Steven P. Stucker, C.P.G.
Senior Environmental Engineer

June 6, 2016

Ms. Jamie Verrigni
Environmental Engineer
Remedial Bureau C, 11th Floor
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7014

Re: Johnstown (N. Market St.)
Former Manufactured Gas Plant Site (MGP)
Site No. 5-18-020
Semi-Annual Groundwater Monitoring Report (April 2016)

Dear Ms. Verrigni:

Enclosed is the Semi-Annual Groundwater Monitoring Report for the Johnstown (N. Market St.) MGP Site located in Johnstown, New York. The report includes the April 6, 2016 groundwater monitoring results.

National Grid acknowledges the NYSDEC Fact sheet dated June 2016 approving the site's environmental remediation construction completion. Long-term OM&M activities will be conducted in accordance with the approved Site Management Plan (SMP) and the site's Environmental Easement.

Please contact me at (315) 428-5652 or Steven.Stucker@NationalGrid.com if you have any questions regarding the report.

Sincerely,

Matthew D. Millias for SPS

Steven P. Stucker, C.P.G.
Senior Environmental Engineer

Environmental Department, 300 Erie Boulevard West, Syracuse, New York 13202
T: (315) 428-5652 ■ Steven.Stucker@NationalGrid.com ■ www.nationalgrid.com

Cc: Carolyn Rooney -National Grid
Nathan Freeman- NYSDOH
Matt Millias- CDM Smith

SEMI-ANNUAL GROUNDWATER MONITORING REPORT

Former Manufactured Gas Plant Site
North Market Street
Johnstown, NY

April 2016 Sampling Event

Prepared For:

nationalgrid

300 Erie Boulevard West
Syracuse, NY 13202

Prepared By:

CDM Smith
6800 Old Collamer Road, Suite 3
East Syracuse, New York 13057

TABLE OF CONTENTS

Page

1.0 INTRODUCTION

This Semi-Annual Groundwater Monitoring Report summarizes the results of April 2016 groundwater sampling event at the Johnstown, New York (N. Market Street) Former Manufactured Gas Plant (MGP) Site (the Site). This Report was developed as part of the long-term groundwater monitoring program on behalf of National Grid.

National Grid has been addressing the Site environmental conditions under an Order on Consent (Index Number D0-0001-9210), dated April 1999, that was entered into by Niagara Mohawk and the New York State Department of Environmental Conservation (NYSDEC). That Order on Consent was for the investigation and remediation of 21 former MGP sites, including the Johnstown (N. Market Street) Site. It was superseded by a new Order on Consent (Index Number A4-0473-0000), dated November 7, 2003. A NYSDEC-approved Supplemental Remedial Investigation (RI) Work Plan was finalized during November 2007, and a Final Supplemental RI Report was submitted to NYSDEC, dated December 2008. The RI results report and subsequent Feasibility Study were approved in February 2010.

A Record of Decision (ROD) was issued by NYSDEC, dated March 2010, in accordance with the requirements of New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, 6 NYCRR Part 375. Based upon the results of the remedial investigation/feasibility study (RI/FS) for the Site, the IRMs previously completed, and the ROD, the draft Final Engineering Report and Site Management Plan (SMP) were developed and submitted to the NYSDEC in June 2010. The Final Engineering Report, the Final SMP, and the Final Environmental Easement were approval by NYSDEC in their June 2016 Fact Sheet.

The Final SMP includes:
1) Semi-annually (April & October) site inspection and groundwater level measurements at MW-4, MW-7, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, RMW-1, and the creek surface gauging station (bridge);
2) Semi-annual groundwater sampling/analysis (VOCs, SVOCs, Heavy Metals, and Natural Attenuation Parameters) for MW-4, MW-7, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, and MW-16 (RMW-1 will not be sampled);
3) Semi-annual reporting (June & December) to NYSDEC.

1.1 PURPOSE AND OBJECTIVE

The purpose of this Report is to summarize the activities and results of the latest event, and to compare the results to previous events. As described in the December 2008 Supplemental RI Report and the subsequent ROD, one of the primary goals is to evaluate whether or not the groundwater constituents of concern (COCs) concentrations decrease, and continue to assess the effectiveness of monitored natural attenuation.

1.2 REPORT ORGANIZATION

This Report is organized in to the following six sections. Section 1.0 presents the purpose and objectives of this program. Section 2.0 provides the history, environmental setting and location of the Site. Section 3.0 provides a description of the approach used to collect and analyze groundwater samples at the Site. Section 4.0 presents the physical and chemical analytical data collected, and Section 5.0 presents the conclusions and recommended approach for further monitoring at the Site. References for the Report are located in Section 6.0.

2.0 BACKGROUND

2.1 SITE DESCRIPTION

The Site is located in the City of Johnstown, County of Fulton, New York (Figure 1 presents the site location map) and is identified as Block 14 and Lot 7 on the Johnstown City Tax Map. The Site is an approximately 0.7 acre area bounded by the Cayadutta Creek to the north, the Colonial Cemetery to the south, Market Street to the east, and a wooded parcel of property to the west (Figure 2 presents the site plan). The Site is located in a mixed commercial, industrial, and residential area.

Currently, National Grid operates a natural gas regulator station at the Site, with equipment contained in fenced enclosures along the Site's southern boundary. The rest of the Site is grass-covered, including the stream bank adjacent to Cayadutta Creek along the northern boundary of the Site. An embankment exists along the north end of the Site that goes down to the Cayadutta Creek. A chain link fence exists along the north and west sides of the Site, and a retaining wall runs along the south side of the Site. Access to the Site is from North Market Street to the east.

The Johnstown Hospital is located south of the Site within one mile, and numerous residences exist to the west and east of the Site. The Johnstown Senior High School and Warren Street Elementary School are located within one mile of the Site to the west.

2.2 SITE HISTORY

The Johnstown MGP Site was incorporated in March 1857 as the Johnstown Gas Light Company. The company operated a small coal gas plant with a 20,000 cubic foot (cu. ft.) holder (Holder #1), see Figure 2. In 1861, the plant was improved with the addition of a coal shed and covering for the tank holder. In 1886, the Johnstown and Gloversville Gas Light Corporation was formed, and the company purchased the rights to the Lowe water gas process. The United Gas Improvement Company planned the construction of a water gas plant for the Johnstown and Gloversville franchises.

In 1887, the Site consisted of a tool shop, an office, a coal gasometer, a lime house, a purifier room, a retort house, and a coal shed. Between 1887 and 1918, Holder #2 was located in the central part of the Site (exact size unknown). In 1892, a steam generator was constructed adjacent to the coal shed for the Lowe water gas process, and Holder #1 was decommissioned in 1896. In 1898, a 72,000 cu. ft. gas holder (Holder #3) was constructed on the Site. Between 1912 and 1918, the western small gas holder (Holder #2) in the middle of the Site was removed. In 1929, a gas pipeline from a MGP in Troy, New York reached Johnstown, and local gas production was only performed on a seasonal (winter) basis, until local production of gas ceased in 1931. Niagara Hudson Power Company was the owner of the Site in 1930. By 1948, Holder #3 was decommissioned. In 1950, Niagara Hudson Power was consolidated under the name Niagara Mohawk Power Company. By 1980, all Site buildings were removed. Currently, National Grid operates a natural gas regulator station at the Site.

Site Assessment and Investigations

An investigation of the Site began in 1997 with a Preliminary Site Assessment (PSA), which found that the Site was impacted with MGP wastes. A Supplemental PSA was then conducted at the Site in 1998, which was followed by a RI (January 2000) and subsequent remedial measures. Remedial measures are discussed separately below in this section.

A 2009 Supplemental RI was initiated to collect data to address potential residual MGP-related contaminants remaining in groundwater at the Site and to assess hydrogeologic conditions and groundwater quality on the Site. The results of the Supplemental RI were used to formulate potential remedial alternatives for groundwater and residual soil contamination. The Supplemental RI results were evaluated and presented in the 2010 FS Report.

Remedial Measures Completed

Several interim remedial measures (IRMs) were performed to address the MGP impacts. In 2002 and 2003, the former holders and associated impacts soil were removed. During this IRM, former Holder #2 and the northern half of former Holder #3 were demolished and removed from the Site. Approximately 13,870 cubic yards of soil were excavated and disposed off-site at a NYSDEC-approved facility. Permanent steel sheeting was left in place along the northeastern perimeter of the Site to avoid disturbance of the roadway and to provide containment of residual material left at depth.

Between 2005 and 2006, National Grid provided support to the City of Johnstown for subsurface work associated with the replacement of the North Market Street Bridge across Cayadutta Creek. Approximately 1,413 cubic yards of impacted soil were excavated from within the cofferdam area and disposed off-site at a NYSDEC-approved facility.

In August 2009, the rip-rap area along the bank of Cayadutta Creek that had been restored during the previous IRMs was enhanced to allow for establishment of stream-side vegetation. Post-IRM inspections of the restored Cayadutta Creek Bank were conducted in September 2009 and May 2010.

2.3 ENVIRONMENTAL SETTING

The Johnstown (N. Market Street) Site slopes northward toward Cayadutta Creek with elevations ranging from 652 to 672 feet (ft.) above sea level. Currently, the Site ground surface gradually slopes from south to north, becoming increasingly steep adjacent to the Creek, and is generally covered with either vegetation or stone. Surface drainage is primarily to the north into the Creek. Access to the Site is from North Market Street to the east, and the Site is currently used to support the natural gas regulator station operations.

Site Geology

The main units of unconsolidated deposits identified at the Site can be characterized in descending order as fill and native glacial deposits to bedrock. The glacial deposits are of lacustrine origin with glacial tills to the top of Shale bedrock (Utica Shale). Bedrock was reached underneath the till in two soil borings explored during the 1998 Supplemental PSA. These stratigraphic units are more specifically described below, based on information obtained from the previous investigations, and from the soil borings and monitoring well borings conducted during the 2007/ 2008 SRI.

Site geology includes a layer of disturbed soils (primarily fill) overlying glacial deposits. Based upon on-site soils and monitoring well borings, disturbed soils (including fills) range in thickness up to 13 ft. on the Site and are typically composed of sand, gravel, silt, clay, wood, coal, and anthropogenic materials including ash, cinders, clinkers, brick fragments, wire, and wood chips. Wood chips were identified in three borings (SB-09, SB-12, and MW-8), and are often associated with purifier waste.

A thin layer of peat underlies the disturbed soils in the northern portion of the Site, ranging in thickness from 0.5 ft. to 3 ft., and appears to thicken and dip to the north. Except where it is locally covered by sedimentary deposits such as silts, sands, and clays, the peat, where present, appears to have been the historical ground cover prior to development of the Site.

Underlying the peat, where present, the soils consist of lacustrine deposits composed of silts, sands, and clays. The surface of the lacustrine deposits appears to dip and thin out toward the north. A sand and gravel unit (an outwash deposit of stratified drift) underlies the lacustrine deposits across the Site area. This unit contains varying amounts of silt and clay. These deposits overlie a dense, low-permeability glacial till to bedrock (Shale).

Site Hydrogeology

Groundwater depths on-site are typically in the 10- to 20-foot below ground surface (bgs) ranges, generally in the glacial deposits below the bottom of the fill material. Groundwater flow is consistently northward through the Site area toward Cayadutta Creek, with the steepest gradient from the center of the Site proximal to former gas holders #2 and #3 to the southern Creek bank (about 0.08 ft./ft.) In comparison the average hydraulic gradient decreases to a value of approximately 0.04 ft./ft. on the east and west sides of the site away from the gas holders. The groundwater flow is consistent with regional groundwater flow direction. This groundwater flow direction and hydraulic gradients calculated during this monitoring period are also generally consistent with data obtained prior to the issuance of the ROD.

3.0 MONITORING ACTIVITIES

The long-term semi-annual groundwater monitoring program currently consists of the following elements:

- Semi-Annual Site Inspection including the creek bank protection, vegetative cover, monitoring wells, and security fence.
- Semi-Annual Groundwater Well Gauging of the following: RW-1, MW-4, MW-7, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15 and MW-16 (Figure 2 presents the well locations). The creek surface water level is also gauged at one location: SG-1.
- Semi-Annual Groundwater Sampling and Analysis of the following: MW-4, MW-7, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15 and MW-16. Note that Recovery Well RW-1 is not sampled as part of the program but is inspected for the presence of NAPL. MW-11 was not sampled during the April 2016 sampling round due to concrete/metal and wood debris at this offsite well location.

3.1 WATER GAUGING AND GROUNDWATER SAMPLING PROCEDURES

Gauging

Long-term groundwater monitoring includes water gauging at 9 groundwater monitoring wells and 1 groundwater recovery well using an electronic oil/water interface probe. Depth to bottom of well (DTB), depth to product (DTP), and depth to water (DTW) are to be recorded at each well. Refer to Table 1 for a summary of the water level measurements from October 2015 as well as previous events. Appendix A also presents the field documentation from the October 2015 water gauging event.

No product was present in RW-1 or the other nine groundwater monitoring wells.

A surface water level measurement was collected from the Cayadutta Creek using a water level probe (from the surveyed gauging point at the bridge).

Sampling

Groundwater sampling was performed following low-flow sampling techniques (equivalent to United States Environmental Protection Agency [USEPA] low-flow procedures) using a pressure-driven peristaltic pump. During purging, measurements were collected for the following field parameters: pH, specific conductivity, turbidity, dissolved oxygen (DO), temperature, and oxidation-reduction potential (ORP). A Horiba U-22 was used to collect the field parameter data in a flow-through cell. The monitored field parameters are observed and recorded during low-flow sampling to determine when they have stabilized, and thus when the well has been adequately purged. Field parameter measurements were recorded at approximately 5-minute intervals. The monitoring wells were purged until stabilization of the field parameters (±0.1 Standard Unit (SU) for pH, ±3% for specific conductivity, ±10 millivolts (mV) for ORP, and ±10% for DO) and

turbidity was less than 50 Nephalometric Turbidity Units (NTU). Refer to Attachment A for the field data.

After stabilization of the field parameters, 8 groundwater samples were collected directly from the dedicated tubing into laboratory-supplied sample containers (pre-preserved as required per the analytical method). Quality Assurance/Quality Control (QA/QC) samples included the collection of one field duplicate sample, one matrix spike (MS) sample, one matrix spike duplicate (MSD) sample, and one trip blank sample (VOCs only). Samples were transported to the laboratory, accompanied by the appropriate chain-of-custody documentation. Analytical results were validated.

Natural Attenuation Parameters

The ORP of groundwater is an indicator of the relative tendency of the groundwater to accept or transfer electrons. ORP is dependent on and influences rates of biodegradation. Lower ORP readings indicate a greater tendency toward reducing conditions and anaerobic processes.

The pH of the groundwater affects the presence and activity of microorganisms in the groundwater. The microorganisms may produce either organic acids or carbon dioxide which, when dissolved in water, forms weak carbonic acid. Microorganisms capable of degrading petroleum hydrocarbons typically prefer pH values ranging from 6 to 8 SU.

Groundwater temperature affects the solubility of dissolved gases such as oxygen and carbon dioxide as well as the metabolic activity of microorganisms. Oxygen is less soluble in warm water, and groundwater temperatures below approximately 5 degrees Celsius tend to inhibit biodegradation.

Dissolved oxygen is the most thermodynamically favored electron acceptor used by microorganisms during the degradation of both natural and anthropogenic organic carbon. An inverse relationship of high hydrocarbon concentrations and low DO concentrations can be used as a key indicator of biodegradation.

Nitrate, if available, may be used as an electron acceptor for anaerobic biodegradation after the depletion of dissolved oxygen (typically considered less than 0.5 milligrams per liter [mg/L]) and is used to biodegrade petroleum hydrocarbons. Lower nitrate concentrations in groundwater within a plume, with respect to higher concentrations in areas upgradient and outside a plume, may be expected.

Ferrous iron is a metabolic byproduct of hydrocarbon degradation. Reducing conditions in nitrogen- and oxygen-depleted groundwater creates an anaerobic environment that causes the reduction of ferric iron (Fe^{3+}) to ferrous iron (Fe^{2+}). Relatively low ferrous iron concentrations may be present in areas where natural attenuation is occurring if free ferrous iron is re-precipitating as sulfides or carbonates.

Sulfate may be used as an electron acceptor after the depletion or use limitation of dissolved oxygen, nitrate, and ferric iron. Lower sulfate concentrations in groundwater within a plume, with respect to higher concentrations in areas upgradient and outside a plume, may be expected.

The production of methane, termed methanogenesis, occurs only in strongly reducing conditions and generally after oxygen, nitrate, and sulfate have been depleted. The presence of methane in groundwater suggests BTEX degradation via methanogenesis. Methane is not present in fuels, and therefore its presence at high concentrations relative to areas upgradient and outside a plume is indicative of the biodegradation of petroleum hydrocarbons.

The buffering capacity of groundwater is a function of alkalinity. Typically, alkalinity is primarily due to carbonate alkalinity. The organic acids or the carbon dioxide (which produces a weak carbonic acid when dissolved in water) produced by biodegradation solubilize carbonate from the soil. Alkalinity concentrations that are elevated with respect to areas upgradient and outside a plume may be an indication of microbial activity and thus natural attenuation.

Typically, the relationships between BTEX and electron acceptors/metabolic byproduct concentrations (geochemical indicators) indicate potential for biodegradation. The concentrations are dependent on the location (and groundwater conditions) within the plume or outside of the plume limits.

3.2 GROUNDWATER ANALYTICAL RESULTS

The groundwater samples were analyzed for BTEX, PAHs, lead, total cyanide, and MNA/WQ parameters including alkalinity, chloride, ethane, ethene, ferrous iron, manganese, methane, nitrate, nitrogen, sulfate and sulfide. BTEX and PAHs are constituents commonly associated with former MGP sites. Cyanide is also a constituent commonly associated with former MGP sites. BTEX, PAHs, lead, and cyanide were the primary contaminants detected during previous investigation activities conducted at the Site. The MNA/WQ parameters, as well as field-measured ORP, pH, temperature, and DO, are relevant to establishing whether conditions favorable to natural attenuation occur at the Site.

- Refer to Table 2 for the analytical results summary.
- Refer to Appendix A for field data
- Refer to Appendix B for the DUSR

Groundwater analytical results were compared with levels specified in NYSDEC Division of Water Final Amendment to Water Quality Standards Regulations, effective February 16, 2008 [hereafter referred to as NYSDEC WQ Values]. For groundwater, Class GA values were applied. Class GA waters are defined as fresh groundwater, found in the saturated zone of unconsolidated deposits and consolidated rock or bedrock, which are used as a source of potable water supply.

Site Related Parameters

BTEX - Groundwater samples collected from monitoring wells MW-7, MW-10, MW-13, MW-15, and MW-16 contained concentrations of some or all individual BTEX constituents above their respective NYSDEC WQ Values (1 micrograms per liter [µg/L] for benzene and 5 µg/L for other BTEX constituents). The highest concentrations were observed in the groundwater samples collected from MW-13, MW-15 and MW-16. MW-13 typically had the highest total BTEX concentrations. MW-15 is located generally downgradient of the former gas holders and of MW-13, while MW-16 is located southwest of the former gas holders and generally upgradient of both MW-13 and MW-15.

PAHs – PAHs were detected in MW-4, MW-7, MW-10, MW-12, MW-13, MW-15 and MW-16 since June 2010. Naphthalene has consistently exhibited the highest concentration of any PAH.

Lead - Lead exhibited excedances above its respective NYSDEC WQ Value (25 µg/l) in two wells (MW-7, MW-12) since June 2010.

Cyanide - Concentrations of cyanide were detected above its NYSDEC WQ Value (0.2 mg/L) in groundwater samples collected from MW-7, MW-13, MW-14, MW-15, and MW16 since June 2010.

Monitored Natural Attenuation Parameters

Site-specific levels of the MNA/WQ parameters (geochemical indicators) were compared to known screening values to identify whether the site-specific values are within the ranges known to be suitable for biodegradation. The MNA/WQ analytical results for all individual monitoring wells are summarized in Table 2. Figure 4 presents the groundwater data for the key MNA data parameters at their respective locations to assist with the MNA evaluation. Indications of biodegradation of petroleum-related MGP constituents within the plume include low levels of DO, nitrate and sulfate, with generally higher levels of manganese, ferrous iron and methane.

Indicator concentrations detected at monitoring wells identified within source and downgradient areas of the Site were compared to levels detected at upgradient and side gradient monitoring wells exhibiting little or no MGP-related contamination. Generally indicator concentration levels at a distance from the center of the plume will be significantly lower than levels within the plume. A summary of the MNA/WQ results and associated field indicator parameters are provided below:

- DO and ORP values demonstrate depleted levels of dissolved oxygen and a transformation to more anaerobic or reducing conditions at the former source and downgradient areas relative to side gradient and upgradient areas of the Site. These values suggest that biodegradation activities at the source and at downgradient areas are occurring, consuming the available oxygen and resulting in MGP petroleum-related compound degradation and the lowering of dissolved oxygen levels.

- The range of ORP levels observed at the source and downgradient area monitoring wells generally indicates aquifer conditions could be suitable for denitrification, ferric iron reduction, sulfate reduction, and methanogenesis.

- Nitrate concentrations are generally depleted at the former source and downgradient areas of the Site relative to upgradient (MW-4) and side gradient areas, indicating denitrification may be a noteworthy biodegradation process occurring at this time at the source and downgradient areas.

- Ferrous iron concentrations at the former source and downgradient area monitoring wells do not exhibit higher levels relative to side gradient and upgradient monitoring wells. In addition, sulfate concentrations at the former source and upgradient areas are not depleted relative to upgradient and side gradient areas. These observations indicate ferric iron reduction and sulfate reduction are not likely to be significant biodegradation processes at this time at the source and downgradient areas.

- Based on the presence of methane, low DO amounts, and the ORP levels, methanogenesis is likely an important factor for biodegradation capacity in some areas of the Site. However, plume elongation is limited with a similar footprint throughout the monitoring period indicating that biodegradation is continuing and methanogenic conditions have not taken over completely.

Natural Attenuation Trending

Previous groundwater sampling data collected during the since June 2010 was utilized to develop and evaluate the contaminant plume and concentration trends of specific constituents at the Site. Plume size and concentration data are indicative of biodegradation capacity (natural attenuation) at the Site and whether the capacity has reached a limit of effectiveness. In order to determine and evaluate natural attenuation effectiveness, the use of statistical testing has been utilized for groundwater data collected from monitoring wells at the Site. The Mann-Kendall test was utilized for trend analysis. Trend analysis data started June 2010. The resultant statistical trend analysis for individual monitoring wells suggests (with 80% and 90% confidence) that total BTEX compounds and naphthalene plume lifecycle have been stable (no trend) to decreasing throughout the monitoring period. The table below depicts general concentration trend analysis results (decreasing, no trend or increasing) at 80% confidence levels for each well and associated constituents during the monitoring period. No trend is indicative of plume stability at well locations with contaminant detections throughout the monitoring period.

Well ID	Benzene	Toluene	Ethylbenzene	Total xylenes	Naphthalene
MW-4	No trend	No trend	No trend	No trend	No trend
MW-7	Increased[2]	No trend	No trend	No trend	Increased[2]
MW-10[1]	Increased[2]	No trend	No trend	No trend	Increased[2]
MW-11[1]	Decreasing	Decreasing	Decreasing	Decreasing	No trend
MW-12	No trend	No trend	No trend	No trend	No trend
MW-13[1]	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing

MW-14[1]	No trend	Decreasing	No trend	Decreasing	Decreasing
MW-15[1]	No trend	Increasing	No trend	Decreasing	No trend
MW-16[1]	Decreasing	Decreasing	Decreasing	Decreasing	No trend

1 No trend is indicative of plume stability at well locations with contaminant detections throughout the monitoring period.
2 Prior to the April 2016 sampling round, benzene was non-detect at both MW-7 and MW-10 and naphthalene was only detected one other time, in March 2012 for MW-7 and September 2010 for MW-10.

Isoconcentration contour maps were developed for total BTEX (Figure 5) and naphthalene (Figure 6) contamination. The figures present locations of the groundwater monitoring wells and plume contours for total BTEX (as compared to the benzene WQ value of 1 µg/L) and naphthalene exceeding the NYSDEC WQ values. Evaluation of the isoconcentration figures suggests that the contaminant plumes were relatively stable to decreasing (smaller footprint with time) within the Site boundary up until this latest sampling round of April 2016. BTEX constituent plume trends (concentrations above the benzene WQ at 1 µg/L) have consistently included MW-13, MW-15 and MW-16 but has extended to the northeast this sampling round to MW-7 and MW-10. While the naphthalene plume (concentrations above the WQ) has decreased to include only MW-13 and MW-15. However, during the April 2016 sampling round, naphthalene was detected in MW-7 and MW-10 at concentrations below the NYSDEC WQ values. Naphthalene was non-detect as these locations during the last six sampling rounds for MW-7 and the last three sampling rounds for MW-10. Due to the naphthalene detections at MW-7 and MW-10 below the NSYDEC WQ, the naphthalene plume did not change.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

Groundwater Levels

The groundwater elevation data indicates groundwater within the Site, south of the Creek, flows in a downgradient direction from the south to the north, toward Cayadutta Creek. The groundwater flow direction has been consistent during previous gauging events and with data obtained prior to the ROD.

Flow on the north side of the Creek is to the south, towards the Creek. As such, Cayadutta Creek serves as the discharge location for the unconfined hydrostratigraphic unit, north and south of the Creek, and acts as a hydraulic boundary.

Site-Related Constituents

The highest concentrations of BTEX constituents and PAH compounds are within MW-13, MW-15, and MW-16. Site institutional controls continue to be effective and will continue to be monitored semi-annually.

There are minimal concentrations of lead in groundwater samples; however, Total Cyanide has been detected consistently in most wells.

