by SM Method 18 4500HB.

4.2 Quality Assurance/Quality Control: Accutest Laboratories

As part of quality assurance/quality control (QA/QC), duplicates from each of wells MW-1 and MW-2, designated DUP1 and DUP2, respectively, were collected in June 2013. Duplicates from each of wells MW-1 and MW-13 (DUP1 and DUP2 respectively) were collected in October 2013. The duplicates were analyzed along with the primary samples for halogenated VOCs via EPA 8260B and the chemical parameters listed in Section 4.1 above.

Except for iron in the October 2013 sampling event, the relative percentage difference (RPD) was less than thirty percentage (30%) for the duplicate pairs and met QA/QC limits. For October 2013, the RPD for the iron analytical results was 38% for the MW-1/DUP1 pair, and 85% for the MW-13/DUP2 pair.

Based on results expressed in micrograms per liter ($\mu\text{g/L}$), the RPDs for PCE and TCE were calculated as follows:

June 2013 Sampling Event:

MW-1/DUP1 Pair: PCE: $(300 - 255) / \{(300 + 255/2)\} \times 100\% = 16.22\%$
TCE: $(2.2 - 2.1) / \{(2.2 + 2.1/2)\} \times 100\% = 4.65\%$

MW-2/DUP2 Pair: PCE: $(181 - 173) / \{(181 + 173/2)\} \times 100\% = 4.52\%$
TCE: $(1.0 - 1.0) / \{(1.0 + 1.0/2)\} \times 100\% = 0.00\%$

October 2013 Sampling Event:

MW-1/DUP1 Pair: PCE: $(425 - 365) / \{(425 + 365/2)\} \times 100\% = 15.19\%$
TCE: $(3.0 - 2.9) / \{(3.0 + 2.9/2)\} \times 100\% = 3.39\%$

MW-13/DUP2 Pair: PCE: $(14.8 - 13.8) / \{(14.8 + 13.8/2)\} \times 100\% = 6.99\%$
TCE: primary and duplicate both ND<0.20, ~ 0.00%

Trip blanks, prepared and supplied by Accutest, accompanied the groundwater samples from the site to the laboratory. The trip blanks were analyzed for halogenated VOCs via EPA Method 8260B. The analytical results indicated no detectable levels of halogenated VOCs above laboratory method detection limits, 0.20 to 0.30 µg/L.

Accutest followed internal laboratory QA/QC protocols that included analyses of blanks, laboratory control samples (LCSs), duplicates, and surrogates. The laboratory QA/QC results indicated no significant effect on the sample analytical quality. The laboratory reports were certified by Accutest. **Appendix E** presents the Laboratory Data Review Checklists for 2013. The checklists confirm that, in general, the analytical data quality and usability were acceptable, although the following anomalies were noted:

- The laboratory-based analyses for pH were performed past the hold time specified for pH analysis of water samples. According to the laboratory analyses report, the groundwater samples collected on June 21 and 22 were received by Accutest and analyzed for pH on June 25. The groundwater samples collected on October 2, 3 and 4, were received by Accutest and analyzed for pH on October 10. Although the pH results are in the historical range, the accuracy of the pH results may have been compromised inasmuch as the standard protocol is to perform pH analysis immediately following sampling.
- The iron detections reported in many of the groundwater samples are considered to have limited usability and are open to interpretation because of the sampling and analytical methods. Groundwater for iron analysis was collected in June and October 2013 unfiltered and placed into sample containers supplied by the laboratory with acid preservative. Because groundwater was not filtered, there is the potential that sediments in suspension in groundwater reacted with the acid preservative to release sediment-bound iron into solution. The groundwater samples were not analyzed for ferrous iron and therefore, the redox state of iron in solution could not be evaluated.
- For October 2013, the laboratory analysis for sulfide of those samples collected on October 2 was performed up to 1.5 days past the hold time of seven (7) days specified for sulfide analysis. Given the non-detectable results, and small excess of the hold time, the potential effect on the analytical results is not considered to be significant.

4.3 Compound Specific Isotopic Analysis

A separate set of groundwater samples was collected on June 22, 2013 from wells MW-1, MW-2 and SW-5 and submitted to Microseeps for compound specific isotopic analysis (CSIA). The groundwater samples were also analyzed by Microseeps for PCE, TCE, and cis 1,2-DCE via EPA Method 8260B. CSIA via mass spectrometry was performed on each sample for carbon and chlorine isotope characterization. After confirming that PCE was the prevalent halogenated compound in the samples, Microseeps evaluated and interpreted the

carbon and chlorine isotopic analytical results of PCE for evidence of chemical biodegradation and source characterization (**Appendix D**).

4.4 Quality Assurance/Quality Control: Microseeps

As part of QA/QC, a duplicate sample from well MW-1, designated DUP1, was collected and submitted to Microseeps along with the primary sample from well MW-1. The EPA 8260B and CSIA results of the duplicate pair MW-1/DUP1 met QA/QC limits with a calculated RPD of less than 30%. Furthermore, the PCE, TCE and cis 1,2-DCE analytical results, as reported by Microseeps, resembled the corresponding analytical results of the samples from wells MW-1, MW-2 and SW-5 analyzed by Accutest (**Appendix D**).

Based on CSIA results of PCE expressed in $\delta^{13}\text{C}$ and $\delta^{37}\text{Cl}$, the RPDs for the MW1/DUP1 pair were calculated as follows:

$$\begin{aligned} \text{PCE } \delta^{13}\text{C}: & \{29.66 - 29.47\} / \{(29.66 + 29.47)/2\} \times 100\% = 0.64\% \\ \text{PCE } \delta^{37}\text{Cl}: & (1.6 - 1.5) / \{(1.6 + 1.5)/2\} \times 100\% = 6.45\% \end{aligned}$$

Laboratory blanks, control samples, duplicates, and surrogates analyzed by Microseeps were all close to or within acceptance range. Microseeps certified the laboratory analyses results and concluded that the data as reported was valid and representative of the samples as received. **Appendix E** presents the Laboratory Data Review Checklist for Microseeps.

4.5 Quality Assurance/Quality Control: SunStar Laboratories

As requested by ADEC in their letter of March 4, 2013, Laboratory Data Review Checklists for the two (2) groundwater sampling events completed in the prior year, 2012, are included in **Appendix E**. The groundwater sampling events took place in May and September 2012. The laboratory used in 2012 was SunStar Laboratories, Inc. of Lake Forest, California (ERG, January 25, 2013; August 30, 2012).

A review of the chain of custody records and laboratory receipt forms for each set of samples indicated the custody was not breached, and sample hold times were met. However, the samples for May 2012 arrived at the analytical laboratory at a temperature (7.2°C) slightly above the range criteria ($4^\circ \pm 2^\circ\text{C}$). The analyses listed on the COC were conducted as requested, and the relevant laboratory QA/QC data were met. There were no significant sampling-handling anomalies affecting the groundwater sample integrity.

The laboratory reporting limits for each of the analytes measured in groundwater samples were below cleanup levels. There were no analyte detections above reporting limits in the trip or method blanks to affect the analytical results of the groundwater samples.

For May 2013, the LCSs and surrogate recoveries were within control limits, indicating the results are accurate. Field duplicates were analyzed to evaluate the precision of analytical results and the reproducibility of the sampling technique. The calculated RPDs for the duplicates with results above reporting limits were within control limits. The LCS/LCSD RPDs were also within QA/QC precision limits.

For September 2013, most of the LCS and surrogate recoveries were within control limits. Those results outside control limits were flagged and reconciled by the laboratory; the results were deemed sufficiently accurate. The calculated RPDs for duplicates with results above reporting limits were within control limits. Most of the LCS/LCSD RPDs were also within QA/QC precision limits. Those RPDs outside control limits were flagged and reconciled by the laboratory, and the results were sufficiently precise.

5.0 WELL SURVEY

Between October 11 and 23, 2013, RCH Surveys, LTD (RCH) of Fairbanks, Alaska surveyed the groundwater monitoring wells and a selection of sparge wells associated with the Bentley Mall East Satellite Case. The wells surveyed by RCH were wells MW-1 to MW-13, and wells SW-2, SW-4 to SW-8, SW-12, and SW-15. The horizontal coordinates were surveyed relative to North American Datum 83 (NAD83, 2011) coordinates and geographical positions. The elevation of the top of the polyvinyl casing of each well was surveyed using a local N.G.S. Station with defined North American Vertical Datum 88 (NAVD88). RCH also surveyed the elevation of the top of the well box casing and the ground surface at each well. The well survey report by RCH is presented in **Appendix F**.

6.0 GROUNDWATER ANALYTICAL RESULTS

The groundwater sampling results for 2013 are presented and discussed below. The analytical results for halogenated VOCs (PCE, TCE, cis 1,2-DCE, trans 1,2-DCE, chloroform, and VC), RSK Method 175 (methane, ethane, and ethane), and TOC are summarized along with the historical data in **Appendix G**: Table B-1 for the groundwater monitoring wells, and in Table B-2 for the sparge wells.

The CSIA results of the groundwater samples collected in June 2013 from wells MW-1, MW-2 and SW-5 are presented in reports issued by Microseeps in **Appendix D**.

6.1 Halogenated Volatile Organic Compounds

As in past groundwater sampling, PCE was the predominant halogenated VOC detected in the groundwater samples for 2013. The groundwater analytical results for June 2013 and October 2013 are summarized below in **Table 1**. Maximum PCE results were reported in on-site wells SW-5 (1,210 µg/L), MW-1 (425 µg/L), MW-2 (279 µg/L), SW-6 (194 µg/L), and SW-7 (141 µg/L), and off-site wells MW-12 (396 µg/L), MW-5 (173 µg/L).

TCE was detected in the majority of the wells sampled in 2013 (**Table 1**). Maximum TCE results were reported in groundwater sampled from wells MW-12 (32.8 µg/L), MW-5 (28.7 µg/L), MW-4 (14.4 µg/L), and SW-7 (10.7 µg/L).

Except for wells MW-7, SW-2, SW-12, and SW-15, the PCE results for 2013 exceed the ADEC cleanup level of 5 µg/L. The TCE results in excess of the corresponding ADEC cleanup level of 5 µg/L are evident at wells MW-4, MW-5, MW-6, MW-12, and SW-7 (**Table 1**).

With respect to halogenated compounds, traces of isomers of dichloroethene were reported in the groundwater monitoring wells MW-6 (6.3 µg/L cis 1,2-DCE), MW-7 (4.3 µg/L cis 1,2-DCE), MW-5 (3.2 µg/L cis 1,2-DCE), MW-9 (1.4 µg/L cis 1,2-DCE and 0.61 µg/L trans 1,2-DCE), MW-4 (0.73 µg/L cis 1,2-DCE and 1.1 µg/L trans 1,2-DCE), MW-12 (1.8 µg/L cis 1,2-DCE), and MW-11 (1.1 µg/L cis 1,2-DCE).

For 2013, traces of dichloroethene were also reported in sparge wells SW-8 (0.69 µg/L cis 1,2-DCE and 0.33 µg/L trans 1,2-DCE), MW-12 SW-5 (0.60 µg/L cis 1,2-DCE), SW-6 (0.47 µg/L cis 1,2-DCE), SW-7 (0.46 µg/L cis 1,2-DCE), SW-4 (0.42 µg/L cis 1,2-DCE), SW-15 (0.40 µg/L cis 1,2-DCE and SW-12 (0.38 µg/L cis 1,2-DCE).

Traces of chloroform were detected in groundwater monitoring wells MW-1 (15.1 µg/L), MW-2 (10.9 µg/L), MW-5 (3.7 µg/L), MW-6 (3.1 µg/L), MW-12 (1.7 µg/L), MW-13 (0.77 µg/L), and MW-9 (0.22 µg/L). For 2013, chloroform was detected in trace amounts in sparge wells SW-4 (6.9 µg/L), SW-2 (6.6 µg/L), SW-12 (2.4 µg/L), SW-5 (2.2 µg/L), SW-6 (1.2 µg/L), SW-7 (0.92 µg/L), SW-8 (0.26 µg/L), and SW-15 (0.38 µg/L). Vinyl chloride was only detected (0.20 µg/L) in the October 2013 groundwater sample from well MW-7 (**Appendix D**).

The groundwater analytical results for 2013 for dichloroethene, chloroform and vinyl chloride generally compare to past analytical results. For 2013, the groundwater samples met ADEC's cleanup levels of 70 µg/L for cis 1,2-dichloroethene, 100 µg/L for trans 1,2-DCE, 140 µg/L for chloroform, and 2 µg/L for vinyl chloride.

Table 1: PCE and TCE Results for Groundwater Samples, 2013

Well	Date Sampled	PCE (µg/L)	TCE (µg/L)
MW-1	06/22/13	300	2.2 J
	10/02/13	425	3.0 J
MW-2	06/22/13	181	1.0 J
	10/02/13	279	1.4 J
MW-4	06/22/13	51.0	14.4
	10/02/13	56.9	5.7
MW-5	10/02/13	173	28.7
MW-6	10/02/13	61.5	6.5
MW-7	10/02/13	1.7	2.0
MW-9	10/03/13	15.1	3.3
MW-11	10/03/13	8.0	2.8
MW-12	10/03/13	396	32.8
MW-13	10/03/13	14.8	ND <0.20
SW-2	06/22/13	2.5	ND <0.20
	10/03/13	4.0	ND <0.20
SW-4	06/22/13	5.3	ND <0.20
	10/03/13	7.8	ND <0.20
SW-5	06/22/13	235	0.69 J
	10/03/13	1,210	ND <4.0
SW-6	06/22/13	188	ND <0.80
	10/03/13	194	1.9 J
SW-7	06/22/13	139	6.2
	10/03/13	141	10.7
SW-8	06/22/13	7.2	1.0
	10/03/13	10.8	1.5
SW-12	06/22/13	9.1	0.28 J
	10/03/13	1.2 J	0.30 J
SW-15	06/22/13	0.32 J	0.34 J
	10/03/13	0.35 J	0.32 J
ADEC Groundwater Cleanup Levels		5	5

Table Notes:

µg/L: Micrograms per liter

ND <0.20: Not detected at or above the laboratory method detection limit

J: Estimated value

Sample results above ADEC cleanup levels (ADEC, October 9, 2008) are shaded

6.2 Compound Specific Isotopic Analysis

In June 2013, groundwater samples from wells MW-1, MW-2 and SW-5 were collected and submitted to Microseeps for compound specific isotopic analysis (CSIA). The isotopic composition of carbon ($\delta^{13}\text{C}$) and chlorine ($\delta^{37}\text{Cl}$) in PCE was evaluated for possible evidence of PCE degradation. In addition, the $\delta^{13}\text{C}$ and $\delta^{37}\text{Cl}$ data for PCE in the groundwater sample from well MW-1 were compared with the corresponding data for the groundwater samples from wells MW-2 and SW-5. **Appendix D** includes the laboratory

analyses reports issued by Microseeps. As discussed in Microseeps (July 2009), the isotopic composition of carbon and chlorine in PCE is a function of PCE degradation and source.

The evaluation of the $\delta^{13}\text{C}$ and $\delta^{37}\text{Cl}$ results of groundwater samples from wells MW-1, MW-2 and SW-5 are presented in the Microseeps report dated August 23, 2012, **Appendix D**. The PCE $\delta^{13}\text{C}$ of the groundwater samples all lie within a narrow range of -29.94 ± 0.51 ‰. This implies that based on $\delta^{13}\text{C}$ alone, the samples were indistinguishable. Based on the heaviest reported $\delta^{13}\text{C}$ for undegraded PCE of -23.2 ‰, the PCE $\delta^{13}\text{C}$ data suggest little or no PCE degradation and no evidence for robust biodegradation in the well field represented by wells MW-1, MW-2 and SW-5. PCE $\delta^{37}\text{Cl}$ versus PCE $\delta^{13}\text{C}$ shows that the groundwater samples from wells MW-2 and SW-5 plot together in an area of the $\delta^{37}\text{Cl}$, $\delta^{13}\text{C}$ space that is separate from the area where the groundwater samples from well MW-1 plot. Modeling the change in $\delta^{37}\text{Cl}$, $\delta^{13}\text{C}$ with progressive degradation of starting material represented by MW-2 or SW-5, residual PCE would have progressively lighter $\delta^{37}\text{Cl}$ and $\delta^{13}\text{C}$. The model degradation trajectory in the $\delta^{37}\text{Cl}$, $\delta^{13}\text{C}$ space does not approach or intersect the MW-1 data. According to Microseeps, this observation strongly suggests that there is a different PCE source to MW-1 and the MW-2/SW-5 pair (**Appendix D**).

6.3 PCE and TCE Trends

The attached **Graph 1** to **Graph 5** present the plots of the historical PCE and TCE results of groundwater sampled from the groundwater monitoring wells and sparge wells.

Well MW-1: The June and October 2013 PCE results (425 $\mu\text{g/L}$ maximum) are in the historical upper range for well MW-1 (**Graph 1**). Increasing PCE, and the occurrence of TCE, began in 2010 – 2011. PCE reached a historical high of 850 $\mu\text{g/L}$ in September 2012. From September 2005 to June 2010, groundwater sampling results ranged from 2.4 to 46 $\mu\text{g/L}$ for PCE, and were ND (<1.0 $\mu\text{g/L}$) for TCE. The recent increase in PCE suggests a residual source is contributing to groundwater impact at well MW-1.

During the initial soil characterization of the Bentley Mall in March 2003, shallow soil samples were collected on the east and south sides of the East Satellite Building, in the vicinity of well MW-1. Expressed in micrograms per kilogram (mg/Kg), the soil analytical results identified PCE in shallow soils at approximately five (5) feet depth, suspected within the permafrost zone, namely 0.292 mg/Kg at field point E.S.2 and 0.242 mg/Kg at field point E.S.1 (ARES, April 2006; March 2003). The seasonal movement or infiltration of surface water and/or freeze/thaw cycles and changes in permafrost zone configuration, could bring shallow water in contact with residual soil-bound PCE and result in leaching of PCE. This increases the potential for groundwater impact if there are permeable soils or vertical conduits that facilitate the downward migration of the shallow water into the groundwater-bearing zone. The PCE pattern since 2010 – 2011 at well MW-1 (**Graph 1**) may indicate that the annular seal originally installed above the screened casing during well construction may be compromised or cracked, such as by freeze-thaw cycles, allowing surface water or

permafrost thaw water to cross-contaminate groundwater in the well. Alternatively, the rise in PCE in groundwater at well MW-1 may be indicative of a rebound effect to the SVE system shut-down, or else indicative of contributions from an unidentified source located upgradient of the well.

Wells MW-2 and MW-4: As shown in **Graph 1**, the historical PCE data for wells MW-2 and MW-4 show an overall decrease in PCE since groundwater sampling began in September 2005. A leveling-out of PCE levels is evident since 2010 – 2011. The most recent sampling (October 2013) indicated 56.9 µg/L PCE and 5.7 µg/L TCE in well MW-4, a significant decrease from historical highs of 400 µg/L PCE in 2006 and 98 µg/L TCE in 2009. October 2013 sampling for well MW-2 indicated 279 µg/L PCE and 1.4 µg/L TCE, below historical highs of 3,620 µg/L PCE and 15 µg/L TCE reached in 2005 – 2007.

Wells SW-4 to SW-8: **Graph 2** presents plots of the historical PCE data for sparge wells SW-4 to SW-8 located in the area that was the subject of air sparging and vapor extraction between September 2006 and September 2011. The data plots show mixed results in terms of PCE and TCE levels since the SVE system was shut-down in September 2011. The latest results for PCE of 7.8 µg/L at well SW-4, 194 µg/L at well SW-6, and 10.8 µg/L at well SW-8 are decreases from historical highs of 86.6 µg/L at well SW-4, 414 µg/L at well SW-6, and 22.8 µg/L at well SW-8, respectively. At well SW-2, PCE results for 2013 are in the historical range (ND<1.0 to 15 µg/L) since groundwater sampling began in October 2006.

PCE data for well SW-5 shows a decreasing trend from October 2006 to June 2010. After June 2010, the PCE pattern shows wide fluctuations, between 170 and 2,200 µg/L, resembling the PCE pattern for well MW-1 since 2010 – 2011. For well SW-7, PCE results for 2013 (141 µg/L) are within the historical range (27.5 to 200 µg/L PCE), and TCE results (10.7 µg/L) are below the historical high (193 µg/L) reached in 2006.

Off-Site Wells: **Graph 3**, **Graph 4** and **Graph 5** plot the historical PCE and TCE data for the off-site groundwater monitoring wells. A decreasing trend in PCE is noted in well MW-13, although wide fluctuations are evident in the overall trend. PCE and TCE levels at well MW-7 have decreased from historical highs in 2006, and appear to have flattened-out or stabilized to below ADEC's cleanup level of 5 µg/L.

Fluctuations with no clear long-term trends are noted in the PCE data, and to a lesser degree in the TCE data, for wells MW-5, MW-6, MW-9, MW-10, and MW-12. Located in the Charles Slater Subdivision, well MW-11 shows an apparent increasing trend in PCE and to a lesser extent in TCE, but with short-term fluctuations that suggest the increasing trend may not be sustained in the long term.

6.4 Monitored Natural Attenuation

In theory, the prevalent degradation mechanism for PCE is anaerobic degradation via dehalogenation. In dehalogenation, chlorine atoms are released, and PCE degrades sequentially to TCE, cis-1,2-DCE and trans-1,2-DCE, 1,1-DCE, and VC. VC eventually degrades to ethene, ethane, and carbon dioxide. The primary pathway for PCE degradation appears to be reductive dechlorination by microorganisms, which is the sequential removal of chlorine atoms from the PCE molecule (Wiedemeier et al, September 1998).

According to Wiedemeier et al (September 1998), strong evidence of anaerobic biodegradation of chlorinated organics in groundwater includes: occurrence of PCE degradation by-products (TCE, DCE, VC) in excess of PCE, dissolved oxygen (DO) of 0.1 mg/L or less, and occurrence of nitrate (0.3 mg/L), ferrous iron (10 mg/L), sulfate (2 mg/L), and methane (5 mg/L). DO is the most thermodynamically favored electron acceptor used by microbes for the biodegradation of organic carbon-bearing compounds, such as PCE. After depletion of DO, anaerobic microbes will use nitrate as an electron acceptor, followed by ferric iron, then sulfate, and finally carbon dioxide (methanogenesis).

A preliminary assessment of the halogenated VOCs and monitored natural attenuation data indicates that although there is evidence of PCE degradation and conditions that are conducive to PCE degradation, PCE degradation in the groundwater-bearing zone represented by the well field is not robust. This conclusion is collaborated by the CSIA performed on groundwater samples collected in June 2013 from wells MW-1, MW-2 and SW-5; refer to the Microseeps report dated August 23, 2013 in **Appendix D**.

The following discusses the five (5) geochemical parameters used by scientists to evaluate the effectiveness of monitored natural attenuation of PCE in groundwater.

Degradation By-Products of PCE

Inspection of the historical data for halogenated VOCs indicates groundwater in the well field is characterized by PCE in excess of its degradation by-products (TCE, DCE, VC). The preponderance of PCE, and paucity of TCE, DCE, and VC, suggest PCE degradation is not robust in the groundwater-bearing zone at the Bentley Mall. Furthermore, the groundwater analytical results typically indicate no detectable levels of ethane and ethane, end products of the PCE dechlorination process.

DO

The DO data for the Bentley Mall are field-based using a dissolved oxygen meter. A preliminary review of the data for 2005 to 2013 indicates DO levels in groundwater in the well field are generally in the 1 to 5 mg/L range. These relatively high DO levels are indicative of aerobic conditions, not conducive to anaerobic degradation of PCE.

Wiedemeier et al (September 1998) report that anaerobic bacteria generally cannot function at DO levels greater than about 0.5 mg/L.

Nitrate-Nitrite

After DO has been depleted in the microbiological treatment zone, nitrate may be used as an electron acceptor for anaerobic biodegradation of organic carbon via denitrification. The available data for the Bentley Mall indicate no significant levels of nitrate and nitrite in solution in groundwater sampled from the groundwater monitoring and sparge wells.

Sulfate

After DO and nitrate have been depleted in the treatment zone, sulfate may be used as an electron acceptor for anaerobic biodegradation. This process is termed sulfate reduction and results in the production of sulfide. Concentrations of sulfate greater than 20 mg/L may cause competitive exclusion of dechlorination (Wiedemeier et al, September 1998).

For the Bentley Mall, sulfate has generally not been found above detection limits and the data is not conclusive that anaerobic PCE degradation is significant in the groundwater-bearing zone as represented by the wells.

Methane

During methanogenesis, acetate is split to form carbon dioxide and methane, or carbon dioxide is used as an electron acceptor, and is reduced to methane. Methanogenesis generally occurs after oxygen, nitrate, and sulfate have been depleted in the treatment zone. The persistence of methane in groundwater is indicative of reducing conditions and conducive to PCE degradation (Wiedemeier et al, September 1998).

Methane levels in groundwater samples from the Bentley Mall have ranged up to 183 mg/L, and may suggest the local occurrence of methanogenesis in the groundwater-bearing zone as represented by the wells.

7.0 RECOMMENDATIONS

The following recommendations are made to address the comments made by ADEC in their letters of April 22 and March 4, 2013:

- Continue with the bi-annual groundwater monitoring frequency, and revise the groundwater monitoring plan as follows: (1) depth-to-water measurements of all wells to 0.01 foot accuracy and relative to the surveyed top of well casings; (2) groundwater sampling via low-flow method by field personnel trained in the use of state of the art equipment; (3) update groundwater purging, monitoring, and sampling protocols to meet ADEC recommendations; (4) groundwater analyses for EPA 8260B halogenated VOCs, RSK 175 methane, ethane, and ethane, modified EPA 8260 1,2-dioxane, and a selection of natural attenuation parameters; and (5) include in the reports ADEC Laboratory Data Review Checklists, tabulation of the historical groundwater data, and groundwater elevation contour maps.
- Complete a thorough evaluation of monitored natural attenuation in accordance with ADEC's *Monitored Natural Attenuation Guidance*. This evaluation should include a quality review to assess data gaps and inconsistencies or ambiguities, if any, in the historical data. Seasonal factors, well construction, well location, and field methods should be considered in evaluating the historical monitored natural attenuation data.
- Groundwater samples slated for ferrous iron and total iron analyses should be collected into unpreserved containers and submitted to the laboratory with instructions to first filter before performing the analysis in order to obtain the concentration of iron in solution.
- Perform an assessment of the existing condition of all wells at the Bentley Mall.
- Repair or otherwise properly abandon wells MW-8, MW-9, MW-10 and MW-11, damaged by recent road construction.
- Update the well survey to include wells not surveyed in October 2013.
- Prepare a site characterization workplan to evaluate whether the increase since 2010 of PCE at well MW-1 represents possible cross-contamination from a shallow residual source, a rebound effect from the SVE system shut-down, or contributions from an upgradient source. The results of compound specific isotopic analysis suggest a different source for the PCE in well MW-1 as compared to other wells, and this finding warrants evaluating the area upgradient of well MW-1 for a contributing source of groundwater-borne PCE.

8.0 REFERENCES

Alaska Department of Environmental Conservation (ADEC, November 22, 2013): *Indoor Air Sampling at Former Fed Meyers/Former Bentley Tax Lot 221.*

Alaska Department of Environmental Conservation (ADEC, April 22, 2013): *Re-opening of Bentley Mall East Satellite Site as a Contaminated Site*

Alaska Department of Environmental Conservation (ADEC, March 4, 2013): *2011 and 2012 Groundwater Monitoring and Indoor Air Sampling Reports: Site Management Transfer, Bentley Mall East Satellite (Tax Lot 217).*

Alaska Department of Environmental Conservation (ADEC, February 28, 2013): *Major VIP Cleaners, Inc., 510 Old Steese Hwy., Fairbanks, AK 99701; TL-228 Section 2, T1S-R1W.*

Alaska Department of Environmental Conservation (ADEC, August 31, 2011): *Request for Decommission the Soil Vapor Extraction Remediation System and Change the Cleanup and Long-Term Monitoring Plan at Bentley Mall East Satellite Building, Lots 217 and 225, Fairbanks, Alaska.*

Alaska Department of Environmental Conservation (ADEC, May 2010): *Draft Field Sampling Guidance.*

Alaska Department of Environmental Conservation (ADEC, October 9, 2008): *18 AAC 75, Oil and Other Hazardous Substances Pollution Control*, revised as of October 9, 2008.

Alaska Department of Environmental Conservation (ADEC, March 1, 2007): *Record of Decision, Bentley Mall East Satellite Building, Tax Lots 217 and 225, Fairbanks, Alaska.*

Alaska Resources and Environmental Services, LLC (ARES, January 2007): *Air-Sparging and Vapor-Extraction System Installation and Start-Up Report, Bentley Mall, Fairbanks, Alaska.*

Alaska Resources and Environmental Services, LLC (ARES, April 2006): *Bentley Mall Site Characterization Report, Tax Lot 217, Section 2, Township 1 South, Range 1 West, Fairbanks Meridian, Fairbanks, Alaska.*

Alaska Resources and Environmental Services, LLC (ARES, March 2003): *Phase II Environmental Site Assessment Report, Bentley Mall Complex, Fairbanks, Alaska.*

Environmental Resource Group, Inc. (ERG, January 25, 2013): *Second Semi-Annual Groundwater Monitoring Report for 2012, Bentley Mall, Fairbanks, Alaska, Tax Lot 217, Section 2, Township 1 South, Range 1 West.*

Environmental Resource Group, Inc. (ERG, August 30, 2012): *First Semi-Annual Groundwater Monitoring for 2012, Bentley Mall, Fairbanks, Alaska, Tax Lot 217, Section 2, Township 1 South, Range 1 West.*

Environmental Resource Group, Inc. (ERG, January 16, 2012): *Annual Groundwater Monitoring and Indoor Air Sampling Report for 2011, Bentley Mall, Fairbanks, Alaska, Tax Lot 217, Section 2, Township 1 South, Range 1 West.*

Environmental Resource Group, Inc. (ERG, May 27, 2011): *Schedule, East Satellite Building Site, Bentley Mall, Fairbanks, Alaska.*

Environmental Resource Group, Inc. (ERG, January 2011): *Groundwater Monitoring Report for September to December 2010, Bentley Mall, Fairbanks, Alaska, Tax Lot 217, Section 2, Township 1 South Range 1 West.*

Microseeps, Inc. (Microseeps, July 2009): *Compound Specific Isotope Analysis: The Science, Technology and Selected Examples from the Literature with Application to Fuel Oxygenates and Chlorinated Solvents*, authored by Robert J. Pirke, University of Pittsburgh Applied Research Center, Pittsburg, PA.

Environmental Protection Agency, Region 9 (EPA, November 2013): *Regional Screening Levels for Chemical Contaminants at Superfund Sites*. October 2004, updated November 2013.

Wiedemeier, Todd H., M.A. Swanson, D. E. Moutoux, E. K. Gordon, J. T. Wilson, B.H. Wilson, D.H. Kampbell, J. E. Hansen, P. Haas, and F.H. Chapelle (September 1998): *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater*, National Risk Management Research Laboratory, Office of Research and Development, United States Environmental Protection Agency, Cincinnati, Ohio, September 1998.

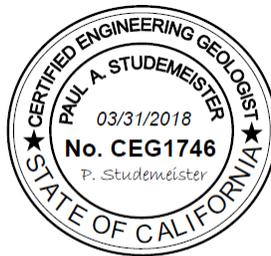
9.0 SIGNATURE PAGE

Please call us at 415-381-6574 if you have questions.

Best Regards
ENVIRONMENTAL RESOURCE GROUP



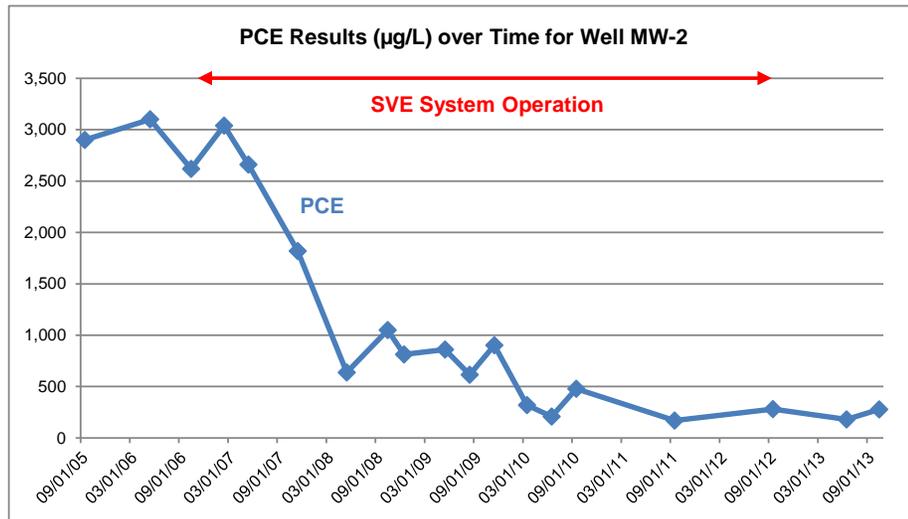
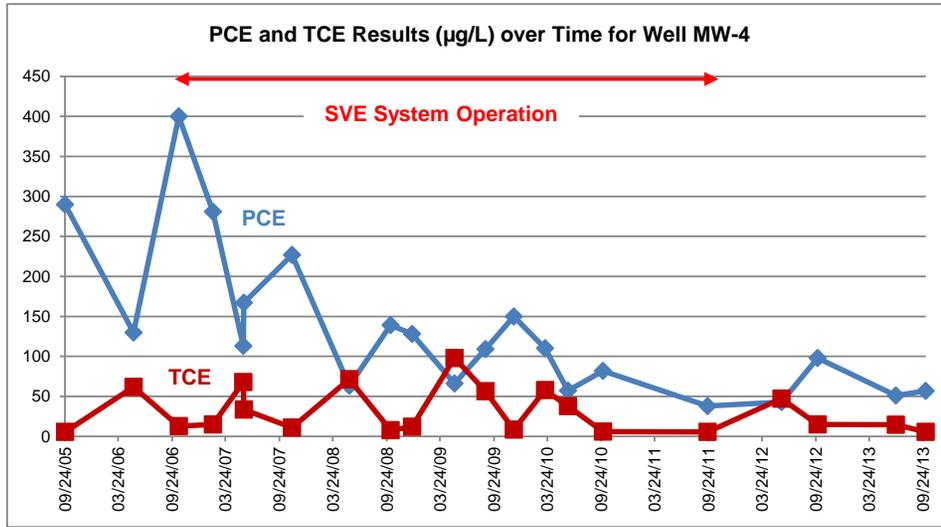
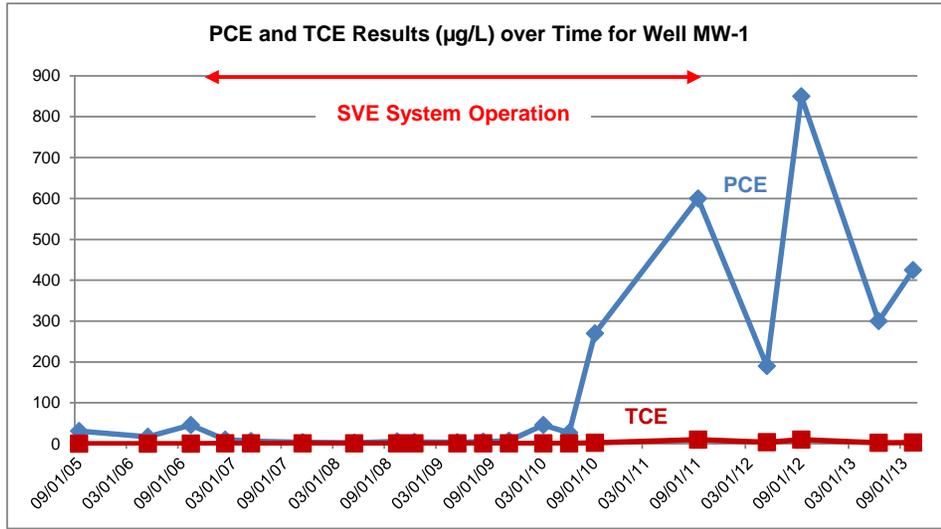
Benjamin Wells
President



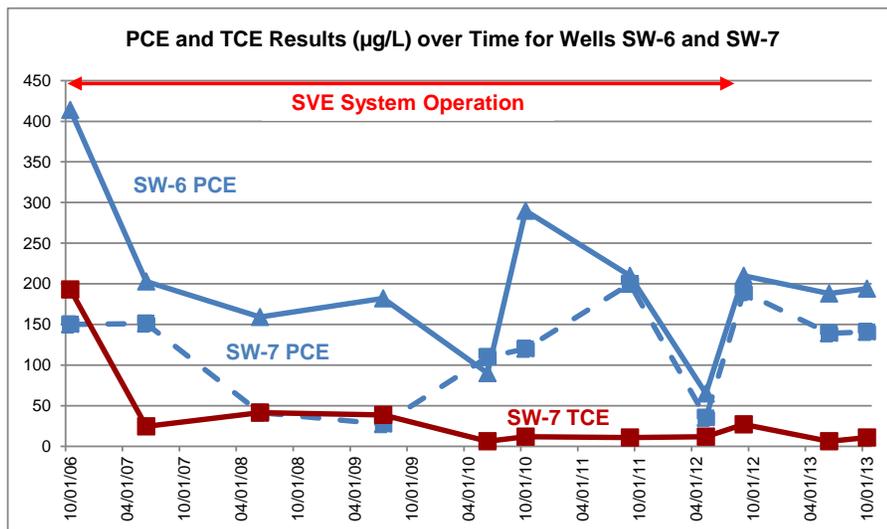
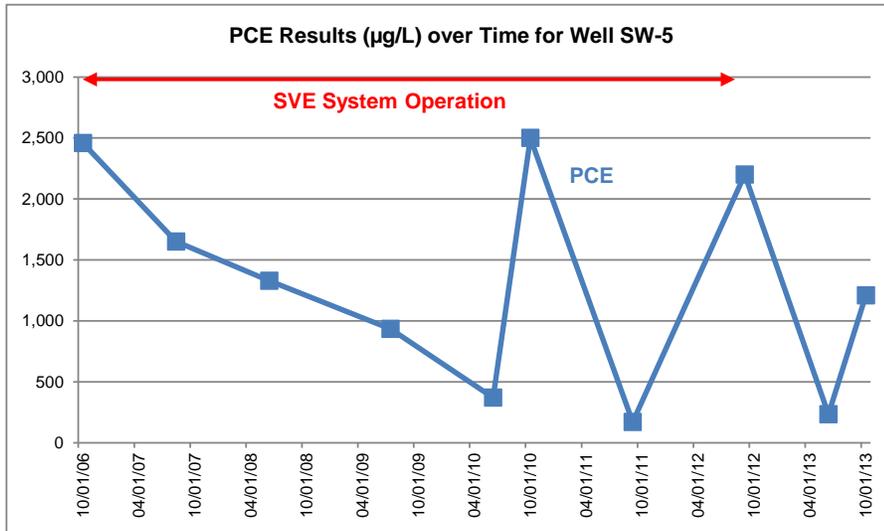
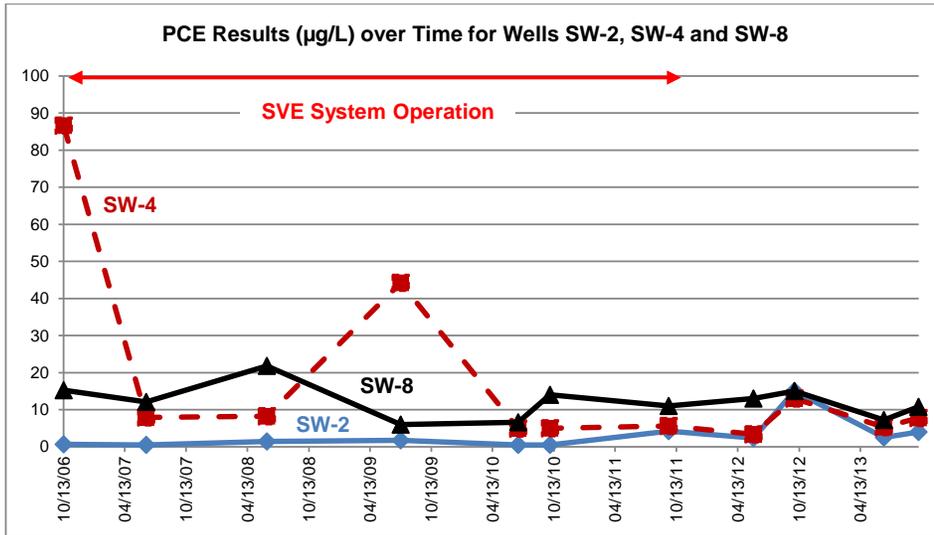
Paul Studemeister
Professional Geologist, California PG 4635

GRAPHS

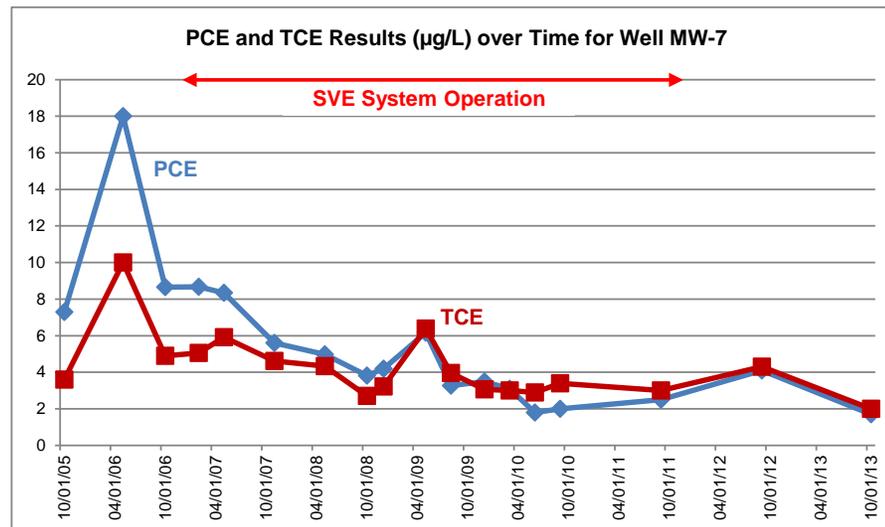
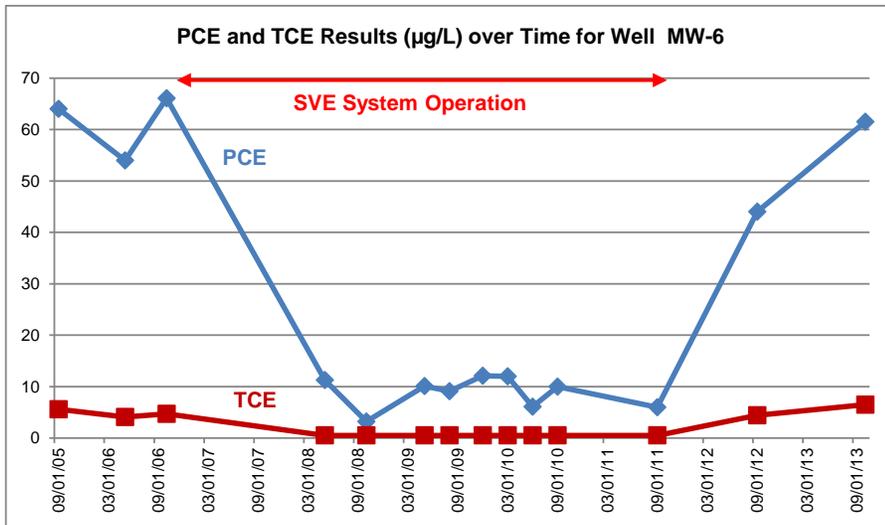
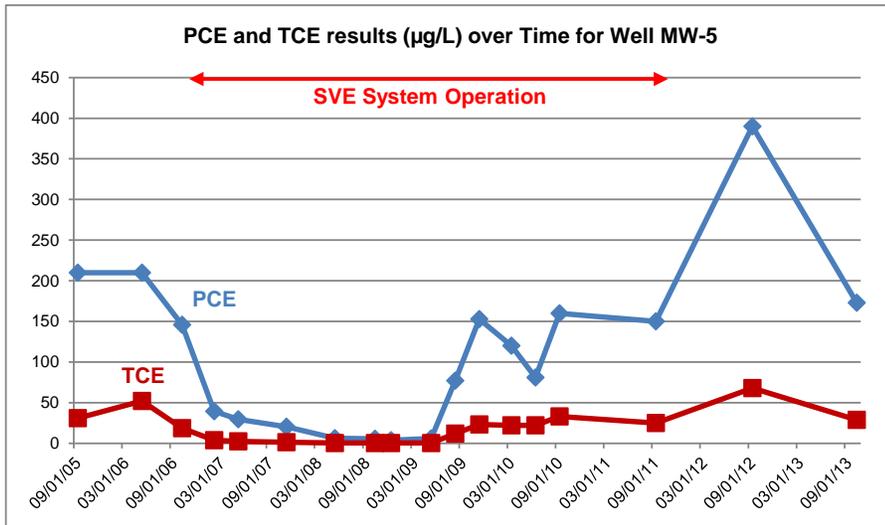
Graph 1: Historical Groundwater Analytical Results for Wells MW-1, MW-2, and MW-4, The Bentley Mall, Fairbanks, Alaska



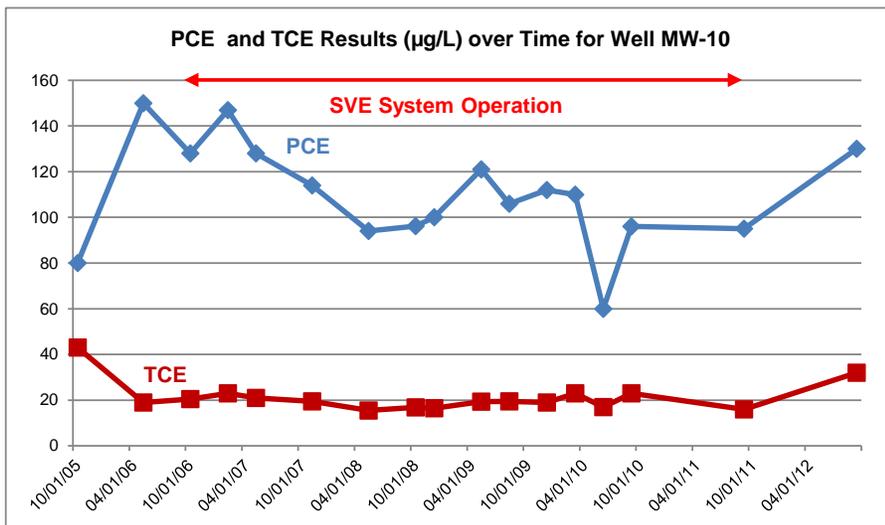
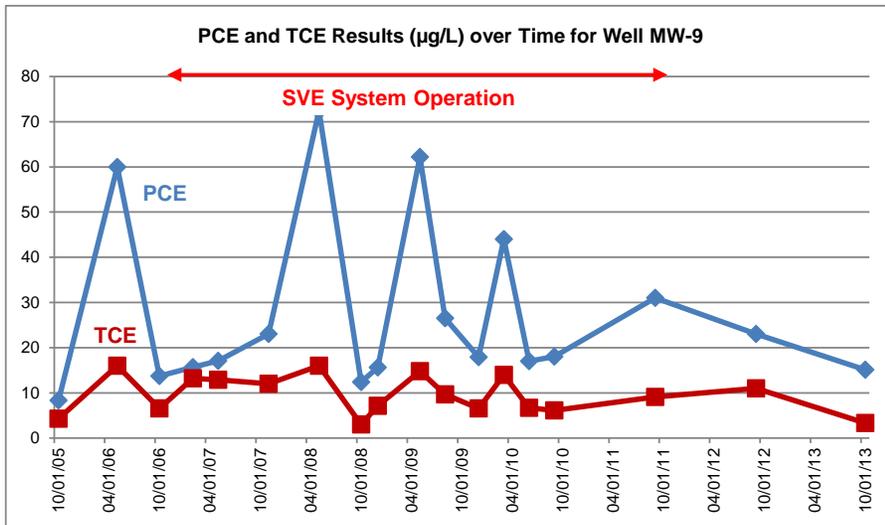
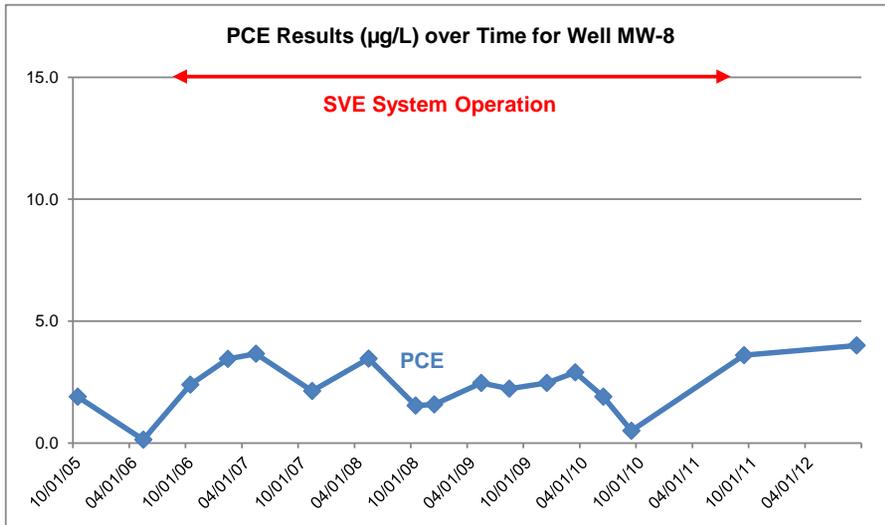
Graph 2: Historical Groundwater Analytical Results for Wells SW-2 and SW-4 to SW-8, The Bentley Mall, Fairbanks, Alaska



