Strong Advocates, Effective Solutions, Integrated Implementation

July 29, 2013

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

Re: Riverbend Site (formerly Steelfields) (V00619-9)
Periodic Review Report (May 1, 2012 to May 1, 2013)

Dear Mr. Szymanski:

On behalf of Riverbend, LLC, TurnKey Environmental Restoration, LLC (TurnKey) in association with Benchmark Environmental Engineering & Science, PLLC (Benchmark) has prepared the enclosed hard copy of the completed Institutional and Engineering Controls (IC/EC) certification form and one compact disc containing the Periodic Review Report (PRR) for the Riverbend Site (V00619-9), including all supporting appendices. The IC/EC certification form and report have been prepared in accordance with NYSDEC's DER-10 Technical Guidance (May 2010). The IC portion of the certification form (Box 6) has been signed by Mr. Peter Cammarata, the designated representative for Riverbend, and the EC portion (Box 7) has been signed by Mr. Paul H. Werthman, P.E., President of Benchmark and TurnKey.

Please contact me if you have any questions regarding this submittal.

Sincerely,
TurnKey Environmental Restoration, LLC

Bryan C. Hann
Project Manager

Enclosures

ec: Peter Cammarata (Riverbend)
David Stebbins (Riverbend)
Paul H. Werthman (Benchmark-TurnKey)

File: 0171-011-500

Periodic Review Report

May 1, 2012 through May 1, 2013

Riverbend Site (No. V00619)
Buffalo, New York

July 2013

0171-010-500

Prepared For:

Riverbend, LLC

Prepared By:

TurnKey Environmental Restoration, LLC

In Association With:

Benchmark Environmental Engineering & Science, PLLC

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

July 2013 0171-011-500

Prepared for:

Riverbend, LLC

Prepared By:

TurnKey Environmental Restoration, LLC

In Association With:

Benchmark Environmental Engineering & Science, PLLC

Benchmark & TurnKey Companies
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
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PERIODIC REVIEW REPORT
Steelfields (aka Riverbend, LLC) Site
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PERIODIC REVIEW REPORT
Steelfields (aka Riverbend, LLC) Site
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FIGURES

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 Riverbend, LLC to summarize the post-remedial status of New York State Department of Environmental Conservation (NYSDEC) Voluntary Cleanup Program (VCP) Steelfields (aka Riverbend, LLC) Site No. V00619.

This PRR has been prepared in accordance with the NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (May 2010; Ref. 1) and the NYSDEC's Institutional and Engineering Controls (IC/EC) Certification Forms have been prepared for each of the four designated areas (i.e., Area I, Area II, Area III, former August Feine) of the Site. This PRR and the associated IC/EC Form (see Appendix A) have been completed for the May 1, 2012 to May 1, 2013 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 and was also subject to the original VCA. All five parcels were remediated by Steelfields under the NYSDEC VCA, and remedial activities for the entire Site were completed in 2007. Subsequent to completion of the remediation of Area IV by Steelfields in 2006, this parcel was separated from the Site, sold to Hydro-Air Components, Inc. (Hydro-Air), and entered into the Brownfield Cleanup

Program (NYSDEC BCP Site No. C915204) by Hydro-Air. As such, this report does not address Area IV. Riverbend, LLC (Riverbend), a related Buffalo Urban Development Corporation (BUDC) company, acquired the Site from Steelfields in May 2008.

2.0 SITE OVERVIEW

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

The environmental investigations 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 description of the remedial efforts and construction documents are provided in the NYSDEC's approved Construction Closeout Report for Area I, including the Site Management Plan, prepared by TurnKey (April 2007; Ref. 2); and the Final Engineering Report for Areas II and III, Former Donner-Hanna Coke Plant and Republic (LTV) Steel Properties, including Site Management Plan, prepared by Malcolm Pirnie (May 2008; Ref. 3). A brief description of the remedial efforts described in those documents is presented below.

2.1 Area I - Former Republic (LTV) Steel Parcel

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

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

- Buffalo River bank stabilization.

2.2 Area II – Former Donner-Hanna Coke Plant

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

- Construction of a 14-acre containment cell, 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. 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 a 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 Area II containment cell
- On-site lead-impacted soil/fill treatment and disposal/consolidation in 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. This property is surrounded by Area II on the west, south,

and east; and Norfolk Southern property to the north (Baraga Street dead ends at the entrance to this parcel).

A July 2006 site assessment of this 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).

3.0 SITE MANAGEMENT PLAN

The Riverbend Site is managed by two separate Site Management Plans (SMPs). One SMP covers Area I (prepared by TurnKey-Benchmark in April 2007; Ref. 2) and the second covers Areas II, III, and the former August Feine parcel (prepared by Malcolm Pirnie in May 2008; Ref. 3). Both SMPs include Operation, Monitoring, and Maintenance (OM&M) Plans; Long-Term Groundwater Monitoring (LTGWM) Plans; Soil/Fill Management Plans (SFMPs); and Environmental Easements (also identified as Covenant and Restrictions) for their respective parcels. 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, III, and the former August Feine parcel are required. 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. 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 passive skimmer at monitoring well A1-MW-6. Specifically, the O&M Plan details the product recovery system inspection program, routine maintenance operations, and reporting requirements.

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 2012 annual progress report submitted to the NYSDEC and the annual effluent monitoring report 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; Section 3.2 below). Appendix D includes the ORC annual inspection forms.

3.1.4 Former August Feine Parcel

There are no voluntary cleanup O&M requirements for the former August Feine parcel. In June 2009, the former August Feine building caught fire and emergency demolition followed. A concrete slab on grade foundation and a small brick walled shed is all that remains and storm water management of this area was subsequently discontinued.

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 April 2007) 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 were modified into a combined site-wide monitoring and reporting event. A total of 24 network monitoring wells are sampled across the Site including 11 wells in Area I, 8 wells in Area II, and 5 wells in Area III. The number of monitoring wells sampled in Area II was reduced from 9 to 8 with the decommissioning of monitoring well A2-MW-14 on October 10, 2012 as proposed in last year's PRR (April 1, 2011 through May 1, 2012) and approved in the NYSDEC letter dated October 2, 2012. In addition to the groundwater monitoring network wells, six additional wells (all in Area II) are monitored for water level only.

On May 5, 2011, the NYSDEC approved a modification of the groundwater parameter lists and sample frequency for Areas I, II, and III. The modified monitoring program for all three Areas now follows a two-year monitoring cycle (e.g., bi-annual) as presented in Appendix C. In general, this modification reduces the volatile organic compound and metals analysis frequency to once every other year for most wells while the collection of field parameters must be measured every year going forward. Currently, groundwater monitoring is performed on an annual basis and ORC monitoring is performed

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

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

Appendix C includes the 2012 Comprehensive Annual Groundwater Monitoring Report for Areas I, II, and III. This report includes the results of the May 2012 groundwater monitoring event as well as the results of the May and November 2012 ORC semi-annual monitoring events for Area III all of which were conducted during the current PRR period (May 1, 2012 through May 1, 2013). Appendix D includes the ORC inspection forms for the May and November 2012 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.

No intrusive activities requiring management of on-site soil or fill material, or the placement of backfill materials occurred during this monitoring period.

3.4 Institutional and Engineering Control Requirements and Compliance

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

All four Riverbend parcels are subject to the following ICs:

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

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

3.4.2 Engineering Controls

Three of the four Areas of the Riverbend Site are subject to several ECs as indicated 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).
- Former August Feine Parcel: Not subject to ECs.

3.5 Site Inspection

On June 20, 2013, a Benchmark Project Engineer performed a Site assessment of Areas I, II, III and the former August Feine parcel. 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 at the time of the inspection.

3.5.1 Area I

At the time of the inspection, Area I was vacant, and in compliance with the IC/ECs, with the minor exception of some areas of the perimeter fence needing repairs. Due to the extent of the fence damage, a local contractor is being solicited to perform the necessary repairs with an expected completion date of October 2013.

3.5.2 Area II

At the time of the inspection, Area II, including the GWTS and Containment Cell were in compliance with the IC/ECs, with the exception of small areas of ground cover requiring vegetative restoration and some areas of the perimeter fence needing repairs. The vegetative restoration was performed by TurnKey in July 2013. Due to the extent of the fence damage, a local contractor is being solicited to perform the necessary repairs with an expected completion date of October 2013. As noted in Section 3.2, monitoring well A2-MW-14 was decommissioned on October 10, 2012 as proposed in last year's PRR (April 1, 2011 through May 1, 2012) and approved in the NYSDEC letter dated October 2, 2012. Well decommissioning documentation is provided in the Annual Groundwater Monitoring Report included in Appendix C.

3.5.3 Area III

At the time of the inspection, Area III was vacant and in compliance with the IC/ECs with the minor exception of some areas of the perimeter fence needing repairs. Due to the extent of the fence damage, a local contractor is being solicited to perform the necessary repairs with an expected completion date of October 2013.

3.5.4 Former August Feine Parcel

At the time of the inspection, the former August Feine parcel was vacant. There are no IC/ECs associated with this parcel; therefore, this property 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 complaints by the NSYDEC 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 has three components, two Abby Street drains (Abby-West and Abby-East) and the Baraga Street drain lateral (Baraga lateral), as shown in Figure 3. The surface drainage system 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.

The Abby-West drain (approximately 470 feet long) and the Baraga lateral (approximately 82 feet long) are both 6-inch perforated, corrugated collection pipes wrapped with filter fabric and backfilled with washed No. 2 stone. The Abby-West drain flows toward the south and the Baraga lateral to the east; both empty into the Baraga Street manhole at the intersection of Abby and Baraga Streets. The Abby-West drain has been in place since 1998 and the Baraga lateral since 2000. In addition, the Abby-East drain, a 4-inch perforated, corrugated collection pipe backfilled with washed No. 2 stone, was installed from the O'Conner Street manhole approximately 182 feet north (see Figure 3). The Abby-East drain and two nearby drop inlets (north and south) empty into the O'Conner Street manhole. The Abby-East and Abby-West drains are not connected and operate independently of each other.

3.6.2 Monthly Drainage System Inspections

Since the March 2011 initial assessment, including flushing and repair activities performed during the last PRR reporting period (April 1, 2011 through May 1, 2012), TurnKey has performed monthly inspections of the Abby and Baraga Streets surface drainage system including the Baraga Street manhole for blockage and surficial ponding along Abby Street. During the current monitoring period, no surficial ponding, staining, or

stressed vegetation was observed and the grass along the Abby Street berm has been restored. Periodic removal of calcium build-up within the Baraga Street manhole is performed and observed flow is occurring in the Baraga Street manhole indicating no blockages in the drainage system. No further action was necessary during the reporting period. Appendix E includes photographic documentation of the above observations.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Conclusions for this reporting period and recommendations for the next reporting period are as follows:

- At the time of the inspection, the Site was in compliance with the IC/ECs including: groundwater monitoring; leachate collection, and pump-and-treat system; containment cell; ORC monitoring; product removal monitoring and operational maintenance; groundwater use restriction; land use restriction; O&M Plan; and SFMP.
- Monitoring well A2-MW-14 was decommissioned on October 10, 2012 as proposed in last year's PRR (April 1, 2011 through May 1, 2012) and approved in the NYSDEC letter dated October 2, 2012.
- Minor fence damage was noted in Areas I, II, and III and small areas of ground cover requiring vegetative restoration were identified in Area II during the site inspection. Vegetative restoration was completed in July 2013; however, due to the extent of the fence damage, a local contractor is being solicited to perform the necessary repairs with an expected completion date of October 2013.
- As requested by the NYSDEC, mowing and maintenance of a 20-foot swath along the interior perimeter fencing in all four areas of the Riverbend Site, including the areas in and around the GWTS building, was performed by TurnKey in June 2013. These activities will continue to be performed on a semi-annual basis, typically in mid-summer and early fall.
- We respectfully request that all references to the site name be changed to Riverbend, LLC only. All references to Steelfields should be removed as this was the name of the previous owner/site and is therefore no longer accurate or reflective of current ownership/site name.
- We would like to request a reduction of the PRR submittal frequency from annual to tri-annual (every three years). The Riverbend Site has completed annual site inspections since 2008 which have indicated that the Site has been fully compliant with the requirement of the SMPs during this time period. Based on the results of the completed site inspections, the Site has shown continued compliance with the requirements of the SMPs, and a modification to tri-annual certification and reporting is appropriate. Based on the requested modification, the next certification and PRR would be completed in 2016 covering the period from May 1, 2013 through May 1, 2016. We understand that during this period, annual site inspections, routine O&M activities, and annual groundwater/ORC monitoring and reporting of the Riverbend Site (Areas I, II, and II) will continue and that the documentation of these activities will be included with the 2016 PRR.

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 complied with the scope of work provided to Riverbend, LLC by TurnKey Environmental Restoration, LLC.

This report has been prepared for the exclusive use of Riverbend, LLC. 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 Riverbend, LLC. 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.

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 April 2007, prepared by TurnKey Environmental Restoration, LLC and Benchmark Environmental Engineering and Science, PLLC.

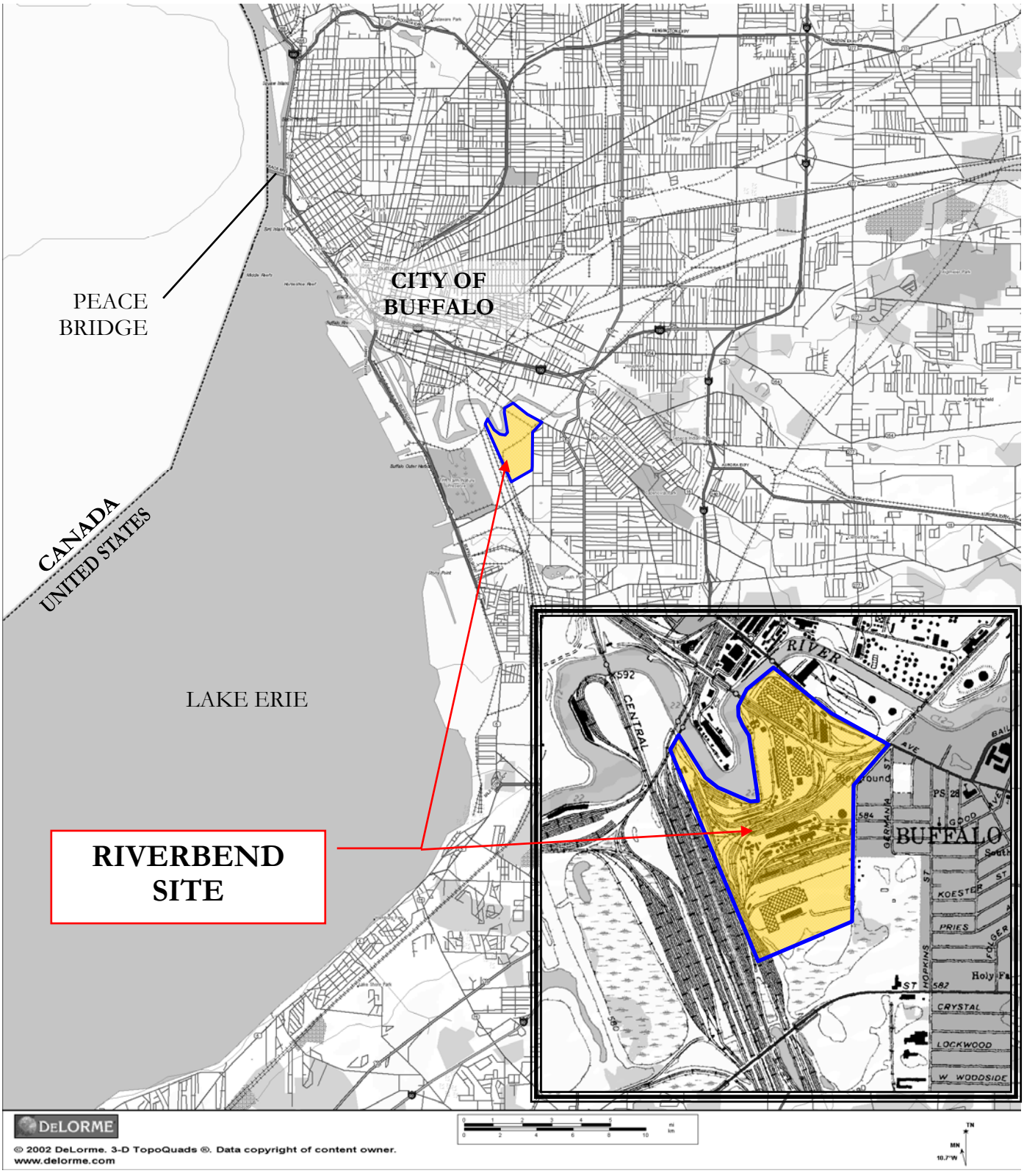
3. *Final Engineering Report for Areas II & III, Former Donner-Hanna Coke Plant and Republic (LTV) Steel Properties, Steelfields Site Buffalo, NY (NYSDEC Site #V00133-9), Appendix GG and HH,* dated May 2008, prepared by Malcolm Pirnie.

4. *Work Plan for Long-Term Groundwater Monitoring, Former Steel Manufacturing Site, Buffalo, NY*, prepared for Steelfields Ltd., revised June 2005 by TurnKey Environmental Restoration, LLC.

5. *Final Engineering Report for Areas II & III, Former Donner-Hanna Coke Plant and Republic (LTV) Steel Properties, Steelfields Site Buffalo, NY (NYSDEC Site #V00133-9), Appendix HH – Attachments A4 and A5,* dated May 2008, prepared by Malcolm Pirnie.

FIGURES

FIGURE 1



TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

PROJECT NO.: 0171-006-500

DATE: APRIL 2011

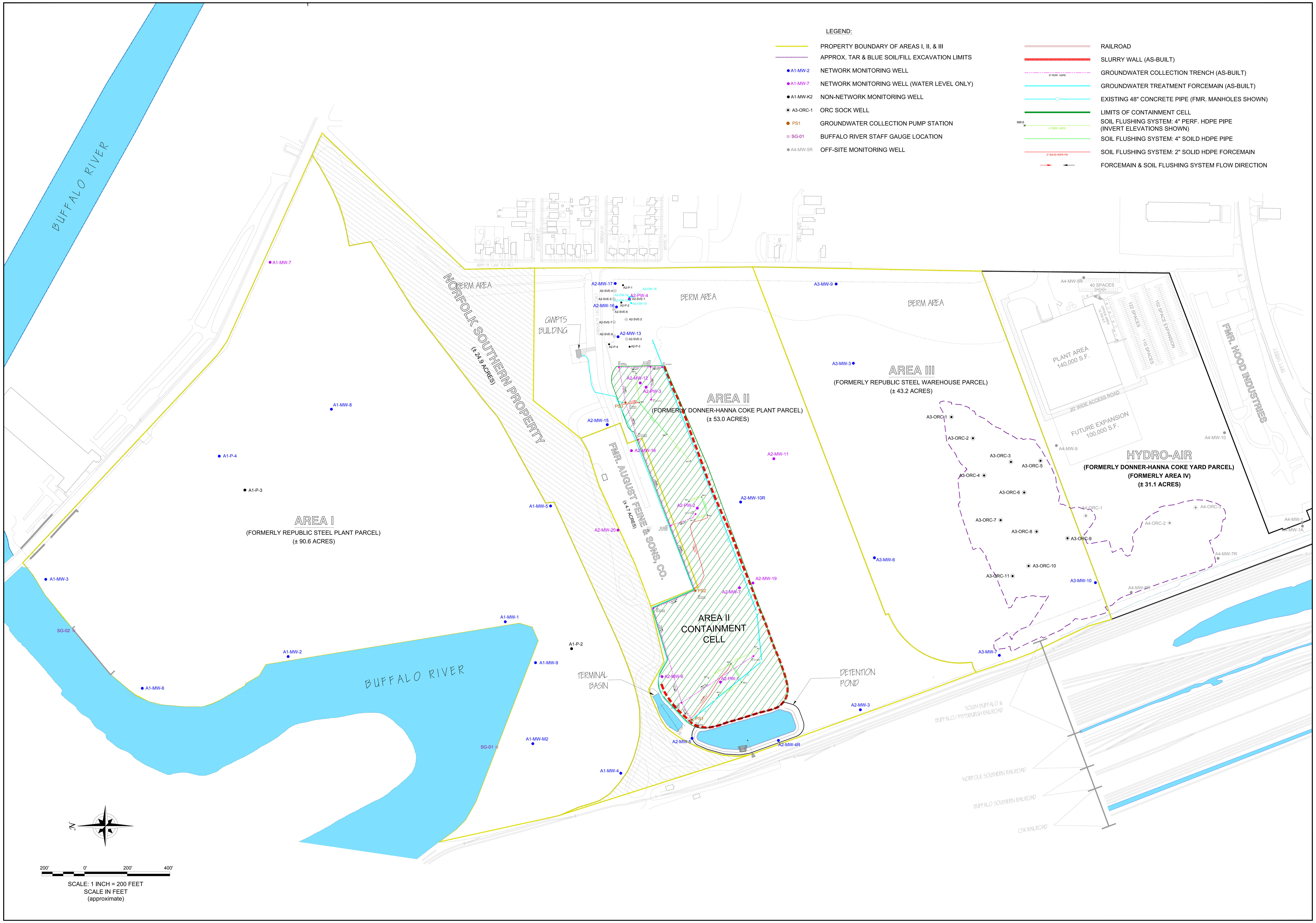
DRAFTED BY: BCH

SITE VICINITY AND LOCATION MAP

PERIODIC REVEIW REPORT

RIVERBEND SITE
BUFFALO, NEW YORK

PREPARED FOR
RIVERBEND, LLC



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
RAILROAD
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
BUFFALO RIVER
AREA I
(FORMERLY REPUBLIC STEEL PLANT PARCEL)
(± 90.6 ACRES)
NORFOLK SOUTHERN PROPERTY
(± 24.9 ACRES)
AREA II
(FORMERLY DONNER-HANNA COKE PLANT PARCEL)
(± 53.0 ACRES)
FMR. AUGUST FEINE & SONS, CO.
(± 4.7 ACRES)
AREA II CONTAINMENT CELL
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. HOOD INDUSTRIES
PLANT AREA 140,000 S.F.
FUTURE EXPANSION 100,000 S.F.
20' WIDE ACCESS ROAD
BERM AREA
GMPTS BUILDING
TERMINAL BASIN
DETENTION POND
SOUTH BUFFALO & BUFFALO / PITTSBURGH RAILROAD
NORFOLK SOUTHERN RAILROAD
BUFFALO SOUTHERN RAILROAD
CSX RAILROAD
SCALE: 1 INCH = 200 FEET
SCALE IN FEET
(approximate)

TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

JOB NO.: 0171-011-500

REVISIONS

NO.	BY	DATE	REMARKS

SEAL

DRAWN BY: BCH
DATE: JULY 2013
CHECKED BY:
APPROVED BY:

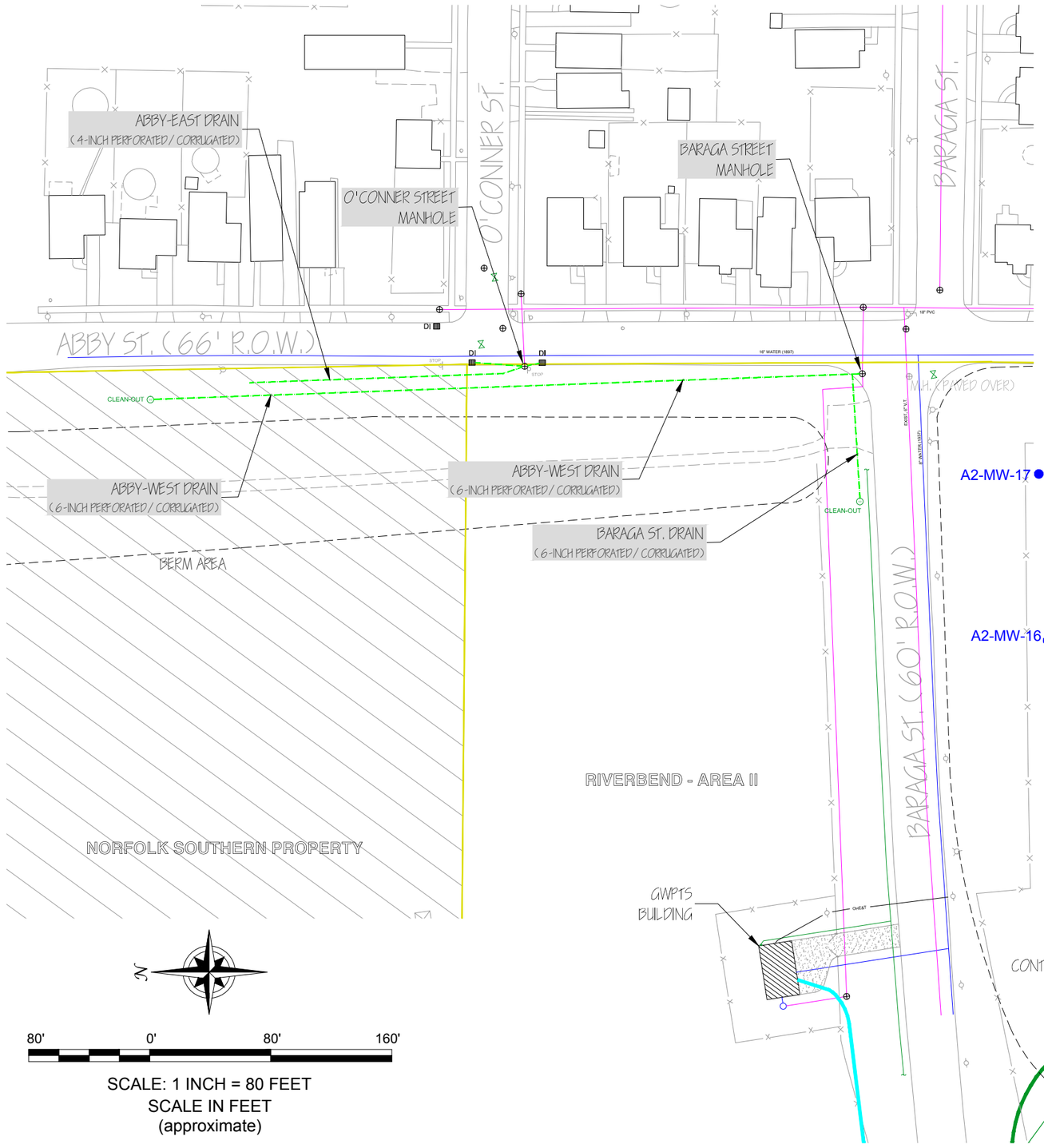
SITE PLAN

PERIODIC REVIEW REPORT
RIVERBEND SITE
BUFFALO, NEW YORK

PREPARED FOR
RIVERBEND, LLC

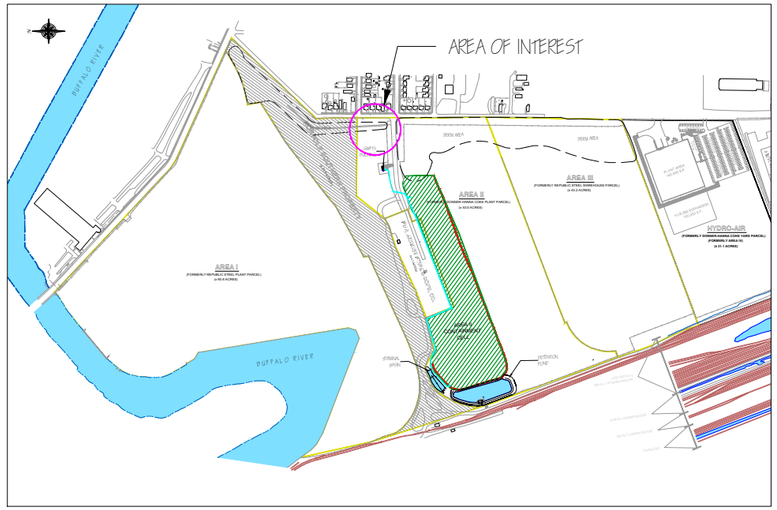
FIGURE 2

F:\CAD\TurnKey\Riverbend (formerly Steelfields)\PRR\2013 - May 1, 2012 through May 1, 2013\Figure 3; Abby Street Drain Site Sketch (2013).dwg



SITE PLAN:

SCALE (APPROX.): 1" = 1200'



LEGEND:

- PROPERTY BOUNDARY OF AREAS I, II, & III
- RAILROAD
- SLURRY WALL
- FORCEMAIN
- SANITARY SEWER LINES (APPROX.)
- WATER LINES (APPROX.)
- GAS LINES (APPROX.)
- MANHOLE
- DI — DROP INLET
- A1-MW-2 — MONITORING WELL

DATE: APRIL 2011
DRAFTED BY: BCH

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

TURNKEY ENVIRONMENTAL RESTORATION, LLC

JOB NO.: 0171-011-500

ABBEY STREET DRAIN SITE SKETCH

PERIODIC REVIEW REPORT

RIVERBEND SITE
BUFFALO, NEW YORK

PREPARED FOR
RIVERBEND, LLC

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, LLC)

Site Address: 304 Abby Street Zip Code: 14220
City/Town: Buffalo
County: Erie
Site Acreage: 182.0

Reporting Period: May 01, 2012 to May 01, 2013

	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

Description of Institutional Controls

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

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	Buffalo Urban Development 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	Buffalo Urban Development 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 Buffalo Urban Development Corporation

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 Buffalo Urban Development Corporation

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	Groundwater Treatment System Cover System Groundwater Containment Leachate Collection Fencing/Access Control
122.20-1-21	Groundwater Treatment System Cover System Groundwater Containment Leachate Collection Fencing/Access Control
122.20-1-3.1	

Parcel	Engineering Control
	Groundwater Treatment System Cover System Groundwater Containment Leachate Collection Fencing/Access Control
122.20-1-5.1	
	Groundwater Treatment System Cover System Groundwater Containment Leachate Collection Fencing/Access Control
132.08-1-6	
	Groundwater Treatment System Cover System Groundwater Containment Leachate Collection Fencing/Access Control
132.08-1-7	
	Groundwater Treatment System Cover System Groundwater Containment Leachate Collection Fencing/Access Control
132.12-1-9.11	
	Groundwater Treatment System Cover System Groundwater Containment Leachate Collection 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 Peter M. Cammarata (print name) at 143 Genesee Street, Buffalo, NY 14203 (print business address)

am certifying as Owner (Owner or Remedial Party)

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

Peter M. Cammarata

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

7/29/13

Date

IC/EC CERTIFICATIONS

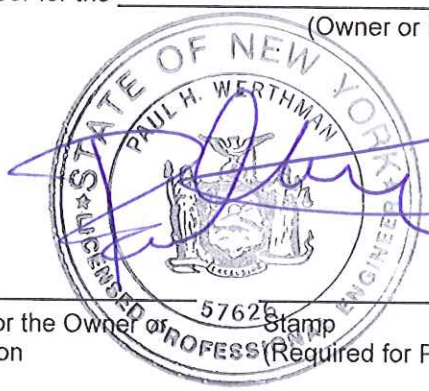
Box 7

Professional Engineer Signature

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

I Paul H. Werthman (print name) at 2558 Hamburg Turnpike, Suite 300, Buffalo, NY 14218 (print business address),

am certifying as a Professional Engineer for the Riverbend Site (Owner or Remedial Party)



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

Stamp (Required for PE)

7/26/13
Date

APPENDIX B

AREA II – 2012 ANNUAL GWPTS REPORT

ANNUAL PROGRESS REPORT FOR THE
OPERATION, MAINTENANCE, AND MONITORING SERVICES
Riverbend, LLC
197 Baraga St,
Buffalo NY, 14210

PROGRESS REPORT No. 13
REPORTING PERIOD ENDING DECEMBER 31, 2012

Project Description

This Annual Progress Report has been prepared for the Riverbend, LLC Groundwater Pre-Treatment System (GWPTS) located at 197 Baraga 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 of the operation and maintenance of the GWPTS from January 1, 2012 through December 31, 2012.

1.0 Treatment Statistics

- Approximately 8,093,449 gallons of collected groundwater were treated over the current monitoring period averaging 22,129 gallons per day.
- System was operational for approximately 96% of the time.
- System was down for 4% of the time for repairs and maintenance.
- Approximately 658.5 pounds of tar was generated from the oil/water separator (approximately 55 pounds/month).
- In August 2012, 2 drums of tar were removed and disposed at EQ Detroit Inc. of Detroit, Michigan as a D018 benzene waste. The Hazardous Waste Report was submitted in February 2013.

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 5, 2012 - Flow meter was calibrated.
- April 10, 2012 - Pulled all three pumps from the pump stations; cleaned, changed oil; and checked the chains on each pulley system.
- April 17, 2012 - Made repairs to perimeter fence identified during April's pump O&M.
- May 31, 2012 - Changed the carbon in lag vessel #1 and cleaned the separator, influent tank and the effluent tank. Lead and lag vessels were reversed at that time (vessel #1 became the lead and #2 the lag).
- June 2013 – Long-Term Groundwater Monitoring was performed in Areas I, II, and III. ORC monitoring in Area III was also performed.
- June 20, 2012 - Annual certification/inspection associated with the Periodic Review Report (PRR) in accordance with DER-10 was performed.

- June 20, 2012 - Perimeter fence repairs performed during PRR site inspection.
- December 7, 2012 - Changed the carbon in lag vessel #2 and cleaned the separator, influent tank and the effluent tank. Lead and lag vessels were reversed at that time (vessel #2 became the lead and #1 the lag).
- December 21, 2012 - Pulled all three pumps from the pump stations; check oil, cleaned pumps, and replaced the guide for the pulley system at Pump Station #1.

3.0 Attachments/Logs

- Attachment 1: Graph of monitored flows through treatment system for 2012
- Attachment 2: Maintenance Logs for 2012 (01/03/12 thru 12/31/12)
- Attachment 3: Generated Volume of Tar Material Log (01/01/12 thru 12/31/12)

ATTACHMENT 1

MONITORED FLOWS VS. TIME

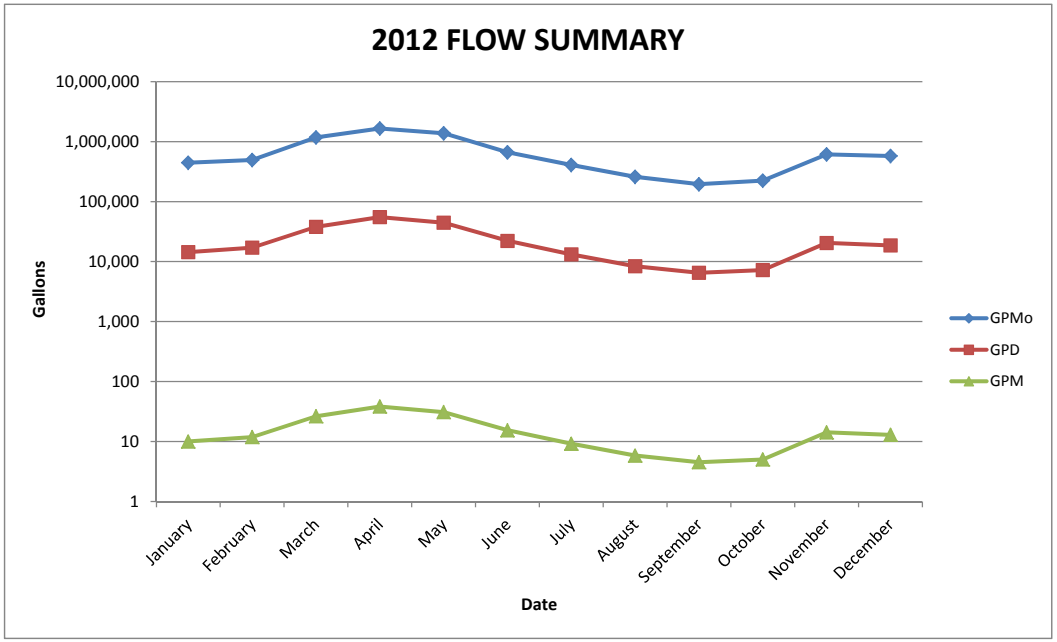
ATTACHMENT 1

MONITORED FLOWS v. TIME
2012

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

2012

Month	GPMo	GPD	GPM
January	445,884	14,383	10
February	494,768	17,061	12
March	1,176,335	37,946	26
April	1,654,658	55,155	38
May	1,378,235	44,459	31
June	665,288	22,176	15
July	409,368	13,205	9
August	259,811	8,381	6
September	195,033	6,501	5
October	223,871	7,222	5
November	613,836	20,461	14
December	576,362	18,592	13
Total	8,093,449		
Min.	195,033	6,501	5
Max.	1,654,658	55,155	38
Ave.	674,454	22,129	15

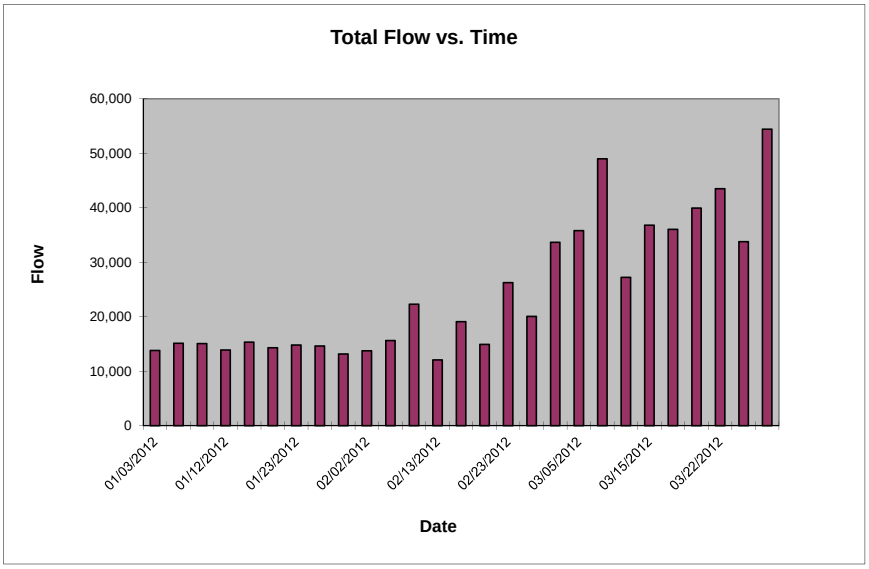


ATTACHMENT 1

MONITORED FLOWS v. TIME
FIRST QUARTER 2012

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

Date	Total Flow	Daily Avg
01/03/2012	11,516,082	13,804
01/05/2012	11,546,349	15,134
01/09/2012	60,261	15,065
01/12/2012	101,932	13,890
01/16/2012	163,219	15,322
01/19/2012	206,143	14,308
01/23/2012	265,332	14,797
01/25/2012	294,565	14,617
01/30/2012	360,401	13,167
02/02/2012	401,603	13,734
02/06/2012	464,112	15,627
02/09/2012	530,982	22,290
02/13/2012	579,272	12,073
02/16/2012	636,526	19,085
02/20/2012	696,176	14,913
02/23/2012	774,932	26,252
02/27/2012	855,169	20,059
03/01/2012	956,133	33,655
03/05/2012	1,099,346	35,803
03/08/2012	1,246,317	48,990
03/12/2012	1,355,210	27,223
03/15/2012	1,465,567	36,786
03/19/2012	1,609,733	36,042
03/21/2012	1,689,638	39,953
03/22/2012	1,733,136	43,498
03/26/2012	1,868,242	33,777
03/29/2012	2,031,504	54,421



Total Quarterly Flow: 2,116,987 gallons
Ave. Quarterly Flow: 23,130 gallons/day

JANUARY	
445,884	gallons/month
31	days
14,383	gallons/day
10	gallons/min

FEBRUARY	
494,768	gallons/month
29	days
17,061	gallons/day
12	gallons/min

MARCH	
1,176,335	gallons/month
31	days
37,946	gallons/day
26	gallons/min

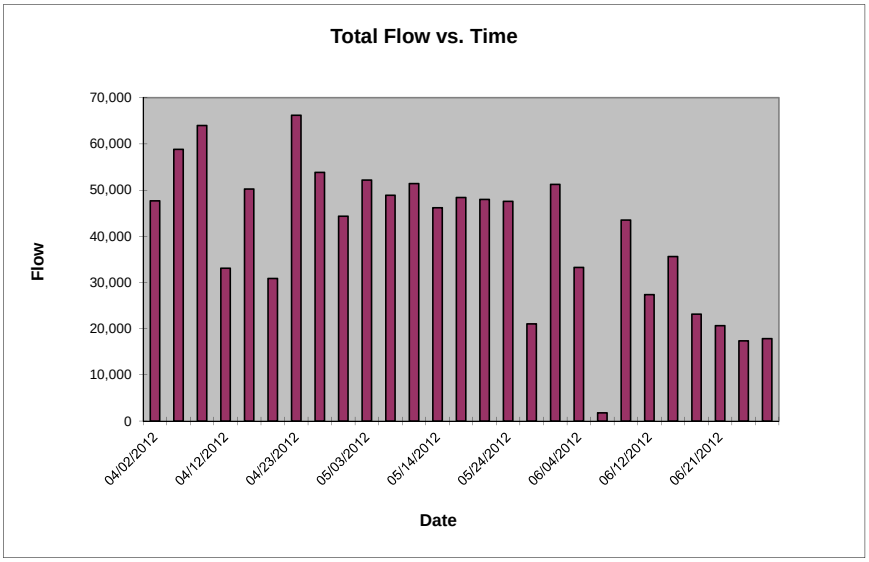
Notes:
* = flow meter calibrated and reset to zero on 01/05/12