Natural Attenuation

Plume stability at the Site is an indication that biodegradation capacity likely has not reached its limit of effectiveness. The use of statistical testing has identified the plume trends based on the constituent concentrations. Trend analysis data started with the June 2010 sampling event. Generally, the tests suggested that the plume and the related constituents were either stable or decreasing.

4.2 RECOMMENDATIONS

Based on the results of the April 2016 event and previous events, the following recommendations are made:

- ✓ Continue the long-term semi-annual site inspection and groundwater monitoring program. The next event will be October 2016.

5.0 REFERENCES

Borden, Robert C., et. al., "Geochemical Indicators of Intrinsic Bioremediation". Groundwater, Volume 33, Number 2, March/April 1995.

National Grid. "Site Management Plan for the Johnstown (N. Market Street) Former MGP Site, Johnstown, New York". National Grid, November 2011.

Niagara Mohawk Power Corporation. "Preliminary Historical Profile of the Johnstown (Market Street) MGP Site. Johnstown, New York". Niagara Mohawk Power Corporation, June 1993.

Niagara Mohawk Power Corporation. "Interim Remedial Measure (IRM) Summary Report for the Johnstown (N. Market Street) Site. Johnstown, Fulton County, New York. Site No. 5-18-020:. Tetra Tech FW, June 2007.

Niagara Mohawk Power Corporation. "IRM Summary Report for the Johnstown (N. Market Street) Site. Bridge Replacement Environmental Support Activities". Tetra Tech FW, October 2007.

Niagara Mohawk Power Corporation. "Record of Decision for the Johnstown (N. Market Street) Former MGP Site, Johnstown, New York". Niagara Mohawk Power Corporation, March 2010.

TABLES

Table 1
Groundwater Level Measurements
Johnstown MGP Site
Johnstown, NY

Well ID	ELEVATION REFERENCE POINT	3/15/2012		10/9/2012		4/18/2013		10/7/2013		4/9/2014		10/13/2014		4/16/2015		10/13/2015		4/6/2016	
		Depth to Water (ft toc)	Groundwater Elevation (ft msl)	Depth to Water (ft toc)	Groundwater Elevation (ft msl)	Depth to Water (ft toc)	Groundwater Elevation (ft msl)	Depth to Water (ft toc)	Groundwater Elevation (ft msl)	Depth to Water (ft toc)	Groundwater Elevation (ft msl)	Depth to Water (ft toc)	Groundwater Elevation (ft msl)	Depth to Water (ft toc)	Groundwater Elevation (ft msl)	Depth to Water (ft toc)	Groundwater Elevation (ft msl)	Depth to Water (ft toc)	Groundwater Elevation (ft msl)
MW-4	676.54	22.81	653.73	NM	NM	23.97	652.57	23.12	653.42	23.28	653.26	23.28	653.26	22.91	653.63	23.48	653.06	23.51	653.03
MW-7	659.08	13.55	645.53	14.17	644.91	13.53	645.55	14.36	644.72	13.71	645.37	14.61	644.47	13.23	645.85	14.61	644.47	14.19	644.89
MW-10	657.59	14.18	643.41	15.05	642.54	14.27	643.32	14.44	643.15	14.13	643.46	14.98	642.61	14.15	643.44	14.95	642.64	14.77	642.82
MW-11	657.29	12.73	644.56	13.95	643.34	13.01	644.28	13.16	644.13	12.68	644.61	13.71	643.58	12.62	644.67	NM	-	NM	-
MW-12	660.08	14.26	645.82	16.36	643.72	14.06	646.02	14.99	645.09	14.41	645.67	15.65	644.43	14.25	645.83	15.62	644.46	14.95	645.13
MW-13	664.89	14.98	649.91	16.12	648.77	14.18	650.71	15.08	649.81	14.84	650.05	15.53	649.36	11.34	653.55	14.98	649.91	15.95	648.94
MW-14	663.91	15.49	648.42	16.98	646.93	13.14	650.77	14.74	649.17	15.70	648.21	15.02	648.89	13.06	650.85	13.63	650.28	16.81	647.10
MW-15	661.85	16.41	645.44	17.85	644.00	16.26	645.59	17.21	644.64	16.67	645.18	17.55	644.30	15.31	646.54	17.23	644.62	17.55	644.30
MW-16	665.57	11.56	654.01	10.51	655.06	9.98	655.59	9.85	655.72	9.45	656.12	10.24	655.33	10.48	655.09	9.61	655.96	10.79	654.78
RW-1	NRP	NM	NRP	17.98	NRP	16.21	NRP	15.95	NRP	12.32	NRP	17.31	NRP	16.84	NRP	13.21	NRP	13.03	NRP
GAUGE1	659.97	15.69	644.28	NM	NM	19.10	640.87	18.85	641.12	18.85	641.12	20.01	639.96	18.91	641.06	19.91	640.06	19.76	640.21

ft msl - feet mean sea level
ft toc - feet from top of inner casing
NM - not measured
NRP - no reference point

Table 2
Analytical Data Results (MW-4)
Johnstown MGP Site
Johnstown, NY

CONSTITUENT	UNITS	NYSDEC WQ Values	03/14/12	10/09/12	04/18/13	10/08/13	04/09/14	10/20/2014	4/16/2015	10/14/2015	4/6/2016
BTEX Compounds											
Benzene	ug/l	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
m/p-Xylene	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
o-Xylene	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PAHs											
Acenaphthene	ug/l	20	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.52 U	0.52 U
Acenaphthylene	ug/l	NC	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.52 U	0.52 U
Anthracene	ug/l	50	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.52 U	0.52 U
Benzo(a)anthracene	ug/l	0.002	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.52 U	0.52 U
Benzo(a)pyrene	ug/l	0.000	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.52 U	0.52 U
Benzo(b)fluoranthene	ug/l	0.002	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.52 U	0.52 U
Benzo(g,h,i)perylene	ug/l	NC	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.52 U	0.52 U
Benzo(k)fluoranthene	ug/l	0.002	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.52 U	0.52 U
Chrysene	ug/l	0.002	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.52 U	0.52 U
Dibenzo(a,h)anthracene	ug/l	NC	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.52 U	0.52 U
Fluoranthene	ug/l	50	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.52 U	0.52 U
Fluorene	ug/l	50	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.52 U	0.52 U
Indeno(1,2,3-cd)pyrene	ug/l	0.002	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.52 U	0.52 U
Naphthalene	ug/l	10	0.49 U	0.49 U	0.49 U	3.2	3.2	2.2	2.2	2.2	0.51 U
Phenanthrene	ug/l	50	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.52 U	0.52 U
Pyrene	ug/l	50	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.52 U	0.52 U
Cyanide and Lead											
Lead	ug/l	25	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U
Cyanide	mg/l	0.2	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U

Notes:

BTEX - Benzene, Ethylbenzene, Toluene and Xylene

J - Estimated

mg/l - Milligrams per liter

NC - No Criteria

PAHs - Polycyclic Aromatic Hydrocarbons

U - Not Detected

ug/l - Micrograms per liter

Table 2
Monitored Natural Attenuation/Water Quality Data Results (MW-4)
Johnstown MGP Site
Johnstown, NY

Sample Date / CONSTITUENT	UNITS	03/14/12	10/09/12	04/18/13	10/08/13	04/09/14	10/15/2014	4/16/2015	10/14/2015	4/6/2016
MNA/WQ Parameters										
Alkalinity (as CaCO3)	mg/l	R	405	354	442	398	400	384	412	394
Chloride	mg/l	228	222	275	411	304	329	295	365	304
Ethane	ug/l	1.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U
Ethene	ug/l	1.5 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U
Ferrous Iron	mg/l	0.1 U	0.1 U	0.1 U	0.013	0.1 U	0.1 U	0.1 U	0.1 U	0.14
Manganese	mg/l	3 U	0.0087	3 U	3 U	3 U	3 U	3 U	0.019	0.0031
Methane	ug/l	1 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Nitrate	mg/l	3.1	2.2	2.4	3.5	3.6	2.7	2.9	2.9	3.4
Nitrogen	mg/l	0.2 U	0.25	0.31	0.31	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Sulfate	mg/l	56 B	62.2	64.7	74.7	70.7	50.8	60	60	73.9
Sulfide	mg/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

Notes:

B - Present in Associated Blank Sample

J - Estimated Concentration

mg/l - Milligrams per liter

NA - Not analyzed

R - Rejected

U - Not Detected

ug/l - Micrograms per liter

Table 2
Analytical Data Results (MW-7)
Johnstown MGP Site
Johnstown, NY

CONSTITUENT	UNITS	NYSDEC WQ Values	03/14/12	10/09/12	04/18/13	10/08/13	04/09/14	10/20/2014	4/16/2015	10/14/2015	4/6/2016
BTEX Compounds											
Benzene	ug/l	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	**1.3**	1 U
Ethylbenzene	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
m/p-Xylene	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
o-Xylene	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.3	1 U
PAHs											
Acenaphthene	ug/l	20	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.46 U	0.46 U	0.49 U	0.49 U
Acenaphthylene	ug/l	NC	0.13 J	0.13 J	0.48 U	0.48 U	0.48 U	0.46 U	0.46 U	0.49 U	0.49 U
Anthracene	ug/l	50	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.46 U	0.46 U	0.49 U	0.49 U
Benzo(a)anthracene	ug/l	0.002	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.46 U	0.46 U	0.49 U	0.49 U
Benzo(a)pyrene	ug/l	0.000	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.46 U	0.46 U	0.49 U	0.49 U
Benzo(b)fluoranthene	ug/l	0.002	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.46 U	0.46 U	0.49 U	0.49 U
Benzo(g,h,i)perylene	ug/l	NC	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.46 U	0.46 U	0.49 U	0.49 U
Benzo(k)fluoranthene	ug/l	0.002	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.46 U	0.46 U	0.49 U	0.49 U
Chrysene	ug/l	0.002	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.46 U	0.46 U	0.49 U	0.49 U
Dibenzo(a,h)anthracene	ug/l	NC	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.46 U	0.46 U	0.49 U	0.49 U
Fluoranthene	ug/l	50	0.078 J	0.48 U	0.48 U	0.48 U	0.48 U	0.46 U	0.46 U	0.49 U	0.49 U
Fluorene	ug/l	50	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.46 U	0.46 U	0.49 U	0.49 U
Indeno(1,2,3-cd)pyrene	ug/l	0.002	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.46 U	0.46 U	0.49 U	0.49 U
Naphthalene	ug/l	10	1.1	0.48 U	0.48 U	0.48 U	0.48 U	0.46 U	0.46 U	5.2	0.49 U
Phenanthrene	ug/l	50	0.12 J	0.48 U	0.49	0.48 U	0.48 U	0.46 U	0.46 U	0.49 U	0.49 U
Pyrene	ug/l	50	0.098 J	0.48 U	0.48 U	0.48 U	0.48 U	0.46 U	0.46 U	0.49 U	0.49 U
Cyanide and Lead											
Lead	ug/l	25	3.2 J	19	**33**	7.1	7.1	0.010 U	0.010 U	0.010 U	0.010 U
Cyanide	mg/l	0.2	**0.22**	**5.9**	**1.4**	**0.4**	**0.16**	0.13	0.18	0.18	0.18

Notes:

BTEX - Benzene, Ethylbenzene, Toluene and Xylene

J - Estimated Concentration

mg/l - Milligrams per liter

NC - No Criteria

PAHs - Polycyclic Aromatic Hydrocarbons

R - Rejected

U - Not Detected

ug/l - Micrograms per liter

Table 2
Monitored Natural Attenuation/Water Quality Data Results (MW-7)
Johnstown MGP Site
Johnstown, NY

Sample Date		03/14/12	10/09/12	04/18/13	10/08/13	04/09/14	10/15/2014	4/16/2015	10/14/2015	4/6/2016
CONSTITUENT	**UNITS**									
MNA/WQ Parameters										
Alkalinity (as CaCO3)	mg/l	R	310	324	367	375	392	340	403	395
Chloride	mg/l	91.2	101	114	84	79	62.8	67.7	66.7	66.2
Ethane	ug/l	75 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U
Ethene	ug/l	75 U	7.0U	7.0U	7.0U	7.0U	7.0U	7.0U	7.0U	7.0U
Ferrous Iron	mg/l	0.1 U	0.37	0.1 U	0.25	6.24	0.1 U	0.1 U	0.1 U	0.14
Manganese	mg/l	0.51	0.96	1.1	1.1	0.564	0.49	0.49	0.46	0.53
Methane	ug/l	210	240	40	23	150	82	35	96	17
Nitrate	mg/l	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.14
Nitrogen	mg/l	1.6	1.6	4.6	1.5	0.16	2	1.1	1.5	1.6
Sulfate	mg/l	674 B	509	654	518	540	457	442	533	384
Sulfide	mg/l	1 U	1.2	1.4	1.4	1.4	1	1 U	1 U	1 U

Notes:

B - Present in Associated Blank Sample

D - From a Diluted Sample

J - Estimated Concentration

mg/l - Milligrams per liter

NA - Not analyzed

R - Rejected

U - Not Detected

ug/l - Micrograms per liter

Table 2
Analytical Data Results (MW-10)
Johnstown MGP Site
Johnstown, NY

CONSTITUENT	UNITS	NYSDEC WQ Values	03/14/12	10/09/12	04/18/13	10/08/13	04/09/14	10/20/2014	4/16/2015	10/13/2015	4/6/2016
BTEX Compounds											
Benzene	ug/l	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	**2.3**	1 U
Ethylbenzene	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1	1 U
m/p-Xylene	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
o-Xylene	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2	1 U
PAHs											
Acenaphthene	ug/l	20	1.4	2	2.2	1.1	0.8	0.48 U	0.63	0.50 U	0.50 U
Acenaphthylene	ug/l	NC	0.14 J	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.50 U	0.50 U	0.50 U
Anthracene	ug/l	50	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.50 U	0.50 U	0.50 U
Benzo(a)anthracene	ug/l	0.002	**0.49 B**	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.50 U	0.50 U	0.50 U
Benzo(a)pyrene	ug/l	0.002	**0.19 J**	0.48 U	**0.55**	0.48 U	0.48 U	0.48 U	0.50 U	0.50 U	0.50 U
Benzo(b)fluoranthene	ug/l	0.002	**0.24 J**	0.48 U	**0.86**	0.48 U	0.48 U	0.48 U	0.50 U	0.50 U	0.50 U
Benzo(g,h,i)perylene	ug/l	NC	0.08 J	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.50 U	0.50 U	0.50 U
Benzo(k)fluoranthene	ug/l	0.002	**0.18 J**	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.50 U	0.50 U	0.50 U
Chrysene	ug/l	0.002	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.50 U	0.50 U	0.50 U
Dibenzo(a,h)anthracene	ug/l	NC	0.48 U	0.48 U	**1.1**	0.48 U	0.48 U	0.48 U	0.50 U	0.50 U	0.50 U
Fluoranthene	ug/l	50	0.34 J	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.50 U	0.50 U	0.50 U
Fluorene	ug/l	50	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.50 U	0.50 U	0.50 U
Indeno(1,2,3-cd)pyrene	ug/l	0.002	**0.076 J**	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.50 U	0.50 U	0.50 U
Naphthalene	ug/l	10	0.48 U	0.7	0.7	0.48 U	0.48 U	0.48 U	0.50 U	7.9	0.50 U
Phenanthrene	ug/l	50	0.18 J	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.50 U	0.50 U	0.50 U
Pyrene	ug/l	50	0.41 J	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.50 U	0.50 U	0.50 U
Cyanide and Lead											
Lead	mg/l	25	6.4	5 U	8.4	5 U	5 U	5 U	0.010 U	0.010 U	0.010 U
Cyanide	mg/l	0.2	0.078	0.14	0.1	0.11	0.081	0.10	0.098	0.010	0.085

Notes:

B - Present in Associated Blank Sample

BTEX - Benzene, Ethylbenzene, Toluene and Xylene

J - Estimated Concentration

mg/l - Milligrams per liter

NC - No Criteria

PAHs - Polycyclic Aromatic Hydrocarbons

R - Rejected

U - Not Detected

ug/l - Micrograms per liter

Table 2
Monitored Natural Attenuation/Water Quality Data Results (MW-10)
Johnstown MGP Site
Johnstown, NY

Sample Date		03/14/12	10/09/12	04/18/13	10/08/13	04/09/14	10/15/2014	4/16/2015	10/13/2015	4/6/2016
CONSTITUENT	**UNITS**									
MNA/WQ Parameters										
Alkalinity (as CaCO3)	mg/l	R	589	584	552	566	548	512	581	586
Chloride	mg/l	147	316	286	265	470	664	698	1060	893
Ethane	ug/l	1.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U
Ethene	ug/l	1.5 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U
Ferrous Iron	mg/l	R	0.10 U	0.10 U	0.12	6.06	0.10 U	0.10 U	0.10 U	0.11
Manganese	mg/l	0.83	1	1.2	0.75	1.07	1.3	1.3	1.6	1.2
Methane	ug/l	40	72	32	28	110	130	63	82	56
Nitrate	mg/l	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.11	0.05 U
Nitrogen	mg/l	5.4	5.7	6.1	4.1	4.8	6.2	5.6	6.3	4
Sulfate	mg/l	238 B	175	174	171	153	89.7	167	53.9	44.4
Sulfide	mg/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

Notes:

B - Present in Associated Blank Sample

mg/l - Milligrams per liter

NA - Not analyzed

R - Rejected

U - Not Detected

ug/l - Micrograms per liter

Table 2
Analytical Data Results (MW-11)
Johnstown MGP Site
Johnstown, NY

CONSTITUENT	UNITS	NYSDEC WQ Values	03/14/12	10/09/12	04/18/13	10/08/13	04/09/14	10/20/2014	4/16/2015	10/14/2015	4/6/2016
BTEX Compounds											
Benzene	ug/l	1	**7.9**	**12**	**3.5**	**8.1**	**10**	**22**	**7.3**	NS	NS
Ethylbenzene	ug/l	5	3.5	1 U	1.2	3.8	**5.1**	**7.8**	3	NS	NS
m/p-Xylene	ug/l	5	1.4 J	2 U	2 U	2 U	2 U	2.1	2 U	NS	NS
o-Xylene	ug/l	5	1.2	1 U	1 U	1.6	2.1	2.6	1.5	NS	NS
Toluene	ug/l	5	0.69 J	1 U	1 U	1 U	1.1	1.9	1 U	NS	NS
PAHs											
Acenaphthene	ug/l	20	**100**	**140 E**	**97**	**110**	**120**	**110**	**59**	NS	NS
Acenaphthylene	ug/l	NC	210	160 E	120	170	110	150	56	NS	NS
Anthracene	ug/l	50	11	23	13	28	13	16	4.2	NS	NS
Benzo(a)anthracene	ug/l	0.002	**5.2 B**	**3.8**	0.002U	**8.3**	**3.2**	4.8	**1.9**	NS	NS
Benzo(a)pyrene	ug/l	0.002	**2.3 J**	**2.7**	**3.3**	**8.5**	**2.8**	4.7	**0.84**	NS	NS
Benzo(b)fluoranthene	ug/l	0.002	**1.8 J**	**1.7**	0.002U	0.002U	0.002U	4.6	**0.68**	NS	NS
Benzo(g,h,i)perylene	ug/l	NC	1.3 J	1	1	3.4	0.002U	1.8	0.002U	NS	NS
Benzo(k)fluoranthene	ug/l	0.002	**1.2 J**	**1.6**	0.002U	0.002U	0.002U	2.1	0.002U	NS	NS
Chrysene	ug/l	0.002	5.1 U	**3.4**	**4.4**	**10**	**5.4**	7.6	0.99	NS	NS
Dibenzo(a,h)anthracene	ug/l	NC	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	0.47 U	0.47 U	NS	NS
Fluoranthene	ug/l	50	12	24	14	28	12	16	5.4	NS	NS
Fluorene	ug/l	50	**62**	**92**	**62**	**70**	31	44	16	NS	NS
Indeno(1,2,3-cd)pyrene	ug/l	0.002	**0.69 J**	**1.6**	0.002U	0.002U	0.002U	1.2	0.002U	NS	NS
Naphthalene	ug/l	10	**140**	**110**	**50**	**87**	10U	51	2.3	NS	NS
Phenanthrene	ug/l	50	**91**	**170**	**80**	**130**	5.8	62	1.5	NS	NS
Pyrene	ug/l	50	16	28	18	34	17	20	4.2	NS	NS
Cyanide and Lead											
Lead	ug/l	25	4.6 J	5 U	5 U	5.9	5U	0.014	5U	NS	NS
Cyanide	mg/l	0.2	0.012	0.010 U	0.010 U	0.010 U	0.018	0.021	0.012	NS	NS

Notes:

B - Present in Associated Blank Sample

D - From a Diluted Sample

J - Estimated Concentration

NC - No Criteria

NS - Not Sampled

R - Rejected

U - Not Detected

BTEX - Benzene, Ethylbenzene, Toluene and Xylene

PAHs - Polycyclic Aromatic Hydrocarbons

mg/l - Milligrams per liter

ug/l - Micrograms per liter

Table 2
Monitored Natural Attenuation/Water Quality Data Results (MW-11)
Johnstown MGP Site
Johnstown, NY

Sample Date / CONSTITUENT	UNITS	03/14/12	10/09/12	04/18/13	10/08/13	04/09/14	10/15/2014	4/16/2015	10/14/2015	4/6/2016
MNA/WQ Parameters										
Alkalinity (as CaCO3)	mg/l	R	623	507	573	465	457	428	NS	NS
Chloride	mg/l	321	350	202	295	454	364	314	NS	NS
Ethane	ug/l	15 U	380 U	380 U	380 U	380 U	7.5 U	7.5 U	NS	NS
Ethene	ug/l	15 U	350 U	350 U	350 U	350 U	7.0 U	7.0 U	NS	NS
Ferrous Iron	mg/l	0.1 U	0.5	0.18	0.22	0.29	0.1U	0.1U	NS	NS
Manganese	mg/l	0.47	0.95	0.95	0.55	0.56	0.56	0.25	NS	NS
Methane	ug/l	160	520	12	25	120	180	13	NS	NS
Nitrate	mg/l	0.092	0.050 U	0.79	0.32	0.32	0.059	0.28	NS	NS
Nitrogen	mg/l	1.3	1.4	0.58	0.64	0.57	1.2	0.26	NS	NS
Sulfate	mg/l	8.5 B	16.9	112	94.1	58	44.3	82.9	NS	NS
Sulfide	mg/l	1 U	1 U	1 U	1 U	1 U	1.8	1 U	NS	NS

Notes:

B - Present in Associated Blank Sample

D - From a Diluted Sample

J - Estimated Concentration

mg/l - Milligrams per liter

NA - Not analyzed

NS - Not Sampled

R - Rejected

U - Not Detected

ug/l - Micrograms per liter

Table 2
Analytical Data Results (MW-12)
Johnstown MGP Site
Johnstown, NY

CONSTITUENT	UNITS	NYSDEC WQ Values	03/14/12	10/09/12	04/18/13	10/08/13	04/09/14	10/20/2014	4/16/2015	10/14/2015	4/6/2016
BTEX Compounds											
Benzene	ug/l	1	1 U	**2.1**	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
m/p-Xylene	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
o-Xylene	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PAHs											
Acenaphthene	ug/l	20	0.52 U	14	0.2 U	1.1	1.1	0.48 U	0.48 U	0.47 U	0.51 U
Acenaphthylene	ug/l	NC	0.18 J	100	0.2 U	0.2 U	0.2 U	0.63	0.2 U	0.47 U	0.51 U
Anthracene	ug/l	50	0.13 J	2.8	0.2 U	1.1	1.1	0.88	0.2 U	0.73	0.51 U
Benzo(a)anthracene	ug/l	0.002	**0.57 B**	**1.5**	**0.83**	**3**	**0.66**	1.5	0.49 U	0.47 U	0.51 U
Benzo(a)pyrene	ug/l	0.002	**0.35 J**	**1.5**	**1**	**3.6**	**0.92**	1.8	0.49 U	0.47 U	0.51 U
Benzo(b)fluoranthene	ug/l	0.002	**0.27 J**	**1.3**	**0.91**	**3.4**	**0.71**	2.1	0.49 U	0.47 U	0.51 U
Benzo(g,h,i)perylene	ug/l	NC	0.27 J	0.62	0.49 U	0.49 U	0.51	0.74	0.49 U	0.47 U	0.51 U
Benzo(k)fluoranthene	ug/l	0.002	**0.38 J**	**0.58**	0.49 U	**0.83**	0.49 U	0.74	0.49 U	0.47 U	0.51 U
Chrysene	ug/l	0.002	**0.60 B**	**1.1**	**1**	**3**	0.49 U	1.6	0.49 U	0.47 U	0.51 U
Dibenzo(a,h)anthracene	ug/l	NC	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.48 U	0.49 U	0.47 U	0.51 U
Fluoranthene	ug/l	50	0.41 J	3.4	1.4	4.3	0.87	2.00	0.49 U	0.47 U	0.52
Fluorene	ug/l	50	0.52 U	2.2	0.49 U	0.49 U	0.49 U	0.48 U	0.49 U	0.47 U	0.51 U
Indeno(1,2,3-cd)pyrene	ug/l	0.002	**0.13 J**	**0.97**	0.49 U	**1.2**	0.49 U	0.51	0.49 U	0.47 U	0.51 U
Naphthalene	ug/l	10	0.52 U	160 E	2.5	0.99	0.52 U	1.6	0.49 U	1.9	0.51 U
Phenanthrene	ug/l	50	0.48 J	7.6	1.1	3.6	0.61	2	0.49 U	0.47 U	0.51 U
Pyrene	ug/l	50	0.59	4.2	2.4	5.8	1.3	2.8	0.49 U	0.47 U	0.64
Cyanide and Lead											
Lead	ug/l	25	5 U	5 U	5 U	**29**	5 U	0.018	0.49 U	10 U	10 U
Cyanide	mg/l	0.2	0.0062 J	0.010 U	0.010 U	0.010 U	0.010 U	0.013	0.49 U	0.01 U	0.01 U