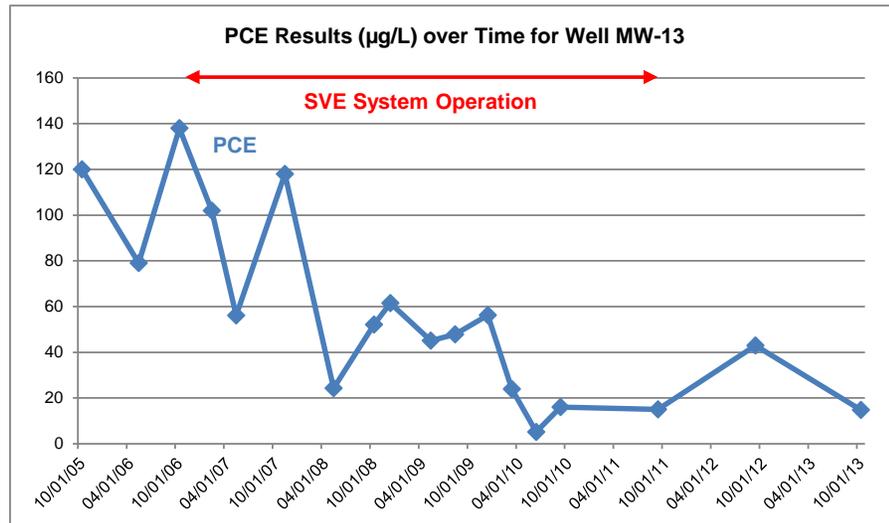
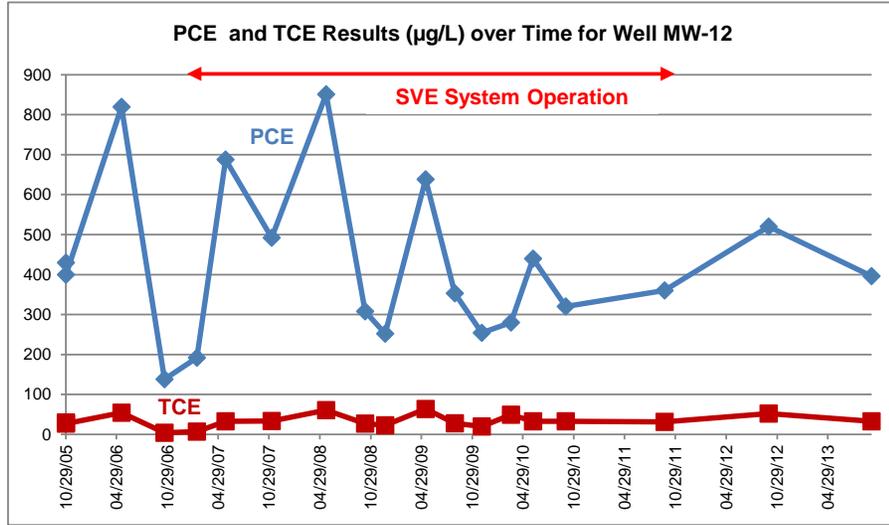
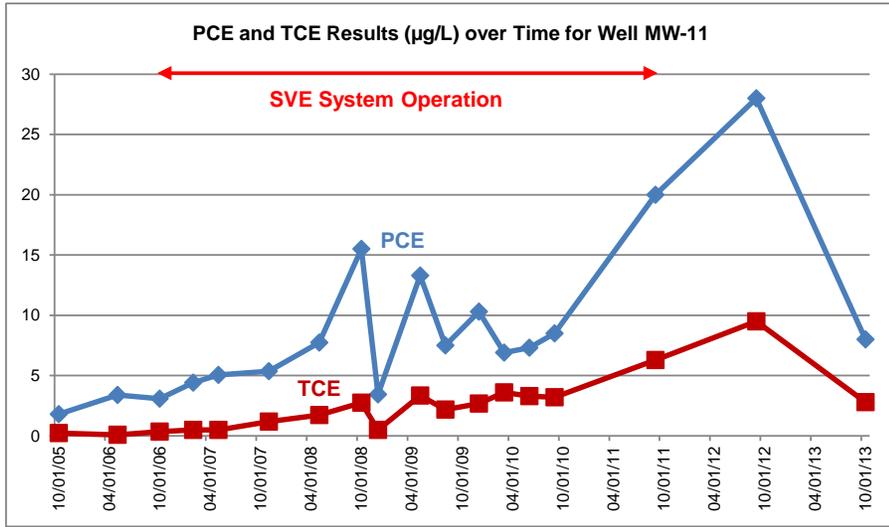
Graph 3: Historical Groundwater Analytical Results for Wells MW-5, MW-6 and MW-7, The Bentley Mall, Fairbanks, Alaska



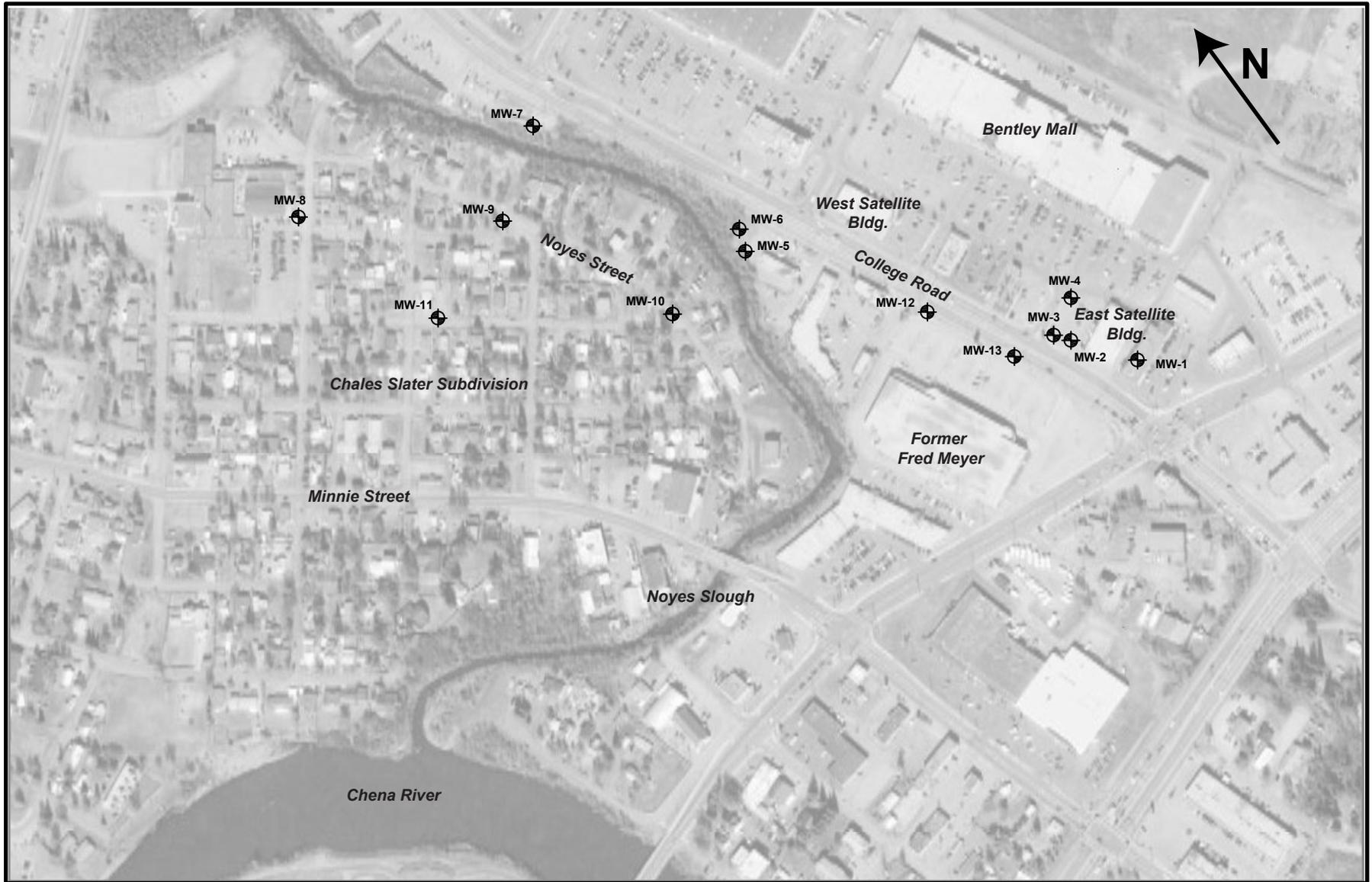
Graph 4: Historical Groundwater Analytical Results for Wells MW-8, MW-9 and MW-10, The Bentley Mall, Fairbanks, Alaska



Graph 5: Historical Groundwater Analytical Results for Wells MW-11, MW-12 and MW-13, The Bentley Mall, Fairbanks, Alaska



APPENDIX A



**Figure A-1: Site Vicinity Showing Groundwater Monitoring Wells,
The Bentley Mall, 32 College Road, Fairbanks, Alaska**

Scale in feet



ERG

Environmental
Resource
Group

Date:
January 2011

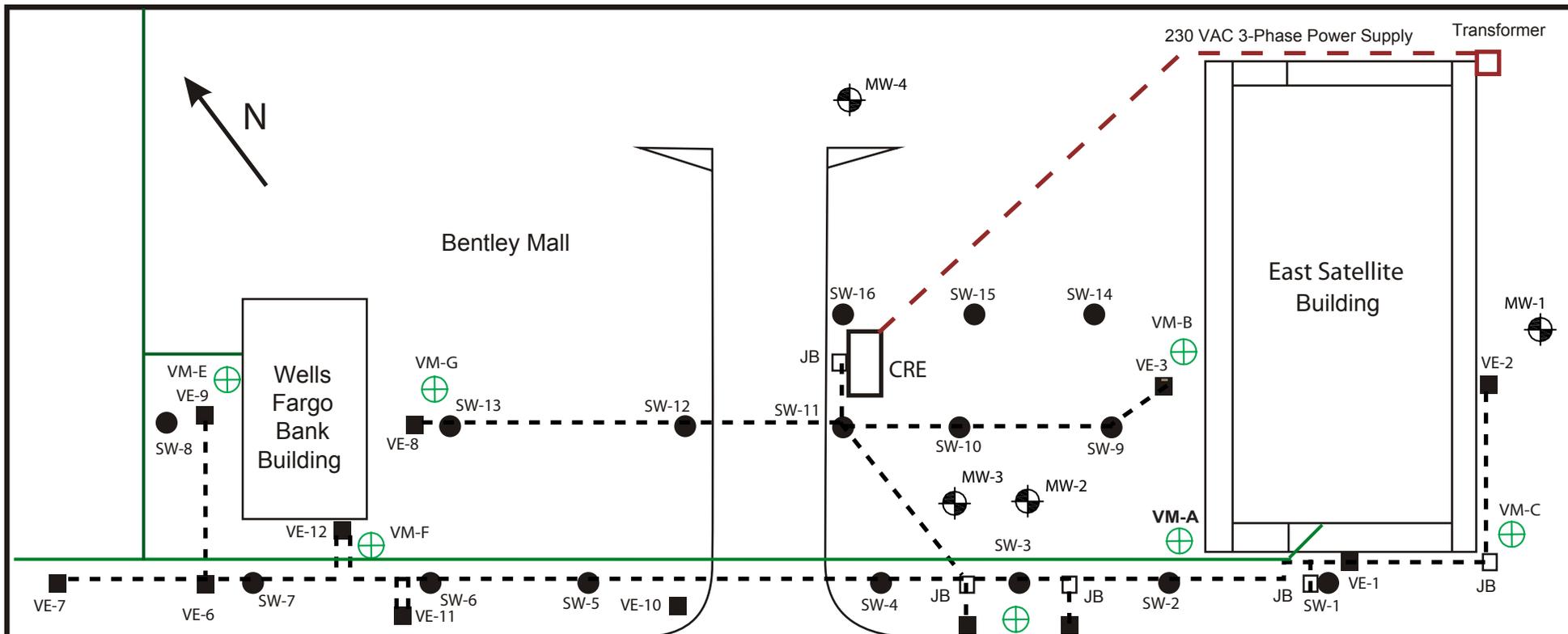
Project:
Bentley Mall

Notes:



MW-1

Groundwater monitoring well
(ARES, Sept-Oct 2005)



ERG

Environmental
Resource
Group

College Road

 CRE Former Containerized Remediation Equipment

 Air Sparge and Vapor Extraction Piping Trench (08-09/2006)

 Wastewater Sewer Lateral

 230 VAC 3-Phase Power Supply (08-09/2006)

 JB System Piping Junction Box (08-09/2006)

Scale in Feet



Figure A-2. Layout of Former Soil Vapor Extraction System, Bentley Mall, 32 College Road, Fairbanks, Alaska

 SW-1 Air Sparging Well (ARES, 08-09/2006)

 VE-1 Vapor Extraction Well (ARES, 08-09/2006)

 VM-A Vadose Monitoring Well (ARES, 08-09/2006)

 MW-1 Groundwater Monitoring Well (ARES, Sept-Oct 2005)

APPENDIX B

**Table B-1. Analytical Results for Groundwater Monitoring Wells,
The Bentley Mall, Fairbanks, AK**

Well	Sample Date	PCE	TCE	cis 1,2-DCE	trans 1,2-DCE	1,2-DCA	Chloroform	Freon-11	1,1,1,2-TCA	BDM	Acetone	Benzene	MTBE	Carbon Disulfide	Toluene	1,2,3-TCB	1,1-DCE	Methylene Chloride	Vinyl Chloride	Total Organic Carbon	Methane	Ethene	Ethane	Other VOCs	
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
MW-1	9/20/05 (1)	31	ND <0.16	ND <0.33	ND <0.48	2.0	17	31	ND <0.17	0.98 J	ND <0.73	ND <0.15	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	2.6	ND <1.0	ND <1.0	ND <2.0	ND <0.082 to <0.62	
	5/15/06 (2)	17	ND <0.16	ND <0.33	ND <0.48	ND <0.20	35	86	ND <0.17	2.0	ND <0.73	ND <0.15	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	2.4	ND <0.50	ND <0.50	ND <0.50	ND <0.082 to <0.62	
	10/16/06	45.6	ND <0.200	ND <0.200	ND <0.200	3.01	14.4	53.7	ND <0.200	0.820	ND <10.0	ND <0.200	ND <1.00	ND <0.500	ND <0.200	ND <1.00	ND <0.200	ND <5.00	ND <0.200	3.79	NA	NA	NA	ND <0.200 to <5.00	
	02/08/07	10.2	ND <1.00	ND <1.00	ND <1.00	ND <1.00	27.7	25.8	ND <1.00	1.77	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	2.69	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	05/23/07	6.37	ND <1.00	ND <1.00	ND <1.00	ND <1.00	22.9	13.3	ND <1.00	1.20	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	ND <2.00	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	11/05/07	3.53	ND <1.00	ND <1.00	ND <1.00	ND <1.00	14.1	13.5	ND <1.00	1.38	ND <25.0	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <0.200	2.14	ND <1.20	ND <10.0	ND <10.0	ND <0.200 to <10.0	
	05/19/08	2.40	ND <1.00	ND <1.00	ND <1.00	ND <1.00	38.0	9.99	ND <1.00	2.23	ND <20.0	ND <1.00	ND <2.00	ND <1.00	1.48	ND <1.00	ND <1.00	ND <5.00	ND <1.00	1.88	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	10/06/08	5.54	ND <1.00	ND <1.00	ND <1.00	ND <1.00	7.52	12.7	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.1	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	12/18/08	4.51	ND <1.00	ND <1.00	ND <1.00	ND <1.00	14.3	12.7	2.57	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	3.11	ND <1.00	ND <5.00	ND <1.00	2.86	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	05/12/09	3.32	ND <1.00	ND <1.00	ND <1.00	ND <1.00	36.4	12.8	ND <1.00	1.16	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	1.83	1.30	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	08/25/09	4.80	ND <1.00	ND <1.00	ND <1.00	ND <1.00	24.5	18.0	ND <1.00	1.50	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	2.03	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	11/30/09	7.28	ND <1.00	ND <1.00	ND <1.00	ND <1.00	22.6	17.8	ND <1.00	1.19	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	2.14	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	03/15/10	46	ND <1.0	ND <1.0	ND <1.0	ND <1.0	33	16	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	3.0	ND <1.20	ND <10.0	ND <10.0	ND <1.0 to <5.0	
	06/02/10	27	ND <1.0	ND <1.0	ND <1.0	ND <1.0	33	17	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	1.9	ND <1.20	ND <10.0	ND <10.0	ND <1.0 to <5.0	
DUP1	06/02/10	27	ND <1.0	ND <1.0	ND <1.0	ND <1.0	34	17	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	NA	NA	NA	NA	ND <1.0 to <5.0	
	09/29/10	270	ND <5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.0	ND <10	ND <10	ND <10	NA	
	09/19/11	600	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <10	NA	NA	NA	NA
	05/29/12	190	3.6	4.8	ND <1.0	ND <0.50	34	24	ND <1.0	ND <1.0	NA	ND <0.50	NA	NA	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	2.1	ND <1.00	ND <1.00	ND <1.00	ND <0.50 to <1.0	
DUP1	09/28/12	850	10	5.5	ND <1.0	ND <0.50	21	47	ND <1.0	ND <1.0	NA	ND <0.50	NA	NA	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	2.9	ND <1.00	ND <1.00	ND <1.00	ND <0.50 to <1.0	
	09/28/12	730	9.2	5.0	ND <1.0	1.6	20	43	ND <1.0	ND <1.0	NA	ND <0.50	NA	NA	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	2.9	ND <1.00	ND <1.00	ND <1.00	ND <0.50 to <1.0	
DUP1	6/22/13 (3)	300	2.2 J	ND <1.0	ND <1.0	NA	13.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <1.0	2.3	ND <0.25	ND <0.50	ND <0.50	NA	
	6/22/13 (3)	255	2.1 J	ND <1.0	ND <1.0	NA	13.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <1.0	2.6	ND <0.25	ND <0.50	ND <0.50	NA	
DUP1	10/02/13 (4)	425	2.9 J	ND <1.0	ND <1.0	NA	14.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <1.0	2.8	ND <0.25	ND <0.50	ND <0.50	NA	
	10/02/13 (4)	365	3.0 J	ND <1.0	ND <1.0	NA	15.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <1.0	2.7	ND <0.25	ND <0.50	ND <0.50	NA	
Environmental Screening Levels																									
ADEC Cleanup Levels		5	5	70	100	5	140	11,000	NE	14	33,000	5	470	3,700	1,000	NE	7	5	2	NE	NE	NE	NE	Varies by Compound	
EPA Regional Screening Levels		9.7	0.44	28	86	0.15	0.19	1,100	0.50	0.12	12,000	0.39	12	720	860	5.2	260	9.9	0.015	NE	NE	NE	NE	Varies by Compound	

**Table B-1. Analytical Results for Groundwater Monitoring Wells,
The Bentley Mall, Fairbanks, AK**

Well	Sample Date	PCE	TCE	cis 1,2-DCE	trans 1,2-DCE	1,2-DCA	Chloroform	Freon-11	1,1,1,2-TCA	BDM	Acetone	Benzene	MTBE	Carbon Disulfide	Toluene	1,2,3-TCB	1,1-DCE	Methylene Chloride	Vinyl Chloride	Total Organic Carbon	Methane	Ethene	Ethane	Other VOCs	
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
MW-2	9/22/05 (1)	2,900	15	21	ND <0.48	ND <0.2	0.40 J	39	0.47 J	ND <0.16	2.3 J	0.15 J	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	9.8	ND <1.0	ND <1.0	ND <2.0	ND <0.082 to <0.62	
	5/15/06 (2)	3,100	13	12	ND <0.48	ND <0.20	ND <0.30	55	ND <0.17	ND <0.16	ND <0.73	ND <0.15	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	7.8	ND <0.50	ND <0.50	ND <0.50	ND <0.082 to <0.62	
	10/16/06	2,620	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <50.0	ND <20.0	ND <20.0	ND <1,000	ND <20.0	ND <100	ND <50.0	ND <20.0	ND <100	ND <20.0	ND <500	ND <20.0	12.4	NA	NA	NA	ND <20.0 to <500	
DUP	02/08/07	3,040	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	29.4	ND <20.0	ND <20.0	ND <500	ND <20.0	ND <20.0	ND <200	ND <20.0	ND <20.0	ND <20.0	ND <100	ND <20.0	8.39	ND <1.20	ND <10.0	ND <10.0	ND <20.0 to <200	
	02/08/07	3,620	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	30.6	ND <20.0	ND <20.0	ND <500	ND <20.0	ND <20.0	ND <200	ND <20.0	ND <20.0	ND <20.0	ND <100	ND <20.0	NA	NA	NA	NA	ND <20.0 to <200	
	05/23/07	2,660	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	22.2	ND <20.0	ND <20.0	ND <500	ND <20.0	ND <20.0	ND <200	ND <20.0	ND <20.0	ND <20.0	ND <100	ND <20.0	ND <4.00	ND <1.20	ND <10.0	ND <10.0	ND <20.0 to <80.0	
DUP2	11/05/07	1,820	5.94	7.29	ND <1.00	ND <1.00	1.95	18.9	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	5.64	1.76	ND <10.0	ND <10.0	ND <0.200 to <10.0	
	11/08/07	1,250	6.23	6.94	ND <1.00	ND <1.00	1.91	20.6	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	4.49	NA	NA	NA	ND <0.200 to <10.0	
	05/19/08	638	4.65	5.54	ND <1.00	ND <1.00	1.43	15.8	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	1.51	ND <1.00	ND <1.00	ND <5.00	ND <1.00	13.7	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
DUP1	10/06/08	1,050	4.59	6.43	ND <1.00	ND <1.00	4.77	14.3	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	11	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	12/18/08	629	ND <1.00	3.97	ND <1.00	ND <1.00	1.52	6.82	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	1.18	ND <1.00	ND <5.00	ND <1.00	10.7	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	05/12/09	860	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <500	ND <20.0	ND <20.0	ND <200	ND <20.0	ND <20.0	ND <20.0	ND <100	ND <20.0	12.8	ND <1.20	ND <10.0	ND <10.0	ND <20.0 to <200	
DUP1	08/25/09	616	ND <50.0	ND <50.0	ND <50.0	ND <50.0	ND <50.0	ND <50.0	ND <50.0	ND <50.0	ND <1250	ND <50.0	ND <50.0	ND <500	ND <50.0	ND <50.0	ND <50.0	ND <250	ND <50.0	6.68	ND <1.20	ND <10.0	ND <10.0	ND <50.0 to <500	
	11/30/09	902	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <500	ND <20.0	ND <20.0	ND <200	ND <20.0	ND <20.0	ND <20.0	ND <100	ND <20.0	7.93	ND <1.20	ND <10.0	ND <10.0	ND <20.0 to <200	
	11/30/09	873	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <500	ND <20.0	ND <20.0	ND <200	ND <20.0	ND <20.0	ND <20.0	ND <100	ND <20.0	NA	NA	NA	NA	ND <20.0 to <200	
DUP1	03/15/10	320	2.4	4.7	ND <1.0	ND <1.0	5.6	10	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	16	ND <1.20	ND <10.0	ND <10.0	ND <1.0 to <5.0	
	03/15/10	300	2.6	4.7	ND <1.0	ND <1.0	5.8	10	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	NA	NA	NA	NA	ND <1.0 to <5.0	
	06/02/10	210	1.7	3.9	ND <1.0	ND <1.0	4.9	10	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	14	ND <1.20	ND <10.0	ND <10.0	ND <1.0 to <5.0	
DUP1	09/29/10	480	ND <5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.9	ND <10	ND <10	ND <10	NA	
	09/29/10	450	ND <5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	09/19/11	170	ND <5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DUP2	09/28/12	280	1.9	2.2	ND <1.0	ND <0.50	2.6	16	ND <1.0	ND <1.0	NA	ND <0.50	NA	NA	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	16	ND <1.00	ND <10.0	ND <10.0	ND <0.50 to <1.0	
	6/22/13 (3)	173	1.0 J	3.2	ND <0.40	NA	3.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.9	ND <0.25	ND <0.50	ND <0.50	NA	
	6/22/13 (3)	181	1.0 J	3.2	ND <0.40	NA	3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14.1	ND <0.25	ND <0.50	ND <0.50	NA	
	10/02/13 (4)	279	1.4 J	ND <1.0	ND <1.0	NA	10.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.6	ND <0.25	ND <0.50	ND <0.50	NA	
Environmental Screening Levels																									
ADEC Cleanup Levels		5	5	70	100	5	140	11,000	NE	14	33,000	5	470	3,700	1,000	NE	7	5	2	NE	NE	NE	NE	Varies by Compound	
EPA Regional Screening Levels		9.7	0.44	28	86	0.15	0.19	1,100	0.50	0.12	12,000	0.39	12	720	860	5.2	260	9.9	0.015	NE	NE	NE	NE	Varies by Compound	

**Table B-1. Analytical Results for Groundwater Monitoring Wells,
The Bentley Mall, Fairbanks, AK**

Well	Sample Date	PCE	TCE	cis 1,2-DCE	trans 1,2-DCE	1,2-DCA	Chloroform	Freon-11	1,1,1,2-TCA	BDM	Acetone	Benzene	MTBE	Carbon Disulfide	Toluene	1,2,3-TCB	1,1-DCE	Methylene Chloride	Vinyl Chloride	Total Organic Carbon	Methane	Ethene	Ethane	Other VOCs	
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
MW-3	9/22/05 (1)	4.1	ND <0.16	ND <0.33	ND <0.48	0.74 J	2.9	ND <0.23	ND <0.17	ND <0.16	3.2 J	1.0	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	2.4	54	ND <1.0	ND <2.0	ND <0.082 to <0.62	
	5/15/06 (2)	9.0	ND <0.16	ND <0.33	ND <0.48	ND <0.20	ND <0.30	ND <0.23	ND <0.17	ND <0.16	ND <0.73	ND <0.15	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	2.9	56	ND <0.50	ND <0.50	ND <0.082 to <0.62	
	10/16/06	0.330	0.270	0.510	ND <0.200	0.690	ND <0.200	0.850	ND <0.200	ND <0.200	ND <10.0	0.460	ND <1.00	ND <0.500	ND <0.200	ND <1.00	ND <0.200	ND <5.00	ND <0.200	6.28	NA	NA	NA	ND <0.200 to <5.00	
	02/08/07	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <5.00	ND <1.00	2.70	60.9	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	05/23/07	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <5.00	ND <1.00	ND <2.00	46.1	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	11/05/07	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.22	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <0.200	2.26	55.8	ND <10.0	ND <10.0	ND <0.200 to <10.0	
	05/19/08	1.78	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	1.03	ND <1.00	ND <1.00	ND <5.00	ND <1.00	2.25	34.2	ND <10.0	ND <10.0	ND <1.00 to <10.0
	10/06/08	1.32	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	2.4	5.35	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	12/18/08	3.20	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	2.71	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <5.00	ND <1.00	2.52	21.6	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	05/12/09	9.52	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.01	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <5.00	ND <1.00	2.35	16.1	ND <10.0	ND <10.0	ND <1.00 to <10.0	
DUP1	05/12/09	11.4	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	NA	NA	NA	NA	ND <1.00 to <10.0	
	08/25/09	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	1.89	49.1	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	11/30/09	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.14	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <5.00	ND <1.00	2.12	63.2	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	03/15/10	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	1.1	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <5.0	ND <1.0	3.7	51.3	ND <10.0	ND <10.0	ND <1.0 to <5.0	
	06/02/10	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	1.1	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <5.0	ND <1.0	2.3	37.3	ND <10.0	ND <10.0	ND <1.0 to <5.0	
	09/29/10	ND <1.0	ND <1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.1	20	ND <10	ND <10	NA
	09/19/11	ND <1.0	ND <1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18	18	NA	NA	NA
Environmental Screening Levels																									
ADEC Cleanup Levels		5	5	70	100	5	140	11,000	NE	14	33,000	5	470	3,700	1,000	NE	7	5	2	NE	NE	NE	NE	Varies by Compound	
EPA Regional Screening Levels		9.7	0.44	28	86	0.15	0.19	1,100	0.50	0.12	12,000	0.39	12	720	860	5.2	260	9.9	0.015	NE	NE	NE	NE	Varies by Compound	

**Table B-1. Analytical Results for Groundwater Monitoring Wells,
The Bentley Mall, Fairbanks, AK**

Well	Sample Date	PCE	TCE	cis 1,2-DCE	trans 1,2-DCE	1,2-DCA	Chloroform	Freon-11	1,1,1,2-TCA	BDM	Acetone	Benzene	MTBE	Carbon Disulfide	Toluene	1,2,3-TCB	1,1-DCE	Methylene Chloride	Vinyl Chloride	Total Organic Carbon	Methane	Ethene	Ethane	Other VOCs	
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
MW-4	9/24/05 (1)	290	5.5	ND <0.33	ND <0.48	ND <0.20	ND <0.30	2.1	ND <0.17	ND <0.16	ND <0.73	ND <0.15	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	3.4	8.0	ND <1.0	ND <2.0	ND <0.082 to <0.62	
	5/15/06 (2)	130	62	ND <0.33	ND <0.48	ND <0.20	ND <0.30	ND <0.23	ND <0.17	ND <0.16	ND <0.73	ND <0.15	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	3.5	28	ND <0.50	ND <0.50	ND <0.082 to <0.62	
	10/16/06	400	12.6	ND <2.00	ND <2.00	ND <2.00	ND <2.00	ND <5.00	ND <2.00	ND <2.00	ND <100	ND <2.00	ND <10.0	ND <5.00	ND <2.00	ND <10.0	ND <2.00	ND <50.0	ND <2.00	6.71	NA	NA	NA	ND <2.00 to <50.0	
	02/09/07	281	15.1	ND <2.00	ND <2.00	ND <2.00	ND <2.00	2.88	ND <2.00	ND <2.00	ND <50.0	ND <2.00	ND <2.00	ND <20.0	ND <2.00	ND <2.00	ND <2.00	ND <10.0	ND <2.00	4.42	7.06	ND <10.0	ND <10.0	ND <2.00 to <10.0	
	05/24/07	113	68.0	2.97	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	10.6	27.4	ND <10.0	ND <10.0	ND <1.00 to <25.0	
DUP	05/26/07	167	33.6	1.58	ND <1.00	ND <1.00	ND <1.00	1.74	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	NA	NA	NA	NA	ND <1.00 to <10.0	
	11/06/07	227	10.9	ND <1.00	ND <1.00	ND <1.00	ND <1.00	2.61	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <0.200	3.35	4.20	ND <10.0	ND <10.0	ND <0.200 to <10.0	
	05/19/08	63.4	71.5	2.86	ND <1.00	ND <1.00	ND <1.00	1.10	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.31	31.4	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	10/06/08	139	7.94	ND <1.00	ND <1.00	ND <1.00	ND <1.00	3.88	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	4.1	1.95	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	12/18/08	128	11.9	ND <1.00	ND <1.00	ND <1.00	ND <1.00	4.46	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	4.91	2.76	ND <10.0	ND <10.0	ND <1.00 to <10.0	
DUP1	12/18/08	135	15.1	ND <1.00	ND <1.00	ND <1.00	ND <1.00	4.16	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	NA	NA	NA	NA	ND <1.00 to <10.0	
	05/12/09	66.2	98.1	ND <2.00	ND <2.00	ND <2.00	ND <2.00	ND <2.00	ND <2.00	ND <2.00	ND <50.0	ND <2.00	ND <2.00	ND <20.0	ND <2.00	ND <2.00	ND <2.00	ND <10.0	ND <2.00	3.47	15.2	ND <10.0	ND <10.0	ND <2.00 to <20.0	
	08/25/09	109	56.4	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <1,250	ND <5.00	ND <5.00	ND <50.0	ND <5.00	ND <5.00	ND <5.00	ND <25.0	ND <5.00	2.77	10.6	ND <10.0	ND <10.0	ND <5.00 to <50.0	
DUP1	08/25/09	109	54.7	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <125	ND <5.00	ND <5.00	ND <50.0	ND <5.00	ND <5.00	ND <5.00	ND <25.0	ND <5.00	NA	NA	NA	NA	ND <5.00 to <50.0	
	11/30/09	150	8.55	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <125	ND <5.00	ND <5.00	ND <5.00	ND <50.0	ND <5.00	ND <5.00	ND <5.00	ND <25.0	ND <5.00	3.42	1.94	ND <10.0	ND <10.0	ND <5.00 to <50.0	
DUP2	03/16/10	110	58	1.2	ND <1.0	ND <1.0	ND <1.0	3.9	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	1.0	ND <5.0	ND <1.0	4.4	5.54	ND <10.0	ND <10.0	ND <1.00 to <5.0	
	03/16/10	110	60	1.2	ND <1.0	ND <1.0	ND <1.0	3.8	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	1.0	ND <5.0	ND <1.0	NA	NA	NA	NA	ND <1.00 to <5.0	
	06/02/10	57	38	2.0	1.6	ND <1.0	ND <1.0	3.1	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	3.2	6.25	ND <10.0	ND <10.0	ND <1.00 to <5.0	
	09/29/10	82	6.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.6	ND <10	ND <10	ND <10	NA	
	09/20/11	38	5.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19	NA	NA	NA	NA
	05/29/12	43	47	11	33	ND <0.50	ND <1.0	1.0	ND <1.0	ND <1.0	NA	ND <0.50	NA	NA	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	3.7	2.60	ND <1.00	ND <1.00	ND <0.50 to <1.0	
	09/29/12	98	15	ND <1.0	ND <1.0	ND <0.50	ND <1.0	6.2	ND <1.0	ND <1.0	NA	ND <0.50	NA	NA	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	3.9	ND <1.00	ND <1.00	ND <1.00	ND <0.50 to <1.0	
	6/22/13 (3)	51.0	14.4	2.9	7.5	NA	ND <0.20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.1	0.63	ND <0.50	ND <0.50	NA	
	10/2/13 (4)	56.9	5.7	0.73	1.1	NA	ND <0.20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.20	3.4	ND <0.25	ND <0.50	ND <0.50	NA	
Environmental Screening Levels																									
ADEC Cleanup Levels		5	5	70	100	5	140	11,000	NE	14	33,000	5	470	3,700	1,000	NE	7	5	2	NE	NE	NE	NE	Varies by Compound	
EPA Regional Screening Levels		9.7	0.44	28	86	0.15	0.19	1,100	0.50	0.12	12,000	0.39	12	720	860	5.2	260	9.9	0.015	NE	NE	NE	NE	Varies by Compound	

**Table B-1. Analytical Results for Groundwater Monitoring Wells,
The Bentley Mall, Fairbanks, AK**

Well	Sample Date	PCE	TCE	cis 1,2-DCE	trans 1,2-DCE	1,2-DCA	Chloroform	Freon-11	1,1,1,2-TCA	BDM	Acetone	Benzene	MTBE	Carbon Disulfide	Toluene	1,2,3-TCB	1,1-DCE	Methylene Chloride	Vinyl Chloride	Total Organic Carbon	Methane	Ethene	Ethane	Other VOCs	
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
MW-5	9/24/05 (1)	210	31	4.0	ND <0.48	0.57 J	ND <0.30	2.6	ND <0.17	ND <0.16	ND <0.73	0.35 J	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	2.8	26	ND <1.0	ND <2.0	ND <0.082 to <0.62	
	5/15/06 (2)	210	52	3.0	ND <0.48	ND <0.20	ND <0.30	8.3	ND <0.17	ND <0.16	ND <0.73	ND <0.15	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	3.3	28	ND <0.50	ND <0.50	ND <0.082 to <0.62	
DUP1	5/15/06 (2)	280	34	ND <3.3	ND <4.8	ND <2.0	ND <3.0	ND <2.3	ND <1.7	ND <1.6	ND <7.3	ND <1.5	ND <2.3	ND <2.4	ND <0.85	ND <2.5	ND <2.9	ND <3.5	ND <3.6	NA	NA	NA	NA	ND <0.82 to <6.2	
	10/16/06	146	18.6	2.52	ND <0.800	ND <0.800	ND <0.800	5.04	ND <0.800	ND <0.800	ND <40.0	ND <0.800	ND <4.00	ND <2.00	ND <0.800	ND <4.00	ND <0.800	ND <20.0	ND <0.800	8.05	NA	NA	NA	ND <0.800 to <20.0	
DUP2	02/09/07	39.4	3.87	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	2.77	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	05/23/07	29.6	2.47	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.02	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	11/06/07	20.3	1.54	ND <1.00	ND <1.00	ND <1.00	ND <1.00	2.14	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <2.00	1.62	ND <1.20	ND <10.0	ND <10.0	ND <0.200 to <10.0	
	05/20/08	6.21	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	ND <1.00	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	10/07/08	5.57	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	1.8	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	12/19/08	3.89	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	2.56	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	1.97	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	12/19/08	3.82	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	NA	NA	NA	NA	ND <1.00 to <10.0	
	05/12/09	6.04	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	2.79	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	08/25/09	77.1	11.8	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <125	ND <5.00	ND <5.00	ND <50.0	ND <5.00	ND <5.00	ND <25.0	ND <5.00	2.36	66.4	ND <10.0	ND <10.0	ND <5.0 to <50.0	
	DUP2	08/25/09	74.9	11.5	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <125	ND <5.00	ND <5.00	ND <50.0	ND <5.00	ND <5.00	ND <5.00	ND <25.0	ND <5.00	NA	NA	NA	NA	ND <5.0 to <50.0
DUP2	11/30/09	153	23.3	5.35	ND <5.00	ND <5.00	ND <5.00	9.60	ND <5.00	ND <5.00	ND <125	ND <5.00	ND <5.00	ND <50.0	ND <5.00	ND <5.00	ND <5.00	ND <25.0	ND <5.00	2.78	69.6	ND <10.0	ND <10.0	ND <5.0 to <50.0	
DUP2	11/30/09	156	23.4	5.55	ND <5.00	ND <5.00	ND <5.00	9.80	ND <5.00	ND <5.00	ND <125	ND <5.00	ND <5.00	ND <50.0	ND <5.00	ND <5.00	ND <5.00	ND <25.0	ND <5.00	NA	NA	NA	NA	ND <5.0 to <50.0	
DUP2	03/16/10	120	22	4.2	ND <1.0	ND <1.0	3.9	10	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	4.7	31.2	ND <10.0	ND <10.0	ND <1.0 to <5.0	
	06/02/10	81	22	4.4	ND <1.0	ND <1.0	5.0	10	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	3.1	37.4	ND <10.0	ND <10.0	ND <1.0 to <5.0	
	09/29/10	150	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0	11	ND <10	ND <10	NA	
	09/29/10	160	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	09/20/11	150	25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <10	NA	NA	NA	
DUP2	09/30/12	310	67	8.2	ND <1.0	ND <0.50	5.1	17	ND <1.0	ND <1.0	NA	0.50	NA	NA	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	3.1	4.75	ND <1.00	ND <1.00	ND <0.50 to <1.0	
DUP2	09/30/12	390	68	6.4	ND <1.0	ND <0.50	4.5	14	ND <1.0	ND <1.0	NA	0.50	NA	NA	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	3.1	6.28	ND <1.00	ND <1.00	ND <0.50 to <1.0	
DUP2	10/2/13 (4)	173	28.7	3.2	ND <0.40	NA	3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.40	3.1	1.5	ND <0.50	ND <0.50	NA	
Environmental Screening Levels																									
ADEC Cleanup Levels		5	5	70	100	5	140	11,000	NE	14	33,000	5	470	3,700	1,000	NE	7	5	2	NE	NE	NE	NE	Varies by Compound	
EPA Regional Screening Levels		9.7	0.44	28	86	0.15	0.19	1,100	0.50	0.12	12,000	0.39	12	720	860	5.2	260	9.9	0.015	NE	NE	NE	NE	Varies by Compound	

**Table B-1. Analytical Results for Groundwater Monitoring Wells,
The Bentley Mall, Fairbanks, AK**

Well	Sample Date	PCE	TCE	cis 1,2-DCE	trans 1,2-DCE	1,2-DCA	Chloroform	Freon-11	1,1,1,2-TCA	BDM	Acetone	Benzene	MTBE	Carbon Disulfide	Toluene	1,2,3-TCB	1,1-DCE	Methylene Chloride	Vinyl Chloride	Total Organic Carbon	Methane	Ethene	Ethane	Other VOCs
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L
MW-6	9/24/05 (1)	64	5.6	1.3 J	ND <0.48	ND <0.20	ND <0.30	1.0 J	ND <0.17	ND <0.16	12 J	ND <0.15	0.33 J	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	3.9	1.4	ND <1.0	ND <2.0	ND <0.082 to <0.62
DUP1	9/24/05 (1)	57	5.3	1.5 J	ND <0.48	ND <0.20	ND <0.30	ND <0.23	ND <0.17	ND <0.16	4.4 J	ND <0.15	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	NA	NA	NA	NA	ND <0.082 to <0.62
	05/16/06	54	4.1	ND <0.33	ND <0.48	ND <0.20	ND <0.30	ND <0.23	ND <0.17	ND <0.16	ND <0.73	ND <0.15	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	3.6	ND <0.50	ND <0.50	ND <0.50	ND <0.082 to <0.62
	10/16/06	66.1	4.73	1.16	ND <0.200	ND <0.200	ND <0.200	3.29	ND <0.200	ND <0.200	ND <10.0	ND <0.200	ND <1.00	ND <0.500	ND <0.200	ND <1.00	ND <0.200	ND <5.00	ND <0.200	64.1	NA	NA	NA	ND <0.200 to <5.00
	05/20/08	11.3	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	2.24	2.12	ND <10.0	ND <10.0	ND <1.00 to <10.0
	10/07/08	3.22	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.60	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	NA	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0
DUP2	05/13/09	10.1	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	5.33	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0
	05/13/09	6.30	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	NA	NA	NA	NA	ND <1.00 to <10.0
	08/26/09	9.10	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	1.89	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0
	12/01/09	12.1	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	2.05	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0
	03/16/10	12	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	1.1	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	3.2	ND <1.20	ND <10.0	ND <10.0	ND <1.0 to <5.0
	06/03/10	6.1	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	1.2	ND <1.0	2.5	ND <1.20	ND <10.0	ND <10.0	ND <1.0 to <5.0
	09/29/10	10	ND <1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.0	ND <10	ND <10	ND <10	NA
	09/20/11	6.0	ND <1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <10	NA	NA	NA
	09/28/12	44	4.4	6.3	ND <1.0	ND <0.50	1.1	15	ND <1.0	ND <1.0	NA	ND <0.50	NA	NA	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	3.5	2.06	ND <1.00	ND <1.00	ND <0.50 to <1.0
	10/2/13 (4)	61.5	6.5	6.3	ND <0.20	NA	3.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.20	3.2	4.0	ND <0.50	ND <0.50	NA
Environmental Screening Levels																								
ADEC Cleanup Levels		5	5	70	100	5	140	11,000	NE	14	33,000	5	470	3,700	1,000	NE	7	5	2	NE	NE	NE	NE	Varies by Compound
EPA Regional Screening Levels		9.7	0.44	28	86	0.15	0.19	1,100	0.50	0.12	12,000	0.39	12	720	860	5.2	260	9.9	0.015	NE	NE	NE	NE	Varies by Compound

**Table B-1. Analytical Results for Groundwater Monitoring Wells,
The Bentley Mall, Fairbanks, AK**

Well	Sample Date	PCE	TCE	cis 1,2-DCE	trans 1,2-DCE	1,2-DCA	Chloroform	Freon-11	1,1,1,2-TCA	BDM	Acetone	Benzene	MTBE	Carbon Disulfide	Toluene	1,2,3-TCB	1,1-DCE	Methylene Chloride	Vinyl Chloride	Total Organic Carbon	Methane	Ethene	Ethane	Other VOCs	
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
MW-7	10/27/05 (1)	7.3	3.6	1.7 J	ND <0.48	ND <0.20	ND <0.30	1.1 J	ND <0.17	ND <0.16	2.1 J	ND <0.15	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	4.6	2.2	ND <0.050	ND <0.050	ND <0.082 to <0.62	
	5/16/06 (2)	18.0	10	9.5	ND <0.48	ND <0.20	ND <0.30	ND <0.23	ND <0.17	ND <0.16	ND <0.73	ND <0.15	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	5.2	1,000	ND <0.50	ND <0.50	ND <0.082 to <0.62	
	10/17/06	8.65	4.89	8.54	0.500	0.250	ND <0.200	ND <0.500	ND <0.200	ND <0.200	ND <10.0	ND <0.200	ND <1.00	ND <0.500	ND <0.200	ND <1.00	ND <0.200	ND <5.00	ND <0.200	12.1	NA	NA	NA	ND <0.200 to <5.00	
	02/09/07	8.67	5.05	14.2	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	7.19	663	ND <10.0	ND <10.0	ND <1.00 to <10.0
	05/24/07	8.35	5.91	16.6	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	12.1	2,320	ND <10.0	ND <10.0	ND <1.00 to <10.0
	11/06/07	5.60	4.61	9.65	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <0.200	5.97	1,160	ND <10.0	ND <10.0	ND <0.200 to <10.0
	05/20/08	4.97	4.33	10.4	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	7.90	806	ND <10.0	ND <10.0	ND <1.00 to <10.0
	10/07/08	3.81	2.71	6.57	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	7.4	216	ND <10.0	ND <10.0	ND <1.00 to <10.0
	12/19/08	4.20	3.22	9.46	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	9.07	541	ND <10.0	ND <10.0	ND <1.00 to <10.0
	05/13/09	6.16	6.39	14.2	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	8.35	1,040	ND <10.0	ND <10.0	ND <1.00 to <10.0
	08/26/09	3.27	3.96	11.5	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	9.23	564	ND <10.0	ND <10.0	ND <1.00 to <10.0
	12/01/09	3.49	3.06	11.8	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	8.62	133	ND <10.0	ND <10.0	ND <1.00 to <10.0
	03/16/10	3.1	3.0	8.2	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	13	91.3	ND <10.0	ND <10.0	ND <1.0 to <5.0
	06/03/10	1.8	2.9	7.5	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	8.8	299	ND <10.0	ND <10.0	ND <1.0 to <5.0
	DUP2	06/03/10	1.6	2.7	6.8	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	NA	NA	NA	NA	ND <1.0 to <5.0
09/30/10		2.0	3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.4	250	ND <10	ND <10	NA
09/20/11		3.0	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <10	NA	NA	NA
09/30/12		4.1	4.3	8.0	ND <1.0	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	NA	ND <0.50	NA	NA	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	7.1	175	ND <1.00	ND <1.00	ND <0.50 to <1.0
10/2/13 (4)	1.7	2.0	4.3	ND <0.20	NA	ND <0.20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.20 J	6.7	328	ND <2.5	ND <2.5	NA	
Environmental Screening Levels																									
ADEC Cleanup Levels	5	5	70	100	5	140	11,000	NE	14	33,000	5	470	3,700	1,000	NE	7	5	2	NE	NE	NE	NE	NE	NE	Varies by Compound
EPA Regional Screening Levels	9.7	0.44	28	86	0.15	0.19	1,100	0.50	0.12	12,000	0.39	12	720	860	5.2	260	9.9	0.015	NE	NE	NE	NE	NE	NE	Varies by Compound

**Table B-1. Analytical Results for Groundwater Monitoring Wells,
The Bentley Mall, Fairbanks, AK**

Well	Sample Date	PCE	TCE	cis 1,2-DCE	trans 1,2-DCE	1,2-DCA	Chloroform	Freon-11	1,1,1,2-TCA	BDM	Acetone	Benzene	MTBE	Carbon Disulfide	Toluene	1,2,3-TCB	1,1-DCE	Methylene Chloride	Vinyl Chloride	Total Organic Carbon	Methane	Ethene	Ethane	Other VOCs	
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
MW-8	10/27/05 (1)	1.9	ND <0.16	ND <0.33	ND <0.48	ND <0.20	ND <0.30	ND <0.23	ND <0.17	ND <0.16	ND <0.73	ND <0.15	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	3.9	ND <0.050	ND <0.050	ND <0.050	ND <0.082 to <0.62	
	5/16/06 (1)	ND <0.28	ND <0.16	ND <0.33	ND <0.48	ND <0.20	ND <0.20	ND <0.23	ND <0.17	ND <0.16	ND <0.73	ND <0.15	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	3.5	ND <0.50	ND <0.50	ND <0.50	ND <0.082 to <0.62	
	10/17/06	2.39	ND <0.200	ND <0.200	ND <0.200	ND <0.200	0.210	ND <0.500	ND <0.200	ND <0.200	ND <10.0	ND <0.200	ND <1.00	ND <0.500	ND <0.200	ND <1.00	ND <0.200	ND <5.00	ND <0.200	11.8	NA	NA	NA	ND <0.200 to <5.00	
	02/12/07	3.45	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	5.32	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0
	05/25/07	3.66	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	NA	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0
	11/07/07	2.14	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <0.200	3.39	ND <1.20	ND <10.0	ND <10.0	ND <0.200 to <10.0
	05/20/08	3.46	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	1.10	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.34	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	10/07/08	1.54	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.6	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	12/19/08	1.59	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	1.03	ND <1.00	ND <5.00	ND <1.00	3.99	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	05/13/09	2.46	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.91	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	08/26/09	2.23	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.41	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	12/01/09	2.47	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.31	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	03/16/10	2.9	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	5.7	ND <1.20	ND <10.0	ND <10.0	ND <1.0 to <5.0
	06/03/10	1.9	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	3.6	ND <1.20	ND <10.0	ND <10.0	ND <1.0 to <5.0
	09/30/10	ND <1.0	ND <1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.3	ND <10	ND <10	ND <10	NA
09/20/11	3.6	ND <1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <10	NA	NA	NA	NA
09/30/12	4.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <0.50	ND <1.0	ND <1.0	ND <1.0	NA	ND <0.50	NA	NA	NA	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	3.8	ND <1.00	ND <1.00	ND <1.00	ND <0.50 to <1.0	
Environmental Screening Levels																									
ADEC Cleanup Levels		5	5	70	100	5	140	11,000	NE	14	33,000	5	470	3,700	1,000	NE	7	5	2	NE	NE	NE	NE	Varies by Compound	
EPA Regional Screening Levels		9.7	0.44	28	86	0.15	0.19	1,100	0.50	0.12	12,000	0.39	12	720	860	5.2	260	9.9	0.015	NE	NE	NE	NE	Varies by Compound	

**Table B-1. Analytical Results for Groundwater Monitoring Wells,
The Bentley Mall, Fairbanks, AK**

Well	Sample Date	PCE	TCE	cis 1,2-DCE	trans 1,2-DCE	1,2-DCA	Chloroform	Freon-11	1,1,1,2-TCA	BDM	Acetone	Benzene	MTBE	Carbon Disulfide	Toluene	1,2,3-TCB	1,1-DCE	Methylene Chloride	Vinyl Chloride	Total Organic Carbon	Methane	Ethene	Ethane	Other VOCs	
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
MW-9	10/27/05 (1)	8.3	4.3	1.1 J	1.4 J	ND <0.20	ND <0.30	ND <0.23	ND <0.17	ND <0.16	1.2 J	ND <0.15	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	3.8	3.2	ND <0.050	ND <0.050	ND <0.082 to <0.62	
	5/16/06 (2)	60.0	16	ND <0.33	ND <0.48	ND <0.20	ND <0.30	ND <0.23	ND <0.17	ND <0.16	ND <0.73	ND <0.15	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	2.8	1.2	ND <0.50	ND <0.50	ND <0.082 to <0.62	
	10/17/06	13.7	6.57	2.00	1.40	ND <0.200	ND <0.200	ND <0.500	ND <0.200	ND <0.200	ND <10.0	ND <0.200	ND <1.00	ND <0.500	ND <0.200	ND <1.00	ND <0.200	ND <5.00	ND <0.200	12.6	NA	NA	NA	ND <0.200 to <5.00	
	02/13/07	15.7	13.2	3.94	3.59	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	4.17	9.17	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	05/25/07	17.1	12.9	3.98	3.15	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	7.04	10.3	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	11/07/07	23.0	12.0	3.18	1.89	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <0.200	2.88	5.31	ND <10.0	ND <10.0	ND <0.200 to <10.0	
	05/21/08	72.4	16.0	6.64	2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.80	5.12	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	10/08/08	12.4	2.99	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.6	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	DUP1	10/08/08	10.8	2.74	ND <1.00	ND <1.00	ND <1.00	1.07	2.23	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	NA	NA	NA	NA	ND <1.00 to <10.0
	12/19/08	15.6	7.12	3.35	3.13	ND <1.00	ND <1.00	ND <1.00	2.54	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	2.38	4.62	ND <10.0	ND <10.0	ND <1.00 to <10.0	
05/14/09	62.2	14.8	10.8	8.27	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.09	9.16	ND <10.0	ND <10.0	ND <1.00 to <10.0		
08/26/09	26.5	9.6	4.9	2.59	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	2.40	2.73	ND <10.0	ND <10.0	ND <1.00 to <10.0		
12/01/09	17.9	6.56	3.49	2.48	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	2.52	1.81	ND <10.0	ND <10.0	ND <1.00 to <10.0		
03/16/10	44	14	11	6.9	ND <1.0	ND <1.0	ND <1.0	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	5.2	2.77	ND <10.0	ND <10.0	ND <1.0 to <5.0		
06/03/10	17	6.7	3.5	1.7	ND <1.0	ND <1.0	ND <1.0	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	2.4	ND <1.20	ND <10.0	ND <10.0	ND <1.0 to <5.0		
09/30/10	18	6.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.7	ND <10	ND <10	ND <10	NA		
09/20/11	31	9.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <10	NA	NA	NA	
09/30/12	23	11	9.8	8.0	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	NA	ND <0.50	NA	NA	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	2.6	ND <1.00	ND <1.00	ND <1.00	ND <0.50 to <1.0		
10/3/13 (4)	15.1	3.3	1.4	0.61 J	NA	0.22 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.20	2.4	ND <0.25	ND <0.50	ND <0.50	NA		
Environmental Screening Levels																									
ADEC Cleanup Levels	5	5	70	100	5	140	11,000	NE	14	33,000	5	470	3,700	1,000	NE	7	5	2	NE	NE	NE	NE	NE	Varies by Compound	
EPA Regional Screening Levels	9.7	0.44	28	86	0.15	0.19	1,100	0.50	0.12	12,000	0.39	12	720	860	5.2	260	9.9	0.015	NE	NE	NE	NE	NE	Varies by Compound	

