Periodic Review Report

May 1, 2017 through May 1, 2018

Riverbend Site (No. V00619)
Buffalo, New York

June 2018

0322-018-500

Prepared For:

Fort Schuyler Management Corporation

Prepared By:

In Association With:

2558 Hamburg Turnpike, Suite 300, Buffalo, New York 14218 | phone: (716) 856-0635 | fax: (716) 856-0583

PERIODIC REVIEW REPORT
for the
STEELFIELDS (AKA RIVERBEND, LLC) SITE
(SITE NO. V00619)

BUFFALO, NEW YORK

June 2018 0322-018-500

Prepared for:

FORT SCHUYLER MANAGEMENT CORPORATION

Prepared By:

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In Association With:

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PERIODIC REVIEW REPORT

Steelfields (aka Riverbend, LLC) Site

Site No. V00619

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PERIODIC REVIEW REPORT
Steelfields (aka Riverbend, LLC) Site
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APPENDICIES

1.0 INTRODUCTION

TurnKey Environmental Restoration, LLC (TurnKey), in association with Benchmark Environmental Engineering and Science, PLLC (Benchmark) 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 (Ref. 1). 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, 2017 to May 1, 2018 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. Accordingly, this report does not address Area IV. RiverBend, LLC, a Buffalo Urban Development Corporation (BUDC)-related entity, 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 former heavy industrial properties identified as Areas I, II, III, and the former August Feine and Norfolk Southern parcels, ncompass approximately 204 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, 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 for this period are provided in the NYSDEC's approved Construction Closeout Report for Area I, including the Site Management Plan, prepared by TurnKey (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 (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, former Norfolk Southern property to the south (now part of the RiverBend Site), and 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; the former Norfolk Southern property and the former August Feine parcel (now part of the Riverbend Site) 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 the former 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 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, but is owned by FSMC.

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 (Ref. 2) and the second covers Areas II and III (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. 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.

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). 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.

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; and discussed in Section 3.2 below). Appendix D includes the July and December 2017 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 remained, 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. A substation servicing the redevelopment on Area I was constructed on the August Feine parcel in 2016.

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. A Long-Term Groundwater Monitoring (LTGWM) Work Plan was prepared by TurnKey in March 2000 (revised June 2005 for Area I. Similarly, LTGWM Work Plans were prepared by others 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 the 3 Areas now follows a 2-year monitoring cycle (e.g., bi-annual) as presented in Appendix C. In general, this modification reduces the VOC 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 (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 (Ref. 5)
- May 5, 2011 NYSDEC Response to Modification Request Letter.

In June 2016 and upon NYSDEC notification, wells A1-MW-8R and A1-MW-10 were installed to replace historically decommissioned well A1-MW-8 and piezometer A1-MW-P-4, respectively. In September 2016 and upon NYSDEC consultation and approval, it was determined that wells A1-MW-4 and A1-MW-M2 and piezometer A1-P-2 were located within the Area I Variance Area footprint and required removal and relocation. As such, these wells and the piezometer were decommissioned in general accordance with NYSDEC Commissioners Policy 43 (CP-43: Groundwater Monitoring Well Decommissioning). In May 2018, replacement wells A1-MW-4R and A1-MW-11 for decommissioned wells A1-MW-4 and A1-MW-M2, respectively, were installed and are sampled as part of the LTGWM plan.

Upon NYSDEC concurrence, it was determined that piezometer A1-P-2 did not require replacement.

Appendix C includes the 2017 Comprehensive Annual Groundwater Monitoring Report for Areas I, II, and III. This report includes the results of the July 2017 groundwater monitoring event as well as the results of the July and December 2017 ORC semi-annual monitoring events for Area III, all of which were conducted during the current PRR period (May 1, 2017 through May 1, 2018). Appendix D includes the ORC inspection forms for the July and December 2017 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 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 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 June 12, 2018, Benchmark's Certifying Professional Engineer 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 E includes a photographic log of the Site.

3.5.1 Area I

Redevelopment activities associated with Area I are complete. A 1.2 million square-foot manufacturing building (Tesla) was constructed and is in service. Redevelopment activities subject to the Area I SMP are summarized in the RiverBend Area I Construction Completion Report (Area I CCR, Ref. 6). At the time of the June 2018 inspection, Area I was in compliance with the IC/ECs.

3.5.2 Area II

At the time of the June 2018 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 June 2018 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 2018 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 2018 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, TurnKey personnel perform 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.

3.6.1 Background

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, TurnKey performed repairs and modifications 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.

On February 22, 2018 during a monthly inspection, water was observed emanating from a clean out which services the Abby street drain. The water flowed across the surface into a nearby man hole. This caused some staining and stressed vegetation. TurnKey fenced off this area and contacted Pinto Construction Services, Inc. (Pinto) to clean out the blockage. On March 7, 2018, Pinto flushed the Abby Street Drainage System via high-pressure water injection. Observed flows within the Baraga Street manhole indicate the system is operating as intended. No further activities were required or performed on the Abby Street drain system during the current reporting period (May 1, 2017 through May 1, 2018).

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 DECLARATION/LIMITATION

TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering and Science, PLLC, personnel conducted the annual site inspections for Voluntary Cleanup Program Site No. V00619, located in Buffalo, New York, according to generally accepted practices. This report complies with the scope of work provided to FSMC by TurnKey Environmental Restoration, LLC.

This report has been prepared for the exclusive use of Fort Schuyler Management Corporation. The contents of this report are limited to information available at the time of the site inspection. The findings herein may be relied upon only at the discretion of Fort Schuyler Management Corporation. Use of or reliance upon this report or its findings by any other person or entity is prohibited without written permission of TurnKey Environmental Restoration, LLC and/or Benchmark Environmental Engineering and Science, PLLC.

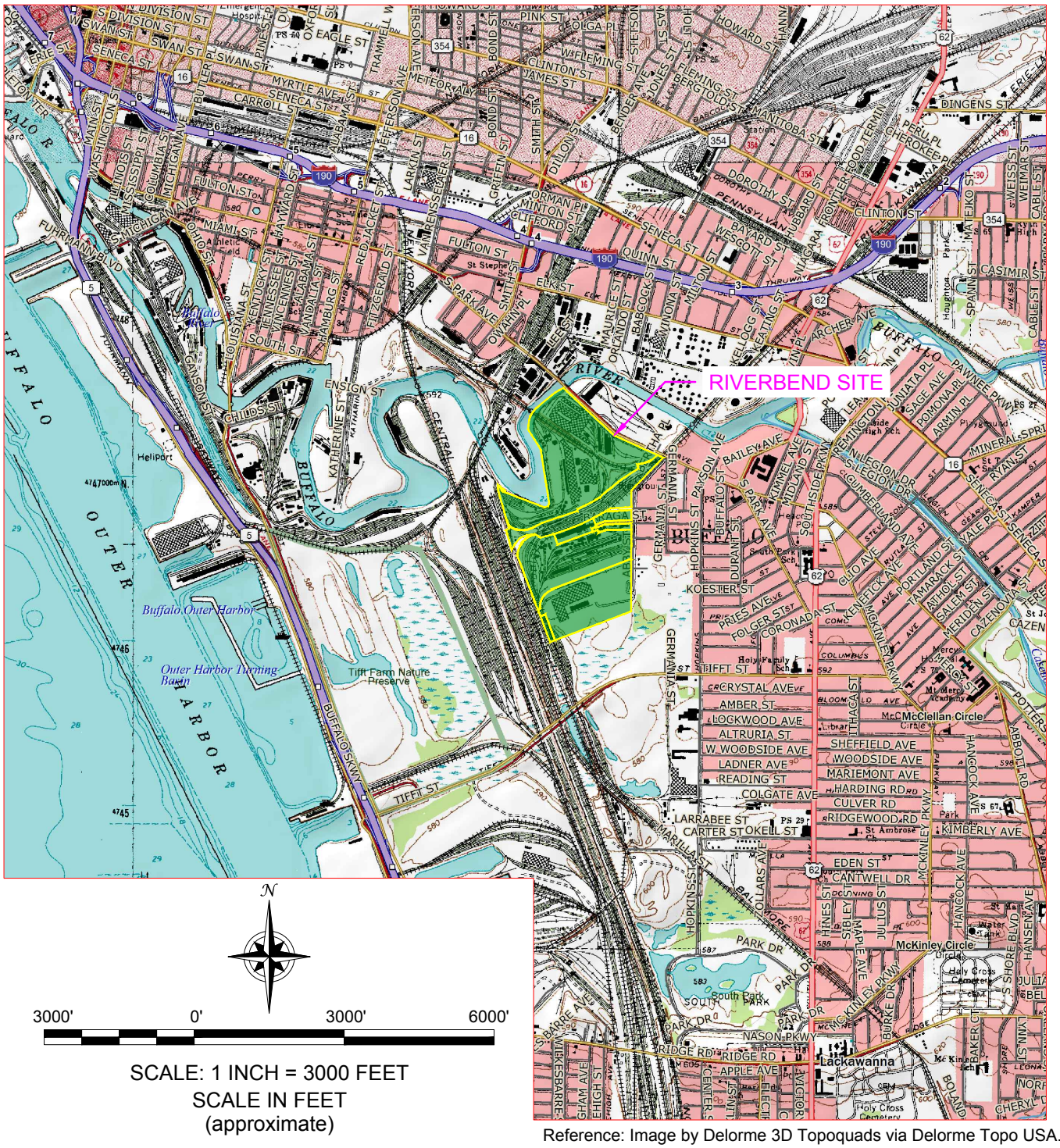
6.0 REFERENCES

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 Revised August 2016, 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.
6. *Construction Completion Report, RiverBend Area I, Voluntary Cleanup Program, VCP Site No. V00619-1, Buffalo New York.* Prepared by TurnKey Environmental Restoration, PLLC. April 2018.

FIGURES

F:\CAD\TurnKey\Riverbend (formerly Steelfields)\PRR\2018 - May 1, 2017 through May 1, 2018\Figure 1; Site Vicinity and Location Map (2018).dwg

FIGURE 1



SCALE: 1 INCH = 3000 FEET
SCALE IN FEET
(approximate)

Reference: Image by Delorme 3D Topoquads via Delorme Topo USA.

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
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PROJECT NO.: 0322-017-500

DATE: May 2018

DRAFTED BY: CMC

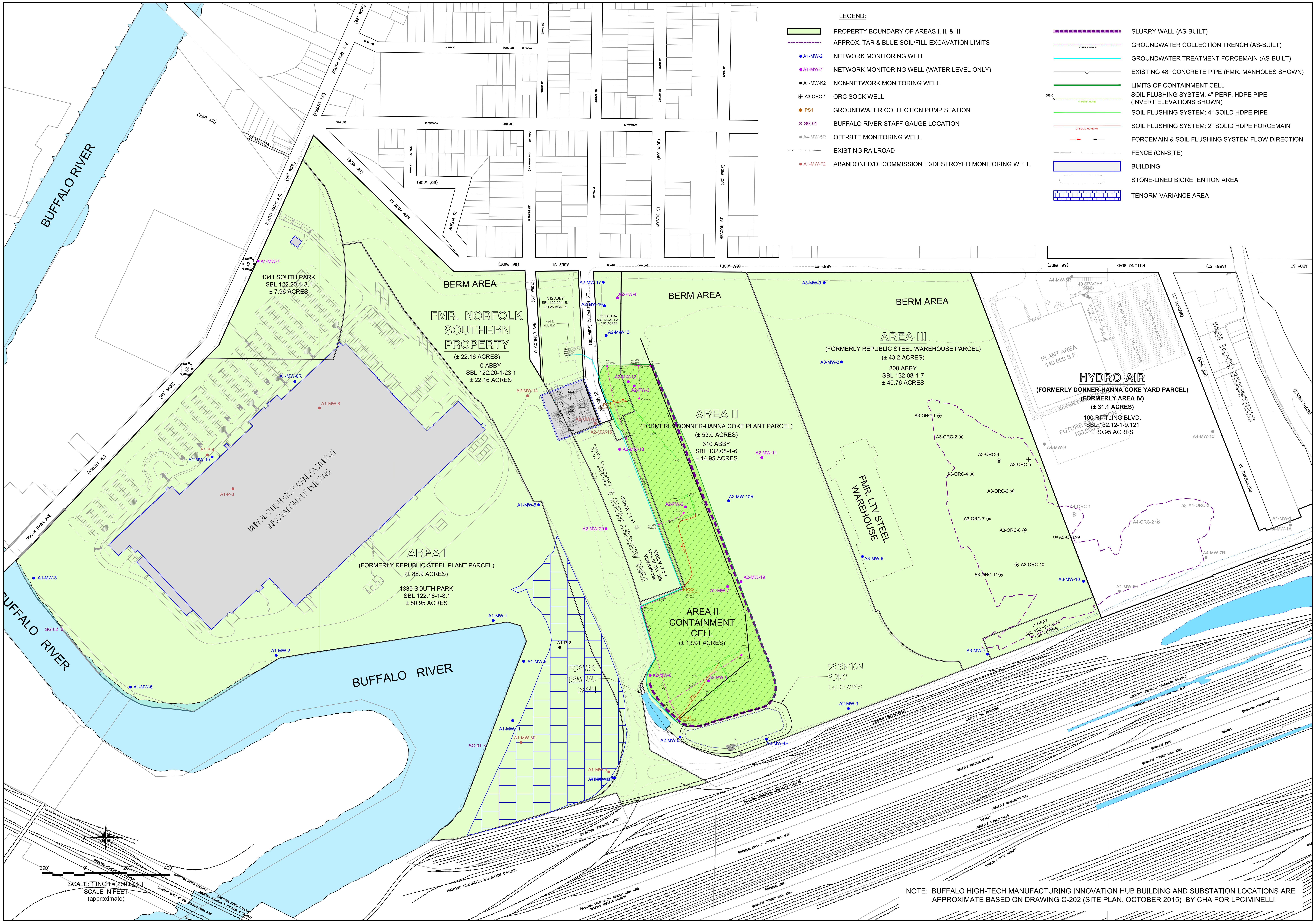
SITE VICINITY & LOCATION MAP

PERIODIC REVIEW REPORT

RIVERBEND SITE
BUFFALO, NEW YORK

PREPARED FOR

FORT SCHUYLER MANAGEMENT CORPORATION



LEGEND:
PROPERTY BOUNDARY OF AREAS I, II, & III
APPROX. TAR & BLUE SOIL/FILL EXCAVATION LIMITS
A1-MW-2 NETWORK MONITORING WELL
A1-MW-7 NETWORK MONITORING WELL (WATER LEVEL ONLY)
A1-MW-K2 NON-NETWORK MONITORING WELL
A3-ORC-1 ORC SOCK WELL
PS1 GROUNDWATER COLLECTION PUMP STATION
SG-01 BUFFALO RIVER STAFF GAUGE LOCATION
A4-MW-5R OFF-SITE MONITORING WELL
EXISTING RAILROAD
A1-MW-F2 ABANDONED/DECOMMISSIONED/DESTROYED MONITORING WELL
SLURRY WALL (AS-BUILT)
GROUNDWATER COLLECTION TRENCH (AS-BUILT)
GROUNDWATER TREATMENT FORCEMAIN (AS-BUILT)
EXISTING 48" CONCRETE PIPE (FMR. MANHOLES SHOWN)
LIMITS OF CONTAINMENT CELL
SOIL FLUSHING SYSTEM: 4" PERF. HDPE PIPE (INVERT ELEVATIONS SHOWN)
SOIL FLUSHING SYSTEM: 4" SOILD HDPE PIPE
SOIL FLUSHING SYSTEM: 2" SOLID HDPE FORCEMAIN
FORCEMAIN & SOIL FLUSHING SYSTEM FLOW DIRECTION
FENCE (ON-SITE)
BUILDING
STONE-LINED BIORETENTION AREA
TENORM VARIANCE AREA
BUFFALO RIVER
BERM AREA
FMR. NORFOLK SOUTHERN PROPERTY
(± 22.16 ACRES)
0 ABBY
SBL 122.20-1-23.1
± 22.16 ACRES
1341 SOUTH PARK
SBL 122.20-1-3.1
± 7.96 ACRES
AREA II
(FORMERLY DONNER-HANNA COKE PLANT PARCEL)
(± 53.0 ACRES)
310 ABBY
SBL 132.08-1-6
± 44.95 ACRES
AREA III
(FORMERLY REPUBLIC STEEL WAREHOUSE PARCEL)
(± 43.2 ACRES)
308 ABBY
SBL 132.08-1-7
± 40.76 ACRES
HYDRO-AIR
(FORMERLY DONNER-HANNA COKE YARD PARCEL)
(FORMERLY AREA IV)
(± 31.1 ACRES)
100 RITTLING BLVD.
SBL 132.12-1-9.121
± 30.95 ACRES
FMR. HOOD INDUSTRIES
FMR. LTV STEEL WAREHOUSE
BUFFALO HIGH-TECH MANUFACTURING INNOVATION HUB BUILDING
AREA I
(FORMERLY REPUBLIC STEEL PLANT PARCEL)
(± 88.9 ACRES)
1339 SOUTH PARK
SBL 122.16-1-8.1
± 80.95 ACRES
FMR. AUGUST FEINE & SONS, CO.
AREA II CONTAINMENT CELL
(± 13.91 ACRES)
FORMER TERMINAL BASIN
DETENTION POND
BUFFALO RIVER
SOUTH PARK AVE
ABBY ST
RITTLING BLVD
SCALE: 1 INCH = 200 FEET
SCALE IN FEET
(approximate)
NOTE: BUFFALO HIGH-TECH MANUFACTURING INNOVATION HUB BUILDING AND SUBSTATION LOCATIONS ARE APPROXIMATE BASED ON DRAWING C-202 (SITE PLAN, OCTOBER 2015) BY CHA FOR LPCIMINELLI.

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JOB NO.: 0322-017-500

REVISIONS

NO.	BY	DATE	REMARKS

SEAL

DRAWN BY: BCH-CMC
DATE: MAY 2018
CHECKED BY:
APPROVED BY:

SITE PLAN

PERIODIC REVIEW REPORT

FORMER STEEL MANUFACTURING SITE

BUFFALO, NEW YORK

PREPARED FOR

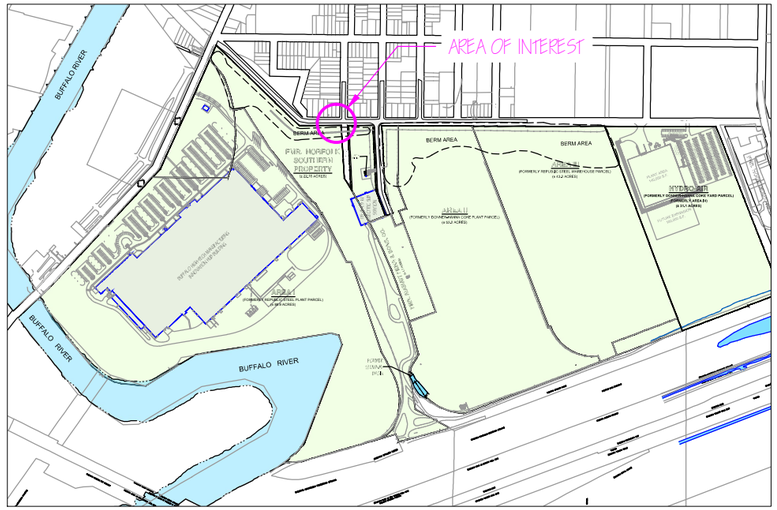
FORT SCHUYLER MANAGEMENT CORPORATION

FIGURE 2

F:\CAD\TurnKey\Riverbend (formerly Steelfields)\PRR2018 - May 1, 2017 through May 1, 2018\Figure 3; Abby Street Drain Site Sketch (2018).dwg

SITE PLAN:

SCALE (APPROX.): 1" = 1200'



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

18" PVC

BARAGA STREET MANHOLE

M.H. (PAVED OVER)

EXIST. 6" V.T.

CLEAN-OUT

CLEAN-OUT

CLEAN-OUT

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)

R 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: 1 INCH = 50 FEET
SCALE IN FEET
(approximate)

DATE: MAY 2018
DRAFTED BY: BCH-CMC

2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

TurnKey Environmental Restoration, LLC

JOB NO.: 0322-017-500

ABBEY STREET DRAINAGE SYSTEM SITE SKETCH

PERIODIC REVIEW REPORT
RIVERBEND SITE
BUFFALO, NEW YORK

PREPARED FOR
FORT SCHUYLER MANAGEMENT CORPORATION

FIGURE 3

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: 182.0

Reporting Period: May 01, 2017 to May 01, 2018

	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 _____ at _____,
print name print business address

am certifying as _____(Owner or Remedial Party)

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

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

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 Thomas H. Forbes, P.E. at Benchmark Environmental Engineering & Science, PLLC, 2558 Hamburg Turnpike, Buffalo, NY 14218,

print name — print business address

am certifying as a Professional Engineer for the Owner

(Owner or Remedial Party)

Signature of Professional Engineer, for the Owner or Remedial Party, Rendering Certification

Stamp (Required for PE)

6-15-18

Date

APPENDIX B

AREA II

ANNUAL GWPTS REPORT
&
BSA SEMI-ANNUAL COMPLIANCE MONITORING REPORTS

ANNUAL PROGRESS REPORT FOR THE
OPERATION, MAINTENANCE, AND MONITORING SERVICES
RiverBend, LLC
(Site No. V00619-9)
197 Baraga St,
Buffalo NY, 14210

PROGRESS REPORT No. 18
REPORTING PERIOD ENDING DECEMBER 31, 2017

Project Description

This Annual Progress Report has been prepared for the RiverBend, LLC 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 our NYSDEC-approved Modification Request (dated April 25, 2011), this Progress Report covers one-year operation and maintenance of the GWPTS from January 1, 2017 through December 31, 2017.

1.0 Treatment Statistics

- Approximately 10,133,617 gallons of groundwater was collected and treated over the current monitoring period averaging 27,740 gallons per day.
- System was on-line for approximately 93% of the time.
- System was off-line for approximately 7% of the time.
- Approximately 2,535.4 pounds of tar was generated from the oil/water separator and non-routine pump station cleaning activities. 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, ± 912 pounds in 2013, ± 139.4 pounds in 2014, ± 296.9 pounds in 2015, and ± 1614.8 pounds in 2016.
- On December 4, 2017, 3 drums of tar (approximately 143 gallons) were transported and disposed at US Ecology Detroit South (formerly EQ Detroit Inc.) of Detroit, Michigan as a D003 reactive sulfide waste.

2.0 General Schedule of Maintenance Undergone

- Regular Maintenance Items
  - 2 bag filter changes/week or as necessary with weekly 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
- January 4, 2017 - Flow meter was calibrated.
- Pump station cleaning and pump replacement (PS-1 & PS-3)/maintenance corrective measures were performed between December 19, 2016 and January 23, 2017. Following electrician certification on January 23, 2017, all three pumps (PS-1 thru PS-3) were activated and the collection system was back to functioning as designed.

Following decanting of excess water into the GWPTS, five drums of cleaning solids mixed with tar were recovered.

- May thru October 2017 – Mowed grass area and weed trimmed fence line around the treatment building, as necessary.
- July 20, 2017 – Annual certification/inspection associated with the Periodic Review Report (PRR) in accordance with DER-10 was performed.
- June 16, 2017 – 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 2017 – Long-Term Groundwater Monitoring was performed in Areas I, II, and III. ORC monitoring in Area III was also performed.
- October 13, 2016 – Mowed final cover and weed trimmed penetrations associated with the Area II Containment Cell.
- October 31 thru December 10, 2017 – System down due to electrical control problems. An electrician was on site on December 6, 2017 to troubleshoot and fix the system. The system worked for two days before shutting down due to electrical control problems. An electrician was on site on December 10, 2017 to troubleshoot and fix the system.
- December 11 thru December 14, 2017 – ORC monitoring in Area III was performed.
- December 16 thru December 19, 2017 – System down due to building heater malfunction. The system shut down to protect itself from potential freezing temperatures. The heater was repaired on December 19, 2017 and the system was restarted.
- December 21, 2017 – Cleaned the influent tank, effluent tank, oil/water separator, and bag filter canisters.
- December 29, 2017 – Carbon in lead vessel #2 is scheduled to be changed on January 15, 2018 Lead and lag vessels will be reversed at that time (vessel #2 will become the lag and #1 the lead).

3.0 Attachments/Logs

- Attachment 1: Graph of monitored flows through treatment system for 2017
- Attachment 2: Maintenance Logs for 2016 (01/03/17 thru 01/03/18)
- Attachment 3: Generated Volume of Tar Material (01/01/17 thru 12/31/17)
- Attachment 4: Hazardous Waste Manifest (12/04/17)

ATTACHMENT 1

MONITORED FLOWS VS. TIME

ATTACHMENT 1

MONITORED FLOWS v. TIME
2017

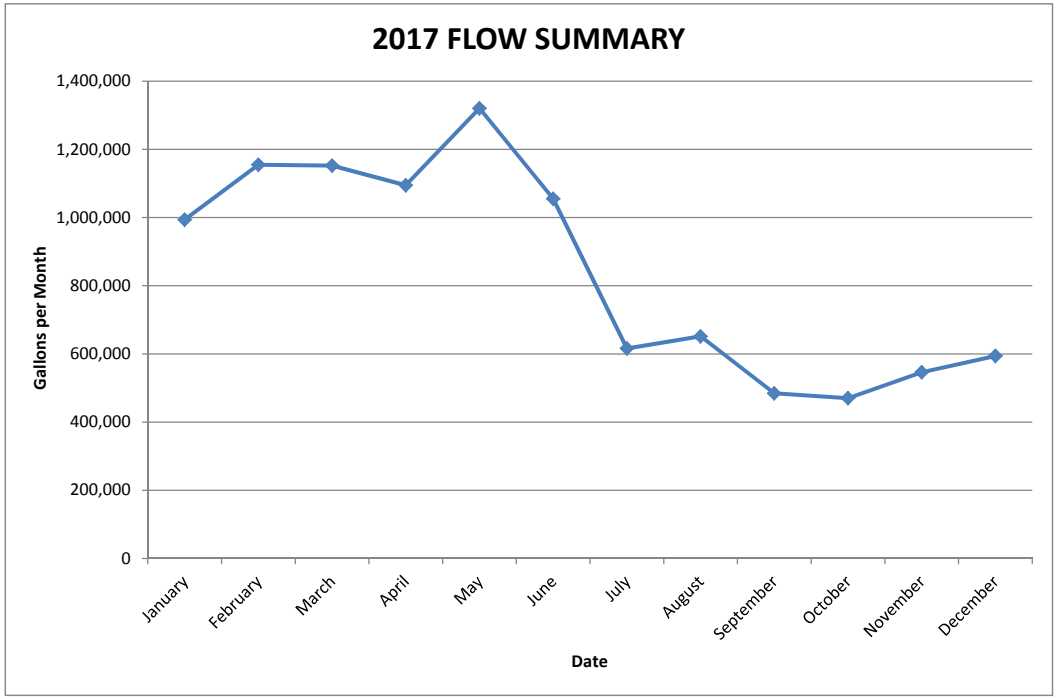
Groundwater Pre-Treatment System (GWPTS)
Riverbend, LLC
(Site No. V00619-9)
Buffalo, New York

2017

Month	GPMo	GPD	GPM
January	993,745	32,056	22
February	1,154,708	39,818	28
March	1,152,289	37,171	26
April	1,094,558	36,485	25
May	1,320,607	42,600	30
June	1,055,375	35,179	24
July	615,949	19,869	14
August	651,469	21,015	15
September	484,457	16,149	11
October	470,202	15,168	11
November	546,121	18,204	13
December	594,137	19,166	13
Total	10,133,617		
Min.	470,202	15,168	11
Max.	1,320,607	42,600	30
Ave.	844,468	27,740	19

Since August 2008:

Total	82,966,319	NA
Min.	191,242	6,169
Max.	2,318,235	77,104
Ave.	838,044	27,555

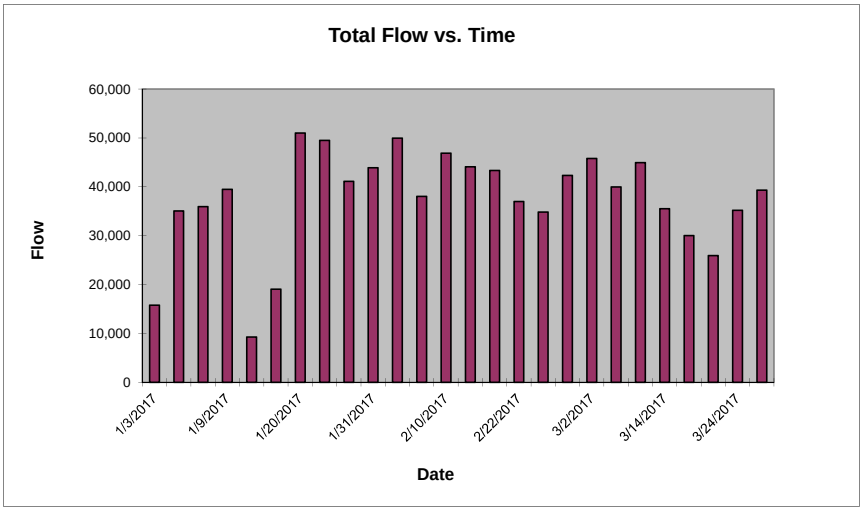


ATTACHMENT 1

MONITORED FLOWS v. TIME
FIRST QUARTER 2017

Groundwater Pre-Treatment System (GWPTS)
Riverbend, LLC
Buffalo, New York

Date	Total Flow	Daily Avg
1/3/2017	8,454,815	15,768
1/4/2017	8,489,861	35,046
1/5/2017	35,928	35,928
1/9/2017	193,804	39,469
1/16/2017	258,630	9,261
1/18/2017	296,711	19,041
1/20/2017	398,713	51,001
1/24/2017	596,669	49,489
1/27/2017	720,021	41,117
1/31/2017	895,627	43,902
2/2/2017	995,524	49,949
2/7/2017	1,185,791	38,053
2/10/2017	1,326,408	46,872
2/14/2017	1,502,804	44,099
2/16/2017	1,589,461	43,329
2/22/2017	1,811,315	36,976
2/24/2017	1,880,987	34,836
2/28/2017	2,050,335	42,337
3/2/2017	2,141,900	45,783
3/7/2017	2,341,680	39,956
3/9/2017	2,431,557	44,939
3/14/2017	2,609,197	35,528
3/17/2017	2,699,258	30,020
3/20/2017	2,777,043	25,928
3/24/2017	2,917,744	35,175
3/27/2017	3,035,716	39,324
3/31/2017	3,202,624	41,727



Total Quarterly Flow:	3,300,742	gallons
Ave. Quarterly Flow:	36,348	gallons/day

JANUARY	
993,745	gallons/month
31	days
32,056	gallons/day
22	gallons/min

FEBRUARY	
1,154,708	gallons/month
29	days
39,818	gallons/day
28	gallons/min

MARCH	
1,152,289	gallons/month
31	days
37,171	gallons/day
26	gallons/min

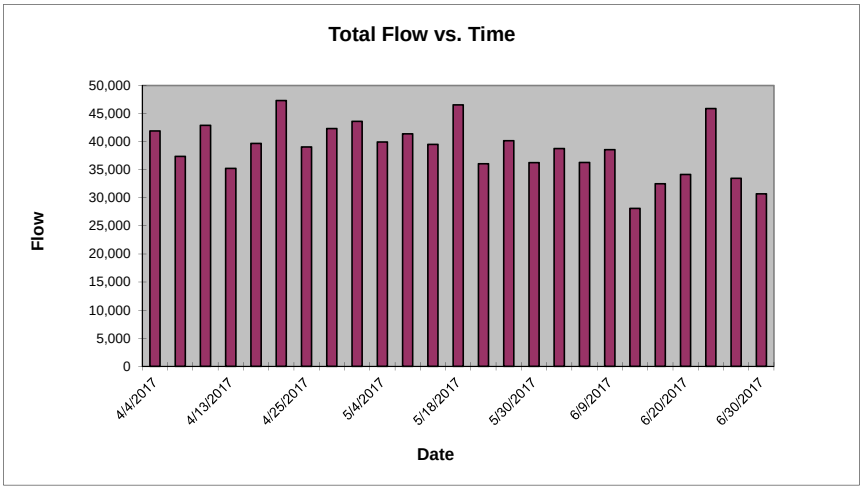
Notes:
* = flow meter calibrated and reset to zero on 01/05/16

ATTACHMENT 1

MONITORED FLOWS v. TIME
SECOND QUARTER 2017

Groundwater Pre-Treatment System (GWPTS)
Riverbend, LLC
Buffalo, New York

Date	Total Flow	Daily Avg
4/4/2017	3,370,232	41,902
4/7/2017	3,482,330	37,366
4/11/2017	3,653,890	42,890
4/13/2017	3,724,362	35,236
4/18/2017	3,922,696	39,667
4/20/2017	4,017,294	47,299
4/25/2017	4,212,509	39,043
4/27/2017	4,297,182	42,337
5/2/2017	4,515,176	43,599
5/4/2017	4,595,026	39,925
5/9/2017	4,802,031	41,401
5/16/2017	5,078,663	39,519
5/18/2017	5,171,744	46,541
5/22/2017	5,316,004	36,065
5/25/2017	5,436,475	40,157
5/30/2017	5,617,789	36,263
6/2/2017	5,734,120	38,777
6/6/2017	5,879,316	36,299
6/9/2017	5,995,014	38,566
6/14/2017	6,135,569	28,111
6/16/2017	6,200,552	32,492
6/20/2017	6,337,143	34,148
6/21/2017	6,383,027	45,884
6/26/2017	6,550,385	33,472
6/30/2017	6,673,164	30,695



Total Quarterly Flow:	3,470,540	gallons
Ave. Quarterly Flow:	38,088	gallons/day

APRIL	
1,094,558	gallons/month
30	days
36,485	gallons/day
25	gallons/min

MAY	
1,320,607	gallons/month
31	days
42,600	gallons/day
30	gallons/min

JUNE	
1,055,375	gallons/month
30	days
35,179	gallons/day
24	gallons/min

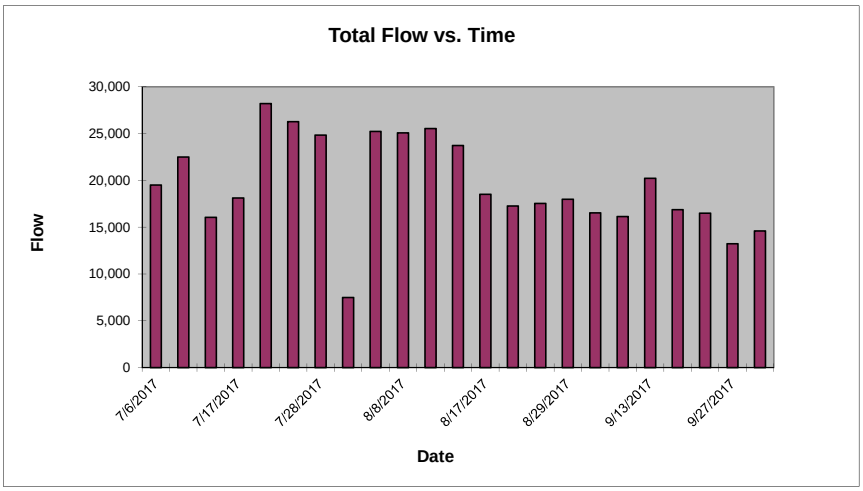
Notes:
* = flow meter calibrated and reset to zero on 01/05/16

ATTACHMENT 1

MONITORED FLOWS v. TIME
THIRD QUARTER 2017

Groundwater Pre-Treatment System (GWPTS)
Riverbend, LLC
Buffalo, New York

Date	Total Flow	Daily Avg
7/6/2017	6,790,141	19,496
7/10/2017	6,880,079	22,485
7/14/2017	6,944,303	16,056
7/17/2017	6,998,661	18,119
7/20/2017	7,083,275	28,205
7/25/2017	7,214,631	26,271
7/28/2017	7,289,113	24,827
8/1/2017	7,319,032	7,480
8/3/2017	7,369,478	25,223
8/8/2017	7,494,804	25,065
8/10/2017	7,545,868	25,532
8/14/2017	7,640,725	23,714
8/17/2017	7,696,250	18,508
8/22/2017	7,782,540	17,258
8/24/2017	7,817,605	17,533
8/29/2017	7,907,540	17,987
8/31/2017	7,940,582	16,521
9/6/2017	8,037,414	16,139
9/13/2017	8,178,985	20,224
9/19/2017	8,280,207	16,870
9/22/2017	8,329,673	16,489
9/27/2017	8,395,834	13,232
9/29/2017	8,425,039	14,603



Total Quarterly Flow:	1,751,875	gallons
Ave. Quarterly Flow:	19,011	gallons

JULY	
615,949	gallons/month
31	days
19,869	gallons/day
14	gallons/min

AUGUST	
651,469	gallons/month
31	days
21,015	gallons/day
15	gallons/min

SEPTEMBER	
484,457	gallons/month
30	days
16,149	gallons/day
11	gallons/min

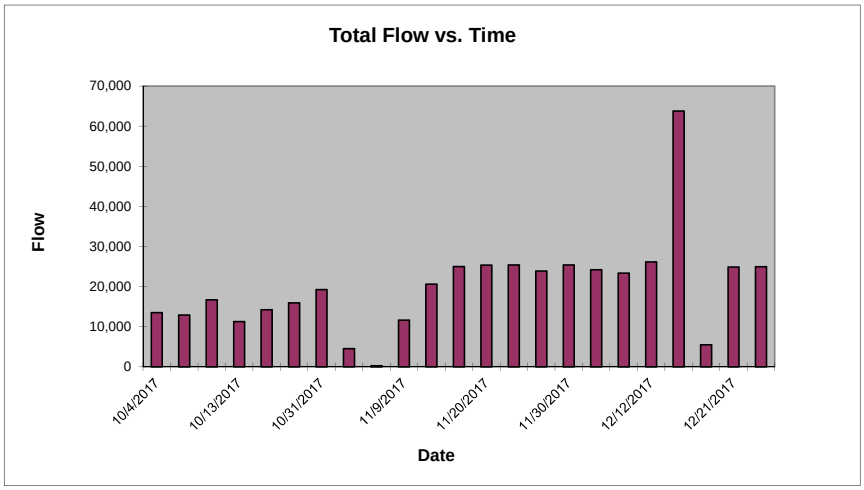
Notes:
* = flow meter calibrated and reset to zero on 01/05/16

ATTACHMENT 1

MONITORED FLOWS v. TIME
FOURTH QUARTER 2017

Groundwater Pre-Treatment System (GWPTS)
Riverbend, LLC
Buffalo, New York

Date	Total Flow	Daily Avg
10/4/2017	8,492,536	13,499
10/6/2017	8,518,393	12,929
10/9/2017	8,568,528	16,712
10/13/2017	8,613,680	11,288
10/24/2017	8,770,341	14,242
10/27/2017	8,818,242	15,967
10/31/2017	8,895,241	19,250
11/2/2017	8,904,323	4,541
11/6/2017	8,905,506	296
11/9/2017	8,940,449	11,648
11/14/2017	9,043,510	20,612
11/16/2017	9,093,492	24,991
11/20/2017	9,194,895	25,351
11/22/2017	9,245,717	25,411
11/27/2017	9,365,199	23,896
11/30/2017	9,441,362	25,388
12/4/2017	9,538,118	24,189
12/7/2017	9,608,244	23,375
12/12/2017	9,739,023	26,156
12/13/2017	9,802,776	63,753
12/19/2017	9,835,864	5,515
12/21/2017	9,885,658	24,897
12/27/2017	10,035,499	24,974



