DENR USE ONLY: ☐ Paper Report ☐ Electronic Data - Email CD (data loaded: Yes / No) Doc/Event #:

NC DENR
Division of Waste Management - Solid Waste

Environmental Monitoring Reporting Form

Notice: This form and any information attached to it are "Public Records" as defined in NC General Statute 132-1. As such, these documents are available for inspection and examination by any person upon request (NC General Statute 132-6).

Instructions:

- **Prepare one form for each individually monitored unit.**
- **Please type or print legibly.**
- Attach a notification table with values that attain or exceed NC 2L groundwater standards or NC 2B surface water standards. The notification must include a preliminary analysis of the cause and significance of each value. (e.g. naturally occurring, off-site source, pre-existing condition, etc.).
- Attach a notification table of any groundwater or surface water values that equal or exceed the reporting limits.
- Attach a notification table of any methane gas values that attain or exceed explosive gas levels. This includes any structures on or nearby the facility (NCAC 13B .1629 (4)(a)(i).
- Send the original signed and sealed form, any tables, and Electronic Data Deliverable to: Compliance Unit, NCDENR-DWM, Solid Waste Section, 1646 Mail Service Center, Raleigh, NC 27699-1646.

Solid Waste Monitoring Data Submittal Information

Name of entity submitting data (laboratory, consultant, facility owner):

Contact for questions about data formatting. Include data preparer's name, telephone number and E-mail address:

Name: Ross Klingman, P.G. Phone: 704-344-1450

E-mail: buxtonenv@bellsouth.net

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Brickhaven No. 2 Mine Tract "A"	1271 Moncure-Flatwood Road Chatham County Moncure, North Carolina	1910-STRUCT-2015	CAMA	August 12 & 13, 2015

Environmental Status: (Check all that apply)

☒ Initial/Background Monitoring ☐ Detection Monitoring ☐ Assessment Monitoring ☐ Corrective Action

Type of data submitted: (Check all that apply)

☒ Groundwater monitoring data from monitoring wells
☐ Groundwater monitoring data from private water supply wells
☐ Leachate monitoring data
☒ Surface water monitoring data
☐ Methane gas monitoring data
☐ Corrective action data (specify) _____
☐ Other(specify) _____

Notification attached?

☐ No. No groundwater or surface water standards were exceeded.
☒ Yes, a notification of values exceeding a groundwater or surface water standard is attached. It includes a list of groundwater and surface water monitoring points, dates, analytical values, NC 2L groundwater standard, NC 2B surface water standard or NC Solid Waste GWPS and preliminary analysis of the cause and significance of any concentration.
☐ Yes, a notification of values exceeding an explosive methane gas limit is attached. It includes the methane monitoring points, dates, sample values and explosive methane gas limits.

Certification

To the best of my knowledge, the information reported and statements made on this data submittal and attachments are true and correct. Furthermore, I have attached complete notification of any sampling values meeting or exceeding groundwater standards or explosive gas levels, and a preliminary analysis of the cause and significance of concentrations exceeding groundwater standards. I am aware that there are significant penalties for making any false statement, representation, or certification including the possibility of a fine and imprisonment.

Ross Klingman, P.G. President 704-344-1450

Facility Representative Name (Print) Title (Area Code) Telephone Number

Signature October 28, 2015 Date

Affix NC Licensed/Professional Geologist Seal

NORTH CAROLINA LICENSED SEAL 1266 GEOLOGIST CHARLES ROSS KLINGMAN 10-28-15

Buxton Environmental, Inc.; 1101 South Blvd., Suite 101; Charlotte, NC 28203

Facility Representative Address

C-278

NC PE Firm License Number (if applicable effective May 1, 2009)

Revised 6/2009

INITIAL BACKGROUND GROUNDWATER & SURFACE WATER MONITORING EVENT
FIRST (1ST) OF EIGHT (8) EVENTS – AUGUST 12 & 13, 2015
BRICKHAVEN NO. 2 MINE TRACT "A"
1271 MONCURE-FLATWOOD ROAD
MONCURE, NORTH CAROLINA
PERMIT NO.: 1910-STRUCT-2015

Prepared for:

Mr. Mike Plummer, PE
HDR Engineering of the Carolinas, Inc.
440 South Church Street, Suite 1000
Charlotte, North Carolina 28202
Ph: 704-338-6843

October 28, 2015

Prepared by:

Ross Klingman, P.G.
Senior Geologist

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INITIAL BACKGROUND GROUNDWATER & SURFACE WATER MONITORING EVENT
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INITIAL BACKGROUND GROUNDWATER & SURFACE WATER MONITORING EVENT
FIRST (1ST) OF EIGHT (8) EVENTS – AUGUST 12 & 13, 2015
BRICKHAVEN NO. 2 MINE TRACT "A"
1271 MONCURE-FLATWOOD ROAD
MONCURE, NORTH CAROLINA
PERMIT NO.: 1910-STRUCT-2015

1.0 INTRODUCTION

Buxton Environmental, Inc. respectfully submits the methods and results of the initial background groundwater & surface water monitoring event conducted at the Brickhaven No. 2 Mine Tract "A" Structural Fill Site located at 1271 Moncure-Flatwood Road in Moncure, Chatham County, North Carolina (Permit No.: 1910-STRUCT-2015). These activities were conducted in general accordance with North Carolina Department of Environmental Quality (formerly North Carolina Department of Environment and Natural Resources (NCDENR), Division of Waste Management, Solid Waste Section (NCSWS) 15A NCAC 13B Rules and guidelines; the *Design Hydrogeologic Report – Addendum, Revision 2* (including the *Water Quality Monitoring Plan)* prepared on March 6, 2015 by Buxton Environmental, Inc. for the Brickhaven site; the subsequent the *Water Quality Monitoring Plan* prepared by Buxton Environmental, Inc. and submitted to NCSWS as a stand-alone document by HDR Engineering of the Carolinas, Inc. (HDR) on March 23, 2015; the *Permit to Construct/Permit to Operate* (pertaining to Attachment 3-Conditions of Construction-Line Number 7) which was issued for the site by the NCSWS on June 5, 2015; and a modification to the approved *Water Quality Monitoring Plan*. According to the *Permit to Construct/Permit to Operate*- Attachment 3-Conditions of Construction-Line Number 7, a minimum of one (1) independent background sample (of a total of eight (8) independent background sampling events) is required to be collected from each compliance groundwater monitoring well and surface water sampling location, prior to the placement of coal combustion residuals at the site. The only modification to the approved *Water Quality Monitoring Plan* was the addition of EPA Appendix I volatile organic compounds (VOCs) (40 CFR 258) to the groundwater and surface water constituent sampling parameter list, as required by General Assembly of North Carolina Session 2013 - Senate Bill 729 concerning coal combustion residuals (a.k.a. Coal Ash Management Act of 2014 (CAMA)). During the preparation of the March 2015 *Water Quality Monitoring Plan*, the NCSWS verbally indicated that VOC analysis would not be required at the site, however, VOCs have been added to comply with Senate Bill 729. A Site Location Map and a Groundwater Monitoring System Map are provided in Figures 1 and 2, respectively.

A summary of background information, and the methods, results, conclusions and recommendations of this assessment are outlined below.

2.0 BACKGROUND INFORMATION

The Brickhaven No. 2 Mine Tract "A" Structural Fill Site is located in Chatham County, approximately four miles southwest of central Moncure, North Carolina. According to the Chatham County GIS website, the subject property (PIN #: 9697-32-0803) is 333.55 acres and is owned Green Meadow, LLC. The structural coal combustion residual fill area comprises approximately 149 acres of the subject property. The property located within the structural fill area was most recently owned by General Shale Brick, Inc., which operated the site as a clay mine since at least the early 1990's for their off-site brick manufacturing facility. The area immediately surrounding the site primarily consists of rural residential (approximately 2,500 feet east, 1,000 feet southeast and 1,000 feet southwest), commercial, industrial, wooded and agricultural property. According to information obtained from the Chatham County GIS website, municipal water supply is available to the surrounding area.

The subject site is located in the Triassic Basin Belt of the Piedmont Physiographic Province, according to the 1985 *North Carolina Geologic Map* prepared by the North Carolina Geological Survey. The structural fill portion of the subject property is located within the Sanford Formation (T_{RCS}), which is described in the *North Carolina Geologic Map* as consisting of sedimentary formations containing conglomerate, fanglomerate, sandstone and mudstone.

The original approved *Water Quality Monitoring Plan* (March 2015) stipulated the installation of one (1) upgradient background monitor well (MW-1) and seven (7) downgradient/sidegradient monitor wells (MW-2, MW-3, MW-4, MW-5, MW-6, MW-7 and MW-8) to be installed at the review boundary outside and adjacent to the structural fill boundary, in order to monitor groundwater quality at the site. On July 17, 2015, Mr. Ross Klingman, P.G. with Buxton Environmental, Inc. contacted Ms. Elizabeth Werner (Permitting Hydrogeologist) with the NCSWS via telephone to request the installation of an additional background monitor well (BG-1) to be installed approximately 1,500 feet to the east of the southeast corner of the structural fill boundary, near the guard house and adjacent to Moncure-Flatwood Road. At the time of the July 15, 2015 telephone conversation, water level elevations at background monitor well MW-1 appeared to be stabilizing and it was unclear if it would adequately serve as a background well. The installation of BG-1 would ensure that at least one background well was present for upcoming background (8 independent background events) and future semi-annual groundwater quality monitoring at the site. During the conversation, Ms. Werner verbally approved the installation of the additional background monitor well.

A Compliance Groundwater Monitor Well Installation, Development, Surveying & Hydraulic Conductivity Determination Activities report, which documents the installation and preparation of the groundwater water monitor well network, was prepared on October 2, 2015 by Buxton Environmental, Inc. for HDR for submittal to the NCSWS. Buxton Environmental, Inc. understands that this report was submitted to the NCSWS.

3.0 GROUNDWATER, SURFACE WATER AND QUALITY CONTROL MONITORING – AUGUST 12 & 13, 2015

On August 12 & 13, 2015, Mr. Ross Klingman, P.G. of Buxton Environmental, Inc. conducted the initial background groundwater and surface water monitoring event, prior to the placement of coal combustion residuals at the site. The monitoring activities were conducted in general accordance with NCSWS *Guidelines for Groundwater, Soil, and Surface Water Sampling* dated April 2008; and the NCDWM memorandum dated November 5, 2014 concerning electronic document submittal for routine groundwater and surface water monitoring. The groundwater samples were also collected in general accordance with U.S. Environmental Protection Agency (EPA) Region I, *Low Stress (low flow) Purging and Sampling Procedure for the Collection of Ground Water Samples from Monitoring Wells* dated January 19, 2010.

On August 12, 2015, groundwater monitoring activities were conducted utilizing low flow sampling techniques at nine groundwater monitor wells including BG-1, MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7 and MW-8. Monitor well locations are provided in Figure 2. Prior to commencing groundwater sampling, new plastic sheeting was placed around the well head, in order to prevent the sampling equipment from contacting the ground surface. The well lock was then removed from the protective stand-up-cover. New nitrile gloves were then donned and static groundwater levels were obtained from below the measuring point (top-of-well PVC casing) at each monitoring well to the nearest 0.01 foot with a depth-to-water electrode at each well. Groundwater gauging data is provided in Table 1. Low flow purging and sampling was conducted utilizing a stainless-steel Proactive SS Monsoon pump with flow rate controller (powered by an automobile battery), which was plumbed to new polyethylene sample tubing (1/2-inch outer diameter (OD) 3/8-inch inner diameter (ID)). The base of the pump was set at an adequate depth above the well base

to reduce turbidity. The following information was recorded at timed intervals during the purging process: 1) water levels were obtained below the measuring point; 2) flow rate controller pump dial setting; 3) purge rate and cumulative water pumped; 4) field parameters including temperature, conductivity, pH, oxygen reduction potential (ORP) and dissolved oxygen were recorded with a Horiba U-52 meter; and turbidity was recorded with a Micro-TPW meter. The Horiba U-52 and Micro-TPW meters were rented and calibrated by Enviro-Equipment, Inc. of Pineville, North Carolina. Calibration data is provided in Appendix A. The dissolved oxygen sensor malfunctioned following the initial reading at monitor wells BG-1, MW-1, MW-2, MW-4, MW-5, MW-6 and MW-8. Purging was conducted until a minimum of 3 well bore volumes (WBV's) of water had been removed and field parameters had stabilized (as was the case at BG-1, MW-1, MW-4, MW-6 and MW-7); field parameters had stabilized prior to purging 3 WBV's (as was the case at MW-5 and MW-8); or the well was going dry (as was the case at MW-2 and MW-3); then groundwater samples were collected. The water-level-meter and low flow pump were decontaminated in the field with a tap water rinse, Alconox-Liquidnox™ and tap water wash, a tap water rinse, and a distilled water rinse, prior to and following sampling at each monitoring well. Following sampling, locks were placed back on the well stand-up covers. Purge water was discharged to the ground surface at respective well heads. Well purging-field water quality measurement forms are provided in Appendix B.

Surface water monitoring was conducted on August 13, 2015 at two locations including SW-1 (located approximately 3,000 feet south of the structural fill boundary along a tributary creek to Gulf Creek) and SW-2 (located approximately 3,200 feet west of the structural fill boundary along Shaddox Creek) (Figure 1). Approximately 0.3-inches of rain occurred in the area on August 11, 2015, however, low base flow conditions appeared present during surface water sampling. New nitrile gloves were then donned prior to collecting surface water samples. Field parameters including temperature, conductivity, pH, ORP and dissolved oxygen were recorded with a Horiba U-52 meter; and turbidity was recorded with a Micro-TPW meter. Well purging-field water quality measurement forms are provided in Appendix B.

An equipment blank was collected for quality control at the monitor well MW-1 (first well sampled) location on August 12, 2015, prior to commencing with groundwater sampling at the site. The equipment blank was prepared in the field by pouring de-ionized water supplied by Shealy Environmental Services, Inc. through the Proactive SS Monsoon pump (last decontaminated by Enviro-Equipment, Inc.) into sample containers.

The groundwater, surface water and equipment blank samples were analyzed for EPA Appendix III constituents (40 CFR 257.94(b)); excluding pH which was field tested) (including boron and calcium by EPA Method 6020A; chloride, fluoride and sulfate by EPA Method 300.0; and total dissolved solids (TDS) by SM 2540C-20); EPA Appendix IV constituents (40 CFR 257.94(b)) (including antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, molybdenum, selenium and thallium by EPA Method 6020A; Mercury by EPA Method 7470A; lithium by EPA Method 200.8; and radium 226 and 228 by EPA Methods 903.1 and 904.0); additional EPA Appendix I metals (40 CRF 258) (including copper, nickel, silver, vanadium and zinc by EPA Method 6020A) which were not included in EPA Appendix III or IV; and EPA Appendix I VOC's (40 CFR 258) by EPA Method 8260B. A full list of EPA Appendix I metals and VOCs is provided in Appendix C. For additional quality control purposes, one trip blank was analyzed for EPA Appendix I VOC's. The samples were analyzed by Shealy Environmental Services, Inc. (North Carolina License # 329) in West Columbia, South Carolina or were subcontracted by Shealy Environmental Services, Inc. to GEL Laboratories LLC in Charleston, South Carolina (lithium and radium analysis). The water samples were collected in general accordance with accepted protocol, immediately placed in laboratory supplied containers, appropriately labeled (with sample identification, location, date and time), placed in a cooler with wet ice and transferred to the laboratory with chain-of-custody documentation.

The monitor wells were locked and appeared to be in good condition during the sampling event.

A potentiometric groundwater contour map was not generated during this investigation, since water levels at several monitor well locations (namely MW-1, MW-2 and MW-7) do not appear to have fully stabilized following installation and/or development activities. This will be included in subsequent reporting.

4.0 GROUNDWATER, SURFACE WATER AND QUALITY CONTROL MONITORING RESULTS – AUGUST 12 & 13, 2015

The groundwater, surface water and quality control monitoring results are presented in Table 2. Laboratory data sheets are provided in Appendix C. A summary of analytical results are provided below.

Groundwater Analytical Results

Groundwater samples collected at monitor wells BG-1, MW-1, MW-2, MW-3, MW-4, MW-6, MW-7 and MW-8 indicated the presence of target constituents above established NCSWS - North Carolina Groundwater Protection Standards (NCGPSs)(either NCGPSs or North Carolina Groundwater Quality Standards (15A NCAC 2L)), which are summarized below. Groundwater sample MW-5 did not indicate target constituents above established NCGPSs.

Groundwater sample BG-1 reported the presence of 270,000 micrograms per liter (µg/l) chloride, a pH of 6.44, 690,000B ug/l TDS and 6.0 ug/l vanadium. A B-flag indicates the constituent was also detected in the method blank.

Groundwater sample MW-1 reported the presence of 570,000 µg/l chloride and 1,500,000 µg/l TDS.

Groundwater sample MW-2 reported the presence of 790,000 µg/l chloride, 1,700,000 ug/l TDS, 4.0 µg/l bromodichloromethane and 3.7 µg/l dibromochloromethane.

Groundwater sample MW-3 reported the presence of 990,000 µg/l chloride, 2,100,000 µg/l TDS, 1.7 µg/l bromodichloromethane and 2.6 µg/l dibromochloromethane.

Groundwater sample MW-4 reported the presence of 320,000 µg/l chloride, a pH of 6.35, 820,000 µg/l TDS, 7.6 µg/l cobalt and 5.9 µg/l vanadium.

Groundwater sample MW-6 reported the presence of 680,000B µg/l TDS.

Groundwater sample MW-7 reported the presence of 430,000 µg/l chloride, 1,100,000B µg/l TDS, 3.5 µg/l bromodichloromethane and 4.4 µg/l dibromochloromethane.

Groundwater sample MW-8 reported the presence of 470,000 µg/l chloride, 1,300,000B µg/l TDS and 1,100 µg/l barium.

According to a United States Geologic Survey (USGS) paper entitled *Arsenic, Nitrate, and Chloride in Groundwater, Oakland County, Michigan* dated October 2004 (Appendix D), chloride occurs naturally in some sedimentary rock layers (particularly shale; as is the case at the subject site). The chloride is commonly associated with seawater (or saline water) present at the time the rocks formed. Based on this information, the chloride which was detected above NCGPSs at monitor wells BG-1, MW-1, MW-2, MW-3, MW-4, MW-7 and MW-8 appears to be the result of naturally occurring conditions. In addition, the TDS

detected above NCGPSs at monitor wells BG-1, MW-1, MW-2, MW-3, MW-4, MW-6, MW-7 and MW-8 appears to be the result of naturally occurring conditions and/or turbidity, since elevated natural chloride levels would be expected to contribute to elevated TDS, as well as turbidity.

The pH levels detected below NCGPSs in groundwater samples at BG-1 (6.44 pH) and MW-4 (6.35 pH) appear to be the result of naturally occurring conditions, since they are similar to pH's encountered in groundwater samples at other on-site wells (6.67 pH at MW-1, 6.61 pH at MW-6 and 6.85 pH at MW-7).

The metals detected above NCGPSs at BG-1 (vanadium), MW-4 (cobalt and vanadium) and MW-8 (barium) appear to be the result of turbidity and/or naturally occurring conditions at the site. Naturally occurring metals above NCGPSs are common in North Carolina.

The bromodichloromethane and dibromochloromethane, which were detected above NCGPSs at monitor wells MW-2, MW-3 and MW-7, are common trihalomethanes associated with a reaction between organics and inorganics in naturally occurring water and chlorinated municipal water sources, according to *Basic Information about Disinfection Byproducts in Drinking Water: Total Trihalomethanes, Haloacetic Acids, Bromate, and Chlorite* downloaded from the EPA website (Appendix E). The remaining list of trihalomethanes commonly associated with chlorinated municipal water (cited in the EPA paper) also includes bromoform and chloroform, which were detected below NCGPSs at monitor wells MW-2, MW-3 and MW-7. On July 6, 2015, Buxton Environmental, Inc. conducted the development of monitor wells MW-2, MW-3 and MW-7 and introduced an additional approximately 5-gallons of municipal tap water obtained from a Charlotte-Mecklenburg Utility Department (CMUD) source, in order to enhance development of these slow recharging wells. On September 10, 2015, Buxton Environmental, Inc. conducted additional development of monitor wells MW-2, MW-3 and MW-7. On October 26, 2015, Mr. Ross Klingman, P.G. of Buxton Environmental, Inc. contacted the CMUD - Vest Water Treatment Plant Control Room (704-336-2100), in order to determine their disinfection process. A CMUD employee indicated that the municipal water is disinfected with chlorine gas. Based on this information, the bromodichloromethane and dibromochloromethane detected above NCGPSs in groundwater samples collected at MW-2, MW-3 and MW-7 appear to be the result of municipal water utilized during previous development activities. These trihalomethanes are anticipated to dissipate over time.

Surface Water Analytical Results

Surface water samples SW-1 and SW-2 did not indicate the presence of target constituents above established North Carolina Surface Water and Wetland Standards (15A NCAC 02B) (Gulf Creek and Shaddox Creek are Class WS-IV waters) or EPA National Criteria standards (utilized by North Carolina Division of Water Quality as default standards for non listed parameters) (NCSWWSs).

Quality Control Analytical Results

The equipment blank indicated the presence of 1.2J µg/l acetone, 880B µg/l calcium, 0.38J µg/l antimony, 0.37J µg/l arsenic, 1.0J µg/l barium, 0.489J picocuries per liter (pCi/l) radium 226, 1.13U pCi/l Radium 228, 0.94BJ µg/l Copper and 4.4J µg/l Zinc. A J-flag indicates an estimated result (< Practical Quantitation Limit (PQL) or Report Limit (RL) and >=Method Detection Limit (MDL) or Method Detection Concentration (MDC)). A U-flag indicates that the constituent was detected below the MDC.

The trip blank did not indicate VOC's above method detection limits.

5.0 CONCULSIONS

On August 12 & 13, 2015, Buxton Environmental, Inc. conducted the initial background groundwater and surface water monitoring event at the Brickhaven No. 2 Mine Tract "A" Structural Fill Site located at 1271 Moncure-Flatwood Road in Moncure, Chatham County, North Carolina (Permit No.: 1910-STRUCT-2015). According to the *Permit to Construct/Permit to Operate*- Attachment 3-Conditions of Construction-Line Number 7, a minimum of one (1) independent background sample (of a total of eight (8) independent background sampling events) is required to be collected from each compliance groundwater monitoring well and surface water sampling location, prior to the placement of coal combustion residuals at the site. A summary of the findings of this investigation is provided below.

- A potentiometric groundwater contour map was not generated during this investigation, since water levels at several monitor well locations (namely MW-1, MW-2 and MW-7) do not appear to have fully stabilized following installation and/or development activities. This will be included in subsequent reports.

- Groundwater samples collected at monitor wells BG-1, MW-1, MW-2, MW-3, MW-4, MW-6, MW-7 and MW-8 reported the presence of target constituents above established NCGPSs. Groundwater sample MW-5 did not indicate target constituents above established NCGPSs.

- The chloride, which was detected above NCGPSs at monitor wells BG-1, MW-1, MW-2, MW-3, MW-4, MW-7 and MW-8, appears to be the result of naturally occurring conditions.

- TDS detected above NCGPSs at monitor wells BG-1, MW-1, MW-2, MW-3, MW-4, MW-6, MW-7 and MW-8 also appear to be the result of naturally occurring conditions and/or turbidity.

- The pH levels detected below NCGPSs at BG-1 and MW-4 appear to be the result of naturally occurring conditions at the site.

- The metals detected above NCGPSs at BG-1 (vanadium), MW-4 (cobalt and vanadium) and MW-8 (barium) appear to be the result of turbidity and/or naturally occurring conditions at the site.

- The bromodichloromethane and dibromochloromethane detected above NCGPSs at monitor wells MW-2, MW-3 and MW-7 appear to be the result of a reaction of chlorinated municipal water utilized during development of these slow recharging wells and natural groundwater. These constituents are anticipated to dissipate with time.

- Surface water samples SW-1 and SW-2 did not indicate the presence of target constituents above established NCSWWSs.

6.0 RECOMMENDATIONS

Based on the findings of this assessment, Buxton Environmental, Inc. makes the following recommendations.

- Background groundwater and surface water sampling should continue to be conducted on an approximate 45-day frequency until all eight (8) independent background sampling events have been completed. Buxton Environmental, Inc. understands that the second (2nd) of eight (8) background sampling events was conducted at the site from October 15-19, 2015, which was also conducted prior to placement of coal combustion residuals at the site.

- A copy of this report should be forwarded by HDR to the NCSWS for their review.

7.0 RERFERENCES

Buxton Environmental, Inc., *Design Hydrogeologic Report – Addendum, Revision 2*, for the Brickhaven Mine, March 6, 2015.

Buxton Environmental, Inc., *Water Quality Monitoring Plan*, for the Brickhaven Mine was submitted to NCSWS as a stand-alone document by HDR on March 23, 2015.

Buxton Environmental, Inc., *Compliance Groundwater Monitor Well Installation, Development, Surveying & Hydraulic Conductivity Determination Activities*, Brickhaven No.2 Mine Tract "A" Structural Fill Site, October 2, 2015.

North Carolina Department of Natural Resources and Community Development, 1985, *North Carolina Geologic Map.*

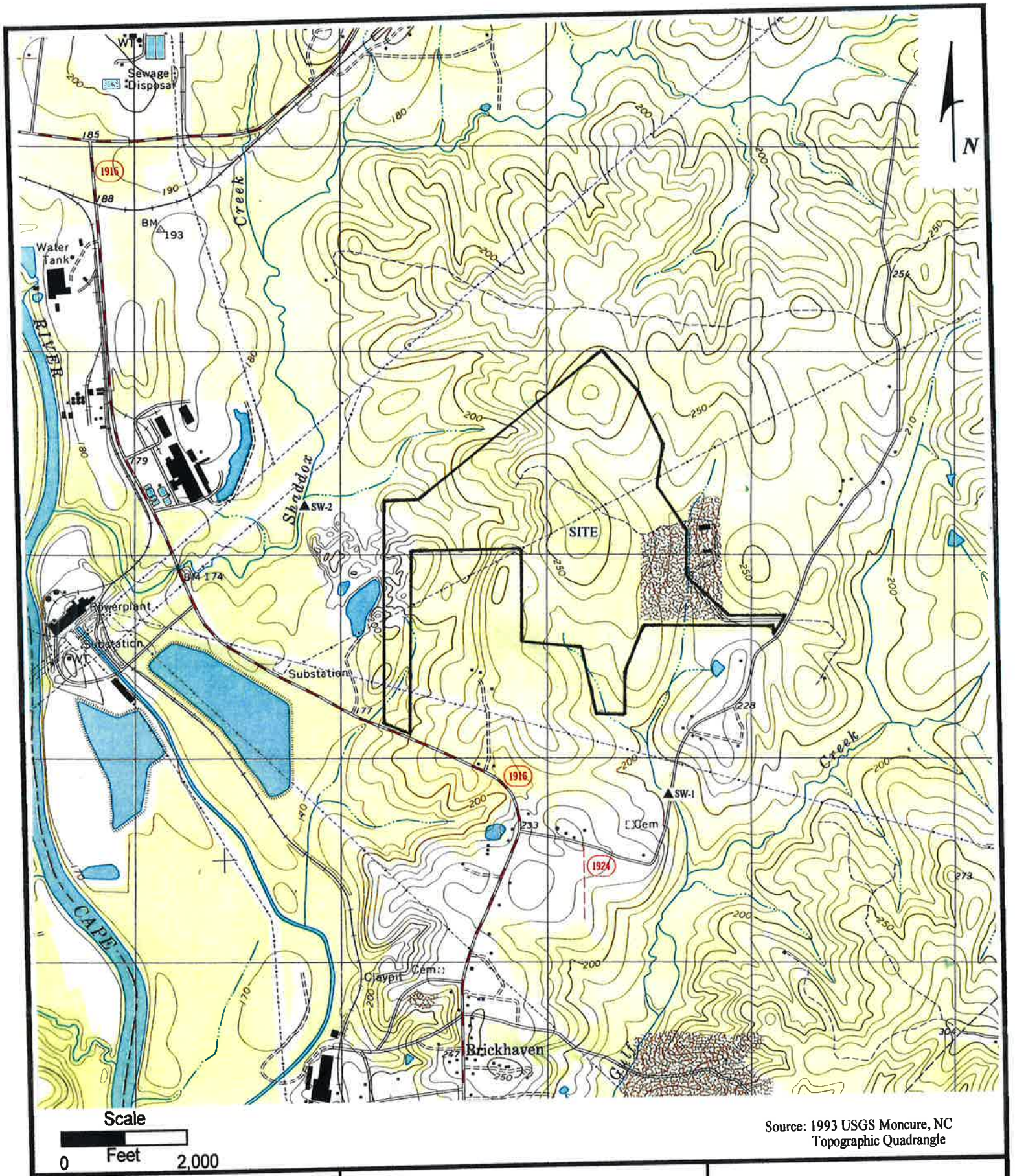
North Carolina Solid Waste Section, *Guidelines for Groundwater, Soil, and Surface Water Sampling*, Rev. April 2008.

U.S. EPA, *Basic Information about Disinfection Byproducts in Drinking Water: Total Trihalomethanes, Haloacetic Acids, Bromate, and Chlorite*, EPA website, downloaded September 2015.

U.S. EPA Region I, *Low Stress (low flow) Purging and Sampling Procedure for the Collection of Ground Water Samples from Monitoring Wells* (EPA Low Flow Sampling Procedure) originally dated July 30, 1996 and revised on January 19, 2010 (Revision 3).

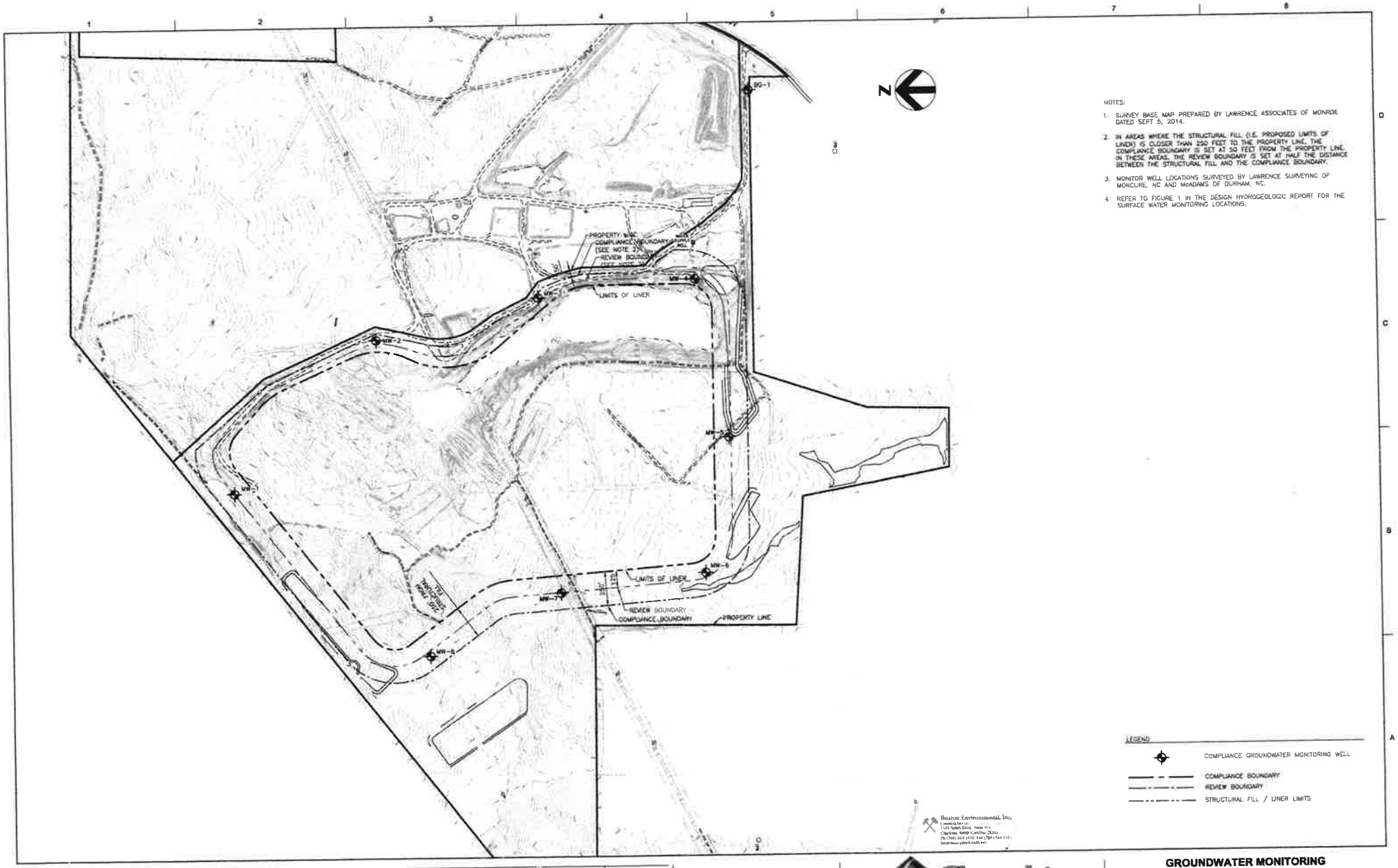
Unites States Geological Survey (USGS), *Arsenic, Nitrate, and Chloride in Groundwater, Oakland County, Michigan*, USGS website, downloaded September 2015.