Notes:

B - Present in Associated Blank Sample

J - Estimated Concentration

NC - No Criteria

U - Not Detected

BTEX - Benzene, Ethylbenzene, Toluene and Xylene

PAHs - Polycyclic Aromatic Hydrocarbons

Table 2
Monitored Natural Attenuation/Water Quality Data Results (MW-12)
Johnstown MGP Site
Johnstown, NY

Sample Date		03/14/12	10/09/12	04/18/13	10/08/13	04/09/14	10/15/2014	4/16/2015	10/14/2015	4/6/2016
CONSTITUENT	**UNITS**									
MNA/WQ Parameters										
Alkalinity (as CaCO3)	mg/l	R	434	391	415	329	414	368	401	412
Chloride	mg/l	129 B	468	123	662	150	493	139	591	276
Ethane	ug/l	1.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U
Ethene	ug/l	1.5 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U
Ferrous Iron	mg/l	0.1 U	0.44	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Manganese	mg/l	0.12	0.52	0.19	2.1	0.36	1.2	0.16	0.039	0.062
Methane	ug/l	0.56 J	47	1 U	1 U	1 U	4 U	4 U	4 U	4 U
Nitrate	mg/l	3.2	0.05 U	2.5	4.8	1.4	3.7	1.4	2.5	3.3
Nitrogen	mg/l	0.19 J	0.29	0.24	2.4	0.44	0.61	0.61	0.2 U	0.2 U
Sulfate	mg/l	53.5 B	81.4	73.5	115	51.6	73.5	54.8	70.2	93.7
Sulfide	mg/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

Notes:

B - Present in Associated Blank Sample

J - Estimated Concentration

mg/l - Milligrams per liter

NA - Not analyzed

U - Not Detected

ug/l - Micrograms per liter

Table 2
Analytical Data Results (MW-13)
Johnstown MGP Site
Johnstown, NY

CONSTITUENT	UNITS	NYSDEC WQ Values	03/14/12	10/09/12	04/18/13	10/08/13	04/09/14	10/20/2014	4/16/2015	10/13/2015	4/6/2016
BTEX Compounds											
Benzene	ug/l	1	**370**	**360**	**490**	**400**	**200**	**300**	**17**	**360**	**300**
Ethylbenzene	ug/l	5	**670**	**490**	**600**	**320**	**200**	**340**	**17**	**190**	**270**
m/p-Xylene	ug/l	5	**740**	**590**	**730**	**420**	**250**	**480**	**24**	**270**	**360**
o-Xylene	ug/l	5	**340**	**260**	**320**	**190**	**120**	**210**	**16**	**120**	**150**
Toluene	ug/l	5	**740**	**520 E**	**710**	**440**	**270**	**430**	**17**	**320**	**410**
PAHs											
Acenaphthene	ug/l	20	**82 J**	**170**	**130**	**77**	**71**	**130**	4.9 U	65 E	**130**
Acenaphthylene	ug/l	NC	210	570	430	350	22	450	4.9 U	77 E	220
Anthracene	ug/l	50	97 U	47 U	47 U	47 U	6.9	14	4.9 U	9.2 F1 F2	10
Benzo(a)anthracene	ug/l	0.002	97 U	47 U	47 U	47 U	47 U	**1.9**	0.001 U	0.59 F2	9.7 U
Benzo(a)pyrene	ug/l	0.000	97 U	47 U	47 U	47 U	47 U	**1.6**	0.001 U	0.49 U	9.7 U
Benzo(b)fluoranthene	ug/l	0.002	97 U	47 U	47 U	47 U	47 U	**2.8**	0.001 U	0.49 U	9.7 U
Benzo(g,h,i)perylene	ug/l	NC	97 U	47 U	47 U	47 U	47 U	0.6	0.001 U	0.49 U	9.7 U
Benzo(k)fluoranthene	ug/l	0.002	97 U	47 U	47 U	47 U	47 U	**0.53**	0.001 U	0.49 U	9.7 U
Chrysene	ug/l	0.002	97 U	47 U	47 U	47 U	47 U	**1.8**	0.001 U	0.50 F1 F2	9.7 U
Dibenzo(a,h)anthracene	ug/l	NC	97 U	47 U	47 U	47 U	47 U	0.47 U	0.001 U	0.49 U	9.7 U
Fluoranthene	ug/l	50	97 U	47 U	47 U	47 U	6.1	8.2	4.9 U	5.5 F2	9.7 U
Fluorene	ug/l	50	37 J	**110**	**93**	**68**	30	**94 J**	4.9 U	43 F1 F2	**55**
Indeno(1,2,3-cd)pyrene	ug/l	0.002	97 U	47 U	47 U	47 U	47 U	**0.48**	0.001 U	0.49 U	9.7 U
Naphthalene	ug/l	10	**4100**	**8200**	**7100**	**3700**	10U	**4200**	4.9 U	350 E	**170**
Phenanthrene	ug/l	50	44 J	**76**	**73**	**61**	50U	**70**	4.9 U	31 F1	9.7 U
Pyrene	ug/l	50	97 U	47 U	47 U	47 U	7.2	9.7	4.9 U	5.8 F2	9.7 U
Cyanide and Lead											
Lead	ug/l	25	5.8	5 U	7.8	5 U	5 U	5 U	4.9 U	10 U	10 U
Cyanide	mg/l	0.2	**0.33**	**0.39**	**0.32**	**0.26**	0.17	**0.24**	0.11	0.22 F1	0.29

Notes:

B - Present in Associated Blank Sample

D - From a Diluted Sample

E - Result exceeded calibration range.

F1 - MS and/or MSD Recovery is outside acceptance limits.

F2 - MS/MSD RPD exceeds control limits.

J - Estimated Concentration

NC - No Criteria

R - Rejected

U - Not Detected

BTEX - Benzene, Ethylbenzene, Toluene and Xylene

PAHs - Polycyclic Aromatic Hydrocarbons

mg/l - Milligrams per liter

ug/l - Micrograms per liter

Table 2
Monitored Natural Attenuation/Water Quality Data Results (MW-13)
Johnstown MGP Site
Johnstown, NY

Sample Date		03/14/12	10/09/12	04/18/13	10/08/13	04/09/14	10/15/2014	10/13/2015	4/6/2016
CONSTITUENT	**UNITS**								
MNA/WQ Parameters									
Alkalinity (as CaCO3)	mg/l	R	158	218	187	176	255	283 F1	311
Chloride	mg/l	20.5	21.6	20.4	7.3	9.2	17.3	11.2	9.8
Ethane	ug/l	15 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U
Ethene	ug/l	15 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.5 U
Ferrous Iron	mg/l	0.1 U	0.12	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U
Manganese	mg/l	0.096	0.092	0.11	0.088	0.14	0.031	0.064	7.5 U
Methane	ug/l	66	120	36	15	74	4.0 U	110	50
Nitrate	mg/l	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05
Nitrogen	mg/l	1.4	1.4	1.8	1.2	2.1	0.62	1.4	1.2
Sulfate	mg/l	52.1 J	139	82.3	15.5	15.5	5.0 U	5.0 U	5 U
Sulfide	mg/l	R	1.2	1 U	1 U	1 U	1 U	1 U	1

Notes:

B - Present in Associated Blank Sample

D - From a Diluted Sample

F1 - MS and/or MSD Recovery is outside acceptance limits.

J - Estimated Concentration

mg/l - Milligrams per liter

NA - Not analyzed

R - Rejected

U - Not Detected

ug/l - Micrograms per liter

Table 2
Analytical Data Results (MW-14)
Johnstown MGP Site
Johnstown, NY

CONSTITUENT	UNITS	NYSDEC WQ Values	03/14/12	10/09/12	04/18/13	10/08/13	04/09/14	10/20/2014	4/16/2015	10/13/2015	4/6/2016
BTEX Compounds											
Benzene	ug/l	1	**2.9**	1 U	1 U	**1.3**	1 U	1 U	1 U	1 U	0.54U
Ethylbenzene	ug/l	5	1.3	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.54U
m/p-Xylene	ug/l	5	2.4	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.54U
o-Xylene	ug/l	5	2.2	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.54U
Toluene	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.54U
PAHs											
Acenaphthene	ug/l	20	5.1	1.4	0.48 U	2.2	0.5	2.00	0.47 U	0.52 U	0.54U
Acenaphthylene	ug/l	NC	9	1.9	0.48 U	2.5	0.48 U	2.9	0.47 U	0.52 U	0.54U
Anthracene	ug/l	50	0.5	0.48 U	0.48 U	0.48 U	0.48 U	0.5	0.47 U	0.52 U	0.54U
Benzo(a)anthracene	ug/l	0.002	0.50 U	0.48 U	0.48 U	**0.62**	**1**	**1.9**	0.47 U	0.52 U	0.54U
Benzo(a)pyrene	ug/l	0.002	**0.12 J**	0.48 U	0.48 U	**0.65**	**1.3**	**2.4**	0.47 U	0.52 U	0.54U
Benzo(b)fluoranthene	ug/l	0.002	0.50 U	0.48 U	0.48 U	**0.79**	**1.2**	**3.8**	0.47 U	0.52 U	0.54U
Benzo(g,h,i)perylene	ug/l	NC	0.09 J	0.48 U	0.48 U	0.48 U	0.95	1.3	0.47 U	0.52 U	0.54U
Benzo(k)fluoranthene	ug/l	0.002	**0.17 J**	0.48 U	0.48 U	0.48 U	**0.83**	**1.1**	0.47 U	0.52 U	0.54U
Chrysene	ug/l	0.002	0.50 U	0.48 U	0.48 U	**0.69**	**1.2**	**2.1**	0.47 U	0.52 U	0.54U
Dibenzo(a,h)anthracene	ug/l	NC	0.50 U	0.48 U	0.48 U	0.48 U	0.48 U	0.49 U	0.47 U	0.52 U	0.54U
Fluoranthene	ug/l	50	0.61	0.59	0.48 U	1.2	1.5	3.2	0.47 U	0.52 U	0.54U
Fluorene	ug/l	50	0.35 J	0.48 U	0.48 U	0.48 U	0.48 U	0.49 U	0.47 U	0.52 U	0.54U
Indeno(1,2,3-cd)pyrene	ug/l	0.002	**0.054 J**	0.48 U	0.48 U	0.48 U	**0.63**	**0.95**	0.47 U	0.52 U	0.54U
Naphthalene	ug/l	10	1.2	0.48 U	1.7	0.48	0.48 U	1.1	0.47 U	0.52 U	0.54U
Phenanthrene	ug/l	50	1.1	0.48 U	0.48 U	0.67	0.63	1.4	0.47 U	0.52 U	0.54U
Pyrene	ug/l	50	0.7	0.76	0.48 U	1.5	2.4	5.0	0.47 U	0.52 U	0.54U
Cyanide and Lead											
Lead	ug/l	25	5.7	21	5 U	15	5 U	0.031	0.01 U	0.01 U	10 U
Cyanide	mg/l	0.2	**0.28**	**1.4**	0.1	**0.2**	**0.9**	0.2	0.091	0.120	**0.88**

Notes:

B - Present in Associated Blank Sample

D - From a Diluted Sample

J - Estimated Concentration

NC - No Criteria

R - Rejected

U - Not Detected

BTEX - Benzene, Ethylbenzene, Toluene and Xylene

PAHs - Polycyclic Aromatic Hydrocarbons

mg/l - Milligrams per liter

ug/l - Micrograms per liter

Table 2
Monitored Natural Attenuation/Water Quality Data Results (MW-14)
Johnstown MGP Site
Johnstown, NY

Sample Date / CONSTITUENT	UNITS	03/14/12	10/09/12	04/18/13	10/08/13	04/09/14	10/15/2014	10/13/2014	4/6/2016
MNA/WQ Parameters									
Alkalinity (as CaCO3)	mg/l	R	494	417	456	483	372	445	507
Chloride	mg/l	12.8	40.4	2	7.6	28.5	3.9	10.7	27.4
Ethane	ug/l	1.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U
Ethene	ug/l	1.5 U	7 U	7 U	7 U	7 U	7 U	7 U	7.5 U
Ferrous Iron	mg/l	0.1 U	0.17	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.11
Manganese	mg/l	0.51	2	0.008	0.25	1	0.019	0.011	7.5 U
Methane	ug/l	70	140	1 U	8.6	140	4.0 U	4.0 U	31
Nitrate	mg/l	0.05 U	0.05 U	0.8	0.05 U	0.05 U	0.87	0.16	0.05 U
Nitrogen	mg/l	0.86	2.5	0.54	0.68	1.5	0.22	0.72	1
Sulfate	mg/l	173 B	639	5 U	5 U	363	5.0 U	5.0 U	324
Sulfide	mg/l	R	1 U	1 U	1 U	1 U	1 U	1 U	1U

Notes:

B - Present in Associated Blank Sample

D - From a Diluted Sample

J - Estimated Concentration

mg/l - Milligrams per liter

NA - Not analyzed

R - Rejected

U - Not Detected

ug/l - Micrograms per liter

Table 2
Analytical Data Results (MW-15)
Johnstown MGP Site
Johnstown, NY

CONSTITUENT	UNITS	NYSDEC WQ Values	03/14/12	10/09/12	04/18/13	10/08/13	04/09/14	10/20/2014	4/16/2015	10/13/2015	4/6/2016
BTEX Compounds											
Benzene	ug/l	1	**1500 D**	**1100 E**	**410**	**390**	**210**	**300**	**16**	**350 E**	**330**
Ethylbenzene	ug/l	5	**220**	**200**	**75**	**53**	**38**	**74**	1.9	**92**	**110**
m/p-Xylene	ug/l	5	**6.6 J**	**23**	**19**	5 U	5 U	**10 U**	3.2	**8.1**	8U
o-Xylene	ug/l	5	**27**	**23**	**19**	**16**	**8.5**	**28**	**7.5**	**23**	**21**
Toluene	ug/l	5	**6.2 J**	**5**	5 U	5 U	5 U	**5.8**	1 U	**7**	8U
PAHs											
Acenaphthene	ug/l	20	**47**	**57**	**42**	**23**	**18**	**24**	6.7	16	**23**
Acenaphthylene	ug/l	NC	12	16	11	6.5	3	3.9	0.59	3.1	5.1U
Anthracene	ug/l	50	1.5 J	2.8	2.6	1.4	0.95	0.81	0.49 U	0.57	5.1U
Benzo(a)anthracene	ug/l	0.002	4.7 U	0.58 U	0.96	0.59	0.58 U	0.48 U	0.49 U	0.47 U	5.1U
Benzo(a)pyrene	ug/l	0.000	4.7 U	0.58 U	0.96	0.59	0.58 U	0.48 U	0.49 U	0.47 U	5.1U
Benzo(b)fluoranthene	ug/l	0.002	4.7 U	0.58 U	0.85	0.62	0.58 U	**0.72**	0.49 U	0.47 U	5.1U
Benzo(g,h,i)perylene	ug/l	NC	4.7 U	0.58 U	0.58 U	0.58 U	0.58 U	0.48 U	0.49 U	0.47 U	5.1U
Benzo(k)fluoranthene	ug/l	0.002	4.7 U	0.58 U	0.72	0.58 U	0.58 U	0.48 U	0.49 U	0.47 U	5.1U
Chrysene	ug/l	0.002	4.7 U	0.58 U	1.2	0.59	0.58 U	0.48 U	0.49 U	0.47 U	5.1U
Dibenzo(a,h)anthracene	ug/l	NC	4.7 U	0.58 U	0.58 U	0.58 U	0.58 U	0.48 U	0.49 U	0.47 U	5.1U
Fluoranthene	ug/l	50	1.3 J	2.6	3.3	1.7	1.1	0.93	0.49 U	0.61	5.1U
Fluorene	ug/l	50	10	17	13	6.1	4.3	5.2	1.2	4.1	5.9
Indeno(1,2,3-cd)pyrene	ug/l	0.002	4.7 U	0.58 U	0.58 U	0.58 U	0.58 U	0.48 U	0.49 U	0.47 U	5.1U
Naphthalene	ug/l	10	**51**	**27**	**94**	**13**	**29**	**210**	1.5	**48 E**	**110**
Phenanthrene	ug/l	50	8.8	12	10	5.1	3.4	3.7	0.49 U	2.8	5.1U
Pyrene	ug/l	50	1.5 J	2.9	3.7	2	1.5	1.1	0.49 U	0.69	5.1U
Cyanide and Lead											
Lead	ug/l	25	5 U	5 U	10	5 U	5 U	0.010	0.010	0.010	10 U
Cyanide	mg/l	0.2	**0.91**	**1.2**	**0.5**	**0.5**	**0.48**	**0.58**	**0.29**	**1**	**1.1**

Notes:

B - Present in Associated Blank Sample

BTEX - Benzene, Ethylbenzene, Toluene and Xylene

D - From a Diluted Sample

E - Result exceeded calibration range.

J - Estimated Concentration

mg/l - Milligrams per liter

NC - No Criteria

PAHs - Polycyclic Aromatic Hydrocarbons

R - Rejected

U - Not Detected

ug/l - Micrograms per liter

Table 2
Monitored Natural Attenuation/Water Quality Data Results (MW-15)
Johnstown MGP Site
Johnstown, NY

Sample Date / CONSTITUENT	UNITS	03/14/12	10/09/12	04/18/13	10/08/13	04/09/14	10/15/2014	4/16/2015	10/13/2015	4/6/2016
MNA/WQ Parameters										
Alkalinity (as CaCO3)	mg/l	R	629	527	585	482	557	480	600	601
Chloride	mg/l	68.2	70.6	39.4	42	44.5	44.2	14.2	49.3	55.7
Ethane	ug/l	300 U	380 U	380 U	380 U	380 U	380 U	380 U	380 U	75U
Ethene	ug/l	300 U	350 U	350 U	350 U	350 U	350 U	350 U	350 U	75U
Ferrous Iron	mg/l	R	0.1 U	0.15	0.18	0.1U	0.1U	0.1U	0.15 HF	0.1 U
Manganese	mg/l	0.61	0.61	1	1.1	0.68	1	0.68	0.7	75U
Methane	ug/l	1600	1900	780	580	1100	2400	16	1600	720
Nitrate	mg/l	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.28	0.05 U	.05 U
Nitrogen	mg/l	4.6	5.4	3	3.1	3.2	2.9	0.81	3.9	3.4
Sulfate	mg/l	202 B	217	113	139	122	91.1	28.7	78.5	116
Sulfide	mg/l	R	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1U

Notes:

B - Present in Associated Blank Sample

D - From a Diluted Sample

J - Estimated Concentration

HF - Field parameter with a holding time of 15 minutes. Test performed by laboratory at clients request.

mg/l - Milligrams per liter

NA - Not analyzed

R - Rejected

U - Not Detected

ug/l - Micrograms per liter

Table 2
Analytical Data Results (MW-16)
Johnstown MGP Site
Johnstown, NY

CONSTITUENT	UNITS	NYSDEC WQ Values	03/14/12	10/09/12	04/18/13	10/08/13	04/09/14	10/20/2014	4/16/2015	10/13/2015	4/6/2016
BTEX Compounds											
Benzene	ug/l	1	**150 D**	**180**	**200**	**150**	**8.7**	**59**	**91**	**40**	**76**
Ethylbenzene	ug/l	5	**66**	**100**	**150**	**92**	**6.2**	**41**	**68**	**26**	**35**
m/p-Xylene	ug/l	5	**26**	**14**	**41**	**23**	1U	10 U	1U	4.9	**5**
o-Xylene	ug/l	5	**37**	**14**	**56**	**35**	1U	**17**	**24**	**11**	**20**
Toluene	ug/l	5	**11**	10 U	**14**	**9**	1U	**17**	1U	1.4	2U
PAHs											
Acenaphthene	ug/l	20	15	**30**	**30**	16	1U	**40**	**27**	14	**31**
Acenaphthylene	ug/l	NC	2.2	34	49	0.48 U	0.48 U	31	25	16	27
Anthracene	ug/l	50	1.2	1.6	2.8	0.48 U	0.48 U	2.8	1.8	1.2	2.5U
Benzo(a)anthracene	ug/l	0.002	0.49 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.50U	0.50U	2.5U
Benzo(a)pyrene	ug/l	0.000	0.49 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.50U	0.50U	2.5U
Benzo(b)fluoranthene	ug/l	0.002	0.49 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.50U	0.50U	2.5U
Benzo(g,h,i)perylene	ug/l	NC	0.49 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.50U	0.50U	2.5U
Benzo(k)fluoranthene	ug/l	0.002	**0.096 J**	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.50U	0.50U	2.5U
Chrysene	ug/l	0.002	0.49 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.50U	0.50U	2.5U
Dibenzo(a,h)anthracene	ug/l	NC	0.49 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.50U	0.50U	2.5U
Fluoranthene	ug/l	50	0.94	1.5	2	0.48 U	0.48 U	2.7	1.6	1.1	2.5U
Fluorene	ug/l	50	13	17	21	9.1	0.48 U	**22**	14	7.1	15
Indeno(1,2,3-cd)pyrene	ug/l	0.002	0.49 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.50U	0.50U	2.5U
Naphthalene	ug/l	10	0.49 U	2.4	230E	0.48 U	0.48 U	1.7	4.6	5.1	7.4
Phenanthrene	ug/l	50	6.3	11	15	0.48 U	0.48 U	18	11	6.7	10
Pyrene	ug/l	50	0.87	1.3	2	0.48 U	0.48 U	3	1.8	1.2	2.5U
Cyanide and Lead											
Lead	ug/l	25	5 U	5 U	5 U	5 U	5 U	0.01U	0.01U	0.01U	10 U
Cyanide	mg/l	0.2	**0.34**	**0.41**	0.11	0.11	0.023	**0.25**	**0.24**	**0.24**	**0.25**

Notes:

B - Present in Associated Blank Sample

BTEX - Benzene, Ethylbenzene, Toluene and Xylene

D - From a Diluted Sample

J - Estimated Concentration

mg/l - Milligrams per liter

NC - No Criteria

PAHs - Polycyclic Aromatic Hydrocarbons

R - Rejected

U - Not Detected

ug/l - Micrograms per liter

Table 2
Monitored Natural Attenuation/Water Quality Data Results (MW-16)
Johnstown MGP Site
Johnstown, NY

Sample Date / CONSTITUENT	UNITS	03/13/12	10/09/12	04/18/13	10/08/13	04/09/14	10/15/2014	4/16/2015	10/13/2015	4/6/2016
MNA/WQ Parameters										
Alkalinity (as CaCO3)	mg/l	R	436	530	585	454	595	532	638	615
Chloride	mg/l	12.7	12.8	5.5	5.4	5	6.5	5.8	4.9	5.7
Ethane	ug/l	0.57 J	750 U	750 U	750 U	750 U	750 U	75U	75U	75U
Ethene	ug/l	2.6	700 U	700 U	700 U	700 U	700 U	70U	70U	75U
Ferrous Iron	mg/l	0.1 U	0.12	0.1 U	0.13	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Manganese	mg/l	0.88	1.1	0.63	0.7	0.22	0.63	0.42	0.33	75U
Methane	ug/l	140	550	170	150	75	410	160	1100	110
Nitrate	mg/l	0.05 U	0.05 U	0.1	0.05 U	0.53	0.05 U	0.05 U	0.37	0.074
Nitrogen	mg/l	3.2	3.8	3.6	2.8	2.4	3.3	2.1	1.9	2.6
Sulfate	mg/l	351 B	487	140	86	1U	107	38.2	22.8	13.3
Sulfide	mg/l	R	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

Notes:

B - Present in Associated Blank Sample

D - From a Diluted Sample

J - Estimated Concentration

mg/l - Milligrams per liter

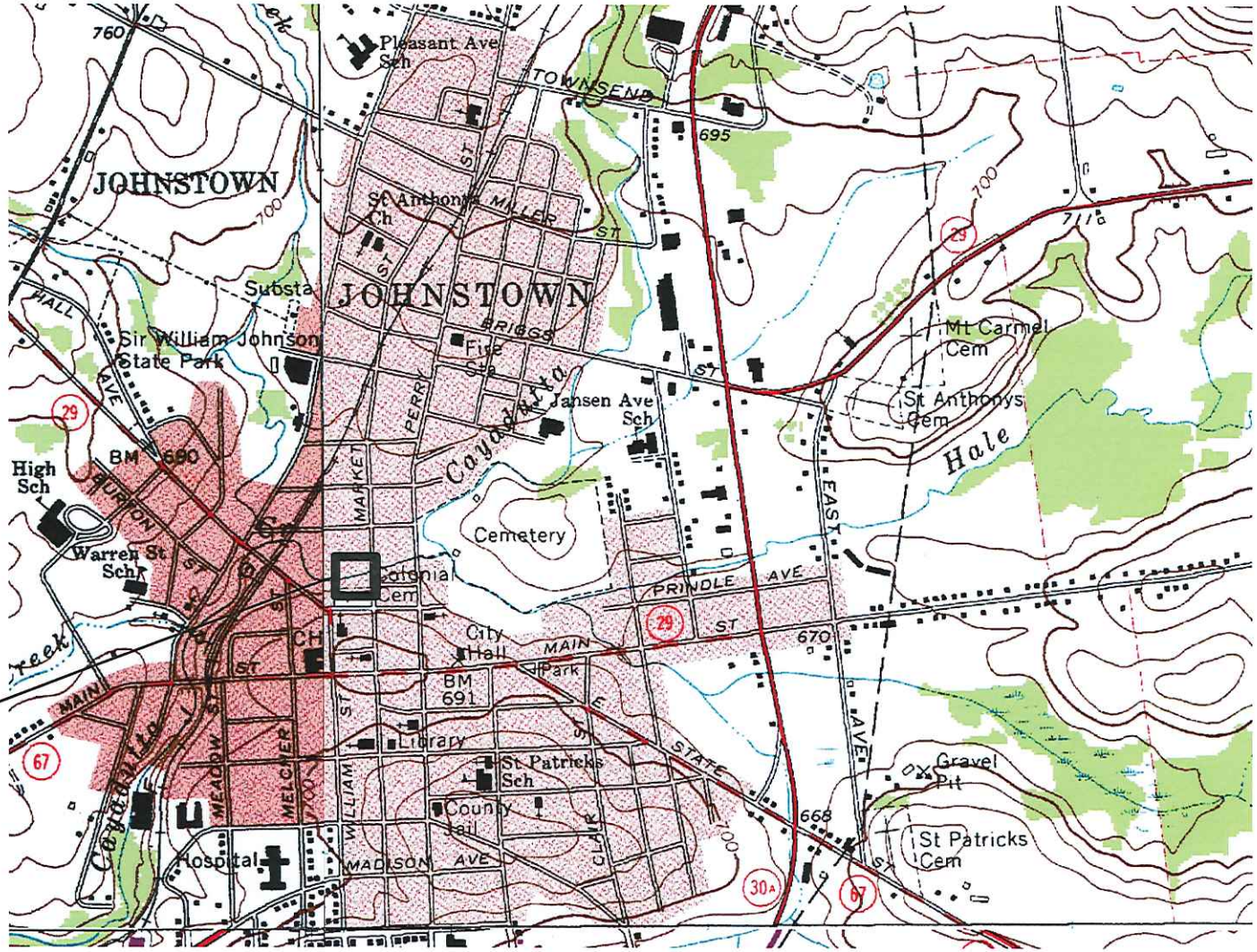
NA - Not analyzed

R - Rejected

U - Not Detected

ug/l - Micrograms per liter

FIGURES



SITE LOCATION
N. MARKET STREET
JOHNSTOWN, NY

REV. NO.	DATE	DRWN	CHKD	REMARKS

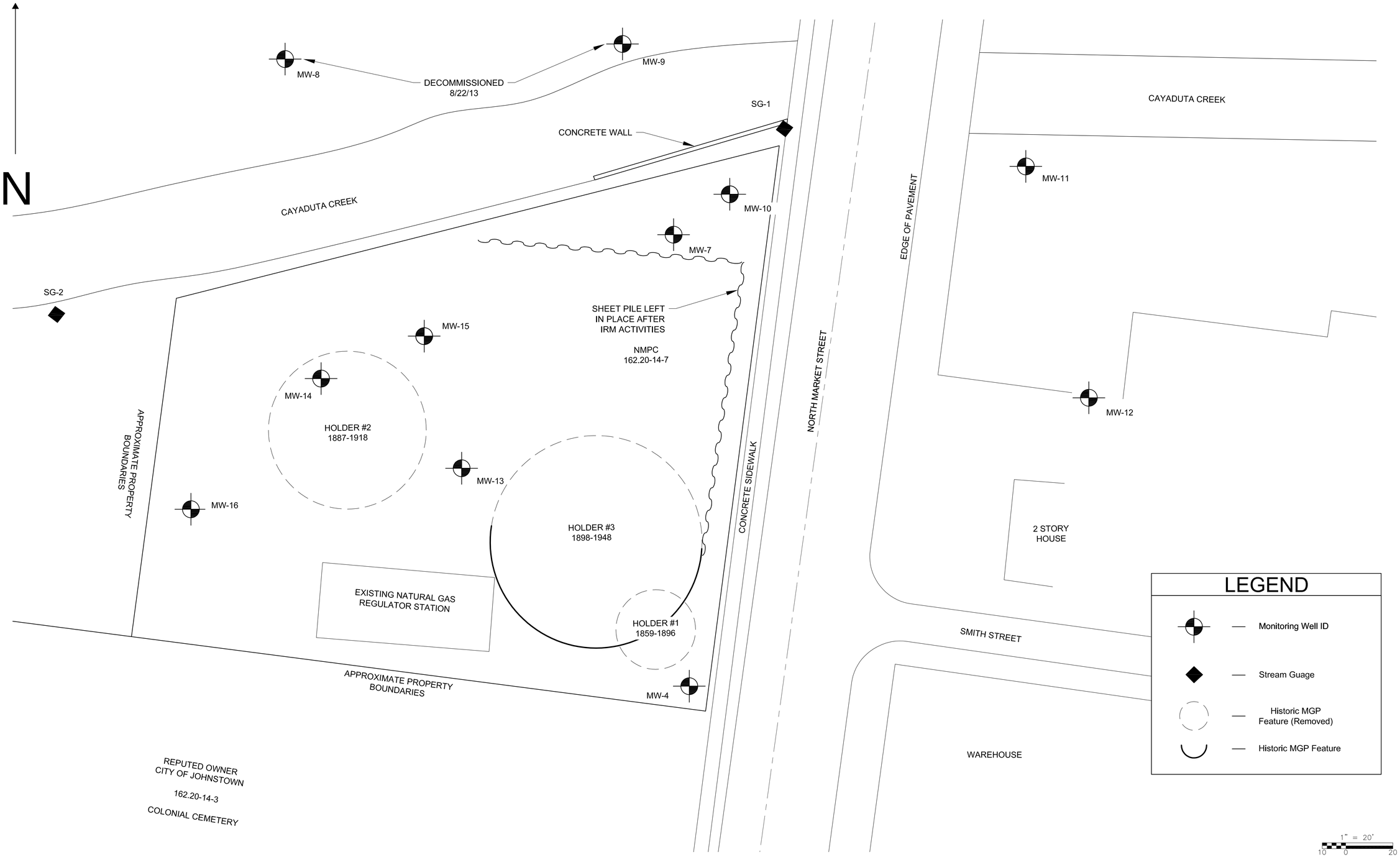
DESIGNED BY:
DRAWN BY: A.DOMAZET
SHEET CHK'D BY:
CROSS CHK'D BY:
APPROVED BY:
DATE: DECEMBER 2015

CDM Smith
6608 Old Collamer Road, Suite 3
East Syracuse, NY 13057
Tel: (315)434-8200

NATIONAL GRID

JOHNSTOWN, NY
FIGURE 1
SITE LOCATION MAP
NOVEMBER 2015

PROJECT NO.
FILE NAME:
SHEET NO.
1



*BASEMAP BY TETRATECH

REV. NO.	DATE	DRWN	CHKD	REMARKS

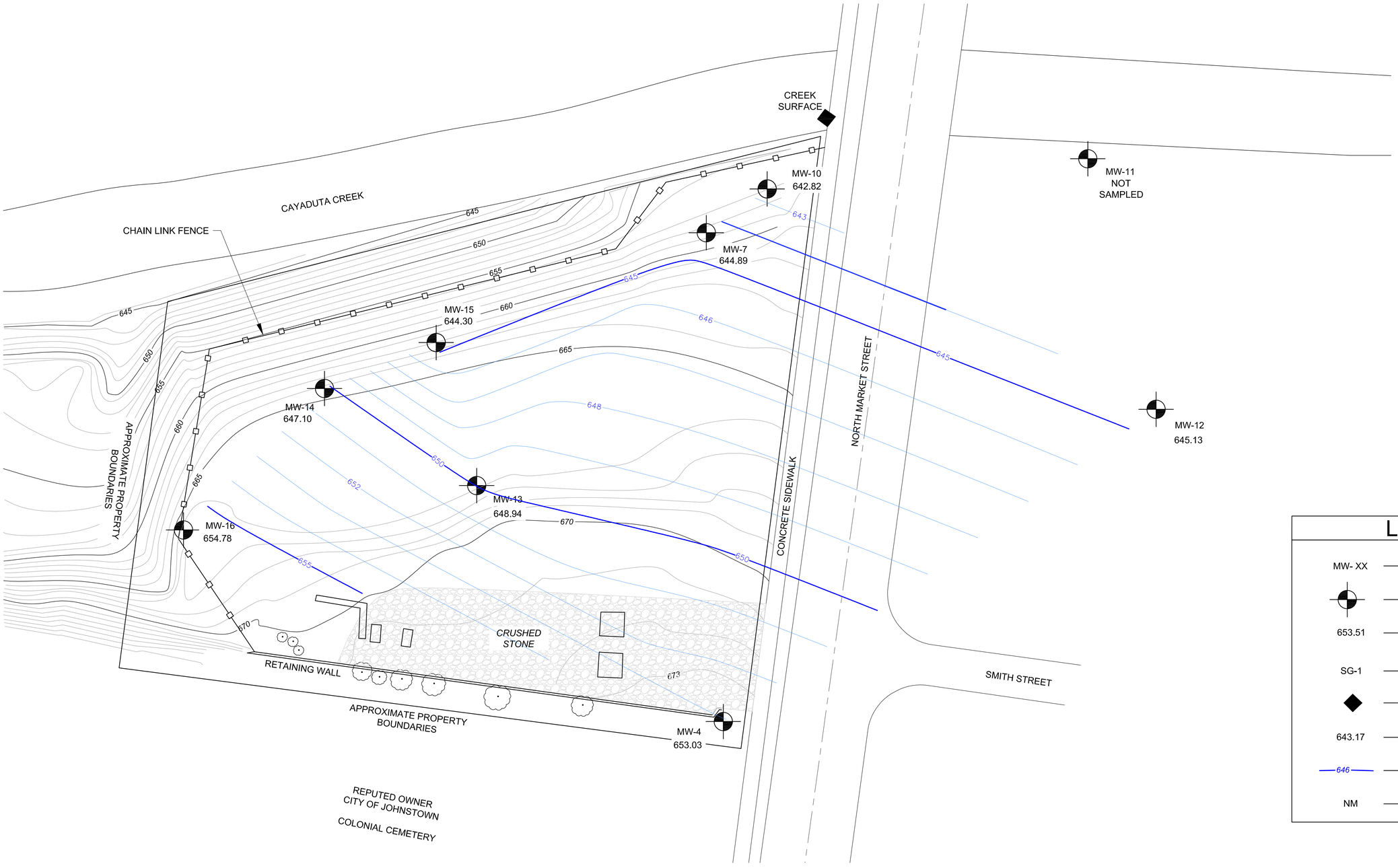
DESIGNED BY:
DRAWN BY: A.DOMAZET
SHEET CHK'D BY:
CROSS CHK'D BY:
APPROVED BY:
DATE: JUNE 2016

CDM Smith
6800 Old Collamer Road, Suite 3
East Syracuse, NY 13057
Tel: (315)434-3200

nationalgrid

JOHNSTOWN, NY
FIGURE 2
SITE FEATURES MAP
APRIL 2016

PROJECT NO.
FILE NAME:
SHEET NO.
2



LEGEND

MW- XX	—	Monitoring Well ID
⊕	—	Monitoring Well
653.51	—	Potentiometric Surface (ft MSL)
SG-1	—	Stream Guage ID
◆	—	Stream Guage
643.17	—	Surface Water Elevation (ft MSL)
646	—	Potnetiometric Surface Line (ft MSL)
NM	—	Not Measured

1" = 20'
10 0 20

*BASEMAP BY TETRATECH

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY:
DRAWN BY: A.DOMAZET
SHEET CHK'D BY:
CROSS CHK'D BY:
APPROVED BY:
DATE: JUNE 2016

CDM Smith
6800 Old Collamer Road, Suite 3
East Syracuse, NY 13057
Tel: (315)434-3200

nationalgrid

JOHNSTOWN, NY
FIGURE 3
GROUNDWATER CONTOURS
APRIL 2016

PROJECT NO.
FILE NAME:
SHEET NO.
3

CAYADUTA CREEK

CHAIN LINK FENCE

645

650

655

660

665

670

673

APPROXIMATE PROPERTY BOUNDARIES

RETAINING WALL

CONCRETE SIDEWALK

SMITH STREET

REPUTED OWNER
CITY OF JOHNSTOWN

COLONIAL CEMETERY

N

MW-10

	SAMPLE DATE	4/6/2016
CONSTITUENT	UNITS	
MNA/WQ PARAMETERS		
Alkalinity (as CaCO3)	mg/l	586
Chloride	mg/l	893
Ethane	ug/l	7.5 U
Ethene	ug/l	7 U
Ferrous Iron	mg/l	0.11
Manganese	mg/l	1.2
Methane	ug/l	56
Nitrate	mg/l	0.05 U
Nitrogen	mg/l	4
Sulfate	mg/l	44.4
Sulfide	mg/l	1 U

MW-11

	SAMPLE DATE	4/6/2016
CONSTITUENT	UNITS	
MNA/WQ PARAMETERS		
Alkalinity (as CaCO3)	mg/l	NS
Chloride	mg/l	NS
Ethane	ug/l	NS
Ethene	ug/l	NS
Ferrous Iron	mg/l	NS
Manganese	mg/l	NS
Methane	ug/l	NS
Nitrate	mg/l	NS
Nitrogen	mg/l	NS
Sulfate	mg/l	NS
Sulfide	mg/l	NS

MW-7

	SAMPLE DATE	4/6/2016
CONSTITUENT	UNITS	
MNA/WQ PARAMETERS		
Alkalinity (as CaCO3)	mg/l	395
Chloride	mg/l	66.2
Ethane	ug/l	7.5 U
Ethene	ug/l	7.0 U
Ferrous Iron	mg/l	0.14
Manganese	mg/l	0.53
Methane	ug/l	17
Nitrate	mg/l	0.14
Nitrogen	mg/l	1.6
Sulfate	mg/l	384
Sulfide	mg/l	1 U

MW-15

	SAMPLE DATE	4/6/2016
CONSTITUENT	UNITS	
MNA/WQ PARAMETERS		
Alkalinity (as CaCO3)	mg/l	601
Chloride	mg/l	55.7
Ethane	ug/l	75 U
Ethene	ug/l	75 U
Ferrous Iron	mg/l	0.1 U
Manganese	mg/l	75 U
Methane	ug/l	720
Nitrate	mg/l	0.05 U
Nitrogen	mg/l	3.4
Sulfate	mg/l	116
Sulfide	mg/l	1 U

MW-14

	SAMPLE DATE	4/6/2016
CONSTITUENT	UNITS	
MNA/WQ PARAMETERS		
Alkalinity (as CaCO3)	mg/l	507
Chloride	mg/l	27.4
Ethane	ug/l	7.5 U
Ethene	ug/l	7.5 U
Ferrous Iron	mg/l	0.11
Manganese	mg/l	7.5 U
Methane	ug/l	31
Nitrate	mg/l	0.05 U
Nitrogen	mg/l	1
Sulfate	mg/l	324
Sulfide	mg/l	1 U

MW-12

	SAMPLE DATE	4/6/2016
CONSTITUENT	UNITS	
MNA/WQ PARAMETERS		
Alkalinity (as CaCO3)	mg/l	412
Chloride	mg/l	276
Ethane	ug/l	7.5 U
Ethene	ug/l	7 U
Ferrous Iron	mg/l	0.1 U
Manganese	mg/l	0.062
Methane	ug/l	4 U
Nitrate	mg/l	3.3
Nitrogen	mg/l	0.2 U
Sulfate	mg/l	93.7
Sulfide	mg/l	1 U

MW-13

	SAMPLE DATE	4/6/2016
CONSTITUENT	UNITS	
MNA/WQ PARAMETERS		
Alkalinity (as CaCO3)	mg/l	311
Chloride	mg/l	9.8
Ethane	ug/l	7.5 U
Ethene	ug/l	7.5 U
Ferrous Iron	mg/l	1 U
Manganese	mg/l	7.5 U
Methane	ug/l	50
Nitrate	mg/l	0.05
Nitrogen	mg/l	1.2
Sulfate	mg/l	5 U
Sulfide	mg/l	1 U

MW-16

	SAMPLE DATE	4/6/2016
CONSTITUENT	UNITS	
MNA/WQ PARAMETERS		
Alkalinity (as CaCO3)	mg/l	615
Chloride	mg/l	5.7
Ethane	ug/l	75 U
Ethene	ug/l	75 U
Ferrous Iron	mg/l	0.1 U
Manganese	mg/l	75 U
Methane	ug/l	110
Nitrate	mg/l	0.074
Nitrogen	mg/l	2.6
Sulfate	mg/l	13.3
Sulfide	mg/l	1 U

MW-4

	SAMPLE DATE	4/6/2016
CONSTITUENT	UNITS	
MNA/WQ PARAMETERS		
Alkalinity (as CaCO3)	mg/l	394
Chloride	mg/l	304
Ethane	ug/l	7.5 U
Ethene	ug/l	7 U
Ferrous Iron	mg/l	0.14
Manganese	mg/l	0.0031
Methane	ug/l	4 U
Nitrate	mg/l	3.4
Nitrogen	mg/l	0.2 U
Sulfate	mg/l	73.9
Sulfide	mg/l	1 U

LEGEND

MW- XX	—	Monitoring Well ID
	—	Monitoring Well
643.17	—	Surface Water Elevation (ft MSL)
NA	—	Not Analyzed
U	—	Not Detected
ug/l	—	Micrograms per liter
U	—	Milligrams per liter

1" = 20'
10 0 20

*BASEMAP BY TETRATECH

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY:
DRAWN BY: A.DOMAZET
SHEET CHK'D BY:
CROSS CHK'D BY:
APPROVED BY:
DATE: DECEMBER 2015

CDM Smith
6800 Old Collamer Road, Suite 3
East Syracuse, NY 13057
Tel: (315)434-3200

nationalgrid

JOHNSTOWN, NY
FIGURE 4
NATURAL ATTENUATION
APRIL 2016

PROJECT NO.
FILE NAME:
SHEET NO.
4

CAYADUTA CREEK

CHAIN LINK FENCE

645

650

655

660

665

670

673

MW-10
ND

MW-7
ND

MW-15
461

MW-14
ND

MW-13
1,490

MW-16
136

MW-11
NOT
SAMPLED

MW-12
ND

MW-4
ND

APPROXIMATE PROPERTY BOUNDARIES

NORTH MARKET STREET

CONCRETE SIDEWALK

SMITH STREET

CRUSHED STONE

RETAINING WALL

APPROXIMATE PROPERTY BOUNDARIES

REPUTED OWNER
CITY OF JOHNSTOWN

COLONIAL CEMETERY

N

LEGEND

MW- XX	—	Monitoring Well ID
	—	Monitoring Well
31.1	—	Concentration (in ug/L)
	—	1-5 ug/L BTEX
	—	5-100 ug/L BTEX
	—	100-1000 ug/L BTEX
	—	>1000 ug/L BTEX

1" = 20'
10 0 20

*BASEMAP BY TETRATECH

REV. NO.	DATE	DRWN	CHKD	REMARKS

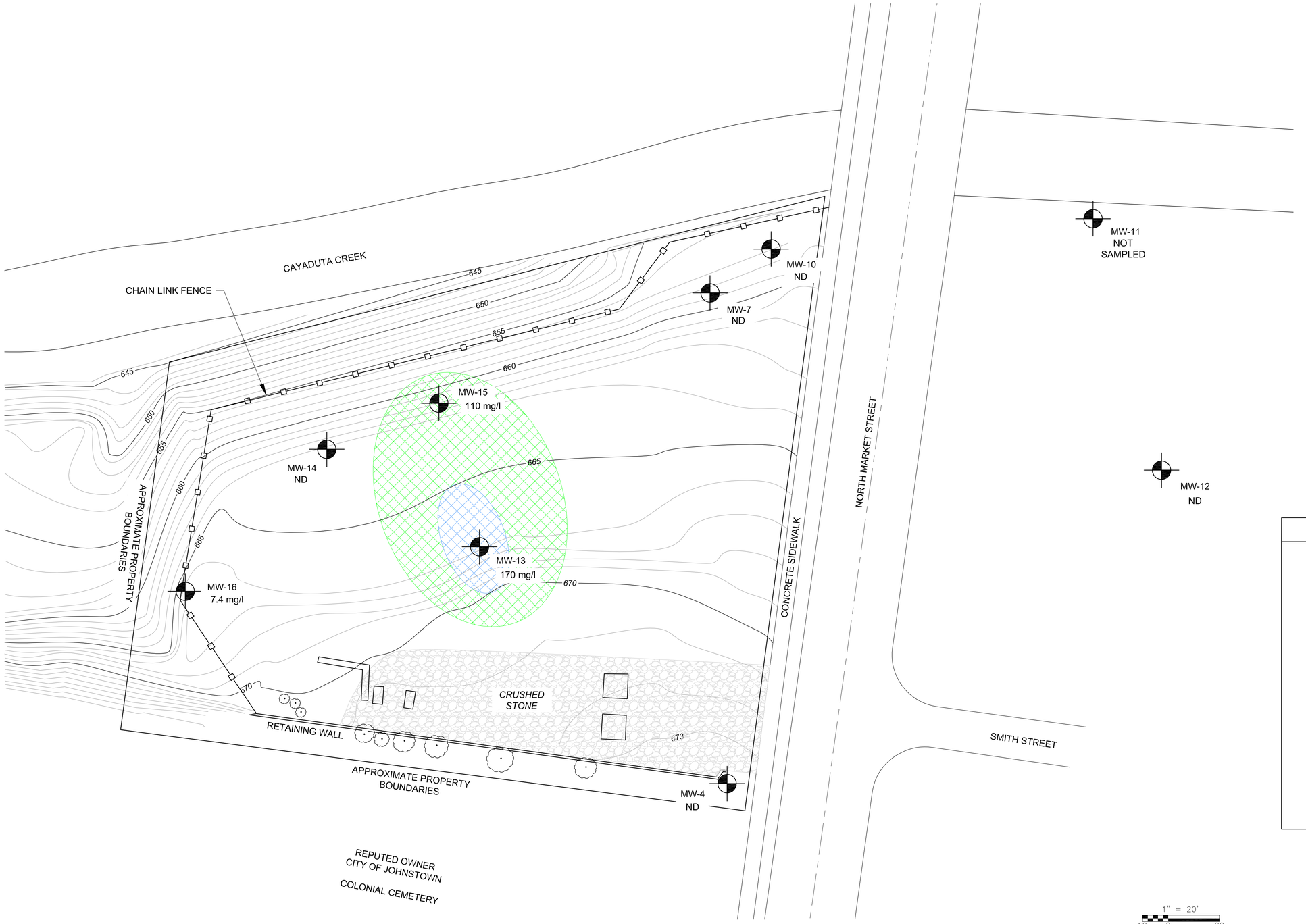
DESIGNED BY:
DRAWN BY: A.DOMAZET
SHEET CHK'D BY:
CROSS CHK'D BY:
APPROVED BY:
DATE: DECEMBER 2015

CDM Smith
6800 Old Collamer Road, Suite 3
East Syracuse, NY 13057
Tel: (315)434-3200

nationalgrid

JOHNSTOWN, NY
FIGURE 5
BTEX CONTOURS
APRIL 2016

PROJECT NO.
FILE NAME:
SHEET NO.
5



LEGEND

MW- XX	—	Monitoring Well ID
	—	Monitoring Well
31.1	—	Naphthalene Concentration (in ug/L)
E	—	Result Exceeded Calibration Range
	—	10 - 100 ug/L Naphthalene
	—	100 - 1,000 ug/L Naphthalene
	—	1,000 - 5,000 ug/L Naphthalene
	—	>5,000 ug/L Naphthalene

*BASEMAP BY TETRATECH

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY:
DRAWN BY: A.DOMAZET
SHEET CHK'D BY:
CROSS CHK'D BY:
APPROVED BY:
DATE: JUNE 2016

CDM Smith
6800 Old Collamer Road, Suite 3
East Syracuse, NY 13057
Tel: (315)434-3200

nationalgrid

JOHNSTOWN, NY
FIGURE 6
NAPHTHALENE CONTOURS
APRIL 2016

PROJECT NO.
FILE NAME:
SHEET NO.
6

APPENDIX A

FIELD DATA

Site Management Plan Inspection Form

109 North Market Street
Johnstown, New York

Date: 4/7/2016 Time: 13:50
Technician: Rosenzweig Weather: Rain 40 °F

Vegetation Cap				
Condition of Grass	GOOD	FAIR	POOR	COMMENTS: Snow covered
Condition of Site Trees	GOOD	FAIR	POOR	COMMENTS:
Surface Erosion	NONE	MINOR	SIGNIFICANT	COMMENTS:
Has the site been maintained/mowed?	YES		NO	COMMENTS: driveway cleared

Sheet Pile Wall			
Has any construction occurred that may have impacted the sheet pile wall?	YES	NO	COMMENTS:

Site Wide			
Does the property continue to be used for commercial and/or industrial uses?	YES	NO	COMMENTS:
Does the use of groundwater for potable or process water continue to be restricted?	YES	NO	COMMENTS:
Are agricultural or vegetable gardens present on the property?	YES	NO	COMMENTS:
Do the Engineering Controls continue to perform as designed?	YES	NO	COMMENTS:
Do the Engineering Controls continue to be protective of human health and environment?	YES	NO	COMMENTS:
Are the requirements of the Site Management Plan being met?	YES	NO	COMMENTS:
Are the requirements of the Environmental Easement being met?	YES	NO	COMMENTS:
Since the last inspection has the groundwater been sampled in accordance with the SMP?	YES	NO	COMMENTS:
Since the last inspection have there been any changes to the remedial system?	YES	NO	COMMENTS:
Are there any needed changes?	YES	NO	COMMENTS:
Are the site records complete and up to date?	YES	NO	COMMENTS:

Miscellaneous				
Evidence of Trespassing	YES		NO	COMMENTS: Dog walking
Litter	NONE	MINOR	SIGNIFICANT	COMMENTS:

General Comments:

Unable to access MW-11. Area is on adjacent property and was full of concrete/metal and wood debris.
4/6/2016-Knocked on door at Morrison residence no one home.
4/7/2016-Resident at Morrison residence said there loader is down and it would be awhile before the materials could be moved.
CT Male was sampling wells at the adjacent property. Former gas station.