Total Quarterly Flow:	1,610,460	gallons
Ave. Quarterly Flow:	17,513	gallons

OCTOBER	
470,202	gallons/month
31	days
15,168	gallons/day
11	gallons/min

NOVEMBER	
546,121	gallons/month
30	days
18,204	gallons/day
13	gallons/min

DECEMBER	
594,137	gallons/month
31	days
19,166	gallons/day
13	gallons/min

Notes:
* = flow meter calibrated and reset to zero on 01/05/16

ATTACHMENT 2

FIELD LOGS

Waste Water T ment Plant - Riverbend
Maintenance Log

Date	Flow Meter Reading	Lead Tank		Back Flush		Pressure Differential (PSI)		Bag Filter Change		Bag Pressure (PSI)		Decant Oil Seperator	Instantaneous Flow	
		Tank 1	Tank 2	Tank 1	Tank 2	Before	After	Tank 1	Tank 2	Before	After		Before	After
1-3-2017	8454815	X		X	X	4.0	4.0	X	X	—	22.9	X	—	79.19
1-5-2017	35928	X		X	X	4.0	4.0	X	X	22.8	22.4	X	74.86	84.16
1-9-2017	193804	X		X	X	4.0	4.0	X	X	24.2	22.1	X	72.39	79.17
1-16-17	258360	X		X	X	4.0	4.0	X	X	24.9	22.8	X	71.13	79.79
1-18-17	296711	X		X	X	4.0	4.0	X	X	23	22.1	X	75.74	79.65
1-20-17	398713	X		X	X	4.0	4.0	X	X	23.5	22.6	X	70.17	80.12
1-24-17	596699	X		X	X	4.0	4.0	X	X	23.9	22.9	X	72.13	79.70
1-27-17	720031	X		X	X	4.0	4.0	X	X	24.5	22.9	X	60.41	78.77
1-31-17	895627	X		X	X	4.0	4.0	X	X	24.4	22.8	X	62.17	77.94
2-2-17	995224	X		X	X	4.0	4.0	X	X	24.5	23.1	X	62.39	74.19
2-7-17	1185791	X		X	X	4.0	4.0	X	X	24.5	23.6	X	45.16	75.62
2-10-17	1326408	X		X	X	4.0	4.0	X	X	24.4	23.5	X	50.15	76.12
2-14-17	1502804	X		X	X	4.0	4.0	X	X	24.5	23.6	X	51.55	75.09
2-16-17	1589461	X		X	X	4.0	4.0	X	X	24.3	23.5	X	55.85	75.16
2-22-17	1811315	X		X	X	4.0	4.0	X	X	25.2	24.1	X	39.04	69.70
2-24-17	1880987	X		X	X	4.0	4.0	X	X	25.1	23.6	X	45.16	73.17
2-28-17	2050335	X		X	X	6	6	X	X	24.1	22.9	X	52	73
3-2-17	2141900	X		X	X	6	6	X	X	23.8	23.0	X	60	78
3-7-17	2341680	X		X	X	5.0	5.0	X	X	24.1	23.0	X	55.14	78.70
3-9-17	2431557	X		X	X	7	7	X	X	23.3	21.7	X	66	76
3-14-17	2609197	X		X	X	—	4.0	X	X	—	23.3	X	—	73.30
3-17-17	2699258	X		X	X	4.0	4.0	X	X	23.4	22.6	X	65.17	74.49
3-20-17	2777043	X		X	X	—	—	X	X	24.0	23.8	X	63	76
3-24-17	2917744	X		X	X	4.0	4.0	X	X	24.5	23.4	X	58.14	75.68
3-27-17	3035716	X		X	X	—	—	X	X	24.5	23.4	X	61	76
3-31-17	3202624	X		X	X	4.0	4.0	X	X	23.9	23.3	X	63.41	76.17
4-4-17	3370239	X		X	X	4.0	4.0	X	X	24.5	23.4	X	56.54	68.91
4-7-17	3482330	X		X	X	4.0	4.0	X	X	24.3	23.9	X	58.16	66.79
4-11-17	3653890	X		X	X	4.0	4.0	X	X	24.2	23.5	X	60.56	71.91
4-13-17	3724362	X		X	X	4.0	4.0	X	X	23.5	23.3	X	65.88	76.70
4-18-17	3922696	X		X	X	4.0	4.0	X	X	23.9	23.4	X	62.10	72.56
4-20-17	4017294	X		X	X	4.0	4.0	X	X	—	23.3	X	60	71.37
4-25-17	4212509	X		X	X	4.0	4.0	X	X	24.4	23.6	X	54.21	69.96

Flow meter calibrated + reset to zero on 1/4/17
Final reading prior to reset = 8489861
Carbon change 12/29/16

Waste Water T[illegible]ment Plant - Riverbend

Maintenance Log

Date	Flow Meter Reading	Lead Tank		Back Flush		Pressure Differential (PSI)		Bag Filter Change		Bag Pressure (PSI)		Decant Oil Seperator	Instantaneous Flow	
		Tank 1	Tank 2	Tank 1	Tank 2	Before	After	Tank 1	Tank 2	Before	After		Before	After
4/27/17	4297182	X		X	X	4.0	4.0	X	X	24.1	22.7	X	62.13	70.72
5/2/17	4515176	X		X	X	—	4.0	X	X	—	22.5	X	—	70.75
5/4/17	4595026	X		X	X	—	4.0	X	X	—	23.5	X	—	73.62
5-9-17	4802631	X		X	X	—	—	X	X	23.8	23.6	X	65	75
5-16-17	5078663	X		X	X	4.0	4.0	X	X	24.2	23.6	X	54.12	73.38
5-18-17	5171744	X		X	X	—	4.0	X	X	—	23.5	X	—	72.79
5-22-17	5316004	X		X	X	—	4.0	X	X	—	23.4	X	—	68.69
5-25-17	5436475	X		X	X	4.0	4.0	X	X	24.6	23.6	X	43.12	69.61
5-30-17	5617789	X		X	X	4.0	4.0	X	X	25.8	23.6	X	27.02	67.81
6-2-17	5734120	X		X	X	4.5	4.0	X	X	26.1	23.5	X	33.03	67.95
6-6-17	5991936	X		X	X	4.0	4.0	X	X	25.8	23.0	X	32.10	70.51
6-9-17	6195014	X		X	X	—	4.0	X	X	—	23.6	X	—	66.42
6-14-17	6355569	X		X	X	—	—	X	X	26.4	22.1	X	0.0	73.0
6-16-17	6400552		X	New Carbon	X	—	4.0	X	X	—	[illegible]	X	—	65.54
6-20-17	6537143		X	—	—	—	—	X	X	NA	NA	X	20	65
6-21-17	6583027		X	X	X	—	4.0	X	X	—	—	X	35.5	69.16
6-26-17	6750385		X	X	X	4.0	4.0	X	X	—	—	X	38.90	77.17
6-30-17	6873164		X	X	X	4.0	4.0	X	X	—	—	X	41.12	78.70
7-6-17	6990141		X	X	X	4.0	4.0	X	X	—	—	X	56.16	77.46
7-10-17	7080079		X	X	X	—	—	X	X	—		X	—	75.
7-14-17	7244303		X		X	—	—	X	X		21			70
7-17-17	7395761		X	X	X	—	—	X	X	25	21.6	X	50	78
7-20-17	7483275		X	X	X	—	—	X	X	21.6		X	74	
7-25-17	7614631		X	X	X	—	—	X	X	22	22	X	70	70
7-28-17	7739113		X	X	X	—	—	X	X	22.3	21.7	X	71	83.49
8-1-17	7819032		X	X	X	—	—	X	X	25.3	21.7	X	72	84.62
8-3-17	7869478		X	X	X	—	—	X	X	21.5	21.5	X	77	86.03
8-8-17	7994804		X	X	X	—	—	X	X	22.2	20.3	X	76.19	83.04
8-10-17	8045868		X	X	X	—	—	X	X	21.1	21.2	X	77.88	87.13
8-14-17	8140735	[illegible]	X	X	X	—	—	X	X	21.9	20.2	X	74.27	82.12
8-17-17	8196250		X	X	X	—	—	X	X	21.8	21.2	X	76.51	87.35
8-22-17	8282540		X	X	X	—	—	X	X	21.4	21.0	X	76.19	89.24
8-24-17	8317605		X	X	X	—	—	X	X	20.9	20.3	X	74.04	86.43

6-16-17 Carbon change out of tank # 1

Waste Water T[illegible]nent Plant - Riverbend

Maintenance Log

	Date	Flow Meter Reading	Lead Tank		Back Flush		Pressure Differential (PSI)		Bag Filter Change		Bag Pressure (PSI)		Decant Oil Seperator	Instantaneous Flow	
			Tank 1	Tank 2	Tank 1	Tank 2	Before	After	Tank 1	Tank 2	Before	After		Before	After
	8/29/17	7907540		X	X	X	–	–	X	X	20.1	21.0	X	75.04	86.93
*	8/31/17	7940582		X	X	X	–	–	X	X	21.5	21.1	X	78.09	87.96
	9/6/17	8037414		X	X	X	–	–	X	X	21.3	21.1	X	73.25	87.35
	9-13-17	8178985		X	X	X	–	–	X	X	21.5	21.0	X	75	87
	9-19-17	8280207		X	X	X	–	–	X	X	23.0	21.5	X	69.40	86.38
	9-22-17	8329673		X	X	X	–	–	X	X	23.1	21.3	X	65.63	85.64
	9-27-17	8395834		X	X	X	–	–	X	X	23.8	21.5	X	63.16	89.45
	9-29-17	8425039		X	X	X	–	–	X	X	21.6	20.3	X	79.31	87.65
	10-5-17	8492536		X	X	X	–	–	X	X	21.1	20.4	X	67.09	86.44
	10-6-17	8518393		X	X	X	–	–	X	X	21.5	21.1	X	76.08	86.74
	10-9-17	8568528		X	X	X	–	–	X	X	21.9	21.6	X	76.71	86.20
	10-13-17	8613680		X	X	X	–	–	X	X	21.7	21.0	X	77.42	87.67
	10-24-17	8770341		X	X	X	–	–	X	X	22.0	20.9	X	76.47	86.59
	10-27-17	8818243		X	X	X	–	–	X	X	22.5	21.5	X	76.85	89.45
	10-31-17	8895341		X	X	X	–	–	X	X	22.4	21.8	X	78.56	86.57
	11-2-17	8904323		X	X	X	–	–	X	X	22.0	20.1	X	75.47	65.75
	11-6-17	8905506		X	X	X	–	–	X	X	21.8	21.5	X	77.84	90.08
	11-9-17	8940449		X	X	X	–	–	X	X	20.5	21.6	X	79.49	87.226
	11-14-17	9043510		X	X	X	–	–	X	X	22.8	22.2	X	77.42	86.45
	11-16-17	9063492		X	X	X	–	–	X	X	22.0	21.9	X	74.23	86.28
	11-20-17	9194895		X	X	X	–	–	X	X	22.6	21.7	X	72.46	84.52
	11-22-17	9245717		X	X	X	–	–	X	X	22.4	22.1	X	73.53	85.57
	11-27-17	9365199		X	X	X	–	–	X	X	22.4	22.2	X	74.26	82.94
	11-30-17	9441362		X	X	X	–	–	X	X	22.3	22.0	X	71.64	85.67
	12-4-17	9538118		X	X	X	–	–	X	X	22.2	21.8	X	70.72	83.52
	12-7-17	9608244		X	X	X	–	–	X	X	22.7	22.2	21.8 X	71.86	84.42
	12-12-17	9739023		X	X	X	–	–	X	X	22.5	21.9	X	68.84	79.09
	12-13-17	9802776		X	X	X	–	–	X	X	22.8	21.7	X	69.54	81.42
	12-19-17	9835564		X	X	X	–	–	X	X	22.9	22.0	X	69.14	85.00
	12-21-17	9885658		X	X	X	–	–	X	X	22.6	21.7	X	76	79
	12/27-17	10035499		X	X	X	–	–	X	X	22.3	21.4	X	75.05	82.37
	1-3-18	10226877		X	X	X	–	–	X	X	23.4	22.2	X	65.92	83.07

* 8-31 – TOOK TAR/SLUDGE SAMPLES FROM ACTIVE DECANTER DRUM & TAR/SLUDGE PS-7 DRUM

10-24 – BUFFALO WATER AUTHORITY ONSITE, TAKES POST-SYSTEM SAMPLES

11-6 – VEAN (MODERN ELECTRIC) ON SITE TO FIX SUM PUMP SENSORY ALARM ISSUE – PROBLEM FIXED! – RESTART SYSTEM

13-19 – HEATER PROBLEM / BROKE ONSITE – PROBLEM FIXED – RESTART SYSTEM / ALARM (FAN WASN'T WORKING – KEEP EYE ON IT!

ATTACHMENT 3

GENERATED VOLUME OF TAR MATERIAL

ATTACHMENT 3

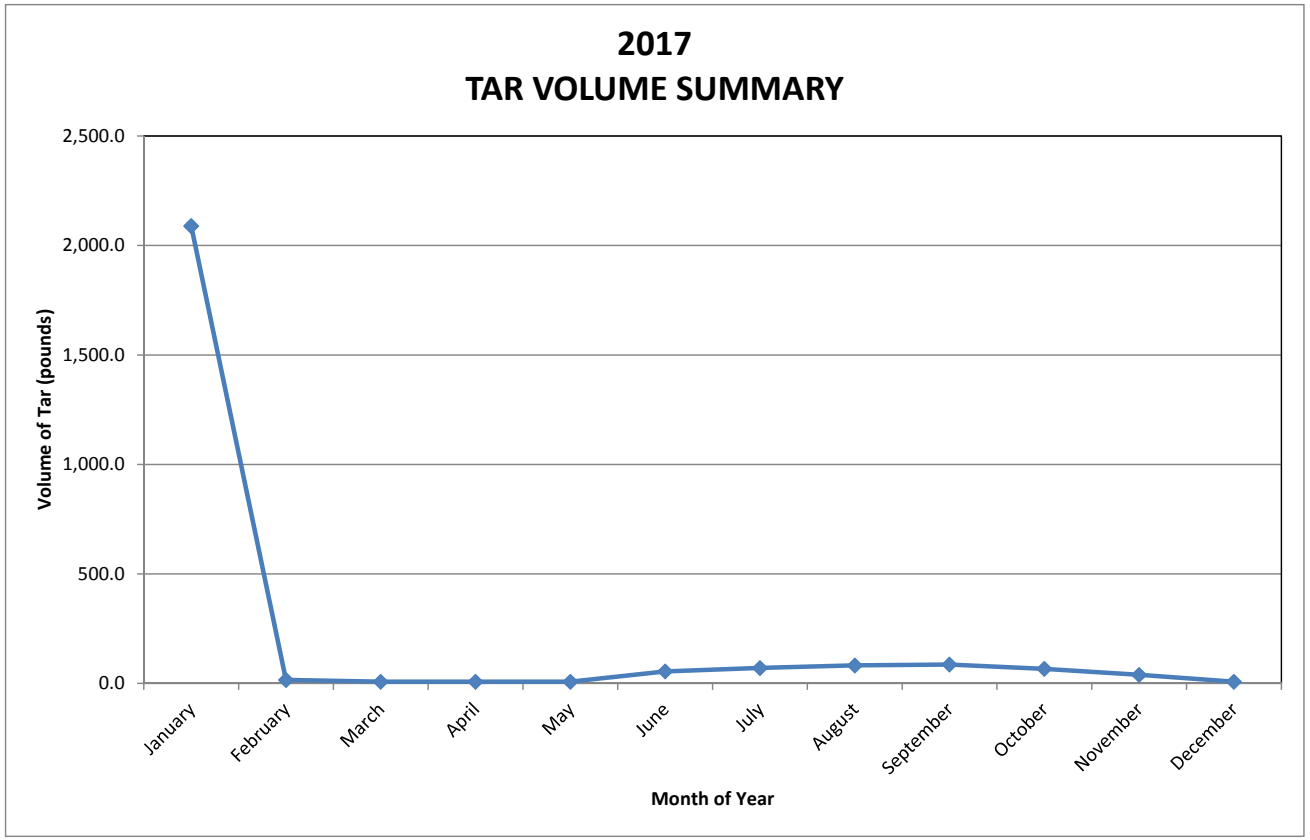
GENERATED VOLUME OF TAR MATERIAL
2017

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

Month	Volume of Tar (pounds)
January	2,089.1
February	15.7
March	7.8
April	7.8
May	7.8
June	54.8
July	70.5
August	82.2
September	86.2
October	66.6
November	39.2
December	7.8

Total: 2535.5 pounds
Drums: 5.27

Min. 7.8 pounds
Max. 2089.1 pounds
Ave. 211.3 pounds



ATTACHMENT 4

HAZARDOUS WASTE MANIFEST
(12/04/17)

US ecology

Receipt Waste Summary

DISPOSAL CONNECTIONS INC
6569 HEATHER DRIVE
LOCKPORT, NY 14094-1152

Invoice Date: 12/13/2017
Customer ID: 018081

Facility: EQ Detroit, Inc., 1923 Frederick, Detroit, MI 48211

Description	Qty.	Unit
K179003DET - K179003DET Tar Residuals	3.00	DM55

Manifest 009805833FLE

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	NYR000148924	1	716-225-3314	009805833 FLE

GENERATOR

5. Generator's Name and Mailing Address
Fort Schuyler Management Corporation
257 Fuller Road
Albany NY 12203
Attn: Tom O'Brien
Generator's Phone: 518 956-7096

Generator's Site Address (if different than mailing address)
Riverbend Site
312 Abby Street
Buffalo NY 14220

6. Transporter 1 Company Name
Tonawanda Tank Transport Service Inc.
U.S. EPA ID Number: NYD097644801

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
EQ Detroit, Inc.
1923 Frederick Street
Detroit MI 48211
Facility's Phone: 313 923-0080
U.S. EPA ID Number: MID980991566

9a HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. RQ NA3077, Hazardous Waste, Solid, n.o.s. (D003), 9, PGIII	003	DM	01500	P	D003 B
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1K17900SDET, ERG#171 The weights in section 11 are estimated.

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Brock Greene as agent for F,S,M,C, Signature: [signature] Month: 12 Day: 4 Year: 17

TRANSPORTER INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: Date leaving U.S.:
Transporter signature (for exports only):

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Gumersindo Barrera Signature: [signature] Month: 12 Day: 4 Year: 17
Transporter 2 Printed/Typed Name: Signature: Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H110 2. H141 3. W1 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: [signature] Signature: [signature] Month: 12 Day: 12 Year: 17

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

December 21, 2017

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 2017 Semi-Annual Compliance Monitoring Report
BPDES Permit No. 16-01-BU278

Dear Mr. Szilagyi:

On behalf of our client, Fort Schuyler Management Corporation, TurnKey Environmental Restoration, LLC has prepared this correspondence to present the second semi-annual 2017 discharge monitoring results for the groundwater pre-treatment system at the above-referenced facility. Discharge monitoring was performed from December 11-12, 2017.

SAMPLE COLLECTION

Samples were collected from the pretreated process effluent (Outfall 001) in general accordance with Buffalo Pollution Discharge Elimination System (BPDES) Permit No. 16-01-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 presented as Attachment 2. Compounds detected above the laboratory reporting limit during the December 2017 event are summarized in Table 1 along with permitted BSA discharge limits. As presented, all parameters are well within allowable limits.

FLOW MONITORING

Flow measurement data is presented in Table 1. Average daily flow was based on 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 2018.

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,
TurnKey Environmental Restoration, LLC

Brock Greene
Project Environmental Scientist

ec: Tom O'Brien (Fort Schuyler)
Paul Werthman (TurnKey)

File: 0322-017-500

TABLES

TABLE 1

2017 SEMI-ANNUAL GROUNDWATER PRETREATMENT SYSTEM DATA SUMMARY

BPDES Permit #16-01-BU278
Fort Schuyler RiverBend Site
312 Abby Street, Buffalo, NY

Parameter	December 11-12, 2017		Daily Discharge Limits [2]
	Concentration (units as indicated)	*Mass [1] (pounds)*	
Laboratory pH (S.U.)	7.20	na	5.0 - 12.0
Field pH (S.U.) [3]	NA	na	5.0 - 12.0
Volatile Organic Compounds - Method 624 (mg/L)			
Total VOCs	ND	na	Monitor
Semi-Volatile Organic Compounds - Method 625 (mg/L)			
Total SVOCs	ND	na	Monitor
Inorganics (mg/L)			
Total Cyanide	1.36	0.213	4.3 lbs
Average Daily Flow (gallons per day) [4]	18,737		*see Note 5*

Notes:

1. The monitoring result is calculated based on the concentration of detected parameters and the average daily flow rate identified 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 4 grab samples collected over a 24-hour period.
4. Average daily flow based on net flow recorded as presented below.
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 analyzed for, but not detected above the reporting limit.

Flow Calculations:

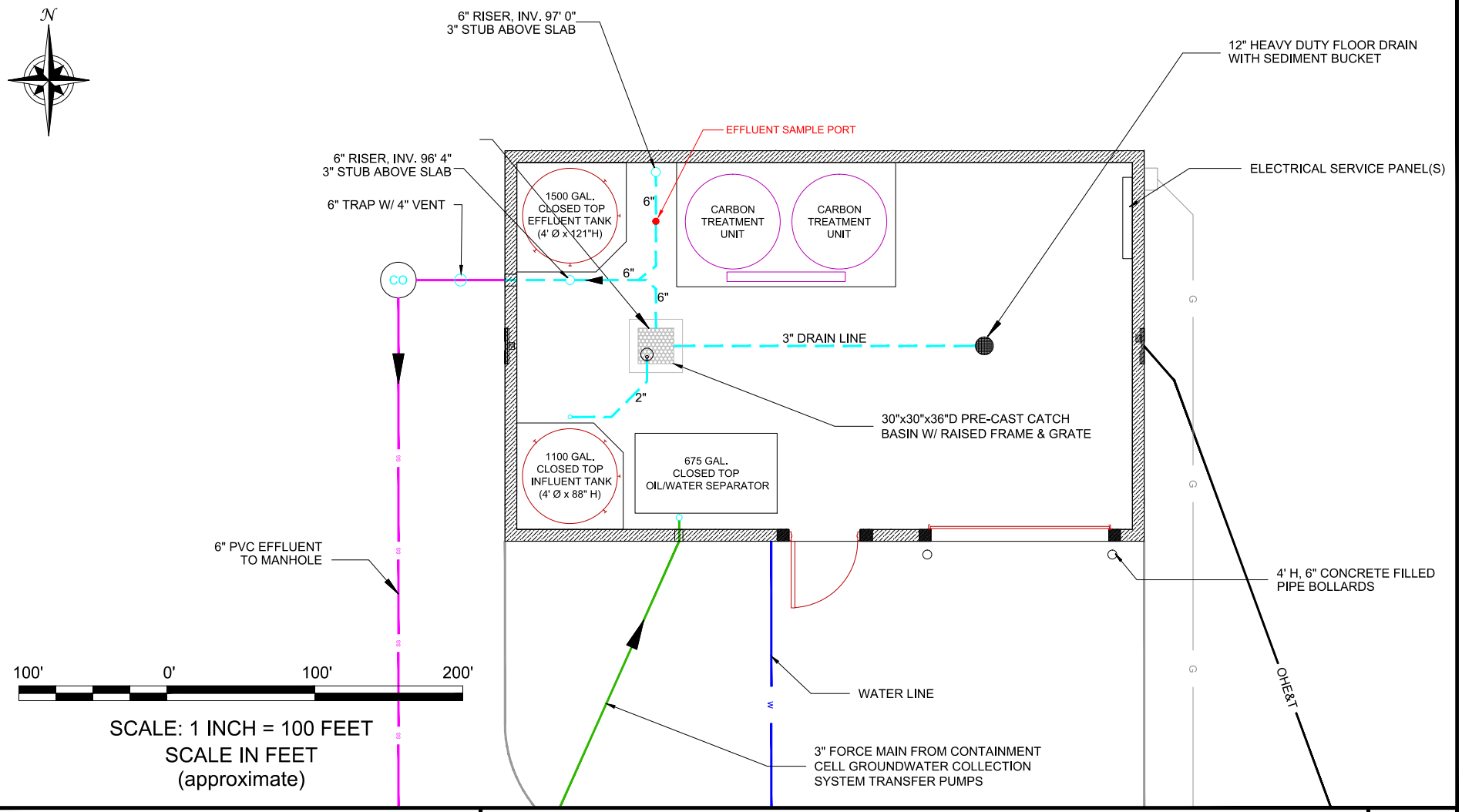
Event	Date	Flow Measurement * (gallons)	Average Daily Flow * (gallons per day)
December 2017	6/26/2017	6,550,385	18,737
	12/21/2017	9,885,658	

Notes:

* = flow meter calibrated and reset to zero on 01/04/17. Average daily flow above accounts for the recalibration and zeroing.

FIGURES

F:\CAD\TurnKey\Riverbend (formerly Steelfields)\BSA Effluent Monitoring\2014 - First Semi-Annual Event (June)\Figure 1; GWPTS Building Detail.DWG



TURNKEY ENVIRONMENTAL RESTORATION, LLC

2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

PROJECT NO.: 0171-013-500

DATE: AUGUST 2014

DRAFTED BY: BCH

GWPTS BUILDING LAYOUT

BSA PERMIT NO. 14-04-BU267

RIVERBEND SITE
BUFFALO, NEW YORK

PREPARED FOR
RIVERBEND, LLC

FIGURE 1

ATTACHMENT 1

FIELD DOCUMENTATION

WATER SAMPLE COLLECTION LOG

PROJECT INFORMATION

Project Name: Riverbend Site

Project No.: ~~0171-~~ T0322-017-500

Client: Riverbend, LLC

Location: 192 Baraga St., Buffalo, NY

SAMPLE DESCRIPTION

I.D.: **Process Effluent**

Matrix: ☐ SURFACE WATER ☐ STORM ☐ SEEP ☐ OTHER ☐ INFLUENT ☑ EFFLUENT

SAMPLE INFORMATION

Date Shipped to Lab: 12-12-17

Collected By: Chester Hochreiter

Sample Type: ☐ POINT ☑ GRAB ☑ COMPOSITE

Sample Collection Method: Via effluent sample valve prior to effluent holding tank

Weather: cloudy

Air Temperature: 25° F

Parameter	Units	Grab #1	Grab #2	Grab #3	Grab #4
pH	units	NA	NA	NA	NA
Temp.	°C	↓	↓	↓	↓
Cond.	mS				
Turbidity	NTU				
Eh / ORP	mV	↓	↓	↓	↓
D.O.	ppm	NA	NA	NA	NA
Odor	olfactory	none	none	none	none
Appearance	visual	clear	clear	clear	clear
Sample Date		12-11-17	12-11-17	12-11-17	12-12-17
Sample Time		0930	1430	1730	0930

EXACT LOCATION (if applicable)

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

SAMPLE DESCRIPTION (appearance, olfactory):

clear, no odor

SAMPLE ANALYSIS (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: Chester Hochreiter **DATE:** 12-12-17

ATTACHMENT 2

ANALYTICAL DATA

ANALYTICAL REPORT

Lab Number:	L1745701
Client:	Benchmark & Turnkey Companies 2558 Hamburg Turnpike Suite 300 Buffalo, NY 14218
ATTN:	Brock Greene
Phone:	(716) 856-0599
Project Name:	RIVERBEND BSA SAMPLING
Project Number:	T0322-017-500
Report Date:	12/20/17

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

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

Project Name: RIVERBEND BSA SAMPLING
Project Number: T0322-017-500

Lab Number: L1745701
Report Date: 12/20/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1745701-01	PROCESS EFFLUENT-GRAB 1,2, 3, 4	WATER	BUFFALO, NEW YORK	12/12/17 09:30	12/12/17
L1745701-02	COMPOSITE PROCESS EFFLUENT-GRAB 1, 2, 3, 4	WATER	BUFFALO, NEW YORK	12/12/17 09:30	12/12/17
L1745701-03	PROCESS EFFLUENT-	WATER	BUFFALO, NEW YORK	12/12/17 09:30	12/12/17
L1745701-06	TRIP BLANK	WATER	BUFFALO, NEW YORK	12/11/17 09:30	12/12/17

Project Name: RIVERBEND BSA SAMPLING
Project Number: T0322-017-500
Lab Number: L1745701
Report Date: 12/20/17

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. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated 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.

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 table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

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 Client Service Representative 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 Client Services at 800-624-9220 with any questions.

Project Name:	RIVERBEND BSA SAMPLING	**Lab Number:**	L1745701
Project Number:	T0322-017-500	**Report Date:**	12/20/17

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

WG1074293: A Matrix Spike and Laboratory Duplicate were prepared with the sample batch, however, the native sample was not available for reporting; therefore, the Matrix Spike and Laboratory Duplicate results could not be 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: Melissa Cripps

Title: Technical Director/Representative Date: 12/20/17

ORGANICS

VOLATILES

Project Name: RIVERBEND BSA SAMPLING **Lab Number:** L1745701

Project Number: T0322-017-500 **Report Date:** 12/20/17

SAMPLE RESULTS

Lab ID: L1745701-01
Client ID: PROCESS EFFLUENT-GRAB 1,2, 3, 4
Sample Location: BUFFALO, NEW YORK

Date Collected: 12/12/17 09:30
Date Received: 12/12/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 5,624
Analytical Date: 12/14/17 13:58
Analyst: BD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	5.0	0.62	1
1,1-Dichloroethane	ND		ug/l	1.5	0.29	1
Chloroform	ND		ug/l	1.5	0.22	1
Carbon tetrachloride	ND		ug/l	1.0	0.32	1
1,2-Dichloropropane	ND		ug/l	3.5	0.27	1
Dibromochloromethane	ND		ug/l	1.0	0.33	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.24	1
2-Chloroethylvinyl ether	ND		ug/l	10	0.54	1
Tetrachloroethene	ND		ug/l	1.5	0.33	1
Chlorobenzene	ND		ug/l	3.5	0.30	1
Trichlorofluoromethane	ND		ug/l	5.0	0.46	1
1,2-Dichloroethane	ND		ug/l	1.5	0.32	1
1,1,1-Trichloroethane	ND		ug/l	2.0	0.30	1
Bromodichloromethane	ND		ug/l	1.0	0.25	1
trans-1,3-Dichloropropene	ND		ug/l	1.5	0.26	1
cis-1,3-Dichloropropene	ND		ug/l	1.5	0.32	1
Bromoform	ND		ug/l	1.0	0.32	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	0.22	1
Benzene	ND		ug/l	1.0	0.23	1
Toluene	ND		ug/l	1.0	0.32	1
Ethylbenzene	ND		ug/l	1.0	0.31	1
Chloromethane	ND		ug/l	5.0	0.64	1
Bromomethane	ND		ug/l	5.0	1.3	1
Vinyl chloride	ND		ug/l	1.0	0.30	1
Chloroethane	ND		ug/l	2.0	0.26	1
1,1-Dichloroethene	ND		ug/l	1.0	0.37	1
trans-1,2-Dichloroethene	ND		ug/l	1.5	0.33	1
cis-1,2-Dichloroethene[1]	ND		ug/l	1.0	0.29	1
Trichloroethene	ND		ug/l	1.0	0.33	1
1,2-Dichlorobenzene	ND		ug/l	5.0	0.26	1

Project Name: RIVERBEND BSA SAMPLING **Lab Number:** L1745701

Project Number: T0322-017-500 **Report Date:** 12/20/17

SAMPLE RESULTS

Lab ID: L1745701-01 Date Collected: 12/12/17 09:30

Client ID: PROCESS EFFLUENT-GRAB 1,2, 3, 4 Date Received: 12/12/17

Sample Location: BUFFALO, NEW YORK Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	5.0	0.25	1
1,4-Dichlorobenzene	ND		ug/l	5.0	0.26	1
p/m-Xylene[1]	ND		ug/l	2.0	0.58	1
o-xylene[1]	ND		ug/l	1.0	0.22	1
Xylenes, Total[1]	ND		ug/l	1.0	0.22	1
Styrene[1]	ND		ug/l	1.0	0.25	1
Acetone[1]	ND		ug/l	10	4.0	1
Carbon disulfide[1]	ND		ug/l	5.0	0.73	1
2-Butanone[1]	ND		ug/l	10	2.2	1
Vinyl acetate[1]	ND		ug/l	10	2.9	1
4-Methyl-2-pentanone[1]	ND		ug/l	10	1.8	1
2-Hexanone[1]	ND		ug/l	10	2.5	1
Acrolein[1]	ND		ug/l	8.0	1.3	1
Acrylonitrile[1]	ND		ug/l	10	0.97	1
Dibromomethane[1]	ND		ug/l	1.0	0.11	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	102		80-120
Fluorobenzene	105		80-120
4-Bromofluorobenzene	98		80-120

Project Name: RIVERBEND BSA SAMPLING
Project Number: T0322-017-500
Lab Number: L1745701
Report Date: 12/20/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 5,624
Analytical Date: 12/14/17 08:23
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1072636-10					
Methylene chloride	ND		ug/l	5.0	0.62
1,1-Dichloroethane	ND		ug/l	1.5	0.29
Chloroform	ND		ug/l	1.5	0.22
Carbon tetrachloride	ND		ug/l	1.0	0.32
1,2-Dichloropropane	ND		ug/l	3.5	0.27
Dibromochloromethane	ND		ug/l	1.0	0.33
1,1,2-Trichloroethane	ND		ug/l	1.5	0.24
2-Chloroethylvinyl ether	ND		ug/l	10	0.54
Tetrachloroethene	ND		ug/l	1.5	0.33
Chlorobenzene	ND		ug/l	3.5	0.30
Trichlorofluoromethane	ND		ug/l	5.0	0.46
1,2-Dichloroethane	ND		ug/l	1.5	0.32
1,1,1-Trichloroethane	ND		ug/l	2.0	0.30
Bromodichloromethane	ND		ug/l	1.0	0.25
trans-1,3-Dichloropropene	ND		ug/l	1.5	0.26
cis-1,3-Dichloropropene	ND		ug/l	1.5	0.32
Bromoform	ND		ug/l	1.0	0.32
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	0.22
Benzene	ND		ug/l	1.0	0.23
Toluene	ND		ug/l	1.0	0.32
Ethylbenzene	ND		ug/l	1.0	0.31
Chloromethane	ND		ug/l	5.0	0.64
Bromomethane	ND		ug/l	5.0	1.3
Vinyl chloride	ND		ug/l	1.0	0.30
Chloroethane	ND		ug/l	2.0	0.26
1,1-Dichloroethene	ND		ug/l	1.0	0.37
trans-1,2-Dichloroethene	ND		ug/l	1.5	0.33
cis-1,2-Dichloroethene[1]	ND		ug/l	1.0	0.29
Trichloroethene	ND		ug/l	1.0	0.33

Project Name: RIVERBEND BSA SAMPLING
Project Number: T0322-017-500
Lab Number: L1745701
Report Date: 12/20/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 5,624
Analytical Date: 12/14/17 08:23
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1072636-10					
1,2-Dichlorobenzene	ND		ug/l	5.0	0.26
1,3-Dichlorobenzene	ND		ug/l	5.0	0.25
1,4-Dichlorobenzene	ND		ug/l	5.0	0.26
p/m-Xylene[1]	ND		ug/l	2.0	0.58
o-xylene[1]	ND		ug/l	1.0	0.22
Xylenes, Total[1]	ND		ug/l	1.0	0.22
Styrene[1]	ND		ug/l	1.0	0.25
Acetone[1]	ND		ug/l	10	4.0
Carbon disulfide[1]	ND		ug/l	5.0	0.73
2-Butanone[1]	ND		ug/l	10	2.2
Vinyl acetate[1]	ND		ug/l	10	2.9
4-Methyl-2-pentanone[1]	ND		ug/l	10	1.8
2-Hexanone[1]	ND		ug/l	10	2.5
Acrolein[1]	ND		ug/l	8.0	1.3
Acrylonitrile[1]	ND		ug/l	10	0.97
Methyl tert butyl ether[1]	ND		ug/l	10	0.27
Dibromomethane[1]	ND		ug/l	1.0	0.11

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	99		80-120
Fluorobenzene	103		80-120
4-Bromofluorobenzene	97		80-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND BSA SAMPLING

Project Number: T0322-017-500

Lab Number: L1745701

Report Date: 12/20/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1072636-9								
Methylene chloride	100		-		70-111	-		30
1,1-Dichloroethane	105		-		78-116	-		30
Chloroform	105		-		86-111	-		30
Carbon tetrachloride	90		-		60-112	-		30
1,2-Dichloropropane	100		-		83-113	-		30
Dibromochloromethane	95		-		58-129	-		30
1,1,2-Trichloroethane	100		-		80-118	-		30
2-Chloroethylvinyl ether	105		-		69-124	-		30
Tetrachloroethene	100		-		80-126	-		30
Chlorobenzene	90		-		80-126	-		30
Trichlorofluoromethane	110		-		83-128	-		30
1,2-Dichloroethane	100		-		82-110	-		30
1,1,1-Trichloroethane	100		-		72-109	-		30
Bromodichloromethane	100		-		71-120	-		30
trans-1,3-Dichloropropene	95		-		73-106	-		30
cis-1,3-Dichloropropene	100		-		78-111	-		30
Bromoform	90		-		45-131	-		30
1,1,2,2-Tetrachloroethane	100		-		81-122	-		30
Benzene	105		-		84-116	-		30
Toluene	100		-		83-121	-		30
Ethylbenzene	90		-		84-123	-		30
Chloromethane	90		-		70-144	-		30
Bromomethane	75		-		63-141	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: RIVERBEND BSA SAMPLING
Project Number: T0322-017-500

Lab Number: L1745701
Report Date: 12/20/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1072636-9								
Vinyl chloride	110		-		56-118	-		30
Chloroethane	105		-		74-130	-		30
1,1-Dichloroethene	110		-		77-116	-		30
trans-1,2-Dichloroethene	100		-		81-121	-		30
cis-1,2-Dichloroethene[1]	105		-		85-110	-		30
Trichloroethene	100		-		84-118	-		30
1,2-Dichlorobenzene	100		-		78-128	-		30
1,3-Dichlorobenzene	95		-		77-125	-		30
1,4-Dichlorobenzene	95		-		77-125	-		30
p/m-Xylene[1]	90		-		81-121	-		30
o-xylene[1]	90		-		81-124	-		30
Styrene[1]	90		-		84-133	-		30
Acetone[1]	116		-		40-160	-		30
Carbon disulfide[1]	130		-		54-134	-		30
2-Butanone[1]	114		-		57-116	-		30
Vinyl acetate[1]	95		-		40-160	-		30
4-Methyl-2-pentanone[1]	110		-		79-125	-		30
2-Hexanone[1]	116		-		78-120	-		30
Acrolein[1]	100		-		40-160	-		30
Acrylonitrile[1]	110		-		66-123	-		30
Methyl tert butyl ether[1]	105		-		57-126	-		30
Dibromomethane[1]	100		-		65-126	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND BSA SAMPLING

