Barton & Loguidice

June 1, 2020

Megan Kuczka
Environmental Program Specialist 1
Division of Environmental Remediation
New York State Department of Environmental Conservation
270 Michigan Avenue, Buffalo, NY 14203

On behalf of Fort Schuyler Management Corporation (FSMC), Barton and Loguidice, DPC (B&L) has prepared the attached Periodic Review Report (PRR) for the RiverBend Site (V00619), including all supporting appendices. This PRR includes the completed Institutional and Engineering Controls (IC/EC) certification form. The IC portion of the certification form (Box 6) has been signed by Mr. Scott Bateman, FSMC Board Treasurer, and the EC portion (Box 7) has been signed by Mr. Scott D. Nostrand, P.E., Senior Vice President of B&L. Please contact me if you have any questions regarding this submittal.

Sincerely yours,

Jon Sundquist PhD
Senior Project Manager

cc:

Stanley Radon, PE NYSDEC
Scott Nostrand, PE B&L
Bryan Hann, PG Orion Environmental Solutions, LLC
Thomas Alfieri FSMC
Hsi-An Kwong FSMC

PERIODIC REVIEW REPORT

Steelfields (aka RiverBend,LLC) Site

Site No. V00619

revision 1

Prepared for

Fort Schuyler Management Corporation

257 Fuller Road
Albany, New York

May 2020

Barton&Loguidice

Steelfields (aka RiverBend,LLC) Site
Buffalo, New York

Periodic Review Report

May 2020

Prepared for

Fort Schuyler Management Corporation

257 Fuller Road

Albany, New York 12203

Prepared by

Barton & Loguidice, D.P.C.
443 Electronics Parkway
Liverpool, New York 13088

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Section Page

1.0 INTRODUCTION

Barton and Loguidice, D.P.C. (B&L) has prepared this Periodic Review Report (PRR) on behalf of Fort Schuyler Management Corporation (FSMC) to summarize the post-remedial status of New York State Department of Environmental Conservation (NYSDEC) Voluntary Cleanup Program (VCP) Steelfields (aka RiverBend, LLC) Site No. V00619.

This PRR has been prepared in accordance with the NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (May 2010; Ref. 1) and the NYSDEC's Institutional and Engineering Controls (IC/EC) Certification Forms have been prepared for each of the three designated areas (i.e., Area I, Area II, and Area III) of the Site. This PRR and the associated IC/EC Form (see Appendix A) have been completed for the May 1, 2019 to May 1, 2020 reporting period.

1.1. Background

In October 2002, Steelfields Ltd. (Steelfields) purchased several vacant industrial properties in South Buffalo, New York (see Figures 1 and 2) out of bankruptcy from the LTV Steel Company and Hanna Furnace Corporation (a wholly owned subsidiary of the National Steel Corporation). At the same time, Steelfields entered into a Voluntary Cleanup Agreement (VCA) with the NYSDEC to remediate four parcels identified below, totaling approximately 218 acres. The parcels were divided based on the operational and ownership history of each:

- Area I – Former Republic (LTV) Steel Plant Parcel (± 90.6 acres)
- Area II – Former Donner-Hanna Coke Plant Parcel (± 53.0 acres)
- Area III - Former Republic (LTV) Steel Warehouse Parcel (± 43.2 acres)
- Area IV – Former Donner-Hanna Coke Yard Parcel (± 31.1 acres)

In July 2003, a fifth parcel, the formerly owned and operated August Feine & Sons property (±4.7 acres), was acquired by Steelfields. The August Feine property, though relevant and proximate to the RiverBend Site, is not under any NYSDEC program or subject to a SMP under the RiverBend VCA. As such, only Areas I, II, III, and IV were remediated under the NYSDEC VCA. Subsequent to completion of the remediation of Area IV by Steelfields in 2006, this parcel was separated from the Site, sold to Hydro-Air Components, Inc. (Hydro-Air), and entered into the Brownfield Cleanup Program (NYSDEC BCP Site No. C915204) by Hydro-Air. As such, this report does not address Area IV. RiverBend, LLC, a related Buffalo Urban Development Corporation (BUDC) company, acquired the Site from Steelfields in May 2008. On July 22, 2014, FSMC acquired Area I of the RiverBend Site from RiverBend, LLC. On November 24, 2014, FSMC acquired Areas II and III from RiverBend, LLC. On June 24, 2016, a sixth parcel, the formerly owned and operated Norfolk Southern Railroad property (±22.16 acres), was acquired by FSMC. Similar to the former August Feine property, the former Norfolk Southern property is also relevant and proximate to the RiverBend Site and is not under any NYSDEC program or subject to a SMP under the RiverBend VCA.

2.0 SITE OVERVIEW

The RiverBend Site, comprised of four former heavy industrial properties identified as Areas I, II, III, and the former August Feine parcel, encompasses approximately 192 acres in the City of Buffalo, Erie County, New York (see Figure 2). The Site is bordered by the Buffalo River and South Park Avenue to the north; Abby Street and residential neighborhoods to the east; Former Area IV (currently Hydro-Air Components) to the south; and a railroad corridor and rail yard to the west (contiguous parcels owned by South Buffalo Railroad Company, Norfolk Southern Corporation, Buffalo Southern Railroad, and CSX Corporation) (see Figure 2).

Environmental investigations of the Site revealed the presence of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) including polycyclic aromatic hydrocarbons (PAHs), and metals in soil and groundwater that required remediation. Remedial activities were completed across the Site from 2002 through 2006. Detailed descriptions of the remedial efforts and construction documents are provided in the NYSDEC's approved Construction Closeout Report for Area I, including the Site Management Plan, prepared by TurnKey Environmental Restoration, LLC (April 2007; Ref. 2); and the Final Engineering Report for Areas II and III, Former Donner-Hanna Coke Plant and Republic (LTV) Steel Properties, including a Site Management Plan, prepared by Malcolm Pirnie (May 2008; Ref. 3). A brief description of the remedial efforts described in those documents is presented below.

2.1. Area I - Former Republic (LTV) Steel Parcel

The former Republic Steel (LTV) Plant property encompasses two adjoining parcels (122.16-1-8.1 and 122.20-1-3.1) totaling approximately 90.6 acres (see Figure 2). Area I is bordered by the Buffalo River and South Park Avenue to the north, Abby Street and residential neighborhoods to the east, Norfolk Southern property to the south, a railroad corridor and rail yard to the west. Remedial efforts conducted in Area I included:

- Remediation of petroleum/naphthalene/tar-impacted and metals-impacted soil/fill.
- Removal of former fuel oil and tar transfer pipelines, including disposal of residual product within the piping and impacted soil in the vicinity of the pipelines.
- Removal of former underground storage tanks.
- Buffalo River bank stabilization.

2.2. Area II – Former Donner-Hanna Coke Plant

The former Donner-Hanna Coke Plant property encompasses three adjoining parcels (122.20-1-21, 122.20-1-5.1, and 132.08-1-6) totaling approximately 53.0 acres (see Figure 2). Area II, partially intersected by Baraga Street, is bordered by an adjacent earthen berm along Abby Street and residential neighborhoods to the east; Norfolk Southern property and the former August Feine parcel to the north; Area III to the south; and a railroad corridor and rail yard to the west. Remedial efforts conducted in Area II included:

- Construction of a 14-acre Containment Cell with slurry wall, low-permeability cover system, and a groundwater collection and conveyance system
- Construction of a groundwater pre-treatment system (GWPTS)
- In-situ "hotspot" remediation

2.3. Area III – Former Warehouse Parcel

The former Republic Steel Warehouse property encompasses two adjoining parcels (132.08-1-7 and 132.12-1-9.11) totaling approximately 43.2 acres (see Figure 2). Area III is bordered by Abby Street and residential neighborhoods to the east; Area II to the north; Former Area IV (currently Hydro-Air Components) to the south; and an active railroad corridor and rail yard to the west. Remedial efforts conducted in Area III included:

- On-site blue-stained soil/fill treatment and disposal/consolidation in the Area II Containment Cell
- On-site lead-impacted soil/fill treatment and disposal/consolidation in the Area II Containment Cell
- Tar-impacted soil/fill disposal/consolidation in Area II Containment Cell
- In situ groundwater treatment with oxygen release compound (ORC) at 11 ORC treatment wells

2.4. Former August Feine Parcel

The former August Feine property encompasses one parcel (122.20-1-22) approximately 4.7 acres in size (see Figure 2). This property is surrounded by Area II on the west, south, and east; and Norfolk Southern property to the north (Baraga Street dead ends at the entrance to this parcel). The August Feine property, though relevant and proximate to the RiverBend Site, is not under any NYSDEC program or subject to a SMP under the RiverBend VCA. As such, any discussions or findings as a result of the site assessment regarding the August Feine property are provided herein for informational purposes only. A July 2006 site assessment of the former August Feine parcel identified localized VOC (primarily benzene) and total metal (plus cyanide) impacts to subsurface soil/fill and shallow groundwater along the common boundary with Area II. Based on the proximity of these identified impacts to the Area II groundwater collection trench, the leachable impacts, if any, are being captured and treated by the groundwater collection system, mitigating downgradient migration and potential environmental impact. As such, no additional remediation, beyond those already being implemented in accordance with the VCA for Area II, was recommended. Any potential for subsurface soil/fill exposure during future development of the property (i.e., utility installation) will be addressed in accordance with the Soil/Fill Management Plan (see Section 3.3).

2.5. Former Norfolk Southern Parcel

The former Norfolk Southern property encompasses one parcel (122.20-1-23.1) approximately 22.16 acres in size (see Figure 2). The property is bounded on the north by Area I and Area II and the former August Feine property to the south. The former Norfolk Southern property was historically used as to transport manufactured steel, iron, metallurgical coke, and coke by-products for Republic Steel and Donner Hanna Coke. This property, though relevant and proximate to the RiverBend Site, is not under any NYSDEC program or subject to a SMP under the RiverBend VCA.

3.0 SITE MANAGEMENT PLAN

Areas I, II, and III of the RiverBend Site are managed by two separate Site Management Plans (SMPs). One SMP covers Area I (prepared by TurnKey Environmental Restoration LLC and Benchmark Environmental Engineering and Science, PLLC in April 2007 and revised in August 2016; Ref. 2) and the second covers Areas II, III, and the former August Feine parcel (prepared by Malcolm Pirnie in May 2008; Ref. 3). Both SMPs include Operation, Monitoring, and Maintenance (OM&M) Plans; Long-Term Groundwater Monitoring (LTGWM) Plans; Soil/Fill Management Plans (SFMPs); and Environmental Easements (also identified as Covenant and Restrictions) for their respective parcels. Adjustments to these SMPs were approved in correspondence from NYSDEC dated May 5, 2011. A brief description of these SMP components is presented below.

3.1. Operation, Monitoring, and Maintenance (OM&M) Plan

As a requirement of the OM&M Plans, annual inspection of Areas I, II, and III are required; as there are no engineering controls on the former August Feine parcel the site inspection is provided for informational purposes only. The NYSDEC PRR Institutional and Engineering Controls (IC/EC) Certification Form has replaced the previously used Environmental Inspection Forms for each Area. Appendix A includes the completed IC/EC Form for the current period. Details of the annual inspection and completion of the IC/EC Form is discussed in Sections 3.5 and 3.6 below.

3.1.1. Area I

The Area I SMP provides the details for Operation and Maintenance (O&M) related to the product recovery at monitoring well A1-MW-6. Specifically, the O&M Plan details the product recovery system inspection program, routine maintenance operations, and reporting requirements. In February 2017 due to very low product recovery volumes, the NYSDEC approved discontinuing the use of a passive skimmer in well A1-MW-6 in lieu of an absorbent pad. Due to recent redevelopment, a revised SMP for Area I is being prepared under separate cover and this modification will be included.

3.1.2. Area II

The Area II SMP provides the O&M details related to the groundwater collection and conveyance system, including the soil flushing system; groundwater pre-treatment system (GWPTS) including the bag filters, carbon vessels, transfer pumps, separator tank, and general house-keeping; sewer discharge effluent monitoring; and low-permeability cover system (i.e., landfill post-closure monitoring and cover maintenance). Operation of the GWPTS is performed by B&L's subconsultant Orion Environmental Solutions, LLC (Orion). Appendix B includes the Area II GWPTS annual progress report submitted to the NYSDEC and the two semi-annual effluent compliance monitoring reports submitted to the Buffalo Sewer Authority (BSA) during the current reporting period.

On May 1, 2019, upon commencing OM&M oversight activities, it was discovered that pump station PS-2 was not operational. Upon further inspection, the discharge hose was discovered to have been separated from the force main. Following procurement of the necessary parts, pump station PS-2 was put back into service on June 14, 2019. Pump stations PS-1 and PS-3 were not affected and ran continuously as designed throughout the current reporting period.

3.1.3. Area III

The Area IIII O&M plan provides the details related to the in-situ groundwater treatment with oxygen release compound (ORC) at 11 ORC treatment wells. ORC monitoring results are included in the annual groundwater monitoring report (Appendix C; Section 3.2 below). Appendix D includes the July and November 2019 ORC semi-annual event inspection forms.

3.1.4. Former August Feine Parcel

There are no voluntary cleanup O&M requirements for the former August Feine parcel. In June 2009, the former August Feine building caught fire and emergency demolition followed. A concrete slab on grade foundation and a small brick walled shed is all that remains and storm water management of this area was subsequently discontinued. In September 2015 and with NYSDEC approval, the footprint of the former August Feine building was filled in with processed concrete material generated during Area I redevelopment.

3.1.5. Former Norfolk Southern Parcel

There are no voluntary cleanup O&M requirements for the former Norfolk Southern parcel.

3.2. Long-Term Groundwater Monitoring (LTGWM) Plan

As a requirement of the SMPs, long-term groundwater monitoring is being performed at the Site. Long-Term Groundwater Monitoring (LTGWM) Work Plans were prepared in March 2000 (revised April 2007) for Area I and in October 2007 for Areas II (revised April 2008) and III. Groundwater monitoring began in 2004 for Area I and in 2007 for Areas II and III. Since 2009 and with NYSDEC approval, LTGWM for Areas I, II, and III was modified into a combined site-wide monitoring and reporting event. A total of 23 network monitoring wells are sampled across the Site including 11 wells in Area I, 7 wells in Area II, and 5 wells in Area III. In addition to the groundwater monitoring network wells, six additional wells in Area II are monitored for water level only.

In May 2011, the NYSDEC approved a modification of the groundwater parameter lists and sample frequency for Areas I, II, and III. The modified monitoring program for all three Areas now follows a two-year monitoring cycle (e.g., bi-annual) as presented in Appendix C. In general, this modification reduces the volatile organic compound and metals analysis frequency to once every other year for most wells while the collection of field parameters must be measured every year going forward. Currently, groundwater monitoring is performed on an annual basis and ORC monitoring is performed semi-

annually (every 6 months). The activities performed during each groundwater monitoring event are performed in general accordance with the following documents:

- Work Plan for Long-Term Groundwater Monitoring (LTGWM) of Area I (revised June 2005; Ref. 4)
- Work Plan for LTGWM of Areas II and III (October 2007) submitted as Attachment A4 of Appendix HH of the Final Engineering Report for Areas II and III (May 2008; Ref. 5)
- May 5, 2008 Response to NYSDEC comment letter regarding Area III Site Management Plan (comment/responses 8, 9, and 10)
- May 5, 2008 Response to NYSDEC comment letter regarding Areas II and III Final Engineering Report (comment/responses 19 and 22)
- ORC Maintenance and Monitoring Manual (March 2008) submitted as Attachment A5 of Appendix HH of the Final Engineering Report for Areas II and III (May 2008; Ref. 5)
- May 5, 2011 NYSDEC Response to Modification Request Letter.

Appendix C includes the 2019 Comprehensive Annual Groundwater Monitoring Report for Areas I, II, and III. This report includes the results of the July 2019 groundwater monitoring event as well as the results of the June and November/December 2019 ORC semi-annual monitoring events for Area III, all of which were conducted during the current PRR period (May 1, 2019 through May 1, 2020). Appendix D includes the ORC inspection forms for the June and November 2019 events.

3.3. Soil/Fill Management Plan

A Soil/Fill Management Plan (SFMP) was included in the approved SMPs for each Area of the Site. The SFMP provides guidelines for the management of soil and fill material during any future intrusive activities.

3.4. Institutional and Engineering Control Requirements

As detailed in the SMPs, several institutional controls (ICs) and engineering controls (ECs) are to be maintained as a requirement of the VCA for the Site.

3.4.1. Institutional Controls

Three of the five RiverBend parcels (Areas I, II, and III) are subject to the following ICs:

- Groundwater-Use Restriction: The use of groundwater for potable and non-potable purposes is prohibited
- Land-Use Restriction: The controlled property may be used for commercial and/or industrial use
- Soil/Fill Management Plan

Additionally, Areas II and III are subject to compliance with the O&M Plans for their respective areas, as described in Section 3.1.

3.4.2. Engineering Controls

Three of the five RiverBend parcels (Areas I, II, and III) are subject to several ECs as indicated by Area below.

- Area I: Maintain vegetative cover and perimeter fencing; soil/fill management; soil vapor intrusion (SVI) evaluation before on-site building construction or installation of vapor mitigation system during on-site building construction and prior to occupancy (effective 08/16/2007).
- Area II: Maintain final cover system of containment cell and maintain vegetative cover outside containment cell area until build-out whereupon one foot of clean cover or alternative with a demarcation layer is required; O&M of GWPTS; O&M of containment cell and perimeter fencing; soil/fill management; soil vapor intrusion (SVI) evaluation before on-site building construction or installation of vapor mitigation system during on-site building construction and prior to occupancy (effective 05/21/2008).
- Area III: Maintain vegetative cover (limited area sampling required before build-out, failure to meet Site Specific Action Levels (SSALs) would require one foot of clean cover or alternative with a demarcation layer); O&M of passive groundwater treatment (e.g., ORC) and perimeter fencing; soil/fill management; soil vapor intrusion (SVI) evaluation before on-site building construction or installation of vapor mitigation system during on-site building construction and prior to occupancy (effective 05/21/2008).

3.5. Site Inspection & IC/EC Compliance

On April 27, 2020, B&L performed a Site assessment of Areas I, II, and III, including the former August Feine and Norfolk Southern parcels. The following sections provide a parcel-by-parcel description of the Site assessment and maintenance activities performed. Appendix A includes the completed IC/EC Form for Areas I, II, and III. Appendix F includes a photographic log of the Site at the time of the inspection.

3.5.1. Area I

At the time of the May 2020 inspection, Area I was the site of the Tesla solar panel facility and in compliance with the IC/ECs.

3.5.2. Area II

At the time of the May 2020 inspection, Area II, including the pump stations, GWTS and Containment Cell, was in compliance with the IC/ECs.

3.5.3. Area III

At the time of the May 2020 inspection, Area III was vacant and in compliance with the IC/ECs.

3.5.4. Former August Feine Parcel

At the time of the May 2020 inspection, the former August Feine parcel was vacant. There are no IC/ECs associated with this parcel; therefore, this parcel is not included on the IC/EC Form.

3.5.5. Former Norfolk Southern Parcel

At the time of the May 2020 inspection, the former Norfolk Southern parcel was vacant. There are no IC/ECs associated with this parcel; therefore, this parcel is not included on the IC/EC Form.

3.6. Abby & Baraga Streets Surface Drainage System

Although not a component of the Area II SMP, B&L's subconsultant, Orion, performs a monthly inspection of the drainage system including the Baraga Street manhole due to historic blockages in the system resulting in past complaints of ponding water along Abby Street. As requested by the NYSDEC, the surface drainage system background and monthly assessment results are provided below.
The surface drainage system at the RiverBend Site was installed to mitigate breakout of calcium-rich surface water resulting from the underlying slag and lime materials in the vicinity of the berm along Abby Street. Since 1998, the drainage system has functioned as intended, but has required periodic maintenance and repair to remedy clogs due to calcium and sediment build-up and occasional damage from heavy snow removal equipment. More recently the surface drainage system required repair and modification due to significant damage to the Berm from South Park to Baraga Street caused by vehicle rutting, particularly in the Abby Street drain vicinity, which prevented the system from functioning as intended.

In May 2014, repairs and modifications were made to the original Abby Street drainage system to restore function and to allow the system to be more efficient. The modified Abby Street drainage system configuration is presented in Figure 3. Both the Berm and drainage system are inspected monthly for blockage and surficial ponding along Abby Street. Currently, the Abby Street Berm and Drainage system appears to be damaged and not functioning as designed as evidenced by white calcified deposits at the surface near a manhole located at the intersection of Abby St. and O'Connor Roads. It appears that damage to the berm (and Drainage System) was caused by vehicle rutting on the berm along Abby Street. Although not a required component of the VCA, it will still require corrective measures to remove the calcified deposits and associated soils as well as to assess the integrity of and repair the Drainage System, as necessary.

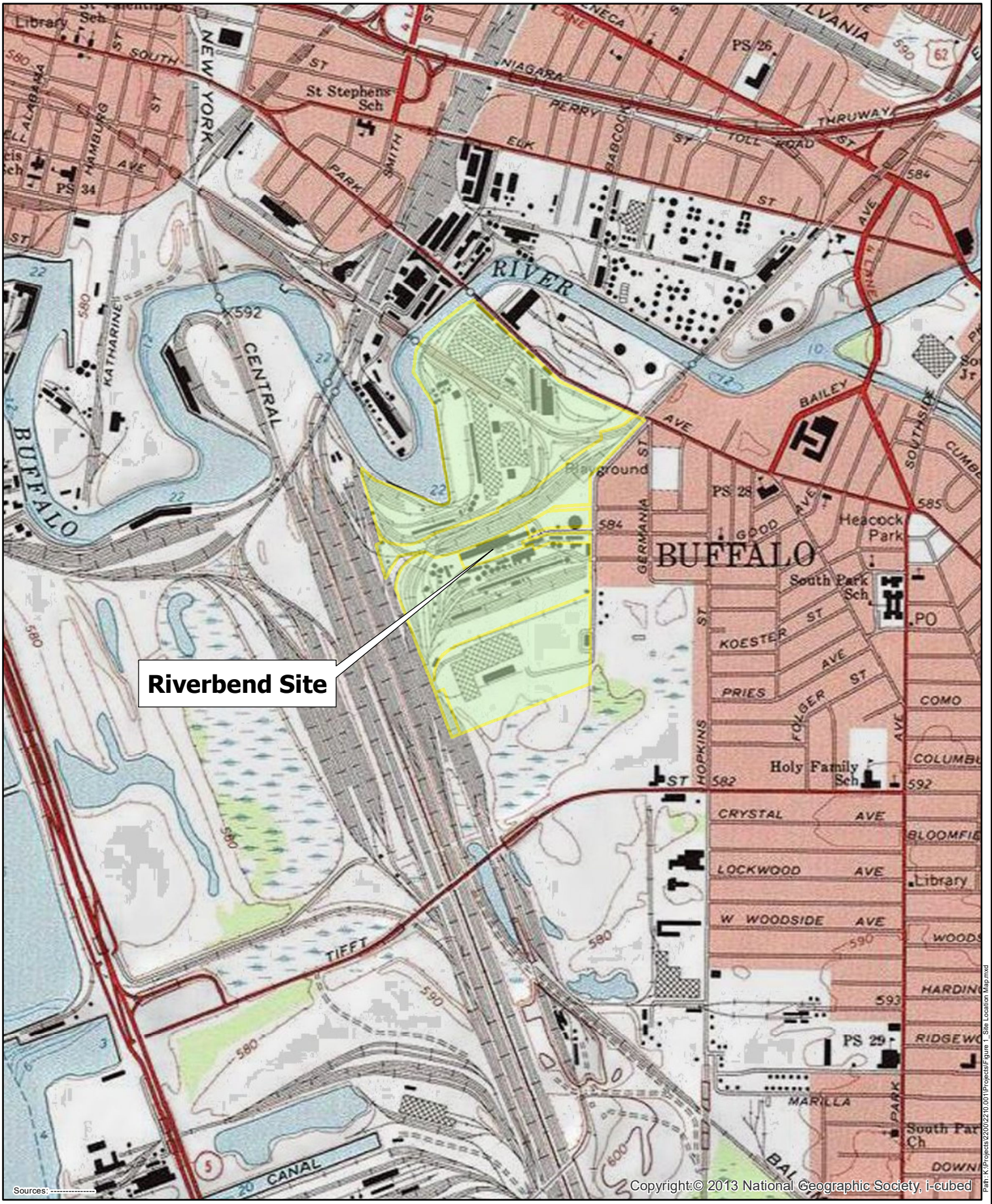
4.0 CONCLUSIONS AND RECOMMENDATIONS

At the time of the inspection, the Site was in compliance with the IC/ECs. No modifications to the OM&M procedures are recommended at this time.

5.0 REFERENCES

1. New York State Department of Environmental Conservation. DER-10; Technical Guidance for Site Investigation and Remediation. May 2010.
2. Site Management Plan for Area I (former Republic (LTV) Steel Parcel), Steelfields Site, Buffalo, NY (NYSDEC Site # V00619-9), dated April 2007, prepared by TurnKey Environmental Restoration, LLC and Benchmark Environmental Engineering and Science, PLLC.
3. Final Engineering Report for Areas II & III, Former Donner-Hanna Coke Plant and Republic (LTV) Steel Properties, Steelfields Site Buffalo, NY (NYSDEC Site #V00133-9), Appendix GG and HH, dated May 2008, prepared by Malcolm Pirnie.
4. Work Plan for Long-Term Groundwater Monitoring, Former Steel Manufacturing Site, Buffalo, NY, prepared for Steelfields Ltd., revised June 2005 by TurnKey Environmental Restoration, LLC.
5. Final Engineering Report for Areas II & III, Former Donner-Hanna Coke Plant and Republic (LTV) Steel Properties, Steelfields Site Buffalo, NY (NYSDEC Site #V00133-9), Appendix HH – Attachments A4 and A5, dated May 2008, prepared by Malcolm Pirnie.

FIGURES



Barton & Loguidice

1 inch = 2,000 feet

Riverbend Site
Fort Schuyler Management Corporation

Site Location Map

Erie County | May 2020 | New York

Figure 1

Project No. 2210.0101

Path: K:\Projects\2200\2210.001\Projects\Figure 1_Site Location Map.mxd

Plotted: May 20, 2020 – 2:22PM SYR By: bgh
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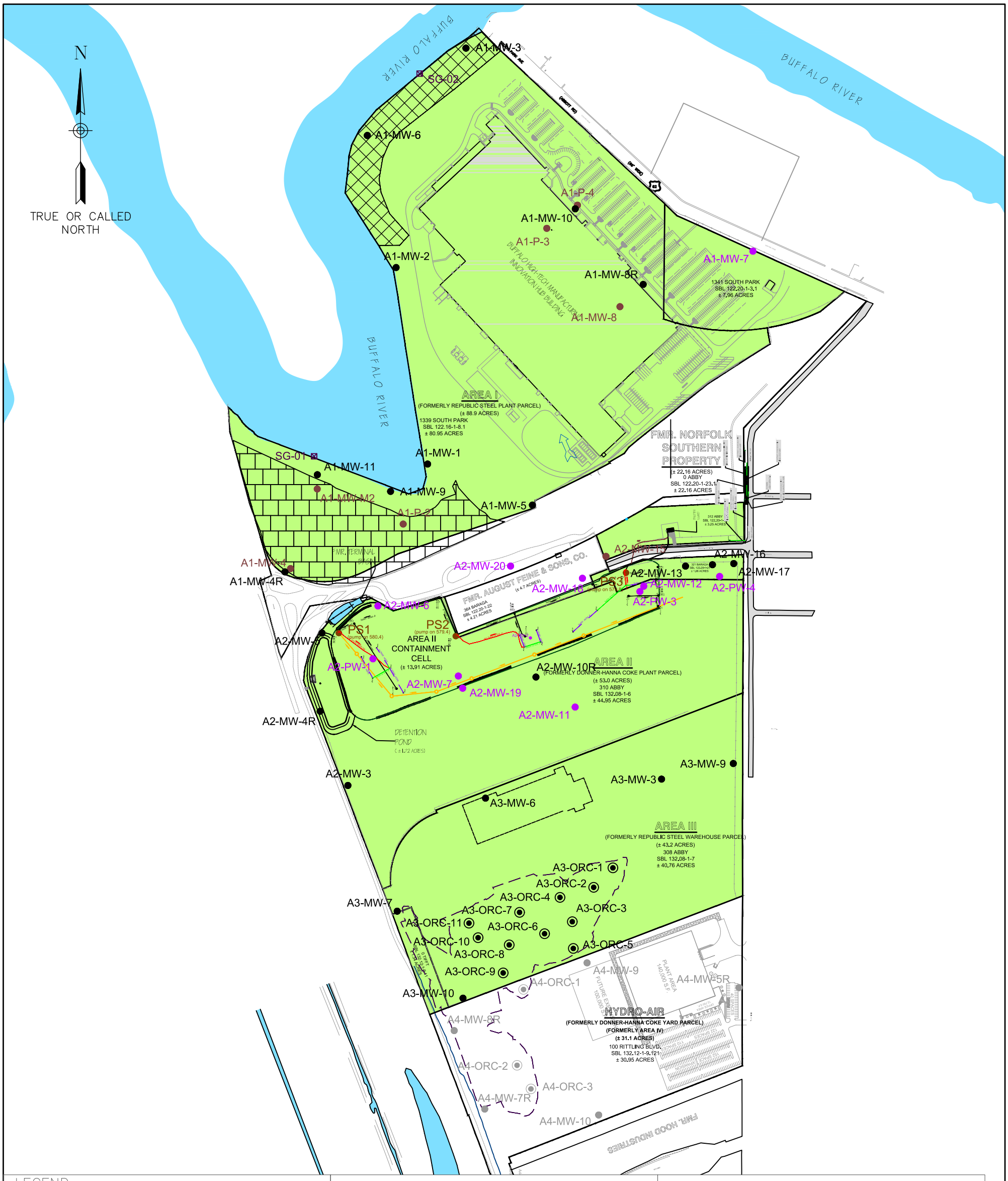


LEGEND

- A3-MW-7 — NETWORK MONITORING WELL
- A2-MW-19 — NETWORK MONITORING WELL (WATER LEVEL ONLY)
- A3-ORC-9 — OXIDATION REDUCTION COMPOUND (ORC) SOCK WELL
- PS2 (pump on 579.4) — GROUNDWATER COLLECTION PUMP STATION
- SG-01 — BUFFALO RIVER STAFF GAUGE
- OFF-SITE MONITORING WELL
- A1-MW-M2 — ABANDONED / DECOMMISSIONED / DESTROYED MONITORING WELL

- PROPERTY BOUNDARY OF AREAS I, II, & III
- APPROX. TAR & BLUE SOIL / FILL EXCAVATION LIMITS
- SLURRY (AS-BUILT)
- GROUNDWATER COLLECTION TRENCH
- GROUNDWATER TREATMENT FORCEMAIN (AS-BUILT)
- LIMITS OF CONTAINMENT CELL
- TENORM VARIANCE AREA

- SOIL FLUSHING SYSTEM: 4" PERF. HDPE PIPE (INVERT EL. SHOWN)
- SOIL FLUSHING SYSTEM: 4" SOLID HDPE PIPE
- SOIL FLUSHING SYSTEM: 2" SOLID HDPE PIPE
- FORCEMAIN & SOIL FLUSHING SYSTEM FLOW DIRECTION
- FENCE (ON-SITE)
- BNR RESTORATION AREA

Barton & Loguidice

Date: MAY 2020
Scale: AS SHOWN

500' 0 500'
1"=500'

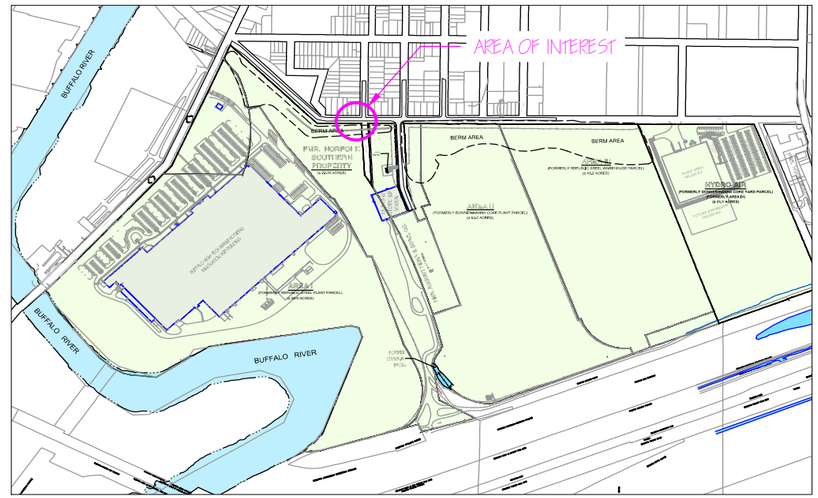
FORT SCHUYLER MANAGEMENT CORPORATION
FSMC RIVERBEND ENVIRONMENTAL SERVICES

SITE PLAN

CITY OF BUFFALO ERIE COUNTY, NEW YORK

Figure Number: 2
Project Number: 2210.001.001

SITE PLAN:



ABBY-EAST DRAIN
(4-INCH PERFORATED / CORRUGATED)

ABBY-SECONDARY RELIEF DRAIN
(6-INCH PERFORATED / CORRUGATED)

O'CONNER STREET MANHOLE

O'CONNER ST.

ABBY ST. (66' R.O.W.)

DI

DI

DI

STOP

STOP

CLEAN-OUT

CLEAN-OUT

CLEAN-OUT

18" PVC

BARAGA STREET MANHOLE

M.H. (PAVED OVER)

EXIST. 6" V.I.T.

CLEAN-OUT

ABBY-WEST DRAIN
(6-INCH PERFORATED / CORRUGATED)

ABBY-MAIN DRAIN
(FORMERLY ABBY-WEST)
(6-INCH PERFORATED / CORRUGATED)

ABBY-MAIN FINGER DRAIN
(6-INCH RIGID PERFORATED / CORRUGATED)

BARAGA ST. DRAIN
(6-INCH PERFORATED / CORRUGATED)

ABBY-MAIN DRAIN
(6-INCH PERFORATED / CORRUGATED)

ER ST. (PAPER)

LEGEND:

- EDGE OF PAVEMENT (ABBY STREET)
- NEW ABBY STREET DRAIN LINES
- EXISTING ABBY STREET DRAIN LINES
- SANITARY SEWER LINES (APPROX.)
- WATER LINES (APPROX.)
- GAS LINES (APPROX.)
- MANHOLE
- DI DROP INLET

N

50' 0' 50' 100'

SCALE IN FEET
(approximate)

Barton & Loguidice

Riverbend Site. Fort Schuyler Management Corp.

Abbey Street Drainage System Site Sketch

Erie County May 2020 New York

Figure 3

Project No. 2210.001

APPENDIX A

SITE INSPECTION (IC/EC) FORM

Enclosure 2
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form

Site Details **Box 1**

Site No. V00619

Site Name Steelfields (aka Riverbend)

Site Address: 312 Abby Street Zip Code: 14220
City/Town: Buffalo
County: Erie
Site Acreage: 182.000

Reporting Period: May 01, 2019 to May 01, 2020

	YES	NO
1. Is the information above correct?	☑	☐
If NO, include handwritten above or on a separate sheet.		
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?	☐	☑
3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?	☐	☑
4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?	☐	☑
If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.		
5. Is the site currently undergoing development?	☐	☑

Box 2

	YES	NO
6. Is the current site use consistent with the use(s) listed below? Commercial and Industrial	☑	☐
7. Are all ICs/ECs in place and functioning as designed?	☑	☐

IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Signature of Owner, Remedial Party or Designated Representative Date

SITE NO. V00619 **Box 3**

Description of Institutional Controls

Parcel	Owner	Institutional Control
122.16-1-8.1	Fort Schuyler Management Corporation	Ground Water Use Restriction Soil Management Plan Landuse Restriction Monitoring Plan O&M Plan

Area I: Maintain vegetative cover, land use restriction, fencing, groundwater use prohibition, soil/fill management, SVI evaluation or installation of vapor mitigation system before buildout. (8/16/07)

122.20-1-21	Fort Schuyler Management Corporation	Monitoring Plan Ground Water Use Restriction Soil Management Plan Landuse Restriction O&M Plan

Area II: Maintain vegetative cover until buildout whereupon one foot of clean cover or alternative with a demarcation layer is required, O&M of groundwater pre-treatment plant, O&M of containment cell, land use restriction, fencing, groundwater use prohibition, soil/fill management, SVI evaluation or installation of vapor mitigation system before buildout. (5/21/08)

122.20-1-3.1	Fort Schuyler Management Corporation	Ground Water Use Restriction Soil Management Plan Landuse Restriction Monitoring Plan O&M Plan

Area I: Maintain vegetative cover, land use restriction, fencing, groundwater use prohibition, soil/fill management, SVI evaluation or installation of vapor mitigation system before buildout. (8/16/07)

122.20-1-5.1	Fort Schuyler Management Corporation	Monitoring Plan Ground Water Use Restriction Soil Management Plan Landuse Restriction O&M Plan

Area II: Maintain vegetative cover until buildout whereupon one foot of clean cover or alternative with a demarcation layer is required, O&M of groundwater pre-treatment plant, O&M of containment cell, land use restriction, fencing, groundwater use prohibition, soil/fill management, SVI evaluation or installation of vapor mitigation system before buildout. (5/21/08)

132.08-1-6	Fort Schuyler Management Corporation	O&M Plan Ground Water Use Restriction Soil Management Plan

Landuse Restriction
Monitoring Plan

Area II: maintain vegetative cover until buildout whereupon one foot of clean cover or alternative with a demarcation layer is required, O&M of groundwater pre-treatment plant, O&M of containment cell, land use restriction, fencing, groundwater use prohibition, soil/fill management, SVI evaluation or installation of vapor mitigation system before buildout. (5/21/08)

132.08-1-7 Fort Schuyler Management Corp.

Monitoring Plan
Ground Water Use Restriction
Soil Management Plan
Landuse Restriction
O&M Plan

Area III: Maintain vegetative cover (limited area sampling required before buildout, failure to meet SSALs would require one foot of clean cover or alternative with a demarcation layer), O&M of passive groundwater treatment, land use restriction, fencing, groundwater use prohibition, soil/fill management, SVI evaluation or installation of vapor mitigation system before buildout. (5/21/08)

132.12-1-9.11 Fort Schuyler Management Corp.

Ground Water Use Restriction
Soil Management Plan
Landuse Restriction
O&M Plan

Monitoring Plan

Area III: Maintain vegetative cover (limited area sampling required before buildout, failure to meet SSALs would require one foot of clean cover or alternative with a demarcation layer), O&M of passive groundwater treatment, land use restriction, fencing, groundwater use prohibition, soil/fill management, SVI evaluation or installation of vapor mitigation system before buildout. (5/21/08)

Box 4

Description of Engineering Controls

Parcel	Engineering Control
122.16-1-8.1	Cover System Fencing/Access Control
122.20-1-21	Groundwater Treatment System Cover System Groundwater Containment Leachate Collection Fencing/Access Control
122.20-1-3.1	Cover System Fencing/Access Control
122.20-1-5.1	Groundwater Treatment System Cover System Fencing/Access Control
132.08-1-6	Groundwater Treatment System Cover System Groundwater Containment Leachate Collection

Parcel	Engineering Control
	Fencing/Access Control
132.08-1-7	
	Cover System
	Fencing/Access Control
132.12-1-9.11	
	Cover System
	Fencing/Access Control

Box 5

Periodic Review Report (PRR) Certification Statements

1. I certify by checking "YES" below that:

   a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

   b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and compete.