National Grid
109 North Market Street, Former MGP Site
Johnstown, New York

Spring Semi-Annual Event
April 6-7, 2016

Well ID	Sample?	Well Size?	DTW	DTP	DTB	Comments
RW-1	No	2"	13.03		21.50	
MW-4	Yes	2"	23.51		27.32	
MW-7	Yes	2"	14.19		22.10	
MW-10	Yes	2"	14.77		22.05	
MW-11	Yes	2"	n/a		22.90	inaccessable
MW-12	Yes	2"	14.95		22.24	
MW-13	Yes	2"	15.95		22.75	MS/MSD
MW-14	Yes	2"	16.81		23.55	Duplicate Sample
MW-15	Yes	2"	17.55		23.00	
MW-16	Yes	2"	10.79		19.45	
Gauge-1 (bridge)	No		19.76			

DTW *-depth to water*
DTP *-depth to product*
DTB *-depth to bottom*
All from top of casing

Unable to access MW-11. Area is on adjacent property and was full of concrete/metal and wood debris.
4/6/2016-Knocked on door at Morrison residence no one home.
4/7/2016-Resident at Morrison residence said there loader is down and it would be awhile before the materials could be moved.
CT Male was sampling wells at the adjacent property. Former gas station.

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

480501-Albany

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Eric Rosenwald	Lab PM: Mason, Becky C	Carrier Tracking No(s):	COC No: 480-81240-16327.1
Client Contact: Timothy Beaumont	Phone: 203-727-6524	E-Mail: becky.mason@testamericainc.com		Page: Page 1 of 2
Company: CDM Smith, Inc.				Job #:
Address: 6800 Old Collamer Road Suite 3	Due Date Requested:			
City: East Syracuse	TAT Requested (days): Standard			
State, Zip: NY, 13057	PO #: 36380.110154			
Phone:	WO #:			
Email: beaumonttj@cdmsmith.com	Project #: 46011229			
Project Name: Johnstown semi-annual GW	SSOW#:			
Site:				

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, Oil/Waste, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175_CO2 - Carbon dioxide	8270D_LL_PAH - PAH low level Semivolatiles	351.2 - Total Kjeldahl Nitrogen	6010C - Metals Ph/Mn	RSK_175 - Methane/Ethane/Ethene	8260C - BTEX - 8260	SM4500_S2_F - Sulfide	9012B - Cyanide, Total	353.2, 353.2_Nitrite, D516, Nitrate_Calc, SM4500_Cl_E	2320B - Alkalinity, Total	3500_FE_D - Ferrous Iron	Total Number of containers	Special Instructions/Note:
			Preservation Code:		N	N	N	N	S	D	A	N	CB	B	N	N	N	X	
MW-1-0416 ER 4/6/16 Trip Blank	4/16/16			Water								X							
~~MW-7-0416~~ FD-0416	4/16/16			Water			X	X	X	X	X	X	X	X	X	X	X		
MW-10-0416				Water															
MW-11-0416				Water															
MW-12-0416				Water															
MW-13-0416	4/16/16	1145		Water			X	X	X	X	X	X	X	X	X	X			
MW-13-0416 MS	4/16/16	1145		Water															
MW-13-0416 SD	4/16/16	1145		Water															
MW-14-0416	4/16/16	935		Water															
MW-15-0416	4/16/16	1050		Water															
MW-16-0416	4/16/16	1335		Water															

Albany 480501

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained l
☐ Return To Client ☑ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		4/6/16 1330	CDMS		4/6/16 13:30	TAALB
2		4/6/16 1800	TAALB			
3						

Custody Seals Intact: △ Yes △ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

480501-Albany

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: E Rosenzweig	Lab PM: Mason, Becky C	Carrier Tracking No(s):	COC No: 480-81240-16327.1
Client Contact: Timothy Beaumont	Phone: 703-727-6524	E-Mail: becky.mason@testamericainc.com		Page: Page 1 of 2
Company: CDM Smith, Inc.				Job #:
Address: 6800 Old Collamer Road Suite 3	Due Date Requested:	Analysis Requested		
City: East Syracuse	TAT Requested (days): Standard			Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
State, Zip: NY, 13057				
Phone:	PO #: 36380.110154			
Email: beaumontlj@cdmsmith.com	WO #:			Other:
Project Name: Johnstown semi-annual GW	Project #: 48011229			
Site:	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175_CO2 - Carbon dioxide	8270D_LL_PAH - PAH low level Semivolatiles	351.2 - Total Kjeldahl Nitrogen	6010C - Metals Pb/Mn	RSK_175 - Methane/Ethane/Ethene	8260C - BTEX - 8260	SM4500_S2_F - Sulfide	9012B - Cyanide, Total	353.2, 353.2_Nitrite, D516, Nitrate_Calc, SM4500_Cl_E	2320B - Alkalinity, Total	3500_FE_D - Ferrous Iron			Total Number of containers	Special Instructions/Note:
	Preservation Code:				X	X	N	N	N	D	A	A	CB	B	N	N	N				
MW-4-0416	4/7/16	1046	G	Water			X	X	X	X	X	X	X	X	X	X	X				
MW-7-0416	4/7/16	940	G	Water			X	X	X	X	X	X	X	X	X	X	X				
MW-10-0416	4/7/16	835	G	Water			X	X	X	X	X	X	X	X	X	X	X				
MW-11-0416				Water																	
MW-12-0416	4/7/16	1150	G	Water			X	X	X	X	X	X	X	X	X	X	X				
MW-13-0416				Water																	
MW-13-0416 MS				Water																	
MW-13-0416 SD	4/7/16			Water																	
MW-14-0416				Water																	
MW-15-0416				Water																	
MW-16-0416				Water																	

Albany 480501

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
E Rosenzweig	4/7/16 1510	CDMS		4/7/16 15:10	TAAB
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	4/7/16 1600	TA-ALB			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

480501-Albany

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler:	Lab PM: Mason, Becky C	Carrier Tracking No(s):	COC No: 480-81240-16327.2
Client Contact: Timothy Beaumont	Phone:	E-Mail: becky.mason@testamericainc.com		Page: Page 2 of 2
Company: CDM Smith, Inc.				Job #:
Address: 6800 Old Collamer Road Suite 3	Due Date Requested:			
City: East Syracuse	TAT Requested (days):			
State, Zip: NY, 13057				
Phone:	PO #: 36380,110154			
Email: beaumontj@cdmsmith.com	WO #:			
Project Name: Johnstown semi-annual GW	Project #: 48011229			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175_CO2 - Carbon dioxide	8270D_LL_PAH - PAH low level Semivolatiles	351.2 - Total Kjeldahl Nitrogen	6010C - Metals Pb/Mn	RSK_175 - Methane/Ethane/Ethene	8260C - BTEX - 8260	SM4500_S2_F - Sulfide	9012B - Cyanide, Total	353.2, 353.2_Nitrite, D516, Nitrate_Calc, SM4500_Cl_E	2320B - Alkalinity, Total	3500_FE_D - Ferrous Iron			Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	N	D	A	A	B	N	N	N	N				
FD-0416				Water																	
TRIP BLANK	4/7/16	—	G	Water	N	N						X								2	
TRIP BLANK				Water																	

Albany

480501

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
[X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown [ ] Radiological	[ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:			
Relinquished by:	Date/Time: 4/7/16 1510	Company: CDMS	Received by:	Date/Time: 4/7/16 1510	Company: TA-AlB
Relinquished by:	Date/Time: 4/7/16 1800	Company: TA-AlB	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

National Grid
109 North Market Street, Johnstown New York

Sampling Personnel: Eric Rosenzweig	Date: 4/7/16
Job Number: 36380.110154	Weather: Rain-40°
Well Id. **MW-4**	Time In: 1010 Time Out:

Well Information

		TOC	Other
Depth to Water:	(feet)	23.51	
Depth to Bottom:	(feet)	27.32	
Depth to Product:	(feet)		
Length of Water Column:	(feet)	3.81	
Volume of Water in Well:	(gal)	0.61	
Three Well Volumes:	(gal)	1.83	

Well Type: Flushmount ☐ Stick-Up ☒
Well Locked: Yes ☒ No ☐
Measuring Point Marked: Yes ☒ No ☐
Well Material: PVC ☒ SS ☐ Other:
Well Diameter: 1" ☐ 2" ☒ Other:
Comments: Clear No Sheen/Odor

Purging Information

Purging Method:	Bailer ☐	Peristaltic ☐	Well Wizard Dedicated Pump ☒		
Tubing/Bailer Material:	Teflon ☐	Stainless St. ☐	Polyethylene ☒	other ☐	
Sampling Method:	Bailer ☐	Peristaltic ☐	Well Wizard Dedicated Pump ☒		
Average Pumping Rate: (ml/min)	500				
Duration of Pumping: (min)	30				
Total Volume Removed: (gal)	4	Did well go dry?	Yes ☐	No ☒	

Horiba U-52 Water Quality Meter Used? Yes ☒ No ☐

Conversion Factors				
gal/ft. of water	1" ID	2" ID	4" ID	6" ID
	0.04	0.16	0.66	1.47
1 gallon=3.785L=3785mL=1337cu. feet				

Time	DTW (feet)	Temp (°C)	pH	ORP (mV)	Conductivity (mS/cm)	Turbidity (NTU)	DO (mg/L)	TDS (g/L)
1015	Top	10.21	6.61	-34	1.54	15.7	9.79	1.01
1020	of	9.03	6.69	-3	1.66	10.8	8.68	1.06
1025		9.10	6.77	24	1.69	9.4	7.13	1.08
1030	Pump	9.37	6.75	51	1.71	6.9	6.88	1.10
1035		9.59	6.74	67	1.73	4.2	6.41	1.11
1040		9.84	6.68	77	1.75	2.4	4.79	1.12

Sampling Information:

EPA SW-846 Method 8270	SVOC PAH's	2 - 250 ml amber	Yes ☒	No ☐
EPA SW-846 Method 8260	VOC's BTEX	3 - 40 ml vials	Yes ☒	No ☐
EPA Method 610B	LEAD	1 - 250 ml plastic	Yes ☒	No ☐
	MANGANESE			
EPA Method 9012A	TOTAL CYANIDE	1 - 250 ml plastic	Yes ☒	No ☐
RSK_175_CO2	DISSOLVED CARBON DIOXIDE	3 - 40 ml vials	Yes ☒	No ☐
EPA Method 2320B	TOTAL ALKALINITY	1 - 125 ml plastic	Yes ☒	No ☐
EPA Method 351.2	TOTAL KJELDAHL NITROGEN	1 - 250 ml plastic	Yes ☒	No ☐
SM 4500_S2_F	SULFIDE	1 - 250 ml plastic	Yes ☒	No ☐
SM_3500_FE_D	FERROUS IRON	1 - 125 ml plastic	Yes ☒	No ☐
RSK_175	METHANE/ETHENE/ETHANE	3 - 40 ml vials	Yes ☒	No ☐
D516	SULFATE	2 - 125 ml plastic	Yes ☒	No ☐
EPA Method 353.2	NITRATE			
SM_4500_Cl_E	CHLORIDE			

Shipped: Drop-off Albany Service Center ☒

Sample ID: MW-4-04/16
Sample Time: 1045

Duplicate? Yes ☐ No ☒
MS/MSD? Yes ☐ No ☒

Laboratory: Test America
Amherst, New York

National Grid
109 North Market Street, Johnstown New York

Sampling Personnel: Eric Rosenzweig	Date: 4/7/16
Job Number: 36380.110154	Weather: overcast ~40
Well Id. **MW-7**	Time In: 905 Time Out:

Well Information

		TOC	Other
Depth to Water:	(feet)	14.19	
Depth to Bottom:	(feet)	22.10	
Depth to Product:	(feet)	~	
Length of Water Column:	(feet)	7.91	
Volume of Water in Well:	(gal)	1.27	
Three Well Volumes:	(gal)	3.80	

Well Type: Flushmount ☐ Stick-Up ☒
Well Locked: Yes ☒ No ☐
Measuring Point Marked: Yes ☒ No ☐
Well Material: PVC ☒ SS ☐ Other:
Well Diameter: 1" ☐ 2" ☒ Other:
Comments: clear No Sheen/Odor

Purging Information

Purging Method:	Bailer ☐	Peristaltic ☐	Well Wizard Dedicated Pump ☒		
Tubing/Bailer Material:	Teflon ☐	Stainless St. ☐	Polyethylene ☒	other ☐	
Sampling Method:	Bailer ☐	Peristaltic ☐	Well Wizard Dedicated Pump ☒		
Average Pumping Rate: (ml/min)	500				
Duration of Pumping: (min)	20				
Total Volume Removed: (gal)	4	Did well go dry?	Yes ☐	No ☒	

Horiba U-52 Water Quality Meter Used? Yes ☒ No ☐

Conversion Factors				
gal/ft. of water	1" ID	2" ID	4" ID	6" ID
	0.04	0.16	0.66	1.47
1 gallon=3.785L=3785mL=1337cu. feet				

Time	DTW (feet)	Temp (°C)	pH	ORP (mV)	Conductivity (mS/cm)	Turbidity (NTU)	DO (mg/L)	TDS (g/L)
910	14.56	9.57	7.48	-34	1.61	118	5.81	1.03
915	14.87	9.06	6.97	-1	1.54	64.1	2.54	0.983
920	15.10	9.02	6.87	-1	1.51	55.3	2.19	0.990
925	15.31	8.98	6.72	-1	1.48	50.9	2.06	0.994
930	15.51	9.10	6.63	3	1.47	51.8	1.96	0.939
935	15.76	9.19	6.59	-5	1.46	51.5	1.92	0.936

Sampling Information:

EPA SW-846 Method 8270	SVOC PAH's		2 - 250 ml amber	Yes ☒ No ☐
EPA SW-846 Method 8260	VOC's BTEX		3 - 40 ml vials	Yes ☒ No ☐
EPA Method 610B	LEAD	☐	1 - 250 ml plastic	Yes ☒ No ☐
	MANGANESE			
EPA Method 9012A	TOTAL CYANIDE		1 - 250 ml plastic	Yes ☒ No ☐
RSK_175_CO2	DISSOLVED CARBON DIOXIDE		3 - 40 ml vials	Yes ☒ No ☐
EPA Method 2320B	TOTAL ALKALINITY		1 - 125 ml plastic	Yes ☒ No ☐
EPA Method 351.2	TOTAL KJELDAHL NITROGEN		1 - 250 ml plastic	Yes ☒ No ☐
SM 4500_S2_F	SULFIDE		1 - 250 ml plastic	Yes ☒ No ☐
SM_3500_FE_D	FERROUS IRON		1 - 125 ml plastic	Yes ☒ No ☐
RSK_175	METHANE/ETHENE/ETHANE		3 - 40 ml vials	Yes ☒ No ☐
D516	SULFATE	☐	2 - 125 ml plastic	Yes ☒ No ☐
EPA Method 353.2	NITRATE			
SM_4500_Cl_E	CHLORIDE			

Shipped: Drop-off Albany Service Center ☒

Sample ID: MW-7-041616
Sample Time: 940
Duplicate? Yes ☐ No ☒
MS/MSD? Yes ☐ No ☒

Laboratory: Test America Amherst, New York

National Grid
109 North Market Street, Johnstown New York

Sampling Personnel: Eric Rosenzweig	Date: 4/7/16
Job Number: 36380.110154	Weather: Overcast
Well Id. **MW-10**	Time In: 800 Time Out:

Well Information

		TOC	Other
Depth to Water:	(feet)	14.77	
Depth to Bottom:	(feet)	22.05	
Depth to Product:	(feet)	—	
Length of Water Column:	(feet)	7.28	
Volume of Water in Well:	(gal)	1.16	
Three Well Volumes:	(gal)	3.49	

Well Type: Flushmount ☐ Stick-Up ☒
Well Locked: Yes ☒ No ☐
Measuring Point Marked: Yes ☒ No ☐
Well Material: PVC ☒ SS ☐ Other:
Well Diameter: 1" ☐ 2" ☒ Other:
Comments: Clear No Sheen / Odor

Purging Information

Purging Method:	Bailer ☐	Peristaltic ☐	Well Wizard Dedicated Pump ☒		
Tubing/Bailer Material:	Teflon ☐	Stainless St. ☐	Polyethylene ☒	other ☐	
Sampling Method:	Bailer ☐	Peristaltic ☐	Well Wizard Dedicated Pump ☒		
Average Pumping Rate: (ml/min)	.500				
Duration of Pumping: (min)	30				
Total Volume Removed: (gal)	4	Did well go dry?	Yes ☐	No ☐	

Horiba U-52 Water Quality Meter Used? Yes ☒ No ☐

Conversion Factors				
gal/ft. of water	1" ID	2" ID	4" ID	6" ID
	0.04	0.16	0.66	1.47
1 gallon=3.785L=3785mL=1337cu. feet				

Time	DTW (feet)	Temp (°C)	pH	ORP (mV)	Conductivity (mS/cm)	Turbidity (NTU)	DO (mg/L)	TDS (g/L)
805	14.92	14.00	7.00	-12	3.20	26.3	8.14	2.12
810	15.28	11.37	6.71	-58	3.61	15.6	2.40	2.35
815	15.49	11.01	6.63	-71	3.69	10.7	2.13	2.36
820	15.62	10.39	6.52	-116	3.56	6.7	1.92	2.28
825	15.86	10.12	6.49	-113	3.47	5.9	1.93	2.22
830	16.03	10.05	6.48	-112	3.46	2.9	1.96	2.21

Sampling Information:

EPA SW-846 Method 8270	SVOC PAH's		2 - 250 ml amber	Yes ☒ No ☐
EPA SW-846 Method 8260	VOC's BTEX		3 - 40 ml vials	Yes ☒ No ☐
EPA Method 610B	LEAD	☐	1 - 250 ml plastic	Yes ☒ No ☐
	MANGANESE			
EPA Method 9012A	TOTAL CYANIDE		1 - 250 ml plastic	Yes ☒ No ☐
RSK_175_CO2	DISSOLVED CARBON DIOXIDE		3 - 40 ml vials	Yes ☒ No ☐
EPA Method 2320B	TOTAL ALKALINITY		1 - 125 ml plastic	Yes ☒ No ☐
EPA Method 351.2	TOTAL KJELDAHL NITROGEN		1 - 250 ml plastic	Yes ☒ No ☐
SM 4500_S2_F	SULFIDE		1 - 250 ml plastic	Yes ☒ No ☐
SM_3500_FE_D	FERROUS IRON		1 - 125 ml plastic	Yes ☒ No ☐
RSK_175	METHANE/ETHENE/ETHANE		3 - 40 ml vials	Yes ☒ No ☐
D516	SULFATE	☐	2 - 125 ml plastic	Yes ☒ No ☐
EPA Method 353.2	NITRATE			
SM_4500_Cl_E	CHLORIDE			

Sample ID: MW-10-0416
Sample Time: 835
Duplicate? Yes ☐ No ☒
MS/MSD? Yes ☐ No ☒

Shipped: Drop-off Albany Service Center ☒
Laboratory: Test America Amherst, New York

National Grid
109 North Market Street, Johnstown New York

Sampling Personnel: Eric Rosenzweig	Date: 4/7/16
Job Number: 36380.110154	Weather: Rain 40
Well Id. **MW-12**	Time In: 1115 Time Out:

Well Information

		TOC	Other
Depth to Water:	(feet)	14.95	
Depth to Bottom:	(feet)	22.24	
Depth to Product:	(feet)	—	
Length of Water Column:	(feet)	7.29	
Volume of Water in Well:	(gal)	1.17	
Three Well Volumes:	(gal)	3.50	

Well Type: Flushmount [X] Stick-Up [ ]
Well Locked: Yes [X] No [ ]
Measuring Point Marked: Yes [X] No [ ]
Well Material: PVC [X] SS [ ] Other:
Well Diameter: 1" [ ] 2" [X] Other:
Comments: Clear No Sheen/Odor

Purging Information

Purging Method:	Bailer [ ]	Peristaltic [ ]	Well Wizard Dedicated Pump [X]		
Tubing/Bailer Material:	Teflon [ ]	Stainless St. [ ]	Polyethylene [X]	other [ ]	
Sampling Method:	Bailer [ ]	Peristaltic [ ]	Well Wizard Dedicated Pump [X]		

Average Pumping Rate:	(ml/min)	500
Duration of Pumping:	(min)	30
Total Volume Removed:	(gal)	4

Did well go dry? Yes [ ] No [X]

Horiba U-52 Water Quality Meter Used? Yes [X] No [ ]

Conversion Factors				
gal/ft. of water	1" ID	2" ID	4" ID	6" ID
	0.04	0.16	0.66	1.47
1 gallon=3.785L=3785mL=1337cu. feet				

1105

Time	DTW (feet)	Temp (°C)	pH	ORP (mV)	Conductivity (mS/cm)	Turbidity (NTU)	DO (mg/L)	TDS (g/L)
1120	15.01	9.67	6.55	110	2.45	40.7	9.25	1.56
1125	15.12	10.54	6.26	125	1.94	112	3.68	1.23
1130	15.19	10.57	6.28	127	1.63	72.6	3.50	0.972
1135	15.24	10.55	6.30	128	1.48	57.8	3.35	0.942
1140	15.25	10.68	6.24	130	1.44	53.1	3.16	0.922
1145	15.28	10.76	6.22	129	1.46	34.8	3.18	0.936

Sampling Information:

EPA SW-846 Method 8270	SVOC PAH's	
EPA SW-846 Method 8260	VOC's BTEX	
EPA Method 610B	LEAD	
	MANGANESE	
EPA Method 9012A	TOTAL CYANIDE	
RSK_175_CO2	DISSOLVED CARBON DIOXIDE	
EPA Method 2320B	TOTAL ALKALINITY	
EPA Method 351.2	TOTAL KJELDAHL NITROGEN	
SM 4500_S2_F	SULFIDE	
SM_3500_FE_D	FERROUS IRON	
RSK_175	METHANE/ETHENE/ETHANE	
D516	SULFATE	
EPA Method 353.2	NITRATE	
SM_4500_Cl_E	CHLORIDE	

2 - 250 ml amber	Yes [X]	No [ ]
3 - 40 ml vials	Yes [X]	No [ ]
1 - 250 ml plastic	Yes [X]	No [ ]
1 - 250 ml plastic	Yes [X]	No [ ]
3 - 40 ml vials	Yes [X]	No [ ]
1 - 125 ml plastic	Yes [X]	No [ ]
1 - 250 ml plastic	Yes [X]	No [ ]
1 - 250 ml plastic	Yes [X]	No [ ]
1 - 125 ml plastic	Yes [X]	No [ ]
3 - 40 ml vials	Yes [X]	No [ ]
2 - 125 ml plastic	Yes [X]	No [ ]

Sample ID: MW-12-0416
Sample Time: 1156
Duplicate? Yes [ ] No [X]
MS/MSD? Yes [ ] No [X]

Shipped: Drop-off Albany Service Center [X]

Laboratory: Test America Amherst, New York

National Grid
109 North Market Street, Johnstown New York

Sampling Personnel: Eric Rosenzweig	Date: 4/6/16
Job Number: 36380.110154	Weather: Clear ≈30
Well Id. **MW-13**	Time In: 1110 Time Out:

Well Information

		TOC	Other
Depth to Water:	(feet)	15.95	
Depth to Bottom:	(feet)	22.75	
Depth to Product:	(feet)	-	
Length of Water Column:	(feet)	6.80	
Volume of Water in Well:	(gal)	1.09	
Three Well Volumes:	(gal)	3.26	

Well Type: Flushmount [X] Stick-Up [ ]
Well Locked: Yes [X] No [ ]
Measuring Point Marked: Yes [X] No [ ]
Well Material: PVC [X] SS [ ] Other:
Well Diameter: 1" [ ] 2" [X] Other:
Comments: Clear No Sheen/Odor

Purging Information

Purging Method:	Bailer [ ]	Peristaltic [ ]	Well Wizard Dedicated Pump [X]		
Tubing/Bailer Material:	Teflon [ ]	Stainless St. [ ]	Polyethylene [X]	other [ ]	
Sampling Method:	Bailer [ ]	Peristaltic [ ]	Well Wizard Dedicated Pump [X]		
Average Pumping Rate: (ml/min)	.500				
Duration of Pumping: (min)	90				
Total Volume Removed: (gal)	4	Did well go dry?	Yes [ ]	No [X]	

Horiba U-52 Water Quality Meter Used? Yes [X] No [ ]

Conversion Factors				
gal/ft. of water	1" ID	2" ID	4" ID	6" ID
	0.04	0.16	0.66	1.47
1 gallon=3.785L=3785mL=1337cu. feet				

Time	DTW (feet)	Temp (°C)	pH	ORP (mV)	Conductivity (mS/cm)	Turbidity (NTU)	DO (mg/L)	TDS (g/L)
1115	16.11	7.04	6.71	-108	0.851	10.4	5.99	0.533
1120	16.24	8.12	6.94	-155	0.662	2.7	2.28	0.422
1125	16.48	8.43	7.21	-159	0.621	4.7	1.85	0.398
1130	16.54	8.68	7.40	-166	0.595	5.6	1.61	0.387
1135	16.68	8.79	7.51	-173	0.591	2.8	1.53	0.378
1140	16.72	9.02	7.50	-173	0.602	1.7	1.46	0.385

Sampling Information:

EPA SW-846 Method 8270	SVOC PAH's		6 - 250 ml amber	Yes [X] No [ ]
EPA SW-846 Method 8260	VOC's BTEX		9 - 40 ml vials	Yes [X] No [ ]
EPA Method 610B	LEAD	[ ]	3 - 250 ml plastic	Yes [X] No [ ]
	MANGANESE			
EPA Method 9012A	TOTAL CYANIDE		3 - 250 ml plastic	Yes [X] No [ ]
RSK_175_CO2	DISSOLVED CARBON DIOXIDE		9 - 40 ml vials	Yes [X] No [ ]
EPA Method 2320B	TOTAL ALKALINITY		3 - 125 ml plastic	Yes [X] No [ ]
EPA Method 351.2	TOTAL KJELDAHL NITROGEN		3 - 250 ml plastic	Yes [X] No [ ]
SM 4500_S2_F	SULFIDE		3 - 250 ml plastic	Yes [X] No [ ]
SM_3500_FE_D	FERROUS IRON		3 - 125 ml plastic	Yes [X] No [ ]
RSK_175	METHANE/ETHENE/ETHANE		9 - 40 ml vials	Yes [X] No [ ]
D516	SULFATE	[ ]	6 - 125 ml plastic	Yes [X] No [ ]
EPA Method 353.2	NITRATE			
SM_4500_Cl_E	CHLORIDE			

Shipped: Drop-off Albany Service Center [X]

Sample ID: GTMW-13-0416 Duplicate? Yes [ ] No [X]
Sample Time: 1145 MS/MSD? Yes [X] No [ ]

Laboratory: Test America Amherst, New York

National Grid
109 North Market Street, Johnstown New York

Sampling Personnel: Eric Rosenzweig	Date: 4/16/16
Job Number: 36380.110154	Weather: Clear ≈ 25
Well Id. **MW-14**	Time In: 900 Time Out:

Well Information

		TOC	Other
Depth to Water:	(feet)	16.81	
Depth to Bottom:	(feet)	23.55	
Depth to Product:	(feet)	—	
Length of Water Column:	(feet)	6.74	
Volume of Water in Well:	(gal)	1.08	
Three Well Volumes:	(gal)	3.24	

Well Type: Flushmount [X] Stick-Up [ ]
Well Locked: Yes [X] No [ ]
Measuring Point Marked: Yes [X] No [ ]
Well Material: PVC [X] SS [ ] Other: ____
Well Diameter: 1" [ ] 2" [X] Other: ____
Comments: Clear

Purging Information

Purging Method:	Bailer [ ]	Peristaltic [ ]	Well Wizard Dedicated Pump [X]		
Tubing/Bailer Material:	Teflon [ ]	Stainless St. [ ]	Polyethylene [X]	other [ ]	
Sampling Method:	Bailer [ ]	Peristaltic [ ]	Well Wizard Dedicated Pump [X]		
Average Pumping Rate: (ml/min)	500				
Duration of Pumping: (min)	30				
Total Volume Removed: (gal)	4	Did well go dry?	Yes [ ]	No [X]	

Horiba U-52 Water Quality Meter Used? Yes [X] No [ ]

Conversion Factors				
gal/ft. of water	1" ID	2" ID	4" ID	6" ID
	0.04	0.16	0.66	1.47
1 gallon=3.785L=3785mL=1337cu. feet				

Time	DTW (feet)	Temp (°C)	pH	ORP (mV)	Conductivity (mS/cm)	Turbidity (NTU)	DO (mg/L)	TDS (g/L)
905	6.91	5.92	7.13	-26	0.890	>1000	8.66	0.574
910	6.99	6.00	6.94	-44	1.38	808	2.97	0.887
915	7.09	7.30	6.62	-85	1.56	578	2.16	0.999
920	7.16	7.98	6.60	-89	1.53	471	1.97	0.987
925	7.25	8.01	6.57	-88	1.53	338	1.91	0.978
930	7.38	8.04	6.58	-89	1.51	287	1.87	0.966

Sampling Information:

EPA SW-846 Method 8270	SVOC PAH's		4 - 250 ml amber	Yes [X] No [ ]
EPA SW-846 Method 8260	VOC's BTEX		6 - 40 ml vials	Yes [X] No [ ]
EPA Method 610B	LEAD	[ ]	2 - 250 ml plastic	Yes [X] No [ ]
	MANGANESE			
EPA Method 9012A	TOTAL CYANIDE		2 - 250 ml plastic	Yes [X] No [ ]
RSK_175_CO2	DISSOLVED CARBON DIOXIDE		6 - 40 ml vials	Yes [X] No [ ]
EPA Method 2320B	TOTAL ALKALINITY		2 - 125 ml plastic	Yes [X] No [ ]
EPA Method 351.2	TOTAL KJELDAHL NITROGEN		2 - 250 ml plastic	Yes [X] No [ ]
SM 4500_S2_F	SULFIDE		2 - 250 ml plastic	Yes [X] No [ ]
SM_3500_FE_D	FERROUS IRON		2 - 125 ml plastic	Yes [X] No [ ]
RSK_175	METHANE/ETHENE/ETHANE		6 - 40 ml vials	Yes [X] No [ ]
D516	SULFATE	[ ]	4 - 125 ml plastic	Yes [X] No [ ]
EPA Method 353.2	NITRATE			
SM_4500_Cl_E	CHLORIDE			

Shipped: Drop-off Albany Service Center [X]

Sample ID: LTMW-MW14-041616 Duplicate? Yes [X] No [ ] **FD-0416**
Sample Time: 935 MS/MSD? Yes [ ] No [X]

Laboratory: Test America Amherst, New York

National Grid
109 North Market Street, Johnstown New York

Sampling Personnel: Eric Rosenzweig	Date: 6/4/16
Job Number: 36380.110154	Weather: clear ~25
Well Id. **MW-15**	Time In: 1015 Time Out:

Well Information

		TOC	Other
Depth to Water:	(feet)	17.55	
Depth to Bottom:	(feet)	23.00	
Depth to Product:	(feet)		
Length of Water Column:	(feet)	5.45	
Volume of Water in Well:	(gal)	0.872	
Three Well Volumes:	(gal)	6.62	

Well Type: Flushmount [X] Stick-Up [ ]
Well Locked: Yes [X] No [ ]
Measuring Point Marked: Yes [X] No [ ]
Well Material: PVC [X] SS [ ] Other: ____
Well Diameter: 1" [ ] 2" [X] Other: ____
Comments: clear No Sheen/Odor

Purging Information

Purging Method:	Bailer [ ]	Peristaltic [ ]	Well Wizard Dedicated Pump [X]		
Tubing/Bailer Material:	Teflon [ ]	Stainless St. [ ]	Polyethylene [X]	other [ ]	
Sampling Method:	Bailer [ ]	Peristaltic [ ]	Well Wizard Dedicated Pump [X]		
Average Pumping Rate: (ml/min)	500				
Duration of Pumping: (min)	30				
Total Volume Removed: (gal)	4	Did well go dry?	Yes [ ]	No [X]	

Horiba U-52 Water Quality Meter Used? Yes [X] No [ ]

Conversion Factors				
gal/ft. of water	1" ID	2" ID	4" ID	6" ID
	0.04	0.16	0.66	1.47
1 gallon=3.785L=3785mL=1337cu. feet				

Time	DTW (feet)	Temp (°C)	pH	ORP (mV)	Conductivity (mS/cm)	Turbidity (NTU)	DO (mg/L)	TDS (g/L)
1020	17.83	6.45	6.79	-18	1.24	4.0	7.21	0.802
1025	18.01	6.58	6.56	-73	1.30	4.5	3.85	0.828
1030		7.31	6.48	-95	1.21	3.7	2.24	0.768
1035	Top of	7.40	6.49	-102	1.17	2.6	1.94	0.746
1040	Pump	7.42	6.44	-106	1.17	2.4	1.90	0.750
1045		7.24	6.43	-112	1.20	1.6	1.80	0.772

Sampling Information:

EPA SW-846 Method 8270	SVOC PAH's		2 - 250 ml amber	Yes [X] No [ ]
EPA SW-846 Method 8260	VOC's BTEX		3 - 40 ml vials	Yes [X] No [ ]
EPA Method 610B	LEAD		1 - 250 ml plastic	Yes [X] No [ ]
	MANGANESE			
EPA Method 9012A	TOTAL CYANIDE		1 - 250 ml plastic	Yes [X] No [ ]
RSK_175_CO2	DISSOLVED CARBON DIOXIDE		3 - 40 ml vials	Yes [X] No [ ]
EPA Method 2320B	TOTAL ALKALINITY		1 - 125 ml plastic	Yes [X] No [ ]
EPA Method 351.2	TOTAL KJELDAHL NITROGEN		1 - 250 ml plastic	Yes [X] No [ ]
SM 4500_S2_F	SULFIDE		1 - 250 ml plastic	Yes [X] No [ ]
SM_3500_FE_D	FERROUS IRON		1 - 125 ml plastic	Yes [X] No [ ]
RSK_175	METHANE/ETHENE/ETHANE		3 - 40 ml vials	Yes [X] No [ ]
D516	SULFATE		2 - 125 ml plastic	Yes [X] No [ ]
EPA Method 353.2	NITRATE			
SM_4500_CI_E	CHLORIDE			

Sample ID: LTMW-MW-15-0416 Duplicate? Yes [ ] No [X]
Sample Time: 1050 MS/MSD? Yes [ ] No [X]

Shipped: Drop-off Albany Service Center [X]

Laboratory: Test America Amherst, New York

National Grid
109 North Market Street, Johnstown New York

Sampling Personnel: Eric Rosenzweig	Date: 4/6/16
Job Number: 36380.110154	Weather: clear ~20
Well Id. **MW-16**	Time In: 730 Time Out:

Well Information

		TOC	Other
Depth to Water:	(feet)	10.79	
Depth to Bottom:	(feet)	19.45	
Depth to Product:	(feet)	—	
Length of Water Column:	(feet)	8.66	
Volume of Water in Well:	(gal)	1.39	
Three Well Volumes:	(gal)	4.16	

Well Type: Flushmount [X] Stick-Up [ ]
Well Locked: Yes [X] No [ ]
Measuring Point Marked: Yes [X] No [ ]
Well Material: PVC [X] SS [ ] Other: ____
Well Diameter: 1" [ ] 2" [X] Other: ____
Comments: Clear No Sheen ~~No Odor~~ Slight odor

Purging Information

Purging Method:	Bailer [ ]	Peristaltic [ ]	Well Wizard Dedicated Pump [X]		
Tubing/Bailer Material:	Teflon [ ]	Stainless St. [ ]	Polyethylene [X]	other [ ]	
Sampling Method:	Bailer [ ]	Peristaltic [ ]	Well Wizard Dedicated Pump [X]		
Average Pumping Rate: (ml/min)	500				
Duration of Pumping: (min)	30				
Total Volume Removed: (gal)	4	Did well go dry?	Yes [ ]	No [X]	

Horiba U-52 Water Quality Meter Used? Yes [X] No [ ]

Conversion Factors				
gal/ft. of water	1" ID	2" ID	4" ID	6" ID
	0.04	0.16	0.66	1.47
1 gallon=3.785L=3785mL=1337cu. feet				

Time	DTW (feet)	Temp (°C)	pH	ORP (mV)	Conductivity (mS/cm)	Turbidity (NTU)	DO (mg/L)	TDS (g/L)
735	10.91	8.33	7.10	-64	1.16	162	4.24	0.739
740	11.13	8.68	6.81	-74	1.17	83.2	3.55	0.754
745	11.31	8.24	6.68	-132	1.21	36.1	2.49	0.778
750	11.47	7.60	6.62	-133	1.22	12.7	2.13	0.778
755	11.58	7.30	6.56	-130	1.22	9.3	2.10	0.781
800	11.69	7.24	6.52	-120	1.22	7.6	2.10	0.780

Sampling Information:

EPA SW-846 Method 8270	SVOC PAH's		2 - 250 ml amber	Yes [X] No [ ]
EPA SW-846 Method 8260	VOC's BTEX		3 - 40 ml vials	Yes [X] No [ ]
EPA Method 610B	LEAD		1 - 250 ml plastic	Yes [X] No [ ]
	MANGANESE			
EPA Method 9012A	TOTAL CYANIDE		1 - 250 ml plastic	Yes [X] No [ ]
RSK_175_CO2	DISSOLVED CARBON DIOXIDE		3 - 40 ml vials	Yes [X] No [ ]
EPA Method 2320B	TOTAL ALKALINITY		1 - 125 ml plastic	Yes [X] No [ ]
EPA Method 351.2	TOTAL KJELDAHL NITROGEN		1 - 250 ml plastic	Yes [X] No [ ]
SM 4500_S2_F	SULFIDE		1 - 250 ml plastic	Yes [X] No [ ]
SM_3500_FE_D	FERROUS IRON		1 - 125 ml plastic	Yes [X] No [ ]
RSK_175	METHANE/ETHENE/ETHANE		3 - 40 ml vials	Yes [X] No [ ]
D516	SULFATE		2 - 125 ml plastic	Yes [X] No [ ]
EPA Method 353.2	NITRATE			
SM_4500_Cl_E	CHLORIDE			

Sample ID: LSMW-MW-16-0416 Duplicate? Yes [ ] No [X]
Sample Time: 735 MS/MSD? Yes [ ] No [X]

Shipped: Drop-off Albany Service Center [X]

Laboratory: Test America Amherst, New York

APPENDIX B

DATA USABILITY SUMMARY REPORT

Data Validation Services

120 Cobble Creek Road P.O. Box 208
North Creek, NY 12853

Phone 518-251-4429
harry@frontiernet.net

May 30, 2016

Matthew Millias
CDM Smith
One General Motors Dr. Suite 2
Syracuse, NY 13206

RE: **D**ata **U**sability **S**ummary **R**eport for National Grid- Johnstown Landfill Site Data Package
TAL-Buffalo Job No. 480-97744-1 and 480-97853-1

Dear Mr. Millias:

Review has been completed for the data package generated by TestAmerica Laboratories, Inc. that pertains to samples collected 04/07/16 at the National Grid Johnstown site. Eight aqueous samples and a field duplicate were analyzed for BTEX, low level PAHs, three dissolved gases, carbon disulfide, lead, manganese, and eight wet chemistry parameters. Methodologies utilized are those of the USEPA SW846 methods 6010B/8260B/8270C/9012, and ASTM, with additional QC requirements of the NYSDEC ASP.

The data packages submitted contain full deliverables for validation, but this usability report is generated from review of the summary form information, with review of sample raw data, and limited review of associated QC raw data. The reported summary forms have been reviewed for application of validation qualifiers, using guidance from the NMPC generic QAPP, USEPA Region 2 validation SOPs, the USEPA National Functional Guidelines for Data Review, and professional judgment, as affects the usability of the data. The following items were reviewed:

* Laboratory Narrative Discussion
* Custody Documentation
* Holding Times
* Surrogate and Internal Standard Recoveries
* Matrix Spike Recoveries/Duplicate Correlations
* Field Duplicate Correlations
* Laboratory Control Sample(LCS)
* Preparation/Calibration Blanks
* Control Spike/Laboratory Control Samples
* Calibration/Low Level Standard Responses
* Instrumental Tunes
* ICP Serial Dilution Correlations
* Instrument IDLs
* Sample Quantitation and Identification

The items listed above which show deficiencies are discussed within the text of this narrative. All of the other items were determined to be acceptable for the DUSR level review.

In summary, sample results are usable either as reported, or with minor qualification.

Copies of the laboratory case narrative and sample identification summary forms are attached to this text, and should be reviewed in conjunction with this report. Also included with this narrative are sample results forms, with the recommended qualifications applied thereupon.

Custody Documentation

The custody form shows collection dates of 4/16/16 rather than 4/6/16 for some of the samples.

BTEX by EPA8260C/NYSDEC ASP

Sample holding times were met and instrumental tune fragmentations are within acceptance ranges. Surrogate and internal standard recoveries are within required limits. Blanks show no contamination.

Calibrations standards show acceptable responses within analytical protocol and validation action limits.

The matrix spikes of MW-13-0416 show outlying recoveries for toluene, ethylbenzene, and m,p-xylene (47% to 75%). The results for those three elements are qualified as estimated in the parent sample. The matrix spikes of MW-10--0416 show acceptable recoveries and correlations.

The blind field duplicate correlations of MW-14-0416 fall within guidance limits.

Some samples were processed only at dilution due to high concentrations of target analytes or initial foaming. This results in elevated reporting limits for undetected analytes.

PAHs by EPA8270D/NYSDEC ASP

Surrogate and internal standard recoveries are within required limits, unless diluted beyond an applicable evaluation.

The matrix spikes of MW-13-0416 show outlying recoveries of anthracene, indeno(1,2,3-cd)-pyrene, and phenanthrene. However, the parent sample and spikes were processed at twenty fold dilution, and the evaluations are therefore not applicable.

The blind field duplicate of MW-14-0416 show six analytes with correlations outside guidance limits, with the field duplicate showing higher concentrations that the parent sample (which reports no detections). Results for the following analytes are therefore qualified as estimated in the parent sample and the duplicate: benzo(g,h,i)perylene, benzo(a)pyrene, benzo(b)fluoranthene, fluoranthene, and pyrene

Some samples were processed only at dilution due to high concentrations of target analytes or initial foaming. This results in elevated reporting limits for undetected analytes.

Methane, Ethane, Ethene, and CO2 by RSK-175

The matrix spikes of MW-13-0416 show acceptable recoveries and correlations.

The blind field duplicate of MW-14-0416 shows an outlying correlation for methane, the results for which are qualified as estimated in the parent sample and duplicate.

Instrument performance is compliant, blanks show no contamination, and reported results are substantiated by raw data.

Some of the samples were processed only at dilution due to high concentrations of target analytes. This results in elevated reporting limits for undetected analytes.

Lead and Manganese by EPA 6010B/NYSDEC ASP

The matrix spikes of MW-13-0416 acceptable accuracy and precision, and the blind field duplicate correlations of MW-14-0416 fall within guidance limits.

The ICP Serial Dilution evaluations of MW-13-0416 are acceptable.

Instrument performance is compliant, blanks show no contamination affecting reported results, and reported results are substantiated by the raw data.

Wet Chemistry—Chloride, Sulfide, Sulfate, Nitrate, TKN, Alkalinity, Ferrous Iron, and Total Cyanide

Due to the very short holding time from sample collection (15 minutes), all ferrous ion analyses were conducted beyond the holding time, and those results have been qualified as estimated in value, with a likely low bias.

Calibration standard responses are compliant. Blanks show no detections that above the reporting limits.

Matrix spikes/laboratory duplicates of MW-13-0416 show acceptable recoveries/correlations, with the following exceptions: total cyanide (63% and 23%), sulfate (both 19%), total alkalinity (47% and 46%), and iron (17% and 14%). The result for those analytes in the parent sample are qualified as estimated.

The blind field duplicate correlations of MW-14-0416 fall within guidance limits, with the exception of that for nitrate, results for which are qualified as estimated in the parent sample and its duplicate.

Data Package Completeness

Although some of the specific NYSDEC Category B deliverables were not included in the laboratory data package, all information required for validation of the data is present.

Please do not hesitate to contact me if you have comments or questions regarding this report.

Very truly yours,

Judy Harry

VALIDATION DATA QUALIFIER DEFINITIONS

U	The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J-	The analyte was positively identified; the associated numerical value is an estimated quantity that may be biased low.
J+	The analyte was positively identified; the associated numerical value is an estimated quantity that may be biased high.
UJ	The analyte was analyzed for, but was not detected. The associated reported quantitation limit is approximate and may be inaccurate or imprecise.
NJ	The detection is tentative in identification and estimated in value. Although there is presumptive evidence of the analyte, the result should be used with caution as a potential false positive and/or elevated quantitative value.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control limits. The analyte may or may not be present.
EMPC	The results do not meet all criteria for a confirmed identification. The quantitative value represents the Estimated Maximum Possible Concentration of the analyte in the sample.

CLIENT and LABORATORY SAMPLE IDs and CASE NARRATIVE

SAMPLE SUMMARY

Client: CDM Smith, Inc. Job Number: 480-97744-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
480-97744-1	TRIP BLANK	Water	04/06/2016 0000	04/07/2016 0120
480-97744-2	FD-0416	Water	04/06/2016 0000	04/07/2016 0120
480-97744-3	MW-13-0416	Water	04/06/2016 1145	04/07/2016 0120
480-97744-3MS	MW-13-0416 MS	Water	04/06/2016 1145	04/07/2016 0120
480-97744-3MSD	MW-13-0416 SD	Water	04/06/2016 1145	04/07/2016 0120
480-97744-4	MW-14-0416	Water	04/06/2016 0935	04/07/2016 0120
480-97744-5	MW-15-0416	Water	04/06/2016 1050	04/07/2016 0120
480-97744-6	MW-16-0416	Water	04/06/2016 0835	04/07/2016 0120

SAMPLE SUMMARY

Client: CDM Smith, Inc.

Job Number: 480-97853-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
480-97853-1	MW-4-0416	Water	04/07/2016 1045	04/08/2016 0245
480-97853-2	MW-7-0416	Water	04/07/2016 0940	04/08/2016 0245
480-97853-3	MW-10-0416	Water	04/07/2016 0835	04/08/2016 0245
480-97853-4	MW-12-0416	Water	04/07/2016 1150	04/08/2016 0245

Job Narrative
480-97744-1

Comments
No additional comments.

Receipt
The samples were received on 4/7/2016 1:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.3º C and 0.8º C.

GC/MS VOA
Method(s) 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-13-0416 (480-97744-3), MW-13-0416 MS (480-97744-3[MS]), MW-13-0416 SD (480-97744-3[MSD]) and MW-15-0416 (480-97744-5). Elevated reporting limits (RLs) are provided.

Method(s) 8260C: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-16-0416 (480-97744-6). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
Method(s) 8270D_LL_PAH: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-15-0416 (480-97744-5) and MW-16-0416 (480-97744-6). Elevated reporting limits (RLs) are provided.

Method(s) 8270D_LL_PAH: The following samples required a dilution to bring the concentration of target analytes within the calibration range: MW-13-0416 (480-97744-3), MW-13-0416 MS (480-97744-3[MS]) and MW-13-0416 SD (480-97744-3[MSD]). Because of this dilution, the surrogate and spike concentration in the samples were reduced to a level where the recovery calculation does not provide useful information.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA
Method(s) RSK-175: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-15-0416 (480-97744-5) and MW-16-0416 (480-97744-6). Elevated reporting limits (RLs) are provided.

Method(s) RSK-175: The laboratory control sample (LCS) for batch analytical batch 480-294473 recovered outside control limits for the following analytes: Ethene. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported. The following samples were effected: FD-0416 (480-97744-2), MW-14-0416 (480-97744-4), MW-15-0416 (480-97744-5) and MW-16-0416 (480-97744-6)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method(s) SM 3500 FE D: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples have been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: FD-0416 (480-97744-2), MW-13-0416 (480-97744-3), MW-13-0416 MS (480-97744-3[MS]), MW-13-0416 SD (480-97744-3[MSD]), MW-14-0416 (480-97744-4), MW-15-0416 (480-97744-5) and MW-16-0416 (480-97744-6).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Job Narrative
480-97853-1

Comments
No additional comments.

Receipt
The samples were received on 4/8/2016 2:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.2º C.

Receipt Exceptions

Trip blank vials can not be located. Sample has been removed from the login. TRIP BLANK (480-97853-5)

GC/MS VOA
Method(s) 8260C: The samples were collected in properly preserved vials for analysis of volatile organic compounds (VOCs). However, when verified by the laboratory, the pH was greater than 2 and the following were analyzed after 7 days from sampling: MW-4-0416 (480-97853-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA
Method(s) RSK-175: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-10-0416 (480-97853-3). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method(s) 6010C: The Low Level Continuing Calibration Verification (CCVL 480-295276/28) contained Total Manganese outside the control limits. All reported samples (LCS 480-294794/2-A), (LCSD 480-294794/3-A) and (MB 480-294794/1-A) associated with this CCVL were either below the laboratory's standard reporting limit for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCVL; therefore, re-analysis of samples was not performed.

Method(s) 6010C: The Low Level Continuing Calibration Verification (CCVL 480-295276/50) contained Total Manganese outside the control limits. All reported samples MW-7-0416 (480-97853-2), MW-10-0416 (480-97853-3) and MW-12-0416 (480-97853-4) associated with this CCVL were either below the laboratory's standard reporting limit for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCVL; therefore, re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
Method(s) SM 3500 FE D: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: MW-4-0416 (480-97853-1), MW-7-0416 (480-97853-2), MW-10-0416 (480-97853-3) and MW-12-0416 (480-97853-4).