Project Number: T0322-017-500

Lab Number: L1745701

Report Date: 12/20/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1072636-9								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	102				80-120
Fluorobenzene	104				80-120
4-Bromofluorobenzene	98				80-120

Matrix Spike Analysis

Batch Quality Control

Project Name: RIVERBEND BSA SAMPLING
Project Number: T0322-017-500

Lab Number: L1745701
Report Date: 12/20/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1072636-6 QC Sample: L1745803-02 Client ID: MS Sample												
Methylene chloride	ND	200	200	100		-	-		70-111	-		30
1,1-Dichloroethane	ND	200	200	100		-	-		78-116	-		30
Chloroform	ND	200	200	100		-	-		86-111	-		30
Carbon tetrachloride	ND	200	190	95		-	-		60-112	-		30
1,2-Dichloropropane	ND	200	200	100		-	-		83-113	-		30
Dibromochloromethane	ND	200	180	90		-	-		58-129	-		30
1,1,2-Trichloroethane	ND	200	190	95		-	-		80-118	-		30
2-Chloroethylvinyl ether	ND	200	200	100		-	-		69-124	-		30
Tetrachloroethene	ND	200	190	95		-	-		80-126	-		30
Chlorobenzene	ND	200	180	90		-	-		80-126	-		30
Trichlorofluoromethane	ND	200	220	110		-	-		83-128	-		30
1,2-Dichloroethane	ND	200	200	100		-	-		82-110	-		30
1,1,1-Trichloroethane	ND	200	200	100		-	-		72-109	-		30
Bromodichloromethane	ND	200	200	100		-	-		71-120	-		30
trans-1,3-Dichloropropene	ND	200	180	90		-	-		73-106	-		30
cis-1,3-Dichloropropene	ND	200	180	90		-	-		78-111	-		30
Bromoform	ND	200	190	95		-	-		45-131	-		30
1,1,2,2-Tetrachloroethane	ND	200	200	100		-	-		81-122	-		30
Benzene	ND	200	200	100		-	-		84-116	-		30
Toluene	ND	200	190	95		-	-		83-121	-		30
Ethylbenzene	ND	200	190	95		-	-		84-123	-		30
Chloromethane	ND	200	180	90		-	-		70-144	-		30
Bromomethane	ND	200	140	70		-	-		63-141	-		30
Vinyl chloride	ND	200	210	105		-	-		56-118	-		30

Matrix Spike Analysis

Batch Quality Control

Project Name: RIVERBEND BSA SAMPLING

Project Number: T0322-017-500

Lab Number: L1745701

Report Date: 12/20/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1072636-6 QC Sample: L1745803-02 Client ID: MS Sample												
Chloroethane	ND	200	200	100		-	-		74-130	-		30
1,1-Dichloroethene	ND	200	210	105		-	-		77-116	-		30
trans-1,2-Dichloroethene	ND	200	200	100		-	-		81-121	-		30
cis-1,2-Dichloroethene[1]	ND	200	210	105		-	-		85-110	-		30
Trichloroethene	ND	200	200	100		-	-		84-118	-		30
1,2-Dichlorobenzene	ND	200	190	95		-	-		78-128	-		30
1,3-Dichlorobenzene	ND	200	190	95		-	-		77-125	-		30
1,4-Dichlorobenzene	ND	200	190	95		-	-		77-125	-		30
p/m-Xylene[1]	ND	400	360	90		-	-		81-121	-		30
o-Xylene[1]	ND	200	180	90		-	-		81-124	-		30
Styrene[1]	ND	200	180	90		-	-		84-133	-		30
Acetone[1]	ND	500	560	112		-	-		40-160	-		30
Carbon disulfide[1]	8.0J	200	240	120		-	-		54-134	-		30
2-Butanone[1]	ND	500	540	108		-	-		57-116	-		30
Vinyl acetate[1]	ND	400	390	98		-	-		40-160	-		30
4-Methyl-2-pentanone[1]	ND	500	530	106		-	-		79-125	-		30
2-Hexanone[1]	ND	500	550	110		-	-		78-120	-		30
Acrolein[1]	ND	400	360	90		-	-		40-160	-		30
Acrylonitrile[1]	ND	400	430	108		-	-		66-123	-		30
Dibromomethane[1]	ND	200	200	100		-	-		65-126	-		30

Matrix Spike Analysis

Batch Quality Control

Project Name: RIVERBEND BSA SAMPLING
Project Number: T0322-017-500

Lab Number: L1745701
Report Date: 12/20/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1072636-6 QC Sample: L1745803-02 Client ID: MS Sample												

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
4-Bromofluorobenzene	99				80-120
Fluorobenzene	103				80-120
Pentafluorobenzene	101				80-120

Lab Duplicate Analysis
Batch Quality Control

Project Name: RIVERBEND BSA SAMPLING
Project Number: T0322-017-500

Lab Number: L1745701
Report Date: 12/20/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1072636-5 QC Sample: L1745803-02 Client ID: DUP Sample						
Methylene chloride	ND	ND	ug/l	NC		30
1,1-Dichloroethane	ND	ND	ug/l	NC		30
Chloroform	ND	ND	ug/l	NC		30
Carbon tetrachloride	ND	ND	ug/l	NC		30
1,2-Dichloropropane	ND	ND	ug/l	NC		30
Dibromochloromethane	ND	ND	ug/l	NC		30
1,1,2-Trichloroethane	ND	ND	ug/l	NC		30
2-Chloroethylvinyl ether	ND	ND	ug/l	NC		30
Tetrachloroethene	ND	ND	ug/l	NC		30
Chlorobenzene	ND	ND	ug/l	NC		30
Trichlorofluoromethane	ND	ND	ug/l	NC		30
1,2-Dichloroethane	ND	ND	ug/l	NC		30
1,1,1-Trichloroethane	ND	ND	ug/l	NC		30
Bromodichloromethane	ND	ND	ug/l	NC		30
trans-1,3-Dichloropropene	ND	ND	ug/l	NC		30
cis-1,3-Dichloropropene	ND	ND	ug/l	NC		30
Bromoform	ND	ND	ug/l	NC		30
1,1,2,2-Tetrachloroethane	ND	ND	ug/l	NC		30
Benzene	ND	ND	ug/l	NC		30
Toluene	ND	ND	ug/l	NC		30
Ethylbenzene	ND	ND	ug/l	NC		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: RIVERBEND BSA SAMPLING
Project Number: T0322-017-500

Lab Number: L1745701
Report Date: 12/20/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1072636-5 QC Sample: L1745803-02 Client ID: DUP Sample						
Chloromethane	ND	ND	ug/l	NC		30
Bromomethane	ND	ND	ug/l	NC		30
Vinyl chloride	ND	ND	ug/l	NC		30
Chloroethane	ND	ND	ug/l	NC		30
1,1-Dichloroethene	ND	ND	ug/l	NC		30
trans-1,2-Dichloroethene	ND	ND	ug/l	NC		30
cis-1,2-Dichloroethene[1]	ND	ND	ug/l	NC		30
Trichloroethene	ND	ND	ug/l	NC		30
1,2-Dichlorobenzene	ND	ND	ug/l	NC		30
1,3-Dichlorobenzene	ND	ND	ug/l	NC		30
1,4-Dichlorobenzene	ND	ND	ug/l	NC		30
p/m-Xylene[1]	ND	ND	ug/l	NC		30
o-Xylene[1]	ND	ND	ug/l	NC		30
Xylene (Total)[1]	ND	ND	ug/l	NC		30
Styrene[1]	ND	ND	ug/l	NC		30
Acetone[1]	ND	ND	ug/l	NC		30
Carbon disulfide[1]	8.0J	8.0J	ug/l	NC		30
2-Butanone[1]	ND	ND	ug/l	NC		30
Vinyl acetate[1]	ND	ND	ug/l	NC		30
4-Methyl-2-pentanone[1]	ND	ND	ug/l	NC		30
2-Hexanone[1]	ND	ND	ug/l	NC		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: RIVERBEND BSA SAMPLING
Project Number: T0322-017-500

Lab Number: L1745701
Report Date: 12/20/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1072636-5 QC Sample: L1745803-02 Client ID: DUP Sample						
Acrolein[1]	ND	ND	ug/l	NC		30
Acrylonitrile[1]	ND	ND	ug/l	NC		30
Dibromomethane[1]	ND	ND	ug/l	NC		30

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	103		103		80-120
Fluorobenzene	105		104		80-120
4-Bromofluorobenzene	99		98		80-120

SEMIVOLATILES

Project Name: RIVERBEND BSA SAMPLING
Project Number: T0322-017-500
Lab Number: L1745701
Report Date: 12/20/17

SAMPLE RESULTS

Lab ID: L1745701-01
Client ID: PROCESS EFFLUENT-GRAB 1,2, 3, 4
Sample Location: BUFFALO, NEW YORK

Matrix: Water
Analytical Method: 5,625
Analytical Date: 12/20/17 11:48
Analyst: ALS

Date Collected: 12/12/17 09:30
Date Received: 12/12/17
Field Prep: Not Specified
Extraction Method: EPA 625
Extraction Date: 12/19/17 08:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/l	2.0	0.72	1
Benzidine[1]	ND		ug/l	20	8.3	1
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.91	1
Hexachlorobenzene	ND		ug/l	2.0	0.67	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.55	1
2-Chloronaphthalene	ND		ug/l	2.0	0.79	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	1.3	1
2,4-Dinitrotoluene	ND		ug/l	5.0	0.88	1
2,6-Dinitrotoluene	ND		ug/l	5.0	1.1	1
Azobenzene[1]	ND		ug/l	2.0	0.61	1
Fluoranthene	ND		ug/l	2.0	0.64	1
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.68	1
4-Bromophenyl phenyl ether[1]	ND		ug/l	2.0	0.78	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.53	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.54	1
Hexachlorobutadiene	ND		ug/l	2.0	0.67	1
Hexachlorocyclopentadiene[1]	ND		ug/l	10	3.7	1
Hexachloroethane	ND		ug/l	2.0	0.74	1
Isophorone	ND		ug/l	5.0	0.79	1
Naphthalene	ND		ug/l	2.0	0.81	1
Nitrobenzene	ND		ug/l	2.0	0.68	1
NDPA/DPA[1]	ND		ug/l	2.0	0.73	1
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.54	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	1.3	1
Butyl benzyl phthalate	ND		ug/l	5.0	1.1	1
Di-n-butylphthalate	ND		ug/l	5.0	0.97	1
Di-n-octylphthalate	ND		ug/l	5.0	0.99	1
Diethyl phthalate	ND		ug/l	5.0	0.73	1
Dimethyl phthalate	ND		ug/l	5.0	0.70	1
Benzo(a)anthracene	ND		ug/l	2.0	0.68	1

Project Name: RIVERBEND BSA SAMPLING **Lab Number:** L1745701

Project Number: T0322-017-500 **Report Date:** 12/20/17

SAMPLE RESULTS

Lab ID: L1745701-01 Date Collected: 12/12/17 09:30

Client ID: PROCESS EFFLUENT-GRAB 1,2, 3, 4 Date Received: 12/12/17

Sample Location: BUFFALO, NEW YORK Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Benzo(a)pyrene	ND		ug/l	2.0	0.63	1
Benzo(b)fluoranthene	ND		ug/l	2.0	0.65	1
Benzo(k)fluoranthene	ND		ug/l	2.0	0.68	1
Chrysene	ND		ug/l	2.0	0.68	1
Acenaphthylene	ND		ug/l	2.0	0.63	1
Anthracene	ND		ug/l	2.0	0.69	1
Benzo(ghi)perylene	ND		ug/l	2.0	0.71	1
Fluorene	ND		ug/l	2.0	0.66	1
Phenanthrene	ND		ug/l	2.0	0.66	1
Dibenzo(a,h)anthracene	ND		ug/l	2.0	0.68	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	2.0	0.73	1
Pyrene	ND		ug/l	2.0	0.62	1
4-Chloroaniline[1]	ND		ug/l	5.0	1.2	1
Dibenzofuran[1]	ND		ug/l	2.0	0.69	1
2-Methylnaphthalene[1]	ND		ug/l	2.0	0.76	1
n-Nitrosodimethylamine[1]	ND		ug/l	2.0	0.78	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.80	1
p-Chloro-m-cresol[1]	ND		ug/l	2.0	0.66	1
2-Chlorophenol	ND		ug/l	2.0	0.62	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.78	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.4	1
2-Nitrophenol	ND		ug/l	5.0	1.3	1
4-Nitrophenol	ND		ug/l	10	1.1	1
2,4-Dinitrophenol	ND		ug/l	20	8.0	1
4,6-Dinitro-o-cresol[1]	ND		ug/l	10	1.9	1
Pentachlorophenol	ND		ug/l	5.0	2.8	1
Phenol	ND		ug/l	5.0	0.74	1
2-Methylphenol[1]	ND		ug/l	5.0	1.0	1
3-Methylphenol/4-Methylphenol[1]	ND		ug/l	5.0	1.1	1
2,4,5-Trichlorophenol[1]	ND		ug/l	5.0	0.92	1
Benzoic Acid[1]	ND		ug/l	50	6.2	1
Benzyl Alcohol[1]	ND		ug/l	2.0	0.72	1

Project Name: RIVERBEND BSA SAMPLING **Lab Number:** L1745701

Project Number: T0322-017-500 **Report Date:** 12/20/17

SAMPLE RESULTS

Lab ID: L1745701-01 Date Collected: 12/12/17 09:30

Client ID: PROCESS EFFLUENT-GRAB 1,2, 3, 4 Date Received: 12/12/17

Sample Location: BUFFALO, NEW YORK Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Semivolatile Organics by GC/MS - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	36		21-120
Phenol-d6	29		10-120
Nitrobenzene-d5	63		23-120
2-Fluorobiphenyl	69		15-120
2,4,6-Tribromophenol	86		10-120
4-Terphenyl-d14	71		33-120

Project Name: RIVERBEND BSA SAMPLING
Project Number: T0322-017-500
Lab Number: L1745701
Report Date: 12/20/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 5,625
Analytical Date: 12/20/17 10:55
Analyst: CB

Extraction Method: EPA 625
Extraction Date: 12/19/17 08:27

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1074293-1					
Acenaphthene	ND		ug/l	2.0	0.72
Benzidine[1]	ND		ug/l	20	8.3
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.91
Hexachlorobenzene	ND		ug/l	2.0	0.67
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.55
2-Chloronaphthalene	ND		ug/l	2.0	0.79
3,3'-Dichlorobenzidine	ND		ug/l	5.0	1.3
2,4-Dinitrotoluene	ND		ug/l	5.0	0.88
2,6-Dinitrotoluene	ND		ug/l	5.0	1.1
Azobenzene[1]	ND		ug/l	2.0	0.61
Fluoranthene	ND		ug/l	2.0	0.64
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.68
4-Bromophenyl phenyl ether[1]	ND		ug/l	2.0	0.78
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.53
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.54
Hexachlorobutadiene	ND		ug/l	2.0	0.67
Hexachlorocyclopentadiene[1]	ND		ug/l	10	3.7
Hexachloroethane	ND		ug/l	2.0	0.74
Isophorone	ND		ug/l	5.0	0.79
Naphthalene	ND		ug/l	2.0	0.81
Nitrobenzene	ND		ug/l	2.0	0.68
NDPA/DPA[1]	ND		ug/l	2.0	0.73
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.54
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	1.3
Butyl benzyl phthalate	ND		ug/l	5.0	1.1
Di-n-butylphthalate	ND		ug/l	5.0	0.97
Di-n-octylphthalate	ND		ug/l	5.0	0.99
Diethyl phthalate	ND		ug/l	5.0	0.73
Dimethyl phthalate	ND		ug/l	5.0	0.70

Project Name: RIVERBEND BSA SAMPLING
Project Number: T0322-017-500
Lab Number: L1745701
Report Date: 12/20/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 5,625
Analytical Date: 12/20/17 10:55
Analyst: CB

Extraction Method: EPA 625
Extraction Date: 12/19/17 08:27

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1074293-1					
Benzo(a)anthracene	ND		ug/l	2.0	0.68
Benzo(a)pyrene	ND		ug/l	2.0	0.63
Benzo(b)fluoranthene	ND		ug/l	2.0	0.65
Benzo(k)fluoranthene	ND		ug/l	2.0	0.68
Chrysene	ND		ug/l	2.0	0.68
Acenaphthylene	ND		ug/l	2.0	0.63
Anthracene	ND		ug/l	2.0	0.69
Benzo(ghi)perylene	ND		ug/l	2.0	0.71
Fluorene	ND		ug/l	2.0	0.66
Phenanthrene	ND		ug/l	2.0	0.66
Dibenzo(a,h)anthracene	ND		ug/l	2.0	0.68
Indeno(1,2,3-cd)pyrene	ND		ug/l	2.0	0.73
Pyrene	ND		ug/l	2.0	0.62
4-Chloroaniline[1]	ND		ug/l	5.0	1.2
Dibenzofuran[1]	ND		ug/l	2.0	0.69
2-Methylnaphthalene[1]	ND		ug/l	2.0	0.76
n-Nitrosodimethylamine[1]	ND		ug/l	2.0	0.78
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.80
p-Chloro-m-cresol[1]	ND		ug/l	2.0	0.66
2-Chlorophenol	ND		ug/l	2.0	0.62
2,4-Dichlorophenol	ND		ug/l	5.0	0.78
2,4-Dimethylphenol	ND		ug/l	5.0	1.4
2-Nitrophenol	ND		ug/l	5.0	1.3
4-Nitrophenol	ND		ug/l	10	1.1
2,4-Dinitrophenol	ND		ug/l	20	8.0
4,6-Dinitro-o-cresol[1]	ND		ug/l	10	1.9
Pentachlorophenol	ND		ug/l	5.0	2.8
Phenol	ND		ug/l	5.0	0.74
2-Methylphenol[1]	ND		ug/l	5.0	1.0

Project Name: RIVERBEND BSA SAMPLING
Project Number: T0322-017-500
Lab Number: L1745701
Report Date: 12/20/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 5,625
Analytical Date: 12/20/17 10:55
Analyst: CB

Extraction Method: EPA 625
Extraction Date: 12/19/17 08:27

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1074293-1					
3-Methylphenol/4-Methylphenol[1]	ND		ug/l	5.0	1.1
2,4,5-Trichlorophenol[1]	ND		ug/l	5.0	0.92
Benzoic Acid[1]	ND		ug/l	50	6.2
Benzyl Alcohol[1]	ND		ug/l	2.0	0.72

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	48		21-120
Phenol-d6	35		10-120
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	75		15-120
2,4,6-Tribromophenol	81		10-120
4-Terphenyl-d14	84		33-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND BSA SAMPLING

Project Number: T0322-017-500

Lab Number: L1745701

Report Date: 12/20/17

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: WG1074293-2								
Acenaphthene	78		-		47-145	-		30
1,2,4-Trichlorobenzene	68		-		44-142	-		30
Hexachlorobenzene	77		-		1-152	-		30
Bis(2-chloroethyl)ether	74		-		12-158	-		30
2-Chloronaphthalene	75		-		60-118	-		30
3,3'-Dichlorobenzidine	33		-		1-262	-		30
2,4-Dinitrotoluene	96		-		39-139	-		30
2,6-Dinitrotoluene	89		-		50-158	-		30
Fluoranthene	90		-		26-137	-		30
4-Chlorophenyl phenyl ether	77		-		25-158	-		30
4-Bromophenyl phenyl ether[1]	77		-		53-127	-		30
Bis(2-chloroisopropyl)ether	81		-		36-166	-		30
Bis(2-chloroethoxy)methane	82		-		33-184	-		30
Hexachlorobutadiene	62		-		24-116	-		30
Hexachloroethane	60		-		40-113	-		30
Isophorone	85		-		21-196	-		30
Naphthalene	71		-		21-133	-		30
Nitrobenzene	80		-		35-180	-		30
n-Nitrosodi-n-propylamine	85		-		1-230	-		30
Bis(2-Ethylhexyl)phthalate	125		-		8-158	-		30
Butyl benzyl phthalate	98		-		1-152	-		30
Di-n-butylphthalate	97		-		1-118	-		30
Di-n-octylphthalate	103		-		4-146	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND BSA SAMPLING

Project Number: T0322-017-500

Lab Number: L1745701

Report Date: 12/20/17

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: WG1074293-2								
Diethyl phthalate	88		-		1-114	-		30
Dimethyl phthalate	85		-		1-112	-		30
Benzo(a)anthracene	89		-		33-143	-		30
Benzo(a)pyrene	85		-		17-163	-		30
Benzo(b)fluoranthene	86		-		24-159	-		30
Benzo(k)fluoranthene	88		-		11-162	-		30
Chrysene	89		-		17-168	-		30
Acenaphthylene	78		-		33-145	-		30
Anthracene	88		-		27-133	-		30
Benzo(ghi)perylene	81		-		1-219	-		30
Fluorene	82		-		59-121	-		30
Phenanthrene	86		-		54-120	-		30
Dibenzo(a,h)anthracene	85		-		1-227	-		30
Indeno(1,2,3-cd)Pyrene	102		-		1-171	-		30
Pyrene	88		-		52-115	-		30
2,4,6-Trichlorophenol	84		-		37-144	-		30
P-Chloro-M-Cresol[1]	84		-		22-147	-		30
2-Chlorophenol	72		-		23-134	-		30
2,4-Dichlorophenol	80		-		39-135	-		30
2,4-Dimethylphenol	75		-		32-119	-		30
2-Nitrophenol	79		-		29-182	-		30
4-Nitrophenol	54		-		1-132	-		30
2,4-Dinitrophenol	74		-		1-191	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND BSA SAMPLING

Project Number: T0322-017-500

Lab Number: L1745701

Report Date: 12/20/17

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: WG1074293-2								
4,6-Dinitro-o-cresol[1]	81		-		1-181	-		30
Pentachlorophenol	53		-		14-176	-		30
Phenol	42		-		5-112	-		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	50				21-120
Phenol-d6	39				10-120
Nitrobenzene-d5	81				23-120
2-Fluorobiphenyl	76				15-120
2,4,6-Tribromophenol	87				10-120
4-Terphenyl-d14	85				33-120

INORGANICS
&
MISCELLANEOUS

Project Name: RIVERBEND BSA SAMPLING
Project Number: T0322-017-500
Lab Number: L1745701
Report Date: 12/20/17

SAMPLE RESULTS

Lab ID: L1745701-03
Client ID: PROCESS EFFLUENT-
Sample Location: BUFFALO, NEW YORK
Matrix: Water
Date Collected: 12/12/17 09:30
Date Received: 12/12/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	1.36		mg/l	0.025	0.009	1	12/13/17 13:40	12/13/17 17:06	121,4500CN-CE	LH
pH (H)	7.2		SU	-	NA	1	-	12/13/17 08:44	121,4500H+-B	GD

Project Name: RIVERBEND BSA SAMPLING
Project Number: T0322-017-500
Lab Number: L1745701
Report Date: 12/20/17

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: WG1072200-1										
Cyanide, Total	ND		mg/l	0.005	0.001	1	12/13/17 13:40	12/13/17 16:14	121,4500CN-CE	LH

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND BSA SAMPLING

Project Number: T0322-017-500

Lab Number: L1745701

Report Date: 12/20/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 03 Batch: WG1072168-1								
pH	100		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 03 Batch: WG1072200-2								
Cyanide, Total	97		-		90-110	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: RIVERBEND BSA SAMPLING
Project Number: T0322-017-500

Lab Number: L1745701
Report Date: 12/20/17

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: WG1072200-4 QC Sample: L1745525-02 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.193	96		-	-		90-110	-		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: RIVERBEND BSA SAMPLING
Project Number: T0322-017-500

Lab Number: L1745701
Report Date: 12/20/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1072168-2 QC Sample: L1745701-03 Client ID: PROCESS EFFLUENT-						
pH (H)	7.2	7.2	SU	0		5
General Chemistry - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1072200-3 QC Sample: L1745525-01 Client ID: DUP Sample						
Cyanide, Total	ND	ND	mg/l	NC		30

Project Name: RIVERBEND BSA SAMPLING
Project Number: T0322-017-500

Lab Number: L1745701
Report Date: 12/20/17

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(*)
L1745701-01A	Vial Na2S2O3 preserved split	A	NA		4.4	Y	Absent		624(3)
L1745701-01B	Vial Na2S2O3 preserved split	A	NA		4.4	Y	Absent		624(3)
L1745701-01D	Split Amber 1000ml Na2S2O3	A	NA		4.4	Y	Absent		625(7)
L1745701-01E	Split Amber 1000ml Na2S2O3	A	NA		4.4	Y	Absent		625(7)
L1745701-01S	Vial Na2S2O3 preserved	A	NA		4.4	Y	Absent		HOLD-624(7)
L1745701-01T	Vial Na2S2O3 preserved	A	NA		4.4	Y	Absent		HOLD-624(7)
L1745701-01U	Vial Na2S2O3 preserved	A	NA		4.4	Y	Absent		HOLD-624(7)
L1745701-02A	Vial HCl preserved	A	NA		4.4	Y	Absent		COMP-VOA()
L1745701-02B	Vial HCl preserved	A	NA		4.4	Y	Absent		COMP-VOA()
L1745701-02C	Vial HCl preserved	A	NA		4.4	Y	Absent		COMP-VOA()
L1745701-02D	Vial HCl preserved	A	NA		4.4	Y	Absent		COMP-VOA()
L1745701-02E	Vial HCl preserved	A	NA		4.4	Y	Absent		COMP-VOA()
L1745701-02F	Vial HCl preserved	A	NA		4.4	Y	Absent		COMP-VOA()
L1745701-02G	Vial HCl preserved	A	NA		4.4	Y	Absent		COMP-VOA()
L1745701-02H	Vial HCl preserved	A	NA		4.4	Y	Absent		COMP-VOA()
L1745701-02M	Amber 1000ml Na2S2O3	A	7	7	4.4	Y	Absent		COMP-W()
L1745701-02N	Amber 1000ml Na2S2O3	A	7	7	4.4	Y	Absent		COMP-W()
L1745701-02O	Amber 1000ml Na2S2O3	A	7	7	4.4	Y	Absent		COMP-W()
L1745701-02P	Amber 1000ml Na2S2O3	A	7	7	4.4	Y	Absent		COMP-W()
L1745701-02Q	Amber 1000ml Na2S2O3	A	7	7	4.4	Y	Absent		COMP-W()
L1745701-02R	Amber 1000ml Na2S2O3	A	7	7	4.4	Y	Absent		COMP-W()
L1745701-02S	Amber 1000ml Na2S2O3	A	7	7	4.4	Y	Absent		COMP-W()
L1745701-02T	Amber 1000ml Na2S2O3	A	7	7	4.4	Y	Absent		COMP-W()

*Values in parentheses indicate holding time in days

Project Name: RIVERBEND BSA SAMPLING
Project Number: T0322-017-500

Lab Number: L1745701
Report Date: 12/20/17

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L1745701-03A	Plastic 60ml unpreserved	A	7	7	4.4	Y	Absent		PH-4500(.01)
L1745701-03B	Plastic 250ml NaOH preserved	A	>12	>12	4.4	Y	Absent		TCN-4500(14)
L1745701-06A	Vial Na2S2O3 preserved	A	NA		4.4	Y	Absent		HOLD-624(7)
L1745701-06B	Vial Na2S2O3 preserved	A	NA		4.4	Y	Absent		HOLD-624(7)

*Values in parentheses indicate holding time in days

Project Name:	RIVERBEND BSA SAMPLING	**Lab Number:**	L1745701
Project Number:	T0322-017-500	**Report Date:**	12/20/17

GLOSSARY

Acronyms

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).
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.
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.
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.
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

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.

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.

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

Report Format: DU Report with 'J' Qualifiers

Project Name:	RIVERBEND BSA SAMPLING	**Lab Number:**	L1745701
Project Number:	T0322-017-500	**Report Date:**	12/20/17

Data Qualifiers

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.

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

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.

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).

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

Report Format: DU Report with 'J' Qualifiers

Project Name:	RIVERBEND BSA SAMPLING	**Lab Number:**	L1745701
Project Number:	T0322-017-500	**Report Date:**	12/20/17

REFERENCES

5 Methods for the Organic Chemical Analysis of Municipal and Industrial Wastewater. Appendix A, Part 136, 40 CFR (Code of Federal Regulations).

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

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: 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 300: DW: Bromide
EPA 6860: NPW and SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
EPA 9012B: NPW: Total Cyanide
EPA 9050A: NPW: Specific Conductance
SM3500: NPW: Ferrous Iron
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.
SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility
SM 2540D: TSS
EPA 3005A NPW
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: 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, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F, EPA 353.2**: Nitrate-N**, EPA 351.1, 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 624: Volatile Halocarbons & Aromatics,
EPA 608: 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: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E.**

Mansfield Facility:

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

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, Pb, Mn, Ni, Se, Ag, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

ALPHA NEW YORK CHAIN OF CUSTODY

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: 12/13/17

ALPHA Job #: L1745701

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

Client Information

Client: Benchmark and Turnkey Co
Address: 2558 Hamburg Turnpike Suite #300 Buffalo, New York
Phone: 716-856-0599
Fax: 716-856-0583
Email: BGreene@Turnkeyllc.com

Project Information

Project Name: Riverbend BSA Sampling
Project Location: Buffalo, New York
Project # TO322-017-500
(Use Project name as Project #) ☐
Project Manager: Bruce Greene
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:

These samples have been previously analyzed by Alpha ☒

Other project specific requirements/comments:

Please specify Metals or TAL.

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
45701-01	Process Effluent - Grab 1	12-11-17	0930	water	CEH	X	X				5
-01,02-02	Process Effluent - Grab 2	12-11-17	1430	water	CEH	X	X				5
-01,-02-03	Process Effluent - Grab 3	12-11-17	1730	water	CEH	X	X				5
-01,02-04	Process Effluent - Grab 4	12-12-17	0930	water	CEH	X	X				5
-03 -05	Process Effluent -	12-12-17	0930	water	CEH			X	X		2
	~~Trip Blank~~	~~12-11-17~~									

	624	625	TCN	pH
Container Type	A	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
Chester Hochreiter	12-12-17 / 1200	[signature] AAL	12/12/17 13:50
[signature] AAL	12/12/17 13:50	[signature]	12/13/17 1:50

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. (See reverse side.)

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

ATTACHMENT 3

FLOW METER CALIBRATION DATA

Northeast Metrology Corp.

2601 Genesee Street
Buffalo, NY 14225
P: 716-827-3770 F: 716-827-3775
e-mail: nem@nemcal.com

Calibration Certificate

www.nemcal.com

Company:	RIVERBEND	**Certificate #:**	1194587
Address:	192 BARAGA STREET BUFFALO, NY 14210	**Calibration Date:**	1/4/2017
		PO/Acct:	
Contact:	BRANDON ROGERS	**Page:**	1 of 2
Department:		**Visual Condition:**	Good
		Date Received:	
Gage Desc:	Flow Transmitter / Sensor	**Control #:**	SFRB#80210142061
Manufacturer:	George Fischer Signet	**Model:**	8550 / 515
Location:		**Serial #:**	80210142061

Parameters:

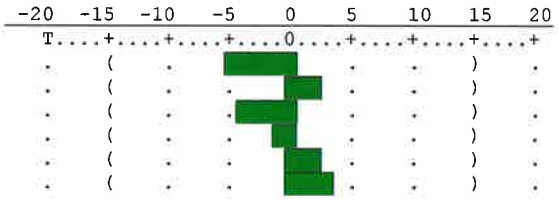
Flow Units - GPM
Gas Type - N/A

Repairs:

+ / - Tolerances: 2.000% / 2.000%
Graph Scale: +0.100000

GPM

Nominal	Actual	Deviation	
+76.200000	+75.730000	-0.470000	
+76.200000	+76.410000	+0.210000	
+76.200000	+75.790000	-0.410000	
+76.200000	+76.080000	-0.120000	
+76.200000	+76.450000	+0.250000	Avg. of 10
+76.200000	+76.500000	+0.300000	Timed



Comments:

CALIBRATION PERFORMED AT AMBIENT CONDITIONS: 62°F & 50% R.H.

SCHEDULE 80 PVC 3" O.D. I.D.=2.9"

TOTAL GALLONS (2017): 8489861
PERM. GALLONS: 31685459
TOTAL GALLONS RESET AT THE END OF TESTING.

mA OUTPUT: 0 = 3.99, MAX = 16.05

Procedure:

110176:E-Flowme.gdf (Manual 1000)

We certify the equipment used for this calibration is traceable to NIST through one or more of the following numbers:
NEM-6004 Flow Calibrator
CE17617 Cal Date / Due Date: 2/19/2013 – 2/20/2018

Gage Status: PASS **Due Date: 1/4/2018**

Dimensional calibration performed in NEM laboratory @ 68°F (±2.0°F) : (20°C (±1°C)) & relative humidity less than 45%.
Electronic & Mechanical calibration performed at ambient conditions.
All pertinent data and readings calibrated are as found & as left unless otherwise denoted in comments.

Northeast Metrology Corp.

2601 Genesee Street
Buffalo, NY 14225
P: 716-827-3770 F: 716-827-3775
e-mail: nem@nemcal.com

Calibration Certificate

Page #:	2 of 2	**Certificate #:**	1194587
Gage Desc:	Flow Transmitter / Sensor	**Control #:**	SFRB#80210142061
Manufacturer:	George Fischer Signet	**Model:**	8550 / 515
Location:		**Serial #:**	80210142061

Calibration performed in accordance with ANSI/NCSL Z540-1-1994 unless otherwise denoted in comments.
Gage Blocks meet or exceed Federal Specifications for the grade and accuracy applicable to these items in accordance with GGG-G-15C.
Calibration meets or exceeds 4 : 1 ratio, with the exception of gage blocks stated above.
Measurement Uncertainties are based on approximately a 95% confidence level, using a coverage factor of k=2.
Measurement Uncertainty is taken into account in determining gage status (pass/fail).
Calibration is performed on premises at Northeast Metrology Corp. unless otherwise denoted in comments.
The recording of false, fictitious or fraudulent statements or entries on this document may be punished as a felony under federal statutes.
This certificate shall not be reproduced except in full, with the written approval of the originating metrology laboratory.

Certified By: GK Signature: 

This certificate is not valid unless all 2 page(s) are present.
Results of this certificate relate only to the item mentioned in document header.
END OF DOCUMENT

June 29, 2017

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 2017 Semi-Annual Compliance Monitoring Report
BPDES Permit No. 14-04-BU267

Dear Mr. Szilagyi:

On behalf of our client, Fort Schuyler Management Corporation, TurnKey Environmental Restoration, LLC has prepared this correspondence to present the first semi-annual 2017 discharge monitoring results for the groundwater pre-treatment system at the above-referenced facility. Discharge monitoring was performed from June 19-20, 2017.

SAMPLE COLLECTION

Samples were collected from the pretreated process effluent (Outfall 001) in general accordance with Buffalo Pollution Discharge Elimination System (BPDES) Permit No. 16-01-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 at a minimum of one location during the June 2017 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 is presented in Table 1. Quarterly flow monitoring was based on 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 2018.

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,
TurnKey Environmental Restoration, LLC

Bryan C. Hann.
Project Manager

ec: Tom O'Brien (Fort Schuyler)
Paul Werthman (TurnKey)

File: 0322-017-500

TABLES

TABLE 1

2017 SEMI-ANNUAL GROUNDWATER PRETREATMENT SYSTEM DATA SUMMARY

BPDES Permit No. 16-01-BU278
Fort Schuyler RiverBend Site
312 Abby Street, Buffalo, NY

Parameter	June 16-17, 2016		Daily Discharge Limits [2]
	Concentration (units as indicated)	*Mass [1] (pounds)*	
Laboratory pH (S.U.)	7.10	na	5.0 - 12.0
Field pH (S.U.) [3]	7.16	na	5.0 - 12.0
Volatile Organic Compounds - Method 624 (mg/L)			
Total VOCs	ND	na	Monitor
Semi-Volatile Organic Compounds - Method 625 (mg/L)			
Total SVOCs	ND	na	Monitor
Inorganics (mg/L)			
Total Cyanide	1.5	0.474	4.3 lbs
Average Daily Flow (gallons per day) [4]	37,863		*see Note 5*

Notes:
1. The monitoring result is calculated based on the concentration of detected parameters and the average daily flow rate identified 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 4 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.

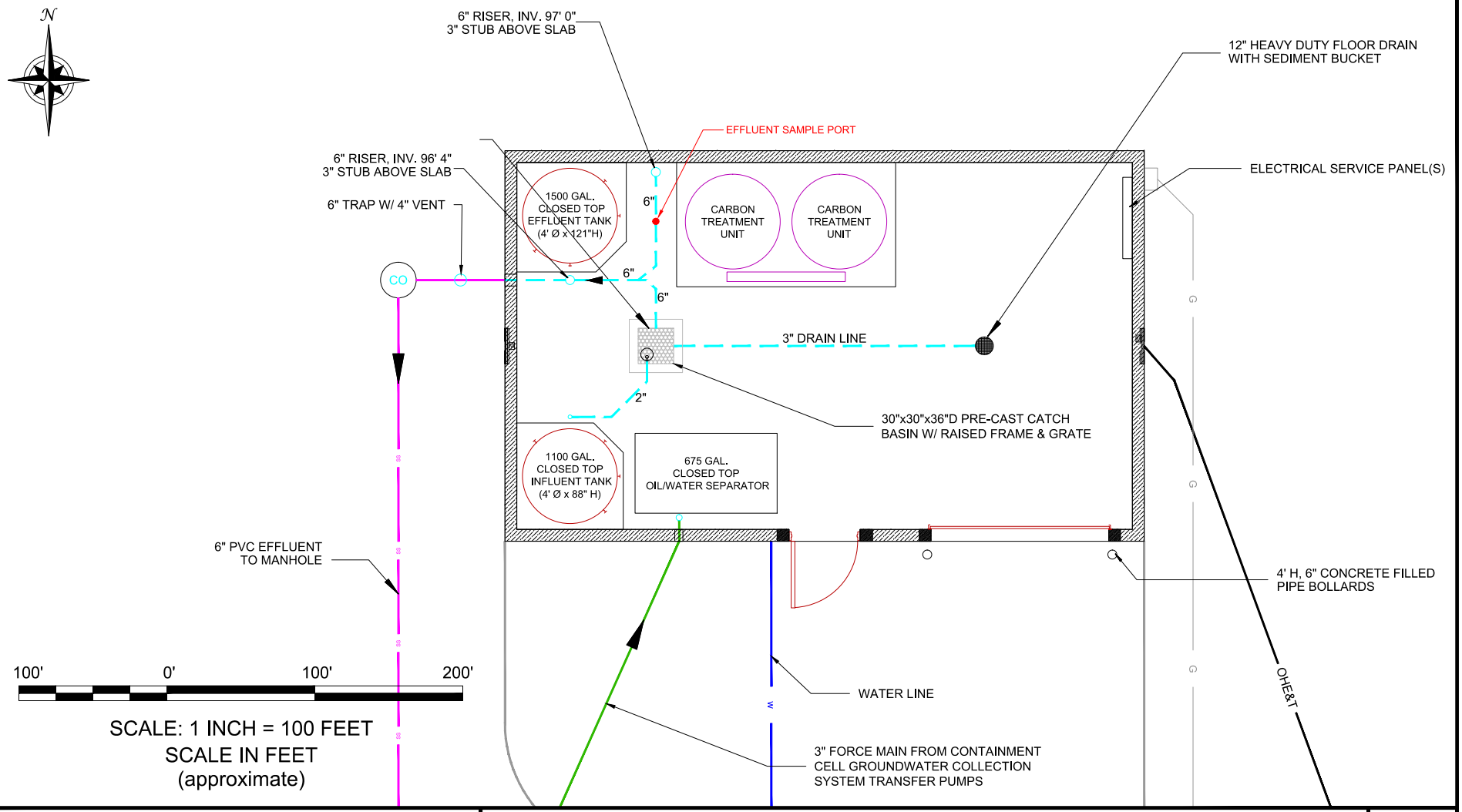
Flow Calculations:

Event	Date	Flow Measurement * (gallons)	Average Daily Flow * (gallons per day)
June 2016	01/04/2017	0	37,863
	06/26/2017	6,550,385	

Notes:
* = flow meter calibrated and reset to zero on 01/04/17. Average daily flow presented above accounts for the recalibration and zeroing.