YES	NO
☑	☐

2. If this site has an IC/EC Plan (or equivalent as required in the Decision Document), for each Institutional or Engineering control listed in Boxes 3 and/or 4, I certify by checking "YES" below that all of the following statements are true:

   (a) the Institutional Control and/or Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

   (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

   (c) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control;

   (d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

   (e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

YES	NO
☑	☐

IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

_____ _____

Signature of Owner, Remedial Party or Designated Representative Date

IC CERTIFICATIONS
SITE NO. V00619

Box 6

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 1,2, and 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Scott Bateman (print name) at Fort Schuyler Management Corporation (print business address),

am certifying as Owner (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Signature of Owner, Remedial Party, or Designated Representative Rendering Certification

5/29/20
Date

IC/EC CERTIFICATIONS

Box 7

Professional Engineer Signature

I certify that all information in Boxes 4 and 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I, Scott Nostrand, P.E. at Barton and Loguidice, D.P.C., 443 Electronics Parkway, Liverpool, New York, 13088

am certifying as a Professional Engineer for the Fort Schuyler Management Corporation
(Owner or Remedial Party)

Signature of Professional Engineer, for the Owner or Remedial Party, Rendering Certification	Stamp (Required for PE)	June 1, 2020 Date

APPENDIX B

AREA II
ANNUAL GWPTS REPORT &
BSA SEMI-ANNUAL COMPLIANCE MONITORING REPORTS

ORION
Environmental Solutions, LLC

ANNUAL PROGRESS REPORT FOR THE OPERATION, MAINTENANCE, AND MONITORING SERVICES

FSMC RiverBend Site
(Site No. V00619-9)
312 Abby Street
Buffalo NY, 14210

PROGRESS REPORT No. 20
REPORTING PERIOD ENDING DECEMBER 31, 2019

Project Description

This Annual Progress Report has been prepared for the Fort Schuyler Management Corporation's RiverBend Groundwater Pre-Treatment System (GWPTS) located at 312 Abby Street, Buffalo, NY in accordance with the requirements of the Site Management Plan and at the request of the NYSDEC. In accordance with a NYSDEC-approved Modification Request (dated April 25, 2011), this Progress Report covers one-year operation and maintenance of the GWPTS from January 1, 2019 through December 31, 2019.

1.0 Treatment Statistics

- Approximately 9,943,258 gallons of groundwater was collected and treated over the current monitoring period averaging 27,184 gallons per day.
- System was on-line for approximately 98% of the time.
- System was off-line for approximately 2% of the time for routine repairs and maintenance.
- Approximately 285.4 pounds of tar was generated from the oil/water separator or approximately 23.8 pounds/month. Based on this monthly quantity (less than 220 pounds per calendar month), a Hazardous Waste Report is not required making FSMC's RiverBend Site a Conditionally Exempt Small Quantity Generator (CESQG) in accordance with Part 371.1(f). For comparison, quantities of generated tar during previous years of operation included: ± 659 pounds in 2012, ± 910 pounds in 2013, ± 149 pounds in 2014, ± 310 pounds in 2015, ± 1,175 pounds in 2016, ± 2,535 pounds in 2017, and ± 157 pounds in 2018.
- No tar material was transported and/or disposed off-site during 2019

2.0 General Schedule of Maintenance

- Regular Maintenance Items

  - 2 bag filter changes and bag filter canister cleaning per week, or as necessary, with periodic off-site remote monitoring via the internet.
  - Carbon filtration vessel back-washing: 2 times per week, or as necessary.
  - Decant tar from separator: 2 times per week, or as necessary
  - Influent tank, effluent tank, and oil/water separator checked monthly and cleaning was not required
- March 5, 2019 - Flow meter was calibrated.
- May thru October 2019 – Mowed grass area and weed trimmed fence line around the treatment building, as necessary.
- May 24, 2019 – Annual certification/inspection (by others) associated with the Periodic Review Report (PRR) in accordance with DER-10 was performed.
- June 24-27, 2019 – ORC first semi-annual monitoring in Area III was performed.
- June 28, 2019 – Changed the carbon in lead vessel #1. Lead and lag vessels were reversed at that time (vessel #1 became the lag and #2 the lead).
- July 2019 – Long-Term Groundwater Monitoring was performed in Areas I, II, and III. ORC monitoring in Area III was also performed.
- October 2019 – Mowed final cover and weed trimmed penetrations associated with the Area II Containment Cell.
- December 2-5, 2016 – ORC second semi-annual monitoring in Area III was performed.
- December 17, 2019 – Changed the carbon in lead vessel #2. Lead and lag vessels were reversed at that time (vessel #2 became the lag and #1 the lead).
- December 23, 2019 – Cleaned the influent tank, effluent tank, and oil/water separator.

**ANNUAL PROGRESS REPORT FOR THE
OPERATION, MAINTENANCE, AND MONITORING SERVICES**

**FSMC RiverBend Site
(Site No. V00619-9)**
312 Abby Street
Buffalo NY, 14210

**PROGRESS REPORT No. 20
REPORTING PERIOD ENDING DECEMBER 31, 2019**

3.0 Attachments/Logs

- Attachment 1: Graph of monitored flows through treatment system for 2019
- Attachment 2: Maintenance Logs for 2019 (01/02/19 thru 12/30/19)
- Attachment 3: Generated Volume of Tar Material for 2019

ATTACHMENT 1

MONITORED FLOWS VS. TIME

ORION

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Environmental Solutions, LLC

ATTACHMENT 1

MONITORED FLOWS v. TIME
2019

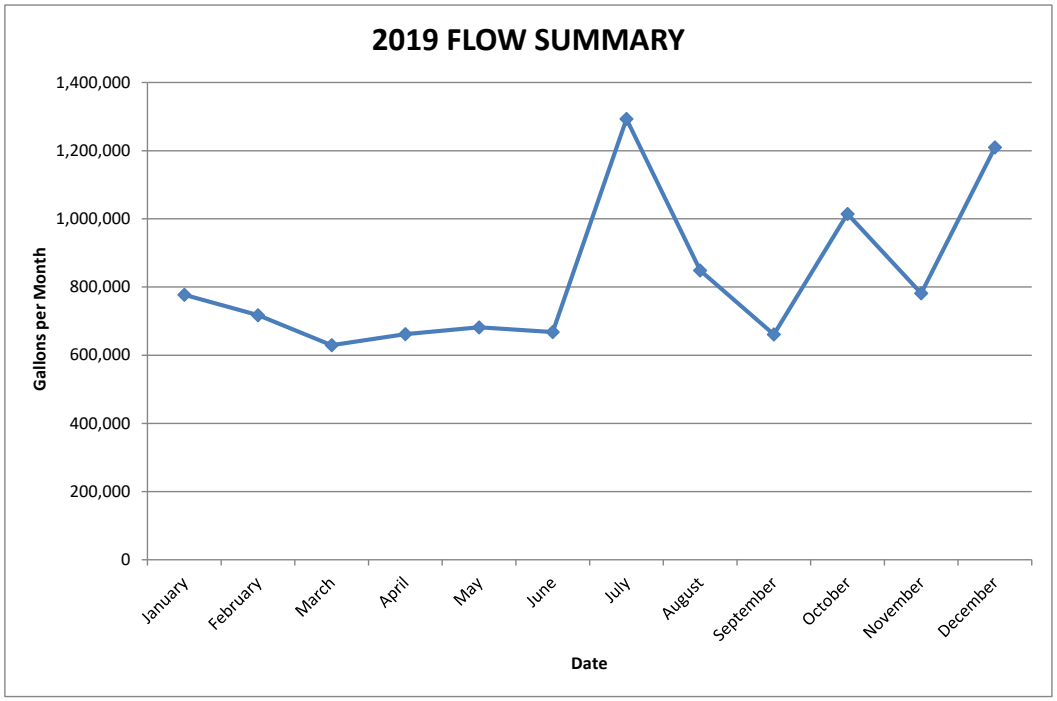
Groundwater Pre-Treatment System (GWPTS)
FSMC - RiverBend Site
(Site No. V00619-9)
Buffalo, New York

2019

Month	GPMo	GPD	GPM
January	777,286	25,074	17
February	717,380	25,621	18
March	629,262	20,299	14
April	661,581	22,053	15
May	681,720	21,991	15
June	667,769	22,259	15
July	1,293,240	41,717	29
August	848,454	27,369	19
September	660,948	22,032	15
October	1,014,413	32,723	23
November	781,483	26,049	18
December	1,209,722	39,023	27

Total	9,943,258		
Min.	629,262	20,299	14
Max.	1,293,240	41,717	29
Ave.	828,605	27,184	19

Since August 2008:			
Total	112,367,335	NA	
Min.	191,242	6,169	December 2010
Max.	2,318,235	77,104	March 2010
Ave.	832,351	27,355	



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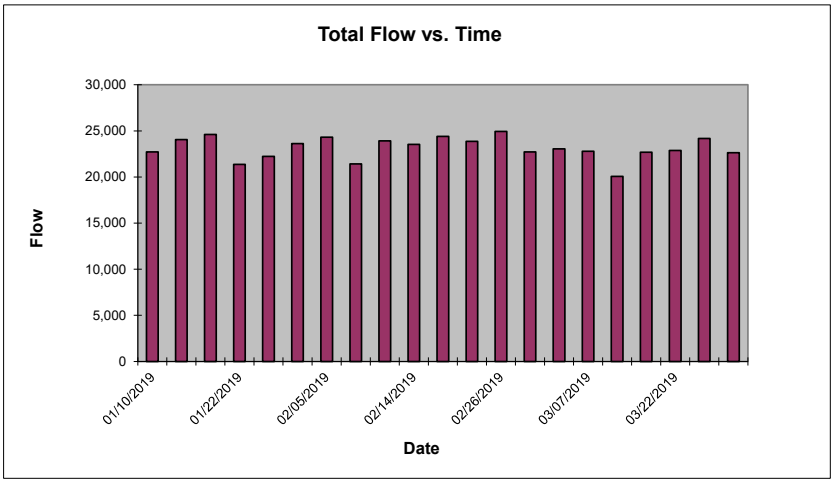
ATTACHMENT 1

MONITORED FLOWS v. TIME
FIRST QUARTER 2019

Groundwater Pre-Treatment System (GWPTS)
FSMC - RiverBend Site
(Site No. V00619-9)
Buffalo, New York

Date	Total Flow	Daily Avg
01/10/2019	9,473,644	22,725
01/14/2019	9,569,903	24,065
01/16/2019	9,619,129	24,613
01/22/2019	9,747,412	21,381
01/24/2019	9,791,894	22,241
01/29/2019	9,910,054	23,632
02/05/2019	10,080,345	24,327
02/08/2019	10,144,630	21,428
02/12/2019	10,240,339	23,927
02/14/2019	10,287,420	23,541
02/19/2019	10,409,506	24,417
02/21/2019	10,457,254	23,874
02/26/2019	10,581,967	24,943
02/28/2019	10,627,434	22,734
03/05/2019	10,742,699	23,053
03/07/2019	10,788,303	22,802
03/12/2019	10,888,676	20,075
03/19/2019	11,047,540	22,695
03/22/2019	11,116,198	22,886
03/25/2019	11,188,779	24,194
03/28/2019	11,256,696	22,639



Total Quarterly Flow: 2,123,928 gallons
Ave. Quarterly Flow: 23,664 gallons/day

JANUARY	
777,286	gallons/month
31	days
25,074	gallons/day
17	gallons/min

FEBRUARY	
717,380	gallons/month
28	days
25,621	gallons/day
18	gallons/min

MARCH	
629,262	gallons/month
31	days
20,299	gallons/day
14	gallons/min

Notes:
* = flow meter calibrated on 03/05/19

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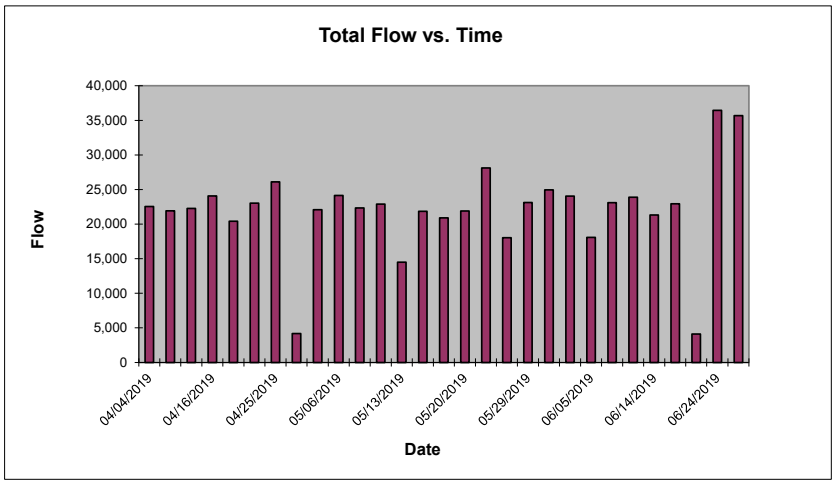
ATTACHMENT 1

MONITORED FLOWS v. TIME
SECOND QUARTER 2019

Groundwater Pre-Treatment System (GWPTS)
FSMC - RiverBend Site
(Site No. V00619-9)
Buffalo, New York

Date	Total Flow	Daily Avg
04/04/2019	11,414,495	22,543
04/09/2019	11,524,171	21,935
04/11/2019	11,568,702	22,266
04/16/2019	11,689,150	24,090
04/18/2019	11,730,010	20,430
04/23/2019	11,845,184	23,035
04/25/2019	11,897,420	26,118
04/30/2019	11,918,277	4,171
05/03/2019	11,984,522	22,082
05/06/2019	12,056,940	24,139
05/08/2019	12,101,610	22,335
05/10/2019	12,147,425	22,908
05/13/2019	12,190,912	14,496
05/15/2019	12,234,635	21,862
05/17/2019	12,276,442	20,904
05/20/2019	12,342,124	21,894
05/22/2019	12,398,360	28,118
05/24/2019	12,434,455	18,048
05/29/2019	12,550,070	23,123
05/31/2019	12,599,997	24,964
06/03/2019	12,672,167	24,057
06/05/2019	12,708,354	18,094
06/07/2019	12,754,583	23,115
06/10/2019	12,826,283	23,900
06/14/2019	12,911,627	21,336
06/18/2019	13,003,386	22,940
06/21/2019	13,015,735	4,116
06/24/2019	13,125,058	36,441
06/28/2019	13,267,766	35,677



Total Quarterly Flow: 2,011,070 gallons
Ave. Quarterly Flow: 22,101 gallons/day

APRIL	
661,581	gallons/month
30	days
22,053	gallons/day
15	gallons/min

MAY	
681,720	gallons/month
31	days
21,991	gallons/day
15	gallons/min

JUNE	
667,769	gallons/month
30	days
22,259	gallons/day
15	gallons/min

Notes:
* = flow meter calibrated on 03/05/19

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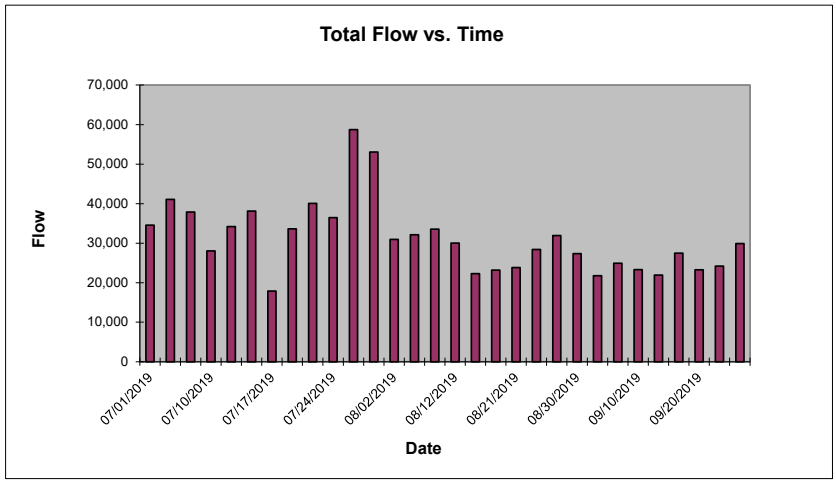
ATTACHMENT 1

MONITORED FLOWS v. TIME
THIRD QUARTER 2019

Groundwater Pre-Treatment System (GWPTS)
FSMC - RiverBend Site
(Site No. V00619-9)
Buffalo, New York

Date	Total Flow	Daily Avg
07/01/2019	13,371,506	34,580
07/03/2019	13,453,700	41,097
07/08/2019	13,643,181	37,896
07/10/2019	13,699,252	28,036
07/12/2019	13,767,625	34,187
07/15/2019	13,881,980	38,118
07/17/2019	13,917,756	17,888
07/19/2019	13,985,044	33,644
07/22/2019	14,105,224	40,060
07/24/2019	14,178,138	36,457
07/26/2019	14,295,644	58,753
07/31/2019	14,561,006	53,072
08/02/2019	14,622,924	30,959
08/05/2019	14,719,371	32,149
08/08/2019	14,820,008	33,546
08/12/2019	14,940,160	30,038
08/15/2019	15,007,046	22,295
08/19/2019	15,099,850	23,201
08/21/2019	15,147,487	23,819
08/23/2019	15,204,295	28,404
08/26/2019	15,300,114	31,940
08/30/2019	15,409,460	27,337
09/03/2019	15,496,568	21,777
09/05/2019	15,546,401	24,917
09/10/2019	15,662,931	23,306
09/12/2019	15,706,784	21,927
09/17/2019	15,844,068	27,457
09/20/2019	15,913,840	23,257
09/24/2019	16,010,610	24,193
09/26/2019	16,070,408	29,899



Total Quarterly Flow: 2,802,642 gallons
Ave. Quarterly Flow: 30,373 gallons

JULY	
1,293,240	gallons/month
31	days
41,717	gallons/day
29	gallons/min

AUGUST	
848,454	gallons/month
31	days
27,369	gallons/day
19	gallons/min

SEPTEMBER	
660,948	gallons/month
30	days
22,032	gallons/day
15	gallons/min

Notes:
* = flow meter calibrated on 03/05/19

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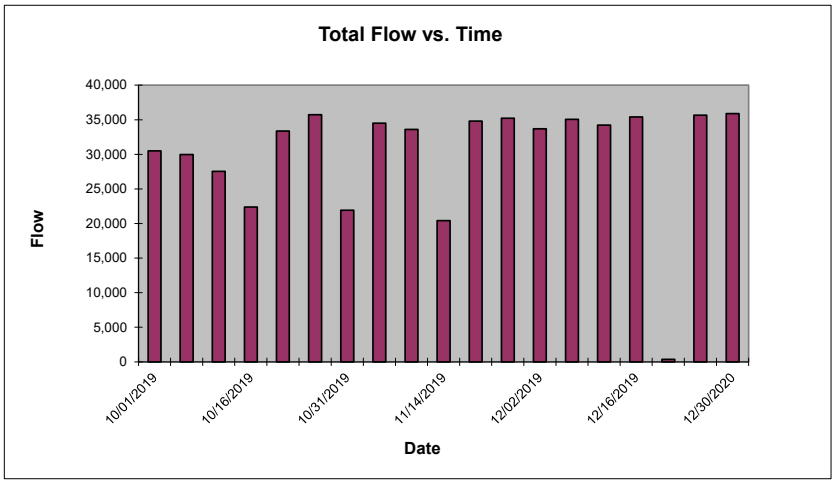
Environmental Solutions, LLC

ATTACHMENT 1

MONITORED FLOWS v. TIME
FOURTH QUARTER 2019

Groundwater Pre-Treatment System (GWPTS)
FSMC - RiverBend Site
(Site No. V00619-9)
Buffalo, New York

Date	Total Flow	Daily Avg
10/01/2019	16,222,950	30,508
10/04/2019	16,312,889	29,980
10/08/2019	16,423,106	27,554
10/16/2019	16,602,145	22,380
10/21/2019	16,769,020	33,375
10/28/2019	17,019,014	35,713
10/31/2019	17,084,821	21,936
11/05/2019	17,257,410	34,518
11/08/2019	17,358,251	33,614
11/14/2019	17,480,841	20,432
11/19/2019	17,654,965	34,825
11/25/2019	17,866,304	35,223
12/02/2019	18,102,210	33,701
12/05/2019	18,207,436	35,075
12/11/2019	18,412,843	34,235
12/16/2019	18,589,915	35,414
12/20/2020	18,718,565	348
12/26/2020	18,932,520	35,659
12/30/2020	19,076,026	35,877



Total Quarterly Flow: 3,005,618 gallons
Ave. Quarterly Flow: 32,599 gallons

OCTOBER	
1,014,413	gallons/month
31	days
32,723	gallons/day
23	gallons/min

NOVEMBER	
781,483	gallons/month
30	days
26,049	gallons/day
18	gallons/min

DECEMBER	
1,209,722	gallons/month
31	days
39,023	gallons/day
27	gallons/min

Notes:
* = flow meter calibrated on 03/05/19

ATTACHMENT 2

FIELD LOGS

ORION

Waste Water T[illegible]ment Plant - Riverbend

Maintenance Log

Date	Flow Meter Reading	Lead Tank		Back Flush		Bag Filter Change		Bag Pressure (PSI)		Decant Oil Seperator	Tar in Drum (inches)	Instantaneous Flow	
		Tank 1	Tank 2	Tank 1	Tank 2	Tank 1	Tank 2	Before	After			Before	After
9-2-18	7385297		✓	✓	✓	✓	✓	22.5	21.8	✓	~~10.75~~	71	81
9-6-18	7416203		✓	✓	✓	✓	✓	22.0	20.8	✓	-	73	85
"G" 9-11-18	7483049		✓	✓	✓	✓	✓	22.4	20.9	✓	-	70	84
9-14-18	7512836		✓	✓	✓	✓	✓	22.5	21.0	✓	-	69	83
9-19-18	7563470		✓	✓	✓	✓	✓	22.3	20.9	✓	9[illegible]25	76	83
9-25-18	7624987		✓	✓	✓	✓	✓	22.6	21.0	✓	-	69	86
"G" 9-27-18	7647974		✓	✓	✓	✓	✓	22.4	20.8	✓	-	78	80
10-2-18	7702397		✓	✓	✓	✓	✓	22.0	20.9	✓	-	72	84
10-4-18	7724745		✓	✓	✓	✓	✓	22.3	21.3	✓	90.5	75	83
10-9-18	7782939		✓	✓	✓	✓	✓	21.9	20.8	✓	-	74	84
10-11-18	7804430		✓	✓	✓	✓	✓	21.8	21.2	✓	-	75	88
10-17-18	7876161		✓	✓	✓	✓	✓	22.8	21.4	✓	-	70	87
10-23-18	7944661		✓	✓	✓	✓	✓	22.5	21.0	✓	~~9~~9.75	72	82
"G" 10-25-18	7972466		✓	✓	✓	✓	✓	22.2	21.2	✓	-	74	86
10-29-18	8017028		✓	✓	✓	✓	✓	22.9	21.4	✓	-	71	85
11-2-18	8069105		✓	✓	✓	✓	✓	22.7	21.2	✓	-	74	87
11-7-18	8134756		✓	✓	✓	✓	✓	22.6	21.0	✓	10"	73	84
11-13-18	8204377		✓	✓	✓	✓	✓	22.8	21.4	✓	-	70	86
11-20-18	8317633		✓	✓	✓	✓	✓	22.6	21.2	✓	-	76	85
11-21-18	8349378		✓	✓	✓	✓	✓	21.7	20.[illegible]0	✓	-	74	[illegible]
11-28-18	8506146		✓	✓	✓	✓	✓	22.6	21.4	✓	10"	66	83
"G" 11-30-18	8554663		✓	✓	✓	✓	✓	22.5	21.1	✓	-	71	86
12-3-18	8625161		✓	✓	✓	✓	✓	22.4	20.9	✓	-	74	85
12-7-18	8717035		✓	✓	✓	✓	✓	22.6	21.0	✓	-	70	86
12-12-18			✓			✓	✓			✓	10.[illegible]5		
"C" → 12-13-18	8827626	✓		✓	✓			22.7	21.3	✓	-		
12-18-18	8949664	✓		✓	✓	✓	✓	23.1	20.8	✓	-	67	90
12-21-18		✓		✓	✓	✓	✓	21.9	20.[illegible]3	✓	-	89	92
12-26-18	9132468	✓		✓	✓	✓	✓	22.9	20.7	✓	10.[illegible]5	65	90
1-2-19	9285781	✓		✓	✓	✓	✓	22.2	20.6	✓	-	~~69~~74	91
1-8-19	9425679	✓		✓	✓	✓	✓	22.1	20.2	✓	-	75	95
											-		

"G" – Greased Pump

* "C" – 12-13-18 - Carbon Change Tank 2. Switch to Tank 1 as lead.

** - 10/18 - Mike (IOB) takes yearly water samples

Waste Water Treatment Plant - Riverbend

Maintenance Log

Date	Flow Meter Reading	Lead Tank		Back Flush		Bag Filter Change		Bag Pressure (PSI)		Decant Oil Seperator	Tar in Drum (inches)	Instantaneous Flow GPM		Sump
		Tank 1	Tank 2	Tank 1	Tank 2	Tank 1	Tank 2	Before	After			Before	After	
1-10-19	9473644	✓		✓	✓	✓	✓	21.5	20.0	✓	10.75	79	95	✓
1-14-19	9569903	✓		✓	✓	✓	✓	21.4	20.1	✓	–	81	94	✓
1-16-19	9619179	✓		✓	✓	✓	✓	21.2	19.9	✓	–	82	93	✓
1-22-19	9747412	✓		✓	✓	✓	✓	21.7	20.4	✓	13" –	75	92	✓
1-24-19	9791894	✓		✓	✓	✓	✓	21.4	20.5	✓	14.5	80	95	✓
1-29-19	9910054	✓		✓	✓	✓	✓	21.7	20.3	✓	17	73	93	✓
2-5-19	10080345	✓		✓	✓	✓	✓	22.3	20.5	✓	[redacted] –	81	96	✓
2-8-19	10144630	✓		✓	✓	✓	✓	21.0	20.2	✓	–	80	94	✓
2-12-19	10240335	✓		✓	✓	✓	✓	21.5	20.4	✓	18.75"	77	92	✓
2-14-19	10287420	✓		✓	✓	✓	✓	21.4	20.2	✓	–	81	91	✓
2-19-19	10409506	✓		✓	✓	✓	✓	21.6	20.1	✓	20.5 –	80	90	✓
2-21-19	10457254	✓		✓	✓	✓	✓	21.2	20.4	✓	–	79	94	✓
2-26-19	10581967	✓		✓	✓	✓	✓	21.5	20.1	✓	21.00"	82	94	✓
2-28-19	10687434	✓		✓	✓	✓	✓	21.6	20.5	✓	–	79	91	✓
3-5-19	10742699	✓		✓	✓	✓	✓	21.4	20.6	✓	–	81	92	✓
3-7-19	10788303	✓		✓	✓	✓	✓	21.0	20.1	✓	22.5 –	80	90	✓
3-12-19	10888676	✓		✓	✓	✓	✓	21.4	20.2	✓	24"	81	93	✓
3-19-19	11047540	✓		✓	✓	✓	✓	21.3	20.1	✓	–	[redacted]77	92	✓
3-22-19	11116198	✓		✓	✓	✓	✓	21.4	20.3	✓	–	82	91	✓
3-25-19	11188779	✓		✓	✓	✓	✓	21.3	20.1	✓	–	80	92	✓
3-28-19	11256696	✓		✓	✓	✓	✓	21.5	20.2	✓	26"	79	93	✓
4-4-19	11414495	✓		✓	✓	✓	✓	21.8	20.4	✓	–	78	89	✓
4-9-19	11524171	✓		✓	✓	✓	✓	21.7	20.5	✓	–	81	92	✓
4-11-19	11568702	✓		✓	✓	✓	✓	21.3	20.1	✓	–	80	93	✓
4-16-19	11689150	✓		✓	✓	✓	✓	21.6	20.4	✓	26.5"	77	91	✓
4-18-19	11730010	✓		✓	✓	✓	✓	21.3	20.2	✓	–	80	92	✓
4-23-19	11845184	✓		✓	✓	✓	✓	21.2	20.1	✓	–	79	90	✓
4-25-19	11897420	✓		✓	✓	✓	✓	21.2		✓	–	82	93	✓
4-30-19	11918277	✓		✓	✓	✓	✓	26.3	21.1	✓	26.5"	0.5	93	✓
5-3-19	11984522	✓		✓	✓	✓	✓	20.8	20.8	✓	27.0"	81	81	✓
5-6-19	12056940	✓		✓	—	—	—	21.6	20.8	✓	–	88	88	✓
5-8-19	12101610	✓		—	—	—	—	20.9	20.9	✓	–	89	93	
5-10-19	12147425	✓		✓	✓	✓	✓	21.2	20.3	✓	27.0"	80	94	

"G" I 47K

"G"

"B"

* 3-12 - PS 1 off + Sump High - Pump Washer warning on. CO empties sump to inspect. Pump Smoking - [redacted] - Fixed - Keep eye on
5-1 PS-2 off - need to repair discharge hose in PS.

'G' - Pump Fittings Greased
» Carbon Changed Tank 2 12-13-18

2-27-19
* Outflow Motor Re-Calibrated

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MAINTENANCE LOG
Area II: Former Donner Hann Coke Plant Parcel

Fort Schuyler Management Corporation
RiverBend Site
Buffalo, New York

SUMP LS 1/2/3 VERIFY OPERATION

Date	Flow Meter Reading	Lead Tank		Back Flush		Bag Filter Change		Bag Pressure (PSI)		Decant Oil Seperator	Tar in Drum (inches)	Instantaneous Flow		Decant Oil Seperator
		Tank 1	Tank 2	Tank 1	Tank 2	Tank 1	Tank 2	Before	After			Before	After	
5-13-19	12190912	✓		✓	—	—	—	21.0	20.5	✓	27	81.6	84.3	✓
5-15-19	12234635	✓		—	—	—	—	20.5	—	✓	27	77.6	—	✓
5-17-19	12276442	✓		✓	✓	✓	✓	21.9	20.6	✓	27	80.1	85.5	✓
5-20-19	12341224	✓		✓	—	—	—	20.7	—	✓	27	83.0	—	✓
5-22-19	12398360	✓		—	—	—	—	21.2	—	✓	27	78.5	—	✓
5-24-19	12434455	✓		✓	✓	✓	✓	21.8	20.8	✓	27	77.2	85.2	✓
5-29-19	12550070	✓		✓	—	—	—	21.2	20.7	✓	27	79.6	82.3	✓
5-31-19	12599997	✓		✓	✓	✓	✓	22.1	20.1	✓	27	80.1	86.4	✓
6-3-19	12672167	✓		✓	—	—	—	21.1	20.3	✓	27	82.1	82.5	✓
6-5-19	12708354	✓		✓	—	—	—	21.3	20.3	✓	27	79.4	81.1	✓
6-7-19	12754583	✓		✓	✓	✓	✓	21.1	20.2	✓	27	76.9	85.7	✓
6-10-19	12826283	✓		✓	—	—	—	21.6	21.3	✓	27	77.4	83.1	✓ ✓
6-14-19	12911627	✓		✓	—	✓	✓	22.0	21.9	✓	27	76.4	82.1	✓
6-18-19	13003386	✓		✓	✓	—	—	21.8	20.8	✓	27	75.8	81.9	✓
6-21-19	13015735	✓		✓	✓	✓	✓	26.5	20.6	✓	27	16.5	82.5	✓
6-24-19	13125056	✓		✓	—	—	—	21.8	20.2	✓	27	81.2	81.3	✓
6-28-19	13267766	✓		—	✓	✓	✓	21.2	20.3	✓	27	74.3	80.4	✓ ✓
	— CARBON CHANGE		✓	6-28-19 TANK 1 — CHANGE								TANK 2 TO LEAD		
7-1-19	13371506		✓	✓	✓	—	—	22.7	21.9	✓	27	70.2	77.2	✓
7-3-19	13453705		✓	✓	✓	✓	✓	23.2	20.6	✓	27	67.2	82.6	✓
7-8-19	13643181		✓	✓	✓	—	—	21.8	21.5	✓	27	69.6	76.9	✓ ✓
7-10-19	13699252		✓	✓	✓	✓	✓	22.1	20.5	✓	27	68.7	84.5	✓
7-12-19	13761625		✓	✓	✓	—	—	21.3	20.6	✓	27	79.2	82.3	✓
7-15-19	13881980		✓	✓	✓	—	—	22.8	21.7	✓	27	68.3	74.5	✓
7-17-19	13917756		✓	✓	✓	✓	✓	22.5	20.4	✓	27	63.1	80.2	✓ ✓
7-19-19	13985044		✓	✓	✓	—	—	21.1	20.3	✓	27	80.1	81.5	✓
7-22-19	14105224		✓	✓	✓	✓	✓	22.0	21.8	✓	27	71.4	80.9	✓
7-24-19	14178138		✓	✓	✓	✓	✓	22.5	21.8	✓	27	70.6	84.5	✓ FIXED FLOAT STUCK
7-26-19	14295644		✓	✓	✓	—	—	21.2	21.1	✓	27	88.2	84.6	✓
7-31-19	14561006		✓	✓	✓	—	—	21.8	20.1	✓	27	76.5	82.3	✓ ✓
8-2-19	14622924		✓	✓	✓	✓	✓	21.3	19.9	✓	27	74.7	86.7	✓ ✓

5-15-19 - HIGH LEVEL ALARM - EFFLUENT TANK - DISCONNECTED #8 IN SCADA - RESET - LS-1 ~~REMAINS RESTORING~~ ON - LIGHT NOT WORKING

6-7-19 - COMPUTER DOWN - LOCKED OUT PLC BACK ONLINE

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MAINTENANCE LOG
Area II: Former Donner Hann Coke Plant Parcel

Fort Schuyler Management Corporation
RiverBend Site
Buffalo, New York

CHECK CIRCK

Date	Flow Meter Reading	Lead Tank		Back Flush		Bag Filter Change		Bag Pressure (PSI)		Decant Oil Seperator	Tar in Drum (inches)	Instantaneous Flow		SUMP Decant Oil Seperator	PS-FLOW
		Tank 1	Tank 2	Tank 1	Tank 2	Tank 1	Tank 2	Before	After			Before	After		
8-5-19	14719371		✓	✓	✓	—	—	21.5	21.2	✓	27	77.2	82.3	✓	
8-8-19	14820008		✓	✓	✓	✓	✓	23.5	19.7	✓	27	62.5	87.1	✓	
8-12-19	14940160		✓	✓	✓	—	—	21.8	21.2	✓	27	71.4	78.8	✓	
8-15-19	15007046		✓	✓	✓	✓	✓	22.6	19.9	✓	27	62.9	83.1	✓	✓
8-19-19	15099850		✓	✓	✓	—	—	21.1	20.1	✓	27	78.6	82.1	✓	
8-21-19	15147927		✓	✓	✓	—	—	21.1	20.9	✓	27	72.3	78.1	✓	
8-23-19	15204295		✓	✓	✓	✓	✓	21.4	20.6	✓	27	74.4	83.4	✓	✓
8-26-19	15300114		✓	✓	✓	—	—	21.0	20.7	✓	27	83.2	84.1	✓	
8-30-19	15409460		✓	✓	✓	—	—	20.2	19.6	✓	27	79.1	81.0	✓	✓
9-3-19	15496568		✓	✓	✓	✓	✓	21.4	20.3	✓	27	78.7	86.8	✓	
9-5-19	15546401		✓	✓	✓	—	—	20.3	20.5	✓	27	79.4	84.1	✓	
9-10-19	15662931		✓	✓	✓	✓	✓	20.4	20.6	✓	27	80.6	83.1	✓	
9-12-19	15706784		✓	✓	✓	—	—	20.9	20.6	✓	27	77.4	81.3	✓	✓
9-17-19	15844068		✓	✓	✓	✓	✓	21.7	20.3	✓	27	79.1	80.5	✓	✓
9-20-19	15938840		✓	✓	✓	—	—	20.8	20.1	✓	27	79.1	81.3	✓	
9-24-19	16010610		✓	✓	✓	—	—	20.6	20.6	✓	27	76.0	79.8	✓	
9-26-19	16070408		✓	✓	✓	—	—	20.8	20.2	✓	27	78.2	79.8	✓	✓
10-01-19	16222950		✓	✓	✓	✓	✓	21.5	20.3	✓	27	75.8	78.3	✓	
10-04-19	16312889		✓	✓	✓	—	—	21.2	20.7	✓	27	79.8	81.6	✓	✓
10-08-19	16423006		✓	✓	✓	✓	✓	21.9	21.4	✓	28	78.5	79.5	✓	
10-16-19	16602145		✓	✓	✓	✓	✓	21.2	20.6	✓	28	76.8	81.4	✓	✓
10-21-19	16769020		✓	✓	✓	—	—	21.5	20.9	✓	28	79.5	81.2	✓	✓
10-28-19	17019014		✓	✓	✓	✓	✓	23.0	20.9	✓	28	67.8	80.1	✓	
10-31-19	17084821		✓	✓	✓	—	—	21.2	21.2	✓	28	78.1	78.8	✓	✓
11-5-19	17257410		✓	✓	✓	✓	✓	23.6	21.3	✓	28	65.3	77.4	✓	
11-8-19	17356251		✓	✓	✓	—	—	22.5	21.3	✓	28	75.4	76.9	✓	✓
11-14-19	17480841		✓	✓	✓	✓	✓	26.7	21.5	✓	28	68.2	79.9	✓	
11-19-19	17654965		✓	✓	✓	✓	✓	24.2	21.8	✓	28	52.9	77.1	✓	✓
11-25-19	17866304		✓	✓	✓	✓	✓	24.8	21.1	✓	28	36.0	73.4	✓	
12-2-19	18102210		✓	✓	✓	✓	✓	24.3	20.4	✓	28	42.9	70.2	✓	
12-5-19	18207436		✓	✓	✓	✓	✓	22.9	21.7	✓	28	63.0	70.8	✓	✓
12-11-19	18412843		✓	✓	✓	✓	✓	23.6	21.3	✓	28	56.9	72.9	✓	

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MAINTENANCE LOG
Area II: Former Donner Hann Coke Plant Parcel

Fort Schuyler Management Corporation
RiverBend Site
Buffalo, New York

Date	Flow Meter Reading	Lead Tank		Back Flush		Bag Filter Change		Bag Pressure (PSI)		Decant Oil Seperator	Tar in Drum (inches)	Instantaneous Flow		Check Sump Decant Oil Seperator	Check AS-Flow
		Tank 1	Tank 2	Tank 1	Tank 2	Tank 1	Tank 2	Before	After			Before	After		
12/16/19	18589915		✓	✓	✓	✓	✓	23.1	20.5	✓	~~28~~	54.9	71.3	✓	✓
	- CARBON CHANGE - 12/17/19 TANK 2 - CHANGE TANK 1 to LEAD														
12/20/19	18718565	✓		✓	✓	✓	✓	23.4	22.4	✓	28	33.9	75.8	✓	✓
12/26/19	18932520	✓		✓	✓	✓	✓	24.6	21.4	✓	28	~~44.9~~	68.8	✓	✓
12/30/19	19076026	✓		✓	✓	✓	✓	23.1	21.8	✓	28	56.2	72.7	✓	✓
1/2/20	19175075	✓		✓	✓	✓	✓	22.6	21.7	✓	28	65.8	75.2	✓	✓
1/7/20	19363689	✓		✓	✓	✓	✓	22.3	20.9	✓	28	62.6	72.0	✓	✓
1/10/20	19455691	✓		✓	✓	✓	✓	22.7	21.7	✓	28	66.6	74.2	✓	✓
1/15/20	182699	✓		✓	✓	✓	✓	23.1	21.8	✓	28*	62.5	71.1	✓	✓
1/17/20	251984	✓		✓	✓	✓	✓	22.8	21.6	✓	0	66.4	71.3	✓	✓
1/21/20	395054	✓		✓	✓	✓	✓	22.8	21.8	✓	0	61.6	71.1	✓	✓
1/24/20	486169	✓		✓	✓	✓	✓	21.8	21.3	✓	0	65.3	70.5	✓	✓
1/28/20	624882	✓		✓	✓	✓	✓	22.6	21.5	✓	0	63.1	70.8	✓	✓
1/31/20	739248	✓		✓	✓	✓	✓	22.7	21.1	✓	0	67.0	71.1	✓	✓
2-5-20	788616	✓		✓	✓	✓	✓	21.3	21.9	✓	0	0	79	✓	✓
2-11-20	992429	✓		✓	✓	✓	✓	22.2	21.7	✓	0	73.4	70.9	✓	✓
2-14-20	1089576	✓		✓	✓	✓	✓	22.5	21.6	✓	0	66.8	68.7	✓	✓
2-18-20	1236374	✓		✓	✓	✓	✓	22.2	21.2	✓	0	65.5	71.3	✓	✓
2-21-20	1339862	✓		✓	✓	✓	✓	22.4	21.4	✓	0	62.1	72.5	✓	✓
2-26-20	1520224	✓		✓	✓	✓	✓	23.1	21.2	✓	0	58.1	71.6	✓	✓

@ 01/10/2020 Flow meter calibration and reset to zero (0)
@ 01/17/2020 Picked up 1 drum to date (3/4 full)

ATTACHMENT 3

GENERATED VOLUME OF TAR MATERIAL

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Environmental Solutions, LLC

ATTACHMENT 3

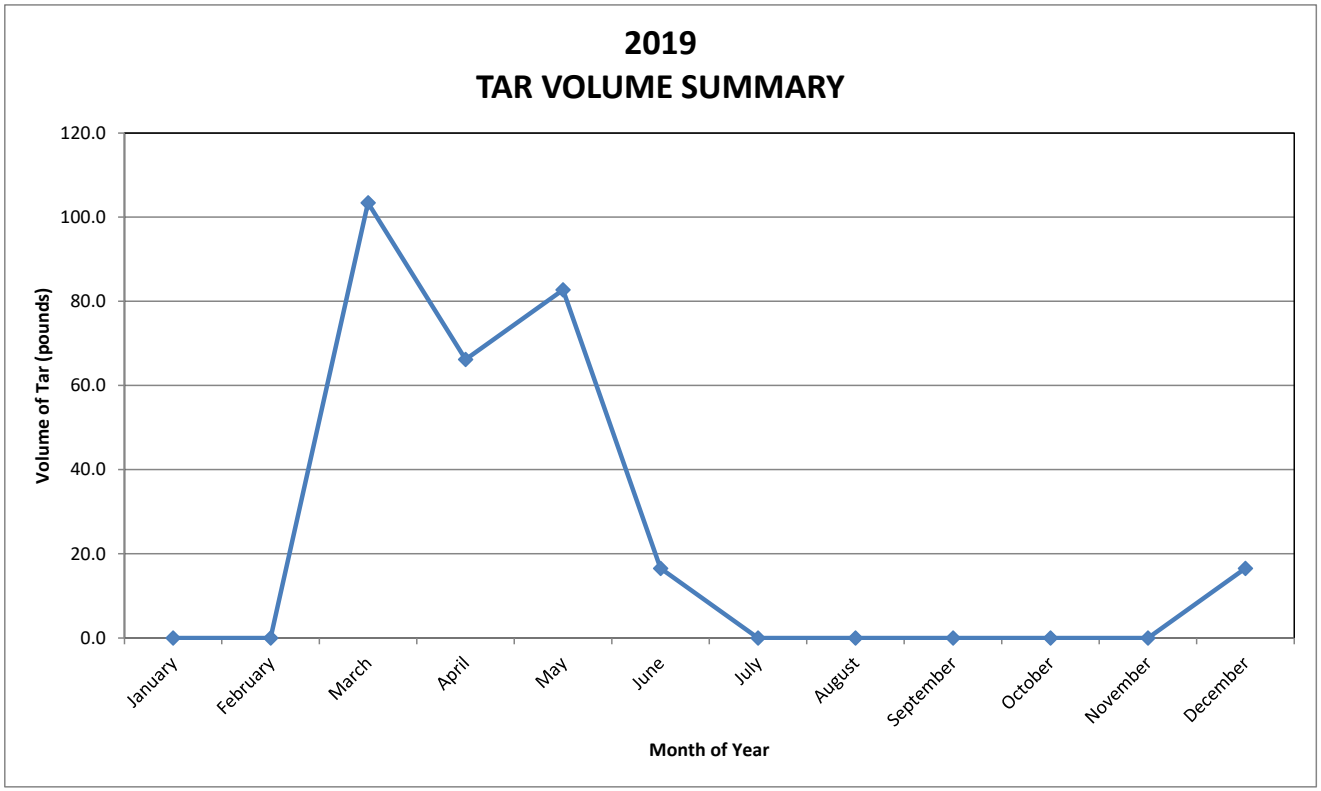
GENERATED VOLUME OF TAR MATERIAL
2019

Groundwater Pre-Treatment System (GWPTS)
Riverbend, LLC
(Site No. V00619-9)
Buffalo, New York

Month	Volume of Tar (pounds)
January	0.0
February	0.0
March	103.4
April	66.2
May	82.7
June	16.5
July	0.0
August	0.0
September	0.0
October	0.0
November	0.0
December	16.5

Total: 285.4 pounds
Drums: 0.59

Min. 0.0 pounds
Max. 103.4 pounds
Ave. 23.8 pounds



ORION
Environmental Solutions, LLC

June 26, 2019

Mr. Michael Szilagyi
Buffalo Sewer Authority
Industrial Waste Section
90 West Ferry Street
Buffalo, NY 14213-1799

Re: RiverBend Site
Ground Water Pre-Treatment Discharge Monitoring Results
June 2019 Semi-Annual Compliance Monitoring Report
BPDES Permit No. 19-01-BU278

Dear Mr. Szilagyi:

On behalf of our client, Fort Schuyler Management Corporation, Orion Environmental Solutions, LLC (Orion) has prepared this correspondence to present the first semi-annual 2019 discharge monitoring results for the groundwater pre-treatment system at the above-referenced facility. Orion began operating the RiverBend treatment system for Fort Schuyler on May 1, 2019. Discharge monitoring was performed from June 13-14, 2019.