FIGURES



Source: 1993 USGS Moncure, NC Topographic Quadrangle

Brickhaven No. 2 Mine Tract "A" 1271 Moncure-Flatwood Road Moncure, North Carolina	Buxton Environmental, Inc.	Figure 1. Site Location Map



NOTES:

1. SURVEY BASE MAP PREPARED BY LAWRENCE ASSOCIATES OF MONROE DATED SEPT 5, 2014.
2. IN AREAS WHERE THE STRUCTURAL FILL (I.E. PROPOSED LIMITS OF LINER) IS CLOSER THAN 250 FEET TO THE PROPERTY LINE, THE COMPLIANCE BOUNDARY IS SET AT 50 FEET FROM THE PROPERTY LINE. IN THESE AREAS, THE REVIEW BOUNDARY IS SET AT HALF THE DISTANCE BETWEEN THE STRUCTURAL FILL AND THE COMPLIANCE BOUNDARY.
3. MONITOR WELL LOCATIONS SURVEYED BY LAWRENCE SURVEYING OF MONCURE, NC AND McADAMS OF DURHAM, NC.
4. REFER TO FIGURE 1 IN THE DESIGN HYDROGEOLOGIC REPORT FOR THE SURFACE WATER MONITORING LOCATIONS.

LEGEND

- COMPLIANCE GROUNDWATER MONITORING WELL
- COMPLIANCE BOUNDARY
- REVIEW BOUNDARY
- STRUCTURAL FILL / LINER LIMITS

Beacon Environmental Inc.

HDR

HDR Engineering Inc. of the Carolinas
440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.8700

ISSUE	DATE	DESCRIPTION
C	7/21/15	ISSUED FOR CCR COMPLIANCE

PROJECT MANAGER	M.D. PLUMMER, P.E.
DESIGNED BY	R. KLINGMAN, P.G.
DRAWN BY	J. GAUL
CHECKED BY	
PROJECT NUMBER	453925-237673-018

NORTH CAROLINA LICENSED SEAL 1986 GEOLOGIST CHARLES ROSS KLINGMAN

Charah

BRICKHAVEN No. 2 MINE TRACT "A" MINE
STRUCTURAL FILL
MONCURE, NC

GROUNDWATER MONITORING SYSTEM MAP

0 1" 2"

FILENAME 01G-14.dwg
SCALE 1"=300

SHEET
FIGURE 2

TABLES

TABLE 1
COMPLIANCE MONITOR WELL DETAILS, HYDRAULIC CONDUCTIVITY AND GROUNDWATER GAUGING INFORMATION
BRICKHAVEN NO.2 MINE TRACT "A"
1271 MONCURE-FLATWOOD ROAD
MONCURE, NORTH CAROLINA
AUGUST 12, 2015

Well ID	*Northing*	*Easting*	*Pad Elev. (ft)*	*TOC Elev. (ft)*	*TD BGS (ft)*	*TD BTOC (ft)*	*Screen Length (ft)*	*Screen Interval (ft)*	*Lithologic Unit*	*Hydraulic Conductivity (cm/sec)*	*DTW BTOC (ft)*	*DTW Elevation (ft)*
BG-1	670898.50	1996348.25	225.64	228.19	40.50	43.05	15	200.14 - 185.14	Layered Rock/PWR*	7.761×10^{-5}	11.88	216.31
MW-1	674737.98	1993417.69	277.28	280.08	72.50	75.30	15	220.20 - 205.20	Layered Rock/PWR*	4.105×10^{-4}	60.04	220.04
MW-2	673677.07	1994537.54	227.45	229.97	45.00	47.52	15	197.45 - 182.45	Layered Rock/PWR*	3.405×10^{-6}	38.19	191.78
MW-3	672474.63	1994834.76	220.00	222.56	40.80	43.36	15	194.20 - 179.20	PWR	4.076×10^{-7}	14.94	207.62
MW-4	671326.48	1994974.40	214.49	217.13	22.70	25.34	10	201.79 - 191.79	Residuum/PWR	1.413×10^{-4}	11.60	205.53
MW-5	671081.19	1993779.03	242.72	244.86	44.00	46.14	10	208.72 - 198.72	PWR	8.010×10^{-6}	12.85	232.01
MW-6	671267.60	1992793.34	228.63	231.10	27.00	29.47	15	216.63 - 201.63	Residuum/PWR	1.097×10^{-4}	7.79	223.31
MW-7	672306.28	1992642.35	229.53	231.71	15.00	17.18	10	224.53 - 214.53	Residuum/PWR	1.264×10^{-6}	8.26	223.45
MW-8	673304.83	1992200.37	233.41	236.47	46.00	49.06	15	202.41 - 187.41	PWR	1.289×10^{-4}	36.49	199.98

Notes:

Depth to water measurements obtained on August 12, 2015 to the nearest 0.01 foot with a depth to water meter by Buxton Environmental, Inc.

Top-of-casing and ground surface elevations and horizontal locations at MW-4 (PZM-1), MW-5 (PZM-22) and MW-7 (PZM-27) determined by Lawrence Surveying of Monroe, NC.

Top-of-casing and ground surface elevations and horizontal locations at BG-1, MW-1, MW-2, MW-3, MW-6 and MW-8 determined by McAdams of Durham, NC.

TD=total depth;BGS=below ground surface;TOC=top of casing; DTW = Depth-to-Water; BTOC = below top-of-casing

Hydraulic conductivity values determined by Buxton Environmental, Inc. on September 10, 2015 by conduting rising head slug tests; and solved utilizing the Bouwer-Rice (unconfined slug test) solution with AQTESOLV for Windows Version 4.50 software by Hydrosolv, Inc. (1996-2007).

* = interpreted lithologic unit based on relative drilling hardness during well installation

TABLE 2
INITIAL BACKGROUND GROUNDWATER, SURFACE WATER AND QUALITY CONTROL ANALYTICAL RESULTS - AUGUST 12 & 13, 2015
BRICKHAVEN NO.2 MINE TRACT "A"
1271 MONCURE-FLATWOOD ROAD
MONCURE, NORTH CAROLINA

		Groundwater											***Surface Water***			***Quality Control***	
Sample ID	***SWSL***	BG-1	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	***NCGPS***	***Federal MCL***	SW-1	SW-2	***NCSWWS***	Equip. Blank	Trip Blank
EPA APPENDIX III (40 CRF 257.94(b))																	
Boron (µg/l)	NE	8.5J	6.9J	36	34	8.1J	11J	8.1J	98	9.9J	700	--	9.4J	87	NS	1.2J	NT
Calcium (µg/l)	NE	32,000B	150,000B	97,000B	150,000B	44,000B	17,000B	38,000B	37,000B	110,000B	NS	NS	4,200B	12,000B	NS	880B	NT
Chloride (µg/l)	NS	**270,000**	**570,000**	**790,000**	**990,000**	**320,000**	22,000	230,000	**430,000**	**470,000**	250,000	--	8,000	20,000	250,000	BDL	NT
Fluoride (µg/l)	2,000	220J	230J	BDL	BDL	510	740	490J	450J	BDL	2,000	--	90J	290	1,800	BDL	NT
pH* (standard units)	NE	**6.44**	6.67	7.89	7.41	**6.35**	7.27	6.61	6.85	7.20	6.5-8.5	--	7.14	6.86	6.0-9.0	NT	NT
Sulfate (µg/l)	######	23,000	22,000	79,000	24,000J	11,000	4,100	48,000	36,000	6,300	250,000	--	890J	2,200	250,000	BDL	NT
Total Dissolved Solids (µg/l)	######	**690,000B**	**1,500,000**	**1,700,000**	**2,100,000**	**820,000**	230,000	**680,000B**	**1,100,000B**	**1,300,000B**	500,000	--	53,000B	180,000B	500,000	BDL	NT
EPA APPENDIX IV (40 CFR 257.94(b))																	
Antimony (µg/l)	6	0.55J	0.23J	0.49J	0.31J	BDL	0.58J	0.53J	0.63J	0.68J	1	--	0.48J	0.62J	5.6	0.38J	NT
Arsenic (µg/l)	10	2.2	2.8	3.2	6.7	2.0	0.75J	1.2	2.1	3.2	10	--	1.1	2.9	10	0.37J	NT
Barium (ug/l)	100	380	220	260	670	390	160	100	290	**1,100**	700	--	49	110	1,000	1.0J	NT
Beryllium (µg/l)	1	0.12J	BDL	0.17J	BDL	0.19J	BDL	BDL	BDL	BDL	4	--	BDL	BDL	6.5	BDL	NT
Cadmium (µg/l)	1	0.061J	0.13	0.060J	BDL	0.057J	BDL	BDL	0.18	0.071J	2	--	0.050J	BDL	2	BDL	NT
Chromium (µg/l)	10	BDL	0.92J	5.2	1.1J	2.5J	1.8J	0.7J	0.84J	1.7J	10	--	BDL	BDL	50	BDL	NT
Cobalt (µg/l)	10	0.88J	0.35J	1.6J	0.64J	**7.6**	1.5J	2.2J	1.2J	0.34J	1	--	1.3J	1.4J	3	BDL	NT
Fluoride (µg/l)	2,000	220J	230J	BDL	BDL	510	740	490J	450J	BDL	2,000	--	90J	290	1,800	BDL	NT
Lead (µg/l)	10	1.3	0.34J	2.0	0.27J	2.8	1.2	0.45J	0.20J	0.53J	15	--	0.38J	1.2	25	BDL	NT
Lithium (µg/l)	NE	18.5	32.0	22.4	19.3	22.6	7.18J	28.1	21.1	27.6	NS	NS	BDL	BDL	NS	BDL	NT
Mercury (µg/l)	0.2	0.075J	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1	--	BDL	BDL	0.012	BDL	NT
Molybdenum (µg/l)	NE	0.55J	0.95J	11	19	1.6J	1.5J	1.4J	3.6J	BDL	NS	NS	1.0J	BDL	160	BDL	NT
Selenium (µg/l)	10	4.5	8.1	7.7	15	5.9	1.0	4.3	8.4	6.6	20	--	BDL	1.6	5	BDL	NT
Thallium (µg/l)	5.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.28	--	BDL	BDL	0.24	BDL	NT
Radium 226 (pCi/l)	NE	0.802J	0.709J	1.33	0.990J	0.814J	0.564J	0.806J	0.423J	0.920J	NS	5 (combined)	0.521J	0.363J	NS	0.489J	NT
Radium 228 (pCi/l)	NE	0.496U	0.538U	1.39U	2.03J	1.52U	0.520U	1.26U	0.271U	-0.831U	NS		0.426U	0.468U	NS	1.13U	NT
EPA APPENDIX I METALS (Additional) (40 CFR 258)																	
Copper (µg/l)	10	1.4B	0.87BJ	4.1B	1.6B	5.3B	3.2B	1.1B	1.3B	1.5B	1,000	--	1.2B	1.5B	7	0.94BJ	NT
Nickel (µg/l)	50	1.3J	2.5J	5.4	3.5J	8.2	3.0J	2.6J	4.3J	2.4J	100	--	1.5J	1.8J	88	BDL	NT
Silver (µg/l)	10	BDL	0.50J	BDL	BDL	BDL	BDL	BDL	BDL	1.6	20	--	BDL	BDL	0.06	BDL	NT
Vanadium (µg/l)	25	**6.0**	2.7J	4.8J	2.5J	**5.9**	3.8J	1.6J	1.5J	2.5J	0.3	--	BDL	3.7J	NS	BDL	NT
Zinc (µg/l)	10	8.3J	6.3J	12	5.1J	31	16	5.8J	4.0J	5.1J	1,000	--	28	7.0J	50	4.4J	NT
EPA APPENDIX I VOC'S (40 CFR 258)																	
Acetone (µg/l)	100	BDL	BDL	1.6J	1.8J	BDL	BDL	1.6J	BDL	BDL	6,000	--	3.6J	7.3J	2,000	BDL	BDL
Bromodichloromethane (µg/l)	1	BDL	BDL	**4.0**	**1.7**	BDL	BDL	BDL	**3.5**	BDL	0.6	80 (all THM's)	BDL	BDL	NS	BDL	BDL
Bromoform (µg/l)	3	BDL	BDL	1.4	1.0	BDL	BDL	BDL	1.1	BDL	4		BDL	BDL	4.3	BDL	BDL
Chloroform (µg/l)	5	BDL	0.71J	4.5	1.2	BDL	BDL	BDL	2.0	BDL	70		BDL	BDL	5.6	BDL	BDL
Dibromochloromethane (µg/l)	3	BDL	BDL	**3.7**	**2.6**	BDL	BDL	BDL	**4.4**	BDL	0.4		BDL	BDL	NS	BDL	BDL
Carbon Disulfide (µg/l)	100	BDL	BDL	0.54J	BDL	0.53J	0.93J	0.52J	0.51	0.54J	700	--	BDL	BDL	NS	BDL	BDL
Dibromomethane (µg/l)	10	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.31J	BDL	70	--	BDL	BDL	47	BDL	BDL
1,4-Dichlorobenzene (µg/l)	1	BDL	0.19J	BDL	BDL	BDL	BDL	BDL	BDL	BDL	6	--	BDL	BDL	63	BDL	BDL

Notes:
Groundwater and surface water samples collected on August 12 & 13, 2015 and analyzed for above parameters by Shealy Environmental Servcies, Inc. and their subcontractor GEL Laboratories LLC (Lithium and Radium)
BDL = below detection limits; NE = not established; NS = no standard; NT = not tested; VOC's = volatile organic compounds
SWSL - North Carolina, Solid Waste Section Limit (minimum detection limit)
NCGPS = North Carolina Groundwater Protection Standard (J-flagged data not considered)
Federal MCL = Federal Maximum Contaminant Level in drinking water (Federal MCL provided when no established NCGPS; or for further clarification as with THM's)
NCSWWS = North Carolina Surface Water and Wetland Standards (15A NCAC 02B) for Gulf Creek (SW-1) and Shaddox Creek (SW-2) which are both Class WS-IV Waters or are National Criteria per EPA
THM's = trihalomethanes (bromodichloromethane, bromoform, chloroform and dibromochloromethane) (all generally associated with the breakdown of chlorinated muncipal water in contact with natural water)
Bold and shade denotes above established NCGPS's or NCSWWS; µg/l = micrograms per liter; pCi/l - picocuries per liter
B = detected in method blank; J = estimated result <PQL (practical quantitation limit aka report limit (RL)) and >=MDL (method detection limit aka MDC)
U = analyte was analyzed for, but not detected above the method detection concentration (MDC)
* = pH was field tested by Buxton Environmental, Inc. with a Horiba U-52, which was calibrated by and rented from Enviro-Equipment, Inc. of Pineville, NC.

APPENDIX A
WELL PURGING – FIELD QUALITY MEASUREMENT FORMS

APPENDIX C
EXAMPLE (Minimum Requirements)
WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) BEECHHAWK NO. 2 MINE
Well Number BG-1 Date 8-12-15 22:10
Field Personnel ROSS KLINGMAN w/ BURTON ENVIRONMENTAL
Sampling Organization BEI
Identify MP TOP-OF-CASING

Depth to 28.05 / 43.05 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 39'
Purging Device; (pump type) PROACTIVE SS MONSOON (STAINLESS) w/ POLY TUBING
Total Volume Purged 15.5 gal 3 W.BV = 15.5 gal

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min g/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] ~~µS/cm~~ mS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
						HORIBA U-52 METER				MICRO-TPW	
21.10	STATIC 11.88										
21:20		8.6v									START PUMP
21:28	22.50	8.6v	0.56 g/min	4.5 gal	17.12	1.25	7.00	170	4.96	101.3	
21:35	23.30	8.6v	0.37 g/min	5.5 gal	16.69	1.25	6.60	181	mF	66.1	
21:42	25.82	9.9v	0.41 g/min	8 gal	16.40	1.22	6.51	186	mF	111.8	
21:50	29.84	9.9v	0.35 g/min	10.5 gal	16.39	1.21	6.51	191	mF	35.97	
22:00	29.20	9.9v	0.33 g/min	13 gal	16.32	1.20	6.50	191	mF	35.77	
22:10	29.55	9.9v	0.30 g/min	15 gal	16.30	1.20	6.44	191	mF	37.62	SAMPLE
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

DECON: PUMP + DTW METER

TAP H2O RINSE – ALCONOX TAP H2O WASH – TAP H2O RINSE – DISTILLED H2O RINSE

– PLASTIC SHEET PLACED @ WELL HEAD

APPENDIX C
EXAMPLE (Minimum Requirements)
WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) BRICKHAVEN NO. 2 MINE
Well Number MW-1 Date 8-12-15 11:15
Field Personnel ROSS KLINGMAN w/ BRYTON ENVIRONMENTAL
Sampling Organization BEI
Identify MP TOP-OF-CASING

Depth to (below MP) top 60.30 bottom 75.30 of screen
Pump Intake at (ft. below MP) 70
Purging Device; (pump type) PROACTIVE SS MONSOON (STAINLESS)
Total Volume Purged 12 GAL

- POLYETHYLENE TUBING
- PROACTIVE 12V CONTROLLER
- 3 WELL BORE VOLUMES (WBV) = 7.6 GAL

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ~~ml/min~~ gal/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] ~~µS/cm~~ mS/cm	pH	ORP[3] mv	DO mg/L	Turbidity NTU	Comments
						HORIBA U-52 METER				MICRO-TPW	
10:24	STATIC 60.04'										
10:35	60.00'	15.5V									START PUMP
10:45	60.00	15.4V	0.5 g/min	5 GAL	22.42	1.69	7.34	133	12.71	86.8	
10:55	61.05	15.4V	0.35 g/min	7 GAL	20.23	2.00	6.88	122	MF –	56.3	
11:07	61.15	15.4V	0.31 g/min	10 GAL	18.79	2.14	6.70	128	MF –	23.3	
11:15	61.24	15.4V	0.3 g/min	12 GAL	18.07	2.16	6.67	112	MF –	10.0	SAMPLE
									MF = MALFUNCTION	?	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

DECON: PUMP + DTW METER

TAP H2O RINSE – ALCONOX WASH – TAP H2O RINSE – DISTILLED H2O RINSE

– PLASTIC SHEET PLACED @ WELL HEAD

APPENDIX C
EXAMPLE (Minimum Requirements)
WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) BEICHHALED NO. 2 MINE
Well Number MW-2 Date 8-12-15 12:40
Field Personnel ROSS KLINGMAN w/ BURTON ENVIRONMENTAL
Sampling Organization BEI
Identify MP TOP-OF-CASING

Depth to 32.52 / 47.52 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 47
Purging Device; (pump type) PROACTIVE SS MONSOON (STAINLESS) w/ POLY TUBING
Total Volume Purged 3.5 gal 3 WBV = 4.7 gal

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min g/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] ~~µS/cm~~ ms/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
					HORIBA U-52 METER				MICRO-TPW		
12:15	STATIC 38.19										
12:25		12.1									START PUMP
12:35	44.20	12.0	0.25	2.5 gal	21.62	1.79	8.0	108	2.51	13.16	GOING DRY
12:40	46.75	12.0	0.23	3.5 gal	20.50	1.80	7.89	105	MF	12.74	SAMPLE
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

DECON: PUMP + DTW METER

TAP H2O RINSE – ALCONOX TAP H2O WASH – TAP H2O RINSE – DISTILLED H2O RINSE

– PLASTIC SHEET PLACED @ WELL HEAD

APPENDIX C
EXAMPLE (Minimum Requirements)
WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) BEECHHAUEN NO. 2 MINE
Well Number MW-3 Date 8-12-15 14:10
Field Personnel Ross KLINGMAN w/ BURTON ENVIRONMENTAL
Sampling Organization BEI
Identify MP TOP-OF-CASING

Depth to 28.36 / 43.36 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 38'
Purging Device; (pump type) PROACTIVE SS MONSOON (STAINLESS) w/ POLY TUBING
Total Volume Purged 3.5 gal 3 W.BV = 14.21 gal

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min g/min	Cum. Volume Purged liters	Temp. °C (1)	Spec. Cond.[2] ~~µS/cm~~ ms/cm (HORIBA U-52)	pH	ORP[3] mv (2 METER)	DO mg/L (1)	Turb-idity NTU (MICRO-TPW)	Comments
13:40	STATIC 14.94										
13:48		8.9v									START PUMP
13:52	22.65	9.7v	0.38 g/min	1.5 gal	20.48	3.37	7.51	139	6.04	8.41	
14:02	26.10	9.9v	0.14 g/min	2 gal	20.92	3.06	7.42	144	3.82	9.61	
14:08	29.51	10.5v	0.15 g/min	3 gal	19.36	2.96	7.41	148	3.88	6.96	GOING DRY
14:10	35.50	11.4v	0.16 g/min	3.5 gal	19.48	2.88	7.41	150	3.87	7.10	SAMPLE
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

DECON: PUMP + DTW METER

TAP H2O RINSE – ALCONOX TAP H2O WASH – TAP H2O RINSE – DISTILLED H2O RINSE

– PLASTIC SHEET PLACED @ WELL HEAD

APPENDIX C
EXAMPLE (Minimum Requirements)
WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) BEICHHAUEN NO 2 MINE
Well Number MW-4 Date 8-12-15 15:20
Field Personnel Ross KLINGMAN w/ BURTON ENVIRONMENTAL
Sampling Organization BEI
Identify MP TOP-OF-CASING

Depth to 15.34 / 25.34 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 22'
Purging Device; (pump type) PROACTIVE SS MONSOON (STAINLESS) w/ Poly. Tubing
Total Volume Purged 7 gal 3 WBV = 6.9 gal

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min g/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] ~~µS/cm~~ mS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
						HORIBA W-S	2 METER		1	MICRO-TPW	
14:50	STATIC 11.60										
15:00	15:20										START PUMP
15:05	15.90		0.2 g/min	1 gal	19.54	1.61	6.75	-58	3.08	254.8	
15:10	15.90		0.25 g/min	2.5 gal	19.61	1.59	6.51	-35	MF	295.0	
15:15	15.92		0.37 g/min	5.5 gal	19.37	1.65	6.34	-14	MF	255.1	
15:20	17.50		0.35 g/min	7 gal	19.07	1.62	6.35	-3	MF	196	SAMPLE
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

DECON: PUMP + DTW METER

TAP H2O RINSE – ALCONOX TAP H2O WASH – TAP H2O RINSE – DISTILLED H2O RINSE

– PLASTIC SHEET PLACED @ WELL HEAD

APPENDIX C
EXAMPLE (Minimum Requirements)
WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) BEECHHAVEN NO. 2 MINE
Well Number MW-5 Date 8-12-15 16:25
Field Personnel Ross KLINGMAN w/ Burton ENVIRONMENTAL
Sampling Organization BEI
Identify MP TOP-OF-CASING

Depth to 36.14 / 46.14 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 41'
Purging Device; (pump type) PROACTIVE SS MONSOON (STAINLESS) w/ Poly Tubing
Total Volume Purged 5.5 gal 3 W.BV = 16.6

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min g/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] ~~µS/cm~~ ms/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
					1	HORIBA U-52		2 METER	1	MICRO-TPW	
16:00	STATIC 12.85										
16:08		9.2v									START PUMP
16:15	21.40	10.4v	0.29 g/min	2 gal	17.34	0.499	7.40	193	4.53	45.07	
16:19	27.00	10.2v	0.23 g/min	2.5 gal	17.89	0.499	7.31	200	mF	21.57	
16:22	30.18	10.8v	0.29 g/min	4 gal	17.99	0.498	7.23	208	mF	20.29	GOING DRY
16:25	32.10	10.8v	0.32 g/min	5.5 gal	17.98	0.498	7.27	205	mF	20.10	SAMPLE
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

DECON: PUMP + DTW METER

TAP H2O RINSE – ALCONOX TAP H2O WASH – TAP H2O RINSE – DISTILLED H2O RINSE

– PLASTIC SHEET PLACED @ WELL HEAD

APPENDIX C
EXAMPLE (Minimum Requirements)
WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) BEECHHAVEN NO. 2 MINE
Well Number MW-6 Date 8-12-15 18:30
Field Personnel Ross KLINGMAN w/ BURTON ENVIRONMENTAL
Sampling Organization BEI
Identify MP TOP-OF-CASING

Depth to 14.47 / 29.47 of screen (1.8" Dia.)
(below MP) top bottom
Pump Intake at (ft. below MP) 20' COULD NOT LOWER PUMP BELOW 21' DUE TO X-THREADS ?
Purging Device; (pump type) PROACTIVE SS MONSOON (STAINLESS) w/ Poly Tubing
Total Volume Purged 11.5 GAL 3 WBV = 10.8 GAL

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min g/min	Cum. Volume Purged liters	Temp. °C (1)	Spec. Cond.[2] ~~µS/cm~~ ms/cm (HORIBA U-52)	pH	ORP[3] mv (2 METER)	DO mg/L (1)	Turb-idity NTU (MICRO-TPW)	Comments
17:10	STATIC 7.79										
17:25		5.8v									START PUMP
17:28	10.55	6.5v	0.33 g/min	1.0 GAL	20.66	1.51	7.25	138	6.43	733	
17:39	13.70	7.8v	0.18 g/min	2.5 GAL	18.18	1.32	6.78	34	mf	235	
17:45	12.90	7.8v	0.23 g/min	4.5 GAL	18.75	1.21	6.58	39	mf	61.5	
17:55	13.27	8.0v	0.20 g/min	6 GAL	18.25	1.18	6.51	38	mf	59.24	
18:05	13.40	8.0v	0.19 g/min	7.5 GAL	18.14	1.15	6.50	36	mf	51.5	
18:30	14.15	8.0v	0.18 g/min	11.5 GAL	17.80	1.28	6.61	23	mf	26.59	SAMPLE
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

DECON: PUMP + DTW METER

TAP H2O RINSE — ALCONOX TAP H2O WASH — TAP H2O RINSE — DISTILLED H2O RINSE

— PLASTIC SHEET PLACED @ WELL HEAD

APPENDIX C
EXAMPLE (Minimum Requirements)
WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) BEECHHAVEN NO. 2 MINE
Well Number MW-7 Date 8-12-15 19:30
Field Personnel Ross Klingman w/ Burton Environmental
Sampling Organization BEI
Identify MP TOP-OF-CASING

Depth to 7.18 / 17.18 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 15'
Purging Device; (pump type) Proactive SS monsoon (stainless) w/ Poly Tubing
Total Volume Purged 4.5 gal 3 WBV = 4.5 gal

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min g/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] ~~µS/cm~~ ms/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
						Horiba U-52		meter		Micro-TPW	
19:00	STATIC 8.26										
19:08		6.1v									START PUMP
19:12	9.10	6.4v	0.13 g/min	0.5 gal	19.99	2.0	6.79	124	8.45	31.78	
19:17	10.69	6.6v	0.17 g/min	1.5 gal	20.83	2.06	6.69	134	5.73	12.90	
19:30	13.72	6.6v	0.20 g/min	4.5 gal	19.41	1.86	6.85	85	5.30	9.90	SAMPLE
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

DECON: PUMP + DTW METER

TAP H2O RINSE – ALCONOX TAP H2O WASH – TAP H2O RINSE – DISTILLED H2O RINSE

– PLASTIC SHEET PLACED @ WELL HEAD

APPENDIX C
EXAMPLE (Minimum Requirements)
WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) BEICHHAUEN NO. 2 MINE
Well Number MW-8 Date 8-12-15 20:40
Field Personnel ROSS KLINGMAN w/ BURTON ENVIRONMENTAL
Sampling Organization BEI
Identify MP TOP-OF-CASING

Depth to 34.06 / 49.06 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 45'
Purging Device; (pump type) PROACTIVE SS MONSOON (STAINLESS) w/ Poly Tubing
Total Volume Purged 7.5 GAL 3 W.BV = 12.57 GAL

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min g/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] ~~µS/cm~~ ms/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
					1	HORIBA U-5		2 METER	1	MICRO-TPW	
19:55	STATIC 36.49										
20:03		10.7v									START
20:08	37.70	10.7v		1.5 GAL	18.11	3.18	7.40	144	5.72	55.08	
20:20	38.60	10.8v		4 GAL	16.87	2.27	7.13	123	mF	28.77	
20:25	38.82	10.9v		5 GAL	16.83	1.97	7.15	111	mF	27.35	
20:40	39.50	11.0v		7.5 GAL	16.68	1.83	7.20	100	mF	15.35	SAMPLE
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

DECON: PUMP + DTW METER

TAP H2O RINSE – ALCONOX TAP H2O WASH – TAP H2O RINSE – DISTILLED H2O RINSE

– PLASTIC SHEET PLACED @ WELL HEAD

APPENDIX C
EXAMPLE (Minimum Requirements)
WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) BRICKHAVEN NO. 2 MINE
Well Number SW-1 Date 8-13-15 7:45
Field Personnel Ross KLINGMAN w/ BUXTON ENVIRONMENTAL
Sampling Organization BEI
Identify MP

Depth to ____/____ of screen
(below MP) top bottom
Pump Intake at (ft. below MP)
Purging Device; (pump type)
Total Volume Purged

0.3" TRAIN 8-11-15
- SURFACE H2O APPEARS TO BE BASE FLOW
- LOW FLOW

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	HORIBA Spec. Cond.[2] µS/cm	U-52 METER pH	ORP[3] mv	DO mg/L	MICRO-TPW Turb-idity NTU	Comments
7:45					20.20	0.106	7.14	226	8.11	14.68	GRAB SAMPLE
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

APPENDIX C
EXAMPLE (Minimum Requirements)
WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) BRICKHAVEN NO. 2 MINE
Well Number SW-2 Date 8-13-15 8:30
Field Personnel ROSS KINGMAN w/ BURTON ENVIRONMENTAL
Sampling Organization
Identify MP

Depth to / of screen
(below MP) top bottom
Pump Intake at (ft. below MP)
Purging Device; (pump type)
Total Volume Purged

0.31" RAIN 8-11-15
- SURFACE H2O APPEARS TO BE BASEFLOW IN SHADDOX CREEK - LOW FLOW
- NO FLOW FROM INTERMITTENT CREEK FROM SITE

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
						HORIBA	U-52	METER		MICRO-TPW	
8:30					22.33	0.289	6.86	205	4.51	55.35	QTAS SAMPLE
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

APPENDIX C
EXAMPLE (Minimum Requirements)
WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) BRICKHAVEN NO. 2 MINE
Well Number EQUIPMENT BLANK Date 8-12-15 9:30
Field Personnel ROSS KLINGMAN of BATON ENVIRONMENTAL
Sampling Organization BEI
Identify MP

Depth to ____/____ of screen
(below MP) top bottom
Pump Intake at (ft. below MP) ____
Purging Device; (pump type) PROACTIVE SS MONSOON (STAINLESS)
Total Volume Purged ____

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
9:30											COLLECTED @ MW-1
											- POUR LAB DI H2O
											THROUGH PUMP INTO
											BOTTLES
											- WEARING NITRILE GLOVES
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

APPENDIX C

EXAMPLE (Minimum Requirements)

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name)_____

Well Number_____ Date_____

Field Personnel_____

Sampling Organization_____

Identify MP_____

Depth to _____/_____ of screen
(below MP) top bottom

Pump Intake at (ft. below MP)_____

Purging Device; (pump type)_____

Total Volume Purged _____

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

APPENDIX B
FIELD PARAMETER INSTRUMENT CALIBRATION DATA SHEETS

ENVIRO-EQUIPMENT, INC.

H.F. SCIENTIFIC MicroTPI/TPW CALIBRATION DATA SHEET

Serial Number: 2015052061 **Date:** 7-31-15 **Inspector:** CSF

Calibration Check (Performed At Lab Room Temperature)

Solution/Values	*Lot Number*	*Expiration*	*Instrument Reading*	*Accuracy*
1,000 NTU	50503	05/2017	1003 NTU	±3 %
100 NTU	—	—	—	±2 %
10.0 NTU	50539	05/2017	9.99 NTU	±2 %
0.02 NTU	50501	05/2017	0.02 NTU	±0.01 NTU

Note all standard solution values are at 25° C.
Some models of the MicroTPI/TPW only require a three point calibration

ENVIRO-EQUIPMENT, INC.

HORIBA U-52 CALIBRATION DATA SHEET

Serial Number: 5G85ADCT **Date:** 8-6-15 **Inspector:** CSF

Calibration Check (Performed At Lab Room Temperature)

Zero Calibration

Conductivity Zero Completed: Done **Reading:** 0.000 mS/cm
Performed in open air.

Turbidity Zero Completed: Done **Reading:** 0.0 NTU
Performed in distilled water.

Span Calibration

Solution/Value	*Manufacturer*	*Lot Number*	*Expiration*	*Reading*	*Accuracy*
pH 7.00	AquaPhoenix	4AI5K	Sep/16	7.16	±0.1
pH 10.00	AquaPhoenix	5AA164	Jan/17	10.03	±0.1
Conductivity 1.00 mS/cm	AquaPhoenix	5GG292	Jul./16	1.00 mS/cm	±1%
Turbidity 100 NTU	Horiba	**N/A**	**N/A**	101 NTU	±5%

Dissolved Oxygen Calibration

Calibration Type	*Temperature*	*Expected Reading*	*Reading*	*Accuracy*
Zero	N/A	0.00 mg/L	0.0 mg/L	± 0.2 mg/L
O_2 Saturated H_2O	21.7 °C	8.53 mg/L	8.47 mg/L	± 0.2 mg/L

Temperature Check **Testo 925 (NIST Traceable)** 21.0 °C ±0.5 °C
Horiba U-52 21.1 °C ±1.0 °C

*****Note all standard solution values are at 25°C.*****

Inspector's Maintenance Notes

EEI U-52 CAL FORM 3/24/11

APPENDIX C
LABORATORY DATA SHEETS

SHEALY ENVIRONMENTAL SERVICES, INC.