FIGURES

F:\CAD\TurnKey\Riverbend (formerly Steelfields)\BSA Effluent Monitoring\2014 - First Semi-Annual Event (June)\Figure 1; GWPTS Building Detail.DWG



TURNKEY ENVIRONMENTAL RESTORATION, LLC

2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

PROJECT NO.: 0171-013-500

DATE: AUGUST 2014

DRAFTED BY: BCH

GWPTS BUILDING LAYOUT

BSA PERMIT NO. 14-04-BU267

RIVERBEND SITE
BUFFALO, NEW YORK

PREPARED FOR
RIVERBEND, LLC

FIGURE 1

ATTACHMENT 1

FIELD DOCUMENTATION

WATER SAMPLE COLLECTION LOG

PROJECT INFORMATION

Project Name: Riverbend Site
Project No.: 0171-
Client: Riverbend, LLC
Location: 192 Baraga St., Buffalo, NY

SAMPLE DESCRIPTION

I.D.: **Process Effluent**

Matrix: ☐ SURFACE WATER ☐ STORM ☐ SEEP ☐ OTHER ☐ INFLUENT ☑ EFFLUENT

SAMPLE INFORMATION

Date Shipped to Lab: 6-20-17
Collected By: BMG
Sample Type: ☐ POINT ☑ GRAB ☑ COMPOSITE
Sample Collection Method: Via effluent sample valve prior to effluent holding tank
Weather:
Air Temperature:

Parameter	Units	Grab #1	Grab #2	Grab #3	Grab #4
pH	units	6.54	7.27	7.37	7.45
Temp.	°C	12.8	12.7	12.7	12.5
Cond.	mS	3810	1327	1330	1342
Turbidity	NTU	15.5	12.9	13.6	14.8
Eh / ORP	mV	138	133	128	106
D.O.	ppm	1.77	1.72	1.75	2.26
Odor	olfactory	None	None	None	None
Appearance	visual	clear	clear	clear	clear
Sample Date		6-19-17	6-19-17	6-19-17	6-20-17
Sample Time		945	1217	1630	830

EXACT LOCATION (if applicable)

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

SAMPLE DESCRIPTION (appearance, olfactory): See above: clear, no odor

SAMPLE ANALYSIS (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: Brock Greene **DATE:** 6-20-17

RNKEY ENVIRONMENTAL RESTORATION, LLC

EQUIPMENT CALIBRATION LOG

PROJECT INFORMATION:

Project Name: **Riverbend Site**

Project No.: 0171-

Client: Riverbend, LLC

Date:

Instrument Source: ☐ BM ☐ Rental

METER TYPE	UNITS	TIME	MAKE/MODEL	SERIAL NUMBER	CAL. BY	STANDARD	POST CAL. READING	SETTINGS
☑ pH meter	units		Myron L Company Ultra Meter 6P	6213516 ☐ 6243084 ☑ 6212375 ☐ 6223973 ☐		4.00 7.00 10.0P	4.00 6.98 10.01	
☑ Turbidity meter	NTU		Hach 2100P or 2100Q Turbidimeter	06120C020523 (P) ☐ 13120C030432 (Q) ☑		< 0.4 or 10 for 2100 Q 20 100 800	11.3 20.3 101 803	
☐ Turbidity meter	NTU		LaMotte 2020	6523-1816 (La) ☐		0.0 NTU 1.0 NTU 10.0 NTU		
☑ Sp. Cond. meter	uS mS		Myron L Company Ultra Meter 6P	6213516 ☐ 6243084 ☑ 6212375 ☐ 6223973 ☐		1413 mS @ 25 °C	1413	
☐ PID	ppm		MinRAE 2000			open air zero ____ ppm Iso. Gas		MIBK response factor = 1.0
☑ Dissolved Oxygen	ppm		HACH Model HQ30d	080700023281 ☐ 100500041867 ☐ 140200100319 ☑		100% Satuartion	100 % ~~1000~~	
☐ Particulate meter	mg/m^3					zero air		
☐ Oxygen	%					open air		
☐ Hydrogen sulfide	ppm					open air		
☐ Carbon monoxide	ppm					open air		
☐ LEL	%					open air		
☐ Radiation Meter	uR/H					background area		

ADDITIONAL REMARKS:

PREPARED BY: **DATE:**

ATTACHMENT 2

ANALYTICAL DATA

ANALYTICAL REPORT

Lab Number:	L1720803
Client:	Benchmark & Turnkey Companies 2558 Hamburg Turnpike Suite 300 Buffalo, NY 14218
ATTN:	Bryan Hann
Phone:	(716) 856-0599
Project Name:	RIVERBEND S/A BSA
Project Number:	T0322-016-500
Report Date:	06/27/17

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

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: T0322-016-500

Lab Number: L1720803
Report Date: 06/27/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1720803-01	PROCESS EFFLUENT-GRAB 1, 2, 3,4	WATER	BUFFALO, NY	06/20/17 08:30	06/20/17
L1720803-02	COMPOSITE PROCESS EFFLUENT-GRAB 1, 2, 3,4	WATER	BUFFALO, NY	06/20/17 08:30	06/20/17
L1720803-03	PROCESS EFFLUENT	WATER	BUFFALO, NY	06/20/17 08:30	06/20/17
L1720803-04	TRIP BLANK	WATER	BUFFALO, NY	06/19/17 08:00	06/20/17

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500

Lab Number: L1720803
Report Date: 06/27/17

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. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated 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.

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 table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

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 Client Service Representative 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 Client Services at 800-624-9220 with any questions.

Project Name:	RIVERBEND S/A BSA	**Lab Number:**	L1720803
Project Number:	T0322-016-500	**Report Date:**	06/27/17

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 WG1016435-3 LCS recoveries for 2-chloroethylvinyl ether (125%), 1,2-dichloroethane (115%), 1,1,1-trichloroethane (115%), ethylbenzene (125%), chloromethane (60%) and p/m-xylene (122%), associated with L1720803-04, are outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

The WG1017046-3 LCS recoveries for 1,2-dichloropropane (115%), 1,1,1-trichloroethane (110%) and benzene (120%) , associated with L1720803-01, are outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

Semivolatile Organics

WG1016114: A Matrix Spike and Laboratory Duplicate were prepared with the sample batch, however, the native sample was not available for reporting; therefore, the matrix spike and laboratory duplicate results could not be reported.

Cyanide, Total

The WG1016004-4 MS recovery (135%), performed on L1720803-03, is outside the acceptance criteria; however, the associated LCS recovery is within criteria. No further action was taken.

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: 06/27/17

ORGANICS

VOLATILES

Project Name: RIVERBEND S/A BSA **Lab Number:** L1720803

Project Number: T0322-016-500 **Report Date:** 06/27/17

SAMPLE RESULTS

Lab ID: L1720803-01 Date Collected: 06/20/17 08:30
Client ID: PROCESS EFFLUENT-GRAB 1, 2, 3,4 Date Received: 06/20/17
Sample Location: BUFFALO, NY Field Prep: Not Specified

Matrix: Water
Analytical Method: 5,624
Analytical Date: 06/23/17 15:59
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	5.0	0.62	1
1,1-Dichloroethane	ND		ug/l	1.5	0.29	1
Chloroform	ND		ug/l	1.5	0.22	1
Carbon tetrachloride	ND		ug/l	1.0	0.32	1
1,2-Dichloropropane	ND		ug/l	3.5	0.27	1
Dibromochloromethane	ND		ug/l	1.0	0.33	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.24	1
2-Chloroethylvinyl ether	ND		ug/l	10	0.54	1
Tetrachloroethene	ND		ug/l	1.5	0.33	1
Chlorobenzene	ND		ug/l	3.5	0.30	1
Trichlorofluoromethane	ND		ug/l	5.0	0.46	1
1,2-Dichloroethane	ND		ug/l	1.5	0.32	1
1,1,1-Trichloroethane	ND		ug/l	2.0	0.30	1
Bromodichloromethane	ND		ug/l	1.0	0.25	1
trans-1,3-Dichloropropene	ND		ug/l	1.5	0.26	1
cis-1,3-Dichloropropene	ND		ug/l	1.5	0.32	1
Bromoform	ND		ug/l	1.0	0.32	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	0.22	1
Benzene	ND		ug/l	1.0	0.23	1
Toluene	ND		ug/l	1.0	0.32	1
Ethylbenzene	ND		ug/l	1.0	0.31	1
Chloromethane	ND		ug/l	5.0	0.64	1
Bromomethane	ND		ug/l	5.0	1.3	1
Vinyl chloride	ND		ug/l	1.0	0.30	1
Chloroethane	ND		ug/l	2.0	0.26	1
1,1-Dichloroethene	ND		ug/l	1.0	0.37	1
trans-1,2-Dichloroethene	ND		ug/l	1.5	0.33	1
cis-1,2-Dichloroethene[1]	ND		ug/l	1.0	0.29	1
Trichloroethene	ND		ug/l	1.0	0.33	1
1,2-Dichlorobenzene	ND		ug/l	5.0	0.26	1

Project Name: RIVERBEND S/A BSA **Lab Number:** L1720803

Project Number: T0322-016-500 **Report Date:** 06/27/17

SAMPLE RESULTS

Lab ID: L1720803-01 Date Collected: 06/20/17 08:30

Client ID: PROCESS EFFLUENT-GRAB 1, 2, 3,4 Date Received: 06/20/17

Sample Location: BUFFALO, NY Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	5.0	0.25	1
1,4-Dichlorobenzene	ND		ug/l	5.0	0.26	1
p/m-Xylene[1]	ND		ug/l	2.0	0.58	1
o-xylene[1]	ND		ug/l	1.0	0.22	1
Xylenes, Total[1]	ND		ug/l	1.0	0.22	1
Styrene[1]	ND		ug/l	1.0	0.25	1
Acetone[1]	ND		ug/l	10	4.0	1
Carbon disulfide[1]	ND		ug/l	5.0	0.73	1
2-Butanone[1]	ND		ug/l	10	2.2	1
Vinyl acetate[1]	ND		ug/l	10	2.9	1
4-Methyl-2-pentanone[1]	ND		ug/l	10	1.8	1
2-Hexanone[1]	ND		ug/l	10	2.5	1
Acrolein[1]	ND		ug/l	8.0	1.3	1
Acrylonitrile[1]	ND		ug/l	10	0.97	1
Dibromomethane[1]	ND		ug/l	1.0	0.11	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	94		80-120
Fluorobenzene	105		80-120
4-Bromofluorobenzene	101		80-120

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500
Lab Number: L1720803
Report Date: 06/27/17

SAMPLE RESULTS

Lab ID: L1720803-04
Client ID: TRIP BLANK
Sample Location: BUFFALO, NY

Date Collected: 06/19/17 08:00
Date Received: 06/20/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 5,624
Analytical Date: 06/22/17 15:33
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	5.0	0.62	1
1,1-Dichloroethane	ND		ug/l	1.5	0.29	1
Chloroform	ND		ug/l	1.5	0.22	1
Carbon tetrachloride	ND		ug/l	1.0	0.32	1
1,2-Dichloropropane	ND		ug/l	3.5	0.27	1
Dibromochloromethane	ND		ug/l	1.0	0.33	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.24	1
2-Chloroethylvinyl ether	ND		ug/l	10	0.54	1
Tetrachloroethene	ND		ug/l	1.5	0.33	1
Chlorobenzene	ND		ug/l	3.5	0.30	1
Trichlorofluoromethane	ND		ug/l	5.0	0.46	1
1,2-Dichloroethane	ND		ug/l	1.5	0.32	1
1,1,1-Trichloroethane	ND		ug/l	2.0	0.30	1
Bromodichloromethane	ND		ug/l	1.0	0.25	1
trans-1,3-Dichloropropene	ND		ug/l	1.5	0.26	1
cis-1,3-Dichloropropene	ND		ug/l	1.5	0.32	1
Bromoform	ND		ug/l	1.0	0.32	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	0.22	1
Benzene	ND		ug/l	1.0	0.23	1
Toluene	ND		ug/l	1.0	0.32	1
Ethylbenzene	ND		ug/l	1.0	0.31	1
Chloromethane	ND		ug/l	5.0	0.64	1
Bromomethane	ND		ug/l	5.0	1.3	1
Vinyl chloride	ND		ug/l	1.0	0.30	1
Chloroethane	ND		ug/l	2.0	0.26	1
1,1-Dichloroethene	ND		ug/l	1.0	0.37	1
trans-1,2-Dichloroethene	ND		ug/l	1.5	0.33	1
cis-1,2-Dichloroethene[1]	ND		ug/l	1.0	0.29	1
Trichloroethene	ND		ug/l	1.0	0.33	1
1,2-Dichlorobenzene	ND		ug/l	5.0	0.26	1

Project Name: RIVERBEND S/A BSA
Lab Number: L1720803
Project Number: T0322-016-500
Report Date: 06/27/17

SAMPLE RESULTS

Lab ID: L1720803-04
Client ID: TRIP BLANK
Sample Location: BUFFALO, NY
Date Collected: 06/19/17 08:00
Date Received: 06/20/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	5.0	0.25	1
1,4-Dichlorobenzene	ND		ug/l	5.0	0.26	1
p/m-Xylene[1]	ND		ug/l	2.0	0.58	1
o-xylene[1]	ND		ug/l	1.0	0.22	1
Xylenes, Total[1]	ND		ug/l	1.0	0.22	1
Styrene[1]	ND		ug/l	1.0	0.25	1
Acetone[1]	ND		ug/l	10	4.0	1
Carbon disulfide[1]	ND		ug/l	5.0	0.73	1
2-Butanone[1]	ND		ug/l	10	2.2	1
Vinyl acetate[1]	ND		ug/l	10	2.9	1
4-Methyl-2-pentanone[1]	ND		ug/l	10	1.8	1
2-Hexanone[1]	ND		ug/l	10	2.5	1
Acrolein[1]	ND		ug/l	8.0	1.3	1
Acrylonitrile[1]	ND		ug/l	10	0.97	1
Dibromomethane[1]	ND		ug/l	1.0	0.11	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	104		80-120
Fluorobenzene	98		80-120
4-Bromofluorobenzene	110		80-120

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500
Lab Number: L1720803
Report Date: 06/27/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 5,624
Analytical Date: 06/22/17 11:11
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 04 Batch: WG1016435-4					
Methylene chloride	ND		ug/l	5.0	0.62
1,1-Dichloroethane	ND		ug/l	1.5	0.29
Chloroform	ND		ug/l	1.5	0.22
Carbon tetrachloride	ND		ug/l	1.0	0.32
1,2-Dichloropropane	ND		ug/l	3.5	0.27
Dibromochloromethane	ND		ug/l	1.0	0.33
1,1,2-Trichloroethane	ND		ug/l	1.5	0.24
2-Chloroethylvinyl ether	ND		ug/l	10	0.54
Tetrachloroethene	ND		ug/l	1.5	0.33
Chlorobenzene	ND		ug/l	3.5	0.30
Trichlorofluoromethane	ND		ug/l	5.0	0.46
1,2-Dichloroethane	ND		ug/l	1.5	0.32
1,1,1-Trichloroethane	ND		ug/l	2.0	0.30
Bromodichloromethane	ND		ug/l	1.0	0.25
trans-1,3-Dichloropropene	ND		ug/l	1.5	0.26
cis-1,3-Dichloropropene	ND		ug/l	1.5	0.32
Bromoform	ND		ug/l	1.0	0.32
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	0.22
Benzene	ND		ug/l	1.0	0.23
Toluene	ND		ug/l	1.0	0.32
Ethylbenzene	ND		ug/l	1.0	0.31
Chloromethane	ND		ug/l	5.0	0.64
Bromomethane	ND		ug/l	5.0	1.3
Vinyl chloride	ND		ug/l	1.0	0.30
Chloroethane	ND		ug/l	2.0	0.26
1,1-Dichloroethene	ND		ug/l	1.0	0.37
trans-1,2-Dichloroethene	ND		ug/l	1.5	0.33
cis-1,2-Dichloroethene[1]	ND		ug/l	1.0	0.29
Trichloroethene	ND		ug/l	1.0	0.33

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500
Lab Number: L1720803
Report Date: 06/27/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 5,624
Analytical Date: 06/22/17 11:11
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 04 Batch: WG1016435-4					
1,2-Dichlorobenzene	ND		ug/l	5.0	0.26
1,3-Dichlorobenzene	ND		ug/l	5.0	0.25
1,4-Dichlorobenzene	ND		ug/l	5.0	0.26
p/m-Xylene[1]	ND		ug/l	2.0	0.58
o-xylene[1]	ND		ug/l	1.0	0.22
Xylenes, Total[1]	ND		ug/l	1.0	0.22
Styrene[1]	ND		ug/l	1.0	0.25
Acetone[1]	ND		ug/l	10	4.0
Carbon disulfide[1]	ND		ug/l	5.0	0.73
2-Butanone[1]	ND		ug/l	10	2.2
Vinyl acetate[1]	ND		ug/l	10	2.9
4-Methyl-2-pentanone[1]	ND		ug/l	10	1.8
2-Hexanone[1]	ND		ug/l	10	2.5
Acrolein[1]	ND		ug/l	8.0	1.3
Acrylonitrile[1]	ND		ug/l	10	0.97
Dibromomethane[1]	ND		ug/l	1.0	0.11

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	108		80-120
Fluorobenzene	106		80-120
4-Bromofluorobenzene	110		80-120

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500
Lab Number: L1720803
Report Date: 06/27/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 5,624
Analytical Date: 06/23/17 14:19
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1017046-4					
Methylene chloride	ND		ug/l	5.0	0.62
1,1-Dichloroethane	ND		ug/l	1.5	0.29
Chloroform	ND		ug/l	1.5	0.22
Carbon tetrachloride	ND		ug/l	1.0	0.32
1,2-Dichloropropane	ND		ug/l	3.5	0.27
Dibromochloromethane	ND		ug/l	1.0	0.33
1,1,2-Trichloroethane	ND		ug/l	1.5	0.24
2-Chloroethylvinyl ether	ND		ug/l	10	0.54
Tetrachloroethene	ND		ug/l	1.5	0.33
Chlorobenzene	ND		ug/l	3.5	0.30
Trichlorofluoromethane	ND		ug/l	5.0	0.46
1,2-Dichloroethane	ND		ug/l	1.5	0.32
1,1,1-Trichloroethane	ND		ug/l	2.0	0.30
Bromodichloromethane	ND		ug/l	1.0	0.25
trans-1,3-Dichloropropene	ND		ug/l	1.5	0.26
cis-1,3-Dichloropropene	ND		ug/l	1.5	0.32
Bromoform	ND		ug/l	1.0	0.32
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	0.22
Benzene	ND		ug/l	1.0	0.23
Toluene	ND		ug/l	1.0	0.32
Ethylbenzene	ND		ug/l	1.0	0.31
Chloromethane	ND		ug/l	5.0	0.64
Bromomethane	ND		ug/l	5.0	1.3
Vinyl chloride	ND		ug/l	1.0	0.30
Chloroethane	ND		ug/l	2.0	0.26
1,1-Dichloroethene	ND		ug/l	1.0	0.37
trans-1,2-Dichloroethene	ND		ug/l	1.5	0.33
cis-1,2-Dichloroethene[1]	ND		ug/l	1.0	0.29
Trichloroethene	ND		ug/l	1.0	0.33

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500
Lab Number: L1720803
Report Date: 06/27/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 5,624
Analytical Date: 06/23/17 14:19
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1017046-4					
1,2-Dichlorobenzene	ND		ug/l	5.0	0.26
1,3-Dichlorobenzene	ND		ug/l	5.0	0.25
1,4-Dichlorobenzene	ND		ug/l	5.0	0.26
p/m-Xylene[1]	ND		ug/l	2.0	0.58
o-xylene[1]	ND		ug/l	1.0	0.22
Xylenes, Total[1]	ND		ug/l	1.0	0.22
Styrene[1]	ND		ug/l	1.0	0.25
Acetone[1]	ND		ug/l	10	4.0
Carbon disulfide[1]	ND		ug/l	5.0	0.73
2-Butanone[1]	ND		ug/l	10	2.2
Vinyl acetate[1]	ND		ug/l	10	2.9
4-Methyl-2-pentanone[1]	ND		ug/l	10	1.8
2-Hexanone[1]	ND		ug/l	10	2.5
Acrolein[1]	ND		ug/l	8.0	1.3
Acrylonitrile[1]	ND		ug/l	10	0.97
Methyl tert butyl ether[1]	ND		ug/l	10	0.27
Dibromomethane[1]	ND		ug/l	1.0	0.11
Tert-Butyl Alcohol[1]	ND		ug/l	100	6.0
Tertiary-Amyl Methyl Ether[1]	ND		ug/l	20	0.18
Dichlorodifluoromethane[1]	ND		ug/l	1.0	0.30

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	95		80-120
Fluorobenzene	104		80-120
4-Bromofluorobenzene	96		80-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500

Lab Number: L1720803
Report Date: 06/27/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04 Batch: WG1016435-3								
Methylene chloride	105		-		70-111	-		30
1,1-Dichloroethane	110		-		78-116	-		30
Chloroform	110		-		86-111	-		30
Carbon tetrachloride	110		-		60-112	-		30
1,2-Dichloropropane	95		-		83-113	-		30
Dibromochloromethane	105		-		58-129	-		30
1,1,2-Trichloroethane	100		-		80-118	-		30
2-Chloroethylvinyl ether	**125**	Q	-		69-124	-		30
Tetrachloroethene	115		-		80-126	-		30
Chlorobenzene	120		-		80-126	-		30
Trichlorofluoromethane	110		-		83-128	-		30
1,2-Dichloroethane	**115**	Q	-		82-110	-		30
1,1,1-Trichloroethane	**115**	Q	-		72-109	-		30
Bromodichloromethane	110		-		71-120	-		30
trans-1,3-Dichloropropene	105		-		73-106	-		30
cis-1,3-Dichloropropene	110		-		78-111	-		30
Bromoform	95		-		45-131	-		30
1,1,2,2-Tetrachloroethane	90		-		81-122	-		30
Benzene	110		-		84-116	-		30
Toluene	115		-		83-121	-		30
Ethylbenzene	**125**	Q	-		84-123	-		30
Chloromethane	**60**	Q	-		70-144	-		30
Bromomethane	65		-		63-141	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500

Lab Number: L1720803
Report Date: 06/27/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04 Batch: WG1016435-3								
Vinyl chloride	70		-		56-118	-		30
Chloroethane	90		-		74-130	-		30
1,1-Dichloroethene	100		-		77-116	-		30
trans-1,2-Dichloroethene	100		-		81-121	-		30
cis-1,2-Dichloroethene[1]	100		-		85-110	-		30
Trichloroethene	110		-		84-118	-		30
1,2-Dichlorobenzene	105		-		78-128	-		30
1,3-Dichlorobenzene	115		-		77-125	-		30
1,4-Dichlorobenzene	115		-		77-125	-		30
p/m-Xylene[1]	**122**	Q	-		81-121	-		30
o-Xylene[1]	120		-		81-124	-		30
Styrene[1]	120		-		84-133	-		30
Acetone[1]	78		-		40-160	-		30
Carbon disulfide[1]	90		-		54-134	-		30
2-Butanone[1]	74		-		57-116	-		30
Vinyl acetate[1]	88		-		40-160	-		30
4-Methyl-2-pentanone[1]	94		-		79-125	-		30
2-Hexanone[1]	90		-		78-120	-		30
Acrolein[1]	65		-		40-160	-		30
Acrylonitrile[1]	85		-		66-123	-		30
Dibromomethane[1]	105		-		65-126	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: T0322-016-500

Lab Number: L1720803

Report Date: 06/27/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04 Batch: WG1016435-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	107				80-120
Fluorobenzene	105				80-120
4-Bromofluorobenzene	113				80-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500

Lab Number: L1720803
Report Date: 06/27/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1017046-3								
Methylene chloride	100		-		70-111	-		30
1,1-Dichloroethane	100		-		78-116	-		30
Chloroform	110		-		86-111	-		30
Carbon tetrachloride	110		-		60-112	-		30
1,2-Dichloropropane	**115**	Q	-		83-113	-		30
Dibromochloromethane	90		-		58-129	-		30
1,1,2-Trichloroethane	100		-		80-118	-		30
2-Chloroethylvinyl ether	85		-		69-124	-		30
Tetrachloroethene	100		-		80-126	-		30
Chlorobenzene	100		-		80-126	-		30
Trichlorofluoromethane	105		-		83-128	-		30
1,2-Dichloroethane	110		-		82-110	-		30
1,1,1-Trichloroethane	**110**	Q	-		72-109	-		30
Bromodichloromethane	95		-		71-120	-		30
trans-1,3-Dichloropropene	95		-		73-106	-		30
cis-1,3-Dichloropropene	100		-		78-111	-		30
Bromoform	90		-		45-131	-		30
1,1,2,2-Tetrachloroethane	95		-		81-122	-		30
Benzene	**120**	Q	-		84-116	-		30
Toluene	100		-		83-121	-		30
Ethylbenzene	105		-		84-123	-		30
Chloromethane	90		-		70-144	-		30
Bromomethane	100		-		63-141	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: T0322-016-500

Lab Number: L1720803

Report Date: 06/27/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1017046-3								
Vinyl chloride	100		-		56-118	-		30
Chloroethane	95		-		74-130	-		30
1,1-Dichloroethene	105		-		77-116	-		30
trans-1,2-Dichloroethene	105		-		81-121	-		30
cis-1,2-Dichloroethene[1]	100		-		85-110	-		30
Trichloroethene	110		-		84-118	-		30
1,2-Dichlorobenzene	100		-		78-128	-		30
1,3-Dichlorobenzene	95		-		77-125	-		30
1,4-Dichlorobenzene	100		-		77-125	-		30
p/m-Xylene[1]	105		-		81-121	-		30
o-Xylene[1]	100		-		81-124	-		30
Styrene[1]	105		-		84-133	-		30
Acetone[1]	92		-		40-160	-		30
Carbon disulfide[1]	85		-		54-134	-		30
2-Butanone[1]	88		-		57-116	-		30
Vinyl acetate[1]	88		-		40-160	-		30
4-Methyl-2-pentanone[1]	92		-		79-125	-		30
2-Hexanone[1]	92		-		78-120	-		30
Acrolein[1]	90		-		40-160	-		30
Acrylonitrile[1]	90		-		66-123	-		30
Methyl tert butyl ether[1]	95		-		57-126	-		30
Dibromomethane[1]	110		-		65-126	-		30
tert-Butyl Alcohol[1]	96		-		52-114	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: T0322-016-500

Lab Number: L1720803

Report Date: 06/27/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1017046-3								
Tertiary-Amyl Methyl Ether[1]	100		-		66-111	-		30
Dichlorodifluoromethane[1]	105		-		70-130	-		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	103				80-120
Fluorobenzene	109				80-120
4-Bromofluorobenzene	97				80-120

Matrix Spike Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: T0322-016-500

Lab Number: L1720803

Report Date: 06/27/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04 QC Batch ID: WG1016435-6 QC Sample: L1721047-02 Client ID: MS Sample												
Methylene chloride	ND	200	200	100		-	-		70-111	-		30
1,1-Dichloroethane	ND	200	210	105		-	-		78-116	-		30
Chloroform	ND	200	230	**115**	Q	-	-		86-111	-		30
Carbon tetrachloride	ND	200	220	110		-	-		60-112	-		30
1,2-Dichloropropane	ND	200	210	105		-	-		83-113	-		30
Dibromochloromethane	ND	200	240	120		-	-		58-129	-		30
1,1,2-Trichloroethane	ND	200	220	110		-	-		80-118	-		30
2-Chloroethylvinyl ether	ND	200	430	**215**	Q	-	-		69-124	-		30
Tetrachloroethene	ND	200	250	125		-	-		80-126	-		30
Chlorobenzene	ND	200	250	125		-	-		80-126	-		30
Trichlorofluoromethane	ND	200	210	105		-	-		83-128	-		30
1,2-Dichloroethane	ND	200	230	**115**	Q	-	-		82-110	-		30
1,1,1-Trichloroethane	ND	200	240	**120**	Q	-	-		72-109	-		30
Bromodichloromethane	ND	200	260	**130**	Q	-	-		71-120	-		30
trans-1,3-Dichloropropene	ND	200	240	**120**	Q	-	-		73-106	-		30
cis-1,3-Dichloropropene	ND	200	240	**120**	Q	-	-		78-111	-		30
Bromoform	ND	200	220	110		-	-		45-131	-		30
1,1,2,2-Tetrachloroethane	ND	200	150	**75**	Q	-	-		81-122	-		30
Benzene	ND	200	220	110		-	-		84-116	-		30
Toluene	ND	200	250	**125**	Q	-	-		83-121	-		30
Ethylbenzene	ND	200	250	**125**	Q	-	-		84-123	-		30
Chloromethane	ND	200	110	**55**	Q	-	-		70-144	-		30
Bromomethane	ND	200	130	65		-	-		63-141	-		30
Vinyl chloride	ND	200	140	70		-	-		56-118	-		30

Matrix Spike Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: T0322-016-500

Lab Number: L1720803

Report Date: 06/27/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04 QC Batch ID: WG1016435-6 QC Sample: L1721047-02 Client ID: MS Sample												
Chloroethane	ND	200	180	90		-	-		74-130	-		30
1,1-Dichloroethene	ND	200	190	95		-	-		77-116	-		30
trans-1,2-Dichloroethene	ND	200	200	100		-	-		81-121	-		30
cis-1,2-Dichloroethene[1]	ND	200	200	100		-	-		85-110	-		30
Trichloroethene	ND	200	260	**130**	Q	-	-		84-118	-		30
1,2-Dichlorobenzene	ND	200	220	110		-	-		78-128	-		30
1,3-Dichlorobenzene	ND	200	230	115		-	-		77-125	-		30
1,4-Dichlorobenzene	ND	200	230	115		-	-		77-125	-		30
p/m-Xylene[1]	ND	400	510	**128**	Q	-	-		81-121	-		30
o-Xylene[1]	ND	200	250	**125**	Q	-	-		81-124	-		30
Styrene[1]	ND	200	250	125		-	-		84-133	-		30
Acetone[1]	94.J	500	510	102		-	-		40-160	-		30
Carbon disulfide[1]	ND	200	170	85		-	-		54-134	-		30
2-Butanone[1]	ND	500	370	74		-	-		57-116	-		30
Vinyl acetate[1]	ND	400	67J	**0**	Q	-	-		40-160	-		30
4-Methyl-2-pentanone[1]	ND	500	500	100		-	-		79-125	-		30
2-Hexanone[1]	ND	500	470	94		-	-		78-120	-		30
Acrolein[1]	ND	400	200	50		-	-		40-160	-		30
Acrylonitrile[1]	ND	400	330	82		-	-		66-123	-		30
Dibromomethane[1]	ND	200	210	105		-	-		65-126	-		30

Matrix Spike Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: T0322-016-500

Lab Number: L1720803

Report Date: 06/27/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04 QC Batch ID: WG1016435-6 QC Sample: L1721047-02 Client ID: MS Sample												

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
4-Bromofluorobenzene	114				80-120
Fluorobenzene	99				80-120
Pentafluorobenzene	106				80-120

Matrix Spike Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: T0322-016-500

Lab Number: L1720803

Report Date: 06/27/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1017046-6 QC Sample: L1721283-02 Client ID: MS Sample												
Methylene chloride	ND	20	28	**140**	Q	-	-		70-111	-		30
1,1-Dichloroethane	ND	20	30	**150**	Q	-	-		78-116	-		30
Chloroform	ND	20	31	**155**	Q	-	-		86-111	-		30
Carbon tetrachloride	ND	20	33	**165**	Q	-	-		60-112	-		30
1,2-Dichloropropane	ND	20	35	**175**	Q	-	-		83-113	-		30
Dibromochloromethane	ND	20	26	**130**	Q	-	-		58-129	-		30
1,1,2-Trichloroethane	ND	20	28	**140**	Q	-	-		80-118	-		30
2-Chloroethylvinyl ether	ND	20	24	120		-	-		69-124	-		30
Tetrachloroethene	ND	20	28	**140**	Q	-	-		80-126	-		30
Chlorobenzene	ND	20	28	**140**	Q	-	-		80-126	-		30
Trichlorofluoromethane	ND	20	31	**155**	Q	-	-		83-128	-		30
1,2-Dichloroethane	ND	20	32	**160**	Q	-	-		82-110	-		30
1,1,1-Trichloroethane	ND	20	32	**160**	Q	-	-		72-109	-		30
Bromodichloromethane	ND	20	27	**135**	Q	-	-		71-120	-		30
trans-1,3-Dichloropropene	ND	20	15	75		-	-		73-106	-		30
cis-1,3-Dichloropropene	ND	20	5.3	**26**	Q	-	-		78-111	-		30
Bromoform	ND	20	27	**135**	Q	-	-		45-131	-		30
1,1,2,2-Tetrachloroethane	ND	20	27	**135**	Q	-	-		81-122	-		30
Benzene	ND	20	35	**175**	Q	-	-		84-116	-		30
Toluene	ND	20	28	**140**	Q	-	-		83-121	-		30
Ethylbenzene	ND	20	30	**150**	Q	-	-		84-123	-		30
Chloromethane	ND	20	25	125		-	-		70-144	-		30
Bromomethane	ND	20	4.8J	**24**	Q	-	-		63-141	-		30
Vinyl chloride	ND	20	31	**155**	Q	-	-		56-118	-		30

Matrix Spike Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: T0322-016-500

Lab Number: L1720803

Report Date: 06/27/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1017046-6 QC Sample: L1721283-02 Client ID: MS Sample												
Chloroethane	ND	20	29	**145**	Q	-	-		74-130	-		30
1,1-Dichloroethene	ND	20	30	**150**	Q	-	-		77-116	-		30
trans-1,2-Dichloroethene	ND	20	30	**150**	Q	-	-		81-121	-		30
cis-1,2-Dichloroethene[1]	ND	20	30	**150**	Q	-	-		85-110	-		30
Trichloroethene	ND	20	33	**165**	Q	-	-		84-118	-		30
1,2-Dichlorobenzene	ND	20	27	**135**	Q	-	-		78-128	-		30
1,3-Dichlorobenzene	ND	20	27	**135**	Q	-	-		77-125	-		30
1,4-Dichlorobenzene	ND	20	28	**140**	Q	-	-		77-125	-		30
p/m-Xylene[1]	ND	40	59	**148**	Q	-	-		81-121	-		30
o-Xylene[1]	ND	20	28	**140**	Q	-	-		81-124	-		30
Styrene[1]	ND	20	28	**140**	Q	-	-		84-133	-		30
Acetone[1]	ND	50	67	134		-	-		40-160	-		30
Carbon disulfide[1]	ND	20	25	125		-	-		54-134	-		30
2-Butanone[1]	ND	50	65	**130**	Q	-	-		57-116	-		30
Vinyl acetate[1]	ND	40	53	133		-	-		40-160	-		30
4-Methyl-2-pentanone[1]	ND	50	67	**134**	Q	-	-		79-125	-		30
2-Hexanone[1]	ND	50	67	**134**	Q	-	-		78-120	-		30
Acrolein[1]	ND	40	40	100		-	-		40-160	-		30
Acrylonitrile[1]	ND	40	54	**135**	Q	-	-		66-123	-		30
Dibromomethane[1]	ND	20	32	**160**	Q	-	-		65-126	-		30

Matrix Spike Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: T0322-016-500

Lab Number: L1720803

Report Date: 06/27/17

Parameter	*Native Sample*	*MS Added*	*MS Found*	*MS %Recovery*	*Qual*	*MSD Found*	*MSD %Recovery*	*Qual*	*Recovery Limits*	*RPD*	*Qual*	*RPD Limits*
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1017046-6 QC Sample: L1721283-02 Client ID: MS Sample												

Surrogate	*MS % Recovery*	*MS Qualifier*	*MSD % Recovery*	*MSD Qualifier*	*Acceptance Criteria*
4-Bromofluorobenzene	94				80-120
Fluorobenzene	113				80-120
Pentafluorobenzene	102				80-120

Lab Duplicate Analysis
Batch Quality Control

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500

Lab Number: L1720803
Report Date: 06/27/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04 QC Batch ID: WG1016435-5 QC Sample: L1721047-02 Client ID: DUP Sample						
Methylene chloride	ND	ND	ug/l	NC		30
1,1-Dichloroethane	ND	ND	ug/l	NC		30
Chloroform	ND	ND	ug/l	NC		30
Carbon tetrachloride	ND	ND	ug/l	NC		30
1,2-Dichloropropane	ND	ND	ug/l	NC		30
Dibromochloromethane	ND	ND	ug/l	NC		30
1,1,2-Trichloroethane	ND	ND	ug/l	NC		30
2-Chloroethylvinyl ether	ND	ND	ug/l	NC		30
Tetrachloroethene	ND	ND	ug/l	NC		30
Chlorobenzene	ND	ND	ug/l	NC		30
Trichlorofluoromethane	ND	ND	ug/l	NC		30
1,2-Dichloroethane	ND	ND	ug/l	NC		30
1,1,1-Trichloroethane	ND	ND	ug/l	NC		30
Bromodichloromethane	ND	ND	ug/l	NC		30
trans-1,3-Dichloropropene	ND	ND	ug/l	NC		30
cis-1,3-Dichloropropene	ND	ND	ug/l	NC		30
Bromoform	ND	ND	ug/l	NC		30
1,1,2,2-Tetrachloroethane	ND	ND	ug/l	NC		30
Benzene	ND	ND	ug/l	NC		30
Toluene	ND	ND	ug/l	NC		30
Ethylbenzene	ND	ND	ug/l	NC		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500