SAMPLE COLLECTION

Samples were collected from the pretreated process effluent (Outfall 001) in general accordance with Buffalo Pollution Discharge Elimination System (BPDES) Permit No. 19-01-BU278 in laboratory-provided, pre-cleaned, and pre-preserved sample bottles (see Figure 1). Four grab samples for volatile organic compound (VOC) and semi-volatile organic compound (SVOC) analysis were containerized in individual sample bottles for laboratory composite preparation during sample extraction and USEPA Method 624 and Method 625 analysis, respectively. Composite samples were also collected for laboratory pH and total cyanide analysis. In accordance with the Permit, composite samples were prepared for all required parameters by combining grab samples collected at four equally spaced intervals over the 24-hour monitoring period. Field documentation is provided in Attachment 1.

ANALYTICAL RESULTS

The current period analytical results are provided in Attachment 2. Compounds detected above the laboratory reporting limit during the June 2019 event are summarized in Table 1 along with permitted BSA discharge limits. As indicated, all parameters are well within allowable limits.

FLOW MONITORING

Flow measurement data recorded during the current monitoring period is presented in Table 1. Flow measurements reflect the total flow recorded during the monitoring period divided by the number of days in that monitoring period. A copy of the annual flow meter calibration data is presented in Attachment 3. The next flow meter calibration is tentatively scheduled for January 2020.

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Please contact us if you have any questions.

Sincerely,
Orion Environmental Solutions, LLC

Bryan C. Hann
Chief Operating Officer

File: 0020-001-001

TABLES

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Environmental Solutions, LLC

TABLE 1

2019 SEMI-ANNUAL GROUNDWATER PRETREATMENT SYSTEM DATA SUMMARY

BPDES Permit No. 19-01-BU278
Fort Schuyler RiverBend Site
312 Abby Street, Buffalo, NY

Parameter	June 13-14, 2019		Daily Discharge Limits [2]
	Concentration (units as indicated)	*Mass [1] (pounds)*	
Laboratory pH (S.U.)	7.40	na	5.0 - 12.0
Field pH (S.U.) [3]	7.30	na	5.0 - 12.0
Volatile Organic Compounds - Method 624 (mg/L)			
Benzene	0.0048	na	Monitor
Semi-Volatile Organic Compounds - Method 625 (mg/L)			
Acenapthene	0.00059 J	na	Monitor
Inorganics (mg/L)			
Total Cyanide	1.71	0.313	4.3 lbs
Average Daily Flow (gallons per day) [4]	21,941		*see Note 5*

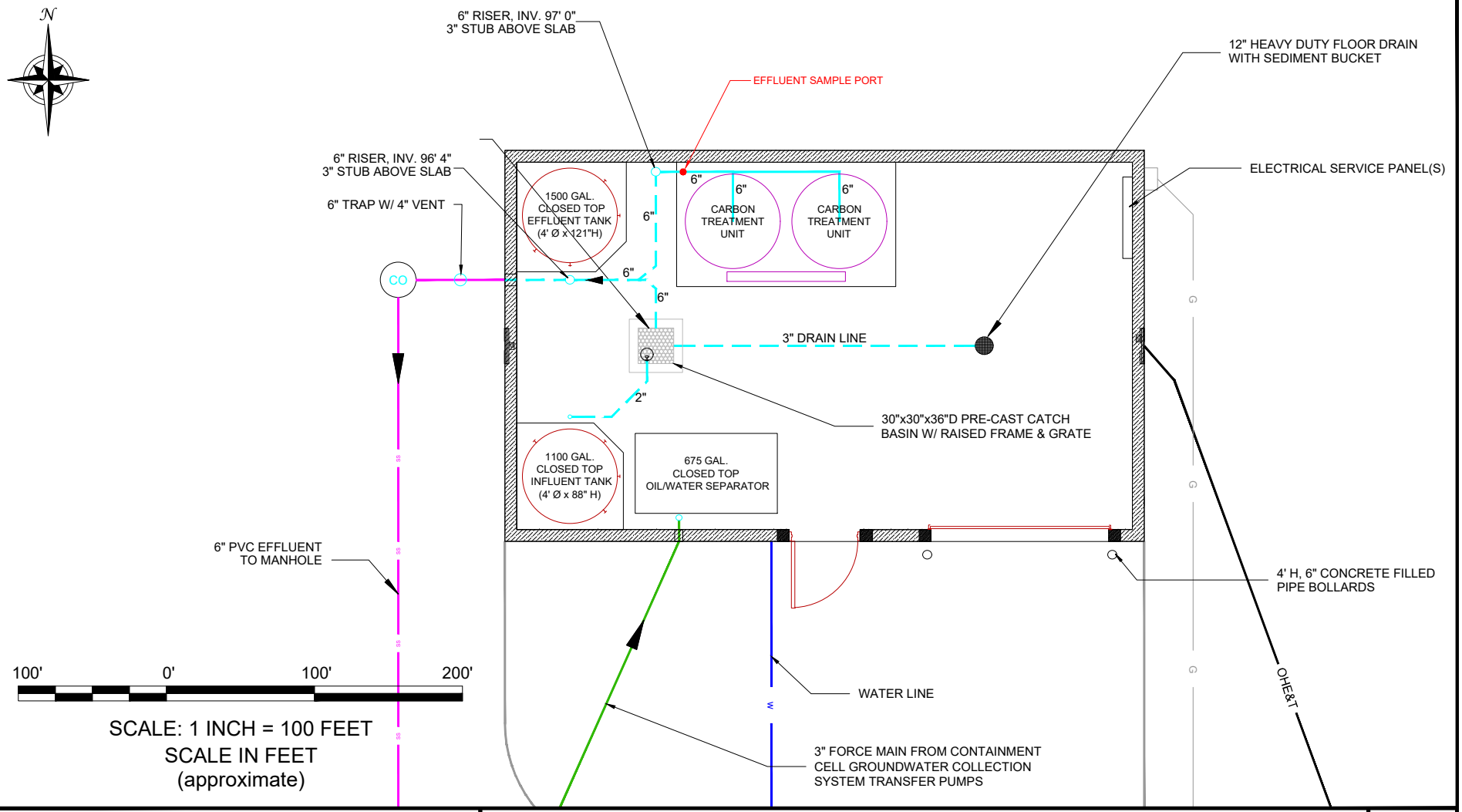
Notes:
1. The monitoring result is calculated based on the concentration of detected parameters and the average daily flow rate calculated below.
2. Mass limits are based on the Average Daily Flow through the June event; actual limits may vary slightly based on actual discharge.
3. Field pH is an average of four grab samples collected over a 24-hour period.
4. Average daily flow based on net flow recorded between the Flow Calculation dates shown below for the June event.
5. Permitted maximum allowable daily flow is 110,000 gpd. An action level of 54,000 gpd is identified in the Permit. The BSA is to be notified if flow consistently exceeds this action level so that the permit can be modifed.
6. " ND " = Indicates compound was part of the analysis, but not detected at a concentration above the reporting limit.

Flow Calculations:

Event	Date	Flow Measurement * (gallons)	Average Daily Flow * (gallons per day)
June 2019	01/02/2019	9,285,781	21,941
	06/21/2019	13,015,735	

Notes:
* = The treatment system flow meter was calibrated on 03/05/19, however it was not reset to zero. The January 2019 flow measurement shown was recorded by Benchmark Environmental Engineering, PLLC and the June 2019 flow measurement was recorded by Orion.

FIGURES



ORION
Environmental Solutions, LLC
4535 Southwestern Boulevard, Suite 210, Hamburg, NY 14075

PROJECT NO.: 0020-001-001

DATE: JUNE 2019

DRAFTED BY: BCH

GWPTS BUILDING LAYOUT

BSA PERMIT NO. 19-01-BU278

RIVERBEND SITE
BUFFALO, NEW YORK

PREPARED FOR
FORT SCHUYLER MANAGEMENT CORPORATION

FIGURE 1

ATTACHMENT 1

FIELD DOCUMENTATION

ORION

ORION Environmental Solutions, LLC

EFFLUENT SAMPLE COLLECTION LOG

PROJECT INFORMATION

Project Name: RiverBend Site
Project No.: 0020-001-001
Client: Fort Schuyler Management Corporation
Location: 312 Abby Street, Buffalo, NY

SAMPLE DESCRIPTION

I.D.: **Process Effluent**
Matrix: ☐ SURFACE WATER ☐ STORM ☐ SEEP ☐ OTHER ☐ INFLUENT ☑ EFFLUENT

SAMPLE INFORMATION

Date Collected: 6/13-14/2019
Time Collected: see below
Date Shipped to Lab: 6/14/2019
Collected By: BCH
Sample Type: ☐ POINT ☐ GRAB ☑ COMPOSITE
Collection Method: ☐ DIRECT DIP ☐ SS / POLY. DIPPER ☐ PERISTALTIC PUMP ☐ POLY. DISP. BAILER ☐ ISCO SAMPLER ☑ OTHER - sample port grab

SAMPLING INFORMATION

Weather:
Air Temperature:

Parameter	Units	Grab #1	Grab #2	Grab #3	Grab #4
pH	units	6.98	7.40	7.39	7.42
Temp.	°F	56.8	55.4	55.0	53.6
Cond.	mS	1212	1223	1222	1219
Turbidity	NTU	3.02	3.28	3.15	3.24
Eh / ORP	mV	-175	-162	-160	-159
D.O.	ppm	4.50	4.78	4.17	4.49
Odor	olfactory	none	none	none	none
Appearance	visual	clear	clear	clear	clear
Sample Date		6/13/19	6/13/19	6/13/19	6/14/19
Sample Time		9:40A	1330p	1750p	9:15A

EXACT LOCATION (if applicable)

Northing (ft)	Easting (ft)	Surface Elevation (fmsl)

SAMPLE DESCRIPTION (appearance, olfactory):

SAMPLE ANALYSIS (depth, laboratory analysis required):

* *Collect four individual grab samples for method 624 (VOCs) and 625 (SVOCs) analysis, these samples will be composited at the lab.*
* *Collect composite samples for cyanide and laboratory pH by filling equal aliquots of sample to fill sample containers*

ADDITIONAL REMARKS:

PREPARED BY: BCH **DATE:** 6/13-14/19

Eco-Rental Solutions

Calibration Certificate

rev 8/9/11

Work Order No.: SE-068542
Date of Service: 6/11/2019 11:00:00 AM

Unit Under Test: Lamotte 2020WE Turbidity Meter

Asset No.: FA01399
Serial No: 4188-0814

Technician Initials:

TEST	Specification	Result
Standard Calibration	Pass/Fail	Pass

TEST STANDARDS USED:

DESCRIPTION	LOT NO./EXPIRATION DATE	QUANTITY
Turbidity Free Water	Lot#6GE1000 Exp: N/A	1
1.0 NTU AMCO Turbidity Standard	Lot No.18127191 exp.12/19	1
10 NTU AMCO Turbidity Standard	Lot No. 18023191 Exp.8/19	1

TEST EQUIPMENT USED:

DESCRIPTION	ASSET NO.	SERIAL NO.	DATE OF LAST CAL	DATE CAL DUE

Test Equipment and standards are traceable to National standards.

Eco-Rental Solutions

Calibration Certificate

rev 8/9/11

Work Order No.: SE-068545
Date of Service: 6/11/2019 12:00:00 PM

Unit Under Test: Myron 6P Ultrameter

Asset No.: FA00376
Serial No: 6215388

Technician Initials:

TEST	Specification	Result
Standard Calibration	Pass/Fail	Pass

TEST STANDARDS USED:

DESCRIPTION	LOT NO./EXPIRATION DATE	QUANTITY
pH 7.00 Standard Solution	Lot No. 8GK366 Exp. 11/20	1
pH 4.00 Standard Solution	Lot No. 8GJ315 Exp. 10/31/20	1
pH 10.00 Standard Solution	Lot No. 8GI657 Exp. 9/20	1
7.00 mS Conductivity Standard Solution	Lot No. 8GL255 Exp. 12/19	1
ORP Standard Solution	Lot No.16J100375 exp. 10/03/21	1

TEST EQUIPMENT USED:

DESCRIPTION	ASSET NO.	SERIAL NO.	DATE OF LAST CAL	DATE CAL DUE

Test Equipment and standards are traceable to National standards.

Eco-Rental Solutions

Calibration Certificate

rev 8/9/11

Work Order No.: SE-068549
Date of Service: 6/11/2019 12:00:00 PM

Unit Under Test: YSI ProODO, 20m

Asset No.: FA01633
Serial No: 14H100987

Technician Initials:

TEST	Specification	Result
Standard Calibration	Pass/Fail	Pass

TEST STANDARDS USED:

DESCRIPTION	LOT NO./EXPIRATION DATE	QUANTITY
Sodium Sulfite/ Zero DO Standard	Lot No. C473638, No exp date	1
Air Saturated Water		1

TEST EQUIPMENT USED:

DESCRIPTION	ASSET NO.	SERIAL NO.	DATE OF LAST CAL	DATE CAL DUE

Test Equipment and standards are traceable to National standards.

ATTACHMENT 2

ANALYTICAL DATA

ANALYTICAL REPORT

Lab Number:	L1925850
Client:	Orion Environmental Solutions, LLC 4535 Southwestern Blvd. Suite 210 Hamburg, NY 14075
ATTN:	Bryan Hann
Phone:	(716) 202-4475
Project Name:	RIVERBEND S/A BSA
Project Number:	0020-001-001
Report Date:	06/25/19

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: RIVERBEND S/A BSA
Project Number: 0020-001-001

Lab Number: L1925850
Report Date: 06/25/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1925850-01	PROCESS EFFLUENT-GRABS 1-4	WATER	BUFFALO, NY	06/14/19 09:15	06/14/19
L1925850-02	COMPOSITE PROCESS EFFLUENT-GRAB 1, 2, 3,4	WATER	BUFFALO, NY	06/14/19 09:15	06/14/19
L1925850-03	PROCESS EFFLUENT	WATER	BUFFALO, NY	06/14/19 09:15	06/14/19
L1925850-04	TRIP BLANK	WATER	BUFFALO, NY	06/13/19 00:00	06/14/19

Project Name:	RIVERBEND S/A BSA	**Lab Number:**	L1925850
Project Number:	0020-001-001	**Report Date:**	06/25/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: RIVERBEND S/A BSA
Project Number: 0020-001-001
Lab Number: L1925850
Report Date: 06/25/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics by Method 624

The WG1249514-3 LCS recoveries, associated with L1925850-01 and -04, are above the acceptance criteria for carbon tetrachloride (160%), 1,1,1-trichloroethane (145%) and bromoform (135%); however, the associated samples are non-detect to the RL for this target analyte. The results of the original analysis are reported.

Semivolatile Organics by Method 625

L1925850-01: The surrogate recoveries are above the acceptance criteria for nitrobenzene-d5 (140%), 2-fluorobiphenyl (130%) and 4-terphenyl-d14 (152%). Since the sample was non-detect for all target analytes, re-analysis was not required.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Amita Naik

Title: Technical Director/Representative Date: 06/25/19

ORGANICS

VOLATILES

Project Name: RIVERBEND S/A BSA **Lab Number:** L1925850

Project Number: 0020-001-001 **Report Date:** 06/25/19

SAMPLE RESULTS

Lab ID: L1925850-01
Client ID: PROCESS EFFLUENT-GRABS 1-4
Sample Location: BUFFALO, NY

Date Collected: 06/14/19 09:15
Date Received: 06/14/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 06/16/19 16:28
Analyst: BD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	1.0	0.56	1
1,1-Dichloroethane	ND		ug/l	1.5	0.40	1
Chloroform	ND		ug/l	1.0	0.38	1
Carbon tetrachloride	ND		ug/l	1.0	0.24	1
1,2-Dichloropropane	ND		ug/l	3.5	0.46	1
Dibromochloromethane	ND		ug/l	1.0	0.27	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.34	1
2-Chloroethylvinyl ether	ND		ug/l	10	0.35	1
Tetrachloroethene	ND		ug/l	1.0	0.26	1
Chlorobenzene	ND		ug/l	3.5	0.30	1
Trichlorofluoromethane	ND		ug/l	5.0	0.28	1
1,2-Dichloroethane	ND		ug/l	1.5	0.47	1
1,1,1-Trichloroethane	ND		ug/l	2.0	0.29	1
Bromodichloromethane	ND		ug/l	1.0	0.28	1
trans-1,3-Dichloropropene	ND		ug/l	1.5	0.31	1
cis-1,3-Dichloropropene	ND		ug/l	1.5	0.34	1
Bromoform	ND		ug/l	1.0	0.22	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	0.20	1
Benzene	4.8		ug/l	1.0	0.38	1
Toluene	ND		ug/l	1.0	0.31	1
Ethylbenzene	ND		ug/l	1.0	0.28	1
Chloromethane	ND		ug/l	5.0	1.0	1
Bromomethane	ND		ug/l	5.0	1.2	1
Vinyl chloride	ND		ug/l	1.0	0.38	1
Chloroethane	ND		ug/l	2.0	0.37	1
1,1-Dichloroethene	ND		ug/l	1.0	0.31	1
trans-1,2-Dichloroethene	ND		ug/l	1.5	0.33	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	0.17	1

Project Name: RIVERBEND S/A BSA **Lab Number:** L1925850

Project Number: 0020-001-001 **Report Date:** 06/25/19

SAMPLE RESULTS

Lab ID: L1925850-01 Date Collected: 06/14/19 09:15

Client ID: PROCESS EFFLUENT-GRABS 1-4 Date Received: 06/14/19

Sample Location: BUFFALO, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	1.0	0.33	1
1,2-Dichlorobenzene	ND		ug/l	5.0	0.28	1
1,3-Dichlorobenzene	ND		ug/l	5.0	0.27	1
1,4-Dichlorobenzene	ND		ug/l	5.0	0.29	1
p/m-Xylene	ND		ug/l	2.0	0.30	1
o-xylene	ND		ug/l	1.0	0.34	1
Xylenes, Total	ND		ug/l	1.0	0.30	1
Styrene	ND		ug/l	1.0	0.37	1
Acetone	ND		ug/l	10	2.4	1
Carbon disulfide	ND		ug/l	5.0	0.28	1
2-Butanone	ND		ug/l	10	1.0	1
Vinyl acetate	ND		ug/l	10	0.41	1
4-Methyl-2-pentanone	ND		ug/l	10	0.19	1
2-Hexanone	ND		ug/l	10	0.55	1
Acrolein	ND		ug/l	8.0	1.8	1
Acrylonitrile	ND		ug/l	10	0.33	1
Dibromomethane	ND		ug/l	1.0	0.23	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	112		60-140
Fluorobenzene	95		60-140
4-Bromofluorobenzene	112		60-140

Project Name: RIVERBEND S/A BSA
Project Number: 0020-001-001
Lab Number: L1925850
Report Date: 06/25/19

SAMPLE RESULTS

Lab ID: L1925850-04
Client ID: TRIP BLANK
Sample Location: BUFFALO, NY

Date Collected: 06/13/19 00:00
Date Received: 06/14/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 06/16/19 10:56
Analyst: BD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	1.0	0.56	1
1,1-Dichloroethane	ND		ug/l	1.5	0.40	1
Chloroform	ND		ug/l	1.0	0.38	1
Carbon tetrachloride	ND		ug/l	1.0	0.24	1
1,2-Dichloropropane	ND		ug/l	3.5	0.46	1
Dibromochloromethane	ND		ug/l	1.0	0.27	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.34	1
2-Chloroethylvinyl ether	ND		ug/l	10	0.35	1
Tetrachloroethene	ND		ug/l	1.0	0.26	1
Chlorobenzene	ND		ug/l	3.5	0.30	1
Trichlorofluoromethane	ND		ug/l	5.0	0.28	1
1,2-Dichloroethane	ND		ug/l	1.5	0.47	1
1,1,1-Trichloroethane	ND		ug/l	2.0	0.29	1
Bromodichloromethane	ND		ug/l	1.0	0.28	1
trans-1,3-Dichloropropene	ND		ug/l	1.5	0.31	1
cis-1,3-Dichloropropene	ND		ug/l	1.5	0.34	1
Bromoform	ND		ug/l	1.0	0.22	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	0.20	1
Benzene	ND		ug/l	1.0	0.38	1
Toluene	ND		ug/l	1.0	0.31	1
Ethylbenzene	ND		ug/l	1.0	0.28	1
Chloromethane	ND		ug/l	5.0	1.0	1
Bromomethane	ND		ug/l	5.0	1.2	1
Vinyl chloride	ND		ug/l	1.0	0.38	1
Chloroethane	ND		ug/l	2.0	0.37	1
1,1-Dichloroethene	ND		ug/l	1.0	0.31	1
trans-1,2-Dichloroethene	ND		ug/l	1.5	0.33	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	0.17	1

Project Name: RIVERBEND S/A BSA
Project Number: 0020-001-001
Lab Number: L1925850
Report Date: 06/25/19

SAMPLE RESULTS

Lab ID: L1925850-04
Client ID: TRIP BLANK
Sample Location: BUFFALO, NY
Date Collected: 06/13/19 00:00
Date Received: 06/14/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	1.0	0.33	1
1,2-Dichlorobenzene	ND		ug/l	5.0	0.28	1
1,3-Dichlorobenzene	ND		ug/l	5.0	0.27	1
1,4-Dichlorobenzene	ND		ug/l	5.0	0.29	1
p/m-Xylene	ND		ug/l	2.0	0.30	1
o-xylene	ND		ug/l	1.0	0.34	1
Xylenes, Total	ND		ug/l	1.0	0.30	1
Styrene	ND		ug/l	1.0	0.37	1
Acetone	ND		ug/l	10	2.4	1
Carbon disulfide	ND		ug/l	5.0	0.28	1
2-Butanone	ND		ug/l	10	1.0	1
Vinyl acetate	ND		ug/l	10	0.41	1
4-Methyl-2-pentanone	ND		ug/l	10	0.19	1
2-Hexanone	ND		ug/l	10	0.55	1
Acrolein	ND		ug/l	8.0	1.8	1
Acrylonitrile	ND		ug/l	10	0.33	1
Dibromomethane	ND		ug/l	1.0	0.23	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	107		60-140
Fluorobenzene	93		60-140
4-Bromofluorobenzene	111		60-140

Project Name: RIVERBEND S/A BSA
Project Number: 0020-001-001
Lab Number: L1925850
Report Date: 06/25/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 06/16/19 10:19
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,04 Batch: WG1249514-4					
Methylene chloride	ND		ug/l	1.0	0.56
1,1-Dichloroethane	ND		ug/l	1.5	0.40
Chloroform	ND		ug/l	1.0	0.38
Carbon tetrachloride	ND		ug/l	1.0	0.24
1,2-Dichloropropane	ND		ug/l	3.5	0.46
Dibromochloromethane	ND		ug/l	1.0	0.27
1,1,2-Trichloroethane	ND		ug/l	1.5	0.34
2-Chloroethylvinyl ether	ND		ug/l	10	0.35
Tetrachloroethene	ND		ug/l	1.0	0.26
Chlorobenzene	ND		ug/l	3.5	0.30
Trichlorofluoromethane	ND		ug/l	5.0	0.28
1,2-Dichloroethane	ND		ug/l	1.5	0.47
1,1,1-Trichloroethane	ND		ug/l	2.0	0.29
Bromodichloromethane	ND		ug/l	1.0	0.28
trans-1,3-Dichloropropene	ND		ug/l	1.5	0.31
cis-1,3-Dichloropropene	ND		ug/l	1.5	0.34
Bromoform	ND		ug/l	1.0	0.22
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	0.20
Benzene	ND		ug/l	1.0	0.38
Toluene	ND		ug/l	1.0	0.31
Ethylbenzene	ND		ug/l	1.0	0.28
Chloromethane	ND		ug/l	5.0	1.0
Bromomethane	ND		ug/l	5.0	1.2
Vinyl chloride	ND		ug/l	1.0	0.38
Chloroethane	ND		ug/l	2.0	0.37
1,1-Dichloroethene	ND		ug/l	1.0	0.31
trans-1,2-Dichloroethene	ND		ug/l	1.5	0.33
cis-1,2-Dichloroethene	ND		ug/l	1.0	0.17
Trichloroethene	ND		ug/l	1.0	0.33

Project Name: RIVERBEND S/A BSA
Project Number: 0020-001-001
Lab Number: L1925850
Report Date: 06/25/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 06/16/19 10:19
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,04 Batch: WG1249514-4					
1,2-Dichlorobenzene	ND		ug/l	5.0	0.28
1,3-Dichlorobenzene	ND		ug/l	5.0	0.27
1,4-Dichlorobenzene	ND		ug/l	5.0	0.29
p/m-Xylene	ND		ug/l	2.0	0.30
o-xylene	ND		ug/l	1.0	0.34
Xylenes, Total	ND		ug/l	1.0	0.30
Styrene	ND		ug/l	1.0	0.37
Acetone	ND		ug/l	10	2.4
Carbon disulfide	ND		ug/l	5.0	0.28
2-Butanone	ND		ug/l	10	1.0
Vinyl acetate	ND		ug/l	10	0.41
4-Methyl-2-pentanone	ND		ug/l	10	0.19
2-Hexanone	ND		ug/l	10	0.55
Acrolein	ND		ug/l	8.0	1.8
Acrylonitrile	ND		ug/l	10	0.33
n-Hexane[1]	ND		ug/l	20	0.17
Methyl tert butyl ether	ND		ug/l	10	0.19
Dibromomethane	ND		ug/l	1.0	0.23
Tert-Butyl Alcohol	ND		ug/l	100	3.9
Tertiary-Amyl Methyl Ether	ND		ug/l	20	0.28
Dichlorodifluoromethane[1]	ND		ug/l	1.0	0.32

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	101		60-140
Fluorobenzene	94		60-140
4-Bromofluorobenzene	103		60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: 0020-001-001

Lab Number: L1925850

Report Date: 06/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,04 Batch: WG1249514-3								
Methylene chloride	110		-		60-140	-		28
1,1-Dichloroethane	105		-		50-150	-		49
Chloroform	125		-		70-135	-		54
Carbon tetrachloride	**160**	Q	-		70-130	-		41
1,2-Dichloropropane	110		-		35-165	-		55
Dibromochloromethane	115		-		70-135	-		50
1,1,2-Trichloroethane	95		-		70-130	-		45
2-Chloroethylvinyl ether	85		-		1-225	-		71
Tetrachloroethene	115		-		70-130	-		39
Chlorobenzene	110		-		65-135	-		53
Trichlorofluoromethane	120		-		50-150	-		84
1,2-Dichloroethane	115		-		70-130	-		49
1,1,1-Trichloroethane	**145**	Q	-		70-130	-		36
Bromodichloromethane	125		-		65-135	-		56
trans-1,3-Dichloropropene	115		-		50-150	-		86
cis-1,3-Dichloropropene	120		-		25-175	-		58
Bromoform	**135**	Q	-		70-130	-		42
1,1,2,2-Tetrachloroethane	105		-		60-140	-		61
Benzene	110		-		65-135	-		61
Toluene	110		-		70-130	-		41
Ethylbenzene	115		-		60-140	-		63
Chloromethane	90		-		1-205	-		60
Bromomethane	16		-		15-185	-		61

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: 0020-001-001

Lab Number: L1925850

Report Date: 06/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,04 Batch: WG1249514-3								
Vinyl chloride	105		-		5-195	-		66
Chloroethane	110		-		40-160	-		78
1,1-Dichloroethene	115		-		50-150	-		32
trans-1,2-Dichloroethene	115		-		70-130	-		45
cis-1,2-Dichloroethene	110		-		60-140	-		30
Trichloroethene	110		-		65-135	-		48
1,2-Dichlorobenzene	115		-		65-135	-		57
1,3-Dichlorobenzene	110		-		70-130	-		43
1,4-Dichlorobenzene	110		-		65-135	-		57
p/m-Xylene	115		-		60-140	-		30
o-xylene	110		-		60-140	-		30
Styrene	115		-		60-140	-		30
Acetone	88		-		40-160	-		30
Carbon disulfide	110		-		60-140	-		30
2-Butanone	92		-		60-140	-		30
Vinyl acetate	108		-		60-140	-		30
4-Methyl-2-pentanone	88		-		60-140	-		30
2-Hexanone	84		-		60-140	-		30
Acrolein	72		-		60-140	-		30
Acrylonitrile	88		-		60-140	-		60
Methyl tert butyl ether	100		-		60-140	-		30
Dibromomethane	95		-		70-130	-		30
Tert-Butyl Alcohol	85		-		60-140	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: 0020-001-001

Lab Number: L1925850

Report Date: 06/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,04 Batch: WG1249514-3								
Tertiary-Amyl Methyl Ether	95		-		60-140	-		30
Dichlorodifluoromethane[1]	100		-		70-130	-		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	107				60-140
Fluorobenzene	98				60-140
4-Bromofluorobenzene	104				60-140

SEMIVOLATILES

Project Name: RIVERBEND S/A BSA
Project Number: 0020-001-001
Lab Number: L1925850
Report Date: 06/25/19

SAMPLE RESULTS

Lab ID: L1925850-01
Client ID: PROCESS EFFLUENT-GRABS 1-4
Sample Location: BUFFALO, NY

Date Collected: 06/14/19 09:15
Date Received: 06/14/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 06/23/19 08:34
Analyst: ALS

Extraction Method: EPA 625.1
Extraction Date: 06/21/19 10:12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	0.59	J	ug/l	2.0	0.41	1
Benzidine[1]	ND		ug/l	20	12.	1
1,2,4-Trichlorobenzene	ND		ug/l	5.0	1.5	1
Hexachlorobenzene	ND		ug/l	2.0	0.95	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.60	1
2-Chloronaphthalene	ND		ug/l	2.0	0.32	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	0.46	1
2,4-Dinitrotoluene	ND		ug/l	5.0	0.64	1
2,6-Dinitrotoluene	ND		ug/l	5.0	0.63	1
Azobenzene[1]	ND		ug/l	2.0	0.89	1
Fluoranthene	ND		ug/l	2.0	0.74	1
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.37	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.45	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.82	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.58	1
Hexachlorobutadiene	ND		ug/l	2.0	0.92	1
Hexachlorocyclopentadiene[1]	ND		ug/l	10	1.4	1
Hexachloroethane	ND		ug/l	2.0	0.97	1
Isophorone	ND		ug/l	5.0	0.55	1
Naphthalene	ND		ug/l	2.0	0.90	1
Nitrobenzene	ND		ug/l	2.0	0.79	1
NDPA/DPA[1]	ND		ug/l	2.0	0.78	1
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.63	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	1.7	1
Butyl benzyl phthalate	ND		ug/l	5.0	0.67	1
Di-n-butylphthalate	ND		ug/l	5.0	0.63	1
Di-n-octylphthalate	ND		ug/l	5.0	0.63	1
Diethyl phthalate	ND		ug/l	5.0	0.72	1

Project Name: RIVERBEND S/A BSA **Lab Number:** L1925850

Project Number: 0020-001-001 **Report Date:** 06/25/19

SAMPLE RESULTS

Lab ID: L1925850-01 Date Collected: 06/14/19 09:15

Client ID: PROCESS EFFLUENT-GRABS 1-4 Date Received: 06/14/19

Sample Location: BUFFALO, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Dimethyl phthalate	ND		ug/l	5.0	1.4	1
Benzo(a)anthracene	ND		ug/l	2.0	0.66	1
Benzo(a)pyrene	ND		ug/l	2.0	0.61	1
Benzo(b)fluoranthene	ND		ug/l	2.0	0.74	1
Benzo(k)fluoranthene	ND		ug/l	2.0	0.74	1
Chrysene	ND		ug/l	2.0	0.67	1
Acenaphthylene	ND		ug/l	2.0	0.93	1
Anthracene	ND		ug/l	2.0	0.79	1
Benzo(ghi)perylene	ND		ug/l	2.0	0.67	1
Fluorene	ND		ug/l	2.0	0.93	1
Phenanthrene	ND		ug/l	2.0	0.82	1
Dibenzo(a,h)anthracene	ND		ug/l	2.0	0.69	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	2.0	0.63	1
Pyrene	ND		ug/l	2.0	0.73	1
4-Chloroaniline[1]	ND		ug/l	5.0	0.79	1
Dibenzofuran[1]	ND		ug/l	2.0	0.37	1
2-Methylnaphthalene[1]	ND		ug/l	2.0	0.35	1
n-Nitrosodimethylamine[1]	ND		ug/l	2.0	0.41	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol[1]	ND		ug/l	2.0	0.53	1
2-Chlorophenol	ND		ug/l	2.0	0.51	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.55	1
2,4-Dimethylphenol	ND		ug/l	5.0	0.85	1
2-Nitrophenol	ND		ug/l	5.0	0.60	1
4-Nitrophenol	ND		ug/l	10	0.83	1
2,4-Dinitrophenol	ND		ug/l	20	1.2	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.2	1
Pentachlorophenol	ND		ug/l	5.0	0.62	1
Phenol	ND		ug/l	5.0	0.26	1
2-Methylphenol[1]	ND		ug/l	5.0	0.77	1
3-Methylphenol/4-Methylphenol[1]	ND		ug/l	5.0	0.51	1
2,4,5-Trichlorophenol[1]	ND		ug/l	5.0	0.64	1
Benzoic Acid[1]	ND		ug/l	50	1.2	1
Benzyl Alcohol[1]	ND		ug/l	2.0	0.49	1

Project Name: RIVERBEND S/A BSA **Lab Number:** L1925850

Project Number: 0020-001-001 **Report Date:** 06/25/19

SAMPLE RESULTS

Lab ID: L1925850-01 Date Collected: 06/14/19 09:15

Client ID: PROCESS EFFLUENT-GRABS 1-4 Date Received: 06/14/19

Sample Location: BUFFALO, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Semivolatile Organics by GC/MS - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	76		25-87
Phenol-d6	49		16-65
Nitrobenzene-d5	**140**	Q	42-122
2-Fluorobiphenyl	**130**	Q	46-121
2,4,6-Tribromophenol	99		45-128
4-Terphenyl-d14	**152**	Q	47-138

Project Name: RIVERBEND S/A BSA
Project Number: 0020-001-001

Lab Number: L1925850
Report Date: 06/25/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 06/21/19 11:01
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 06/20/19 13:40

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1251010-1					
Acenaphthene	ND		ug/l	2.0	0.41
Benzidine[1]	ND		ug/l	20	12.
1,2,4-Trichlorobenzene	ND		ug/l	5.0	1.5
Hexachlorobenzene	ND		ug/l	2.0	0.95
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.60
2-Chloronaphthalene	ND		ug/l	2.0	0.32
3,3'-Dichlorobenzidine	ND		ug/l	5.0	0.46
2,4-Dinitrotoluene	ND		ug/l	5.0	0.64
2,6-Dinitrotoluene	ND		ug/l	5.0	0.63
Azobenzene[1]	ND		ug/l	2.0	0.89
Fluoranthene	ND		ug/l	2.0	0.74
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.37
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.45
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.82
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.58
Hexachlorobutadiene	ND		ug/l	2.0	0.92
Hexachlorocyclopentadiene[1]	ND		ug/l	10	1.4
Hexachloroethane	ND		ug/l	2.0	0.97
Isophorone	ND		ug/l	5.0	0.55
Naphthalene	ND		ug/l	2.0	0.90
Nitrobenzene	ND		ug/l	2.0	0.79
NDPA/DPA[1]	ND		ug/l	2.0	0.78
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.63
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	1.7
Butyl benzyl phthalate	ND		ug/l	5.0	0.67
Di-n-butylphthalate	ND		ug/l	5.0	0.63
Di-n-octylphthalate	ND		ug/l	5.0	0.63
Diethyl phthalate	ND		ug/l	5.0	0.72
Dimethyl phthalate	ND		ug/l	5.0	1.4