Report of Analysis

Buxton Environmental
PO Box 11550
Charlotte, NC 28220
Attention: Ross Klingman

Project Name: **Brickhaven No. 2 Mine Tract "A"**

Project Number: **1271 Moncure - Flatwood Rd.**

Lot Number: **QH13039**

Date Completed: **09/09/2015**

Nisreen Saikaly
Project Manager

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The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

Case Narrative
Buxton Environmental
Lot Number: QH13039

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

Sample Summary
Buxton Environmental
Lot Number: QH13039

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-1	Aqueous	08/12/2015 1115	08/13/2015
002	MW-2	Aqueous	08/12/2015 1240	08/13/2015
003	MW-3	Aqueous	08/12/2015 1410	08/13/2015
004	MW-4	Aqueous	08/12/2015 1520	08/13/2015
005	MW-5	Aqueous	08/12/2015 1625	08/13/2015
006	MW-6	Aqueous	08/12/2015 1830	08/13/2015
007	MW-7	Aqueous	08/12/2015 1930	08/13/2015
008	MW-8	Aqueous	08/12/2015 2040	08/13/2015
009	BG-1	Aqueous	08/12/2015 2210	08/13/2015
010	SW-1	Aqueous	08/13/2015 0745	08/13/2015
011	SW-2	Aqueous	08/13/2015 0830	08/13/2015
012	EQUIPMENT BLANK	Aqueous	08/12/2015 0930	08/13/2015
013	TRIP BLANK(SH1412)	Aqueous	08/12/2015	08/13/2015
014	TRIP BLANK(SH2271)	Aqueous	08/12/2015	08/13/2015

(14 samples)

Executive Summary
Buxton Environmental
Lot Number: QH13039

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-1	Aqueous	Chloride	300.0	570		mg/L	9
001	MW-1	Aqueous	Fluoride	300.0	0.23	J	mg/L	9
001	MW-1	Aqueous	Sulfate	300.0	22		mg/L	9
001	MW-1	Aqueous	TDS	SM 2540C-	1500		mg/L	9
001	MW-1	Aqueous	Chloroform	8260B	0.71	J	ug/L	10
001	MW-1	Aqueous	1,4-Dichlorobenzene	8260B	0.19	J	ug/L	10
001	MW-1	Aqueous	Antimony	6020A	0.23	J	ug/L	12
001	MW-1	Aqueous	Arsenic	6020A	2.8		ug/L	12
001	MW-1	Aqueous	Barium	6020A	220		ug/L	12
001	MW-1	Aqueous	Boron	6020A	6.9	J	ug/L	12
001	MW-1	Aqueous	Cadmium	6020A	0.13		ug/L	12
001	MW-1	Aqueous	Calcium	6020A	150000	B	ug/L	12
001	MW-1	Aqueous	Chromium	6020A	0.92	J	ug/L	12
001	MW-1	Aqueous	Cobalt	6020A	0.35	J	ug/L	12
001	MW-1	Aqueous	Copper	6020A	0.87	BJ	ug/L	12
001	MW-1	Aqueous	Lead	6020A	0.34	J	ug/L	12
001	MW-1	Aqueous	Molybdenum	6020A	0.95	J	ug/L	12
001	MW-1	Aqueous	Nickel	6020A	2.5	J	ug/L	12
001	MW-1	Aqueous	Selenium	6020A	8.1		ug/L	12
001	MW-1	Aqueous	Silver	6020A	0.50	J	ug/L	12
001	MW-1	Aqueous	Vanadium	6020A	2.7	J	ug/L	12
001	MW-1	Aqueous	Zinc	6020A	6.3	J	ug/L	12
002	MW-2	Aqueous	Chloride	300.0	790		mg/L	14
002	MW-2	Aqueous	Sulfate	300.0	79		mg/L	14
002	MW-2	Aqueous	TDS	SM 2540C-	1700		mg/L	14
002	MW-2	Aqueous	Acetone	8260B	1.6	J	ug/L	15
002	MW-2	Aqueous	Bromodichloromethane	8260B	4.0		ug/L	15
002	MW-2	Aqueous	Bromoform	8260B	1.4		ug/L	15
002	MW-2	Aqueous	Carbon disulfide	8260B	0.54	J	ug/L	15
002	MW-2	Aqueous	Chloroform	8260B	4.5		ug/L	15
002	MW-2	Aqueous	Dibromochloromethane	8260B	3.7		ug/L	15
002	MW-2	Aqueous	Antimony	6020A	0.49	J	ug/L	17
002	MW-2	Aqueous	Arsenic	6020A	3.2		ug/L	17
002	MW-2	Aqueous	Barium	6020A	260		ug/L	17
002	MW-2	Aqueous	Beryllium	6020A	0.17	J	ug/L	17
002	MW-2	Aqueous	Boron	6020A	36		ug/L	17
002	MW-2	Aqueous	Cadmium	6020A	0.060	J	ug/L	17
002	MW-2	Aqueous	Calcium	6020A	97000	B	ug/L	17
002	MW-2	Aqueous	Chromium	6020A	5.2		ug/L	17
002	MW-2	Aqueous	Cobalt	6020A	1.6	J	ug/L	17
002	MW-2	Aqueous	Copper	6020A	4.1	B	ug/L	17
002	MW-2	Aqueous	Lead	6020A	2.0		ug/L	17
002	MW-2	Aqueous	Molybdenum	6020A	11		ug/L	17
002	MW-2	Aqueous	Nickel	6020A	5.4		ug/L	17
002	MW-2	Aqueous	Selenium	6020A	7.7		ug/L	17

Executive Summary (Continued)

Lot Number: QH13039

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
002	MW-2	Aqueous	Vanadium	6020A	4.8	J	ug/L	17
002	MW-2	Aqueous	Zinc	6020A	12		ug/L	17
003	MW-3	Aqueous	Chloride	300.0	990		mg/L	19
003	MW-3	Aqueous	Sulfate	300.0	24	J	mg/L	19
003	MW-3	Aqueous	TDS	SM 2540C-	2100		mg/L	19
003	MW-3	Aqueous	Acetone	8260B	1.8	J	ug/L	20
003	MW-3	Aqueous	Bromodichloromethane	8260B	1.7		ug/L	20
003	MW-3	Aqueous	Bromoform	8260B	1.0		ug/L	20
003	MW-3	Aqueous	Chloroform	8260B	1.2		ug/L	20
003	MW-3	Aqueous	Dibromochloromethane	8260B	2.6		ug/L	20
003	MW-3	Aqueous	Antimony	6020A	0.31	J	ug/L	22
003	MW-3	Aqueous	Arsenic	6020A	6.7		ug/L	22
003	MW-3	Aqueous	Barium	6020A	670		ug/L	22
003	MW-3	Aqueous	Boron	6020A	34		ug/L	22
003	MW-3	Aqueous	Calcium	6020A	150000	B	ug/L	22
003	MW-3	Aqueous	Chromium	6020A	1.1	J	ug/L	22
003	MW-3	Aqueous	Cobalt	6020A	0.64	J	ug/L	22
003	MW-3	Aqueous	Copper	6020A	1.6	B	ug/L	22
003	MW-3	Aqueous	Lead	6020A	0.27	J	ug/L	22
003	MW-3	Aqueous	Molybdenum	6020A	19		ug/L	22
003	MW-3	Aqueous	Nickel	6020A	3.5	J	ug/L	22
003	MW-3	Aqueous	Selenium	6020A	15		ug/L	22
003	MW-3	Aqueous	Vanadium	6020A	2.5	J	ug/L	22
003	MW-3	Aqueous	Zinc	6020A	5.1	J	ug/L	22
004	MW-4	Aqueous	Chloride	300.0	320		mg/L	24
004	MW-4	Aqueous	Fluoride	300.0	0.51		mg/L	24
004	MW-4	Aqueous	Sulfate	300.0	11		mg/L	24
004	MW-4	Aqueous	TDS	SM 2540C-	820		mg/L	24
004	MW-4	Aqueous	Carbon disulfide	8260B	0.53	J	ug/L	25
004	MW-4	Aqueous	Arsenic	6020A	2.0		ug/L	27
004	MW-4	Aqueous	Barium	6020A	390		ug/L	27
004	MW-4	Aqueous	Beryllium	6020A	0.19	J	ug/L	27
004	MW-4	Aqueous	Boron	6020A	8.1	J	ug/L	27
004	MW-4	Aqueous	Cadmium	6020A	0.057	J	ug/L	27
004	MW-4	Aqueous	Calcium	6020A	44000	B	ug/L	27
004	MW-4	Aqueous	Chromium	6020A	2.5	J	ug/L	27
004	MW-4	Aqueous	Cobalt	6020A	7.6		ug/L	27
004	MW-4	Aqueous	Copper	6020A	5.3	B	ug/L	27
004	MW-4	Aqueous	Lead	6020A	2.8		ug/L	27
004	MW-4	Aqueous	Molybdenum	6020A	1.6	J	ug/L	27
004	MW-4	Aqueous	Nickel	6020A	8.2		ug/L	27
004	MW-4	Aqueous	Selenium	6020A	5.9		ug/L	27
004	MW-4	Aqueous	Vanadium	6020A	5.9		ug/L	27
004	MW-4	Aqueous	Zinc	6020A	31		ug/L	27
005	MW-5	Aqueous	Chloride	300.0	22		mg/L	29
005	MW-5	Aqueous	Fluoride	300.0	0.74		mg/L	29
005	MW-5	Aqueous	Sulfate	300.0	4.1		mg/L	29
005	MW-5	Aqueous	TDS	SM 2540C-	230		mg/L	29

Shealy Environmental Services, Inc.
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

Executive Summary (Continued)

Lot Number: QH13039

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
005	MW-5	Aqueous	Carbon disulfide	8260B	0.93	J	ug/L	30
005	MW-5	Aqueous	Antimony	6020A	0.58	J	ug/L	32
005	MW-5	Aqueous	Arsenic	6020A	0.75	J	ug/L	32
005	MW-5	Aqueous	Barium	6020A	160		ug/L	32
005	MW-5	Aqueous	Boron	6020A	11	J	ug/L	32
005	MW-5	Aqueous	Calcium	6020A	17000	B	ug/L	32
005	MW-5	Aqueous	Chromium	6020A	1.8	J	ug/L	32
005	MW-5	Aqueous	Cobalt	6020A	1.5	J	ug/L	32
005	MW-5	Aqueous	Copper	6020A	3.2	B	ug/L	32
005	MW-5	Aqueous	Lead	6020A	1.2		ug/L	32
005	MW-5	Aqueous	Molybdenum	6020A	1.5	J	ug/L	32
005	MW-5	Aqueous	Nickel	6020A	3.0	J	ug/L	32
005	MW-5	Aqueous	Selenium	6020A	1.0		ug/L	32
005	MW-5	Aqueous	Vanadium	6020A	3.8	J	ug/L	32
005	MW-5	Aqueous	Zinc	6020A	16		ug/L	32
006	MW-6	Aqueous	Chloride	300.0	230		mg/L	34
006	MW-6	Aqueous	Fluoride	300.0	0.49	J	mg/L	34
006	MW-6	Aqueous	Sulfate	300.0	48		mg/L	34
006	MW-6	Aqueous	TDS	SM 2540C-	680	B	mg/L	34
006	MW-6	Aqueous	Acetone	8260B	1.6	J	ug/L	35
006	MW-6	Aqueous	Carbon disulfide	8260B	0.52	J	ug/L	35
006	MW-6	Aqueous	Antimony	6020A	0.53	J	ug/L	37
006	MW-6	Aqueous	Arsenic	6020A	1.2		ug/L	37
006	MW-6	Aqueous	Barium	6020A	100		ug/L	37
006	MW-6	Aqueous	Boron	6020A	8.1	J	ug/L	37
006	MW-6	Aqueous	Calcium	6020A	38000	B	ug/L	37
006	MW-6	Aqueous	Chromium	6020A	0.70	J	ug/L	37
006	MW-6	Aqueous	Cobalt	6020A	2.2	J	ug/L	37
006	MW-6	Aqueous	Copper	6020A	1.1	B	ug/L	37
006	MW-6	Aqueous	Lead	6020A	0.45	J	ug/L	37
006	MW-6	Aqueous	Molybdenum	6020A	1.4	J	ug/L	37
006	MW-6	Aqueous	Nickel	6020A	2.6	J	ug/L	37
006	MW-6	Aqueous	Selenium	6020A	4.3		ug/L	37
006	MW-6	Aqueous	Vanadium	6020A	1.6	J	ug/L	37
006	MW-6	Aqueous	Zinc	6020A	5.8	J	ug/L	37
007	MW-7	Aqueous	Chloride	300.0	430		mg/L	39
007	MW-7	Aqueous	Fluoride	300.0	0.45	J	mg/L	39
007	MW-7	Aqueous	Sulfate	300.0	36		mg/L	39
007	MW-7	Aqueous	TDS	SM 2540C-	1100	B	mg/L	39
007	MW-7	Aqueous	Bromodichloromethane	8260B	3.5		ug/L	40
007	MW-7	Aqueous	Bromoform	8260B	1.1		ug/L	40
007	MW-7	Aqueous	Carbon disulfide	8260B	0.51	J	ug/L	40
007	MW-7	Aqueous	Chloroform	8260B	2.0		ug/L	40
007	MW-7	Aqueous	Dibromochloromethane	8260B	4.4		ug/L	40
007	MW-7	Aqueous	Dibromomethane	8260B	0.31	J	ug/L	40
007	MW-7	Aqueous	Antimony	6020A	0.63	J	ug/L	42
007	MW-7	Aqueous	Arsenic	6020A	2.1		ug/L	42
007	MW-7	Aqueous	Barium	6020A	290		ug/L	42

Executive Summary (Continued)

Lot Number: QH13039

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
007	MW-7	Aqueous	Boron	6020A	98		ug/L	42
007	MW-7	Aqueous	Cadmium	6020A	0.18		ug/L	42
007	MW-7	Aqueous	Calcium	6020A	37000	B	ug/L	42
007	MW-7	Aqueous	Chromium	6020A	0.84	J	ug/L	42
007	MW-7	Aqueous	Cobalt	6020A	1.2	J	ug/L	42
007	MW-7	Aqueous	Copper	6020A	1.3	B	ug/L	42
007	MW-7	Aqueous	Lead	6020A	0.20	J	ug/L	42
007	MW-7	Aqueous	Molybdenum	6020A	3.6	J	ug/L	42
007	MW-7	Aqueous	Nickel	6020A	4.3	J	ug/L	42
007	MW-7	Aqueous	Selenium	6020A	8.4		ug/L	42
007	MW-7	Aqueous	Vanadium	6020A	1.5	J	ug/L	42
007	MW-7	Aqueous	Zinc	6020A	4.0	J	ug/L	42
008	MW-8	Aqueous	Chloride	300.0	470		mg/L	44
008	MW-8	Aqueous	Sulfate	300.0	6.3		mg/L	44
008	MW-8	Aqueous	TDS	SM 2540C-	1300	B	mg/L	44
008	MW-8	Aqueous	Carbon disulfide	8260B	0.54	J	ug/L	45
008	MW-8	Aqueous	Antimony	6020A	0.68	J	ug/L	47
008	MW-8	Aqueous	Arsenic	6020A	3.2		ug/L	47
008	MW-8	Aqueous	Barium	6020A	1100		ug/L	47
008	MW-8	Aqueous	Boron	6020A	9.9	J	ug/L	47
008	MW-8	Aqueous	Cadmium	6020A	0.071	J	ug/L	47
008	MW-8	Aqueous	Calcium	6020A	110000	B	ug/L	47
008	MW-8	Aqueous	Chromium	6020A	1.7	J	ug/L	47
008	MW-8	Aqueous	Cobalt	6020A	0.34	J	ug/L	47
008	MW-8	Aqueous	Copper	6020A	1.5	B	ug/L	47
008	MW-8	Aqueous	Lead	6020A	0.53	J	ug/L	47
008	MW-8	Aqueous	Nickel	6020A	2.4	J	ug/L	47
008	MW-8	Aqueous	Selenium	6020A	6.6		ug/L	47
008	MW-8	Aqueous	Silver	6020A	1.6		ug/L	47
008	MW-8	Aqueous	Vanadium	6020A	2.5	J	ug/L	47
008	MW-8	Aqueous	Zinc	6020A	5.1	J	ug/L	47
009	BG-1	Aqueous	Chloride	300.0	270		mg/L	49
009	BG-1	Aqueous	Fluoride	300.0	0.22	J	mg/L	49
009	BG-1	Aqueous	Sulfate	300.0	23		mg/L	49
009	BG-1	Aqueous	TDS	SM 2540C-	690	B	mg/L	49
009	BG-1	Aqueous	Antimony	6020A	0.55	J	ug/L	52
009	BG-1	Aqueous	Arsenic	6020A	2.2		ug/L	52
009	BG-1	Aqueous	Barium	6020A	380		ug/L	52
009	BG-1	Aqueous	Beryllium	6020A	0.12	J	ug/L	52
009	BG-1	Aqueous	Boron	6020A	8.5	J	ug/L	52
009	BG-1	Aqueous	Cadmium	6020A	0.061	J	ug/L	52
009	BG-1	Aqueous	Calcium	6020A	32000	B	ug/L	52
009	BG-1	Aqueous	Cobalt	6020A	0.88	J	ug/L	52
009	BG-1	Aqueous	Copper	6020A	1.4	B	ug/L	52
009	BG-1	Aqueous	Lead	6020A	1.3		ug/L	52
009	BG-1	Aqueous	Molybdenum	6020A	0.55	J	ug/L	52
009	BG-1	Aqueous	Nickel	6020A	1.3	J	ug/L	52
009	BG-1	Aqueous	Selenium	6020A	4.5		ug/L	52

Executive Summary (Continued)

Lot Number: QH13039

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
009	BG-1	Aqueous	Vanadium	6020A	6.0		ug/L	52
009	BG-1	Aqueous	Zinc	6020A	8.3	J	ug/L	52
009	BG-1	Aqueous	Mercury	7470A	0.000075	J	mg/L	53
010	SW-1	Aqueous	Chloride	300.0	8.0		mg/L	54
010	SW-1	Aqueous	Fluoride	300.0	0.090	J	mg/L	54
010	SW-1	Aqueous	Sulfate	300.0	0.89	J	mg/L	54
010	SW-1	Aqueous	TDS	SM 2540C-	53	B	mg/L	54
010	SW-1	Aqueous	Acetone	8260B	3.6	J	ug/L	55
010	SW-1	Aqueous	Antimony	6020A	0.48	J	ug/L	57
010	SW-1	Aqueous	Arsenic	6020A	1.1		ug/L	57
010	SW-1	Aqueous	Barium	6020A	49		ug/L	57
010	SW-1	Aqueous	Boron	6020A	9.4	J	ug/L	57
010	SW-1	Aqueous	Cadmium	6020A	0.050	J	ug/L	57
010	SW-1	Aqueous	Calcium	6020A	4200	B	ug/L	57
010	SW-1	Aqueous	Cobalt	6020A	1.3	J	ug/L	57
010	SW-1	Aqueous	Copper	6020A	1.2	B	ug/L	57
010	SW-1	Aqueous	Lead	6020A	0.38	J	ug/L	57
010	SW-1	Aqueous	Molybdenum	6020A	1.0	J	ug/L	57
010	SW-1	Aqueous	Nickel	6020A	1.5	J	ug/L	57
010	SW-1	Aqueous	Zinc	6020A	28		ug/L	57
011	SW-2	Aqueous	Chloride	300.0	20		mg/L	59
011	SW-2	Aqueous	Fluoride	300.0	0.29		mg/L	59
011	SW-2	Aqueous	Sulfate	300.0	2.2		mg/L	59
011	SW-2	Aqueous	TDS	SM 2540C-	180	B	mg/L	59
011	SW-2	Aqueous	Acetone	8260B	7.3	J	ug/L	60
011	SW-2	Aqueous	Antimony	6020A	0.62	J	ug/L	62
011	SW-2	Aqueous	Arsenic	6020A	2.9		ug/L	62
011	SW-2	Aqueous	Barium	6020A	110		ug/L	62
011	SW-2	Aqueous	Boron	6020A	87		ug/L	62
011	SW-2	Aqueous	Calcium	6020A	12000	B	ug/L	62
011	SW-2	Aqueous	Cobalt	6020A	1.4	J	ug/L	62
011	SW-2	Aqueous	Copper	6020A	1.5	B	ug/L	62
011	SW-2	Aqueous	Lead	6020A	1.2		ug/L	62
011	SW-2	Aqueous	Nickel	6020A	1.8	J	ug/L	62
011	SW-2	Aqueous	Selenium	6020A	1.6		ug/L	62
011	SW-2	Aqueous	Vanadium	6020A	3.7	J	ug/L	62
011	SW-2	Aqueous	Zinc	6020A	7.0	J	ug/L	62
012	EQUIPMENT BLANK	Aqueous	Antimony	6020A	0.38	J	ug/L	67
012	EQUIPMENT BLANK	Aqueous	Arsenic	6020A	0.37	J	ug/L	67
012	EQUIPMENT BLANK	Aqueous	Barium	6020A	1.0	J	ug/L	67
012	EQUIPMENT BLANK	Aqueous	Boron	6020A	1.2	J	ug/L	67
012	EQUIPMENT BLANK	Aqueous	Calcium	6020A	880	B	ug/L	67
012	EQUIPMENT BLANK	Aqueous	Copper	6020A	0.94	BJ	ug/L	67
012	EQUIPMENT BLANK	Aqueous	Zinc	6020A	4.4	J	ug/L	67

(233 detections)

Inorganic non-metals

Client: **Buxton Environmental**
Description: **BG-1**
Date Sampled: **08/12/2015 2210**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-009**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2		(Chloride) 300.0	5	09/01/2015 2011	TAF		83981
2		(Fluoride) 300.0	5	09/01/2015 2011	TAF		83979
2		(Sulfate) 300.0	5	09/01/2015 2011	TAF		83986
1		(TDS) SM 2540C-2011	1	08/19/2015 1103	BLO		82773

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Chloride		**300.0**	**270**		**5.0**	**0.55**	**mg/L**	**2**
Fluoride	**16984-48-8**	**300.0**	**0.22**	**J**	**0.50**	**0.21**	**mg/L**	**2**
Sulfate		**300.0**	**23**		**5.0**	**1.4**	**mg/L**	**2**
TDS		**SM 2540C-20**	**690**	**B**	**10**	**3.4**	**mg/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Shealy Environmental Services, Inc.
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **BG-1**
Date Sampled: **08/12/2015 2210**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-009**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/19/2015 1404	PAP		82792

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	1.6	ug/L	1
Acrylonitrile	107-13-1	8260B	ND		20	0.62	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.21	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		1.0	0.45	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		1.0	0.23	ug/L	1
Bromoform	75-25-2	8260B	ND		1.0	0.35	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		2.0	0.19	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		1.0	0.45	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		1.0	0.31	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		1.0	0.20	ug/L	1
Chloroethane	75-00-3	8260B	ND		2.0	0.28	ug/L	1
Chloroform	67-66-3	8260B	ND		1.0	0.21	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		1.0	0.57	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		1.0	0.23	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	0.17	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		1.0	0.26	ug/L	1
trans-1,4-Dichloro-2-butene	110-57-6	8260B	ND		2.0	1.4	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		1.0	0.46	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		1.0	0.19	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.23	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		1.0	0.31	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		1.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		1.0	0.29	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		1.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		1.0	0.22	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.21	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.26	ug/L	1
Methyl iodide (Iodomethane)	74-88-4	8260B	ND		5.0	0.28	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.29	ug/L	1
Methylene chloride	75-09-2	8260B	ND		1.0	0.42	ug/L	1
Styrene	100-42-5	8260B	ND		1.0	0.13	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		1.0	0.19	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		1.0	0.13	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		1.0	0.22	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.24	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		1.0	0.24	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		1.0	0.22	ug/L	1
Trichloroethene	79-01-6	8260B	ND		1.0	0.16	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		1.0	0.74	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		1.0	0.35	ug/L	1

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **BG-1**
Date Sampled: **08/12/2015 2210**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-009**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/19/2015 1404	PAP		82792

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Vinyl acetate	108-05-4	8260B	ND		5.0	1.0	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		1.0	0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.32	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		78	70-130
Bromofluorobenzene		104	70-130
Toluene-d8		91	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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ICP-MS

Client: **Buxton Environmental**
Description: **BG-1**
Date Sampled: **08/12/2015 2210**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-009**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/19/2015 0057	CDF	08/18/2015 1130	82603
2	3005A	6020A	1	08/20/2015 2008	CDF	08/18/2015 1130	82603

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Antimony	**7440-36-0**	**6020A**	**0.55**	**J**	**1.0**	**0.17**	**ug/L**	**1**
Arsenic	**7440-38-2**	**6020A**	**2.2**		**1.0**	**0.26**	**ug/L**	**2**
Barium	**7440-39-3**	**6020A**	**380**		**5.0**	**0.53**	**ug/L**	**1**
Beryllium	**7440-41-7**	**6020A**	**0.12**	**J**	**0.40**	**0.12**	**ug/L**	**1**
Boron	**7440-42-8**	**6020A**	**8.5**	**J**	**25**	**0.57**	**ug/L**	**2**
Cadmium	**7440-43-9**	**6020A**	**0.061**	**J**	**0.10**	**0.044**	**ug/L**	**1**
Calcium	**7440-70-2**	**6020A**	**32000**	**B**	**200**	**11**	**ug/L**	**1**
Chromium	7440-47-3	6020A	ND		5.0	0.63	ug/L	1
Cobalt	**7440-48-4**	**6020A**	**0.88**	**J**	**5.0**	**0.26**	**ug/L**	**1**
Copper	**7440-50-8**	**6020A**	**1.4**	**B**	**1.0**	**0.15**	**ug/L**	**1**
Lead	**7439-92-1**	**6020A**	**1.3**		**1.0**	**0.15**	**ug/L**	**1**
Molybdenum	**7439-98-7**	**6020A**	**0.55**	**J**	**10**	**0.51**	**ug/L**	**1**
Nickel	**7440-02-0**	**6020A**	**1.3**	**J**	**5.0**	**0.63**	**ug/L**	**1**
Selenium	**7782-49-2**	**6020A**	**4.5**		**1.0**	**0.95**	**ug/L**	**2**
Silver	7440-22-4	6020A	ND		1.0	0.17	ug/L	2
Thallium	7440-28-0	6020A	ND		0.50	0.075	ug/L	1
Vanadium	**7440-62-2**	**6020A**	**6.0**		**5.0**	**1.0**	**ug/L**	**1**
Zinc	**7440-66-6**	**6020A**	**8.3**	**J**	**10**	**1.6**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
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E = Quantitation of compound exceeded the calibration range
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H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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CVAA

Client: **Buxton Environmental**
Description: **BG-1**
Date Sampled: **08/12/2015 2210**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-009**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	08/18/2015 1003	COH	08/17/2015 1647	82565

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Mercury	7439-97-6	7470A	0.000075	J	0.00010	0.000028	mg/L	1

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
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P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
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Inorganic non-metals

Client: **Buxton Environmental**
Description: **MW-1**
Date Sampled: **08/12/2015 1115**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-001**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2		(Chloride) 300.0	5	09/01/2015 1705	TAF		83981
2		(Fluoride) 300.0	5	09/01/2015 1705	TAF		83979
2		(Sulfate) 300.0	5	09/01/2015 1705	TAF		83986
1		(TDS) SM 2540C-2011	1	08/18/2015 1930	BLO		82708

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Chloride		**300.0**	**570**		**5.0**	**0.55**	**mg/L**	**2**
Fluoride	**16984-48-8**	**300.0**	**0.23**	**J**	**0.50**	**0.21**	**mg/L**	**2**
Sulfate		**300.0**	**22**		**5.0**	**1.4**	**mg/L**	**2**
TDS		**SM 2540C-20**	**1500**		**10**	**3.4**	**mg/L**	**1**

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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **MW-1**
Date Sampled: **08/12/2015 1115**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-001**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/18/2015 1429	DCS		82615

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	1.6	ug/L	1
Acrylonitrile	107-13-1	8260B	ND		20	0.62	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.21	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		1.0	0.45	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		1.0	0.23	ug/L	1
Bromoform	75-25-2	8260B	ND		1.0	0.35	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		2.0	0.19	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		1.0	0.45	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		1.0	0.31	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		1.0	0.20	ug/L	1
Chloroethane	75-00-3	8260B	ND		2.0	0.28	ug/L	1
Chloroform	**67-66-3**	**8260B**	**0.71**	**J**	**1.0**	**0.21**	**ug/L**	**1**
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		1.0	0.57	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		1.0	0.23	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	0.17	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		1.0	0.26	ug/L	1
trans-1,4-Dichloro-2-butene	110-57-6	8260B	ND		2.0	1.4	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		1.0	0.46	ug/L	1
1,4-Dichlorobenzene	**106-46-7**	**8260B**	**0.19**	**J**	**1.0**	**0.19**	**ug/L**	**1**
1,1-Dichloroethane	75-34-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.23	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		1.0	0.31	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		1.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		1.0	0.29	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		1.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		1.0	0.22	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.21	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.26	ug/L	1
Methyl iodide (Iodomethane)	74-88-4	8260B	ND		5.0	0.28	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.29	ug/L	1
Methylene chloride	75-09-2	8260B	ND		1.0	0.42	ug/L	1
Styrene	100-42-5	8260B	ND		1.0	0.13	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		1.0	0.19	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		1.0	0.13	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		1.0	0.22	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.24	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		1.0	0.24	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		1.0	0.22	ug/L	1
Trichloroethene	79-01-6	8260B	ND		1.0	0.16	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		1.0	0.74	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		1.0	0.35	ug/L	1

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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Laboratory ID: **QH13039-001**
Description: **MW-1**
Matrix: **Aqueous**
Date Sampled: **08/12/2015 1115**
Date Received: **08/13/2015**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/18/2015 1429	DCS		82615

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Vinyl acetate	108-05-4	8260B	ND		5.0	1.0	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		1.0	0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.32	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		102	70-130
Bromofluorobenzene		100	70-130
Toluene-d8		105	70-130

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ICP-MS

Client: **Buxton Environmental**
Description: **MW-1**
Date Sampled: **08/12/2015 1115**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-001**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/15/2015 0520	BNW	08/14/2015 0939	82380
3	3005A	6020A	1	08/20/2015 1823	CDF	08/14/2015 0939	82380

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Antimony	**7440-36-0**	**6020A**	**0.23**	**J**	**1.0**	**0.17**	**ug/L**	**1**
Arsenic	**7440-38-2**	**6020A**	**2.8**		**1.0**	**0.26**	**ug/L**	**1**
Barium	**7440-39-3**	**6020A**	**220**		**5.0**	**0.53**	**ug/L**	**1**
Beryllium	7440-41-7	6020A	ND		0.40	0.12	ug/L	1
Boron	**7440-42-8**	**6020A**	**6.9**	**J**	**25**	**0.57**	**ug/L**	**1**
Cadmium	**7440-43-9**	**6020A**	**0.13**		**0.10**	**0.044**	**ug/L**	**1**
Calcium	**7440-70-2**	**6020A**	**150000**	**B**	**200**	**11**	**ug/L**	**1**
Chromium	**7440-47-3**	**6020A**	**0.92**	**J**	**5.0**	**0.63**	**ug/L**	**1**
Cobalt	**7440-48-4**	**6020A**	**0.35**	**J**	**5.0**	**0.26**	**ug/L**	**1**
Copper	**7440-50-8**	**6020A**	**0.87**	**BJ**	**1.0**	**0.15**	**ug/L**	**1**
Lead	**7439-92-1**	**6020A**	**0.34**	**J**	**1.0**	**0.15**	**ug/L**	**1**
Molybdenum	**7439-98-7**	**6020A**	**0.95**	**J**	**10**	**0.51**	**ug/L**	**1**
Nickel	**7440-02-0**	**6020A**	**2.5**	**J**	**5.0**	**0.63**	**ug/L**	**1**
Selenium	**7782-49-2**	**6020A**	**8.1**		**1.0**	**0.95**	**ug/L**	**1**
Silver	**7440-22-4**	**6020A**	**0.50**	**J**	**1.0**	**0.17**	**ug/L**	**3**
Thallium	7440-28-0	6020A	ND		0.50	0.075	ug/L	1
Vanadium	**7440-62-2**	**6020A**	**2.7**	**J**	**5.0**	**1.0**	**ug/L**	**1**
Zinc	**7440-66-6**	**6020A**	**6.3**	**J**	**10**	**1.6**	**ug/L**	**1**

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CVAA

Client: **Buxton Environmental**
Description: **MW-1**
Date Sampled: **08/12/2015 1115**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-001**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	08/18/2015 0944	COH	08/17/2015 1647	82565

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Mercury	7439-97-6	7470A	ND		0.00010	0.000028	mg/L	1

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Inorganic non-metals

Client: **Buxton Environmental**
Description: **MW-2**
Date Sampled: **08/12/2015 1240**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-002**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Chloride) 300.0	25	08/31/2015 0304	TAF		83809
1		(Fluoride) 300.0	25	08/31/2015 0304	TAF		83816
1		(Sulfate) 300.0	25	08/31/2015 0304	TAF		83818
1		(TDS) SM 2540C-2011	1	08/18/2015 1930	BLO		82708

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Chloride		**300.0**	**790**		**25**	**2.7**	**mg/L**	**1**
Fluoride	16984-48-8	300.0	ND		2.5	1.0	mg/L	1
Sulfate		**300.0**	**79**		**25**	**6.9**	**mg/L**	**1**
TDS		**SM 2540C-20**	**1700**		**10**	**3.4**	**mg/L**	**1**

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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **MW-2**
Date Sampled: **08/12/2015 1240**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-002**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/18/2015 1452	DCS		82615