Lab Number: L1720803
Report Date: 06/27/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04 QC Batch ID: WG1016435-5 QC Sample: L1721047-02 Client ID: DUP Sample						
Chloromethane	ND	ND	ug/l	NC		30
Bromomethane	ND	ND	ug/l	NC		30
Vinyl chloride	ND	ND	ug/l	NC		30
Chloroethane	ND	ND	ug/l	NC		30
1,1-Dichloroethene	ND	ND	ug/l	NC		30
trans-1,2-Dichloroethene	ND	ND	ug/l	NC		30
cis-1,2-Dichloroethene[1]	ND	ND	ug/l	NC		30
Trichloroethene	ND	ND	ug/l	NC		30
1,2-Dichlorobenzene	ND	ND	ug/l	NC		30
1,3-Dichlorobenzene	ND	ND	ug/l	NC		30
1,4-Dichlorobenzene	ND	ND	ug/l	NC		30
p/m-Xylene[1]	ND	ND	ug/l	NC		30
o-Xylene[1]	ND	ND	ug/l	NC		30
Xylene (Total)[1]	ND	ND	ug/l	NC		30
Styrene[1]	ND	ND	ug/l	NC		30
Acetone[1]	94.J	97J	ug/l	NC		30
Carbon disulfide[1]	ND	ND	ug/l	NC		30
2-Butanone[1]	ND	ND	ug/l	NC		30
Vinyl acetate[1]	ND	ND	ug/l	NC		30
4-Methyl-2-pentanone[1]	ND	ND	ug/l	NC		30
2-Hexanone[1]	ND	ND	ug/l	NC		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500

Lab Number: L1720803
Report Date: 06/27/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04 QC Batch ID: WG1016435-5 QC Sample: L1721047-02 Client ID: DUP Sample						
Acrolein[1]	ND	ND	ug/l	NC		30
Acrylonitrile[1]	ND	ND	ug/l	NC		30
Dibromomethane[1]	ND	ND	ug/l	NC		30

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	106		106		80-120
Fluorobenzene	99		98		80-120
4-Bromofluorobenzene	109		106		80-120

Lab Duplicate Analysis
Batch Quality Control

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500

Lab Number: L1720803
Report Date: 06/27/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1017046-5 QC Sample: L1721283-01 Client ID: DUP Sample						
Methylene chloride	ND	ND	ug/l	NC		30
1,1-Dichloroethane	ND	ND	ug/l	NC		30
Chloroform	ND	ND	ug/l	NC		30
Carbon tetrachloride	ND	ND	ug/l	NC		30
1,2-Dichloropropane	ND	ND	ug/l	NC		30
Dibromochloromethane	ND	ND	ug/l	NC		30
1,1,2-Trichloroethane	ND	ND	ug/l	NC		30
2-Chloroethylvinyl ether	ND	ND	ug/l	NC		30
Tetrachloroethene	ND	ND	ug/l	NC		30
Chlorobenzene	ND	ND	ug/l	NC		30
Trichlorofluoromethane	ND	ND	ug/l	NC		30
1,2-Dichloroethane	ND	ND	ug/l	NC		30
1,1,1-Trichloroethane	ND	ND	ug/l	NC		30
Bromodichloromethane	ND	ND	ug/l	NC		30
trans-1,3-Dichloropropene	ND	ND	ug/l	NC		30
cis-1,3-Dichloropropene	ND	ND	ug/l	NC		30
Bromoform	ND	ND	ug/l	NC		30
1,1,2,2-Tetrachloroethane	ND	ND	ug/l	NC		30
Benzene	ND	ND	ug/l	NC		30
Toluene	ND	ND	ug/l	NC		30
Ethylbenzene	ND	ND	ug/l	NC		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500

Lab Number: L1720803
Report Date: 06/27/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1017046-5 QC Sample: L1721283-01 Client ID: DUP Sample						
Chloromethane	ND	ND	ug/l	NC		30
Bromomethane	ND	ND	ug/l	NC		30
Vinyl chloride	ND	ND	ug/l	NC		30
Chloroethane	ND	ND	ug/l	NC		30
1,1-Dichloroethene	ND	ND	ug/l	NC		30
trans-1,2-Dichloroethene	ND	ND	ug/l	NC		30
cis-1,2-Dichloroethene[1]	ND	ND	ug/l	NC		30
Trichloroethene	ND	ND	ug/l	NC		30
1,2-Dichlorobenzene	ND	ND	ug/l	NC		30
1,3-Dichlorobenzene	ND	ND	ug/l	NC		30
1,4-Dichlorobenzene	ND	ND	ug/l	NC		30
p/m-Xylene[1]	ND	ND	ug/l	NC		30
o-Xylene[1]	ND	ND	ug/l	NC		30
Xylene (Total)[1]	ND	ND	ug/l	NC		30
Styrene[1]	ND	ND	ug/l	NC		30
Acetone[1]	ND	ND	ug/l	NC		30
Carbon disulfide[1]	ND	ND	ug/l	NC		30
2-Butanone[1]	ND	ND	ug/l	NC		30
Vinyl acetate[1]	ND	ND	ug/l	NC		30
4-Methyl-2-pentanone[1]	ND	ND	ug/l	NC		30
2-Hexanone[1]	ND	ND	ug/l	NC		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500

Lab Number: L1720803
Report Date: 06/27/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1017046-5 QC Sample: L1721283-01 Client ID: DUP Sample						
Acrolein[1]	ND	ND	ug/l	NC		30
Acrylonitrile[1]	ND	ND	ug/l	NC		30
Dibromomethane[1]	ND	ND	ug/l	NC		30

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	91		92		80-120
Fluorobenzene	102		102		80-120
4-Bromofluorobenzene	103		102		80-120

SEMIVOLATILES

Project Name: RIVERBEND S/A BSA
Lab Number: L1720803
Project Number: T0322-016-500
Report Date: 06/27/17

SAMPLE RESULTS

Lab ID: L1720803-01
Client ID: PROCESS EFFLUENT-GRAB 1, 2, 3,4
Sample Location: BUFFALO, NY

Matrix: Water
Analytical Method: 5,625
Analytical Date: 06/23/17 20:21
Analyst: RC

Date Collected: 06/20/17 08:30
Date Received: 06/20/17
Field Prep: Not Specified
Extraction Method: EPA 625
Extraction Date: 06/23/17 00:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/l	2.0	0.72	1
Benzidine[1]	ND		ug/l	20	8.3	1
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.91	1
Hexachlorobenzene	ND		ug/l	2.0	0.67	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.55	1
2-Chloronaphthalene	ND		ug/l	2.0	0.79	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	1.3	1
2,4-Dinitrotoluene	ND		ug/l	5.0	0.88	1
2,6-Dinitrotoluene	ND		ug/l	5.0	1.1	1
Azobenzene[1]	ND		ug/l	2.0	0.61	1
Fluoranthene	ND		ug/l	2.0	0.64	1
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.68	1
4-Bromophenyl phenyl ether[1]	ND		ug/l	2.0	0.78	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.53	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.54	1
Hexachlorobutadiene	ND		ug/l	2.0	0.67	1
Hexachlorocyclopentadiene[1]	ND		ug/l	10	3.7	1
Hexachloroethane	ND		ug/l	2.0	0.74	1
Isophorone	ND		ug/l	5.0	0.79	1
Naphthalene	ND		ug/l	2.0	0.81	1
Nitrobenzene	ND		ug/l	2.0	0.68	1
NDPA/DPA[1]	ND		ug/l	2.0	0.73	1
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.54	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	1.3	1
Butyl benzyl phthalate	ND		ug/l	5.0	1.1	1
Di-n-butylphthalate	ND		ug/l	5.0	0.97	1
Di-n-octylphthalate	ND		ug/l	5.0	0.99	1
Diethyl phthalate	ND		ug/l	5.0	0.73	1
Dimethyl phthalate	ND		ug/l	5.0	0.70	1
Benzo(a)anthracene	ND		ug/l	2.0	0.68	1

Project Name: RIVERBEND S/A BSA **Lab Number:** L1720803

Project Number: T0322-016-500 **Report Date:** 06/27/17

SAMPLE RESULTS

Lab ID: L1720803-01 Date Collected: 06/20/17 08:30

Client ID: PROCESS EFFLUENT-GRAB 1, 2, 3,4 Date Received: 06/20/17

Sample Location: BUFFALO, NY Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Benzo(a)pyrene	ND		ug/l	2.0	0.63	1
Benzo(b)fluoranthene	ND		ug/l	2.0	0.65	1
Benzo(k)fluoranthene	ND		ug/l	2.0	0.68	1
Chrysene	ND		ug/l	2.0	0.68	1
Acenaphthylene	ND		ug/l	2.0	0.63	1
Anthracene	ND		ug/l	2.0	0.69	1
Benzo(ghi)perylene	ND		ug/l	2.0	0.71	1
Fluorene	ND		ug/l	2.0	0.66	1
Phenanthrene	ND		ug/l	2.0	0.66	1
Dibenzo(a,h)anthracene	ND		ug/l	2.0	0.68	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	2.0	0.73	1
Pyrene	ND		ug/l	2.0	0.62	1
4-Chloroaniline[1]	ND		ug/l	5.0	1.2	1
Dibenzofuran[1]	ND		ug/l	2.0	0.69	1
2-Methylnaphthalene[1]	ND		ug/l	2.0	0.76	1
n-Nitrosodimethylamine[1]	ND		ug/l	2.0	0.78	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.80	1
p-Chloro-m-cresol[1]	ND		ug/l	2.0	0.66	1
2-Chlorophenol	ND		ug/l	2.0	0.62	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.78	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.4	1
2-Nitrophenol	ND		ug/l	5.0	1.3	1
4-Nitrophenol	ND		ug/l	10	1.1	1
2,4-Dinitrophenol	ND		ug/l	20	8.0	1
4,6-Dinitro-o-cresol[1]	ND		ug/l	10	1.9	1
Pentachlorophenol	ND		ug/l	5.0	2.8	1
Phenol	ND		ug/l	5.0	0.74	1
2-Methylphenol[1]	ND		ug/l	5.0	1.0	1
3-Methylphenol/4-Methylphenol[1]	ND		ug/l	5.0	1.1	1
2,4,5-Trichlorophenol[1]	ND		ug/l	5.0	0.92	1
Benzoic Acid[1]	ND		ug/l	50	6.2	1
Benzyl Alcohol[1]	ND		ug/l	2.0	0.72	1

Project Name: RIVERBEND S/A BSA
Lab Number: L1720803
Project Number: T0322-016-500
Report Date: 06/27/17

SAMPLE RESULTS

Lab ID: L1720803-01
Client ID: PROCESS EFFLUENT-GRAB 1, 2, 3,4
Sample Location: BUFFALO, NY
Date Collected: 06/20/17 08:30
Date Received: 06/20/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Semivolatile Organics by GC/MS - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	44		21-120
Phenol-d6	29		10-120
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	72		15-120
2,4,6-Tribromophenol	70		10-120
4-Terphenyl-d14	73		33-120

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500
Lab Number: L1720803
Report Date: 06/27/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 5,625
Analytical Date: 06/23/17 14:12
Analyst: RC

Extraction Method: EPA 625
Extraction Date: 06/23/17 00:33

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1016114-1					
Acenaphthene	ND		ug/l	2.0	0.72
Benzidine[1]	ND		ug/l	20	8.3
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.91
Hexachlorobenzene	ND		ug/l	2.0	0.67
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.55
2-Chloronaphthalene	ND		ug/l	2.0	0.79
3,3'-Dichlorobenzidine	ND		ug/l	5.0	1.3
2,4-Dinitrotoluene	ND		ug/l	5.0	0.88
2,6-Dinitrotoluene	ND		ug/l	5.0	1.1
Azobenzene[1]	ND		ug/l	2.0	0.61
Fluoranthene	ND		ug/l	2.0	0.64
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.68
4-Bromophenyl phenyl ether[1]	ND		ug/l	2.0	0.78
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.53
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.54
Hexachlorobutadiene	ND		ug/l	2.0	0.67
Hexachlorocyclopentadiene[1]	ND		ug/l	10	3.7
Hexachloroethane	ND		ug/l	2.0	0.74
Isophorone	ND		ug/l	5.0	0.79
Naphthalene	ND		ug/l	2.0	0.81
Nitrobenzene	ND		ug/l	2.0	0.68
NDPA/DPA[1]	ND		ug/l	2.0	0.73
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.54
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	1.3
Butyl benzyl phthalate	ND		ug/l	5.0	1.1
Di-n-butylphthalate	ND		ug/l	5.0	0.97
Di-n-octylphthalate	ND		ug/l	5.0	0.99
Diethyl phthalate	ND		ug/l	5.0	0.73
Dimethyl phthalate	ND		ug/l	5.0	0.70

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500

Lab Number: L1720803
Report Date: 06/27/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 5,625
Analytical Date: 06/23/17 14:12
Analyst: RC

Extraction Method: EPA 625
Extraction Date: 06/23/17 00:33

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1016114-1					
Benzo(a)anthracene	ND		ug/l	2.0	0.68
Benzo(a)pyrene	ND		ug/l	2.0	0.63
Benzo(b)fluoranthene	ND		ug/l	2.0	0.65
Benzo(k)fluoranthene	ND		ug/l	2.0	0.68
Chrysene	ND		ug/l	2.0	0.68
Acenaphthylene	ND		ug/l	2.0	0.63
Anthracene	ND		ug/l	2.0	0.69
Benzo(ghi)perylene	ND		ug/l	2.0	0.71
Fluorene	ND		ug/l	2.0	0.66
Phenanthrene	ND		ug/l	2.0	0.66
Dibenzo(a,h)anthracene	ND		ug/l	2.0	0.68
Indeno(1,2,3-cd)pyrene	ND		ug/l	2.0	0.73
Pyrene	ND		ug/l	2.0	0.62
4-Chloroaniline[1]	ND		ug/l	5.0	1.2
Dibenzofuran[1]	ND		ug/l	2.0	0.69
2-Methylnaphthalene[1]	ND		ug/l	2.0	0.76
n-Nitrosodimethylamine[1]	ND		ug/l	2.0	0.78
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.80
p-Chloro-m-cresol[1]	ND		ug/l	2.0	0.66
2-Chlorophenol	ND		ug/l	2.0	0.62
2,4-Dichlorophenol	ND		ug/l	5.0	0.78
2,4-Dimethylphenol	ND		ug/l	5.0	1.4
2-Nitrophenol	ND		ug/l	5.0	1.3
4-Nitrophenol	ND		ug/l	10	1.1
2,4-Dinitrophenol	ND		ug/l	20	8.0
4,6-Dinitro-o-cresol[1]	ND		ug/l	10	1.9
Pentachlorophenol	ND		ug/l	5.0	2.8
Phenol	ND		ug/l	5.0	0.74
2-Methylphenol[1]	ND		ug/l	5.0	1.0

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500

Lab Number: L1720803
Report Date: 06/27/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 5,625
Analytical Date: 06/23/17 14:12
Analyst: RC

Extraction Method: EPA 625
Extraction Date: 06/23/17 00:33

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1016114-1					
3-Methylphenol/4-Methylphenol[1]	ND		ug/l	5.0	1.1
2,4,5-Trichlorophenol[1]	ND		ug/l	5.0	0.92
Benzoic Acid[1]	ND		ug/l	50	6.2
Benzyl Alcohol[1]	ND		ug/l	2.0	0.72
Tentatively Identified Compounds					
No Tentatively Identified Compounds	ND		ug/l		

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	42		21-120
Phenol-d6	28		10-120
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	74		15-120
2,4,6-Tribromophenol	65		10-120
4-Terphenyl-d14	76		33-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: T0322-016-500

Lab Number: L1720803

Report Date: 06/27/17

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: WG1016114-2								
Acenaphthene	68		-		47-145	-		30
1,2,4-Trichlorobenzene	61		-		44-142	-		30
Hexachlorobenzene	67		-		1-152	-		30
Bis(2-chloroethyl)ether	65		-		12-158	-		30
2-Chloronaphthalene	69		-		60-118	-		30
3,3'-Dichlorobenzidine	34		-		1-262	-		30
2,4-Dinitrotoluene	81		-		39-139	-		30
2,6-Dinitrotoluene	82		-		50-158	-		30
Fluoranthene	77		-		26-137	-		30
4-Chlorophenyl phenyl ether	65		-		25-158	-		30
4-Bromophenyl phenyl ether[1]	69		-		53-127	-		30
Bis(2-chloroisopropyl)ether	63		-		36-166	-		30
Bis(2-chloroethoxy)methane	70		-		33-184	-		30
Hexachlorobutadiene	51		-		24-116	-		30
Hexachloroethane	53		-		40-113	-		30
Isophorone	72		-		21-196	-		30
Naphthalene	64		-		21-133	-		30
Nitrobenzene	90		-		35-180	-		30
n-Nitrosodi-n-propylamine	70		-		1-230	-		30
Bis(2-Ethylhexyl)phthalate	81		-		8-158	-		30
Butyl benzyl phthalate	81		-		1-152	-		30
Di-n-butylphthalate	84		-		1-118	-		30
Di-n-octylphthalate	86		-		4-146	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: T0322-016-500

Lab Number: L1720803

Report Date: 06/27/17

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: WG1016114-2								
Diethyl phthalate	70		-		1-114	-		30
Dimethyl phthalate	78		-		1-112	-		30
Benzo(a)anthracene	74		-		33-143	-		30
Benzo(a)pyrene	80		-		17-163	-		30
Benzo(b)fluoranthene	82		-		24-159	-		30
Benzo(k)fluoranthene	71		-		11-162	-		30
Chrysene	71		-		17-168	-		30
Acenaphthylene	75		-		33-145	-		30
Anthracene	73		-		27-133	-		30
Benzo(ghi)perylene	76		-		1-219	-		30
Fluorene	69		-		59-121	-		30
Phenanthrene	70		-		54-120	-		30
Dibenzo(a,h)anthracene	73		-		1-227	-		30
Indeno(1,2,3-cd)Pyrene	71		-		1-171	-		30
Pyrene	74		-		52-115	-		30
2,4,6-Trichlorophenol	78		-		37-144	-		30
P-Chloro-M-Cresol[1]	80		-		22-147	-		30
2-Chlorophenol	72		-		23-134	-		30
2,4-Dichlorophenol	84		-		39-135	-		30
2,4-Dimethylphenol	82		-		32-119	-		30
2-Nitrophenol	84		-		29-182	-		30
4-Nitrophenol	45		-		1-132	-		30
2,4-Dinitrophenol	75		-		1-191	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: T0322-016-500

Lab Number: L1720803

Report Date: 06/27/17

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: WG1016114-2								
4,6-Dinitro-o-cresol[1]	79		-		1-181	-		30
Pentachlorophenol	62		-		14-176	-		30
Phenol	35		-		5-112	-		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	49				21-120
Phenol-d6	35				10-120
Nitrobenzene-d5	74				23-120
2-Fluorobiphenyl	78				15-120
2,4,6-Tribromophenol	68				10-120
4-Terphenyl-d14	75				33-120

INORGANICS
&
MISCELLANEOUS

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500

Lab Number: L1720803
Report Date: 06/27/17

SAMPLE RESULTS

Lab ID: L1720803-03
Client ID: PROCESS EFFLUENT
Sample Location: BUFFALO, NY
Matrix: Water

Date Collected: 06/20/17 08:30
Date Received: 06/20/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	1.50		mg/l	0.025	0.009	5	06/22/17 20:20	06/23/17 13:09	121,4500CN-CE	LK
pH (H)	7.1		SU	-	NA	1	-	06/21/17 10:30	121,4500H+-B	JT

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500
Lab Number: L1720803
Report Date: 06/27/17

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: WG1016004-1										
Cyanide, Total	ND		mg/l	0.005	0.001	1	06/22/17 20:20	06/23/17 12:45	121,4500CN-CE	LK

Lab Control Sample Analysis

Batch Quality Control

Project Name: RIVERBEND S/A BSA

Project Number: T0322-016-500

Lab Number: L1720803

Report Date: 06/27/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 03 Batch: WG1015396-1								
pH	100		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 03 Batch: WG1016004-2								
Cyanide, Total	94		-		90-110	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500

Lab Number: L1720803
Report Date: 06/27/17

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 EFFLUENT	QC Batch ID: WG1016004-4		QC Sample: L1720803-03		Client ID: PROCESS							
Cyanide, Total	1.50	0.2	1.77	**135**	Q	-	-		90-110	-		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500

Lab Number: L1720803
Report Date: 06/27/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1015396-2 QC Sample: L1700006-120 Client ID: DUP Sample						
pH	6.8	6.9	SU	1		5
General Chemistry - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1016004-3 QC Sample: L1721071-01 Client ID: DUP Sample						
Cyanide, Total	0.002J	0.002J	mg/l	NC		30

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500

Lab Number: L1720803
Report Date: 06/27/17

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(*)
L1720803-01A	Vial Na2S2O3 preserved split	A	NA		3.4	Y	Absent		624(3)
L1720803-01B	Vial Na2S2O3 preserved split	A	NA		3.4	Y	Absent		624(3)
L1720803-01C	Vial Na2S2O3 preserved split	A	NA		3.4	Y	Absent		624(3)
L1720803-01D	Split Amber 1000ml Na2S2O3	A	N/A	N/A	3.4	Y	Absent		625(7)
L1720803-01E	Split Amber 1000ml Na2S2O3	A	N/A	N/A	3.4	Y	Absent		625(7)
L1720803-02A	Vial Na2S2O3 preserved	A	NA		3.4	Y	Absent		COMP-VOA()
L1720803-02B	Vial Na2S2O3 preserved	A	NA		3.4	Y	Absent		COMP-VOA()
L1720803-02C	Vial Na2S2O3 preserved	A	NA		3.4	Y	Absent		COMP-VOA()
L1720803-02D	Vial Na2S2O3 preserved	A	NA		3.4	Y	Absent		COMP-VOA()
L1720803-02E	Vial Na2S2O3 preserved	A	NA		3.4	Y	Absent		COMP-VOA()
L1720803-02F	Vial Na2S2O3 preserved	A	NA		3.4	Y	Absent		COMP-VOA()
L1720803-02G	Vial Na2S2O3 preserved	A	NA		3.4	Y	Absent		COMP-VOA()
L1720803-02H	Vial Na2S2O3 preserved	A	NA		3.4	Y	Absent		COMP-VOA()
L1720803-02I	Vial Na2S2O3 preserved	A	NA		3.4	Y	Absent		COMP-VOA()
L1720803-02J	Vial Na2S2O3 preserved	A	NA		3.4	Y	Absent		COMP-VOA()
L1720803-02K	Vial Na2S2O3 preserved	A	NA		3.4	Y	Absent		COMP-VOA()
L1720803-02L	Vial Na2S2O3 preserved	A	NA		3.4	Y	Absent		COMP-VOA()
L1720803-02M	Amber 1000ml Na2S2O3	A	NA		3.4	Y	Absent		COMP-W()
L1720803-02N	Amber 1000ml Na2S2O3	A	NA		3.4	Y	Absent		COMP-W()
L1720803-02O	Amber 1000ml Na2S2O3	A	NA		3.4	Y	Absent		COMP-W()
L1720803-02P	Amber 1000ml Na2S2O3	A	NA		3.4	Y	Absent		COMP-W()
L1720803-02Q	Amber 1000ml Na2S2O3	A	NA		3.4	Y	Absent		COMP-W()
L1720803-02R	Amber 1000ml Na2S2O3	A	NA		3.4	Y	Absent		COMP-W()

*Values in parentheses indicate holding time in days

Project Name: RIVERBEND S/A BSA
Project Number: T0322-016-500

Lab Number: L1720803
Report Date: 06/27/17

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L1720803-02S	Amber 1000ml Na2S2O3	A	NA		3.4	Y	Absent		COMP-W()
L1720803-02T	Amber 1000ml Na2S2O3	A	NA		3.4	Y	Absent		COMP-W()
L1720803-03A	Plastic 60ml unpreserved	A	7	7	3.4	Y	Absent		PH-4500(.01)
L1720803-03B	Plastic 250ml NaOH preserved	A	>12	>12	3.4	Y	Absent		TCN-4500(14)
L1720803-04A	Vial Na2S2O3 preserved	A	NA		3.4	Y	Absent		624(3)
L1720803-04B	Vial Na2S2O3 preserved	A	NA		3.4	Y	Absent		624(3)

*Values in parentheses indicate holding time in days

Project Name:	RIVERBEND S/A BSA	**Lab Number:**	L1720803
Project Number:	T0322-016-500	**Report Date:**	06/27/17

GLOSSARY

Acronyms

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).
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.
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.
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.
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

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.

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.

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

Report Format: DU Report with 'J' Qualifiers

Project Name:	RIVERBEND S/A BSA	**Lab Number:**	L1720803
Project Number:	T0322-016-500	**Report Date:**	06/27/17

Data Qualifiers

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.

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

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.

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).

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

Report Format: DU Report with 'J' Qualifiers

Project Name:	RIVERBEND S/A BSA	**Lab Number:**	L1720803
Project Number:	T0322-016-500	**Report Date:**	06/27/17

REFERENCES

5 Methods for the Organic Chemical Analysis of Municipal and Industrial Wastewater. Appendix A, Part 136, 40 CFR (Code of Federal Regulations).

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

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: 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 300: DW: Bromide
EPA 6860: NPW and SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
EPA 9012B: NPW: Total Cyanide
EPA 9050A: NPW: Specific Conductance
SM3500: NPW: Ferrous Iron
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.
SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility
SM 2540D: TSS
EPA 3005A NPW
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: 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, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F, EPA 353.2**: Nitrate-N**, EPA 351.1, 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 624: Volatile Halocarbons & Aromatics,
EPA 608: 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: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E.**

Mansfield Facility:

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

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, Pb, Mn, Ni, Se, Ag, 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: 6/20/17

ALPHA Job #: L1720803

Client Information

Client: Benchmark Environmental
Address: 2558 Hamburg Turnpike, Ste300
Buffalo, NY 14218
Phone: 716-856-0599
Fax:
Email: bhann@turnkeyllc.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 ☑ 5day 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
20803-02	Process Effluent - Grab 1	6-19-17	945	Water	BMK	x	x			Lab to composite 1-4	5
-02	Process Effluent - Grab 2	6-19-17	1217	Water		x	x			Lab to composite 1-4	5
-02	Process Effluent - Grab 3	6-19-17	1630	Water		x	x			Lab to composite 1-4	5
-02	Process Effluent - Grab 4	6-20-17	830	Water		x	x			Lab to composite 1-4	5
-03	Process Effluent	6-20-17	830	Water	BMK			x	x		2
-04	Trip Blank	6-19-17	800	Water	BMK	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
Brack Grund	6-20-17/1000	J. Hann WAL	6/20/17 1400
J. Hann WAL	6/20/17 1745		

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

Northeast Metrology Corp.

2601 Genesee Street
Buffalo, NY 14225
P: 716-827-3770 F: 716-827-3775
e-mail: nem@nemcal.com

Calibration Certificate

www.nemcal.com

Company:	RIVERBEND	**Certificate #:**	1194587
Address:	192 BARAGA STREET BUFFALO, NY 14210	**Calibration Date:**	1/4/2017
		PO/Acct:	
Contact:	BRANDON ROGERS	**Page:**	1 of 2
Department:		**Visual Condition:**	Good
		Date Received:	
Gage Desc:	Flow Transmitter / Sensor	**Control #:**	SFRB#80210142061
Manufacturer:	George Fischer Signet	**Model:**	8550 / 515
Location:		**Serial #:**	80210142061

Parameters:

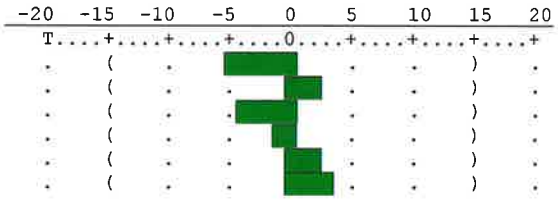
Flow Units - GPM
Gas Type - N/A

Repairs:

+ / - Tolerances: 2.000% / 2.000%
Graph Scale: +0.100000

GPM

Nominal	Actual	Deviation	
+76.200000	+75.730000	-0.470000	
+76.200000	+76.410000	+0.210000	
+76.200000	+75.790000	-0.410000	
+76.200000	+76.080000	-0.120000	
+76.200000	+76.450000	+0.250000	Avg. of 10
+76.200000	+76.500000	+0.300000	Timed



Comments:

CALIBRATION PERFORMED AT AMBIENT CONDITIONS: 62°F & 50% R.H.

SCHEDULE 80 PVC 3" O.D. I.D.=2.9"

TOTAL GALLONS (2017): 8489861
PERM. GALLONS: 31685459
TOTAL GALLONS RESET AT THE END OF TESTING.

mA OUTPUT: 0 = 3.99, MAX = 16.05

Procedure:

110176:E-Flowme.gdf (Manual 1000)

We certify the equipment used for this calibration is traceable to NIST through one or more of the following numbers:
NEM-6004 Flow Calibrator
CE17617 Cal Date / Due Date: 2/19/2013 – 2/20/2018

Gage Status: PASS **Due Date: 1/4/2018**

Dimensional calibration performed in NEM laboratory @ 68°F (±2.0°F) : (20°C (±1°C)) & relative humidity less than 45%.
Electronic & Mechanical calibration performed at ambient conditions.
All pertinent data and readings calibrated are as found & as left unless otherwise denoted in comments.

Northeast Metrology Corp.

2601 Genesee Street
Buffalo, NY 14225
P: 716-827-3770 F: 716-827-3775
e-mail: nem@nemcal.com

Calibration Certificate

Page #:	2 of 2	**Certificate #:**	1194587
Gage Desc:	Flow Transmitter / Sensor	**Control #:**	SFRB#80210142061
Manufacturer:	George Fischer Signet	**Model:**	8550 / 515
Location:		**Serial #:**	80210142061

Calibration performed in accordance with ANSI/NCSL Z540-1-1994 unless otherwise denoted in comments.
Gage Blocks meet or exceed Federal Specifications for the grade and accuracy applicable to these items in accordance with GGG-G-15C.
Calibration meets or exceeds 4 : 1 ratio, with the exception of gage blocks stated above.
Measurement Uncertainties are based on approximately a 95% confidence level, using a coverage factor of k=2.
Measurement Uncertainty is taken into account in determining gage status (pass/fail).
Calibration is performed on premises at Northeast Metrology Corp. unless otherwise denoted in comments.
The recording of false, fictitious or fraudulent statements or entries on this document may be punished as a felony under federal statutes.
This certificate shall not be reproduced except in full, with the written approval of the originating metrology laboratory.

Certified By: GK Signature: 

This certificate is not valid unless all 2 page(s) are present.
Results of this certificate relate only to the item mentioned in document header.
END OF DOCUMENT

APPENDIX C

COMPREHENSIVE ANNUAL GROUNDWATER MONITORING REPORT

June 15, 2018

Mr. Maurice Moore
New York State Dept. of Environmental Conservation
Division of Environmental Remediation
270 Michigan Avenue
Buffalo, New York 14203-2999

Re: Riverbend Site (formerly Steelfields) (V00619)
2017 Comprehensive Annual Groundwater Monitoring Report

Dear Mr. Moore:

On behalf of our client Fort Schuyler Management Corporation (FSMC), TurnKey Environmental Restoration, LLC, has prepared this comprehensive letter report to transmit the results of the July 2017 groundwater monitoring event conducted at Area I (Former Steel Plant Parcel), Area II (Former Coke Plant Parcel), and Area III (Former Warehouse Parcel) of FSMC's RiverBend Site, Buffalo, NY (see Figure 1). This letter report also includes the results of the July and December 2017 Oxygen Release Compound (ORC) monitoring events for Area III. The current groundwater monitoring event was performed July 13-18, 2017, the Area III first semi-annual ORC monitoring event was performed July 24-27, 2017, and the Area III second semi-annual ORC event December 11-14, 2017.

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.

PURPOSE

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.

GROUNDWATER ELEVATIONS & FLOW

Depth to water measurements and calculated groundwater elevations measured from 10 wells and two Buffalo River staff gauges in Area I, 17 wells in Area II, and 5 monitoring wells and 11 ORC monitoring wells in Area III on July 14, 2017 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.

An isopotential map, presented as Figure 3, was prepared using data from the July 14, 2017 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 2017 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, 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.

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. A groundwater elevation comparison of this well pair indicates that groundwater outside the Cell is roughly a half-foot higher (0.45-feet) than inside the Cell and an inward hydraulic gradient toward the Cell has been established, as predicted by the pre-design MODFLOW® model.

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.

AREA I FIELD ACTIVITIES & FINDINGS

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 n-Propylbenzene and total arsenic at well A1-MW-6, each analyzed compound was either reported as non-detect or at concentrations well 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 observed no non-aqueous phase liquid (NAPL) in any of the Area I wells listed in Table 1, except well A1-MW-6. 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. From 2005 through 2017, nearly 13 gallons of product has been removed (see Table 5). 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.

As indicated in Table 5, seasonal increases in product thickness and recovery are apparent during the typical late Fall and early Spring rainy periods. 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 FIELD ACTIVITIES & FINDINGS

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 benzene and total lead at well A2-MW-16, each analyzed compound was either reported as non-detect or at concentration well below their respective GWQSs. A discussion of the moving average trend analysis for Area II groundwater is presented later in this report.

AREA III FIELD ACTIVITIES & FINDINGS

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 at wells A3-MW-7 and A3-MW-10, benzene at wells A3-MW-7 and A3-MW-10, and total cyanide at wells A3-MW-7 and A3-MW-10, each analyzed compound was 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. Well A3-MW-3 was not sampled during this sampling event because it was inaccessible due to localized flooding.

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 July and December 2017 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 the July event and nine of the eleven wells during the December event. Field measurement pH was determined to be outside the GWQS range at all eleven wells during the July 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.

MOVING AVERAGE TREND ANALYSIS (MATA)

In general accordance with the LTGWM Plan for each Area of the Site, any parameter exceeding the GWQS for two consecutive events is to be statistically evaluated for all monitoring wells listed in Table 1. Statistical evaluation for each parameter of interest involves the averaging of four sequential monitoring event concentrations and plotting the moving average. 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. Evaluation of the MATA plots (Attachment 2) and table (Table 10) indicate the following:

- 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 indicate a long-term neutral trend (neither increasing nor decreasing) since monitoring began at each location. The concentration versus time and MATA plot for the field measured pH at well A3-MW-9 indicates a recent decreasing trend, but overall looks like a slightly fluctuating neutral trend.
- The MATA plot for benzene at wells A3-MW-7, A3-MW-9, and A3-MW-10 indicates a continued decreasing trend approaching the GWQS at each location. The MATA plot for benzene at A2-MW-16 indicates a neutral trend (neither increasing nor decreasing) however the concentration versus time plot indicates a slight rebound above the GWQS.
- The MATA plot for n-propylbenzene at well A1-MW-6 initially indicated an increasing 4-event moving average trend (August 2007 to May 2010); however, the trend was being influenced by unusually high concentration reported in August 2007 of more than 30 times historic values (i.e., outlier). The concentration versus time plot shown on the same charts, however, indicates not only a return to historic range (i.e., decreasing trend), but a decreasing trend with concentrations approaching (and occasionally falling below) the GWQS from April 2008 through the current period.
- Although the concentration versus time plot for total arsenic at well A1-MW-6 reveals a wide concentration range from a high 0.29 mg/L in December 2006 to 0.0455 mg/L in June 2015, the MATA plot indicates a decreasing trend since August 2007.
- The MATA plot for cyanide at well A3-MW-3 initially indicated an increasing 4-event moving average trend from May 2010 to June 2012; however, the trend was being influenced by an unusually high cyanide concentration reported in June 2012 of more than four times historic values (i.e., outlier). The concentration versus time plot shown on the same chart, indicates a moderating return to historic ranges (i.e., decreasing trend). As such, the MATA plot for cyanide indicates a decreasing trend from June 2012 through June 2016. Well A3-MW-3 was not sampled during this sampling event because it was inaccessible due to localized flooding.
- Although the concentration versus time plot for cyanide at well A3-MW-7 reveals a wide concentration range from a high 0.267 mg/L in June 2014 to 0.01 in June 2013, the MATA plot indicates a neutral trend (neither increasing nor decreasing) below the GWQS since May 2010. Historically, cyanide concentrations at this location have been reported below the GWQS (between May 2009 and June 2013), followed by two events slightly above the GWQS (June 2014 and July 2015), followed by a concentration below the GWQS for one event (June 2016) returning to slightly above the GWQS during the current reporting period.

NYSDEC EQuIS Deliverables

On December 29, 2017, TurnKey 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. TurnKey received confirmation on January 17, 2018 that the submittals were successfully uploaded, and the data is available for use within the NYSDEC system.

MISCELLANEOUS ACTIVITIES

In July 2017, replacement wells A1-MW-4R and A1-MW-11 were installed for decommissioned wells A1-MW-4 and A1-MW-M2, respectively. Upon NYSDEC concurrence, it was determined that piezometer A1-P-2 did not require replacement.

Each newly installed monitoring wells were surveyed and developed in accordance with the LTGWM Plan. Replacement wells A1-MW-4R and A1-MW-11 were sampled in July 2017 and the analytical results included in this report.

Well decommissioning reports for A1-MW-4 and A1-MW-M2 were provided in the May 2017 PRR. Borehole and well completion logs for replacement wells A1-MW-4R and A1-MW-11 were also provided in the May 2017 PRR.

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 Summer 2018. Area III ORC well monitoring is tentatively scheduled for June and November 2018 (every six months).

Please contact us if you have any questions.

Sincerely,
TurnKey Environmental Restoration, LLC

Brock Greene
Project Environmental Scientist

Enclosures

ec: Tom O'Brien (FSMC)
Paul Werthman (TurnKey)

File: 0322-017-500

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

TABLE 1

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

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

Well Designation	New	Existing	Year 3		Year 4		Year 5		Year 6		Year 7		Year 8		Year 9		Year 10		Year 11		Year 12		Year 13	
			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		x	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**
A3-ORC-2		x	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**
A3-ORC-3		x	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**
A3-ORC-4		x	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**
A3-ORC-5		x	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**
A3-ORC-6		x	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**
A3-ORC-7		x	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**
A3-ORC-8		x	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**
A3-ORC-9		x	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**
A3-ORC-10		x	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**
A3-ORC-11		x	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**

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. 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.
5. 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.
6. 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.

Legend:

Jul-17	= current monitoring event
	= monitoring well was decomissioned to make way for redevelopment; replacement wells are being considered.
x	= type of monitoring well
●	= future monitoring event

TABLE 2

ANALYTICAL PROGRAM SUMMARY [1]

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							
AI-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**	**2**	**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.