ATTACHMENT 1

MONITORED FLOWS v. TIME
SECOND QUARTER 2012

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

Date	Total Flow	Daily Avg
04/02/2012	2,257,294	47,651
04/05/2012	2,433,741	58,816
04/09/2012	2,689,723	63,996
04/12/2012	2,789,007	33,095
04/16/2012	2,989,965	50,240
04/19/2012	3,082,511	30,849
04/23/2012	3,347,283	66,193
04/26/2012	3,508,770	53,829
04/30/2012	3,686,162	44,348
05/03/2012	3,842,684	52,174
05/07/2012	4,038,173	48,872
05/10/2012	4,192,432	51,420
05/14/2012	4,377,187	46,189
05/17/2012	4,522,341	48,385
05/21/2012	4,714,273	47,983
05/24/2012	4,856,904	47,544
05/29/2012	4,961,939	21,007
05/31/2012	5,064,397	51,229
06/04/2012	5,197,454	33,264
06/06/2012	5,200,986	1,766
06/07/2012	5,244,499	43,513
06/12/2012	5,381,241	27,348
06/14/2012	5,452,450	35,605
06/18/2012	5,544,959	23,127
06/21/2012	5,606,890	20,644
06/25/2012	5,676,221	17,333
06/28/2012	5,729,685	17,821



Total Quarterly Flow: 3,698,181 gallons
Ave. Quarterly Flow: 40,597 gallons/day

APRIL	
1,654,658	gallons/month
30	days
55,155	gallons/day
38	gallons/min

MAY	
1,378,235	gallons/month
31	days
44,459	gallons/day
31	gallons/min

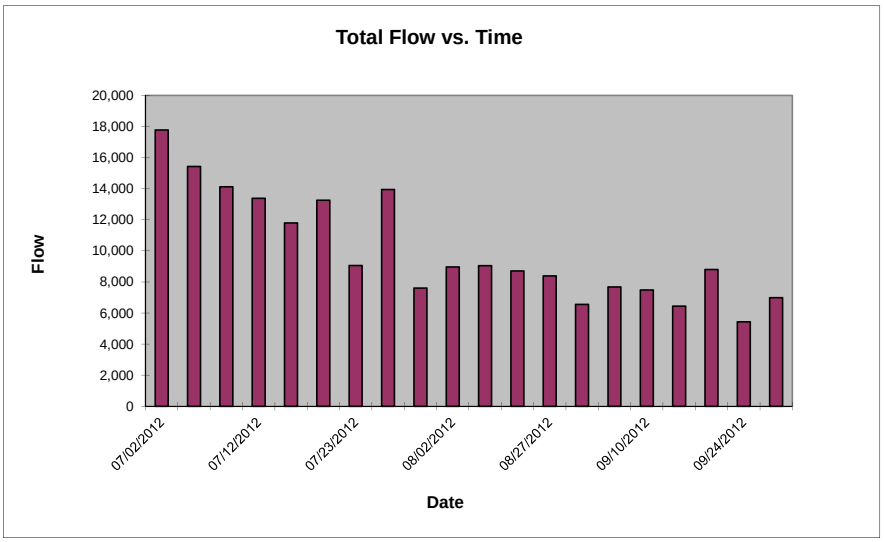
JUNE	
665,288	gallons/month
30	days
22,176	gallons/day
15	gallons/min

ATTACHMENT 1

MONITORED FLOWS v. TIME
THIRD QUARTER 2012

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

Date	Total Flow	Daily Avg
07/02/2012	5,800,763	17,770
07/05/2012	5,847,037	15,425
07/09/2012	5,903,504	14,117
07/12/2012	5,943,627	13,374
07/16/2012	5,990,816	11,797
07/19/2012	6,030,580	13,255
07/23/2012	6,066,794	9,054
07/26/2012	6,108,618	13,941
07/30/2012	6,139,053	7,609
08/02/2012	6,165,939	8,962
08/06/2012	6,202,114	9,044
08/09/2012	6,228,239	8,708
08/27/2012	6,379,210	8,387
08/30/2012	6,398,864	6,551
09/04/2012	6,437,253	7,678
09/10/2012	6,482,114	7,477
09/18/2012	6,533,614	6,438
09/20/2012	6,551,207	8,797
09/24/2012	6,572,949	5,436
09/27/2012	6,593,897	6,983



Total Quarterly Flow:	864,212	gallons
Ave. Quarterly Flow:	9,933	gallons

JULY	
409,368	gallons/month
31	days
13,205	gallons/day
9	gallons/min

AUGUST	
259,811	gallons/month
31	days
8,381	gallons/day
6	gallons/min

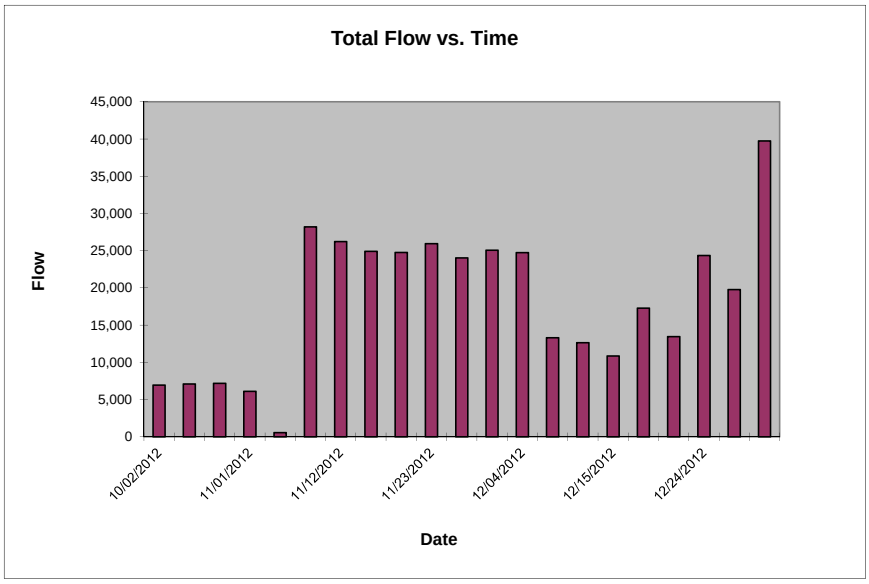
SEPTEMBER	
195,033	gallons/month
30	days
6,501	gallons/day
5	gallons/min

ATTACHMENT 1

MONITORED FLOWS v. TIME
FOURTH QUARTER 2012

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

Date	Total Flow	Daily Avg
10/02/2012	6,628,564	6,933
10/04/2012	6,642,755	7,096
10/08/2012	6,671,438	7,171
11/01/2012	6,817,768	6,097
11/06/2012	6,820,548	556
11/09/2012	6,905,158	28,203
11/12/2012	6,983,808	26,217
11/16/2012	7,083,427	24,905
11/20/2012	7,182,454	24,757
11/23/2012	7,260,273	25,940
11/27/2012	7,356,399	24,032
11/30/2012	7,431,604	25,068
12/04/2012	7,530,567	24,741
12/07/2012	7,570,489	13,307
12/11/2012	7,621,007	12,630
12/15/2012	7,664,414	10,852
12/18/2012	7,716,257	17,281
12/21/2012	7,756,587	13,443
12/24/2012	7,829,658	24,357
12/29/2012	7,928,494	19,767
12/31/2012	8,007,966	39,736



Total Quarterly Flow: 1,414,069 gallons
Ave. Quarterly Flow: 15,712 gallons

OCTOBER	
223,871	gallons/month
31	days
7,222	gallons/day
5	gallons/min

NOVEMBER	
613,836	gallons/month
30	days
20,461	gallons/day
14	gallons/min

DECEMBER	
576,362	gallons/month
31	days
18,592	gallons/day
13	gallons/min

ATTACHMENT 2

MAINTENANCE LOGS

Waste Water Treatment Plant - Riverbend
Maintenance Log

NEEDS CLEANED | REPLACED

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
12-19-11	11799705	X		X		-	-	X	X	-	19.5	X	-	81.60
12-22-11	11340001	X		X	X	-	-8	X	X	-	20	X	-	92.63
12-27-11	11401573	X		X		-	8	X	X	21	20	X	-	91.97
12-30-11	11460866	X		X	X	6	8	X	X	21	20	X	87.99	94.60
1-3-12	11516087	X		X		-	8	X	X	-	20	X	-	98.69

Waste Water Treatment 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
1-5-12	11546349	X		X	X	6	7	X	X	21.5	20	X	91.54	98.23
1-9-12	60261	X		X		–	7	X	X	–	20	X	–	96.69
1-12-12	101932	X		X	X	6	7	X	X	22	20	X	88.84	93.71
1-16-12	163219	X		X		–	8	X	X	–	20	X	–	93.44
1-19-12	206143	X		X	X	6	8	X	X	21.5	20	X	91.76	93.69

Waste Water Treatment 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
1-23-12	265332	X		X		6	8	X	X	21	20	X	90.88	96.15
1-25-12	294565	X		X		6.5	7.5	X	X	22	20	X	89	94
1-30-12	360401	X		X		–	8	X	X	–	20	X	–	93.76
2-2-12	401603	X		X	X	7.5	8	X	X	22	20	X	84.95	94.66
2-6-12	464112	X		X		7.5	8	X	X	22	21	X	87.05	95.66
2-9-12	530982	X		X	X	6	8	X	X	23	20	X	75.06	95.30

BB

Waste Water Tre. ent 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
2-13-12	579277	X		X		6	8	X	X	21.5	20	X	85.20	99.00
2-16-12	636526	X		X	X	6	8	X	X	22	20	X	79.43	92.61
2-20-12	696196	X		X		-	9	X	X	-	20	-	-	94.42
2-23-12	774932	X		X	X	-	9	X	X	-	21	X	-	95.33
2-27-12	855169	X		X		6	8	X	X	23	22	-	84.80	96.94
3-1-12	956133	X		X	X	-	9	X	X	-	21	X	-	94.87

Waste Water Treatment 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
3-5-12	1049346	X		X		–	8	X	X	–	21.5	–	–	93.91
3-8-12	1246517	X		X	X	–	9	X	X	–	21	X	–	94.02

Waste Water Treatment 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
3-12-12	1355210	X		X		-	8	X	X	-	21.5	X	-	93.21
3-15-12	1465569	X		X	X	7	9	X	X	22.5	21	-	83.01	92.52

Waste Water Treatment 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
3-19-12	1609733	X		X		8	8	X	X	23	21	-	82.77	90.75
3-21-12	1689638 → 79,905gal → 34700 GPD → increased flow													
3-22-12	1733136	X		X	X	9	8	X	X	23	21	X	82.14	91.99

Waste Water Treatment 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
5-26-12	18682472	X		X		4	9	X	X	27	21.5	-	0	89.18
5-29-12	7051504	X		X	X	7	9	X	X	23	21	X	73.21	92.72

Waste Water Treatment 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
4-2-12	22577794	X	-	X	-	9	9	X	X	23	21.5	-	73.74	91.62
4-5-12	24337411	X	-	X	X	9	9	X	X	23	21.5	-	77.73	92.15
4-9-12	26897723	X	-	X	-	-	9	X	X	-	21	-	X	87.43
4-12-12	29881007	X	-	X	X	10	9	X	X	23	21	X	66.07	90.70
4-16-12	29899965	X	-	X	-	11	9	X	X	23	21	-	75.44	88.95
4-19-12	30825111	X	-	X	X	9	9	X	X	22.5	21	-	79.13	89.63
4-23-12	33477885	X	-	X	-	10	9	X	X	24.5	21.5	X	56.84	89.41
4-26-12	35087790	X	-	X	X	-	9	X	X	-	21	-	-	88.07
4-30-12	36861672	X	-	X	-	8	8	X	X	23	21	-	70.96	88.81
5-3-12	38426847	X	-	X	X	8	9	X	X	22	20.5	X	73.18	90.30
5-7-12	41038173	X	-	X	-	8	9	X	X	23	21	-	72.89	90.13
5-10-12	41192432	X	-	X	X	8	9	X	X	22.5	21	X	73.03	89.64
*4-5-12	TRASFER PUMP FOR SEPARATOR DIED *					D	Cleaned and fixed			4-10-12 BMB				
5-14-12	43177187	X	-	X	-	7	8	X	X	23	20.5	-	67.09	89.02
5-17-12	45272341	X	-	X	X	7	9	X	X	23	20.5	X	70.05	89.40
5-21-12	47714275	X	-	X	-	10	8	X	X	26	20	-	30.43	84.92
5-24-12	48856904	X	-	X	X	3	9	X	X	27	20.5	X	13.36	86.97
5-29-12	49614395	X	-	X	-	-	8	X	X	-	20.5	X	0	88.55
5-31-12	50641347	X	-	X	X	4	8	X	X	27	21	-	29.94	87.91
6-4-12	51974154	X	-	X	-	5	8	X	X	26	19.5	X		
*	CARBON ACTIVATED CHANGED OUT CARBON IN TANK ONE. TANK ONE SWITCHED TO LAG TANK 2 TO LEAD													
*5-31-12	ALL LIFT STATIONS CYCLING AGAIN. WATER LEVELS BELOW 1.5' IN ALL													
6-6-12	52009886	-	X	X	X			X	X				8	82
6-7-12	52444499	-	X	X	X	8	11	X	X	24	23	-	79.75	92.41
6-12-12	53024241	-	X	X	X	7	10	X	X	24	22	-	13.47	88.36
6-14-12	53574450	-	X	X	X	7	9	X	X	28	22	X	18.00	88.72
6-18-12	55449359	-	X	-	X	5	10	X	X	27	22	-	31.60	87.70
6-21-12	56065890	-	X	X	X	7	8	X	X	24	21	X	67.95	90.12
6-25-12	56762271	-	X	-	X	5	9	X	X	25	21	X	56.69	90.43
6-28-12	57746585	-	X	X	X	8	8	X	X	22.5	20.5	-	77.85	92.98
7-2-12	58007631	-	X	-	X	7	10	X	X	23.5	21.5	-	75.16	88.74
7-5-12	58470371	-	X	X	X	7	8	X	X	23	20	X	76.52	91.09
7-9-12	59035041	-	X	-	X	6	7	X	X	22.5	20	-	73.60	90.84

-(1334-1333)/.(134-133)

Waste Water Treatment 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
7-12-12	59436627	–	X	X	X	8	7	X	X	23	21	X	77.17	90.55
7-16-12	59908116	–	X	–	X	–	8	X	X	–	21	X	–	85.20
7-19-12	60305X0	–	X	X	X	8	8	X	X	23	21	–	72.31	90.12
7-23-12	60606794	–	X	–	X	6	7	X	X	22	20	X	76.46	91.54
7-26-12	60986018	–	X	X	X	6	7	X	X	22	20	–	83.66	94.50
7-30-12	61390553	–	X	–	X	5	7	X	X	23	20	X	71.16	91.48
8-2-12	61659359	–	X	X	X	–	6	X	X	–	20	–	–	92.59
8-6-12	62021114	–	X	–	X	6	7	X	X	22	20	X	84.42	90.42
8-9-12	62258259	–	X	X	X	6	7	X	X	22	14.5	–	79.54	91.02
8-13-12	62619861	–	X	–	X	5	7	X	X	22	20	–	77.31	90.84
8-16-12	62847706	–	X	X	X	6	7	X	X	23	20	X	79.67	89.78
8-20-12	63229X0	–	X	–	X	7	7	X	X	21.5	20	X	82.49	91.06
8-23-12	63465X8	–	X	X	X	7	7	X	X	20	19.5	–	–	91.52
8-27-12	63792X0	–	X	–	X	8	7	X	X	20	[illegible]	–	27.08	90.81
8-30-12	64098864	–	X	X	X	6	7	X	X	22	21	X	81.89	93.93
9-4-12	64437253	–	X	–	X	5	7	X	X	23	20	X	78.26	92.62
9-10-12	64872X4	–	X	X	X	8	7	X	X	24	20	–	–	89.65
9-13-12	65336X4	–	X	X	X	–	7	X	X	–	20	X	–	88.82
9-20-12	65512X7	–	X	X	X	6	7	X	X	22	20	–	77.23	89.96
9-24-12	65729X9	–	X	–	X	–	7	X	X	–	20	–	–	91.44
9-27-12	65938X7	–	X	X	X	6	7	X	X	23	20	X	78.88	90.01
10-2-12	66285X4	–	X	–	X	6	7	X	X	22	21	X	73.63	90.13
10-4-12	66427X5	–	X	X	X	–	7	X	X	–	21	X	–	90.96
10-8-12	66714X8	–	X	–	X	6	7	X	X	22	20	X	83.94	91.74

(G) X X GAGE X (GPM)

Waste Water Treatment 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
11/9/12	6905158		X		X	3	1	X	X	25	22	X	—	87.0
11/12/12	6983808		X		X	2	1	X	X	26	21.5	X	85.0	87.0
11/16/12	7083427		X		X	4	3	X	X	23	21	X	77.0	85
11/20/12	7182454		X		X	2	1	X	X	22.5	21.5	X	79.0	88.0
11/23/12	7260273		X		X	3	1	X	X	22.0	20.0	X	80.0	88.0
11/27/12	7356399		X		X	2	2	X	X	22.0	21.0	X	78.0	87.0
11/30/12	7431604		X		X	2	2	X	X	22.0	21.0	X	76.0	86.0
12/4/12	7530567		X		X	2	1	X	X	22.0	20.5	X	72.0	82.0
12/7/12	7570489	X		X		2	1	X	X	23.0	20.5	X	74.0	82.5
12/11/12	7621007	X		X		3	2	X	X	22.0	21.0	X	73.5	84.0
12/15/12	7664414	X		X		2	1	X	X	21.0	20.0	X	75.0	85.0
12/18/12	7716257	X		X		3	1	X	X	22.0	20.0	X	76.0	86.0
12/21/12	7756587	X		X		2	1	X	X	21.5	20.5	X	78.0	84.0
12/24/12	7829658	X		X		3	1	X	X	22.5	20.0	X	74.3	85.0
12/29/12	7928294	X		X	X	2	1	X	X	22.0	20.5	X	75.0	82.0
12/31/12	8007966	X		X		3	1	X	X	22.5	21.0	X	74.5	84.0
* 1/3/13	8081641	X		X	X	1	2	X	X	21.5	20.0	X	75.0	85.0
1/7/13	8185902	X		X		2	1	X	X	22.0	20.0	X	76.0	86.0
1/10/13	8262133	X		X	X	2	1	X	X	22.0	21.0	X	77.0	84.0
1/14/13	8366596	X		X		2	1	X	X	23.0	21.5	X	74.0	82.0
1-15-13	8399979													

11-16-12 BMG Replace sump pump, Disconnect outlet in sump at box on wall.