Method(s) 9012B: The laboratory control sample (LCS) for preparation batch 480-296736 and analytical batch 480-296842 recovered outside control limits for the following analytes: Cyanide, Total. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported. MW-4-0416 (480-97853-1) and MW-12-0416 (480-97853-4)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

QUALIFIED SAMPLE RESULTS FORMS

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-97744-1 Date Sampled: 04/06/2016 0000
Client Matrix: Water Date Received: 04/07/2016 0120

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-295760	Instrument ID:	HP5973C
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	C2177.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/14/2016 0016			Final Weight/Volume:	5 mL
Prep Date:	04/14/2016 0016				

Analyte	Result (ug/L)	Qualifier	RL
Benzene	ND		1.0
Toluene	ND		1.0
Ethylbenzene	ND		1.0
m-Xylene & p-Xylene	ND		2.0
o-Xylene	ND		1.0
Xylenes, Total	ND		2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	106		66 - 137
Toluene-d8 (Surr)	96		71 - 126
4-Bromofluorobenzene (Surr)	104		73 - 120
Dibromofluoromethane (Surr)	108		60 - 140

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: FD-0416

Lab Sample ID: 480-97744-2 Date Sampled: 04/06/2016 0000
Client Matrix: Water Date Received: 04/07/2016 0120

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-295760	Instrument ID:	HP5973C
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	C2178.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/14/2016 0041			Final Weight/Volume:	5 mL
Prep Date:	04/14/2016 0041				

Analyte	Result (ug/L)	Qualifier	RL
Benzene	ND		1.0
Toluene	ND		1.0
Ethylbenzene	ND		1.0
m-Xylene & p-Xylene	ND		2.0
o-Xylene	ND		1.0
Xylenes, Total	ND		2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	105		66 - 137
Toluene-d8 (Surr)	96		71 - 126
4-Bromofluorobenzene (Surr)	103		73 - 120
Dibromofluoromethane (Surr)	104		60 - 140

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: MW-13-0416

Lab Sample ID: 480-97744-3 Date Sampled: 04/06/2016 1145
Client Matrix: Water Date Received: 04/07/2016 0120

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-295760	Instrument ID:	HP5973C
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	C2179.D
Dilution:	5.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/14/2016 0106			Final Weight/Volume:	5 mL
Prep Date:	04/14/2016 0106				

Analyte	Result (ug/L)	Qualifier	RL
Benzene	300		5.0
Toluene	410	F1 J	5.0
Ethylbenzene	270	F1 J	5.0
m-Xylene & p-Xylene	360	F1 J	10
o-Xylene	150		5.0
Xylenes, Total	510	J	10

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	103		66 - 137
Toluene-d8 (Surr)	95		71 - 126
4-Bromofluorobenzene (Surr)	110		73 - 120
Dibromofluoromethane (Surr)	105		60 - 140

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: **MW-14-0416**

Lab Sample ID: 480-97744-4 Date Sampled: 04/06/2016 0935
Client Matrix: Water Date Received: 04/07/2016 0120

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-295851	Instrument ID:	HP5973C
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	C2214.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/14/2016 1529			Final Weight/Volume:	5 mL
Prep Date:	04/14/2016 1529				

Analyte	Result (ug/L)	Qualifier	RL
Benzene	ND		1.0
Toluene	ND		1.0
Ethylbenzene	ND		1.0
m-Xylene & p-Xylene	ND		2.0
o-Xylene	ND		1.0
Xylenes, Total	ND		2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	100		66 - 137
Toluene-d8 (Surr)	98		71 - 126
4-Bromofluorobenzene (Surr)	110		73 - 120
Dibromofluoromethane (Surr)	103		60 - 140

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: MW-15-0416

Lab Sample ID: 480-97744-5 Date Sampled: 04/06/2016 1050
Client Matrix: Water Date Received: 04/07/2016 0120

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-295760	Instrument ID:	HP5973C
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	C2181.D
Dilution:	8.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/14/2016 0156			Final Weight/Volume:	5 mL
Prep Date:	04/14/2016 0156				

Analyte	Result (ug/L)	Qualifier	RL
Benzene	330		8.0
Toluene	ND		8.0
Ethylbenzene	110		8.0
m-Xylene & p-Xylene	ND		16
o-Xylene	21		8.0
Xylenes, Total	21		16

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	98		66 - 137
Toluene-d8 (Surr)	97		71 - 126
4-Bromofluorobenzene (Surr)	108		73 - 120
Dibromofluoromethane (Surr)	103		60 - 140

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: **MW-16-0416**

Lab Sample ID: 480-97744-6 Date Sampled: 04/06/2016 0835
Client Matrix: Water Date Received: 04/07/2016 0120

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-295851	Instrument ID:	HP5973C
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	C2215.D
Dilution:	2.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/14/2016 1554			Final Weight/Volume:	5 mL
Prep Date:	04/14/2016 1554				

Analyte	Result (ug/L)	Qualifier	RL
Benzene	76		2.0
Toluene	ND		2.0
Ethylbenzene	35		2.0
m-Xylene & p-Xylene	5.0		4.0
o-Xylene	20		2.0
Xylenes, Total	25		4.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	107		66 - 137
Toluene-d8 (Surr)	97		71 - 126
4-Bromofluorobenzene (Surr)	114		73 - 120
Dibromofluoromethane (Surr)	105		60 - 140

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: FD-0416

Lab Sample ID: 480-97744-2 Date Sampled: 04/06/2016 0000
Client Matrix: Water Date Received: 04/07/2016 0120

8270D_LL_PAH Semivolatile Organic Compounds (GC/MS) Low level PAH

Analysis Method:	8270D_LL_PAH	Analysis Batch:	480-295350	Instrument ID:	HP5973W
Prep Method:	3510C	Prep Batch:	480-295163	Lab File ID:	W0761.D
Dilution:	1.0			Initial Weight/Volume:	224.6 mL
Analysis Date:	04/12/2016 2331			Final Weight/Volume:	1 mL
Prep Date:	04/11/2016 1418			Injection Volume:	2 uL

Analyte	Result (ug/L)	Qualifier	RL
Acenaphthene	ND		0.56
Acenaphthylene	ND		0.56
Anthracene	ND		0.56
Benzo(a)anthracene	1.1		0.56
Benzo(a)pyrene	1.3	J	0.56
Benzo(b)fluoranthene	1.6	J	0.56
Benzo(g,h,i)perylene	1.3	J	0.56
Benzo(k)fluoranthene	ND		0.56
Chrysene	1.1		0.56
Dibenz(a,h)anthracene	ND		0.56
Fluoranthene	1.8	J	0.56
Fluorene	ND		0.56
Indeno(1,2,3-cd)pyrene	0.90		0.56
Naphthalene	ND		0.56
Phenanthrene	0.65		0.56
Pyrene	2.8	J	0.56

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	83		48 - 120
Nitrobenzene-d5	83		46 - 120
p-Terphenyl-d14	90		24 - 136

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: MW-13-0416

Lab Sample ID: 480-97744-3 Date Sampled: 04/06/2016 1145
Client Matrix: Water Date Received: 04/07/2016 0120

8270D_LL_PAH Semivolatile Organic Compounds (GC/MS) Low level PAH

Analysis Method:	8270D_LL_PAH	Analysis Batch:	480-295350	Instrument ID:	HP5973W
Prep Method:	3510C	Prep Batch:	480-295163	Lab File ID:	W0762.D
Dilution:	20			Initial Weight/Volume:	258.6 mL
Analysis Date:	04/13/2016 0000			Final Weight/Volume:	1 mL
Prep Date:	04/11/2016 1418			Injection Volume:	2 uL

Analyte	Result (ug/L)	Qualifier	RL
Acenaphthene	130		9.7
Acenaphthylene	220	F2	9.7
Anthracene	10	F1 F2 J	9.7
Benzo(a)anthracene	ND		9.7
Benzo(a)pyrene	ND		9.7
Benzo(b)fluoranthene	ND		9.7
Benzo(g,h,i)perylene	ND		9.7
Benzo(k)fluoranthene	ND		9.7
Chrysene	ND	F1	9.7
Dibenz(a,h)anthracene	ND		9.7
Fluoranthene	ND		9.7
Fluorene	55	F1	9.7
Indeno(1,2,3-cd)pyrene	ND	F1 J	9.7
Naphthalene	170	F2	9.7
Phenanthrene	45	F1 F2 J	9.7
Pyrene	ND		9.7

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	81		48 - 120
Nitrobenzene-d5	85		46 - 120
p-Terphenyl-d14	76		24 - 136

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: MW-14-0416

Lab Sample ID: 480-97744-4 Date Sampled: 04/06/2016 0935
Client Matrix: Water Date Received: 04/07/2016 0120

8270D_LL_PAH Semivolatile Organic Compounds (GC/MS) Low level PAH

Analysis Method:	8270D_LL_PAH	Analysis Batch:	480-295350	Instrument ID:	HP5973W
Prep Method:	3510C	Prep Batch:	480-295163	Lab File ID:	W0763.D
Dilution:	1.0			Initial Weight/Volume:	231.4 mL
Analysis Date:	04/13/2016 0028			Final Weight/Volume:	1 mL
Prep Date:	04/11/2016 1418			Injection Volume:	2 uL

Analyte	Result (ug/L)	Qualifier	RL
Acenaphthene	ND		0.54
Acenaphthylene	ND		0.54
Anthracene	ND		0.54
Benzo(a)anthracene	ND		0.54
Benzo(a)pyrene	ND	UJ	0.54
Benzo(b)fluoranthene	ND	UJ	0.54
Benzo(g,h,i)perylene	ND	UJ	0.54
Benzo(k)fluoranthene	ND		0.54
Chrysene	ND		0.54
Dibenz(a,h)anthracene	ND		0.54
Fluoranthene	ND	UJ	0.54
Fluorene	ND		0.54
Indeno(1,2,3-cd)pyrene	ND		0.54
Naphthalene	ND		0.54
Phenanthrene	ND		0.54
Pyrene	ND	UJ	0.54

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	88		48 - 120
Nitrobenzene-d5	91		46 - 120
p-Terphenyl-d14	86		24 - 136

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: MW-15-0416

Lab Sample ID: 480-97744-5 Date Sampled: 04/06/2016 1050
Client Matrix: Water Date Received: 04/07/2016 0120

8270D_LL_PAH Semivolatile Organic Compounds (GC/MS) Low level PAH

Analysis Method:	8270D_LL_PAH	Analysis Batch:	480-295350	Instrument ID:	HP5973W
Prep Method:	3510C	Prep Batch:	480-295163	Lab File ID:	W0764.D
Dilution:	10			Initial Weight/Volume:	244 mL
Analysis Date:	04/13/2016 0057			Final Weight/Volume:	1 mL
Prep Date:	04/11/2016 1418			Injection Volume:	2 uL

Analyte	Result (ug/L)	Qualifier	RL
Acenaphthene	23		5.1
Acenaphthylene	ND		5.1
Anthracene	ND		5.1
Benzo(a)anthracene	ND		5.1
Benzo(a)pyrene	ND		5.1
Benzo(b)fluoranthene	ND		5.1
Benzo(g,h,i)perylene	ND		5.1
Benzo(k)fluoranthene	ND		5.1
Chrysene	ND		5.1
Dibenz(a,h)anthracene	ND		5.1
Fluoranthene	ND		5.1
Fluorene	5.9		5.1
Indeno(1,2,3-cd)pyrene	ND		5.1
Naphthalene	110		5.1
Phenanthrene	ND		5.1
Pyrene	ND		5.1

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	81		48 - 120
Nitrobenzene-d5	87		46 - 120
p-Terphenyl-d14	77		24 - 136

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: MW-16-0416

Lab Sample ID: 480-97744-6 Date Sampled: 04/06/2016 0835
Client Matrix: Water Date Received: 04/07/2016 0120

8270D_LL_PAH Semivolatile Organic Compounds (GC/MS) Low level PAH

Analysis Method:	8270D_LL_PAH	Analysis Batch:	480-295350	Instrument ID:	HP5973W
Prep Method:	3510C	Prep Batch:	480-295163	Lab File ID:	W0765.D
Dilution:	5.0			Initial Weight/Volume:	252.1 mL
Analysis Date:	04/13/2016 0125			Final Weight/Volume:	1 mL
Prep Date:	04/11/2016 1418			Injection Volume:	2 uL

Analyte	Result (ug/L)	Qualifier	RL
Acenaphthene	31		2.5
Acenaphthylene	27		2.5
Anthracene	ND		2.5
Benzo(a)anthracene	ND		2.5
Benzo(a)pyrene	ND		2.5
Benzo(b)fluoranthene	ND		2.5
Benzo(g,h,i)perylene	ND		2.5
Benzo(k)fluoranthene	ND		2.5
Chrysene	ND		2.5
Dibenz(a,h)anthracene	ND		2.5
Fluoranthene	ND		2.5
Fluorene	15		2.5
Indeno(1,2,3-cd)pyrene	ND		2.5
Naphthalene	7.4		2.5
Phenanthrene	10		2.5
Pyrene	ND		2.5

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	76		48 - 120
Nitrobenzene-d5	77		46 - 120
p-Terphenyl-d14	73		24 - 136

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: FD-0416

Lab Sample ID: 480-97744-2 Date Sampled: 04/06/2016 0000
Client Matrix: Water Date Received: 04/07/2016 0120

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	480-294473	Instrument ID:	PE-03
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	
Analysis Date:	04/07/2016 1055			Injection Volume:	5 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Ethane	ND		7.5
Ethene	ND	*	7.0
Methane	19		4.0

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: FD-0416

Lab Sample ID: 480-97744-2 Date Sampled: 04/06/2016 0000
Client Matrix: Water Date Received: 04/07/2016 0120

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	200-103003	Instrument ID:	CH2866.i
	N/A	Prep Batch:	N/A	Lab File ID:	19325016.D
Dilution:	1.0			Initial Weight/Volume:	18 mL
Analysis Date:	04/11/2016 1234			Final Weight/Volume:	18 mL
Prep Date:	N/A			Injection Volume:	5 mL

Analyte	Result (ug/L)	Qualifier	RL
Carbon dioxide	6300		1000

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: **MW-13-0416**

Lab Sample ID: 480-97744-3 Date Sampled: 04/06/2016 1145
Client Matrix: Water Date Received: 04/07/2016 0120

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	480-294731	Instrument ID:	PE-03
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	
Analysis Date:	04/08/2016 1312			Injection Volume:	5 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Ethane	ND		7.5
Ethene	ND		7.0
Methane	50		4.0

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: MW-13-0416

Lab Sample ID: 480-97744-3 Date Sampled: 04/06/2016 1145
Client Matrix: Water Date Received: 04/07/2016 0120

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	200-103003	Instrument ID:	CH2866.i
	N/A	Prep Batch:	N/A	Lab File ID:	19325015.D
Dilution:	1.0			Initial Weight/Volume:	18 mL
Analysis Date:	04/11/2016 1225			Final Weight/Volume:	18 mL
Prep Date:	N/A			Injection Volume:	5 mL

Analyte	Result (ug/L)	Qualifier	RL
Carbon dioxide	ND		1000

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: MW-14-0416

Lab Sample ID: 480-97744-4 Date Sampled: 04/06/2016 0935
Client Matrix: Water Date Received: 04/07/2016 0120

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	480-294473	Instrument ID:	PE-03
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	
Analysis Date:	04/07/2016 1205			Injection Volume:	5 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Ethane	ND		7.5
Ethene	ND	*	7.0
Methane	31	J	4.0

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: MW-14-0416

Lab Sample ID: 480-97744-4 Date Sampled: 04/06/2016 0935
Client Matrix: Water Date Received: 04/07/2016 0120

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	200-103003	Instrument ID:	CH2866.i
	N/A	Prep Batch:	N/A	Lab File ID:	19325019.D
Dilution:	1.0			Initial Weight/Volume:	18 mL
Analysis Date:	04/11/2016 1253			Final Weight/Volume:	18 mL
Prep Date:	N/A			Injection Volume:	5 mL

Analyte	Result (ug/L)	Qualifier	RL
Carbon dioxide	5400		1000

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: MW-15-0416

Lab Sample ID: 480-97744-5 Date Sampled: 04/06/2016 1050
Client Matrix: Water Date Received: 04/07/2016 0120

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	480-294473	Instrument ID:	PE-03
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	10			Final Weight/Volume:	
Analysis Date:	04/07/2016 1222			Injection Volume:	5 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Ethane	ND		75
Ethene	ND	*	70
Methane	720		40

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: MW-15-0416

Lab Sample ID: 480-97744-5 Date Sampled: 04/06/2016 1050
Client Matrix: Water Date Received: 04/07/2016 0120

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	200-103003	Instrument ID:	CH2866.i
	N/A	Prep Batch:	N/A	Lab File ID:	19325020.D
Dilution:	1.0			Initial Weight/Volume:	18 mL
Analysis Date:	04/11/2016 1259			Final Weight/Volume:	18 mL
Prep Date:	N/A			Injection Volume:	5 mL

Analyte	Result (ug/L)	Qualifier	RL
Carbon dioxide	9700		1000

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: MW-16-0416

Lab Sample ID: 480-97744-6 Date Sampled: 04/06/2016 0835
Client Matrix: Water Date Received: 04/07/2016 0120

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	480-294473	Instrument ID:	PE-03
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	10			Final Weight/Volume:	
Analysis Date:	04/07/2016 1240			Injection Volume:	5 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Ethane	ND		75
Ethene	ND	*	70
Methane	110		40

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: MW-16-0416

Lab Sample ID: 480-97744-6 Date Sampled: 04/06/2016 0835
Client Matrix: Water Date Received: 04/07/2016 0120

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	200-103003	Instrument ID:	CH2866.i
	N/A	Prep Batch:	N/A	Lab File ID:	19325021.D
Dilution:	1.0			Initial Weight/Volume:	18 mL
Analysis Date:	04/11/2016 1306			Final Weight/Volume:	18 mL
Prep Date:	N/A			Injection Volume:	5 mL

Analyte	Result (ug/L)	Qualifier	RL
Carbon dioxide	5300		1000

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: FD-0416

Lab Sample ID: 480-97744-2 Date Sampled: 04/06/2016 0000
Client Matrix: Water Date Received: 04/07/2016 0120

6010C Metals (ICP)

Analysis Method:	6010C	Analysis Batch:	480-294922	Instrument ID:	ICAP1
Prep Method:	3005A	Prep Batch:	480-294574	Lab File ID:	I1040816B-1.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/08/2016 1505			Final Weight/Volume:	50 mL
Prep Date:	04/07/2016 1428				

Analyte	Result (mg/L)	Qualifier	RL
Lead	ND		0.010
Manganese	0.79		0.0030

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: MW-13-0416

Lab Sample ID: 480-97744-3 Date Sampled: 04/06/2016 1145
Client Matrix: Water Date Received: 04/07/2016 0120

6010C Metals (ICP)

Analysis Method:	6010C	Analysis Batch:	480-294922	Instrument ID:	ICAP1
Prep Method:	3005A	Prep Batch:	480-294574	Lab File ID:	I1040816B-1.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/08/2016 1508			Final Weight/Volume:	50 mL
Prep Date:	04/07/2016 1428				

Analyte	Result (mg/L)	Qualifier	RL
Lead	ND		0.010
Manganese	0.11		0.0030

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: MW-14-0416

Lab Sample ID: 480-97744-4 Date Sampled: 04/06/2016 0935
Client Matrix: Water Date Received: 04/07/2016 0120

6010C Metals (ICP)

Analysis Method:	6010C	Analysis Batch:	480-294922	Instrument ID:	ICAP1
Prep Method:	3005A	Prep Batch:	480-294574	Lab File ID:	I1040816B-1.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/08/2016 1533			Final Weight/Volume:	50 mL
Prep Date:	04/07/2016 1428				

Analyte	Result (mg/L)	Qualifier	RL
Lead	ND		0.010
Manganese	0.84		0.0030

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: MW-15-0416

Lab Sample ID: 480-97744-5 Date Sampled: 04/06/2016 1050
Client Matrix: Water Date Received: 04/07/2016 0120

6010C Metals (ICP)

Analysis Method:	6010C	Analysis Batch:	480-294922	Instrument ID:	ICAP1
Prep Method:	3005A	Prep Batch:	480-294574	Lab File ID:	I1040816B-1.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/08/2016 1536			Final Weight/Volume:	50 mL
Prep Date:	04/07/2016 1428				

Analyte	Result (mg/L)	Qualifier	RL
Lead	ND		0.010
Manganese	0.48		0.0030

Client: CDM Smith, Inc. Job Number: 480-97744-1

Client Sample ID: MW-16-0416

Lab Sample ID: 480-97744-6 Date Sampled: 04/06/2016 0835
Client Matrix: Water Date Received: 04/07/2016 0120

6010C Metals (ICP)

Analysis Method:	6010C	Analysis Batch:	480-294922	Instrument ID:	ICAP1
Prep Method:	3005A	Prep Batch:	480-294574	Lab File ID:	I1040816B-1.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/08/2016 1540			Final Weight/Volume:	50 mL
Prep Date:	04/07/2016 1428				

Analyte	Result (mg/L)	Qualifier	RL
Lead	ND		0.010
Manganese	0.55		0.0030

General Chemistry

Client Sample ID: **FD-0416**

Lab Sample ID: 480-97744-2 Date Sampled: 04/06/2016 0000
Client Matrix: Water Date Received: 04/07/2016 0120

Analyte	Result	Qual	Units	RL	Dil	Method
Total Kjeldahl Nitrogen	0.88		mg/L	0.20	1.0	351.2
Analysis Batch: 480-294660	Analysis Date: 04/07/2016 1910					
Prep Batch: 480-294539	Prep Date: 04/07/2016 1040					
Nitrate as N	0.13	J	mg/L	0.050	1.0	353.2
Analysis Batch: 480-294673	Analysis Date: 04/07/2016 2027					
Cyanide, Total	1.2		mg/L	0.050	5.0	9012B
Analysis Batch: 480-296658	Analysis Date: 04/18/2016 2254					
Prep Batch: 480-296611	Prep Date: 04/18/2016 1615					
Sulfate	339		mg/L	50.0	10	D516-90, 02
Analysis Batch: 480-294619	Analysis Date: 04/07/2016 1207					
Alkalinity, Total	471		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 480-295108	Analysis Date: 04/08/2016 1616					
Ferrous Iron	ND	UJ HF	mg/L	0.10	1.0	SM 3500 FE D
Analysis Batch: 480-294818	Analysis Date: 04/08/2016 1150					
Chloride	26.4		mg/L	1.0	1.0	SM 4500 Cl- E
Analysis Batch: 480-294646	Analysis Date: 04/07/2016 1401					
Sulfide	ND		mg/L	1.0	1.0	SM 4500 S2 F
Analysis Batch: 480-295127	Analysis Date: 04/11/2016 0530					

General Chemistry

Client Sample ID: **MW-13-0416**

Lab Sample ID: 480-97744-3 Date Sampled: 04/06/2016 1145
Client Matrix: Water Date Received: 04/07/2016 0120

Analyte	Result	Qual	Units	RL	Dil	Method
Total Kjeldahl Nitrogen	1.2		mg/L	0.20	1.0	351.2
Analysis Batch: 480-294660	Analysis Date: 04/07/2016 1910					
Prep Batch: 480-294539	Prep Date: 04/07/2016 1040					
Nitrate as N	ND		mg/L	0.050	1.0	353.2
Analysis Batch: 480-294673	Analysis Date: 04/07/2016 2031					
Cyanide, Total	0.29	F1	mg/L	0.010	1.0	9012B
Analysis Batch: 480-296658	Analysis Date: 04/18/2016 2208					
Prep Batch: 480-296611	Prep Date: 04/18/2016 1615					
Sulfate	ND	F1	mg/L	5.0	1.0	D516-90, 02
Analysis Batch: 480-294856	Analysis Date: 04/08/2016 1342					
Alkalinity, Total	311	F1	mg/L	5.0	1.0	SM 2320B
Analysis Batch: 480-295108	Analysis Date: 04/08/2016 1622					
Ferrous Iron	ND	UJ HF F1	mg/L	0.10	1.0	SM 3500 FE D
Analysis Batch: 480-294818	Analysis Date: 04/08/2016 1150					
Chloride	9.8		mg/L	1.0	1.0	SM 4500 Cl- E
Analysis Batch: 480-294854	Analysis Date: 04/08/2016 1117					
Sulfide	1.0		mg/L	1.0	1.0	SM 4500 S2 F
Analysis Batch: 480-295127	Analysis Date: 04/11/2016 0530					

General Chemistry

Client Sample ID: **MW-14-0416**

Lab Sample ID: 480-97744-4 Date Sampled: 04/06/2016 0935
Client Matrix: Water Date Received: 04/07/2016 0120

Analyte	Result	Qual	Units	RL	Dil	Method
Total Kjeldahl Nitrogen	1.0		mg/L	0.20	1.0	351.2
Analysis Batch: 480-294660	Analysis Date: 04/07/2016 1910					
Prep Batch: 480-294539	Prep Date: 04/07/2016 1040					
Nitrate as N	ND	UJ	mg/L	0.050	1.0	353.2
Analysis Batch: 480-294633	Analysis Date: 04/07/2016 1343					
Cyanide, Total	0.88	J	mg/L	0.050	5.0	9012B
Analysis Batch: 480-296658	Analysis Date: 04/18/2016 2255					
Prep Batch: 480-296611	Prep Date: 04/18/2016 1615					
Sulfate	324	J	mg/L	50.0	10	D516-90, 02
Analysis Batch: 480-294619	Analysis Date: 04/07/2016 1324					
Alkalinity, Total	507	J	mg/L	5.0	1.0	SM 2320B
Analysis Batch: 480-295108	Analysis Date: 04/08/2016 1656					
Ferrous Iron	0.11	J- HF	mg/L	0.10	1.0	SM 3500 FE D
Analysis Batch: 480-294818	Analysis Date: 04/08/2016 1150					
Chloride	27.4		mg/L	1.0	1.0	SM 4500 Cl- E
Analysis Batch: 480-294646	Analysis Date: 04/07/2016 1401					
Sulfide	ND		mg/L	1.0	1.0	SM 4500 S2 F
Analysis Batch: 480-295127	Analysis Date: 04/11/2016 0530					

General Chemistry

Client Sample ID: **MW-15-0416**

Lab Sample ID: 480-97744-5 Date Sampled: 04/06/2016 1050
Client Matrix: Water Date Received: 04/07/2016 0120