TABLE 3

GROUNDWATER ELEVATION MEASUREMENTS
July 14, 2017

2017 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	9.89	NP	576.49	576.49
A1-MW-2	586.39	NP	8.40	NP	577.99	577.99
A1-MW-3	591.98	NP	16.26	NP	575.72	575.72
A1-MW-4R	588.76	NP	8.42	NP	580.34	580.34
A1-MW-5	590.48	NP	6.62	NP	583.86	583.86
A1-MW-6	591.60	16.03	16.03	0.00	575.57	575.57
A1-MW-7	586.97	NP	10.71	NP	576.26	576.26
A1-MW-8R	589.83	NP	13.35	NP	576.48	576.48
A1-MW-9	588.05	NP	11.65	NP	576.40	576.40
A1-MW-10	589.73	NP	13.71	NP	576.02	576.02
A1-MW-11	591.73	NP	17.90	NP	573.83	573.83
Area II Monitoring Wells [2]						***17 Wells***
A2-MW-3	588.95	NP	6.87	NP	582.08	582.08
A2-MW-4R	588.59	NP	6.54	NP	582.05	582.05
A2-MW-5	587.25	NP	5.28	NP	581.97	581.97
A2-MW-6	592.69	NP	15.67	NP	577.02	577.02
A2-MW-7	602.05	NP	19.78	NP	582.27	582.27
A2-MW-10R	593.59	NP	10.40	NP	583.19	583.19
A2-MW-11	590.11	NP	7.21	NP	582.90	582.90
A2-MW-12	604.12	NP	17.40	NP	586.72	586.72
A2-MW-13	597.90	NP	14.20	NP	583.70	583.70
A2-MW-16	597.62	NP	13.96	NP	583.66	583.66
A2-MW-17	596.94	NP	13.60	NP	583.34	583.34
A2-MW-18	587.64	NA	NA	NA	NA	NA
A2-MW-19	592.02	NP	9.30	NP	582.72	582.72
A2-MW-20	591.54	NP	5.45	NP	586.09	586.09
A2-PW-1	601.76	NP	20.85	NP	580.91	580.91
A2-PW-2	603.91	NP	18.48	NP	585.43	585.43
A2-PW-3	603.88	NP	19.75	NP	584.13	584.13
Area III Monitoring Wells [2]						***5 Wells***
A3-MW-3	585.40	NA	NA	NA	NA	NA
A3-MW-6	585.70	NP	6.37	NP	579.33	579.33
A3-MW-7	586.39	NP	3.82	NP	582.57	582.57
A3-MW-9	597.61	NP	15.09	NP	582.52	582.52
A3-MW-10	585.41	NP	5.70	NP	579.71	579.71

TABLE 3

GROUNDWATER ELEVATION MEASUREMENTS
July 14, 2017

2017 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 [2]						***11 Wells***
A3-ORC-1	587.17	NP	4.78	NP	582.39	582.39
A3-ORC-2	587.35	NP	4.91	NP	582.44	582.44
A3-ORC-3	587.55	NP	5.10	NP	582.45	582.45
A3-ORC-4	587.14	NP	4.40	NP	582.74	582.74
A3-ORC-5	587.77	NP	5.36	NP	582.41	582.41
A3-ORC-6	587.53	NP	5.29	NP	582.24	582.24
A3-ORC-7	587.16	NP	5.80	NP	581.36	581.36
A3-ORC-8	587.51	NP	5.87	NP	581.64	581.64
A3-ORC-9	585.15	NP	3.45	NP	581.70	581.70
A3-ORC-10	587.60	NP	5.48	NP	582.12	582.12
A3-ORC-11	587.70	NP	5.19	NP	582.51	582.51
Surface Water [4,5]						***3 Locations***
SG-01 (downstream)	585.07	NP	10.00	NP	575.07	575.07
SG-02 (upstream)	590.72	NP	15.45	NP	575.27	575.27
Lake Erie	NA	NA	NA	NA	NA	573.75

Notes:

1. Groundwater elevations are corrected if free product (i.e., LNAPL) is present.
2. Monitoring well reference point elevations (i.e., top of riser for wells and sheet pile for staff gauges) 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.

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

TURNKEY ENVIRONMENTAL RESTORATION, LLC

TABLE 4

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS [1,2]
Area I: Former Steel Plant Parcel

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

Parameter	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	
	07/17/17	07/17/17	07/17/17	07/17/17	07/17/17	07/17/17	07/17/17	07/17/17	07/17/17	07/17/17	07/18/17	
Field Measurements (units as indicated) [2]												
pH (units)	8.21	7.49	7.08	7.01	7.68	7.42	NS	6.95	NS	7.03	NS	**6.5 - 8.5**
Temperature (degrees C)	14.0	17.5	14.4	15.0	18.2	15.0	NS	15.8	NS	14.9	NS	**NA**
Specific Conductance (uS)	799	883.0	4170	4258.0	4035	4352	NS	846.0	NS	682.4	NS	**NA**
Turbidity (NTU)	2.4	2.1	89	69.00	4.10	37.9	NS	24.0	NS	58.0	NS	**NA**
Dissolved Oxygen (mg/L)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**
Eh (mV)	181	66	73	140	-165	82	NS	66	NS	90	NS	**NA**
Visual Observation	Clear	Clear	Sl. Turbid	Sl. Turbid	clear	Black/Sheen	NS	Clear	NS	Clear	NS	**NA**
Olfactory Observation	No odor	No odor	No odor	No odor	No odor	Sl Petroleum	NS	No odor	NS	No odor	NS	**NA**
Volatile Organic Compounds (ug/L)												
Benzene	ND	ND	ND	ND	ND	ND	NS	ND	NS	ND	NS	**1**
n-Butylbenzene	ND	ND	ND	ND	ND	3.3 J	NS	ND	NS	ND	NS	**5**
sec-Butylbenzene	ND	ND	ND	ND	ND	2.2 J	NS	ND	NS	ND	NS	**5**
tert-Butylbenzene	ND	ND	ND	ND	ND	ND	NS	ND	NS	ND	NS	**5**
p-Cymene (4-Isopropyltoluene)	ND	ND	ND	ND	ND	ND	NS	ND	NS	ND	NS	**5**
Ethylbenzene	ND	ND	ND	ND	ND	ND	NS	ND	NS	ND	NS	**5**
Isopropylbenzene	ND	ND	ND	ND	ND	2.3 J	NS	ND	NS	ND	NS	**5**
Methyl tert butyl ether	ND	ND	ND	ND	ND	ND	NS	ND	NS	ND	NS	**10**
n-Propylbenzene	ND	ND	ND	ND	ND	**5.2 J**	NS	ND	NS	ND	NS	**5**
Toluene	ND	ND	ND	ND	ND	ND	NS	ND	NS	ND	NS	**5**
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND	NS	ND	NS	ND	NS	**5**
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND	NS	ND	NS	ND	NS	**5**
Xylenes, Total	ND	ND	ND	ND	ND	ND	NS	ND	NS	ND	NS	**15**
Total VOCs	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***13***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	**10**
Total Inorganics (mg/L)												
Total Arsenic	0.00948	NS	NS	NS	NS	**0.05947**	NS	0.0087	NS	NS	NS	**0.025**
Total Chromium	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.0014	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. " -- " = compound is not analyzed at this location

Color Code:

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

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	Days Since Last Visit	LNAPL Measurement			Quantity Removed [1] (oz.)	Height of Petro-Trap (fbTOR)	Comments
		Top (fbTOR)	Bottom (fbTOR)	Thickness (feet)			
09/21/04	0	18.10	18.40	0.30	NA	--	well development
09/23/04	2	18.10	18.40	0.30	NA	--	Fall 2004 groundwater monitoring event
02/01/05	**131**	**17.50**	**20.85**	**3.35**	**NA**	**16.0**	**installed PetroTrap passive skimmer**
02/08/05	7	17.94	19.89	1.95	16	16.0	first LNAPL removal from Petro Trap
02/11/05	3	17.89	19.75	1.86	20	16.0	ok
02/15/05	4	18.10	18.52	0.42	20	16.0	ok
02/18/05	3	17.59	17.91	0.32	12	16.0	ok
02/25/05	7	18.02	18.51	0.49	2	16.0	Petro Trap tubing was tangled
03/04/05	7	18.13	18.63	0.50	6	16.0	Petro Trap tubing was tangled
03/18/05	14	18.00	18.74	0.74	3.5	16.0	checked Petro Trap for leaks, none located
04/08/05	21	17.37	18.20	0.83	24	15.0	ok; raised Petro Trap approximately 1-foot
04/14/05	6	17.65	17.81	0.16	22	15.0	ok
04/28/05	14	16.23	16.25	0.02	25.6	15.0	ok
05/17/05	19	17.62	17.80	0.18	14	14.0	~14 oz. of water in Petro Trap; raised approx. 1-foot
06/21/05	35	17.68	17.71	0.03	14	14.0	ok
07/18/05	27	18.03	18.11	0.08	12	15.0	ok, lowered approx. 1-foot
09/09/05	53	18.34	18.42	0.08	8	15.0	ok
09/20/05	11	18.33	18.38	0.05	22	15.0	ok; Area I LTGWM Event
10/31/05	41	18.50	18.52	0.02	24	15.0	ok
11/23/05	23	18.95	18.96	0.01	22	15.0	ok
12/28/05	35	19.35	19.36	0.01	22	15.0	ok
01/30/06	33	18.43	18.44	0.01	24	15.0	ok
02/27/06	28	18.38	19.06	0.68	24	15.0	ok
03/28/06	29	18.44	19.31	0.87	24	15.0	ok
04/27/06	30	18.39	19.17	0.78	24	15.0	ok
05/18/06	21	18.41	19.05	0.64	8	15.0	ok; Area I LTGWM Event
06/30/06	43	17.82	18.35	0.53	8	15.0	ok
07/31/06	31	17.95	18.64	0.69	16	15.0	ok
12/01/06	123	19.41	21.65	2.24	16	15.0	ok; Area I LTGWM Event, removed oily water.
06/30/07	211	17.98	20.51	2.53	8	15.0	ok
07/31/07	31	18.31	21.40	3.09	22	14.0	~12oz. Water in Trap; raised PetroTrap approx. 1'
08/22/07	22	18.50	20.11	1.61	4	14.0	ok
09/29/07	38	18.86	21.72	2.86	4	14.0	ok
10/30/07	31	19.10	21.04	1.94	3	14.0	ok
11/28/07	29	19.47	20.52	1.05	2	14.0	checked Petro Trap for leaks, none located
12/28/07	30	18.93	20.42	1.49	14	15.0	~12oz. Water in Trap; lowered PetroTrap approx. 1'
08/12/08	228	17.98	19.60	1.62	30	15.0	ok, bailed down product removed ~1.0 gal. TK took over monito
09/10/08	29	18.61	20.10	1.49	4	15.0	Needs to be ajusted and claened
10/08/08	28	18.90	20.46	1.56	8	17.5	Lowered trap to 17.41 fbgs, cleaned off filter.
11/11/08	34	18.79	21.00	2.21	11	17.5	ok
12/16/08	35	18.64	20.86	2.22	1	17.5	ok
01/07/09	22	18.28	21.20	2.92	1	17.0	raised trap to 17.0 fbgs
02/11/09	35	18.52	21.22	2.70	64	17.0	17 oz in trap, bailed 47 oz
03/10/09	27	17.50	19.63	2.13	2	17.0	ok
04/01/09	22	18.12	19.08	0.96	48	17.0	Bailed ~40oz, ~8 was removed from trap
05/06/09	35	17.61	19.81	2.20	3	17.0	ok
05/12/09	6	17.65	17.96	0.31	18	17.0	ok
06/02/09	21	17.64	18.17	0.53	2	17.0	ok
07/08/09	36	17.96	18.17	0.21	20	17.0	ok
08/06/09	29	18.05	19.75	1.70	1.5	17.0	ok
09/01/09	26	18.11	19.20	1.09	3	17.0	ok
10/06/09	35	17.84	19.62	1.78	6	17.0	ok
11/03/09	28	17.82	19.11	1.29	10	17.0	ok
12/01/09	28	18.07	18.50	0.43	20	17.0	ok
01/13/10	43	18.22	18.75	0.53	5	17.0	ok
02/10/10	28	18.03	19.00	0.97	4	17.0	ok
03/05/10	23	19.31	20.81	1.50	3	17.0	ok
04/06/10	32	18.61	20.41	1.80	4	17.0	ok
05/05/10	29	18.41	20.20	1.79	1	17.0	ok
05/17/10	12	18.03	20.42	2.39	1	17.0	ok
06/04/10	18	17.83	19.88	2.05	3	17.0	ok
07/14/10	40	17.95	19.70	1.75	16	17.0	ok
08/06/10	23	18.00	20.17	2.17	1	17.0	ok
09/10/10	35	18.64	20.90	2.26	2	17.0	ok

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	Days Since Last Visit	LNAPL Measurement			Quantity Removed [1] (oz.)	Height of Petro-Trap (fbTOR)	Comments
		Top (fbTOR)	Bottom (fbTOR)	Thickness (feet)			
10/15/10	35	18.82	20.61	1.79	2	17.0	ok
11/02/10	18	19.25	19.60	0.35	24	17.0	Less 0.5oz was removed via petro trap, bailed 24oz
12/14/10	42	18.30	19.48	1.18	1	17.0	ok
01/20/11	37	19.03	20.34	1.31	10	17.0	ok
02/18/11	29	18.84	19.83	0.99	18	17.0	Bailed ~15 oz of product
04/27/11	68	17.15	18.00	0.85	1	17.0	TOP was over petro-trap.
05/23/11	26	17.82	19.91	2.09	16	17.0	4 oz. removed from trap, bailed 12 oz.
06/07/11	15	16.47	20.28	3.81	21	17.0	7 oz. removed from trap, bailed 14 oz.
07/13/11	36	17.64	20.12	2.48	14	17.0	5 oz. removed from trap, bailed 9 oz
08/10/11	28	18.32	20.09	1.77	5	17.0	3 oz. removed from trap, bailed 2 oz
09/29/11	50	17.28	18.40	1.12	22	17.0	2 oz. removed from trap, bailed 22 oz.
10/17/11	18	16.93	18.65	1.72	13	17.0	ok
11/29/11	43	18.66	19.84	1.18	26	17.0	ok
12/22/11	23	19.24	19.77	0.53	19	17.0	ok
01/12/12	21	18.14	19.67	1.53	21	17.0	ok
02/06/12	25	18.79	19.84	1.05	18	17.0	ok
03/08/12	31	17.38	21.18	3.80	21	17.0	ok
04/05/12	28	19.16	20.33	1.17	22	17.0	ok
05/03/12	28	18.71	20.03	1.32	24	17.0	ok
06/19/12	47	18.20	19.61	1.41	24	17.0	1 oz. removed from trap, bailed 23 oz.
07/25/12	36	18.69	20.42	1.73	28	17.0	ok
12/21/12	149	18.97	19.30	0.33	5	17.0	1 oz. removed from trap, bailed 4 oz.
01/17/13	27	19.25	20.40	1.15	30	17.0	2 oz. removed from trap, bailed 28 oz.
02/25/13	39	19.18	20.45	1.27	19	16.5	1 oz. removed from trap, bailed 18 oz.
03/28/13	31	18.95	19.30	0.35	13	17.0	2 oz. removed from trap, bailed 11 oz.
04/29/13	32	18.45	19.40	0.95	25	17.0	3 oz. removed from trap, bailed 22 oz.
05/24/13	25	19.05	19.63	0.58	18	17.0	3 oz. removed from trap, bailed 15 oz.
06/17/13	24	18.13	18.43	0.30	8	16.0	0 oz. removed from trap, bailed 8 oz.
07/18/13	31	17.67	18.05	0.38	13	16.0	2 oz. removed from trap, bailed 11 oz.
08/19/13	32	18.02	18.75	0.73	26	16.0	4 oz. removed from trap, bailed 22 oz.
09/13/13	25	18.85	19.07	0.22	11	16.5	0 oz. removed from trap, bailed 11 oz.
10/17/13	34	18.55	18.85	0.30	7.5	16.0	0.5 oz. removed from trap, bailed 7 oz.
11/06/13	20	18.62	19.15	0.53	22	16.0	3 oz. removed from trap, bailed 19 oz.
12/03/13	27	19.33	19.69	0.36	19	16.0	3 oz. removed from trap, bailed 16 oz.
01/13/14	41	18.34	19.30	0.96	21	17.0	2 oz. removed from trap, bailed 19 oz.
02/20/14	38	19.62	20.21	0.59	20	17.0	4 oz. removed from trap, bailed 16 oz.
03/27/14	35	18.91	19.67	0.76	28.5	17.0	5.5 oz. removed from trap, bailed 23 oz.
04/17/14	21	18.17	19.06	0.89	20	17.0	1 oz. removed from trap, bailed 19 oz.
05/27/14	40	17.52	17.87	0.35	9	17.0	3 oz. removed from trap, bailed 6 oz.
06/20/14	24	17.83	18.19	0.36	5	17.0	0.5 oz. removed from trap, bailed 4.5 oz.
07/10/14	20	18.24	18.28	0.04	2	17.0	0.0 oz. removed from trap, bailed 2 oz.
August through October: RiverBend Area I sold, no measurements obtained							
11/06/14	119	18.71	19.18	0.47	23	17.0	2.0 oz. removed from trap, bailed 21 oz.
12/11/14	35	17.64	18.55	0.91	32	17.0	4.0 oz. removed from trap, bailed 28 oz.
01/29/15	49	18.67	20.82	2.15	35	17.0	1.0 oz. removed from trap, bailed 34 oz.
02/27/15	29	19.22	19.25	0.03	2	17.0	0.0 oz. removed from trap, bailed 2 oz.
03/23/15	24	19.18	19.24	0.06	4	17.0	1.0 oz. removed from trap, bailed 3 oz.
04/27/15	35	18.92	19.22	0.30	12	17.0	2.0 oz. removed from trap, bailed 10 oz.
05/26/15	29	19.50	19.57	0.07	6	17.0	1.0 oz. removed from trap, bailed 5 oz.
06/10/15	15	18.32	18.35	0.03	3	17.0	1.0 oz. removed from trap, bailed 2 oz.
07/24/15	44	17.60	17.62	0.02	1.5	17.0	0.5 oz. removed from trap, bailed 1 oz.
08/31/15	38	18.10	18.12	0.02	2	17.0	0.5 oz. removed from trap, bailed 1.5 oz.
09/30/15	30	18.60	18.64	0.04	6	17.0	1.0 oz. removed from trap, bailed 5 oz.
10/30/15	30	18.28	18.36	0.08	6.5	17.0	0.5 oz. removed from trap, bailed 6 oz.
12/27/15	58	18.14	18.20	0.06	4.5	17.0	0.5 oz. removed from trap, bailed 1.5 oz.
01/28/16	32	18.12	18.14	0.02	1.5	17.0	0.0 oz. removed from trap, bailed 1.5 oz.
02/27/16	30	18.10	18.13	0.03	2	17.0	0.5 oz. removed from trap, bailed 1.5 oz.
03/27/16	29	17.51	17.54	0.03	4.5	17.0	0.0 oz. removed from trap, bailed 4.5 oz.
04/25/16	29	17.38	17.42	0.04	2.5	17.0	0.5 oz. removed from trap, bailed 2 oz.
05/31/16	36	17.29	17.31	0.02	2	17.0	0.5 oz. removed from trap, bailed 1.5 oz.
06/28/16	28	17.21	17.29	0.08	2	17.0	0.5 oz. removed from trap, bailed 1 oz.

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	Days Since Last Visit	LNAPL Measurement			Quantity Removed [1] (oz.)	Height of Petro-Trap (fbTOR)	Comments
		Top (fbTOR)	Bottom (fbTOR)	Thickness (feet)			
07/29/16	31	17.16	17.18	0.02	1	17.0	0.5 oz. removed from trap, bailed 0.5 oz.
08/30/16	32	17.70	17.72	0.02	2.5	17.0	1.0 oz. removed from trap, bailed 1.5 oz.
09/30/16	31	18.35	18.36	0.01	1	17.0	0.0 oz. removed from trap, bailed 1 oz.
12/30/16	91	18.03	18.26	0.23	30.5	17.0	0.5 oz. removed from trap, bailed 30 oz.
02/24/17	56	18.70	18.75	0.05	0.5	NA	Removed petro-trap and installed absorbant sock
03/31/17	35	18.72	18.72	0.00	0	NA	
04/27/17	27	17.01	17.01	0.00	0	NA	
05/22/17	25	15.90	15.90	0.00	0	NA	
06/30/17	39	16.25	16.25	0.00	0	NA	
07/11/17	11	16.20	16.20	0.00	0	NA	
08/10/17	41	16.50	18.75	2.25	4.2	NA	
09/29/17	80	16.15	16.15	0.00	0	NA	
10/27/17	28	18.00	18.13	0.13	1.2	NA	
11/30/17	34	15.58	15.65	0.07	0.5	NA	
12/19/17	19	16.86	16.92	0.06	4.8	NA	
Total Quantity Removed To Date: 1652.8 oz. or 12.91 gal.							

Notes:

1. The PetroTrap canister used has a capacity of 25.6 oz. (0.2 gal).
2. Data from January 1, 2007 through July 31, 2008 was collected by EnSol, Inc.; data before and after this time has been collected by TurnKey Environmmental Restoration, LLC.

TABLE 6

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS [1,2]
Area II: Former Coke Plant Parcel

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

Parameter	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	
	07/18/17	07/18/17	07/18/17	07/18/17	07/18/17	07/18/17	07/18/17	
Field Measurements (units as indicated) [2]								
pH (units)	7.59	7.36	7.11	7.91	7.41	6.08	7.45	**6.5 - 8.5**
Temperature (degrees C)	15	13.9	14.6	13.4	13.1	14.6	13.6	**NA**
Specific Conductance (uS)	821	4013	313	1428	2321	1755	2425	**NA**
Turbidity (NTU)	0.89	1.95	1.26	0	0.18	8	1.44	**NA**
Dissolved Oxygen (mg/L)	NA	NA	NA	NA	NA	NA	NA	**NA**
Eh (mV)	- 155	- 17	- 4	- 151	- 101	40	- 130	**NA**
Visual Observation	Clear	Clear	Clear	Clear	Clear	Turbid	Clear	**NA**
Olfactory Observation	No odor	No odor	No odor	No Odor	No odor	No odor	No Odor	**NA**
Volatile Organic Compounds (ug/L)								
Benzene	ND	ND	ND	ND	ND	**1.4**	ND	**1**
n-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	**5**
sec-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	**5**
tert-Butylbenzene	ND	ND	ND	ND	ND	ND	0.75 J	**5**
p-Cymene (4-Isopropyltoluene)	ND	ND	ND	ND	ND	ND	ND	**5**
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	**5**
Isopropylbenzene	ND	ND	ND	ND	ND	ND	ND	**5**
Methyl tert butyl ether	ND	ND	ND	ND	ND	ND	ND	**10**
n-Propylbenzene	ND	ND	ND	ND	ND	ND	ND	**5**
Toluene	ND	ND	ND	ND	ND	ND	ND	**5**
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	**5**
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	**5**
Xylenes, Total	ND	ND	ND	ND	ND	ND	ND	**15**
Total VOCs	**--**	**--**	**--**	**--**	**--**	***1.4***	***0.75***	**10**
Inorganics (mg/L)								
Total Arsenic	NS	NS	NS	NS	NS	0.01093	--	**0.025**
Total Chromium	NS	NS	NS	NS	NS	0.02228	--	**0.05**
Total Lead	NS	NS	NS	NS	NS	**0.04318**	--	**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.

Color Code:

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

TABLE 7

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS [1,2]
Area III: Former Warehouse Parcel

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

Parameter	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	
	07/18/17	07/18/17	07/18/17	07/18/17	07/18/17	
Field Measurements (units as indicated) [2]						
pH (units)	NA	7.57	**10.78**	7.47	**5.72**	**6.5 - 8.5**
Temperature (degrees C)	NA	17.3	16.1	NA	15.5	**NA**
Specific Conductance (uS)	NA	357	303.0	358	4465	**NA**
Turbidity (NTU)	NA	8.89	0.85	28.7	7.83	**NA**
Dissolved Oxygen (mg/L)	NA	NA	NA	NA	NA	**NA**
Eh (mV)	NA	-- 187	- 213	- 138	- 15	**NA**
Visual Observation	NA	clear	clear	clear	Clear	**NA**
Olfactory Observation	NA	no odor	Sulfur	no odor	no odor	**NA**
Volatile Organic Compounds (ug/L)						
Benzene	NA	ND	**12**	0.16 J	**1.5**	**1**
n-Butylbenzene	NA	ND	ND	ND	ND	**5**
sec-Butylbenzene	NA	ND	ND	ND	ND	**5**
tert-Butylbenzene	NA	ND	ND	ND	ND	**5**
p-Cymene (4-Isopropyltoluene)	NA	ND	ND	ND	ND	**5**
Ethylbenzene	NA	ND	ND	ND	ND	**5**
Isopropylbenzene	NA	ND	ND	ND	1.4 J	**5**
Methyl tert butyl ether	NA	ND	ND	ND	ND	**10**
n-Propylbenzene	NA	ND	ND	ND	ND	**5**
Toluene	NA	ND	ND	ND	ND	**5**
1,2,4-Trimethylbenzene	NA	ND	ND	ND	ND	**5**
1,3,5-Trimethylbenzene	NA	ND	ND	ND	ND	**5**
Xylenes, Total	NA	ND	ND	ND	ND	**15**
Total VOCs	***0***	***0***	***12***	***0.16***	***2.9***	**10**
Inorganics (mg/L)						
Total Arsenic	NA	0.00576	-	-	-	**0.025**
Total Lead	NA	-	-	0.00631	-	**0.025**
Wet Chemistry (mg/L)						
Cyanide	NA	0.025	**0.215**	-	**0.212**	**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.

Color Code:

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

TABLE 8

SUMMARY OF JULY 2017 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)	4.78	4.91	5.10	4.40	5.36	5.29	5.80	5.87	3.45	5.48	5.19	--
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)	6.07	6.22	6.06	6.52	5.66	5.92	5.59	5.72	6.91	5.92	6.13	--
Number of Volumes Purged	6.0	10.6	6.5	5.7	8.1	6.3	6.4	3.9	12.6	6.6	11.8	--
Sample Determination [3]	4-days	volume	4-days	4-days	4-days	4-days	4-days	4-days	volume	4-days	volume	--
Purge: Day 1 (07/24/17) (gallons)	8.0	17.0	14.0	7.5	18.0	10.0	10.0	6.0		10.0	20.0	--
Purge: Day 2 (07/25/17) (gallons)	11.0	20.0	8.3	10.5	13.0	9.5	10.0	6.3		10.0	20.5	--
Purge: Day 3 (07/26/17) (gallons)	10.3	17.0	9.0	10.0	9.5	9.5	9.8	5.0	75.0	10.0	18.0	--
Purge: Day 4 (07/27/17) (gallons)	7.0	12.0	8.0	9.0	5.1	8.5	6.0	5.0	12.0	9.0	14.0	
Sample Collection (date indicated)	07/27/17	07/27/17	07/27/17	07/27/17	07/27/17	07/27/17	07/27/17	07/27/17	07/27/17	07/27/17	07/27/17	--
Cumulative Volume Purged (gallons)	36.3	66.0	39.3	37.0	45.6	37.5	35.8	22.3	87.0	39.0	72.5	--
Field Measurements During Sample Collection (units as shown) [3]												
pH (units)	**10.01**	**5.35**	**5.35**	**6.45**	**5.98**	**5.18**	**5.84**	**5.05**	**4.24**	**6.40**	**5.93**	6.5 - 8.5
Temperature (deg C)	15.3	16.2	16.0	16.2	16.2	15.4	16.3	17.7	16.7	16.5	17.9	--
Specific Conductance (uS)	1966	5684	6254	4966	5596	8,342	7780	7,621	6388	6035	5560	--
Turbidity (NTU)	36	70	19	44	15	151	68	86	108	45	51	--
Dissolved Oxygen (ppm)	0.8	1.44	1.54	3.44	1.36	1.3	1.82	1.29	1.01	0.99	1.3	--
ORP (mV)	251	78	95	- 82	-9	84	-7	118	242	- 136	-24	--
Visual Observation	black	black	clear	clear	clear	orange/brown	light brown	yellow	yellow	clear	clear	--
Volatile Organic Compounds (mg/L):												
Benzene	**2.2**	**4.7**	**2.7**	**0.0013**	**6.7**	**6.9**	**0.014**	**21**	**140**	**9.4**	**0.0019**	0.001
Wet Chemistry (mg/L):												
Alkalinity	109	12.9	7.5	230	157	ND	162	ND	ND	507	179	--

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
4. "B" = Analyte is found in the associated blank, as well as the sample.
5. " D " = Analysis performed at the secondary dilution factor.
6. " 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.

TABLE 9

SUMMARY OF DECEMBER 2017 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)	4.54	4.46	4.69	4.03	4.57	4.95	5.89	5.46	3.12	5.20	5.12	--
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)	6.20	6.50	6.30	6.70	6.10	6.10	5.50	5.90	7.10	6.10	6.10	--
Number of Volumes Purged	6.3	10.0	6.0	4.9	6.7	6.4	5.9	3.9	10.1	6.1	6.8	--
Sample Determination [3]	4-days	volume	4-days	4-days	4-days	4-days	4-days	4-days	volume	4-days	4-days	--
Purge: Day 1 (12/11/17) (gallons)	12.0	15.0	10.0	8.5	8.5	12.0	9.0	7.0		8.0	10.0	--
Purge: Day 2 (12/12/17) (gallons)	9.0	20.0	10.0	8.0	13.5	10.0	8.5	6.5		12.0	9.5	--
Purge: Day 3 (12/13/17) (gallons)	9.0	20.0	9.5	8.5	10.0	9.0	7.5	5.0	60.0	8.0	12.0	--
Purge: Day 4 (12/14/17) (gallons)	9.0	10.0	8.5	8.0	9.0	8.0	7.5	4.5	12.0	9.0	10.0	--
Sample Collection (date indicated)	12/14/17	12/14/17	12/14/17	12/14/17	12/14/17	12/14/17	12/14/17	12/14/17	12/14/17	12/14/17	12/14/17	--
Cumulative Volume Purged (gallons)	39.0	65.0	38.0	33.0	41.0	39.0	32.5	23.0	72.0	37.0	41.5	--
Field Measurements During Sample Collection (units as shown) [3]												
pH (units)	**11.60**	**4.88**	**4.86**	**6.20**	**5.62**	**4.51**	**5.66**	**4.58**	**3.07**	**6.30**	**5.91**	6.5 - 8.5
Temperature (deg C)	9.8	7.7	9.1	9.2	10.1	9.6	11.2	10.1	11.1	7.0	10.9	--
Specific Conductance (uS)	1601	4986	6430	2348	4844	9636	5197	7502	8219	4804	3909	--
Turbidity (NTU)	8.16	25.5	22.4	34.4	37.2	17	31	60.7	49	843	36	--
Dissolved Oxygen (ppm)	0.23	3.66	2.52	3.16	2.8	2.48	2.17	4.41	1.57	2.26	2.66	--
ORP (mV)	-30.5	84	67	-5	12	66	15	78	239	-64	-59	--
Visual Observation	clear	clear	clear	clear	clear	clear	light brown	light brown	clear	brown	clear	--
Volatile Organic Compounds (mg/L):												
Benzene	**1.1**	**2.2**	**2.1**	**0.00047**	**3.8**	**4.2**	**0.0033**	**17**	**1.1**	**86**	**0.00067**	0.001
Wet Chemistry (mg $CaCO_3$/L):												
Alkalinity	200	13.5	21.9	306	167	ND	182	9.7	507	ND	219	--

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.

TURNKEY ENVIRONMENTAL RESTORATION, LLC

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	Cyanide
Area I Monitoring Wells									
A1-MW-1	**14**	**NA**	NA	NA	NA	NA	NA	NA	--
A1-MW-2	**14**	**NA**	NA	NA	NA	NA	NA	NA	--
A1-MW-3	**14**	**NA**	NA	NA	NA	NA	NA	NA	--
A1-MW-5	**15**	**12**	**N**	NA	NA	NA	NA	NA	--
A1-MW-6	**15**	**12**	NA	NA	NA	NA	**D**	**D**	--
A1-MW-7	**7**	**NA**	NA	NA	NA	NA	NA	NA	--
A1-MW-8R	**2**	**0**	NA	NA	NA	NA	NA	NA	--
A1-MW-9	**15**	**NA**	NA	NA	NA	NA	NA	NA	--
A1-MW-10	**2**	**0**	NA	NA	NA	NA	NA	NA	--
Area II Monitoring Wells									
A2-MW-3	**12**	**NA**	NA	NA	NA	NA	NA	NA	--
A2-MW-4R	**12**	**NA**	NA	NA	NA	NA	NA	NA	--
A2-MW-5	**12**	**NA**	NA	NA	NA	NA	NA	NA	--
A2-MW-10R	**11**	**NA**	NA	NA	NA	NA	NA	NA	--
A2-MW-13	**12**	**NA**	NA	NA	NA	NA	NA	NA	--
A2-MW-16	**12**	**9**	**N**	**N**	NA	NA	NA	NA	--
A2-MW-17	**12**	**NA**	NA	NA	NA	NA	NA	NA	--
Area III Monitoring Wells									
A3-MW-3	**9**	**6**	NA	NA	NA	NA	NA	NA	**D**
A3-MW-6	**10**	**NA**	NA	NA	NA	NA	NA	NA	NA
A3-MW-7	**12**	**9**	**N**	**D**	NA	NA	NA	NA	**N**
A3-MW-9	**11**	**8**	**N**	**D**	NA	NA	NA	NA	NA
A3-MW-10	**11**	**8**	**N**	**D**	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".

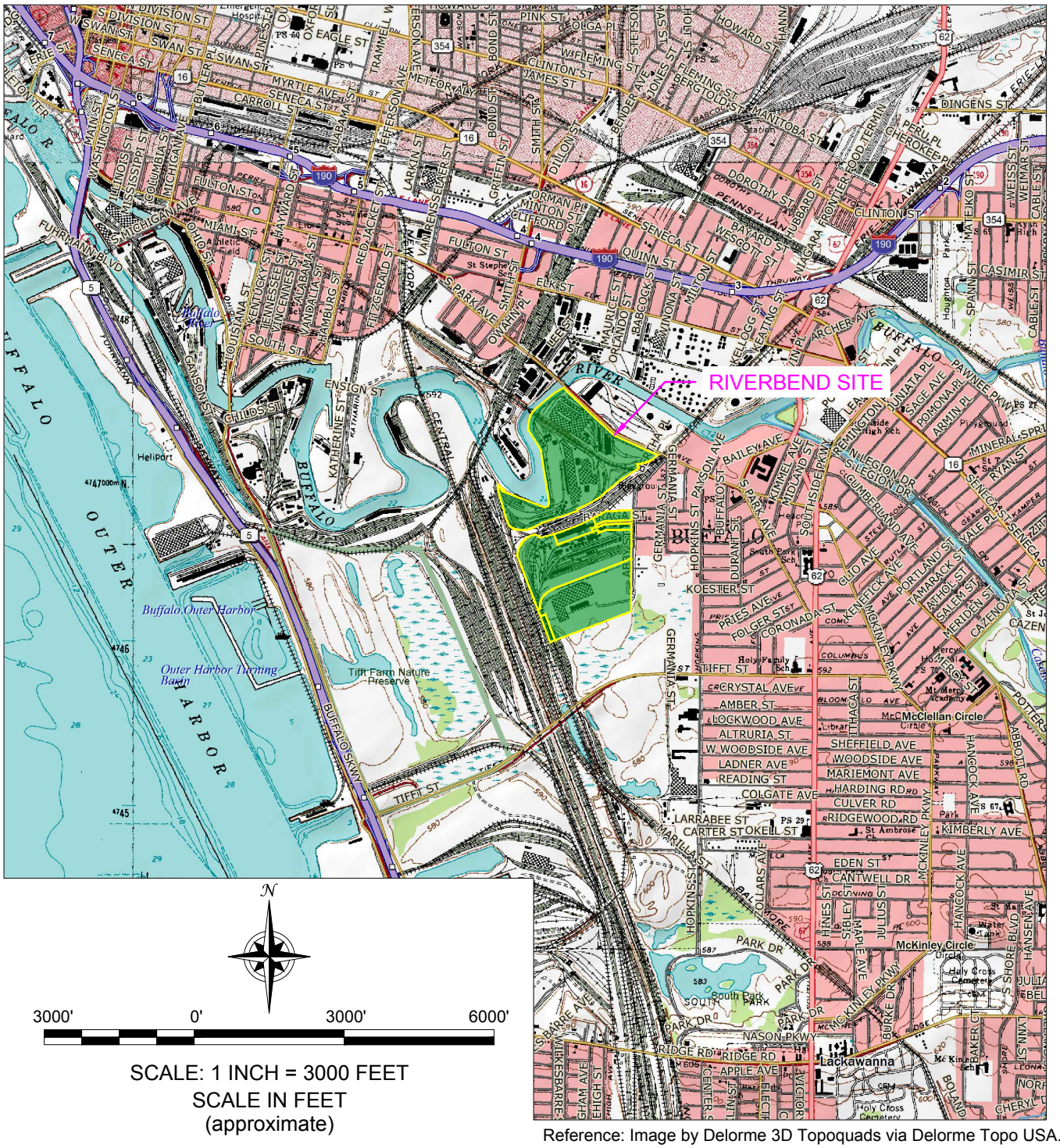
Color Code:

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

FIGURES

F:\CAD\TurnKey\Riverbend (formerly Steelfields)\LTGWM Program\2017 Comprehensive GWM Report\Figure 1; Site Vicinity and Location Map (2017).dwg

FIGURE 1



SCALE: 1 INCH = 3000 FEET
SCALE IN FEET
(approximate)

Reference: Image by Delorme 3D Topoquads via Delorme Topo USA.