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	**67-64-1**	**8260B**	**1.6**	**J**	**20**	**1.6**	**ug/L**	**1**
Acrylonitrile	107-13-1	8260B	ND		20	0.62	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.21	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		1.0	0.45	ug/L	1
Bromodichloromethane	**75-27-4**	**8260B**	**4.0**		**1.0**	**0.23**	**ug/L**	**1**
Bromoform	**75-25-2**	**8260B**	**1.4**		**1.0**	**0.35**	**ug/L**	**1**
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		2.0	0.19	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	**75-15-0**	**8260B**	**0.54**	**J**	**1.0**	**0.45**	**ug/L**	**1**
Carbon tetrachloride	56-23-5	8260B	ND		1.0	0.31	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		1.0	0.20	ug/L	1
Chloroethane	75-00-3	8260B	ND		2.0	0.28	ug/L	1
Chloroform	**67-66-3**	**8260B**	**4.5**		**1.0**	**0.21**	**ug/L**	**1**
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		1.0	0.57	ug/L	1
Dibromochloromethane	**124-48-1**	**8260B**	**3.7**		**1.0**	**0.23**	**ug/L**	**1**
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	0.17	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		1.0	0.26	ug/L	1
trans-1,4-Dichloro-2-butene	110-57-6	8260B	ND		2.0	1.4	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		1.0	0.46	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		1.0	0.19	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.23	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		1.0	0.31	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		1.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		1.0	0.29	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		1.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		1.0	0.22	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.21	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.26	ug/L	1
Methyl iodide (Iodomethane)	74-88-4	8260B	ND		5.0	0.28	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.29	ug/L	1
Methylene chloride	75-09-2	8260B	ND		1.0	0.42	ug/L	1
Styrene	100-42-5	8260B	ND		1.0	0.13	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		1.0	0.19	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		1.0	0.13	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		1.0	0.22	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.24	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		1.0	0.24	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		1.0	0.22	ug/L	1
Trichloroethene	79-01-6	8260B	ND		1.0	0.16	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		1.0	0.74	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		1.0	0.35	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
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ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **MW-2**
Date Sampled: **08/12/2015 1240**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-002**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/18/2015 1452	DCS		82615

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Vinyl acetate	108-05-4	8260B	ND		5.0	1.0	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		1.0	0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.32	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		101	70-130
Bromofluorobenzene		100	70-130
Toluene-d8		105	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
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N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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ICP-MS

Client: **Buxton Environmental**
Description: **MW-2**
Date Sampled: **08/12/2015 1240**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-002**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/15/2015 0741	BNW	08/14/2015 1445	82426
2	3005A	6020A	1	08/19/2015 0433	CDF	08/14/2015 1445	82426
3	3005A	6020A	1	08/20/2015 1901	CDF	08/14/2015 1445	82426

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Antimony	7440-36-0	6020A	0.49	J	1.0	0.17	ug/L	2
Arsenic	7440-38-2	6020A	3.2		1.0	0.26	ug/L	1
Barium	7440-39-3	6020A	260		5.0	0.53	ug/L	1
Beryllium	7440-41-7	6020A	0.17	J	0.40	0.12	ug/L	1
Boron	7440-42-8	6020A	36		25	0.57	ug/L	3
Cadmium	7440-43-9	6020A	0.060	J	0.10	0.044	ug/L	2
Calcium	7440-70-2	6020A	97000	B	200	11	ug/L	1
Chromium	7440-47-3	6020A	5.2		5.0	0.63	ug/L	1
Cobalt	7440-48-4	6020A	1.6	J	5.0	0.26	ug/L	1
Copper	7440-50-8	6020A	4.1	B	1.0	0.15	ug/L	1
Lead	7439-92-1	6020A	2.0		1.0	0.15	ug/L	1
Molybdenum	7439-98-7	6020A	11		10	0.51	ug/L	1
Nickel	7440-02-0	6020A	5.4		5.0	0.63	ug/L	1
Selenium	7782-49-2	6020A	7.7		1.0	0.95	ug/L	1
Silver	7440-22-4	6020A	ND		1.0	0.17	ug/L	3
Thallium	7440-28-0	6020A	ND		0.50	0.075	ug/L	1
Vanadium	7440-62-2	6020A	4.8	J	5.0	1.0	ug/L	1
Zinc	7440-66-6	6020A	12		10	1.6	ug/L	1

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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CVAA

Client: **Buxton Environmental**
Description: **MW-2**
Date Sampled: **08/12/2015 1240**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-002**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	08/18/2015 0946	COH	08/17/2015 1647	82565

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Mercury	7439-97-6	7470A	ND		0.00010	0.000028	mg/L	1

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
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Inorganic non-metals

Client: **Buxton Environmental**
Description: **MW-3**
Date Sampled: **08/12/2015 1410**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-003**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Chloride) 300.0	25	08/31/2015 0327	TAF		83809
1		(Fluoride) 300.0	25	08/31/2015 0327	TAF		83816
1		(Sulfate) 300.0	25	08/31/2015 0327	TAF		83818
1		(TDS) SM 2540C-2011	1	08/18/2015 1930	BLO		82708

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Chloride		**300.0**	**990**		**25**	**2.7**	**mg/L**	**1**
Fluoride	16984-48-8	300.0	ND		2.5	1.0	mg/L	1
Sulfate		**300.0**	**24**	**J**	**25**	**6.9**	**mg/L**	**1**
TDS		**SM 2540C-20**	**2100**		**10**	**3.4**	**mg/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
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Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **MW-3**
Date Sampled: **08/12/2015 1410**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-003**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/18/2015 1515	DCS		82615

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	**67-64-1**	**8260B**	**1.8**	**J**	**20**	**1.6**	**ug/L**	**1**
Acrylonitrile	107-13-1	8260B	ND		20	0.62	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.21	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		1.0	0.45	ug/L	1
Bromodichloromethane	**75-27-4**	**8260B**	**1.7**		**1.0**	**0.23**	**ug/L**	**1**
Bromoform	**75-25-2**	**8260B**	**1.0**		**1.0**	**0.35**	**ug/L**	**1**
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		2.0	0.19	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		1.0	0.45	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		1.0	0.31	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		1.0	0.20	ug/L	1
Chloroethane	75-00-3	8260B	ND		2.0	0.28	ug/L	1
Chloroform	**67-66-3**	**8260B**	**1.2**		**1.0**	**0.21**	**ug/L**	**1**
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		1.0	0.57	ug/L	1
Dibromochloromethane	**124-48-1**	**8260B**	**2.6**		**1.0**	**0.23**	**ug/L**	**1**
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	0.17	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		1.0	0.26	ug/L	1
trans-1,4-Dichloro-2-butene	110-57-6	8260B	ND		2.0	1.4	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		1.0	0.46	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		1.0	0.19	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.23	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		1.0	0.31	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		1.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		1.0	0.29	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		1.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		1.0	0.22	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.21	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.26	ug/L	1
Methyl iodide (Iodomethane)	74-88-4	8260B	ND		5.0	0.28	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.29	ug/L	1
Methylene chloride	75-09-2	8260B	ND		1.0	0.42	ug/L	1
Styrene	100-42-5	8260B	ND		1.0	0.13	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		1.0	0.19	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		1.0	0.13	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		1.0	0.22	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.24	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		1.0	0.24	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		1.0	0.22	ug/L	1
Trichloroethene	79-01-6	8260B	ND		1.0	0.16	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		1.0	0.74	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		1.0	0.35	ug/L	1

PQL = Practical quantitation limit
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ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **MW-3**
Date Sampled: **08/12/2015 1410**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-003**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/18/2015 1515	DCS		82615

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Vinyl acetate	108-05-4	8260B	ND		5.0	1.0	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		1.0	0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.32	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		102	70-130
Bromofluorobenzene		96	70-130
Toluene-d8		99	70-130

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ICP-MS

Client: **Buxton Environmental**
Description: **MW-3**
Date Sampled: **08/12/2015 1410**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-003**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/15/2015 0814	BNW	08/14/2015 1445	82426
2	3005A	6020A	1	08/19/2015 0506	CDF	08/14/2015 1445	82426
3	3005A	6020A	1	08/20/2015 1920	CDF	08/14/2015 1445	82426

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Antimony	**7440-36-0**	**6020A**	**0.31**	**J**	**1.0**	**0.17**	**ug/L**	**2**
Arsenic	**7440-38-2**	**6020A**	**6.7**		**1.0**	**0.26**	**ug/L**	**1**
Barium	**7440-39-3**	**6020A**	**670**		**5.0**	**0.53**	**ug/L**	**1**
Beryllium	7440-41-7	6020A	ND		0.40	0.12	ug/L	1
Boron	**7440-42-8**	**6020A**	**34**		**25**	**0.57**	**ug/L**	**1**
Cadmium	7440-43-9	6020A	ND		0.10	0.044	ug/L	2
Calcium	**7440-70-2**	**6020A**	**150000**	**B**	**200**	**11**	**ug/L**	**3**
Chromium	**7440-47-3**	**6020A**	**1.1**	**J**	**5.0**	**0.63**	**ug/L**	**1**
Cobalt	**7440-48-4**	**6020A**	**0.64**	**J**	**5.0**	**0.26**	**ug/L**	**1**
Copper	**7440-50-8**	**6020A**	**1.6**	**B**	**1.0**	**0.15**	**ug/L**	**1**
Lead	**7439-92-1**	**6020A**	**0.27**	**J**	**1.0**	**0.15**	**ug/L**	**1**
Molybdenum	**7439-98-7**	**6020A**	**19**		**10**	**0.51**	**ug/L**	**1**
Nickel	**7440-02-0**	**6020A**	**3.5**	**J**	**5.0**	**0.63**	**ug/L**	**1**
Selenium	**7782-49-2**	**6020A**	**15**		**1.0**	**0.95**	**ug/L**	**1**
Silver	7440-22-4	6020A	ND		1.0	0.17	ug/L	3
Thallium	7440-28-0	6020A	ND		0.50	0.075	ug/L	1
Vanadium	**7440-62-2**	**6020A**	**2.5**	**J**	**5.0**	**1.0**	**ug/L**	**1**
Zinc	**7440-66-6**	**6020A**	**5.1**	**J**	**10**	**1.6**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
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CVAA

Client: **Buxton Environmental**
Description: **MW-3**
Date Sampled: **08/12/2015 1410**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-003**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	08/18/2015 0948	COH	08/17/2015 1647	82565

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Mercury	7439-97-6	7470A	ND		0.00010	0.000028	mg/L	1

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
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P = The RPD between two GC columns exceeds 40%
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Inorganic non-metals

Client: **Buxton Environmental**
Description: **MW-4**
Date Sampled: **08/12/2015 1520**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-004**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2		(Chloride) 300.0	5	09/01/2015 1728	TAF		83981
2		(Fluoride) 300.0	5	09/01/2015 1728	TAF		83979
2		(Sulfate) 300.0	5	09/01/2015 1728	TAF		83986
1		(TDS) SM 2540C-2011	1	08/18/2015 1930	BLO		82708

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Chloride		**300.0**	**320**		**5.0**	**0.55**	**mg/L**	**2**
Fluoride	**16984-48-8**	**300.0**	**0.51**		**0.50**	**0.21**	**mg/L**	**2**
Sulfate		**300.0**	**11**		**5.0**	**1.4**	**mg/L**	**2**
TDS		**SM 2540C-20**	**820**		**10**	**3.4**	**mg/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
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E = Quantitation of compound exceeded the calibration range
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Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Laboratory ID: **QH13039-004**
Description: **MW-4**
Matrix: **Aqueous**
Date Sampled: **08/12/2015 1520**
Date Received: **08/13/2015**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/18/2015 1538	DCS		82615

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	1.6	ug/L	1
Acrylonitrile	107-13-1	8260B	ND		20	0.62	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.21	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		1.0	0.45	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		1.0	0.23	ug/L	1
Bromoform	75-25-2	8260B	ND		1.0	0.35	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		2.0	0.19	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	**75-15-0**	**8260B**	**0.53**	**J**	**1.0**	**0.45**	**ug/L**	**1**
Carbon tetrachloride	56-23-5	8260B	ND		1.0	0.31	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		1.0	0.20	ug/L	1
Chloroethane	75-00-3	8260B	ND		2.0	0.28	ug/L	1
Chloroform	67-66-3	8260B	ND		1.0	0.21	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		1.0	0.57	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		1.0	0.23	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	0.17	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		1.0	0.26	ug/L	1
trans-1,4-Dichloro-2-butene	110-57-6	8260B	ND		2.0	1.4	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		1.0	0.46	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		1.0	0.19	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.23	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		1.0	0.31	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		1.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		1.0	0.29	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		1.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		1.0	0.22	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.21	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.26	ug/L	1
Methyl iodide (Iodomethane)	74-88-4	8260B	ND		5.0	0.28	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.29	ug/L	1
Methylene chloride	75-09-2	8260B	ND		1.0	0.42	ug/L	1
Styrene	100-42-5	8260B	ND		1.0	0.13	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		1.0	0.19	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		1.0	0.13	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		1.0	0.22	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.24	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		1.0	0.24	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		1.0	0.22	ug/L	1
Trichloroethene	79-01-6	8260B	ND		1.0	0.16	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		1.0	0.74	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		1.0	0.35	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **MW-4**
Date Sampled: **08/12/2015 1520**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-004**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/18/2015 1538	DCS		82615

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Vinyl acetate	108-05-4	8260B	ND		5.0	1.0	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		1.0	0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.32	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		97	70-130
Bromofluorobenzene		95	70-130
Toluene-d8		104	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
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ICP-MS

Client: **Buxton Environmental**
Description: **MW-4**
Date Sampled: **08/12/2015 1520**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-004**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/15/2015 0819	BNW	08/14/2015 1445	82426
2	3005A	6020A	1	08/19/2015 0511	CDF	08/14/2015 1445	82426
3	3005A	6020A	1	08/20/2015 1925	CDF	08/14/2015 1445	82426

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Antimony	7440-36-0	6020A	ND		1.0	0.17	ug/L	2
Arsenic	**7440-38-2**	**6020A**	**2.0**		**1.0**	**0.26**	**ug/L**	**1**
Barium	**7440-39-3**	**6020A**	**390**		**5.0**	**0.53**	**ug/L**	**1**
Beryllium	**7440-41-7**	**6020A**	**0.19**	**J**	**0.40**	**0.12**	**ug/L**	**1**
Boron	**7440-42-8**	**6020A**	**8.1**	**J**	**25**	**0.57**	**ug/L**	**1**
Cadmium	**7440-43-9**	**6020A**	**0.057**	**J**	**0.10**	**0.044**	**ug/L**	**2**
Calcium	**7440-70-2**	**6020A**	**44000**	**B**	**200**	**11**	**ug/L**	**1**
Chromium	**7440-47-3**	**6020A**	**2.5**	**J**	**5.0**	**0.63**	**ug/L**	**1**
Cobalt	**7440-48-4**	**6020A**	**7.6**		**5.0**	**0.26**	**ug/L**	**1**
Copper	**7440-50-8**	**6020A**	**5.3**	**B**	**1.0**	**0.15**	**ug/L**	**1**
Lead	**7439-92-1**	**6020A**	**2.8**		**1.0**	**0.15**	**ug/L**	**1**
Molybdenum	**7439-98-7**	**6020A**	**1.6**	**J**	**10**	**0.51**	**ug/L**	**1**
Nickel	**7440-02-0**	**6020A**	**8.2**		**5.0**	**0.63**	**ug/L**	**1**
Selenium	**7782-49-2**	**6020A**	**5.9**		**1.0**	**0.95**	**ug/L**	**1**
Silver	7440-22-4	6020A	ND		1.0	0.17	ug/L	3
Thallium	7440-28-0	6020A	ND		0.50	0.075	ug/L	1
Vanadium	**7440-62-2**	**6020A**	**5.9**		**5.0**	**1.0**	**ug/L**	**1**
Zinc	**7440-66-6**	**6020A**	**31**		**10**	**1.6**	**ug/L**	**1**

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N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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CVAA

Client: **Buxton Environmental**
Description: **MW-4**
Date Sampled: **08/12/2015 1520**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-004**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	08/18/2015 0950	COH	08/17/2015 1647	82565

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Mercury	7439-97-6	7470A	ND		0.00010	0.000028	mg/L	1

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
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Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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Inorganic non-metals

Client: **Buxton Environmental**
Description: **MW-5**
Date Sampled: **08/12/2015 1625**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-005**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2		(Chloride) 300.0	1	09/01/2015 1752	TAF		83981
2		(Fluoride) 300.0	1	09/01/2015 1752	TAF		83979
2		(Sulfate) 300.0	1	09/01/2015 1752	TAF		83986
1		(TDS) SM 2540C-2011	1	08/18/2015 1930	BLO		82708

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Chloride		**300.0**	**22**		**1.0**	**0.11**	**mg/L**	**2**
Fluoride	**16984-48-8**	**300.0**	**0.74**		**0.10**	**0.041**	**mg/L**	**2**
Sulfate		**300.0**	**4.1**		**1.0**	**0.28**	**mg/L**	**2**
TDS		**SM 2540C-20**	**230**		**10**	**3.4**	**mg/L**	**1**

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ND = Not detected at or above the MDL
B = Detected in the method blank
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P = The RPD between two GC columns exceeds 40%
H = Out of holding time
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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **MW-5**
Date Sampled: **08/12/2015 1625**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-005**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/18/2015 1601	DCS		82615

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	1.6	ug/L	1
Acrylonitrile	107-13-1	8260B	ND		20	0.62	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.21	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		1.0	0.45	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		1.0	0.23	ug/L	1
Bromoform	75-25-2	8260B	ND		1.0	0.35	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		2.0	0.19	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	**75-15-0**	**8260B**	**0.93**	**J**	**1.0**	**0.45**	**ug/L**	**1**
Carbon tetrachloride	56-23-5	8260B	ND		1.0	0.31	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		1.0	0.20	ug/L	1
Chloroethane	75-00-3	8260B	ND		2.0	0.28	ug/L	1
Chloroform	67-66-3	8260B	ND		1.0	0.21	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		1.0	0.57	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		1.0	0.23	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	0.17	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		1.0	0.26	ug/L	1
trans-1,4-Dichloro-2-butene	110-57-6	8260B	ND		2.0	1.4	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		1.0	0.46	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		1.0	0.19	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.23	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		1.0	0.31	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		1.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		1.0	0.29	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		1.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		1.0	0.22	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.21	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.26	ug/L	1
Methyl iodide (Iodomethane)	74-88-4	8260B	ND		5.0	0.28	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.29	ug/L	1
Methylene chloride	75-09-2	8260B	ND		1.0	0.42	ug/L	1
Styrene	100-42-5	8260B	ND		1.0	0.13	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		1.0	0.19	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		1.0	0.13	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		1.0	0.22	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.24	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		1.0	0.24	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		1.0	0.22	ug/L	1
Trichloroethene	79-01-6	8260B	ND		1.0	0.16	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		1.0	0.74	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		1.0	0.35	ug/L	1

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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Laboratory ID: **QH13039-005**
Description: **MW-5**
Matrix: **Aqueous**
Date Sampled: **08/12/2015 1625**
Date Received: **08/13/2015**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/18/2015 1601	DCS		82615

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Vinyl acetate	108-05-4	8260B	ND		5.0	1.0	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		1.0	0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.32	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		102	70-130
Bromofluorobenzene		100	70-130
Toluene-d8		106	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
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Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

ICP-MS

Client: **Buxton Environmental**
Description: **MW-5**
Date Sampled: **08/12/2015 1625**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-005**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/15/2015 0825	BNW	08/14/2015 1445	82426
2	3005A	6020A	1	08/19/2015 0516	CDF	08/14/2015 1445	82426
3	3005A	6020A	1	08/20/2015 1930	CDF	08/14/2015 1445	82426

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Antimony	**7440-36-0**	**6020A**	**0.58**	**J**	**1.0**	**0.17**	**ug/L**	**2**
Arsenic	**7440-38-2**	**6020A**	**0.75**	**J**	**1.0**	**0.26**	**ug/L**	**1**
Barium	**7440-39-3**	**6020A**	**160**		**5.0**	**0.53**	**ug/L**	**1**
Beryllium	7440-41-7	6020A	ND		0.40	0.12	ug/L	1
Boron	**7440-42-8**	**6020A**	**11**	**J**	**25**	**0.57**	**ug/L**	**1**
Cadmium	7440-43-9	6020A	ND		0.10	0.044	ug/L	2
Calcium	**7440-70-2**	**6020A**	**17000**	**B**	**200**	**11**	**ug/L**	**1**
Chromium	**7440-47-3**	**6020A**	**1.8**	**J**	**5.0**	**0.63**	**ug/L**	**1**
Cobalt	**7440-48-4**	**6020A**	**1.5**	**J**	**5.0**	**0.26**	**ug/L**	**1**
Copper	**7440-50-8**	**6020A**	**3.2**	**B**	**1.0**	**0.15**	**ug/L**	**1**
Lead	**7439-92-1**	**6020A**	**1.2**		**1.0**	**0.15**	**ug/L**	**1**
Molybdenum	**7439-98-7**	**6020A**	**1.5**	**J**	**10**	**0.51**	**ug/L**	**1**
Nickel	**7440-02-0**	**6020A**	**3.0**	**J**	**5.0**	**0.63**	**ug/L**	**1**
Selenium	**7782-49-2**	**6020A**	**1.0**		**1.0**	**0.95**	**ug/L**	**1**
Silver	7440-22-4	6020A	ND		1.0	0.17	ug/L	3
Thallium	7440-28-0	6020A	ND		0.50	0.075	ug/L	1
Vanadium	**7440-62-2**	**6020A**	**3.8**	**J**	**5.0**	**1.0**	**ug/L**	**1**
Zinc	**7440-66-6**	**6020A**	**16**		**10**	**1.6**	**ug/L**	**1**

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CVAA

Client: **Buxton Environmental**
Description: **MW-5**
Date Sampled: **08/12/2015 1625**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-005**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	08/18/2015 0952	COH	08/17/2015 1647	82565

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Mercury	7439-97-6	7470A	ND		0.00010	0.000028	mg/L	1

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Inorganic non-metals

Client: **Buxton Environmental**
Description: **MW-6**
Date Sampled: **08/12/2015 1830**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-006**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2		(Chloride) 300.0	5	09/01/2015 1901	TAF		83981
2		(Fluoride) 300.0	5	09/01/2015 1901	TAF		83979
2		(Sulfate) 300.0	5	09/01/2015 1901	TAF		83986
1		(TDS) SM 2540C-2011	1	08/19/2015 1103	BLO		82773

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Chloride		**300.0**	**230**		**5.0**	**0.55**	**mg/L**	**2**
Fluoride	**16984-48-8**	**300.0**	**0.49**	**J**	**0.50**	**0.21**	**mg/L**	**2**
Sulfate		**300.0**	**48**		**5.0**	**1.4**	**mg/L**	**2**
TDS		**SM 2540C-20**	**680**	**B**	**10**	**3.4**	**mg/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
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Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **MW-6**
Date Sampled: **08/12/2015 1830**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-006**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/18/2015 1624	DCS		82615

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	**67-64-1**	**8260B**	**1.6**	**J**	**20**	**1.6**	**ug/L**	**1**
Acrylonitrile	107-13-1	8260B	ND		20	0.62	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.21	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		1.0	0.45	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		1.0	0.23	ug/L	1
Bromoform	75-25-2	8260B	ND		1.0	0.35	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		2.0	0.19	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	**75-15-0**	**8260B**	**0.52**	**J**	**1.0**	**0.45**	**ug/L**	**1**
Carbon tetrachloride	56-23-5	8260B	ND		1.0	0.31	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		1.0	0.20	ug/L	1
Chloroethane	75-00-3	8260B	ND		2.0	0.28	ug/L	1
Chloroform	67-66-3	8260B	ND		1.0	0.21	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		1.0	0.57	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		1.0	0.23	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	0.17	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		1.0	0.26	ug/L	1
trans-1,4-Dichloro-2-butene	110-57-6	8260B	ND		2.0	1.4	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		1.0	0.46	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		1.0	0.19	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.23	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		1.0	0.31	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		1.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		1.0	0.29	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		1.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		1.0	0.22	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.21	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.26	ug/L	1
Methyl iodide (Iodomethane)	74-88-4	8260B	ND		5.0	0.28	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.29	ug/L	1
Methylene chloride	75-09-2	8260B	ND		1.0	0.42	ug/L	1
Styrene	100-42-5	8260B	ND		1.0	0.13	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		1.0	0.19	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		1.0	0.13	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		1.0	0.22	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.24	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		1.0	0.24	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		1.0	0.22	ug/L	1
Trichloroethene	79-01-6	8260B	ND		1.0	0.16	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		1.0	0.74	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		1.0	0.35	ug/L	1

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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **MW-6**
Date Sampled: **08/12/2015 1830**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-006**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/18/2015 1624	DCS		82615

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Vinyl acetate	108-05-4	8260B	ND		5.0	1.0	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		1.0	0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.32	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		100	70-130
Bromofluorobenzene		98	70-130
Toluene-d8		100	70-130

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Client: **Buxton Environmental**
Description: **MW-6**
Date Sampled: **08/12/2015 1830**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-006**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/19/2015 0040	CDF	08/18/2015 1130	82603
2	3005A	6020A	1	08/20/2015 1954	CDF	08/18/2015 1130	82603

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Antimony	**7440-36-0**	**6020A**	**0.53**	**J**	**1.0**	**0.17**	**ug/L**	**1**
Arsenic	**7440-38-2**	**6020A**	**1.2**		**1.0**	**0.26**	**ug/L**	**2**
Barium	**7440-39-3**	**6020A**	**100**		**5.0**	**0.53**	**ug/L**	**1**
Beryllium	7440-41-7	6020A	ND		0.40	0.12	ug/L	1
Boron	**7440-42-8**	**6020A**	**8.1**	**J**	**25**	**0.57**	**ug/L**	**2**
Cadmium	7440-43-9	6020A	ND		0.10	0.044	ug/L	1
Calcium	**7440-70-2**	**6020A**	**38000**	**B**	**200**	**11**	**ug/L**	**1**
Chromium	**7440-47-3**	**6020A**	**0.70**	**J**	**5.0**	**0.63**	**ug/L**	**1**
Cobalt	**7440-48-4**	**6020A**	**2.2**	**J**	**5.0**	**0.26**	**ug/L**	**1**
Copper	**7440-50-8**	**6020A**	**1.1**	**B**	**1.0**	**0.15**	**ug/L**	**1**
Lead	**7439-92-1**	**6020A**	**0.45**	**J**	**1.0**	**0.15**	**ug/L**	**1**
Molybdenum	**7439-98-7**	**6020A**	**1.4**	**J**	**10**	**0.51**	**ug/L**	**1**
Nickel	**7440-02-0**	**6020A**	**2.6**	**J**	**5.0**	**0.63**	**ug/L**	**1**
Selenium	**7782-49-2**	**6020A**	**4.3**		**1.0**	**0.95**	**ug/L**	**2**
Silver	7440-22-4	6020A	ND		1.0	0.17	ug/L	2
Thallium	7440-28-0	6020A	ND		0.50	0.075	ug/L	1
Vanadium	**7440-62-2**	**6020A**	**1.6**	**J**	**5.0**	**1.0**	**ug/L**	**1**
Zinc	**7440-66-6**	**6020A**	**5.8**	**J**	**10**	**1.6**	**ug/L**	**1**

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CVAA

Client: **Buxton Environmental**
Description: **MW-6**
Date Sampled: **08/12/2015 1830**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-006**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	08/18/2015 0957	COH	08/17/2015 1647	82565

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Mercury	7439-97-6	7470A	ND		0.00010	0.000028	mg/L	1

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Inorganic non-metals

Client: **Buxton Environmental**
Description: **MW-7**
Date Sampled: **08/12/2015 1930**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-007**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2		(Chloride) 300.0	5	09/01/2015 1925	TAF		83981
2		(Fluoride) 300.0	5	09/01/2015 1925	TAF		83979
2		(Sulfate) 300.0	5	09/01/2015 1925	TAF		83986
1		(TDS) SM 2540C-2011	1	08/19/2015 1103	BLO		82773

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Chloride		**300.0**	**430**		**5.0**	**0.55**	**mg/L**	**2**
Fluoride	**16984-48-8**	**300.0**	**0.45**	**J**	**0.50**	**0.21**	**mg/L**	**2**
Sulfate		**300.0**	**36**		**5.0**	**1.4**	**mg/L**	**2**
TDS		**SM 2540C-20**	**1100**	**B**	**10**	**3.4**	**mg/L**	**1**

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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **MW-7**
Date Sampled: **08/12/2015 1930**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-007**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/18/2015 1647	DCS		82615

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	1.6	ug/L	1
Acrylonitrile	107-13-1	8260B	ND		20	0.62	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.21	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		1.0	0.45	ug/L	1
Bromodichloromethane	**75-27-4**	**8260B**	**3.5**		**1.0**	**0.23**	**ug/L**	**1**
Bromoform	**75-25-2**	**8260B**	**1.1**		**1.0**	**0.35**	**ug/L**	**1**
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		2.0	0.19	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	**75-15-0**	**8260B**	**0.51**	**J**	**1.0**	**0.45**	**ug/L**	**1**
Carbon tetrachloride	56-23-5	8260B	ND		1.0	0.31	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		1.0	0.20	ug/L	1
Chloroethane	75-00-3	8260B	ND		2.0	0.28	ug/L	1
Chloroform	**67-66-3**	**8260B**	**2.0**		**1.0**	**0.21**	**ug/L**	**1**
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		1.0	0.57	ug/L	1
Dibromochloromethane	**124-48-1**	**8260B**	**4.4**		**1.0**	**0.23**	**ug/L**	**1**
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	0.17	ug/L	1
Dibromomethane (Methylene bromide)	**74-95-3**	**8260B**	**0.31**	**J**	**1.0**	**0.26**	**ug/L**	**1**
trans-1,4-Dichloro-2-butene	110-57-6	8260B	ND		2.0	1.4	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		1.0	0.46	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		1.0	0.19	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.23	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		1.0	0.31	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		1.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		1.0	0.29	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		1.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		1.0	0.22	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.21	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.26	ug/L	1
Methyl iodide (Iodomethane)	74-88-4	8260B	ND		5.0	0.28	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.29	ug/L	1
Methylene chloride	75-09-2	8260B	ND		1.0	0.42	ug/L	1
Styrene	100-42-5	8260B	ND		1.0	0.13	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		1.0	0.19	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		1.0	0.13	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		1.0	0.22	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.24	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		1.0	0.24	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		1.0	0.22	ug/L	1
Trichloroethene	79-01-6	8260B	ND		1.0	0.16	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		1.0	0.74	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		1.0	0.35	ug/L	1

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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **MW-7**
Date Sampled: **08/12/2015 1930**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-007**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/18/2015 1647	DCS		82615

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Vinyl acetate	108-05-4	8260B	ND		5.0	1.0	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		1.0	0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.32	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		99	70-130
Bromofluorobenzene		98	70-130
Toluene-d8		103	70-130

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ICP-MS

Client: **Buxton Environmental**
Description: **MW-7**
Date Sampled: **08/12/2015 1930**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-007**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/19/2015 0046	CDF	08/18/2015 1130	82603
2	3005A	6020A	1	08/20/2015 1958	CDF	08/18/2015 1130	82603

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Antimony	**7440-36-0**	**6020A**	**0.63**	**J**	**1.0**	**0.17**	**ug/L**	**1**
Arsenic	**7440-38-2**	**6020A**	**2.1**		**1.0**	**0.26**	**ug/L**	**2**
Barium	**7440-39-3**	**6020A**	**290**		**5.0**	**0.53**	**ug/L**	**1**
Beryllium	7440-41-7	6020A	ND		0.40	0.12	ug/L	1
Boron	**7440-42-8**	**6020A**	**98**		**25**	**0.57**	**ug/L**	**2**
Cadmium	**7440-43-9**	**6020A**	**0.18**		**0.10**	**0.044**	**ug/L**	**1**
Calcium	**7440-70-2**	**6020A**	**37000**	**B**	**200**	**11**	**ug/L**	**1**
Chromium	**7440-47-3**	**6020A**	**0.84**	**J**	**5.0**	**0.63**	**ug/L**	**1**
Cobalt	**7440-48-4**	**6020A**	**1.2**	**J**	**5.0**	**0.26**	**ug/L**	**1**
Copper	**7440-50-8**	**6020A**	**1.3**	**B**	**1.0**	**0.15**	**ug/L**	**1**
Lead	**7439-92-1**	**6020A**	**0.20**	**J**	**1.0**	**0.15**	**ug/L**	**1**
Molybdenum	**7439-98-7**	**6020A**	**3.6**	**J**	**10**	**0.51**	**ug/L**	**1**
Nickel	**7440-02-0**	**6020A**	**4.3**	**J**	**5.0**	**0.63**	**ug/L**	**1**
Selenium	**7782-49-2**	**6020A**	**8.4**		**1.0**	**0.95**	**ug/L**	**2**
Silver	7440-22-4	6020A	ND		1.0	0.17	ug/L	2
Thallium	7440-28-0	6020A	ND		0.50	0.075	ug/L	1
Vanadium	**7440-62-2**	**6020A**	**1.5**	**J**	**5.0**	**1.0**	**ug/L**	**1**
Zinc	**7440-66-6**	**6020A**	**4.0**	**J**	**10**	**1.6**	**ug/L**	**1**

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CVAA

Client: **Buxton Environmental**
Laboratory ID: **QH13039-007**
Description: **MW-7**
Matrix: **Aqueous**
Date Sampled: **08/12/2015 1930**
Date Received: **08/13/2015**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	08/18/2015 0959	COH	08/17/2015 1647	82565

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Mercury	7439-97-6	7470A	ND		0.00010	0.000028	mg/L	1

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ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Inorganic non-metals

Client: **Buxton Environmental**
Description: **MW-8**
Date Sampled: **08/12/2015 2040**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-008**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2		(Chloride) 300.0	5	09/01/2015 1948	TAF		83981
2		(Fluoride) 300.0	5	09/01/2015 1948	TAF		83979
2		(Sulfate) 300.0	5	09/01/2015 1948	TAF		83986
1		(TDS) SM 2540C-2011	1	08/19/2015 1103	BLO		82773

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Chloride		**300.0**	**470**		**5.0**	**0.55**	**mg/L**	**2**
Fluoride	16984-48-8	300.0	ND		0.50	0.21	mg/L	2
Sulfate		**300.0**	**6.3**		**5.0**	**1.4**	**mg/L**	**2**
TDS		**SM 2540C-20**	**1300**	**B**	**10**	**3.4**	**mg/L**	**1**

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ND = Not detected at or above the MDL
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H = Out of holding time
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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **MW-8**
Date Sampled: **08/12/2015 2040**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-008**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/18/2015 1710	DCS		82615