Project Name: RIVERBEND S/A BSA
Project Number: 0020-001-001

Lab Number: L1925850
Report Date: 06/25/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 06/21/19 11:01
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 06/20/19 13:40

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1251010-1					
Benzo(a)anthracene	ND		ug/l	2.0	0.66
Benzo(a)pyrene	ND		ug/l	2.0	0.61
Benzo(b)fluoranthene	ND		ug/l	2.0	0.74
Benzo(k)fluoranthene	ND		ug/l	2.0	0.74
Chrysene	ND		ug/l	2.0	0.67
Acenaphthylene	ND		ug/l	2.0	0.93
Anthracene	ND		ug/l	2.0	0.79
Benzo(ghi)perylene	ND		ug/l	2.0	0.67
Fluorene	ND		ug/l	2.0	0.93
Phenanthrene	ND		ug/l	2.0	0.82
Dibenzo(a,h)anthracene	ND		ug/l	2.0	0.69
Indeno(1,2,3-cd)pyrene	ND		ug/l	2.0	0.63
Pyrene	ND		ug/l	2.0	0.73
4-Chloroaniline[1]	ND		ug/l	5.0	0.79
Dibenzofuran[1]	ND		ug/l	2.0	0.37
2-Methylnaphthalene[1]	ND		ug/l	2.0	0.35
n-Nitrosodimethylamine[1]	ND		ug/l	2.0	0.41
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61
p-Chloro-m-cresol[1]	ND		ug/l	2.0	0.53
2-Chlorophenol	ND		ug/l	2.0	0.51
2,4-Dichlorophenol	ND		ug/l	5.0	0.55
2,4-Dimethylphenol	ND		ug/l	5.0	0.85
2-Nitrophenol	ND		ug/l	5.0	0.60
4-Nitrophenol	ND		ug/l	10	0.83
2,4-Dinitrophenol	ND		ug/l	20	1.2
4,6-Dinitro-o-cresol	ND		ug/l	10	1.2
Pentachlorophenol	ND		ug/l	5.0	0.62
Phenol	ND		ug/l	5.0	0.26
2-Methylphenol[1]	ND		ug/l	5.0	0.77

Project Name: RIVERBEND S/A BSA
Project Number: 0020-001-001

Lab Number: L1925850
Report Date: 06/25/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 06/21/19 11:01
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 06/20/19 13:40

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1251010-1					
3-Methylphenol/4-Methylphenol[1]	ND		ug/l	5.0	0.51
2,4,5-Trichlorophenol[1]	ND		ug/l	5.0	0.64
Benzoic Acid[1]	ND		ug/l	50	1.2
Benzyl Alcohol[1]	ND		ug/l	2.0	0.49

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	44		25-87
Phenol-d6	29		16-65
Nitrobenzene-d5	73		42-122
2-Fluorobiphenyl	71		46-121
2,4,6-Tribromophenol	49		45-128
4-Terphenyl-d14	74		47-138

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: 0020-001-001

Lab Number: L1925850

Report Date: 06/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1251010-2								
Acenaphthene	73		-		60-132	-		48
Benzidine[1]	50		-		0-70	-		30
1,2,4-Trichlorobenzene	76		-		57-130	-		50
Hexachlorobenzene	68		-		8-142	-		55
Bis(2-chloroethyl)ether	72		-		43-126	-		108
2-Chloronaphthalene	86		-		65-120	-		24
3,3'-Dichlorobenzidine	39		-		8-213	-		108
2,4-Dinitrotoluene	85		-		48-127	-		42
2,6-Dinitrotoluene	100		-		68-137	-		48
Azobenzene[1]	95		-		44-115	-		23
Fluoranthene	85		-		43-121	-		66
4-Chlorophenyl phenyl ether	73		-		38-145	-		61
4-Bromophenyl phenyl ether	74		-		65-120	-		43
Bis(2-chloroisopropyl)ether	81		-		63-139	-		76
Bis(2-chloroethoxy)methane	83		-		49-165	-		54
Hexachlorobutadiene	77		-		38-120	-		62
Hexachlorocyclopentadiene[1]	79		-		7-118	-		35
Hexachloroethane	78		-		55-120	-		52
Isophorone	92		-		47-180	-		93
Naphthalene	82		-		36-120	-		65
Nitrobenzene	100		-		54-158	-		62
NDPA/DPA[1]	79		-		45-112	-		36
n-Nitrosodi-n-propylamine	98		-		14-198	-		87

Lab Control Sample Analysis
Batch Quality Control

Project Name: RIVERBEND S/A BSA
Project Number: 0020-001-001

Lab Number: L1925850
Report Date: 06/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1251010-2								
Bis(2-ethylhexyl)phthalate	89		-		29-137	-		82
Butyl benzyl phthalate	101		-		1-140	-		60
Di-n-butylphthalate	95		-		8-120	-		47
Di-n-octylphthalate	96		-		19-132	-		69
Diethyl phthalate	81		-		1-120	-		100
Dimethyl phthalate	94		-		1-120	-		183
Benzo(a)anthracene	85		-		42-133	-		53
Benzo(a)pyrene	82		-		32-148	-		72
Benzo(b)fluoranthene	78		-		42-140	-		71
Benzo(k)fluoranthene	79		-		25-146	-		63
Chrysene	76		-		44-140	-		87
Acenaphthylene	93		-		54-126	-		74
Anthracene	85		-		43-120	-		66
Benzo(ghi)perylene	78		-		1-195	-		97
Fluorene	77		-		70-120	-		38
Phenanthrene	78		-		65-120	-		39
Dibenzo(a,h)anthracene	80		-		1-200	-		126
Indeno(1,2,3-cd)pyrene	87		-		1-151	-		99
Pyrene	83		-		70-120	-		49
4-Chloroaniline[1]	69		-		10-100	-		53
Dibenzofuran[1]	75		-		23-126	-		22
n-Nitrosodimethylamine[1]	44		-		15-68	-		17
2,4,6-Trichlorophenol	96		-		52-129	-		58

Lab Control Sample Analysis
Batch Quality Control

Project Name: RIVERBEND S/A BSA
Project Number: 0020-001-001

Lab Number: L1925850
Report Date: 06/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1251010-2								
p-Chloro-m-cresol[1]	101		-		68-130	-		73
2-Chlorophenol	79		-		36-120	-		61
2,4-Dichlorophenol	96		-		53-122	-		50
2,4-Dimethylphenol	100		-		42-120	-		58
2-Nitrophenol	93		-		45-167	-		55
4-Nitrophenol	72		-		13-129	-		131
2,4-Dinitrophenol	80		-		1-173	-		132
4,6-Dinitro-o-cresol	83		-		56-130	-		203
Pentachlorophenol	72		-		38-152	-		86
Phenol	44		-		17-120	-		64
2-Methylphenol[1]	82		-		38-102	-		23
3-Methylphenol/4-Methylphenol[1]	76		-		35-103	-		26
2,4,5-Trichlorophenol[1]	96		-		47-126	-		28
Benzoic Acid[1]	30		-		2-55	-		27
Benzyl Alcohol[1]	79		-		31-103	-		23

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	59				25-87
Phenol-d6	46				16-65
Nitrobenzene-d5	98				42-122
2-Fluorobiphenyl	89				46-121
2,4,6-Tribromophenol	64				45-128
4-Terphenyl-d14	82				47-138

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: 0020-001-001

Lab Number: L1925850

Report Date: 06/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1251010-3								
2-Methylnaphthalene[1]	86		-		40-109	-		18

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	43				25-87
Phenol-d6	33				16-65
Nitrobenzene-d5	71				42-122
2-Fluorobiphenyl	64				46-121
2,4,6-Tribromophenol	47				45-128
4-Terphenyl-d14	62				47-138

INORGANICS
&
MISCELLANEOUS

Project Name: RIVERBEND S/A BSA
Project Number: 0020-001-001

Lab Number: L1925850
Report Date: 06/25/19

SAMPLE RESULTS

Lab ID: L1925850-03
Client ID: PROCESS EFFLUENT
Sample Location: BUFFALO, NY

Date Collected: 06/14/19 09:15
Date Received: 06/14/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	1.71		mg/l	0.050	0.018	10	06/16/19 15:00	06/17/19 12:15	121,4500CN-CE	LH
pH (H)	7.4		SU	-	NA	1	-	06/17/19 04:25	121,4500H+-B	EJ

Project Name: RIVERBEND S/A BSA
Project Number: 0020-001-001
Lab Number: L1925850
Report Date: 06/25/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 03 Batch: WG1249198-1										
Cyanide, Total	ND		mg/l	0.005	0.001	1	06/16/19 15:00	06/17/19 10:47	121,4500CN-CE	LH

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: 0020-001-001

Lab Number: L1925850

Report Date: 06/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 03 Batch: WG1249198-2								
Cyanide, Total	97		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 03 Batch: WG1249258-1								
pH	100		-		99-101	-		5

Matrix Spike Analysis
Batch Quality Control

Project Name: RIVERBEND S/A BSA
Project Number: 0020-001-001

Lab Number: L1925850
Report Date: 06/25/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1249198-4 QC Sample: L1925700-02 Client ID: MS Sample												
Cyanide, Total	0.006	0.2	0.208	100		-	-		90-110	-		30

Lab Duplicate Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: 0020-001-001

Lab Number: L1925850

Report Date: 06/25/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1249198-3 QC Sample: L1925700-01 Client ID: DUP Sample						
Cyanide, Total	0.008	0.008	mg/l	6		30
General Chemistry - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1249258-2 QC Sample: L1925839-01 Client ID: DUP Sample						
pH	7.1	7.2	SU	1		5

Project Name: RIVERBEND S/A BSA
Project Number: 0020-001-001

Lab Number: L1925850
Report Date: 06/25/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1925850-01A	Vial Na2S2O3 preserved split	A	NA		4.5	Y	Absent		624.1(3)
L1925850-01B	Vial Na2S2O3 preserved split	A	NA		4.5	Y	Absent		624.1(3)
L1925850-01C	Vial Na2S2O3 preserved split	A	NA		4.5	Y	Absent		624.1(3)
L1925850-01D	Split Amber 1000ml Na2S2O3	A	NA		4.5	Y	Absent		625.1(7)
L1925850-01E	Split Amber 1000ml Na2S2O3	A	NA		4.5	Y	Absent		625.1(7)
L1925850-02A	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		COMP-VOA()
L1925850-02B	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		COMP-VOA()
L1925850-02C	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		COMP-VOA()
L1925850-02D	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		COMP-VOA()
L1925850-02E	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		COMP-VOA()
L1925850-02F	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		COMP-VOA()
L1925850-02G	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		COMP-VOA()
L1925850-02H	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		COMP-VOA()
L1925850-02I	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		COMP-VOA()
L1925850-02J	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		COMP-VOA()
L1925850-02K	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		COMP-VOA()
L1925850-02L	Vial Na2S2O3 preserved	NA	NA			Y	Absent		COMP-VOA()
L1925850-02M	Amber 1000ml Na2S2O3	A	7	7	4.5	Y	Absent		COMP-W()
L1925850-02N	Amber 1000ml Na2S2O3	A	7	7	4.5	Y	Absent		COMP-W()
L1925850-02O	Amber 1000ml Na2S2O3	A	7	7	4.5	Y	Absent		COMP-W()
L1925850-02P	Amber 1000ml Na2S2O3	A	7	7	4.5	Y	Absent		COMP-W()
L1925850-02Q	Amber 1000ml Na2S2O3	A	7	7	4.5	Y	Absent		COMP-W()
L1925850-02R	Amber 1000ml Na2S2O3	A	7	7	4.5	Y	Absent		COMP-W()

*Values in parentheses indicate holding time in days

Project Name: RIVERBEND S/A BSA
Project Number: 0020-001-001

Lab Number: L1925850
Report Date: 06/25/19

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L1925850-02S	Amber 1000ml Na2S2O3	A	7	7	4.5	Y	Absent		COMP-W()
L1925850-02T	Amber 1000ml Na2S2O3	A	7	7	4.5	Y	Absent		COMP-W()
L1925850-03A	Plastic 250ml NaOH preserved	A	>12	>12	4.5	Y	Absent		TCN-4500(14)
L1925850-03B	Plastic 60ml unpreserved	A	7	7	4.5	Y	Absent		PH-4500(.01)
L1925850-04A	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		624.1(3)
L1925850-04B	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		624.1(3)

*Values in parentheses indicate holding time in days

Project Name:	RIVERBEND S/A BSA	**Lab Number:**	L1925850
Project Number:	0020-001-001	**Report Date:**	06/25/19

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers

Project Name:	RIVERBEND S/A BSA	**Lab Number:**	L1925850
Project Number:	0020-001-001	**Report Date:**	06/25/19

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers

Project Name: RIVERBEND S/A BSA
Project Number: 0020-001-001
Lab Number: L1925850
Report Date: 06/25/19

REFERENCES

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

128 Method 624.1: Purgeables by GC/MS, EPA 821-R-16-008, December 2016.

129 Method 625.1: Base/Neutrals and Acids by GC/MS, EPA 821-R-16-007, December 2016.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab

ALPHA Job #

Client Information

Client: Orion Environmental
Address: 4535 Southwestern Blvd
Suite 210, Hamburg, NY 14075
Phone: (716) 202-4475
Fax:
Email: bhann@orionesllc.com

Project Information

Project Name: Riverbend S/A BSA
Project Location: Buffalo, NY
Project # 0020-001-001
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☑ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.

Disposal Facility:
☐ NJ ☐ NY
☐ Other: NA

These samples have been previously analyzed by Alpha ☒

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	624	625	TCN	pH					Sample Specific Comments	Total Bottles
	Process Effluent - Grab 1	6/13/19	9:40	Water	BCH	x	x							Lab to composite 1-4	5
	Process Effluent - Grab 2	6/13/19	1330	Water	↓	x	x							Lab to composite 1-4	5
	Process Effluent - Grab 3	6/13/19	1750	Water	↓	x	x							Lab to composite 1-4	5
	Process Effluent - Grab 4	6/14/19	915	Water	↓	x	x							Lab to composite 1-4	5
	Process Effluent	6/14/19	915	Water	↓			x	x						2
	Trip Blank			Water		x									2

Container Type	V	A	P	P				
Preservative	H	H	E	A				

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
	6/14/19		14 June 2019 1200
	14 June 2019 1205		6/15/19 01:20

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Form No: 01-25 (rev. 30-Sept-2013)

ATTACHMENT 3

FLOW METER CALIBRATION DATA

ORION

Cold Spring Environmental
3248 Buffalo Rd., Varysburg, N.Y. 14167
Ph: 716-863-7052

March 5, 2019

Benchmark & Turnkey
Att. Brock Greene
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218

Ref: Flow Meter Calibration

Dear Mr. Greene,

Calibration Date: February 27, 2019
Site location: Pretreatment Building, 192 Baraga St.
Equipment Model:Signet GF 8550
Equipment type: Closed Pipe impellor
Equipment S/N: 60210142061
Impellor Model: P51530-P0
Impellor: S/N 60305023102
Measuring device: 3 inch pipe
Output type: 4-20mA
Totalizer multiplier: 1 gallon

Displayed level/flow rate: 0 GPM
Measured Level/flow rate: 0 GPM
Displayed level/flow rate: 88-93 GPM
Measured Level/flow rate: 88-94 GPM
Percent Difference: 0%
Adjustment: no
Note: measured the totalizer at 89 GPM and found it to be correct

Please contact me with any questions.

Sincerely, Jon Wolak

716-863-7052
jonwolak@yahoo.com

ORION
Environmental Solutions, LLC

December 27, 2019

Mr. Michael Szilagyi
Buffalo Sewer Authority
Industrial Waste Section
90 West Ferry Street
Buffalo, NY 14213-1799

Re: RiverBend Site
Ground Water Pre-Treatment Discharge Monitoring Results
December 2019 Semi-Annual Compliance Monitoring Report
BPDES Permit No. 19-01-BU278

Dear Mr. Szilagyi:

On behalf of our client, Fort Schuyler Management Corporation, Orion Environmental Solutions, LLC (Orion) has prepared this correspondence to present the second semi-annual 2019 discharge monitoring results for the groundwater pre-treatment system at the above-referenced facility. Orion began operating the RiverBend treatment system for Fort Schuyler on May 1, 2019. Discharge monitoring was performed from December 5-6, 2019.

SAMPLE COLLECTION

Samples were collected from the pretreated process effluent (Outfall 001) in general accordance with Buffalo Pollution Discharge Elimination System (BPDES) Permit No. 19-01-BU278 in laboratory-provided, pre-cleaned, and pre-preserved sample bottles (see Figure 1). Four grab samples for volatile organic compound (VOC) and semi-volatile organic compound (SVOC) analysis were containerized in individual sample bottles for laboratory composite preparation during sample extraction and USEPA Method 624 and Method 625 analysis, respectively. Composite samples were also collected for laboratory pH and total cyanide analysis. In accordance with the Permit, composite samples were prepared for all required parameters by combining grab samples collected at four equally spaced intervals over the 24-hour monitoring period. Field documentation is provided in Attachment 1.

ANALYTICAL RESULTS

The current period analytical results are provided in Attachment 2. Compounds detected above the laboratory reporting limit during the December 2019 event are summarized in Table 1 along with permitted BSA discharge limits. As indicated, all parameters are well within allowable limits.

FLOW MONITORING

Flow measurement data recorded during the current monitoring period is presented in Table 1. Flow measurements reflect the total flow recorded during the monitoring period divided by the number of days in that monitoring period. A copy of the annual flow meter calibration data is presented in Attachment 3. The next flow meter calibration is tentatively scheduled for January 2020.

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Please contact us if you have any questions.

Sincerely,
Orion Environmental Solutions, LLC

Bryan C. Hann
Chief Operating Officer

File: 0020-001-001

TABLES

ORION
Environmental Solutions, LLC

TABLE 1

2019 SEMI-ANNUAL GROUNDWATER PRETREATMENT SYSTEM DATA SUMMARY

BPDES Permit No. 19-01-BU278
Fort Schuyler RiverBend Site
312 Abby Street, Buffalo, NY

Parameter	December 5-6, 2019		Daily Discharge Limits [2]
	Concentration (units as indicated)	*Mass [1] (pounds)*	
Laboratory pH (S.U.)	7.70	na	5.0 - 12.0
Field pH (S.U.) [3]	7.33	na	5.0 - 12.0
Volatile Organic Compounds - Method 624 (mg/L)			
1,1-Dichloroethane	0.7 J	na	Monitor
Carbon tetrachloride	1.4	na	Monitor
Tetrachloroethene	1.5	na	Monitor
1,1,1-Trichloroethane	1.3 J	na	Monitor
Benzene	0.44 J	na	Monitor
Toluene	0.45 J	na	Monitor
Ethylbenzene	0.62 J	na	Monitor
1,1-Dichloroethene	1.3	na	Monitor
trans-1,2-Dichloroethene	0.91 J	na	Monitor
cis-1,2-Dichloroethene	0.29 J	na	Monitor
Trichloroethene	1.1	na	Monitor
Xylenes, total	0.99 J	na	Monitor
Total VOCs	*11.00*	*na*	*Monitor*
Semi-Volatile Organic Compounds - Method 625 (mg/L)			
Total SVOCs	ND	na	Monitor
Inorganics (mg/L)			
Total Cyanide	0.327	0.085	4.3 lbs
Average Daily Flow (gallons per day) [4]	31,242		*see Note 5*

Notes:
1. The monitoring result is calculated based on the concentration of detected parameters and the average daily flow rate calculated below.
2. Mass limits are based on the Average Daily Flow through the December event; actual limits may vary slightly based on actual discharge.
3. Field pH is an average of four grab samples collected over a 24-hour period.
4. Average daily flow based on net flow recorded between the Flow Calculation dates shown below for the December event.
5. Permitted maximum allowable daily flow is 110,000 gpd. An action level of 54,000 gpd is identified in the Permit. The BSA is to be notified if flow consistently exceeds this action level so that the permit can be modifed.
6. " ND " = Indicates compound was part of the analysis, but not detected at a concentration above the reporting limit.

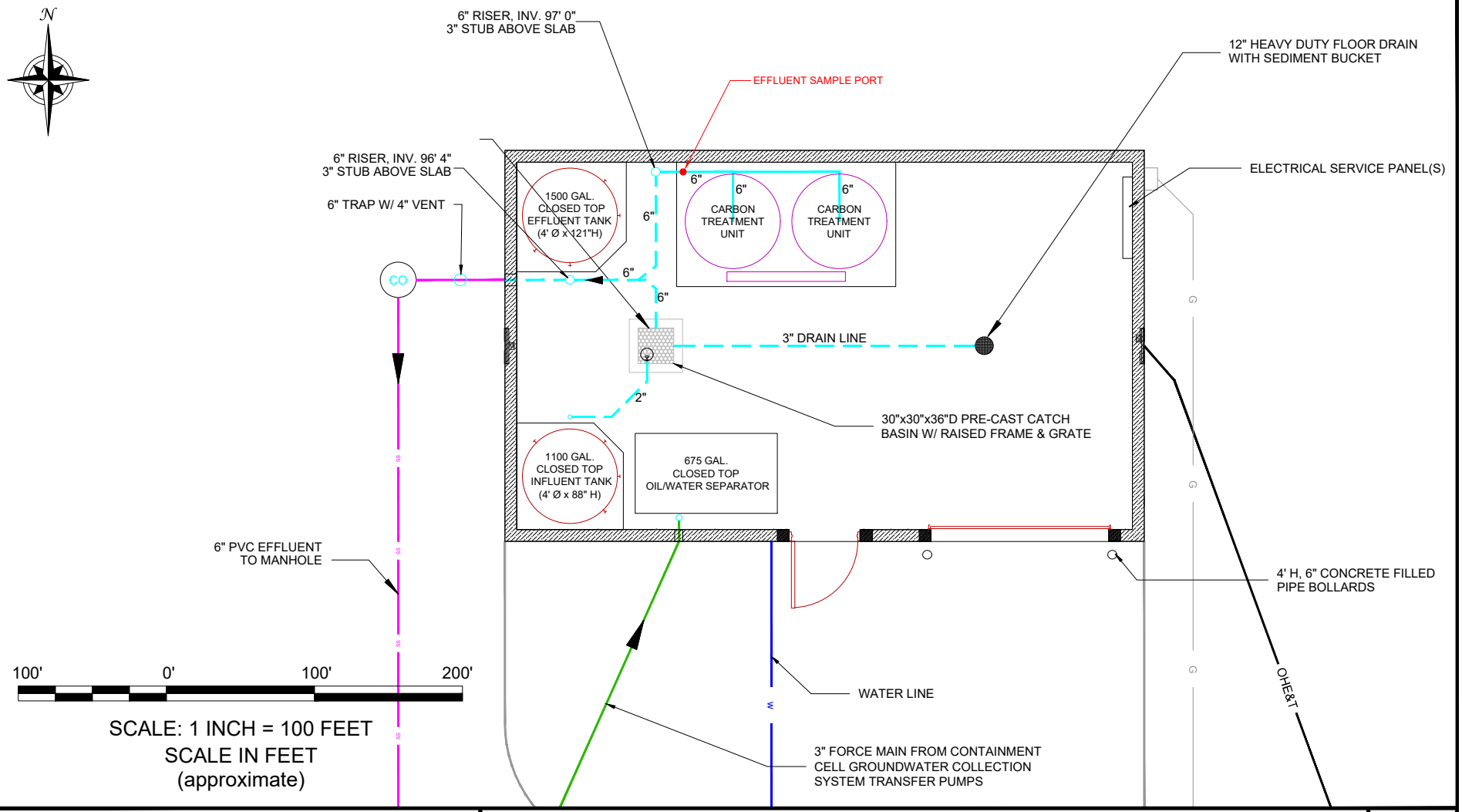
Flow Calculations:

Event	Date	Flow Measurement * (gallons)	Average Daily Flow * (gallons per day)
June 2019	07/01/2019	13,371,506	31,242
	12/26/2019	18,932,520	

Notes:
* = The treatment system flow meter was calibrated on 03/05/19, however it was not reset to zero. The January 2019 flow measurement shown was recorded by Benchmark Environmental Engineering, PLLC and the June 2019 flow measurement was recorded by Orion.

FIGURES

ORION



ORION
Environmental Solutions, LLC
4535 Southwestern Boulevard, Suite 210, Hamburg, NY 14075

PROJECT NO.: 0020-001-001

DATE: JUNE 2019

DRAFTED BY: BCH

GWPTS BUILDING LAYOUT

BSA PERMIT NO. 19-01-BU278

RIVERBEND SITE
BUFFALO, NEW YORK

PREPARED FOR
FORT SCHUYLER MANAGEMENT CORPORATION

FIGURE 1

ATTACHMENT 1

FIELD DOCUMENTATION

ORION

ORION Environmental Solutions, LLC

EFFLUENT SAMPLE COLLECTION LOG

PROJECT INFORMATION

Project Name: RiverBend Site
Project No.: 0020-001-001
Client: Fort Schuyler Management Corporation
Location: 312 Abby Street, Buffalo, NY

SAMPLE DESCRIPTION

I.D.: **Process Effluent**
Matrix: ☐ SURFACE WATER ☐ STORM ☐ SEEP ☐ OTHER ☐ INFLUENT ☑ EFFLUENT

SAMPLE INFORMATION

Date Collected: 12/5-6/2019
Time Collected: see below
Date Shipped to Lab: 12/6/2019
Collected By: BCH
Sample Type: ☐ POINT ☐ GRAB ☑ COMPOSITE
Collection Method: ☐ DIRECT DIP ☐ SS / POLY. DIPPER ☐ PERISTALTIC PUMP ☐ POLY. DISP. BAILER ☐ ISCO SAMPLER ☑ OTHER - sample port grab

SAMPLING INFORMATION

Weather:
Air Temperature:

Parameter	Units	Grab #1	Grab #2	Grab #3	Grab #4
pH	units	7.31	7.28	7.35	7.38
Temp.	°C	11.3	11.3	11.5	11.4
Cond.	µS	1201	1190	1221	1196
Turbidity	NTU	2.01	3.51	6.43	2.15
Eh / ORP	mV	-120	-111	-170	-140
D.O.	ppm	3.80	3.94	4.23	4.41
Odor	olfactory	none	none	none	none
Appearance	visual	clear	clear	clear	clear
Sample Date		12/5/19	12/5/19	12/5/19	12/6/19
Sample Time		930	1300	1600	730

EXACT LOCATION (if applicable)

Northing (ft)	Easting (ft)	Surface Elevation (fmsl)

SAMPLE DESCRIPTION (appearance, olfactory):

SAMPLE ANALYSIS (depth, laboratory analysis required):

* *Collect four individual grab samples for method 624 (VOCs) and 625 (SVOCs) analysis, these samples will be composited at the lab.*
* *Collect composite samples for cyanide and laboratory pH by filling equal aliquots of sample to fill sample containers*

ADDITIONAL REMARKS:

PREPARED BY: BCH **DATE:** 12/5-6/2019

NEW YORK CHAIN OF CUSTODY

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-9288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab

ALPHA Job #

Client Information

Client: Orion Environmental
Address: 4535 Southwestern Blvd
Suite 210, Hamburg, NY 14075
Phone: (716) 202-4475
Fax:
Email: bhann@orionesllc.com

Project Information

Project Name: Riverbend S/A BSA
Project Location: Buffalo, NY
Project #
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Billing Information

☑ Same as Client Info
PO #

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other: ☐ NA

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	624	625	TCN	pH					Sample Specific Comments	Total Bottles
	Process Effluent - Grab 1	12/5/19	930	Water	BCH	x	x							Lab to composite 1-4	5
	Process Effluent - Grab 2	↓	1300	Water	↓	x	x							Lab to composite 1-4	5
	Process Effluent - Grab 3	↓	1600	Water	↓	x	x							Lab to composite 1-4	5
	Process Effluent - Grab 4	12/6/19	730	Water	↓	x	x							Lab to composite 1-4	5
	Process Effluent	12/6/19	730	Water	↓			x	x						2
	Trip Blank			Water		x									2

Container Type: V A P P
Preservative: H H E A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
	12/6/19 9:45	Goodlym Foody (AAL)	12/6/19 9:45

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

ATTACHMENT 2

ANALYTICAL DATA

ANALYTICAL REPORT

Lab Number:	L1958467
Client:	Orion Environmental Solutions, LLC 4535 Southwestern Blvd. Suite 210 Hamburg, NY 14075
ATTN:	Bryan Hann
Phone:	(716) 202-4475
Project Name:	RIVERBEND S/A BSA
Project Number:	Not Specified
Report Date:	12/19/19

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: RIVERBEND S/A BSA
Project Number: Not Specified

Lab Number: L1958467
Report Date: 12/19/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1958467-01	PROCESS EFFLUENT-GRAB 1-4	WATER	BUFFALO, NY	12/05/19 13:30	12/06/19
L1958467-02	PROCESS EFFLUENT-COMPOSITE	WATER	BUFFALO, NY	12/05/19 13:00	12/06/19
L1958467-03	PROCESS EFFLUENT	WATER	BUFFALO, NY	12/05/19 16:00	12/06/19
L1958467-04	TRIP BLANK	WATER	BUFFALO, NY	12/06/19 07:30	12/06/19

Project Name:	RIVERBEND S/A BSA	**Lab Number:**	L1958467
Project Number:	Not Specified	**Report Date:**	12/19/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	RIVERBEND S/A BSA	**Lab Number:**	L1958467
Project Number:	Not Specified	**Report Date:**	12/19/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Semivolatile Organics by Method 625

The WG1319642-2 LCS recovery, associated with L1958467-01, is outside the acceptance criteria for bis(2-chloroisopropyl)ether (57%); however, the MS recovery is within the method criteria. The results of the associated samples are reported.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cristin Walker

Title: Technical Director/Representative Date: 12/19/19

ORGANICS

VOLATILES

Project Name: RIVERBEND S/A BSA
Lab Number: L1958467
Project Number: Not Specified
Report Date: 12/19/19

SAMPLE RESULTS

Lab ID: L1958467-01
Client ID: PROCESS EFFLUENT-GRAB 1-4
Sample Location: BUFFALO, NY
Date Collected: 12/05/19 13:30
Date Received: 12/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 12/08/19 15:12
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	1.0	0.56	1
1,1-Dichloroethane	0.70	J	ug/l	1.5	0.40	1
Chloroform	ND		ug/l	1.0	0.38	1
Carbon tetrachloride	1.4		ug/l	1.0	0.24	1
1,2-Dichloropropane	ND		ug/l	3.5	0.46	1
Dibromochloromethane	ND		ug/l	1.0	0.27	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.34	1
2-Chloroethylvinyl ether	ND		ug/l	10	0.35	1
Tetrachloroethene	1.5		ug/l	1.0	0.26	1
Chlorobenzene	ND		ug/l	3.5	0.30	1
Trichlorofluoromethane	ND		ug/l	5.0	0.28	1
1,2-Dichloroethane	ND		ug/l	1.5	0.47	1
1,1,1-Trichloroethane	1.3	J	ug/l	2.0	0.29	1
Bromodichloromethane	ND		ug/l	1.0	0.28	1
trans-1,3-Dichloropropene	ND		ug/l	1.5	0.31	1
cis-1,3-Dichloropropene	ND		ug/l	1.5	0.34	1
Bromoform	ND		ug/l	1.0	0.22	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	0.20	1
Benzene	0.44	J	ug/l	1.0	0.38	1
Toluene	0.45	J	ug/l	1.0	0.31	1
Ethylbenzene	0.62	J	ug/l	1.0	0.28	1
Chloromethane	ND		ug/l	5.0	1.0	1
Bromomethane	ND		ug/l	5.0	1.2	1
Vinyl chloride	ND		ug/l	1.0	0.38	1
Chloroethane	ND		ug/l	2.0	0.37	1
1,1-Dichloroethene	1.3		ug/l	1.0	0.31	1
trans-1,2-Dichloroethene	0.91	J	ug/l	1.5	0.33	1
cis-1,2-Dichloroethene	0.29	J	ug/l	1.0	0.17	1

Project Name: RIVERBEND S/A BSA **Lab Number:** L1958467

Project Number: Not Specified **Report Date:** 12/19/19

SAMPLE RESULTS

Lab ID: L1958467-01 Date Collected: 12/05/19 13:30

Client ID: PROCESS EFFLUENT-GRAB 1-4 Date Received: 12/06/19

Sample Location: BUFFALO, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	1.1		ug/l	1.0	0.33	1
1,2-Dichlorobenzene	ND		ug/l	5.0	0.28	1
1,3-Dichlorobenzene	ND		ug/l	5.0	0.27	1
1,4-Dichlorobenzene	ND		ug/l	5.0	0.29	1
p/m-Xylene	0.99	J	ug/l	2.0	0.30	1
o-xylene	ND		ug/l	1.0	0.34	1
Xylenes, Total	0.99	J	ug/l	1.0	0.30	1
Styrene	ND		ug/l	1.0	0.37	1
Acetone	ND		ug/l	10	2.4	1
Carbon disulfide	ND		ug/l	5.0	0.28	1
2-Butanone	ND		ug/l	10	1.0	1
Vinyl acetate	ND		ug/l	10	0.41	1
4-Methyl-2-pentanone	ND		ug/l	10	0.19	1
2-Hexanone	ND		ug/l	10	0.55	1
Acrolein	ND		ug/l	8.0	1.8	1
Acrylonitrile	ND		ug/l	10	0.33	1
Dibromomethane	ND		ug/l	1.0	0.23	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	101		60-140
Fluorobenzene	99		60-140
4-Bromofluorobenzene	105		60-140

Project Name: RIVERBEND S/A BSA
Project Number: Not Specified
Lab Number: L1958467
Report Date: 12/19/19

SAMPLE RESULTS

Lab ID: L1958467-04
Client ID: TRIP BLANK
Sample Location: BUFFALO, NY

Date Collected: 12/06/19 07:30
Date Received: 12/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 12/08/19 13:21
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	1.0	0.56	1
1,1-Dichloroethane	ND		ug/l	1.5	0.40	1
Chloroform	ND		ug/l	1.0	0.38	1
Carbon tetrachloride	ND		ug/l	1.0	0.24	1
1,2-Dichloropropane	ND		ug/l	3.5	0.46	1
Dibromochloromethane	ND		ug/l	1.0	0.27	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.34	1
2-Chloroethylvinyl ether	ND		ug/l	10	0.35	1
Tetrachloroethene	ND		ug/l	1.0	0.26	1
Chlorobenzene	ND		ug/l	3.5	0.30	1
Trichlorofluoromethane	ND		ug/l	5.0	0.28	1
1,2-Dichloroethane	ND		ug/l	1.5	0.47	1
1,1,1-Trichloroethane	ND		ug/l	2.0	0.29	1
Bromodichloromethane	ND		ug/l	1.0	0.28	1
trans-1,3-Dichloropropene	ND		ug/l	1.5	0.31	1
cis-1,3-Dichloropropene	ND		ug/l	1.5	0.34	1
Bromoform	ND		ug/l	1.0	0.22	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	0.20	1
Benzene	ND		ug/l	1.0	0.38	1
Toluene	ND		ug/l	1.0	0.31	1
Ethylbenzene	ND		ug/l	1.0	0.28	1
Chloromethane	ND		ug/l	5.0	1.0	1
Bromomethane	ND		ug/l	5.0	1.2	1
Vinyl chloride	ND		ug/l	1.0	0.38	1
Chloroethane	ND		ug/l	2.0	0.37	1
1,1-Dichloroethene	ND		ug/l	1.0	0.31	1
trans-1,2-Dichloroethene	ND		ug/l	1.5	0.33	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	0.17	1

Project Name: RIVERBEND S/A BSA
Lab Number: L1958467
Project Number: Not Specified
Report Date: 12/19/19

SAMPLE RESULTS

Lab ID: L1958467-04
Client ID: TRIP BLANK
Sample Location: BUFFALO, NY
Date Collected: 12/06/19 07:30
Date Received: 12/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	1.0	0.33	1
1,2-Dichlorobenzene	ND		ug/l	5.0	0.28	1
1,3-Dichlorobenzene	ND		ug/l	5.0	0.27	1
1,4-Dichlorobenzene	ND		ug/l	5.0	0.29	1
p/m-Xylene	ND		ug/l	2.0	0.30	1
o-xylene	ND		ug/l	1.0	0.34	1
Xylenes, Total	ND		ug/l	1.0	0.30	1
Styrene	ND		ug/l	1.0	0.37	1
Acetone	ND		ug/l	10	2.4	1
Carbon disulfide	ND		ug/l	5.0	0.28	1
2-Butanone	ND		ug/l	10	1.0	1
Vinyl acetate	ND		ug/l	10	0.41	1
4-Methyl-2-pentanone	ND		ug/l	10	0.19	1
2-Hexanone	ND		ug/l	10	0.55	1
Acrolein	ND		ug/l	8.0	1.8	1
Acrylonitrile	ND		ug/l	10	0.33	1
Dibromomethane	ND		ug/l	1.0	0.23	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	105		60-140
Fluorobenzene	100		60-140
4-Bromofluorobenzene	105		60-140

Project Name: RIVERBEND S/A BSA
Project Number: Not Specified
Lab Number: L1958467
Report Date: 12/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 12/08/19 12:43
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,04 Batch: WG1318797-4					
Methylene chloride	ND		ug/l	1.0	0.56
1,1-Dichloroethane	ND		ug/l	1.5	0.40
Chloroform	ND		ug/l	1.0	0.38
Carbon tetrachloride	ND		ug/l	1.0	0.24
1,2-Dichloropropane	ND		ug/l	3.5	0.46
Dibromochloromethane	ND		ug/l	1.0	0.27
1,1,2-Trichloroethane	ND		ug/l	1.5	0.34
2-Chloroethylvinyl ether	ND		ug/l	10	0.35
Tetrachloroethene	ND		ug/l	1.0	0.26
Chlorobenzene	ND		ug/l	3.5	0.30
Trichlorofluoromethane	ND		ug/l	5.0	0.28
1,2-Dichloroethane	ND		ug/l	1.5	0.47
1,1,1-Trichloroethane	ND		ug/l	2.0	0.29
Bromodichloromethane	ND		ug/l	1.0	0.28
trans-1,3-Dichloropropene	ND		ug/l	1.5	0.31
cis-1,3-Dichloropropene	ND		ug/l	1.5	0.34
Bromoform	ND		ug/l	1.0	0.22
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	0.20
Benzene	ND		ug/l	1.0	0.38
Toluene	ND		ug/l	1.0	0.31
Ethylbenzene	ND		ug/l	1.0	0.28
Chloromethane	ND		ug/l	5.0	1.0
Bromomethane	ND		ug/l	5.0	1.2
Vinyl chloride	ND		ug/l	1.0	0.38
Chloroethane	ND		ug/l	2.0	0.37
1,1-Dichloroethene	ND		ug/l	1.0	0.31
trans-1,2-Dichloroethene	ND		ug/l	1.5	0.33
cis-1,2-Dichloroethene	ND		ug/l	1.0	0.17
Trichloroethene	ND		ug/l	1.0	0.33

Project Name: RIVERBEND S/A BSA
Project Number: Not Specified
Lab Number: L1958467
Report Date: 12/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 12/08/19 12:43
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,04 Batch: WG1318797-4					
1,2-Dichlorobenzene	ND		ug/l	5.0	0.28
1,3-Dichlorobenzene	ND		ug/l	5.0	0.27
1,4-Dichlorobenzene	ND		ug/l	5.0	0.29
p/m-Xylene	ND		ug/l	2.0	0.30
o-xylene	ND		ug/l	1.0	0.34
Xylenes, Total	ND		ug/l	1.0	0.30
Styrene	ND		ug/l	1.0	0.37
Acetone	ND		ug/l	10	2.4
Carbon disulfide	ND		ug/l	5.0	0.28
2-Butanone	ND		ug/l	10	1.0
Vinyl acetate	ND		ug/l	10	0.41
4-Methyl-2-pentanone	ND		ug/l	10	0.19
2-Hexanone	ND		ug/l	10	0.55
Acrolein	ND		ug/l	8.0	1.8
Acrylonitrile	ND		ug/l	10	0.33
n-Hexane[1]	ND		ug/l	20	0.17
Methyl tert butyl ether	ND		ug/l	10	0.19
Dibromomethane	ND		ug/l	1.0	0.23
1,4-Dioxane[1]	ND		ug/l	2000	30.
Tert-Butyl Alcohol	ND		ug/l	100	3.9
Tertiary-Amyl Methyl Ether	ND		ug/l	20	0.28
Dichlorodifluoromethane[1]	ND		ug/l	1.0	0.32