1-15-13 BMG Adjust flow valve

ATTACHMENT 3

GENERATED VOLUME OF TAR MATERIAL

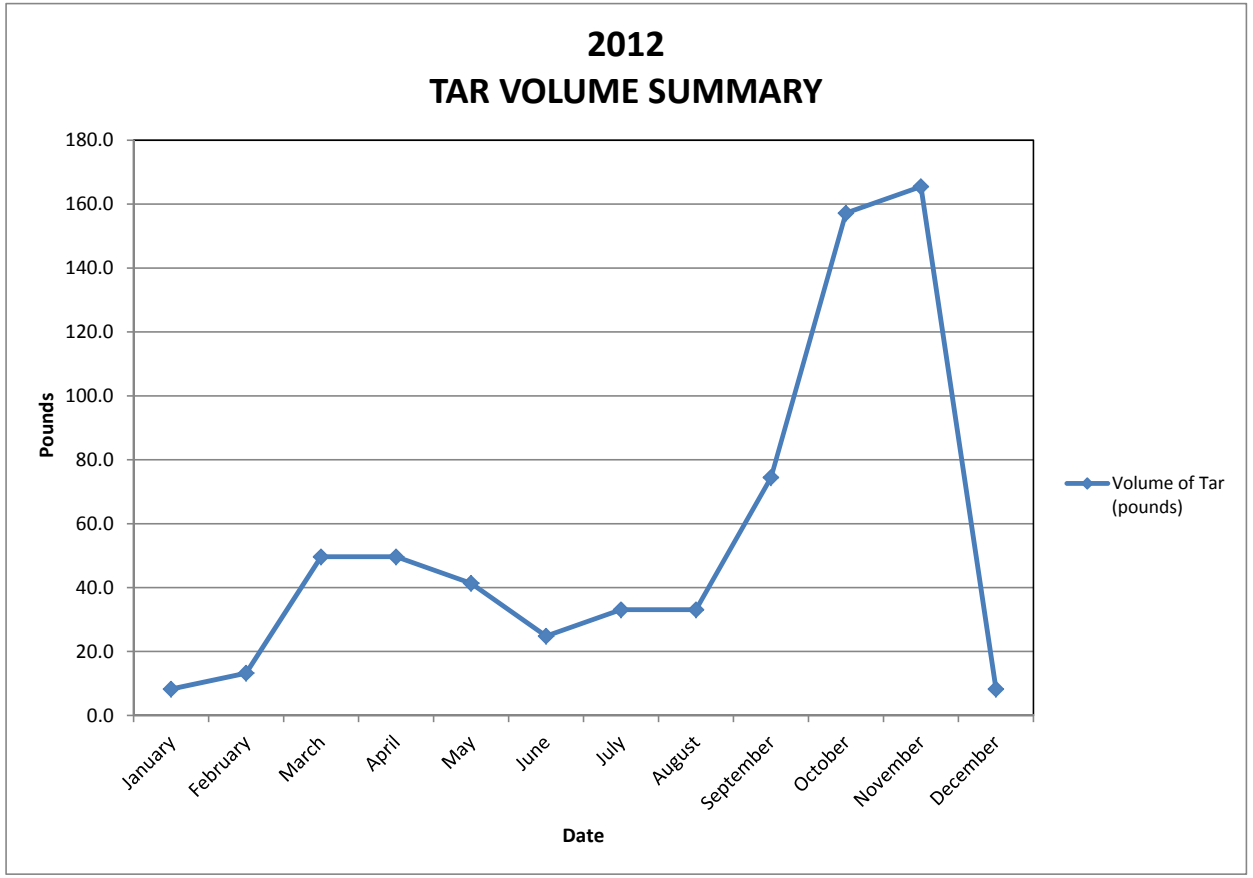
ATTACHMENT 3

GENERATED VOLUME OF TAR MATERIAL
2012

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

Month	Volume of Tar (pounds)
January	8.3
February	13.2
March	49.6
April	49.6
May	41.4
June	24.8
July	33.1
August	33.1
September	74.5
October	157.2
November	165.5
December	8.3

Total:	658.5 pounds
Drums:	1.24
Min.	8.3 pounds
Max.	165.5 pounds
Ave.	54.9 pounds



APPENDIX C

2012 COMPREHENSIVE ANNUAL GROUNDWATER MONITORING REPORT

July 25, 2013

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) (V00619-9)
2012 Comprehensive Annual Groundwater Monitoring Report

Dear Mr. Moore:

On behalf of our client, Riverbend, LLC, TurnKey Environmental Restoration, LLC, has prepared this comprehensive letter report to transmit the results of the June 2012 groundwater monitoring event conducted at Area I (Former Steel Plant Parcel), Area II (Former Coke Plant Parcel), and Area III (Former Warehouse Parcel) of BUDC's Riverbend Site, Buffalo, NY (see Figure 1). This letter report also includes the results of the June and December 2012 Oxygen Release Compound (ORC) monitoring events for Area III. The current groundwater monitoring event was performed June 11-13, 2012, the Area III first semi-annual ORC monitoring event was performed June 18-21, 2012, and the Area III second semi-annual ORC event December 11-14, 2012. The LTGWM network wells are summarized in Table 1 and shown on Figure 1. 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 recently modified parameter list identified by Area in Table 2 and discussed in the next section.

PROGRAM MODIFICATIONS

On May 5, 2011, the NYSDEC approved a modification of the groundwater parameter lists and sample frequency for Areas I, II, and III. The modified monitoring program for all three Areas now follows a two-year monitoring cycle (e.g., bi-annual) as presented in Table 2. In general, this modification reduces the volatile organic compound and metals analysis frequency to once every other year for most wells while the collection of field parameters must be measured every year going forward.

As part of Riverbend's Periodic Review Report (PRR) submittal for the period covering April 2, 2011 to July 2, 2012, the NYSDEC approved Riverbend's request to decommission well A2-MW-14. As such, on October 10, 2012, this well was decommissioned in accordance with NYSDEC's Commissioner's Policy: CP-43 Groundwater Monitoring Well Decommissioning Policy (11/03/2009). Well decommissioning documentation is provided in Attachment 1.

GROUNDWATER ELEVATIONS & FLOW

Depth to water measurements and calculated groundwater elevations measured from 11 wells and 2 Buffalo River staff gauges in Area I, 18 of the 19 wells in Area II, and 5 monitoring wells and 11 ORC monitoring wells in Area III on June 11, 2012 are summarized in Table 3. The Lake Erie elevation, presented in each 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 1, was prepared from the June 2012 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 2 for contrast. Comparison of the June 2012 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 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 1 indicates significant lowering of the water table of between 2 to 4 feet throughout the containment cell as generally predicted in the selected remedial approach groundwater flow model (Geomatrix, December 1998) (see Attachment 2). The remnants of the Former August Feine building north of the containment cell, however, creates a natural topographic depression that allows seasonal accumulation of snow melt and frequent Spring precipitation resulting in the occasional reappearance of the groundwater mound originally observed in 1998. Typically, from July through February of each year, ponding water is not observed in this area of the Site.

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 distribution pipes in the system (shown on Figure 1). These mounds create a unique, yet effective, method to remediate residual impacts in those areas.

The groundwater flow, as depicted on Figure 1, 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 1. A groundwater elevation comparison of this well pair indicates that groundwater outside the Cell is higher 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 pH at well A1-MW-5, n-propylbenzene at well A1-MW-6, and total arsenic at wells A1-MW-6 and A1-MW-8, all compounds were either reported as non-detect or at concentrations well below their respective GWQSs. A discussion of the moving average trend analysis for Area 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 or more than 7 years. Since installation, nearly nine gallons of recovered product

has been removed (see Table 5). In accordance with the LTGWM Plan, all recovered product is temporarily stored in a 55-gallon drum 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, monitoring of A1-MW-6 should continue in accordance with the Area I LTGWM Plan on a monthly basis.

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 pH and Benzene at well A2-MW-16, all compounds were either reported as non-detect or at concentrations well below their respective GWQSs. A discussion of the moving average trend analysis for Area II groundwater is presented later in this report. As previously discussed, well A2-MW-14 was damaged and was decommissioned in October 2012; a copy of the decommissioning documents are provided in Attachment 3.

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 and benzene at wells A3-MW-7, A3-MW-9, and A3-MW-10 as well as total arsenic and cyanide at well A3-MW-3, all compounds were either reported as non-detect or at concentrations well below their respective GWQSs. A discussion of the moving average trend analysis for Area III groundwater is presented later in this report.

In accordance with NYSDEC-approved procedures, ORC wells A3-ORC-1 through A3-ORC-11 are to be purged until 10 well volumes are removed or to dryness for four consecutive days, whichever occurs first, in order to obtain representative groundwater samples within the ORC area of Area III. Tables 8 and 9 present a summary of the June and December Area III ORC event field-measured parameters and analytical results, 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 for both events. For the June and December events, pH was measured below the GWQS lower limit of 6.5 at all of the ORC wells except A3-ORC-1, which was above the GWQS upper limit of 8.5 in June and December.

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-year 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 3 and summarized in Table 10. Some Area II and Area III plots are not included due to insufficient data; a minimum of three moving average data points are required to assess a trend in the data. As more data is collected, MATA assessments will be made for these monitoring locations, as necessary.

As summarized in Table 10 and presented in Attachment 3, the MATA assessment indicates the following:

- The concentration versus time and MATA plots for the field measured pH at wells A1-MW-5, A3-MW-7 and A3-MW-9, although elevated above the GWQS, continue to indicate a decreasing trend since September 2004, a neutral trend (neither increasing nor decreasing) since July 2007, and a neutral trend since October 2008, respectively. Field measured pH at wells A1-MW-6, A2-MW-16, and A3-MW-10 continue to indicate a neutral trend.
- The MATA plot for benzene at wells A1-MW-6, A2-MW-17, A3-MW-9, and A3-MW-10 indicates a decreasing trend; all but well A3-MW-10 are approaching the GWQS. The MATA plot for benzene at well A2-MW-16 indicates a neutral trend. The concentrations versus time plots shown on the same charts indicate the benzene concentrations at wells A1-MW-6, A2-MW-16, and A2-MW-17 have also declined below the GWQS.
- The MATA plot for benzene at well A3-MW-7 at first glance indicates an increasing 4-year moving average trend; however upon closer inspection the trend is being influenced by an unusually high concentration reported in May 2011 of more than 25 times historic values (i.e., outlier).
- The MATA plots for n-butylbenzene and n-propylbenzene at well A1-MW-6 initially indicated an increasing 4-year moving average trend; however upon closer inspection the trend was being influenced by unusually high concentrations of these two analytes reported in August 2007 of more than 300 and 30 times historic values (i.e., outlier), respectively. The concentration versus time plot shown on the same charts, however, indicates a return to historic ranges from April 2008 through June 2012 as well as the start of a decreasing trend. The MATA plots for these compounds also reflect a decreasing trend since May 2010.
- Similar to the above, the MATA plot of isopropylbenzene at well A1-MW-6 initially indicated an increasing 4-year moving average trend; however upon closer inspection the trend was being influenced by an outlier reported in May 2009 of more than 4 times historic concentrations. The concentration versus time plot shown on the same plot however, indicates that the trend is returning to historic concentrations with the June 2012 result being well below the GWQS. As a result, the MATA plot currently indicates a decreasing trend since May 2009.
- 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 non-detect in August 2007, the MATA plot clearly indicates a decreasing trend since August 2007.
- The concentration versus time plot for total arsenic at well A1-MW-8 indicates a period of moderation from December 2006 to April 2008 where the arsenic concentration actually

began to decrease, however the data since then has indicated higher concentrations. The MATA plot does indicate an increasing trend and this compound will continue to be monitored at this location. The concentration versus time plot shown on the same plot indicates that the increasing trend has subsided in June 2012.

- Although the concentration versus time plot for cyanide at well A3-MW-7 reveals a wide concentration range from a high 0.243 mg/L in April 2008 to 0.025 in May 2010, the MATA plot clearly indicates a decreasing trend since May 2009 below the GWQS. Cyanide concentrations at this location have also been reported below the GWQS since May 2009.

NYSDEC EQuIS Deliverables

On August 1, 2012 and March 5, 2013, 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 Riverbend to satisfy the NYSDEC EQuIS submittal requirement. On March 20, 2013, TurnKey resubmitted the revised analytical data EDD in response to NYSDEC errors with the original March 5th EDD.

Planned Activities

A schedule summarizing the past, present, and future monitoring events is presented in Table 1. The new NYSDEC-approved bi-annual analytical program is presented in Table 2. The next planned comprehensive monitoring event for Areas I, II, and III is tentatively scheduled for June 2013. Area III ORC well monitoring is tentatively scheduled for June and December 2013 (every six months).

Please contact us if you have any questions.

Sincerely,
TurnKey Environmental Restoration, LLC

Bryan C. Hann
Project Manager

Enclosures

ec: Peter Cammarata (BUDC)
David Stebbins (BUDC)
Paul Werthman (TurnKey)

File: 0171-011-500

TABLES

TABLE 1

GROUNDWATER MONITORING NETWORK AND SAMPLE FREQUENCY [1,2]

2012 Comprehensive Groundwater Monitoring Report
Riverbend, LLC
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
			1 SA	2SA	1 SA	2SA	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**	●
A1-MW-2		x	Sep-04	Sep-05	Dec-06		Aug-07		Apr-08	May-09	May-10	May-11	**Jun-12**	●
A1-MW-3		x	Sep-04	Sep-05	Dec-06		Aug-07		Apr-08	May-09	May-10	May-11	**Jun-12**	●
A1-MW-4	x		Sep-04	Sep-05	May-06	Dec-06	Aug-07		Apr-08	May-09	May-10	May-11	**Jun-12**	●
A1-MW-5	x		Sep-04	Sep-05	May-06	Dec-06	Aug-07		Apr-08	May-09	May-10	May-11	**Jun-12**	●
A1-MW-6	x		Sep-04	Sep-05	May-06	Dec-06	Aug-07		Apr-08	May-09	May-10	May-11	**Jun-12**	●
A1-MW-7	x		*water level only*									May-11	**Jun-12**	●
A1-MW-8	x		Sep-04	Sep-05	May-06	Dec-06	Aug-07		Apr-08	May-09	May-10	May-11	**Jun-12**	●
A1-MW-9	x		Sep-04	Sep-05	May-06	Dec-06	Aug-07		Apr-08	May-09	May-10	May-11	**Jun-12**	●
A1-MW-M2		x	Sep-04	Sep-05	Dec-06		Aug-07		Apr-08	May-09	May-10	May-11	**Jun-12**	●
A1-P-4		x	Sep-04	Sep-05	Dec-06		Aug-07		Apr-08	May-09	May-10	May-11	**Jun-12**	●
AREA II														
A2-MW-3		x	Jul-07	Dec-07	Apr-08		May-09		May-10	May-11	**Jun-12**	●	●	●
A2-MW-4R		x	Jul-07	Dec-07	Apr-08		May-09		May-10	May-11	**Jun-12**	●	●	●
A2-MW-5		x	Jul-07	Dec-07	Apr-08		May-09		May-10	May-11	**Jun-12**	●	●	●
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**	●	●	●	●
A2-MW-12		x	*water level only*											
A2-MW-13		x	Jul-07	Dec-07	Apr-08		May-09		May-10	May-11	**Jun-12**	●	●	●
A2-MW-14	x		Jul-07	Dec-07	Apr-08	May-09	May-10		May-11	**Jun-12**	●	●	●	●
A2-MW-15 [3]	x		Jul-07	Dec-07	~~Apr-08~~	May-09	~~May-10~~		May-11	**Jun-12**	●	●	●	●
A2-MW-16	x		Jul-07	Dec-07	Apr-08	May-09	May-10		May-11	**Jun-12**	●	●	●	●
A2-MW-17	x		Jul-07	Dec-07	Apr-08	May-09	May-10		May-11	**Jun-12**	●	●	●	●
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**	●	●	●	●	●
A3-MW-6		x	Oct-08	May-09	May-10		May-11		**Jun-12**	●	●	●	●	●
A3-MW-7		x	Jul-07	Dec-07	Apr-08		May-09		May-10	May-11	**Jun-12**	●	●	●
A3-MW-9	x		Oct-08	May-09	Oct-09	May-10	May-11		**Jun-12**	●	●	●	●	●
A3-MW-10	x		Oct-08	May-09	Oct-09	May-10	May-11		**Jun-12**	●	●	●	●	●
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**
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**
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**
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**
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**
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**
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**
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**
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**
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**
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**

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. Prior to May 2011, this monitoring well was sampled every two years. NYSDEC-approved modification requires annual sampling going forward.

Jun-12	= current and tentatively scheduled future monitoring event
x	= type of monitoring well
●	= to be monitored

TABLE 2

ANALYTICAL PROGRAM SUMMARY

2012 Comprehensive Groundwater Monitoring Report
Riverbend, LLC
Buffalo, New York

Well Designation	Monitoring Event															
	2012								2013							
	Field	8021 VOCs	8021 Benzene Only	As	Cr	Pb	CN	Alk.	Field	8021 VOCs	8021 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-4	x								x	x						
A1-MW-5	x	x							x	x						
A1-MW-6	x	x		x					x	x		x				
A1-MW-7 [2]	x								x							
A1-MW-8	x			x					x	x		x				
A1-MW-9	x								x	x						
A1-MW-M2	x								x	x						
A1-P-4	x				x				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-14	*decommissioned*								*decommissioned*							
A2-MW-15	x	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

TABLE 2

ANALYTICAL PROGRAM SUMMARY

2012 Comprehensive Groundwater Monitoring Report
Riverbend, LLC
Buffalo, New York

Well Designation	Monitoring Event															
	2012								2013							
	Field	8021 VOCs	8021 Benzene Only	As	Cr	Pb	CN	Alk.	Field	8021 VOCs	8021 Benzene Only	As	Cr	Pb	CN	Alk.
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:	**36**	**10**	**11**	**6**	**2**	**2**	**4**	**11**	**36**	**23**	**11**	**6**	**2**	**2**	**4**	**11**

Notes:
1. Modified analytical plan as per NYSDEC approval letter dated May 5, 2011.
2. Per a NYSDEC request, A1-MW-7 was sampled for VOCs, arsenic, chromiuim, and lead in 2011; water level and field parameters annually thereafter.

TABLE 3

GROUNDWATER ELEVATION MEASUREMENTS
June 11, 2012

2012 Comprehensive Groundwater Monitoring Report
Riverbend, LLC
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	9.75	NP	576.63	576.63
A1-MW-2	586.39	NP	8.25	NP	578.14	578.14
A1-MW-3	591.98	NP	18.22	NP	573.76	573.76
A1-MW-4	586.70	NP	7.28	NP	579.42	579.42
A1-MW-5	590.48	NP	6.44	NP	584.04	584.04
A1-MW-6	591.60	18.20	19.61	1.41	571.99	573.23
A1-MW-7	586.97	NP	12.66	NP	574.31	574.31
A1-MW-8	589.47	NP	12.79	NP	576.68	576.68
A1-MW-9	588.05	NP	12.71	NP	575.34	575.34
A1-MW-M2	587.85	NP	7.51	NP	580.34	580.34
A1-P-4	589.37	NP	12.92	NP	576.45	576.45
Area II Monitoring Wells [3]						***19 Wells***
A2-MW-3	588.95	NP	7.52	NP	581.43	581.43
A2-MW-4R	588.59	NP	7.18	NP	581.41	581.41
A2-MW-5	587.25	NP	5.92	NP	581.33	581.33
A2-MW-6	592.69	NP	10.07	NP	582.62	582.62
A2-MW-7	602.05	NP	19.67	NP	582.38	582.38
A2-MW-10R	593.59	NP	10.57	NP	583.02	583.02
A2-MW-11	590.11	NP	7.50	NP	582.61	582.61
A2-MW-12	604.12	NP	18.26	NP	585.86	585.86
A2-MW-13	597.90	NP	14.12	NP	583.78	583.78
A2-MW-14 [6]	593.02	*~ d e c o m m i s s i o n e d ~*				
A2-MW-15	589.56	NP	6.21	NP	583.35	583.35
A2-MW-16	597.62	NP	15.87	NP	581.75	581.75
A2-MW-17	596.94	NP	14.67	NP	582.27	582.27
A2-MW-18	587.64	NP	4.95	NP	582.69	582.69
A2-MW-19	592.02	NP	9.38	NP	582.64	582.64
A2-MW-20	591.54	NP	6.49	NP	585.05	585.05
A2-PW-1	601.76	NP	21.61	NP	580.15	580.15
A2-PW-2	603.91	NP	17.98	NP	585.93	585.93
A2-PW-3	603.88	NP	20.21	NP	583.67	583.67
Area III Monitoring Wells [3]						***5 Wells***
A3-MW-3	585.40	NP	3.40	NP	582.00	582.00
A3-MW-6	585.70	NP	3.38	NP	582.32	582.32
A3-MW-7	586.39	NP	5.02	NP	581.37	581.37
A3-MW-9	597.61	NP	15.26	NP	582.35	582.35
A3-MW-10	585.41	NP	6.08	NP	579.33	579.33

TABLE 3

GROUNDWATER ELEVATION MEASUREMENTS
June 11, 2012

2012 Comprehensive Groundwater Monitoring Report
Riverbend, LLC
Buffalo, New York

Monitoring Location	TOR Elevation (fmsl)	DTP (fbTOR)	DTW (fbTOR)	Product Thickness (feet)	Groundwater Elevation (fmsl)	Corrected Groundwater Elevation [1] (fmsl)
Area III ORC Monitoring Wells [3]						***11 Wells***
A3-ORC-1	587.17	NP	5.61	NP	581.56	581.56
A3-ORC-2	587.35	NP	5.73	NP	581.62	581.62
A3-ORC-3	587.55	NP	5.54	NP	582.01	582.01
A3-ORC-4	587.14	NP	5.11	NP	582.03	582.03
A3-ORC-5	587.77	NP	5.53	NP	582.24	582.24
A3-ORC-6	587.53	NP	5.75	NP	581.78	581.78
A3-ORC-7	587.16	NP	6.27	NP	580.89	580.89
A3-ORC-8	587.51	NP	6.04	NP	581.47	581.47
A3-ORC-9	585.15	NP	3.62	NP	581.53	581.53
A3-ORC-10	587.60	NP	6.13	NP	581.47	581.47
A3-ORC-11	587.70	NP	5.99	NP	581.71	581.71
Surface Water [4,5]						***3 Locations***
SG-01 (downstream)	585.07	NP	11.75	NP	573.32	573.32
SG-02 (upstream)	590.72	NP	17.59	NP	573.13	573.13
Lake Erie	NA	NA		NA	NA	571.49

Notes:

1. Groundwater elevations are corrected if free product (i.e., LNAPL) is present.
2. Area I monitoring well reference point elevations (i.e., top of riser for wells and sheet pile for staff gauges) as surveyed by TurnKey on November 10, 2004.
3. Monitoring well elevations have been surveyed at various times by TurnKey or Steelfields.
4. Staff Gauge (SG) locations are located at the upstream and downstream locations indicated on Figure 1. Each staff gauge was surveyed on January 3, 2008 by Niagara Boundary personnel.
5. Source: NOAA Tides & Currents Web Page- Buffalo, NY Station ID 9063020; average daily elevation of Buffalo, New York Station #9063020.
6. This well appeared to be vandalized and damaged beyond repair and was subsequently decommissioned on October 10, 2012.