**Table B-1. Analytical Results for Groundwater Monitoring Wells,
The Bentley Mall, Fairbanks, AK**

Well	Sample Date	PCE	TCE	cis 1,2-DCE	trans 1,2-DCE	1,2-DCA	Chloroform	Freon-11	1,1,1,2-TCA	BDM	Acetone	Benzene	MTBE	Carbon Disulfide	Toluene	1,2,3-TCB	1,1-DCE	Methylene Chloride	Vinyl Chloride	Total Organic Carbon	Methane	Ethene	Ethane	Other VOCs
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L
MW-10	10/27/05 (1)	80	43	4.3	ND <0.48	0.76 J	ND <0.30	0.40 J	ND <0.17	ND <0.16	3.6 J	0.49 J	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	47	1.5	ND <0.050	ND <0.050	ND <0.082 to <0.62
	5/16/06 (2)	150	19	1.1	ND <0.48	ND <0.20	ND <0.30	ND <0.23	ND <0.17	ND <0.16	ND <0.73	ND <0.15	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	4.1	41	ND <0.50	ND <0.50	ND <0.082 to <0.62
	10/17/06	128	20.4	4.64	ND <0.800	ND <0.800	ND <0.800	ND <2.00	ND <0.800	ND <0.800	ND <40.0	ND <0.800	ND <4.00	ND <2.00	ND <0.800	ND <4.00	ND <0.800	ND <20.0	ND <0.800	49.0	NA	NA	NA	ND <0.800 to <20.0
	02/13/07	147	22.9	6.34	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	9.30	260	ND <10.0	ND <10.0	ND <1.00 to <10.0
	05/25/07	128	21.0	6.65	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	15.5	488	ND <10.0	ND <10.0	ND <1.00 to <10.0
	11/07/07	114	19.4	4.70	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <0.200	4.68	773	ND <10.0	ND <10.0
DUP2	05/21/08	94.0	15.5	4.06	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	4.07	641	ND <10.0	ND <10.0	ND <1.00 to <10.0
	05/21/08	98.2	15.7	4.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	NA	NA	NA	NA	ND <1.00 to <10.0
	10/08/08	96.2	16.8	4.95	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	NA	855	ND <10.0	ND <10.0	ND <1.00 to <10.0
	12/20/08	100	16.4	4.50	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.80	173	ND <10.0	ND <10.0	ND <1.00 to <10.0
	05/14/09	121	19.3	4.42	ND <2.00	ND <2.00	ND <2.00	ND <2.00	ND <2.00	ND <2.00	ND <50.0	ND <2.00	ND <2.00	ND <20.0	ND <2.00	ND <2.00	ND <2.00	ND <10.0	ND <2.00	5.45	142	ND <10.0	ND <10.0	ND <2.00 to <20.0
	08/27/09	106	19.4	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <125.0	ND <5.00	ND <5.00	ND <50.0	ND <5.00	ND <5.00	ND <5.00	ND <25.0	ND <5.00	3.41	209	ND <10.0	ND <10.0	ND <5.0 to <50.0
	12/02/09	112	19.0	6.72	ND <2.00	ND <2.00	ND <2.00	ND <2.00	ND <2.00	ND <2.00	ND <50.0	ND <2.00	ND <2.00	ND <20.0	ND <2.00	ND <2.00	ND <2.00	ND <10.0	ND <2.00	3.38	233	ND <10.0	ND <10.0	ND <2.00 to <20.0
	03/17/10	110	23	6.1	ND <1.0	ND <1.0	ND <1.0	1.6	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	5.8	145	ND <10.0	ND <10.0	ND <1.0 to <5.0
	06/03/10	60	17	4.5	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	3.7	226	ND <10.0	ND <10.0	ND <1.0 to <5.0
	09/30/10	96	23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.8	200	ND <10	ND <10	NA
DUP	09/20/11	95	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <10	NA	NA	NA
	09/20/11	96	17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <10	NA	NA	NA
	09/30/12	130	32	10	ND <1.0	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	NA	ND <0.50	NA	NA	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	4.4	23.7	ND <10.0	ND <10.0	ND <0.50 to <1.0
Environmental Screening Levels																								
ADEC Cleanup Levels	5	5	70	100	5	140	11,000	NE	14	33,000	5	470	3,700	1,000	NE	7	5	2	NE	NE	NE	NE	NE	Varies by Compound
EPA Regional Screening Levels	9.7	0.44	28	86	0.15	0.19	1,100	0.50	0.12	12,000	0.39	12	720	860	5.2	260	9.9	0.015	NE	NE	NE	NE	NE	Varies by Compound

**Table B-1. Analytical Results for Groundwater Monitoring Wells,
The Bentley Mall, Fairbanks, AK**

Well	Sample Date	PCE	TCE	cis 1,2-DCE	trans 1,2-DCE	1,2-DCA	Chloroform	Freon-11	1,1,1,2-TCA	BDM	Acetone	Benzene	MTBE	Carbon Disulfide	Toluene	1,2,3-TCB	1,1-DCE	Methylene Chloride	Vinyl Chloride	Total Organic Carbon	Methane	Ethene	Ethane	Other VOCs	
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
MW-11	10/29/05 (1)	1.8 J	0.24 J	ND <0.33	ND <0.48	ND <0.20	ND <0.30	7.9	ND <0.17	ND <0.16	2.3 J	ND <0.15	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	6.2	3.1	ND <0.050	ND <0.050	ND <0.082 to <0.62	
	5/17/06 (2)	3.4	ND <0.16	ND <0.33	ND <0.48	ND <0.20	ND <0.30	13	ND <0.17	ND <0.16	ND <0.73	ND <0.15	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	3.7	0.80	ND <0.50	ND <0.50	ND <0.082 to <0.62	
	10/17/06	3.09	0.360	0.460	ND <0.200	ND <0.200	ND <0.200	8.83	ND <0.200	ND <0.200	ND <10.0	ND <0.200	ND <1.00	ND <0.500	ND <0.200	ND <1.00	ND <0.200	ND <5.00	ND <0.200	37.3	NA	NA	NA	ND <0.200 to <5.00	
	02/13/07	4.41	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	7.24	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	4.82	2.31	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	05/26/07	5.06	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	6.26	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	15.8	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	11/08/07	5.37	1.18	ND <1.00	ND <1.00	ND <1.00	ND <1.00	6.92	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <0.200	3.79	13.9	ND <10.0	ND <10.0	ND <0.200 to <10.0	
	05/21/08	7.73	1.73	1.48	ND <1.00	ND <1.00	ND <1.00	10.20	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	1.16	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.35	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	10/08/08	15.5	2.74	1.02	ND <1.00	ND <1.00	ND <1.00	4.43	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	5.5	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	12/20/08	3.43	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	4.69	2.55	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	1.07	ND <1.00	ND <1.00	ND <5.00	ND <1.00	4.47	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0
	05/14/09	13.3	3.34	1.98	ND <1.00	ND <1.00	ND <1.00	10.2	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.48	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	08/27/09	7.51	2.19	1.29	ND <1.00	ND <1.00	ND <1.00	6.7	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.75	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	12/02/09	10.3	2.68	1.80	ND <1.00	ND <1.00	ND <1.00	6.11	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.38	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	03/17/10	6.9	3.6	1.8	ND <1.0	ND <1.0	ND <1.0	7.9	ND <1.0	NA	NA	ND <1.0	NA	NA	NA	ND <1.0	ND <1.0	ND <5.0	ND <1.0	5.5	ND <1.20	ND <10.0	ND <10.0	ND <1.0 to <5.0	
	06/04/10	7.3	3.3	2.2	ND <1.0	ND <1.0	ND <1.0	7.0	ND <1.0	NA	NA	ND <1.0	NA	NA	NA	ND <1.0	ND <1.0	ND <5.0	ND <1.0	3.5	ND <1.20	ND <10.0	ND <10.0	ND <1.0 to <5.0	
	09/30/10	8.5	3.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.9	ND <10	ND <10	ND <10	NA
	09/20/11	20	6.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <10	NA	NA	NA
09/28/12	28	9.5	2.7	ND <1.0	ND <0.50	1.2	9.4	ND <1.0	ND <1.0	NA	ND <0.50	NA	NA	NA	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	4.3	1.43	ND <1.00	ND <1.00	ND <0.50 to <1.0	
10/3/13 (4)	8.0	2.8	1.1	ND <0.20	NA	ND <0.20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.20	5.0	ND <0.25	ND <0.50	ND <0.50	NA	
Environmental Screening Levels																									
ADEC Cleanup Levels	5	5	70	100	5	140	11,000	NE	14	33,000	5	470	3,700	1,000	NE	7	5	2	NE	NE	NE	NE	NE	NE	Varies by Compound
EPA Regional Screening Levels	9.7	0.44	28	86	0.15	0.19	1,100	0.50	0.12	12,000	0.39	12	720	860	5.2	260	9.9	0.015	NE	NE	NE	NE	NE	NE	Varies by Compound

**Table B-1. Analytical Results for Groundwater Monitoring Wells,
The Bentley Mall, Fairbanks, AK**

Well	Sample Date	PCE	TCE	cis 1,2-DCE	trans 1,2-DCE	1,2-DCA	Chloroform	Freon-11	1,1,1,2-TCA	BDM	Acetone	Benzene	MTBE	Carbon Disulfide	Toluene	1,2,3-TCB	1,1-DCE	Methylene Chloride	Vinyl Chloride	Total Organic Carbon	Methane	Ethene	Ethane	Other VOCs
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L
MW-12	10/29/05 (1)	430	30	4.3	ND <0.48	0.46 J	0.49 J	9.1	ND <0.17	ND <0.16	2.8 J	0.46 J	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	11	29	ND <0.050	ND <0.050	ND <0.082 to <0.62
DUP2	10/29/05 (1)	400	27	3.7	ND <0.48	0.41 J	0.46 J	9.5	ND <0.17	ND <0.16	2.8 J	0.37 J	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	NA	NA	NA	NA	ND <0.082 to <0.62
	5/17/06 (2)	820	54	3.2	ND <0.48	ND <0.20	1.4	6.6	ND <0.17	ND <0.16	ND <0.73	ND <0.15	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	5.0	19	ND <0.50	ND <0.50	ND <0.082 to <0.62
DUP	10/18/06	138	4.08	ND <0.800	ND <0.800	ND <0.800	ND <0.800	5.52	ND <0.800	ND <0.800	ND <40.0	ND <0.800	ND <4.00	ND <2.00	ND <0.800	ND <4.00	ND <0.800	ND <20.0	ND <0.800	32.4	NA	NA	NA	ND <0.800 to <20.0
	10/18/06	119	18.9	3.92	ND <0.800	ND <0.800	ND <0.800	ND <2.00	ND <0.800	ND <0.800	ND <40.0	ND <0.800	ND <4.00	ND <2.00	ND <0.800	ND <4.00	ND <0.800	ND <20.0	ND <0.800	NA	NA	NA	NA	ND <0.800 to <20.0
	02/12/07	192	6.6	ND <2.00	ND <2.00	ND <2.00	ND <2.00	4.68	ND <2.00	ND <2.00	ND <50.0	ND <2.00	ND <2.00	ND <20.0	ND <2.00	ND <2.00	ND <2.00	ND <10.0	ND <2.00	15.1	ND <1.20	ND <10.0	ND <10.0	ND <2.00 to <20.0
DUP1	05/26/07	688	32.4	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <125.0	ND <5.00	ND <5.00	ND <50.0	ND <5.00	ND <5.00	ND <5.00	ND <25.0	ND <5.00	NA	9.66	ND <10.0	ND <10.0	ND <5.00 to <50.0
	11/08/07	492	33.4	2.26	ND <1.00	ND <1.00	ND <1.00	4.91	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <0.200	8.59	34.7	ND <10.0	ND <10.0	ND <0.200 to <10.0
	05/21/08	851	60.7	3.04	ND <1.00	ND <1.00	2.28	3.09	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.43	38.1	ND <10.0	ND <10.0	ND <1.00 to <10.0
	05/21/08	870	61.1	2.97	ND <1.00	ND <1.00	2.30	3.00	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	NA	NA	NA	NA	ND <1.00 to <10.0
	10/08/08	308	26.9	1.97	ND <1.00	ND <1.00	ND <1.00	16.2	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	15	7.26	ND <10.0	ND <10.0	ND <1.00 to <10.0
	12/20/08	252	22.7	4.98	ND <1.00	ND <1.00	ND <1.00	6.21	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	1.93	ND <1.00	ND <5.00	ND <1.00	11.3	9.64	ND <10.0	ND <10.0	ND <1.00 to <10.0
	05/14/09	638	63.8	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <500	ND <20.0	ND <20.0	ND <200	ND <20.0	ND <20.0	ND <20.0	ND <100	ND <20.0	6.82	15.9	ND <10.0	ND <10.0	ND <20.0 to <200
	08/27/09	353	27.6	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <20.0	ND <500	ND <20.0	ND <20.0	ND <200	ND <20.0	ND <20.0	ND <20.0	ND <100	ND <20.0	8.02	12.1	ND <10.0	ND <10.0	ND <20.0 to <200
	12/02/09	254	20.2	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <5.00	ND <125.0	ND <5.00	ND <5.00	ND <50.0	ND <5.00	ND <5.00	ND <5.00	ND <25.0	ND <5.00	13.6	5.90	ND <10.0	ND <10.0	ND <5.00 to <50.0
	03/17/10	280	49	3.5	ND <1.0	ND <1.0	1.5	2.8	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	5.0	35.0	ND <10.0	ND <10.0	ND <1.0 to <5.0
DUP	06/04/10	440	33	2.1	ND <1.0	ND <1.0	1.5	2.3	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	3.4	20.4	ND <10.0	ND <10.0	ND <1.0 to <5.0
	09/30/10	320	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.8	ND <10	ND <10	ND <10	NA
	09/20/11	330	31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <10	NA	NA	NA
	09/20/11	360	31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <10	NA	NA	NA
	09/28/12	520	52	2.7	ND <1.0	ND <0.50	1.3	ND <1.0	ND <1.0	ND <1.0	NA	ND <0.50	NA	NA	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	9.7	ND <1.00	ND <1.00	ND <1.00	ND <0.50 to <1.0
	10/3/13 (4)	396	32.8	1.8 J	ND <1.0	NA	1.7 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <1.0	3.6	3.6	ND <0.50	ND <0.50	NA
Environmental Screening Levels																								
ADEC Cleanup Levels		5	5	70	100	5	140	11,000	NE	14	33,000	5	470	3,700	1,000	NE	7	5	2	NE	NE	NE	NE	Varies by Compound
EPA Regional Screening Levels		9.7	0.44	28	86	0.15	0.19	1,100	0.50	0.12	12,000	0.39	12	720	860	5.2	260	9.9	0.015	NE	NE	NE	NE	Varies by Compound

**Table B-1. Analytical Results for Groundwater Monitoring Wells,
The Bentley Mall, Fairbanks, AK**

Well	Sample Date	PCE	TCE	cis 1,2-DCE	trans 1,2-DCE	1,2-DCA	Chloroform	Freon-11	1,1,1,2-TCA	BDM	Acetone	Benzene	MTBE	Carbon Disulfide	Toluene	1,2,3-TCB	1,1-DCE	Methylene Chloride	Vinyl Chloride	Total Organic Carbon	Methane	Ethene	Ethane	Other VOCs	
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
MW-13	10/29/05 (1)	120	0.40 J	ND <0.33	ND <0.48	0.43 J	2.8	2.8	ND <0.17	ND <0.16	3.2 J	0.28 J	0.25 J	0.36 J	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	NA	11	ND <0.050	ND <0.050	ND <0.082 to <0.62	
	5/17/06 (2)	79	ND <0.16	ND <0.33	ND <0.48	ND <0.20	3.4	1.7	ND <0.17	ND <0.16	ND <0.73	ND <0.15	ND <0.23	ND <0.24	ND <0.085	ND <0.25	ND <0.29	ND <0.35	ND <0.36	3.7	16	ND <0.50	ND <0.50	ND <0.082 to <0.62	
DUP	10/18/06	138	ND <2.00	ND <2.00	ND <2.00	ND <2.00	3.50	ND <5.00	ND <2.00	ND <2.00	ND <100	ND <2.00	ND <10.0	ND <5.00	ND <2.00	ND <10.0	ND <2.00	ND <50.0	ND <0.200	12.7	NA	NA	NA	ND <2.00 to <50.0	
	10/18/06	141	0.300	ND <0.200	ND <0.200	0.41	3.77	2.22	ND <0.200	ND <0.200	ND <10.0	ND <0.200	ND <1.00	0.580	ND <0.200	ND <1.00	ND <0.200	ND <5.00	ND <0.200	NA	NA	NA	NA	ND <0.200 to <5.00	
	02/12/07	102	ND <1.00	ND <1.00	ND <1.00	ND <1.00	3.75	2.14	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.71	3.01	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	05/26/07	56.1	ND <1.00	ND <1.00	ND <1.00	ND <1.00	3.57	1.61	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	7.45	2.32	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	11/08/07	118	ND <1.00	ND <1.00	ND <1.00	ND <1.00	2.58	2.38	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <0.200	3.18	3.64	ND <10.0	ND <10.0	ND <0.200 to <10.0	
DUP2	05/21/08	24.3	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.56	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	1.76	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	2.85	22.6	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	10/08/08	52.1	ND <1.00	ND <1.00	ND <1.00	ND <1.00	3.12	1.86	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.9	2.18	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	10/08/08	53.4	ND <1.00	ND <1.00	ND <1.00	ND <1.00	2.69	1.69	ND <1.00	ND <1.00	ND <20.0	ND <1.00	ND <2.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	NA	NA	NA	NA	ND <1.00 to <10.0	
	12/20/08	61.5	ND <1.00	ND <1.00	ND <1.00	ND <1.00	2.09	1.04	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	5.59	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	05/14/09	45.1	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.21	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.61	ND <1.20	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	08/27/09	47.8	ND <2.00	ND <2.00	ND <2.00	ND <2.00	2.00	ND <2.00	ND <2.00	ND <2.00	ND <50.0	ND <2.00	ND <2.00	ND <20.0	ND <2.00	ND <2.00	ND <2.00	ND <2.00	ND <10.0	ND <2.00	3.99	4.72	ND <10.0	ND <10.0	ND <2.00 to <20.0
	12/02/09	56.2	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.80	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	ND <1.00	ND <5.00	ND <1.00	3.35	5.76	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	03/17/10	24	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	NA	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	4.8	3.14	ND <10.0	ND <10.0	ND <1.0 to <5.0	
	06/04/10	5.2	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	NA	NA	ND <1.0	NA	NA	NA	ND <1.0	ND <1.0	ND <1.0	ND <5.0	ND <1.0	2.7	41.3	ND <10.0	ND <10.0	ND <1.0 to <5.0
	09/30/10	16	ND <1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.7	ND <10	ND <10	ND <10	NA
09/20/11	15	ND <1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <10	NA	NA	NA	
09/28/12	43	ND <1.0	ND <1.0	ND <1.0	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	NA	ND <0.50	NA	NA	NA	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	3.4	ND <1.00	ND <1.00	ND <1.00	ND <0.50 to <1.0	
DUP2	10/3/13 (4)	13.8	ND <0.20	ND <0.20	ND <0.20	NA	0.67 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.20	2.9	2.5	ND <0.50	ND <0.50	NA	
	10/3/13 (4)	14.8	ND <0.20	ND <0.20	ND <0.20	NA	0.77 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.20	3.0	2.5	ND <0.50	ND <0.50	NA	
Environmental Screening Levels																									
ADEC Cleanup Levels		5	5	70	100	5	140	11,000	NE	14	33,000	5	470	3,700	1,000	NE	7	5	2	NE	NE	NE	NE	Varies by Compound	
EPA Regional Screening Levels		9.7	0.44	28	86	0.15	0.19	1,100	0.50	0.12	12,000	0.39	12	720	860	5.2	260	9.9	0.015	NE	NE	NE	NE	Varies by Compound	

Table B-1. Analytical Results for Groundwater Monitoring Wells, The Bentley Mall, Fairbanks, AK

Table Notes:

General

µg/L:	Micrograms per liter				
mg/L:	Milligrams per liter				
ND <1.0:	With the following exceptions, not detected at or above the laboratory method reporting limit (MRL). For September 2005 and October 2005 sampling events, not detected at or above the laboratory method detection limit (MDL) for all compounds except total organic carbon, methane, ethene and ethane. For the May 2006 sampling event, not detected at or above the MDL for all compounds, except total organic carbon. For the June 2013, and October 2013 sampling events, not detected at or above the MDL for all compounds, except total organic carbon.				
Dup:	Sample is a field duplicate				
NA:	Not analyzed				
N/A:	Not applicable				
VOCs:	Volatile organic compounds by Environmental Protection Agency (EPA) Method 8260B				
PCE:	Tetrachloroethene	cis 1,2-DCE	cis 1,2-Dichloroethene	BDM:	Bromodichloromethane
TCE:	Trichloroethene	1,1,1,2-TCA	1,1,1,2-Tetrachloroethane	MTBE:	Methyl tert butyl ether
trans 1,2-DCE:	trans 1,2-Dichloroethene	1,2-DCA:	1,2-Dichloroethane	Freon-11:	Trichlorofluoromethane
				1,2,3-TCB:	1,1,3-Trichlorobenzene
				1,1-DCE:	1,1-Dichloroethene

Environmental screening levels:

Table C (Groundwater Cleanup Levels) in Alaska Department of Environmental Conservation (ADEC, October 9, 2008): *Oil and Other Hazardous Substances Pollution Control, 18 AAC 75*, revised October 9, 2008.
United States Environmental Protection Agency, Region 9 (USEPA, November 2013): *Regional Screening Levels (Formerly Preliminary Remediation Goals) for Chemical Contaminants at Superfund Sites*, October 2004, updated November 2013.

860	Sample result exceeds ADEC Groundwater Cleanup Level (Table C in ADEC, October 9, 2008)
------------	---

Detail

- J Concentration was reported by the laboratory as an estimated value
- (1) For the September 2005 and October 2005 sampling events, the laboratory provided both the method reporting limit (MRL) and method detection limit (MDL), except for total organic carbon, methane, ethene and ethane.
For total organic carbon, methane, ethene and ethane, non-detectable (ND) = not detected at or above the MRL shown above.
For all other compounds, non-detectable (ND) = not detected at or above the MDL shown above. For reference, the MRLs for these compounds were as follows:
1.0 µg/L for benzene
2.0 µg/L for TCE, cis-1,2-DCE, trans-1,2-DCE, 1,2-DCA, chloroform, Freon-11, 1,1,1,2-TCA, BDM, MTBE, carbon disulfide, toluene, and 1,1-DCE
2.4 µg/L for PCE
2.8 µg/L for 1,2,3-TCB
5.0 µg/L for methylene chloride
2.0 to 50 µg/L for other VOCs
- (2) For the May 2006 sampling event, the laboratory provided both the MRL and MDL, except for total organic carbon.
According to the laboratory, non-detectable (ND) = not detected at or above the MDL shown above. For reference, the MRLs were as follows:
1.0 µg/L for benzene
2.0 µg/L for TCE, cis-1,2-DCE, trans-1,2-DCE, 1,2-DCA, chloroform, Freon-11, 1,1,1,2-TCA, BDM, MTBE, carbon disulfide, toluene, and 1,1-DCE
2.4 µg/L for PCE
2.8 µg/L for 1,2,3-TCB
5.0 µg/L for methylene chloride
2.0 to 50 µg/L for other VOCs
0.50 µg/L for methane, ethene and ethane in all wells, except for well MW-7. MRLs for well MW-7 were 5.0 µg/L for methane, 0.50 µg/L for ethene, and 0.50 µg/L for ethane.
- (3) For the June 2013 sampling event, the laboratory provided both the MRL and MDL, except for total organic carbon. The results for total organic carbon are with respect to a MRL of 1 mg/L.
According to the laboratory, non-detectable (ND) = Not detected at or above the MDL shown above.
The MRLs were as follows: 5.0 µg/L for well MW-1, 2.0 µg/L for well MW-2, and 1.0 µg/L for well MW-4, except 0.50 µg/L for methane, 1.0 µg/L for ethene, and 1.0 µg/L for ethane.
- (4) For the October 2013 sampling event, the laboratory provided both the MRL and MDL, except for total organic carbon. The results for total organic carbon are with respect to a MRL of 1 mg/L.
According to the laboratory, non-detectable (ND) = Not detected at or above the MDL shown above.
The MRLs were as follows: 5.0 µg/L for wells MW-1, MW-2 and MW-12; 2.0 µg/L for well MW-5; and 1.0 µg/L for wells MW-4, MW-6, MW-7, MW-9, MW-11, and MW-13, except methane, ethene, and ethane.
The MRLs were 0.50 µg/L for methane, 1.0 µg/L for ethene, and 1.0 µg/L for ethane for all wells except well MW-7. For well MW-7, MRLs were 2.5 µg/L for methane, 5.0 µg/L for ethene, and 5.0 µg/L for ethane.

**Table B-2. Groundwater Analytical Results for Sparge Wells,
The Bentley Mall, Fairbanks, AK**

Well	Date	PCE	TCE	cis 1,2-DCE	trans 1,2-DCE	1,2-DCA	Chloroform	Freon-11	1,1,1,2-TCA	1,2-DCB	Acetone	Benzene	MTBE	2-Butanone	1,1-DCE	Vinyl Chloride	Total Organic Carbon	Methane	Ethene	Ethane	Other VOCs	
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
SW-1	10/13/06	0.630	ND <0.200	ND <0.200	ND <0.200	0.490	12.5	12.3	ND <0.200	ND <0.200	ND <10.0	9.97	ND <1.00	ND <2.00	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <0.200 to <5.00	
	06/16/07	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	7.81	5.72	ND <1.00	ND <1.00	ND <25.0	9.05	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.24	44.6	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	06/09/08	7.52	ND <1.00	ND <1.00	ND <1.00	ND <1.00	8.75	5.14	ND <1.00	ND <1.00	ND <25.0	2.96	ND <1.00	ND <10.0	ND <1.00	ND <1.00	3.3	24.2	ND <10.0	ND <10.0	ND <0.200 to <10.0	
	07/13/09	2.58	ND <1.00	ND <1.00	ND <1.00	ND <1.00	8.06	3.35	ND <1.00	ND <1.00	ND <25.0	1.84	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.71	12.8	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	06/28/10	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	5.9	4.6	ND <1.0	ND <1.0	NA	3.4	NA	NA	ND <1.0	ND <1.0	2.3	54.4	ND <10.0	ND <10.0	ND <1.0 to <5.0	
	10/01/10	ND <1.0	ND <1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.7	16	ND <10	ND <10	NA
SW-2	10/13/06	0.690	ND <0.200	ND <0.200	ND <0.200	0.670	8.95	6.79	ND <0.200	ND <0.200	ND <10.0	12.1	ND <1.00	ND <2.00	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <0.200 to <5.00	
	06/16/07	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	10.4	5.75	ND <1.00	ND <1.00	ND <25.0	8.43	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.06	46.3	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	06/09/08	1.48	ND <1.00	ND <1.00	ND <1.00	ND <1.00	8.84	4.14	ND <1.00	ND <1.00	ND <25.0	5.92	ND <1.00	ND <10.0	ND <1.00	ND <1.00	3.4	62.5	ND <10.0	ND <10.0	ND <0.200 to <10.0	
	07/13/09	1.79	ND <1.00	ND <1.00	ND <1.00	ND <1.00	8.53	3.36	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.38	3.38	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	06/28/10	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	10	5.6	ND <1.0	ND <1.0	NA	3.7	NA	NA	ND <1.0	ND <1.0	2.2	38.6	ND <10.0	ND <10.0	ND <1.0 to <5.0	
	10/01/10	ND <1.0	ND <1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.4	13	ND <10	ND <10	NA
	09/19/11	4.2	ND <1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <10	NA	NA	NA	NA
	05/29/12	2.4	ND <1.0	ND <1.0	ND <1.0	ND <0.50	6.9	4.7	ND <1.0	ND <1.0	NA	4.6	NA	NA	ND <1.0	ND <1.0	2.5	14.1	ND <10.0	ND <10.0	ND <0.50 to <1.0	
	09/28/12	15	ND <1.0	ND <1.0	ND <1.0	ND <0.50	8.5	6.3	ND <1.0	ND <1.0	NA	7.4	NA	NA	ND <1.0	ND <1.0	2.9	30.6	ND <10.0	ND <10.0	ND <0.50 to <1.0	
	6/22/13 (4)	2.5	ND <0.20	ND <0.20	ND <0.20	NA	4.1	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.20	ND <0.20	2.5	3.5	ND <0.50	ND <0.50	NA
10/03/13 (5)	4.0	ND <0.20	ND <0.20	ND <0.20	NA	6.6	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.20	ND <0.20	2.7	5.7	ND <0.50	ND <0.50	NA	
SW-3	10/13/06	5.83	ND <0.200	ND <0.200	ND <0.200	0.670	11.4	8.65	ND <0.200	ND <0.200	ND <10.0	8.72	ND <1.00	ND <2.00	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <0.200 to <5.00	
	06/16/07	1.04	ND <1.00	ND <1.00	ND <1.00	ND <1.00	6.31	3.85	ND <1.00	ND <1.00	ND <25.0	9.68	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.30	61.2	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	06/09/08	4.46	ND <1.00	ND <1.00	ND <1.00	ND <1.00	8.45	4.88	ND <1.00	ND <1.00	ND <25.0	5.66	ND <1.00	ND <10.0	ND <1.00	ND <1.00	3.5	60.4	ND <10.0	ND <10.0	ND <0.200 to <10.0	
	DUP	06/11/08 (1)	6.16	ND <1.00	ND <1.00	ND <1.00	ND <1.00	8.55	5.12	ND <1.00	ND <1.00	ND <25.0	5.48	ND <1.00	ND <10.0	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <0.200 to <10.0
DUP2	07/13/09	2.55	ND <1.00	ND <1.00	ND <1.00	ND <1.00	4.04	2.37	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.47	12.1	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	07/13/09	2.99	ND <1.00	ND <1.00	ND <1.00	ND <1.00	4.15	2.40	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <1.00 to <10.0	
	06/28/10	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	4.6	3.0	ND <1.0	ND <1.0	NA	4.4	NA	NA	ND <1.0	ND <1.0	2.4	48.8	ND <10.0	ND <10.0	ND <1.0 to <5.0	
	10/01/10	ND <1.0	ND <1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.4	14	ND <10	ND <10	NA
SW-4	10/13/06	86.6	0.500	0.420	ND <0.200	0.790	4.88	4.39	ND <0.200	ND <0.200	ND <10.0	8.72	ND <1.00	ND <2.00	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <0.200 to <5.00	
	06/18/07	7.91	ND <5.00	ND <5.00	ND <5.00	ND <5.00	8.00	6.65	ND <5.00	ND <5.00	ND <125	6.85	ND <5.00	717	ND <5.00	ND <5.00	2.72	52.0	ND <10.0	ND <10.0	ND <5.00 to <50.0	
	06/09/08	8.26	ND <1.00	ND <1.00	ND <1.00	ND <1.00	6.69	6.09	ND <1.00	ND <1.00	ND <25.0	3.93	ND <1.00	ND <10.0	ND <1.00	ND <1.00	3.3	67.2	ND <10.0	ND <10.0	ND <0.200 to <10.0	
	07/13/09	44.2	ND <1.00	ND <1.00	ND <1.00	ND <1.00	4.59	2.72	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.44	6.25	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	DUP1	07/13/09	41.3	ND <1.00	ND <1.00	ND <1.00	ND <1.00	4.52	2.87	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <1.00 to <10.0
	06/28/10	4.3	ND <1.0	ND <1.0	ND <1.0	ND <1.0	7.4	4.3	ND <1.0	ND <1.0	NA	3.4	NA	NA	ND <1.0	ND <1.0	2.6	32.7	ND <10.0	ND <10.0	ND <1.0 to <5.0	
	DUP1	06/28/10	4.9	ND <1.0	ND <1.0	ND <1.0	ND <1.0	7.6	4.6	ND <1.0	ND <1.0	NA	3.2	NA	NA	NA	ND <1.0	NA	NA	NA	NA	ND <1.0 to <5.0
	10/01/10	5.0	ND <1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.6	16	ND <10	ND <10	NA
	09/19/11	5.6	ND <1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <10	NA	NA	NA	NA
	05/29/12	3.4	ND <1.0	ND <1.0	ND <1.0	ND <0.50	6.5	3.9	ND <1.0	ND <1.0	NA	3.6	NA	NA	ND <1.0	ND <1.0	2.6	183	ND <10.0	ND <10.0	ND <0.50 to <1.0	
	09/28/12	13	ND <1.0	ND <1.0	ND <1.0	ND <0.50	6.2	5.0	ND <1.0	ND <1.0	NA	2.8	NA	NA	ND <1.0	ND <1.0	2.9	60.6	ND <10.0	ND <10.0	ND <0.50 to <1.0	
	6/22/13 (4)	5.3	ND <0.20	0.25 J	ND <0.20	NA	4.3	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.20	ND <0.20	2.5	8.2	ND <0.50	ND <0.50	NA
10/03/13 (5)	7.8	ND <0.20	0.42 J	ND <0.20	NA	6.9	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.20	ND <0.20	2.6	6.7	ND <0.50	ND <0.50	NA	
Environmental Screening Levels																						
ADEC Cleanup Levels		5	5	70	100	5	140	11,000	NE	600	33,000	5	470	22,000	7	2	NE	NE	NE	NE	Varies by Compound	
EPA Regional Screening Levels		9.7	0.44	28	86	0.15	0.19	1,100	0.50	280	12,000	0.39	12	4,900	280	0.015	NE	NE	NE	NE	Varies by Compound	

**Table B-2. Groundwater Analytical Results for Sparge Wells,
The Bentley Mall, Fairbanks, AK**

Well	Date	PCE	TCE	cis 1,2-DCE	trans 1,2-DCE	1,2-DCA	Chloroform	Freon-11	1,1,1,2-TCA	1,2-DCB	Acetone	Benzene	MTBE	2-Butanone	1,1-DCE	Vinyl Chloride	Total Organic Carbon	Methane	Ethene	Ethane	Other VOCs
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L
SW-5	10/13/06	2,460	1.94	0.580	ND <0.200	0.880	0.710	2.16	ND <0.200	0.27	ND <10.0	8.72	ND <1.00	ND <2.00	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <0.200 to <5.00
DUP	10/13/06	4,670	ND <200	ND <200	ND <200	ND <200	ND <200	ND <500	ND <200	ND <200	ND <10,000	ND <200	ND <1,000	ND <2,000	ND <1,000	ND <1,000	NA	NA	NA	NA	ND <200 to <5,000
	08/22/07 (2)	1,650	2.87	ND <1.00	ND <1.00	1.01	1.11	3.06	ND <1.00	ND <1.00	ND <20.0	1.63	ND <2.00	ND <10.0	2.00	ND <2.00	18.0	42.1	ND <10.0	ND <10.0	ND <1.00 to <10.0
	06/09/08	1,330	1.56	ND <1.00	ND <1.00	1.11	ND <1.00	2.72	ND <1.00	ND <1.00	ND <25.0	1.25	ND <1.00	ND <10.0	ND <1.00	ND <1.00	3.4	70.4	ND <10.0	ND <10.0	ND <0.200 to <10.0
	07/13/09	934	ND <50.0	ND <50.0	ND <50.0	ND <50.0	ND <50.0	ND <50.0	ND <50.0	ND <50.0	ND <1250	ND <50.0	ND <50.0	ND <500	ND <50.0	ND <50.0	2.84	40.2	ND <10.0	ND <10.0	ND <50.0 to <500
	06/28/10	370	ND <1.0	ND <1.0	ND <1.0	ND <1.0	1.5	2.1	ND <1.0	ND <1.0	NA	1.6	NA	NA	ND <1.0	ND <1.0	4.2	51.5	ND <10.0	ND <10.0	ND <1.0 to <5.0
	10/01/10	2,500	1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.8	32	ND <10	ND <10	NA
DUP3	09/19/11	170	ND <2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <10	NA	NA	NA
	09/29/12	2,200	2.4	ND <1.0	ND <1.0	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	NA	2.5	NA	NA	ND <1.0	ND <1.0	3.1	36.8	ND <1.00	ND <1.00	ND <0.50 to <1.0
	6/22/13 (4)	235	0.69 J	0.60 J	ND <0.50	NA	2.2 J	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.50	2.6	6.0	ND <0.50	ND <0.50	NA
	10/03/13 (5)	1,210	ND <4.0	ND <4.0	ND <4.0	NA	ND <4.0	NA	NA	NA	NA	NA	NA	NA	NA	ND <4.0	3.6	8.7	ND <0.50	ND <0.50	NA
SW-6	10/13/06	414	1.21	0.770	ND <0.200	0.950	0.460	1.99	ND <0.200	ND <0.200	ND <10.0	1.86	ND <1.00	ND <2.00	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <0.200 to <5.00
DUP	10/13/06	411	ND <2.00	ND <2.00	ND <2.00	ND <2.00	ND <2.00	ND <5.00	ND <2.00	ND <2.00	ND <100	ND <2.00	ND <10.0	ND <20.0	ND <10.0	ND <10.0	NA	NA	NA	NA	ND <2.00 to <50.0
	06/18/07 (2)	203	ND <2.00	ND <2.00	ND <2.00	ND <2.00	ND <2.00	ND <2.00	ND <2.00	ND <2.00	ND <50.0	ND <2.00	ND <2.00	ND <20.0	ND <2.00	ND <2.00	2.22	38.5	ND <10.0	ND <10.0	ND <2.00 to <20.0
	06/09/08	159	ND <1.00	ND <1.00	ND <1.00	1.07	ND <1.00	2.46	ND <1.00	ND <1.00	ND <25.0	0.995	ND <1.00	ND <10.0	ND <1.00	ND <1.00	3.5	70.5	ND <10.0	ND <10.0	ND <0.200 to <10.0
	07/14/09	182	ND <10.0	ND <10.0	ND <10.0	ND <10.0	ND <10.0	ND <10.0	ND <10.0	ND <10.0	ND <250	ND <10.0	ND <10.0	ND <10.0	ND <10.0	ND <10.0	3.05	17.5	ND <10.0	ND <10.0	ND <1.00 to <10.0
	06/28/10	90	ND <1.0	ND <1.0	ND <1.0	ND <1.0	1.1	2.2	ND <1.0	ND <1.0	NA	1.5	NA	NA	ND <1.0	ND <1.0	2.8	57.9	ND <10.0	ND <10.0	ND <1.0 to <5.0
	09/30/10	290	ND <1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.7	44	ND <10	ND <10	NA
	09/19/11	210	ND <5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <10	NA	NA	NA
	05/29/12	65	ND <1.0	ND <1.0	ND <1.0	ND <0.50	1.2	2.4	ND <1.0	ND <1.0	NA	0.59	NA	NA	ND <1.0	ND <1.0	2.9	111	ND <1.00	ND <1.00	ND <0.50 to <1.0
	09/29/12	210	1.2	ND <1.0	ND <1.0	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	NA	2.6	NA	NA	ND <1.0	ND <1.0	3.1	31.2	ND <1.00	ND <1.00	ND <0.50 to <1.0
	6/22/13 (4)	188	ND <0.80	ND <0.80	ND <0.80	NA	1.1 J	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.80	2.6	6.2	ND <0.50	ND <0.50	NA
	10/03/13 (5)	194	1.9 J	0.47 J	ND <0.40	NA	1.2 J	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.40	2.8	6.8	ND <0.50	ND <0.50	NA
SW-7	10/13/06	150	193	5.76	0.370	0.940	0.430	1.84	ND <0.200	ND <0.200	ND <10.0	1.22	ND <1.00	ND <2.00	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <0.200 to <5.00
DUP	10/13/06	141	181	5.20	ND <1.00	0.940	ND <1.00	ND <2.50	ND <1.00	ND <1.00	ND <50.0	1.15	ND <5.00	ND <10.0	ND <5.00	ND <5.00	NA	NA	NA	NA	ND <1.00 to <10.0
	06/18/07 (2)	147	24.4	ND <1.00	ND <1.00	1.08	ND <1.00	2.11	ND <1.00	ND <1.00	ND <25.0	1.10	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.63	39.9	ND <10.0	ND <10.0	ND <1.00 to <10.0
DUP2	06/20/07 (2)	151	21.0	ND <1.00	ND <1.00	1.02	ND <1.00	1.93	ND <1.00	ND <1.00	ND <25.0	1.32	ND <1.00	ND <10.0	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <1.00 to <10.0
	06/09/08	41.5	41.4	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.23	ND <1.00	ND <1.00	ND <25.0	0.645	ND <1.00	ND <10.0	ND <1.00	ND <1.00	24	31.1	ND <10.0	ND <10.0	ND <0.200 to <10.0
	07/14/09	27.5	38.7	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.83	62.1	ND <10.0	ND <10.0	ND <1.00 to <10.0
	06/29/10 (3)	110	6.3	ND <1.0	ND <1.0	ND <1.0	ND <1.0	1.6	ND <1.0	ND <1.0	NA	1.2	NA	NA	ND <1.0	ND <1.0	3.1	51.0	ND <10.0	ND <10.0	ND <1.0 to <5.0
	10/02/10	120	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.9	25	ND <10	ND <10	NA
	09/19/11	200	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <10	NA	NA	NA
	5/29/12 (4)	35	12	ND <1.0	ND <1.0	ND <0.50	ND <1.0	1.5	ND <1.0	ND <1.0	NA	1.0	NA	NA	ND <1.0	ND <1.0	3.1	137	ND <1.00	ND <1.00	ND <0.50 to <1.0
	9/29/12 (4)	190	27	ND <1.0	ND <1.0	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	NA	1.8	NA	NA	ND <1.0	ND <1.0	3.1	46.5	ND <1.00	ND <1.00	ND <0.50 to <1.0
	6/22/13 (4)	139	6.2	0.46 J	ND <0.20	NA	0.89 J	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.20	2.6	8.0	ND <0.50	ND <0.50	NA
	10/03/13 (5)	141	10.7	0.46 J	ND <0.40	NA	0.92 J	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.40	2.8	9.7	ND <0.50	ND <0.50	NA
Environmental Screening Levels																					
ADEC Cleanup Levels		5	5	70	100	5	140	11,000	NE	600	33,000	5	470	22,000	7	2	NE	NE	NE	NE	Varies by Compound
EPA Regional Screening Levels		9.7	0.44	28	86	0.15	0.19	1,100	0.50	280	12,000	0.39	12	4,900	260	0.015	NE	NE	NE	NE	Varies by Compound

**Table B-2. Groundwater Analytical Results for Sparge Wells,
The Bentley Mall, Fairbanks, AK**

Well	Date	PCE	TCE	cis 1,2-DCE	trans 1,2-DCE	1,2-DCA	Chloroform	Freon-11	1,1,1,2-TCA	1,2-DCB	Acetone	Benzene	MTBE	2-Butanone	1,1-DCE	Vinyl Chloride	Total Organic Carbon	Methane	Ethene	Ethane	Other VOCs
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L
SW-8 DUP2	10/13/06	15.3	1.75	1.30	0.490	0.840	ND <0.200	0.550	ND <0.200	ND <0.200	ND <10.0	0.520	ND <1.00	ND <2.00	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <0.200 to <5.00
	06/19/07 (2)	12.1	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.38	24.7	ND <10.0	ND <10.0	ND <1.00 to <10.0
	06/09/08	21.8	1.73	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	0.237	ND <1.00	ND <10.0	ND <1.00	ND <1.00	3.7	36.0	ND <10.0	ND <10.0	ND <0.200 to <10.0
	06/11/08 (3)	22.8	1.43	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	0.218	ND <1.00	ND <10.0	ND <1.00	ND <1.00	3.2	73.9	ND <10.0	ND <10.0	ND <0.200 to <10.0
	07/14/09	6.0	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.53	54.6	ND <10.0	ND <10.0	ND <1.00 to <10.0
	06/29/10	6.6	1.4	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	NA	ND <1.0	NA	NA	ND <1.0	ND <1.0	4.1	35.3	ND <10.0	ND <10.0	ND <1.0 to <5.0
	10/02/10	14	ND <1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.1	37	ND <10	ND <10	NA
	09/19/11	11	1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <10	NA	NA	NA
	9/29/12 (4)	15	2.6	ND <1.0	ND <1.0	ND <0.50	ND <1.0	ND <1.0	ND <1.0	ND <1.0	NA	ND <0.50	NA	NA	ND <1.0	ND <1.0	2.9	38.2	ND <1.00	ND <1.00	ND <0.50 to <1.0
	6/22/13 (4)	7.2	1.0	0.69 J	0.33 J	NA	0.26 J	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.20	2.5	14.6	ND <0.50	ND <0.50	NA
10/03/13 (5)	10.8	1.5	0.61 J	0.31 J	NA	0.22 J	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.20	2.7	12.6	ND <0.50	ND <0.50	NA	
SW-9 DUP2	10/14/06	0.850	0.370	0.590	ND <0.200	0.850	0.210	1.51	ND <0.200	ND <0.200	ND <10.0	5.01	ND <1.00	ND <2.00	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <0.200 to <5.00
	06/18/07 (2)	1.41	ND <1.00	ND <1.00	ND <1.00	1.16	ND <1.00	1.83	ND <1.00	ND <1.00	ND <25.0	9.48	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.35	41.5	ND <10.0	ND <10.0	ND <1.00 to <10.0
	06/10/08	10.5	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.58	ND <1.00	ND <1.00	ND <25.0	1.42	ND <1.00	ND <10.0	ND <1.00	ND <1.00	3.4	26.5	ND <10.0	ND <10.0	ND <0.200 to <10.0
	07/14/09	3.52	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.35	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.59	8.95	ND <10.0	ND <10.0	ND <1.00 to <10.0
	06/29/10	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	1.7	ND <1.0	ND <1.0	NA	4.6	NA	NA	ND <1.0	ND <1.0	ND <1.0	2.5	30.8	ND <10.0	ND <10.0	ND <1.0 to <5.0
	06/29/10	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	1.8	1.5	ND <1.0	ND <1.0	NA	4.7	NA	NA	ND <1.0	ND <1.0	NA	NA	NA	NA	ND <1.0 to <5.0
	10/02/10	ND <1.0	ND <1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.4	24	ND <10	ND <10	NA
SW-10	10/14/06	2.10	0.330	0.560	ND <0.200	1.01	ND <0.200	2.63	ND <0.200	ND <0.200	ND <10.0	4.44	ND <1.00	ND <2.00	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <0.200 to <5.00
	06/19/07 (2)	4.15	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.80	ND <1.00	ND <1.00	ND <25.0	3.98	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.48	35.3	ND <10.0	ND <10.0	ND <1.00 to <10.0
	06/10/08	3.59	ND <1.00	ND <1.00	ND <1.00	1.03	ND <1.00	1.68	ND <1.00	ND <1.00	ND <25.0	5.07	ND <1.00	ND <10.0	ND <1.00	ND <1.00	7.1	57.9	ND <10.0	ND <10.0	ND <0.200 to <10.0
	07/14/09	1.94	ND <1.00	ND <1.00	ND <1.00	1.03	ND <1.00	1.04	ND <1.00	ND <1.00	ND <25.0	2.24	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.71	68.3	ND <10.0	ND <10.0	ND <1.00 to <10.0
	06/29/10	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	1.6	ND <1.0	ND <1.0	NA	5.4	NA	NA	ND <1.0	ND <1.0	ND <1.0	2.6	59.7	ND <10.0	ND <10.0	ND <1.0 to <5.0
	10/02/10	ND <1.0	ND <1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.5	30	ND <10	ND <10	NA
SW-11 DUP	10/14/06	5.85	0.450	0.680	ND <0.200	1.02	ND <0.200	2.23	ND <0.200	ND <0.200	ND <10.0	4.31	ND <1.00	ND <2.00	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <0.200 to <5.00
	08/22/07 (2)	2.33	ND <1.00	ND <1.00	ND <1.00	ND <1.00	2.18	3.63	ND <1.00	ND <1.00	ND <20.0	3.60	ND <2.00	ND <10.0	2.02	ND <2.00	3.26	46.4	ND <10.0	ND <10.0	ND <1.00 to <10.0
	08/22/07 (2)	3.26	1.22	ND <1.00	ND <1.00	ND <1.00	2.28	3.82	ND <1.00	ND <1.00	ND <20.0	3.68	ND <2.00	ND <10.0	1.86	ND <2.00	3.33	52	ND <10.0	ND <10.0	ND <1.00 to <10.0
	06/10/08	20.9	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	2.64	ND <1.00	ND <1.00	ND <25.0	0.324	ND <1.00	ND <10.0	ND <1.00	ND <1.00	4.0	8.17	ND <10.0	ND <10.0	ND <0.200 to <10.0
	06/29/10	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	1.8	ND <1.0	ND <1.0	NA	2.8	NA	NA	ND <1.0	ND <1.0	2.6	49.2	ND <10.0	ND <10.0	ND <1.0 to <5.0
	10/02/10	1.1	ND <1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.7	24	ND <10	ND <10	NA
Environmental Screening Levels																					
ADEC Cleanup Levels		5	5	70	100	5	140	11,000	NE	600	33,000	5	470	22,000	7	2	NE	NE	NE	NE	Varies by Compound
EPA Regional Screening Levels		9.7	0.44	28	86	0.15	0.19	1,100	0.50	280	12,000	0.39	12	4,900	260	0.015	NE	NE	NE	NE	Varies by Compound