Analyte	Result	Qual	Units	RL	Dil	Method
Total Kjeldahl Nitrogen	3.4		mg/L	0.20	1.0	351.2
Analysis Batch: 480-294660	Analysis Date: 04/07/2016 1910					
Prep Batch: 480-294539	Prep Date: 04/07/2016 1040					
Nitrate as N	ND		mg/L	0.050	1.0	353.2
Analysis Batch: 480-294633	Analysis Date: 04/07/2016 1344					
Cyanide, Total	1.1		mg/L	0.050	5.0	9012B
Analysis Batch: 480-296658	Analysis Date: 04/18/2016 2257					
Prep Batch: 480-296611	Prep Date: 04/18/2016 1615					
Sulfate	116		mg/L	25.0	5.0	D516-90, 02
Analysis Batch: 480-294619	Analysis Date: 04/07/2016 1314					
Alkalinity, Total	601		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 480-295108	Analysis Date: 04/08/2016 1704					
Ferrous Iron	ND	UJ HF	mg/L	0.10	1.0	SM 3500 FE D
Analysis Batch: 480-294818	Analysis Date: 04/08/2016 1150					
Chloride	55.7		mg/L	2.0	2.0	SM 4500 Cl- E
Analysis Batch: 480-294646	Analysis Date: 04/07/2016 1433					
Sulfide	ND		mg/L	1.0	1.0	SM 4500 S2 F
Analysis Batch: 480-295127	Analysis Date: 04/11/2016 0530					

General Chemistry

Client Sample ID: **MW-16-0416**

Lab Sample ID: 480-97744-6 Date Sampled: 04/06/2016 0835
Client Matrix: Water Date Received: 04/07/2016 0120

Analyte	Result	Qual	Units	RL	Dil	Method
Total Kjeldahl Nitrogen	2.6		mg/L	0.20	1.0	351.2
Analysis Batch: 480-294660	Analysis Date: 04/07/2016 1910					
Prep Batch: 480-294539	Prep Date: 04/07/2016 1040					
Nitrate as N	0.074		mg/L	0.050	1.0	353.2
Analysis Batch: 480-294673	Analysis Date: 04/07/2016 2034					
Cyanide, Total	0.25		mg/L	0.010	1.0	9012B
Analysis Batch: 480-296658	Analysis Date: 04/18/2016 2215					
Prep Batch: 480-296611	Prep Date: 04/18/2016 1615					
Sulfate	13.3		mg/L	5.0	1.0	D516-90, 02
Analysis Batch: 480-294619	Analysis Date: 04/07/2016 1257					
Alkalinity, Total	615		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 480-295108	Analysis Date: 04/08/2016 1713					
Ferrous Iron	ND	UJ HF	mg/L	0.10	1.0	SM 3500 FE D
Analysis Batch: 480-294818	Analysis Date: 04/08/2016 1150					
Chloride	5.7		mg/L	1.0	1.0	SM 4500 Cl- E
Analysis Batch: 480-294646	Analysis Date: 04/07/2016 1400					
Sulfide	ND		mg/L	1.0	1.0	SM 4500 S2 F
Analysis Batch: 480-295127	Analysis Date: 04/11/2016 0530					

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: MW-4-0416

Lab Sample ID: 480-97853-1 Date Sampled: 04/07/2016 1045
Client Matrix: Water Date Received: 04/08/2016 0245

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-296284	Instrument ID:	HP5973Q
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	Q0555.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/16/2016 0016			Final Weight/Volume:	5 mL
Prep Date:	04/16/2016 0016				

Analyte	Result (ug/L)	Qualifier	RL
Benzene	ND		1.0
Toluene	ND		1.0
Ethylbenzene	ND		1.0
m-Xylene & p-Xylene	ND		2.0
o-Xylene	ND		1.0
Xylenes, Total	ND		2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	92		66 - 137
Toluene-d8 (Surr)	93		71 - 126
4-Bromofluorobenzene (Surr)	93		73 - 120
Dibromofluoromethane (Surr)	94		60 - 140

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: MW-7-0416

Lab Sample ID: 480-97853-2 Date Sampled: 04/07/2016 0940
Client Matrix: Water Date Received: 04/08/2016 0245

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-296503	Instrument ID:	HP5973Q
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	Q0618.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/18/2016 1336			Final Weight/Volume:	5 mL
Prep Date:	04/18/2016 1336				

Analyte	Result (ug/L)	Qualifier	RL
Benzene	ND		1.0
Toluene	ND		1.0
Ethylbenzene	ND		1.0
m-Xylene & p-Xylene	ND		2.0
o-Xylene	ND		1.0
Xylenes, Total	ND		2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	101		66 - 137
Toluene-d8 (Surr)	98		71 - 126
4-Bromofluorobenzene (Surr)	95		73 - 120
Dibromofluoromethane (Surr)	104		60 - 140

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: MW-10-0416

Lab Sample ID: 480-97853-3 Date Sampled: 04/07/2016 0835
Client Matrix: Water Date Received: 04/08/2016 0245

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-296284	Instrument ID:	HP5973Q
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	Q0557.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/16/2016 0104			Final Weight/Volume:	5 mL
Prep Date:	04/16/2016 0104				

Analyte	Result (ug/L)	Qualifier	RL
Benzene	ND		1.0
Toluene	ND		1.0
Ethylbenzene	ND		1.0
m-Xylene & p-Xylene	ND		2.0
o-Xylene	ND		1.0
Xylenes, Total	ND		2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	90		66 - 137
Toluene-d8 (Surr)	93		71 - 126
4-Bromofluorobenzene (Surr)	93		73 - 120
Dibromofluoromethane (Surr)	93		60 - 140

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: MW-12-0416

Lab Sample ID: 480-97853-4 Date Sampled: 04/07/2016 1150
Client Matrix: Water Date Received: 04/08/2016 0245

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-296284	Instrument ID:	HP5973Q
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	Q0558.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/16/2016 0128			Final Weight/Volume:	5 mL
Prep Date:	04/16/2016 0128				

Analyte	Result (ug/L)	Qualifier	RL
Benzene	ND		1.0
Toluene	ND		1.0
Ethylbenzene	ND		1.0
m-Xylene & p-Xylene	ND		2.0
o-Xylene	ND		1.0
Xylenes, Total	ND		2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	91		66 - 137
Toluene-d8 (Surr)	94		71 - 126
4-Bromofluorobenzene (Surr)	93		73 - 120
Dibromofluoromethane (Surr)	96		60 - 140

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: MW-4-0416

Lab Sample ID: 480-97853-1 Date Sampled: 04/07/2016 1045
Client Matrix: Water Date Received: 04/08/2016 0245

8270D_LL_PAH Semivolatile Organic Compounds (GC/MS) Low level PAH

Analysis Method:	8270D_LL_PAH	Analysis Batch:	480-294954	Instrument ID:	HP5973W
Prep Method:	3510C	Prep Batch:	480-294829	Lab File ID:	W0702.D
Dilution:	1.0			Initial Weight/Volume:	235.3 mL
Analysis Date:	04/09/2016 2001			Final Weight/Volume:	1 mL
Prep Date:	04/08/2016 1442			Injection Volume:	2 uL

Analyte	Result (ug/L)	Qualifier	RL
Acenaphthene	ND		0.53
Acenaphthylene	ND		0.53
Anthracene	ND		0.53
Benzo(a)anthracene	ND		0.53
Benzo(a)pyrene	ND		0.53
Benzo(b)fluoranthene	ND		0.53
Benzo(g,h,i)perylene	ND		0.53
Benzo(k)fluoranthene	ND		0.53
Chrysene	ND		0.53
Dibenz(a,h)anthracene	ND		0.53
Fluoranthene	ND		0.53
Fluorene	ND		0.53
Indeno(1,2,3-cd)pyrene	ND		0.53
Naphthalene	ND		0.53
Phenanthrene	ND		0.53
Pyrene	ND		0.53

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	85		48 - 120
Nitrobenzene-d5	89		46 - 120
p-Terphenyl-d14	105		24 - 136

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: **MW-7-0416**

Lab Sample ID: 480-97853-2 Date Sampled: 04/07/2016 0940
Client Matrix: Water Date Received: 04/08/2016 0245

8270D_LL_PAH Semivolatile Organic Compounds (GC/MS) Low level PAH

Analysis Method:	8270D_LL_PAH	Analysis Batch:	480-294954	Instrument ID:	HP5973W
Prep Method:	3510C	Prep Batch:	480-294829	Lab File ID:	W0703.D
Dilution:	1.0			Initial Weight/Volume:	239.9 mL
Analysis Date:	04/09/2016 2030			Final Weight/Volume:	1 mL
Prep Date:	04/08/2016 1442			Injection Volume:	2 uL

Analyte	Result (ug/L)	Qualifier	RL
Acenaphthene	ND		0.52
Acenaphthylene	ND		0.52
Anthracene	ND		0.52
Benzo(a)anthracene	ND		0.52
Benzo(a)pyrene	ND		0.52
Benzo(b)fluoranthene	ND		0.52
Benzo(g,h,i)perylene	ND		0.52
Benzo(k)fluoranthene	ND		0.52
Chrysene	ND		0.52
Dibenz(a,h)anthracene	ND		0.52
Fluoranthene	ND		0.52
Fluorene	ND		0.52
Indeno(1,2,3-cd)pyrene	ND		0.52
Naphthalene	ND		0.52
Phenanthrene	ND		0.52
Pyrene	ND		0.52

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	92		48 - 120
Nitrobenzene-d5	97		46 - 120
p-Terphenyl-d14	98		24 - 136

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: **MW-10-0416**

Lab Sample ID: 480-97853-3 Date Sampled: 04/07/2016 0835
Client Matrix: Water Date Received: 04/08/2016 0245

8270D_LL_PAH Semivolatile Organic Compounds (GC/MS) Low level PAH

Analysis Method:	8270D_LL_PAH	Analysis Batch:	480-294954	Instrument ID:	HP5973W
Prep Method:	3510C	Prep Batch:	480-294829	Lab File ID:	W0705.D
Dilution:	1.0			Initial Weight/Volume:	247.3 mL
Analysis Date:	04/09/2016 2127			Final Weight/Volume:	1 mL
Prep Date:	04/08/2016 1442			Injection Volume:	2 uL

Analyte	Result (ug/L)	Qualifier	RL
Acenaphthene	ND		0.51
Acenaphthylene	ND		0.51
Anthracene	ND		0.51
Benzo(a)anthracene	ND		0.51
Benzo(a)pyrene	ND		0.51
Benzo(b)fluoranthene	ND		0.51
Benzo(g,h,i)perylene	ND		0.51
Benzo(k)fluoranthene	ND		0.51
Chrysene	ND		0.51
Dibenz(a,h)anthracene	ND		0.51
Fluoranthene	ND		0.51
Fluorene	ND		0.51
Indeno(1,2,3-cd)pyrene	ND		0.51
Naphthalene	ND		0.51
Phenanthrene	ND		0.51
Pyrene	ND		0.51

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	79		48 - 120
Nitrobenzene-d5	82		46 - 120
p-Terphenyl-d14	90		24 - 136

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: MW-12-0416

Lab Sample ID: 480-97853-4 Date Sampled: 04/07/2016 1150
Client Matrix: Water Date Received: 04/08/2016 0245

8270D_LL_PAH Semivolatile Organic Compounds (GC/MS) Low level PAH

Analysis Method:	8270D_LL_PAH	Analysis Batch:	480-294954	Instrument ID:	HP5973W
Prep Method:	3510C	Prep Batch:	480-294829	Lab File ID:	W0704.D
Dilution:	1.0			Initial Weight/Volume:	245.4 mL
Analysis Date:	04/09/2016 2058			Final Weight/Volume:	1 mL
Prep Date:	04/08/2016 1442			Injection Volume:	2 uL

Analyte	Result (ug/L)	Qualifier	RL
Acenaphthene	ND		0.51
Acenaphthylene	ND		0.51
Anthracene	ND		0.51
Benzo(a)anthracene	ND		0.51
Benzo(a)pyrene	ND		0.51
Benzo(b)fluoranthene	ND		0.51
Benzo(g,h,i)perylene	ND		0.51
Benzo(k)fluoranthene	ND		0.51
Chrysene	ND		0.51
Dibenz(a,h)anthracene	ND		0.51
Fluoranthene	0.52		0.51
Fluorene	ND		0.51
Indeno(1,2,3-cd)pyrene	ND		0.51
Naphthalene	ND		0.51
Phenanthrene	ND		0.51
Pyrene	0.64		0.51

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	73		48 - 120
Nitrobenzene-d5	74		46 - 120
p-Terphenyl-d14	93		24 - 136

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: MW-4-0416

Lab Sample ID: 480-97853-1 Date Sampled: 04/07/2016 1045
Client Matrix: Water Date Received: 04/08/2016 0245

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	480-295104	Instrument ID:	PE-03
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	
Analysis Date:	04/11/2016 1140			Injection Volume:	5 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Ethane	ND		7.5
Ethene	ND		7.0
Methane	ND		4.0

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: MW-4-0416

Lab Sample ID: 480-97853-1 Date Sampled: 04/07/2016 1045
Client Matrix: Water Date Received: 04/08/2016 0245

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	200-103151	Instrument ID:	CH2866.i
	N/A	Prep Batch:	N/A	Lab File ID:	19393008.D
Dilution:	1.0			Initial Weight/Volume:	18 mL
Analysis Date:	04/13/2016 1458			Final Weight/Volume:	18 mL
Prep Date:	N/A			Injection Volume:	5 mL

Analyte	Result (ug/L)	Qualifier	RL
Carbon dioxide	4400		1000

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: MW-7-0416

Lab Sample ID: 480-97853-2 Date Sampled: 04/07/2016 0940
Client Matrix: Water Date Received: 04/08/2016 0245

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	480-295104	Instrument ID:	PE-03
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	
Analysis Date:	04/11/2016 1157			Injection Volume:	5 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Ethane	ND		7.5
Ethene	ND		7.0
Methane	17		4.0

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: MW-7-0416

Lab Sample ID: 480-97853-2 Date Sampled: 04/07/2016 0940
Client Matrix: Water Date Received: 04/08/2016 0245

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	200-103151	Instrument ID:	CH2866.i
	N/A	Prep Batch:	N/A	Lab File ID:	19393009.D
Dilution:	1.0			Initial Weight/Volume:	18 mL
Analysis Date:	04/13/2016 1516			Final Weight/Volume:	18 mL
Prep Date:	N/A			Injection Volume:	5 mL

Analyte	Result (ug/L)	Qualifier	RL
Carbon dioxide	4500		1000

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: **MW-10-0416**

Lab Sample ID: 480-97853-3 Date Sampled: 04/07/2016 0835
Client Matrix: Water Date Received: 04/08/2016 0245

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	480-295104	Instrument ID:	PE-03
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	
Analysis Date:	04/11/2016 1353			Injection Volume:	5 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Ethane	ND		7.5
Ethene	ND		7.0

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: **MW-10-0416**

Lab Sample ID: 480-97853-3 Date Sampled: 04/07/2016 0835
Client Matrix: Water Date Received: 04/08/2016 0245

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	480-295104	Instrument ID:	PE-03
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	10			Final Weight/Volume:	
Analysis Date:	04/11/2016 1655	Run Type:	DL	Injection Volume:	5 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Methane	56		40

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: MW-10-0416

Lab Sample ID: 480-97853-3 Date Sampled: 04/07/2016 0835
Client Matrix: Water Date Received: 04/08/2016 0245

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	200-103151	Instrument ID:	CH2866.i
	N/A	Prep Batch:	N/A	Lab File ID:	19393010.D
Dilution:	1.0			Initial Weight/Volume:	18 mL
Analysis Date:	04/13/2016 1522			Final Weight/Volume:	18 mL
Prep Date:	N/A			Injection Volume:	5 mL

Analyte	Result (ug/L)	Qualifier	RL
Carbon dioxide	8900		1000

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: **MW-12-0416**

Lab Sample ID: 480-97853-4 Date Sampled: 04/07/2016 1150
Client Matrix: Water Date Received: 04/08/2016 0245

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	480-295104	Instrument ID:	PE-03
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	
Analysis Date:	04/11/2016 1410			Injection Volume:	5 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Ethane	ND		7.5
Ethene	ND		7.0
Methane	ND		4.0

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: MW-12-0416

Lab Sample ID: 480-97853-4 Date Sampled: 04/07/2016 1150
Client Matrix: Water Date Received: 04/08/2016 0245

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	200-103151	Instrument ID:	CH2866.i
	N/A	Prep Batch:	N/A	Lab File ID:	19393011.D
Dilution:	1.0			Initial Weight/Volume:	18 mL
Analysis Date:	04/13/2016 1529			Final Weight/Volume:	18 mL
Prep Date:	N/A			Injection Volume:	5 mL

Analyte	Result (ug/L)	Qualifier	RL
Carbon dioxide	11000		1000

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: MW-4-0416

Lab Sample ID: 480-97853-1 Date Sampled: 04/07/2016 1045
Client Matrix: Water Date Received: 04/08/2016 0245

6010C Metals (ICP)

Analysis Method:	6010C	Analysis Batch:	480-295276	Instrument ID:	ICAP1
Prep Method:	3005A	Prep Batch:	480-294794	Lab File ID:	I1041116A-4.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/12/2016 0023			Final Weight/Volume:	50 mL
Prep Date:	04/11/2016 0740				

Analyte	Result (mg/L)	Qualifier	RL
Lead	ND		0.010

Analysis Method:	6010C	Analysis Batch:	480-295529	Instrument ID:	ICAP1
Prep Method:	3005A	Prep Batch:	480-294794	Lab File ID:	I1041216A-3.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/12/2016 1151			Final Weight/Volume:	50 mL
Prep Date:	04/11/2016 0740				

Analyte	Result (mg/L)	Qualifier	RL
Manganese	0.0031		0.0030

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: MW-7-0416

Lab Sample ID: 480-97853-2 Date Sampled: 04/07/2016 0940
Client Matrix: Water Date Received: 04/08/2016 0245

6010C Metals (ICP)

Analysis Method:	6010C	Analysis Batch:	480-295276	Instrument ID:	ICAP1
Prep Method:	3005A	Prep Batch:	480-294794	Lab File ID:	I1041116A-4.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/12/2016 0035			Final Weight/Volume:	50 mL
Prep Date:	04/11/2016 0740				

Analyte	Result (mg/L)	Qualifier	RL
Lead	ND		0.010
Manganese	0.53	^	0.0030

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: MW-10-0416

Lab Sample ID: 480-97853-3 Date Sampled: 04/07/2016 0835
Client Matrix: Water Date Received: 04/08/2016 0245

6010C Metals (ICP)

Analysis Method:	6010C	Analysis Batch:	480-295276	Instrument ID:	ICAP1
Prep Method:	3005A	Prep Batch:	480-294794	Lab File ID:	I1041116A-4.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/12/2016 0039			Final Weight/Volume:	50 mL
Prep Date:	04/11/2016 0740				

Analyte	Result (mg/L)	Qualifier	RL
Lead	ND		0.010
Manganese	1.2	^	0.0030

Client: CDM Smith, Inc. Job Number: 480-97853-1

Client Sample ID: MW-12-0416

Lab Sample ID: 480-97853-4 Date Sampled: 04/07/2016 1150
Client Matrix: Water Date Received: 04/08/2016 0245

6010C Metals (ICP)

Analysis Method:	6010C	Analysis Batch:	480-295276	Instrument ID:	ICAP1
Prep Method:	3005A	Prep Batch:	480-294794	Lab File ID:	I1041116A-4.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/12/2016 0042			Final Weight/Volume:	50 mL
Prep Date:	04/11/2016 0740				

Analyte	Result (mg/L)	Qualifier	RL
Lead	ND		0.010
Manganese	0.062	^	0.0030

General Chemistry

Client Sample ID: MW-4-0416

Lab Sample ID: 480-97853-1 Date Sampled: 04/07/2016 1045
Client Matrix: Water Date Received: 04/08/2016 0245

Analyte	Result	Qual	Units	RL	Dil	Method
Total Kjeldahl Nitrogen	ND		mg/L	0.20	1.0	351.2
Analysis Batch: 480-296025	Analysis Date: 04/14/2016 1721					
Prep Batch: 480-295916	Prep Date: 04/14/2016 1030					
Nitrate as N	3.4		mg/L	0.050	1.0	353.2
Analysis Batch: 480-294904	Analysis Date: 04/08/2016 1844					
Cyanide, Total	ND	*	mg/L	0.010	1.0	9012B
Analysis Batch: 480-296842	Analysis Date: 04/19/2016 1407					
Prep Batch: 480-296736	Prep Date: 04/19/2016 0905					
Sulfate	73.9		mg/L	10.0	2.0	D516-90, 02
Analysis Batch: 480-294856	Analysis Date: 04/08/2016 1046					
Alkalinity, Total	394		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 480-295236	Analysis Date: 04/11/2016 1813					
Ferrous Iron	0.14	J- HF	mg/L	0.10	1.0	SM 3500 FE D
Analysis Batch: 480-294818	Analysis Date: 04/08/2016 1150					
Chloride	304		mg/L	10.0	10	SM 4500 Cl- E
Analysis Batch: 480-294854	Analysis Date: 04/08/2016 1155					
Sulfide	ND		mg/L	1.0	1.0	SM 4500 S2 F
Analysis Batch: 480-295127	Analysis Date: 04/11/2016 0530					

General Chemistry

Client Sample ID: **MW-7-0416**

Lab Sample ID: 480-97853-2 Date Sampled: 04/07/2016 0940
Client Matrix: Water Date Received: 04/08/2016 0245

Analyte	Result	Qual	Units	RL	Dil	Method
Total Kjeldahl Nitrogen	1.6		mg/L	0.20	1.0	351.2
Analysis Batch: 480-296025	Analysis Date: 04/14/2016 1721					
Prep Batch: 480-295916	Prep Date: 04/14/2016 1030					
Nitrate as N	0.14		mg/L	0.050	1.0	353.2
Analysis Batch: 480-294904	Analysis Date: 04/08/2016 1845					
Cyanide, Total	0.18		mg/L	0.010	1.0	9012B
Analysis Batch: 480-297139	Analysis Date: 04/20/2016 1249					
Prep Batch: 480-296944	Prep Date: 04/19/2016 2000					
Sulfate	384		mg/L	50.0	10	D516-90, 02
Analysis Batch: 480-294856	Analysis Date: 04/08/2016 1046					
Alkalinity, Total	395		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 480-295236	Analysis Date: 04/11/2016 1821					
Ferrous Iron	0.14	J- HF	mg/L	0.10	1.0	SM 3500 FE D
Analysis Batch: 480-294818	Analysis Date: 04/08/2016 1150					
Chloride	66.2		mg/L	2.0	2.0	SM 4500 Cl- E
Analysis Batch: 480-294854	Analysis Date: 04/08/2016 1121					
Sulfide	ND		mg/L	1.0	1.0	SM 4500 S2 F
Analysis Batch: 480-295127	Analysis Date: 04/11/2016 0530					

General Chemistry

Client Sample ID: **MW-10-0416**

Lab Sample ID: 480-97853-3 Date Sampled: 04/07/2016 0835
Client Matrix: Water Date Received: 04/08/2016 0245

Analyte	Result	Qual	Units	RL	Dil	Method
Total Kjeldahl Nitrogen	4.0		mg/L	0.20	1.0	351.2
Analysis Batch: 480-296025	Analysis Date: 04/14/2016 1721					
Prep Batch: 480-295916	Prep Date: 04/14/2016 1030					
Nitrate as N	ND		mg/L	0.050	1.0	353.2
Analysis Batch: 480-294904	Analysis Date: 04/08/2016 1647					
Cyanide, Total	0.085		mg/L	0.010	1.0	9012B
Analysis Batch: 480-297139	Analysis Date: 04/20/2016 1250					
Prep Batch: 480-296944	Prep Date: 04/19/2016 2000					
Sulfate	44.4		mg/L	10.0	2.0	D516-90, 02
Analysis Batch: 480-294856	Analysis Date: 04/08/2016 1059					
Alkalinity, Total	586		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 480-295236	Analysis Date: 04/11/2016 1829					
Ferrous Iron	0.11	J- HF	mg/L	0.10	1.0	SM 3500 FE D
Analysis Batch: 480-294818	Analysis Date: 04/08/2016 1150					
Chloride	893		mg/L	30.0	30	SM 4500 Cl- E
Analysis Batch: 480-294854	Analysis Date: 04/08/2016 1153					
Sulfide	ND		mg/L	1.0	1.0	SM 4500 S2 F
Analysis Batch: 480-295127	Analysis Date: 04/11/2016 0530					

General Chemistry

Client Sample ID: **MW-12-0416**

Lab Sample ID: 480-97853-4 Date Sampled: 04/07/2016 1150
Client Matrix: Water Date Received: 04/08/2016 0245

Analyte	Result	Qual	Units	RL	Dil	Method
Total Kjeldahl Nitrogen	ND		mg/L	0.20	1.0	351.2
Analysis Batch: 480-296025	Analysis Date: 04/14/2016 1721					
Prep Batch: 480-295916	Prep Date: 04/14/2016 1030					
Nitrate as N	3.3		mg/L	0.050	1.0	353.2
Analysis Batch: 480-294904	Analysis Date: 04/08/2016 1846					
Cyanide, Total	ND	*	mg/L	0.010	1.0	9012B
Analysis Batch: 480-296842	Analysis Date: 04/19/2016 1411					
Prep Batch: 480-296736	Prep Date: 04/19/2016 0905					
Sulfate	93.7		mg/L	15.0	3.0	D516-90, 02
Analysis Batch: 480-294856	Analysis Date: 04/08/2016 1049					
Alkalinity, Total	412		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 480-295236	Analysis Date: 04/11/2016 1837					
Ferrous Iron	ND	UJ HF	mg/L	0.10	1.0	SM 3500 FE D
Analysis Batch: 480-294818	Analysis Date: 04/08/2016 1150					
Chloride	276		mg/L	10.0	10	SM 4500 Cl- E
Analysis Batch: 480-294854	Analysis Date: 04/08/2016 1524					
Sulfide	ND		mg/L	1.0	1.0	SM 4500 S2 F
Analysis Batch: 480-295127	Analysis Date: 04/11/2016 0530					

9