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
R = replacement well
TOR = top of riser

TABLE 4

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

2012 Comprehensive Groundwater Monitoring Report
Riverbend, LLC
Buffalo, New York

Parameter	Monitoring Location and Date of Sample Collection											GWQS/GV [1]
	A1-MW-1	A1-MW-2[7]	A1-MW-3[7]	A1-MW-4[7]	A1-MW-5	A1-MW-6[3]	A1-MW-7[7]	A1-MW-8	A1-MW-9[7]	A1-MW-M2[7]	A1-P-4[7]	
	06/12/12	06/12/12	06/12/12	06/12/12	06/12/12	06/11/12	06/13/12	06/12/12	06/12/12	06/12/12	06/11/12	
Field Measurements (units as indicated) [2]												
pH (units)	7.77	7.83	7.23	7.03	**11.55**	6.77	6.54	6.94	7.70	7.44	7.23	**6.5 - 8.5**
Temperature (degrees C)	13.6	14.3	14.7	13.8	13.8	16.8	10.0	14.1	13.8	14.8	17.5	**NA**
Specific Conductance (uS)	543.5	543.4	821.7	837.3	685.1	1168	889.3	1969	606.1	628.5	333	**NA**
Turbidity (NTU)	6.55	0.95	74.1	5.29	1.26	-	14.5	38.6	1.98	54.2	22.7	**NA**
Dissolved Oxygen (mg/L)	1.00	2.60	3.44	1.99	1.75	-	3.03	1.75	2.64	2.32	7.04	**NA**
Eh (mV)	- 122	- 54	4	160	53	- 121	739	- 130	- 97	304	0	**NA**
Visual Observation	Clear	Clear	Orange Tint	Clear	Clear	LNAPL	Clear	Sl. turbid	Clear	Sl turbid	Sl turbid	**NA**
Olfactory Observation	Sl. Sulfur	No odor	No odor	Slufur odor	Sulfur odor	Petro-like odor	No odor	No odor	Sulfur odor	no odor	no odor	**NA**
Volatile Organic Compounds (ug/L)												
Benzene	-	-	-	-	0.054 J	0.6	-	-	-	-	-	**1**
n-Butylbenzene	-	-	-	-	ND	2.9	-	-	-	-	-	**5**
sec-Butylbenzene	-	-	-	-	ND	4.5	-	-	-	-	-	**5**
tert-Butylbenzene	-	-	-	-	ND	1.3	-	-	-	-	-	**5**
p-Cymene (4-Isopropyltoluene)	-	-	-	-	ND	ND	-	-	-	-	-	**5**
Ethylbenzene	-	-	-	-	ND	ND	-	-	-	-	-	**5**
Isopropylbenzene	-	-	-	-	ND	2.7	-	-	-	-	-	**5**
Methyl tert butyl ether	-	-	-	-	ND	ND	-	-	-	-	-	**10**
n-Propylbenzene	-	-	-	-	ND	**5.4**	-	-	-	-	-	**5**
Toluene	-	-	-	-	ND	0.34	-	-	-	-	-	**5**
1,2,4-Trimethylbenzene	-	-	-	-	0.13 J	ND	-	-	-	-	-	**5**
1,3,5-Trimethylbenzene	-	-	-	-	ND	ND	-	-	-	-	-	**5**
Xylenes, Total	-	-	-	-	ND	0.55	-	-	-	-	-	**15**
Total VOCs	-	-	-	-	***0.184***	***18.29***	-	-	-	-	-	**10**
Total Inorganics (mg/L)												
Total Arsenic	0.016	-	-	-	-	**0.083**	-	**0.1**	-	-	-	**0.025**
Total Chromium	-	-	-	-	-	-	-	-	-	-	0.032	**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; approximately 1.41 feet in thickness.
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
7. Field parameters only as per NYSDEC approval letter dated May 5th 2011

= 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

2011 Comprehensive Groundwater Monitoring Report
Riverbend, LLC
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 monitor
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

TABLE 5

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

2011 Comprehensive Groundwater Monitoring Report
Riverbend, LLC
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)			
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
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	
11/29/11	43	18.66	19.84	1.18	26	17.0	
12/22/11	23	19.24	19.77	0.53	19	17.0	
01/12/12	21	18.14	19.67	1.53	21	17.0	
02/06/12	25	18.79	19.84	1.05	18	17.0	
03/08/12	31	17.38	21.18	3.80	21	17.0	
04/05/12	28	19.16	20.33	1.17	22	17.0	
05/03/12	28	18.71	20.03	1.32	24	17.0	
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	
12/21/12	149	18.97	19.30	0.33	5	17.0	1 oz. removed from trap, bailed 4 oz.
Total Quantity Removed To Date: 1137.6 oz. or 8.88 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
Area II: Former Coke Plant Parcel

2012 Comprehensive Groundwater Monitoring Report
Riverbend, LLC
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-14	A2-MW-15	A2-MW-16	A2-MW-17	
	6/12/2012[7]	6/12/2012[7]	6/12/2012[7]	6/13/2012[7]	6/13/2012[7]	NS	06/12/12	06/13/12	06/13/12	
Field Measurements (units as indicated) [2]										
pH (units)	7.62	7.11	7.05	7.72	7.33	NS	6.73	**6.29**	6.85	**6.5 - 8.5**
Temperature (degrees C)	14.3	13.3	13.3	11.7	11.2	NS	12.00	12.3	12.3	**NA**
Specific Conductance (uS)	790.3	1178	891.2	1673	2122	NS	1287	2146	2860	**NA**
Turbidity (NTU)	7.25	38.9	3.36	4.28	36.7	NS	9.55	27.9	3.2	**NA**
Dissolved Oxygen (mg/L)	2.32	2.09	2	2.6	2.19	NS	1.51	3.05	2.06	**NA**
Eh (mV)	283	- 90	- 67	-29	446	NS	56	54	- 61	**NA**
Visual Observation	Clear	Sl.Turbid	Clear	Clear	Sl. Turbid	NS	Sl. Turbid	Clear	Clear	**NA**
Olfactory Observation	Sl. Turbid	No odor	No odor	Sulfur odor	No odor	NS	No odor	Sl. Petro odor	Sulfur odor	**NA**
Volatile Organic Compounds (ug/L)										
Benzene	--	--	--	--	--	NS	ND	**1.3**	0.28	**1**
n-Butylbenzene	--	--	--	--	--	NS	ND	ND	ND	**5**
sec-Butylbenzene	--	--	--	--	--	NS	ND	ND	ND	**5**
tert-Butylbenzene	--	--	--	--	--	NS	ND	ND	1.9	**5**
p-Cymene (4-Isopropyltoluene)	--	--	--	--	--	NS	ND	ND	ND	**5**
Ethylbenzene	--	--	--	--	--	NS	ND	ND	ND	**5**
Isopropylbenzene	--	--	--	--	--	NS	ND	0.071 J	ND	**5**
Methyl tert butyl ether	--	--	--	--	--	NS	ND	ND	ND	**10**
n-Propylbenzene	--	--	--	--	--	NS	ND	ND	ND	**5**
Toluene	--	--	--	--	--	NS	ND	0.13 J	ND	**5**
1,2,4-Trimethylbenzene	--	--	--	--	--	NS	ND	ND	ND	**5**
1,3,5-Trimethylbenzene	--	--	--	--	--	NS	ND	ND	ND	**5**
Xylenes, Total	--	--	--	--	--	NS	ND	0.092 J	ND	**15**
Total VOCs	--	--	--	--	--	NS	***0***	***1.593***	***2.18***	**10**
Inorganics (mg/L)										
Total Arsenic	--	--	--	--	--	NS	--	ND	--	**0.025**
Total Chromium	--	--	--	--	--	NS	--	ND	--	**0.05**
Total Lead	--	--	--	--	--	NS	--	ND	--	**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.
7. Field parameters only as per NYSDEC approval letter dated May 5th 2011

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

TABLE 7

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
Area III: Former Warehouse Parcel

2012 Comprehensive Groundwater Monitoring Report
Riverbend, LLC
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	
	06/13/12	06/13/12	06/13/12	06/13/12	06/13/12	
Field Measurements (units as indicated) [2]						
pH (units)	7.85	7.82	**10.74**	**12.78**	**5.77**	**6.5 - 8.5**
Temperature (degrees C)	16.7	14.8	15.6	12.2	14.3	**NA**
Specific Conductance (uS)	1798.0	1259	798.6	5343	5550	**NA**
Turbidity (NTU)	26.2	13	9.31	1.96	36.8	**NA**
Dissolved Oxygen (mg/L)	3.49	3.09	1.47	3.51	1.94	**NA**
Eh (mV)	- 58	- 82	- 95	7	- 11	**NA**
Visual Observation	clear	clear	clear	clear	sl. Turbid	**NA**
Olfactory Observation	no odor	no odor	sl. Sulfur	no odor	no odor	**NA**
Volatile Organic Compounds (ug/L)						
Benzene	0.68	0.1 J	**25**	**2.3**	**1300**	**1**
n-Butylbenzene	ND	ND	ND	ND	ND	**5**
sec-Butylbenzene	ND	ND	ND	0.15 J	ND	**5**
tert-Butylbenzene	ND	ND	ND	ND	ND	**5**
p-Cymene (4-Isopropyltoluene)	ND	ND	ND	ND	ND	**5**
Ethylbenzene	ND	ND	ND	ND	ND	**5**
Isopropylbenzene	ND	ND	ND	ND	ND	**5**
Methyl tert butyl ether	ND	ND	ND	ND	ND	**10**
n-Propylbenzene	ND	ND	ND	ND	ND	**5**
Toluene	ND	ND	1.4 J	0.71	ND	**5**
1,2,4-Trimethylbenzene	ND	ND	ND	0.17 J	ND	**5**
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	**5**
Xylenes, Total	0.11 J	ND	0.87 J	0.27 J	ND	**15**
Total VOCs	***0.79***	***0.1***	***27.27***	***3.6***	***1300***	**10**
Inorganics (mg/L)						
Total Arsenic	**0.57**	ND	-	-	-	**0.025**
Total Lead	-	-	-	0.033	-	**0.025**
Wet Chemistry (mg/L)						
Cyanide	**21.3**	0.03	0.2	-	0.21	**0.2**

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

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

TABLE 8

SUMMARY OF JUNE 2012 ORC ANALYTICAL RESULTS
Area III: Former Warehouse Parcel

2012 Comprehensive Groundwater Monitoring Report
Riverbend, LLC
Buffalo, New York

PARAMETER	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	GWQS [2]
Field Measurements During Purge (units as shown) [1]												
Static Depth to Water (fbTOR)	5.69	5.79	5.59	5.35	5.52	5.80	6.34	6.02	3.81	6.19	5.98	--
Total Depth (fbTOR)	14.08	14.45	14.38	14.38	14.03	14.36	14.36	14.63	14.03	14.55	14.57	--
One Casing Volume (gallons)	5.4	5.6	5.7	5.8	5.5	5.5	5.2	5.6	6.6	5.4	5.6	--
Number of Volumes Purged	6.7	10.2	6.1	4.7	7.4	6.1	6.4	6.6	10.2	6.2	10.1	--
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 (06/18/12) (gallons)	10.0	18.0	9.0	6.5	10.0	9.0	9.0	10.0		9.5	19.0	--
Purge: Day 2 (06/19/12) (gallons)	8.0	15.5	8.5	6.5	10.0	8.0	8.0	9.0		8.5	16.0	--
Purge: Day 3 (06/20/12) (gallons)	9.5	23.5	9.0	7.0	10.0	9.0	9.0	9.0	67.0	8.0	16.5	--
Purge: Day 4 (06/21/12) (gallons)	8.5		8.0	7.5	10.5	7.5	7.5	9.0		7.5	5.0	--
Sample Collection (date indicated)	06/21/12	06/20/12	06/21/12	06/21/12	06/21/12	06/21/12	06/21/12	06/21/12	06/20/12	06/21/12	06/21/12	--
Cumulative Volume Purged (gallons)	36.0	57.0	34.5	27.5	40.5	33.5	33.5	37.0	67.0	33.5	56.5	--
Field Measurements During Sample Collection (units as shown) [3]												
pH (units)	**11.22**	**4.68**	**4.65**	**5.86**	**3.95**	**4.45**	**5.38**	**3.53**	**3.10**	**3.74**	**5.40**	6.5 - 8.5
Temperature (deg C)	19.3	16.9	17.9	16.7	17.6	17.3	17.7	17.7	17.8	17.5	17.9	--
Specific Conductance (uS)	1666	7188	7145	7458	8539	11790	10020	13610	11160	9319	6526	--
Turbidity (NTU)	90.4	20.2	83.8	112	218	175	273	246	50.5	65.2	64	--
Dissolved Oxygen (ppm)	0.12	2.7	0.7	0.92	1.13	1.04	1.32	0.75	1.2	1.07	1.47	--
ORP (mV)	- 84	369	356	- 85	370	372	361	446	384	399	158	--
Visual Observation	Black tint	Clear	Sl. Turbid	Turbid	Sl. Turbid	Sl. turbid	Sl. turbid	Brown sed.	Orange tint	Breown sed.	Brown/orange	--
Volatile Organic Compounds (mg/L):												
Benzene	**3.6**	**7**	**4.1**	**0.051**	**26**	**5**	**0.93**	**36**	**240**	**150**	**0.0033**	0.001
Wet Chemistry (mg/L):												
Alkalinity	282	ND	ND	310	ND	ND	ND	ND	ND	ND	110	--

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. "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).

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

TABLE 9

SUMMARY OF DECEMBER 2012 ORC ANALYTICAL RESULTS
Area III: Former Warehouse Parcel

2012 Comprehensive Groundwater Monitoring Report
Riverbend, LLC
Buffalo, New York

PARAMETER	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	GWQS [2]
Field Measurements During Purge (units as shown) [1]												
Static Depth to Water (fbTOR)	4.61	4.95	5.14	4.50	4.66	5.65	5.78	5.50	3.08	5.47	5.09	--
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)	6.10	6.10	6.00	6.40	6.10	5.60	5.60	5.90	7.10	5.90	6.10	--
Number of Volumes Purged	10.2	10.2	5.7	5.0	11.1	7.0	6.8	6.9	10.0	10.2	10.2	--
Sample Determination [3]	volume	volume	4-days	4-days	volume	4-days	4-days	4-days	volume	volume	volume	--
Purge: Day 1 (12-11-12) (gallons)	19.0	32.0	9.0	8.0	20.0	10.0	10.0	11.0				--
Purge: Day 2 (12-12-12) (gallons)	18.0	20.0	8.0	8.0	18.0	10.0	10.0	10.0		15.0		--
Purge: Day 3 (12-13-12) (gallons)	14.0		9.0	8.0	13.0	10.0	8.0	10.0		23.0	35.0	--
Purge: Day 4 (12-14-12) (gallons)	11.0	10.0	8.0	8.0	17.0	9.0	10.0	10.0	71.0	22.0	27.0	--
Sample Collection (date indicated)	12/14/12	12/14/12	12/14/12	12/14/12	12/14/12	12/14/12	12/14/12	12/14/12	12/14/12	12/14/12	12/14/12	--
Cumulative Volume Purged (gallons)	62.0	62.0	34.0	32.0	68.0	39.0	38.0	41.0	71.0	60.0	62.0	--
Field Measurements During Sample Collection (units as shown) [3]												
pH (units)	**9.65**	**4.74**	**4.76**	**5.86**	**4.60**	**4.55**	**5.57**	**3.77**	**3.04**	**6.26**	**5.43**	6.5 - 8.5
Temperature (deg C)	9.6	10.2	7.6	7.6	8.2	8.8	9.3	8.9	10.1	10.1	10.4	--
Specific Conductance (uS)	1731	7135	7129	5485	5930	11490	9056	14300	9164	1837	6526	--
Turbidity (NTU)	63.3	22.3	28.7	38.6	13.2	158	104	123	15.7	8.08	8.92	--
Dissolved Oxygen (ppm)	1.82	2.24	4.84	3.14	3.72	2.04	2.07	2.13	2.23	2.2	1.82	--
ORP (mV)	- 280	119	129	-11	139	126	-11	217	263	-47	- 41	--
Visual Observation	black turbid	clear	clear	clear	clear	clear	clear	clear	clear	clear	clear	--
Volatile Organic Compounds (mg/L):												
Benzene	**1.5**	**7.2**	**4.3**	**0.014**	**17**	**6.8**	**0.54**	**51**	**210**	**3.5**	**0.002**	0.001
Wet Chemistry (mg/L):												
Alkalinity	136	ND	ND	262	ND	ND	44	ND	ND	254	148	--

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. "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).

= 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, LLC
Buffalo, New York

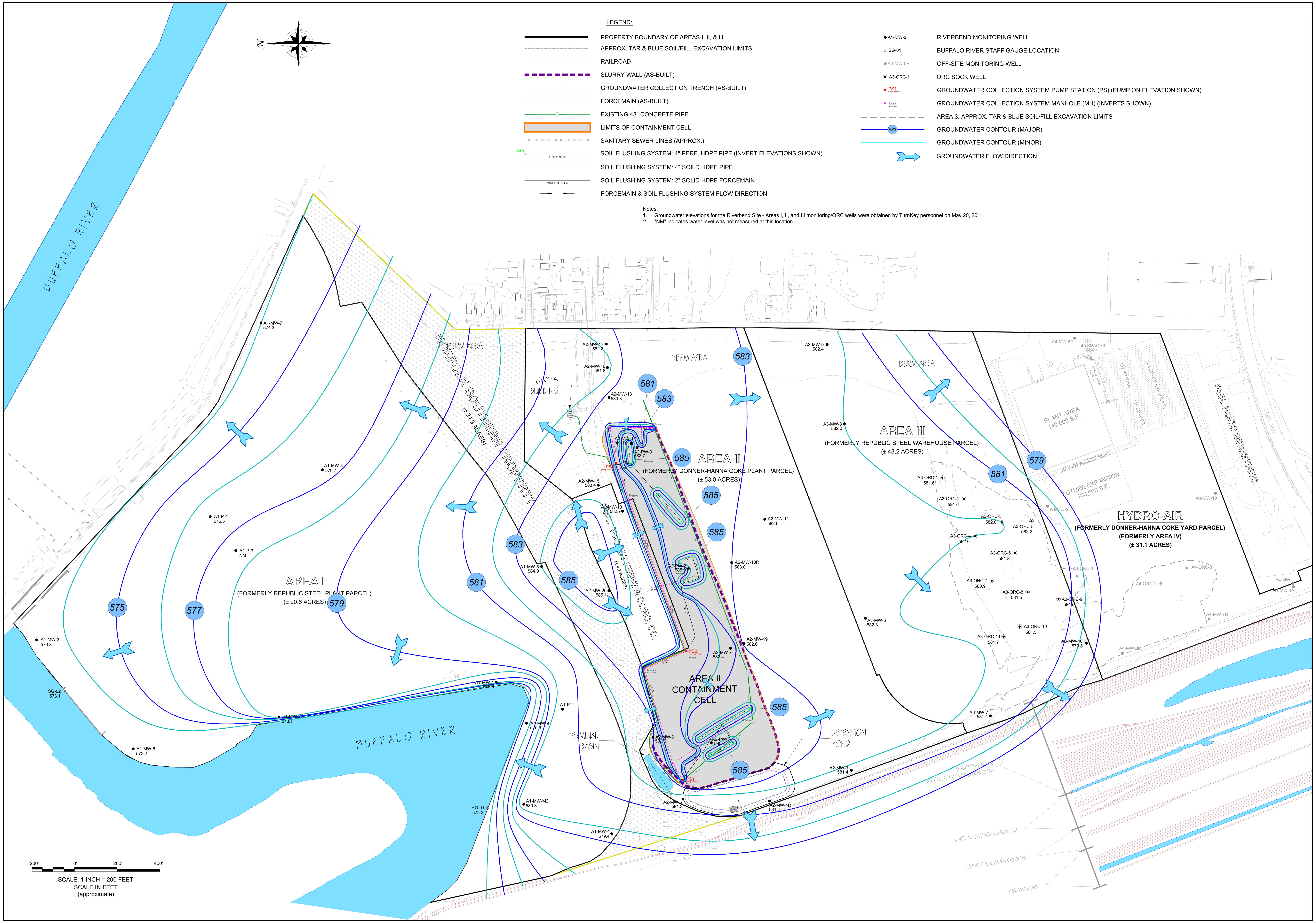
Location	No. of Data Pts.	MATA Pts.	Moving Average Trend [1] [increasing (I), decreasing (D), neutral (N)]						
			pH	Benzene	n-Butylbenzene	Isopropylbezene	n-Propylbenzene	Total Arsenic	Cyanide
Area I Monitoring Wells									
A1-MW-1	**9**	**6**	NA	NA	NA	NA	NA	NA	--
A1-MW-2	**9**	**6**	NA	NA	NA	NA	NA	NA	--
A1-MW-3	**9**	**6**	NA	NA	NA	NA	NA	NA	--
A1-MW-4	**10**	**7**	NA	NA	NA	NA	NA	NA	--
A1-MW-5	**10**	**7**	**D**	NA	NA	NA	NA	NA	--
A1-MW-6	**10**	**7**	**D**	**D**	**D**	**D**	**D**	**D**	--
A1-MW-8	**10**	**7**	NA	NA	NA	NA	NA	**I**	--
A1-MW-9	**10**	**7**	NA	NA	NA	NA	NA	NA	--
A1-MW-M2	**9**	**6**	NA	NA	NA	NA	NA	NA	--
A1-P-4	**9**	**6**	NA	NA	NA	NA	NA	NA	--
Area II Monitoring Wells									
A2-MW-3	**7**	**4**	NA	NA	NA	NA	NA	NA	--
A2-MW-4R	**7**	**4**	NA	NA	NA	NA	NA	NA	--
A2-MW-5	**7**	**4**	NA	NA	NA	NA	NA	NA	--
A2-MW-10R	**6**	**3**	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	--
A2-MW-13	**7**	**4**	NA	NA	NA	NA	NA	NA	--
A2-MW-15	**5**	**2**	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	--
A2-MW-16	**7**	**4**	**N**	**N**	NA	NA	NA	NA	--
A2-MW-17	**7**	**4**	NA	**D**	NA	NA	NA	NA	--
Area III Monitoring Wells									
A3-MW-3	**5**	**2**	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*
A3-MW-6	**5**	**2**	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*
A3-MW-7	**7**	**4**	**N**	**I**	NA	NA	NA	NA	**D**
A3-MW-9	**6**	**3**	**N**	**D**	NA	NA	NA	NA	NA
A3-MW-10	**6**	**3**	**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 events will be statistically evaluated.
2. *TBD* = to be determined; insufficient data exists to make a trend determination.
3. " -- " = not analyzed for this parameter.
4. NA = indicates there have not been two consecutive exceedances of the GWQS/GV at this location and trending is "not applicable".