**Table B-2. Groundwater Analytical Results for Sparge Wells,
The Bentley Mall, Fairbanks, AK**

Well	Date	PCE	TCE	cis 1,2-DCE	trans 1,2-DCE	1,2-DCA	Chloroform	Freon-11	1,1,1,2-TCA	1,2-DCB	Acetone	Benzene	MTBE	2-Butanone	1,1-DCE	Vinyl Chloride	Total Organic Carbon	Methane	Ethene	Ethane	Other VOCs	
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
SW-12	10/14/06	1.88	0.490	0.770	0.210	1.00	ND <0.200	1.87	ND <0.200	ND <0.200	ND <10.0	2.68	ND <1.00	ND <2.00	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <0.200 to <5.00	
	06/19/07 (2)	9.82	ND <1.00	ND <1.00	ND <1.00	1.02	ND <1.00	1.65	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.74	9.83	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	06/10/08	24.4	ND <1.00	ND <1.00	ND <1.00	1.02	ND <1.00	2.29	ND <1.00	ND <1.00	ND <25.0	ND <20.0	ND <1.00	ND <10.0	ND <1.00	ND <1.00	4.5	3.18	ND <10.0	ND <10.0	ND <0.200 to <10.0	
	07/14/09	3.60	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.10	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	3.04	35.4	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	06/30/10	24	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.6	2.3	ND <1.00	ND <1.00	NA	2.7	NA	NA	ND <1.00	ND <1.00	2.7	51.5	ND <10.0	ND <10.0	ND <1.00 to <5.0	
	10/02/10	1.3	ND <1.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.2	36	ND <10	ND <10	NA
	09/29/12	2.6	ND <1.00	ND <1.00	ND <1.00	ND <0.50	ND <1.00	2.9	ND <1.00	ND <1.00	NA	6.0	NA	NA	ND <1.00	ND <1.00	3.1	53.7	ND <10.0	ND <10.0	ND <0.50 to <1.0	
	6/22/13 (4)	9.1	0.28 J	0.36 J	ND <0.20	NA	2.4	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.20	2.4	5.5	ND <0.50	ND <0.50	NA	
	10/03/13 (5)	1.2 J	0.30 J	0.38 J	ND <0.20	NA	0.30 J	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.20	3.0	10.9	ND <0.50	ND <0.50	NA	
SW-13	10/14/06	6.81	0.680	1.09	0.330	1.00	ND <0.200	1.63	ND <0.200	ND <0.200	ND <10.0	1.24	ND <1.00	2.33	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <0.200 to <5.00	
	06/19/07 (2)	6.35	ND <1.00	ND <1.00	ND <1.00	1.04	ND <1.00	1.55	ND <1.00	ND <1.00	ND <25.0	1.50	ND <1.00	108	ND <1.00	ND <1.00	2.54	63.9	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	06/10/08	9.62	ND <1.00	ND <1.00	ND <1.00	1.07	ND <1.00	1.84	ND <1.00	ND <1.00	ND <25.0	0.658	ND <1.00	ND <10.0	ND <1.00	ND <1.00	4.4	38.9	ND <10.0	ND <10.0	ND <0.200 to <10.0	
	07/14/09	4.58	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.11	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	3.02	22.8	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	06/30/10	2.7	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.7	ND <1.00	ND <1.00	NA	1.4	NA	NA	ND <1.00	ND <1.00	3.1	47.9	ND <10.0	ND <10.0	ND <1.00 to <5.0	
	10/03/10	1.0	ND <1.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.4	40	ND <10	ND <10	NA	
SW-14	10/14/06	1.16	0.300	0.450	ND <0.200	1.23	ND <0.200	2.51	ND <0.200	ND <0.200	ND <10.0	7.23	ND <1.00	ND <2.00	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <0.200 to <5.00	
	06/20/07 (2)	1.45	ND <1.00	ND <1.00	ND <1.00	1.17	ND <1.00	2.26	ND <1.00	ND <1.00	ND <25.0	1.50	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.42	43.5	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	DUP1 06/20/07 (2)	1.44	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.57	ND <1.00	ND <1.00	ND <25.0	1.39	ND <1.00	ND <10.0	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <1.00 to <10.0	
	06/11/08	12.6	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.89	ND <1.00	ND <1.00	ND <25.0	0.372	ND <1.00	ND <10.0	ND <1.00	ND <1.00	6.6	7.31	ND <10.0	ND <10.0	ND <0.200 to <10.0	
	07/15/09	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.57	ND <1.00	ND <1.00	ND <25.0	1.53	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.67	73.9	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	06/30/10	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.3	2.0	ND <1.00	ND <1.00	NA	4.1	NA	NA	ND <1.00	ND <1.00	2.7	45.7	ND <10.0	ND <10.0	ND <1.00 to <5.0	
SW-15	10/14/06	0.530	0.510	0.820	0.210	1.06	ND <0.200	1.96	ND <0.200	ND <0.200	ND <10.0	3.01	ND <1.00	ND <2.00	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <0.200 to <5.00	
	06/20/07 (2)	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.06	ND <1.00	1.81	ND <1.00	ND <1.00	ND <25.0	1.47	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.15	69.4	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	06/11/08	1.18	ND <1.00	ND <1.00	ND <1.00	1.18	ND <1.00	1.79	ND <1.00	ND <1.00	ND <25.0	1.18	ND <1.00	ND <10.0	2.11	ND <1.00	3.2	82.0	ND <10.0	ND <10.0	ND <0.200 to <10.0	
	07/15/09	1.03	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.27	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.69	52.9	ND <10.0	ND <10.0	ND <1.00 to <10.0	
	06/30/10	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.9	ND <1.00	ND <1.00	NA	1.5	NA	NA	ND <1.00	ND <1.00	2.6	53.5	ND <10.0	ND <10.0	ND <1.00 to <5.0	
	10/03/10	ND <1.00	ND <1.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.2	34	ND <10	ND <10	NA	
	09/19/11	ND <1.00	ND <1.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND <10.0	NA	NA	NA	
	05/29/12	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <0.50	ND <1.00	1.9	ND <1.00	ND <1.00	NA	1.2	NA	NA	ND <1.00	ND <1.00	3.1	53.7	ND <10.0	ND <10.0	ND <0.50 to <1.0	
	09/28/12	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <0.50	ND <1.00	2.4	ND <1.00	ND <1.00	NA	2.7	NA	NA	ND <1.00	ND <1.00	3.6	24.8	ND <10.0	ND <10.0	ND <0.50 to <1.0	
	6/22/13 (4)	0.32 J	0.34 J	0.40 J	ND <0.20	NA	0.38 J	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.20	3.5	9.0	ND <0.50	ND <0.50	NA	
	10/03/13 (5)	0.35 J	0.32 J	0.40 J	ND <0.20	NA	ND <0.20	NA	NA	NA	NA	NA	NA	NA	NA	ND <0.20	3.5	9.0	ND <0.50	ND <0.50	NA	
Environmental Screening Levels																						
ADEC Cleanup Levels		5	5	70	100	5	140	11,000	NE	600	33,000	5	470	22,000	7	2	NE	NE	NE	NE	Varies by Compound	
EPA Regional Screening Levels		9.7	0.44	28	86	0.15	0.19	1,100	0.50	280	12,000	0.39	12	4,900	260	0.015	NE	NE	NE	NE	Varies by Compound	

**Table B-2. Groundwater Analytical Results for Sparge Wells,
The Bentley Mall, Fairbanks, AK**

Well	Date	PCE	TCE	cis 1,2-DCE	trans 1,2-DCE	1,2-DCA	Chloroform	Freon-11	1,1,1,2-TCA	1,2-DCB	Acetone	Benzene	MTBE	2-Butanone	1,1-DCE	Vinyl Chloride	Total Organic Carbon	Methane	Ethene	Ethane	Other VOCs
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L
SW-16	10/14/06	0.570	0.510	0.810	0.230	0.920	ND <0.200	1.38	ND <0.200	ND <0.200	ND <10.0	1.62	ND <1.00	ND <2.00	ND <1.00	ND <1.00	NA	NA	NA	NA	ND <0.200 to <5.00
	06/20/07 (2)	3.04	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.40	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.28	20.4	ND <10.0	ND <10.0	ND <1.00 to <10.0
	06/11/08	11.3	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	1.91	ND <1.00	ND <1.00	ND <25.0	ND <20.0	ND <1.00	ND <10.0	ND <1.00	ND <1.00	3.1	73.9	ND <10.0	ND <10.0	ND <0.200 to <10.0
	07/15/09	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <1.00	ND <25.0	ND <1.00	ND <1.00	ND <10.0	ND <1.00	ND <1.00	2.78	53.3	ND <10.0	ND <10.0	ND <1.00 to <10.0
	06/30/10	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	1.6	ND < 1.0	ND < 1.0	NA	1.8	NA	NA	ND <1.0	ND <1.0	2.5	49.8	ND <10.0	ND <10.0	ND <1.0 to <5.0
	10/03/10	ND <1.0	ND <1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.3	26	ND <10	ND <10
Environmental Screening Levels																					
ADEC Cleanup Levels		5	5	70	100	5	140	11,000	NE	600	33,000	5	470	22,000	7	2	NE	NE	NE	NE	Varies by Compound
EPA Regional Screening Levels		9.7	0.44	28	86	0.15	0.19	1,100	0.50	280	12,000	0.39	12	4,900	260	0.015	NE	NE	NE	NE	Varies by Compound

Table Notes:

General

- µg/L: Micrograms per liter
- mg/L: Milligrams per liter
- ND: Not detected at or above the laboratory method reporting limit (MRL). However, for June 2013 and October 2013, not detected at or above the laboratory method detection limit (MDL) for all compounds except total organic carbon.
- DUP: Sample is a field duplicate
- NA: Not analyzed
- N/A: Not applicable
- NE: Not established
- VOCs: Volatile organic compounds by Environmental Protection Agency (EPA) Method 8260B
- PCE: Tetrachloroethene
- TCE: Trichloroethene
- cis 1,2-DCE: cis 1,2-Dichloroethene
- trans 1,2-DCE: trans 1,2-Dichloroethene
- 1,1-DCE: 1,1-Dichloroethene
- 1,1,1,2-TCA: 1,1,1,2-Tetrachloroethane
- 1,2-DCB: 1,2-Dichlorobenzene
- 1,2-DCA: 1,2-Dichloroethane
- MTBE: Methyl tert butyl ether
- Freon-11: Trichlorofluoromethane

Environmental screening levels:

Table C (Groundwater Cleanup Levels) in Alaska Department of Environmental Conservation (ADEC, October 9, 2008): *Oil and Other Hazardous Substances Pollution Control, 18 AAC 75, revised October 9, 2008.*
 United States Environmental Protection Agency, Region 9 (USEPA, November 2013): *Regional Screening Levels (Formerly Preliminary Remediation Goals) for Chemical Contaminants at Superfund Sites, October 2004, updated November 2013.*

934 Sample result exceeds ADEC Groundwater Cleanup Level (Table C in ADEC, October 9, 2008)

Detail

- J Concentration was reported by the laboratory as an estimated value
- (1) Sample is a blind field duplicate. As such, sample date was manufactured for lab report in order to not indicate the location of the duplicate. The actual sample date and time is the same as the primary sample.
- (2) Due to an error using an outdated well location map, this well was mislabeled during the sampling event. By comparing the outdated well location map to the current map, ARES determined the correct sample well locations. Sparge wells SW-5 and SW-11 were skipped and not sampled during the sampling event. These wells were sampled two (2) months after the previous sampling event.
- (3) Sample was analyzed twice. The first analysis met the hold time, but failed laboratory QA/QC standards and failed surrogate recovery, and laboratory equipment malfunctioned. The second analysis was analyzed past the hold time. The highest values of the two analyses reported are presented herein.
- (4) For the June 2013 sampling event, the laboratory provided both the method reporting limit (MRL) and method detection limit (MDL), except for total organic carbon. The results for total organic carbon are with respect to a MRL of 1 mg/L. According to the laboratory, non-detectable (ND) = Not detected at or above the MDL shown above. The MRLs were as follows: 1.0 µg/L for wells SW-2, SW-4, SW-7 (except 4.0 µg/L for PCE), SW-8, SW-12, and SW-15; 2.5 µg/L for well SW-5, and 4.0 µg/L for well SW-6 for VOCs, except 0.50 µg/L for methane, 1.0 µg/L for ethene, and 1.0 µg/L for ethane.
- (5) For the October 2013 sampling event, the laboratory provided both the MRL and MDL, except for total organic carbon. The results for total organic carbon are with respect to a MRL of 1 mg/L. According to the laboratory, non-detectable (ND) = Not detected at or above the MDL shown above. The MRLs were as follows: 1.0 µg/L for wells SW-2, SW-4, SW-8, SW-12, and SW-15; 2.0 µg/L for wells SW-6 and SW-7; and 20 µg/L for well SW-5 for VOCs, except for methane, ethene, and ethane. The MRLs were 0.50 µg/L for methane, 1.0 µg/L for ethene, and 1.0 µg/L for ethane for all wells.

APPENDIX C

ALASKA RESOURCES AND ENVIRONMENTAL SERVICES, LLC

GROUNDWATER SAMPLING FIELD DATA SHEET

Client ERG
 Location Bentley Mall

Samplers Dustin Stahl

Date 6/21/13 – 6/22/13

Well No.	Water Level (feet)	Casing Depth (feet)	Volume Purged (gallons)	Temp. (C°)	pH	Cond. (mS/cm)	Turb. (NTUs)	DO (mg/l)	Salinity (%)	Recharged Water Level (feet)	Sample Appearance and Comments
SW-2	15.2	33	3	8.8	Lab	.515	0	2.79	0.01		
SW-5	15.5	33.8	3.3	7.6	Lab	.524	–	2.99	0.01		
MW-2	15.7	19.0	1.25	6.8	Lab	1.12	–	2.38	0.05		Dup # 2
MW-1	15.8	19.4	1.25	9.2	Lab	.607	–	2.12	0.02		Dup # 1
MW-4	14.1	18.3	1.25	6.6	Lab	.798	–	2.19	0.03		Light Orange

Water Quality Meter Make / Model Horiba U-10 Serial ID 809020
 Water Level Indicator Make / Model Heron dipper-T Serial ID _____
 Bailer / Pump Make / Model Geopump2 900-1280 Serial ID A03005887
 Dissolved Oxygen Meter Make / Model YSI 55-25 FT Serial ID 06M1284 AA

Purge Calculation Data
 (3x)
 1.5" casing = 0.092 gal/ft
 2" casing = 0.164 gal/ft
 3 " casing = 0.367 gal/ft
 4" casing = 0.648 gal/ft
 5" casing = 1.020 gal/ft
 6" casing = 1.469 gal/ft

Sample Time _____
 Sample Analysis VOCs
 Comments LS = Lab Sample

ALASKA RESOURCES AND ENVIRONMENTAL SERVICES, LLC

GROUNDWATER SAMPLING FIELD DATA SHEET

Client ERG
 Location Bentley Mall

Samplers Dustin Stahl

Date 6/21/13

Well No.	Water Level (feet)	Casing Depth (feet)	Volume Purged (gallons)	Temp. (C°)	pH	Cond. (mS/cm)	Turb. (NTUs)	DO (mg/l)	Salinity (%)	Recharged Water Level (feet)	Sample Appearance and Comments
SW-15	15.8	33.8	3.2	7.1	Lab	.502	51	2.43	0.02		Cloudy
SW-12	15.8	33.0	3.0	6.0	Lab	.685	7	2.32	0.02		Clear
SW-7	15.7	33.4	3.0	6.7	Lab	.654	8	2.59	0.02		Clear
SW-8	15.8	33.6	3.0	6.9	Lab	.636	10	2.27	0.02		Clear
SW-6	15.6	33.5	3.0	6.5	Lab	.600	10	2.95	0.01		
SW-4	13.5	33.7	3.5	6.8	Lab	.524	4	3.19	0.02		

Water Quality Meter Make / Model_Horiba U-10
 Water Level Indicator Make / Model_Heron dipper-T
 Bailer / Pump Make / Model_Geopump2 900-1280
 Dissolved Oxygen Meter Make / Model_YSI 55-25 FT

Serial ID 809020
 Serial ID _____
 Serial ID A03005887
 Serial ID 06M1284 AA

Sample Time _____
 Sample Analysis VOCs
 Comments LS = Lab Sample

Purge Calculation Data

(3x)

1.5" casing = 0.092 gal/ft
 2" casing = 0.164 gal/ft
 3 " casing = 0.367 gal/ft
 4" casing = 0.648 gal/ft
 5" casing = 1.020 gal/ft
 6" casing = 1.469 gal/ft

ALASKA RESOURCES AND ENVIRONMENTAL SERVICES, LLC

GROUNDWATER SAMPLING FIELD DATA SHEET

Client ERG
 Location Bentley Mall

Samplers Dustin Stahl

Date Oct 2, 2013

Well No.	Water Level (feet)	Casing Depth (feet)	Volume Purged (gallons)	Temp. (C°)	pH	Cond. (mS/cm)	Turb. (NTUs)	DO (mg/l)	Salinity (%)	Recharged Water Level (feet)	Sample Appearance and Comments
MW-1	16.70	19.40	1.5	9.4	LS	.685	15	1.66	0.02	16.70	Dup 1
MW-2	16.45	18.95	1.5	7.1	LS	0.97	8	2.78	0.04	16.45	
MW-4	15.10	19.40	1.5	6.0	LS	.751	12	3.04	0.03	15.10	
MW-5	17.95	29.35	2.0	4.9	LS	.611	14	3.54	0.02	17.95	
MW-6	17.95	21.05	1.5	4.7	LS	.704	7	3.64	0.02	17.95	
MW-7	20.06	24.10	1.5	4.0	LS	.721	9	3.86	0.02	20.06	

Water Quality Meter Make / Model Horiba U-10 Serial ID 809020
 Water Level Indicator Make / Model Heron dipper-T Serial ID _____
 Bailer / Pump Make / Model Geopump2 900-1280 Serial ID A03005887
 Dissolved Oxygen Meter Make / Model YSI 55-25 FT Serial ID 06M1284 AA

Sample Time _____
 Sample Analysis VOCs
 Comments LS = Lab Sample

Purge Calculation Data
 (3x)
 1.5" casing = 0.092 gal/ft
 2" casing = 0.164 gal/ft
 3" casing = 0.367 gal/ft
 4" casing = 0.648 gal/ft
 5" casing = 1.020 gal/ft
 6" casing = 1.469 gal/ft

ALASKA RESOURCES AND ENVIRONMENTAL SERVICES, LLC

GROUNDWATER SAMPLING FIELD DATA SHEET

Client ERG
 Location Bentley Mall

Samplers Dustin Stahl

Date Oct 3, 2013

Well No.	Water Level (feet)	Casing Depth (feet)	Volume Purged (gallons)	Temp. (C°)	pH	Cond. (mS/cm)	Turb. (NTUs)	DO (mg/l)	Salinity (%)	Recharged Water Level (feet)	Sample Appearance and Comments
MW-8											Well damaged - top of well broken off - bottom of casing 10'
MW-9	12.60	20.35	1.5	4.7	LS	0.649	13	3.14	0.02	12.60	Casing altered during road excavation
MW-10											Well monument gone / graded over during road construction
MW-11	12.70	20.10	1.5	6.7	LS	.700	8	1.80	0.02	12.70	Casing altered during road excavation
MW-12	16.20	20.70	1.5	7.2	LS	.578	14	2.46	0.02	16.20	
MW-13	16.10	20.10	1.5	5.1	LS	.524	7	3.48	0.02	16.10	Dup # 2

Water Quality Meter Make / Model Horiba U-10 Serial ID 809020
 Water Level Indicator Make / Model Heron dipper-T Serial ID
 Bailer / Pump Make / Model Geopump2 900-1280 Serial ID A03005887
 Dissolved Oxygen Meter Make / Model YSI 55-25 FT Serial ID 06M1284 AA

Sample Time _____

Sample Analysis VOCs

Comments LS = Lab Sample
Monitoring well MW8 & MW10 damaged during road reconstruction project.

Purge Calculation Data

(3x)

1.5" casing = 0.092 gal/ft
 2" casing = 0.164 gal/ft
 3 " casing = 0.367 gal/ft
 4" casing = 0.648 gal/ft
 5" casing = 1.020 gal/ft
 6" casing = 1.469 gal/ft

ALASKA RESOURCES AND ENVIRONMENTAL SERVICES, LLC

GROUNDWATER SAMPLING FIELD DATA SHEET

Client ERG
 Location Bentley Mall

Samplers Dustin Stahl

Date Oct 3, 2013 - Oct 4, 2013

Well No.	Water Level (feet)	Casing Depth (feet)	Volume Purged (gallons)	Temp. (C°)	pH	Cond. (mS/cm)	Turb. (NTUs)	DO (mg/l)	Salinity (%)	Recharged Water Level (feet)	Sample Appearance and Comments
SW-2	16.30	33.70	3.0	6.6	LS	.494	11	1.85	0.01	16.30	
SW-4	16.10	33.60	3.0	5.7	LS	.509	10	3.80	0.02	16.10	
SW-5	16.15	33.70	3.0	5.7	LS	.452	6	3.34	0.02	16.15	
SW-6	16.20	33.40	3.0	5.8	LS	.518	9	3.32	0.01	16.20	
SW-7	17.40	33.50	3.0	5.6	LS	.514	12	3.13	0.02	17.40	
SW-8	15.60	33.60	3.0	5.8	LS	.485	11	2.35	0.01	15.60	

Water Quality Meter Make / Model Horiba U-10
 Water Level Indicator Make / Model Heron dipper-T
 Bailer / Pump Make / Model Geopump2 900-1280
 Dissolved Oxygen Meter Make / Model YSI 55-25 FT

Serial ID 809020
 Serial ID _____
 Serial ID A03005887
 Serial ID 06M1284 AA

Sample Time _____
 Sample Analysis VOCs
 Comments LS = Lab Sample

Purge Calculation Data

(3x)

1.5" casing = 0.092 gal/ft
 2" casing = 0.164 gal/ft
 3" casing = 0.367 gal/ft
 4" casing = 0.648 gal/ft
 5" casing = 1.020 gal/ft
 6" casing = 1.469 gal/ft

ALASKA RESOURCES AND ENVIRONMENTAL SERVICES, LLC

GROUNDWATER SAMPLING FIELD DATA SHEET

Client ERG
 Location Bentley Mall

Samplers Dustin Stahl

Date Oct 4, 2013

Well No.	Water Level (feet)	Casing Depth (feet)	Volume Purged (gallons)	Temp. (C°)	pH	Cond. (mS/cm)	Turb. (NTUs)	DO (mg/l)	Salinity (%)	Recharged Water Level (feet)	Sample Appearance and Comments
SW-15	17.50	33.70	3.0	5.7	LS	.83	4	2.93	0.01	16.30	
SW-12	16.20	33.00	3.0	5.5	LS	.505	6	3.27	0.01	16.10	

Water Quality Meter Make / Model Horiba U-10 Serial ID 809020
 Water Level Indicator Make / Model Heron dipper-T Serial ID _____
 Bailer / Pump Make / Model Geopump2 900-1280 Serial ID A03005887
 Dissolved Oxygen Meter Make / Model YSI 55-25 FT Serial ID 06M1284 AA

Sample Time _____
 Sample Analysis VOCs
 Comments LS = Lab Sample

Purge Calculation Data (3x) 1.5" casing = 0.092 gal/ft 2" casing = 0.164 gal/ft 3 " casing = 0.367 gal/ft 4" casing = 0.648 gal/ft 5" casing = 1.020 gal/ft 6" casing = 1.469 gal/ft

APPENDIX D

Technical Report for

Environmental Resource Group

Bentley Mall 06/13

Accutest Job Number: C28436

Sampling Dates: 06/21/13 - 06/22/13

Report to:

Environmental Resource Group

dmanning@environmentalrg.com

Total number of pages in report: 105



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

James J. Rhudy
Lab Director

Client Service contact: Renea Jackson 408-588-0200

Certifications: CA (08258CA) AZ (AZ0762) DoD/ISO/IEC 17025:2005 (L2242)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.
Test results relate only to samples analyzed.

Table of Contents

-1-

Section 1: Sample Summary	3
Section 2: Summary of Hits	5
Section 3: Sample Results	9
3.1: C28436-1: 062013-MW1	10
3.2: C28436-2: 062013-MW2	14
3.3: C28436-3: 062013-MW4	18
3.4: C28436-4: 062013-SW2	22
3.5: C28436-5: 062013-SW4	26
3.6: C28436-6: 062013-SW5	30
3.7: C28436-7: 062013-DUP1	34
3.8: C28436-8: 062013-DUP2	38
3.9: C28436-9: 062013-SW6	42
3.10: C28436-10: 062013-SW7	46
3.11: C28436-11: 062013-SW8	50
3.12: C28436-12: 062013-SW12	54
3.13: C28436-13: 062013-SW15	58
3.14: C28436-14: TRIP BLANK	62
Section 4: Misc. Forms	63
4.1: Chain of Custody	64
Section 5: GC/MS Volatiles - QC Data Summaries	67
5.1: Method Blank Summary	68
5.2: Blank Spike/Blank Spike Duplicate Summary	73
5.3: Laboratory Control Sample Summary	78
5.4: Matrix Spike/Matrix Spike Duplicate Summary	80
Section 6: GC Volatiles - QC Data Summaries	84
6.1: Method Blank Summary	85
6.2: Blank Spike Summary	87
6.3: Duplicate Summary	89
Section 7: Metals Analysis - QC Data Summaries	91
7.1: Prep QC MP6383: Fe	92
Section 8: General Chemistry - QC Data Summaries	100
8.1: Method Blank and Spike Results Summary	101
8.2: Blank Spike Duplicate Results Summary	102
8.3: Duplicate Results Summary	103
8.4: Matrix Spike Results Summary	104
8.5: Matrix Spike Duplicate Results Summary	105

1

2

3

4

5

6

7

8



Sample Summary

Environmental Resource Group

Job No: C28436

Bentley Mall 06/13

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
C28436-1	06/22/13	09:42 DS	06/25/13	AQ	Ground Water	062013-MW1
C28436-2	06/22/13	11:00 DS	06/25/13	AQ	Ground Water	062013-MW2
C28436-3	06/22/13	12:19 DS	06/25/13	AQ	Ground Water	062013-MW4
C28436-4	06/21/13	17:23 DS	06/25/13	AQ	Ground Water	062013-SW2
C28436-5	06/21/13	15:49 DS	06/25/13	AQ	Ground Water	062013-SW4
C28436-6	06/22/13	13:44 DS	06/25/13	AQ	Ground Water	062013-SW5
C28436-7	06/22/13	07:00 DS	06/25/13	AQ	Ground Water	062013-DUP1
C28436-8	06/22/13	08:30 DS	06/25/13	AQ	Ground Water	062013-DUP2
C28436-9	06/21/13	14:14 DS	06/25/13	AQ	Ground Water	062013-SW6
C28436-10	06/21/13	12:38 DS	06/25/13	AQ	Ground Water	062013-SW7
C28436-11	06/22/13	14:56 DS	06/25/13	AQ	Ground Water	062013-SW8
C28436-12	06/22/13	16:14 DS	06/25/13	AQ	Ground Water	062013-SW12
C28436-13	06/22/13	17:23 DS	06/25/13	AQ	Ground Water	062013-SW15



Sample Summary

(continued)

Environmental Resource Group
Bentley Mall 06/13

Job No: C28436

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
C28436-14	06/22/13	00:00	DS	06/25/13	AQ Trip Blank Water	TRIP BLANK

Summary of Hits

Job Number: C28436
Account: Environmental Resource Group
Project: Bentley Mall 06/13
Collected: 06/21/13 thru 06/22/13

Lab Sample ID	Client Sample ID	Result/ Analyte	RL	MDL	Units	Method
C28436-1	062013-MW1					
		Chloroform	13.3	5.0	1.0	ug/l SW846 8260B
		Tetrachloroethylene	300	5.0	1.5	ug/l SW846 8260B
		Trichloroethylene	2.2 J	5.0	1.0	ug/l SW846 8260B
		Alkalinity, Total as CaCO3	218	5.0		mg/l SM18 2320B
		Chloride	26.1	5.0		mg/l EPA 300/SW846 9056A
		Total Organic Carbon	2.3	1.0		mg/l SM18 5310C
		pH ^a	7.36			su SM18 4500H+ B
C28436-2	062013-MW2					
		Chloroform	3.5	2.0	0.40	ug/l SW846 8260B
		cis-1,2-Dichloroethylene	3.2	2.0	0.40	ug/l SW846 8260B
		Tetrachloroethylene	173	2.0	0.60	ug/l SW846 8260B
		Trichloroethylene	1.0 J	2.0	0.40	ug/l SW846 8260B
		Alkalinity, Total as CaCO3	497	5.0		mg/l SM18 2320B
		Chloride	59.0	5.0		mg/l EPA 300/SW846 9056A
		Total Organic Carbon	12.9	1.0		mg/l SM18 5310C
		pH ^a	7.13			su SM18 4500H+ B
C28436-3	062013-MW4					
		cis-1,2-Dichloroethylene	2.9	1.0	0.20	ug/l SW846 8260B
		trans-1,2-Dichloroethylene	7.5	1.0	0.20	ug/l SW846 8260B
		Tetrachloroethylene	51.0	1.0	0.30	ug/l SW846 8260B
		Trichloroethylene	14.4	1.0	0.20	ug/l SW846 8260B
		Methane	0.63	0.50	0.25	ug/l RSK-175
		Iron	5240	200		ug/l SW846 6010B
		Alkalinity, Total as CaCO3	368	5.0		mg/l SM18 2320B
		Chloride	31.3	5.0		mg/l EPA 300/SW846 9056A
		Total Organic Carbon	3.1	1.0		mg/l SM18 5310C
		pH ^a	6.89			su SM18 4500H+ B
C28436-4	062013-SW2					
		Chloroform	4.1	1.0	0.20	ug/l SW846 8260B
		Tetrachloroethylene	2.5	1.0	0.30	ug/l SW846 8260B
		Methane	3.5	0.50	0.25	ug/l RSK-175
		Iron	10200	200		ug/l SW846 6010B
		Alkalinity, Total as CaCO3	255	5.0		mg/l SM18 2320B
		Chloride	14.8	5.0		mg/l EPA 300/SW846 9056A
		Total Organic Carbon	2.5	1.0		mg/l SM18 5310C
		pH ^a	7.19			su SM18 4500H+ B

Summary of Hits

Job Number: C28436
Account: Environmental Resource Group
Project: Bentley Mall 06/13
Collected: 06/21/13 thru 06/22/13

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

C28436-5 062013-SW4

Chloroform		4.3	1.0	0.20	ug/l	SW846 8260B
cis-1,2-Dichloroethylene		0.25 J	1.0	0.20	ug/l	SW846 8260B
Tetrachloroethylene		5.3	1.0	0.30	ug/l	SW846 8260B
Methane		8.2	0.50	0.25	ug/l	RSK-175
Iron		9410	200		ug/l	SW846 6010B
Alkalinity, Total as CaCO3		259	5.0		mg/l	SM18 2320B
Chloride		15.2	5.0		mg/l	EPA 300/SW846 9056A
Total Organic Carbon		2.5	1.0		mg/l	SM18 5310C
pH ^a		7.33			su	SM18 4500H+ B

C28436-6 062013-SW5

Chloroform		2.2 J	2.5	0.50	ug/l	SW846 8260B
cis-1,2-Dichloroethylene		0.60 J	2.5	0.50	ug/l	SW846 8260B
Tetrachloroethylene		235	2.5	0.75	ug/l	SW846 8260B
Trichloroethylene		0.69 J	2.5	0.50	ug/l	SW846 8260B
Methane		6.0	0.50	0.25	ug/l	RSK-175
Iron		8390	200		ug/l	SW846 6010B
Alkalinity, Total as CaCO3		776	5.0		mg/l	SM18 2320B
Chloride		16.6	5.0		mg/l	EPA 300/SW846 9056A
Total Organic Carbon		2.6	1.0		mg/l	SM18 5310C
pH ^a		9.21			su	SM18 4500H+ B

C28436-7 062013-DUP1

Chloroform		13.1	5.0	1.0	ug/l	SW846 8260B
Tetrachloroethylene		255	5.0	1.5	ug/l	SW846 8260B
Trichloroethylene		2.1 J	5.0	1.0	ug/l	SW846 8260B
Alkalinity, Total as CaCO3		226	5.0		mg/l	SM18 2320B
Chloride		23.9	5.0		mg/l	EPA 300/SW846 9056A
Total Organic Carbon		2.6	1.0		mg/l	SM18 5310C
pH ^a		6.95			su	SM18 4500H+ B

C28436-8 062013-DUP2

Chloroform		3.6	2.0	0.40	ug/l	SW846 8260B
cis-1,2-Dichloroethylene		3.2	2.0	0.40	ug/l	SW846 8260B
Tetrachloroethylene		181	2.0	0.60	ug/l	SW846 8260B
Trichloroethylene		1.0 J	2.0	0.40	ug/l	SW846 8260B
Alkalinity, Total as CaCO3		499	5.0		mg/l	SM18 2320B
Chloride		55.9	5.0		mg/l	EPA 300/SW846 9056A
Total Organic Carbon		14.1	1.0		mg/l	SM18 5310C
pH ^a		7.03			su	SM18 4500H+ B

Summary of Hits

Job Number: C28436
Account: Environmental Resource Group
Project: Bentley Mall 06/13
Collected: 06/21/13 thru 06/22/13

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

C28436-9 062013-SW6

Chloroform	1.1 J	4.0	0.80	ug/l	SW846 8260B
Tetrachloroethylene	188	4.0	1.2	ug/l	SW846 8260B
Methane	6.2	0.50	0.25	ug/l	RSK-175
Iron	8350	200		ug/l	SW846 6010B
Alkalinity, Total as CaCO3	261	5.0		mg/l	SM18 2320B
Chloride	16.2	5.0		mg/l	EPA 300/SW846 9056A
Total Organic Carbon	2.6	1.0		mg/l	SM18 5310C
pH ^a	7.10			su	SM18 4500H+ B

C28436-10 062013-SW7

Chloroform	0.89 J	1.0	0.20	ug/l	SW846 8260B
cis-1,2-Dichloroethylene	0.46 J	1.0	0.20	ug/l	SW846 8260B
Tetrachloroethylene	139	4.0	1.2	ug/l	SW846 8260B
Trichloroethylene	6.2	1.0	0.20	ug/l	SW846 8260B
Methane	8.0	0.50	0.25	ug/l	RSK-175
Iron	8740	200		ug/l	SW846 6010B
Alkalinity, Total as CaCO3	261	5.0		mg/l	SM18 2320B
Chloride	16.1	5.0		mg/l	EPA 300/SW846 9056A
Total Organic Carbon	2.6	1.0		mg/l	SM18 5310C
pH ^a	7.08			su	SM18 4500H+ B

C28436-11 062013-SW8

Chloroform	0.26 J	1.0	0.20	ug/l	SW846 8260B
cis-1,2-Dichloroethylene	0.69 J	1.0	0.20	ug/l	SW846 8260B
trans-1,2-Dichloroethylene	0.33 J	1.0	0.20	ug/l	SW846 8260B
Tetrachloroethylene	7.2	1.0	0.30	ug/l	SW846 8260B
Trichloroethylene	1.0	1.0	0.20	ug/l	SW846 8260B
Methane	14.6	0.50	0.25	ug/l	RSK-175
Iron	1280	200		ug/l	SW846 6010B
Alkalinity, Total as CaCO3	271	5.0		mg/l	SM18 2320B
Chloride	14.1	5.0		mg/l	EPA 300/SW846 9056A
Total Organic Carbon	2.5	1.0		mg/l	SM18 5310C
pH ^a	6.81			su	SM18 4500H+ B

C28436-12 062013-SW12

Chloroform	2.4	1.0	0.20	ug/l	SW846 8260B
cis-1,2-Dichloroethylene	0.36 J	1.0	0.20	ug/l	SW846 8260B
Tetrachloroethylene	9.1	1.0	0.30	ug/l	SW846 8260B
Trichloroethylene	0.28 J	1.0	0.20	ug/l	SW846 8260B

Summary of Hits

Job Number: C28436
Account: Environmental Resource Group
Project: Bentley Mall 06/13
Collected: 06/21/13 thru 06/22/13

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method	
		Methane	5.5	0.50	0.25	ug/l	RSK-175
		Iron	8310	200		ug/l	SW846 6010B
		Alkalinity, Total as CaCO3	259	5.0		mg/l	SM18 2320B
		Chloride	14.7	5.0		mg/l	EPA 300/SW846 9056A
		Total Organic Carbon	2.4	1.0		mg/l	SM18 5310C
		pH ^a	7.22			su	SM18 4500H+ B
C28436-13		062013-SW15					
		Chloroform	0.38 J	1.0	0.20	ug/l	SW846 8260B
		cis-1,2-Dichloroethylene	0.40 J	1.0	0.20	ug/l	SW846 8260B
		Tetrachloroethylene	0.32 J	1.0	0.30	ug/l	SW846 8260B
		Trichloroethylene	0.34 J	1.0	0.20	ug/l	SW846 8260B
		Methane	6.5	0.50	0.25	ug/l	RSK-175
		Iron	8260	200		ug/l	SW846 6010B
		Alkalinity, Total as CaCO3	261	5.0		mg/l	SM18 2320B
		Chloride	12.1	5.0		mg/l	EPA 300/SW846 9056A
		Total Organic Carbon	2.6	1.0		mg/l	SM18 5310C
		pH ^a	6.97			su	SM18 4500H+ B
C28436-14		TRIP BLANK					

No hits reported in this sample.

(a) Sample received outside the holding time.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: 062013-MW1		Date Sampled: 06/22/13
Lab Sample ID: C28436-1		Date Received: 06/25/13
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260B		
Project: Bentley Mall 06/13		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	R18428.D	5	07/02/13	BD	n/a	n/a	VR674
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	13.3	5.0	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	5.0	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	5.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	300	5.0	1.5	ug/l	
79-01-6	Trichloroethylene	2.2	5.0	1.0	ug/l	J
75-01-4	Vinyl chloride	ND	5.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		70-130%
2037-26-5	Toluene-D8	103%		70-130%
460-00-4	4-Bromofluorobenzene	98%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

3.1
3

Client Sample ID: 062013-MW1	Date Sampled: 06/22/13
Lab Sample ID: C28436-1	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003560.D	1	06/28/13	PH	n/a	n/a	GAA162
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	23 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 062013-MW1	Date Sampled: 06/22/13
Lab Sample ID: C28436-1	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 200	200	ug/l	1	06/27/13	06/27/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3259

(2) Prep QC Batch: MP6383

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-MW1	Date Sampled: 06/22/13
Lab Sample ID: C28436-1	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	218	5.0	mg/l	1	06/25/13	AC	SM18 2320B
Chloride	26.1	5.0	mg/l	10	07/01/13 11:41	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	06/27/13 16:39	EB	SM18 4500SD
Total Organic Carbon	2.3	1.0	mg/l	1	06/25/13 13:45	EB	SM18 5310C
pH ^a	7.36		su	1	06/25/13 12:20	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

32
3

Client Sample ID: 062013-MW2	Date Sampled: 06/22/13
Lab Sample ID: C28436-2	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	R18429.D	2	07/02/13	BD	n/a	n/a	VR674
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	3.5	2.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	3.2	2.0	0.40	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	0.40	ug/l	
127-18-4	Tetrachloroethylene	173	2.0	0.60	ug/l	
79-01-6	Trichloroethylene	1.0	2.0	0.40	ug/l	J
75-01-4	Vinyl chloride	ND	2.0	0.40	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-130%
2037-26-5	Toluene-D8	103%		70-130%
460-00-4	4-Bromofluorobenzene	99%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

32
3

Client Sample ID: 062013-MW2	Date Sampled: 06/22/13
Lab Sample ID: C28436-2	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003571.D	1	07/01/13	PH	n/a	n/a	GAA163
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	23 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 062013-MW2	Date Sampled: 06/22/13
Lab Sample ID: C28436-2	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 200	200	ug/l	1	06/27/13	06/27/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3259

(2) Prep QC Batch: MP6383

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-MW2	Date Sampled: 06/22/13
Lab Sample ID: C28436-2	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	497	5.0	mg/l	1	06/25/13	AC	SM18 2320B
Chloride	59.0	5.0	mg/l	10	07/01/13 11:58	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	06/27/13 16:42	EB	SM18 4500SD
Total Organic Carbon	12.9	1.0	mg/l	1	06/25/13 13:45	EB	SM18 5310C
pH ^a	7.13		su	1	06/25/13 12:34	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-MW4 Lab Sample ID: C28436-3 Matrix: AQ - Ground Water Method: SW846 8260B Project: Bentley Mall 06/13	Date Sampled: 06/22/13 Date Received: 06/25/13 Percent Solids: n/a
---	---

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	R18430.D	1	07/02/13	BD	n/a	n/a	VR674
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	2.9	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	7.5	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	51.0	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	14.4	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		70-130%
2037-26-5	Toluene-D8	104%		70-130%
460-00-4	4-Bromofluorobenzene	97%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 062013-MW4	Date Sampled: 06/22/13
Lab Sample ID: C28436-3	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003572.D	1	07/01/13	PH	n/a	n/a	GAA163
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	23 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	0.63	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 062013-MW4	Date Sampled: 06/22/13
Lab Sample ID: C28436-3	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	5240	200	ug/l	1	06/27/13	06/27/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3259

(2) Prep QC Batch: MP6383

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-MW4	Date Sampled: 06/22/13
Lab Sample ID: C28436-3	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	368	5.0	mg/l	1	06/25/13	AC	SM18 2320B
Chloride	31.3	5.0	mg/l	10	07/02/13 16:30	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	06/27/13 16:43	EB	SM18 4500SD
Total Organic Carbon	3.1	1.0	mg/l	1	06/25/13 13:45	EB	SM18 5310C
pH ^a	6.89		su	1	06/25/13 12:39	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

3.4
3

Client Sample ID: 062013-SW2	Date Sampled: 06/21/13
Lab Sample ID: C28436-4	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Bentley Mall 06/13	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W40234.D	1	07/03/13	BD	n/a	n/a	VW1414
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	4.1	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	2.5	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-130%
2037-26-5	Toluene-D8	95%		70-130%
460-00-4	4-Bromofluorobenzene	86%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 062013-SW2	Date Sampled: 06/21/13
Lab Sample ID: C28436-4	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003573.D	1	07/01/13	PH	n/a	n/a	GAA163
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	23 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	3.5	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 062013-SW2	Date Sampled: 06/21/13
Lab Sample ID: C28436-4	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	10200	200	ug/l	1	06/27/13	06/27/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3259

(2) Prep QC Batch: MP6383

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-SW2	Date Sampled: 06/21/13
Lab Sample ID: C28436-4	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	255	5.0	mg/l	1	06/25/13	AC	SM18 2320B
Chloride	14.8	5.0	mg/l	10	07/01/13 13:42	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	06/27/13 16:49	EB	SM18 4500SD
Total Organic Carbon	2.5	1.0	mg/l	1	06/25/13 13:45	EB	SM18 5310C
pH ^a	7.19		su	1	06/25/13 12:49	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-SW4		Date Sampled: 06/21/13
Lab Sample ID: C28436-5		Date Received: 06/25/13
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260B		
Project: Bentley Mall 06/13		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W40236.D	1	07/03/13	BD	n/a	n/a	VW1414
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	4.3	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.25	1.0	0.20	ug/l	J
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	5.3	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		70-130%
2037-26-5	Toluene-D8	92%		70-130%
460-00-4	4-Bromofluorobenzene	87%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

3.5
3

Client Sample ID: 062013-SW4	Date Sampled: 06/21/13
Lab Sample ID: C28436-5	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003574.D	1	07/01/13	PH	n/a	n/a	GAA163
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	23 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	8.2	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 062013-SW4	Date Sampled: 06/21/13
Lab Sample ID: C28436-5	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	9410	200	ug/l	1	06/27/13	06/27/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3259

(2) Prep QC Batch: MP6383

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-SW4	Date Sampled: 06/21/13
Lab Sample ID: C28436-5	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃	259	5.0	mg/l	1	06/25/13	AC	SM18 2320B
Chloride	15.2	5.0	mg/l	10	07/01/13 13:59	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	06/27/13 16:50	EB	SM18 4500SD
Total Organic Carbon	2.5	1.0	mg/l	1	06/25/13 13:45	EB	SM18 5310C
pH ^a	7.33		su	1	06/25/13 13:00	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-SW5		Date Sampled: 06/22/13
Lab Sample ID: C28436-6		Date Received: 06/25/13
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260B		
Project: Bentley Mall 06/13		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W40245.D	2.5	07/03/13	BD	n/a	n/a	VW1414
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	2.2	2.5	0.50	ug/l	J
156-59-2	cis-1,2-Dichloroethylene	0.60	2.5	0.50	ug/l	J
156-60-5	trans-1,2-Dichloroethylene	ND	2.5	0.50	ug/l	
127-18-4	Tetrachloroethylene	235	2.5	0.75	ug/l	
79-01-6	Trichloroethylene	0.69	2.5	0.50	ug/l	J
75-01-4	Vinyl chloride	ND	2.5	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-130%
2037-26-5	Toluene-D8	90%		70-130%
460-00-4	4-Bromofluorobenzene	89%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

3.6
3

Client Sample ID: 062013-SW5	Date Sampled: 06/22/13
Lab Sample ID: C28436-6	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003578.D	1	07/01/13	PH	n/a	n/a	GAA163
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	23 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	6.0	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 062013-SW5	Date Sampled: 06/22/13
Lab Sample ID: C28436-6	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	8390	200	ug/l	1	06/27/13	06/27/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3259

(2) Prep QC Batch: MP6383

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-SW5	Date Sampled: 06/22/13
Lab Sample ID: C28436-6	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃	776	5.0	mg/l	1	06/25/13	AC	SM18 2320B
Chloride	16.6	5.0	mg/l	10	07/01/13 14:17	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	06/27/13 16:53	EB	SM18 4500SD
Total Organic Carbon	2.6	1.0	mg/l	1	06/25/13 13:45	EB	SM18 5310C
pH ^a	9.21		su	1	06/25/13 13:10	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

37
3

Client Sample ID: 062013-DUP1	Date Sampled: 06/22/13
Lab Sample ID: C28436-7	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	R18432.D	5	07/02/13	BD	n/a	n/a	VR674
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	13.1	5.0	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	5.0	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	5.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	255	5.0	1.5	ug/l	
79-01-6	Trichloroethylene	2.1	5.0	1.0	ug/l	J
75-01-4	Vinyl chloride	ND	5.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-130%
2037-26-5	Toluene-D8	103%		70-130%
460-00-4	4-Bromofluorobenzene	99%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

37
3

Client Sample ID: 062013-DUP1	Date Sampled: 06/22/13
Lab Sample ID: C28436-7	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003579.D	1	07/01/13	PH	n/a	n/a	GAA163
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	23 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 062013-DUP1	Date Sampled: 06/22/13
Lab Sample ID: C28436-7	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 200	200	ug/l	1	06/27/13	06/27/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3259

(2) Prep QC Batch: MP6383

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-DUP1	Date Sampled: 06/22/13
Lab Sample ID: C28436-7	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	226	5.0	mg/l	1	06/25/13	AC	SM18 2320B
Chloride	23.9	5.0	mg/l	10	07/01/13 14:34	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	06/27/13 16:59	EB	SM18 4500SD
Total Organic Carbon	2.6	1.0	mg/l	1	06/25/13 13:45	EB	SM18 5310C
pH ^a	6.95		su	1	06/25/13 13:22	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-DUP2	Date Sampled: 06/22/13
Lab Sample ID: C28436-8	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	R18433.D	2	07/02/13	BD	n/a	n/a	VR674
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	3.6	2.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	3.2	2.0	0.40	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	0.40	ug/l	
127-18-4	Tetrachloroethylene	181	2.0	0.60	ug/l	
79-01-6	Trichloroethylene	1.0	2.0	0.40	ug/l	J
75-01-4	Vinyl chloride	ND	2.0	0.40	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-130%
2037-26-5	Toluene-D8	103%		70-130%
460-00-4	4-Bromofluorobenzene	97%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis



Client Sample ID: 062013-DUP2	Date Sampled: 06/22/13
Lab Sample ID: C28436-8	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003580.D	1	07/01/13	PH	n/a	n/a	GAA163
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	23 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis



Client Sample ID: 062013-DUP2	Date Sampled: 06/22/13
Lab Sample ID: C28436-8	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 200	200	ug/l	1	06/27/13	06/27/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3259

(2) Prep QC Batch: MP6383

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-DUP2	Date Sampled: 06/22/13
Lab Sample ID: C28436-8	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃	499	5.0	mg/l	1	06/25/13	AC	SM18 2320B
Chloride	55.9	5.0	mg/l	10	07/01/13 14:51	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	06/27/13 17:00	EB	SM18 4500SD
Total Organic Carbon	14.1	1.0	mg/l	1	06/25/13 13:45	EB	SM18 5310C
pH ^a	7.03		su	1	06/25/13 13:28	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-SW6	Date Sampled: 06/21/13
Lab Sample ID: C28436-9	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Bentley Mall 06/13	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	R18534.D	4	07/05/13	BD	n/a	n/a	VR678
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	1.1	4.0	0.80	ug/l	J
156-59-2	cis-1,2-Dichloroethylene	ND	4.0	0.80	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	4.0	0.80	ug/l	
127-18-4	Tetrachloroethylene	188	4.0	1.2	ug/l	
79-01-6	Trichloroethylene	ND	4.0	0.80	ug/l	
75-01-4	Vinyl chloride	ND	4.0	0.80	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%		70-130%
2037-26-5	Toluene-D8	97%		70-130%
460-00-4	4-Bromofluorobenzene	98%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

3.9
3

Client Sample ID: 062013-SW6	Date Sampled: 06/21/13
Lab Sample ID: C28436-9	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003581.D	1	07/01/13	PH	n/a	n/a	GAA163
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	23 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	6.2	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 062013-SW6	Date Sampled: 06/21/13
Lab Sample ID: C28436-9	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	8350	200	ug/l	1	06/27/13	06/27/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3259

(2) Prep QC Batch: MP6383

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-SW6	Date Sampled: 06/21/13
Lab Sample ID: C28436-9	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃	261	5.0	mg/l	1	06/25/13	AC	SM18 2320B
Chloride	16.2	5.0	mg/l	10	07/01/13 15:09	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	06/27/13 17:01	EB	SM18 4500SD
Total Organic Carbon	2.6	1.0	mg/l	1	06/25/13 13:45	EB	SM18 5310C
pH ^a	7.10		su	1	06/25/13 13:28	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-SW7		Date Sampled: 06/21/13
Lab Sample ID: C28436-10		Date Received: 06/25/13
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260B		
Project: Bentley Mall 06/13		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W40238.D	1	07/03/13	BD	n/a	n/a	VW1414
Run #2	V13841.D	4	07/03/13	TN	n/a	n/a	VV551

Run #	Purge Volume
Run #1	10.0 ml
Run #2	10.0 ml

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	0.89	1.0	0.20	ug/l	J
156-59-2	cis-1,2-Dichloroethylene	0.46	1.0	0.20	ug/l	J
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	139 ^a	4.0	1.2	ug/l	
79-01-6	Trichloroethylene	6.2	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%	94%	70-130%
2037-26-5	Toluene-D8	93%	103%	70-130%
460-00-4	4-Bromofluorobenzene	87%	125%	70-130%

(a) Result is from Run# 2

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 062013-SW7	Date Sampled: 06/21/13
Lab Sample ID: C28436-10	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003582.D	1	07/01/13	PH	n/a	n/a	GAA163
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	23 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	8.0	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 062013-SW7	Date Sampled: 06/21/13
Lab Sample ID: C28436-10	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	8740	200	ug/l	1	06/27/13	06/27/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3259

(2) Prep QC Batch: MP6383

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-SW7	Date Sampled: 06/21/13
Lab Sample ID: C28436-10	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃	261	5.0	mg/l	1	06/25/13	AC	SM18 2320B
Chloride	16.1	5.0	mg/l	10	07/01/13 15:26	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	06/27/13 17:02	EB	SM18 4500SD
Total Organic Carbon	2.6	1.0	mg/l	1	06/25/13 13:45	EB	SM18 5310C
pH ^a	7.08		su	1	06/25/13 13:42	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-SW8	Date Sampled: 06/22/13
Lab Sample ID: C28436-11	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Bentley Mall 06/13	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	R18434.D	1	07/02/13	BD	n/a	n/a	VR674
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	0.26	1.0	0.20	ug/l	J
156-59-2	cis-1,2-Dichloroethylene	0.69	1.0	0.20	ug/l	J
156-60-5	trans-1,2-Dichloroethylene	0.33	1.0	0.20	ug/l	J
127-18-4	Tetrachloroethylene	7.2	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	1.0	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		70-130%
2037-26-5	Toluene-D8	99%		70-130%
460-00-4	4-Bromofluorobenzene	98%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 062013-SW8	Date Sampled: 06/22/13
Lab Sample ID: C28436-11	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003583.D	1	07/01/13	PH	n/a	n/a	GAA163
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	23 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	14.6	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 062013-SW8	Date Sampled: 06/22/13
Lab Sample ID: C28436-11	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	1280	200	ug/l	1	06/27/13	06/27/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3259

(2) Prep QC Batch: MP6383

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-SW8	Date Sampled: 06/22/13
Lab Sample ID: C28436-11	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃	271	5.0	mg/l	1	06/25/13	AC	SM18 2320B
Chloride	14.1	5.0	mg/l	10	07/01/13 16:18	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	06/27/13 17:03	EB	SM18 4500SD
Total Organic Carbon	2.5	1.0	mg/l	1	06/25/13 13:45	EB	SM18 5310C
pH ^a	6.81		su	1	06/25/13 13:51	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-SW12	Date Sampled: 06/22/13
Lab Sample ID: C28436-12	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Bentley Mall 06/13	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W40219.D	1	07/02/13	BD	n/a	n/a	VW1412
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	2.4	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.36	1.0	0.20	ug/l	J
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	9.1	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.28	1.0	0.20	ug/l	J
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-130%
2037-26-5	Toluene-D8	93%		70-130%
460-00-4	4-Bromofluorobenzene	88%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 062013-SW12	Date Sampled: 06/22/13
Lab Sample ID: C28436-12	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003584.D	1	07/01/13	PH	n/a	n/a	GAA163
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	23 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	5.5	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 062013-SW12	Date Sampled: 06/22/13
Lab Sample ID: C28436-12	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	8310	200	ug/l	1	06/27/13	06/27/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3259