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	1.6	ug/L	1
Acrylonitrile	107-13-1	8260B	ND		20	0.62	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.21	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		1.0	0.45	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		1.0	0.23	ug/L	1
Bromoform	75-25-2	8260B	ND		1.0	0.35	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		2.0	0.19	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	**75-15-0**	**8260B**	**0.54**	**J**	**1.0**	**0.45**	**ug/L**	**1**
Carbon tetrachloride	56-23-5	8260B	ND		1.0	0.31	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		1.0	0.20	ug/L	1
Chloroethane	75-00-3	8260B	ND		2.0	0.28	ug/L	1
Chloroform	67-66-3	8260B	ND		1.0	0.21	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		1.0	0.57	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		1.0	0.23	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	0.17	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		1.0	0.26	ug/L	1
trans-1,4-Dichloro-2-butene	110-57-6	8260B	ND		2.0	1.4	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		1.0	0.46	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		1.0	0.19	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.23	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		1.0	0.31	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		1.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		1.0	0.29	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		1.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		1.0	0.22	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.21	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.26	ug/L	1
Methyl iodide (Iodomethane)	74-88-4	8260B	ND		5.0	0.28	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.29	ug/L	1
Methylene chloride	75-09-2	8260B	ND		1.0	0.42	ug/L	1
Styrene	100-42-5	8260B	ND		1.0	0.13	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		1.0	0.19	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		1.0	0.13	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		1.0	0.22	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.24	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		1.0	0.24	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		1.0	0.22	ug/L	1
Trichloroethene	79-01-6	8260B	ND		1.0	0.16	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		1.0	0.74	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		1.0	0.35	ug/L	1

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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **MW-8**
Date Sampled: **08/12/2015 2040**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-008**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/18/2015 1710	DCS		82615

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Vinyl acetate	108-05-4	8260B	ND		5.0	1.0	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		1.0	0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.32	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		102	70-130
Bromofluorobenzene		102	70-130
Toluene-d8		104	70-130

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ICP-MS

Client: **Buxton Environmental**
Description: **MW-8**
Date Sampled: **08/12/2015 2040**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-008**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/19/2015 0051	CDF	08/18/2015 1130	82603
2	3005A	6020A	1	08/20/2015 2003	CDF	08/18/2015 1130	82603

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Antimony	**7440-36-0**	**6020A**	**0.68**	**J**	**1.0**	**0.17**	**ug/L**	**1**
Arsenic	**7440-38-2**	**6020A**	**3.2**		**1.0**	**0.26**	**ug/L**	**2**
Barium	**7440-39-3**	**6020A**	**1100**		**5.0**	**0.53**	**ug/L**	**1**
Beryllium	7440-41-7	6020A	ND		0.40	0.12	ug/L	1
Boron	**7440-42-8**	**6020A**	**9.9**	**J**	**25**	**0.57**	**ug/L**	**2**
Cadmium	**7440-43-9**	**6020A**	**0.071**	**J**	**0.10**	**0.044**	**ug/L**	**1**
Calcium	**7440-70-2**	**6020A**	**110000**	**B**	**200**	**11**	**ug/L**	**1**
Chromium	**7440-47-3**	**6020A**	**1.7**	**J**	**5.0**	**0.63**	**ug/L**	**1**
Cobalt	**7440-48-4**	**6020A**	**0.34**	**J**	**5.0**	**0.26**	**ug/L**	**1**
Copper	**7440-50-8**	**6020A**	**1.5**	**B**	**1.0**	**0.15**	**ug/L**	**1**
Lead	**7439-92-1**	**6020A**	**0.53**	**J**	**1.0**	**0.15**	**ug/L**	**1**
Molybdenum	7439-98-7	6020A	ND		10	0.51	ug/L	1
Nickel	**7440-02-0**	**6020A**	**2.4**	**J**	**5.0**	**0.63**	**ug/L**	**1**
Selenium	**7782-49-2**	**6020A**	**6.6**		**1.0**	**0.95**	**ug/L**	**2**
Silver	**7440-22-4**	**6020A**	**1.6**		**1.0**	**0.17**	**ug/L**	**2**
Thallium	7440-28-0	6020A	ND		0.50	0.075	ug/L	1
Vanadium	**7440-62-2**	**6020A**	**2.5**	**J**	**5.0**	**1.0**	**ug/L**	**1**
Zinc	**7440-66-6**	**6020A**	**5.1**	**J**	**10**	**1.6**	**ug/L**	**1**

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CVAA

Client: **Buxton Environmental**
Description: **MW-8**
Date Sampled: **08/12/2015 2040**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-008**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	08/18/2015 1001	COH	08/17/2015 1647	82565

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Mercury	7439-97-6	7470A	ND		0.00010	0.000028	mg/L	1

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Inorganic non-metals

Client: **Buxton Environmental**
Description: **SW-1**
Date Sampled: **08/13/2015 0745**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-010**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2		(Chloride) 300.0	1	09/01/2015 2121	TAF		83981
2		(Fluoride) 300.0	1	09/01/2015 2121	TAF		83979
2		(Sulfate) 300.0	1	09/01/2015 2121	TAF		83986
1		(TDS) SM 2540C-2011	1	08/17/2015 1038	BLO		82528

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Chloride		**300.0**	**8.0**		**1.0**	**0.11**	**mg/L**	**2**
Fluoride	**16984-48-8**	**300.0**	**0.090**	**J**	**0.10**	**0.041**	**mg/L**	**2**
Sulfate		**300.0**	**0.89**	**J**	**1.0**	**0.28**	**mg/L**	**2**
TDS		**SM 2540C-20**	**53**	**B**	**10**	**3.4**	**mg/L**	**1**

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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **SW-1**
Date Sampled: **08/13/2015 0745**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-010**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/19/2015 1426	PAP		82792

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	**67-64-1**	**8260B**	**3.6**	**J**	**20**	**1.6**	**ug/L**	**1**
Acrylonitrile	107-13-1	8260B	ND		20	0.62	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.21	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		1.0	0.45	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		1.0	0.23	ug/L	1
Bromoform	75-25-2	8260B	ND		1.0	0.35	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		2.0	0.19	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		1.0	0.45	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		1.0	0.31	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		1.0	0.20	ug/L	1
Chloroethane	75-00-3	8260B	ND		2.0	0.28	ug/L	1
Chloroform	67-66-3	8260B	ND		1.0	0.21	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		1.0	0.57	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		1.0	0.23	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	0.17	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		1.0	0.26	ug/L	1
trans-1,4-Dichloro-2-butene	110-57-6	8260B	ND		2.0	1.4	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		1.0	0.46	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		1.0	0.19	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.23	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		1.0	0.31	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		1.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		1.0	0.29	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		1.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		1.0	0.22	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.21	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.26	ug/L	1
Methyl iodide (Iodomethane)	74-88-4	8260B	ND		5.0	0.28	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.29	ug/L	1
Methylene chloride	75-09-2	8260B	ND		1.0	0.42	ug/L	1
Styrene	100-42-5	8260B	ND		1.0	0.13	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		1.0	0.19	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		1.0	0.13	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		1.0	0.22	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.24	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		1.0	0.24	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		1.0	0.22	ug/L	1
Trichloroethene	79-01-6	8260B	ND		1.0	0.16	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		1.0	0.74	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		1.0	0.35	ug/L	1

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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **SW-1**
Date Sampled: **08/13/2015 0745**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-010**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/19/2015 1426	PAP		82792

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Vinyl acetate	108-05-4	8260B	ND		5.0	1.0	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		1.0	0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.32	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		80	70-130
Bromofluorobenzene		110	70-130
Toluene-d8		92	70-130

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ICP-MS

Client: **Buxton Environmental**
Description: **SW-1**
Date Sampled: **08/13/2015 0745**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-010**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/19/2015 0102	CDF	08/18/2015 1130	82603
2	3005A	6020A	1	08/20/2015 2012	CDF	08/18/2015 1130	82603

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Antimony	**7440-36-0**	**6020A**	**0.48**	**J**	**1.0**	**0.17**	**ug/L**	**1**
Arsenic	**7440-38-2**	**6020A**	**1.1**		**1.0**	**0.26**	**ug/L**	**2**
Barium	**7440-39-3**	**6020A**	**49**		**5.0**	**0.53**	**ug/L**	**1**
Beryllium	7440-41-7	6020A	ND		0.40	0.12	ug/L	1
Boron	**7440-42-8**	**6020A**	**9.4**	**J**	**25**	**0.57**	**ug/L**	**2**
Cadmium	**7440-43-9**	**6020A**	**0.050**	**J**	**0.10**	**0.044**	**ug/L**	**1**
Calcium	**7440-70-2**	**6020A**	**4200**	**B**	**200**	**11**	**ug/L**	**1**
Chromium	7440-47-3	6020A	ND		5.0	0.63	ug/L	1
Cobalt	**7440-48-4**	**6020A**	**1.3**	**J**	**5.0**	**0.26**	**ug/L**	**1**
Copper	**7440-50-8**	**6020A**	**1.2**	**B**	**1.0**	**0.15**	**ug/L**	**1**
Lead	**7439-92-1**	**6020A**	**0.38**	**J**	**1.0**	**0.15**	**ug/L**	**1**
Molybdenum	**7439-98-7**	**6020A**	**1.0**	**J**	**10**	**0.51**	**ug/L**	**1**
Nickel	**7440-02-0**	**6020A**	**1.5**	**J**	**5.0**	**0.63**	**ug/L**	**1**
Selenium	7782-49-2	6020A	ND		1.0	0.95	ug/L	2
Silver	7440-22-4	6020A	ND		1.0	0.17	ug/L	2
Thallium	7440-28-0	6020A	ND		0.50	0.075	ug/L	1
Vanadium	7440-62-2	6020A	ND		5.0	1.0	ug/L	1
Zinc	**7440-66-6**	**6020A**	**28**		**10**	**1.6**	**ug/L**	**1**

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ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
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CVAA

Client: **Buxton Environmental**
Description: **SW-1**
Date Sampled: **08/13/2015 0745**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-010**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	08/18/2015 1005	COH	08/17/2015 1647	82565

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Mercury	7439-97-6	7470A	ND		0.00010	0.000028	mg/L	1

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
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Inorganic non-metals

Client: **Buxton Environmental**
Description: **SW-2**
Date Sampled: **08/13/2015 0830**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-011**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2		(Chloride) 300.0	1	09/01/2015 2145	TAF		83981
2		(Fluoride) 300.0	1	09/01/2015 2145	TAF		83979
2		(Sulfate) 300.0	1	09/01/2015 2145	TAF		83986
1		(TDS) SM 2540C-2011	1	08/17/2015 1038	BLO		82528

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Chloride		**300.0**	**20**		**1.0**	**0.11**	**mg/L**	**2**
Fluoride	**16984-48-8**	**300.0**	**0.29**		**0.10**	**0.041**	**mg/L**	**2**
Sulfate		**300.0**	**2.2**		**1.0**	**0.28**	**mg/L**	**2**
TDS		**SM 2540C-20**	**180**	**B**	**10**	**3.4**	**mg/L**	**1**

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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **SW-2**
Date Sampled: **08/13/2015 0830**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-011**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/19/2015 1449	PAP		82792

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	**67-64-1**	**8260B**	**7.3**	**J**	**20**	**1.6**	**ug/L**	**1**
Acrylonitrile	107-13-1	8260B	ND		20	0.62	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.21	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		1.0	0.45	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		1.0	0.23	ug/L	1
Bromoform	75-25-2	8260B	ND		1.0	0.35	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		2.0	0.19	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		1.0	0.45	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		1.0	0.31	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		1.0	0.20	ug/L	1
Chloroethane	75-00-3	8260B	ND		2.0	0.28	ug/L	1
Chloroform	67-66-3	8260B	ND		1.0	0.21	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		1.0	0.57	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		1.0	0.23	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	0.17	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		1.0	0.26	ug/L	1
trans-1,4-Dichloro-2-butene	110-57-6	8260B	ND		2.0	1.4	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		1.0	0.46	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		1.0	0.19	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.23	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		1.0	0.31	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		1.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		1.0	0.29	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		1.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		1.0	0.22	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.21	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.26	ug/L	1
Methyl iodide (Iodomethane)	74-88-4	8260B	ND		5.0	0.28	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.29	ug/L	1
Methylene chloride	75-09-2	8260B	ND		1.0	0.42	ug/L	1
Styrene	100-42-5	8260B	ND		1.0	0.13	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		1.0	0.19	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		1.0	0.13	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		1.0	0.22	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.24	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		1.0	0.24	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		1.0	0.22	ug/L	1
Trichloroethene	79-01-6	8260B	ND		1.0	0.16	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		1.0	0.74	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		1.0	0.35	ug/L	1

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ND = Not detected at or above the MDL
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E = Quantitation of compound exceeded the calibration range
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Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **SW-2**
Date Sampled: **08/13/2015 0830**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-011**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/19/2015 1449	PAP		82792

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Vinyl acetate	108-05-4	8260B	ND		5.0	1.0	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		1.0	0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.32	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		78	70-130
Bromofluorobenzene		106	70-130
Toluene-d8		90	70-130

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Client: **Buxton Environmental**
Laboratory ID: **QH13039-011**
Description: **SW-2**
Matrix: **Aqueous**
Date Sampled: **08/13/2015 0830**
Date Received: **08/13/2015**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/19/2015 0107	CDF	08/18/2015 1130	82603
2	3005A	6020A	1	08/20/2015 2017	CDF	08/18/2015 1130	82603

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Antimony	**7440-36-0**	**6020A**	**0.62**	**J**	**1.0**	**0.17**	**ug/L**	**1**
Arsenic	**7440-38-2**	**6020A**	**2.9**		**1.0**	**0.26**	**ug/L**	**2**
Barium	**7440-39-3**	**6020A**	**110**		**5.0**	**0.53**	**ug/L**	**1**
Beryllium	7440-41-7	6020A	ND		0.40	0.12	ug/L	1
Boron	**7440-42-8**	**6020A**	**87**		**25**	**0.57**	**ug/L**	**2**
Cadmium	7440-43-9	6020A	ND		0.10	0.044	ug/L	1
Calcium	**7440-70-2**	**6020A**	**12000**	**B**	**200**	**11**	**ug/L**	**1**
Chromium	7440-47-3	6020A	ND		5.0	0.63	ug/L	1
Cobalt	**7440-48-4**	**6020A**	**1.4**	**J**	**5.0**	**0.26**	**ug/L**	**1**
Copper	**7440-50-8**	**6020A**	**1.5**	**B**	**1.0**	**0.15**	**ug/L**	**1**
Lead	**7439-92-1**	**6020A**	**1.2**		**1.0**	**0.15**	**ug/L**	**1**
Molybdenum	7439-98-7	6020A	ND		10	0.51	ug/L	1
Nickel	**7440-02-0**	**6020A**	**1.8**	**J**	**5.0**	**0.63**	**ug/L**	**1**
Selenium	**7782-49-2**	**6020A**	**1.6**		**1.0**	**0.95**	**ug/L**	**2**
Silver	7440-22-4	6020A	ND		1.0	0.17	ug/L	2
Thallium	7440-28-0	6020A	ND		0.50	0.075	ug/L	1
Vanadium	**7440-62-2**	**6020A**	**3.7**	**J**	**5.0**	**1.0**	**ug/L**	**1**
Zinc	**7440-66-6**	**6020A**	**7.0**	**J**	**10**	**1.6**	**ug/L**	**1**

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CVAA

Client: **Buxton Environmental**
Description: **SW-2**
Date Sampled: **08/13/2015 0830**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-011**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	08/18/2015 1007	COH	08/17/2015 1647	82565

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Mercury	7439-97-6	7470A	ND		0.00010	0.000028	mg/L	1

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Inorganic non-metals

Client: **Buxton Environmental**
Description: **EQUIPMENT BLANK**
Date Sampled: **08/12/2015 0930**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-012**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Chloride) 300.0	25	08/31/2015 0744	TAF		83809
1		(Fluoride) 300.0	1	08/31/2015 0744	TAF		83816
1		(Sulfate) 300.0	1	08/31/2015 0744	TAF		83818
1		(TDS) SM 2540C-2011	1	08/17/2015 1038	BLO		82528

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Chloride		300.0	ND		25	2.7	mg/L	1
Fluoride	16984-48-8	300.0	ND		0.10	0.041	mg/L	1
Sulfate		300.0	ND		1.0	0.28	mg/L	1
TDS		SM 2540C-20	ND		10	3.4	mg/L	1

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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **EQUIPMENT BLANK**
Date Sampled: **08/12/2015 0930**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-012**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/19/2015 1211	PAP		82792

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	1.6	ug/L	1
Acrylonitrile	107-13-1	8260B	ND		20	0.62	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.21	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		1.0	0.45	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		1.0	0.23	ug/L	1
Bromoform	75-25-2	8260B	ND		1.0	0.35	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		2.0	0.19	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		1.0	0.45	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		1.0	0.31	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		1.0	0.20	ug/L	1
Chloroethane	75-00-3	8260B	ND		2.0	0.28	ug/L	1
Chloroform	67-66-3	8260B	ND		1.0	0.21	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		1.0	0.57	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		1.0	0.23	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	0.17	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		1.0	0.26	ug/L	1
trans-1,4-Dichloro-2-butene	110-57-6	8260B	ND		2.0	1.4	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		1.0	0.46	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		1.0	0.19	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.23	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		1.0	0.31	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		1.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		1.0	0.29	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		1.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		1.0	0.22	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.21	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.26	ug/L	1
Methyl iodide (Iodomethane)	74-88-4	8260B	ND		5.0	0.28	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.29	ug/L	1
Methylene chloride	75-09-2	8260B	ND		1.0	0.42	ug/L	1
Styrene	100-42-5	8260B	ND		1.0	0.13	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		1.0	0.19	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		1.0	0.13	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		1.0	0.22	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.24	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		1.0	0.24	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		1.0	0.22	ug/L	1
Trichloroethene	79-01-6	8260B	ND		1.0	0.16	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		1.0	0.74	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		1.0	0.35	ug/L	1

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria

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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **EQUIPMENT BLANK**
Date Sampled: **08/12/2015 0930**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-012**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/19/2015 1211	PAP		82792

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Vinyl acetate	108-05-4	8260B	ND		5.0	1.0	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		1.0	0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.32	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		80	70-130
Bromofluorobenzene		112	70-130
Toluene-d8		93	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
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Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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Client: **Buxton Environmental**
Description: **EQUIPMENT BLANK**
Date Sampled: **08/12/2015 0930**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-012**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/19/2015 0113	CDF	08/18/2015 1130	82603
2	3005A	6020A	1	08/20/2015 2022	CDF	08/18/2015 1130	82603

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Antimony	**7440-36-0**	**6020A**	**0.38**	**J**	**1.0**	**0.17**	**ug/L**	**1**
Arsenic	**7440-38-2**	**6020A**	**0.37**	**J**	**1.0**	**0.26**	**ug/L**	**2**
Barium	**7440-39-3**	**6020A**	**1.0**	**J**	**5.0**	**0.53**	**ug/L**	**1**
Beryllium	7440-41-7	6020A	ND		0.40	0.12	ug/L	1
Boron	**7440-42-8**	**6020A**	**1.2**	**J**	**25**	**0.57**	**ug/L**	**2**
Cadmium	7440-43-9	6020A	ND		0.10	0.044	ug/L	1
Calcium	**7440-70-2**	**6020A**	**880**	**B**	**200**	**11**	**ug/L**	**1**
Chromium	7440-47-3	6020A	ND		5.0	0.63	ug/L	1
Cobalt	7440-48-4	6020A	ND		5.0	0.26	ug/L	1
Copper	**7440-50-8**	**6020A**	**0.94**	**BJ**	**1.0**	**0.15**	**ug/L**	**1**
Lead	7439-92-1	6020A	ND		1.0	0.15	ug/L	1
Molybdenum	7439-98-7	6020A	ND		10	0.51	ug/L	1
Nickel	7440-02-0	6020A	ND		5.0	0.63	ug/L	1
Selenium	7782-49-2	6020A	ND		1.0	0.95	ug/L	2
Silver	7440-22-4	6020A	ND		1.0	0.17	ug/L	2
Thallium	7440-28-0	6020A	ND		0.50	0.075	ug/L	1
Vanadium	7440-62-2	6020A	ND		5.0	1.0	ug/L	1
Zinc	**7440-66-6**	**6020A**	**4.4**	**J**	**10**	**1.6**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
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E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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CVAA

Client: **Buxton Environmental**
Description: **EQUIPMENT BLANK**
Date Sampled: **08/12/2015 0930**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-012**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	08/18/2015 1008	COH	08/17/2015 1647	82565

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Mercury	7439-97-6	7470A	ND		0.00010	0.000028	mg/L	1

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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **TRIP BLANK(SH1412)**
Date Sampled: **08/12/2015**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-013**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/19/2015 1233	PAP		82792

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	1.6	ug/L	1
Acrylonitrile	107-13-1	8260B	ND		20	0.62	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.21	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		1.0	0.45	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		1.0	0.23	ug/L	1
Bromoform	75-25-2	8260B	ND		1.0	0.35	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		2.0	0.19	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		1.0	0.45	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		1.0	0.31	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		1.0	0.20	ug/L	1
Chloroethane	75-00-3	8260B	ND		2.0	0.28	ug/L	1
Chloroform	67-66-3	8260B	ND		1.0	0.21	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		1.0	0.57	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		1.0	0.23	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	0.17	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		1.0	0.26	ug/L	1
trans-1,4-Dichloro-2-butene	110-57-6	8260B	ND		2.0	1.4	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		1.0	0.46	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		1.0	0.19	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.23	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		1.0	0.31	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		1.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		1.0	0.29	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		1.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		1.0	0.22	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.21	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.26	ug/L	1
Methyl iodide (Iodomethane)	74-88-4	8260B	ND		5.0	0.28	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.29	ug/L	1
Methylene chloride	75-09-2	8260B	ND		1.0	0.42	ug/L	1
Styrene	100-42-5	8260B	ND		1.0	0.13	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		1.0	0.19	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		1.0	0.13	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		1.0	0.22	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.24	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		1.0	0.24	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		1.0	0.22	ug/L	1
Trichloroethene	79-01-6	8260B	ND		1.0	0.16	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		1.0	0.74	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		1.0	0.35	ug/L	1

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
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Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **TRIP BLANK(SH1412)**
Date Sampled: **08/12/2015**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-013**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/19/2015 1233	PAP		82792

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Vinyl acetate	108-05-4	8260B	ND		5.0	1.0	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		1.0	0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.32	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		78	70-130
Bromofluorobenzene		106	70-130
Toluene-d8		91	70-130

PQL = Practical quantitation limit
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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **TRIP BLANK(SH2271)**
Date Sampled: **08/12/2015**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-014**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/19/2015 1256	PAP		82792

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	1.6	ug/L	1
Acrylonitrile	107-13-1	8260B	ND		20	0.62	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.21	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		1.0	0.45	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		1.0	0.23	ug/L	1
Bromoform	75-25-2	8260B	ND		1.0	0.35	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		2.0	0.19	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		1.0	0.45	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		1.0	0.31	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		1.0	0.20	ug/L	1
Chloroethane	75-00-3	8260B	ND		2.0	0.28	ug/L	1
Chloroform	67-66-3	8260B	ND		1.0	0.21	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		1.0	0.57	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		1.0	0.23	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	0.17	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		1.0	0.26	ug/L	1
trans-1,4-Dichloro-2-butene	110-57-6	8260B	ND		2.0	1.4	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		1.0	0.46	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		1.0	0.19	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		1.0	0.19	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.23	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		1.0	0.31	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		1.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		1.0	0.29	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		1.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		1.0	0.22	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.21	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.26	ug/L	1
Methyl iodide (Iodomethane)	74-88-4	8260B	ND		5.0	0.28	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.29	ug/L	1
Methylene chloride	75-09-2	8260B	ND		1.0	0.42	ug/L	1
Styrene	100-42-5	8260B	ND		1.0	0.13	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		1.0	0.19	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		1.0	0.13	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		1.0	0.22	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.24	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		1.0	0.24	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		1.0	0.22	ug/L	1
Trichloroethene	79-01-6	8260B	ND		1.0	0.16	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		1.0	0.74	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		1.0	0.35	ug/L	1

PQL = Practical quantitation limit
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Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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Volatile Organic Compounds by GC/MS

Client: **Buxton Environmental**
Description: **TRIP BLANK(SH2271)**
Date Sampled: **08/12/2015**
Date Received: **08/13/2015**

Laboratory ID: **QH13039-014**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/19/2015 1256	PAP		82792

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Vinyl acetate	108-05-4	8260B	ND		5.0	1.0	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		1.0	0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.32	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		79	70-130
Bromofluorobenzene		110	70-130
Toluene-d8		90	70-130

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QC Summary

Inorganic non-metals - MB

Sample ID: QQ82528-001
Batch: 82528
Analytical Method: SM 2540C-2011

Matrix: Aqueous

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
TDS	6.0	J	1	10	3.4	mg/L	08/17/2015 1038

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - LCS

Sample ID: QQ82528-002
Batch: 82528
Analytical Method: SM 2540C-2011

Matrix: Aqueous

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
TDS	1500	1500		1	97	90-110	08/17/2015 1038

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - Duplicate

Sample ID: QH13039-012DU
Batch: 82528
Analytical Method: SM 2540C-2011

Matrix: Aqueous

Parameter	Sample Amount (mg/L)	Result (mg/L)	Q	Dil	% RPD	% RPD Limit	Analysis Date
TDS	ND	ND		1	0.00	20	08/17/2015 1038

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - MB

Sample ID: QQ82708-001
Batch: 82708
Analytical Method: SM 2540C-2011

Matrix: Aqueous

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
TDS	ND		1	10	3.4	mg/L	08/18/2015 1930

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - LCS

Sample ID: QQ82708-002
Batch: 82708
Analytical Method: SM 2540C-2011

Matrix: Aqueous

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
TDS	1500	1400		1	95	90-110	08/18/2015 1930

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - MB

Sample ID: QQ82773-001
Batch: 82773
Analytical Method: SM 2540C-2011

Matrix: Aqueous

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
TDS	9.0	J	1	10	3.4	mg/L	08/19/2015 1103

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - LCS

Sample ID: QQ82773-002
Batch: 82773
Analytical Method: SM 2540C-2011

Matrix: Aqueous

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
TDS	1500	1500		1	99	90-110	08/19/2015 1103

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - Duplicate

Sample ID: QH13039-006DU
Batch: 82773
Analytical Method: SM 2540C-2011

Matrix: Aqueous

Parameter	Sample Amount (mg/L)	Result (mg/L)	Q	Dil	% RPD	% RPD Limit	Analysis Date
TDS	680	680		1	0.73	20	08/19/2015 1103

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - Duplicate

Sample ID: QH13039-007DU
Batch: 82773
Analytical Method: SM 2540C-2011

Matrix: Aqueous

Parameter	Sample Amount (mg/L)	Result (mg/L)	Q	Dil	% RPD	% RPD Limit	Analysis Date
TDS	1100	1100		1	2.7	20	08/19/2015 1103

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - MB

Sample ID: QQ83809-001
Batch: 83809
Analytical Method: 300.0

Matrix: Aqueous

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Chloride	ND		1	1.0	0.11	mg/L	08/31/2015 0021

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - LCS

Sample ID: QQ83809-002
Batch: 83809
Analytical Method: 300.0

Matrix: Aqueous

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Chloride	20	20		1	100	90-110	08/30/2015 2357

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - MB

Sample ID: QQ83816-001
Batch: 83816
Analytical Method: 300.0

Matrix: Aqueous

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Fluoride	ND		1	0.10	0.041	mg/L	08/31/2015 0021

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - LCS

Sample ID: QQ83816-002
Batch: 83816
Analytical Method: 300.0

Matrix: Aqueous

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Fluoride	4.0	4.2		1	106	90-110	08/30/2015 2357

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - MB

Sample ID: QQ83818-001
Batch: 83818
Analytical Method: 300.0

Matrix: Aqueous

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Sulfate	ND		1	1.0	0.28	mg/L	08/31/2015 0021

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - LCS

Sample ID: QQ83818-002
Batch: 83818
Analytical Method: 300.0

Matrix: Aqueous

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Sulfate	20	21		1	103	90-110	08/30/2015 2357

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - MB

Sample ID: QQ83979-001
Batch: 83979
Analytical Method: 300.0

Matrix: Aqueous

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Fluoride	ND		1	0.10	0.041	mg/L	09/01/2015 1618

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - LCS

Sample ID: QQ83979-002
Batch: 83979
Analytical Method: 300.0

Matrix: Aqueous

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Fluoride	4.0	4.2		1	105	90-110	09/01/2015 1642

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - MS

Sample ID: QH13039-005MS
Batch: 83979
Analytical Method: 300.0

Matrix: Aqueous

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Fluoride	0.74	4.0	4.7		1	100	90-110	09/01/2015 1815

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - MSD

Sample ID: QH13039-005MD
Batch: 83979
Analytical Method: 300.0

Matrix: Aqueous

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Fluoride	0.74	4.0	4.8		1	102	1.5	90-110	20	09/01/2015 1838

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - MB

Sample ID: QQ83981-001
Batch: 83981
Analytical Method: 300.0

Matrix: Aqueous

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Chloride	ND		1	1.0	0.11	mg/L	09/01/2015 1618

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - LCS

Sample ID: QQ83981-002
Batch: 83981
Analytical Method: 300.0

Matrix: Aqueous

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Chloride	20	20		1	98	90-110	09/01/2015 1642

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - MS

Sample ID: QH13039-005MS
Batch: 83981
Analytical Method: 300.0

Matrix: Aqueous

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Chloride	22	20	41		1	96	90-110	09/01/2015 1815

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - MSD

Sample ID: QH13039-005MD
Batch: 83981
Analytical Method: 300.0

Matrix: Aqueous

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Chloride	22	20	41		1	96	0.42	90-110	20	09/01/2015 1838

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - MB

Sample ID: QQ83986-001
Batch: 83986
Analytical Method: 300.0

Matrix: Aqueous

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Sulfate	ND		1	1.0	0.28	mg/L	09/01/2015 1618

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - LCS

Sample ID: QQ83986-002
Batch: 83986
Analytical Method: 300.0

Matrix: Aqueous

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Sulfate	20	20		1	98	90-110	09/01/2015 1642

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - MS

Sample ID: QH13039-005MS
Batch: 83986
Analytical Method: 300.0

Matrix: Aqueous

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Sulfate	4.1	20	23		1	94	90-110	09/01/2015 1815

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Inorganic non-metals - MSD

Sample ID: QH13039-005MD
Batch: 83986
Analytical Method: 300.0

Matrix: Aqueous

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Sulfate	4.1	20	23		1	95	1.2	90-110	20	09/01/2015 1838

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: QQ82615-001
Batch: 82615
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acetone	ND		1	20	1.6	ug/L	08/18/2015 0942
Acrylonitrile	ND		1	20	0.62	ug/L	08/18/2015 0942
Benzene	ND		1	1.0	0.21	ug/L	08/18/2015 0942
Bromochloromethane	ND		1	1.0	0.45	ug/L	08/18/2015 0942
Bromodichloromethane	ND		1	1.0	0.23	ug/L	08/18/2015 0942
Bromoform	ND		1	1.0	0.35	ug/L	08/18/2015 0942
Bromomethane (Methyl bromide)	ND		1	2.0	0.19	ug/L	08/18/2015 0942
2-Butanone (MEK)	ND		1	10	1.8	ug/L	08/18/2015 0942
Carbon disulfide	ND		1	1.0	0.45	ug/L	08/18/2015 0942
Carbon tetrachloride	ND		1	1.0	0.31	ug/L	08/18/2015 0942
Chlorobenzene	ND		1	1.0	0.20	ug/L	08/18/2015 0942
Chloroethane	ND		1	2.0	0.28	ug/L	08/18/2015 0942
Chloroform	ND		1	1.0	0.21	ug/L	08/18/2015 0942
Chloromethane (Methyl chloride)	ND		1	1.0	0.19	ug/L	08/18/2015 0942
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	1.0	0.57	ug/L	08/18/2015 0942
Dibromochloromethane	ND		1	1.0	0.23	ug/L	08/18/2015 0942
1,2-Dibromoethane (EDB)	ND		1	1.0	0.17	ug/L	08/18/2015 0942
Dibromomethane (Methylene bromide)	ND		1	1.0	0.26	ug/L	08/18/2015 0942
trans-1,4-Dichloro-2-butene	ND		1	2.0	1.4	ug/L	08/18/2015 0942
1,4-Dichlorobenzene	ND		1	1.0	0.19	ug/L	08/18/2015 0942
1,2-Dichlorobenzene	ND		1	1.0	0.46	ug/L	08/18/2015 0942
1,2-Dichloroethane	ND		1	1.0	0.23	ug/L	08/18/2015 0942
1,1-Dichloroethane	ND		1	1.0	0.19	ug/L	08/18/2015 0942
cis-1,2-Dichloroethene	ND		1	1.0	0.20	ug/L	08/18/2015 0942
1,1-Dichloroethene	ND		1	1.0	0.31	ug/L	08/18/2015 0942
trans-1,2-Dichloroethene	ND		1	1.0	0.33	ug/L	08/18/2015 0942
1,2-Dichloropropane	ND		1	1.0	0.29	ug/L	08/18/2015 0942
cis-1,3-Dichloropropene	ND		1	1.0	0.30	ug/L	08/18/2015 0942
trans-1,3-Dichloropropene	ND		1	1.0	0.22	ug/L	08/18/2015 0942
Ethylbenzene	ND		1	1.0	0.21	ug/L	08/18/2015 0942
2-Hexanone	ND		1	10	0.26	ug/L	08/18/2015 0942
Methyl iodide (Iodomethane)	ND		1	5.0	0.28	ug/L	08/18/2015 0942
4-Methyl-2-pentanone	ND		1	10	0.29	ug/L	08/18/2015 0942
Methylene chloride	ND		1	1.0	0.42	ug/L	08/18/2015 0942
Styrene	ND		1	1.0	0.13	ug/L	08/18/2015 0942
1,1,2,2-Tetrachloroethane	ND		1	1.0	0.13	ug/L	08/18/2015 0942
1,1,1,2-Tetrachloroethane	ND		1	1.0	0.19	ug/L	08/18/2015 0942
Tetrachloroethene	ND		1	1.0	0.22	ug/L	08/18/2015 0942
Toluene	ND		1	1.0	0.24	ug/L	08/18/2015 0942
1,1,1-Trichloroethane	ND		1	1.0	0.24	ug/L	08/18/2015 0942
1,1,2-Trichloroethane	ND		1	1.0	0.22	ug/L	08/18/2015 0942
Trichloroethene	ND		1	1.0	0.16	ug/L	08/18/2015 0942
Trichlorofluoromethane	ND		1	1.0	0.74	ug/L	08/18/2015 0942
1,2,3-Trichloropropane	ND		1	1.0	0.35	ug/L	08/18/2015 0942