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	105		60-140
Fluorobenzene	102		60-140
4-Bromofluorobenzene	99		60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: Not Specified

Lab Number: L1958467

Report Date: 12/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,04 Batch: WG1318797-3								
Methylene chloride	105		-		60-140	-		28
1,1-Dichloroethane	105		-		50-150	-		49
Chloroform	105		-		70-135	-		54
Carbon tetrachloride	110		-		70-130	-		41
1,2-Dichloropropane	105		-		35-165	-		55
Dibromochloromethane	95		-		70-135	-		50
1,1,2-Trichloroethane	100		-		70-130	-		45
2-Chloroethylvinyl ether	160		-		1-225	-		71
Tetrachloroethene	105		-		70-130	-		39
Chlorobenzene	95		-		65-135	-		53
Trichlorofluoromethane	100		-		50-150	-		84
1,2-Dichloroethane	105		-		70-130	-		49
1,1,1-Trichloroethane	115		-		70-130	-		36
Bromodichloromethane	105		-		65-135	-		56
trans-1,3-Dichloropropene	95		-		50-150	-		86
cis-1,3-Dichloropropene	105		-		25-175	-		58
Bromoform	95		-		70-130	-		42
1,1,2,2-Tetrachloroethane	105		-		60-140	-		61
Benzene	110		-		65-135	-		61
Toluene	105		-		70-130	-		41
Ethylbenzene	100		-		60-140	-		63
Chloromethane	80		-		1-205	-		60
Bromomethane	38		-		15-185	-		61

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: Not Specified

Lab Number: L1958467

Report Date: 12/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,04 Batch: WG1318797-3								
Vinyl chloride	85		-		5-195	-		66
Chloroethane	100		-		40-160	-		78
1,1-Dichloroethene	105		-		50-150	-		32
trans-1,2-Dichloroethene	110		-		70-130	-		45
cis-1,2-Dichloroethene	100		-		60-140	-		30
Trichloroethene	110		-		65-135	-		48
1,2-Dichlorobenzene	100		-		65-135	-		57
1,3-Dichlorobenzene	95		-		70-130	-		43
1,4-Dichlorobenzene	100		-		65-135	-		57
p/m-Xylene	95		-		60-140	-		30
o-xylene	95		-		60-140	-		30
Styrene	95		-		60-140	-		30
Acetone	98		-		40-160	-		30
Carbon disulfide	95		-		60-140	-		30
2-Butanone	88		-		60-140	-		30
Vinyl acetate	105		-		60-140	-		30
4-Methyl-2-pentanone	102		-		60-140	-		30
2-Hexanone	100		-		60-140	-		30
Acrolein	92		-		60-140	-		30
Acrylonitrile	100		-		60-140	-		60
n-Hexane[1]	105		-		60-140	-		30
Methyl tert butyl ether	105		-		60-140	-		30
Dibromomethane	105		-		70-130	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: Not Specified

Lab Number: L1958467

Report Date: 12/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,04 Batch: WG1318797-3								
1,4-Dioxane[1]	115		-		60-140	-		30
Tert-Butyl Alcohol	120		-		60-140	-		30
Tertiary-Amyl Methyl Ether	105		-		60-140	-		30
Dichlorodifluoromethane[1]	90		-		70-130	-		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	106				60-140
Fluorobenzene	103				60-140
4-Bromofluorobenzene	100				60-140

SEMIVOLATILES

Project Name: RIVERBEND S/A BSA
Project Number: Not Specified
Lab Number: L1958467
Report Date: 12/19/19

SAMPLE RESULTS

Lab ID: L1958467-01
Client ID: PROCESS EFFLUENT-GRAB 1-4
Sample Location: BUFFALO, NY

Date Collected: 12/05/19 13:30
Date Received: 12/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 12/18/19 14:37
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 12/12/19 08:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/l	2.0	0.41	1
Benzidine[1]	ND		ug/l	20	12.	1
1,2,4-Trichlorobenzene	ND		ug/l	5.0	1.5	1
Hexachlorobenzene	ND		ug/l	2.0	0.95	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.60	1
2-Chloronaphthalene	ND		ug/l	2.0	0.32	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	0.46	1
2,4-Dinitrotoluene	ND		ug/l	5.0	0.64	1
2,6-Dinitrotoluene	ND		ug/l	5.0	0.63	1
Azobenzene[1]	ND		ug/l	2.0	0.89	1
Fluoranthene	ND		ug/l	2.0	0.74	1
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.37	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.45	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.82	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.58	1
Hexachlorobutadiene	ND		ug/l	2.0	0.92	1
Hexachlorocyclopentadiene[1]	ND		ug/l	10	1.4	1
Hexachloroethane	ND		ug/l	2.0	0.97	1
Isophorone	ND		ug/l	5.0	0.55	1
Naphthalene	ND		ug/l	2.0	0.90	1
Nitrobenzene	ND		ug/l	2.0	0.79	1
NDPA/DPA[1]	ND		ug/l	2.0	0.78	1
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.63	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	1.7	1
Butyl benzyl phthalate	ND		ug/l	5.0	0.67	1
Di-n-butylphthalate	ND		ug/l	5.0	0.63	1
Di-n-octylphthalate	ND		ug/l	5.0	0.63	1
Diethyl phthalate	ND		ug/l	5.0	0.72	1

Project Name: RIVERBEND S/A BSA **Lab Number:** L1958467

Project Number: Not Specified **Report Date:** 12/19/19

SAMPLE RESULTS

Lab ID: L1958467-01 Date Collected: 12/05/19 13:30

Client ID: PROCESS EFFLUENT-GRAB 1-4 Date Received: 12/06/19

Sample Location: BUFFALO, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Dimethyl phthalate	ND		ug/l	5.0	1.4	1
Benzo(a)anthracene	ND		ug/l	2.0	0.66	1
Benzo(a)pyrene	ND		ug/l	2.0	0.61	1
Benzo(b)fluoranthene	ND		ug/l	2.0	0.74	1
Benzo(k)fluoranthene	ND		ug/l	2.0	0.74	1
Chrysene	ND		ug/l	2.0	0.67	1
Acenaphthylene	ND		ug/l	2.0	0.93	1
Anthracene	ND		ug/l	2.0	0.79	1
Benzo(ghi)perylene	ND		ug/l	2.0	0.67	1
Fluorene	ND		ug/l	2.0	0.93	1
Phenanthrene	ND		ug/l	2.0	0.82	1
Dibenzo(a,h)anthracene	ND		ug/l	2.0	0.69	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	2.0	0.63	1
Pyrene	ND		ug/l	2.0	0.73	1
4-Chloroaniline[1]	ND		ug/l	5.0	0.79	1
Dibenzofuran[1]	ND		ug/l	2.0	0.37	1
2-Methylnaphthalene[1]	ND		ug/l	2.0	0.35	1
n-Nitrosodimethylamine[1]	ND		ug/l	2.0	0.41	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol[1]	ND		ug/l	2.0	0.53	1
2-Chlorophenol	ND		ug/l	2.0	0.51	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.55	1
2,4-Dimethylphenol	ND		ug/l	5.0	0.85	1
2-Nitrophenol	ND		ug/l	5.0	0.60	1
4-Nitrophenol	ND		ug/l	10	0.83	1
2,4-Dinitrophenol	ND		ug/l	20	1.2	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.2	1
Pentachlorophenol	ND		ug/l	5.0	0.62	1
Phenol	ND		ug/l	5.0	0.26	1
2-Methylphenol[1]	ND		ug/l	5.0	0.77	1
3-Methylphenol/4-Methylphenol[1]	ND		ug/l	5.0	0.51	1
2,4,5-Trichlorophenol[1]	ND		ug/l	5.0	0.64	1
Benzoic Acid[1]	ND		ug/l	50	1.2	1
Benzyl Alcohol[1]	ND		ug/l	2.0	0.49	1

Project Name: RIVERBEND S/A BSA **Lab Number:** L1958467

Project Number: Not Specified **Report Date:** 12/19/19

SAMPLE RESULTS

Lab ID: L1958467-01 Date Collected: 12/05/19 13:30

Client ID: PROCESS EFFLUENT-GRAB 1-4 Date Received: 12/06/19

Sample Location: BUFFALO, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	60		25-87
Phenol-d6	39		16-65
Nitrobenzene-d5	92		42-122
2-Fluorobiphenyl	76		46-121
2,4,6-Tribromophenol	108		45-128
4-Terphenyl-d14	101		47-138

Project Name: RIVERBEND S/A BSA
Project Number: Not Specified

Lab Number: L1958467
Report Date: 12/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 12/12/19 14:44
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 12/11/19 17:50

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1319642-1					
Acenaphthene	ND		ug/l	2.0	0.41
Benzidine[1]	ND		ug/l	20	12.
1,2,4-Trichlorobenzene	ND		ug/l	5.0	1.5
Hexachlorobenzene	ND		ug/l	2.0	0.95
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.60
2-Chloronaphthalene	ND		ug/l	2.0	0.32
3,3'-Dichlorobenzidine	ND		ug/l	5.0	0.46
2,4-Dinitrotoluene	ND		ug/l	5.0	0.64
2,6-Dinitrotoluene	ND		ug/l	5.0	0.63
Azobenzene[1]	ND		ug/l	2.0	0.89
Fluoranthene	ND		ug/l	2.0	0.74
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.37
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.45
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.82
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.58
Hexachlorobutadiene	ND		ug/l	2.0	0.92
Hexachlorocyclopentadiene[1]	ND		ug/l	10	1.4
Hexachloroethane	ND		ug/l	2.0	0.97
Isophorone	ND		ug/l	5.0	0.55
Naphthalene	ND		ug/l	2.0	0.90
Nitrobenzene	ND		ug/l	2.0	0.79
NDPA/DPA[1]	ND		ug/l	2.0	0.78
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.63
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	1.7
Butyl benzyl phthalate	ND		ug/l	5.0	0.67
Di-n-butylphthalate	ND		ug/l	5.0	0.63
Di-n-octylphthalate	ND		ug/l	5.0	0.63
Diethyl phthalate	ND		ug/l	5.0	0.72
Dimethyl phthalate	ND		ug/l	5.0	1.4

Project Name: RIVERBEND S/A BSA
Project Number: Not Specified

Lab Number: L1958467
Report Date: 12/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 12/12/19 14:44
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 12/11/19 17:50

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1319642-1					
Benzo(a)anthracene	ND		ug/l	2.0	0.66
Benzo(a)pyrene	ND		ug/l	2.0	0.61
Benzo(b)fluoranthene	ND		ug/l	2.0	0.74
Benzo(k)fluoranthene	ND		ug/l	2.0	0.74
Chrysene	ND		ug/l	2.0	0.67
Acenaphthylene	ND		ug/l	2.0	0.93
Anthracene	ND		ug/l	2.0	0.79
Benzo(ghi)perylene	ND		ug/l	2.0	0.67
Fluorene	ND		ug/l	2.0	0.93
Phenanthrene	ND		ug/l	2.0	0.82
Dibenzo(a,h)anthracene	ND		ug/l	2.0	0.69
Indeno(1,2,3-cd)pyrene	ND		ug/l	2.0	0.63
Pyrene	ND		ug/l	2.0	0.73
4-Chloroaniline[1]	ND		ug/l	5.0	0.79
Dibenzofuran[1]	ND		ug/l	2.0	0.37
2-Methylnaphthalene[1]	ND		ug/l	2.0	0.35
n-Nitrosodimethylamine[1]	ND		ug/l	2.0	0.41
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61
p-Chloro-m-cresol[1]	ND		ug/l	2.0	0.53
2-Chlorophenol	ND		ug/l	2.0	0.51
2,4-Dichlorophenol	ND		ug/l	5.0	0.55
2,4-Dimethylphenol	ND		ug/l	5.0	0.85
2-Nitrophenol	ND		ug/l	5.0	0.60
4-Nitrophenol	ND		ug/l	10	0.83
2,4-Dinitrophenol	ND		ug/l	20	1.2
4,6-Dinitro-o-cresol	ND		ug/l	10	1.2
Pentachlorophenol	ND		ug/l	5.0	0.62
Phenol	ND		ug/l	5.0	0.26
2-Methylphenol[1]	ND		ug/l	5.0	0.77

Project Name: RIVERBEND S/A BSA
Project Number: Not Specified
Lab Number: L1958467
Report Date: 12/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 12/12/19 14:44
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 12/11/19 17:50

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1319642-1					
3-Methylphenol/4-Methylphenol[1]	ND		ug/l	5.0	0.51
2,4,5-Trichlorophenol[1]	ND		ug/l	5.0	0.64
Benzoic Acid[1]	ND		ug/l	50	1.2
Benzyl Alcohol[1]	ND		ug/l	2.0	0.49

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	40		25-87
Phenol-d6	22		16-65
Nitrobenzene-d5	58		42-122
2-Fluorobiphenyl	64		46-121
2,4,6-Tribromophenol	74		45-128
4-Terphenyl-d14	78		47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: RIVERBEND S/A BSA
Project Number: Not Specified
Lab Number: L1958467
Report Date: 12/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1319642-2								
Acenaphthene	72		-		60-132	-		48
Benzidine[1]	32		-		0-70	-		30
1,2,4-Trichlorobenzene	63		-		57-130	-		50
Hexachlorobenzene	84		-		8-142	-		55
Bis(2-chloroethyl)ether	69		-		43-126	-		108
2-Chloronaphthalene	71		-		65-120	-		24
3,3'-Dichlorobenzidine	30		-		8-213	-		108
2,4-Dinitrotoluene	82		-		48-127	-		42
2,6-Dinitrotoluene	82		-		68-137	-		48
Azobenzene[1]	76		-		44-115	-		23
Fluoranthene	83		-		43-121	-		66
4-Chlorophenyl phenyl ether	79		-		38-145	-		61
4-Bromophenyl phenyl ether	82		-		65-120	-		43
Bis(2-chloroisopropyl)ether	**57**	Q	-		63-139	-		76
Bis(2-chloroethoxy)methane	75		-		49-165	-		54
Hexachlorobutadiene	63		-		38-120	-		62
Hexachlorocyclopentadiene[1]	64		-		7-118	-		35
Hexachloroethane	60		-		55-120	-		52
Isophorone	74		-		47-180	-		93
Naphthalene	62		-		36-120	-		65
Nitrobenzene	68		-		54-158	-		62
NDPA/DPA[1]	80		-		45-112	-		36
n-Nitrosodi-n-propylamine	74		-		14-198	-		87

Lab Control Sample Analysis
Batch Quality Control

Project Name: RIVERBEND S/A BSA
Project Number: Not Specified

Lab Number: L1958467
Report Date: 12/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1319642-2								
Bis(2-ethylhexyl)phthalate	87		-		29-137	-		82
Butyl benzyl phthalate	98		-		1-140	-		60
Di-n-butylphthalate	93		-		8-120	-		47
Di-n-octylphthalate	90		-		19-132	-		69
Diethyl phthalate	86		-		1-120	-		100
Dimethyl phthalate	83		-		1-120	-		183
Benzo(a)anthracene	74		-		42-133	-		53
Benzo(a)pyrene	74		-		32-148	-		72
Benzo(b)fluoranthene	77		-		42-140	-		71
Benzo(k)fluoranthene	75		-		25-146	-		63
Chrysene	68		-		44-140	-		87
Acenaphthylene	77		-		54-126	-		74
Anthracene	74		-		43-120	-		66
Benzo(ghi)perylene	80		-		1-195	-		97
Fluorene	80		-		70-120	-		38
Phenanthrene	66		-		65-120	-		39
Dibenzo(a,h)anthracene	87		-		1-200	-		126
Indeno(1,2,3-cd)pyrene	89		-		1-151	-		99
Pyrene	71		-		70-120	-		49
4-Chloroaniline[1]	50		-		10-100	-		53
Dibenzofuran[1]	76		-		23-126	-		22
2-Methylnaphthalene[1]	69		-		40-109	-		18
n-Nitrosodimethylamine[1]	39		-		15-68	-		17

Lab Control Sample Analysis
Batch Quality Control

Project Name: RIVERBEND S/A BSA
Project Number: Not Specified

Lab Number: L1958467
Report Date: 12/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1319642-2								
2,4,6-Trichlorophenol	85		-		52-129	-		58
p-Chloro-m-cresol[1]	87		-		68-130	-		73
2-Chlorophenol	72		-		36-120	-		61
2,4-Dichlorophenol	81		-		53-122	-		50
2,4-Dimethylphenol	83		-		42-120	-		58
2-Nitrophenol	82		-		45-167	-		55
4-Nitrophenol	48		-		13-129	-		131
2,4-Dinitrophenol	75		-		1-173	-		132
4,6-Dinitro-o-cresol	86		-		56-130	-		203
Pentachlorophenol	75		-		38-152	-		86
Phenol	38		-		17-120	-		64
2-Methylphenol[1]	70		-		38-102	-		23
3-Methylphenol/4-Methylphenol[1]	73		-		35-103	-		26
2,4,5-Trichlorophenol[1]	86		-		47-126	-		28
Benzoic Acid[1]	16		-		2-55	-		27
Benzyl Alcohol[1]	69		-		31-103	-		23

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: Not Specified

Lab Number: L1958467

Report Date: 12/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1319642-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	50				25-87
Phenol-d6	34				16-65
Nitrobenzene-d5	59				42-122
2-Fluorobiphenyl	61				46-121
2,4,6-Tribromophenol	88				45-128
4-Terphenyl-d14	67				47-138

INORGANICS
&
MISCELLANEOUS

Project Name: RIVERBEND S/A BSA
Project Number: Not Specified

Lab Number: L1958467
Report Date: 12/19/19

SAMPLE RESULTS

Lab ID: L1958467-03
Client ID: PROCESS EFFLUENT
Sample Location: BUFFALO, NY

Date Collected: 12/05/19 16:00
Date Received: 12/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	0.327		mg/l	0.005	0.001	1	12/08/19 15:10	12/09/19 15:42	121,4500CN-CE	LH
pH (H)	7.7		SU	-	NA	1	-	12/09/19 05:16	121,4500H+-B	DS

Project Name: RIVERBEND S/A BSA
Project Number: Not Specified
Lab Number: L1958467
Report Date: 12/19/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 03 Batch: WG1318158-1										
Cyanide, Total	ND		mg/l	0.005	0.001	1	12/08/19 15:10	12/09/19 13:57	121,4500CN-CE	LH

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: Not Specified

Lab Number: L1958467

Report Date: 12/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 03 Batch: WG1318158-2								
Cyanide, Total	101		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 03 Batch: WG1318232-1								
pH	100		-		99-101	-		5

Matrix Spike Analysis
Batch Quality Control

Project Name: RIVERBEND S/A BSA
Project Number: Not Specified

Lab Number: L1958467
Report Date: 12/19/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1318158-4 WG1318158-5 QC Sample: L1958639-07 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.203	102		0.208	104		90-110	2		30

Lab Duplicate Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: Not Specified

Lab Number: L1958467

Report Date: 12/19/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1318158-3 QC Sample: L1958639-07 Client ID: DUP Sample						
Cyanide, Total	ND	ND	mg/l	NC		30
General Chemistry - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1318232-2 QC Sample: L1958381-01 Client ID: DUP Sample						
pH	7.9	8.1	SU	2		5

Project Name: RIVERBEND S/A BSA
Project Number: Not Specified

Lab Number: L1958467
Report Date: 12/19/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1958467-01A	Vial Na2S2O3 preserved split	A	NA		4.8	Y	Absent		624.1(3)
L1958467-01B	Vial Na2S2O3 preserved split	A	NA		4.8	Y	Absent		624.1(3)
L1958467-01C	Vial Na2S2O3 preserved split	A	NA		4.8	Y	Absent		624.1(3)
L1958467-01D	Split Amber 1000ml Na2S2O3	A	NA		4.8	Y	Absent		625.1(7)
L1958467-01E	Split Amber 1000ml Na2S2O3	A	NA		4.8	Y	Absent		625.1(7)
L1958467-02A	Vial Na2S2O3 preserved	A	NA		4.8	Y	Absent		COMP-VOA()
L1958467-02B	Vial Na2S2O3 preserved	A	NA		4.8	Y	Absent		COMP-VOA()
L1958467-02C	Vial Na2S2O3 preserved	A	NA		4.8	Y	Absent		COMP-VOA()
L1958467-02D	Vial Na2S2O3 preserved	A	NA		4.8	Y	Absent		COMP-VOA()
L1958467-02E	Vial Na2S2O3 preserved	A	NA		4.8	Y	Absent		COMP-VOA()
L1958467-02F	Vial Na2S2O3 preserved	A	NA		4.8	Y	Absent		COMP-VOA()
L1958467-02G	Vial Na2S2O3 preserved	A	NA		4.8	Y	Absent		COMP-VOA()
L1958467-02H	Vial Na2S2O3 preserved	A	NA		4.8	Y	Absent		COMP-VOA()
L1958467-02I	Vial Na2S2O3 preserved	A	NA		4.8	Y	Absent		COMP-VOA()
L1958467-02J	Vial Na2S2O3 preserved	A	NA		4.8	Y	Absent		COMP-VOA()
L1958467-02K	Vial Na2S2O3 preserved	A	NA		4.8	Y	Absent		COMP-VOA()
L1958467-02L	Vial Na2S2O3 preserved	A	NA		4.8	Y	Absent		COMP-VOA()
L1958467-02M	Amber 1000ml Na2S2O3	A	7	7	4.8	Y	Absent		COMP-W()
L1958467-02N	Amber 1000ml Na2S2O3	A	7	7	4.8	Y	Absent		COMP-W()
L1958467-02O	Amber 1000ml Na2S2O3	A	7	7	4.8	Y	Absent		COMP-W()
L1958467-02P	Amber 1000ml Na2S2O3	A	7	7	4.8	Y	Absent		COMP-W()
L1958467-02Q	Amber 1000ml Na2S2O3	A	7	7	4.8	Y	Absent		COMP-W()
L1958467-02R	Amber 1000ml Na2S2O3	A	7	7	4.8	Y	Absent		COMP-W()

*Values in parentheses indicate holding time in days

Project Name: RIVERBEND S/A BSA
Project Number: Not Specified

Lab Number: L1958467
Report Date: 12/19/19

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L1958467-02S	Amber 1000ml Na2S2O3	A	7	7	4.8	Y	Absent		COMP-W()
L1958467-02T	Amber 1000ml Na2S2O3	A	7	7	4.8	Y	Absent		COMP-W()
L1958467-03A	Plastic 60ml unpreserved	A	7	7	4.8	Y	Absent		PH-4500(.01)
L1958467-03B	Plastic 250ml NaOH preserved	A	>12	>12	4.8	Y	Absent		TCN-4500(14)
L1958467-04A	Vial Na2S2O3 preserved	A	NA		4.8	Y	Absent		624.1(3)
L1958467-04B	Vial Na2S2O3 preserved	A	NA		4.8	Y	Absent		624.1(3)

*Values in parentheses indicate holding time in days

Project Name:	RIVERBEND S/A BSA	**Lab Number:**	L1958467
Project Number:	Not Specified	**Report Date:**	12/19/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers

Project Name:	RIVERBEND S/A BSA	**Lab Number:**	L1958467
Project Number:	Not Specified	**Report Date:**	12/19/19

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

Report Format: DU Report with 'J' Qualifiers

Project Name:	RIVERBEND S/A BSA	**Lab Number:**	L1958467
Project Number:	Not Specified	**Report Date:**	12/19/19

Data Qualifiers

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers

Project Name: RIVERBEND S/A BSA
Project Number: Not Specified
Lab Number: L1958467
Report Date: 12/19/19

REFERENCES

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

128 Method 624.1: Purgeables by GC/MS, EPA 821-R-16-008, December 2016.

129 Method 625.1: Base/Neutrals and Acids by GC/MS, EPA 821-R-16-007, December 2016.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

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8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
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FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab: 12/7/19

ALPHA Job #: L1958467

Client Information
Client: Orion Environmental
Address: 4535 Southwestern Blvd
Suite 210, Hamburg, NY 14075
Phone: (716) 202-4475
Fax:
Email: bhann@orionesllc.com

Project Information
Project Name: Riverbend S/A BSA
Project Location: Buffalo, NY
Project #
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time
Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☑ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other: NA

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	624	625	TCN	pH					Total Bottles	Sample Specific Comments
58467-01,02	Process Effluent - Grab 1	12/5/19	930	Water	BCH	x	x							5	Lab to composite 1-4
-01,02	Process Effluent - Grab 2	↓	1300	Water	↓	x	x							5	Lab to composite 1-4
-01,02	Process Effluent - Grab 3	↓	1600	Water	↓	x	x							5	Lab to composite 1-4
-01,02	Process Effluent - Grab 4	12/6/19	730	Water	↓	x	x							5	Lab to composite 1-4
-03	Process Effluent	12/6/19	730	Water	↓			x	x					2	
-04	Trip Blank			Water		x								2	

Container Type: V A P P
Preservative: H H E A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
	12/6/19 9:45	Goodlym Foody (AAL)	12/6/19 9:45
Goodlym Foody (AAL)	12/6/19 9:45		12/7/19 01:40

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Form No: 01-25 (rev. 30-Sept-2013)

ATTACHMENT 3

FLOW METER CALIBRATION DATA

ORION

Cold Spring Environmental
3248 Buffalo Rd., Varysburg, N.Y. 14167
Ph: 716-863-7052

March 5, 2019

Benchmark & Turnkey
Att. Brock Greene
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218

Ref: Flow Meter Calibration

Dear Mr. Greene,

Calibration Date: February 27, 2019
Site location: Pretreatment Building, 192 Baraga St.
Equipment Model:Signet GF 8550
Equipment type: Closed Pipe impellor
Equipment S/N: 60210142061
Impellor Model: P51530-P0
Impellor: S/N 60305023102
Measuring device: 3 inch pipe
Output type: 4-20mA
Totalizer multiplier: 1 gallon

Displayed level/flow rate: 0 GPM
Measured Level/flow rate: 0 GPM
Displayed level/flow rate: 88-93 GPM
Measured Level/flow rate: 88-94 GPM
Percent Difference: 0%
Adjustment: no
Note: measured the totalizer at 89 GPM and found it to be correct

Please contact me with any questions.

Sincerely, Jon Wolak

716-863-7052
jonwolak@yahoo.com

APPENDIX C

COMPREHENSIVE ANNUAL GROUNDWATER MONITORING REPORT

Appendix C

RiverBend Comprehensive Groundwater Monitoring Report

revision 1

Prepared for

Fort Schuyler Management Corporation

257 Fuller Road

Albany, New York

May 2020

Barton&Loguidice

RiverBend Comprehensive Groundwater Monitoring Report
revision 1
Fort Schuyler Management Corporation
Albany, New York

Appendix C

May 2020

Prepared for

Fort Schuyler Management Corporation

257 Fuller Road

Albany, New York 12203

Prepared by

Barton & Loguidice, D.P.C.
443 Electronics Parkway
Liverpool, New York 13088

TABLE OF CONTENTS

1.0 Introduction

Barton and Loguidice D.P.C. (B&L) has prepared this report to present the results of the July 2019 groundwater monitoring event conducted at Area I (Former Steel Plant Parcel), Area II (Former Coke Plant Parcel), and Area III (Former Warehouse Parcel) of Fort Schuyler Management Corporation's (FSMC's) RiverBend Site (Site No. V00619) in Buffalo, NY (see Figure 1). This report also includes the results of the June and December 2016 Oxygen Release Compound (ORC) monitoring events for Area III performed by B&L's subconsultant Orion Environmental Solutions, LLC (Orion). The current groundwater monitoring event was performed July 15-17, 2019, the Area III first semi-annual ORC monitoring event was performed June 24-27, and the Area III second semi-annual ORC event December 2-5, 2019.

The LTGWM network wells are summarized in Table 1 and shown on Figure 2. A summary of field activities and findings for all three areas of the Site are presented below.

The activities performed during the current site-wide groundwater monitoring event were performed in general accordance with the following documents:

- Work Plan for Long-Term Groundwater Monitoring (LTGWM) of Area I (revised September 2002);
- Work Plan for LTGWM of Areas II and III (October 2007) submitted as Attachment A4 of Appendix HH of the Final Engineering Report for Areas II and III (May 2008);
- May 5, 2008 Response to NYSDEC comment letter regarding Area III Site Management Plan (comment/responses 8, 9, and 10);
- May 5, 2008 Response to NYSDEC comment letter regarding Areas II and III Final Engineering Report (comment/responses 19 and 22);
- ORC Maintenance and Monitoring Manual (March 2008) submitted as Attachment A5 of Appendix HH of the Final Engineering Report for Areas II and III (May 2008); and
- May 5, 2011 NYSDEC Response to Modification Request Letter.

This annual report includes a tabular and/or graphical assessment and detailed discussion of groundwater quality trends on an Area by Area basis. Groundwater flow patterns, however, are discussed on a site-wide basis. Groundwater samples were analyzed for the modified parameter list identified by Area in Table 2.

2.0 Groundwater Elevations & Flow

Depth to water measurements and calculated groundwater elevations measured from 11 wells and 2 Buffalo River staff gauges in Area I, 17 wells in Area II, and 5 monitoring wells in Area III on July 15, 2019 are summarized in Table 3. The Lake Erie elevation, presented in the table for reference, was obtained from the National Oceanic and Atmospheric Administration/National Ocean Service's (NOAA/NOS) Center for Operational Oceanographic Products and Services (CO-OPS) web page; Great Lakes Water Level Data Inventory for station number 9063020 Buffalo, Lake Erie, New York. The Buffalo River measurement taken at location SG-02 (downstream) was not considered accurate due to improper datum use, as the calculated elevation at this point was higher than the elevation measured accurately at the other location upstream of the sampling point and the Lake Erie elevation downstream. Although the elevation of Lake Erie fluctuates and can reverse the flow of the Buffalo River during strong weather events, no elevation fluctuations of this magnitude occurred during the sampling period.

An isopotential map, presented as Figure 3, was prepared using data from the July 15, 2019 groundwater elevations, the collection system as-built invert elevations, and the soil flushing system discharge invert elevations. The baseline isopotential map prepared by Geomatrix from the June 1998 groundwater elevations representing groundwater flow conditions at the Site prior to the Area II Containment Cell construction is presented as Figure 4 for contrast. Comparison of the July 15, 2019 and June 1998 maps indicate that the groundwater mound located between Areas I and II observed in June 1998 has been significantly reduced and pushed north; replaced instead by a groundwater "sink" created by the groundwater collection system. The groundwater depression observed in June 1998 around the terminal basin is also no longer present due to the discontinuation (in January 2009) of storm water management activities at the Site in that area (i.e., pumping from the basin to the sanitary sewer). Further examination of Figure 3 indicates significant lowering of the water table of between 2 to 4 feet in the vicinity of the groundwater collection trench as generally predicted in the selected remedial approach groundwater flow model (Geomatrix, December 1998) (see Attachment 1).

Additional evaluation of the containment cell area shows five artificial groundwater mounds resulting from the soil flushing system; a remedial measure designed to remediate subsurface soils beneath five areas of concern identified during the Voluntary Cleanup. In general, the flushing system partially diverts groundwater, on a continuous basis, from pump stations PS-1, PS-2, and PS-3 to perforated distribution pipes in the system (shown on Figure 3). These mounds create a unique, yet effective, method to remediate residual impacts in those areas.

The groundwater flow, as depicted on Figure 3, also shows that potentially impacted groundwater from outside the containment cell to the north on the Former August Feine and Norfolk Southern parcels is being drawn back toward the collection system, as predicted by pre-design MODFLOW® modeling. Aside from the significant hydraulic capture of the groundwater collection system in Area II, Site groundwater generally flows north toward the Buffalo River, with minor westerly and southerly components.

3.0 Groundwater Collection System Evaluation

An evaluation of the slurry wall effectiveness included comparing groundwater elevations from a single well pair identified as A2-MW-19 and A2-MW-7. Monitoring well A2-MW-19 is located outside the Containment Cell and well A2-MW-7 is located within the Cell as shown on Figure 3. In contrast to earlier observations, a groundwater elevation comparison of this well pair indicates that groundwater outside the Cell is marginally (0.14-feet) lower than inside the Cell indicating that an inward hydraulic gradient toward the cell did not exist at the time of this measurement. However, this difference is very small and the overall contours show there is flow north from A2-MW-7 towards the interior of the containment cell.

Based upon the results of this evaluation and the isopotential map discussed earlier, the groundwater collection/containment system appears to be effectively collecting impacted groundwater and controlling groundwater migration within the Area II Containment Cell as well as to the east and north of the Containment Cell. Routine system monitoring and maintenance in conjunction with long-term groundwater monitoring of Areas I and II, as scheduled, is expected to be sufficient to continue to assess the long-term effectiveness of the containment cell.

4.0 Field Activities & Findings

Area I

Table 2 presents the Area I field-measured and laboratory analyzed parameters, the results of which are summarized in Table 4. Compounds detected above method detection limits are shown on the table with their associated concentration and NYSDEC Groundwater Quality Standard (NYSDEC TOGS 1.1.1, Ambient Water Quality Standards and Guidance Values, June 1998) for comparison. Concentrations exceeding NYSDEC Groundwater Quality Standards (GWQSs) are shaded. With the exception of arsenic at well A1-MW-8R all compounds were either reported as non-detect or at concentrations below their respective GWQSs. A discussion of the moving average trend analysis for Area I groundwater is presented later in this report.

During the current monitoring event, field personnel also performed visual immiscible layer surveillance and did not observed any non-aqueous phase liquid (NAPL) in any of the Area I wells listed in Table 1, except well A1-MW-6, where NAPL was observed during the first four months of 2019 (see Table 5). Excluding the initial well development and sampling events, A1-MW-6 has been monitored since the February 2005 installation of the PetroTrap™ free product passive skimmer, since installation through 2016, nearly 13 gallons of recovered product has been removed. Based on the VOC analytical results of well A1-MW-6, it is apparent that the NAPL is highly weathered and is having little effect on the groundwater quality at that location. In accordance with the LTGWM Plan, all recovered product is temporarily stored in a 55-gallon drum within secondary containment and staged within the on-site Groundwater Pre-Treatment System (GWPTS) building until a licensed used oil service contractor picks up the recovered product for proper recycling or disposal.

Based upon the progress to date and the marginal effects on groundwater quality at this location, LNAPL monitoring of A1-MW-6 should continue in accordance with the Area I LTGWM Plan on a monthly basis. However, due to a significant decline in the volume of recoverable product, we have replaced the PetroTrap™ free product passive skimmer with an absorbent sock that will be changed out during the monthly checks.

Area II

Table 2 presents the Area II field-measured and laboratory analyzed parameters, the results of which are summarized in Table 6. Compounds detected above method detection limits are shown on the table with their associated concentration and GWQS for comparison. With the exception of pH and benzene at well A2-MW-16, all compounds were either reported as non-detect or at concentrations below their respective GWQSs. A discussion of the moving average trend analysis for Area II groundwater is presented later in this report.

Area III

Table 2 presents the Area III field-measured and laboratory analyzed parameters, the results of which are summarized in Table 7. Compounds detected above method detection limits are shown on the table with their associated concentration and GWQS for comparison. With the exception of pH and benzene at wells A3-MW-7 and A3-MW-10, all compounds were either reported as non-detect or at concentrations well below their respective GWQSs. A discussion of the moving average trend analysis for Area III groundwater is presented later in this report.

In accordance with NYSDEC-approved procedures, ORC wells A3-ORC-1 through A3-ORC-11 are to be purged until 10 well volumes are removed or to dryness for four consecutive days, whichever occurs first, in order to obtain representative groundwater samples within the ORC area of Area III. A summary of the June and December 2019 Area III ORC semi-annual event field-measured parameters and analytical results are presented in Tables 8 and 9, respectively. Compounds detected above method detection limits are shown on these tables with their associated concentration and GWQS for comparison; concentrations exceeding the GWQSs are shaded. Upon examination of Tables 8 and 9, benzene exceeded the GWQS for all eleven wells monitored during both events, with two exceptions at A3-ORC-4 and A3-ORC-11 benzene were below the GWQS during the June event. For the June and December events, pH was measured below the GWQS lower limit of 6.5 at all of the ORC wells except A3-ORC-1, which was above the GWQS limit of 8.5, during both the June and December events.

The ORC "socks," suspended in each of the ORC wells are to be replaced when depleted. During the current monitoring event, ORC socks were removed and checked; none of which required replacement.

5.0 Moving Average Trend Analysis (MATA)

In general accordance with the LTGWM Plan for each Area of the Site, parameters exceeding the GWQS for two consecutive events are statistically evaluated. Statistical evaluation for each parameter of interest involves the averaging of four sequential monitoring event concentrations and plotting the moving average and the standard deviation of the measurements of the four event period. The Area by Area 4-event moving average trend analysis (MATA) as well as the concentration versus time plots for those monitored locations and parameters requiring tracking (as defined above) are presented in Attachment 2 and summarized in Table 10.

As summarized in Table 10 and presented in Attachment 2, the MATA assessment indicates the following:

- pH: The concentration versus time and MATA plots for the field measured pH at wells A1-MW-5, A2-MW-16, A3-MW-7, A3-MW-9, and A3-MW-10 are shown for different trends. Individual A1-MW-5 and A3-MW-9 measurements had historically been above the acceptable range, but have settled into the acceptable range over the past few years, with the moving average for A1-MW-5 dropping below the upper bound value of 8.5 for the first time this sampling event. A2-MW-16, A3-MW-7 and A3-MW-10 all remain outside the acceptable range (A2-MW-16 is very near the lower limit) but

indicate a long-term neutral trend (neither increasing nor decreasing) since monitoring began at each location.

- Benzene: The concentrations versus time plots at wells A2-MW-16, A3-MW-7, and A3-MW-9, and A3-MW-10 are included in Attachment 2. The A3-MW-9 plot indicates the benzene moving average concentrations has declined below the GWQS for the last two events but was included because the moving average only recently dropped below the GWQS and the detected values, while essentially neutral, are increasing very slightly. The MATA plot for benzene at wells A2-MW-16, A3-MW-7, and A3-MW-10 indicates a neutral trend at each location over the last two sampling events.

- n-Propylbenzene: n-Propylbenzene at well A1-MW-6 has dropped below its GWQS for the last two reporting periods, but is presented in Attachment 2 to document this consistent trend.

- Arsenic: Although the arsenic concentrations in the most recent analyses of samples from wells A1-MW-6 and A3-MW-3 are below the GWQS, plots for both these wells are included in Attachment 2 as the moving averages remain above the GWQS.

- Lead: Although the lead concentration in the most recent analyses of samples from wells A3-MW-9 are below the GWQS, the plot for this well is included in Attachment 2 as the moving average reverted to being below the GWQS this year after three years being just above the standard.

- Cyanide: Although the cyanide concentration at well A3-MW-3 has dropped in the most recent sampling event (reversing a previous increasing trend), this parameter, and its moving average remain above its GWQS.

6.0 NYSDEC EQuIS Deliverables

On May 29, 2019, B&L submitted the analytical data in Electronic Data Deliverable (EDD) format for the current groundwater and ORC monitoring events to the NYSDEC on behalf of FSMC to satisfy the NYSDEC EQuIS submittal requirement.

7.0 Planned Activities

A schedule summarizing the past, present, and future monitoring events is presented in Table 1. The NYSDEC-approved bi-annual analytical program is presented in Table 2. The next planned comprehensive monitoring event for Areas I, II, and III will be performed June 2017. Area III ORC well monitoring is tentatively scheduled for June and November 2017 (every six months).