(2) Prep QC Batch: MP6383

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-SW12	Date Sampled: 06/22/13
Lab Sample ID: C28436-12	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃	259	5.0	mg/l	1	06/25/13	AC	SM18 2320B
Chloride	14.7	5.0	mg/l	10	07/01/13 16:35	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	06/27/13 17:04	EB	SM18 4500SD
Total Organic Carbon	2.4	1.0	mg/l	1	06/25/13 13:45	EB	SM18 5310C
pH ^a	7.22		su	1	06/25/13 14:03	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-SW15	Date Sampled: 06/22/13
Lab Sample ID: C28436-13	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Bentley Mall 06/13	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W40220.D	1	07/02/13	BD	n/a	n/a	VW1412
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	0.38	1.0	0.20	ug/l	J
156-59-2	cis-1,2-Dichloroethylene	0.40	1.0	0.20	ug/l	J
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	0.32	1.0	0.30	ug/l	J
79-01-6	Trichloroethylene	0.34	1.0	0.20	ug/l	J
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		70-130%
2037-26-5	Toluene-D8	93%		70-130%
460-00-4	4-Bromofluorobenzene	89%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 062013-SW15	Date Sampled: 06/22/13
Lab Sample ID: C28436-13	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003585.D	1	07/01/13	PH	n/a	n/a	GAA163
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	23 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	6.5	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 062013-SW15	Date Sampled: 06/22/13
Lab Sample ID: C28436-13	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	8260	200	ug/l	1	06/27/13	06/27/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3259

(2) Prep QC Batch: MP6383

RL = Reporting Limit

Report of Analysis

Client Sample ID: 062013-SW15	Date Sampled: 06/22/13
Lab Sample ID: C28436-13	Date Received: 06/25/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃	261	5.0	mg/l	1	06/25/13	AC	SM18 2320B
Chloride	12.1	5.0	mg/l	10	07/01/13 16:53	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	06/27/13 17:05	EB	SM18 4500SD
Total Organic Carbon	2.6	1.0	mg/l	1	06/25/13 13:45	EB	SM18 5310C
pH ^a	6.97		su	1	06/25/13 14:08	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: TRIP BLANK		Date Sampled: 06/22/13
Lab Sample ID: C28436-14		Date Received: 06/25/13
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260B		
Project: Bentley Mall 06/13		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W40221.D	1	07/02/13	BD	n/a	n/a	VW1412
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		70-130%
2037-26-5	Toluene-D8	93%		70-130%
460-00-4	4-Bromofluorobenzene	86%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



C28436

ARES
P.O. Box 83050
Fairbanks, Alaska 99708
Phone: 907.374.3226
Fax: 907.374.2319

Chain of Custody Report

Client: ARES / Environmental Resource Group		Invoice To: ERG 1038 Redwood Hwy., Suite 1 Mill Valley, CA 94941 (415) 381-6574 P.O. Number:		Laboratory Name: Accutest Laboratories Address: 2105 Lundy Ave, San Jose, CA 95131 (408) 588-0200		Turnaround Request In Business Days																					
Report To: Ben Wells Address: 1038 Redwood Hwy., Suite 1 Mill Valley, CA 94941 Email: bwells@environmentalrg.com AND lyle@ak-res.com Phone: (415) 381-6574		Project Name: Bentley Mall 06/13 Project Number: Sampled By: Dustin Stahl		Preservative		Organic & Inorganic Analyses																					
				HCL		Sulfuric Acid		HCL		NaOH		N/A		Nitric Acid		<table border="1"> <tr> <td>10</td><td>7</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td><1</td> </tr> </table>				10	7	5	4	3	2	1	<1
10	7	5	4	3	2	1	<1																				
				Requested Analyses		Petroleum Hydrocarbon Analyses				<table border="1"> <tr> <td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td><1</td> </tr> </table>				5	4	3	2	1	<1								
5	4	3	2	1	<1																						
										Specify Other: Standard TAT (no rush) on all analysis requested. Report Tier Levels: Commercial "B" requested (results + QC)																	
Sample Identification		Sampling Date/ Time		EPA 8260B VOCs		EPA 9060 TOC		EPA 8210 Nitrate		Sulfide		Alkalinity: PH, carbonate		Iron		Matrix		# of Cont.		Location / Comments		Lab ID					
062013-MW1		06/22/2013		0942		X		X		X		X		X		GW		11				1					
062013-MW2		06/22/2013		1100		X		X		X		X		X		GW		11				2					
062013-MW4		06/22/2013		1219		X		X		X		X		X		GW		11				3					
062013-SW2		06/21/2013		1723		X		X		X		X		X		GW		11				4					
062013-SW4		06/21/2013		1549		X		X		X		X		X		GW		11				5					
062013-SW5		06/22/2013		1344		X		X		X		X		X		GW		11				6					
062013-DUP1		06/22/2013		0700		X		X		X		X		X		GW		11				7					
062013-DUP2		06/22/2013		0830		X		X		X		X		X		GW		11				8					
062013-SW6		06/21/2013		1414		X		X		X		X		X		GW		11				9					
062013-SW7		06/21/2013		1238		X		X		X		X		X		GW		11				10					
Released By: Lyle Greshover Print Name: Lyle Greshover Firm: ARES Date: 6/24/13 Time: 1000		Received By: [Signature] Print Name: [Signature] Firm: Accutest Date: 6/25/13 Time: 0940		Temp.		Page 1 of 2																					

FEDEX # 8986 - 8951 - 7115 - 4.8 °C
 FEDEX # 7957 - 9250 - 3984 - 3.7 °C
 FEDEX # 7957 - 9250 - 3973 - 1.2 °C



C28436

ARES
P.O. Box 83050
Fairbanks, Alaska 99708
Phone: 907.374.3226
Fax: 907.374.2319

Chain of Custody Report

Client: ARES / Environmental Resource Group			Invoice To: ERG 1038 Redwood Hwy., Suite 1 Mill Valley, CA 94941 (415) 381-6574 P.O. Number:			Laboratory Name: Accutest Laboratories Address: 2105 Lundy Ave, San Jose, CA 95131 (408) 588-0200			Turnaround Request in Business Days								
Report To: Ben Wells Address: 1038 Redwood Hwy., Suite 1 Mill Valley, CA 94941 Email: bwells@environmentalrg.com AND tyle@ak-res.com Phone: (415) 381-6574									Organic & Inorganic Analyses 10 7 5 4 3 2 1 <1								
Project Name: Bentley Mall 06/13 Project Number: Sampled By: Dustin Stahl			Preservative HCL Sulfuric Acid HCL NaOH N/A Nitric Acid						Petroleum Hydrocarbon Analyses 5 4 3 2 1 <1								
			Requested Analyses						Specify Other: Standard TAT (no rush) on all analysis requested. Report Tier Levels: Commercial "B" requested (results + QC)								
Sample Identification		Sampling Date/ Time	EPA 8260B VOCs	EPA 9060 TOC	EPA 8210 175 HAPs	Sulfide	Alkalinity, PH, chloride	Iron				Matrix	# of Cont.	Location/ Comments	Lab ID		
062013-SW8		06/22/2013 1456	X	X	X	X	X	X				GW	11		11		
062013-SW12		06/22/2013 1614	X	X	X	X	X	X				GW	11		12		
062013-SW15		06/22/2013 1723	X	X	X	X	X	X				GW	11		13		
Trip Blank		06/22/2013 NA	NA	X								W	3		14 → 9vids		
Released By: <i>[Signature]</i> Print Name: Lyle Greshover Firm: ARES Date: 6/24/13 Time: 1000			Received By: <i>[Signature]</i> Print Name: <i>[Signature]</i> Firm: Accutest Date: 6/25/13 Time: 0940														
Released By: <i>[Signature]</i> Print Name: FEDEX Firm: FEDEX Date: 6/25/13 Time: 0940			Received By: <i>[Signature]</i> Print Name: D. Luke Firm: Accutest Date: 6/25/13 Time: 0940														
Additional Remarks:												Temp:	Page 2 of 2				

4.1
4

C28436: Chain of Custody
Page 2 of 3

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: C28436 **Client:** ERG **Project:** BENTLEY MALL 06/13
Date / Time Received: 6/25/2013 **Delivery Method:** FedEx **Airbill #'s:** 898689517115; 795792503973; 795792503984
Cooler Temps (Initial/Adjusted): #1: (4.8/4.8); #2: (3.7/3.7); #3: (1.2/1.2); 0

<u>Cooler Security</u>	<u>Y or N</u>		<u>Y or N</u>	
1. Custody Seals Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. SmpI Dates/Time OK	<input checked="" type="checkbox"/> <input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y or N</u>	
1. Temp criteria achieved:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Cooler temp verification:	IR1 Plastic;	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	3	

<u>Quality Control Preservation</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y or N</u>	
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y or N</u>	
1. Sample recvd within HT:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Condition of sample:	Intact	

<u>Sample Integrity - Instructions</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

4.1
4

GC/MS Volatiles

5

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1412-MB	W40203.D	1	07/02/13	BD	n/a	n/a	VW1412

The QC reported here applies to the following samples:

Method: SW846 8260B

C28436-12, C28436-13, C28436-14

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	92% 70-130%
2037-26-5	Toluene-D8	93% 70-130%
460-00-4	4-Bromofluorobenzene	86% 70-130%

Method Blank Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR674-MB	R18416.D	1	07/02/13	BD	n/a	n/a	VR674

The QC reported here applies to the following samples:

Method: SW846 8260B

C28436-1, C28436-2, C28436-3, C28436-7, C28436-8, C28436-11

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	91% 70-130%
2037-26-5	Toluene-D8	105% 70-130%
460-00-4	4-Bromofluorobenzene	99% 70-130%

Method Blank Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1414-MB	W40233.D	1	07/03/13	BD	n/a	n/a	VW1414

The QC reported here applies to the following samples:

Method: SW846 8260B

C28436-4, C28436-5, C28436-6, C28436-10

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	97% 70-130%
2037-26-5	Toluene-D8	91% 70-130%
460-00-4	4-Bromofluorobenzene	87% 70-130%

Method Blank Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VV551-MB	V13835.D	1	07/03/13	TN	n/a	n/a	VV551

The QC reported here applies to the following samples:

Method: SW846 8260B

C28436-10

CAS No.	Compound	Result	RL	MDL	Units	Q
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	92%	70-130%
2037-26-5	Toluene-D8	115%	70-130%
460-00-4	4-Bromofluorobenzene	88%	70-130%

Method Blank Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR678-MB	R18517.D	1	07/05/13	BD	n/a	n/a	VR678

The QC reported here applies to the following samples:

Method: SW846 8260B

C28436-9

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	94% 70-130%
2037-26-5	Toluene-D8	106% 70-130%
460-00-4	4-Bromofluorobenzene	99% 70-130%

Blank Spike/Blank Spike Duplicate Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1412-BS	W40200.D	1	07/02/13	BD	n/a	n/a	VW1412
VW1412-BSD	W40201.D	1	07/02/13	BD	n/a	n/a	VW1412

The QC reported here applies to the following samples:

Method: SW846 8260B

C28436-12, C28436-13, C28436-14

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	20	18.4	92	18.1	91	2	74-126/17
156-59-2	cis-1,2-Dichloroethylene	20	18.4	92	18.5	93	1	73-126/17
156-60-5	trans-1,2-Dichloroethylene	20	17.7	89	18.3	92	3	71-126/18
127-18-4	Tetrachloroethylene	20	19.0	95	19.4	97	2	69-127/20
79-01-6	Trichloroethylene	20	17.6	88	18.0	90	2	78-123/17
75-01-4	Vinyl chloride	20	19.7	99	19.6	98	1	57-146/22

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	100%	99%	70-130%
2037-26-5	Toluene-D8	90%	89%	70-130%
460-00-4	4-Bromofluorobenzene	93%	91%	70-130%

* = Outside of Control Limits.

5.2.1
 5

Blank Spike/Blank Spike Duplicate Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR674-BS	R18413.D	1	07/02/13	BD	n/a	n/a	VR674
VR674-BSD	R18414.D	1	07/02/13	BD	n/a	n/a	VR674

The QC reported here applies to the following samples:

Method: SW846 8260B

C28436-1, C28436-2, C28436-3, C28436-7, C28436-8, C28436-11

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	20	17.9	90	18.1	91	1	74-126/17
156-59-2	cis-1,2-Dichloroethylene	20	18.3	92	18.2	91	1	73-126/17
156-60-5	trans-1,2-Dichloroethylene	20	18.6	93	18.4	92	1	71-126/18
127-18-4	Tetrachloroethylene	20	19.0	95	18.8	94	1	69-127/20
79-01-6	Trichloroethylene	20	18.5	93	18.4	92	1	78-123/17
75-01-4	Vinyl chloride	20	21.3	107	21.1	106	1	57-146/22

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	101%	102%	70-130%
2037-26-5	Toluene-D8	103%	103%	70-130%
460-00-4	4-Bromofluorobenzene	102%	102%	70-130%

* = Outside of Control Limits.

5.2.2
 5

Blank Spike/Blank Spike Duplicate Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1414-BS	W40230.D	1	07/03/13	BD	n/a	n/a	VW1414
VW1414-BSD	W40231.D	1	07/03/13	BD	n/a	n/a	VW1414

The QC reported here applies to the following samples:

Method: SW846 8260B

C28436-4, C28436-5, C28436-6, C28436-10

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	20	18.7	94	18.2	91	3	74-126/17
156-59-2	cis-1,2-Dichloroethylene	20	18.4	92	18.0	90	2	73-126/17
156-60-5	trans-1,2-Dichloroethylene	20	18.4	92	18.2	91	1	71-126/18
127-18-4	Tetrachloroethylene	20	19.3	97	19.2	96	1	69-127/20
79-01-6	Trichloroethylene	20	18.2	91	18.3	92	1	78-123/17
75-01-4	Vinyl chloride	20	17.7	89	18.0	90	2	57-146/22

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	102%	101%	70-130%
2037-26-5	Toluene-D8	90%	93%	70-130%
460-00-4	4-Bromofluorobenzene	92%	92%	70-130%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VV551-BS	V13832.D	1	07/03/13	TN	n/a	n/a	VV551
VV551-BSD	V13833.D	1	07/03/13	TN	n/a	n/a	VV551

The QC reported here applies to the following samples:

Method: SW846 8260B

C28436-10

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
127-18-4	Tetrachloroethylene	20	20.0	100	18.9	95	6	69-127/20

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	108%	96%	70-130%
2037-26-5	Toluene-D8	102%	104%	70-130%
460-00-4	4-Bromofluorobenzene	100%	97%	70-130%

* = Outside of Control Limits.

5.2.4
5

Blank Spike/Blank Spike Duplicate Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR678-BS	R18514.D	1	07/05/13	BD	n/a	n/a	VR678
VR678-BSD	R18515.D	1	07/05/13	BD	n/a	n/a	VR678

The QC reported here applies to the following samples:

Method: SW846 8260B

C28436-9

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	20	17.6	88	17.8	89	1	74-126/17
156-59-2	cis-1,2-Dichloroethylene	20	17.9	90	18.0	90	1	73-126/17
156-60-5	trans-1,2-Dichloroethylene	20	18.1	91	17.9	90	1	71-126/18
127-18-4	Tetrachloroethylene	20	19.4	97	19.1	96	2	69-127/20
79-01-6	Trichloroethylene	20	18.5	93	18.3	92	1	78-123/17
75-01-4	Vinyl chloride	20	18.8	94	19.0	95	1	57-146/22

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	99%	100%	70-130%
2037-26-5	Toluene-D8	104%	104%	70-130%
460-00-4	4-Bromofluorobenzene	103%	102%	70-130%

* = Outside of Control Limits.

5.2.5
 5

Laboratory Control Sample Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR674-LCS	R18415.D	1	07/02/13	BD	n/a	n/a	VR674

The QC reported here applies to the following samples:

Method: SW846 8260B

C28436-1, C28436-2, C28436-3, C28436-7, C28436-8, C28436-11

CAS No.	Compound	Spike ug/l	LCS ug/l	LCS %	Limits
---------	----------	---------------	-------------	----------	--------

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	98%	70-130%
2037-26-5	Toluene-D8	104%	70-130%
460-00-4	4-Bromofluorobenzene	102%	70-130%

* = Outside of Control Limits.

Laboratory Control Sample Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR678-LCS	R18516.D	1	07/05/13	BD	n/a	n/a	VR678

The QC reported here applies to the following samples:

Method: SW846 8260B

C28436-9

CAS No.	Compound	Spike ug/l	LCS ug/l	LCS %	Limits
---------	----------	---------------	-------------	----------	--------

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	70-130%
2037-26-5	Toluene-D8	106%	70-130%
460-00-4	4-Bromofluorobenzene	103%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C28407-1MS	W40222.D	1	07/02/13	BD	n/a	n/a	VW1412
C28407-1MSD	W40223.D	1	07/02/13	BD	n/a	n/a	VW1412
C28407-1	W40206.D	1	07/02/13	BD	n/a	n/a	VW1412

The QC reported here applies to the following samples:

Method: SW846 8260B

C28436-12, C28436-13, C28436-14

CAS No.	Compound	C28407-1 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	ND	20	19.9	100	19.7	99	1	74-126/17
156-59-2	cis-1,2-Dichloroethylene	ND	20	19.3	97	19.2	96	1	73-126/17
156-60-5	trans-1,2-Dichloroethylene	ND	20	19.1	96	19.1	96	0	71-126/18
127-18-4	Tetrachloroethylene	ND	20	19.5	98	19.4	97	1	69-127/20
79-01-6	Trichloroethylene	ND	20	19.6	98	19.0	95	3	78-123/17
75-01-4	Vinyl chloride	ND	20	18.3	92	18.3	92	0	57-146/22

CAS No.	Surrogate Recoveries	MS	MSD	C28407-1	Limits
1868-53-7	Dibromofluoromethane	104%	102%	95%	70-130%
2037-26-5	Toluene-D8	93%	92%	96%	70-130%
460-00-4	4-Bromofluorobenzene	93%	93%	89%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C28405-14MS	R18435.D	1	07/02/13	BD	n/a	n/a	VR674
C28405-14MSD	R18436.D	1	07/02/13	BD	n/a	n/a	VR674
C28405-14	R18422.D	1	07/02/13	BD	n/a	n/a	VR674

The QC reported here applies to the following samples:

Method: SW846 8260B

C28436-1, C28436-2, C28436-3, C28436-7, C28436-8, C28436-11

CAS No.	Compound	C28405-14 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	ND	20	19.5	98	19.4	97	1	74-126/17
156-59-2	cis-1,2-Dichloroethylene	ND	20	19.4	97	19.3	97	1	73-126/17
156-60-5	trans-1,2-Dichloroethylene	ND	20	19.7	99	19.4	97	2	71-126/18
127-18-4	Tetrachloroethylene	ND	20	19.5	98	19.1	96	2	69-127/20
79-01-6	Trichloroethylene	ND	20	19.6	98	19.4	97	1	78-123/17
75-01-4	Vinyl chloride	ND	20	22.0	110	21.1	106	4	57-146/22

CAS No.	Surrogate Recoveries	MS	MSD	C28405-14	Limits
1868-53-7	Dibromofluoromethane	104%	104%	95%	70-130%
2037-26-5	Toluene-D8	105%	105%	102%	70-130%
460-00-4	4-Bromofluorobenzene	104%	105%	97%	70-130%

* = Outside of Control Limits.

5.4.2
 5

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C28477-3MS	W40251.D	5	07/03/13	BD	n/a	n/a	VW1414
C28477-3MSD	W40252.D	5	07/03/13	BD	n/a	n/a	VW1414
C28477-3	W40240.D	5	07/03/13	BD	n/a	n/a	VW1414

The QC reported here applies to the following samples:

Method: SW846 8260B

C28436-4, C28436-5, C28436-6, C28436-10

CAS No.	Compound	C28477-3 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	ND	100	106	106	106	106	0	74-126/17
156-59-2	cis-1,2-Dichloroethylene	199	100	298	99	290	91	3	73-126/17
156-60-5	trans-1,2-Dichloroethylene	ND	100	107	107	106	106	1	71-126/18
127-18-4	Tetrachloroethylene	ND	100	98.3	98	96.7	97	2	69-127/20
79-01-6	Trichloroethylene	256	100	317	61* a	306	50* a	4	78-123/17
75-01-4	Vinyl chloride	ND	100	107	107	117	117	9	57-146/22

CAS No.	Surrogate Recoveries	MS	MSD	C28477-3	Limits
1868-53-7	Dibromofluoromethane	106%	104%	106%	70-130%
2037-26-5	Toluene-D8	91%	93%	93%	70-130%
460-00-4	4-Bromofluorobenzene	93%	92%	89%	70-130%

(a) Outside control limits due to high level in sample relative to spike amount.

* = Outside of Control Limits.

5.4.3
5

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C28506-2MS	R18536.D	1	07/05/13	BD	n/a	n/a	VR678
C28506-2MSD	R18537.D	1	07/05/13	BD	n/a	n/a	VR678
C28506-2	R18520.D	1	07/05/13	BD	n/a	n/a	VR678

The QC reported here applies to the following samples:

Method: SW846 8260B

C28436-9

CAS No.	Compound	C28506-2 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	ND	20	19.9	100	19.7	99	1	74-126/17
156-59-2	cis-1,2-Dichloroethylene	ND	20	19.5	98	19.3	97	1	73-126/17
156-60-5	trans-1,2-Dichloroethylene	ND	20	19.4	97	19.1	96	2	71-126/18
127-18-4	Tetrachloroethylene	ND	20	19.5	98	19.2	96	2	69-127/20
79-01-6	Trichloroethylene	ND	20	19.4	97	19.4	97	0	78-123/17
75-01-4	Vinyl chloride	ND	20	19.6	98	18.3	92	7	57-146/22

CAS No.	Surrogate Recoveries	MS	MSD	C28506-2	Limits
1868-53-7	Dibromofluoromethane	108%	107%	103%	70-130%
2037-26-5	Toluene-D8	107%	106%	105%	70-130%
460-00-4	4-Bromofluorobenzene	105%	105%	101%	70-130%

* = Outside of Control Limits.

5.4.4
5

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAA162-MB	AA003547.D 1		06/28/13	PH	n/a	n/a	GAA162

The QC reported here applies to the following samples:

Method: RSK-175

C28436-1

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

Method Blank Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAA163-MB	AA003566.D 1		07/01/13	PH	n/a	n/a	GAA163

The QC reported here applies to the following samples:

Method: RSK-175

C28436-2, C28436-3, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

Blank Spike Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAA162-BS	AA003549.D 1		06/28/13	PH	n/a	n/a	GAA162

The QC reported here applies to the following samples:

Method: RSK-175

C28436-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	15.5	72	70-130
74-85-1	Ethene	57.4	41.5	72	70-130
74-84-0	Ethane	43.3	31.5	73	70-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAA163-BS	AA003567.D 1		07/01/13	PH	n/a	n/a	GAA163

The QC reported here applies to the following samples:

Method: RSK-175

C28436-2, C28436-3, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	17.0	79	70-130
74-85-1	Ethene	57.4	47.4	83	70-130
74-84-0	Ethane	43.3	36.9	85	70-130

* = Outside of Control Limits.

Duplicate Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C28436-1DUP	AA003561.D 1		06/28/13	PH	n/a	n/a	GAA162
C28436-1	AA003560.D 1		06/28/13	PH	n/a	n/a	GAA162

The QC reported here applies to the following samples:

Method: RSK-175

C28436-1

CAS No.	Compound	C28436-1 ug/l	DUP Q ug/l	Q RPD	Limits
74-82-8	Methane	ND	ND	nc	30
74-85-1	Ethene	ND	ND	nc	30
74-84-0	Ethane	ND	ND	nc	30

* = Outside of Control Limits.

Duplicate Summary

Job Number: C28436
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C28436-5DUP	AA003577.D 1		07/01/13	PH	n/a	n/a	GAA163
C28436-5	AA003574.D 1		07/01/13	PH	n/a	n/a	GAA163

The QC reported here applies to the following samples:

Method: RSK-175

C28436-2, C28436-3, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

CAS No.	Compound	C28436-5		Q	RPD	Limits
		ug/l	DUP Q ug/l			
74-82-8	Methane	8.2	6.2		28	30
74-85-1	Ethene	ND	ND		nc	30
74-84-0	Ethane	ND	ND		nc	30

* = Outside of Control Limits.

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: C28436
Account: ERGCAMV - Environmental Resource Group
Project: Bentley Mall 06/13

QC Batch ID: MP6383
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 06/27/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	13	8.5		
Antimony	6.0	.7	.51		
Arsenic	10	.7	.65		
Barium	200	.4	.35		
Beryllium	5.0	.2	.4		
Bismuth	20		2.9		
Boron	100	.9	.64		
Cadmium	2.0	.2	.15		
Calcium	5000	7.1	12		
Chromium	10	.3	.41		
Cobalt	5.0	.2	.3		
Copper	10	1.2	3		
Iron	200	6.4	12	1.9	<200
Lead	10	.7	.85		
Lithium	50		2		
Magnesium	5000	27	36		
Manganese	15	.1	1.3		
Molybdenum	20	.2	.22		
Nickel	5.0	.2	.12		
Potassium	10000	18	44		
Selenium	10	1.8	2.2		
Silicon	100	1.2	6.9		
Silver	5.0	.3	.47		
Sodium	10000	15	13		
Strontium	10	.2	.24		
Thallium	10	.5	.54		
Tin	50	.2	.7		
Titanium	10	.4	.34		
Vanadium	10	.3	.3		
Zinc	20	.3	4.2		

Associated samples MP6383: C28436-1, C28436-2, C28436-3, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

7.1.1
7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C28436
 Account: ERGCAMV - Environmental Resource Group
 Project: Bentley Mall 06/13

QC Batch ID: MP6383
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 06/27/13

Metal	C28436-1 Original MS		SpikeLot MPIR4A		% Rec	QC Limits
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron	70.2	579	500	101.8	75-125	
Lead	anr					
Lithium						
Magnesium						
Manganese						
Molybdenum	anr					
Nickel	anr					
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Strontium						
Thallium	anr					
Tin						
Titanium						
Vanadium	anr					
Zinc	anr					

Associated samples MP6383: C28436-1, C28436-2, C28436-3, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits

7.1.2
 7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C28436
Account: ERGCAMV - Environmental Resource Group
Project: Bentley Mall 06/13

QC Batch ID: MP6383
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C28436
 Account: ERGCAMV - Environmental Resource Group
 Project: Bentley Mall 06/13

QC Batch ID: MP6383
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 06/27/13

Metal	C28436-1 Original MSD		SpikeLot MPIR4A	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron	70.2	584	500	102.8	0.9	20
Lead	anr					
Lithium						
Magnesium						
Manganese						
Molybdenum	anr					
Nickel	anr					
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Strontium						
Thallium	anr					
Tin						
Titanium						
Vanadium	anr					
Zinc	anr					

Associated samples MP6383: C28436-1, C28436-2, C28436-3, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits

7.1.2
 7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C28436
Account: ERGCAMV - Environmental Resource Group
Project: Bentley Mall 06/13

QC Batch ID: MP6383
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: C28436
 Account: ERGCAMV - Environmental Resource Group
 Project: Bentley Mall 06/13

QC Batch ID: MP6383
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 06/27/13

Metal	BSP Result	Spikelot MPIR4A	% Rec	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron	506	500	101.2	80-120
Lead	anr			
Lithium				
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	anr			
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Vanadium	anr			
Zinc	anr			

Associated samples MP6383: C28436-1, C28436-2, C28436-3, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: C28436
 Account: ERGCAMV - Environmental Resource Group
 Project: Bentley Mall 06/13

QC Batch ID: MP6383
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 06/27/13

Metal	C28436-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron	70.2	87.3	24.4 (a)	0-10
Lead	anr			
Lithium				
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	anr			
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Vanadium	anr			
Zinc	anr			

Associated samples MP6383: C28436-1, C28436-2, C28436-3, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

7.1.4
 7

SERIAL DILUTION RESULTS SUMMARY

Login Number: C28436
Account: ERGCAMV - Environmental Resource Group
Project: Bentley Mall 06/13

QC Batch ID: MP6383
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

7.1.4

7

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: C28436
Account: ERGCAMV - Environmental Resource Group
Project: Bentley Mall 06/13

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Total as CaCO3	GN11185	5.0	0.0	mg/l	250	246	98.2	75-125%
Bromide	GP5230/GN11218	0.20	0.0	mg/l	5	5.17	103.4	90-110%
Chloride	GP5230/GN11218	0.50	0.0	mg/l	5	4.94	98.8	90-110%
Chloride	GP5241/GN11233	0.50	0.0	mg/l	5	5.46	109.2	90-110%
Fluoride	GP5230/GN11218	0.10	0.0	mg/l	5	5.03	100.6	90-110%
Nitrogen, Nitrate	GP5241/GN11233	0.10	0.0	mg/l	5	4.80	96.0	90-110%
Nitrogen, Nitrite	GP5241/GN11233	0.10	0.0	mg/l	5	4.73	94.6	90-110%
Sulfide	GN11214	0.020	0.0	mg/l	0.2	0.19	93.1	75-125%
Total Organic Carbon	GP5213/GN11188	1.0	0.0	mg/l	25	22.7	90.9	75-125%

Associated Samples:

Batch GP5213: C28436-1, C28436-2, C28436-3, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

Batch GP5230: C28436-1, C28436-2, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

Batch GP5241: C28436-3

Batch GN11185: C28436-1, C28436-2, C28436-3, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

Batch GN11214: C28436-1, C28436-2, C28436-3, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

(*) Outside of QC limits



BLANK SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: C28436
Account: ERGCAMV - Environmental Resource Group
Project: Bentley Mall 06/13

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
Alkalinity, Total as CaCO3	GN11185	mg/l	250	242	1.6	
Bromide	GP5230/GN11218	mg/l	5	5.16	0.2	25%
Chloride	GP5230/GN11218	mg/l	5	4.93	0.2	25%
Chloride	GP5241/GN11233	mg/l	5	4.85	11.8	25%
Fluoride	GP5230/GN11218	mg/l	5	5.04	0.2	25%
Nitrogen, Nitrate	GP5241/GN11233	mg/l	5	4.79	0.2	25%
Nitrogen, Nitrite	GP5241/GN11233	mg/l	5	4.74	0.2	25%
Sulfide	GN11214	mg/l	0.2	0.19	0.6	
Total Organic Carbon	GP5213/GN11188	mg/l	25	22.9	0.9	

Associated Samples:

Batch GP5213: C28436-1, C28436-2, C28436-3, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

Batch GP5230: C28436-1, C28436-2, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

Batch GP5241: C28436-3

Batch GN11185: C28436-1, C28436-2, C28436-3, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

Batch GN11214: C28436-1, C28436-2, C28436-3, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

(*) Outside of QC limits

82

8

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: C28436
Account: ERGCAMV - Environmental Resource Group
Project: Bentley Mall 06/13

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN11185	C28436-7	mg/l	226	226	0.0	0-25%
Alkalinity, Total as CaCO3	GN11185	C28436-8	mg/l	499	495	0.8	0-25%
Alkalinity, Total as CaCO3	GN11185	C28436-13	mg/l	261	263	0.8	0-25%
pH	GN11184	C28436-7	su	6.95	7.01	0.8	0-25%
pH	GN11184	C28436-8	su	7.03	7.13	1.4	0-25%

Associated Samples:

Batch GN11184: C28436-1, C28436-2, C28436-3, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

Batch GN11185: C28436-1, C28436-2, C28436-3, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

(*) Outside of QC limits



MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: C28436
Account: ERGCAMV - Environmental Resource Group
Project: Bentley Mall 06/13

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP5230/GN11218	C28436-2	mg/l	0.0	40	41.7	104.3	80-120%
Chloride	GP5230/GN11218	C28436-2	mg/l	59.0	40	101	105.0	80-120%
Fluoride	GP5230/GN11218	C28436-2	mg/l	0.16	40	35.0	87.1	80-120%
Nitrogen, Nitrate	GP5241/GN11233	C28533-1	mg/l	1.2	4	5.4	105.0	80-120%
Nitrogen, Nitrite	GP5241/GN11233	C28533-1	mg/l	0.0	4	4.1	102.5	80-120%
Sulfide	GN11214	C28436-1	mg/l	0.0	0.2	0.20	99.5	75-125%
Total Organic Carbon	GP5213/GN11188	C28436-6	mg/l	2.6	25	27.5	99.9	75-125%

Associated Samples:

Batch GP5213: C28436-1, C28436-2, C28436-3, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

Batch GP5230: C28436-1, C28436-2, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

Batch GP5241: C28436-3

Batch GN11214: C28436-1, C28436-2, C28436-3, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

8.4

8

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: C28436
Account: ERGCAMV - Environmental Resource Group
Project: Bentley Mall 06/13

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP5230/GN11218	C28436-2	mg/l	0.0	40	41.7	0.0	
Chloride	GP5230/GN11218	C28436-2	mg/l	59.0	40	101	0.0	
Fluoride	GP5230/GN11218	C28436-2	mg/l	0.16	40	35.2	0.6	
Nitrogen, Nitrate	GP5241/GN11233	C28533-1	mg/l	1.2	4	5.4	0.0	
Nitrogen, Nitrite	GP5241/GN11233	C28533-1	mg/l	0.0	4	4.1	0.0	
Sulfide	GN11214	C28436-1	mg/l	0.0	0.2	0.199	0.8	25%

Associated Samples:

Batch GP5230: C28436-1, C28436-2, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

Batch GP5241: C28436-3

Batch GN11214: C28436-1, C28436-2, C28436-3, C28436-4, C28436-5, C28436-6, C28436-7, C28436-8, C28436-9, C28436-10, C28436-11, C28436-12, C28436-13

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

8.5

8

Technical Report for

Environmental Resource Group

Bentley Mall 06/13

Accutest Job Number: C30215

Sampling Dates: 10/02/13 - 10/04/13

Report to:

Environmental Resource Group
1038 Redwood Hwy Suite 1
Mill Valley, CA 94941
bwells@environmentalrg.com; lyle@ak-res.com

ATTN: Ben Wells

Total number of pages in report: **143**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

James J. Rhudy
Lab Director

Client Service contact: Renea Jackson 408-588-0200

Certifications: CA (08258CA) AZ (AZ0762) DoD/ISO/IEC 17025:2005 (L2242)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.
Test results relate only to samples analyzed.

Table of Contents

-1-

Section 1: Sample Summary	4
Section 2: Summary of Hits	6
Section 3: Sample Results	12
3.1: C30215-1: 102013-MW1	13
3.2: C30215-2: 102013-MW2	17
3.3: C30215-3: 102013-MW4	21
3.4: C30215-4: 102013-MW5	25
3.5: C30215-5: 102013-MW6	29
3.6: C30215-6: 102013-MW7	33
3.7: C30215-7: 102013-DUP1	37
3.8: C30215-8: 102013-MW9	41
3.9: C30215-9: 102013-MW11	45
3.10: C30215-10: 102013-MW12	49
3.11: C30215-11: 102013-MW13	53
3.12: C30215-12: 102013-SW2	57
3.13: C30215-13: 102013-SW4	61
3.14: C30215-14: 102013-SW5	65
3.15: C30215-15: 102013-DUP2	69
3.16: C30215-16: 102013-SW6	73
3.17: C30215-17: 102013-SW7	77
3.18: C30215-18: 102013-SW8	81
3.19: C30215-19: 102013-SW15	85
3.20: C30215-20: 102013-SW12	89
3.21: C30215-21: TRIP BLANK 1	93
3.22: C30215-22: TRIP BLANK 2	94
3.23: C30215-23: TRIP BLANK 3	95
3.24: C30215-24: TRIP BLANK 4	96
Section 4: Misc. Forms	97
4.1: Chain of Custody	98
Section 5: GC/MS Volatiles - QC Data Summaries	102
5.1: Method Blank Summary	103
5.2: Blank Spike/Blank Spike Duplicate Summary	108
5.3: Laboratory Control Sample Summary	113
5.4: Matrix Spike/Matrix Spike Duplicate Summary	115
Section 6: GC Volatiles - QC Data Summaries	120
6.1: Method Blank Summary	121
6.2: Blank Spike Summary	123
6.3: Duplicate Summary	125
Section 7: Metals Analysis - QC Data Summaries	127
7.1: Prep QC MP6860: Fe	128
Section 8: General Chemistry - QC Data Summaries	138
8.1: Method Blank and Spike Results Summary	139

Table of Contents

-2-

8.2: Blank Spike Duplicate Results Summary	140
8.3: Duplicate Results Summary	141
8.4: Matrix Spike Results Summary	142
8.5: Matrix Spike Duplicate Results Summary	143





Sample Summary

Environmental Resource Group

Job No: C30215

Bentley Mall 06/13

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
C30215-1	10/02/13	11:54 DS	10/10/13	AQ	Ground Water	102013-MW1
C30215-2	10/02/13	13:31 DS	10/10/13	AQ	Ground Water	102013-MW2
C30215-3	10/02/13	14:54 DS	10/10/13	AQ	Ground Water	102013-MW4
C30215-4	10/02/13	16:33 DS	10/10/13	AQ	Ground Water	102013-MW5
C30215-5	10/02/13	18:08 DS	10/10/13	AQ	Ground Water	102013-MW6
C30215-6	10/02/13	19:51 DS	10/10/13	AQ	Ground Water	102013-MW7
C30215-7	10/02/13	21:14 DS	10/10/13	AQ	Ground Water	102013-DUP1
C30215-8	10/03/13	10:48 DS	10/10/13	AQ	Ground Water	102013-MW9
C30215-9	10/03/13	12:06 DS	10/10/13	AQ	Ground Water	102013-MW11
C30215-10	10/03/13	13:24 DS	10/10/13	AQ	Ground Water	102013-MW12
C30215-11	10/03/13	14:50 DS	10/10/13	AQ	Ground Water	102013-MW13
C30215-12	10/03/13	16:13 DS	10/10/13	AQ	Ground Water	102013-SW2
C30215-13	10/03/13	17:38 DS	10/10/13	AQ	Ground Water	102013-SW4



Sample Summary

(continued)

Environmental Resource Group

Job No: C30215

Bentley Mall 06/13

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
C30215-14	10/03/13	19:20 DS	10/10/13	AQ	Ground Water	102013-SW5
C30215-15	10/03/13	20:52 DS	10/10/13	AQ	Ground Water	102013-DUP2
C30215-16	10/04/13	09:14 DS	10/10/13	AQ	Ground Water	102013-SW6
C30215-17	10/04/13	10:51 DS	10/10/13	AQ	Ground Water	102013-SW7
C30215-18	10/04/13	12:13 DS	10/10/13	AQ	Ground Water	102013-SW8
C30215-19	10/04/13	13:42 DS	10/10/13	AQ	Ground Water	102013-SW15
C30215-20	10/04/13	15:04 DS	10/10/13	AQ	Ground Water	102013-SW12
C30215-21	10/02/13	00:00 DS	10/10/13	AQ	Trip Blank Water	TRIP BLANK 1
C30215-22	10/02/13	00:00 DS	10/10/13	AQ	Trip Blank Water	TRIP BLANK 2
C30215-23	10/02/13	00:00 DS	10/10/13	AQ	Trip Blank Water	TRIP BLANK 3
C30215-24	10/02/13	00:00 DS	10/10/13	AQ	Trip Blank Water	TRIP BLANK 4

Summary of Hits

Job Number: C30215
Account: Environmental Resource Group
Project: Bentley Mall 06/13
Collected: 10/02/13 thru 10/04/13

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

C30215-1 102013-MW1

Chloroform	14.6	5.0	1.0	ug/l	SW846 8260B
Tetrachloroethylene	425	5.0	1.5	ug/l	SW846 8260B
Trichloroethylene	2.9 J	5.0	1.0	ug/l	SW846 8260B
Iron	1890	200		ug/l	SW846 6010B
Alkalinity, Total as CaCO3	220	5.0		mg/l	SM18 2320B
Chloride	27.0	1.3		mg/l	EPA 300/SW846 9056A
Total Organic Carbon	2.8	1.0		mg/l	SM18 5310C
pH ^a	7.09			su	SM18 4500H+ B

C30215-2 102013-MW2

Chloroform	10.9	5.0	1.0	ug/l	SW846 8260B
Tetrachloroethylene	279	5.0	1.5	ug/l	SW846 8260B
Trichloroethylene	1.4 J	5.0	1.0	ug/l	SW846 8260B
Alkalinity, Total as CaCO3	418	5.0		mg/l	SM18 2320B
Chloride	54.6	5.0		mg/l	EPA 300/SW846 9056A
Total Organic Carbon	8.6	1.0		mg/l	SM18 5310C
pH ^a	7.14			su	SM18 4500H+ B

C30215-3 102013-MW4

cis-1,2-Dichloroethylene	0.73 J	1.0	0.20	ug/l	SW846 8260B
trans-1,2-Dichloroethylene	1.1	1.0	0.20	ug/l	SW846 8260B
Tetrachloroethylene	56.9	1.0	0.30	ug/l	SW846 8260B
Trichloroethylene	5.7	1.0	0.20	ug/l	SW846 8260B
Iron	2030	200		ug/l	SW846 6010B
Alkalinity, Total as CaCO3	536	5.0		mg/l	SM18 2320B
Chloride	24.8	2.5		mg/l	EPA 300/SW846 9056A
Total Organic Carbon	3.4	1.0		mg/l	SM18 5310C
pH ^a	7.08			su	SM18 4500H+ B

C30215-4 102013-MW5

Chloroform	3.7	2.0	0.40	ug/l	SW846 8260B
cis-1,2-Dichloroethylene	3.2	2.0	0.40	ug/l	SW846 8260B
Tetrachloroethylene	173	2.0	0.60	ug/l	SW846 8260B
Trichloroethylene	28.7	2.0	0.40	ug/l	SW846 8260B
Methane	1.5	0.50	0.25	ug/l	RSK-175
Iron	8060	200		ug/l	SW846 6010B
Alkalinity, Total as CaCO3	370	5.0		mg/l	SM18 2320B
Chloride	19.9	1.3		mg/l	EPA 300/SW846 9056A
Total Organic Carbon	3.1	1.0		mg/l	SM18 5310C
pH ^a	6.84			su	SM18 4500H+ B

Summary of Hits

Job Number: C30215
Account: Environmental Resource Group
Project: Bentley Mall 06/13
Collected: 10/02/13 thru 10/04/13

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

C30215-5 102013-MW6

Chloroform		3.1	1.0	0.20	ug/l	SW846 8260B
cis-1,2-Dichloroethylene		6.3	1.0	0.20	ug/l	SW846 8260B
Tetrachloroethylene		61.5	1.0	0.30	ug/l	SW846 8260B
Trichloroethylene		6.5	1.0	0.20	ug/l	SW846 8260B
Methane		4.0	0.50	0.25	ug/l	RSK-175
Alkalinity, Total as CaCO3		430	5.0		mg/l	SM18 2320B
Chloride		23.1	2.5		mg/l	EPA 300/SW846 9056A
Total Organic Carbon		3.2	1.0		mg/l	SM18 5310C
pH ^a		6.85			su	SM18 4500H+ B

C30215-6 102013-MW7

cis-1,2-Dichloroethylene		4.3	1.0	0.20	ug/l	SW846 8260B
Tetrachloroethylene		1.7	1.0	0.30	ug/l	SW846 8260B
Trichloroethylene		2.0	1.0	0.20	ug/l	SW846 8260B
Vinyl chloride		0.20 J	1.0	0.20	ug/l	SW846 8260B
Methane		328	2.5	1.3	ug/l	RSK-175
Iron		4990	200		ug/l	SW846 6010B
Alkalinity, Total as CaCO3		270	5.0		mg/l	SM18 2320B
Chloride		103	10		mg/l	EPA 300/SW846 9056A
Total Organic Carbon		6.7	1.0		mg/l	SM18 5310C
pH ^a		6.90			su	SM18 4500H+ B

C30215-7 102013-DUP1

Chloroform		15.1	5.0	1.0	ug/l	SW846 8260B
Tetrachloroethylene		365	5.0	1.5	ug/l	SW846 8260B
Trichloroethylene		3.0 J	5.0	1.0	ug/l	SW846 8260B
Iron		2780	200		ug/l	SW846 6010B
Alkalinity, Total as CaCO3		238	5.0		mg/l	SM18 2320B
Chloride		26.8	2.5		mg/l	EPA 300/SW846 9056A
Total Organic Carbon		2.7	1.0		mg/l	SM18 5310C
pH ^a		6.90			su	SM18 4500H+ B

C30215-8 102013-MW9

Chloroform		0.22 J	1.0	0.20	ug/l	SW846 8260B
cis-1,2-Dichloroethylene		1.4	1.0	0.20	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		0.61 J	1.0	0.20	ug/l	SW846 8260B
Tetrachloroethylene		15.1	1.0	0.30	ug/l	SW846 8260B
Trichloroethylene		3.3	1.0	0.20	ug/l	SW846 8260B
Iron		635	200		ug/l	SW846 6010B

Summary of Hits

Job Number: C30215
Account: Environmental Resource Group
Project: Bentley Mall 06/13
Collected: 10/02/13 thru 10/04/13

Lab Sample ID	Client Sample ID	Result/ Analyte	RL	MDL	Units	Method
---------------	------------------	--------------------	----	-----	-------	--------

		Alkalinity, Total as CaCO3	360	5.0		mg/l	SM18 2320B
		Chloride	13.6	2.5		mg/l	EPA 300/SW846 9056A
		Total Organic Carbon	2.4	1.0		mg/l	SM18 5310C
		pH ^a	7.00			su	SM18 4500H+ B

C30215-9 102013-MW11

		cis-1,2-Dichloroethylene	1.1	1.0	0.20	ug/l	SW846 8260B
		Tetrachloroethylene	8.0	1.0	0.30	ug/l	SW846 8260B
		Trichloroethylene	2.8	1.0	0.20	ug/l	SW846 8260B
		Iron	1690	200		ug/l	SW846 6010B
		Alkalinity, Total as CaCO3	344	5.0		mg/l	SM18 2320B
		Chloride	14.8	2.5		mg/l	EPA 300/SW846 9056A
		Total Organic Carbon	5.0	1.0		mg/l	SM18 5310C
		pH ^a	6.98			su	SM18 4500H+ B

C30215-10 102013-MW12

		Chloroform	1.7 J	5.0	1.0	ug/l	SW846 8260B
		cis-1,2-Dichloroethylene	1.8 J	5.0	1.0	ug/l	SW846 8260B
		Tetrachloroethylene	396	5.0	1.5	ug/l	SW846 8260B
		Trichloroethylene	32.8	5.0	1.0	ug/l	SW846 8260B
		Methane	3.6	0.50	0.25	ug/l	RSK-175
		Iron	1720	200		ug/l	SW846 6010B
		Alkalinity, Total as CaCO3	300	5.0		mg/l	SM18 2320B
		Chloride	23.4	2.5		mg/l	EPA 300/SW846 9056A
		Total Organic Carbon	3.6	1.0		mg/l	SM18 5310C
		pH ^a	6.84			su	SM18 4500H+ B

C30215-11 102013-MW13

		Chloroform	0.67 J	1.0	0.20	ug/l	SW846 8260B
		Tetrachloroethylene	13.8	1.0	0.30	ug/l	SW846 8260B
		Methane	2.5	0.50	0.25	ug/l	RSK-175
		Iron	2680	200		ug/l	SW846 6010B
		Alkalinity, Total as CaCO3	280	5.0		mg/l	SM18 2320B
		Chloride	15.7	1.3		mg/l	EPA 300/SW846 9056A
		Total Organic Carbon	2.9	1.0		mg/l	SM18 5310C
		pH ^a	6.65			su	SM18 4500H+ B

C30215-12 102013-SW2

		Chloroform	6.6	1.0	0.20	ug/l	SW846 8260B
		Tetrachloroethylene	4.0	1.0	0.30	ug/l	SW846 8260B
		Methane	5.7	0.50	0.25	ug/l	RSK-175

Summary of Hits

Job Number: C30215
Account: Environmental Resource Group
Project: Bentley Mall 06/13
Collected: 10/02/13 thru 10/04/13

2

Lab Sample ID	Client Sample ID	Result/ Analyte	RL	MDL	Units	Method
---------------	------------------	--------------------	----	-----	-------	--------

		Iron	11900	200		ug/l	SW846 6010B
		Alkalinity, Total as CaCO3	256	5.0		mg/l	SM18 2320B
		Chloride	14.2	1.3		mg/l	EPA 300/SW846 9056A
		Total Organic Carbon	2.7	1.0		mg/l	SM18 5310C
		pH ^a	6.82			su	SM18 4500H+ B

C30215-13 102013-SW4

		Chloroform	6.9	1.0	0.20	ug/l	SW846 8260B
		cis-1,2-Dichloroethylene	0.42 J	1.0	0.20	ug/l	SW846 8260B
		Tetrachloroethylene	7.8	1.0	0.30	ug/l	SW846 8260B
		Methane	6.7	0.50	0.25	ug/l	RSK-175
		Iron	9880	200		ug/l	SW846 6010B
		Alkalinity, Total as CaCO3	268	5.0		mg/l	SM18 2320B
		Chloride	17.0	1.3		mg/l	EPA 300/SW846 9056A
		Total Organic Carbon	2.6	1.0		mg/l	SM18 5310C
		pH ^a	6.96			su	SM18 4500H+ B

C30215-14 102013-SW5

		Tetrachloroethylene	1210	20	6.0	ug/l	SW846 8260B
		Methane	8.7	0.50	0.25	ug/l	RSK-175
		Iron	8130	200		ug/l	SW846 6010B
		Alkalinity, Total as CaCO3	234	5.0		mg/l	SM18 2320B
		Chloride	15.8	1.3		mg/l	EPA 300/SW846 9056A
		Total Organic Carbon	3.6	1.0		mg/l	SM18 5310C
		pH ^a	6.62			su	SM18 4500H+ B

C30215-15 102013-DUP2

		Chloroform	0.77 J	1.0	0.20	ug/l	SW846 8260B
		Tetrachloroethylene	14.8	1.0	0.30	ug/l	SW846 8260B
		Methane	2.5	0.50	0.25	ug/l	RSK-175
		Iron	6670	200		ug/l	SW846 6010B
		Alkalinity, Total as CaCO3	282	5.0		mg/l	SM18 2320B
		Chloride	15.7	1.3		mg/l	EPA 300/SW846 9056A
		Total Organic Carbon	3.0	1.0		mg/l	SM18 5310C
		pH ^a	6.84			su	SM18 4500H+ B

C30215-16 102013-SW6

		Chloroform	1.2 J	2.0	0.40	ug/l	SW846 8260B
		cis-1,2-Dichloroethylene	0.47 J	2.0	0.40	ug/l	SW846 8260B
		Tetrachloroethylene	194	2.0	0.60	ug/l	SW846 8260B
		Trichloroethylene	1.9 J	2.0	0.40	ug/l	SW846 8260B

Summary of Hits

Job Number: C30215
Account: Environmental Resource Group
Project: Bentley Mall 06/13
Collected: 10/02/13 thru 10/04/13

2

Lab Sample ID	Client Sample ID	Result/ Analyte	RL	MDL	Units	Method
		Methane	6.8	0.50	0.25	ug/l RSK-175
		Iron	9100	200		ug/l SW846 6010B
		Alkalinity, Total as CaCO3	280	5.0		mg/l SM18 2320B
		Chloride	14.7	1.3		mg/l EPA 300/SW846 9056A
		Total Organic Carbon	2.8	1.0		mg/l SM18 5310C
		pH ^a	6.80		su	SM18 4500H+ B
C30215-17	102013-SW7					
		Chloroform	0.92 J	2.0	0.40	ug/l SW846 8260B
		cis-1,2-Dichloroethylene	0.46 J	2.0	0.40	ug/l SW846 8260B
		Tetrachloroethylene	141	2.0	0.60	ug/l SW846 8260B
		Trichloroethylene	10.7	2.0	0.40	ug/l SW846 8260B
		Methane	9.7	0.50	0.25	ug/l RSK-175
		Iron	9220	200		ug/l SW846 6010B
		Alkalinity, Total as CaCO3	266	5.0		mg/l SM18 2320B
		Chloride	13.7	1.3		mg/l EPA 300/SW846 9056A
		Total Organic Carbon	2.8	1.0		mg/l SM18 5310C
		pH ^a	6.85		su	SM18 4500H+ B
C30215-18	102013-SW8					
		Chloroform	0.22 J	1.0	0.20	ug/l SW846 8260B
		cis-1,2-Dichloroethylene	0.61 J	1.0	0.20	ug/l SW846 8260B
		trans-1,2-Dichloroethylene	0.31 J	1.0	0.20	ug/l SW846 8260B
		Tetrachloroethylene	10.1	1.0	0.30	ug/l SW846 8260B
		Trichloroethylene	1.5	1.0	0.20	ug/l SW846 8260B
		Methane	12.6	0.50	0.25	ug/l RSK-175
		Iron	2360	200		ug/l SW846 6010B
		Alkalinity, Total as CaCO3	264	5.0		mg/l SM18 2320B
		Chloride	11.1	1.3		mg/l EPA 300/SW846 9056A
		Total Organic Carbon	2.7	1.0		mg/l SM18 5310C
		pH ^a	6.96		su	SM18 4500H+ B
C30215-19	102013-SW15					
		cis-1,2-Dichloroethylene	0.40 J	1.0	0.20	ug/l SW846 8260B
		Tetrachloroethylene	0.35 J	1.0	0.30	ug/l SW846 8260B
		Trichloroethylene	0.32 J	1.0	0.20	ug/l SW846 8260B
		Methane	9.0	0.50	0.25	ug/l RSK-175
		Iron	7910	200		ug/l SW846 6010B
		Alkalinity, Total as CaCO3	260	5.0		mg/l SM18 2320B
		Chloride	10.6	1.3		mg/l EPA 300/SW846 9056A
		Total Organic Carbon	3.5	1.0		mg/l SM18 5310C
		pH ^a	6.72		su	SM18 4500H+ B

Summary of Hits

Job Number: C30215
Account: Environmental Resource Group
Project: Bentley Mall 06/13
Collected: 10/02/13 thru 10/04/13

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

C30215-20 102013-SW12

Chloroform	0.30 J	1.0	0.20	ug/l	SW846 8260B
cis-1,2-Dichloroethylene	0.38 J	1.0	0.20	ug/l	SW846 8260B
Tetrachloroethylene	1.2	1.0	0.30	ug/l	SW846 8260B
Trichloroethylene	0.30 J	1.0	0.20	ug/l	SW846 8260B
Methane	10.9	0.50	0.25	ug/l	RSK-175
Iron	9220	200		ug/l	SW846 6010B
Alkalinity, Total as CaCO3	282	5.0		mg/l	SM18 2320B
Chloride	13.6	1.3		mg/l	EPA 300/SW846 9056A
Total Organic Carbon	3.0	1.0		mg/l	SM18 5310C
pH ^a	6.95			su	SM18 4500H+ B

C30215-21 TRIP BLANK 1

No hits reported in this sample.