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

FIGURES


LEGEND:
PROPERTY BOUNDARY OF AREAS I, II, & III
APPROX. TAR & BLUE SOIL/FILL EXCAVATION LIMITS
RAILROAD
SLURRY WALL (AS-BUILT)
GROUNDWATER COLLECTION TRENCH (AS-BUILT)
FORCEMAIN (AS-BUILT)
EXISTING 48" CONCRETE PIPE
LIMITS OF CONTAINMENT CELL
SANITARY SEWER LINES (APPROX.)
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
A1-MW-2 RIVERBEND MONITORING WELL
SG-01 BUFFALO RIVER STAFF GAUGE LOCATION
A4-MW-5R OFF-SITE MONITORING WELL
A3-ORC-1 ORC SOCK WELL
PS1 GROUNDWATER COLLECTION SYSTEM PUMP STATION (PS) (PUMP ON ELEVATION SHOWN)
GROUNDWATER COLLECTION SYSTEM MANHOLE (MH) (INVERTS SHOWN)
AREA 3: APPROX. TAR & BLUE SOIL/FILL EXCAVATION LIMITS
583 GROUNDWATER CONTOUR (MAJOR)
GROUNDWATER CONTOUR (MINOR)
GROUNDWATER FLOW DIRECTION
Notes:
1. Groundwater elevations for the Riverbend Site - Areas I, II, and III monitoring/ORC wells were obtained by TurnKey personnel on May 20, 2011.
2. "NM" indicates water level was not measured at this location.
BUFFALO RIVER
NORFOLK SOUTHERN PROPERTY
(± 24.9 ACRES)
AREA I
(FORMERLY REPUBLIC STEEL PLANT PARCEL)
(± 90.6 ACRES)
AREA II
(FORMERLY DONNER-HANNA COKE PLANT PARCEL)
(± 53.0 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)
AREA II CONTAINMENT CELL
FMR. HOOD INDUSTRIES
BERM AREA
GWPTS BUILDING
TERMINAL BASIN
DETENTION POND
PLANT AREA 140,000 S.F.
FUTURE EXPANSION 100,000 S.F.
30' WIDE ACCESS ROAD
40 SPACES
A1-MW-7 574.3
A1-MW-8 576.7
A1-P-4 576.5
A1-P-3 NM
A1-MW-3 573.8
SG-02 573.1
A1-MW-2 578.1
A1-MW-6 573.2
A1-MW-1 576.6
A1-MW-9 575.5
A1-MW-M2 580.3
SG-01 573.3
A1-MW-4 579.4
A1-MW-5 584.0
A1-P-2
A2-MW-17 582.3
A2-MW-16 581.8
A2-MW-13 583.8
A2-MW-15 583.4
A2-MW-18 582.7
A2-MW-20 585.1
A2-MW-11 582.6
A2-MW-10R 583.0
A2-MW-19 582.6
A2-MW-7 582.4
A2-MW-3 581.4
A2-MW-4R 581.4
A2-MW-5 581.3
A3-MW-9 582.4
A3-MW-3 582.0
A3-ORC-1 581.6
A3-ORC-2 581.6
A3-ORC-3 582.0
A3-ORC-4 582.0
A3-ORC-5 582.2
A3-ORC-6 581.8
A3-ORC-7 580.9
A3-ORC-8 581.5
A3-ORC-9 581.6
A3-ORC-10 581.5
A3-ORC-11 581.7
A3-MW-6 582.3
A3-MW-10 579.3
A3-MW-7 581.4
A4-MW-5R
A4-MW-10
A4-MW-9
A4-ORC-1
A4-ORC-2
A4-ORC-3
A4-MW-7R
A4-MW-8R
A4-MW-1
575
577
579
581
583
585
NORFOLK SOUTHERN RAILROAD
BUFFALO SOUTHERN RAILROAD
CSX RAILROAD
200' 0' 200' 400'
SCALE: 1 INCH = 200 FEET
SCALE IN FEET
(approximate)

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
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(716) 856-0599

JOB NO.: 0171-011-500

REVISIONS

NO.	BY	DATE	REMARKS

SEAL

DRAWN BY: BLR
DATE: OCTOBER 2012
CHECKED BY:
APPROVED BY:

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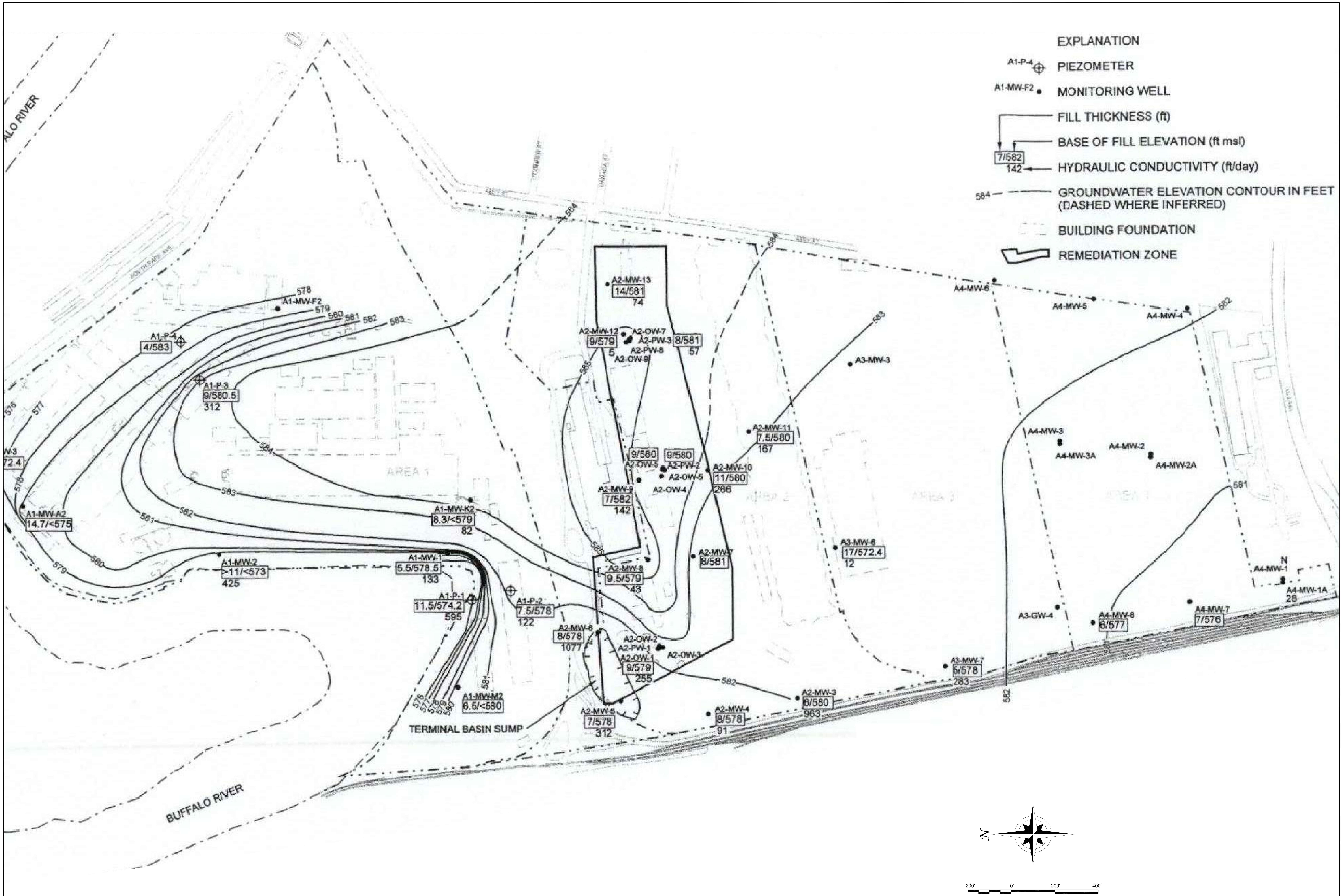
SITE PLAN & ISOPOTENTIAL MAP - JUNE 11, 2012

GROUNDWATER / ORC MONITORING EVENT
FORMER STEEL MANUFACTURING SITE
BUFFALO, NEW YORK

PREPARED FOR
RIVERBEND, LLC

FIGURE 1


EXPLANATION
A1-P-4 PIEZOMETER
A1-MW-F2 MONITORING WELL
FILL THICKNESS (ft)
BASE OF FILL ELEVATION (ft msl)
7/582
142
HYDRAULIC CONDUCTIVITY (ft/day)
584 GROUNDWATER ELEVATION CONTOUR IN FEET (DASHED WHERE INFERRED)
BUILDING FOUNDATION
REMEDIATION ZONE
BUFFALO RIVER
AREA 1
AREA 2
AREA 3
AREA 4
A1-MW-F2
A1-P-4
4/583
A1-P-3
9/580.5
312
A1-MW-A2
14.7/<575
A1-MW-K2
8.3/<579
82
A1-MW-2
>11/<573
425
A1-MW-1
5.5/578.5
133
A1-P-1
11.5/574.2
595
A1-P-2
7.5/578
122
A1-MW-M2
6.5/<580
TERMINAL BASIN SUMP
A2-MW-13
14/581
74
A2-MW-12
9/579
5
A2-OW-7
A2-PW-3
8/581
57
A2-PW-8
A2-OW-9
9/580
9/580
A2-OW-6
A2-PW-2
A2-OW-5
A2-OW-4
A2-MW-9
7/582
142
A2-MW-10
11/580
266
A2-MW-11
7.5/580
167
A2-MW-7
8/581
A2-MW-8
9.5/579
43
A2-MW-6
8/578
1077
A2-OW-2
A2-PW-1
A2-OW-1
9/579
255
A2-OW-3
A2-MW-5
7/578
312
A2-MW-4
8/578
91
A2-MW-3
6/580
963
A3-MW-3
A3-MW-6
17/572.4
12
A3-MW-7
5/578
283
A3-GW-4
A4-MW-6
A4-MW-5
A4-MW-4
A4-MW-3
A4-MW-3A
A4-MW-2
A4-MW-2A
A4-MW-8
6/577
A4-MW-7
7/576
A4-MW-1
A4-MW-1A
28
N
SCALE: 1 INCH = 200 FEET
SCALE IN FEET
(approximate)

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

TURNKEY ENVIRONMENTAL RESTORATION, LLC
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(716) 856-0635

JOB NO.: 0171-006-500

REVISIONS

NO.	BY	DATE	REMARKS

SEAL

DRAWN BY: BCH
DATE: AUGUST 2011
CHECKED BY:
APPROVED BY:

ISOPOTENTIAL MAP - JUNE 1998

GROUNDWATER / ORC MONITORING EVENT
FORMER STEEL MANUFACTURING SITE
BUFFALO, NEW YORK

PREPARED FOR
RIVERBEND, LLC

FIGURE 2

ATTACHMENT 1

WELL A2-MW-14
DECOMMISSIONING DOCUMENTATION

TurnKey Environmental Restoration LLC

WELL ABANDONMENT/ DECOMMISSIONING LOG

PROJECT INFORMATION		WELL INFORMATION	
PROJECT/SITE NAME: Riverbend Site		WELL I.D.: A2-MW-14	
Client: Riverbend		Stick-up (feet): 2.80'	
Project Job Number: 0171-012		Screen Interval (fbgs): 6-16'	
Date: 10-10-12		Drilling Company: Earth Dimensions	
Weather: 40°F windy		Drill Rig Type:	
Prepared by: BMB		Drilling Company Personnel: Brian + Andy	

DECOMMISSIONING PROCEDURES (per NYSDEC DER-10)

	YES	NO
Well visibile? (If not, provide directions below)	X	
Well I.D. visible?	X	
Well location matches site map? (If not, sketch actual location on back)	X	

Well I.D. as it appears on protective casing or well: A2-MW-14

Surface seal present?	X	
Surface seal competenet? (If cracked, heaved, etc., describe below)		X
Protective casing in good condition? (If damaged, describe below)		X

Headspace reading (ppm) and instrument used: NA

Type of protective casing and height of stickup in feet (if applicable): 2.8'

Protective casing material type: Steel

Measure protective casing inside diameter (inches): 4"

Lock present?	X	
Lock functional?	X	
Did you replace the lock?		X
Is there evidence that the well is double cased? (If yes, describe below)		X
Well measuring point visible?	X	

Measure depth to water from measuring point (feet): 10.12' from ground surface

Measure well depth from measuring point (feet): 11.3' " "

Measure well diameter (inches): 2" PVC

Well casing material: PVC

Physical condition of visible well casing: Bent (S)

Attach I.D. marker (if well I.D. is confirmed) and identify marker type:

Proximity to underground or overhead utilities: Electric nearby

Describe access to well: (Include accessibility to truck mounted rig, natural obstructions, overhead utilities, proximity to permenant structures, etc.); Add sketch of location on back, if necessary.

Truck Rig accessible. High voltage Electric nearby

Describe well setting (for example, located in a field, in a playground, on pavement, in a garden, etc.) and assess the type of restoration required. In field

Identify any nearby potential sources of contamination, if present (e.g., gas station, salt pile, etc.)

Remarks: Concrete ~~Be~~ pad was tipped up on west side and protective casing was leaning to the East side.

TurnKey Environmental Restoration LLC

WELL ABANDONMENT/ DECOMMISSIONING LOG

DECOMMISSIONING PROCEDURES (per NYSDEC DER-10) - continued

PROJECT/SITE NAME: Riverbend Site

WELL I.D.: A2-MW-14

Decommissioning Data (Fill in all that apply)

Well Schematic*

Overdrillling
- Interval Drilled
- Drilling Method(s): Excavated with shovel
- Borehole Diameter (in.): 24"
- Temp. Casing Installed? (Y/N): N
- Depth temp. casing installed: NA
- Casing type/diam (in.): NA
- Method of Installation: NA

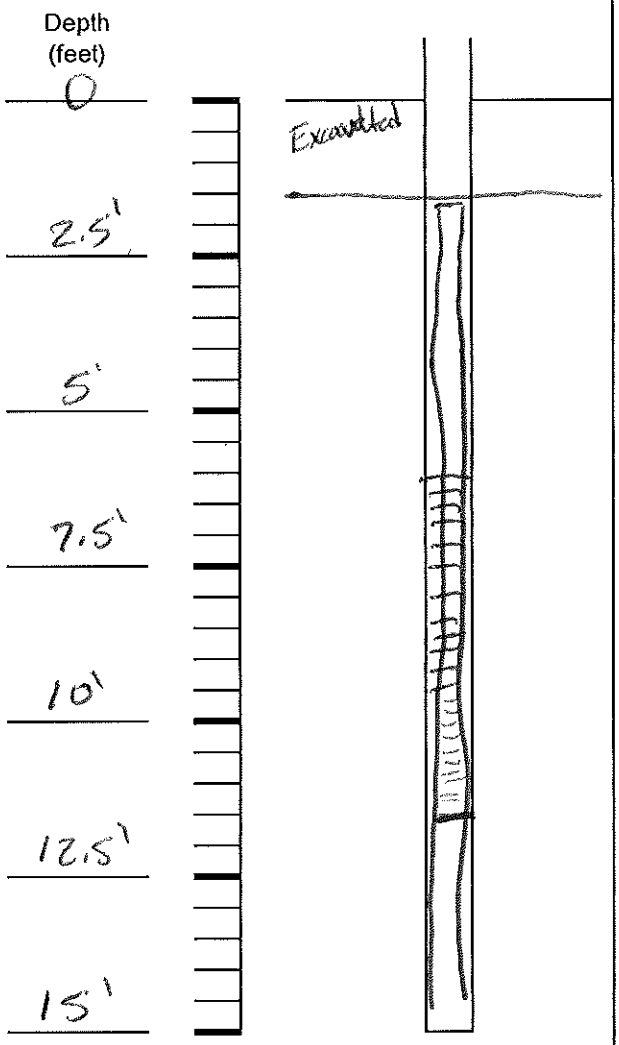
Casing Pulling
- Method employed: cut
- Casing retrieved (feet): 3.5' (2") about 1.5' below grade
- Casing type/diam. (in.):

Casing Perforating: NA
- Equipment used
- Number of perforaitons/foot
- Size of perforations
- Interval perforated

Grouting
- Interval grouted (fbgs): 11.3 - 1.5'
- No. of batches prepared: 1
- For each batch record:
  - Quantity of water used (gal.): 6.5
  - Quantity of cement used (lbs.): 94
  - Cement type: Portland
  - Quantity of bentonite used (lbs.): 3
  - Quantity of calcium chloride used (lbs.): —
  - Volume of grout prepared (gal.): 11
  - Volume of grount used (gal.): 11

Comments

Casing was bent at 1.5' below ground surface. We cut casing off at 1.5' and grouted well in place. We Treme grouted well from the bottom up until grout poured out of the top of the well casing. The remaining grout was poured into excavated area and backfilled.



* Sketch in all relevant decommissioning data, including: interval overdrilled, interval grouted, casing left in hole, well stickup, etc.

Drilling Contractor: Earth Dimensions

Department Rep.: BMG

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
Riverbend, LLC	Riverbend - Area II	0171-012-500

Photo No.	Date
1	10/10/12

Direction Photo Taken:
Northeast

Description:
Well A2-MW-14 prior to well decommissioning activities.

Photo No.	Date
2	10/10/12

Direction Photo Taken:
Northeast

Description:
Removal of concrete surface seal and protective casing at well A2-MW-14; white PVC riser is exposed at bottom.

Prepared By: *BMG*

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
Riverbend, LLC	Riverbend - Area II	0171-012-500

Photo No.	Date
3	10/10/12

Direction Photo Taken:
NA

Description:
Well A2-MW-14 showing damage to PVC riser pipe.

Photo No.	Date
4	10/10/12

Direction Photo Taken:
NA

Description:
Well A2-MW-14 initial pressure tremie grouting setup.

Prepared By: *BMG*

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
Riverbend, LLC	Riverbend - Area II	0171-012-500

Photo No.	Date
5	10/10/12

Direction Photo Taken:
NA

Description:
Well A2-MW-14 pressure tremie grouting in place; notice grout return at surface.