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: QQ82615-001
Batch: 82615
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Vinyl acetate	ND		1	5.0	1.0	ug/L	08/18/2015 0942
Vinyl chloride	ND		1	1.0	0.50	ug/L	08/18/2015 0942
Xylenes (total)	ND		1	1.0	0.32	ug/L	08/18/2015 0942

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		99	70-130
1,2-Dichloroethane-d4		103	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: QQ82615-002
Batch: 82615
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	100	73		1	73	60-140	08/18/2015 0840
Acrylonitrile	100	82		1	82	70-130	08/18/2015 0840
Benzene	50	51		1	101	70-130	08/18/2015 0840
Bromochloromethane	50	47		1	94	70-130	08/18/2015 0840
Bromodichloromethane	50	51		1	101	70-130	08/18/2015 0840
Bromoform	50	53		1	105	70-130	08/18/2015 0840
Bromomethane (Methyl bromide)	50	50		1	101	60-140	08/18/2015 0840
2-Butanone (MEK)	100	93		1	93	60-140	08/18/2015 0840
Carbon disulfide	50	51		1	103	60-140	08/18/2015 0840
Carbon tetrachloride	50	53		1	106	70-130	08/18/2015 0840
Chlorobenzene	50	51		1	102	70-130	08/18/2015 0840
Chloroethane	50	54		1	108	60-140	08/18/2015 0840
Chloroform	50	44		1	88	70-130	08/18/2015 0840
Chloromethane (Methyl chloride)	50	50		1	100	60-140	08/18/2015 0840
1,2-Dibromo-3-chloropropane (DBCP)	50	45		1	91	70-130	08/18/2015 0840
Dibromochloromethane	50	54		1	108	70-130	08/18/2015 0840
1,2-Dibromoethane (EDB)	50	50		1	100	70-130	08/18/2015 0840
Dibromomethane (Methylene bromide)	50	50		1	100	70-130	08/18/2015 0840
trans-1,4-Dichloro-2-butene	50	56		1	111	34-142	08/18/2015 0840
1,4-Dichlorobenzene	50	51		1	102	70-130	08/18/2015 0840
1,2-Dichlorobenzene	50	49		1	98	70-130	08/18/2015 0840
1,2-Dichloroethane	50	49		1	98	70-130	08/18/2015 0840
1,1-Dichloroethane	50	49		1	98	70-130	08/18/2015 0840
cis-1,2-Dichloroethene	50	49		1	99	70-130	08/18/2015 0840
1,1-Dichloroethene	50	51		1	102	70-130	08/18/2015 0840
trans-1,2-Dichloroethene	50	51		1	101	70-130	08/18/2015 0840
1,2-Dichloropropane	50	47		1	95	70-130	08/18/2015 0840
cis-1,3-Dichloropropene	50	54		1	107	70-130	08/18/2015 0840
trans-1,3-Dichloropropene	50	55		1	109	70-130	08/18/2015 0840
Ethylbenzene	50	51		1	102	70-130	08/18/2015 0840
2-Hexanone	100	100		1	101	60-140	08/18/2015 0840
Methyl iodide (Iodomethane)	50	52		1	104	70-130	08/18/2015 0840
4-Methyl-2-pentanone	100	97		1	97	60-140	08/18/2015 0840
Methylene chloride	50	48		1	96	70-130	08/18/2015 0840
Styrene	50	52		1	104	70-130	08/18/2015 0840
1,1,2,2-Tetrachloroethane	50	49		1	97	60-140	08/18/2015 0840
1,1,1,2-Tetrachloroethane	50	51		1	102	70-130	08/18/2015 0840
Tetrachloroethene	50	53		1	106	70-130	08/18/2015 0840
Toluene	50	52		1	105	70-130	08/18/2015 0840
1,1,1-Trichloroethane	50	51		1	103	70-130	08/18/2015 0840
1,1,2-Trichloroethane	50	52		1	103	70-130	08/18/2015 0840
Trichloroethene	50	50		1	101	70-130	08/18/2015 0840
Trichlorofluoromethane	50	54		1	109	70-130	08/18/2015 0840
1,2,3-Trichloropropane	50	47		1	94	70-130	08/18/2015 0840

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: QQ82615-002
Batch: 82615
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Vinyl acetate	50	48		1	95	60-140	08/18/2015 0840
Vinyl chloride	50	51		1	102	70-130	08/18/2015 0840
Xylenes (total)	100	100		1	103	70-130	08/18/2015 0840

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		101	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		109	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: QQ82792-001
Batch: 82792
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acetone	ND		1	20	1.6	ug/L	08/19/2015 1006
Acrylonitrile	ND		1	20	0.62	ug/L	08/19/2015 1006
Benzene	ND		1	1.0	0.21	ug/L	08/19/2015 1006
Bromochloromethane	ND		1	1.0	0.45	ug/L	08/19/2015 1006
Bromodichloromethane	ND		1	1.0	0.23	ug/L	08/19/2015 1006
Bromoform	ND		1	1.0	0.35	ug/L	08/19/2015 1006
Bromomethane (Methyl bromide)	ND		1	2.0	0.19	ug/L	08/19/2015 1006
2-Butanone (MEK)	ND		1	10	1.8	ug/L	08/19/2015 1006
Carbon disulfide	ND		1	1.0	0.45	ug/L	08/19/2015 1006
Carbon tetrachloride	ND		1	1.0	0.31	ug/L	08/19/2015 1006
Chlorobenzene	ND		1	1.0	0.20	ug/L	08/19/2015 1006
Chloroethane	ND		1	2.0	0.28	ug/L	08/19/2015 1006
Chloroform	ND		1	1.0	0.21	ug/L	08/19/2015 1006
Chloromethane (Methyl chloride)	ND		1	1.0	0.19	ug/L	08/19/2015 1006
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	1.0	0.57	ug/L	08/19/2015 1006
Dibromochloromethane	ND		1	1.0	0.23	ug/L	08/19/2015 1006
1,2-Dibromoethane (EDB)	ND		1	1.0	0.17	ug/L	08/19/2015 1006
Dibromomethane (Methylene bromide)	ND		1	1.0	0.26	ug/L	08/19/2015 1006
trans-1,4-Dichloro-2-butene	ND		1	2.0	1.4	ug/L	08/19/2015 1006
1,4-Dichlorobenzene	ND		1	1.0	0.19	ug/L	08/19/2015 1006
1,2-Dichlorobenzene	ND		1	1.0	0.46	ug/L	08/19/2015 1006
1,2-Dichloroethane	ND		1	1.0	0.23	ug/L	08/19/2015 1006
1,1-Dichloroethane	ND		1	1.0	0.19	ug/L	08/19/2015 1006
1,1-Dichloroethene	ND		1	1.0	0.31	ug/L	08/19/2015 1006
trans-1,2-Dichloroethene	ND		1	1.0	0.33	ug/L	08/19/2015 1006
cis-1,2-Dichloroethene	ND		1	1.0	0.20	ug/L	08/19/2015 1006
1,2-Dichloropropane	ND		1	1.0	0.29	ug/L	08/19/2015 1006
cis-1,3-Dichloropropene	ND		1	1.0	0.30	ug/L	08/19/2015 1006
trans-1,3-Dichloropropene	ND		1	1.0	0.22	ug/L	08/19/2015 1006
Ethylbenzene	ND		1	1.0	0.21	ug/L	08/19/2015 1006
2-Hexanone	ND		1	10	0.26	ug/L	08/19/2015 1006
Methyl iodide (Iodomethane)	ND		1	5.0	0.28	ug/L	08/19/2015 1006
4-Methyl-2-pentanone	ND		1	10	0.29	ug/L	08/19/2015 1006
Methylene chloride	ND		1	1.0	0.42	ug/L	08/19/2015 1006
Styrene	ND		1	1.0	0.13	ug/L	08/19/2015 1006
1,1,1,2-Tetrachloroethane	ND		1	1.0	0.19	ug/L	08/19/2015 1006
1,1,2,2-Tetrachloroethane	ND		1	1.0	0.13	ug/L	08/19/2015 1006
Tetrachloroethene	ND		1	1.0	0.22	ug/L	08/19/2015 1006
Toluene	ND		1	1.0	0.24	ug/L	08/19/2015 1006
1,1,1-Trichloroethane	ND		1	1.0	0.24	ug/L	08/19/2015 1006
1,1,2-Trichloroethane	ND		1	1.0	0.22	ug/L	08/19/2015 1006
Trichloroethene	ND		1	1.0	0.16	ug/L	08/19/2015 1006
Trichlorofluoromethane	ND		1	1.0	0.74	ug/L	08/19/2015 1006
1,2,3-Trichloropropane	ND		1	1.0	0.35	ug/L	08/19/2015 1006

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: QQ82792-001
Batch: 82792
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Vinyl acetate	ND		1	5.0	1.0	ug/L	08/19/2015 1006
Vinyl chloride	ND		1	1.0	0.50	ug/L	08/19/2015 1006
Xylenes (total)	ND		1	1.0	0.32	ug/L	08/19/2015 1006

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		108	70-130
1,2-Dichloroethane-d4		78	70-130
Toluene-d8		90	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: QQ82792-002
Batch: 82792
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	100	100		1	104	60-140	08/19/2015 0902
Acrylonitrile	100	110		1	111	70-130	08/19/2015 0902
Benzene	50	53		1	106	70-130	08/19/2015 0902
Bromochloromethane	50	55		1	109	70-130	08/19/2015 0902
Bromodichloromethane	50	52		1	104	70-130	08/19/2015 0902
Bromoform	50	52		1	104	70-130	08/19/2015 0902
Bromomethane (Methyl bromide)	50	55		1	110	60-140	08/19/2015 0902
2-Butanone (MEK)	100	110		1	109	60-140	08/19/2015 0902
Carbon disulfide	50	62		1	123	60-140	08/19/2015 0902
Carbon tetrachloride	50	58		1	115	70-130	08/19/2015 0902
Chlorobenzene	50	53		1	105	70-130	08/19/2015 0902
Chloroethane	50	53		1	106	60-140	08/19/2015 0902
Chloroform	50	51		1	102	70-130	08/19/2015 0902
Chloromethane (Methyl chloride)	50	55		1	111	60-140	08/19/2015 0902
1,2-Dibromo-3-chloropropane (DBCP)	50	46		1	93	70-130	08/19/2015 0902
Dibromochloromethane	50	52		1	103	70-130	08/19/2015 0902
1,2-Dibromoethane (EDB)	50	52		1	104	70-130	08/19/2015 0902
Dibromomethane (Methylene bromide)	50	51		1	101	70-130	08/19/2015 0902
trans-1,4-Dichloro-2-butene	50	48		1	97	34-142	08/19/2015 0902
1,4-Dichlorobenzene	50	52		1	103	70-130	08/19/2015 0902
1,2-Dichlorobenzene	50	54		1	108	70-130	08/19/2015 0902
1,2-Dichloroethane	50	53		1	107	70-130	08/19/2015 0902
1,1-Dichloroethane	50	54		1	108	70-130	08/19/2015 0902
1,1-Dichloroethene	50	57		1	113	70-130	08/19/2015 0902
trans-1,2-Dichloroethene	50	55		1	111	70-130	08/19/2015 0902
cis-1,2-Dichloroethene	50	55		1	110	70-130	08/19/2015 0902
1,2-Dichloropropane	50	52		1	103	70-130	08/19/2015 0902
cis-1,3-Dichloropropene	50	52		1	105	70-130	08/19/2015 0902
trans-1,3-Dichloropropene	50	51		1	103	70-130	08/19/2015 0902
Ethylbenzene	50	53		1	106	70-130	08/19/2015 0902
2-Hexanone	100	100		1	102	60-140	08/19/2015 0902
Methyl iodide (Iodomethane)	50	57		1	113	70-130	08/19/2015 0902
4-Methyl-2-pentanone	100	100		1	102	60-140	08/19/2015 0902
Methylene chloride	50	52		1	105	70-130	08/19/2015 0902
Styrene	50	53		1	106	70-130	08/19/2015 0902
1,1,1,2-Tetrachloroethane	50	52		1	104	70-130	08/19/2015 0902
1,1,2,2-Tetrachloroethane	50	51		1	102	60-140	08/19/2015 0902
Tetrachloroethene	50	52		1	104	70-130	08/19/2015 0902
Toluene	50	53		1	107	70-130	08/19/2015 0902
1,1,1-Trichloroethane	50	56		1	112	70-130	08/19/2015 0902
1,1,2-Trichloroethane	50	51		1	103	70-130	08/19/2015 0902
Trichloroethene	50	54		1	108	70-130	08/19/2015 0902
Trichlorofluoromethane	50	55		1	110	70-130	08/19/2015 0902
1,2,3-Trichloropropane	50	51		1	102	70-130	08/19/2015 0902

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: QQ82792-002
Batch: 82792
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Vinyl acetate	50	54		1	109	60-140	08/19/2015 0902
Vinyl chloride	50	55		1	109	70-130	08/19/2015 0902
Xylenes (total)	100	110		1	106	70-130	08/19/2015 0902

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		108	70-130
1,2-Dichloroethane-d4		75	70-130
Toluene-d8		92	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

ICP-MS - MB

Sample ID: QQ82380-001
Batch: 82380
Analytical Method: 6020A

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 08/14/2015 939

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Antimony	ND		1	1.0	0.17	ug/L	08/15/2015 0304
Arsenic	ND		1	1.0	0.26	ug/L	08/15/2015 0304
Barium	ND		1	5.0	0.53	ug/L	08/15/2015 0304
Beryllium	ND		1	0.40	0.12	ug/L	08/15/2015 0304
Boron	ND		1	25	0.57	ug/L	08/15/2015 0304
Cadmium	ND		1	0.10	0.044	ug/L	08/15/2015 0304
Calcium	**43**	**J**	**1**	**200**	**11**	**ug/L**	**08/15/2015 0304**
Chromium	ND		1	5.0	0.63	ug/L	08/15/2015 0304
Cobalt	ND		1	5.0	0.26	ug/L	08/15/2015 0304
Copper	**0.20**	**J**	**1**	**1.0**	**0.15**	**ug/L**	**08/15/2015 0304**
Lead	ND		1	1.0	0.15	ug/L	08/15/2015 0304
Molybdenum	ND		1	10	0.51	ug/L	08/15/2015 0304
Nickel	ND		1	5.0	0.63	ug/L	08/15/2015 0304
Selenium	ND		1	1.0	0.95	ug/L	08/15/2015 0304
Silver	ND		1	1.0	0.17	ug/L	08/20/2015 1814
Thallium	ND		1	0.50	0.075	ug/L	08/15/2015 0304
Vanadium	ND		1	5.0	1.0	ug/L	08/15/2015 0304
Zinc	ND		1	10	1.6	ug/L	08/15/2015 0304

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

ICP-MS - LCS

Sample ID: QQ82380-002
Batch: 82380
Analytical Method: 6020A

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 08/14/2015 939

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Antimony	100	110		1	106	80-120	08/15/2015 0310
Arsenic	100	100		1	101	80-120	08/15/2015 0310
Barium	100	100		1	104	80-120	08/15/2015 0310
Beryllium	100	100		1	102	80-120	08/15/2015 0310
Boron	100	99		1	99	80-120	08/15/2015 0310
Cadmium	100	100		1	101	80-120	08/15/2015 0310
Calcium	1000	1100		1	110	80-120	08/15/2015 0310
Chromium	100	100		1	103	80-120	08/15/2015 0310
Cobalt	100	100		1	101	80-120	08/15/2015 0310
Copper	100	110		1	105	80-120	08/15/2015 0310
Lead	100	100		1	101	80-120	08/15/2015 0310
Molybdenum	100	100		1	104	80-120	08/15/2015 0310
Nickel	100	100		1	103	80-120	08/15/2015 0310
Selenium	100	100		1	100	80-120	08/15/2015 0310
Silver	100	120		1	117	80-120	08/20/2015 1819
Thallium	100	100		1	100	80-120	08/15/2015 0310
Vanadium	100	100		1	101	80-120	08/15/2015 0310
Zinc	100	100		1	103	80-120	08/15/2015 0310

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

ICP-MS - MS

Sample ID: QH13039-001MS
Batch: 82380
Analytical Method: 6020A

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 08/14/2015 939

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Antimony	0.23	100	100		1	102	70-130	08/15/2015 0525
Arsenic	2.8	100	97		1	94	70-130	08/15/2015 0525
Barium	220	100	330		1	113	70-130	08/15/2015 0525
Beryllium	ND	100	88		1	88	70-130	08/15/2015 0525
Boron	6.9	100	100		1	93	70-130	08/15/2015 0525
Cadmium	0.13	100	94		1	94	70-130	08/15/2015 0525
Calcium	150000	1000	150000	N	1	220	70-130	08/15/2015 0525
Chromium	0.92	100	100		1	99	70-130	08/15/2015 0525
Cobalt	0.35	100	95		1	95	70-130	08/15/2015 0525
Copper	0.87	100	92		1	91	70-130	08/15/2015 0525
Lead	0.34	100	96		1	96	70-130	08/15/2015 0525
Molybdenum	0.95	100	110		1	105	70-130	08/15/2015 0525
Nickel	2.5	100	95		1	92	70-130	08/15/2015 0525
Selenium	8.1	100	96		1	88	70-130	08/15/2015 0525
Silver	0.50	100	110		1	105	70-130	08/20/2015 1828
Thallium	ND	100	110		1	107	70-130	08/15/2015 0525
Vanadium	2.7	100	100		1	100	70-130	08/15/2015 0525
Zinc	6.3	100	90		1	84	70-130	08/15/2015 0525

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

ICP-MS - MSD

Sample ID: QH13039-001MD
Batch: 82380
Analytical Method: 6020A

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 08/14/2015 939

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Antimony	0.23	100	100		1	103	0.58	70-130	20	08/15/2015 0531
Arsenic	2.8	100	99		1	96	2.1	70-130	20	08/15/2015 0531
Barium	220	100	330		1	109	1.3	70-130	20	08/15/2015 0531
Beryllium	ND	100	88		1	88	0.080	70-130	20	08/15/2015 0531
Boron	6.9	100	100		1	93	0.87	70-130	20	08/15/2015 0531
Cadmium	0.13	100	94		1	94	0.085	70-130	20	08/15/2015 0531
Calcium	150000	1000	150000	N	1	210	0.068	70-130	20	08/15/2015 0531
Chromium	0.92	100	100		1	100	0.50	70-130	20	08/15/2015 0531
Cobalt	0.35	100	96		1	96	1.4	70-130	20	08/15/2015 0531
Copper	0.87	100	92		1	91	0.011	70-130	20	08/15/2015 0531
Lead	0.34	100	97		1	96	0.23	70-130	20	08/15/2015 0531
Molybdenum	0.95	100	110		1	106	1.0	70-130	20	08/15/2015 0531
Nickel	2.5	100	97		1	94	1.9	70-130	20	08/15/2015 0531
Selenium	8.1	100	97		1	89	1.2	70-130	20	08/15/2015 0531
Silver	0.50	100	110		1	107	2.2	70-130	20	08/20/2015 1833
Thallium	ND	100	110		1	109	1.9	70-130	20	08/15/2015 0531
Vanadium	2.7	100	100		1	101	1.1	70-130	20	08/15/2015 0531
Zinc	6.3	100	92		1	86	2.1	70-130	20	08/15/2015 0531

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

ICP-MS - MB

Sample ID: QQ82426-001
Batch: 82426
Analytical Method: 6020A

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 08/14/2015 1445

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Antimony	ND		1	1.0	0.17	ug/L	08/15/2015 0552
Arsenic	ND		1	1.0	0.26	ug/L	08/15/2015 0552
Barium	ND		1	5.0	0.53	ug/L	08/15/2015 0552
Beryllium	ND		1	0.40	0.12	ug/L	08/15/2015 0552
Boron	ND		1	25	0.57	ug/L	08/20/2015 1852
Cadmium	ND		1	0.10	0.044	ug/L	08/15/2015 0552
Calcium	**51**	**J**	**1**	**200**	**11**	**ug/L**	**08/15/2015 0552**
Chromium	ND		1	5.0	0.63	ug/L	08/15/2015 0552
Cobalt	ND		1	5.0	0.26	ug/L	08/15/2015 0552
Copper	**0.16**	**J**	**1**	**1.0**	**0.15**	**ug/L**	**08/15/2015 0552**
Lead	ND		1	1.0	0.15	ug/L	08/15/2015 0552
Molybdenum	ND		1	10	0.51	ug/L	08/15/2015 0552
Nickel	ND		1	5.0	0.63	ug/L	08/15/2015 0552
Selenium	ND		1	1.0	0.95	ug/L	08/15/2015 0552
Silver	**0.22**	**J**	**1**	**1.0**	**0.17**	**ug/L**	**08/19/2015 0245**
Thallium	ND		1	0.50	0.075	ug/L	08/15/2015 0552
Vanadium	ND		1	5.0	1.0	ug/L	08/15/2015 0552
Zinc	ND		1	10	1.6	ug/L	08/15/2015 0552

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

ICP-MS - LCS

Sample ID: QQ82426-002
Batch: 82426
Analytical Method: 6020A

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 08/14/2015 1445

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Antimony	100	110		1	107	80-120	08/15/2015 0558
Arsenic	100	100		1	104	80-120	08/15/2015 0558
Barium	100	110		1	106	80-120	08/15/2015 0558
Beryllium	100	100		1	104	80-120	08/15/2015 0558
Boron	100	110		1	107	80-120	08/20/2015 1857
Cadmium	100	100		1	101	80-120	08/15/2015 0558
Calcium	1000	1100		1	114	80-120	08/15/2015 0558
Chromium	100	100		1	103	80-120	08/15/2015 0558
Cobalt	100	100		1	102	80-120	08/15/2015 0558
Copper	100	110		1	105	80-120	08/15/2015 0558
Lead	100	100		1	102	80-120	08/15/2015 0558
Molybdenum	100	100		1	104	80-120	08/15/2015 0558
Nickel	100	100		1	104	80-120	08/15/2015 0558
Selenium	100	110		1	108	80-120	08/15/2015 0558
Silver	100	120		1	115	80-120	08/19/2015 0250
Thallium	100	100		1	101	80-120	08/15/2015 0558
Vanadium	100	100		1	103	80-120	08/15/2015 0558
Zinc	100	100		1	105	80-120	08/15/2015 0558

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

ICP-MS - MS

Sample ID: QH13039-002MS
Batch: 82426
Analytical Method: 6020A

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 08/14/2015 1445

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Antimony	0.49	100	100		1	101	70-130	08/19/2015 0439
Arsenic	3.2	100	100		1	97	70-130	08/15/2015 0747
Barium	260	100	380		1	121	70-130	08/15/2015 0747
Beryllium	0.17	100	93		1	93	70-130	08/15/2015 0747
Boron	36	100	140		1	104	70-130	08/20/2015 1906
Cadmium	0.060	100	100		1	100	70-130	08/19/2015 0439
Calcium	97000	1000	97000	N	1	23	70-130	08/15/2015 0747
Chromium	5.2	100	110		1	101	70-130	08/15/2015 0747
Cobalt	1.6	100	100		1	98	70-130	08/15/2015 0747
Copper	4.1	100	97		1	93	70-130	08/15/2015 0747
Lead	2.0	100	100		1	102	70-130	08/15/2015 0747
Molybdenum	11	100	120		1	105	70-130	08/15/2015 0747
Nickel	5.4	100	100		1	95	70-130	08/15/2015 0747
Selenium	7.7	100	100		1	94	70-130	08/15/2015 0747
Silver	ND	100	110		1	110	70-130	08/20/2015 1906
Thallium	ND	100	110		1	113	70-130	08/15/2015 0747
Vanadium	4.8	100	110		1	104	70-130	08/15/2015 0747
Zinc	12	100	100		1	88	70-130	08/15/2015 0747

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

ICP-MS - MSD

Sample ID: QH13039-002MD
Batch 82426
Analytical Method: 6020A

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 08/14/2015 1445

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Antimony	0.49	100	100		1	102	0.89	70-130	20	08/19/2015 0455
Arsenic	3.2	100	100		1	97	0.26	70-130	20	08/15/2015 0803
Barium	260	100	380		1	114	1.8	70-130	20	08/15/2015 0803
Beryllium	0.17	100	93		1	92	0.44	70-130	20	08/15/2015 0803
Boron	36	100	140		1	99	3.2	70-130	20	08/20/2015 1911
Cadmium	0.060	100	99		1	99	0.77	70-130	20	08/19/2015 0455
Calcium	97000	1000	96000	N	1	-104	1.3	70-130	20	08/15/2015 0803
Chromium	5.2	100	110		1	104	2.2	70-130	20	08/15/2015 0803
Cobalt	1.6	100	99		1	98	0.54	70-130	20	08/15/2015 0803
Copper	4.1	100	97		1	93	0.44	70-130	20	08/15/2015 0803
Lead	2.0	100	100		1	99	3.3	70-130	20	08/15/2015 0803
Molybdenum	11	100	120		1	106	0.60	70-130	20	08/15/2015 0803
Nickel	5.4	100	100		1	95	0.60	70-130	20	08/15/2015 0803
Selenium	7.7	100	100		1	93	0.30	70-130	20	08/15/2015 0803
Silver	ND	100	110		1	109	0.55	70-130	20	08/20/2015 1911
Thallium	ND	100	110		1	113	0.62	70-130	20	08/15/2015 0803
Vanadium	4.8	100	110		1	105	1.0	70-130	20	08/15/2015 0803
Zinc	12	100	100		1	89	0.95	70-130	20	08/15/2015 0803

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

ICP-MS - MB

Sample ID: QQ82603-001
Batch: 82603
Analytical Method: 6020A

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 08/18/2015 1130

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Antimony	ND		1	1.0	0.17	ug/L	08/19/2015 0030
Arsenic	ND		1	1.0	0.26	ug/L	08/20/2015 1944
Barium	ND		1	5.0	0.53	ug/L	08/19/2015 0030
Beryllium	ND		1	0.40	0.12	ug/L	08/19/2015 0030
Boron	ND		1	25	0.57	ug/L	08/20/2015 1944
Cadmium	ND		1	0.10	0.044	ug/L	08/19/2015 0030
Calcium	**41**	**J**	**1**	**200**	**11**	**ug/L**	**08/19/2015 0030**
Chromium	ND		1	5.0	0.63	ug/L	08/19/2015 0030
Cobalt	ND		1	5.0	0.26	ug/L	08/19/2015 0030
Copper	**0.41**	**J**	**1**	**1.0**	**0.15**	**ug/L**	**08/19/2015 0030**
Lead	ND		1	1.0	0.15	ug/L	08/19/2015 0030
Molybdenum	ND		1	10	0.51	ug/L	08/19/2015 0030
Nickel	ND		1	5.0	0.63	ug/L	08/19/2015 0030
Selenium	ND		1	1.0	0.95	ug/L	08/20/2015 1944
Silver	ND		1	1.0	0.17	ug/L	08/22/2015 0022
Thallium	ND		1	0.50	0.075	ug/L	08/19/2015 0030
Vanadium	ND		1	5.0	1.0	ug/L	08/19/2015 0030
Zinc	ND		1	10	1.6	ug/L	08/19/2015 0030

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

ICP-MS - LCS

Sample ID: QQ82603-002
Batch: 82603
Analytical Method: 6020A

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 08/18/2015 1130

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Antimony	100	110		1	106	80-120	08/19/2015 0035
Arsenic	100	110		1	108	80-120	08/20/2015 1949
Barium	100	110		1	108	80-120	08/19/2015 0035
Beryllium	100	110		1	110	80-120	08/19/2015 0035
Boron	100	110		1	106	80-120	08/20/2015 1949
Cadmium	100	100		1	101	80-120	08/19/2015 0035
Calcium	1000	1100		1	115	80-120	08/19/2015 0035
Chromium	100	110		1	106	80-120	08/19/2015 0035
Cobalt	100	110		1	108	80-120	08/19/2015 0035
Copper	100	110		1	107	80-120	08/19/2015 0035
Lead	100	98		1	98	80-120	08/19/2015 0035
Molybdenum	100	110		1	107	80-120	08/19/2015 0035
Nickel	100	110		1	106	80-120	08/19/2015 0035
Selenium	100	110		1	107	80-120	08/20/2015 1949
Silver	100	120		1	116	80-120	08/22/2015 0027
Thallium	100	100		1	102	80-120	08/19/2015 0035
Vanadium	100	100		1	104	80-120	08/19/2015 0035
Zinc	100	110		1	106	80-120	08/19/2015 0035

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

CVAA - MB

Sample ID: QQ82565-001
Batch: 82565
Analytical Method: 7470A

Matrix: Aqueous
Prep Method: 7470A
Prep Date: 08/17/2015 1647

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Mercury	ND		1	0.00010	0.000028	mg/L	08/18/2015 0940

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

CVAA - LCS

Sample ID: QQ82565-002
Batch: 82565
Analytical Method: 7470A

Matrix: Aqueous
Prep Method: 7470A
Prep Date: 08/17/2015 1647

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Mercury	0.0020	0.0020		1	102	80-120	08/18/2015 0942

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Chain of Custody
and
Miscellaneous Documents

SHEALY Chain of Custody Record

SHEALY ENVIRONMENTAL SERVICES, INC.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111

Number 110670

Client: BUXTON ENVIRONMENTAL INC
Report to Contact: ROSS KLEINMAN
Telephone No. / Fax No. / E-mail: 704-344-1458
Quote No.: 17864
Address: 1101 SOUTH BLVD, STE 101
Sampler's Signature:
Waybill No.:
Page 1 of 1
City: CHARLOTTE | State: NC | Zip Code: 28203
Printed Name:
Remarks (Attach list if more space is needed.)
Project Name: BRICKHAVEN NO.2 MINE TRACT "A"
Project No.: 1271 MONCURE - FLATWOOD RD MONCURE, NC
P.O. No.:

QH13039

Sample ID / Description (Containers for each sample may be combined on one line.)	Date	Time	Grab (G) Composite (C)	Matrix: Aqueous	Solid	Air/Aqueous	Liquids	Aerosol	No. of Containers by Preservative Type: NaOH	HNO3	NaOH	Silica Gel	Unpres.	EPA-APPIII (Boron, Calcium, Chloride, Fluoride, Sulfate + TDS)	EPA-APPIII (Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Hg, Mo, Se, Tl)	RADIUM 226+228	* NC APPE METALS (Sb, Al, As, Ag, V, Zn)	NC APP I VOCS					
MW-1	8-12-15	11:15	G	✓					3	3			1	X	X	X	X	X	X					
MW-2	8-12-15	12:40	G	✓					3	3			1	X	X	X	X	X	X					
MW-3	8-12-15	14:10	G	✓					3	3			1	X	X	X	X	X	X					
MW-4	8-12-15	15:20	G	✓					3	3			1	X	X	X	X	X	X					
MW-5	8-12-15	16:25	G	✓					3	3			1	X	X	X	X	X	X					
MW-6	8-12-15	18:30	G	✓					3	3			1	X	X	X	X	X	X					
MW-7	8-12-15	19:30	G	✓					3	3			1	X	X	X	X	X	X					
MW-8	8-12-15	20:40	G	✓					3	3			1	X	X	X	X	X	X					
BG-1	8-12-15	22:10	G	✓					3	3			1	X	X	X	X	X	X					
SW-1	8-13-15	7:45	G	✓					3	3			1	X	X	X	X	X	X					
SW-2	8-13-15	8:30	G	✓					3	3			1	X	X	X	X	X	X					
EQUIPMENT BLANK	8-12-15	9:30	G	✓					3	3			1	X	X	X	X	X	X					
TRIP BLANK	—	—	G	✓						2									X					

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

Turn Around Time Required (Prior lab approval required for expedited TAT.): ☑ Standard ☐ Rush (Specify) 14 DAY TAT

QC Requirements (Specify): EPA + NC [redacted] RULES w/ LOW LEVEL DETECTION & J & B FLAGS (SEE ATTACH LIST OF PARAMETERS)

	Date	Time		Date	Time
1. Relinquished by	8-13-15	1310	1. Received by	8/13/15	1310
2. Relinquished by	8/13/15	1710	2. Received by		
3. Relinquished by			3. Laboratory received by	8/13/15	1710

Comments:

LAB USE ONLY
Received on ice (Circle) (Yes) No Ice Pack
Receipt Temp 4.2 °C
2.9, 2.5, 2.0

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: F-AD-012 Effective Date: 08-04-02

Shealy Environmental Services, Inc.
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

SHEALY ENVIRONMENTAL SERVICES, INC.

SHEALY ENVIRONMENTAL SERVICES, INC.