C30215-22 TRIP BLANK 2

No hits reported in this sample.

C30215-23 TRIP BLANK 3

No hits reported in this sample.

C30215-24 TRIP BLANK 4

No hits reported in this sample.

(a) Sample received outside the holding time.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: 102013-MW1		Date Sampled: 10/02/13
Lab Sample ID: C30215-1		Date Received: 10/10/13
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260B		
Project: Bentley Mall 06/13		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	R21550.D	5	10/14/13	BD	n/a	n/a	VR800
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	14.6	5.0	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	5.0	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	5.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	425	5.0	1.5	ug/l	
79-01-6	Trichloroethylene	2.9	5.0	1.0	ug/l	J
75-01-4	Vinyl chloride	ND	5.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		70-130%
2037-26-5	Toluene-D8	100%		70-130%
460-00-4	4-Bromofluorobenzene	99%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

3.1
3

Client Sample ID: 102013-MW1	Date Sampled: 10/02/13
Lab Sample ID: C30215-1	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004218.D	1	10/11/13	PH	n/a	n/a	GAA196
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-MW1	Date Sampled: 10/02/13
Lab Sample ID: C30215-1	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	1890	200	ug/l	1	10/15/13	10/15/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3513

(2) Prep QC Batch: MP6860

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-MW1	Date Sampled: 10/02/13
Lab Sample ID: C30215-1	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	220	5.0	mg/l	1	10/14/13 15:00	AC	SM18 2320B
Chloride	27.0	1.3	mg/l	2.5	10/18/13 20:04	RL	EPA 300/SW846 9056A
Sulfide ^a	< 0.020	0.020	mg/l	1	10/10/13 16:56	EB	SM18 4500SD
Total Organic Carbon	2.8	1.0	mg/l	1	10/10/13 11:09	RL	SM18 5310C
pH ^a	7.09		su	1	10/10/13 15:51	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-MW2	
Lab Sample ID: C30215-2	Date Sampled: 10/02/13
Matrix: AQ - Ground Water	Date Received: 10/10/13
Method: SW846 8260B	Percent Solids: n/a
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	R21551.D	5	10/14/13	BD	n/a	n/a	VR800
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	10.9	5.0	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	5.0	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	5.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	279	5.0	1.5	ug/l	
79-01-6	Trichloroethylene	1.4	5.0	1.0	ug/l	J
75-01-4	Vinyl chloride	ND	5.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		70-130%
2037-26-5	Toluene-D8	100%		70-130%
460-00-4	4-Bromofluorobenzene	99%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

32
3

Client Sample ID: 102013-MW2	Date Sampled: 10/02/13
Lab Sample ID: C30215-2	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004219.D	1	10/11/13	PH	n/a	n/a	GAA196
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-MW2	Date Sampled: 10/02/13
Lab Sample ID: C30215-2	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 200	200	ug/l	1	10/15/13	10/15/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3513

(2) Prep QC Batch: MP6860

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-MW2	Date Sampled: 10/02/13
Lab Sample ID: C30215-2	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	418	5.0	mg/l	1	10/14/13 15:00	AC	SM18 2320B
Chloride	54.6	5.0	mg/l	10	10/18/13 20:22	RL	EPA 300/SW846 9056A
Sulfide ^a	< 0.020	0.020	mg/l	1	10/10/13 16:56	EB	SM18 4500SD
Total Organic Carbon	8.6	1.0	mg/l	1	10/10/13 11:09	RL	SM18 5310C
pH ^a	7.14		su	1	10/10/13 15:57	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-MW4	Date Sampled: 10/02/13
Lab Sample ID: C30215-3	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U14352.D	1	10/14/13	TF	n/a	n/a	VU554
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.73	1.0	0.20	ug/l	J
156-60-5	trans-1,2-Dichloroethylene	1.1	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	56.9	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	5.7	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		70-130%
2037-26-5	Toluene-D8	100%		70-130%
460-00-4	4-Bromofluorobenzene	97%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-MW4	Date Sampled: 10/02/13
Lab Sample ID: C30215-3	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004221.D	1	10/11/13	PH	n/a	n/a	GAA196
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-MW4	Date Sampled: 10/02/13
Lab Sample ID: C30215-3	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	2030	200	ug/l	1	10/15/13	10/15/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3513

(2) Prep QC Batch: MP6860

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-MW4	Date Sampled: 10/02/13
Lab Sample ID: C30215-3	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	536	5.0	mg/l	1	10/14/13 15:00	AC	SM18 2320B
Chloride	24.8	2.5	mg/l	5	10/21/13 12:47	RL	EPA 300/SW846 9056A
Sulfide ^a	< 0.020	0.020	mg/l	1	10/10/13 16:56	EB	SM18 4500SD
Total Organic Carbon	3.4	1.0	mg/l	1	10/10/13 11:09	RL	SM18 5310C
pH ^a	7.08		su	1	10/10/13 15:59	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-MW5		Date Sampled: 10/02/13
Lab Sample ID: C30215-4		Date Received: 10/10/13
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260B		
Project: Bentley Mall 06/13		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U14353.D	2	10/14/13	TF	n/a	n/a	VU554
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	3.7	2.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	3.2	2.0	0.40	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	0.40	ug/l	
127-18-4	Tetrachloroethylene	173	2.0	0.60	ug/l	
79-01-6	Trichloroethylene	28.7	2.0	0.40	ug/l	
75-01-4	Vinyl chloride	ND	2.0	0.40	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-130%
2037-26-5	Toluene-D8	92%		70-130%
460-00-4	4-Bromofluorobenzene	96%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

3.4
3

Client Sample ID: 102013-MW5	Date Sampled: 10/02/13
Lab Sample ID: C30215-4	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004224.D	1	10/11/13	PH	n/a	n/a	GAA196
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	1.5	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-MW5	Date Sampled: 10/02/13
Lab Sample ID: C30215-4	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	8060	200	ug/l	1	10/15/13	10/15/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3513

(2) Prep QC Batch: MP6860

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-MW5	Date Sampled: 10/02/13
Lab Sample ID: C30215-4	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	370	5.0	mg/l	1	10/14/13 15:00	AC	SM18 2320B
Chloride	19.9	1.3	mg/l	2.5	10/21/13 11:55	RL	EPA 300/SW846 9056A
Sulfide ^a	< 0.020	0.020	mg/l	1	10/10/13 16:56	EB	SM18 4500SD
Total Organic Carbon	3.1	1.0	mg/l	1	10/10/13 11:09	RL	SM18 5310C
pH ^a	6.84		su	1	10/10/13 16:00	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-MW6		Date Sampled: 10/02/13
Lab Sample ID: C30215-5		Date Received: 10/10/13
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260B		
Project: Bentley Mall 06/13		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U14354.D	1	10/14/13	TF	n/a	n/a	VU554
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	3.1	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	6.3	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	61.5	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	6.5	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		70-130%
2037-26-5	Toluene-D8	103%		70-130%
460-00-4	4-Bromofluorobenzene	97%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

3.5
3

Client Sample ID: 102013-MW6	Date Sampled: 10/02/13
Lab Sample ID: C30215-5	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004225.D	1	10/11/13	PH	n/a	n/a	GAA196
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	4.0	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-MW6	Date Sampled: 10/02/13
Lab Sample ID: C30215-5	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 200	200	ug/l	1	10/15/13	10/15/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3513

(2) Prep QC Batch: MP6860

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-MW6	Date Sampled: 10/02/13
Lab Sample ID: C30215-5	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	430	5.0	mg/l	1	10/14/13 15:00	AC	SM18 2320B
Chloride	23.1	2.5	mg/l	5	10/21/13 12:12	RL	EPA 300/SW846 9056A
Sulfide ^a	< 0.020	0.020	mg/l	1	10/10/13 16:56	EB	SM18 4500SD
Total Organic Carbon	3.2	1.0	mg/l	1	10/10/13 11:09	RL	SM18 5310C
pH ^a	6.85		su	1	10/10/13 16:01	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-MW7	
Lab Sample ID: C30215-6	Date Sampled: 10/02/13
Matrix: AQ - Ground Water	Date Received: 10/10/13
Method: SW846 8260B	Percent Solids: n/a
Project: Bentley Mall 06/13	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U14355.D	1	10/14/13	TF	n/a	n/a	VU554
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	4.3	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	1.7	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	2.0	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	0.20	1.0	0.20	ug/l	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		70-130%
2037-26-5	Toluene-D8	95%		70-130%
460-00-4	4-Bromofluorobenzene	96%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

3.6
3

Client Sample ID: 102013-MW7		Date Sampled: 10/02/13
Lab Sample ID: C30215-6		Date Received: 10/10/13
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: RSK-175		
Project: Bentley Mall 06/13		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004227.D	1	10/11/13	PH	n/a	n/a	GAA196
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	100 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	328	2.5	1.3	ug/l	
74-85-1	Ethene	ND	5.0	2.5	ug/l	
74-84-0	Ethane	ND	5.0	2.5	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-MW7	Date Sampled: 10/02/13
Lab Sample ID: C30215-6	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	4990	200	ug/l	1	10/15/13	10/15/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3513

(2) Prep QC Batch: MP6860

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-MW7	Date Sampled: 10/02/13
Lab Sample ID: C30215-6	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃	270	5.0	mg/l	1	10/14/13 15:00	AC	SM18 2320B
Chloride	103	10	mg/l	20	10/21/13 14:14	RL	EPA 300/SW846 9056A
Sulfide ^a	< 0.020	0.020	mg/l	1	10/10/13 16:56	EB	SM18 4500SD
Total Organic Carbon	6.7	1.0	mg/l	1	10/10/13 11:09	RL	SM18 5310C
pH ^a	6.90		su	1	10/10/13 16:02	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-DUP1	Date Sampled: 10/02/13
Lab Sample ID: C30215-7	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U14356.D	5	10/14/13	TF	n/a	n/a	VU554
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	15.1	5.0	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	5.0	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	5.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	365	5.0	1.5	ug/l	
79-01-6	Trichloroethylene	3.0	5.0	1.0	ug/l	J
75-01-4	Vinyl chloride	ND	5.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		70-130%
2037-26-5	Toluene-D8	101%		70-130%
460-00-4	4-Bromofluorobenzene	97%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

37
3

Client Sample ID: 102013-DUP1		Date Sampled: 10/02/13
Lab Sample ID: C30215-7		Date Received: 10/10/13
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: RSK-175		
Project: Bentley Mall 06/13		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004228.D	1	10/11/13	PH	n/a	n/a	GAA196
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-DUP1	Date Sampled: 10/02/13
Lab Sample ID: C30215-7	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	2780	200	ug/l	1	10/15/13	10/15/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3513

(2) Prep QC Batch: MP6860

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-DUP1	Date Sampled: 10/02/13
Lab Sample ID: C30215-7	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	238	5.0	mg/l	1	10/14/13 15:00	AC	SM18 2320B
Chloride	26.8	2.5	mg/l	5	10/21/13 14:31	RL	EPA 300/SW846 9056A
Sulfide ^a	< 0.020	0.020	mg/l	1	10/10/13 16:56	EB	SM18 4500SD
Total Organic Carbon	2.7	1.0	mg/l	1	10/10/13 11:09	RL	SM18 5310C
pH ^a	6.90		su	1	10/10/13 16:03	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-MW9	Date Sampled: 10/03/13
Lab Sample ID: C30215-8	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U14357.D	1	10/14/13	TF	n/a	n/a	VU554
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	0.22	1.0	0.20	ug/l	J
156-59-2	cis-1,2-Dichloroethylene	1.4	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.61	1.0	0.20	ug/l	J
127-18-4	Tetrachloroethylene	15.1	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	3.3	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-130%
2037-26-5	Toluene-D8	99%		70-130%
460-00-4	4-Bromofluorobenzene	96%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis



Client Sample ID: 102013-MW9 Lab Sample ID: C30215-8 Matrix: AQ - Ground Water Method: RSK-175 Project: Bentley Mall 06/13	Date Sampled: 10/03/13 Date Received: 10/10/13 Percent Solids: n/a
---	---

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004229.D	1	10/11/13	PH	n/a	n/a	GAA196
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis



Client Sample ID: 102013-MW9	Date Sampled: 10/03/13
Lab Sample ID: C30215-8	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	635	200	ug/l	1	10/15/13	10/15/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3513

(2) Prep QC Batch: MP6860

RL = Reporting Limit

Report of Analysis



Client Sample ID: 102013-MW9	Date Sampled: 10/03/13
Lab Sample ID: C30215-8	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	360	5.0	mg/l	1	10/14/13 15:00	AC	SM18 2320B
Chloride	13.6	2.5	mg/l	5	10/21/13 14:48	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	10/10/13 16:56	EB	SM18 4500SD
Total Organic Carbon	2.4	1.0	mg/l	1	10/10/13 11:09	RL	SM18 5310C
pH ^a	7.00		su	1	10/10/13 16:05	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-MW11		Date Sampled: 10/03/13
Lab Sample ID: C30215-9		Date Received: 10/10/13
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260B		
Project: Bentley Mall 06/13		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U14358.D	1	10/14/13	TF	n/a	n/a	VU554
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	1.1	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	8.0	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	2.8	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-130%
2037-26-5	Toluene-D8	102%		70-130%
460-00-4	4-Bromofluorobenzene	97%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

3.9
3

Client Sample ID: 102013-MW11	Date Sampled: 10/03/13
Lab Sample ID: C30215-9	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004236.D	1	10/15/13	PH	n/a	n/a	GAA197
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-MW11	Date Sampled: 10/03/13
Lab Sample ID: C30215-9	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	1690	200	ug/l	1	10/15/13	10/16/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3513

(2) Prep QC Batch: MP6860

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-MW11	Date Sampled: 10/03/13
Lab Sample ID: C30215-9	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	344	5.0	mg/l	1	10/14/13 15:00	AC	SM18 2320B
Chloride	14.8	2.5	mg/l	5	10/21/13 15:06	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	10/10/13 16:56	EB	SM18 4500SD
Total Organic Carbon	5.0	1.0	mg/l	1	10/10/13 11:09	RL	SM18 5310C
pH ^a	6.98		su	1	10/10/13 16:06	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-MW12	Date Sampled: 10/03/13
Lab Sample ID: C30215-10	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Bentley Mall 06/13	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U14359.D	5	10/14/13	TF	n/a	n/a	VU554
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	1.7	5.0	1.0	ug/l	J
156-59-2	cis-1,2-Dichloroethylene	1.8	5.0	1.0	ug/l	J
156-60-5	trans-1,2-Dichloroethylene	ND	5.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	396	5.0	1.5	ug/l	
79-01-6	Trichloroethylene	32.8	5.0	1.0	ug/l	
75-01-4	Vinyl chloride	ND	5.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	110%		70-130%
2037-26-5	Toluene-D8	100%		70-130%
460-00-4	4-Bromofluorobenzene	97%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-MW12	Date Sampled: 10/03/13
Lab Sample ID: C30215-10	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004237.D	1	10/15/13	PH	n/a	n/a	GAA197
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	3.6	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-MW12	Date Sampled: 10/03/13
Lab Sample ID: C30215-10	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	1720	200	ug/l	1	10/15/13	10/16/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3513

(2) Prep QC Batch: MP6860

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-MW12	Date Sampled: 10/03/13
Lab Sample ID: C30215-10	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃	300	5.0	mg/l	1	10/14/13 15:00	AC	SM18 2320B
Chloride	23.4	2.5	mg/l	5	10/21/13 15:23	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	10/10/13 16:56	EB	SM18 4500SD
Total Organic Carbon	3.6	1.0	mg/l	1	10/10/13 11:09	RL	SM18 5310C
pH ^a	6.84		su	1	10/10/13 16:07	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-MW13	Date Sampled: 10/03/13
Lab Sample ID: C30215-11	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Bentley Mall 06/13	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U14378.D	1	10/15/13	TF	n/a	n/a	VU556
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	0.67	1.0	0.20	ug/l	J
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	13.8	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		70-130%
2037-26-5	Toluene-D8	103%		70-130%
460-00-4	4-Bromofluorobenzene	96%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-MW13	Date Sampled: 10/03/13
Lab Sample ID: C30215-11	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004239.D	1	10/15/13	PH	n/a	n/a	GAA197
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	2.5	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-MW13	Date Sampled: 10/03/13
Lab Sample ID: C30215-11	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	2680	200	ug/l	1	10/15/13	10/16/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3513

(2) Prep QC Batch: MP6860

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-MW13	Date Sampled: 10/03/13
Lab Sample ID: C30215-11	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	280	5.0	mg/l	1	10/14/13 15:00	AC	SM18 2320B
Chloride	15.7	1.3	mg/l	2.5	10/21/13 15:40	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	10/10/13 16:56	EB	SM18 4500SD
Total Organic Carbon	2.9	1.0	mg/l	1	10/10/13 11:09	RL	SM18 5310C
pH ^a	6.65		su	1	10/10/13 16:09	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-SW2		Date Sampled: 10/03/13
Lab Sample ID: C30215-12		Date Received: 10/10/13
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260B		
Project: Bentley Mall 06/13		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U14379.D	1	10/15/13	TF	n/a	n/a	VU556
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	6.6	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	4.0	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		70-130%
2037-26-5	Toluene-D8	89%		70-130%
460-00-4	4-Bromofluorobenzene	96%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-SW2	Date Sampled: 10/03/13
Lab Sample ID: C30215-12	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004240.D	1	10/15/13	PH	n/a	n/a	GAA197
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	5.7	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-SW2	Date Sampled: 10/03/13
Lab Sample ID: C30215-12	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	11900	200	ug/l	1	10/15/13	10/16/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3513

(2) Prep QC Batch: MP6860

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-SW2	Date Sampled: 10/03/13
Lab Sample ID: C30215-12	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	256	5.0	mg/l	1	10/14/13 15:00	AC	SM18 2320B
Chloride	14.2	1.3	mg/l	2.5	10/21/13 15:58	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	10/10/13 16:56	EB	SM18 4500SD
Total Organic Carbon	2.7	1.0	mg/l	1	10/10/13 11:09	RL	SM18 5310C
pH ^a	6.82		su	1	10/10/13 16:10	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-SW4	
Lab Sample ID: C30215-13	Date Sampled: 10/03/13
Matrix: AQ - Ground Water	Date Received: 10/10/13
Method: SW846 8260B	Percent Solids: n/a
Project: Bentley Mall 06/13	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U14380.D	1	10/15/13	TF	n/a	n/a	VU556
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	6.9	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.42	1.0	0.20	ug/l	J
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	7.8	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-130%
2037-26-5	Toluene-D8	86%		70-130%
460-00-4	4-Bromofluorobenzene	96%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-SW4	Date Sampled: 10/03/13
Lab Sample ID: C30215-13	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004241.D	1	10/15/13	PH	n/a	n/a	GAA197
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	6.7	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-SW4	Date Sampled: 10/03/13
Lab Sample ID: C30215-13	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	9880	200	ug/l	1	10/15/13	10/16/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3513

(2) Prep QC Batch: MP6860

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-SW4	Date Sampled: 10/03/13
Lab Sample ID: C30215-13	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	268	5.0	mg/l	1	10/14/13 15:00	AC	SM18 2320B
Chloride	17.0	1.3	mg/l	2.5	10/21/13 16:15	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	10/10/13 16:56	EB	SM18 4500SD
Total Organic Carbon	2.6	1.0	mg/l	1	10/10/13 11:09	RL	SM18 5310C
pH ^a	6.96		su	1	10/10/13 16:13	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-SW5		Date Sampled: 10/03/13
Lab Sample ID: C30215-14		Date Received: 10/10/13
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260B		
Project: Bentley Mall 06/13		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U14381.D	20	10/15/13	TF	n/a	n/a	VU556
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	20	4.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	20	4.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	20	4.0	ug/l	
127-18-4	Tetrachloroethylene	1210	20	6.0	ug/l	
79-01-6	Trichloroethylene	ND	20	4.0	ug/l	
75-01-4	Vinyl chloride	ND	20	4.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	110%		70-130%
2037-26-5	Toluene-D8	100%		70-130%
460-00-4	4-Bromofluorobenzene	98%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-SW5	Date Sampled: 10/03/13
Lab Sample ID: C30215-14	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004242.D	1	10/15/13	PH	n/a	n/a	GAA197
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	8.7	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-SW5	Date Sampled: 10/03/13
Lab Sample ID: C30215-14	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	8130	200	ug/l	1	10/15/13	10/16/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3513

(2) Prep QC Batch: MP6860

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-SW5	Date Sampled: 10/03/13
Lab Sample ID: C30215-14	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	234	5.0	mg/l	1	10/14/13 15:00	AC	SM18 2320B
Chloride	15.8	1.3	mg/l	2.5	10/21/13 16:32	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	10/10/13 16:56	EB	SM18 4500SD
Total Organic Carbon	3.6	1.0	mg/l	1	10/10/13 11:09	RL	SM18 5310C
pH ^a	6.62		su	1	10/10/13 16:14	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-DUP2		Date Sampled: 10/03/13
Lab Sample ID: C30215-15		Date Received: 10/10/13
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260B		
Project: Bentley Mall 06/13		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U14382.D	1	10/15/13	TF	n/a	n/a	VU556
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	0.77	1.0	0.20	ug/l	J
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	14.8	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-130%
2037-26-5	Toluene-D8	103%		70-130%
460-00-4	4-Bromofluorobenzene	98%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-DUP2	Date Sampled: 10/03/13
Lab Sample ID: C30215-15	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004244.D	1	10/15/13	PH	n/a	n/a	GAA197
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	2.5	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-DUP2	Date Sampled: 10/03/13
Lab Sample ID: C30215-15	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	6670	200	ug/l	1	10/15/13	10/16/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3513

(2) Prep QC Batch: MP6860

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-DUP2	Date Sampled: 10/03/13
Lab Sample ID: C30215-15	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃	282	5.0	mg/l	1	10/14/13 15:00	AC	SM18 2320B
Chloride	15.7	1.3	mg/l	2.5	10/21/13 16:50	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	10/10/13 16:56	EB	SM18 4500SD
Total Organic Carbon	3.0	1.0	mg/l	1	10/10/13 11:09	RL	SM18 5310C
pH ^a	6.84		su	1	10/10/13 16:15	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-SW6	
Lab Sample ID: C30215-16	Date Sampled: 10/04/13
Matrix: AQ - Ground Water	Date Received: 10/10/13
Method: SW846 8260B	Percent Solids: n/a
Project: Bentley Mall 06/13	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W42549.D	2	10/15/13	BD	n/a	n/a	VW1508
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	1.2	2.0	0.40	ug/l	J
156-59-2	cis-1,2-Dichloroethylene	0.47	2.0	0.40	ug/l	J
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	0.40	ug/l	
127-18-4	Tetrachloroethylene	194	2.0	0.60	ug/l	
79-01-6	Trichloroethylene	1.9	2.0	0.40	ug/l	J
75-01-4	Vinyl chloride	ND	2.0	0.40	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		70-130%
2037-26-5	Toluene-D8	101%		70-130%
460-00-4	4-Bromofluorobenzene	93%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-SW6	Date Sampled: 10/04/13
Lab Sample ID: C30215-16	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004245.D	1	10/15/13	PH	n/a	n/a	GAA197
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	6.8	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-SW6	Date Sampled: 10/04/13
Lab Sample ID: C30215-16	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	9100	200	ug/l	1	10/15/13	10/16/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3513

(2) Prep QC Batch: MP6860

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-SW6	Date Sampled: 10/04/13
Lab Sample ID: C30215-16	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	280	5.0	mg/l	1	10/14/13 15:00	AC	SM18 2320B
Chloride	14.7	1.3	mg/l	2.5	10/21/13 17:42	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	10/10/13 16:56	EB	SM18 4500SD
Total Organic Carbon	2.8	1.0	mg/l	1	10/11/13 11:02	RL	SM18 5310C
pH ^a	6.80		su	1	10/10/13 16:16	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-SW7		Date Sampled: 10/04/13
Lab Sample ID: C30215-17		Date Received: 10/10/13
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260B		
Project: Bentley Mall 06/13		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W42550.D	2	10/15/13	BD	n/a	n/a	VW1508
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	0.92	2.0	0.40	ug/l	J
156-59-2	cis-1,2-Dichloroethylene	0.46	2.0	0.40	ug/l	J
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	0.40	ug/l	
127-18-4	Tetrachloroethylene	141	2.0	0.60	ug/l	
79-01-6	Trichloroethylene	10.7	2.0	0.40	ug/l	
75-01-4	Vinyl chloride	ND	2.0	0.40	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		70-130%
2037-26-5	Toluene-D8	100%		70-130%
460-00-4	4-Bromofluorobenzene	93%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-SW7	Date Sampled: 10/04/13
Lab Sample ID: C30215-17	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004246.D	1	10/15/13	PH	n/a	n/a	GAA197
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	9.7	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-SW7	Date Sampled: 10/04/13
Lab Sample ID: C30215-17	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	9220	200	ug/l	1	10/15/13	10/16/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3513

(2) Prep QC Batch: MP6860

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-SW7	Date Sampled: 10/04/13
Lab Sample ID: C30215-17	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	266	5.0	mg/l	1	10/14/13 15:00	AC	SM18 2320B
Chloride	13.7	1.3	mg/l	2.5	10/21/13 17:59	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	10/10/13 16:56	EB	SM18 4500SD
Total Organic Carbon	2.8	1.0	mg/l	1	10/11/13 11:02	RL	SM18 5310C
pH ^a	6.85		su	1	10/10/13 16:17	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-SW8	Date Sampled: 10/04/13
Lab Sample ID: C30215-18	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Bentley Mall 06/13	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W42551.D	1	10/15/13	BD	n/a	n/a	VW1508
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	0.22	1.0	0.20	ug/l	J
156-59-2	cis-1,2-Dichloroethylene	0.61	1.0	0.20	ug/l	J
156-60-5	trans-1,2-Dichloroethylene	0.31	1.0	0.20	ug/l	J
127-18-4	Tetrachloroethylene	10.1	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	1.5	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		70-130%
2037-26-5	Toluene-D8	104%		70-130%
460-00-4	4-Bromofluorobenzene	92%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-SW8	Date Sampled: 10/04/13
Lab Sample ID: C30215-18	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004247.D	1	10/15/13	PH	n/a	n/a	GAA197
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	12.6	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-SW8	Date Sampled: 10/04/13
Lab Sample ID: C30215-18	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	2360	200	ug/l	1	10/15/13	10/16/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3513

(2) Prep QC Batch: MP6860

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-SW8	Date Sampled: 10/04/13
Lab Sample ID: C30215-18	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	264	5.0	mg/l	1	10/14/13 15:00	AC	SM18 2320B
Chloride	11.1	1.3	mg/l	2.5	10/21/13 18:17	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	10/10/13 16:56	EB	SM18 4500SD
Total Organic Carbon	2.7	1.0	mg/l	1	10/11/13 11:02	RL	SM18 5310C
pH ^a	6.96		su	1	10/10/13 16:18	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-SW15	Date Sampled: 10/04/13
Lab Sample ID: C30215-19	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Bentley Mall 06/13	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W42552.D	1	10/15/13	BD	n/a	n/a	VW1508
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.40	1.0	0.20	ug/l	J
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	0.35	1.0	0.30	ug/l	J
79-01-6	Trichloroethylene	0.32	1.0	0.20	ug/l	J
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		70-130%
2037-26-5	Toluene-D8	103%		70-130%
460-00-4	4-Bromofluorobenzene	92%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-SW15	Date Sampled: 10/04/13
Lab Sample ID: C30215-19	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004248.D	1	10/15/13	PH	n/a	n/a	GAA197
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	9.0	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-SW15	Date Sampled: 10/04/13
Lab Sample ID: C30215-19	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	7910	200	ug/l	1	10/15/13	10/16/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3513

(2) Prep QC Batch: MP6860

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-SW15	Date Sampled: 10/04/13
Lab Sample ID: C30215-19	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	260	5.0	mg/l	1	10/14/13 15:00	AC	SM18 2320B
Chloride	10.6	1.3	mg/l	2.5	10/21/13 18:34	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	10/10/13 16:56	EB	SM18 4500SD
Total Organic Carbon	3.5	1.0	mg/l	1	10/11/13 11:02	RL	SM18 5310C
pH ^a	6.72		su	1	10/10/13 16:20	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-SW12		Date Sampled: 10/04/13
Lab Sample ID: C30215-20		Date Received: 10/10/13
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260B		
Project: Bentley Mall 06/13		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W42553.D	1	10/15/13	BD	n/a	n/a	VW1508
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	0.30	1.0	0.20	ug/l	J
156-59-2	cis-1,2-Dichloroethylene	0.38	1.0	0.20	ug/l	J
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	1.2	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.30	1.0	0.20	ug/l	J
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		70-130%
2037-26-5	Toluene-D8	104%		70-130%
460-00-4	4-Bromofluorobenzene	92%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-SW12	Date Sampled: 10/04/13
Lab Sample ID: C30215-20	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: RSK-175	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004249.D	1	10/15/13	PH	n/a	n/a	GAA197
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	10.9	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 102013-SW12	Date Sampled: 10/04/13
Lab Sample ID: C30215-20	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	9220	200	ug/l	1	10/15/13	10/16/13 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA3513

(2) Prep QC Batch: MP6860

RL = Reporting Limit

Report of Analysis

Client Sample ID: 102013-SW12	Date Sampled: 10/04/13
Lab Sample ID: C30215-20	Date Received: 10/10/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Bentley Mall 06/13	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	282	5.0	mg/l	1	10/14/13 15:00	AC	SM18 2320B
Chloride	13.6	1.3	mg/l	2.5	10/21/13 18:51	RL	EPA 300/SW846 9056A
Sulfide	< 0.020	0.020	mg/l	1	10/10/13 16:56	EB	SM18 4500SD
Total Organic Carbon	3.0	1.0	mg/l	1	10/11/13 11:02	RL	SM18 5310C
pH ^a	6.95		su	1	10/10/13 16:23	AC	SM18 4500H+ B

(a) Sample received outside the holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID: TRIP BLANK 1	Date Sampled: 10/02/13
Lab Sample ID: C30215-21	Date Received: 10/10/13
Matrix: AQ - Trip Blank Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	R21566.D	1	10/15/13	BD	n/a	n/a	VR801
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		70-130%
2037-26-5	Toluene-D8	101%		70-130%
460-00-4	4-Bromofluorobenzene	97%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TRIP BLANK 2	Date Sampled: 10/02/13
Lab Sample ID: C30215-22	Date Received: 10/10/13
Matrix: AQ - Trip Blank Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Bentley Mall 06/13	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	R21567.D	1	10/15/13	BD	n/a	n/a	VR801
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		70-130%
2037-26-5	Toluene-D8	101%		70-130%
460-00-4	4-Bromofluorobenzene	97%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TRIP BLANK 3	Date Sampled: 10/02/13
Lab Sample ID: C30215-23	Date Received: 10/10/13
Matrix: AQ - Trip Blank Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Bentley Mall 06/13	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	R21568.D	1	10/15/13	BD	n/a	n/a	VR801
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		70-130%
2037-26-5	Toluene-D8	100%		70-130%
460-00-4	4-Bromofluorobenzene	98%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TRIP BLANK 4		Date Sampled: 10/02/13
Lab Sample ID: C30215-24		Date Received: 10/10/13
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260B		
Project: Bentley Mall 06/13		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	R21569.D	1	10/15/13	BD	n/a	n/a	VR801
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

VOA Special Reporting List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		70-130%
2037-26-5	Toluene-D8	100%		70-130%
460-00-4	4-Bromofluorobenzene	97%		70-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



ERG CAM V 5322

C30215

ARES
P.O. Box 83050
Fairbanks, Alaska 99708
Phone: 907.374.3226
Fax: 907.374.2319

Chain of Custody Report

Client: ARES / Environmental Resource Group		Invoice To: ERG 1038 Redwood Hwy., Suite 1 Mill Valley, CA 94941 (415) 381-6574 P.O. Number:		Laboratory Name: Accutest Laboratories Address: 2105 Lundy Ave, San Jose, CA 95131 (408) 588-0200		Turnaround Request In Business Days Organic & Inorganic Analyses 10 7 5 4 3 2 1 <1																	
Report To: Ben Wells Address: 1038 Redwood Hwy., Suite 1 Mill Valley, CA 94941 Email: bwells@environmentalrg.com AND lyle@ak-res.com Phone: (415) 381-6574		Project Name: Bentley Mall 10/13 Project Number: Sampled By: Dustin Stahl		Preservative HCL Sulfuric Acid HCL NaOH N/A Nitric Acid		Petroleum Hydrocarbon Analyses 5 4 3 2 1 <1 Specify Other: Standard TAT (no rush) on all analysis requested. Report Tier Levels: Commercial "B" requested (results + QC)																	
Requested Analyses		EPA 8260B VOCs		EPA 9060 TOC		EPA 8215 NH ₃		Sulfide		Alkalinity, P/L, chloride		Iron		Matrix		# of Cont.		Location / Comments		Lab ID			
Sample Identification		Sampling Date/ Time		EPA 8260B VOCs		EPA 9060 TOC		EPA 8215 NH ₃		Sulfide		Alkalinity, P/L, chloride		Iron		Matrix		# of Cont.		Location / Comments		Lab ID	
102013-MW1		10/2/2013		1154		X X		X X		X X		X X		X X		GW		11				1	
102013-MW2		10/2/2013		1331		X X		X X		X X		X X		X X		GW		11				2	
102013-MW4		10/2/2013		1454		X X		X X		X X		X X		X X		GW		11				3	
102013-MW5		10/2/2013		1633		X X		X X		X X		X X		X X		GW		11				4	
102013-MW6		10/2/2013		1808		X X		X X		X X		X X		X X		GW		11				5	
102013-MW7		10/2/2013		1951		X X		X X		X X		X X		X X		GW		11				6	
102013-DUP1		10/2/2013		2114		X X		X X		X X		X X		X X		GW		11				7	
102013-MW9		10/3/2013		1048		X X		X X		X X		X X		X X		GW		11				8	
102013-MW11		10/3/2013		1206		X X		X X		X X		X X		X X		GW		11				9	
Released By: Dustin Stahl Print Name: Dustin Stahl Firm: ARES Date: 10/9/13 Time: 1100		Received By: Lee Bawista Print Name: L. BAUWISTA Firm: ACCUTEST Date: 10/10/13 Time: 0920		Additional Remarks:		Temp:		Page 1 of 3															

TEMP'S 2.7 - 1.5 = 1.2 °C
2.9 - 1.5 = 1.4 °C
3.8 - 1.5 = 2.3 °C
4.2 - 1.5 = 2.7 °C

④ COOLERS FedEx TRK# 8986 8951 7079

C30215: Chain of Custody

Page 1 of 4



C30215

ARES
P.O. Box 83050
Fairbanks, Alaska 99708
Phone: 907.374.3226
Fax: 907.374.2319

Chain of Custody Report

Client: ARES / Environmental Resource Group			Invoice To: ERG 1038 Redwood Hwy., Suite 1 Mill Valley, CA 94941 (415) 381-6574 P.O. Number:			Laboratory Name: Accutest Laboratories Address: 2105 Lundy Ave, San Jose, CA 95131 (408) 588-0200			Turnaround Request In Business Days Organic & Inorganic Analyses Petroleum Hydrocarbon Analyses																			
Report To: Ben Wells Address: 1038 Redwood Hwy., Suite 1 Mill Valley, CA 94941 Email: bwells@environmentalrg.com AND lyle@ak-res.com Phone: (415) 381-6574									<table border="1"> <tr><td>10</td><td>7</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td><1</td></tr> <tr><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td><1</td><td></td><td></td></tr> </table>				10	7	5	4	3	2	1	<1	5	4	3	2	1	<1		
10	7	5	4	3	2	1	<1																					
5	4	3	2	1	<1																							
Project Name: Bentley Mall 10/13			Preservative						Specify Other: Standard TAT (no rush) on all analysis requested. Report Tier Levels: Commercial "B" requested (results + QC)																			
Project Number:			HCL	Sulfuric Acid	HCL	NaOH	N/A	Nitric Acid																				
Sampled By: Dustin Stahl			Requested Analyses																									
Sample Identification	Sampling Date/ Time		EPA 8260B VOCs	EPA 9000 TOC	EPA 821-175 MREPs	Sulfide	Alkalinity, PHL chloride	Iron				Matrix	# of Cont.	Location / Comments	Lab ID													
102013-MW12	10/3/2013	1324	X	X	X	X	X	X				GW	11		10													
102013-MW13	10/3/2013	1450	X	X	X	X	X	X				GW	11		11													
102013-SW2	10/3/2013	1613	X	X	X	X	X	X				GW	11		12													
102013-SW4	10/3/2013	1738	X	X	X	X	X	X				GW	11		13													
102013-SW5	10/3/2013	1920	X	X	X	X	X	X				GW	11		14													
102013-DUP2	10/3/2013	2052	X	X	X	X	X	X				GW	11		15													
102013-SW6	10/4/2013	0914	X	X	X	X	X	X				GW	11		16													
102013-SW7	10/4/2013	1051	X	X	X	X	X	X				GW	11		17													
102013-SW8	10/4/2013	1213	X	X	X	X	X	X				GW	11		18													
102013-SW15	10/4/2013	1342	X	X	X	X	X	X				GW	11		19													
Released By: Dustin Stahl Print Name: Dustin Stahl Firm: ARES Date: 10/9/13 Time: 1100			Received By: Lee Bautista Print Name: L. BAUTISTA Firm: ACCUTEST Date: 10/10/13 Time: 0920																									
Released By: [Signature] Print Name: [Signature] Firm: [Signature] Date: [Signature] Time: [Signature]			Received By: [Signature] Print Name: [Signature] Firm: [Signature] Date: [Signature] Time: [Signature]																									
Additional Remarks:												Temp:	Page 2 of 3															

4.1
4



C30215

ARES
P.O. Box 83050
Fairbanks, Alaska 99708
Phone: 907.374.3226
Fax: 907.374.2319

Chain of Custody Report

Client: ARES / Environmental Resource Group			Invoice To: ERG 1038 Redwood Hwy., Suite 1 Mill Valley, CA 94941 (415) 381-6574 P.O. Number:			Laboratory Name: Accutest Laboratories Address: 2105 Lundy Ave, San Jose, CA 95131 (408) 588-0200			Turnaround Request In Business Days Organic & Inorganic Analyses 10 7 5 4 3 2 1 <1														
Report To: Ben Wells Address: 1038 Redwood Hwy., Suite 1 Mill Valley, CA 94941 Email: bwells@environmentalrg.com AND lyle@ak-res.com Phone: (415) 381-6574			Project Name: Bentley Mall 10/13 Project Number: Sampled By: Dustin Stahl			Preservative HCL Sulfuric Acid HCL NaOH N/A Nitric Acid			Petroleum Hydrocarbon Analyses 5 4 3 2 1 <1 Specify Other: Standard TAT (no rush) on all analysis requested. Report Tier Levels: Commercial "B" requested (results + QC)														
Sample Identification		Sampling Date/ Time		EPA 8260B VOCs		EPA 9060 TOC		EPA 82175 Metals		Sulfide		Alkalinity, PFL, chloride		Iron		Matrix		# of Cont		Location / Comments		Lab ID	
102013-SW12		10/4/2013		1504		X X		X X		X X		X X		X X		GW		11				20	
Trip Blank 1		10/2/2013				X										W		3				21	
Trip Blank 2		10/2/2013				X										W		3				22	
Trip Blank 3		10/2/2013				X										W		3				23	
Trip Blank 4		10/2/2013				X										W		3				24	
Released By: <i>Dustin Stahl</i>		Print Name: Dustin Stahl		Firm: ARES		Date: 10/9/13		Time: 1100		Received By: <i>Lee Bawster</i>		Print Name: L BAUSTER		Firm: ACCUTEST		Date: 10/10/13		Time: 0920					
Released By:		Print Name:		Firm:		Date:		Time:		Received By:		Print Name:		Firm:		Date:		Time:					
Additional Remarks:																				Temp:		Page 3 of 3	

4.1
4

C30215: Chain of Custody

Page 3 of 4

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: C30215 **Client:** ERG **Project:** BENTLEY MALL 10/13
Date / Time Received: 10/10/2013 **Delivery Method:** FedEx **Airbill #'s:** 898689517078

Cooler Temps (Initial/Adjusted): #1: (2.7/1.2); #2: (2.9/1.4); #3: (3.8/2.3); #4: (4.2/2.7); 0

<u>Cooler Security</u>	<u>Y or N</u>		<u>Y or N</u>	
1. Custody Seals Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Smp'l Dates/Time OK	<input checked="" type="checkbox"/> <input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y or N</u>	
1. Temp criteria achieved:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Cooler temp verification:	IR1 Plastic;	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	4	

<u>Quality Control Preservation</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y or N</u>	
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y or N</u>	
1. Sample recvd within HT:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Condition of sample:	Intact	

<u>Sample Integrity - Instructions</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments Sulfide Samples (7-Day Hold Time), collected on 10/02/13 were received out of Holding Time and the samples collected on 10/03/13 due to expire upon receipt at the lab.

4.1
4

GC/MS Volatiles

5

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR800-MB	R21538.D	1	10/14/13	BD	n/a	n/a	VR800

The QC reported here applies to the following samples:

Method: SW846 8260B

C30215-1, C30215-2

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Results	Limits
1868-53-7	Dibromofluoromethane	89%	70-130%
2037-26-5	Toluene-D8	102%	70-130%
460-00-4	4-Bromofluorobenzene	98%	70-130%

Method Blank Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VU554-MB	U14350.D	1	10/14/13	TF	n/a	n/a	VU554

The QC reported here applies to the following samples:

Method: SW846 8260B

C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	99% 70-130%
2037-26-5	Toluene-D8	103% 70-130%
460-00-4	4-Bromofluorobenzene	97% 70-130%

Method Blank Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR801-MB	R21565.D	1	10/15/13	BD	n/a	n/a	VR801

The QC reported here applies to the following samples:

Method: SW846 8260B

C30215-21, C30215-22, C30215-23, C30215-24

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	96% 70-130%
2037-26-5	Toluene-D8	102% 70-130%
460-00-4	4-Bromofluorobenzene	97% 70-130%

Method Blank Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1508-MB	W42545.D	1	10/15/13	BD	n/a	n/a	VW1508

The QC reported here applies to the following samples:

Method: SW846 8260B

C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	95% 70-130%
2037-26-5	Toluene-D8	104% 70-130%
460-00-4	4-Bromofluorobenzene	94% 70-130%

Method Blank Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VU556-MB	U14376.D	1	10/15/13	TF	n/a	n/a	VU556

The QC reported here applies to the following samples:

Method: SW846 8260B

C30215-11, C30215-12, C30215-13, C30215-14, C30215-15

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	98% 70-130%
2037-26-5	Toluene-D8	103% 70-130%
460-00-4	4-Bromofluorobenzene	97% 70-130%

Blank Spike/Blank Spike Duplicate Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR800-BS	R21535.D	1	10/14/13	BD	n/a	n/a	VR800
VR800-BSD	R21536.D	1	10/14/13	BD	n/a	n/a	VR800

The QC reported here applies to the following samples:

Method: SW846 8260B

C30215-1, C30215-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	20	20.0	100	20.3	102	1	74-126/17
156-59-2	cis-1,2-Dichloroethylene	20	19.7	99	19.9	100	1	73-126/17
156-60-5	trans-1,2-Dichloroethylene	20	19.1	96	19.1	96	0	71-126/18
127-18-4	Tetrachloroethylene	20	20.9	105	20.6	103	1	69-127/20
79-01-6	Trichloroethylene	20	20.1	101	20.0	100	0	78-123/17
75-01-4	Vinyl chloride	20	19.0	95	19.2	96	1	57-146/22

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	97%	98%	70-130%
2037-26-5	Toluene-D8	100%	99%	70-130%
460-00-4	4-Bromofluorobenzene	99%	100%	70-130%

* = Outside of Control Limits.

5.2.1
 5

Blank Spike/Blank Spike Duplicate Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VU554-BS	U14346.D	1	10/14/13	TF	n/a	n/a	VU554
VU554-BSD	U14347.D	1	10/14/13	TF	n/a	n/a	VU554

The QC reported here applies to the following samples: **Method:** SW846 8260B

C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	20	20.2	101	20.4	102	1	74-126/17
156-59-2	cis-1,2-Dichloroethylene	20	20.0	100	20.2	101	1	73-126/17
156-60-5	trans-1,2-Dichloroethylene	20	20.6	103	20.7	104	0	71-126/18
127-18-4	Tetrachloroethylene	20	19.2	96	18.9	95	2	69-127/20
79-01-6	Trichloroethylene	20	19.7	99	19.8	99	1	78-123/17
75-01-4	Vinyl chloride	20	21.9	110	21.3	107	3	57-146/22

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	101%	103%	70-130%
2037-26-5	Toluene-D8	100%	99%	70-130%
460-00-4	4-Bromofluorobenzene	99%	99%	70-130%

* = Outside of Control Limits.

5.2.2
 5

Blank Spike/Blank Spike Duplicate Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR801-BS	R21562.D	1	10/14/13	BD	n/a	n/a	VR801
VR801-BSD	R21563.D	1	10/14/13	BD	n/a	n/a	VR801

The QC reported here applies to the following samples:

Method: SW846 8260B

C30215-21, C30215-22, C30215-23, C30215-24

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	20	23.3	117	23.2	116	0	74-126/17
156-59-2	cis-1,2-Dichloroethylene	20	22.5	113	22.5	113	0	73-126/17
156-60-5	trans-1,2-Dichloroethylene	20	21.1	106	21.1	106	0	71-126/18
127-18-4	Tetrachloroethylene	20	19.3	97	19.1	96	1	69-127/20
79-01-6	Trichloroethylene	20	20.1	101	19.9	100	1	78-123/17
75-01-4	Vinyl chloride	20	19.5	98	19.2	96	2	57-146/22

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	112%	112%	70-130%
2037-26-5	Toluene-D8	98%	97%	70-130%
460-00-4	4-Bromofluorobenzene	100%	99%	70-130%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1508-BS	W42542.D	1	10/15/13	BD	n/a	n/a	VW1508
VW1508-BSD	W42543.D	1	10/15/13	BD	n/a	n/a	VW1508

The QC reported here applies to the following samples:

Method: SW846 8260B

C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	20	19.8	99	20.3	102	2	74-126/17
156-59-2	cis-1,2-Dichloroethylene	20	20.5	103	21.0	105	2	73-126/17
156-60-5	trans-1,2-Dichloroethylene	20	19.9	100	20.1	101	1	71-126/18
127-18-4	Tetrachloroethylene	20	18.9	95	18.8	94	1	69-127/20
79-01-6	Trichloroethylene	20	18.7	94	18.5	93	1	78-123/17
75-01-4	Vinyl chloride	20	18.1	91	18.1	91	0	57-146/22

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	105%	108%	70-130%
2037-26-5	Toluene-D8	101%	100%	70-130%
460-00-4	4-Bromofluorobenzene	97%	97%	70-130%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VU556-BS	U14373.D	1	10/15/13	TF	n/a	n/a	VU556
VU556-BSD	U14374.D	1	10/15/13	TF	n/a	n/a	VU556

The QC reported here applies to the following samples:

Method: SW846 8260B

C30215-11, C30215-12, C30215-13, C30215-14, C30215-15

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	20	20.5	103	20.7	104	1	74-126/17
156-59-2	cis-1,2-Dichloroethylene	20	20.1	101	20.3	102	1	73-126/17
156-60-5	trans-1,2-Dichloroethylene	20	20.5	103	20.7	104	1	71-126/18
127-18-4	Tetrachloroethylene	20	18.9	95	18.8	94	1	69-127/20
79-01-6	Trichloroethylene	20	19.8	99	19.9	100	1	78-123/17
75-01-4	Vinyl chloride	20	22.5	113	22.4	112	0	57-146/22

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	102%	103%	70-130%
2037-26-5	Toluene-D8	100%	99%	70-130%
460-00-4	4-Bromofluorobenzene	99%	99%	70-130%

* = Outside of Control Limits.

Laboratory Control Sample Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR801-LCS	R21564.D	1	10/14/13	BD	n/a	n/a	VR801

The QC reported here applies to the following samples:

Method: SW846 8260B

C30215-21, C30215-22, C30215-23, C30215-24

CAS No.	Compound	Spike ug/l	LCS ug/l	LCS %	Limits
---------	----------	---------------	-------------	----------	--------

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	105%	70-130%
2037-26-5	Toluene-D8	100%	70-130%
460-00-4	4-Bromofluorobenzene	100%	70-130%

* = Outside of Control Limits.