TURNKEY ENVIRONMENTAL RESTORATION, LLC

2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

PROJECT NO.: 0322-016-500

DATE: MARCH 2018

DRAFTED BY: BCH-CMC

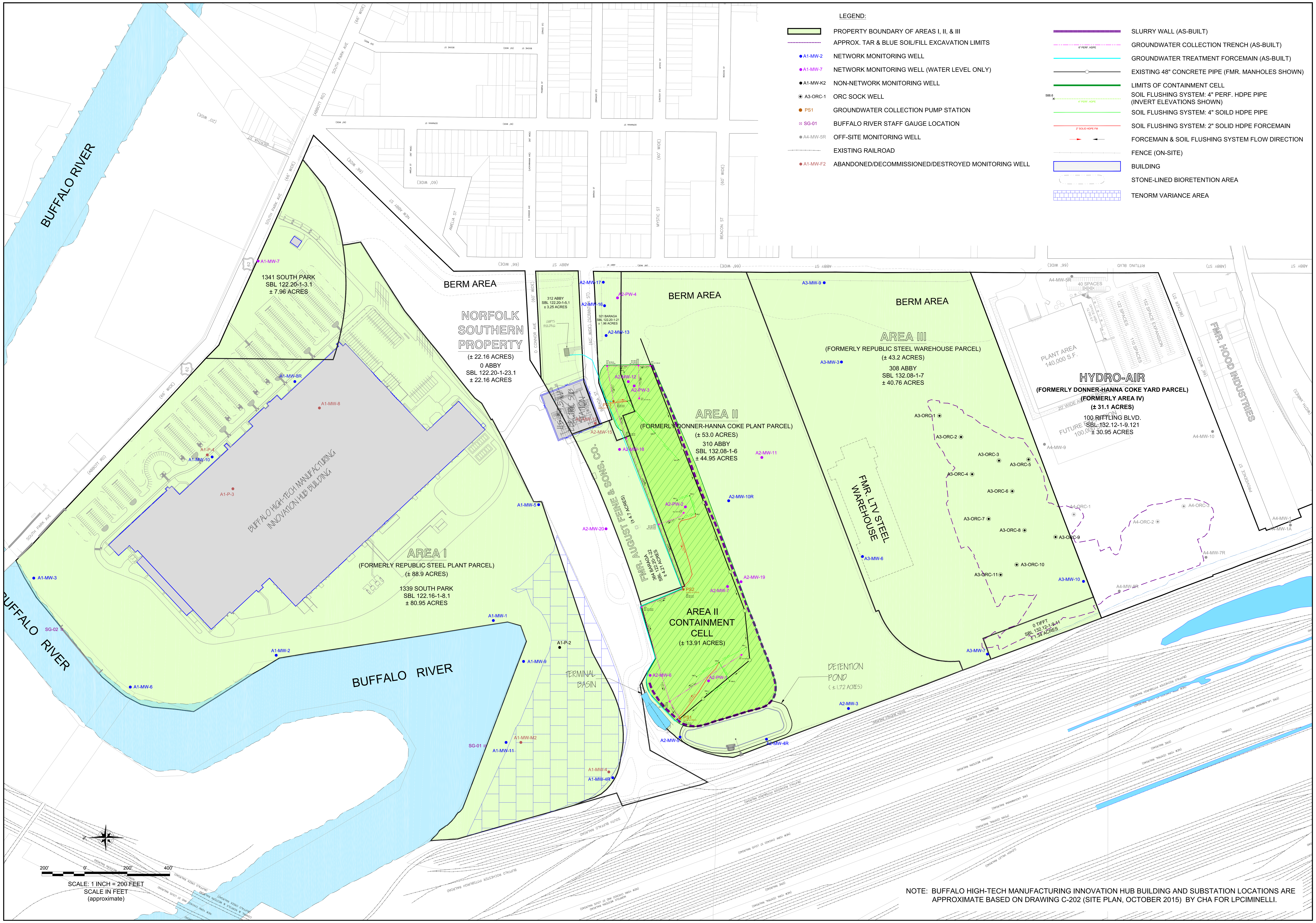
SITE VICINITY & LOCATION MAP

ANNUAL GROUNDWATER MONITORING REPORT

RIVERBEND SITE
BUFFALO, NEW YORK

PREPARED FOR

FORT SCHUYLER MANAGEMENT CORPORATION



LEGEND:
PROPERTY BOUNDARY OF AREAS I, II, & III
APPROX. TAR & BLUE SOIL/FILL EXCAVATION LIMITS
NETWORK MONITORING WELL
NETWORK MONITORING WELL (WATER LEVEL ONLY)
NON-NETWORK MONITORING WELL
ORC SOCK WELL
GROUNDWATER COLLECTION PUMP STATION
BUFFALO RIVER STAFF GAUGE LOCATION
OFF-SITE MONITORING WELL
EXISTING RAILROAD
ABANDONED/DECOMMISSIONED/DESTROYED MONITORING WELL
SLURRY WALL (AS-BUILT)
GROUNDWATER COLLECTION TRENCH (AS-BUILT)
GROUNDWATER TREATMENT FORCEMAIN (AS-BUILT)
EXISTING 48" CONCRETE PIPE (FMR. MANHOLES SHOWN)
LIMITS OF CONTAINMENT CELL
SOIL FLUSHING SYSTEM: 4" PERF. HDPE PIPE (INVERT ELEVATIONS SHOWN)
SOIL FLUSHING SYSTEM: 4" SOILD HDPE PIPE
SOIL FLUSHING SYSTEM: 2" SOLID HDPE FORCEMAIN
FORCEMAIN & SOIL FLUSHING SYSTEM FLOW DIRECTION
FENCE (ON-SITE)
BUILDING
STONE-LINED BIORETENTION AREA
TENORM VARIANCE AREA
BUFFALO RIVER
1341 SOUTH PARK
SBL 122.20-1-3.1
± 7.96 ACRES
BERM AREA
NORFOLK SOUTHERN PROPERTY
(± 22.16 ACRES)
0 ABBY
SBL 122.20-1-23.1
± 22.16 ACRES
BUFFALO HIGH-TECH MANUFACTURING INNOVATION HUB BUILDING
AREA I
(FORMERLY REPUBLIC STEEL PLANT PARCEL)
(± 88.9 ACRES)
1339 SOUTH PARK
SBL 122.16-1-8.1
± 80.95 ACRES
BUFFALO RIVER
TERMINAL BASIN
FMR. AUGUST FEINE & SONS, CO.
AREA II
(FORMERLY DONNER-HANNA COKE PLANT PARCEL)
(± 53.0 ACRES)
310 ABBY
SBL 132.08-1-6
± 44.95 ACRES
AREA II
CONTAINMENT CELL
(± 13.91 ACRES)
DETENTION POND
(± 1.72 ACRES)
AREA III
(FORMERLY REPUBLIC STEEL WAREHOUSE PARCEL)
(± 43.2 ACRES)
308 ABBY
SBL 132.08-1-7
± 40.76 ACRES
FMR. LTV STEEL WAREHOUSE
HYDRO-AIR
(FORMERLY DONNER-HANNA COKE YARD PARCEL)
(FORMERLY AREA IV)
(± 31.1 ACRES)
100 RITTLING BLVD.
SBL 132.12-1-9.121
± 30.95 ACRES
PLANT AREA
140,000 S.F.
FMR. HOOD INDUSTRIES
0 TIFFT
SBL 132.12-1-9.1
± 1.34 ACRES
ABBY ST
SOUTH PARK AVE
RITTLING BLVD
200' 0' 200' 400'
SCALE: 1 INCH = 200 FEET
SCALE IN FEET
(approximate)

NOTE: BUFFALO HIGH-TECH MANUFACTURING INNOVATION HUB BUILDING AND SUBSTATION LOCATIONS ARE APPROXIMATE BASED ON DRAWING C-202 (SITE PLAN, OCTOBER 2015) BY CHA FOR LPCIMINELLI.

TurnKey Environmental Restoration, LLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

JOB NO.: 0322-017-500

REVISIONS

NO.	BY	DATE	REMARKS

SEAL

DRAWN BY: BCH
DATE: JULY 2017
CHECKED BY:
APPROVED BY:

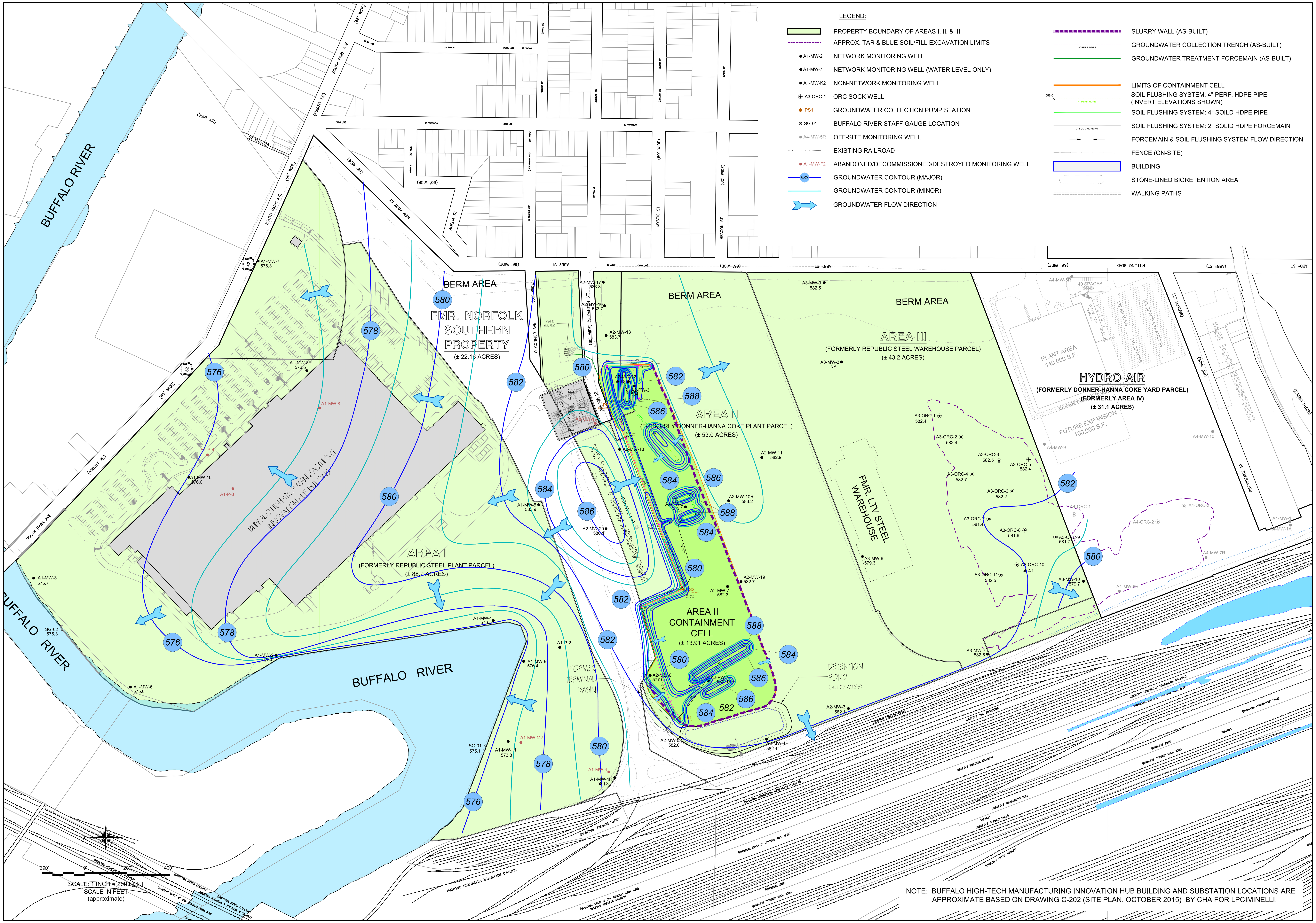
DISCLAIMER: PROPERTY OF BENCHMARK EES, PLLC. IMPORTANT: THIS DRAWING PRINT IS LOANED FOR MUTUAL ASSISTANCE AND AS SUCH IS SUBJECT TO RECALL AT ANY TIME. INFORMATION CONTAINED HEREON IS NOT TO BE DISCLOSED OR REPRODUCED IN ANY FORM FOR THE BENEFIT OF PARTIES OTHER THAN NECESSARY SUBCONTRACTORS & SUPPLIERS WITHOUT THE WRITTEN CONSENT OF BENCHMARK EES, PLLC.

SITE PLAN

ANNUAL GROUNDWATER MONITORING REPORT
FORMER STEEL MANUFACTURING SITE
BUFFALO, NEW YORK

PREPARED FOR
FORT SCHUYLER MANAGEMENT CORPORATION

FIGURE 2


LEGEND:
PROPERTY BOUNDARY OF AREAS I, II, & III
APPROX. TAR & BLUE SOIL/FILL EXCAVATION LIMITS
NETWORK MONITORING WELL
NETWORK MONITORING WELL (WATER LEVEL ONLY)
NON-NETWORK MONITORING WELL
ORC SOCK WELL
GROUNDWATER COLLECTION PUMP STATION
BUFFALO RIVER STAFF GAUGE LOCATION
OFF-SITE MONITORING WELL
EXISTING RAILROAD
ABANDONED/DECOMMISSIONED/DESTROYED MONITORING WELL
GROUNDWATER CONTOUR (MAJOR)
GROUNDWATER CONTOUR (MINOR)
GROUNDWATER FLOW DIRECTION
SLURRY WALL (AS-BUILT)
GROUNDWATER COLLECTION TRENCH (AS-BUILT)
GROUNDWATER TREATMENT FORCEMAIN (AS-BUILT)
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SOIL FLUSHING SYSTEM: 4" PERF. HDPE PIPE (INVERT ELEVATIONS SHOWN)
SOIL FLUSHING SYSTEM: 4" SOILD HDPE PIPE
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FORCEMAIN & SOIL FLUSHING SYSTEM FLOW DIRECTION
FENCE (ON-SITE)
BUILDING
STONE-LINED BIORETENTION AREA
WALKING PATHS
BUFFALO RIVER
BERM AREA
FMR. NORFOLK SOUTHERN PROPERTY
(± 22.16 ACRES)
AREA I
(FORMERLY REPUBLIC STEEL PLANT PARCEL)
(± 88.9 ACRES)
AREA II
(FORMERLY DONNER-HANNA COKE PLANT PARCEL)
(± 53.0 ACRES)
AREA II CONTAINMENT CELL
(± 13.91 ACRES)
AREA III
(FORMERLY REPUBLIC STEEL WAREHOUSE PARCEL)
(± 43.2 ACRES)
HYDRO-AIR
(FORMERLY DONNER-HANNA COKE YARD PARCEL)
(FORMERLY AREA IV)
(± 31.1 ACRES)
FMR. LTV STEEL WAREHOUSE
BUFFALO HIGH-TECH MANUFACTURING INNOVATION HUB BUILDING
FORMER TERMINAL BASIN
DETENTION POND
(± 1.72 ACRES)
PLANT AREA
140,000 S.F.
FUTURE EXPANSION
100,000 S.F.
SOUTH PARK AVE
ABBY ST
SCALE: 1 INCH = 200 FEET
SCALE IN FEET
(approximate)

NOTE: BUFFALO HIGH-TECH MANUFACTURING INNOVATION HUB BUILDING AND SUBSTATION LOCATIONS ARE APPROXIMATE BASED ON DRAWING C-202 (SITE PLAN, OCTOBER 2015) BY CHA FOR LPCIMINELLI.

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2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

JOB NO.: 0322-017-500

REVISIONS

NO.	BY	DATE	REMARKS

SEAL

DRAWN BY: CMC
DATE: MARCH 2018
CHECKED BY:
APPROVED BY:

ISOPOTENTIAL MAP FOR JULY 14 2017

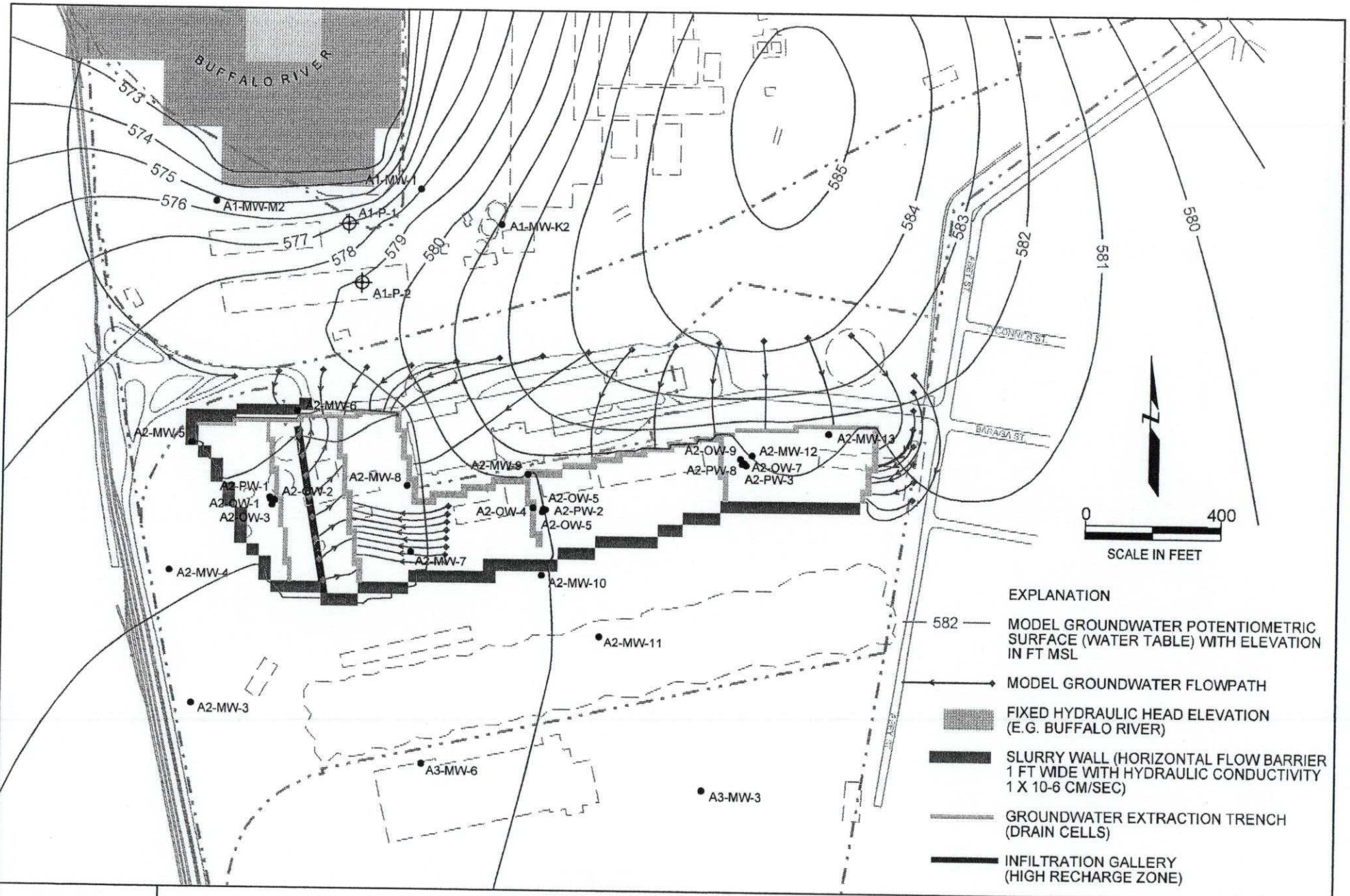
ANNUAL GROUNDWATER MONITORING REPORT
FORMER STEEL MANUFACTURING SITE
BUFFALO, NEW YORK

PREPARED FOR
FORT SCHUYLER MANAGEMENT CORPORATION

FIGURE 3

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

CHECKED:_____ \\SFPRNT2\Splash Hold Job-Name\matrix.ctb

q:\buffalo\b4991\gfm_981f_fig_11.dgn

ATTACHMENT 2

CONCENTRATION VERSUS TIME & MOVING AVERAGE TREND ANALYSIS (MATA) PLOTS

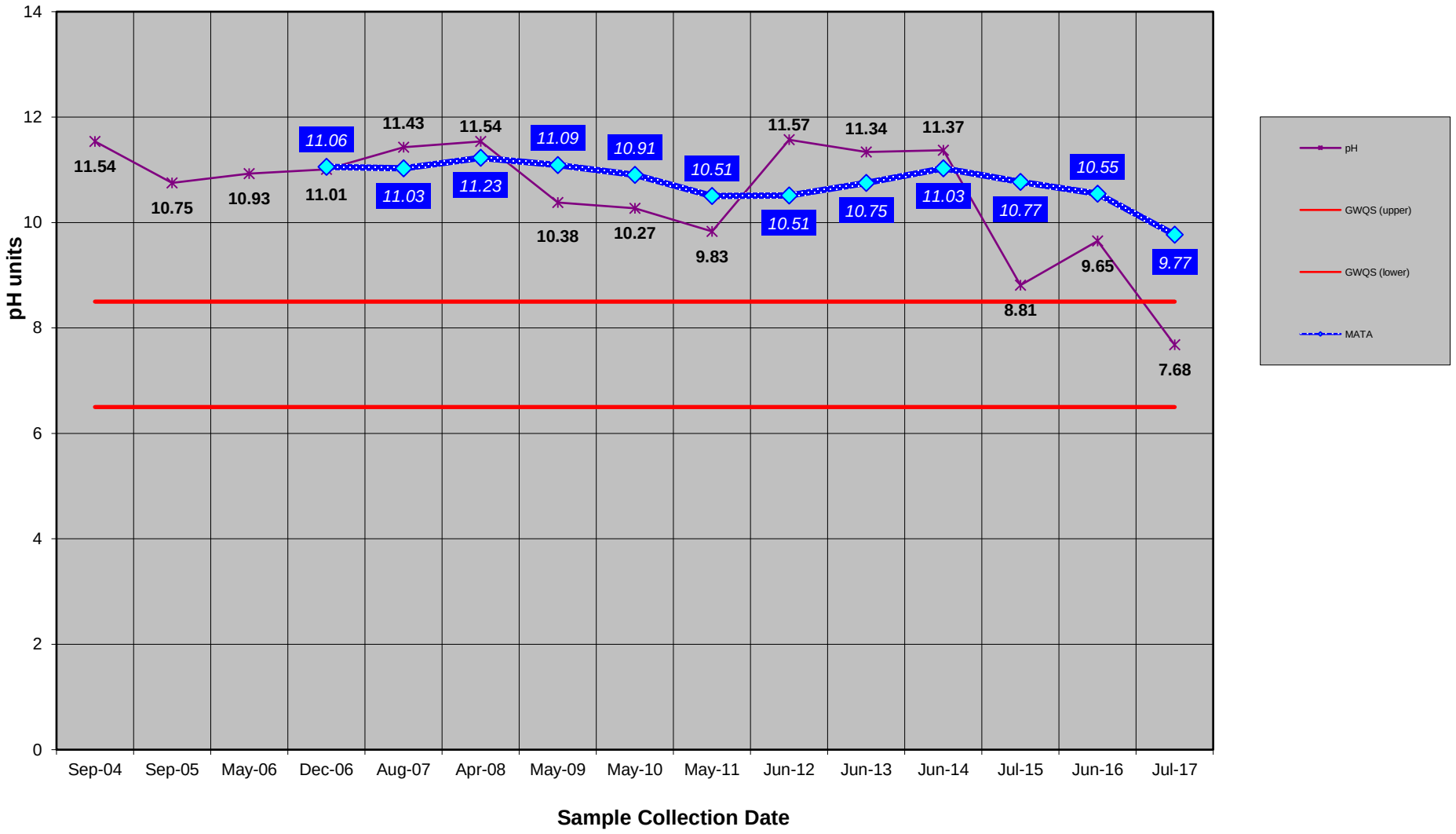
ATTACHMENT 2A

pH

ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A1-MW-5
pH

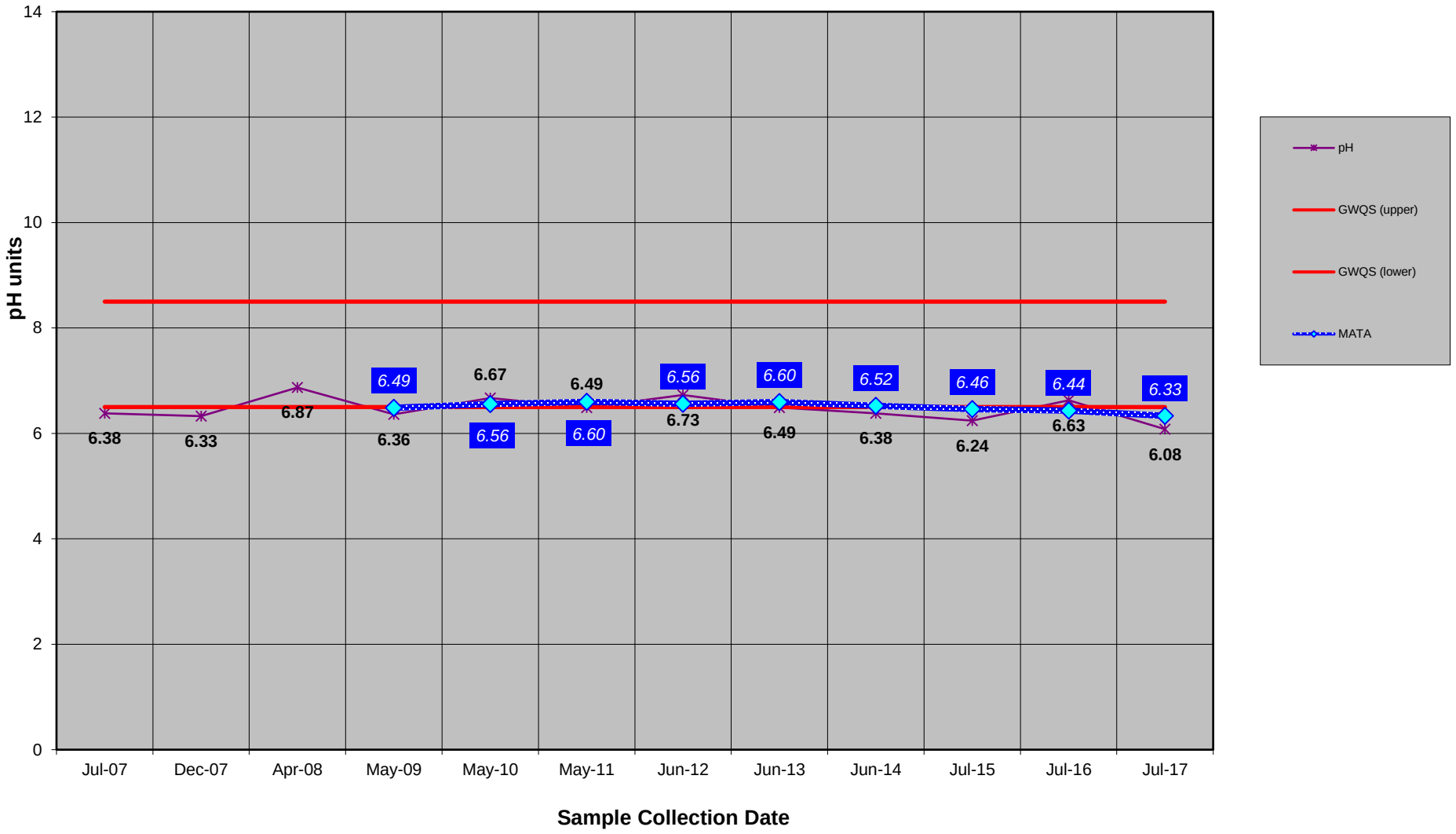
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A2-MW-16
pH

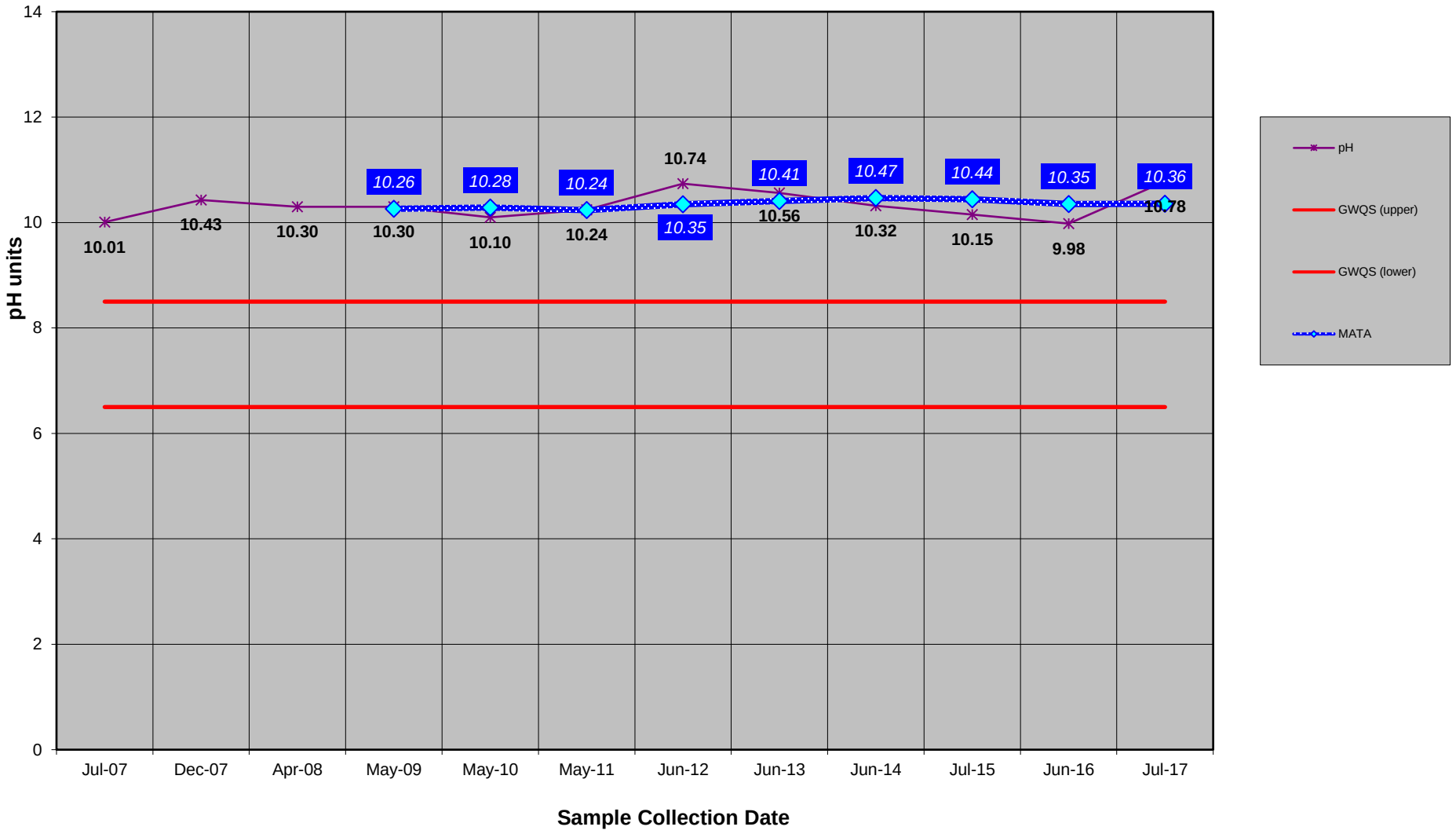
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A3-MW-7
pH

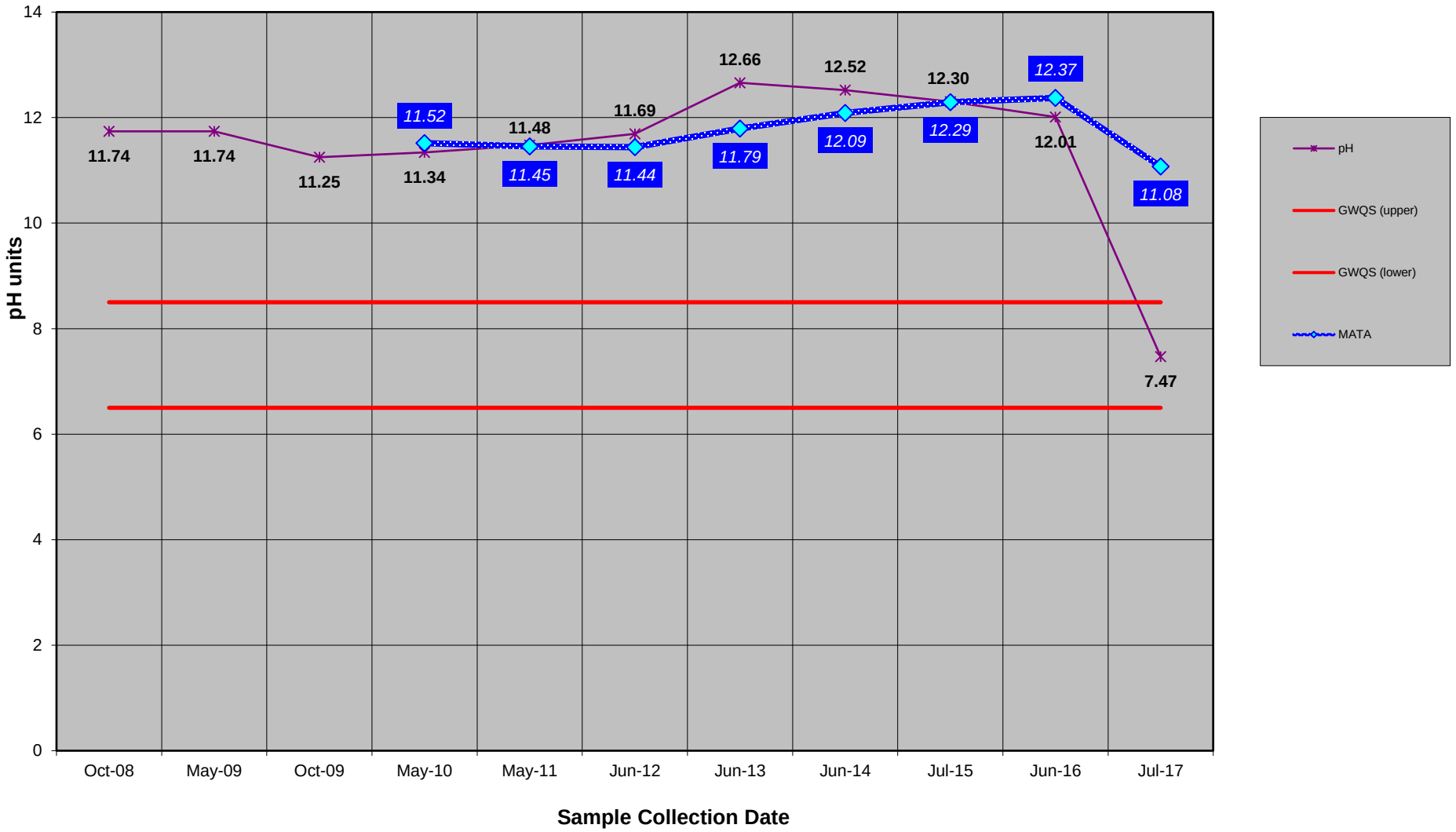
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A3-MW-9
pH

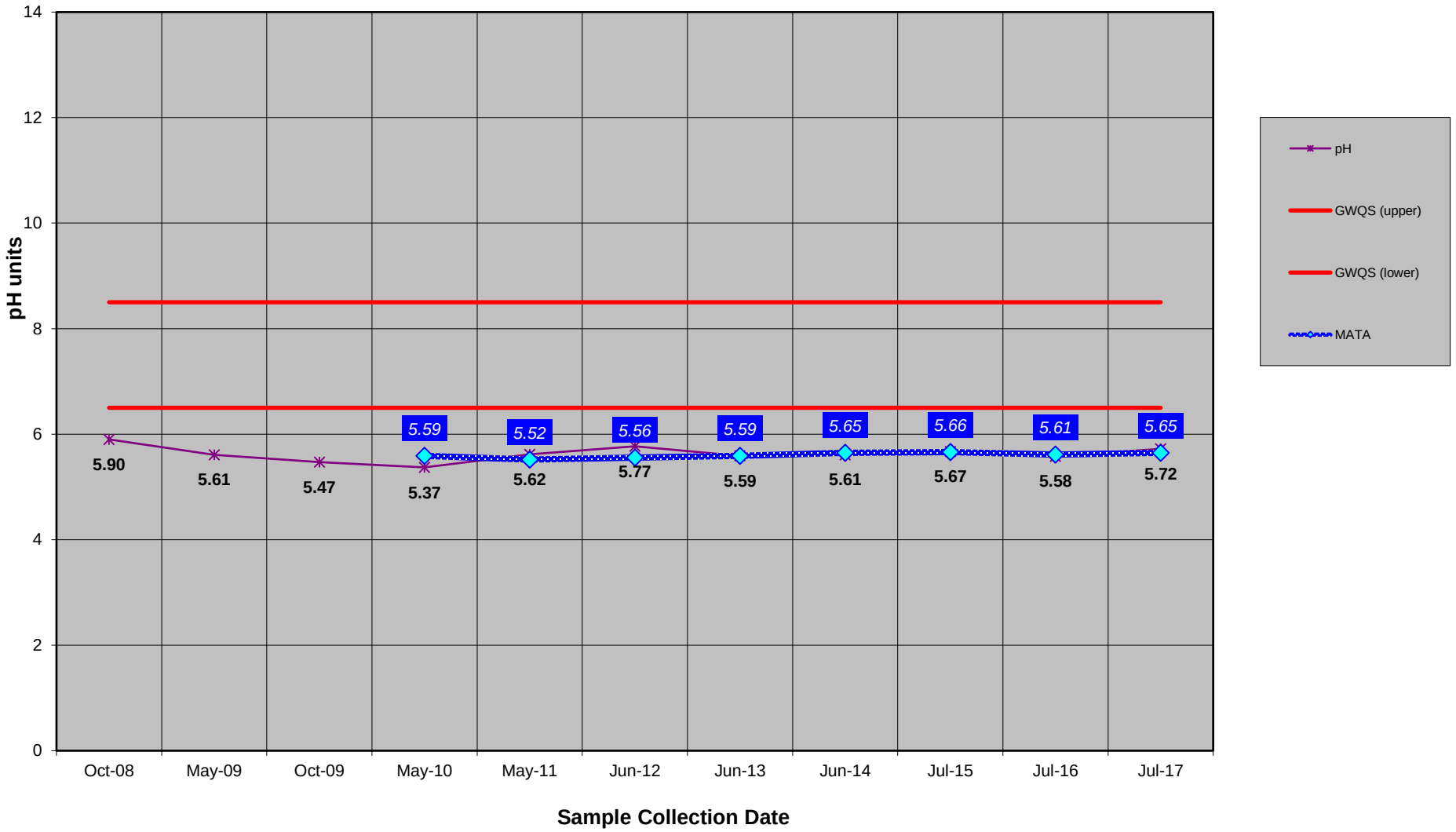
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A3-MW-10
pH