Sample Receipt Checklist (SRC)

Client: Buxton Cooler Inspected by/date: mcm/021315 Lot #: QH13039

Means of receipt: ☑ SESI ☐ Client ☐ UPS ☐ FedEx ☐ Airborne Exp ☐ Other			
Yes ☐	No ☑		1. Were custody seals present on the cooler?
Yes ☐	No ☐	NA ☑	2. If custody seals were present, were they intact and unbroken?
Cooler ID/Original temperature upon receipt/Derived (corrected) temperature upon receipt: MR/4.2/4.2°C /29 /2.9 °C 2020/2.5/2.5°C 2231/2.0/2.0 °C Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: 6 IR Gun Correction Factor: 0.0°C Method of coolant: ☑ Wet Ice ☐ Blue Ice ☐ Dry Ice ☐ None			
Yes ☐	No ☐	NA ☑	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other: _____. (For coolers received via commercial courier, PMs are to be notified immediately.)
Yes ☐	No ☐	NA ☑	4. Is the commercial courier's packing slip attached to this form?
Yes ☑	No ☐		5. Were proper custody procedures (relinquished/received) followed?
Yes ☐	No ☐	NA ☑	5a Were samples relinquished by client to commercial courier?
Yes ☑	No ☐		6. Were sample IDs listed on the COC?
Yes ☑	No ☐		7. Were sample IDs listed on all sample containers?
Yes ☑	No ☐		8. Was collection date & time listed on the COC?
Yes ☑	No ☐		9. Was collection date & time listed on all sample containers?
mcm 021315 Yes ☑	No ☑		10. Did all container label information (ID, date, time) agree with the COC?
Yes ☑	No ☐		11. Were tests to be performed listed on the COC?
Yes ☑	No ☐		12. Did all samples arrive in the proper containers for each test?
Yes ☑	No ☐		13. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes ☑	No ☐		14. Was adequate sample volume available?
Yes ☑	No ☐		15. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes ☐	No ☑		16. Were any samples containers missing?
mcm 021315 Yes ☑	No ☑		17. Were there any excess samples not listed on COC?
Yes ☐	No ☑	NA ☐	18. Were bubbles present >"pea-size" (¼"or 6mm in diameter) in any VOA vials?
Yes ☑	No ☐	NA ☐	19. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes ☐	No ☐	NA ☑	20. Were all cyanide and/or sulfide samples received at a pH >12?
Yes ☐	No ☐	NA ☑	21. Were all applicable NH3/TKN/cyanide/phenol (<0.2mg/L) samples free of residual chlorine?
Yes ☐	No ☐	NA ☑	22. Were collection temperatures documented on the COC for NC samples?
Yes ☐	No ☐	NA ☑	23. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
Yes ☑	No ☐	12507	24. Was the quote number used taken from the container label?
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)			
Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H_2SO_4,HNO_3,HCl,NaOH) using SR # _____.			
Sample(s) _____ were received with bubbles >6 mm in diameter.			
Sample(s) _____ were received with TRC >0.2 mg/L (If #21 is No)			
SC Drinking Water Project Sample(s) pH verified to be > 2 by _____ Date: _____ Sample(s) _____ were not received at a pH of <2 and were adjusted accordingly using SR# _____			
Sample labels applied by: mcm Verified by: _____ Date: 2/13/15			

Comments:
Received extra set of trip blanks
one of the vials from sample 007 is labeled MW-12
but has correct collection time + date.

(10) The notification of intent to comply with the alternative closure requirements as required by § 257.105(i)(10).

(11) The annual progress reports under the alternative closure requirements as required by § 257.105(i)(11).

(12) The written post-closure plan, and any amendment of the plan, specified under § 257.105(i)(12).

(13) The notification of completion of post-closure care specified under § 257.105(i)(13).

5. Amend part 257 by adding "Appendix III to Part 257" and "Appendix IV to Part 257" to read as follows:

Appendix III to Part 257—Constituents for Detection Monitoring

Common Name[1]
Boron
Calcium
Chloride
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

[1] Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

Appendix IV to Part 257—Constituents for Assessment Monitoring

Common Name[1]
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 and 228 combined

ADDITIONAL APP I METALL
COPPER
NICKEL
SILVER
VANADIUM
ZINC

+ APP I VOC'S

[1] Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

PART 261—IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

Constituents for Detection Monitoring
(40 CFR 258, Appendix I)

Common name	CAS RN
Antimony	(Total)
Arsenic	(Total)
Barium	(Total)
Beryllium	(Total)
Cadmium	(Total)
Chromium	(Total)
Cobalt	(Total)
Copper	(Total)
Lead	(Total)
Nickel	(Total)
Selenium	(Total)
Silver	(Total)
Thallium	(Total)
Vanadium	(Total)
Zinc	(Total)
Acetone	67-64-1
Acrylonitrile	107-13-1
Benzene	71-43-2
Bromochloromethane	74-97-5
Bromodichloromethane	75-27-4
Bromoform; Tribromomethane	75-25-2
Carbon disulfide	75-15-0
Carbon tetrachloride	56-23-5
Chlorobenzene	108-90-7
Chloroethane; Ethyl chloride	75-00-3
Chloroform; Trichloromethane	67-66-3
Dibromochloromethane; Chlorodibromomethane	124-48-1
1,2-Dibromo-3-chlorpropane; DBCP	96-12-8
1,2-Dibromoethane; Ethylene dibromide; EDB	106-93-4
o-Dichlorobenzene; 1,2-Dichlorobenzene	95-50-1
p-Dichlorobenzene; 1,4-Dichlorobenzene	106-46-7
trans-1,4-Dichloro-2-butene	110-57-6
1,1-Dichloroethane; Ethylidene chloride	75-34-3
1,2-Dichloroethane; Ethlyene dichloride	107-06-2
1,1-Dichloroethylene; 1-1-Dichloroethene; Vinylidene chloride	75-35-4
cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	156-59-2
trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene	156-60-5
1,2-Dichlorpropane; Propylene dichloride	78-87-5
cis-1,3-Dichlorpropene	10061-01-5
trans-1,3-Dichlorpropene	10061-02-6
Ethylbenzene	100-41-4
2-hexanone; Methyl butyl ketone	591-78-6
Methyl bromide; Bromomethane	74-83-9
Methyl chloride; Chloromethane	74-87-3
Methylene bromide Dibromomethane	74-95-3
Methylene chloride; Dichloromethane	75-09-2
Methyl ethyl ketone; MEK; 2-Butanone	78-93-3
Methyl iodide; Iodomethane	74-88-4
4-Methyl-2-pentanone; Methyl isobutyl isobutyl ketone	108-10-1

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

September 15, 2015

Ms. Nisreen Saikaly
Shealy Environmental Services, Inc.
106 Vantage Point Drive
Cayce, South Carolina 29172

Re: Routine Analysis - Saikaly (SESI2 EDD)
Work Order: 379552
SDG: QH13039

Dear Ms. Saikaly:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on August 18, 2015. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4707.

Sincerely,

Anna C Day

Anna Day
Project Manager

Chain of Custody: 50947 and 51325
Enclosures

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

Certificate of Analysis Report
for

SESI001 Shealy Environmental Services, Inc

Client SDG: QH13039 GEL Work Order: 379552

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a Tracer compound

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Anna Day.

Reviewed by Anna C Day

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: September 15, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (SESI2 EDD)

Client Sample ID:	BG-1	Project:	SESI00309
Sample ID:	379552009	Client ID:	SESI001
Matrix:	Water		
Collect Date:	12-AUG-15 22:10		
Receive Date:	18-AUG-15		
Collector:	GEL		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	0.496	+/-1.35	2.39	3.00	pCi/L		AXM6	09/11/15	1147	1504255	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.802	+/-0.281	0.220	1.00	pCi/L		CXP3	09/15/15	0630	1501536	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			84	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

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Certificate of Analysis

Report Date: September 15, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (SESI2 EDD)

Client Sample ID:	MW-1	Project:	SESI00309
Sample ID:	379552001	Client ID:	SESI001
Matrix:	Water		
Collect Date:	12-AUG-15 11:15		
Receive Date:	18-AUG-15		
Collector:	GEL		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	0.538	+/-1.33	2.34	3.00	pCi/L		AXM6	09/11/15	1145	1504255	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.709	+/-0.330	0.393	1.00	pCi/L		CXP3	09/15/15	0545	1501536	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			86.1	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

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Certificate of Analysis

Report Date: September 15, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (SESI2 EDD)

Client Sample ID:	MW-2	Project:	SESI00309
Sample ID:	379552002	Client ID:	SESI001
Matrix:	Water		
Collect Date:	12-AUG-15 12:40		
Receive Date:	18-AUG-15		
Collector:	GEL		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	1.39	+/-1.36	2.26	3.00	pCi/L		AXM6	09/11/15	1145	1504255	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		1.33	+/-0.430	0.440	1.00	pCi/L		CXP3	09/15/15	0545	1501536	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			86.6	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

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Certificate of Analysis

Report Date: September 15, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (SESI2 EDD)

Client Sample ID:	MW-3	Project:	SESI00309
Sample ID:	379552003	Client ID:	SESI001
Matrix:	Water		
Collect Date:	12-AUG-15 14:10		
Receive Date:	18-AUG-15		
Collector:	GEL		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228		2.03	+/-1.21	1.85	3.00	pCi/L		AXM6	09/11/15	1146	1504255	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.990	+/-0.342	0.364	1.00	pCi/L		CXP3	09/15/15	0545	1501536	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			89.1	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

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Certificate of Analysis

Report Date: September 15, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (SESI2 EDD)

Client Sample ID:	MW-4	Project:	SESI00309
Sample ID:	379552004	Client ID:	SESI001
Matrix:	Water		
Collect Date:	12-AUG-15 15:10		
Receive Date:	18-AUG-15		
Collector:	GEL		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	1.52	+/-1.24	2.01	3.00	pCi/L		AXM6	09/11/15	1146	1504255	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.814	+/-0.319	0.365	1.00	pCi/L		CXP3	09/15/15	0545	1501536	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			92.8	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

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Certificate of Analysis

Report Date: September 15, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (SESI2 EDD)

Client Sample ID:	MW-5	Project:	SESI00309
Sample ID:	379552005	Client ID:	SESI001
Matrix:	Water		
Collect Date:	12-AUG-15 16:25		
Receive Date:	18-AUG-15		
Collector:	GEL		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	0.520	+/-1.37	2.41	3.00	pCi/L		AXM6	09/11/15	1146	1504255	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.564	+/-0.276	0.351	1.00	pCi/L		CXP3	09/15/15	0545	1501536	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			93.3	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

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Certificate of Analysis

Report Date: September 15, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (SESI2 EDD)

Client Sample ID:	MW-6	Project:	SESI00309
Sample ID:	379552006	Client ID:	SESI001
Matrix:	Water		
Collect Date:	12-AUG-15 18:30		
Receive Date:	18-AUG-15		
Collector:	GEL		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	1.26	+/-0.989	1.56	3.00	pCi/L		AXM6	09/11/15	1146	1504255	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.806	+/-0.322	0.372	1.00	pCi/L		CXP3	09/15/15	0630	1501536	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			85.3	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

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Certificate of Analysis

Report Date: September 15, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (SESI2 EDD)

Client Sample ID:	MW-7	Project:	SESI00309
Sample ID:	379552007	Client ID:	SESI001
Matrix:	Water		
Collect Date:	12-AUG-15 19:30		
Receive Date:	18-AUG-15		
Collector:	GEL		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	0.271	+/-1.09	1.96	3.00	pCi/L		AXM6	09/11/15	1146	1504255	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.423	+/-0.269	0.380	1.00	pCi/L		CXP3	09/15/15	0630	1501536	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			95	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

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Certificate of Analysis

Report Date: September 15, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (SESI2 EDD)

Client Sample ID:	MW-8	Project:	SESI00309
Sample ID:	379552008	Client ID:	SESI001
Matrix:	Water		
Collect Date:	12-AUG-15 20:40		
Receive Date:	18-AUG-15		
Collector:	GEL		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	-0.831	+/-1.17	2.30	3.00	pCi/L		AXM6	09/11/15	1147	1504255	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.920	+/-0.360	0.389	1.00	pCi/L		CXP3	09/15/15	0630	1501536	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			90.7	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

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Certificate of Analysis

Report Date: September 15, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (SESI2 EDD)

Client Sample ID:	SW-1	Project:	SESI00309
Sample ID:	379552010	Client ID:	SESI001
Matrix:	Water		
Collect Date:	13-AUG-15 07:45		
Receive Date:	18-AUG-15		
Collector:	GEL		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	0.426	+/-0.751	1.33	3.00	pCi/L		AXM6	09/11/15	1147	1504255	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.521	+/-0.277	0.366	1.00	pCi/L		CXP3	09/15/15	0630	1501536	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			90.8	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

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Certificate of Analysis

Report Date: September 15, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (SESI2 EDD)

Client Sample ID:	SW-2	Project:	SESI00309
Sample ID:	379552011	Client ID:	SESI001
Matrix:	Water		
Collect Date:	13-AUG-15 08:30		
Receive Date:	18-AUG-15		
Collector:	GEL		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	0.468	+/-0.631	1.08	3.00	pCi/L		AXM6	09/11/15	1147	1504255	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.363	+/-0.240	0.345	1.00	pCi/L		CXP3	09/15/15	0705	1501536	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			95.1	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

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Certificate of Analysis

Report Date: September 15, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (SESI2 EDD)

Client Sample ID:	EQUIPMENT BLANK	Project:	SESI00309
Sample ID:	379552012	Client ID:	SESI001
Matrix:	Water		
Collect Date:	12-AUG-15 09:30		
Receive Date:	18-AUG-15		
Collector:	GEL		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	1.13	+/-0.918	1.46	3.00	pCi/L		AXM6	09/11/15	1147	1504255	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.489	+/-0.324	0.465	1.00	pCi/L		CXP3	09/15/15	0705	1501536	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			91	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

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QC Summary

Report Date: September 15, 2015

Shealy Environmental Services, Inc.
106 Vantage Point Drive
Cayce, South Carolina

Contact: **Ms. Nisreen Saikaly**

Workorder: **379552**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1504255										
QC1203384423 379552008 DUP										
Radium-228	U	-0.831	U	1.52	pCi/L	N/A		N/A	AXM6	09/11/15 11:47
	Uncertainty	+/-1.17		+/-1.28						
QC1203384424 LCS										
Radium-228	29.9			35.8	pCi/L		120	(75%-125%)		09/11/15 11:47
	Uncertainty			+/-2.97						
QC1203384422 MB										
Radium-228			U	1.05	pCi/L					09/11/15 11:47
	Uncertainty			+/-1.03						
Rad Ra-226										
Batch 1501536										
QC1203377192 379552003 DUP										
Radium-226		0.990		0.726	pCi/L	30.8		(0% - 100%)	CXP3	09/15/15 07:05
	Uncertainty	+/-0.342		+/-0.329						
QC1203377194 LCS										
Radium-226	24.7			26.4	pCi/L		107	(75%-125%)		09/15/15 07:40
	Uncertainty			+/-1.56						
QC1203377191 MB										
Radium-226			U	0.156	pCi/L					09/15/15 07:05
	Uncertainty			+/-0.210						
QC1203377193 379552003 MS										
Radium-226	124	0.990		112	pCi/L		90.2	(75%-125%)		09/15/15 07:05
	Uncertainty	+/-0.342		+/-7.10						

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- ** Analyte is a Tracer compound
- < Result is less than value reported
- > Result is greater than value reported
- BD Results are either below the MDC or tracer recovery is low
- FA Failed analysis.
- H Analytical holding time was exceeded
- J Value is estimated
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- M M if above MDC and less than LLD
- M REMP Result > MDC/CL and < RDL
- N/A RPD or %Recovery limits do not apply.

QC Summary

Workorder: **379552**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

There are no "Data Exception Reports" associated with this analytical report.

SHEALY

Chain of Custody Record

SHEALY ENVIRONMENTAL SERVICES, INC.
106 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.shealylab.com

379552

Number 50947

Client	Report to Contact: Nisreen Saikaly	Telephone No. / E-mail	Quote No.
Address	Sampler's Signature	Analysis (Attach list if more space is needed)	Page 1 of 2
City / State / Zip Code	X		
Project Name	Printed Name		QH13039 Laboratory Lot Number
Project No. / P.O. No.			

Sample ID / Description (Containers for each sample may be combined on one line.)	Date	Time	G=Grab C=Composite	Matrix: Aqueous	Solid	Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit	Radium 226 & 228	Remarks / Cooler I.D.
MW-1	8-12-15	1115	G	X				1					X	
MW-2		1240	G	X				1					X	
MW-3		1410	G	X				1					X	
MW-4		1510	G	X				1					X	
MW-5		1625	G	X				1					X	
MW-6		1830	G	X				1					X	
MW-7		1930	G	X				1					X	
MW-8		2040	G	X				1					X	
BG-1		2210	G	X				1					X	
SW-1	8-13-15	0745	G	X				1					X	

Turn Around Time Required (Prior lab approval required for expedited TAT.) ☒ Standard ☐ Rush (Specify)

Sample Disposal ☐ Return to Client ☒ Disposal by Lab

Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ~~☐ Poison~~ ☒ Unknown

QC Requirements (Specify)

1. Relinquished by: Kelly	Date: 8-17-15	Time: 1800	1. Received by: Fedex	Date: 8-17-15	Time: 1800
2. Relinquished by	Date	Time	2. Received by: [signature]	Date: 8/18/15	Time: 8:35
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by	Date	Time	4. Laboratory received by	Date	Time

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on ice (Circle) Yes No Ice Pack
Receipt Temp. 16 °C

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

SHEALY

Chain of Custody Record

SHEALY ENVIRONMENTAL SERVICES, INC.
106 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.shealylab.com

Number 51325

Client	Report to Contact: Nisreen Saikaly	Telephone No. / E-mail	Quote No.
Address	Sampler's Signature: X	Analysis (Attach list if more space is needed): Radium 226+228	Page 2 of 2
City / State / Zip Code	Printed Name		QH13039 Laboratory Lot Number
Project Name			
Project No. / P.O. No.			

Sample ID / Description (Containers for each sample may be combined on one line.)	Date	Time	G=Grab C=Composite	Matrix: Aqueous	Solid	Non-Aqueous	Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit	Radium 226+228	Remarks / Cooler I.D.
SW-2	8-13-15	0830	G	X					1				X	
EQUIPMENT BLANK	8-12-15	0930	G	X					1				X	

Turn Around Time Required (Prior lab approval required for expedited TAT.) X Standard ☐ Rush (Specify)

Sample Disposal: ☐ Return to Client X Disposal by Lab

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison X Unknown

QC Requirements (Specify)

1. Relinquished by: Kelly	Date: 8-17-15	Time: 1800	1. Received by: FedEx	Date: 8-17-15	Time: 1800
2. Relinquished by	Date	Time	2. Received by: [signature]	Date: 8/18/15	Time: 8:35
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by	Date	Time	4. Laboratory received by	Date	Time

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on ice (Circle) Yes No Ice Pack
Receipt Temp. 16 °C

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: F-AD-133 Effective Date: 08-01-2014

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: Sesi	SDG/AR/COC/Work Order: 379552
Received By: Sharita mack	Date Received: 8/18/15 8:35

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 cpm
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		✓		Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius 16
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): 130462966
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed? 8/18/15	+		✓	limited volume MW-2 Circle Applicable: Seals broken Damaged container Leaking container Other (describe) sample spilled out inside cooler
5	Samples requiring chemical preservation at proper pH?	✓			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	Do Low Level Perchlorate samples (EPA 6850) have headspace as required?		✓		Sample ID's and containers affected:
7	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
8	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
9	Samples received within holding time?	✓			ID's and tests affected:
10	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
11	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
12	Number of containers received match number indicated on COC?			✓	Sample ID's affected: 1 cooler missing see below for containers not received.
13	Are sample containers identifiable as GEL provided?			✓	
14	COC form is properly signed in relinquished/received sections?	✓			
15	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 6465 8359 6774 6465 8359 6785

Comments (Use Continuation Form if needed):
The following samples were not received by lab on 8/18/15
MW-1
MW-8
SW-1
SW-2

PM (or PMA) review: Initials [illegible] Date 08/18/15 Page 1 of 1 GL-CHL-SR-001 Rev 1

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: SESI			**SDG/AR/COC/Work Order:** 379552
Received By: Shanta Mack			**Date Received:** 8/19/15 15:30
Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 cpm
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		✓		Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius 23°C
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): 130462962
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?			✓	Sample ID's, containers affected and observed pH: SW-2 sample received unpreserved. HNO3 added at Lab. If Preservation added, Lot#: lot # 104739
6	Do Low Level Perchlorate samples (EPA 6850) have headspace as required?		✓		Sample ID's and containers affected:
7	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
8	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
9	Samples received within holding time?	✓			ID's and tests affected:
10	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
11	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
12	Number of containers received match number indicated on COC?			✓	Sample ID's affected: missing coolers received 8/19/15 see below for samples received today.
13	Are sample containers identifiable as GEL provided?			✓	
14	COC form is properly signed in relinquished/received sections?	✓			
15	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 6465 8359 6796

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials HT Date 08/19/15 Page 1 of 1 GL-CHL-SR-001 Rev 1

List of current GEL Certifications as of 15 September 2015

State	Certification
Alaska	UST-110
Arkansas	88-0651
CLIA	42D0904046
California	2940 Interim
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC000122013-10
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-12-00283, P330-12-00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC000122013-10
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA150001
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC000122013-10
Nebraska	NE-OS-26-13
Nevada	SC000122016-1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68-00485
Plant Material Permit	PDEP-12-00260
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-15-10
Utah NELAP	SC000122015-18
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

September 08, 2015

Ms. Nisreen Saikaly
Shealy Environmental Services, Inc.
106 Vantage Point Drive
Cayce, South Carolina 29172

Re: Routine Analysis - Saikaly (No EDD)
Work Order: 380008

Dear Ms. Saikaly:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on August 25, 2015. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4707.

Sincerely,

Anna C Day

Anna Day
Project Manager

Chain of Custody: 51339 and 51340
Enclosures

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 – (843) 556–8171 – www.gel.com

Certificate of Analysis Report
for

SESI001 Shealy Environmental Services, Inc

Client SDG: 380008 GEL Work Order: 380008

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a Tracer compound

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Anna Day.

Reviewed by Anna C Day

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: September 8, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (No EDD)

Client Sample ID:	BG-1	Project:	SESI00315
Sample ID:	380008009	Client ID:	SESI001
Matrix:	Water		
Collect Date:	12-AUG-15 22:10		
Receive Date:	25-AUG-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Lithium "As Received"											
Lithium		18.5	2.00	10.0	ug/L	1	SKJ	08/31/15	1532	1503250	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	08/26/15	1615	1503249

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: September 8, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (No EDD)

Client Sample ID:	MW-1	Project:	SESI00315
Sample ID:	380008001	Client ID:	SESI001
Matrix:	Water		
Collect Date:	12-AUG-15 11:15		
Receive Date:	25-AUG-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Lithium "As Received"											
Lithium		32.0	2.00	10.0	ug/L	1	SKJ	08/31/15	1512	1503250	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	08/26/15	1615	1503249

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: September 8, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (No EDD)

Client Sample ID:	MW-2	Project:	SESI00315
Sample ID:	380008002	Client ID:	SESI001
Matrix:	Water		
Collect Date:	12-AUG-15 12:40		
Receive Date:	25-AUG-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Lithium "As Received"											
Lithium		22.4	2.00	10.0	ug/L	1	SKJ	08/31/15	1537	1503250	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	08/26/15	1615	1503249

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: September 8, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (No EDD)

Client Sample ID:	MW-3	Project:	SESI00315
Sample ID:	380008003	Client ID:	SESI001
Matrix:	Water		
Collect Date:	12-AUG-15 14:10		
Receive Date:	25-AUG-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Lithium "As Received"											
Lithium		19.3	2.00	10.0	ug/L	1	SKJ	08/31/15	1539	1503250	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	08/26/15	1615	1503249

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: September 8, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (No EDD)

Client Sample ID:	MW-4	Project:	SESI00315
Sample ID:	380008004	Client ID:	SESI001
Matrix:	Water		
Collect Date:	12-AUG-15 15:20		
Receive Date:	25-AUG-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Lithium "As Received"											
Lithium		22.6	2.00	10.0	ug/L	1	SKJ	08/31/15	1540	1503250	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	08/26/15	1615	1503249

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: September 8, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (No EDD)

Client Sample ID:	MW-5	Project:	SESI00315
Sample ID:	380008005	Client ID:	SESI001
Matrix:	Water		
Collect Date:	12-AUG-15 16:25		
Receive Date:	25-AUG-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Lithium "As Received"											
Lithium	J	7.18	2.00	10.0	ug/L	1	SKJ	08/31/15	1541	1503250	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	08/26/15	1615	1503249

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: September 8, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (No EDD)

Client Sample ID:	MW-6	Project:	SESI00315
Sample ID:	380008006	Client ID:	SESI001
Matrix:	Water		
Collect Date:	12-AUG-15 18:30		
Receive Date:	25-AUG-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Lithium "As Received"											
Lithium		28.1	2.00	10.0	ug/L	1	SKJ	08/31/15	1528	1503250	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	08/26/15	1615	1503249

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: September 8, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (No EDD)

Client Sample ID:	MW-7	Project:	SESI00315
Sample ID:	380008007	Client ID:	SESI001
Matrix:	Water		
Collect Date:	12-AUG-15 19:30		
Receive Date:	25-AUG-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Lithium "As Received"											
Lithium		21.1	2.00	10.0	ug/L	1	SKJ	08/31/15	1530	1503250	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	08/26/15	1615	1503249

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: September 8, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (No EDD)

Client Sample ID:	MW-8	Project:	SESI00315
Sample ID:	380008008	Client ID:	SESI001
Matrix:	Water		
Collect Date:	12-AUG-15 20:40		
Receive Date:	25-AUG-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Lithium "As Received"											
Lithium		27.6	2.00	10.0	ug/L	1	SKJ	08/31/15	1531	1503250	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	08/26/15	1615	1503249

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: September 8, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (No EDD)

Client Sample ID:	SW-1	Project:	SESI00315
Sample ID:	380008010	Client ID:	SESI001
Matrix:	Water		
Collect Date:	13-AUG-15 07:45		
Receive Date:	25-AUG-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Lithium "As Received"											
Lithium	U	ND	2.00	10.0	ug/L	1	SKJ	08/31/15	1533	1503250	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	08/26/15	1615	1503249

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: September 8, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (No EDD)

Client Sample ID:	SW-2	Project:	SESI00315
Sample ID:	380008011	Client ID:	SESI001
Matrix:	Water		
Collect Date:	13-AUG-15 08:30		
Receive Date:	25-AUG-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Lithium "As Received"											
Lithium	U	ND	2.00	10.0	ug/L	1	SKJ	08/31/15	1520	1503250	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	08/26/15	1615	1503249

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: September 8, 2015

Company :	Shealy Environmental Services, Inc.
Address :	106 Vantage Point Drive
	Cayce, South Carolina 29172
Contact:	Ms. Nisreen Saikaly
Project:	Routine Analysis - Saikaly (No EDD)

Client Sample ID:	EQUIPMENT BLANK	Project:	SESI00315
Sample ID:	380008012	Client ID:	SESI001
Matrix:	Water		
Collect Date:	13-AUG-15 09:30		
Receive Date:	25-AUG-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Lithium "As Received"											
Lithium	U	ND	2.00	10.0	ug/L	1	SKJ	08/31/15	1525	1503250	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	08/26/15	1615	1503249

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: September 8, 2015

Shealy Environmental Services, Inc.
106 Vantage Point Drive
Cayce, South Carolina

Contact: **Ms. Nisreen Saikaly**

Workorder: **380008**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS											
Batch 1503250											
QC1203381883 380008001 DUP											
Lithium			32.0		31.7	ug/L	0.813 ^		(+/-10.0)	SKJ	08/31/15 15:13
QC1203381884 380008011 DUP											
Lithium		U	ND	U	ND	ug/L	N/A				08/31/15 15:21
QC1203381882 LCS											
Lithium	50.0				49.2	ug/L		98.5	(85%-115%)		08/31/15 15:11
QC1203381881 MB											
Lithium				U	ND	ug/L					08/31/15 15:09
QC1203381885 380008001 MS											
Lithium	50.0		32.0		78.7	ug/L		93.4	(75%-125%)		08/31/15 15:14
QC1203381886 380008011 MS											
Lithium	50.0	U	ND		50.2	ug/L		99.1	(75%-125%)		08/31/15 15:22
QC1203381887 380008001 SDILT											
Lithium			32.0	J	6.91	ug/L	8.09		(0%-10%)		08/31/15 15:16
QC1203381888 380008011 SDILT											
Lithium		U	ND	U	ND	ug/L	N/A		(0%-10%)		08/31/15 15:23

Notes:

The Qualifiers in this report are defined as follows:

- < Result is less than value reported
- > Result is greater than value reported
- E %difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded
- J Value is estimated
- N Metals--The Matrix spike sample recovery is not within specified control limits
- N/A RPD or %Recovery limits do not apply.
- N1 See case narrative
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

QC Summary

Workorder: **380008**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

There are no "Data Exception Reports" associated with this analytical report.

SHEALY

Chain of Custody Record

SHEALY ENVIRONMENTAL SERVICES, INC.
106 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.shealylab.com

TO: GEL

AD 8/26/15 **Number** 51339
~~379~~ 380008

Client	Report to Contact: Nisreen Saikaly	Telephone No. / E-mail	Quote No.
Address	Sampler's Signature: X	Analysis (Attach list if more space is needed)	Page 1 of 2
City / State / Zip Code	Printed Name		
Project Name			Q H13039 Laboratory Lot Number
Project No. / P.O. No.			

Sample ID / Description (Containers for each sample may be combined on one line.)	Date	Time	G=Grab C=Composite	Matrix: Aqueous	Solid	Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit		Remarks / Cooler I.D.
MW-1	8-12-15	1115	G	X					1				X	
MW-2		1240		X					1				X	
MW-3		1410		X					1				X	
MW-4		1520		X					1				X	
MW-5		1625		X					1				X	
MW-6		1830		X					1				X	
MW-7		1930		X					1				X	
MW-8		2040		X					1				X	
BG-1		2210		X					1				X	
SW-1	8-13-15	0745		X					1				X	

Turn Around Time Required (Prior lab approval required for expedited TAT.) X Standard ☐ Rush (Specify)

Sample Disposal ☐ Return to Client X Disposal by Lab

Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison X Unknown

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished by: Kelly	8-24-15	1800	1. Received by: Fedex	8-24-15	1800
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by			4. Laboratory received by: Mack	8/25/15	8:50

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on ice (Circle) Yes No Ice Pack
Receipt Temp. 0 °C

SHEALY

Chain of Custody Record

SHEALY ENVIRONMENTAL SERVICES, INC.
106 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.shealylab.com

TO: GEL

Number 51340

Client	Report to Contact: Nisreen Saikaly	Telephone No. / E-mail	Quote No.
Address	Sampler's Signature: X	Analysis (Attach list if more space is needed)	Page 2 of 2
City / State / Zip Code	Printed Name		QH13039 Laboratory Lot Number
Project Name			
Project No.	P.O. No.		

Sample ID / Description (Containers for each sample may be combined on one line.)	Date	Time	G=Grab C=Composite	Matrix: Aqueous	Solid	New Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit			Remarks / Cooler I.D.
SW-2	8-13-15	~~0745~~ 0830	G	X					1					X	
EQUIPMENT BLANK	8-13-15	~~0830~~ 0930	G	X					1					X	

Turn Around Time Required (Prior lab approval required for expedited TAT.) ☑ Standard ☐ Rush (Specify)

Sample Disposal ☐ Return to Client ☑ Disposal by Lab

Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☑ Unknown

QC Requirements (Specify)

1. Relinquished by: Kelly	Date: 8-24-15	Time: 1800	1. Received by: Fedex	Date: 8-24-15	Time: 1800
2. Relinquished by	Date	Time	2. Received by	Date	Time
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by	Date	Time	4. Laboratory received by: mack	Date: 8/25/15	Time: 8:50

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on ice (Circle) Yes No Ice Pack
Receipt Temp. 6 °C

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: F-AD-133 Effective Date: 08-01-2014

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: Sesi	SDG/AR/COC/Work Order: 380008
Received By: Shanta Mack	Date Received: 8/25/15 8:50

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 cpm
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): 6503201583 5
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	✓			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	Do Low Level Perchlorate samples (EPA 6850) have headspace as required?		✓		Sample ID's and containers affected:
7	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
8	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
9	Samples received within holding time?	✓			ID's and tests affected:
10	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
11	Date & time on COC match date & time on bottles?			✓	Sample ID's affected: Equipment Blank date on sample is 8/12/15
12	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
13	Are sample containers identifiable as GEL provided?			✓	
14	COC form is properly signed in relinquished/received sections?	✓			
15	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 6465 8359 7233

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials AVD Date 8/26/15 Page 1 of 1

GL-CHL-SR-001 Rev 1

List of current GEL Certifications as of 08 September 2015

State	Certification
Alaska	UST-110
Arkansas	88-0651
CLIA	42D0904046
California	2940 Interim
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC000122013-10
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-12-00283, P330-12-00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC000122013-10
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA150001
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC000122013-10
Nebraska	NE-OS-26-13
Nevada	SC000122016-1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68-00485
Plant Material Permit	PDEP-12-00260
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-15-10
Utah NELAP	SC000122015-18
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

APPENDIX D
USGS PUBLICATION – CHLORIDE IN GROUNDWATER

USGS
science for a changing world

Arsenic, Nitrate, and Chloride in Groundwater, Oakland County, Michigan

INTRODUCTION

In 1996, the U.S. Geological Survey (USGS), in cooperation with the Michigan Department of Environmental Quality (MDEQ) and nine southeast Michigan counties, began a study of the factors controlling arsenic concentrations in drinking water. The early results of this study raised broader concerns in Oakland County about the quality of groundwater in general and drinking water in particular. In response to these concerns, Oakland County worked with the USGS and the Center for Applied Environmental Research at the University of Michigan – Flint (CAER) to study distributions of arsenic, nitrate, and chloride in groundwater, with emphasis on sites where concentrations of these constituents exceeded the Maximum Contaminant Levels (MCL's) and Secondary Maximum Contaminant Levels (SMCL's) set by the U.S. Environmental Protection Agency (USEPA). The maps produced for this report are based on historical data compiled from MDEQ records. This fact sheet is a revision of USGS Fact Sheet 135-98, "Arsenic, nitrate, and chloride in groundwater in Oakland County in Oakland County, Michigan" (Aichele and others, 1998) to incorporate revisions to the USEPA MCL for arsenic.