Laboratory Control Sample Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VU556-LCS	U14375.D	1	10/15/13	TF	n/a	n/a	VU556

The QC reported here applies to the following samples:

Method: SW846 8260B

C30215-11, C30215-12, C30215-13, C30215-14, C30215-15

CAS No.	Compound	Spike ug/l	LCS ug/l	LCS %	Limits
---------	----------	---------------	-------------	----------	--------

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	102%	70-130%
2037-26-5	Toluene-D8	101%	70-130%
460-00-4	4-Bromofluorobenzene	97%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C30185-9MS	R21556.D	1	10/14/13	BD	n/a	n/a	VR800
C30185-9MSD	R21557.D	1	10/14/13	BD	n/a	n/a	VR800
C30185-9	R21543.D	1	10/14/13	BD	n/a	n/a	VR800

The QC reported here applies to the following samples:

Method: SW846 8260B

C30215-1, C30215-2

CAS No.	Compound	C30185-9 ug/l	Spike Q	ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	0.22	J	20	21.9	108	21.5	106	2	74-126/17
156-59-2	cis-1,2-Dichloroethylene	ND		20	20.8	104	20.5	103	1	73-126/17
156-60-5	trans-1,2-Dichloroethylene	ND		20	19.6	98	19.5	98	1	71-126/18
127-18-4	Tetrachloroethylene	ND		20	19.2	96	19.3	97	1	69-127/20
79-01-6	Trichloroethylene	ND		20	19.9	100	19.8	99	1	78-123/17
75-01-4	Vinyl chloride	ND		20	19.3	97	18.9	95	2	57-146/22

CAS No.	Surrogate Recoveries	MS	MSD	C30185-9	Limits
1868-53-7	Dibromofluoromethane	107%	106%	92%	70-130%
2037-26-5	Toluene-D8	99%	99%	102%	70-130%
460-00-4	4-Bromofluorobenzene	101%	99%	98%	70-130%

* = Outside of Control Limits.

5.4.1
5

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C30215-10MS	U14368.D	5	10/15/13	TF	n/a	n/a	VU554
C30215-10MSD	U14369.D	5	10/15/13	TF	n/a	n/a	VU554
C30215-10	U14359.D	5	10/14/13	TF	n/a	n/a	VU554

The QC reported here applies to the following samples:

Method: SW846 8260B

C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10

CAS No.	Compound	C30215-10 ug/l	Spike Q	ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	1.7	J	100	101	99	109	107	8	74-126/17
156-59-2	cis-1,2-Dichloroethylene	1.8	J	100	98.6	97	106	104	7	73-126/17
156-60-5	trans-1,2-Dichloroethylene	ND		100	98.9	99	108	108	9	71-126/18
127-18-4	Tetrachloroethylene	396		100	479	83	501	105	4	69-127/20
79-01-6	Trichloroethylene	32.8		100	125	92	134	101	7	78-123/17
75-01-4	Vinyl chloride	ND		100	109	109	129	129	17	57-146/22

CAS No.	Surrogate Recoveries	MS	MSD	C30215-10	Limits
1868-53-7	Dibromofluoromethane	105%	105%	110%	70-130%
2037-26-5	Toluene-D8	99%	100%	100%	70-130%
460-00-4	4-Bromofluorobenzene	100%	99%	97%	70-130%

* = Outside of Control Limits.

5.4.2
 5

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C30232-3MS	R21583.D	1	10/15/13	BD	n/a	n/a	VR801
C30232-3MSD	R21584.D	1	10/15/13	BD	n/a	n/a	VR801
C30232-3	R21571.D	1	10/15/13	BD	n/a	n/a	VR801

The QC reported here applies to the following samples:

Method: SW846 8260B

C30215-21, C30215-22, C30215-23, C30215-24

CAS No.	Compound	C30232-3 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	ND	20	21.5	108	21.7	109	1	74-126/17
156-59-2	cis-1,2-Dichloroethylene	ND	20	21.0	105	21.2	106	1	73-126/17
156-60-5	trans-1,2-Dichloroethylene	ND	20	20.0	100	19.9	100	1	71-126/18
127-18-4	Tetrachloroethylene	ND	20	19.0	95	19.0	95	0	69-127/20
79-01-6	Trichloroethylene	ND	20	19.9	100	19.7	99	1	78-123/17
75-01-4	Vinyl chloride	ND	20	20.6	103	20.5	103	0	57-146/22

CAS No.	Surrogate Recoveries	MS	MSD	C30232-3	Limits
1868-53-7	Dibromofluoromethane	108%	109%	95%	70-130%
2037-26-5	Toluene-D8	98%	98%	102%	70-130%
460-00-4	4-Bromofluorobenzene	98%	99%	98%	70-130%

* = Outside of Control Limits.

5.4.3
 5

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C30258-4MS	U14390.D	50	10/15/13	TF	n/a	n/a	VU556
C30258-4MSD	U14391.D	50	10/15/13	TF	n/a	n/a	VU556
C30258-4	U14386.D	50	10/15/13	TF	n/a	n/a	VU556

The QC reported here applies to the following samples:

Method: SW846 8260B

C30215-11, C30215-12, C30215-13, C30215-14, C30215-15

CAS No.	Compound	C30258-4 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	ND	1000	1030	103	1050	105	2	74-126/17
156-59-2	cis-1,2-Dichloroethylene	ND	1000	1010	101	1030	103	2	73-126/17
156-60-5	trans-1,2-Dichloroethylene	ND	1000	1030	103	1040	104	1	71-126/18
127-18-4	Tetrachloroethylene	ND	1000	942	94	941	94	0	69-127/20
79-01-6	Trichloroethylene	ND	1000	1000	100	1000	100	0	78-123/17
75-01-4	Vinyl chloride	ND	1000	1180	118	1120	112	5	57-146/22

CAS No.	Surrogate Recoveries	MS	MSD	C30258-4	Limits
1868-53-7	Dibromofluoromethane	103%	104%	102%	70-130%
2037-26-5	Toluene-D8	101%	100%	103%	70-130%
460-00-4	4-Bromofluorobenzene	99%	99%	99%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C30215-17MS	W42563.D	2	10/15/13	BD	n/a	n/a	VW1508
C30215-17MSD	W42564.D	2	10/15/13	BD	n/a	n/a	VW1508
C30215-17	W42550.D	2	10/15/13	BD	n/a	n/a	VW1508

The QC reported here applies to the following samples:

Method: SW846 8260B

C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

CAS No.	Compound	C30215-17 ug/l	Spike Q	ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	0.92	J	40	42.2	103	42.3	103	0	74-126/17
156-59-2	cis-1,2-Dichloroethylene	0.46	J	40	42.5	105	42.8	106	1	73-126/17
156-60-5	trans-1,2-Dichloroethylene	ND		40	40.4	101	40.8	102	1	71-126/18
127-18-4	Tetrachloroethylene	141		40	187	115	186	113	1	69-127/20
79-01-6	Trichloroethylene	10.7		40	49.7	98	49.4	97	1	78-123/17
75-01-4	Vinyl chloride	ND		40	42.7	107	41.7	104	2	57-146/22

CAS No.	Surrogate Recoveries	MS	MSD	C30215-17	Limits
1868-53-7	Dibromofluoromethane	107%	108%	105%	70-130%
2037-26-5	Toluene-D8	102%	101%	100%	70-130%
460-00-4	4-Bromofluorobenzene	97%	96%	93%	70-130%

* = Outside of Control Limits.

5.4.5
5

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAA196-MB	AA004213.D 1		10/11/13	PH	n/a	n/a	GAA196

The QC reported here applies to the following samples:

Method: RSK-175

C30215-1, C30215-2, C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

Method Blank Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAA197-MB	AA004234.D 1		10/15/13	PH	n/a	n/a	GAA197

The QC reported here applies to the following samples:

Method: RSK-175

C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15, C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.50	0.25	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

Blank Spike Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAA196-BS	AA004214.D 1		10/11/13	PH	n/a	n/a	GAA196

The QC reported here applies to the following samples:

Method: RSK-175

C30215-1, C30215-2, C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	19.6	91	70-130
74-85-1	Ethene	57.4	52.1	91	70-130
74-84-0	Ethane	43.3	39.7	92	70-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAA197-BS	AA004235.D 1		10/15/13	PH	n/a	n/a	GAA197

The QC reported here applies to the following samples:

Method: RSK-175

C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15, C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	18.6	87	70-130
74-85-1	Ethene	57.4	50.9	89	70-130
74-84-0	Ethane	43.3	38.6	89	70-130

* = Outside of Control Limits.

Duplicate Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C30215-2DUP	AA004220.D 1		10/11/13	PH	n/a	n/a	GAA196
C30215-2	AA004219.D 1		10/11/13	PH	n/a	n/a	GAA196

The QC reported here applies to the following samples:

Method: RSK-175

C30215-1, C30215-2, C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8

CAS No.	Compound	C30215-2 ug/l	DUP Q ug/l	Q RPD	Limits
74-82-8	Methane	ND	ND	nc	30
74-85-1	Ethene	ND	ND	nc	30
74-84-0	Ethane	ND	ND	nc	30

* = Outside of Control Limits.

Duplicate Summary

Job Number: C30215
Account: ERGCAMV Environmental Resource Group
Project: Bentley Mall 06/13

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C30215-10DUP	AA004238.D 1		10/15/13	PH	n/a	n/a	GAA197
C30215-10	AA004237.D 1		10/15/13	PH	n/a	n/a	GAA197

The QC reported here applies to the following samples:

Method: RSK-175

C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15, C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

CAS No.	Compound	C30215-10 ug/l	DUP Q ug/l	Q RPD	Limits
74-82-8	Methane	3.6	3.3	9	30
74-85-1	Ethene	ND	ND	nc	30
74-84-0	Ethane	ND	ND	nc	30

* = Outside of Control Limits.

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: C30215
Account: ERGCAMV - Environmental Resource Group
Project: Bentley Mall 06/13

QC Batch ID: MP6860
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 10/15/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	13	8.5		
Antimony	6.0	.7	.51		
Arsenic	10	.7	.65		
Barium	200	.4	.35		
Beryllium	5.0	.2	.4		
Bismuth	20		2.9		
Boron	100	.9	.64		
Cadmium	2.0	.2	.15		
Calcium	5000	7.1	12		
Chromium	10	.3	.41		
Cobalt	5.0	.2	.3		
Copper	10	1.2	3		
Iron	200	6.4	12	6.4	<200
Lead	10	.7	.85		
Lithium	50		2		
Magnesium	5000	27	36		
Manganese	15	.1	1.3		
Molybdenum	20	.2	.22		
Nickel	5.0	.2	.12		
Potassium	10000	18	44		
Selenium	10	1.8	2.2		
Silicon	100	1.2	6.9		
Silver	5.0	.3	.47		
Sodium	10000	15	13		
Strontium	10	.2	.24		
Thallium	10	.5	.54		
Tin	50	.2	.7		
Titanium	10	.4	.34		
Vanadium	10	.3	.3		
Zinc	20	.3	4.2		

Associated samples MP6860: C30215-1, C30215-2, C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15, C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

7.1.1
7

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: C30215
Account: ERGCAMV - Environmental Resource Group
Project: Bentley Mall 06/13

QC Batch ID: MP6860
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

7.1.1

7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C30215
 Account: ERGCAMV - Environmental Resource Group
 Project: Bentley Mall 06/13

QC Batch ID: MP6860
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 10/15/13

Metal	C30215-1 Original MS		Spike/lot MP/IR4A % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Bismuth					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron	1890	2360	500	94.0	75-125
Lead					
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Vanadium					
Zinc					

Associated samples MP6860: C30215-1, C30215-2, C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15, C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C30215
Account: ERGCAMV - Environmental Resource Group
Project: Bentley Mall 06/13

QC Batch ID: MP6860
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C30215
 Account: ERGCAMV - Environmental Resource Group
 Project: Bentley Mall 06/13

QC Batch ID: MP6860
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 10/15/13

Metal	C30215-1 Original MSD		SpikeLot MPIR4A % Rec		MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Bismuth						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron	1890	2380	500	98.0	0.8	20
Lead						
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Potassium						
Selenium						
Silicon						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						

Associated samples MP6860: C30215-1, C30215-2, C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15, C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

7.1.2
 7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C30215
Account: ERGCAMV - Environmental Resource Group
Project: Bentley Mall 06/13

QC Batch ID: MP6860
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: C30215
 Account: ERGCAMV - Environmental Resource Group
 Project: Bentley Mall 06/13

QC Batch ID: MP6860
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 10/15/13

Metal	BSP Result	Spikelot MPIR4A	QC % Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron	577	500	115.4	80-120
Lead				
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP6860: C30215-1, C30215-2, C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15, C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

7.1.3
7

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: C30215
Account: ERGCAMV - Environmental Resource Group
Project: Bentley Mall 06/13

QC Batch ID: MP6860
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: C30215
 Account: ERGCAMV - Environmental Resource Group
 Project: Bentley Mall 06/13

QC Batch ID: MP6860
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 10/15/13

Metal	C30215-1 Original SDL 1:5		%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron	1890	2120	12.0*(a)	0-10
Lead				
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP6860: C30215-1, C30215-2, C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15, C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

7.1.4
7

SERIAL DILUTION RESULTS SUMMARY

Login Number: C30215
Account: ERGCAMV - Environmental Resource Group
Project: Bentley Mall 06/13

QC Batch ID: MP6860
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested
(a) Serial dilution indicates possible matrix interference.

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: C30215
Account: ERGCAMV - Environmental Resource Group
Project: Bentley Mall 06/13

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Total as CaCO3	GN12006	5.0	0.0	mg/l	250	250	100.0	75-125%
Bromide	GP5669/GN12055	0.20	0.0	mg/l	5	4.84	96.8	90-110%
Chloride	GP5669/GN12055	0.50	0.0	mg/l	5	4.84	96.8	90-110%
Chloride	GP5674/GN12066	0.50	0.0	mg/l	5	4.79	95.8	90-110%
Nitrogen, Nitrate	GP5669/GN12055	0.10	0.0	mg/l	5	4.81	96.2	90-110%
Sulfate	GP5669/GN12055	0.50	0.0	mg/l	5	4.82	96.4	90-110%
Sulfide	GN11990	0.020	0.0	mg/l	0.2	0.19	97.2	75-125%
Total Organic Carbon	GP5625/GN11981	1.0	0.0	mg/l	25.0	24.4	97.6	75-125%
Total Organic Carbon	GP5628/GN11985	1.0	0.0	mg/l	25.0	25.0	99.9	75-125%

Associated Samples:

Batch GP5625: C30215-1, C30215-2, C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15

Batch GP5628: C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

Batch GP5669: C30215-1, C30215-2

Batch GP5674: C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15, C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

Batch GN11990: C30215-1, C30215-2, C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15, C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

Batch GN12006: C30215-1, C30215-2, C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15, C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

(*) Outside of QC limits



BLANK SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: C30215
Account: ERGCAMV - Environmental Resource Group
Project: Bentley Mall 06/13

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
Alkalinity, Total as CaCO3	GN12006	mg/l	250	250	0.0	
Bromide	GP5669/GN12055	mg/l	5	4.82	0.4	25%
Chloride	GP5669/GN12055	mg/l	5	4.85	0.2	25%
Chloride	GP5674/GN12066	mg/l	5	4.83	0.8	25%
Nitrogen, Nitrate	GP5669/GN12055	mg/l	5	4.81	0.0	25%
Sulfate	GP5669/GN12055	mg/l	5	4.83	0.2	25%
Sulfide	GN11990	mg/l	0.2	0.20	0.3	
Total Organic Carbon	GP5625/GN11981	mg/l	25.0	25.2	3.1	
Total Organic Carbon	GP5628/GN11985	mg/l	25.0	25.0	0.2	

Associated Samples:

Batch GP5625: C30215-1, C30215-2, C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15

Batch GP5628: C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

Batch GP5669: C30215-1, C30215-2

Batch GP5674: C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15, C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

Batch GN11990: C30215-1, C30215-2, C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15, C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

Batch GN12006: C30215-1, C30215-2, C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15, C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

(*) Outside of QC limits

82
8

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: C30215
Account: ERGCAMV - Environmental Resource Group
Project: Bentley Mall 06/13

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN12006	C30215-6	mg/l	270	272	0.7	0-25%
pH	GN12000	C30215-19	su	6.72	6.70	0.0	0-25%

Associated Samples:

Batch GN12000: C30215-1, C30215-2, C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15, C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

Batch GN12006: C30215-1, C30215-2, C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15, C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

(*) Outside of QC limits



MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: C30215
Account: ERGCAMV - Environmental Resource Group
Project: Bentley Mall 06/13

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP5669/GN12055	C30351-5	mg/l	0.15	50	48.4	96.5	80-120%
Chloride	GP5669/GN12055	C30351-5	mg/l	50.5	50	100	99.0	80-120%
Chloride	GP5674/GN12066	C30215-3	mg/l	24.8	25	49.0	96.8	80-120%
Chloride	GP5674/GN12066	C30215-20	mg/l	13.6	12.5	26.2	100.8	80-120%
Nitrogen, Nitrate	GP5669/GN12055	C30351-5	mg/l	10.5	50	57.5	94.0	80-120%
Sulfate	GP5669/GN12055	C30351-5	mg/l	38.3	50	86.7	96.8	80-120%
Sulfide	GN11990	C30215-16	mg/l	0.0054	0.2	0.23	111.0	75-125%
Total Organic Carbon	GP5625/GN11981	C30211-1	mg/l	5.4	25.0	31.3	103.9	75-125%
Total Organic Carbon	GP5628/GN11985	C30215-16	mg/l	2.8	25.0	28.0	100.7	75-125%

Associated Samples:

Batch GP5625: C30215-1, C30215-2, C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15

Batch GP5628: C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

Batch GP5669: C30215-1, C30215-2

Batch GP5674: C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15, C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

Batch GN11990: C30215-1, C30215-2, C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15, C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

8.4

8

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: C30215
Account: ERGCAMV - Environmental Resource Group
Project: Bentley Mall 06/13

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP5669/GN12055	C30351-5	mg/l	0.15	50	48.4	0.0	
Chloride	GP5669/GN12055	C30351-5	mg/l	50.5	50	100	0.0	
Chloride	GP5674/GN12066	C30215-20	mg/l	13.6	12.5	26.2	0.0	
Nitrogen, Nitrate	GP5669/GN12055	C30351-5	mg/l	10.5	50	57.6	0.2	
Sulfate	GP5669/GN12055	C30351-5	mg/l	38.3	50	86.7	0.0	
Sulfide	GN11990	C30215-16	mg/l	0.0054	0.2	0.226	0.5	25%

Associated Samples:

Batch GP5669: C30215-1, C30215-2

Batch GP5674: C30215-20

Batch GN11990: C30215-1, C30215-2, C30215-3, C30215-4, C30215-5, C30215-6, C30215-7, C30215-8, C30215-9, C30215-10, C30215-11, C30215-12, C30215-13, C30215-14, C30215-15, C30215-16, C30215-17, C30215-18, C30215-19, C30215-20

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

8.5

8



Client Name: Environmental Resource Group
Contact: Donal Manning
Address: 1038 Redwood Hwy.
Suite 1
Mill Valley, CA 94941

Page: Page 1 of 5
Lab Proj #: P1307006
Report Date: 08/08/13
Client Proj Name: Bentley Mall
Client Proj #: Bentley Mall

Laboratory Results

Total pages in data package: 7

<u>Lab Sample #</u>	<u>Client Sample ID</u>
P1307006-01	062013-MW-1
P1307006-02	062013-MW2
P1307006-03	062013-SW5
P1307006-04	062013-DUP1

Microseeps test results meet all the requirements of the NELAC standards or provide reasons and/or justification if they do not.

Approved By: Robin Robl **Date:** 8/12/13

Project Manager: Robbin Robl

The analytical results reported here are reliable and usable to the precision expressed in this report. As required by some regulating authorities, a full discussion of the uncertainty in our analytical results can be obtained at our web site or through customer service. Unless otherwise specified, all results are reported on a wet weight basis.

*As a valued client we would appreciate your comments on our service.
Please call customer service at (412)826-5245 or email customerservice@microseeps.com.*

Case Narrative:

Microseeps, Inc.
 220 William Pitt Way
 Pittsburgh, PA 15238
 phone: 412-826-5245

CSIA Report

8-Aug-13
 P1307006
 Environmental Resource Group
 Client Project Name: Bentley Mall
 Client Project #: Bentley Mall

cis-Dichloroethene		Concentration				CSIA (Carbon)				
		Sample	PQL	Date	Area	Co-elution	Analysis	Date	Delta (‰)	
Lab ID	Client ID	Sample	PQL	Date	Sample	PQL				
P1307006-01	062013-MW-1	1.1 (J)	5	7/24/13	< 1 (U)	1	No	5114	8/7/13	-
P1307006-02	062013-MW-2	3.9 (J)	5	7/24/13	1.07	1	No	5108	8/7/13	-20.31
P1307006-03	062013-SW5	< 5.0 (U)	5	7/24/13	< 1 (U)	1	No	5115	8/7/13	-
P1307006-04	062013-DUP-1	1.2 (J)	5	7/24/13	< 1 (U)	1	No	5116	8/7/13	-
Duplicate	062013-MW-2	-	-	-	1.08	1	No	5109	8/7/13	-20.15
Blank	-	0	-	-	<1 (U)	1	No	5104	8/7/13	-
LCS_Lo	-	20	-	-	3.17	1	No	5105	8/7/13	-11.41
LCS_Hi	-	100	-	-	12.7	1	No	5106	8/7/13	-11.77
LCS acceptance range		-11.782 <=> -12.51								

Method	8260B	AM-24-AR_C	AM-24-DL_C
Units	ug/l	Vs	‰, VPDB
Analyst	CS	CM	CM

Microseeps, Inc.
 220 William Pitt Way
 Pittsburgh, PA 15238
 phone: 412-826-5245

CSIA Report

8-Aug-13
 P1307006
 Environmental Resource Group
 Client Project Name: Bentley Mall
 Client Project #: Bentley Mall

Trichloroethene		Concentration (ug/l)				CSIA (Carbon)				
		Sample	PQL	Date	Area	Co-elution	Analysis	Date	Delta (‰)	
Lab ID	Client ID	Sample	PQL	Date	Area	Co-elution	Analysis	Date	Delta (‰)	
P1307006-01	062013-MW-1	2.8 (J)	5	7/24/13	< 1 (U)	No	5114	8/7/13	-	
P1307006-02	062013-MW-2	1.2 (J)	5	7/24/13	< 1 (U)	No	5108	8/7/13	-	
P1307006-03	062013-SW5	0.7 (J)	5	7/24/13	< 1 (U)	No	5115	8/7/13	-	
P1307006-04	062013-DUP-1	3 (J)	5	7/24/13	< 1 (U)	No	5116	8/7/13	-	
Duplicate	062013-MW-2	-	-	-	< 1 (U)	No	5109	8/7/13	-	
Blank	-	0	-	-	< 1 (U)	No	5104	8/7/13	-	
LCS_Lo	-	20	-	-	3.03	No	5105	8/7/13	-25.77	
LCS_Hi	-	100	-	-	10.5	No	5106	8/7/13	-25.98	
LCS acceptance range							-25.791	<=>	-27.11	

Method	8260B	AM-24-AR_C	AM-24-DL_C
Units	ug/l	Vs	‰, VPDB
Analyst	CS	CM	CM

Microseeps, Inc.
 220 William Pitt Way
 Pittsburgh, PA 15238
 phone: 412-826-5245

CSIA Report

8-Aug-13
 P1307006
 Environmental Resource Group
 Client Project Name: Bentley Mall
 Client Project #: Bentley Mall

Tetrachloroethene		Concentration (ug/l)				CSIA (Carbon)					
		Sample	PQL	Date	Area	Co-elution	Analysis	Date	Delta (‰)		
Lab ID	Client ID	Sample	PQL	Date	Sample	PQL					
P1307006-01	062013-MW-1	420	25	7/31/13	11.5	1	No	5107	8/7/13	-29.47	
P1307006-02	062013-MW-2	190	5	7/24/13	28.1	1	No	5108	8/7/13	-30.14	
P1307006-03	062013-SW5	320	25	7/31/13	7.74	1	No	5110	8/7/13	-30.49	
P1307006-04	062013-DUP-1	340	25	8/1/13	11.8	1	No	5111	8/7/13	-29.66	
Duplicate	062013-MW-2	-	-	-	28.7	1	No	5109	8/7/13	-30.18	
Blank	-	0	-	-	<1 (U)	1	No	5104	8/7/13	-	
LCS_Lo	-	20	-	-	2.36	1	No	5105	8/7/13	-28.59	
LCS_Hi	-	100	-	-	6.37	1	No	5106	8/7/13	-28.51	
LCS acceptance range								-29.318	<=>	-30.32	

Method	8260B	AM-24-AR_C	AM-24-DL_C
Units	ug/l	Vs	‰, VPDB
Analyst	CS	CM	CM

Microseeps, Inc.
 220 William Pitt Way
 Pittsburgh, PA 15238
 phone: 412-826-5245

8-Aug-13
 P1307006
 Environmental Resource Group
 Client Project Name: Bentley Mall
 Client Project #: Bentley Mall

CSIA Report

1CP (Surrogate)		Sample Collection	CSIA (Carbon)				Delta (%)		
Lab ID	Client ID		Area	Dilution	PQL	Co-elution		Analysis	Date
P1307006-01	062013-MW-1	06/22/13	10.4	5	1	No	5107	08/07/13	-36.09
P1307006-01	062013-MW-1	06/22/13	7.93	1	1	No	5114	08/07/13	-36.91
P1307006-02	062013-MW-2	06/22/13	13.2	1	1	No	5108	08/07/13	-36.34
P1307006-03	062013-SW5	06/22/13	9.80	5	1	No	5110	08/07/13	-36.39
P1307006-03	062013-SW5	06/22/13	7.14	1	1	No	5115	08/07/13	-36.68
P1307006-04	062013-DUP-1	06/22/13	13.2	5	1	No	5111	08/07/13	-36.35
P1307006-04	062013-DUP-1	06/22/13	9.36	1	1	No	5116	08/07/13	-36.72
Duplicate	062013-MW-2	06/22/13	13.9	1	1	No	5109	08/07/13	-36.41
Blank	-	-	17.7	1	1	No	5104	08/07/13	-36.25
LCS_Lo	-	-	13.3	1	1	No	5105	08/07/13	-36.28
LCS_Hi	-	-	15.0	1	1	No	5106	08/07/13	-36.29
Surrogate acceptance range							-36.58	<=>	-37.22

Method	AM-24-AR_C	AM-24-DL_C
Units	Vs	% _{oo} , VPDB
Analyst	CM	CM

Case Narrative: The blank, LCS's, duplicate and surrogates were all close to or within the acceptance range and the data is reported as valid and representative of the samples as received.

Cooler Receipt Form

Client Name: Alaska Resources Project: Bentley Mall Lab Work Order: P1307006
06113

A. Shipping/Container Information (circle appropriate response)

Courier: FedEx UPS USPS Client Other: _____ Air bill Present: Yes No

Tracking Number: 8986 8951 7090

Custody Seal on Cooler/Box Present: Yes No Seals Intact: Yes No

Cooler/Box Packing Material: Bubble Wrap Absorbent Foam Other: _____

Type of Ice: Wet Blue None Ice Intact: Yes Melted

Cooler Temperature: 4°C Radiation Screened: Yes No Chain of Custody Present: Yes No

Comments: _____

B. Laboratory Assignment/Log-in (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC	✓			
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC	✓			
Sample name/date and time collected	✓			
Sufficient volume provided	✓			
Microseeps containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	

Comments: _____

Cooler contents examined/received by: LY Date: 6/25/13

Project Manager Review: RL Date: 6/27/13



Client Name: Environmental Resource Group
Contact: Donal Manning
Address: 1038 Redwood Hwy.
Suite 1
Mill Valley, CA 94941

Page: Page 1 of 5
Lab Proj #: P1307007
Report Date: 08/22/13
Client Proj Name: Bentley Mall
Client Proj #: Bentley Mall

Laboratory Results

Total pages in data package: 10

<u>Lab Sample #</u>	<u>Client Sample ID</u>
P1307007-01	062013-MW1
P1307007-02	062013-MW2
P1307007-03	062013-MSW5
P1307007-04	062013-DUP

Microseeps test results meet all the requirements of the NELAC standards or provide reasons and/or justification if they do not.

Approved By: Robin Robl **Date:** 8/22/13

Project Manager: Robbin Robl

The analytical results reported here are reliable and usable to the precision expressed in this report. As required by some regulating authorities, a full discussion of the uncertainty in our analytical results can be obtained at our web site or through customer service. Unless otherwise specified, all results are reported on a wet weight basis.

*As a valued client we would appreciate your comments on our service.
Please call customer service at (412)826-5245 or email customerservice@microseeps.com.*

Case Narrative: The chlorine CSIA analysis was performed by the University of Oklahoma. See the attached report.

Client Microseeps
Project name # P1307007
OU Project Ref. # 733b
Number/Type of Samples 4/water
Analysis Required Cl CSIA, cDCE, TCE, PCE
Date Received 7/25/2013
Date Analysis Completed 8/8/2013

notes:

a dash symbol indicates a compound not analyzed: cDCE reported by Microseeps was below detection limits

Averages

Sample ID	cDCE δ37Cl (‰ SMOC)	TCE δ37Cl (‰ SMOC)	PCE δ37Cl (‰ SMOC)
P1307007-01	-	3.9	1.5
P1307007-02	-	BELOW DETECTION LIMIT	-0.1
P1307007-03	-	BELOW DETECTION LIMIT	0.1
P1307007-04	-	4.3	1.6

Replicate runs		Averages				
Run #	Sample ID	volume (µL)	TCE δ37Cl (‰ SMOC)	Sample ID	TCE δ37Cl (‰ SMOC)	stdev
3846	P1307007-01	19000	4.2	P1307007-01	3.9	0.3
3866	P1307007-01	16000	3.9	P1307007-02	BELOW DETECTION LIMIT	
3867	P1307007-01	18000	3.6	P1307007-03	BELOW DETECTION LIMIT	
3842	P1307007-02	8500	BELOW DETECTION LIMIT	P1307007-04	4.3	
3844	P1307007-03	13000	BELOW DETECTION LIMIT			
3849	P1307007-04	19000	4.3			

Standards

Run #	TCE δ37Cl (‰ SMOC)
3831	3.3
3832	3.3
3833	3.5
3835	3.4
3839	3.3
3843	3.4
3847	2.9
3848	3.4
3851	3.1
3857	3.5
3858	3.5
3862	3.3
3863	3.4
3870	2.9
average δ37Cl	3.3
stdev	0.2
off-line δ37Cl of TCE	3.3

Replicate runs		Averages				
Run #	Sample ID	volume (µL)	PCE δ37Cl (‰ SMOC)	Sample ID	PCE δ37Cl (‰ SMOC)	stdev
3890	P1307007-01	80	1.7	P1307007-01	1.5	0.3
3893	P1307007-01	80	1.3	P1307007-02	-0.1	0.4
3892	P1307007-02	175	-0.4	P1307007-03	0.1	
3894	P1307007-02	175	0.2	P1307007-04	1.6	
3887	P1307007-03	135	0.1			
3888	P1307007-04	80	1.6			

Standards	
Run #	PCE δ37Cl (‰ SMOC)
3872	-0.3
3873	0.3
3874	0.3
3877	0.6
3882	-0.1
3884	0.6
3889	0.4
3891	0.3
3895	0.6

average δ37Cl 0.3
stdev 0.3

off-line δ37Cl of PCE 0.3

Cooler Receipt Form

Client Name: Alaska Resources Project: Bentley Mall Lab Work Order: P1307007

06113

A. Shipping/Container Information (circle appropriate response)

Courier: FedEx UPS USPS Client Other: _____ Air bill Present: Yes No

Tracking Number: 8986 8957 7090

Custody Seal on Cooler/Box Present: Yes No Seals Intact: Yes No

Cooler/Box Packing Material: Bubble Wrap Absorbent Foam Other: _____

Type of Ice: Wet Blue None Ice Intact: Yes Melted

Cooler Temperature: 4°C Radiation Screened: Yes No Chain of Custody Present: Yes No

Comments: _____

B. Laboratory Assignment/Log-in (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC	✓			
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC	✓			
Sample name/date and time collected	✓			
Sufficient volume provided	✓			
Microseeps containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	

Comments: _____

Cooler contents examined/received by: LY Date: 6/25/13

Project Manager Review: RC Date: 6/25/13



Projects P1307006 and P1307007

August 23, 2013

Environmental Resource Group
Project: Bentley Mall

Patrick McLoughlin, Ph.D.

220 William Pitt Way

Pittsburgh, PA

Phone (412) 826-5245 Fax (412) 826-3433

www.microseeps.com



In July of 2013 the Environmental Resource Group (ERG) collected four samples for ground water monitoring. Previous work had indicated that there was widespread contamination of tetrachloroethene (PCE) in the groundwater but few detections of trichloroethene (TCE) in the groundwater. Further, the PCE seemed to persist. Since the most common degradation pathway for PCE is reductive dechlorination and since reductive dechlorination of PCE produces TCE, these observations were taken as evidence that, while there may be some biodegradation of the PCE, it is limited. Since it appeared that there was limited degradation of PCE, ERG wanted the focus of this study to be identification of forensic patterns.

The $\delta^{13}\text{C}$ of the PCE all lie within -29.94 ± 0.51 ‰. This implies that based on $\delta^{13}\text{C}$ alone the samples were indistinguishable. The heaviest reported $\delta^{13}\text{C}$ for undegraded PCE is -23.2 ‰, (Aelion et al, 2010) suggested little or no PCE degradation.

Having proven that robust biodegradation was not erasing the forensic information in the CSIA, a plot of $\delta^{37}\text{Cl}$ vs. $\delta^{13}\text{C}$ was constructed for the PCE. Such a plot is based on the Rayleigh equation:

$$\delta = \delta_0 + \varepsilon \ln \frac{C}{C_0} \quad \text{EQ 1}$$

Where δ_0 is the starting δ , ε is the enrichment factor, C is the concentration and C_0 is the starting concentration. This equation applies for both $\delta^{13}\text{C}$ and $\delta^{37}\text{Cl}$, though each has a different enrichment factor (ε_C and ε_{Cl} , respectively).

$$\delta^{13}\text{C} = \delta_0^{13}\text{C} + \varepsilon_C \ln \frac{C}{C_0} \quad \text{EQ 2}$$

$$\delta^{37}\text{Cl} = \delta_0^{37}\text{Cl} + \varepsilon_{Cl} \ln \frac{C}{C_0} \quad \text{EQ 3}$$

These equations can be combined to produce

$$\delta^{37}\text{Cl} = \delta_0^{37}\text{Cl} - \frac{\varepsilon_{Cl}}{\varepsilon_C} \delta_0^{13}\text{C} + \frac{\varepsilon_{Cl}}{\varepsilon_C} \delta^{13}\text{C} \quad \text{EQ 4}$$

That equation gives $\delta^{37}\text{Cl}$ as a linear function of $\delta^{13}\text{C}$ with an intercept dependent only on the initial δ 's and ratio of the enrichment factors. Further, the slope of the line predicted by EQ 4 is a ratio of the enrichment factors. That ratio can be assumed to be constant across a site, and for degradation it is always positive.

In Figure 1 $\delta^{37}\text{Cl}$ for the PCE is plotted against $\delta^{13}\text{C}$. The two points furthest to the left are for SW-5 and MW-2 while the two points furthest to the right are for MW-1 and DUP-1. (After Microseeps made this observation, ERG confirmed that DUP-1 is a duplicate of MW-1.) Error bars indicate the estimated analytical uncertainty.



If PCE with the $\delta^{13}\text{C}$ and $\delta^{37}\text{Cl}$ of MW-2 degraded with the lowest reported enrichment factor ratio of 0.24 (Wiegart et al, 2013) the remaining PCE would have progressively lighter $\delta^{13}\text{C}$ and $\delta^{37}\text{Cl}$ and progressively move to the right along the lower line in Figure 1. If the $\delta^{37}\text{Cl}$ of the starting material were better represented by the measured $\delta^{37}\text{Cl}$ in SW-5 but degraded with the same ratio of enrichment factors, the $\delta^{13}\text{C}$, $\delta^{37}\text{Cl}$ of the remaining PCE would lie slightly above the bottom line in Figure 1 but below the top line. If material like that in SW-5 degraded with the highest reported ratio of enrichment factor ratio of 0.45 (Wiegart et al, 2013) the remaining PCE would have $\delta^{13}\text{C}$, $\delta^{37}\text{Cl}$ lying along that top line. Thus we see that the lines bound the $\delta^{13}\text{C}$, $\delta^{37}\text{Cl}$ space that the remaining PCE could have if it was from MW-2 and/or SW-5. This strongly suggests that there is a different source to MW-1 and the SW-5/MW-2 pair.

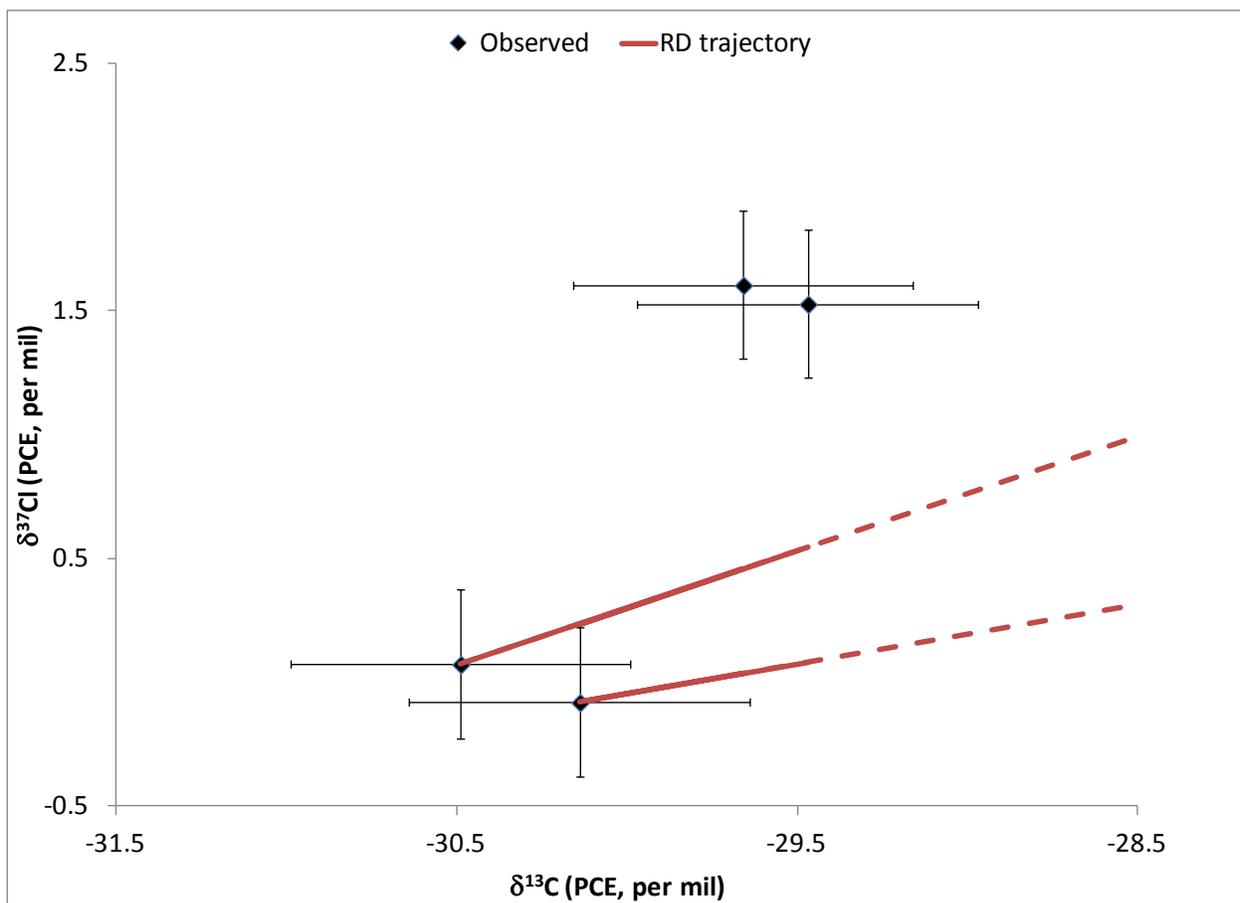


Figure 1. Plot of $\delta^{37}\text{Cl}$ vs $\delta^{13}\text{C}$ for PCE

References

Aelion, C. M., P. Höhener, D. Hunkeler and R. Aravena. 2010. "Environmental Isotopes in Biodegradation and Bioremediation." CRC Press, Boca Raton.

ITRC (Interstate Technology & Regulatory Council). 2013. Environmental Molecular Diagnostics, New Site Characterization and Remediation Enhancement Tools. EMD-2. Washington, D.C.: Interstate Technology & Regulatory Council, Environmental Molecular Diagnostics Team. www.itrcweb.org.

Wiedemeier, T. H., Swanson, M. A., Moutoux, D. E., Kinzie Gordon, E., Wilson, J. T., Wilson, B. H., Kampbell, D. H., Hass, P. E., Miller, R. N., Hansen, J. E. and Chapelle, F.H. 1998. "Technical Protocol for Evaluating Natural Attenuation Of Chlorinated Solvents In Ground Water." EPA/600/R-98/128.

Wiegert, C.M. Mandalakis, T. Knowles, P. N. Polymenakou, C. Aeppli, J. Macháčková, H. Holmstrand, R. P. Evershed, R. D. Pancost and Ö. Gustafsson. 2013. "Carbon and Chlorine Isotope Fractionation During Microbial Degradation of Tetra- and Trichloroethene." *Env. Sci. Technol.* vol. 47. Pp. 6449-6456.

Patrick McLoughlin, Ph.D.
Technical Director
Microseeps, a Division of Pace Analytical



APPENDIX E

Laboratory Data Review Checklist

Completed by:	Paul Studemeister and Ben Wells		
Title:	Environmental Resource Group, Inc.	Date:	Jan 13, 2014
CS Report Name:	1st Semi-Annual GW Monitor Rept for 2012	Report Date:	Aug 30, 2012
Consultant Firm:	Environmental Resource Group, Inc.		
Laboratory Name:	SunStar Laboratories, Inc.	Laboratory Report Number:	T120971
ADEC File Number:	102.38.122	ADEC RecKey Number:	

1. Laboratory

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

Yes No NA (Please explain.) Comments:

Although SunStar Laboratories, Inc. (SunStar) is not on the current list of ADEC CS approved laboratories (<http://dec.alaska.gov/applications/eh/ehllabreports/certchemlabs.aspx>), SunStar received and performed all of the submitted sample analyses.

b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

Yes No NA (Please explain) Comments:

Not transferred.

2. Chain of Custody (COC)

a. COC information completed, signed, and dated (including released/received by)?

Yes No NA (Please explain) Comments:

b. Correct analyses requested?

Yes No NA (Please explain) Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt ($4^{\circ} \pm 2^{\circ} \text{C}$)?

Yes No NA (Please explain) Comments:

The cooler temperature at receipt was documented. However, the temperature recorded (7.2 C°) was slightly above the range criteria.

b. Sample preservation acceptable - acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes No NA (Please explain) Comments:

c. Sample condition documented - broken, leaking (Methanol), zero headspace (VOC vials)?

Yes No NA (Please explain) Comments:

d. If there were any discrepancies, were they documented? - For example, incorrect sample containers/preservation, sample temperature outside of acceptance range, insufficient or missing samples, etc.?

Yes No NA (Please explain) Comments:

No discrepancies noted.

e. Data quality or usability affected? (Please explain)

Comments:

Data quality or usability is not considered to be affected significantly.

4. Case Narrative

a. Present and understandable?

Yes No NA (Please explain) Comments:

b. Discrepancies, errors or QC failures identified by the lab?

Yes No NA (Please explain) Comments:

c. Were all corrective actions documented?

Yes No NA (Please explain) Comments:

No discrepancies noted.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

No effect noted.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes No NA (Please explain)

Comments:

b. All applicable holding times met?

Yes No NA (Please explain)

Comments:

c. All soils reported on a dry weight basis?

Yes No NA (Please explain)

Comments:

No soil samples included in the lab submittal.

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?

Yes No NA (Please explain)

Comments:

e. Data quality or usability affected? (Please explain)

Comments:

Not affected.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes No NA (Please explain)

Comments:

ii. All method blank results less than PQL?

Yes No NA (Please explain)

Comments:

iii. If above PQL, what samples are affected?

Comments:

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No NA (Please explain)

Comments:

v. Data quality or usability affected? (Please explain)

Comments:

Not affected.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics - One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes No NA (Please explain)

Comments:

ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes No NA (Please explain)

Comments:

No samples submitted for inorganic analysis.

iii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes No NA (Please explain)

Comments:

iv. Precision - All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/DMSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes No NA (Please explain)

Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

vi. Do the affected samples(s) have data flags? If so, are the data flags clearly defined?

Yes No NA (Please explain) Comments:

No affected samples.

vii. Data quality or usability affected? (Please explain)

Comments:

Not affected.

c. Surrogates - Organics Only

i. Are surrogate recoveries reported for organic analyses - field, QC and laboratory samples?

Yes No NA (Please explain) Comments:

ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

Yes No NA (Please explain) Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

Yes No NA (Please explain) Comments:

No failed surrogate recoveries noted.

iv. Data quality or usability affected? (Use the comment box to explain.).

Comments:

Not affected.

d. Trip Blank - Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes No NA (Please explain.) Comments:

No trip blank was submitted in this monitoring round.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC?
(If not, a comment explaining why must be entered below)

Yes No NA (Please explain.) Comments:

iii. All results less than PQL?

Yes No NA (Please explain.) Comments:

No trip blank analyzed.

iv. If above PQL, what samples are affected?

Comments:

v. Data quality or usability affected? (Please explain.)

Comments:

Sample results resemble recent past sampling results. Cross-contamination was not suspected as an issue. Data quality and usability are not considered to be affected.

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes No NA (Please explain) Comments:

No field duplicate was collected.

ii. Submitted blind to lab?

Yes No NA (Please explain.) Comments:

No field duplicate was collected.

iii. Precision - All relative percent differences (RPD) less than specified DQOs?
(Recommended: 30% water, 50% soil)

$$RPD (\%) = \text{Absolute Value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Yes No NA (Please explain) Comments:

No field duplicate was collected.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Yes No NA (Please explain) Comments:

No field duplicate was collected.

f. Decontamination or Equipment Blank (if applicable)

Yes No NA (Please explain) Comments:

No decontamination or equipment blank collected.

i. All results less than PQL?

Yes No NA (Please explain) Comments:

No decontamination or equipment blank collected.

ii. If above PQL, what samples are affected?

Comments:

iii. Data quality or usability affected? (Please explain.)

Comments:

Not considered to be affected.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes No NA (Please explain) Comments:

No other data flags/qualifiers.

Reset Form

Laboratory Data Review Checklist

Completed by:	Paul Studemeister and Ben Wells		
Title:	Environmental Resource Group, Inc.	Date:	Jan 13, 2014
CS Report Name:	2nd Semi-Annual GW Monitor Rept for 2012	Report Date:	Jan 25, 2013
Consultant Firm:	Environmental Resource Group, Inc.		
Laboratory Name:	SunStar Laboratories, Inc.	Laboratory Report Number:	T121767
ADEC File Number:	102.38.122	ADEC RecKey Number:	

1. Laboratory

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

Yes No NA (Please explain.) Comments:

Although SunStar Laboratories, Inc. (SunStar) is not on the current list of ADEC CS approved laboratories (<http://dec.alaska.gov/applications/eh/ehllabreports/certchemlabs.aspx>), SunStar received and performed all of the submitted sample analyses.

b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

Yes No NA (Please explain) Comments:

Not transferred.

2. Chain of Custody (COC)

a. COC information completed, signed, and dated (including released/received by)?

Yes No NA (Please explain) Comments:

The FedEx courier/receiver of the coolers (10/02/12) did not sign nor date the initial "received by" entry.

b. Correct analyses requested?

Yes No NA (Please explain) Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt ($4^{\circ} \pm 2^{\circ} \text{C}$)?

Yes No NA (Please explain) Comments:

b. Sample preservation acceptable - acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes No NA (Please explain) Comments:

c. Sample condition documented - broken, leaking (Methanol), zero headspace (VOC vials)?

Yes No NA (Please explain) Comments:

d. If there were any discrepancies, were they documented? - For example, incorrect sample containers/preservation, sample temperature outside of acceptance range, insufficient or missing samples, etc.?

Yes No NA (Please explain) Comments:

No discrepancies noted.

e. Data quality or usability affected? (Please explain)

Comments:

Not affected.

4. Case Narrative

a. Present and understandable?

Yes No NA (Please explain) Comments:

b. Discrepancies, errors or QC failures identified by the lab?

Yes No NA (Please explain) Comments:

c. Were all corrective actions documented?

Yes No NA (Please explain) Comments:

No discrepancies, errors or QC failures noted.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

No effect noted.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes No NA (Please explain)

Comments:

b. All applicable holding times met?

Yes No NA (Please explain)

Comments:

c. All soils reported on a dry weight basis?

Yes No NA (Please explain)

Comments:

No soil samples included in the lab submittal.

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?

Yes No NA (Please explain)

Comments:

e. Data quality or usability affected? (Please explain)

Comments:

Not affected.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes No NA (Please explain)

Comments:

ii. All method blank results less than PQL?

Yes No NA (Please explain)

Comments:

iii. If above PQL, what samples are affected?

Comments:

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No NA (Please explain)

Comments:

v. Data quality or usability affected? (Please explain)

Comments:

Not affected. The data was accepted based on criteria specified in lab report's Notes and Definitions.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics - One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes No NA (Please explain)

Comments:

ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes No NA (Please explain)

Comments:

No samples submitted for inorganic analysis.

iii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes No NA (Please explain)

Comments:

%R reported. %R outside lab limits were flagged and reconciled by lab.

iv. Precision - All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/DMSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes No NA (Please explain)

Comments:

RPDs reported. RPDs outside lab limits were flagged and reconciled by lab.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

vi. Do the affected samples(s) have data flags? If so, are the data flags clearly defined?

Yes No NA (Please explain) Comments:

vii. Data quality or usability affected? (Please explain)

Comments:

Not affected. The data was accepted based on criteria specified in lab report's Notes and Definitions.

c. Surrogates - Organics Only

i. Are surrogate recoveries reported for organic analyses - field, QC and laboratory samples?

Yes No NA (Please explain) Comments:

ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

Yes No NA (Please explain) Comments:

%Rs reported. The few %Rs outside lab limits were flagged and reconciled by lab.

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

Yes No NA (Please explain) Comments:

iv. Data quality or usability affected? (Use the comment box to explain.).

Comments:

Not affected. The data was accepted based on criteria specified in lab report's Notes and Definitions.

d. Trip Blank - Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes No NA (Please explain.) Comments:

Trip blank accompanied samples, but was placed on hold and not analyzed.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC?
(If not, a comment explaining why must be entered below)

Yes No NA (Please explain.) Comments:

iii. All results less than PQL?

Yes No NA (Please explain.) Comments:

Trip blank VOAs were not analyzed.

iv. If above PQL, what samples are affected?

Comments:

v. Data quality or usability affected? (Please explain.)

Comments:

Data quality and usability not considered to be affected.

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes No NA (Please explain) Comments:

ii. Submitted blind to lab?

Yes No NA (Please explain.) Comments:

iii. Precision - All relative percent differences (RPD) less than specified DQOs?
(Recommended: 30% water, 50% soil)

$$RPD (\%) = \text{Absolute Value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Yes No NA (Please explain) Comments:

Except for 1,2-DCA in MW-1/DUP1 pair where MW-1 had ND (<0.50 ug/l) and DUP1 had 1.6 ug/l.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Yes No NA (Please explain) Comments:

Not affected because all other RPDs meet standard criteria, and 1,2-DCA results are low (below or just above reporting limit for 1,2-DCA).

f. Decontamination or Equipment Blank (if applicable)

Yes No NA (Please explain) Comments:

No decontamination or equipment blank collected during this monitoring round.

i. All results less than PQL?

Yes No NA (Please explain) Comments:

No decontamination or equipment blank collected during this monitoring round.

ii. If above PQL, what samples are affected?

Comments:

iii. Data quality or usability affected? (Please explain.)

Comments:

Not considered to be affected.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes No NA (Please explain) Comments:

No other data flags/qualifiers noted.