TABLES

TABLE 1

GROUNDWATER MONITORING NETWORK AND SAMPLE FREQUENCY [1,2,3]

Comprehensive Groundwater Monitoring Report
Riverbend Site (V00619-9)
Buffalo, New York

Well Designation	Monitoring Event																								
	Year 1		Year 2		Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23
	1 SA	2SA	1 SA	2SA	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
AREA I																									
A1-MW-1	Sep-04	Sep-05	Dec-06		Aug-07	Apr-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A1-MW-2	Sep-04	Sep-05	Dec-06		Aug-07	Apr-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A1-MW-3	Sep-04	Sep-05	Dec-06		Aug-07	Apr-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A1-MW-4	Sep-04	Sep-05	May-06	Dec-06	Aug-07	Apr-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A1-MW-5	Sep-04	Sep-05	May-06	Dec-06	Aug-07	Apr-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A1-MW-6	Sep-04	Sep-05	May-06	Dec-06	Aug-07	Apr-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A1-MW-7 [4]	*water level only*								May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A1-MW-8	Sep-04	Sep-05	May-06	Dec-06	Aug-07	Apr-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14													
A1-MW-8R														Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A1-MW-9	Sep-04	Sep-05	May-06	Dec-06	Aug-07	Apr-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A1-MW-M2	Sep-04	Sep-05	Dec-06		Aug-07	Apr-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A1-P-4	Sep-04	Sep-05	Dec-06		Aug-07	Apr-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14													
A1-MW-10														Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
AREA II																									
A2-MW-3					Jul-07	Dec-07	Apr-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A2-MW-4R					Jul-07	Dec-07	Apr-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A2-MW-5					Jul-07	Dec-07	Apr-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A2-MW-6	*water level only*																								
A2-MW-7	*water level only*																								
A2-MW-10						Dec-07	Apr-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A2-MW-12	*water level only*																								
A2-MW-13					Jul-07	Dec-07	Apr-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A2-MW-16					Jul-07	Dec-07	Apr-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A2-MW-17					Jul-07	Dec-07	Apr-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A2-MW-18	*water level only*																								
A2-MW-19	*water level only*																								
A2-MW-20	*water level only*																								
AREA III																									
A3-MW-3						Oct-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A3-MW-6						Oct-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A3-MW-7					Jul-07	Dec-07	Oct-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A3-MW-9							Oct-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●
A3-MW-10							Oct-08	May-09	May-10	May-11	Jun-12	Jun-13	Jun-14	Jul-15	Jun-16	Jul-17	Sep-18	**Jul-19**	●	●	●	●	●	●	●	●

TABLE 1

GROUNDWATER MONITORING NETWORK AND SAMPLE FREQUENCY [1,2,3]

Comprehensive Groundwater Monitoring Report
Riverbend Site (V00619-9)
Buffalo, New York

Well Designation	Year 3		Year 4		Year 5		Year 6		Year 7		Year 8		Year 9		Year 10		Year 11		Year 12		Year 13		Year 14		Year 15	
	1 SA	2SA	1 SA	2SA	1 SA	2SA	1 SA	2SA	1 SA	2SA	1 SA	2SA	1 SA	2SA	1 SA	2SA	1 SA	2SA	1 SA	2SA	1 SA	2SA	1 SA	2SA	1 SA	2SA
AREA III - ORC wells (every 6 months)																										
A3-ORC-1	Jul-07	Dec-07	Apr-08	Nov-08	May-09	Nov-09	May-10	Nov-10	May-11	Nov-11	Jun-12	Nov-12	Jun-13	Dec-13	Jun-14	Dec-14	Jul-15	Nov-15	Jun-16	Dec-16	Jul-17	Dec-17	Jun-18	Nov-18	Jun-20	Dec-20
A3-ORC-2	Jul-07	Dec-07	Apr-08	Nov-08	May-09	Nov-09	May-10	Nov-10	May-11	Nov-11	Jun-12	Nov-12	Jun-13	Dec-13	Jun-14	Dec-14	Jul-15	Nov-15	Jun-16	Dec-16	Jul-17	Dec-17	Jun-18	Nov-18	Jun-20	Dec-20
A3-ORC-3	Jul-07	Dec-07	Apr-08	Nov-08	May-09	Nov-09	May-10	Nov-10	May-11	Nov-11	Jun-12	Nov-12	Jun-13	Dec-13	Jun-14	Dec-14	Jul-15	Nov-15	Jun-16	Dec-16	Jul-17	Dec-17	Jun-18	Nov-18	Jun-20	Dec-20
A3-ORC-4	Jul-07	Dec-07	Apr-08	Nov-08	May-09	Nov-09	May-10	Nov-10	May-11	Nov-11	Jun-12	Nov-12	Jun-13	Dec-13	Jun-14	Dec-14	Jul-15	Nov-15	Jun-16	Dec-16	Jul-17	Dec-17	Jun-18	Nov-18	Jun-20	Dec-20
A3-ORC-5	Jul-07	Dec-07	Apr-08	Nov-08	May-09	Nov-09	May-10	Nov-10	May-11	Nov-11	Jun-12	Nov-12	Jun-13	Dec-13	Jun-14	Dec-14	Jul-15	Nov-15	Jun-16	Dec-16	Jul-17	Dec-17	Jun-18	Nov-18	Jun-20	Dec-20
A3-ORC-6	Jul-07	Dec-07	Apr-08	Nov-08	May-09	Nov-09	May-10	Nov-10	May-11	Nov-11	Jun-12	Nov-12	Jun-13	Dec-13	Jun-14	Dec-14	Jul-15	Nov-15	Jun-16	Dec-16	Jul-17	Dec-17	Jun-18	Nov-18	Jun-20	Dec-20
A3-ORC-7	Jul-07	Dec-07	Apr-08	Nov-08	May-09	Nov-09	May-10	Nov-10	May-11	Nov-11	Jun-12	Nov-12	Jun-13	Dec-13	Jun-14	Dec-14	Jul-15	Nov-15	Jun-16	Dec-16	Jul-17	Dec-17	Jun-18	Nov-18	Jun-20	Dec-20
A3-ORC-8	Jul-07	Dec-07	Apr-08	Nov-08	May-09	Nov-09	May-10	Nov-10	May-11	Nov-11	Jun-12	Nov-12	Jun-13	Dec-13	Jun-14	Dec-14	Jul-15	Nov-15	Jun-16	Dec-16	Jul-17	Dec-17	Jun-18	Nov-18	Jun-20	Dec-20
A3-ORC-9	Jul-07	Dec-07	Apr-08	Nov-08	May-09	Nov-09	May-10	Nov-10	May-11	Nov-11	Jun-12	Nov-12	Jun-13	Dec-13	Jun-14	Dec-14	Jul-15	Nov-15	Jun-16	Dec-16	Jul-17	Dec-17	Jun-18	Nov-18	Jun-20	Dec-20
A3-ORC-10	Jul-07	Dec-07	Apr-08	Nov-08	May-09	Nov-09	May-10	Nov-10	May-11	Nov-11	Jun-12	Nov-12	Jun-13	Dec-13	Jun-14	Dec-14	Jul-15	Nov-15	Jun-16	Dec-16	Jul-17	Dec-17	Jun-18	Nov-18	Jun-20	Dec-20
A3-ORC-11	Jul-07	Dec-07	Apr-08	Nov-08	May-09	Nov-09	May-10	Nov-10	May-11	Nov-11	Jun-12	Nov-12	Jun-13	Dec-13	Jun-14	Dec-14	Jul-15	Nov-15	Jun-16	Dec-16	Jul-17	Dec-17	Jun-18	Nov-18	Jun-20	Dec-20

Notes:

1. Per the LTGWM Plan, newly installed monitoring wells require four consecutive semi-annual groundwater monitoring events, then annually thereafter.
2. Per the LTGWM Plan, existing monitoring wells require two consecutive semi-annual groundwater monitoring events, then annually thereafter.
3. The groundwater sampling plan was modified to a bi-annual frequency (see Table 2) as per NYSDEC approval letter dated May 5, 2011.
4. Per a NYSDEC request, A1-MW-7 was sampled for VOCs, arsenic, chromiuim, and lead in 2011 only; water level and field parameters annually thereafter.
5. Prior to May 2011, this monitoring well was sampled every two years. NYSDEC-approved modification requires annual sampling going forward.

Legend:

Jul-15
x
●

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TABLE 2

ANALYTICAL PROGRAM SUMMARY

Comprehensive Groundwater Monitoring Report
Riverbend Site (V00619-9)
Buffalo, New York

Well Designation	Monitoring Year															
	2011, 2013, 2015, 2017, 2019								2012, 2014, 2016, 2018, 2020							
	Field	CP-51 VOCs	8260 Benzene Only	As	Cr	Pb	CN	Alk.	Field	CP-51 VOCs	8260 Benzene Only	As	Cr	Pb	CN	Alk.
AREA I																
A1-MW-1	x	x		x					x			x				
A1-MW-2	x	x							x							
A1-MW-3	x	x							x							
A1-MW-4R[2]	x	x							x							
A1-MW-5	x	x							x	x						
A1-MW-6	x	x		x					x	x		x				
A1-MW-7[3]	x								x							
Al-MW-8R[4]	x	x		x					x			x				
A1-MW-9	x	x							x							
A1-MW-10[4]	x	x			x				x				x			
A1-MW-11[2]	x	x							x							
AREA II																
A2-MW-3	x	x							x							
A2-MW-4R	x	x							x							
A2-MW-5	x	x							x							
A2-MW-6	*water level only*								*water level only*							
A2-MW-7	*water level only*								*water level only*							
A2-MW-10R	x	x							x							
A2-MW-12	*water level only*								*water level only*							
A2-MW-13	x	x							x							
A2-MW-16	x	x		x	x	x			x	x		x	x	x		
A2-MW-17	x	x							x	x						
A2-MW-18	*water level only*								*water level only*							
A2-MW-19	*water level only*								*water level only*							
A2-MW-20	*water level only*								*water level only*							
AREA III																
A3-MW-3	x	x		x			x		x	x		x			x	
A3-MW-6	x	x		x			x		x	x		x			x	
A3-MW-7	x	x					x		x	x					x	
A3-MW-9	x	x				x			x	x				x		
A3-MW-10	x	x					x		x	x					x	
AREA III - ORC wells (every 6 months)																
A3-ORC-1	x		x					x	x		x					x
A3-ORC-2	x		x					x	x		x					x
A3-ORC-3	x		x					x	x		x					x
A3-ORC-4	x		x					x	x		x					x
A3-ORC-5	x		x					x	x		x					x
A3-ORC-6	x		x					x	x		x					x
A3-ORC-7	x		x					x	x		x					x
A3-ORC-8	x		x					x	x		x					x
A3-ORC-9	x		x					x	x		x					x
A3-ORC-10	x		x					x	x		x					x
A3-ORC-11	x		x					x	x		x					x
Totals:	**34**	**22**	**11**	**6**	**2**	**2**	**4**	**11**	**34**	**9**	**11**	**6**	**3**	**2**	**4**	**11**

Notes:
1. Modified analytical plan as per NYSDEC approval letter dated May 5, 2011.
2. Due to redevelopment activities in Area I, wells A1-MW-4 and A1-MW-M2 were replaced on July 11-12, 2017 with wells A1-MW-4R and A1-MW-11, respectively.
3. Per a NYSDEC request, A1-MW-7 was sampled for VOCs, arsenic, chromiuim, and lead in 2011; water level and field parameters annually thereafter.
4. Well A1-MW-8 and piezometer A1-P-4 were replaced June 6-7, 2016 with wells A1-MW-8R and A1-MW-10, respectively.

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TABLE 3

GROUNDWATER ELEVATION MEASUREMENTS
July 17, 2019

2019 Comprehensive Groundwater Monitoring Report
Riverbend Site (V00619-9)
Buffalo, New York

Monitoring Location	TOR Elevation (fmsl)	DTP (fbTOR)	DTW (fbTOR)	Product Thickness (feet)	Groundwater Elevation (fmsl)	Corrected Groundwater Elevation [1] (fmsl)
Area I Monitoring Wells [2]						***11 Wells***
A1-MW-1	586.38	NP	9.32	NP	577.06	577.06
A1-MW-2	586.39	NP	8.60	NP	577.79	577.79
A1-MW-3	591.98	NP	15.58	NP	576.40	576.40
A1-MW-4R	586.70	NP	8.97	NP	577.73	577.73
A1-MW-5	590.48	NP	7.44	NP	583.04	583.04
A1-MW-6	591.60	NP	14.83	NP	576.77	576.77
A1-MW-7	586.97	NP	10.01	NP	576.96	576.96
A1-MW-8R	589.83	NP	12.98	NP	576.85	576.85
A1-MW-9	588.05	NP	11.09	NP	576.96	576.96
A1-MW-M2	587.85	NM	NM	NM	NM	NM
A1-MW-10	589.73	NP	12.92	NP	576.81	576.81
Area II Monitoring Wells [3]						***17 Wells***
A2-MW-3	588.95	NP	6.92	NP	582.03	582.03
A2-MW-4R	588.59	NP	6.57	NP	582.02	582.02
A2-MW-5	587.25	NP	5.26	NP	581.99	581.99
A2-MW-6	592.69	NP	8.35	NP	584.34	584.34
A2-MW-7	602.05	NP	18.84	NP	583.21	583.21
A2-MW-10R	593.59	NP	10.04	NP	583.55	583.55
A2-MW-11	590.11	NP	6.93	NP	583.18	583.18
A2-MW-12	604.12	NP	18.89	NP	585.23	585.23
A2-MW-13	597.90	NP	14.08	NP	583.82	583.82
A2-MW-16	597.62	NP	13.67	NP	583.95	583.95
A2-MW-17	596.94	NP	13.57	NP	583.37	583.37
A2-MW-18	587.64	NP	5.00	NP	582.64	582.64
A2-MW-19	592.02	NP	8.95	NP	583.07	583.07
A2-MW-20	591.54	NP	6.36	NP	585.18	585.18
A2-PW-1	601.76	NP	14.07	NP	587.69	587.69
A2-PW-2	603.91	NP	18.84	NP	585.07	585.07
A2-PW-3	603.88	NP	20.19	NP	583.69	583.69
Area III Monitoring Wells [3]						***5 Wells***
A3-MW-3	585.40	NP	1.85	NP	583.55	583.55
A3-MW-6	585.70	NP	6.69	NP	579.01	579.01
A3-MW-7	586.39	NP	3.98	NP	582.41	582.41
A3-MW-9	597.61	NP	14.80	NP	582.81	582.81
A3-MW-10	585.41	NP	5.83	NP	579.58	579.58

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TABLE 3

GROUNDWATER ELEVATION MEASUREMENTS
July 17, 2019

2019 Comprehensive Groundwater Monitoring Report
Riverbend Site (V00619-9)
Buffalo, New York

Monitoring Location	TOR Elevation (fmsl)	DTP (fbTOR)	DTW (fbTOR)	Product Thickness (feet)	Groundwater Elevation (fmsl)	Corrected Groundwater Elevation [1] (fmsl)
Area III ORC Monitoring Wells [3]						***11 Wells***
A3-ORC-1	587.17	NP		NP	587.17	587.17
A3-ORC-2	587.35	NP		NP	587.35	587.35
A3-ORC-3	587.55	NP		NP	587.55	587.55
A3-ORC-4	587.14	NP		NP	587.14	587.14
A3-ORC-5	587.77	NP		NP	587.77	587.77
A3-ORC-6	587.53	NP		NP	587.53	587.53
A3-ORC-7	587.16	NP		NP	587.16	587.16
A3-ORC-8	587.51	NP		NP	587.51	587.51
A3-ORC-9	585.15	NP		NP	585.15	585.15
A3-ORC-10	587.60	NP		NP	587.60	587.60
A3-ORC-11	587.70	NP		NP	587.70	587.70
Surface Water [4,5]						***3 Locations***
SG-01 (downstream)	585.07	NP	8.81	NP	576.26	576.26
SG-02 (upstream)[6]	590.72	NP	17.39	NP	573.33	573.33
Lake Erie	NA	NA		NA	NA	574.50

Notes:

1. Groundwater elevations are corrected if free product (i.e., LNAPL) is present.
2. Area I monitoring well reference point elevations (i.e., top of riser for wells and sheet pile for staff gauges) as surveyed by TurnKey on November 10, 2004.
3. Monitoring well elevations have been surveyed at various times by TurnKey or Steelfields.
4. Staff Gauge (SG) locations are located at the upstream and downstream locations indicated on Figure 1. Each staff gauge was surveyed on January 3, 2008 by Niagara Boundary personnel.
5. Source: NOAA Tides & Currents Web Page- Buffalo, NY Station ID 9063020; average daily elevation of Buffalo, New York Station #9063020.
6. Measured from steel platform. This measurement may not reflect distance from surveyed reference point

Definitions:

DTP = depth to product, if present
DTW = detph to water
fmsl = feet above mean sea level
fbTOR = feet below top of riser
NP = no measureable product was present
NM = not measured for this event
R = replacement well
TOR = top of riser

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TABLE 4

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
Area I: Former Steel Plant Parcel

Comprehensive Groundwater Monitoring Report
2019
Riverbend Site (V00619-9)
Buffalo, New York

PARAMETER	UNITS	LAB RL	Monitoring Location and Date of Sample Collection											GWQS/GV [1]
			A1-MW-1	A1-MW-2	A1-MW-3	A1-MW-4R	A1-MW-5	A1-MW-6 [3]	A1-MW-7	A1-MW-8R	A1-MW-9	A1-MW-10	A1-MW-11	
			07/16/19	07/16/19	07/16/19	06/22/16	07/16/19	07/16/19	07/16/19	07/16/19	07/16/19	07/16/19	07/16/19	
Field Measurements [2]														
pH	units		8.09	8.07	7.21	6.98	8.01	6.83	6.96	6.87	8.17	7.16	7.68	**6.5 - 8.5**
Temperature	°C		15.20	15.60	18.23	13.10	15.80	15.20	10.70	14.20	14.70	14.60	16.26	**NA**
Specific Conductance	uS		805.45	765.50	1343.00	877.30	845.00	1289.00	1049.00	1431.00	1049.00	1206.00	1239.00	**NA**
Turbidity	NTU		0.73	0.89	8.55	5.41	2.82	5.51	16.45	1453.00	32.55	71.98	199.34	**NA**
Dissolved Oxygen	ppm		0.02	1.55	0.88	3.22	0.01	2.33	0.04	0.03	0.08	0.00	1.32	**NA**
Eh	mV		292.80	-231.00	-	42.00	213.60	139.00	-130.00	174.30	221.30	-245.00	-144.20	**NA**
Visual Observation			Clear	Clear	Sl Orange Haze	NA	clear	Black/Sheen	Clear	lt Brown Haze	Clear	Orange Haze	Sl Haze	**NA**
Olfactory Observation			No Odor	Petroleum Odor	No odor	NA	Chemical Odor	Sl Petroleum	No odor	No odor	No odor	Skunky Odor	No odor	**NA**
Volatile Organic Compounds (ug/L)														
Benzene	ug/L	0.5	ND	ND	ND	NS	ND	ND	NS	ND	ND	ND	ND	**1**
n-Butylbenzene	ug/L	2.5	ND	ND	ND	NS	ND	4.30	NS	ND	ND	ND	ND	**5**
sec-Butylbenzene	ug/L	2.5	ND	ND	ND	NS	ND	3.10	NS	ND	ND	ND	ND	**5**
tert-Butylbenzene	ug/L	2.5	ND	ND	ND	NS	ND	ND	NS	ND	ND	ND	ND	**5**
p-Cymene (4-Isopropyltoluene)	ug/L	2.5	ND	ND	ND	NS	ND	ND	NS	ND	ND	ND	ND	**5**
Ethylbenzene	ug/L	2.5	ND	ND	ND	NS	ND	ND	NS	ND	ND	ND	ND	**5**
Isopropylbenzene	ug/L	2.5	ND	ND	ND	NS	ND	1.70	NS	ND	ND	ND	ND	**5**
Methyl tert butyl ether	ug/L	2.5	ND	ND	ND	NS	ND	ND	NS	ND	ND	ND	ND	**10**
Naphthalene	ug/L	2.5	ND	ND	ND	NS	ND	1.90	NS	ND	ND	ND	ND	**10**
n-Propylbenzene	ug/L	2.5	ND	ND	ND	NS	ND	3.50	NS	ND	ND	ND	ND	**5**
Toluene	ug/L	2.5	ND	ND	ND	NS	ND	ND	NS	ND	ND	ND	ND	**5**
1,2,4-Trimethylbenzene	ug/L	2.5	ND	ND	ND	NS	ND	ND	NS	ND	ND	ND	ND	**5**
1,3,5-Trimethylbenzene	ug/L	2.5	ND	ND	ND	NS	ND	ND	NS	ND	ND	ND	ND	**5**
m/p-Xylene	ug/L	2.5	ND	ND	ND	NS	ND	ND	NS	ND	ND	ND	ND	**10**
o-Xylene	ug/L	2.5	ND	ND	ND	NS	ND	ND	NS	ND	ND	ND	ND	**5**
Xylenes, Total	ug/L	2.5	ND	ND	ND	NS	ND	ND	NS	ND	ND	ND	ND	**5**
Total VOCs			***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***14.5***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	**10**
Total Inorganics														
Total Arsenic	mg/L	0.010	0.011	NS	NS	NS	NS	0.012	NS	**0.032**	NS	NS	NS	**0.025**
Total Chromium	mg/L	0.004	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.002	NS	**0.05**

Notes:
1. NYSDEC Class "GA" Groundwater Quality Standard/Guidance Value 6NYCRR Part 703 (effective June 1998)
2. Field measurements were collected immediately before and after groundwater sample collection.
3. Light non-aqueous phase liquid (LNAPL) detected.
4. " NA " = Not Applicable, a GWQS/GV has not been established for this parameter.
5. " ND " = the sample location was analyzed for this parameter, but reported at a concentration less than the method detection limit.
6. " NS " = compound is not analyzed at this location

= Shaded values represent exceedances of the NYSDEC Class "GA" Groundwater Quality Standard/Guidance Value.

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TABLE 5

SUMMARY OF LNAPL THICKNESS / REMOVAL IN A1-MW-6
Area I: Former Republic (LTV) Steel Plant Parcel

Comprehensive Groundwater Monitoring Report
Riverbend Site (V00619-9)
Buffalo, New York

Date	LNAPL Measurement			Quantity Removed (oz.)	Absorbant Sock Replaced (Y or N)	Comments
	Top (fbTOR)	Bottom (fbTOR)	Thickness (feet)			
01/24/19	16.49	16.50	0.01	0.1	yes	
02/19/19	16.90	16.92	0.02	0.1	yes	
03/19/19	16.71	16.80	0.09	0.2	yes	
04/18/19	16.49	16.52	0.03	0.1	yes	
05/31/19	15.59	15.59	0.00	0.1	yes	
06/27/19	15.63	15.63	0.00	0.1	yes	
07/22/19	15.58	15.58	0.00	0.1	yes	
08/21/19	16.14	16.14	0.00	0.1	yes	
09/10/19	16.10	16.10	0.00	0.1	yes	
10/04/19	16.58	16.58	0.00	0.1	yes	
11/05/19	16.41	16.41	0.00	0.1	yes	
12/05/19	16.33	16.33	0.00	0.1	yes	
Total Quantity Removed To Date: 1.3 oz. or 0.01 gal.						

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TABLE 6

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
Area II: Former Coke Plant Parcel

Comprehensive Groundwater Monitoring Report
2019
Riverbend Site (V00619-9)
Buffalo, New York

PARAMETER	UNITS	LAB RL	Monitoring Location and Date of Sample Collection							GWQS/GV [1]
			A2-MW-3	A2-MW-4R	A2-MW-5	A2-MW-10R	A2-MW-13	A2-MW-16	A2-MW-17	
			07/17/19	07/17/19	07/17/19	07/17/19	07/17/19	07/17/19	07/17/19	
Field Measurements [2]										
pH	units		7.61	7.40	7.33	8.00	7.13	**5.88**	7.33	**6.5 - 8.5**
Temperature	°C		14.70	15.30	14.10	14.20	15.15	15.70	18.10	**NA**
Specific Conductance	uS		821.00	978.00	850.00	1687.00	2708.00	2033.00	2770.00	**NA**
Turbidity	NTU		1.06	4.16	97.82	10.32	114.85	2.03	2.46	**NA**
Dissolved Oxygen	ppm		0.04	0.03	0.13	0.01	0.41	0.90	0.02	**NA**
Eh	mV		216.00	-196.00	234.00	341.00	187.00	126.00	270.00	**NA**
Visual Observation			Clear	Clear	Clear	Clear	Clear	Clear	Clear	**NA**
Olfactory Observation			No odor	No odor	Stale Odor	Sulfur Odor	Chemical Odor	fur/Chemical O	No Odor	**NA**
Volatile Organic Compounds (ug/L)										
Benzene	ug/L	0.5	ND	ND	ND	ND	ND	**1.70**	ND	**1**
n-Butylbenzene	ug/L	2.5	ND	ND	ND	ND	ND	ND	ND	**5**
sec-Butylbenzene	ug/L	2.5	ND	ND	ND	ND	ND	ND	ND	**5**
tert-Butylbenzene	ug/L	2.5	ND	ND	ND	ND	ND	ND	0.77	**5**
p-Cymene (4-Isopropyltoluene)	ug/L	2.5	ND	ND	ND	ND	ND	ND	ND	**5**
Ethylbenzene	ug/L	2.5	ND	ND	ND	ND	ND	ND	ND	**5**
Isopropylbenzene	ug/L	2.5	ND	ND	ND	ND	ND	ND	ND	**5**
Methyl tert butyl ether	ug/L	2.5	ND	ND	ND	ND	ND	ND	ND	**10**
Naphthalene	ug/L	2.5	ND	ND	ND	ND	ND	ND	ND	**10**
n-Propylbenzene	ug/L	2.5	ND	ND	ND	ND	ND	ND	ND	**5**
Toluene	ug/L	2.5	ND	ND	ND	ND	ND	ND	ND	**5**
1,2,4-Trimethylbenzene	ug/L	2.5	ND	ND	ND	ND	ND	ND	ND	**5**
1,3,5-Trimethylbenzene	ug/L	2.5	ND	ND	ND	ND	ND	ND	ND	**5**
m/p-Xylene	ug/L	2.5	ND	ND	ND	ND	ND	ND	ND	**15**
o-Xylene	ug/L	2.5	ND	ND	ND	ND	ND	ND	ND	**5**
Xylenes, Total	ug/L	2.5	ND	ND	ND	ND	ND	ND	ND	**5**
Total VOCs	***ug/L***		--	--	--	--	--	--	--	**10**
Total Inorganics										
Total Arsenic	mg/L	0.010	NS	NS	NS	NS	NS	ND	NS	**0.025**
Total Chromium	mg/L	0.004	NS	NS	NS	NS	NS	0.004	NS	**0.05**
Total Lead	mg/L	0.005	NS	NS	NS	NS	NS	0.005	NS	**0.025**

Notes:
1. NYSDEC Class "GA" Groundwater Quality Standard/Guidance Value 6NYCRR Part 703 (effective June 1998)
2. Field measurements were collected immediately before and after groundwater sample collection.
3. " NA " = Not Applicable, a GWQS/GV has not been established for this parameter.
4. " ND " = the sample location was analyzed for this parameter, but reported at a concentration less than the method detection limit.
5. " NS " = this monitoring location was damaged and was not sampled
6. " -- " = This parameter was not analyzed.

= Shaded values represent exceedances of the NYSDEC Class "GA" Groundwater Quality Standard/Guidance Value.

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TABLE 7

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
Area III: Former Warehouse Parcel

Comprehensive Groundwater Monitoring Report
2019
Riverbend Site (V00619-9)
Buffalo, New York

PARAMETER	UNITS	LAB RL	Monitoring Location and Date of Sample Collection					GWQS/GV [1]
			A3-MW-3	A3-MW-6	A3-MW-7	A3-MW-9	A3-MW-10	
			07/17/19	07/17/19	07/17/19	07/17/19	07/17/19	
Field Measurements [2]								
pH	units		7.44	7.64	**9.79**	7.37	**5.69**	**6.5 - 8.5**
Temperature	°C		22.30	16.63	14.88	13.60	13.30	**NA**
Specific Conductance	uS		905.23	238.88	664.03	1318.90	5147.90	**NA**
Turbidity	NTU		14.26	17.14	48.01	5.14	290.78	**NA**
Dissolved Oxygen	ppm		5.71	0.25	0.37	6.76	0.01	**NA**
Eh	mV		-182.10	-216.20	-347.40	-149.60	-126.80	**NA**
Visual Observation			mostly clear	clear	clear	clear	clear	**NA**
Olfactory Observation			no odor	chemical odor	chemical odor	no odor	chemical odor	**NA**
Volatile Organic Compounds (ug/L)								
Benzene	ug/L	0.5	ND	ND	**11.00**	ND	**1.50**	**1**
n-Butylbenzene	ug/L	2.5	ND	ND	ND	ND	ND	**5**
sec-Butylbenzene	ug/L	2.5	ND	ND	ND	ND	ND	**5**
tert-Butylbenzene	ug/L	2.5	ND	ND	ND	ND	ND	**5**
p-Cymene (4-Isopropyltoluene)	ug/L	2.5	ND	ND	ND	ND	ND	**5**
Ethylbenzene	ug/L	2.5	ND	ND	ND	ND	ND	**5**
Isopropylbenzene	ug/L	2.5	ND	ND	ND	ND	1.40	**5**
Methyl tert butyl ether	ug/L	2.5	ND	ND	ND	ND	ND	**10**
Naphthalene	ug/L	2.5	ND	ND	3.50	ND	ND	**10**
n-Propylbenzene	ug/L	2.5	ND	ND	ND	ND	ND	**5**
Toluene	ug/L	2.5	ND	ND	ND	ND	ND	**5**
1,2,4-Trimethylbenzene	ug/L	2.5	ND	ND	ND	ND	ND	**5**
1,3,5-Trimethylbenzene	ug/L	2.5	ND	ND	ND	ND	ND	**5**
m/p-Xylene	ug/L	2.5	ND	ND	ND	ND	ND	**5**
o-Xylene	ug/L	2.5	ND	ND	ND	ND	ND	**5**
Xylenes, Total	ug/L	2.5	ND	ND	ND	ND	ND	**5**
Total VOCs	***ug/L***		***0.0***	***0.0***	***14.5***	***0.0***	***2.9***	**10**
Total Inorganics								
Total Arsenic	mg/L	0.010	0.02	0.01	NS	NS	NS	**0.025**
Total Chromium		0.004	NS	NS	NS	NS	NS	**0.05**
Total Lead	mg/L	0.005	NS	NS	NS	0.00	NS	**0.025**
Wet Chemistry (mg/L)								
Cyanide	mg/L	0.2	**1.95**	0.02	0.15	NS	**0.20**	**0.2**

Notes:
1. NYSDEC Class "GA" Groundwater Quality Standard/Guidance Value 6NYCRR Part 703 (effective June 1998)
2. Field measurements were collected immediately before and after groundwater sample collection.
4. "-" Analysis was not performed for this parameter.
5. " J " = Estimated Value
6. " NA " = Not Applicable, a GWQS/GV has not been established for this parameter.
7. " ND " = the sample location was analyzed for this parameter, but reported at a concentration less than the method detection limit.

= Shaded values represent exceedances of the NYSDEC Class "GA" Groundwater Quality Standard/Guidance Value.

ORION
Environmental Solutions, LLC

TABLE 8

SUMMARY OF JUNE 2019 ORC ANALYTICAL RESULTS [1,2,3]
Area III: Former Warehouse Parcel

Comprehensive Groundwater Monitoring Report
Riverbend Site (V00619-9)
Buffalo, New York

Parameter	Monitoring Location											GWQS [2]
	A3-ORC-1	A3-ORC-2	A3-ORC-3	A3-ORC-4	A3-ORC-5	A3-ORC-6	A3-ORC-7	A3-ORC-8	A3-ORC-9	A3-ORC-10	A3-ORC-11	
Field Measurements During Purge (units as shown) [1]												
Static Depth to Water (fbTOR)	4.50	3.85	4.63	4.47	4.50	5.00	5.82	5.52	2.40	5.44	5.30	--
Total Depth (fbTOR)	14.08	14.43	14.38	14.38	14.03	14.36	14.36	14.63	14.03	14.55	14.57	--
One Casing Volume (gallons)	6.26	6.91	6.37	6.47	6.22	6.11	5.58	5.95	7.59	5.95	6.05	--
Number of Volumes Purged	5.0	5.4	4.7	4.5	5.3	4.7	5.0	4.0	10.0	4.9	4.1	--
Sample Determination [3]	4-days	4-days	4-days	4-days	4-days	4-days	4-days	4-days	volume	4-days	4-days	--
Purge: Day 1 (06/24/19) (gallons)	9.0	11.0	8.0	8.0	10.0	7.0	7.0	6.0	76.0	7.0	6.0	--
Purge: Day 2 (06/25/19) (gallons)	10.0	10.0	6.0	8.0	10.0	7.0	6.0	6.0		7.0	6.0	--
Purge: Day 3 (06/26/19) (gallons)	5.0	9.0	10.0	8.0	5.0	7.0	8.0	7.0		7.0	7.0	--
Purge: Day 4 (06/27/19) (gallons)	7.0	7.0	6.0	5.0	8.0	8.0	7.0	5.0		8.0	6.0	--
Sample Collection (date indicated)	06/27/19	06/27/19	06/27/19	06/27/19	06/27/19	06/27/19	06/27/19	06/27/19	06/24/19	06/27/19	06/27/19	--
Cumulative Volume Purged (gallons)	31.0	37.0	30.0	29.0	33.0	29.0	28.0	24.0	76.0	29.0	25.0	--
Field Measurements During Sample Collection (units as shown) [3]												
pH (units)	**11.81**	**5.03**	**4.91**	**6.25**	**5.72**	**4.56**	**5.55**	**5.08**	**3.09**	**6.05**	**6.15**	6.5 - 8.5
Temperature (deg C)	11.6	11.6	13.0	12.7	12.2	12.0	12.9	12.9	12.7	12.2	11.9	--
Specific Conductance (uS)	1.922	5.993	6.774	3.117	5.477	11	8.084	7	10.551	7.881	3.664	--
Turbidity (NTU)	159.4	71.5	125.7	189.2	86.9	71.7	283	128.7	545.7	329.2	76.4	--
Dissolved Oxygen (ppm)	4.64	2.84	3.23	3.64	3.58	2.99	3.50	2.43	2.47	2.30	3.21	--
ORP (mV)	- 149.5	74.0	134.2	- 54.6	29.2	147.4	44.0	93.8	230.8	- 45.5	- 7.6	--
Visual Observation	sl. turbid	sl. turbid	sl. turbid	light brown	sl. turbid	clear	clear brown	sl. turbid	brown	brown	sl. brown	--
Volatile Organic Compounds (mg/L):												
Benzene	**1.2**	**2.6**	**2.1**	0.00084	**3.6**	**5.3**	**0.0028**	**9.4**	**90**	**5.9**	0.00036	0.001
Wet Chemistry (mg/L):												
Alkalinity	219	22.4	28.4	367	194	ND	177	69.8	ND	700	322	--

Notes:
1. Field measurements were collected immediately before groundwater sample collection.
2. NYSDEC Class "GA" Groundwater Quality Standard/Guidance Value 6NYCRR Part 703 (effective June 1998).
3. NYSDEC requirement: purge 10 well volumes or to dryness for 4 consecutive days, then sample. "Volume" indicates that 10 well volumes were purged prior to sample collection and "4-days" indicates that the well was purged to dryness 4 consecutive days prior to sample collection.
4. " ND " indicates parameter was not detected above laboratory reporting limit and is reported herein as not detected (ND).

Color Code:
= Shaded values represent exceedances of the NYSDEC Class "GA" Groundwater Quality Standard/Guidance Value.

ORION
Environmental Solutions, LLC

TABLE 9

SUMMARY OF DECEMBER 2019 ORC ANALYTICAL RESULTS [1,2,3]
Area III: Former Warehouse Parcel

Comprehensive Groundwater Monitoring Report
Riverbend Site (V00619-9)
Buffalo, New York

Parameter	Monitoring Location											GWQS [2]
	A3-ORC-1	A3-ORC-2	A3-ORC-3	A3-ORC-4	A3-ORC-5	A3-ORC-6	A3-ORC-7	A3-ORC-8	A3-ORC-9	A3-ORC-10	A3-ORC-11	
Field Measurements During Purge (units as shown) [1]												
Static Depth to Water (fbTOR)	4.95	6.75	7.17	6.35	6.38	7.27	8.24	7.48	4.18	7.52	7.62	--
Total Depth (fbTOR)	14.08	14.43	14.38	14.38	14.03	14.36	14.36	14.63	14.03	14.55	14.57	--
One Casing Volume (gallons)	5.90	5.00	4.70	5.20	4.90	4.60	3.90	4.60	6.40	4.50	4.50	--
Number of Volumes Purged	7.8	7.2	8.7	9.2	12.0	7.4	8.2	6.3	10.2	8.2	7.8	--
Sample Determination [3]	4-days	4-days	4-days	4-days	volume	4-days	4-days	4-days	volume	4-days	4-days	--
Purge: Day 1 (12/02/19) (gallons)	12.0	9.0	10.0	13.0	10.0	9.0	8.0	8.0		8.0	8.0	--
Purge: Day 2 (12/03/19) (gallons)	12.0	10.0	11.0	14.0	15.0	9.0	8.0	9.0		11.0	9.0	--
Purge: Day 3 (12/04/19) (gallons)	11.0	8.0	11.0	11.0	19.0	8.0	8.0	6.0		10.0	9.0	--
Purge: Day 4 (12/05/19) (gallons)	11.0	9.0	9.0	10.0	15.0	8.0	8.0	6.0	65.0	8.0	9.0	--
Sample Collection (date indicated)	12/05/19	12/05/19	12/05/19	12/05/19	12/05/19	12/05/19	12/05/19	12/05/19	12/02/19	12/05/19	12/05/19	--
Cumulative Volume Purged (gallons)	46.0	36.0	41.0	48.0	59.0	34.0	32.0	29.0	65.0	37.0	35.0	--
Field Measurements During Sample Collection (units as shown) [3]												
pH (units)	**11.87**	**5.04**	**5.15**	**6.37**	**6.22**	**4.71**	**5.66**	**5.85**	**3.12**	**6.28**	**6.06**	6.5 - 8.5
Temperature (deg C)	8.5	11.1	9.7	9.6	9.7	8.9	9.1	9.6	10.8	9.3	9.2	--
Specific Conductance (uS)	1877	6024	7014	3980	4660	10921	8023	5174	9528	5671	4913	--
Turbidity (NTU)	116.9	38.3	92.5	120.9	70.7	92.9	218.7	106.2	428.1	162.1	72.3	--
Dissolved Oxygen (ppm)	6.24	3.34	3.71	4.16	4.86	3.87	3.1	2.49	1.57	2.48	8.1	--
ORP (mV)	-225.2	76.8	67.3	-74.6	-43.4	101	3.3	-19.7	257.2	-77.3	-27.3	--
Visual Observation	sl. turbid	clear	sl. turbid	sl. turbid	sl. turbid	sl. turbid	sl. turbid	sl. turbid	sl. turbid	sl. turbid	sl. turbid	--
Volatile Organic Compounds (mg/L):												
Benzene	**1**	**2.7**	**2.2**	**0.0058**	**2.5**	**5.7**	**0.0065**	**12**	**72**	**0.8**	**0.0024**	0.001
Wet Chemistry (mg $CaCO_3$/L):												
Alkalinity	201	31.8	50.2	302	269	4.7	224	319	ND	769	316	--

Notes:
1. Field measurements were collected immediately before groundwater sample collection.
2. NYSDEC Class "GA" Groundwater Quality Standard/Guidance Value 6NYCRR Part 703 (effective June 1998).
3. NYSDEC requirement: purge 10 well volumes or to dryness for 4 consecutive days, then sample. "Volume" indicates that 10 well volumes were purged prior to sample collection and "4-days" indicates that the well was purged to dryness 4 consecutive days prior to sample collection.
4. " ND " indicates parameter was not detected above laboratory reporting limit and is reported herein as not detected (ND).

Color Code:

= Shaded values represent exceedances of the NYSDEC Class "GA" Groundwater Quality Standard/Guidance Value.