Photo No.	Date
6	10/10/12

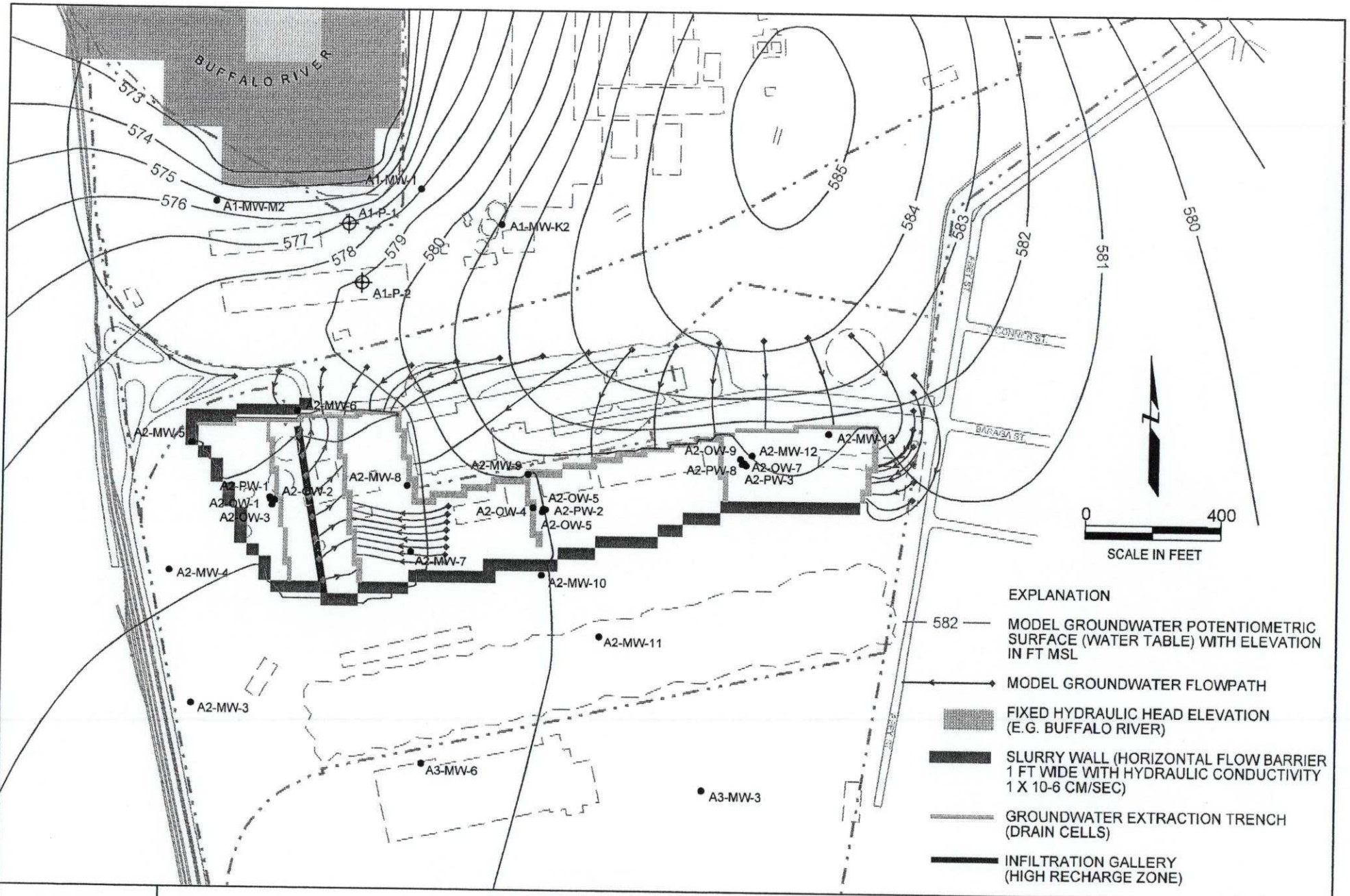
Direction Photo Taken:
Northeast

Description:
Well A2-MW-14 final surface completion.

Prepared By: *BMG*

ATTACHMENT 2

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

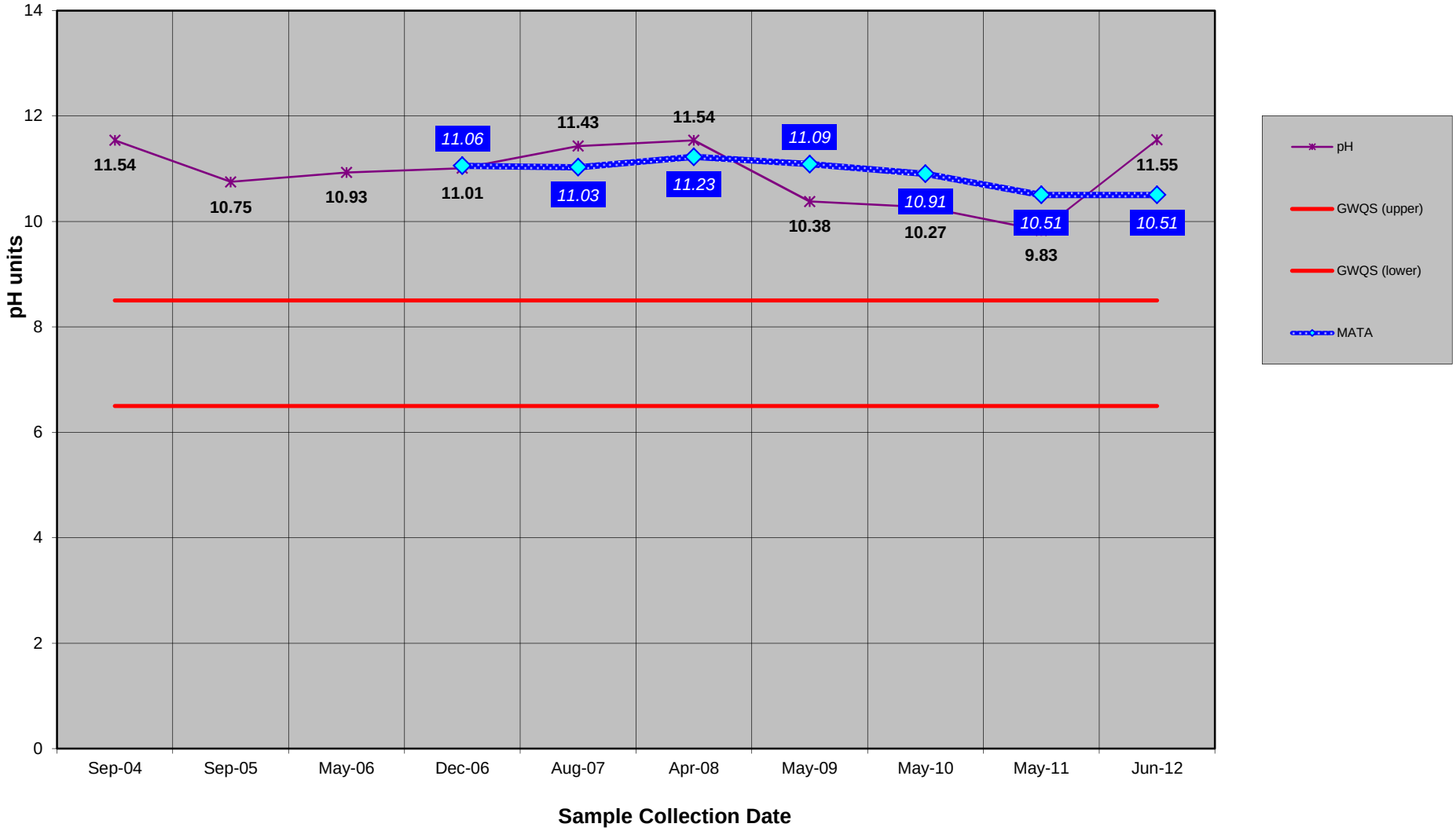
ATTACHMENT 3

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

ATTACHMENT 3

MOVING AVERAGE TREND ANALYSIS
A1-MW-5
pH

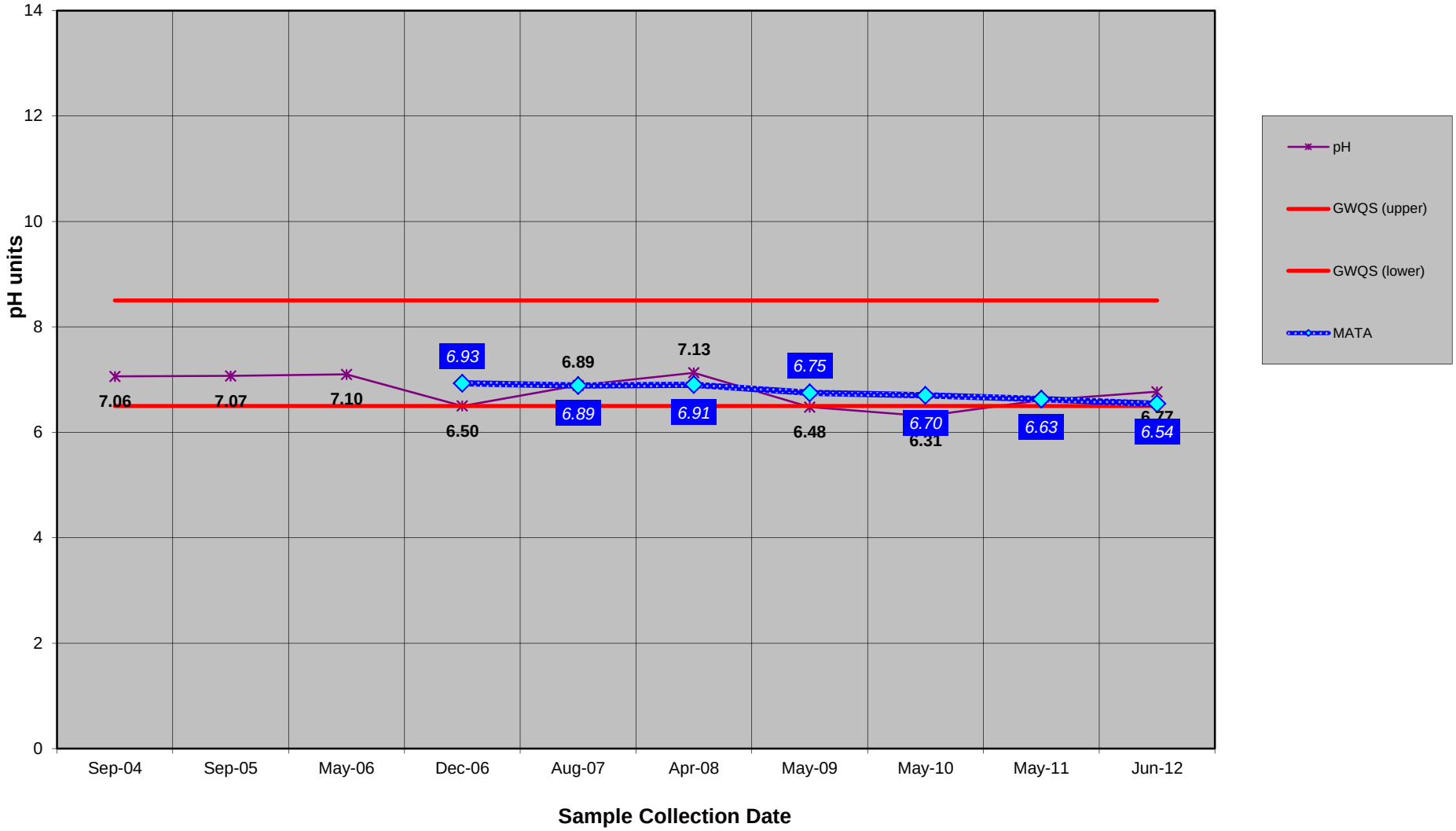
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 3

MOVING AVERAGE TREND ANALYSIS
A1-MW-6
pH

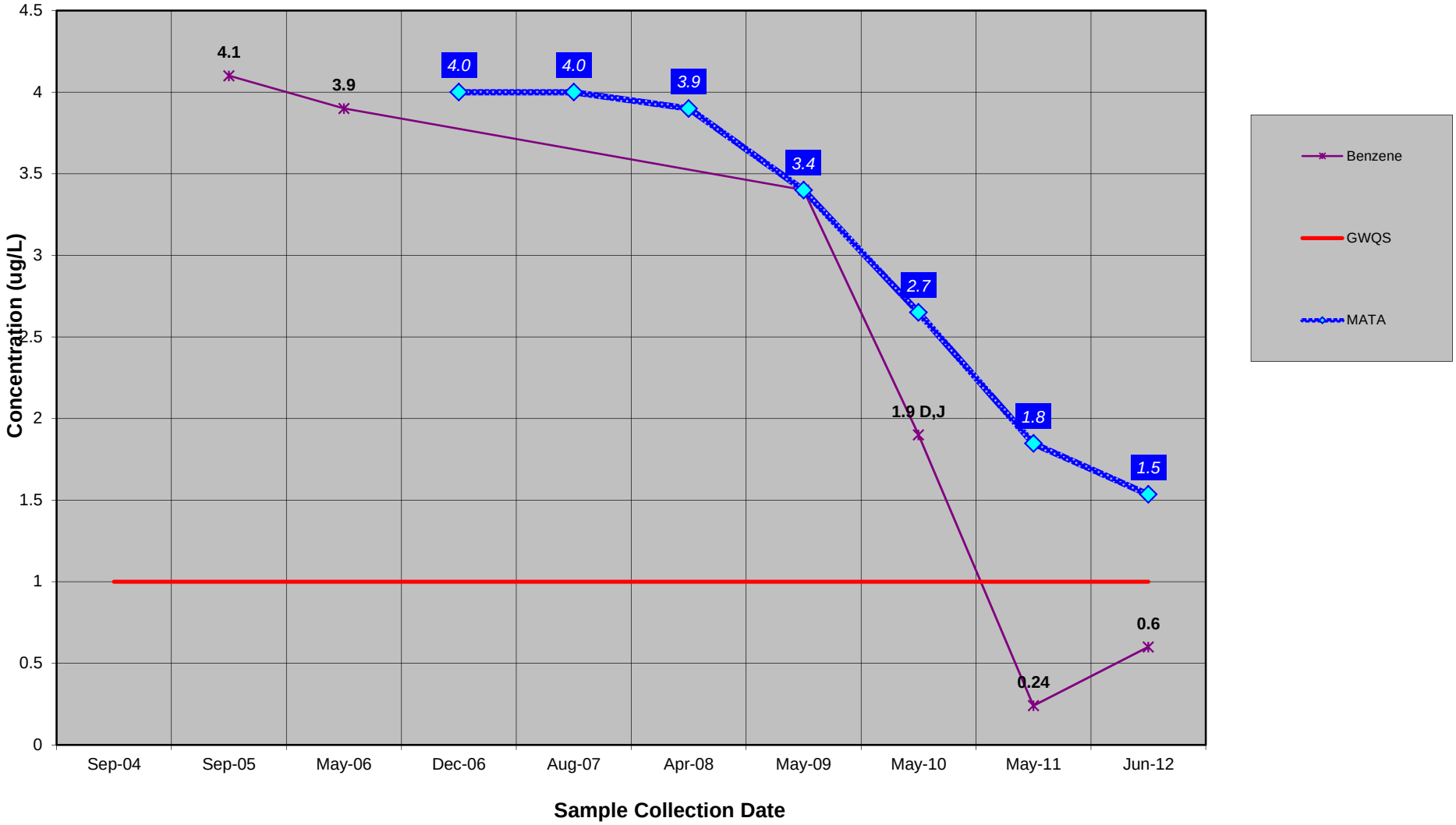
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 3

MOVING AVERAGE TREND ANALYSIS
A1-MW-6
BENZENE

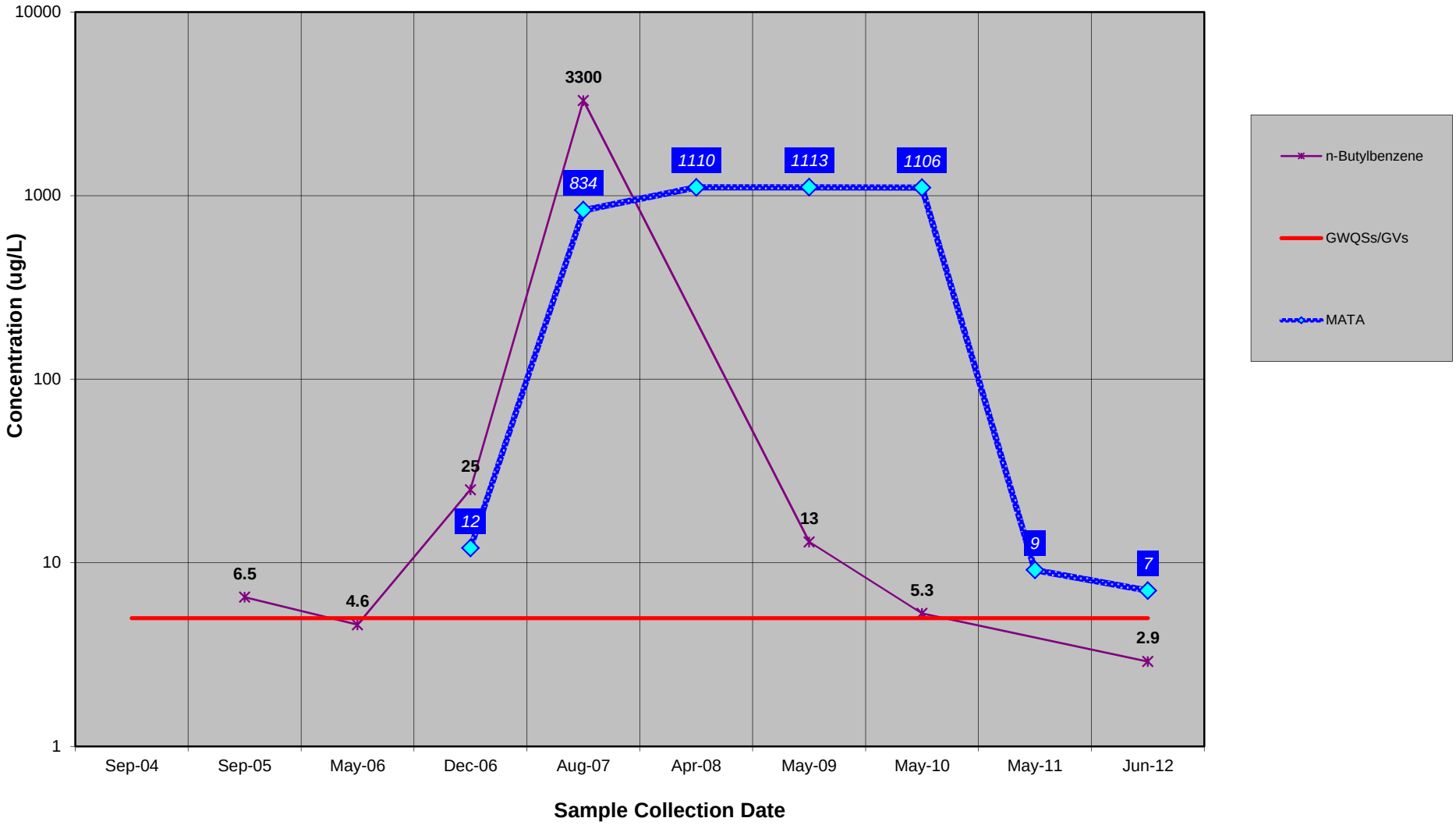
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 3

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

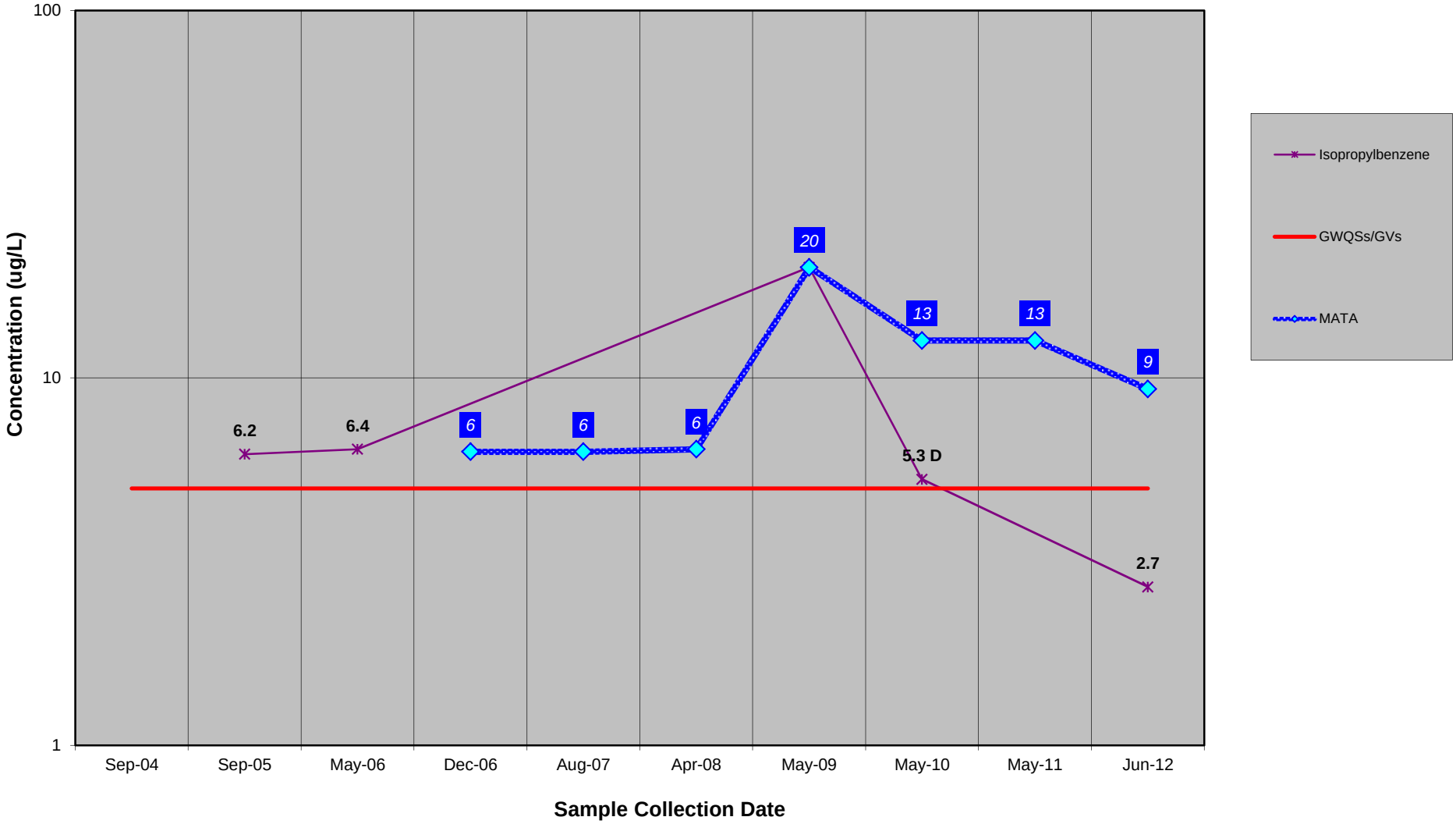
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 3