Reset Form

Laboratory Data Review Checklist

Completed by:	Paul Studemeister and Ben Wells		
Title:	Environmental Resource Group, Inc.	Date:	Jan 13, 2014
CS Report Name:	GW Monitor Rept for 2013	Report Date:	Jan 13, 2014
Consultant Firm:	Environmental Resource Group, Inc.		
Laboratory Name:	Accutest Laboratories	Laboratory Report Number:	C28436
ADEC File Number:	102.38.122	ADEC RecKey Number:	

1. Laboratory

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

Yes No NA (Please explain.) Comments:

Although Accutest Laboratories/Northern California (Accutest) is not on the current list of ADEC CS approved laboratories (<http://dec.alaska.gov/applications/eh/ehllabreports/certchemlabs.aspx>), Accutest received and performed all of the submitted sample analyses.

b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

Yes No NA (Please explain) Comments:

Not transferred.

2. Chain of Custody (COC)

a. COC information completed, signed, and dated (including released/received by)?

Yes No NA (Please explain) Comments:

The FedEx courier/receiver of the coolers (06/24/13) did not sign nor date the initial "received by" entry.

b. Correct analyses requested?

Yes No NA (Please explain) Comments:

With regards to the sample containers destined for iron analysis, the COC should have instructed the laboratory to first filter the sample and then preserve (acidify) as-needed before analysis. Additionally, each sample should have been analyzed for ferrous iron in order to evaluate the ferrous to ferric iron ratio. Sample container for iron analysis should have been collected in the field without chemical preservative.

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt ($4^{\circ} \pm 2^{\circ} \text{C}$)?

Yes No NA (Please explain) Comments:

b. Sample preservation acceptable - acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes No NA (Please explain) Comments:

c. Sample condition documented - broken, leaking (Methanol), zero headspace (VOC vials)?

Yes No NA (Please explain) Comments:

d. If there were any discrepancies, were they documented? - For example, incorrect sample containers/preservation, sample temperature outside of acceptance range, insufficient or missing samples, etc.?

Yes No NA (Please explain) Comments:

No discrepancies noted.

e. Data quality or usability affected? (Please explain)

Comments:

The total iron detections in the set of samples (MW-4, SW-2, SW-4 to SW-8, SW-12 and SW-15) are difficult to interpret, affecting usability, given the sampling/analytical methods used.

4. Case Narrative

a. Present and understandable?

Yes No NA (Please explain) Comments:

b. Discrepancies, errors or QC failures identified by the lab?

Yes No NA (Please explain) Comments:

c. Were all corrective actions documented?

Yes No NA (Please explain) Comments:

No discrepancies, errors or QC failures noted.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

No effect noted.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes No NA (Please explain)

Comments:

b. All applicable holding times met?

Yes No NA (Please explain)

Comments:

The pH analytical results were performed past the hold time.

c. All soils reported on a dry weight basis?

Yes No NA (Please explain)

Comments:

No soil samples included in the lab submittal.

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?

Yes No NA (Please explain)

Comments:

e. Data quality or usability affected? (Please explain)

Comments:

Except for the pH results, the data quality or usability is not affected.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes No NA (Please explain)

Comments:

ii. All method blank results less than PQL?

Yes No NA (Please explain)

Comments:

iii. If above PQL, what samples are affected?

Comments:

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No NA (Please explain)

Comments:

v. Data quality or usability affected? (Please explain)

Comments:

Not affected.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics - One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes No NA (Please explain)

Comments:

ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes No NA (Please explain)

Comments:

iii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes No NA (Please explain)

Comments:

iv. Precision - All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/DMSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes No NA (Please explain)

Comments:

RPDs reported. However, one MS/MSD RPD outside limit for TCE due to high level in sample relative to spike amount; flagged by lab.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

vi. Do the affected samples(s) have data flags? If so, are the data flags clearly defined?

Yes No NA (Please explain) Comments:

vii. Data quality or usability affected? (Please explain)

Comments:

Not affected - data accepted by lab based on other criteria.

c. Surrogates - Organics Only

i. Are surrogate recoveries reported for organic analyses - field, QC and laboratory samples?

Yes No NA (Please explain) Comments:

ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

Yes No NA (Please explain) Comments:

%Rs reported. The few %Rs outside lab limits were flagged and reconciled by lab.

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

Yes No NA (Please explain) Comments:

iv. Data quality or usability affected? (Use the comment box to explain.).

Comments:

Not affected. The data was accepted based on criteria specified in lab report's Notes and Definitions.

d. Trip Blank - Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes No NA (Please explain.) Comments:

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC?
(If not, a comment explaining why must be entered below)

Yes No NA (Please explain.) Comments:

iii. All results less than PQL?

Yes No NA (Please explain.) Comments:

iv. If above PQL, what samples are affected?

Comments:

v. Data quality or usability affected? (Please explain.)

Comments:

Not affected.

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes No NA (Please explain) Comments:

ii. Submitted blind to lab?

Yes No NA (Please explain.) Comments:

iii. Precision - All relative percent differences (RPD) less than specified DQOs?
(Recommended: 30% water, 50% soil)

$$\text{RPD (\%)} = \text{Absolute Value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Yes No NA (Please explain) Comments:

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Yes No NA (Please explain) Comments:

Not affected.

f. Decontamination or Equipment Blank (if applicable)

Yes No NA (Please explain) Comments:

No decontamination or equipment blank collected during this monitoring round.

i. All results less than PQL?

Yes No NA (Please explain) Comments:

No decontamination or equipment blank collected during this monitoring round.

ii. If above PQL, what samples are affected?

Comments:

iii. Data quality or usability affected? (Please explain.)

Comments:

Not considered to be affected.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes No NA (Please explain) Comments:

No other data flags/qualifiers noted.

Reset Form

Laboratory Data Review Checklist

Completed by:	Paul Studemeister and Ben Wells		
Title:	Environmental Resource Group, Inc.	Date:	Jan 13, 2014
CS Report Name:	GW Monitor Rept for 2013	Report Date:	Jan 13, 2014
Consultant Firm:	Environmental Resource Group, Inc.		
Laboratory Name:	Microseeps, Inc.	Laboratory Report Number:	P1307006 & P1307007
ADEC File Number:	102.38.122	ADEC RecKey Number:	

1. Laboratory

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

Yes No NA (Please explain.) Comments:

Although Microseeps, Inc. (Microseeps) is not on the current list of ADEC CS approved laboratories (<http://dec.alaska.gov/applications/eh/ehllabreports/certchemlabs.aspx>), Microseeps received and performed all of the submitted sample analyses.

b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

Yes No NA (Please explain) Comments:

Not transferred.

2. Chain of Custody (COC)

a. COC information completed, signed, and dated (including released/received by)?

Yes No NA (Please explain) Comments:

The FedEx courier that picked-up (received) and relinquished (released) the sample cooler did not sign nor date the COC.

b. Correct analyses requested?

Yes No NA (Please explain) Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt ($4^{\circ} \pm 2^{\circ} \text{C}$)?

Yes No NA (Please explain) Comments:

b. Sample preservation acceptable - acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes No NA (Please explain) Comments:

c. Sample condition documented - broken, leaking (Methanol), zero headspace (VOC vials)?

Yes No NA (Please explain) Comments:

d. If there were any discrepancies, were they documented? - For example, incorrect sample containers/preservation, sample temperature outside of acceptance range, insufficient or missing samples, etc.?

Yes No NA (Please explain) Comments:

No discrepancies noted.

e. Data quality or usability affected? (Please explain)

Comments:

Not affected.

4. Case Narrative

a. Present and understandable?

Yes No NA (Please explain) Comments:

b. Discrepancies, errors or QC failures identified by the lab?

Yes No NA (Please explain) Comments:

c. Were all corrective actions documented?

Yes No NA (Please explain) Comments:

No discrepancies, errors or QC failures noted.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

No effect noted.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes No NA (Please explain)

Comments:

b. All applicable holding times met?

Yes No NA (Please explain)

Comments:

c. All soils reported on a dry weight basis?

Yes No NA (Please explain)

Comments:

No soil samples included in the lab submittal.

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?

Yes No NA (Please explain)

Comments:

e. Data quality or usability affected? (Please explain)

Comments:

Not affected.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes No NA (Please explain)

Comments:

ii. All method blank results less than PQL?

Yes No NA (Please explain)

Comments:

iii. If above PQL, what samples are affected?

Comments:

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No NA (Please explain)

Comments:

No affected samples.

v. Data quality or usability affected? (Please explain)

Comments:

Not affected.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics - One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes No NA (Please explain)

Comments:

ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes No NA (Please explain)

Comments:

iii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes No NA (Please explain)

Comments:

iv. Precision - All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/DMSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes No NA (Please explain)

Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

vi. Do the affected samples(s) have data flags? If so, are the data flags clearly defined?

Yes No NA (Please explain) Comments:

vii. Data quality or usability affected? (Please explain) Comments:

Not considered affected significantly. LCSs were all close to or within the acceptance range and the data was reported as valid and representative of the samples as received.

c. Surrogates - Organics Only

i. Are surrogate recoveries reported for organic analyses - field, QC and laboratory samples?

Yes No NA (Please explain) Comments:

ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

Yes No NA (Please explain) Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

Yes No NA (Please explain) Comments:

iv. Data quality or usability affected? (Use the comment box to explain.) Comments:

Not considered affected significantly. Surrogates were all close to or within the acceptance range and the data was reported as valid and representative of the samples as received.

d. Trip Blank - Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes No NA (Please explain.) Comments:

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC?
(If not, a comment explaining why must be entered below)

Yes No NA (Please explain.) Comments:

iii. All results less than PQL?

Yes No NA (Please explain.) Comments:

No trip blank submitted with samples.

iv. If above PQL, what samples are affected?

Comments:

v. Data quality or usability affected? (Please explain.)

Comments:

Not considered affected.

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes No NA (Please explain) Comments:

ii. Submitted blind to lab?

Yes No NA (Please explain.) Comments:

iii. Precision - All relative percent differences (RPD) less than specified DQOs?
(Recommended: 30% water, 50% soil)

$$RPD (\%) = \text{Absolute Value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Yes No NA (Please explain) Comments:

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Yes No NA (Please explain) Comments:

Not affected.

f. Decontamination or Equipment Blank (if applicable)

Yes No NA (Please explain) Comments:

No decontamination or equipment blank collected.

i. All results less than PQL?

Yes No NA (Please explain) Comments:

No decontamination or equipment blank collected.

ii. If above PQL, what samples are affected?

Comments:

iii. Data quality or usability affected? (Please explain.)

Comments:

Not affected.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes No NA (Please explain) Comments:

No other data flags/qualifiers noted.

Reset Form

Interpreting Your CSIA Report

Mike O'Seeps, Ph.D.

Microseep, Inc.
220 William Pitt Way
Pittsburgh, PA 15238



20-Feb-08
P0899999
Client Name
Client Project Name: CSIA Project
Client Project #: 0000-00

Vinyl Chloride		Concentration			CSIA (Carbon)					
		(ug/l)			Area (Vs)		Co-elution	Analysis	Date	Del (‰)
Lab ID	Client ID	Sample	PQL	Date	Sample	PQL				
P0899999-01	MW-1	<5 (U)	5	2/4/08	<1 (U)	1	No	4052	2/15/08	-
P0899999-02	MW-2	5 (J)	5	2/4/08	<1 (U)	1	No	4060	2/16/08	-
P0899999-03	MW-3	2000	200	2/5/08	11.3	1	No	4063	2/16/08	-26.49
P0899999-04	MW-4	9	5	2/4/08	3.6	1	No	4062	2/16/08	-28.19



For many of you this is the first CSIA report you have received from Microseeps. Because this analysis is different than the concentration analyses that are typically obtained from a laboratory, this report is a bit unusual. This is an attempt to help you understand the report and how to use it. This document will focus on the report itself and how its content relates to your samples. It does not attempt to interpret the results in terms of site remediation. There are some excellent references that can help with that and they will be discussed at the end of this document.

Area

The CSIA section of the report specifies area, not concentrations. The instrument used in CSIA can provide very sensitive and accurate measurements of concentration, that is not its purpose. The CSIA instrument is operated to provide sensitive and accurate isotopic ratio measurements, not concentration measurements. SW846-8260B and EPA-624 are excellent methods for measuring concentration.

The CSIA instrument is operated to provide sensitive and accurate isotopic ratio measurements, not concentration measurements.

CSIA (Carbon)			
Area (Vs)		Co-elution	Anal
Sample	PQL		
<1 (U)	1	No	40
1 (U)	1	No	
1			

Microseeps' CSIA quality control (QC) program has been modeled after those methods because they use a very good and widely recognized QC program, but for measuring concentration CSIA is not an alternative to those methods. As such, the CSIA section of Microseeps' laboratory report does not specify concentrations, but area. We report area in Vs, or volt-seconds. Area is generally proportional to concentration and area values are provided in your CSIA report so that two points can be assessed.

Microseep, Inc.
220 William Pitt Way
Pittsburgh, PA 15238



20-Feb-08
P0899999
Client Name
Client Project Name
Client Project #

CSIA Project
0000.00

Vinyl Chloride		Concentration		Area (Vs)		CSIA (Carbon)		Date	Del (%)
Lab ID	Client ID	Sample	PQL	Sample	PQL	Co-elution	Analysis		
P0899999-01	MW-1	<5 (U)	5	<1 (U)	1	No	4052	2/15/08	-
P0899999-02	MW-2	<5 (U)	5	<1 (U)	1	No	4060	2/15/08	-
P0899999-03	MW-3	2000	200	2/5/08	11.3	No	4063	2/15/08	-26.49
P0899999-04	MW-4	9	5	2/4/08	3.8	No	4062	2/15/08	-28.19
P0899999-05	MW-5	<5 (U)	5	2/5/08	<1 (U)	No	4053	2/15/08	-
P0899999-06	MW-6	<5 (U)	5	2/5/08	<1 (U)	No	4054	2/15/08	-
P0899999-07	MW-7	<5 (U)	5	2/5/08	<1 (U)	No	4055	2/15/08	-
Dup (-03)	MW-3 (DF100)	-	-	-	10.8	No	4058	2/15/08	-28.52
Blank		-	-	<1 (U)	1	No	4048	2/15/08	-
LCS, Lo		-	-	13.7	1	No	4049	2/15/08	-28.05
LCS, HI		-	-	21.5	1	No	4050	2/15/08	-27.99
LCS acceptance range							27.50	<=>	-28.50
Method	8260B			AM-24-AR, C				AM-24-DL, C	
Units	ug/l			Vs				%	
Analyst	hg			cm				cm	

PQL

As with any instrument, there is some minimum threshold of signal required for a reliable isotopic ratio to be accurately measured. The PQL (Practical Quantitation Limit) is a systematically determined “reporting limit” that gives the minimum area necessary to produce an isotopic ratio measurement accurate to within ± 0.5 per mil. The CSIA Standard Operating Procedure (SOP-AM24) gives the detailed procedure used for PQL determination. The measurement is somewhat less accurate, but still reliable, when the area is below the PQL.

Minimum signal strength – the reason behind the flags.

Sample	Area (Vs)	PQL	Co-elution	CSIA (‰)	Analyst
<1 (U)	1		No	40	
<1 (U)	1		No	40	
11.3	1		No		
	1		No		

The range of this accuracy is very matrix dependant, but through experience we have found that duplicates still match to within two or three per mil when the signal is at least 80% of the PQL, so it can be considered that the method detection limit (MDL) is 80% of the PQL. Any areas which lie between the MDL and PQL are flagged with a J. Areas that are less than the MDL are treated as “non-detects” and the area is reported as being less than the PQL and flagged with a “U”. The measured area is reported to the user so that they can see if the signal strength was sufficient and/or what flags should be put upon the data.

Microveep, Inc.
220 William Pitt Way
Pittsburgh, PA 15238



20-Feb-24
Project Name
Client Project Name
Client Project #

Vinyl Chloride		Concentration (ug/l)			Area (Vs)		CSIA (‰)		Date	Del (%)
Lab ID	Client ID	Sample	PQL	Det	Sample	PQL	Co-elution	Analyst	Date	Del (%)
P089999-01	MW-1	<5 (U)	5	24.08	<1 (U)	1	No	4052	2/15/08	-
P089999-02	MW-2	5 (U)	5	24.08	<1 (U)	1	No	4050	2/15/08	-
P089999-03	MW-3	2000	200	2/5/08	11.3	1	No	4063	2/15/08	-26.49
P089999-04	MW-4	9	5	24.09	3.6	1	No	4062	2/16/08	-28.19
P089999-05	MW-5	<5 (U)	5	2/5/08	<1 (U)	1	No	4053	2/16/08	-
P089999-06	MW-6	<5 (U)	5	2/5/08	<1 (U)	1	No	4054	2/16/08	-
P089999-07	MW-7	<5 (U)	5	2/5/08	<1 (U)	1	No	4055	2/16/08	-
Dup (-03)	MW-3 (DF100)	-	-	-	10.8	1	No	4058	2/16/08	-28.52
Blank	-	-	-	-	<1 (U)	1	No	4048	2/15/08	-
LCS: Lo	-	-	-	-	13.7	1	No	4049	2/15/08	-28.05
LCS: Hi	-	-	-	-	21.5	1	No	4050	2/15/08	-27.99
LCS acceptance range	-	-	-	-	-	-	-	27.50	<=>	-28.50



PQL – the details

- U – indicates either that there was no peak corresponding to the target analyte or that if there was such a peak, it had an area less than the MDL and did not produce a reliable CSIA result.
- J – indicates that the target analyte was found but the area of the peak it produced is less than the PQL but greater than the MDL (the MDL is 80% of the PQL). The result is considered usable to $\pm 1-2 \text{ ‰}$, but not the standard $\pm 0.5 \text{ ‰}$.

Co-elution

If a co-contaminant elutes from the chromatographic column with a target analyte, the CSIA measurement of that target analyte may not be entirely of a single compound, but may be corrupted by the presence of the co-eluting compound. According to AM-24 there are specific ways to evaluate the CSIA results for this and they produce a simple Yes/No answer, and they are spelled out on the following page. A positive co-elution result indicates the data may be suspect.

CSIA (Carbon)			
	Co-elution	Analysis	Date
PQL			
1	No	4052	2/15/08
1	No	4060	2/16/08
1	No	4063	2/16/08
1	No	4062	2/16/08

A positive co-elution result indicates the data may be suspect.

Why?

In CSIA, compounds are only separated as well as the gas chromatograph separates them. A concentration measurement such as an SW846-8260 then further distinguishes by mass. However, in CSIA all analytes are first combusted to carbon dioxide before the analytes enter the mass spectrometer. As such, an isotope ratio mass spectrometer, such as that used for CSIA, does not contribute to the identification of analytes.

Microseep, Inc.
220 William Pitt Way
Pittsburgh, PA 15238



20-Feb-08
P089999
Client Name
Client Project Name
Client Project # CSIA Project
0000-00

Vinyl Chloride		Concentration (ug/l)			CSIA (Carbon)			Date	Del (%)	
Lab ID	Client ID	Sample	PQL	Date	Area (Vs)	PQL	Co-elution	Analysis	Date	Del (%)
P089999-01	MW-1	<5 (U)	5	2/4/08	<1 (U)	1	No	4052	2/15/08	-
P089999-02	MW-2	<5 (U)	5	2/4/08	<1 (U)	1	No	4060	2/16/08	-
P089999-03	MW-3	2000	200	2/5/08	11.3	1	No	4063	2/16/08	-26.49
P089999-04	MW-4	9	5	2/4/08	3.6	1	No	4062	2/16/08	-28.19
P089999-05	MW-5	<5 (U)	5	2/5/08	<1 (U)	1	No	4053	2/16/08	-
P089999-06	MW-6	<5 (U)	5	2/5/08	<1 (U)	1	No	4054	2/16/08	-
P089999-07	MW-7	<5 (U)	5	2/5/08	<1 (U)	1	No	4055	2/16/08	-
Dup (-03)	MW-3 (DF100)	-	-	-	10.8	1	No	4058	2/16/08	-28.52
Blank	-	-	-	-	<1 (U)	1	No	4048	2/15/08	-
LCS: Lo	-	-	-	-	13.7	1	No	4049	2/15/08	-28.05
LCS: Hi	-	-	-	-	21.5	1	No	4050	2/15/08	-27.99
LCS acceptance range	-	-	-	-	-	-	-	27.50	<=>	-28.50

Method	8200B	AM-24-AR_C	AM-24-DL_C
Units	ug/l	Vs	%
Analyst	hg	cm	cm



Co-elution – the details

Two ways to detect co-elution

- Peak Shape Assessment
 - Available directly from IRMS
 - Requires examination of detailed results
- Comparison with a standard GCMS concentration
 - Microseeps performs this comparison
 - Allows detection of “perfect” co-elutions that don’t affect peak shape

Analysis

A unique, sequential analysis number is automatically assigned to every analysis. The analysis number provided with each result identifies the analysis that measured the reported result. The data-user can use it as the cross-reference to the surrogate table.

Concentration	Analysis	Date	Del (‰)
No	4052	2/15/08	-
No	4060	2/16/08	-
No	4063	2/16/08	-26.49
	4062	2/16/08	-26.49

Through this unique identifier, each result is cross-referenced to the surrogate table.

From that the data user can see what the area response of the surrogate was in that sample, what dilution was analyzed to get the reported result and what del was measured for the surrogate in that sample.

Microseep, Inc.
220 William Pitt Way
Pittsburgh, PA 15238



20-Feb-08
P0899999
Client Name
Client Project Name: CSIA Project
Client Project # 0000-00

Lab ID	Client ID	Concentration			Area (Vs)		Dilution (Carbon)			
		Sample	PQL	Date	Sample	PQL	Dilution	Analysis	Date	Del (‰)
P0899999-01	MW-1	<5 (U)	5	2/4/08	<1 (U)	1	No	4052	2/15/08	-
P0899999-02	MW-2	5 (U)	5	2/4/08	<1 (U)	1	No	4060	2/16/08	-
P0899999-03	MW-3	2000	200	2/5/08	11.3	1	No	4063	2/16/08	-26.49
P0899999-04	MW-4	9	5	2/4/08	3.8	1	No	4062	2/16/08	-26.19
P0899999-05	MW-5	<5 (U)	5	2/5/08	<1 (U)	1	No	4053	2/16/08	-
P0899999-06	MW-6	<5 (U)	5	2/5/08	<1 (U)	1	No	4054	2/16/08	-
P0899999-07	MW-7	<5 (U)	5	2/5/08	<1 (U)	1	No	4055	2/16/08	-
Dup (-03)	MW-3 (DF 100)	-	-	-	10.6	1	No	4058	2/16/08	-26.52
Blank		-	-	-	<1 (U)	1	No	4048	2/15/08	-
LCS - Hi		-	-	-	15.7	1	No	4049	2/15/08	-26.05
LCS - Hi		-	-	-	21.5	1	No	4050	2/15/08	-27.99
LCS acceptance range										<=> -28.50

Method	8260B	AM-24-AR_C	AM-24-DL_C
Units	ug/l	Vs	%
Analyst	hg	cm	cm

Del

This is the documented, validated and final CSIA result. It is linearly related to the isotopic ratio, but expressed in more convenient units. This is the result the data user most needs. How it relates to the measured values is discussed in SOP-AM₂₄, but other than for a one time data validation, that information is not required.

This is the documented, validated and final CSIA result.

	Del (‰)
08	-
08	-
8	-26.49
	-28.19

Microseep, Inc.
220 William Pitt Way
Pittsburgh, PA 15238



20-Feb-08
P0899999
Client Name
Client Project Name: CSIA Project
Client Project #: 0000 00

Vinyl Chloride		Concentration (ug/l)			CSIA (Carbon)					
Lab ID	Client ID	Sample	PGL	Date	Sample	PGL	Co-elution	Analysis	Dist	Del (‰)
P0899999-01	MW-1	<5 (U)	5	2/4/08	<1 (U)	1	No	4052	2/15/08	-
P0899999-02	MW-2	<5 (U)	5	2/4/08	<1 (U)	1	No	4050	2/15/08	-
P0899999-03	MW-3	2000	200	2/5/08	11.3	1	No	4063	2/16/08	-26.49
P0899999-04	MW-4	9	5	2/4/08	3.8	1	No	4062	2/16/08	-28.19
P0899999-05	MW-5	<5 (U)	5	2/5/08	<1 (U)	1	No	4053	2/16/08	-
P0899999-06	MW-6	<5 (U)	5	2/5/08	<1 (U)	1	No	4054	2/16/08	-
P0899999-07	MW-7	<5 (U)	5	2/5/08	<1 (U)	1	No	4055	2/16/08	-
Dup (-03)	MW-3 (DF100)	-	-	-	10.6	1	No	4058	2/16/08	-28.52
Blank	-	-	-	-	<1 (U)	1	No	4048	2/15/08	-
LCS_Lo	-	-	-	-	13.7	1	No	4049	2/15/08	-28.05
LCS_Hi	-	-	-	-	21.5	1	No	4050	2/15/08	-27.99
LCS acceptance range								-27.50	<=>	-28.50
Method	8260B				AM-24-AR_C				AM-24-DL_C	
Units	ug/l				vs				%	
Analyst	hg				cm				cm	

If the area was insufficient, i.e. marked with a “U” flag, the del result will appear as a “-” (in some formats it comes out as an “NR”).

Surrogate

Microseep, Inc.
220 William Pitt Way
Pittsburgh, PA 15238



20-Feb-08
P0899999
Client Name
Client Project Name: CSIA Project
Client Project #: 0000-00

1CB (Surrogate)	
Lab ID	Client ID
P0899999-01	MW-1
P0899999-02	MW-2

1CB (Surrogate)		CSIA (Carbon)						
Lab ID	Client ID	Dilution	Area (Vs)	PQL	Co-elution	Analysis	Date	Del (%)
P0899999-01	MW-1	1	3.35	1	No	4052	2/15/08	-29.99
P0899999-02	MW-2	100	5.06	1	No	4057	2/16/08	-29.65
P0899999-02	MW-2	1	4.90	1	No	4060	2/16/08	-30.03

A surrogate is injected into every field sample and every QC sample during analysis. The surrogate results are summarized in the surrogate table provided at the back of each CSIA report. The surrogate allows for a check of the ability of the CSIA system to measure the del of that surrogate accurately from the same sample and dilution as was used for any of the target analyte measurements. The surrogate is chosen to be something that would not be present in a field sample, but there is still the potential for corruption of the surrogate peak by interferences present in the sample.

P0899999-07	MW-7	1	3.26	1	No	4055	2/16/08	-29.55	
Dup (-03)	MW-3 (DF 100)	100	3.68	1	No	4058	2/16/08	-29.98	
Blank		1	3.59	1	No	4048	2/15/08	-29.69	
LCS_Lo		1	3.59	1	No	4049	2/15/08	-29.92	
LCS_Hi		1	3.62	1	No	4050	2/15/08	-29.92	
Surrogate acceptance range							-29.38	<=>	-30.03

A Surrogate acceptance range given and the measured del should be within those limits, unless a co-elution is reported.

LCS_Hi	
Surrogate acceptance range	

Dilution

	Sample	
	Dilution	Sample
	1	3.3
	100	5

The most robust way to reduce signal strength is simple dilution, and that is the technique used at Microseeps.

Microseep, Inc.
220 William Pitt Way
Pittsburgh, PA 15238



20-Feb-08
P0899999
Client Name
Client Project Name: CSIA Project
Client Project #: 0000-00

1CB (Surrogate)		CSIA (Carbon)						
Lab ID	Client ID	Sample Dilution	Area (µg) Sample	PQL	Co-elution	Analysis	Date	Del (%)
P0899999-01	MW-1	1	3.35	1	No	4052	2/15/08	-29.99
P0899999-02	MW-2	100	5.06	1	No	4057	2/16/08	-29.65
P0899999-02	MW-2	1	4.90	1	No	4060	2/16/08	-30.03

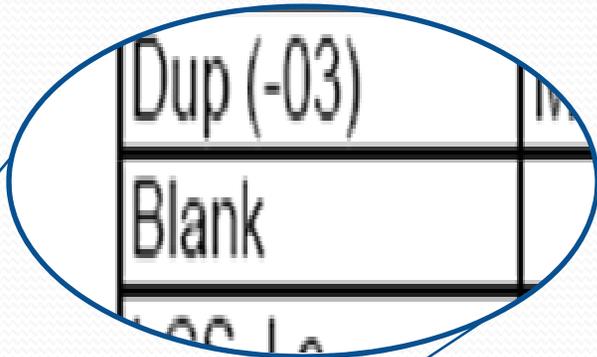
To be able to accurately measure the del of the individual components, it is necessary to reduce the signal strength of the more concentrated species. The most robust way to reduce signal strength is simple dilution, and that is the technique used at Microseeps. To measure the species in that same sample that are present at low concentrations, a less diluted or undiluted run may be required. As such it is not uncommon for a single field sample to be analyzed two or three times. By using the analysis number given with each result, the surrogate table can be used to see what dilution was analyzed to obtain each result.



Batch Quality Control

- Duplicate
- Blank
- Laboratory Control Samples
 - LCS_Lo
 - LCS_Hi
- Matrix Spikes
 - Matrix Spike Duplicates

Blank



The blank serves the typical role of proving that there is no contamination left from the previous run. While we are not measuring concentration, carry-over can pose a problem in CSIA because the del values of a particular analyte differs from sample to sample. If there is carry-over the measured del will reflect a mixture of the current sample and the previous one.

...carry-over can cause a problem in CSIA.

Ideally for each target analyte in the blank there is a U, but for the surrogate in the blank there is a strong signal and the expected del is measured for that surrogate. (The absence of target analytes is proven by the U's, and the surrogate response proves that if the target analytes were present, they would have been seen, so the U's are valid.)

Microveep, Inc.
220 William Pitt Way
Pittsburgh, PA 15238



20-Feb-08
P0899993
Client Name:
Client Project Name: CSIA Project
Client Project #: 0000-00

Vinyl Chloride		Concentration (ug/l)			CSIA (Carbon)					
Lab ID	Client ID	Sample	POL	Del	Sample	POL	Co-elution	Analysis	Date	Del (%)
P0899993-01	MW-1	<5 (U)	5	2/4/08	<1 (U)	1	No	4052	2/15/08	-
P0899993-02	MW-2	5 (U)	5	2/4/08	<1 (U)	1	No	4060	2/15/08	-
P0899993-03	MW-3	2000	200	2/5/08	11.3	1	No	4063	2/16/08	-26.49
P0899993-04	MW-4	9	5	2/4/08	3.6	1	No	4062	2/16/08	-28.19
P0899993-05	MW-5	<5 (U)	5	2/5/08	<1 (U)	1	No	4053	2/16/08	-
P0899993-06	MW-6	<5 (U)	5	2/5/08	<1 (U)	1	No	4054	2/16/08	-
P0899993-07	MW-7	<5 (U)	5	2/5/08	<1 (U)	1	No	4055	2/16/08	-
Dup (-03)	MW-3 (DF100)	-	-	-	10.8	1	No	4058	2/16/08	-28.52
Blank	-	-	-	-	<1 (U)	1	No	4048	2/15/08	-
LCS: Lo	-	-	-	-	13.7	1	No	4049	2/15/08	-28.05
LCS: Hi	-	-	-	-	21.5	1	No	4050	2/15/08	-27.99
LCS acceptance range	-	-	-	-	-	-	-	27.50	<=>	-28.50
Method	8260B				AM-24-AR_C				AM-24-DL_C	
Units	ug/l				vs				%	
Analyst	hg				cm				cm	

Laboratory Control Samples

LCS_Lo	
LCS_Hi	
LCS acceptance range	

To ensure quality, Laboratory Control Samples (LCS's) are constructed from laboratory grade DI water spiked with all of the analytes. The del values measured from these samples can be checked against the "LCS accepted value" and the results should lie within that range. These values were arrived at by repeated analysis of these constituents in laboratory derived samples, and details of that procedure are available in Microseeps' SOP AM24.

It is important to note that an LCS acceptance range is given for the del of each compound. These ranges are measured through replicate analyses of the standard at various concentrations in water. The details are provided in the SOP AM-24. These ranges are very important and play a vital role in each of the three purposes of the LCS detailed on the following page..

Microseep, Inc.
220 William Pitt Way
Pittsburgh, PA 15238



20-Feb-08
P0899993
Client Name
Client Project Name: CSIA Project
Client Project #: 0000-00

Vinyl Chloride		Concentration (ug/l)			Area (Vs)			CSIA (Carbon)		
Lab ID	Client ID	Sample	POL	Date	Sample	POL	Co-elution	Analysis	Date	Del (%)
P089999-01	MW-1	<5 (U)	5	2/4/08	<1 (U)	1	No	4052	2/15/08	-
P089999-02	MW-2	<5 (U)	5	2/4/08	<1 (U)	1	No	4060	2/15/08	-
P089999-03	MW-3	200	200	2/5/08	11.3	1	No	4063	2/16/08	-26.49
P089999-04	MW-4	9	5	2/4/08	3.6	1	No	4062	2/16/08	-28.19
P089999-05	MW-5	<5 (U)	5	2/5/08	<1 (U)	1	No	4053	2/16/08	-
P089999-06	MW-6	<5 (U)	5	2/5/08	<1 (U)	1	No	4054	2/16/08	-
P089999-07	MW-7	<5 (U)	5	2/5/08	<1 (U)	1	No	4055	2/16/08	-
DF1 (U3)	Blank 1 (DF100)	-	-	-	10.8	1	No	4058	2/16/08	-28.52
Blank	-	-	-	-	<1 (U)	1	No	4048	2/15/08	-
LCS_Lo	-	-	-	-	13.7	1	No	4049	2/15/08	-28.05
LCS_Hi	-	-	-	-	21.5	1	No	4050	2/15/08	-27.99
LCS acceptance range	-	-	-	-	-	-	-	27.50	<=>	-28.50
Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	%
Analyst	hg	hg	hg	hg	cm	cm	cm	cm	cm	cm

LCS purposes

1. Measure the del of each target analyte in a isotopically known sample.
This ensures that the measurements are accurate at the concentration in the LCS.
2. Measure the del in two samples that are isotopically identical but differ in concentration.
This ensures there is no significant concentration dependence to the del measurements.
3. Calculate the calibration factor for later use in diagnosing co-elution.
The contents of the LCS's are completely known, and there should be no co-elution in them. While this method is not intended to measure concentration, the area response, corrected for dilution, should be proportional to the concentration. That proportionality is used to insure that the peak area of a sample could all be attributed to the target analyte. If the peak area in a sample peak is larger than would be expected given the measured concentration, there is probably a co-elution. Co-elutions have been discussed in more detail previously.

LCS_Lo	
LCS_Hi	
LCS acceptance range	



Matrix Spikes

Matrix spikes and matrix spike duplicates are useful tools for validating concentration results.

Unfortunately, they are not meaningful in CSIA.

Several things have been done to make up for this.

Duplicate samples are analyzed more frequently.

Additionally, rather than just a single LCS, two LCS's are used.

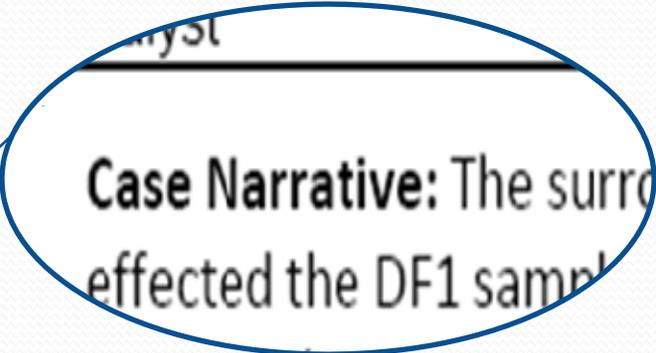
- For accuracy, use the LCS_Hi
- For precision, use the LCS_Lo and the LCS_Hi
- For matrix effects, use the surrogate

Case Narrative

In the Case Narrative any exceptions are discussed, as is their potential effect upon the reported data. Microseeps makes every effort to issue the most valid reports possible, and to flag any suspect data that is reported. In no way is the case narrative intended to alarm the data user nor is it intended to be a list of excuses for the laboratory.

The Case Narrative explains any exceptions.

Rather, the case narrative is intended to be a succinct description of the analytical project where the data validity is assessed and any potential detractions from that validity are explained in terms of their cause and their effect upon the reported data. This is presented to empower the data user to be more confident about their data.



Case Narrative: The surrogate 1CB co-eluted with a matrix interferent in samples MW-3 and MW-4. This was easily diluted and worked well in the DF1 samples. However, in those dilutions this made the surrogate unusable. The surrogates worked well in the DF1 samples.

LCS_Lo		1	3.59	1	No	4049	2/15/08	-29.92
LCS_Hi		1	3.62	1	No	4050	2/15/08	-29.92
Surrogate acceptance range						-29.38	<=>	-30.38
Method		AM-24-AR C				AM-24-DL C		
Units		Vs				%o		
Analyst		cm				cm		

Case Narrative: The surrogate 1CB co-eluted with a matrix interferent in samples MW-3 and MW-4. This was easily diluted and worked well in the DF1 samples. However, in those dilutions this made the surrogate unusable. The surrogates worked well in the DF1 samples.



Other References

This concludes the discussion of the report you have received from Microseeps. Interpretation of what the del values mean for your site is another very important issue. While that is beyond the scope of this document, there are several excellent sources of information we would like to point out:

- “Monitored Natural Attenuation of MTBE as a Risk Management Option at Leaking Underground Storage Tank Sites.” 2005. USEPA, EPA/600/R-04/1790

It is focused upon MTBE, but it covers a lot of vital fundamentals that are applicable to CSIA in general.

- “Compound Specific Isotope Analysis: The Science, Technology and Selected Examples from the Literature with Application to Fuel Oxygenates and Chlorinated Solvents.” 2007. Available at <http://www.microseeps.com/pdf/csia.pdf>

This paper is a review of much of the available literature, starting from the fundamental basics and covering MTBE remediation, chlorinated solvent remediation, biodegradation and such other topics as CSIA and ISCO or CSIA and modeling.

- The USEPA, in cooperation with the IAEA of the UN, is preparing “A Consensus Guide for Assessing Biodegradation and Source Identification with Compound Specific Isotope Analysis (CSIA).” That document is planned for release in October of 2008. It was prepared by a team of renowned experts and covers a multitude of issues in great depth.



We are confident that you will find the report you have received to be a very useful tool, and that CSIA can be a powerful part of your remediation work. Please feel free to contact us not only about work that has been done or is ongoing, but also work that is planned. We would love to discuss your project goals and potential ways we can fill them.



Laboratory Data Review Checklist

Completed by:	Paul Studemeister and Ben Wells		
Title:	Environmental Resource Group, Inc.	Date:	Jan 13, 2014
CS Report Name:	GW Monitor Rept for 2013	Report Date:	Jan 13, 2014
Consultant Firm:	Environmental Resource Group, Inc.		
Laboratory Name:	Accutest Laboratories	Laboratory Report Number:	C30215
ADEC File Number:	102.38.122	ADEC RecKey Number:	

1. Laboratory

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

Yes No NA (Please explain.) Comments:

Although Accutest Laboratories/Northern California (Accutest) is not on the current list of ADEC CS approved laboratories (<http://dec.alaska.gov/applications/eh/ehllabreports/certchemlabs.aspx>), Accutest received and performed all of the submitted sample analyses.

b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

Yes No NA (Please explain) Comments:

Not transferred.

2. Chain of Custody (COC)

a. COC information completed, signed, and dated (including released/received by)?

Yes No NA (Please explain) Comments:

The FedEx courier/receiver (06/24/13) did not sign nor date the initial "received by" entry.

b. Correct analyses requested?

Yes No NA (Please explain) Comments:

With regards to the sample containers destined for iron analysis, the COC should have instructed the laboratory to first filter the sample and then preserve (acidify) as-needed before analysis. Additionally, each sample should have been analyzed for ferrous iron in order to evaluate the ferrous to ferric iron ratio. Sample container for iron analysis should have been collected in the field without chemical preservative.

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt ($4^{\circ} \pm 2^{\circ} \text{ C}$)?

Yes No NA (Please explain) Comments:

b. Sample preservation acceptable - acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes No NA (Please explain) Comments:

c. Sample condition documented - broken, leaking (Methanol), zero headspace (VOC vials)?

Yes No NA (Please explain) Comments:

d. If there were any discrepancies, were they documented? - For example, incorrect sample containers/preservation, sample temperature outside of acceptance range, insufficient or missing samples, etc.?

Yes No NA (Please explain) Comments:

No discrepancies noted.

e. Data quality or usability affected? (Please explain)

Comments:

The iron detections (samples MW-1, DUP1, MW-4, MW-5, MW-7, MW-9, MW-11, MW-12, MW-13, DUP2, SW-2, SW-4 to SW-8, SW-12 and SW-15) are difficult to interpret, affecting usability of the iron results, given the sampling/analytical methods used.

4. Case Narrative

a. Present and understandable?

Yes No NA (Please explain) Comments:

b. Discrepancies, errors or QC failures identified by the lab?

Yes No NA (Please explain) Comments:

c. Were all corrective actions documented?

Yes No NA (Please explain) Comments:

No discrepancies, errors or QC failures noted.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

No effect noted.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes No NA (Please explain)

Comments:

b. All applicable holding times met?

Yes No NA (Please explain)

Comments:

The pH analyses were performed past the hold time. The sulfide analyses of those groundwater samples collected on October 2, 2013 were performed up to approximately 1.5 days past the 7-day hold time specified for sulfide analysis of water samples.

c. All soils reported on a dry weight basis?

Yes No NA (Please explain)

Comments:

No soil samples included in the lab submittal.

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?

Yes No NA (Please explain)

Comments:

e. Data quality or usability affected? (Please explain)

Comments:

The data quality and usability of the pH results may be affected because sample analyses was more than 6 days past the hold time specified for pH analysis. The data quality and usability of the sulfide results for the samples of 10/02/13 are likely not affected given the non-detectable analytical results, and small exceedance (1.5 days maximum) of the sulfide hold time. The other analytical results are not affected.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes No NA (Please explain)

Comments:

ii. All method blank results less than PQL?

Yes No NA (Please explain)

Comments:

iii. If above PQL, what samples are affected?

Comments:

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No NA (Please explain)

Comments:

No affected samples.

v. Data quality or usability affected? (Please explain)

Comments:

Not affected.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics - One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes No NA (Please explain)

Comments:

ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes No NA (Please explain)

Comments:

iii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes No NA (Please explain)

Comments:

Yes, except for iron (SDL, %R was 12% somewhat above the QC limits of 0 to 10%).

iv. Precision - All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/DMSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes No NA (Please explain) Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

SDL for iron.

vi. Do the affected samples(s) have data flags? If so, are the data flags clearly defined?

Yes No NA (Please explain) Comments:

Lab notes that serial dilution indicates possible matrix interference to the %R condition noted above.

vii. Data quality or usability affected? (Please explain)

Comments:

Not considered affected significantly.

c. Surrogates - Organics Only

i. Are surrogate recoveries reported for organic analyses - field, QC and laboratory samples?

Yes No NA (Please explain) Comments:

ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

Yes No NA (Please explain) Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

Yes No NA (Please explain) Comments:

No affected sample results.

iv. Data quality or usability affected? (Use the comment box to explain.).

Comments:

Not affected.

d. Trip Blank - Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples?
(If not, enter explanation below.)

Yes No NA (Please explain.) Comments:

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC?
(If not, a comment explaining why must be entered below)

Yes No NA (Please explain.) Comments:

iii. All results less than PQL?

Yes No NA (Please explain.) Comments:

iv. If above PQL, what samples are affected?

Comments:

v. Data quality or usability affected? (Please explain.)

Comments:

Not affected.

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes No NA (Please explain) Comments:

ii. Submitted blind to lab?

Yes No NA (Please explain.) Comments:

iii. Precision - All relative percent differences (RPD) less than specified DQOs?
(Recommended: 30% water, 50% soil)

$$\text{RPD (\%)} = \text{Absolute Value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Yes No NA (Please explain) Comments:

Except for iron, the RPDs meet the recommended criteria. The RPD was 38% for the MW-1/DUP1 pair, and 85% for the MW-13/DUP2 pair.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Yes No NA (Please explain) Comments:

Not affected.

f. Decontamination or Equipment Blank (if applicable)

Yes No NA (Please explain) Comments:

No decontamination or equipment blank collected during this monitoring round.

i. All results less than PQL?

Yes No NA (Please explain) Comments:

No decontamination or equipment blank collected during this monitoring round.

ii. If above PQL, what samples are affected?

Comments:

iii. Data quality or usability affected? (Please explain.)

Comments:

Not considered significant.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes No NA (Please explain) Comments:

No other data flags/qualifiers noted.

Reset Form

APPENDIX F

RCH Surveys LTD.
326 Driveway Street, Suite #102
Fairbanks, Alaska 99701
voice 907-451-7411
fax 907-451-7413
e-mail slowry@rchsurveys.com

Donal Manning
Project Manager
Environmental Resource Group, Inc.
1038 Redwood Hwy., Suite 1
Mill Valley, CA 94941

December 13, 2013

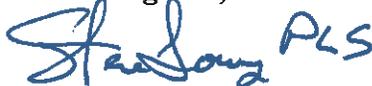
REF.: Surveyors report for the Bentley Mall Monitor Wells, located in Fairbanks, AK.

Dear Mr. Manning,

Attached is the compiled data for the monitor and sparge wells. The horizontal position of the wells is based on published data for NGS (National Geodetic Survey) survey point "WEIGH" (PID# DH4914), per the June, 2012 adjustment by the NGS. Geographical position (latitude and longitude) of the wells is NAD83 (2011). Grid coordinates are Alaska SPC Zone 3, converted to U.S. Survey feet. Elevations are based on published data for NGS survey point "XX 12" (PID# TT2772). All elevations are NAVD88. I've attached a copy of both Data Sheets for your records.

Local horizontal control was established from GPS static sessions, and a post processed loop through NGS Stations "WEIGH", and "CHENA WEST BASE". Loop closure precision exceeded 1:4,000,000 (feet). Redundant RTK measurements were used to locate the wells. Redundant measurements on the same point varied less than 0.10 feet. The average of those measurements on each well is reported herein. Differential levels were used to establish the elevations. "Turns" were made through each point to ensure the correct elevation was established. Note that the Sparge wells have two PVC pipes. These are reported as 'A' and 'B' (ie: SW-5A, and SW5-B). Data was established for each pipe.

With regards,



Steve Lowry PLS



Enc: NGS Data Sheets, Bentley Mall Monitor Wells report.pdf, Bentley Mall Monitor Well report.xlsx, FNSBGIS_aerial.png, bm wells checks.dwg, bm wells cheks-Layout2.pdf

Project: Bentley Mall Monitor Wells located in Fairbanks, AK

Prepared for Enviromental Resources Group, Inc. Prepared by RCH Surveys, LTD

Coordinates (converted to U.S. Survey feet), and Geographical positions are NAD 83 (2011) based on published data for N.G.S. Station "WEIGH", PID# "DH4914" per the June 24, 2012 adjusmtent by the N.G.S.

Elevations are based on published data for N.G.S. Station "XX 12", PID# "TT2772", a First Order, Class 2 Vertical Benchmark with an NAVD88 Elevation of 446.35' U.S. Survey feet.

Abbreviations: NGS= National Geodetic Survey MW=Monitor Well SW=Sparge Well The Sparge Wells have two PVC pipes. They are listed as 'A' and 'B' herein.

NGVD29 Elevations are based on a 5.1' difference between NAVD88, and NGVD29 Datums.

Pnt. #	AK Zone 3 Grid Northing	AK Zone 3 Grid Easting	Latitude	Longitude	Top PVC Elev. (well) NAVD88	Top of Casing Elev. NAVD88	Ground/Asphalt Elev. NAVD88	Description	PVC to top of casing	Top of casing to ground	Top of Casing Elev. NGVD29
1	3968802.65	1375863.25	64°51'01.03155"N	147°42'00.35531"W	446.32	446.61	446.6	MW-1	0.29	0	441.51
2	3968843.36	1375711.21	64°51'01.39191"N	147°42'03.89624"W	446.09	446.31	446.3	MW-2	0.22	0	441.21
3	3968845.89	1375707.99	64°51'01.41593"N	147°42'03.97234"W	445.92	446.32	446.3	MW-3	0.4	0	441.22
4	3968953.76	1375711.55	64°51'02.47821"N	147°42'03.95708"W	444.36	444.87	444.9	MW-4	0.51	0	439.77
5	3969118.62	1374819.42	64°51'03.86375"N	147°42'24.68818"W	447.77	448.29	446.0	MW-5	0.52	-2.3	443.19
6	3969124.57	1374818.12	64°51'03.92202"N	147°42'24.72204"W	447.61	448.03	445.8	MW-6	0.42	-2.2	442.93
7	3969410.79	1374416.74	64°51'06.63134"N	147°42'34.18184"W	449.72	450.09	447.6	MW-7	0.37	-2.45	444.99
8	3969212.78	1373662.99	64°51'04.48264"N	147°42'51.48715"W	441.83	442.13	442.1	MW-8	0.3	0	437.03
9	3969203.94	1374201.51	64°51'04.53909"N	147°42'39.02931"W	441.51	442.36	442.4	MW-9	0.85	0	437.26
10	3968967.21	1374612.52	64°51'02.31924"N	147°42'29.37768"W	442.81	443.71	443.7	MW-10	0.9	0	438.61
11	3968941.27	1374059.94	64°51'01.91711"N	147°42'42.13856"W	441.83	442.67	442.7	MW-11	0.84	0	437.57
12	3968917.76	1375316.19	64°51'02.01937"N	147°42'13.07629"W	445.73	446.11	446.1	MW-12	0.38	0	441.01
13	3968766.07	1375576.34	64°51'00.59579"N	147°42'06.96671"W	446.18	446.46	446.5	MW-13	0.28	0	441.36
17	3968807.54	1375734.65	64°51'01.04571"N	147°42'03.33201"W	446.17	446.47	446.5	SW-2A	0.3	0	
29	3968807.69	1375734.97	64°51'01.04726"N	147°42'03.32476"W	445.88	446.50	446.5	SW-2B			
30	3968854.24	1375652.15	64°51'01.48335"N	147°42'05.26859"W	445.83	446.14	446.1	SW-4A	0.31	0	
31	3968854.35	1375652.39	64°51'01.48445"N	147°42'05.26321"W	445.45	446.10	446.1	SW-4B			
18	3968883.46	1375602.01	64°51'01.75758"N	147°42'06.44601"W	445.8	446.11	446.1	SW-5A	0.31	0	
19	3968883.62	1375601.81	64°51'01.75909"N	147°42'06.45091"W	445.72	446.10	446.1	SW-5B			
20	3968905.57	1375562.41	64°51'01.96458"N	147°42'07.37554"W	445.94	446.31	446.3	SW-6A	0.37	0	
21	3968905.82	1375562.56	64°51'01.96706"N	147°42'07.37219"W	445.99	446.30	446.3	SW-6B			
22	3968934.25	1375515.34	64°51'02.23432"N	147°42'08.48172"W	447.04	447.31	447.3	SW-7A	0.27	0	
23	3968934.63	1375515.66	64°51'02.23808"N	147°42'08.47467"W	446.84	447.30	447.3	SW-7B			
24	3968980.63	1375520.88	64°51'02.69207"N	147°42'08.38245"W	445.22	445.82	445.8	SW-8A	0.6	0	
25	3968980.23	1375520.63	64°51'02.68811"N	147°42'08.38797"W	445.34	445.80	445.8	SW-8B			
26	3968917.94	1375631.17	64°51'02.10448"N	147°42'05.79341"W	445.54	445.88	445.9	SW-12A	0.34	0	
27	3968917.77	1375631.35	64°51'02.10285"N	147°42'05.78900"W	445.61	445.90	445.9	SW-12B			
15	3968912.81	1375731.74	64°51'02.08061"N	147°42'03.46466"W	445.26	445.55	445.6	SW-15A	0.29	0	
28	3968912.91	1375731.94	64°51'02.08161"N	147°42'03.46011"W	445.26	445.60	445.6	SW-15B			



SCALE: 1"=200'