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TABLE 10

AREA-BY-AREA MOVING AVERAGE TREND ANALYSIS (MATA) SUMMARY

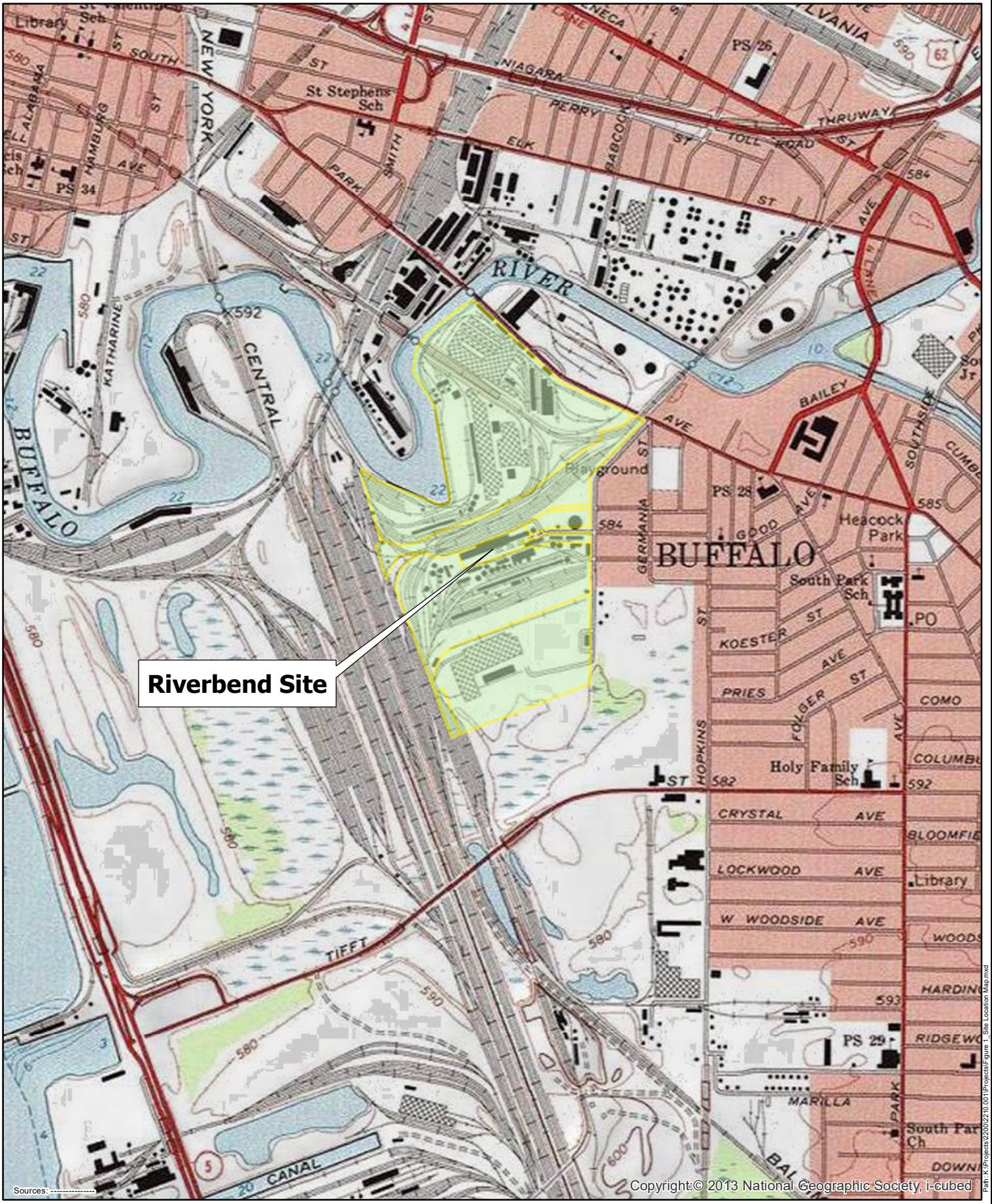
Comprehensive Groundwater Monitoring Report
Riverbend Site (V00619-9)
Buffalo, New York

Location	No. of Data Pts.	MATA Pts.	Moving Average Trend [1] [increasing (I), decreasing (D), neutral (N)]							
			pH	Benzene	n-Butylbenzene	Isopropylbenzene	n-Propylbenzene	Total Arsenic	Total Lead	Cyanide
Area I Monitoring Wells										
A1-MW-1	**16**	**NA**	NA	NA	NA	NA	NA	NA	NA	--
A1-MW-2	**15**	**NA**	NA	NA	NA	NA	NA	NA	NA	--
A1-MW-3	**15**	**NA**	NA	NA	NA	NA	NA	NA	NA	--
A1-MW-4R	**2**	**NA**	NA	NA	NA	NA	NA	NA	NA	--
A1-MW-5	**17**	**14**	**D**	NA	NA	NA	NA	NA	NA	--
A1-MW-6	**17**	**14**	NA	NA	NA	NA	**D**	**N**	NA	--
A1-MW-7	**7**	**NA**	NA	NA	NA	NA	NA	NA	NA	--
A1-MW-8R	**4**	**1**	NA	NA	NA	NA	NA	NA	NA	--
A1-MW-9	**15**	**NA**	NA	NA	NA	NA	NA	NA	NA	--
A1-MW-10	**4**	**NA**	NA	NA	NA	NA	NA	NA	NA	--
A1-MW-11	**1**	**NA**	NA	NA	NA	NA	NA	NA	NA	--
Area II Monitoring Wells										
A2-MW-3	**13**	**NA**	NA	NA	NA	NA	NA	NA	NA	--
A2-MW-4R	**13**	**NA**	NA	NA	NA	NA	NA	NA	NA	--
A2-MW-5	**13**	**NA**	NA	NA	NA	NA	NA	NA	NA	--
A2-MW-10R	**12**	**NA**	NA	NA	NA	NA	NA	NA	NA	--
A2-MW-13	**13**	**NA**	NA	NA	NA	NA	NA	NA	NA	--
A2-MW-16	**14**	**11**	**N**	**N**	NA	NA	NA	NA	NA	--
A2-MW-17	**14**	**11**	NA	NA	NA	NA	NA	NA	NA	--
Area III Monitoring Wells										
A3-MW-3	**10**	**7**	NA	NA	NA	NA	NA	**D**	NA	**N**
A3-MW-6	**11**	**NA**	NA	NA	NA	NA	NA	NA	NA	NA
A3-MW-7	**13**	**10**	**N**	**N**	NA	NA	NA	NA	NA	NA
A3-MW-9	**12**	**9**	**N**	**N**	NA	NA	NA	NA	**D**	NA
A3-MW-10	**12**	**9**	**N**	**D**	NA	NA	NA	NA	NA	NA

Notes:
1. In general accordance with the LTGWM Plan for each Area and based upon the groundwater results to date any parameter exceeding the groundwater quality standard for two (2) consecutive
2. " -- " = not analyzed for this parameter.
3. NA = indicates there have not been two consecutive exceedances of the GWQS/GV at this location and trending is "not applicable".

= Concentration versus time and 4-event moving average plots are provided in Attachment 2.

FIGURES



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1 inch = 2,000 feet

Riverbend Site
Fort Schuyler Management Corporation

Site Location Map

Erie County | May 2020 | New York

Figure 1

Project No. 2210.0101

Path: K:\Projects\2200\2210.001\Projects\Figure 1_Site Location Map.mxd

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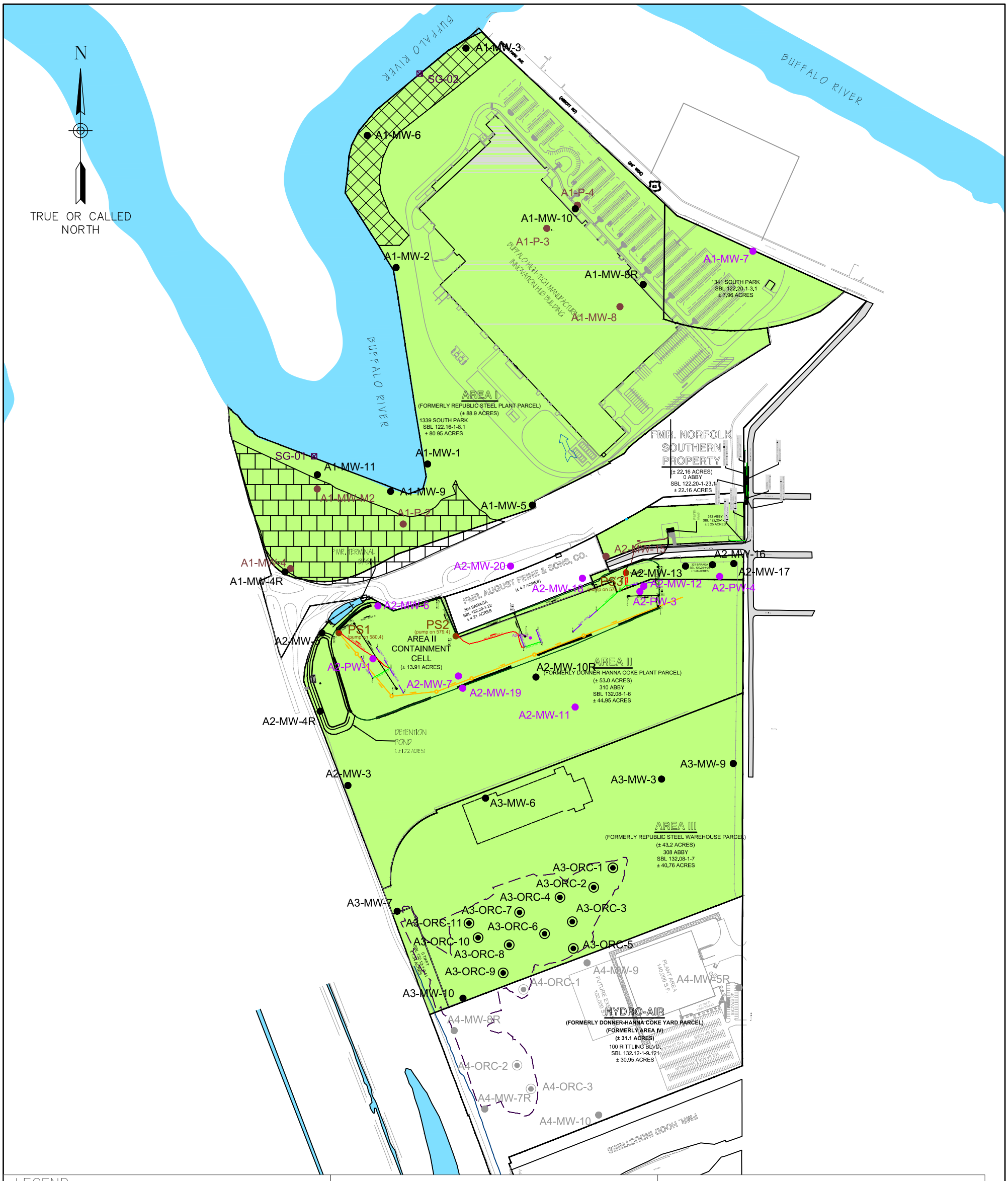


LEGEND

- A3-MW-7 — NETWORK MONITORING WELL
- A2-MW-19 — NETWORK MONITORING WELL (WATER LEVEL ONLY)
- A3-ORC-9 — OXIDATION REDUCTION COMPOUND (ORC) SOCK WELL
- PS2 (pump on 579.4) — GROUNDWATER COLLECTION PUMP STATION
- SG-01 — BUFFALO RIVER STAFF GAUGE
- OFF-SITE MONITORING WELL
- A1-MW-M2 — ABANDONED / DECOMMISSIONED / DESTROYED MONITORING WELL

- PROPERTY BOUNDARY OF AREAS I, II, & III
- APPROX. TAR & BLUE SOIL / FILL EXCAVATION LIMITS
- SLURRY (AS-BUILT)
- GROUNDWATER COLLECTION TRENCH
- GROUNDWATER TREATMENT FORCEMAIN (AS-BUILT)
- LIMITS OF CONTAINMENT CELL
- TENORM VARIANCE AREA

- SOIL FLUSHING SYSTEM: 4" PERF. HDPE PIPE (INVERT EL. SHOWN)
- SOIL FLUSHING SYSTEM: 4" SOLID HDPE PIPE
- SOIL FLUSHING SYSTEM: 2" SOLID HDPE PIPE
- FORCEMAIN & SOIL FLUSHING SYSTEM FLOW DIRECTION
- FENCE (ON-SITE)
- BNR RESTORATION AREA

Barton & Loguidice

Date: MAY 2020
Scale: AS SHOWN

500' 0 500'
1"=500'

FORT SCHUYLER MANAGEMENT CORPORATION
FSMC RIVERBEND ENVIRONMENTAL SERVICES

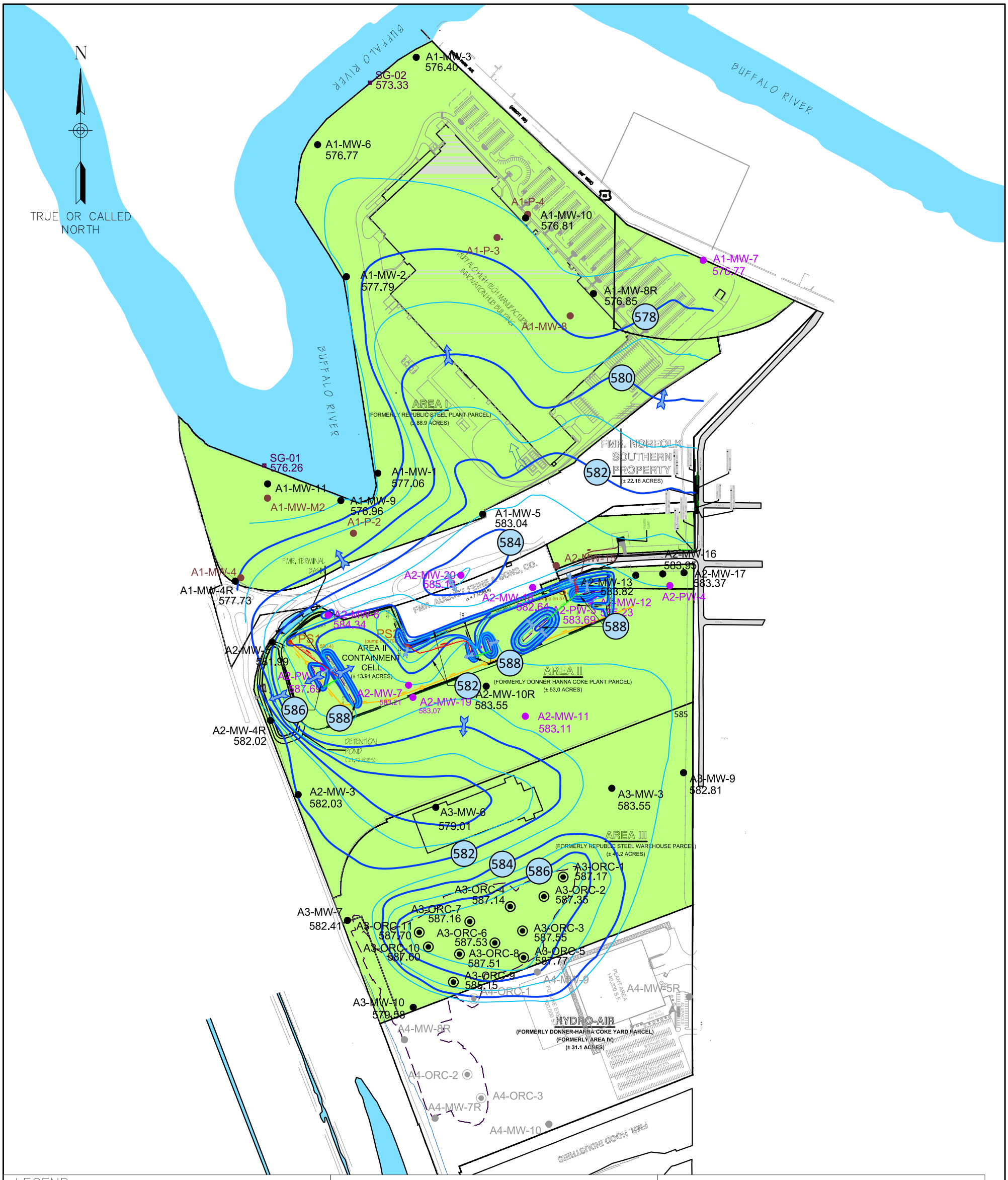
SITE PLAN

CITY OF BUFFALO ERIE COUNTY, NEW YORK

Figure Number: 2
Project Number: 2210.001.001

Plotted: Jun 16, 2020 – 2:20PM SYR By: bgh

Z:\BL-Vault\ID2\18217AD2-1C71-4823-8927-99D5C4054147\0\2019000-2019999\2019593\L\L\2210.001.001 Riverbend Site Plan and Isopotential Map (ID 2019593).dwg



LEGEND

- A3-MW-7 # — NETWORK MONITORING WELL
- A2-MW-19 # — NETWORK MONITORING WELL (WATER LEVEL ONLY)
- A3-ORC-9 — OXIDATION REDUCTION COMPOUND (ORC) SOCK WELL
- PS2 (pump on 579.4) — GROUNDWATER COLLECTION PUMP STATION
- SG-01 576.26 — BUFFALO RIVER STAFF GAUGE
- OFF-SITE MONITORING WELL
- A1-MW-M2 — ABANDONED / DECOMMISSIONED / DESTROYED MONITORING WELL

- PROPERTY BOUNDARY OF AREAS I, II, & III
- ### — GROUNDWATER CONTOUR, EVEN (FT EL.)
- GROUNDWATER CONTOUR, ODD
- GROUNDWATER FLOW DIRECTION
- SLURRY (AS-BUILT)
- GROUNDWATER COLLECTION TRENCH
- GROUNDWATER TREATMENT
- FORCEMAIN (AS-BUILT)
- FORCEMAIN & SOIL FLUSHING SYSTEM FLOW DIRECTION

- FENCE (ON-SITE)
- SOIL FLUSHING SYSTEM: 4" PERF. HDPE PIPE (INVERT EL. SHOWN)
- SOIL FLUSHING SYSTEM: 4" SOLID HDPE PIPE
- SOIL FLUSHING SYSTEM: 2" SOLID HDPE PIPE

Barton & Loguidice

Date: JUNE 2020

Scale: AS SHOWN

500' 0 500'

1"=500'

FORT SCHUYLER MANAGEMENT CORPORATION

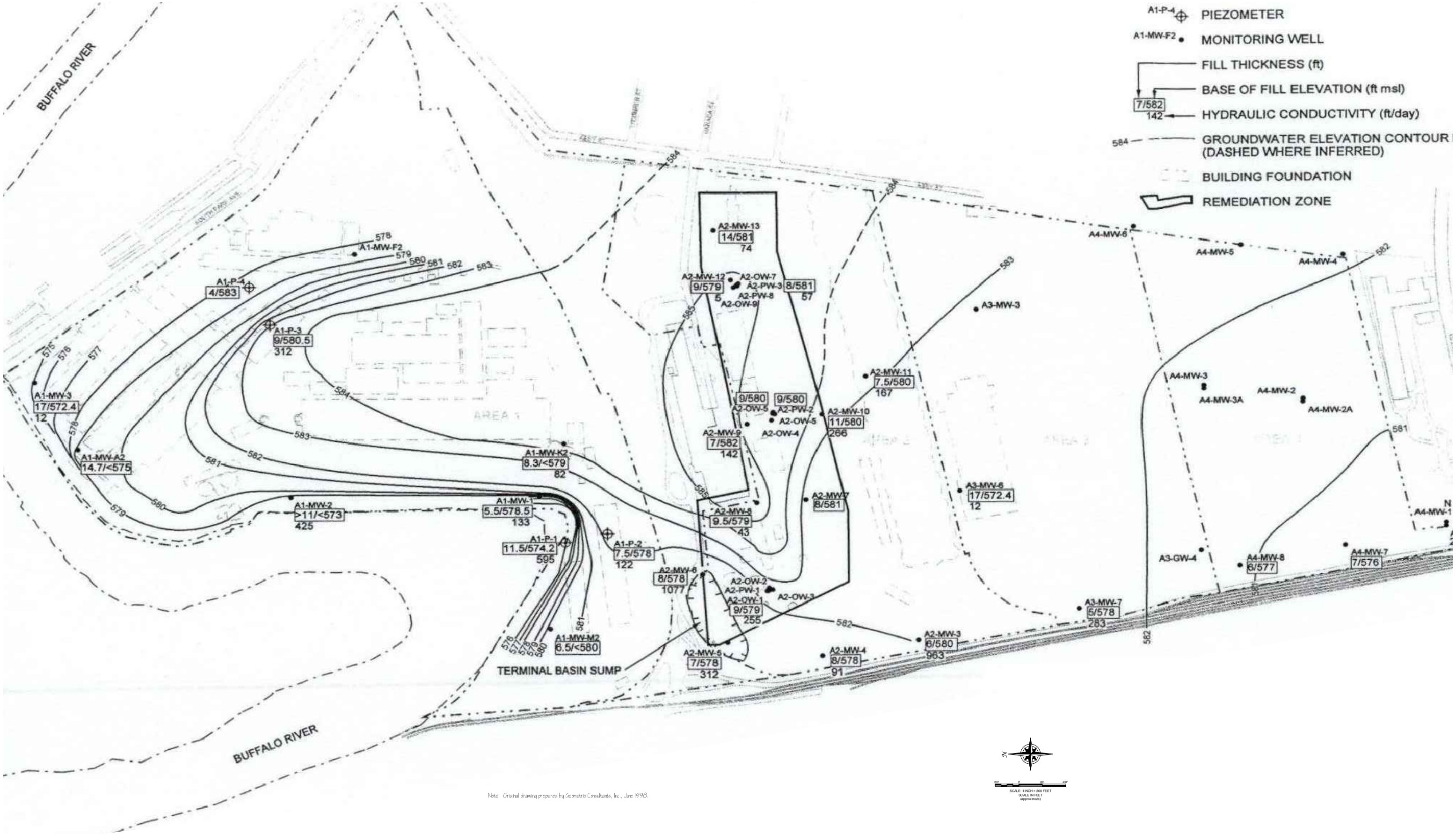
FSMC RIVERBEND ENVIRONMENTAL SERVICES

ISOPOTENTIAL MAP

CITY OF BUFFALO ERIE COUNTY, NEW YORK

Figure Number: 3

Project Number: 2210.001.001



Note: Original drawing prepared by Geomatrix Consultants, Inc., June 1998.

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Riverbend Site. Fort Schuyler Management Corp.

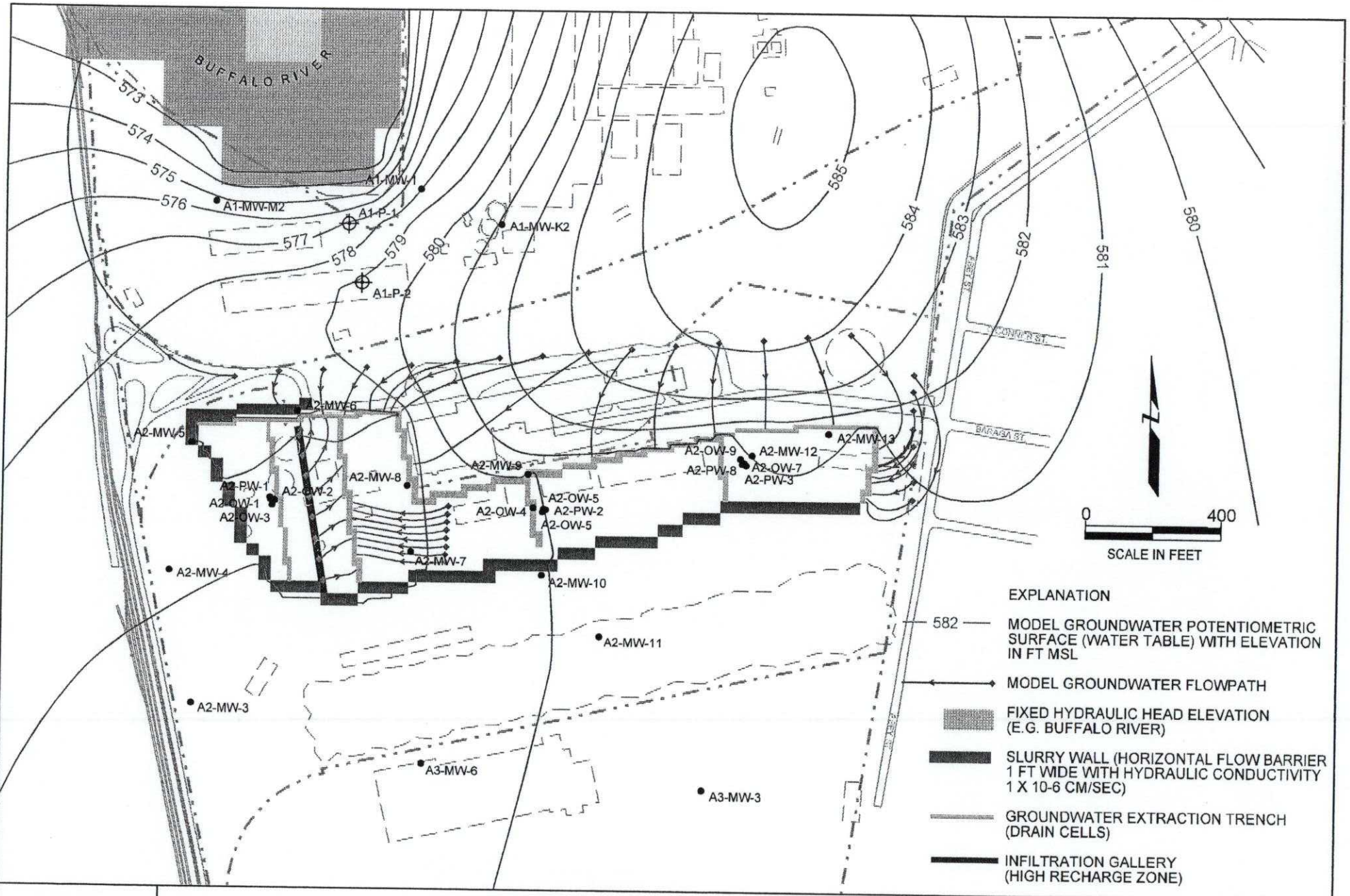
Isopotential Map - June 1998

Erie County May 2020 New York

Figure 4

Project No. 2210.001

ATTACHMENT 1
Groundwater Flow Model
(Geomatrix, December 1998)



GEOMATRIX

SIMULATED GROUNDWATER CONTOURS AND FLOWPATHS
REMEDIAL ALTERNATIVE 2
LTV Steel
Buffalo, New York

Figure 11

Project No. B4991

MAP_WT3X.pen

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q:\buffalo\b4991\gfm_981f_fig_11.dgn

ATTACHMENT 2
Concentration versus Time
& Moving Average Trend Analysis (MATA) Plots

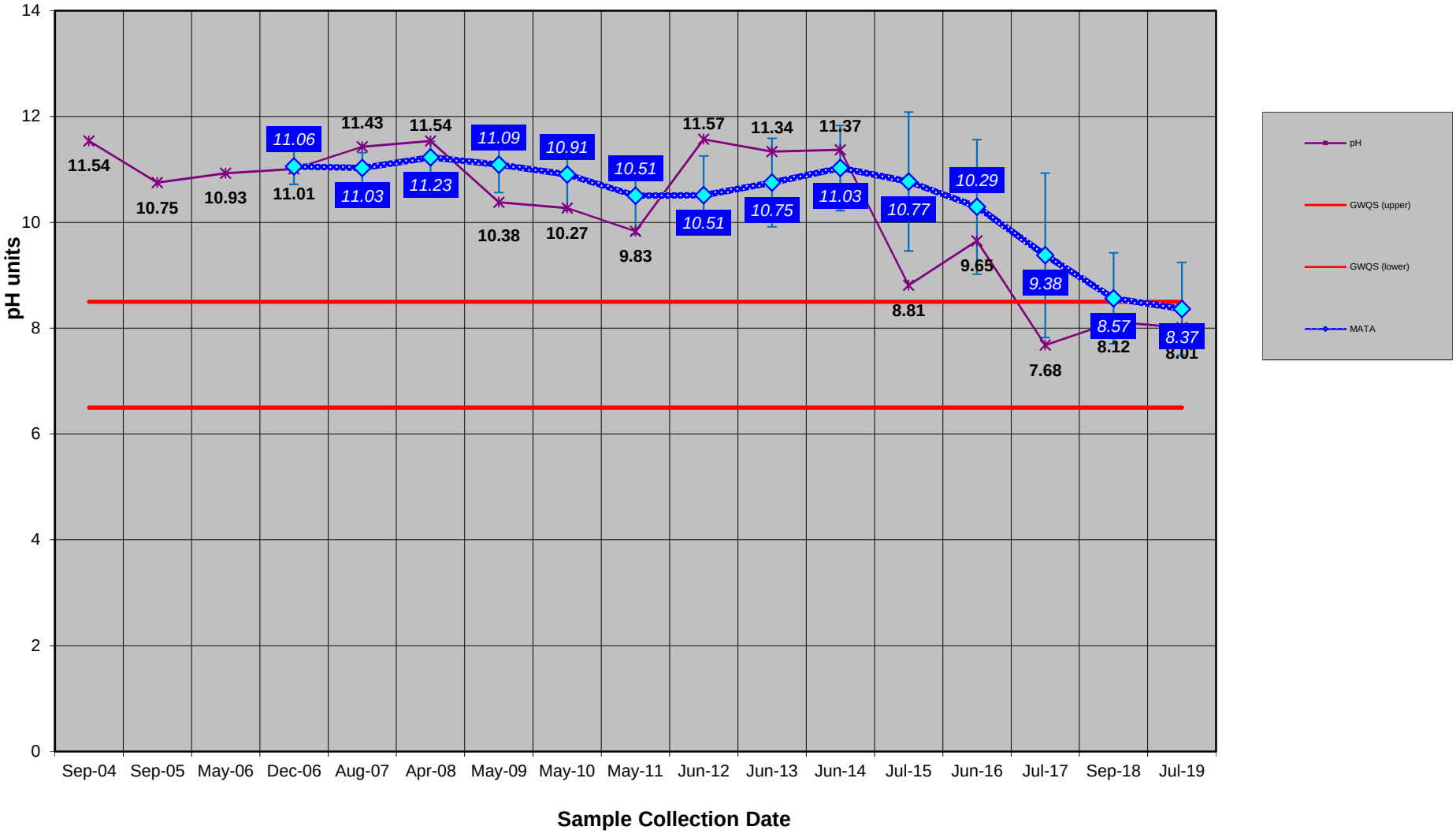
ATTACHMENT 2A

pH

ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A1-MW-5
pH

Riverbend Area I LTGWM
Buffalo, New York

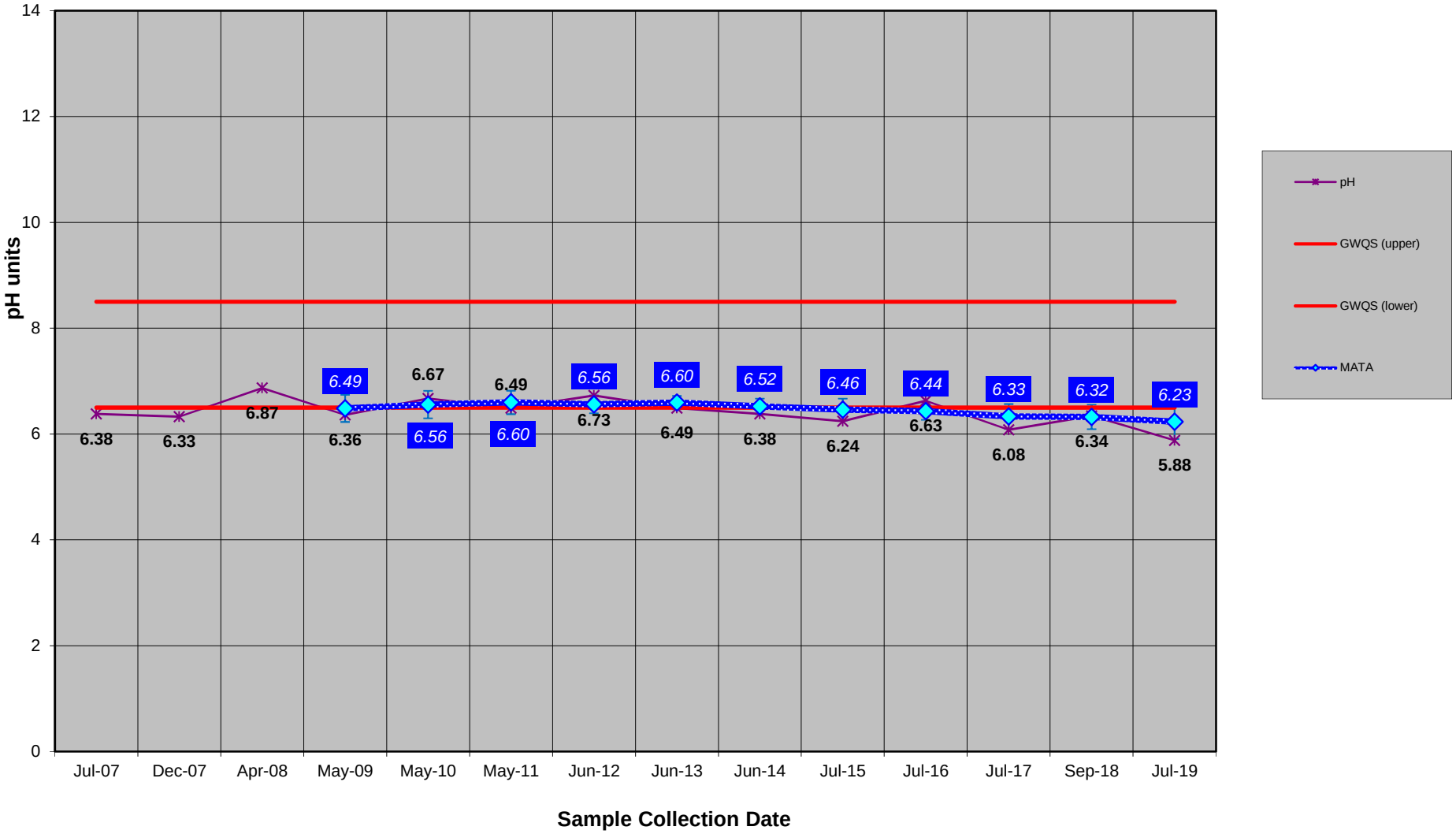


Sample Collection Date

ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A2-MW-16
pH

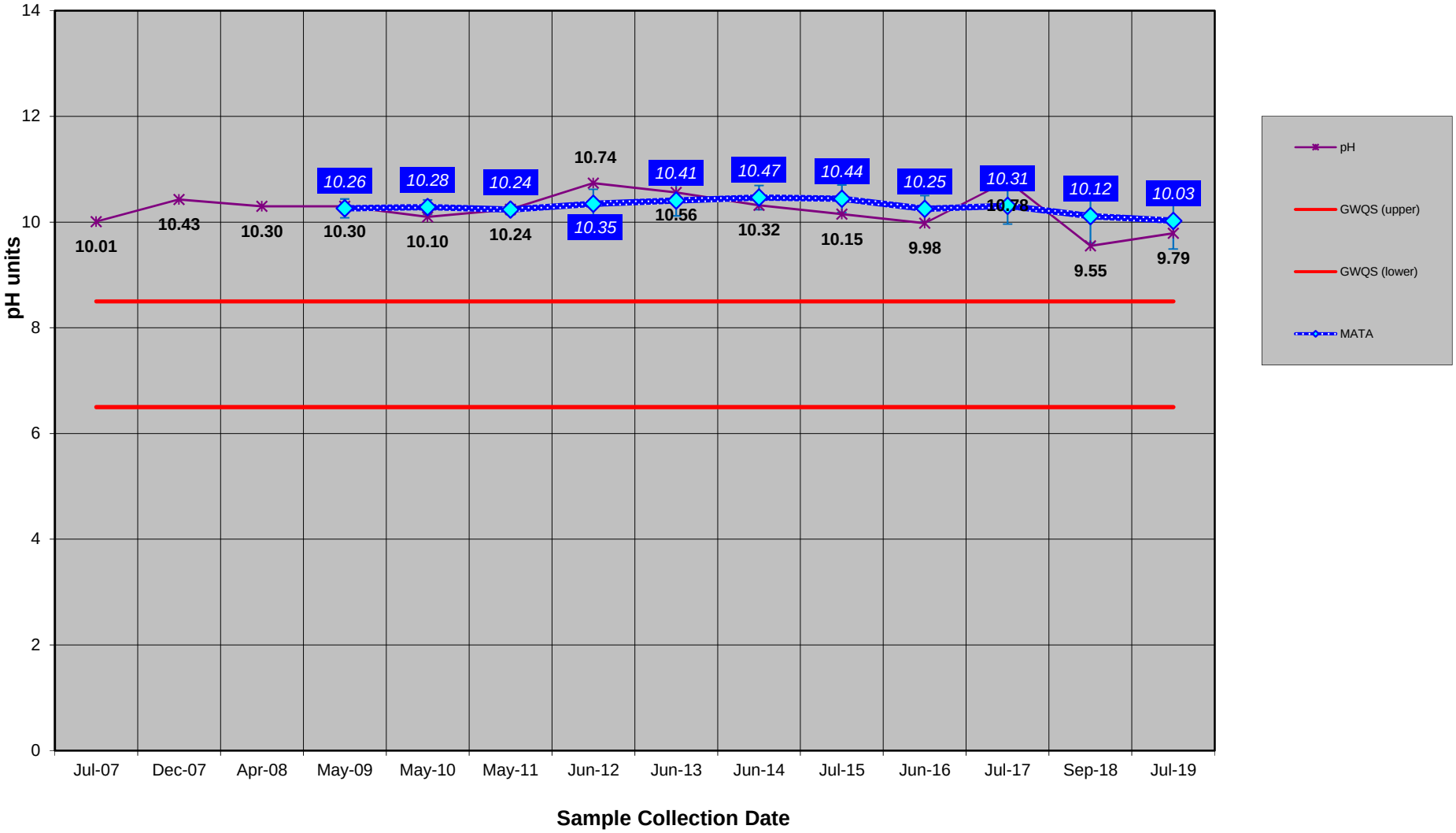
Riverbend Area II LTGWM
Buffalo, New York



ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A3-MW-7
pH

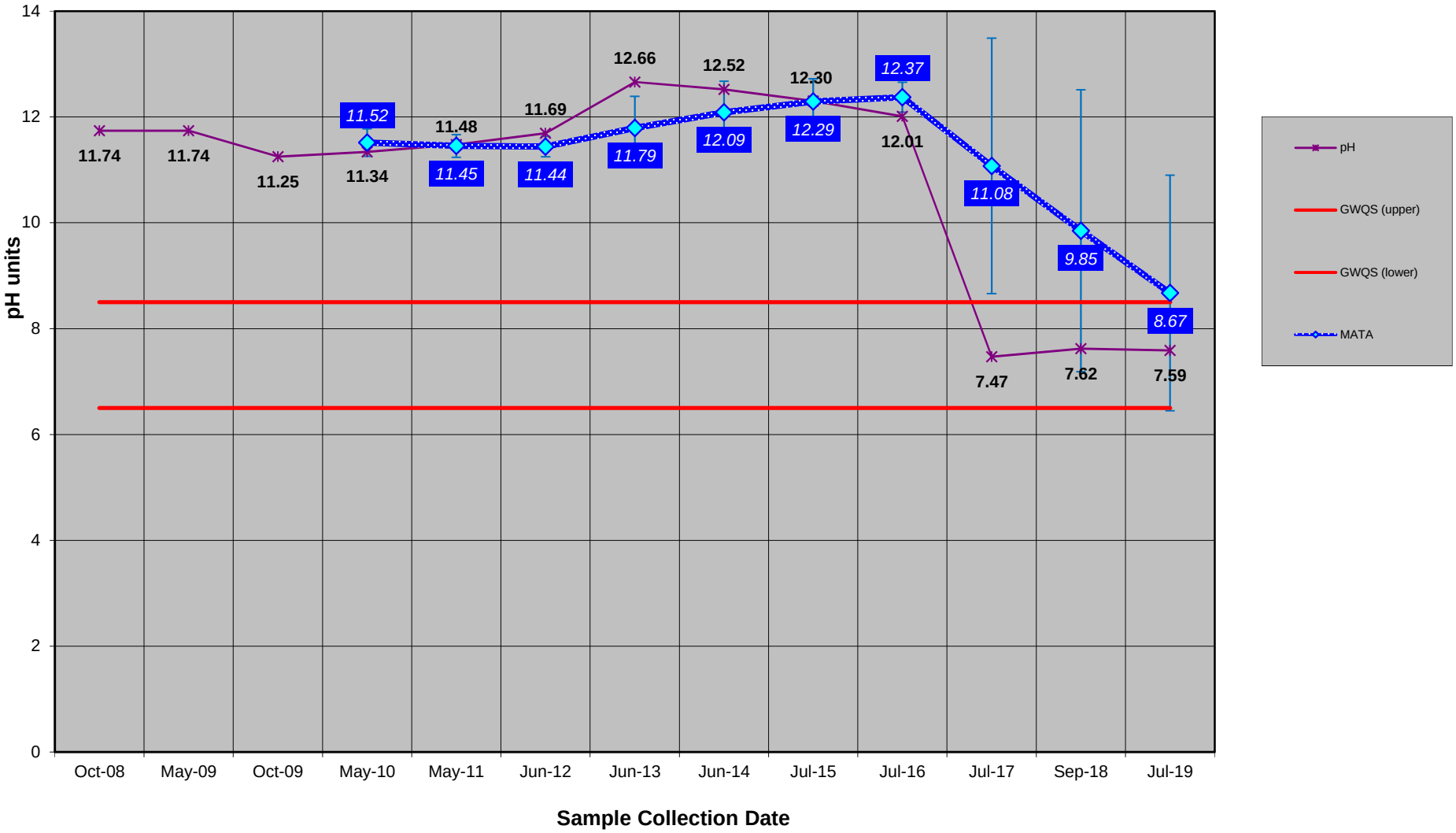
Riverbend Area III LTGWM
Buffalo, New York



ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A3-MW-9
pH

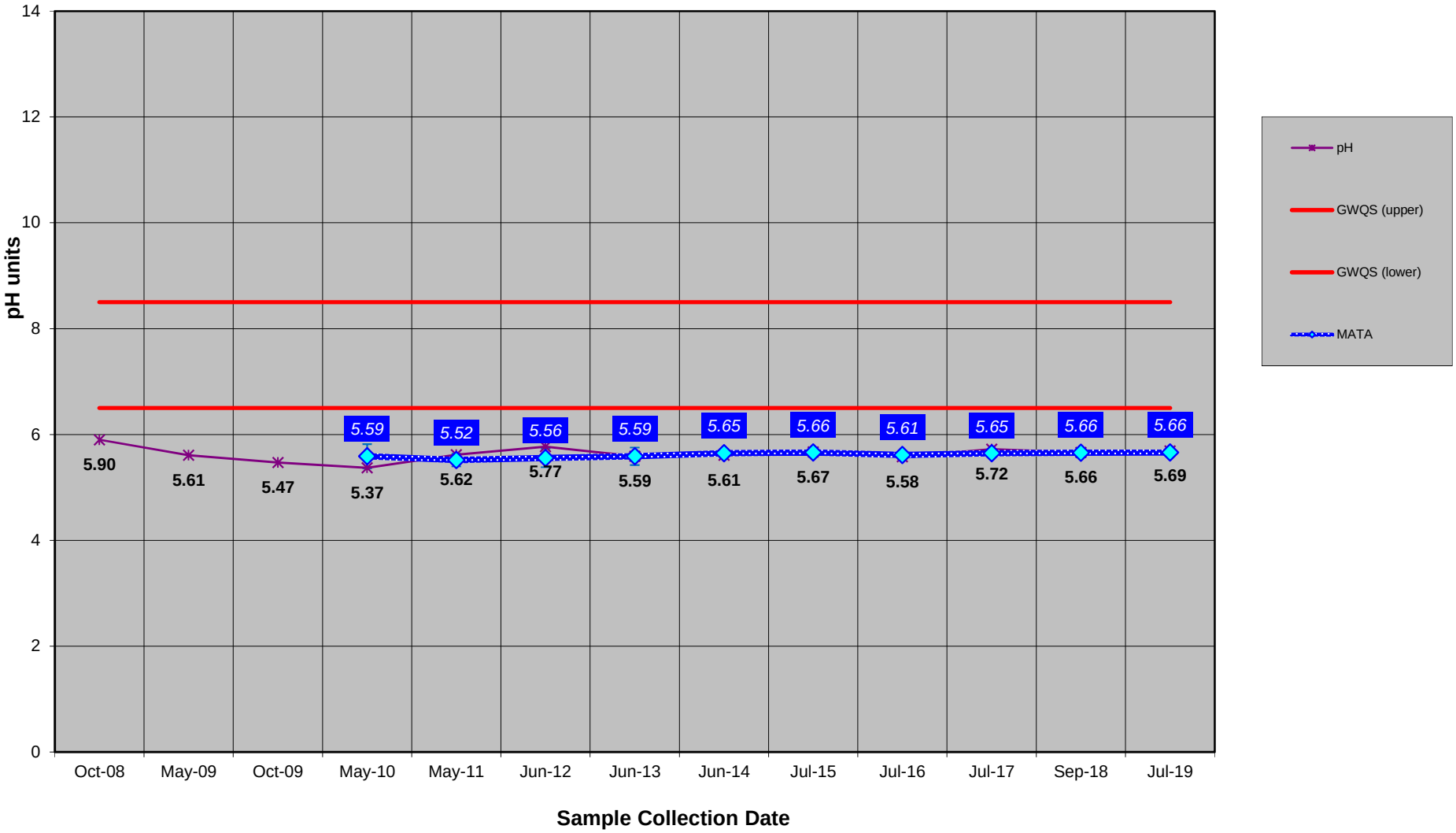
Riverbend Area III LTGWM
Buffalo, New York



ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A3-MW-10
pH

Riverbend Area III LTGWM
Buffalo, New York



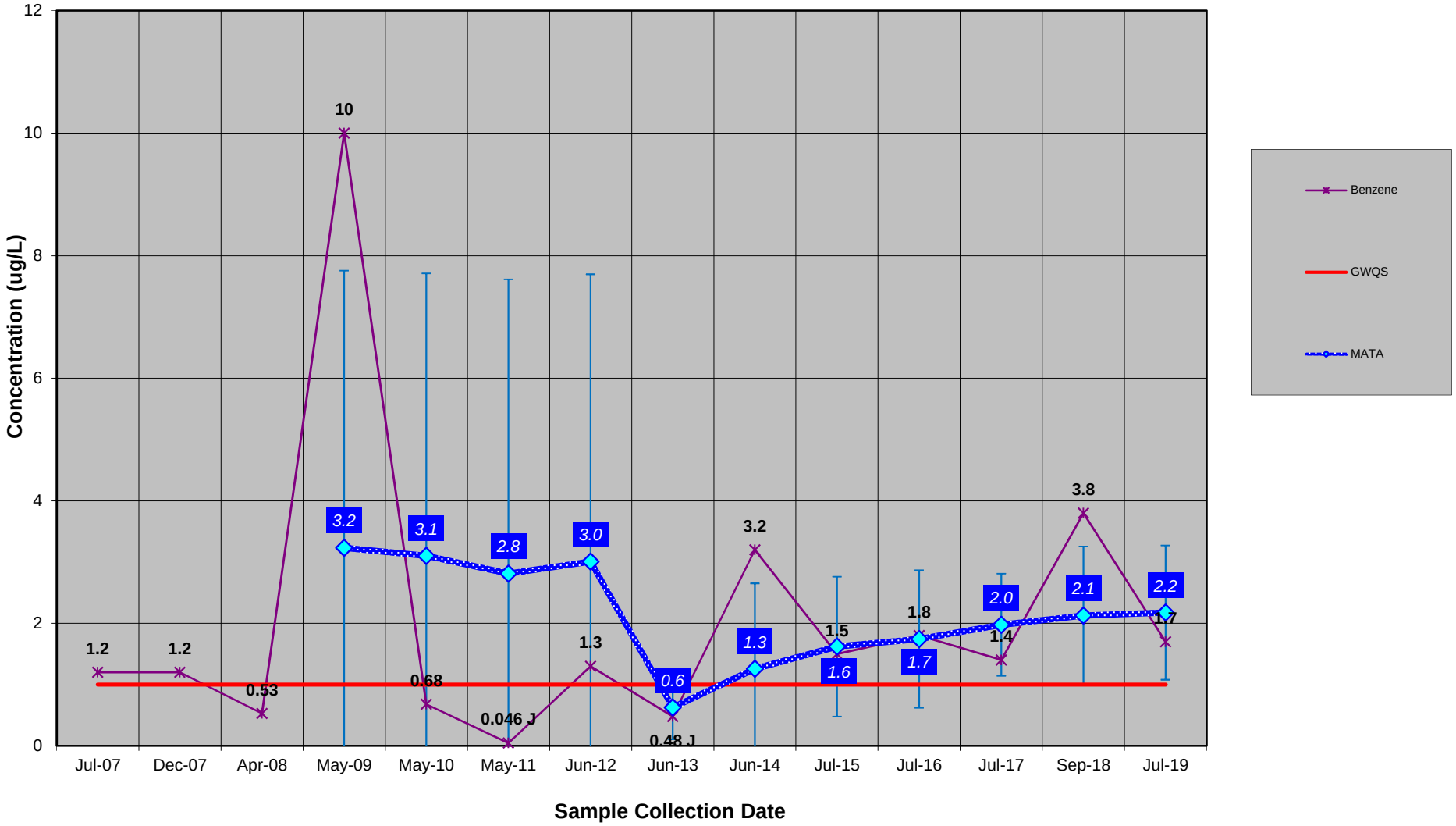
ATTACHMENT 2B

Benzene

ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A2-MW-16
BENZENE

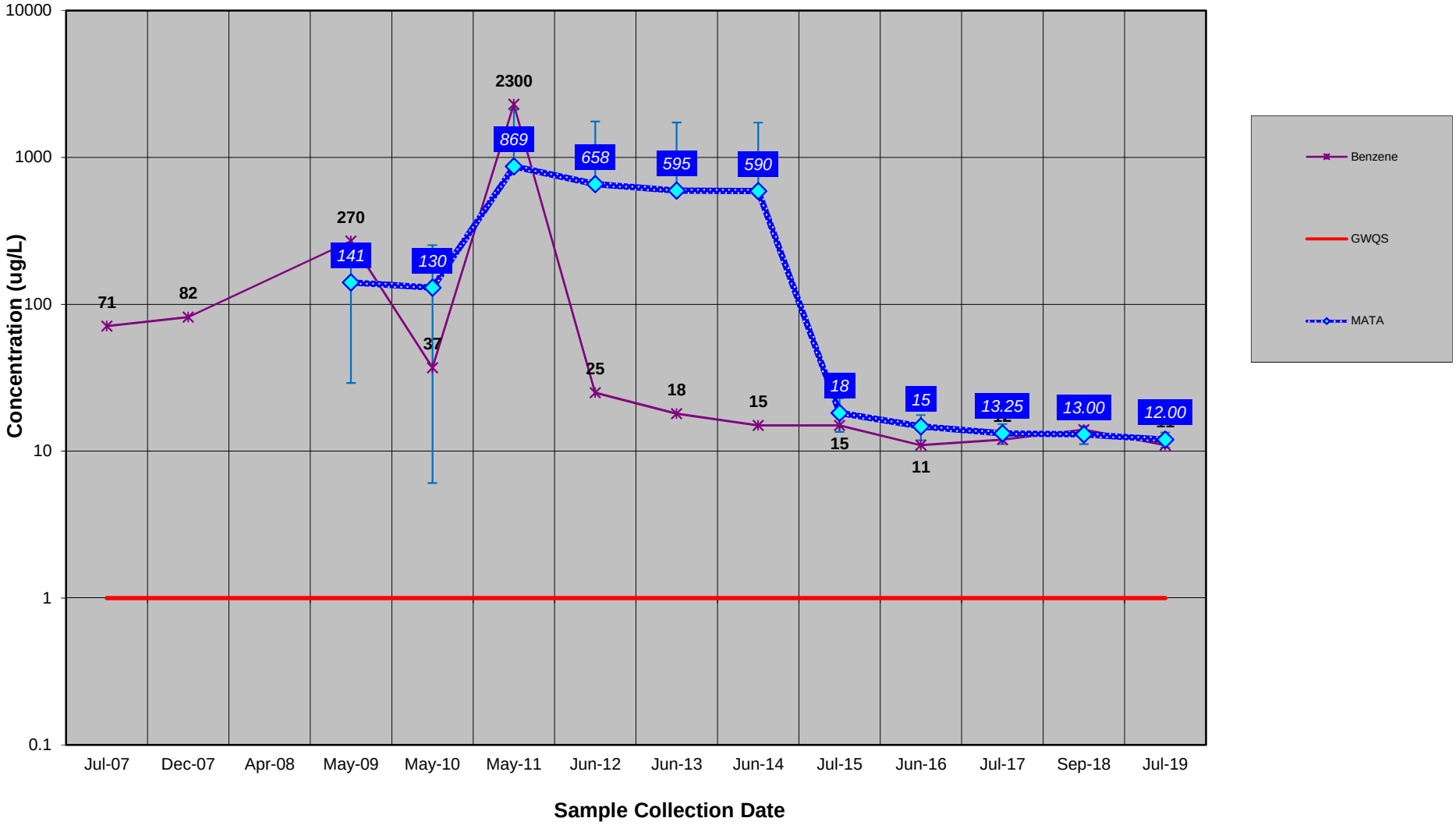
Riverbend Area II LTGWM
Buffalo, New York



ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A3-MW-7
BENZENE

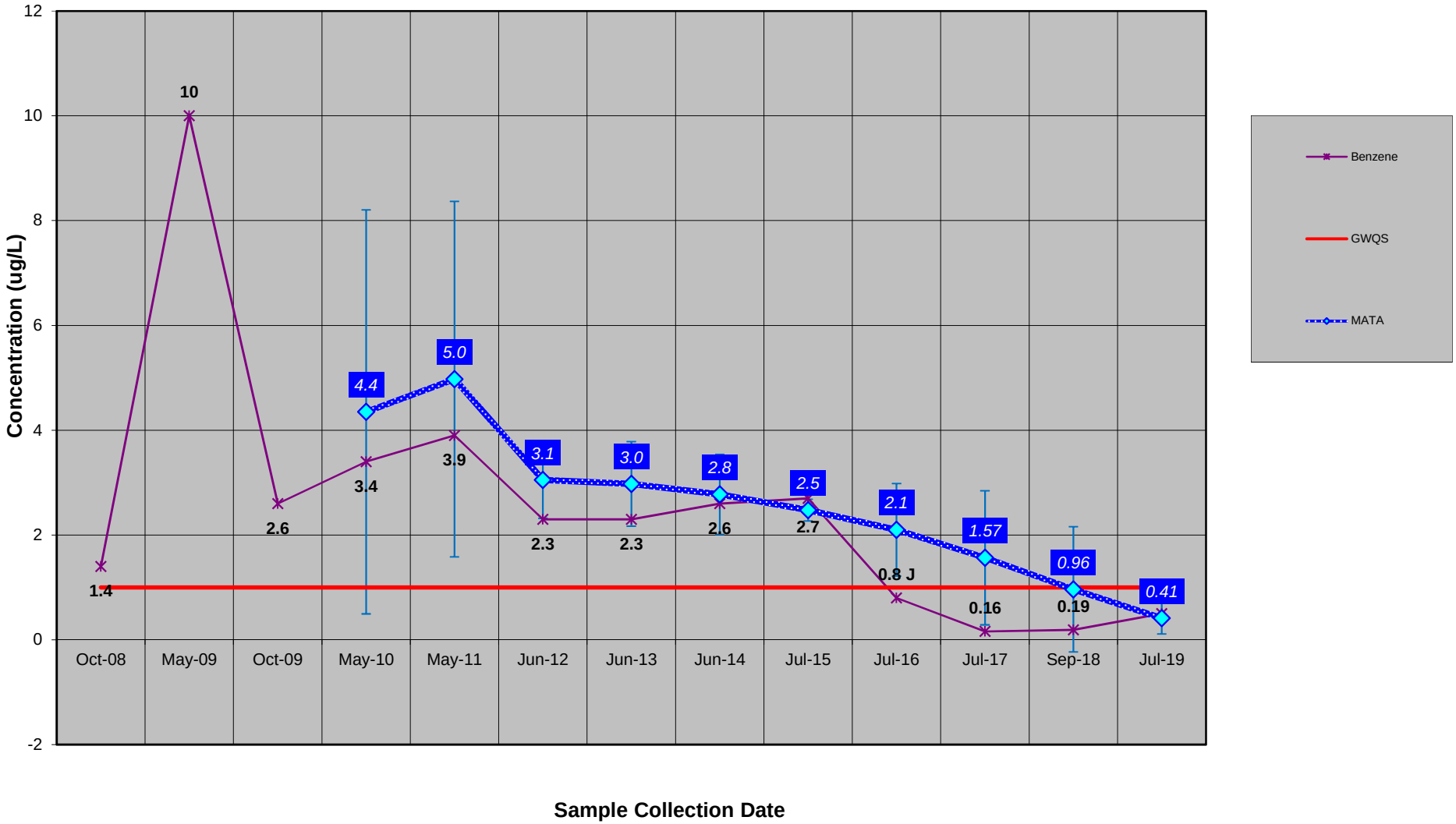
Riverbend Area III LTGWM
Buffalo, New York



ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A3-MW-9
BENZENE

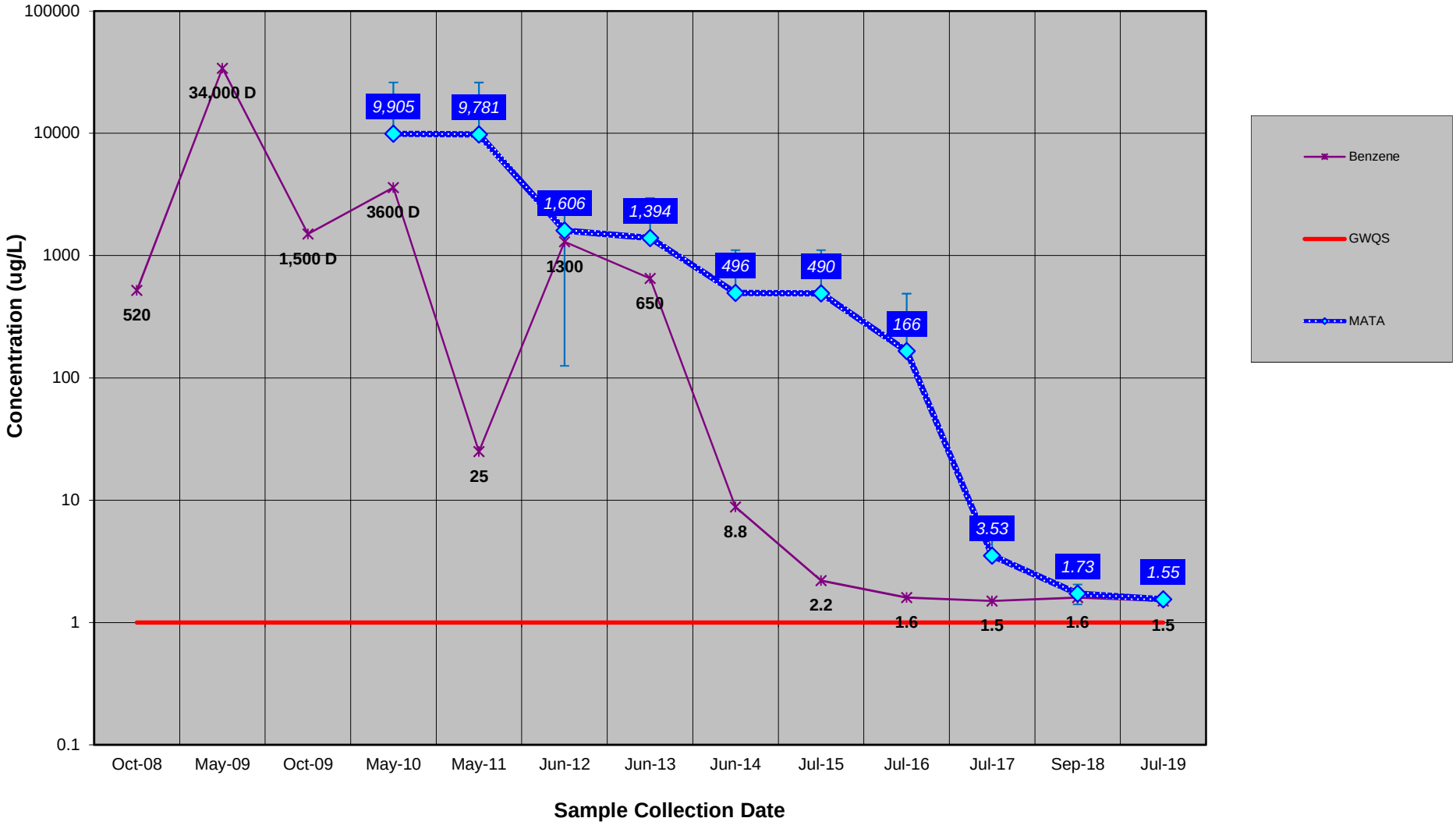
Riverbend Area III LTGWM
Buffalo, New York



ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A3-MW-10
BENZENE

Riverbend Area III LTGWM
Buffalo, New York

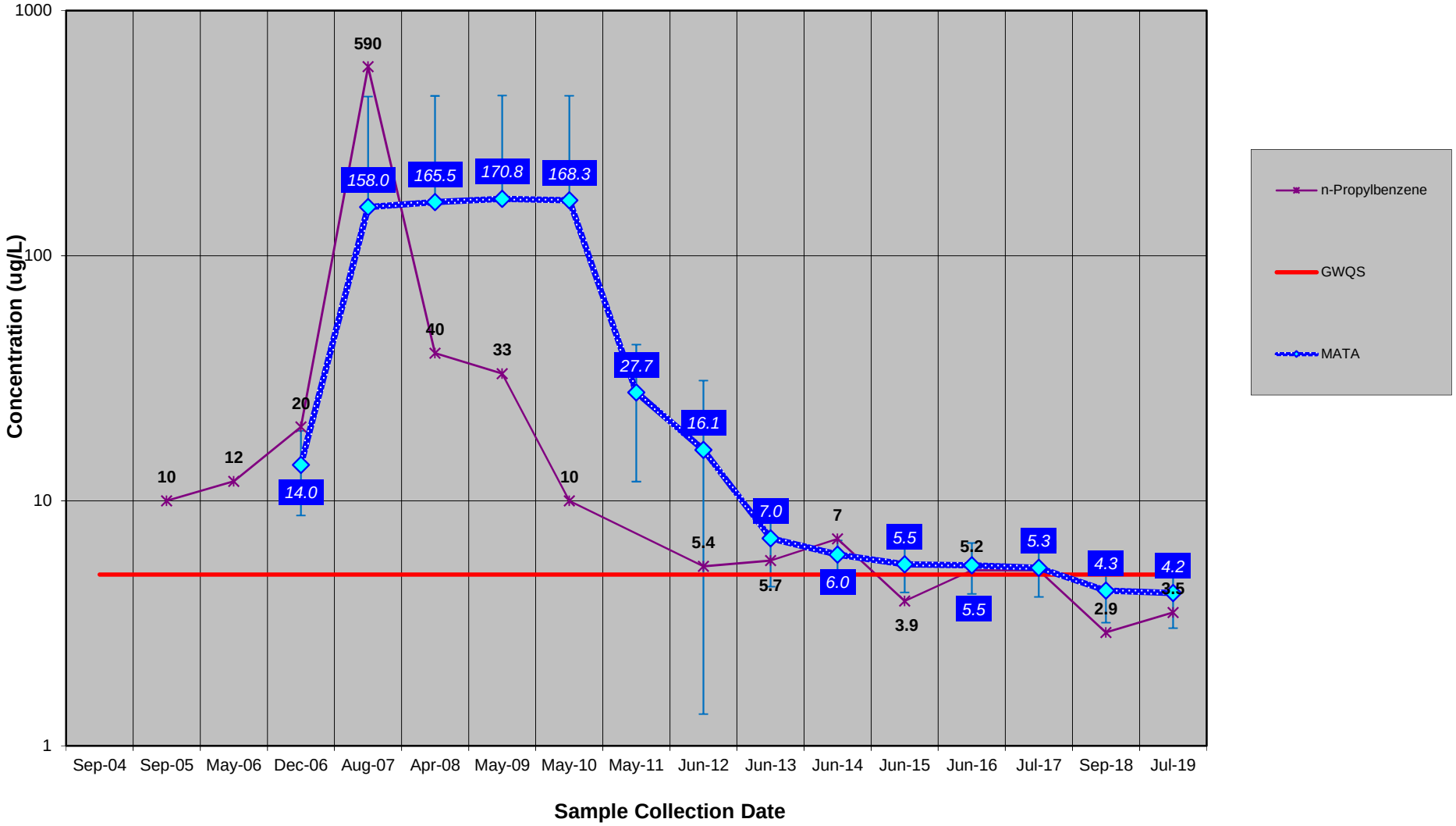


ATTACHMENT 2C
n-Propylbenzene

ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A1-MW-6
n-PROPYLBENZENE

Riverbend Area I LTGWM
Buffalo, New York

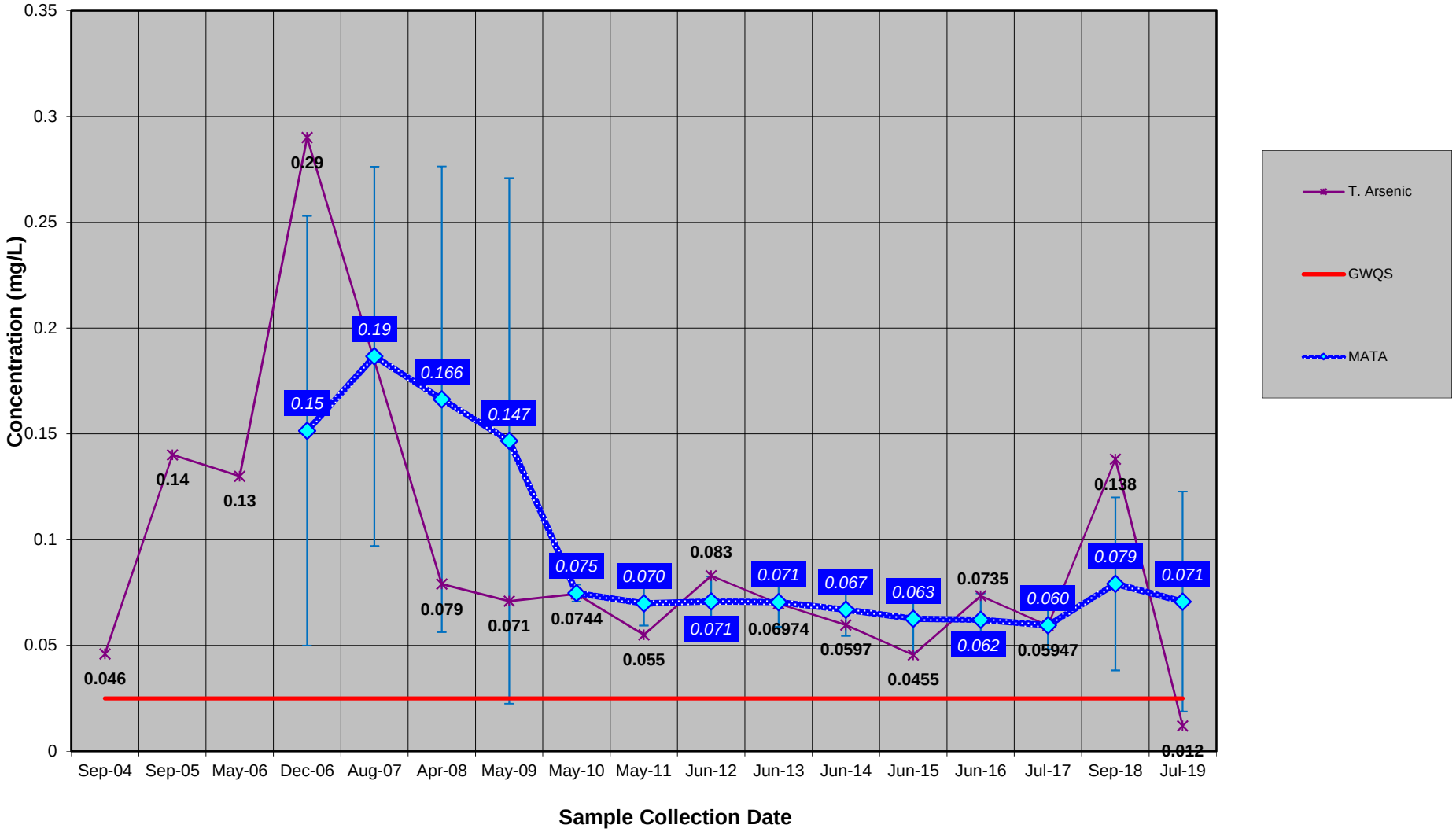


ATTACHMENT 2D
Arsenic

ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A1-MW-6
TOTAL ARSENIC

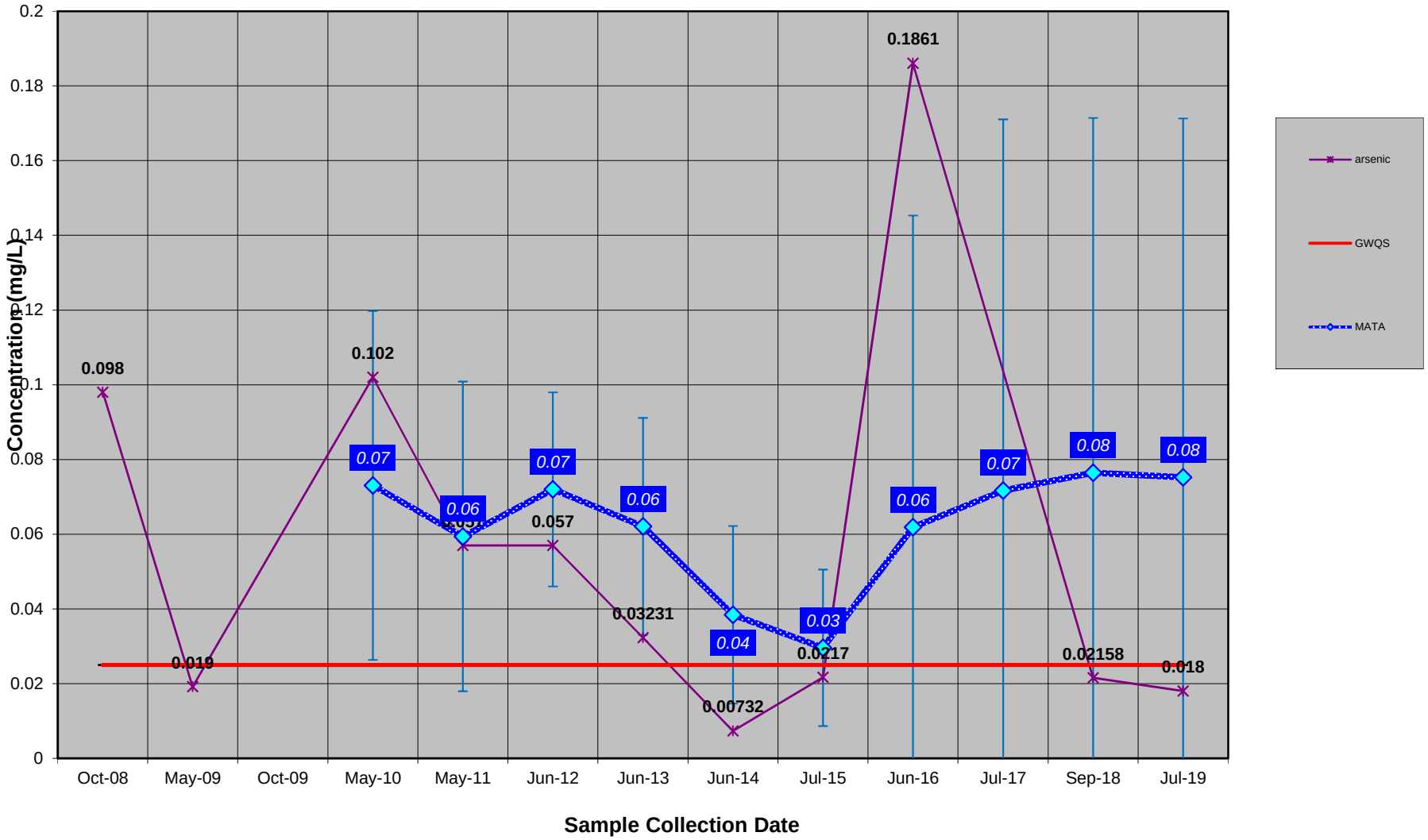
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A3-MW-3
ARSENIC

Riverbend Area III LTGWM
Buffalo, New York

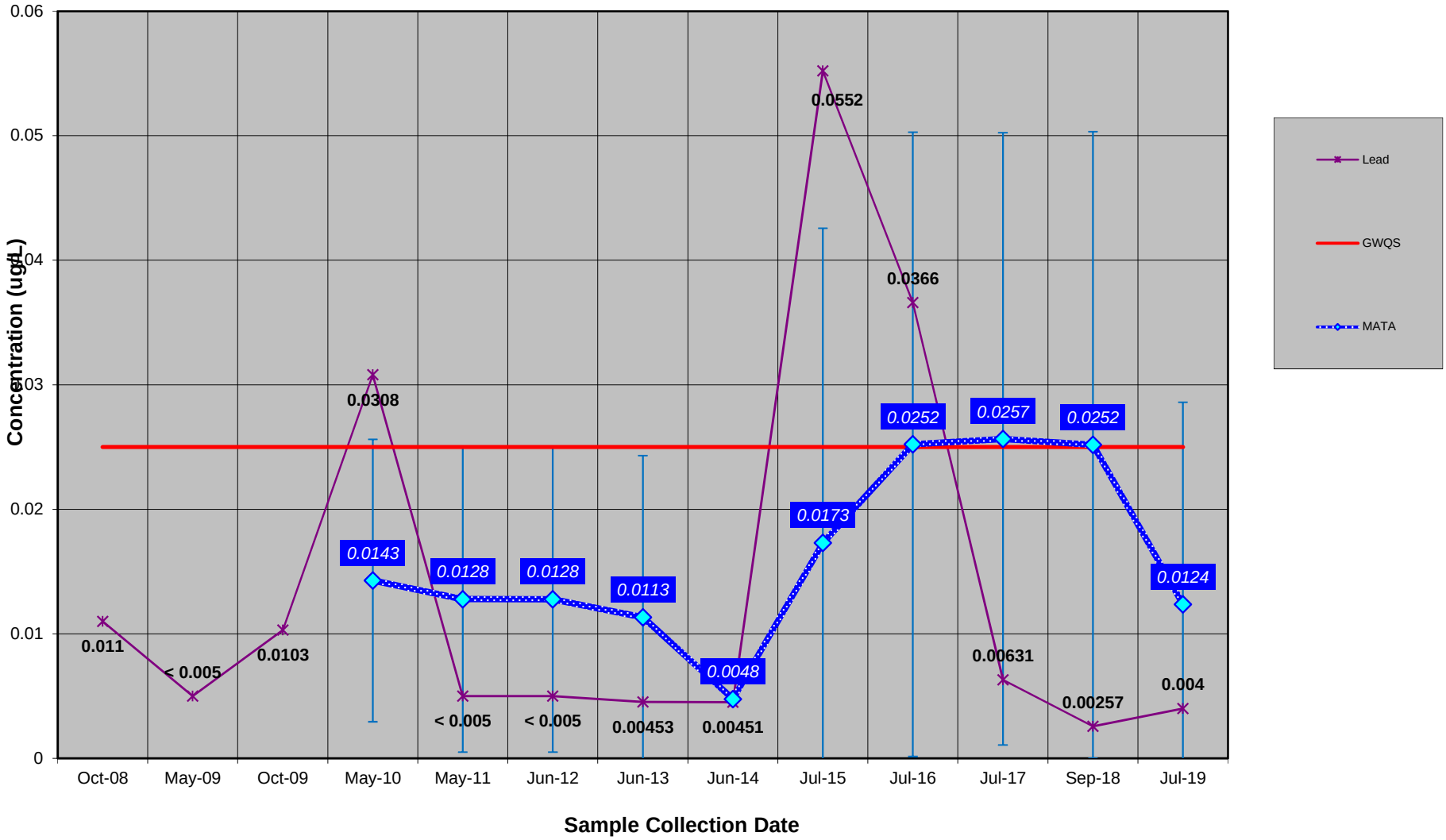


ATTACHMENT 2E
Lead

ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A3-MW-9
LEAD

Riverbend Area III LTGWM
Buffalo, New York

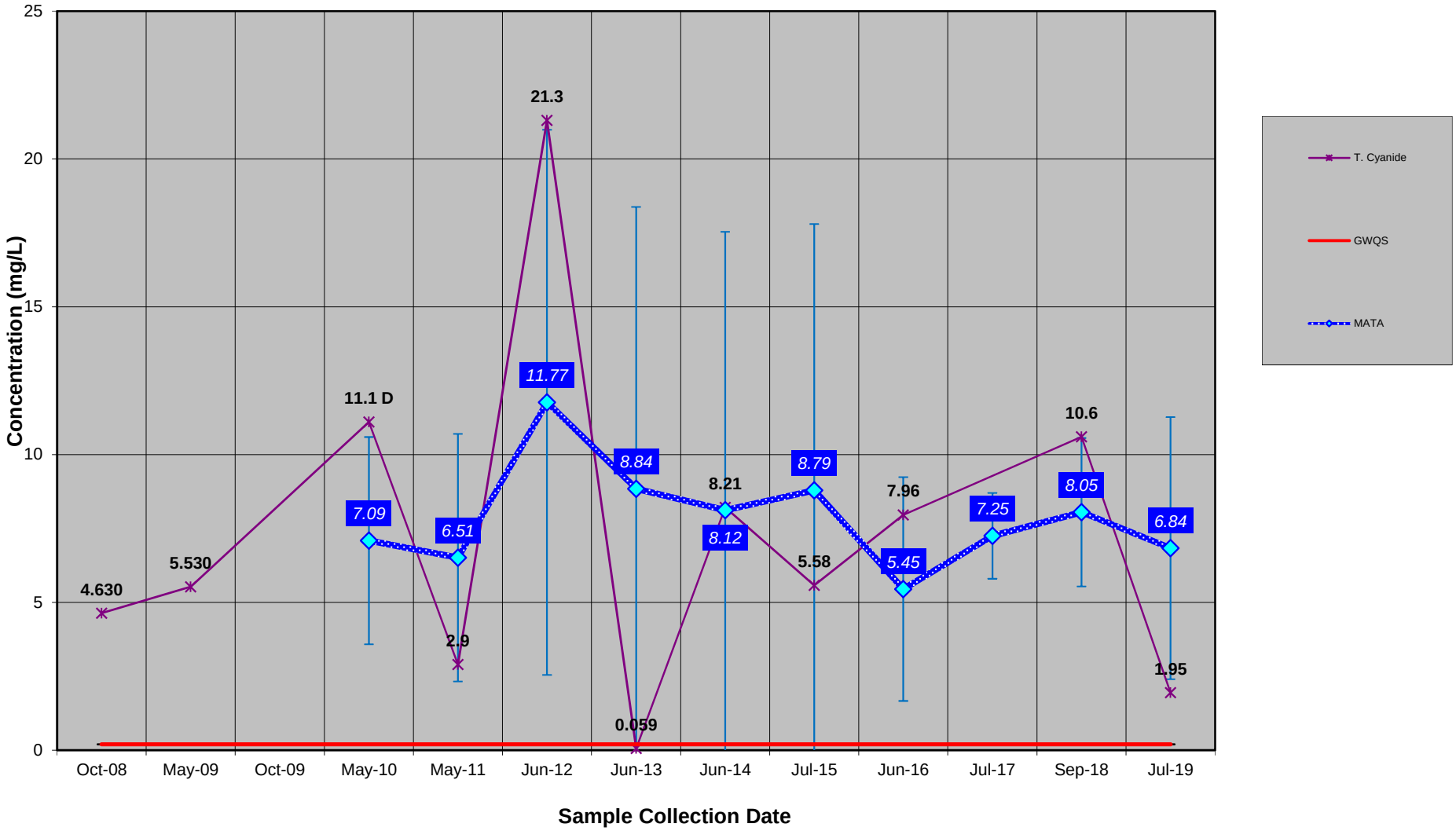


ATTACHMENT 2F
Cyanide

ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A3-MW-3
TOTAL CYANIDE

Riverbend Area III LTGWM
Buffalo, New York



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