Riverbend Area I LTGWM
Buffalo, New York



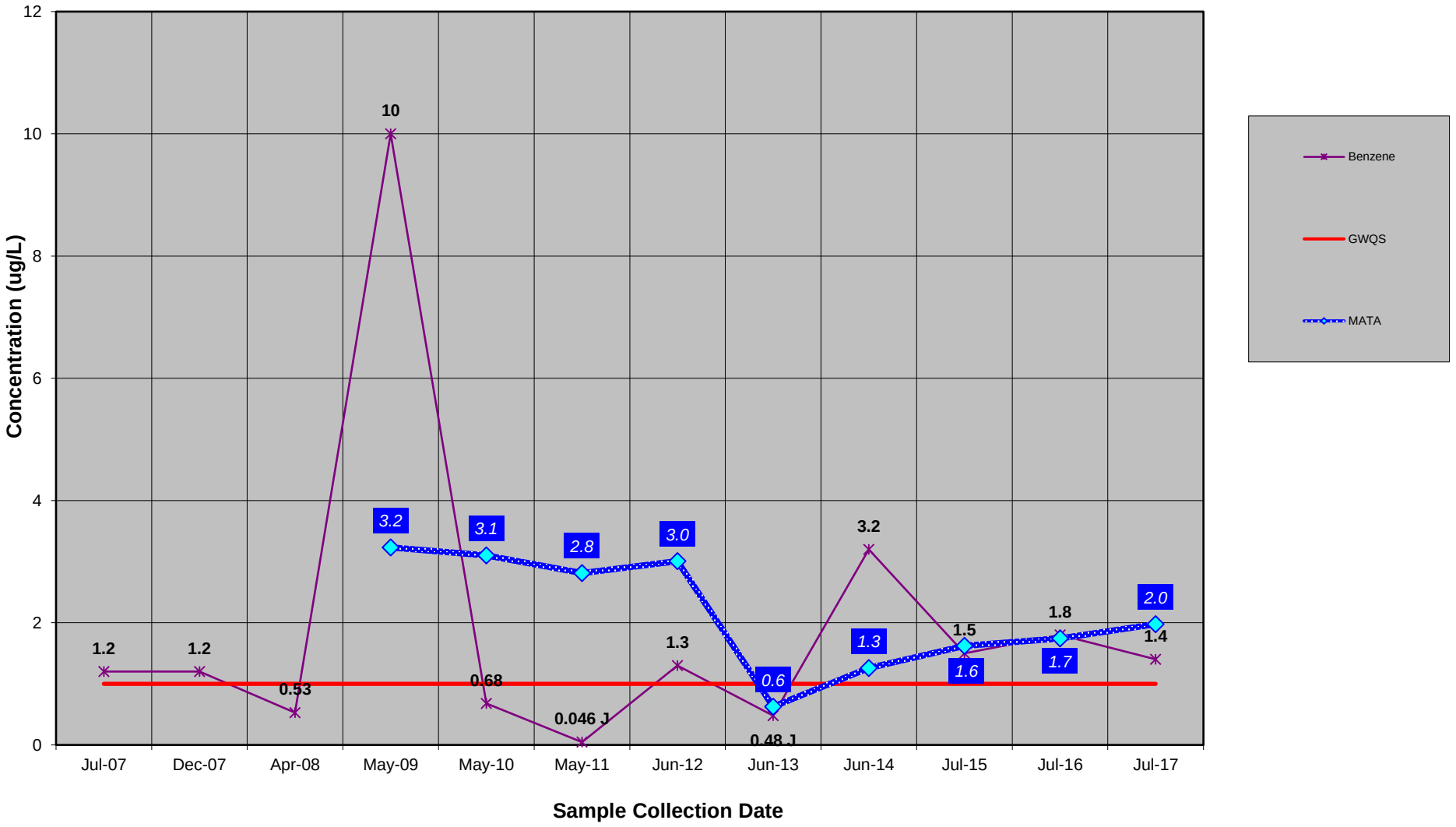
ATTACHMENT 2B

BENZENE

ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A2-MW-16
BENZENE

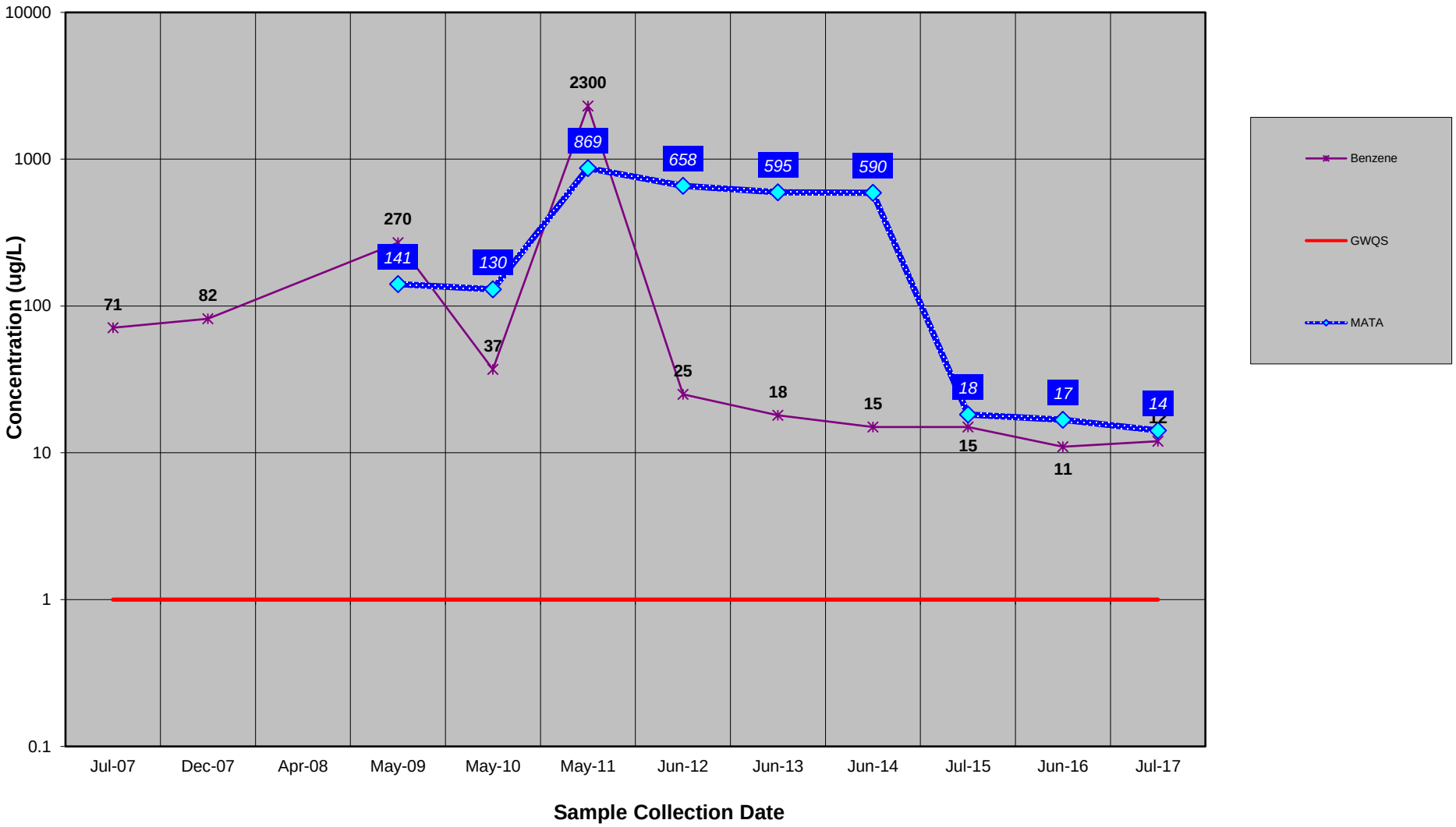
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A3-MW-7
BENZENE

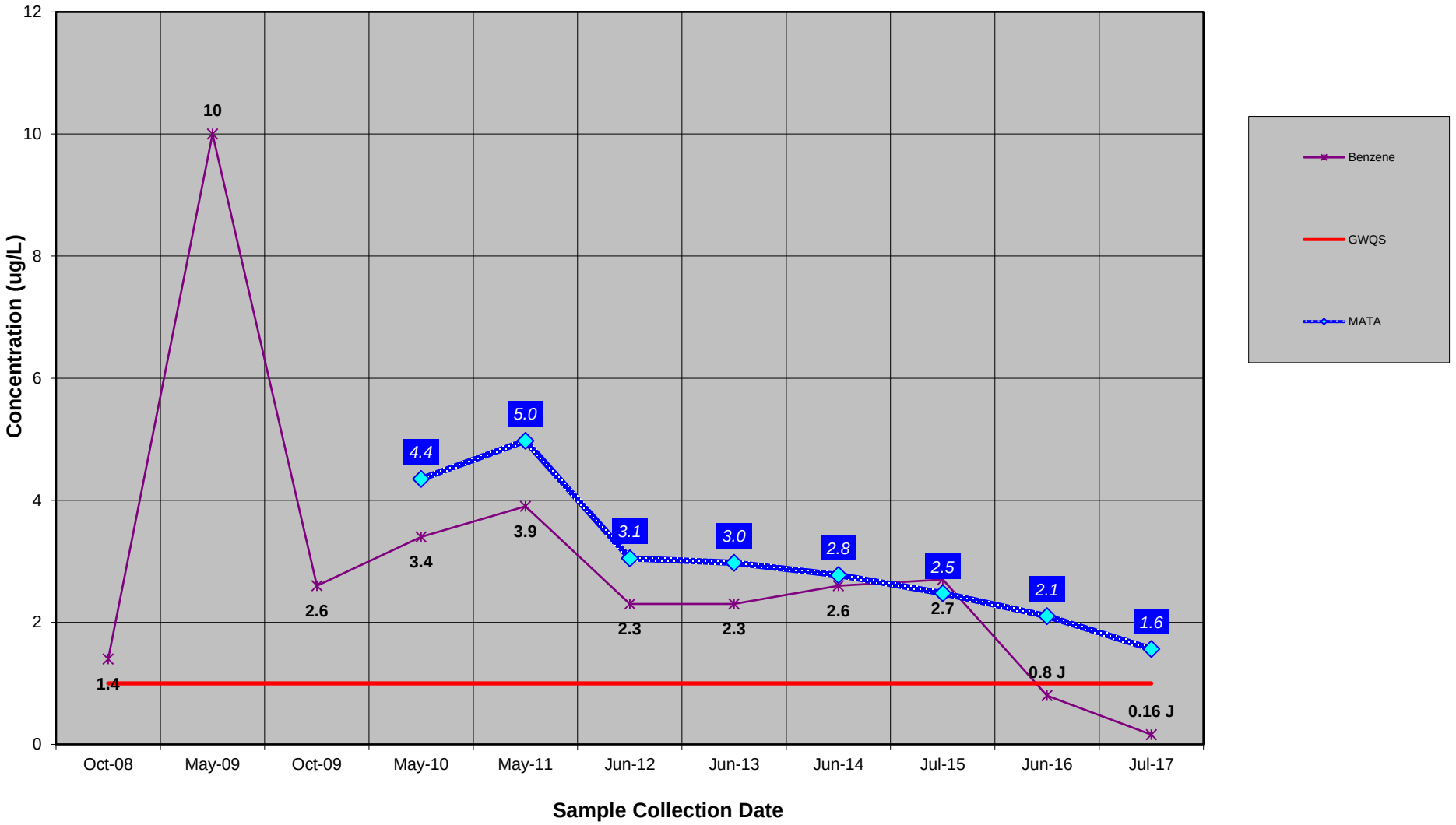
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A3-MW-9
BENZENE

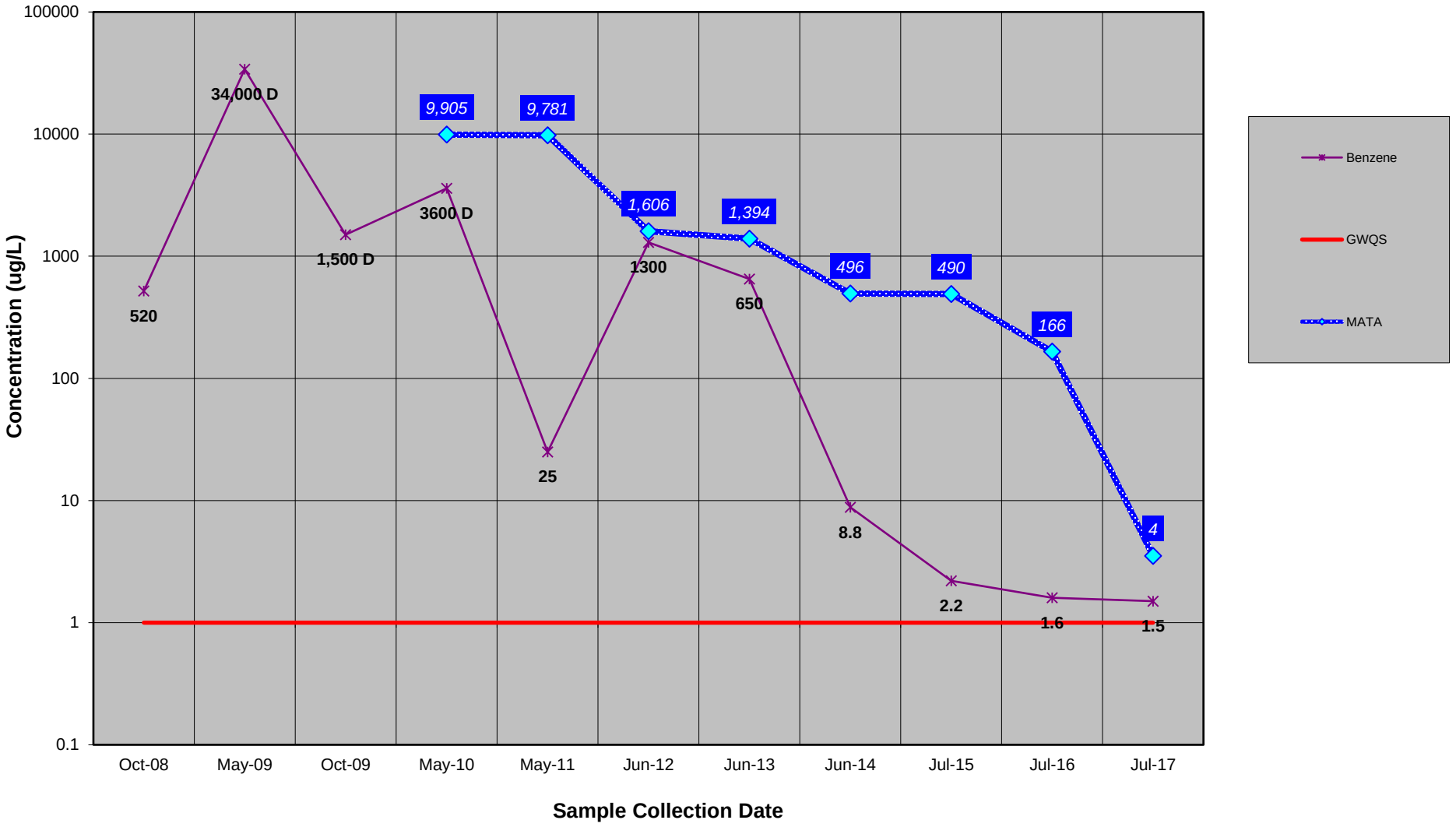
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A3-MW-10
BENZENE

Riverbend Area I LTGWM
Buffalo, New York



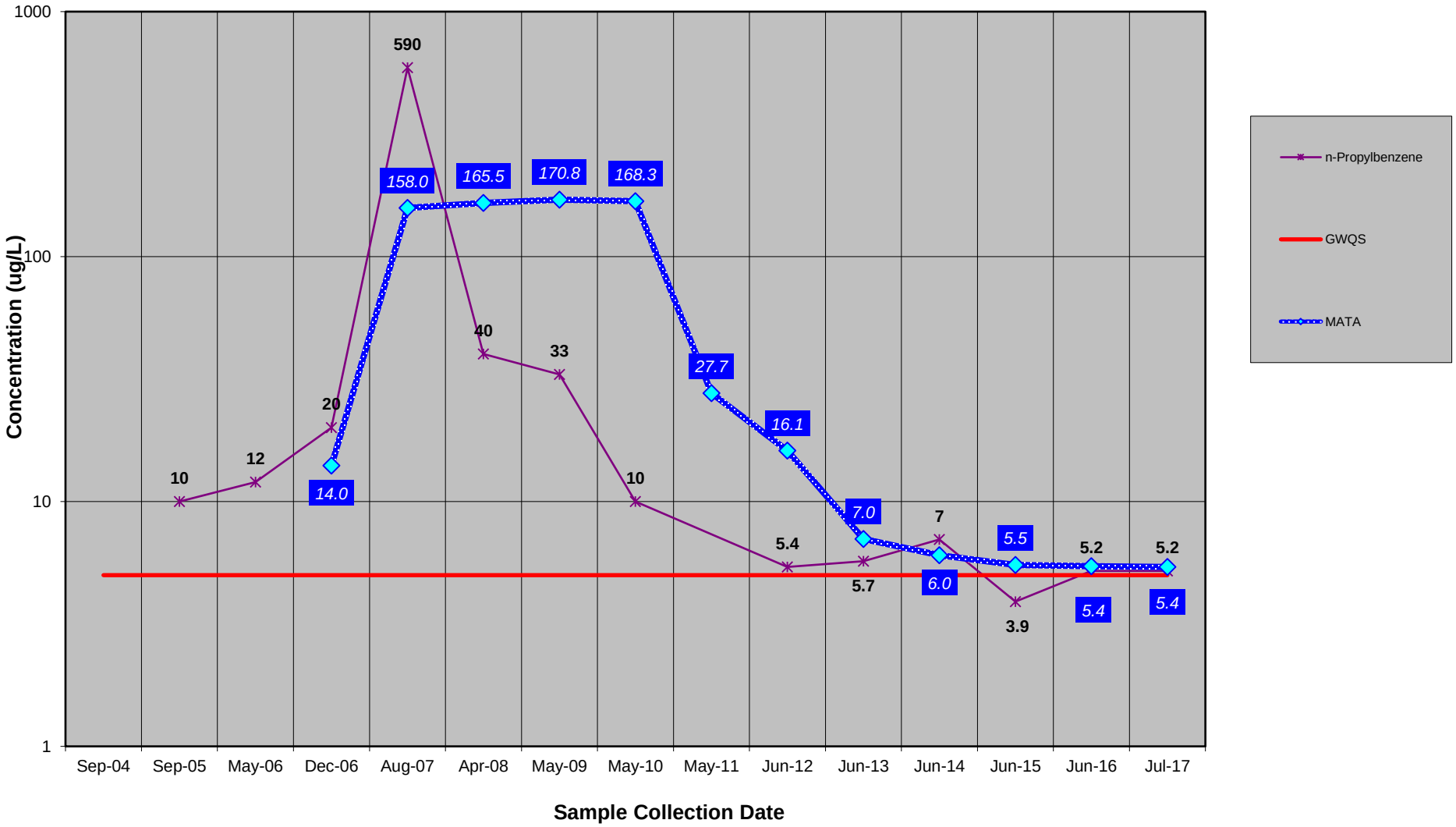
ATTACHMENT 2C

N-PROPYLBENZENE

ATTACHMENT 2

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

Riverbend Area I LTGWM
Buffalo, New York



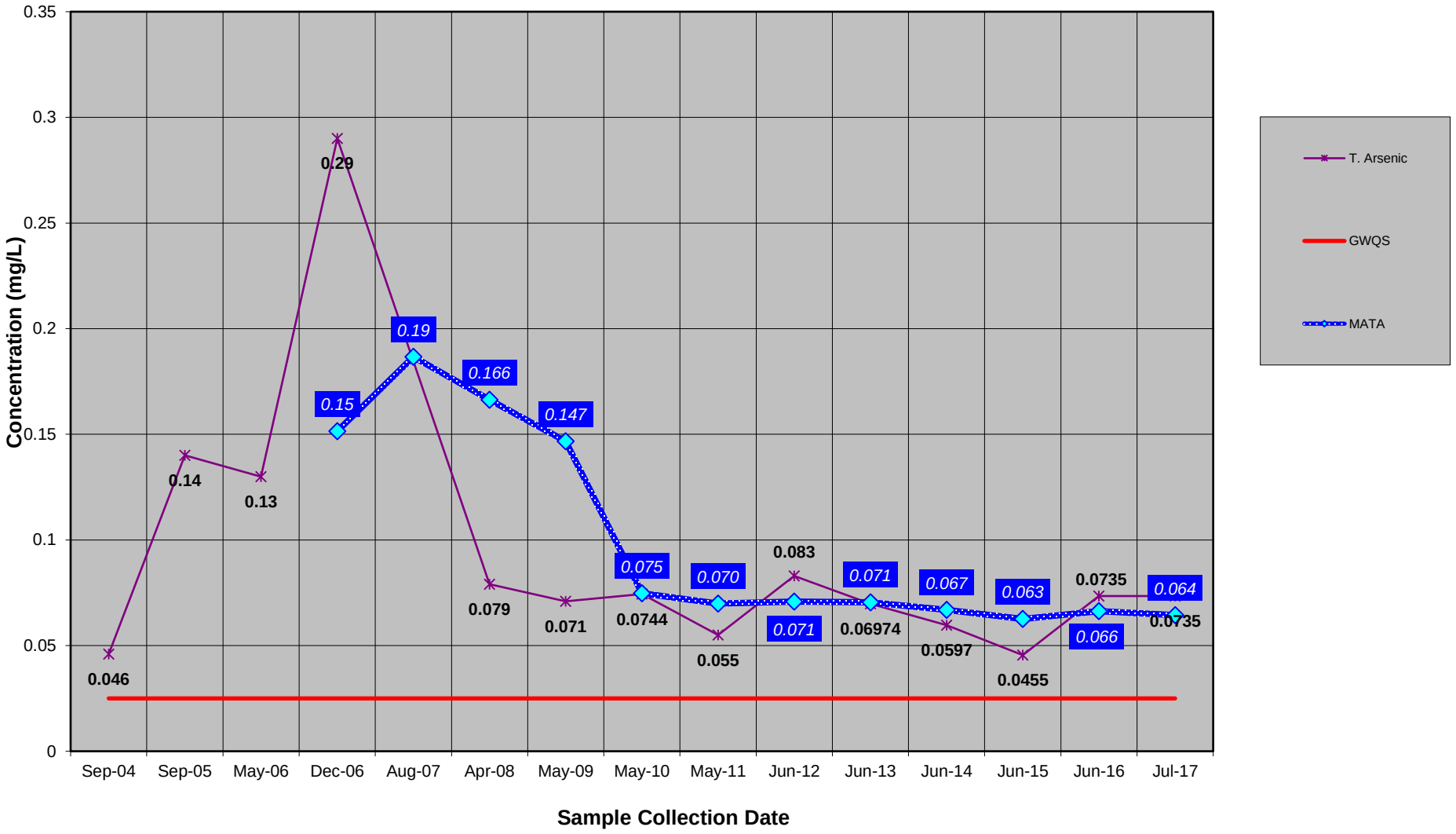
ATTACHMENT 2D

TOTAL ARSENIC

ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A1-MW-6
TOTAL ARSENIC

Riverbend Area I LTGWM
Buffalo, New York



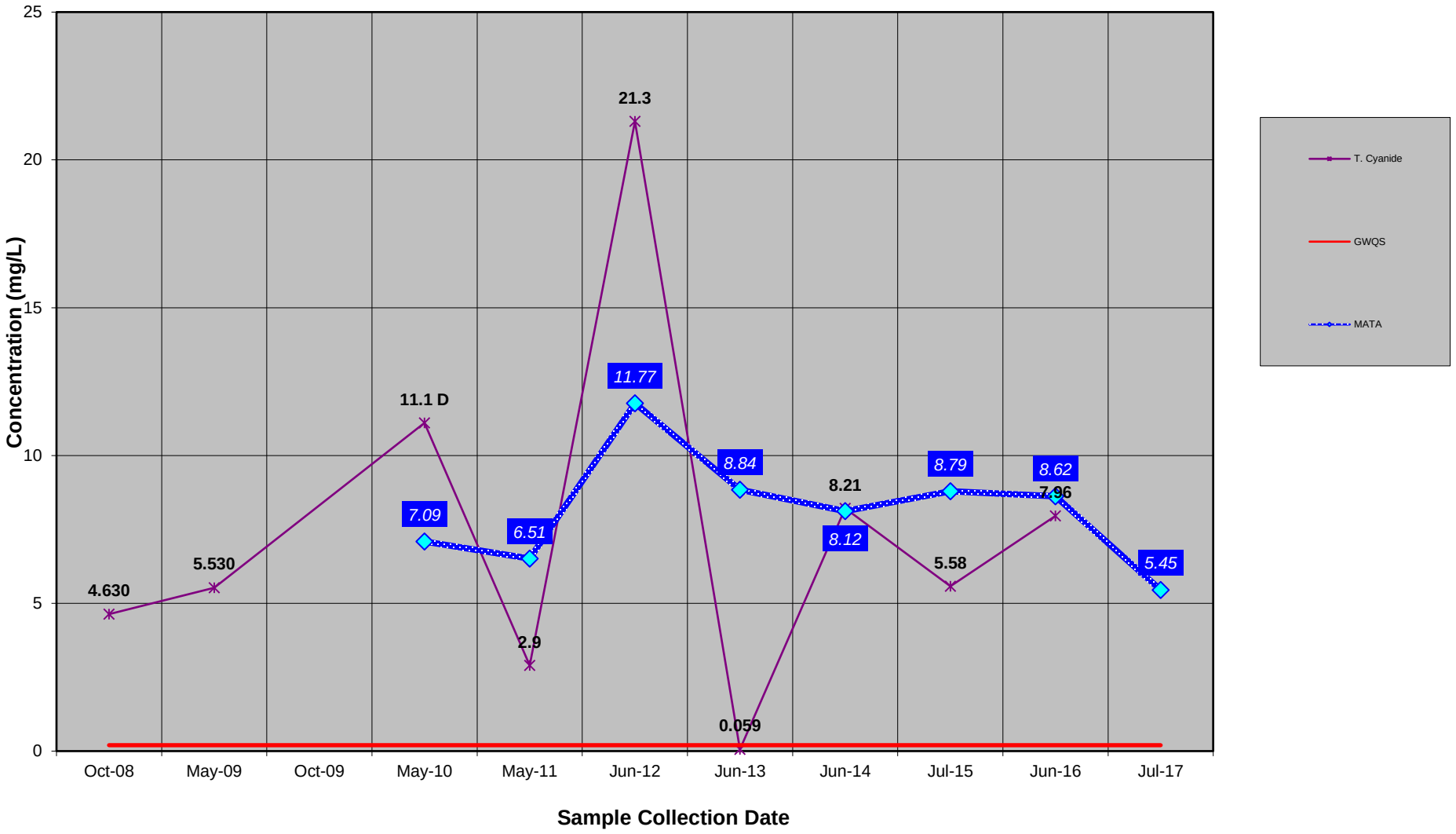
ATTACHMENT 2E

TOTAL CYANIDE

ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A3-MW-3
TOTAL CYANIDE

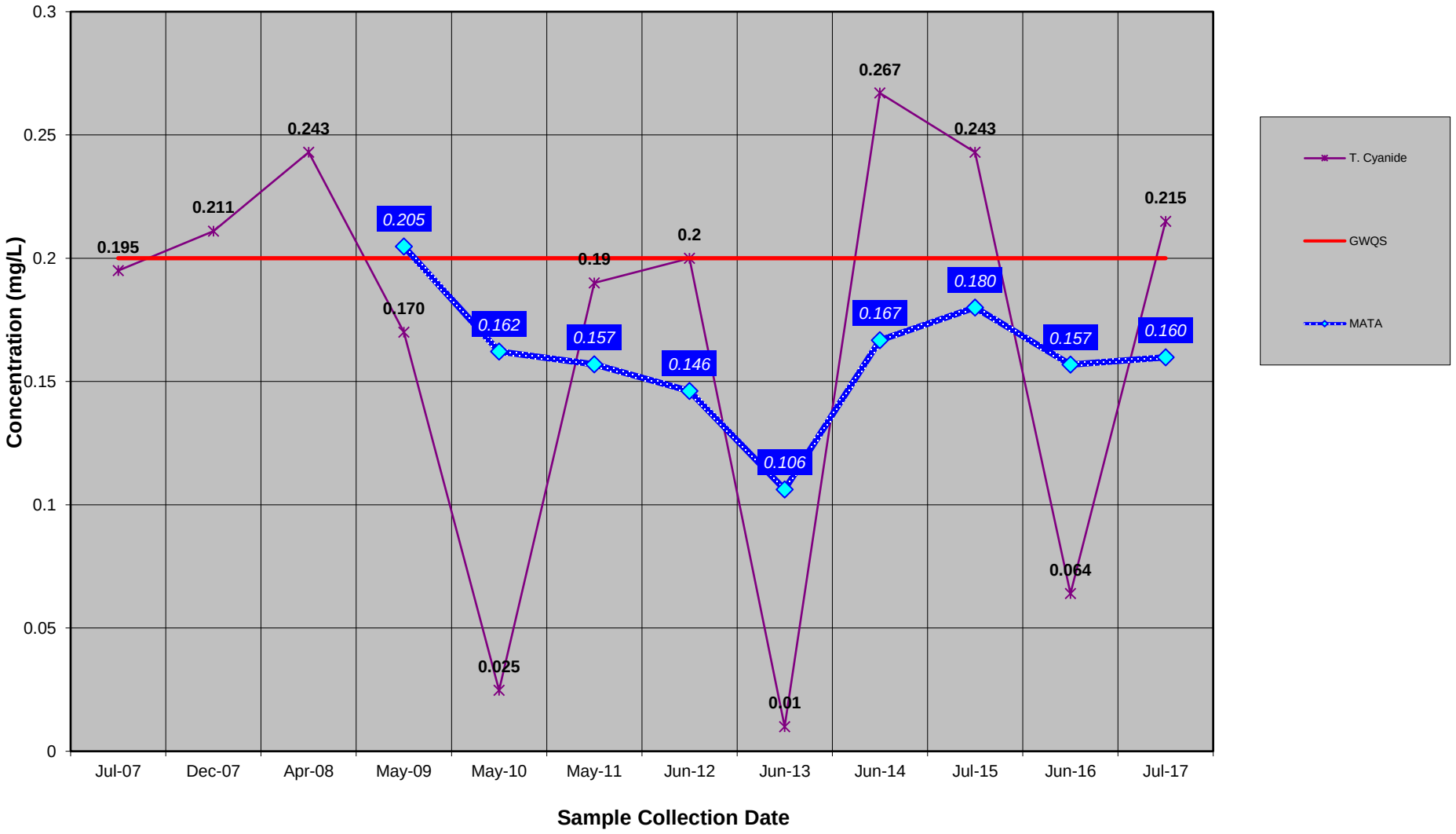
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 2

MOVING AVERAGE TREND ANALYSIS
A3-MW-7
TOTAL CYANIDE

Riverbend Area I LTGWM
Buffalo, New York



APPENDIX D

AREA III

ORC ANNUAL INSPECTION FORMS
JUNE & DECEMBER

ORC WELL ANNUAL INSPECTION FORM

Project Name: RiverBend Site - LTGWM | Project No.: 0322-017-500

Project Location: Area III | Client: FSMC

Preparer's Name: Chester Bachreiter | Date/Time: 12-14-17 / 1400

sample location:	A3-ORC-1	A3-ORC-2	A3-ORC-3	A3-ORC-4	A3-ORC-5	A3-ORC-6
purge start date:	12-11-17	12-11-17	12-11-17	12-11-17	12-11-17	12-11-17
purge end date:	12-14-17	12-14-17	12-14-17	12-14-17	12-14-17	12-14-17
volume purged (gallons):	39	65	38	33	41	39

Field groundwater quality measurements:

sample date:	12-14-17	12-14-17	12-14-17	12-14-17	12-14-17	12-14-17
sample time:	1340	1320	1300	1235	1215	1150
DTW (fbTOR)	4.43	4.55	4.87	4.15	4.73	5.20
pH (units)	11.66	4.88	4.86	6.20	5.62	4.51
Temp. (deg F)	9.8	7.7	9.1	9.20	10.1	9.6
SC (uS)	1601	4986	6430	3348	4844	9636
Turbidity (NTU)	8.16	35.5	22.4	34.4	37.2	17
DO (ppm)	0.33	3.66	2.52	3.16	2.80	2.48
ORP (mV)	-305	84	67	-5	12	66

Well Integrity Observations:

Cement seal	good	good	good	good	good	good
Pro-Casing condition	NA	NA	NA	NA	NA	NA
Lock condition	good	good	good	good	good	good
J-plug condition	good	good	good	good	good	good

Refer to Site Plan for well locations

ORC Sock's:

Have any Socks been replaced? ☐ yes ☒ no

If replaced, provide date and explanation:

Are socks fully submerged in well screens. ☒ yes ☐ no

If no, explain.

Are all ORC wells being sampled and maintained according to the site management plan ☒ yes ☐ no

If no, explain.

Initial: CEH Date: 12-14-17

ORC WELL ANNUAL INSPECTION FORM

Project Name: RiverBend Site - LTGWM | Project No.: 0322-016-500

Project Location: Area III | Client: FSMC

Preparer's Name: Chester Hochreiter | Date/Time: 12-14-17 / 1400

sample location:	A3-ORC-7	A3-ORC-8	A3-ORC-9	A3-ORC-10	A3-ORC-11	
purge start date:	12-11-17	12-11-17	12-13-17	12-11-17	12-11-17	
purge end date:	12-14-17	12-14-17	12-14-17	12-14-17	12-14-17	
volume purged (gallons):	32.50	23	72	37	41.50	

Field groundwater quality measurements:

sample date:	12-14-17	12-14-17	12-14-17	12-14-17	12-14-17	
sample time:	1130	1115	1100	1030	1000	
DTW (fbTOR)	5.65	5.61	3.17	5.38	5.02	
pH (units)	5.66	4.58	3.07	6.30	5.91	
Temp. (deg F)	11.2	10.1	11.1	7.0	10.91	
SC (uS)	5197	7502	8219	4864	3909	
Turbidity (NTU)	31.6	60.7	49	843	36	
DO (ppm)	2.17	4.41	1.57	2.26	2.66	
ORP (mV)	15	78	239	-64	-59	

Well Integrity Observations:

Cement seal	good	good	good	good	good	
Pro-Casing condition	NA	NA	NA	NA	NA	
Lock condition	good	good	good	good	good	
J-plug condition	good	good	good	good	good	

Refer to Site Plan for well locations

ORC Sock's:

Have any Socks been replaced? ☐ yes ☒ no

If no, explain.

Are socks fully submerged in well screens. ☒ yes ☐ no

If no explain why.

Are all ORC wells being sampled and maintained according to the site management plan ☒ yes ☐ no

If no, explain.

Initial: CEH Date: 12-14-17

ORC WELL ANNUAL INSPECTION FORM

Project Name: RiverBend Site - LTGWM | Project No.: 0322-016-500

Project Location: Area III | Client: FSMC

Preparer's Name: RLD | Date/Time: 7/28/17

sample location:	A3-ORC-1	A3-ORC-2	A3-ORC-3	A3-ORC-4	A3-ORC-5	A3-ORC-6
purge start date:	7/24/17	7/24/17	7/24/17	7/24/17	7/24/17	7/24/17
purge end date:	7/27/17	7/27/17	7/27/17	7/27/17	7/27/17	7/27/17
volume purged (gallons):	36.25	66	39.25	37	50.5	37.5

Field groundwater quality measurements:

sample date:	7/27/17	7/27/17	7/27/17	7/27/17	7/27/17	7/27/17
sample time:	0847	0922	0941	0904	1016	1030
DTW (fbTOR)	12.05	12.17	13.10	12.70	12.20	13.08
pH (units)	10.01	5.35	5.35	6.45	5.98	5.18
Temp. (deg F)	15.3	16.2	16	16.2	16.2	15.4
SC (uS)	1966	5684	6254	4966	5596	6342
Turbidity (NTU)	36	70	19	44	15	151
DO (ppm)	.80	1.44	1.54	3.44	1.36	1.30
ORP (mV)	+251	+78	+95	-82	-9	+84

Well Integrity Observations:

Cement seal	Good	good	Good	Good	Good	good
Pro-Casing condition	N/A	N/A	N/A	N/A	NA	N/A
Lock condition	Good	Good	Good	Good	Good	Good
J-plug condition	Good	good	Good	Good	Good	Good

Refer to Site Plan for well locations

ORC Sock's:

Have any Socks been replaced? ☐ yes ☒ no

If replaced, provide date and explanation:

Are socks fully submerged in well screens. ☒ yes ☐ no

If no, explain.

Are all ORC wells being sampled and maintained according to the site management plan ☒ yes ☐ no

If no, explain.

Initial: RLD Date: 7/31/17

ORC WELL ANNUAL INSPECTION FORM

Project Name: RiverBend Site - LTGWM | Project No.: 0322-016-500

Project Location: Area III | Client: FSMC

Preparer's Name: RLD | Date/Time: 7/31/17

sample location:	A3-ORC-7	A3-ORC-8	A3-ORC-9	A3-ORC-10	A3-ORC-11
purge start date:	7/24/17	7/24/17	7/26/17	7/24/17	7/24/17
purge end date:	7/27/17	7/27/17	7/27/17	7/27/17	7/27/17
volume purged (gallons):	35.75	22.25	87	39	72.5

Field groundwater quality measurements:

sample date:	7/27/17	7/27/17	7/27/17	7/27/17	7/27/17
sample time:	1054	1043	1154	1139	1125
DTW (fbTOR)	12.80	10.40	7.85	13.38	11.54
pH (units)	5.84	5.05	4.24	6.40	5.93
Temp. (deg F)	16.3	17.7	16.7	16.5	17.9
SC (uS)	7780	7621	6388	6035	5560
Turbidity (NTU)	68	86	108	45	51
DO (ppm)	1.82	1.29	1.01	0.99	1.30
ORP (mV)	-7	+118	+242	-136	-24

Well Integrity Observations:

Cement seal	Good	Good	Good	Good	Good
Pro-Casing condition	N/A	N/A	N/A	N/A	N/A
Lock condition	Good	Good	Good	Good	Good
J-plug condition	Good	Good	Good	Good	Good

Refer to Site Plan for well locations

ORC Sock's:

Have any Socks been replaced? ☐ yes ☑ no

~~If no, explain~~.

Are socks fully submerged in well screens. ☑ yes ☐ no

If no explain why.

Are all ORC wells being sampled and maintained according to the site management plan ☑ yes ☐ no

If no, explain.

Initial: RLD Date: 7/31/17

APPENDIX E

SITE PHOTOGRAPH LOG

SITE PHOTOGRAPHS

Photo 1:

Photo 2:

Photo 3:

Photo 4:

Photo 1: Area I – looking north, vegetated river buffer

Photo 2: Area I – looking west, vegetated river buffer

Photo 3: Area I – looking west, storm sewer outfall

Photo 4: Area I – looking southwest at riprap cover along north building face

SITE PHOTOGRAPHS

Photo 5:

Photo 6:

Photo 7:

Photo 8:

Photo 5: Area I – looking southeast, northwest side of Tesla building

Photo 6: Area I – looking southwest, river embankment along fence

Photo 7: Area I – looking northeast, west side of Tesla building

Photo 8: Area I – looking southeast, west side of Tesla building

SITE PHOTOGRAPHS

Photo 9:

Photo 10:

Photo 11:

Photo 12:

Photo 9: Area I –northwest at variance slag reuse area

Photo 10: Area I – looking south at substation

Photo 11: Area I – looking north at riprap on south side of Tesla building

Photo 12: Area I – looking west at south side of Tesla building

SITE PHOTOGRAPHS

Photo 13:

Photo 14:

Photo 15:

Photo 16:

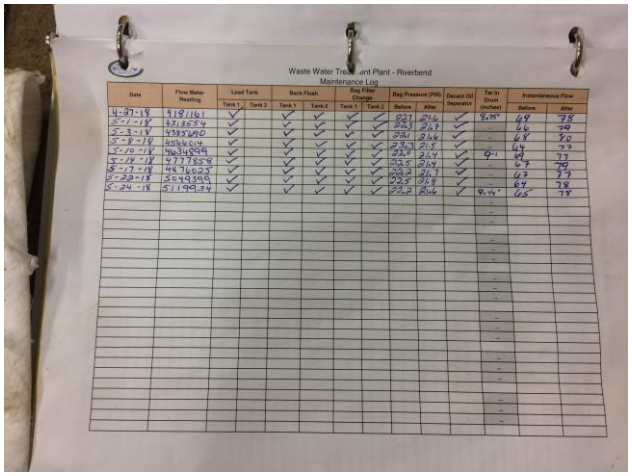


Photo 13: Area II – looking east, pretreatment building

Photo 14: Area II – looking east, pretreatment building control panel

Photo 15: Area II – looking northwest, pretreatment building system

Photo 16: Area II – pretreatment system maintenance log

SITE PHOTOGRAPHS

Photo 17:

Photo 18:

Photo 19:

Photo 20:

Photo 17: Area II – looking south/southwest, Abby St Berm near O'Connor

Photo 18: Area II – looking east, east half of A2 cover

Photo 19: Area II – looking west, south half of A2 cover

Photo 20: Area II – looking east, north half of A2 cover

SITE PHOTOGRAPHS

Photo 21:

Photo 22:

Photo 23:

Photo 24:

Photo 21: Area II – looking south, containment cell pump station PS-1

Photo 22: Area II – looking northwest, northwest corner of A2 cover with area of filled in terminal basin beyond the gate

Photo 23: Area II – looking north, west side of A2 cover and containment cell detention pond (dry)

Photo 24: Area II – looking east, east side of A2 cover

SITE PHOTOGRAPHS

Photo 25:

Photo 26:

Photo 27:

Photo 28:

Photo 25: Area III – looking east, showing A3 and perimeter fence

Photo 26: Area III – looking northeast, showing north side of A3

Photo 27: Area III – looking south, showing southwest corner of A3

Photo 28: Area III – looking north, showing A3 ORC well