ARSENIC

Arsenic is a naturally occurring element in the environment. Historically, arsenic compounds have been used in the manufacture of pesticides, metal products, pigments and dyes, and medicine. Concentrations of arsenic in water have been expressed in a variety of ways: milligrams per liter (mg/L), micrograms per liter (µg/L) or parts per billion (ppb). These units can be compared as follows: 1 mg/L = 1,000 µg/L = 1,000 ppb. The U.S. Environmental Protection Agency (2001) MCL for arsenic in drinking water is 0.01 mg/L, 10 µg/L or 10 ppb. This new standard was announced in January 2001 with full compliance required for all public water systems by January 2006. One part per billion, expressed as time, is 1 second in approximately 31 and one half years.

What is the source of arsenic in groundwater?

Arsenic is the twentieth most common element in the Earth's crust, and is present in the soil and rocks of Oakland County. Arsenic in groundwater is usually a result of arsenic minerals dissolving naturally over time.

Where does arsenic occur in Oakland County?

Low concentrations of arsenic can be found in wells all across Oakland County. Out of 1,988 wells sampled, 663 (about 33 percent) exceeded the new MCL of 10 µg/L. These wells are distributed throughout the county, except in Royal Oak survey township (fig.2). Relatively little sampling has been done anywhere in the southeast part of the county. The highest arsenic concentration detected in Oakland County is 221 µg/L (221 ppb).

Figure 1. *A new well being drilled in Oakland County. Over 3,000 new drinking-water wells are drilled each year in Oakland County.*

Arsenic is present in all of the major aquifers of Oakland County, including the glacial drift, the Marshall Sandstone, and the Coldwater Shale, although it does not appear to occur in very shallow (<40 ft) wells completed in glacial drift. Testing conducted as part of this study found arsenic concentrations in groundwater comparable to historical Oakland County Health Division (OCHD) and MDEQ measurements.

Is arsenic in drinking water a concern?

The health effects of arsenic depend on the amount consumed (measured in µg). This amount is determined by the concentration of arsenic in the water (measured in µg/L) and the quantity of water consumed (measured in L). A person who

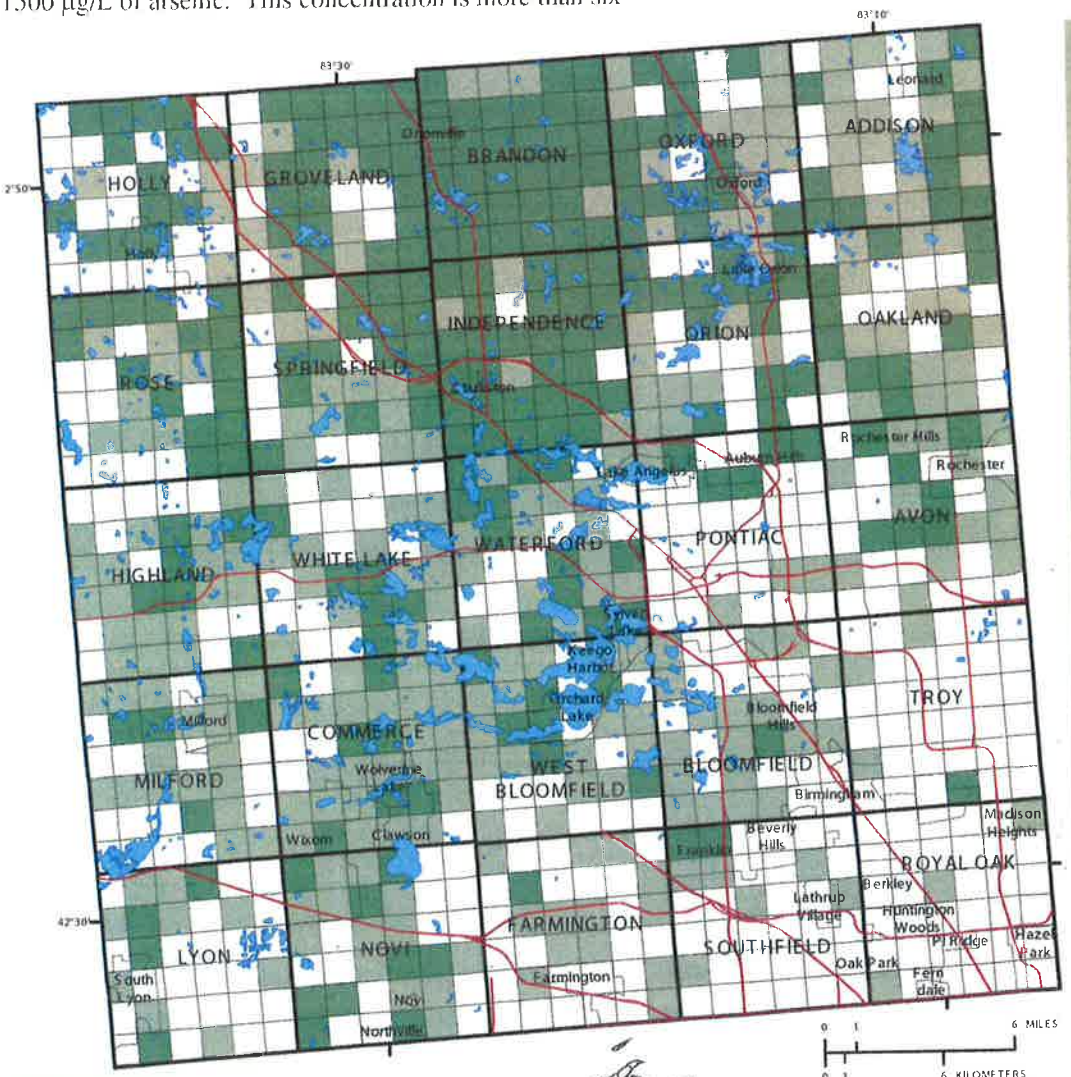
drinks 1L (approximately four 8-ounce glasses) of water per day containing arsenic at a concentration of 10 µg/L, which is the MCL, would consume about 10 µg of arsenic per day from drinking water. Certain foods, such as shellfish, can also contain significant levels of arsenic. Individuals consuming up to 500 µg of arsenic per day from all sources are unlikely to experience any symptoms of illness, but may increase their long-term risk of cancer (Kosnett, 1997). Persons consuming more than 500 µg of arsenic per day from all sources for several years may exhibit certain chronic health problems, including a characteristic pattern of skin abnormalities, a tingling sensation in the extremities, or anemia (Kosnett, 1997).

Persons regularly consuming more than 1,500 µg of arsenic per day may experience fatigue, gastrointestinal disturbances, and certain types of heart problems (Kosnett, 1997). To have this highest level of exposure from drinking water alone, a person would have to regularly consume 1L of water containing 1500 µg/L of arsenic. This concentration is more than six times higher than the highest concentration observed in Oakland County, and 150 times greater than the new MCL.

Arsenic is classified as a carcinogen by the USEPA. USEPA MCLs are set at 10 percent of the exposure dose that produces a response in 1 percent of the population (National Research Council,2000). For example, the National Research Council (2001) estimates that consumption of 1L per day of water with an arsenic concentration of 10 µg/L over a lifetime will produce bladder cancer in 12 out of 10,000 women and 23 out of 10,000 men.

NITRATE

Nitrate is formed when oxygen in air or dissolved in water combines with nitrogen. The U.S. Environmental Protection Agency (1996a) has set a MCL of 10 mg-N/L (milligrams of nitrogen per liter) for nitrate in drinking water. Nitrate can occur naturally in precipitation, at concentrations typically



EXPLANATION

- Section where sample of arsenic was unavailable
- Section where sample of arsenic had a concentration less than 0.01 mg/L
- Section where sample of arsenic had a concentration greater than or equal to 0.01 mg/L

SOURCES: Michigan Department of Environmental Quality 1983-1997 (excluding 1991-92)
Michigan Department of Natural Resources, Michigan Resource Information System (MIRIS), 1978

Figure 2. Oakland County arsenic distribution.

Important Points About Arsenic

- *Arsenic occurs naturally in groundwater as arsenic minerals dissolve over time.*
- *Arsenic concentrations in 663 out of 1,988 wells sampled in Oakland County exceeded the new MCL of 0.01 mg/L (10 µg/L or 10 ppb).*
- *Low concentrations of arsenic are present in all the major aquifers of Oakland County.*
- *Immediate reactions to arsenic in drinking water are unlikely at the concentrations found in Oakland County.*
- *The health effects of arsenic depend on the concentration of arsenic in drinking waterand the amount of water consumed.*
- *OCHD recommends that all private well owners test regularly for arsenic.*

around 1 mg-N/L. Elevated concentrations, particularly those greater than 3 mg-N/L, are usually the result of human activity (U.S. Environmental Protection Agency, 1996b).

What is the source of nitrate in groundwater?

In Oakland County, the likely sources of elevated nitrate in drinking water are septic tank leachate and fertilizers, both of which are rich in nitrogen. Nitrate dissolves readily in water and moves freely with water through soil and rock where it is commonly consumed by microorganisms. Nitrate at concentrations greater than 3 mg-N/L indicates a fairly direct connection between one of the sources listed above and the drinking-water supply.

Where does nitrate occur in Oakland County?

Nitrate concentrations in excess of the 10 mg-N/L MCL have been found in groundwater in most townships in Oakland County (fig.3). The exceedances often occur in high-density lakeshore communities using on-lot wells and septic systems. As an example, wells within 1 mile of Union Lake, Wolverine Lake, or Commerce Lake account for more than one third of all nitrate concentrations greater than 10 mg-N/L.

Is nitrate in drinking water a concern?

A nitrate standard is required by the USEPA because nitrite, which is produced when nitrate is broken down in the body, can impair the ability of the blood to carry oxygen. Elevated nitrate is not typically a concern for healthy people, but fetuses, infants (under 6 months), and the elderly are populations at risk. "Blue-baby syndrome" (infantile methemoglobinemia) resulting from high nitrate consumption can be lethal in infants (U.S. Environmental Protection Agency, 1996b).

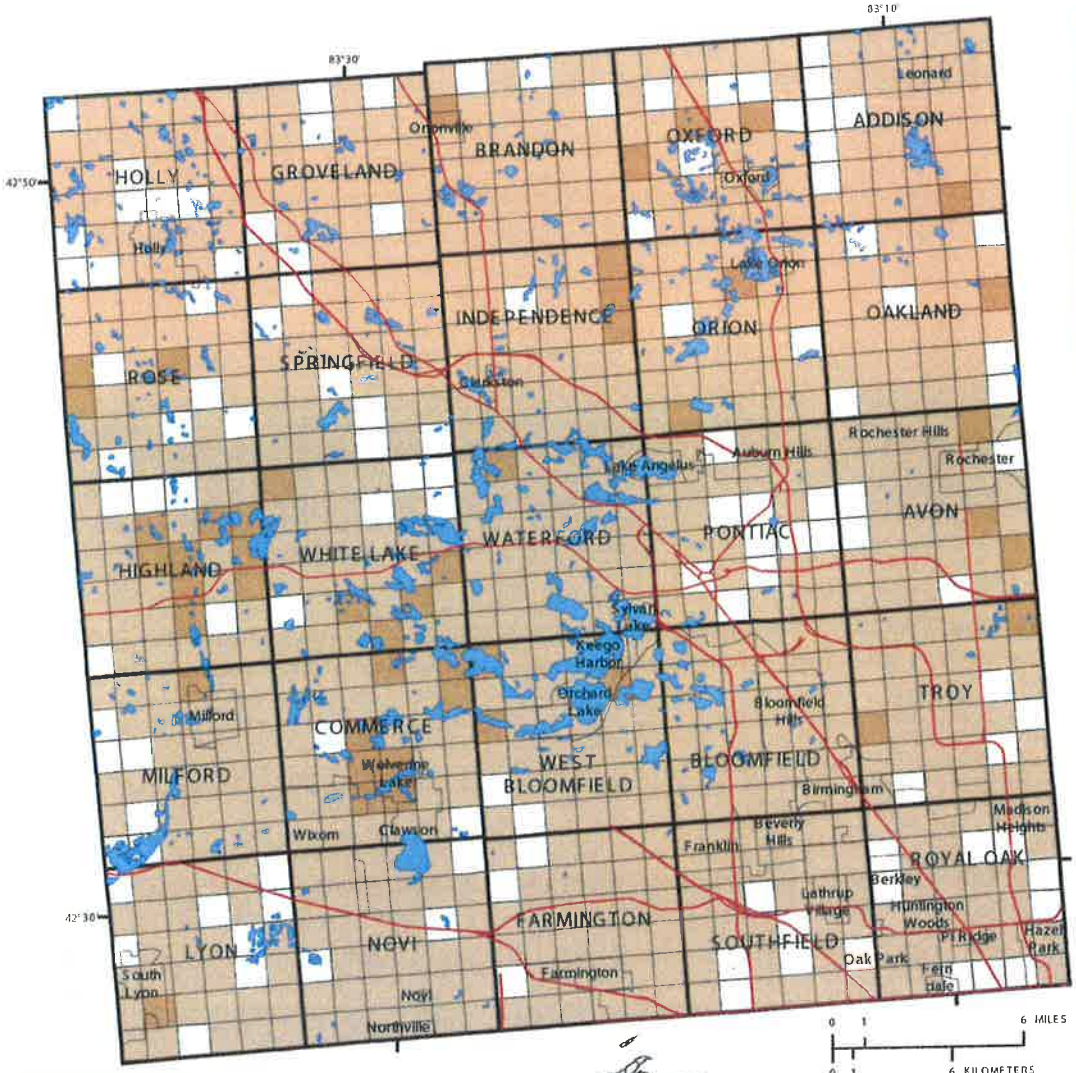


Figure 3. Oakland County nitrate distribution.

Important Points about Nitrate

- *Nitrate concentrations that exceed the 10 mg-N/L MCL have been found in most Oakland County townships.*
- *In Oakland County, the likely sources of elevated nitrate concentrations in groundwater are septic tank leachate and fertilizers.*
- *Nitrate concentrations in 84 out of 6,197 wells sampled in Oakland County exceeded the MCL of 10 mg-N/L.*
- *Nitrate concentrations of 10 mg-N/L or greater are often found in high-density lakeshore communities.*
- *Elevated concentrations are not typically a problem for healthy people, but they pose a risk to fetuses, infants and the elderly.*
- *OCHD recommends that all private well owners test regularly for nitrate.*

CHLORIDE

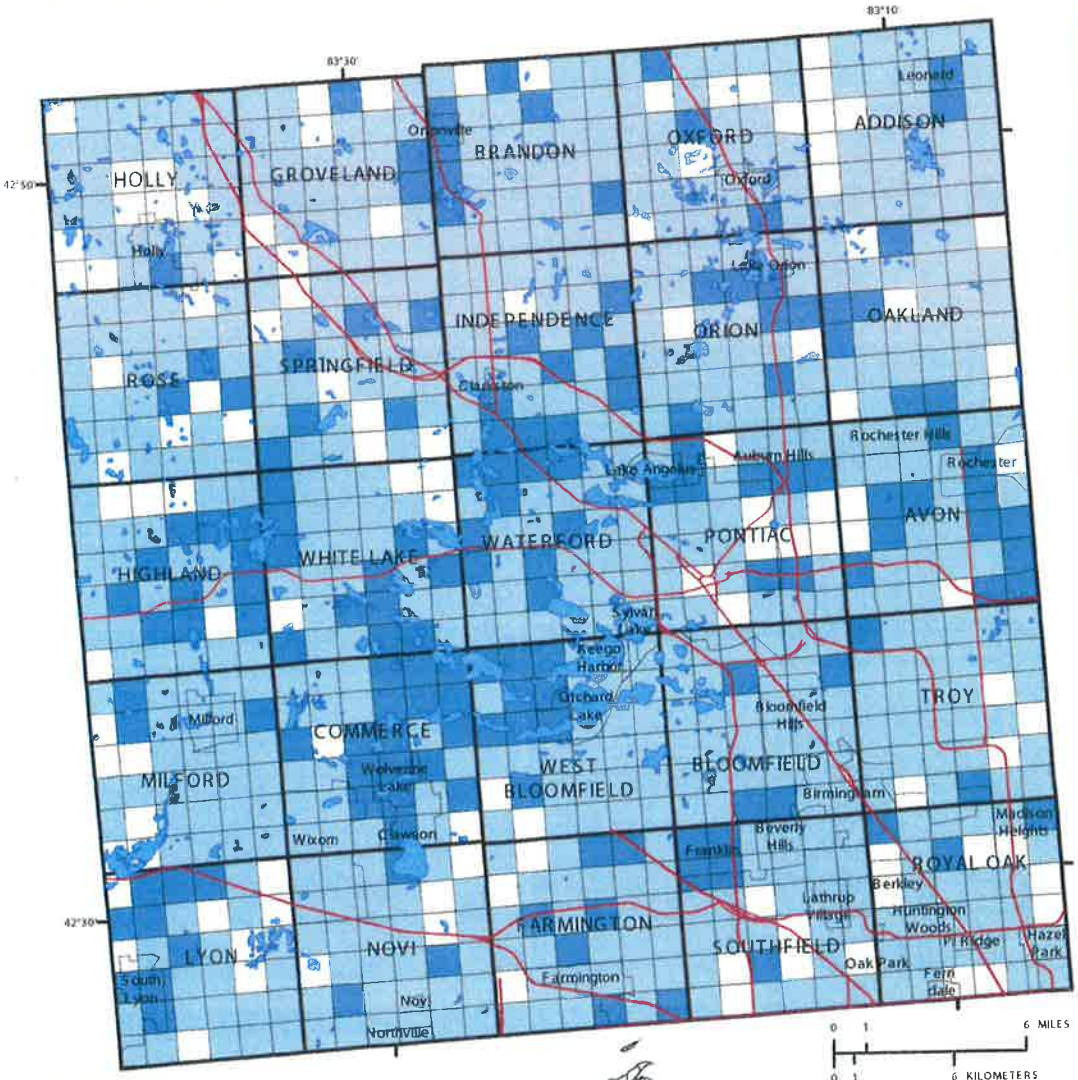
Chloride is an element found in most common salts, such as road salt, table salt, and water-softener salt. The USEPA (1996a) has set a SMCL of 250 mg/L for chloride. This limit was established because water with chloride concentrations greater than 250 mg/L tastes salty to most people. Chloride is naturally present in groundwater, particularly in deep bedrock aquifers. Background concentrations of chloride in drinking-water wells are highly variable, ranging from less than 10 mg/L in some glacial aquifers to more than 500 mg/L in deeper bedrock wells.

What is the source of chloride in drinking water?

Chloride occurs naturally in some sedimentary bedrock layers, particularly shales. This chloride is a remnant of the seawater present at the time the rocks were formed. Chloride is very soluble in water and moves freely with water through soil and rock. Chloride is not readily consumed by microorganisms, so it is more persistent than nitrate. Road salt, applied for deicing or dust control, may infiltrate the soil and contaminate groundwater. Chloride also may originate from septic tank leachate, as a result of water softening or other activities in the household.

Where does chloride occur in Oakland County?

Chloride concentrations in excess of 250 mg/L are widely distributed in Oakland County (fig.4). They are commonly associated with high-density lakeshore communities using on-lot wells and septic systems. The chloride found in shallow wells around lakes and in densely populated areas probably comes from salts used in the household and then discharged through septic systems. Elevated chloride levels also may be



EXPLANATION

- Section where sample of chloride was unavailable
- Section where sample of chloride had a concentration less than 250.0 mg/L
- Section where sample of chloride had a concentration greater than or equal to 250.0 mg/L

SOURCES: Michigan Department of Environmental Quality 1983-1997 (excluding 1991-92)
Michigan Department of Natural Resources, Michigan Resource Information System (MIRIS), 1978

Figure 4. Oakland County chloride distribution.

Important Points about Chloride

- *Chloride occurs naturally in groundwater and is also in most common salts.*
- *Chloride concentrations in 366 out of 6,227 wells sampled in Oakland County exceeded the SMCL of 250 mg/L.*
- *High concentrations are often associated with high density, lakeshore communities.*
- *Elevated chloride concentrations may be associated with road salt applications or storage and septic tank leachate.*
- *Chloride is not generally considered to be a health concern.*
- *The SMCL of 250 mg/L is based on aesthetic considerations (taste) rather than health considerations.*

associated with road salt application or storage. Several caseshave been documented in Oakland County of road salt storage facilities leaching chloride into groundwater.

Is chloride in drinking water a concern?

Chloride is not generally considered to be a health concern. However, some evidence indicates that high chloride intake may pose a hazard to persons with heart or kidney disease (Hutchinson, 1970).

HOW WERE THE MAPS PREPARED?

The MDEQ maintains a database of results from water-quality tests conducted for homeowners and businesses. In this study, maps were prepared from records of tests in Oakland County where arsenic, nitrate and chloride measurements were made. The data spanned the years from 1988 through 1997 (excluding 1991-92).

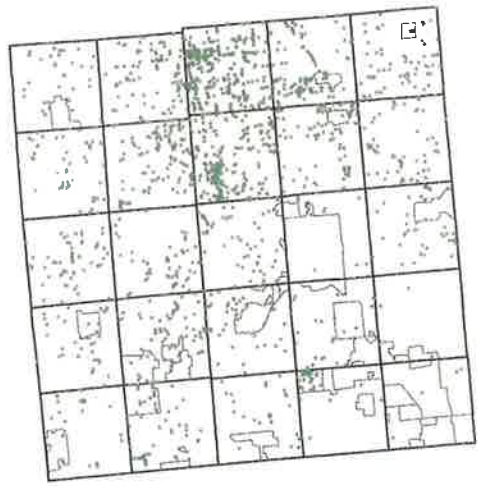
Addresses for each of the records were matched to an Oakland County road file through an address-matching procedure in a Geographic Information System. The address-matching percentage for each constituent indicates how many records were finally mapped (fig. 5). All sites with arsenic concentrations greater than the MCL were mapped. For nitrate and chloride, the success rates were 94 percent and 81 percent, respectively. Data coverage for all the chemical constituents was extensive, although the distribution of test results for arsenic was least concentrated in the southeastern part of the county, where pulic-water supply is most available. The number of nitrate and chloride test results is much greater, and their locations more evenly distributed throughout the county (fig. 5).

To prepare the final maps, locations of wells with a measurement for each of the chemical constituents were plotted on an Oakland County base map. When wells had more than one measurement, the highest measured concentration was used. Sections containing a well with a measured concentration higher than the (S)MCL were identified with dark shading. Sections containing a well with a measured concentration less than the (S)MCL were identified with a lighter shading. Sections were left unshaded if no sample information was available.

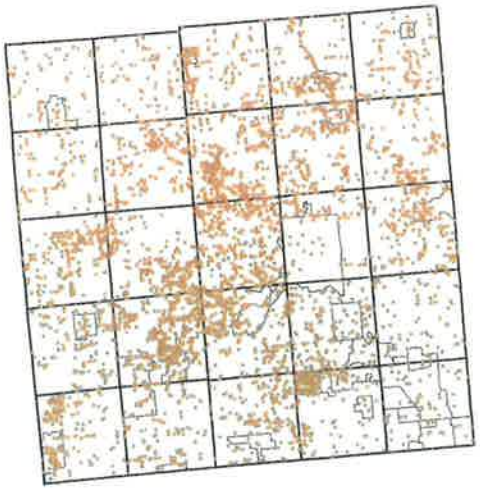
HOW WERE THE SAMPLE DATA COLLECTED AND EVALUATED?

The USGS collected water samples across Oakland County at selected sites with previous analyses for arsenic, nitrate, or chloride. Each new sample was collected using clean sampling techniques to minimize the risk of contamination. Duplicate samples were sent to both the MDEQ lab and the USGS National Water Quality Lab (NWQL) in Denver, Colorado. Results from the USGS NWQL were compared against the results from MDEQ and against results from the previous samples. The results from the MDEQ lab agreed very closely with the results from the USGS NWQL. This sample testing confirmed the validity of using the MDEQ database in maps prepared for the study.

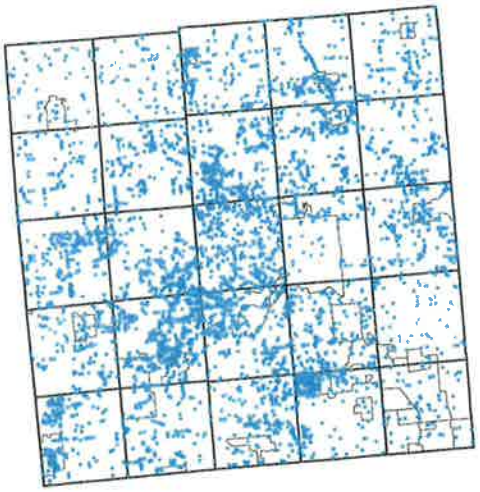
Figure 5. Locations of well records used to prepare the county maps.



Total arsenic samples: 3,509 Total unique samples: 2,373
Unique locations mapped: 1,988 (84%)



Total nitrate samples: 12,942 Total unique samples: 7,814
Unique locations mapped: 6,197 (79%)



Total arsenic samples: 12,960 Total unique samples: 7,809
Unique locations mapped: 6,227 (80%)

What does all this mean?

·The maps refer to all areas not serviced by public water. Public water supply wells are routinely monitored to ensure compliance with U.S. Environmental Protection Agency standards.

·Arsenic, nitrate, and chloride were the only constituents addressed in this study. Other potential water contaminants have been observed in Oakland county and may occur in your area. Please contact the OCHD for details specific to your area.

·All the maps support the OCHD recommendation that homeowners regularly test drinking water that comes from wells.

·Each of the chemical constituents evaluated is widely distributed and homeowners should carefully review the county maps to see if their homes are in areas where concentrations above the U.S. Environmental Protection Agency standard have been reported. Township maps, which are included on separate fact sheets, provide more specific details on particular locations.

·Some individuals may be more sensitive than others to contaminants in drinking water. If symptoms persist, OCHD recommends you consult a physician for assistance.

SUMMARY

The distributions of arsenic, nitrate and chloride concentrations in groundwater in Oakland County, Michigan were investigated on the basis of historical water-quality data obtained from MDEQ databases. Results indicate that of the wells sampled in Oakland County, about 33 percent exceeded the USEPA MCL for arsenic, about 1 percent exceeded the USEPA MCL for nitrate, and about 6 percent exceeded the USEPA SMCL for chloride. Maps provided in this report show the known distribution of arsenic, nitrate, and chloride in groundwater within Oakland County, Michigan.

—By Steve Aichele (USGS)

References

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APPENDIX E
EPA PUBLICATION – DISINFECTION BYPRODUCTS IN DRINKING WATER

EPA United States Environmental Protection Agency

Water: Basic Information about Regulated Drinking Water Contaminants

Basic Information about Disinfection Byproducts in Drinking Water: Total Trihalomethanes, Haloacetic Acids, Bromate, and Chlorite

To protect drinking water from disease-causing organisms, or pathogens, water suppliers often add a disinfectant, such as chlorine, to drinking water. However, disinfection practices can be complicated because certain microbial pathogens, such as *Cryptosporidium*, are highly resistant to traditional disinfection practices. Also, disinfectants themselves can react with naturally-occurring materials in the water to form byproducts, which may pose health risks.

A major challenge for water suppliers is how to control and limit the risks from pathogens and disinfection byproducts. It is important to provide protection from pathogens while simultaneously minimizing health risks to the population from disinfection byproducts. For more information, see fact sheets on Pathogens and Indicators and Disinfectants.

- What disinfection byproducts does EPA regulate, how are they formed, and what are their health effects in drinking water at levels above the maximum contaminant level?
- What are EPA's drinking water regulations for disinfection byproducts?
- How will I know if disinfection byproducts are in my drinking water?
- How will disinfection byproducts be removed from my drinking water?
- How do I learn more about my drinking water?

What disinfection byproducts does EPA regulate, how are they formed, and what are their health effects in drinking water at levels above the maximum contaminant level?

Disinfection Byproduct (Chemical Abstract Service Registry Number)	How is it formed?	Health Effects
Total Trihalomethanes		
Bromodichloromethane (75-27-4)	Trihalomethanes occur when naturally-occurring organic and inorganic materials in the water react with the disinfectants, chlorine and chloramine.	Some people who drink water containing total trihalomethanes in excess of the MCL over many years could experience liver, kidney, or central nervous system problems and increased risk of cancer.
Bromoform (75-25-2)		
Dibromochloromethane (124-48-1)		
Chloroform (67-66-3)		
Haloacetic acids:		
Dichloroacetic acid (79-43-6)	Haloacetic acids occur when naturally-occurring organic and inorganic materials in the water react with the disinfectants, chlorine and chloramine.	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.
Trichloroacetic acid (76-03-9)		
Chloroacetic acid (79-11-8)		
Bromoacetic acid(79-08-3)		
Dibromoacetic acid (631-64-1)		
Bromate (15541-45-4)	Bromate occurs when bromide in the water reacts with the disinfectant, ozone.	Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.
Chlorite (7758-19-2)	Chlorite occurs when chlorine dioxide breaks down.	Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia.

This health effects language is not intended to catalog all possible health effects for disinfection byproducts. Rather, it is intended to inform consumers of some of the possible health effects associated with disinfection byproducts in drinking water when the rule was finalized.

What are EPA's drinking water regulations for disinfection byproducts?

In 1974, Congress passed the Safe Drinking Water Act. This law requires EPA to determine the level of contaminants in drinking water at which no adverse health effects are likely to occur. These non-enforceable health goals, based solely on possible health risks and exposure over a lifetime, with an adequate margin of safety, are called maximum contaminant level goals (MCLG). Contaminants are any physical, chemical, biological or radiological substances or matter in water. EPA sets MCLGs based on the best available science to prevent potential health problems.

Based on the MCLG, EPA sets an enforceable regulation called a maximum contaminant level (MCL). MCLs are set as close to the health goals as possible, considering cost, benefits and the ability of public water systems to detect and remove contaminants using suitable treatment technologies. MCLs for disinfection byproducts are set at the following levels:

Levels for Total Trihalomethanes		
Disinfection Byproduct	**MCLG**	**MCL**
Bromodichloromethane	Zero	0.080 MG/L or 80 PPB (Sum of the concentrations of all four trihalomethanes) as an annual average
Bromoform	Zero	
Dibromochloromethane	0.06 MG/L or 60 PPB	
Chloroform	0.07 MG/L or 70 PPB	

Levels for Haloacetic acids		
Disinfection Byproduct	**MCLG**	**MCL**
Dichloroacetic acid	Zero	0.060 MG/L or 60 ppb (Sum of the concentrations of all five haloacetic acids) as an annual average
Trichloroacetic acid	0.02 MG/L or 20 PPB	
Monochloroacetic acid	0.07 MG/L or 70 PPB	
Bromoacetic acid	Regulated with this group but has no MCLG	
Dibromoacetic acid	Regulated with this group but has no MCLG	
Bromate	Zero	0.010 MG/L or 10 PPB as an annual average
Chlorite	0.80 MG/L or 800 ppb	1.0 MG/L or 1 part per million (ppm)

MCLs are set as close to the health goals as possible, considering cost, benefits and the ability of public water systems to detect and remove contaminants using suitable treatment technologies. States may set more stringent drinking water MCLGs and MCLs for disinfection byproducts than EPA.

The following drinking water regulations apply to disinfectants and disinfection byproducts:

- Stage 1 Disinfectants and Disinfection Byproducts Rule (Stage 1 DBP) (December 16, 1998)
  The Stage 1 Disinfectants and Disinfection Byproducts Rule reduces exposure to disinfection byproducts for customers of community water systems and non-transient non-community systems, including those serving fewer than 10,000 people, that add a disinfectant to the drinking water during any part of the treatment process.
- Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBP) (December 15, 2005)
  Stage 2 DBP rule builds upon earlier rules that addressed disinfection byproducts to improve your drinking water quality and provide additional public health protection from disinfection byproducts.

The Safe Drinking Water Act requires EPA to periodically review the national primary drinking water regulation for each contaminant and revise the regulation, if appropriate, based on new scientific data. EPA will include the Disinfectants and Disinfection Byproducts rules in a future review cycle.

- More information on the Six Year Review of Drinking Water Standards

How will I know if disinfection byproducts are in my drinking water?
When routine monitoring indicates that disinfection byproduct levels are above the MCL, your water supplier must take steps to reduce the amount of disinfection byproductsso that they are below that level. Water suppliers must notify their customers as soon as practical, but no later than 30 days after the system learns of the violation. Additional actions, such as providing alternative drinking water supplies, may be required to prevent serious risks to public health.

- See EPA's public notification requirements for public water systems.

How will disinfection byproducts be removed from my drinking water?
Water systems that use surface water or ground water under the direct influence of surface water and use conventional filtration treatment are required to remove specified percentages of organic materials that may react with disinfectants to form disinfection byproducts, prior to disinfection. Other control strategies include modification of disinfection practices in a manner that still provides adequate protection against pathogens.

How do I learn more about my drinking water?
EPA strongly encourages people to learn more about their drinking water, and to support local efforts to protect the supply of safe drinking water and upgrade the community water system. Your water bill or telephone book's government listings are a good starting point for local information.

Contact your water utility. EPA requires all community water systems to prepare and deliver an annual consumer confidence report (CCR) (sometimes called a water quality report) for their customers by July 1 of each year. If your water provider is not a community water system, or if you have a private water supply, request a copy from a nearby community water system.

- The CCR summarizes information regarding sources used (i.e., rivers, lakes, reservoirs, or aquifers), detected contaminants, compliance and educational information.
- Some water suppliers have posted their annual reports on EPA's website.

Other EPA websites

You will need Adobe Reader to view some of the files in this section. See EPA's PDF page to learn more.