MOVING AVERAGE TREND ANALYSIS
A1-MW-6
ISOPROPYLBENZENE

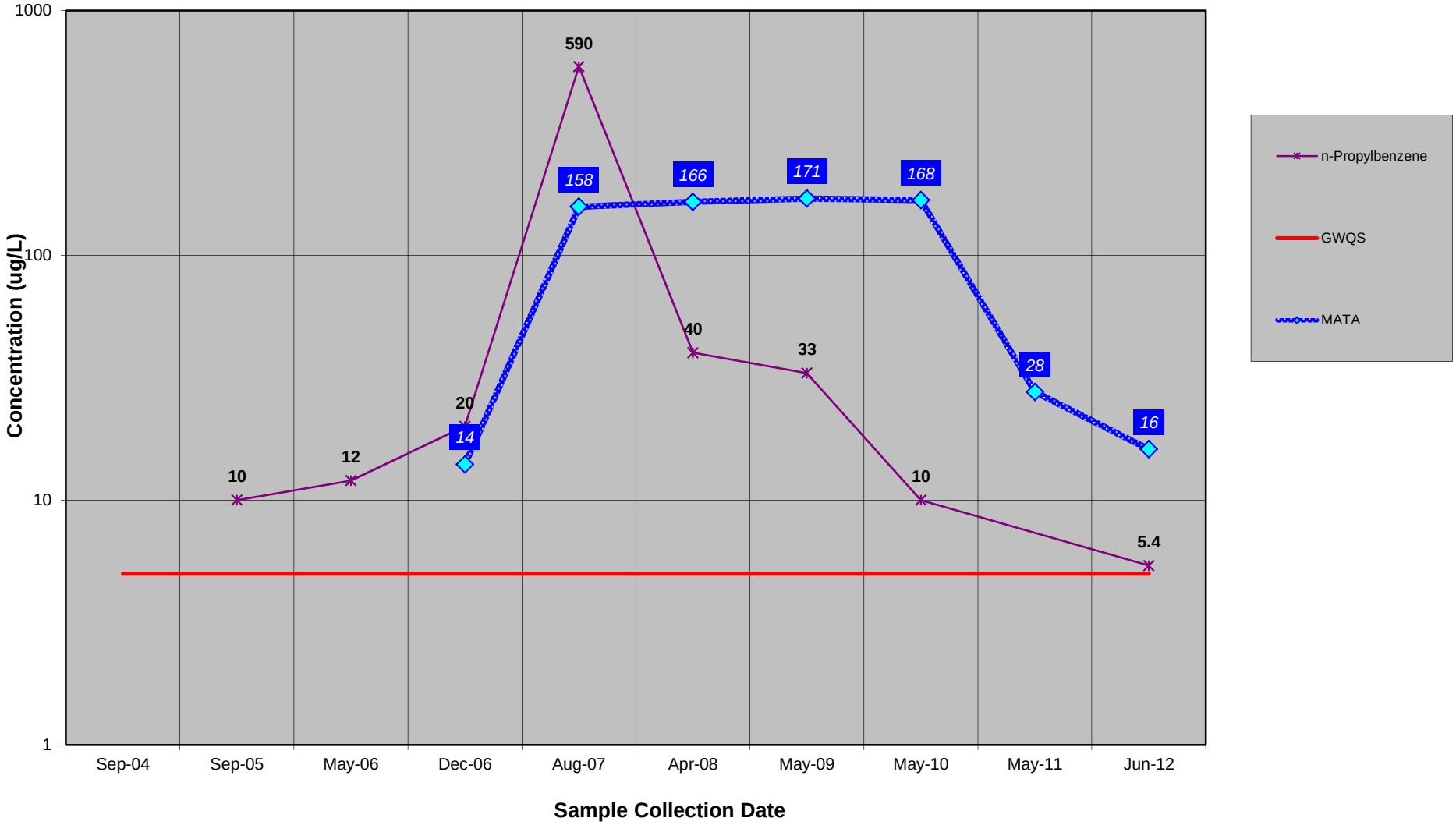
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 3

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

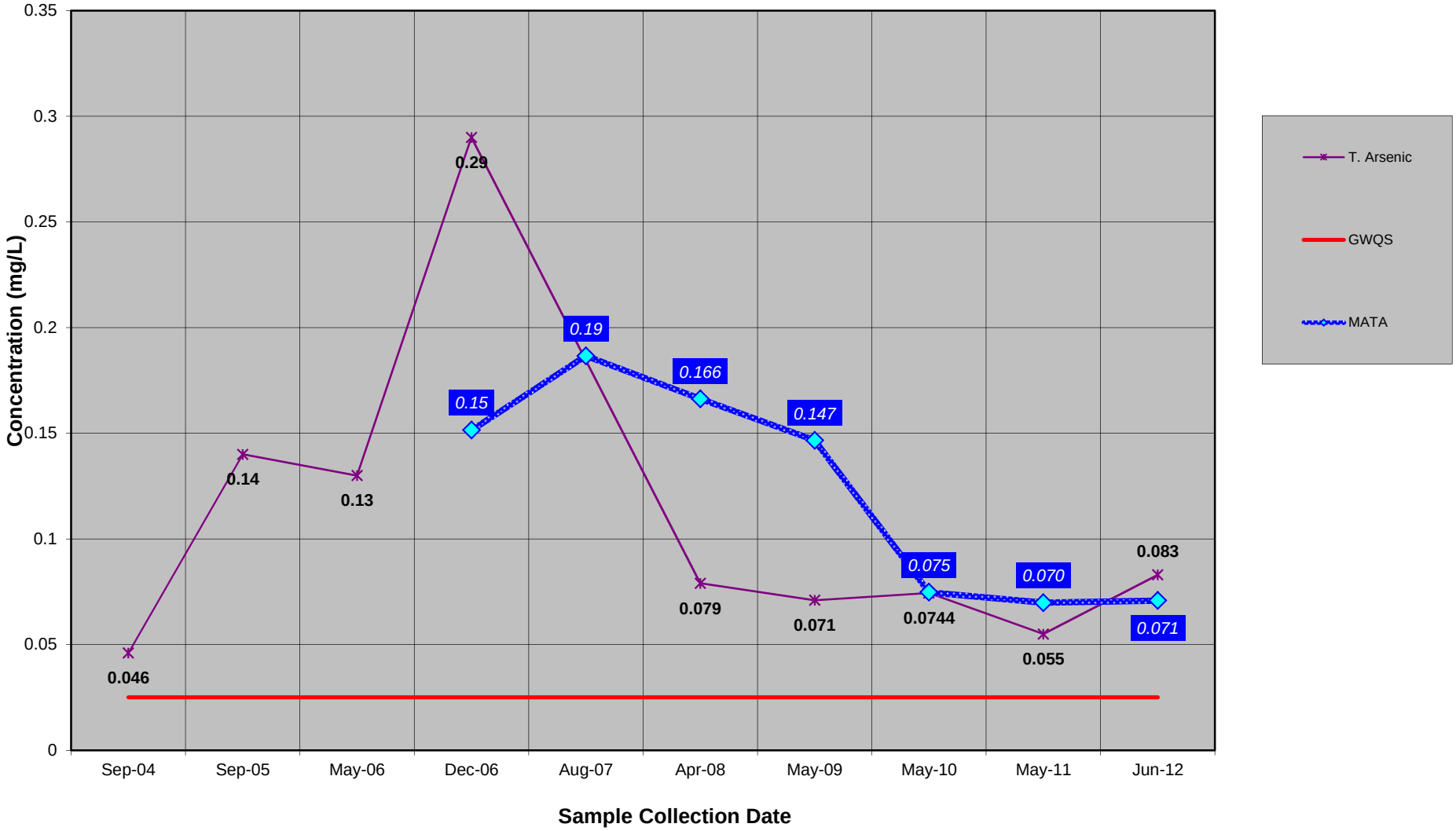
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 3

MOVING AVERAGE TREND ANALYSIS
A1-MW-6
TOTAL ARSENIC

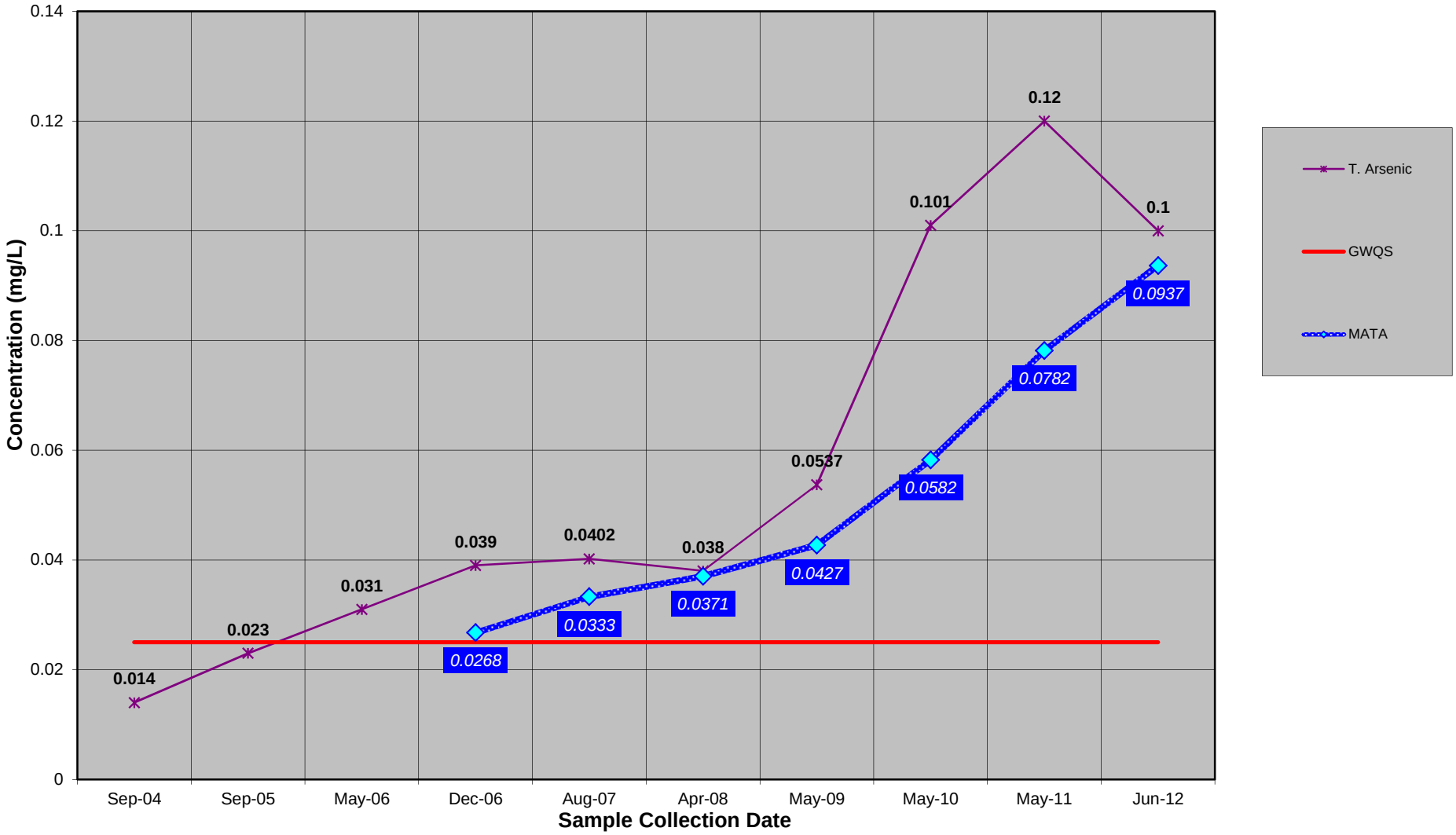
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 3

MOVING AVERAGE TREND ANALYSIS
A1-MW-8
TOTAL ARSENIC

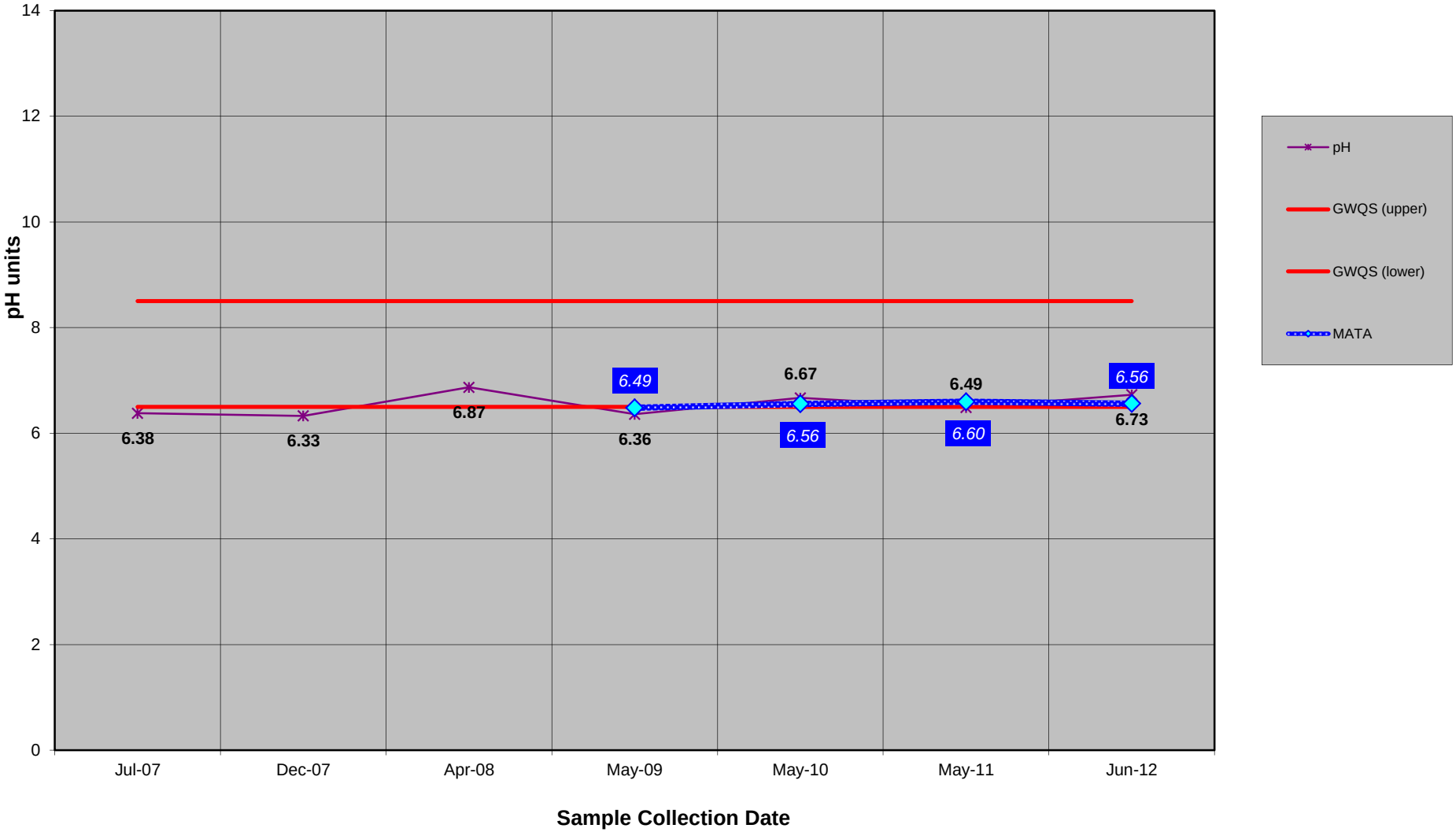
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 3

MOVING AVERAGE TREND ANALYSIS
A2-MW-16
pH

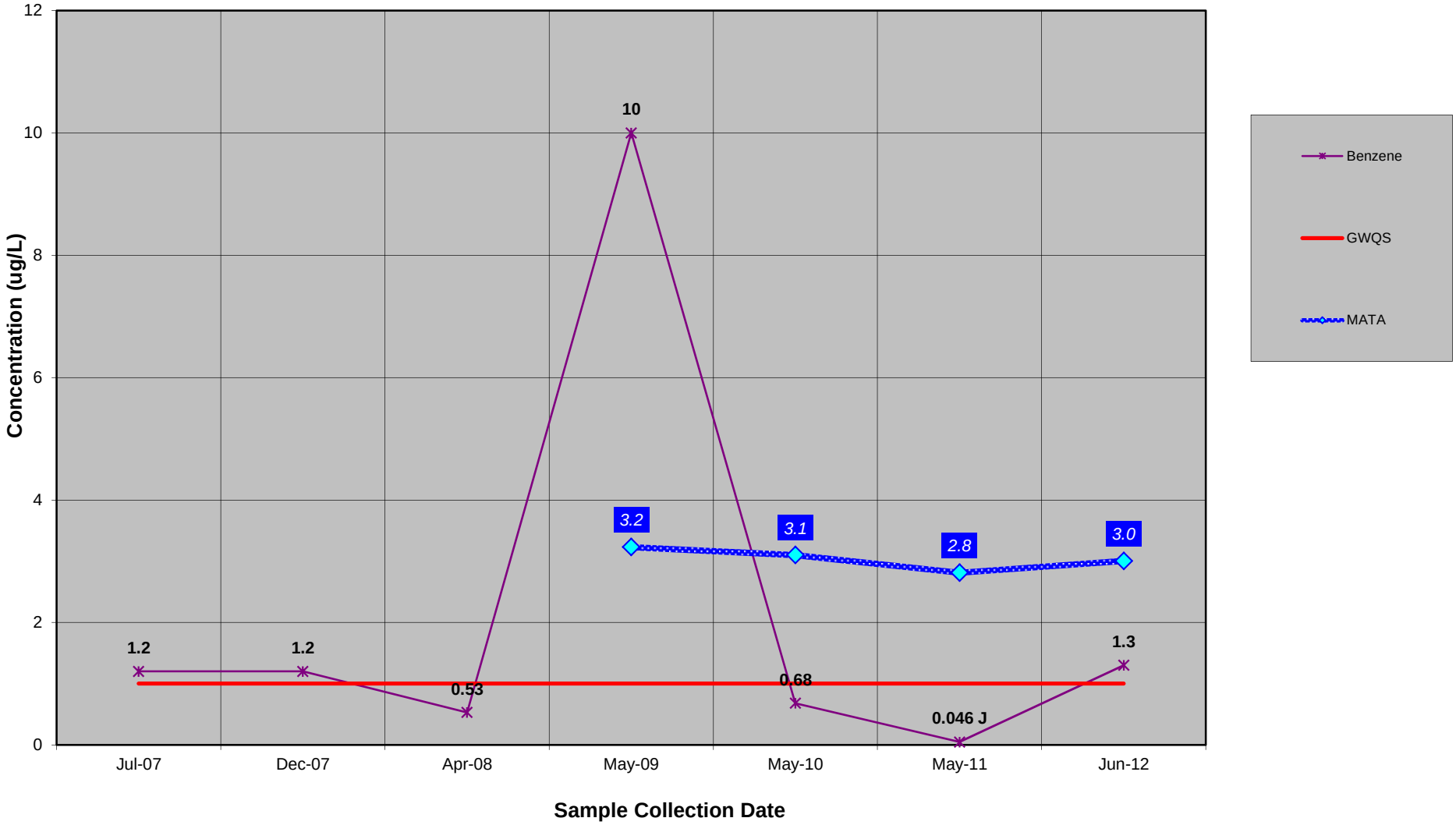
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 3

MOVING AVERAGE TREND ANALYSIS
A2-MW-16
BENZENE

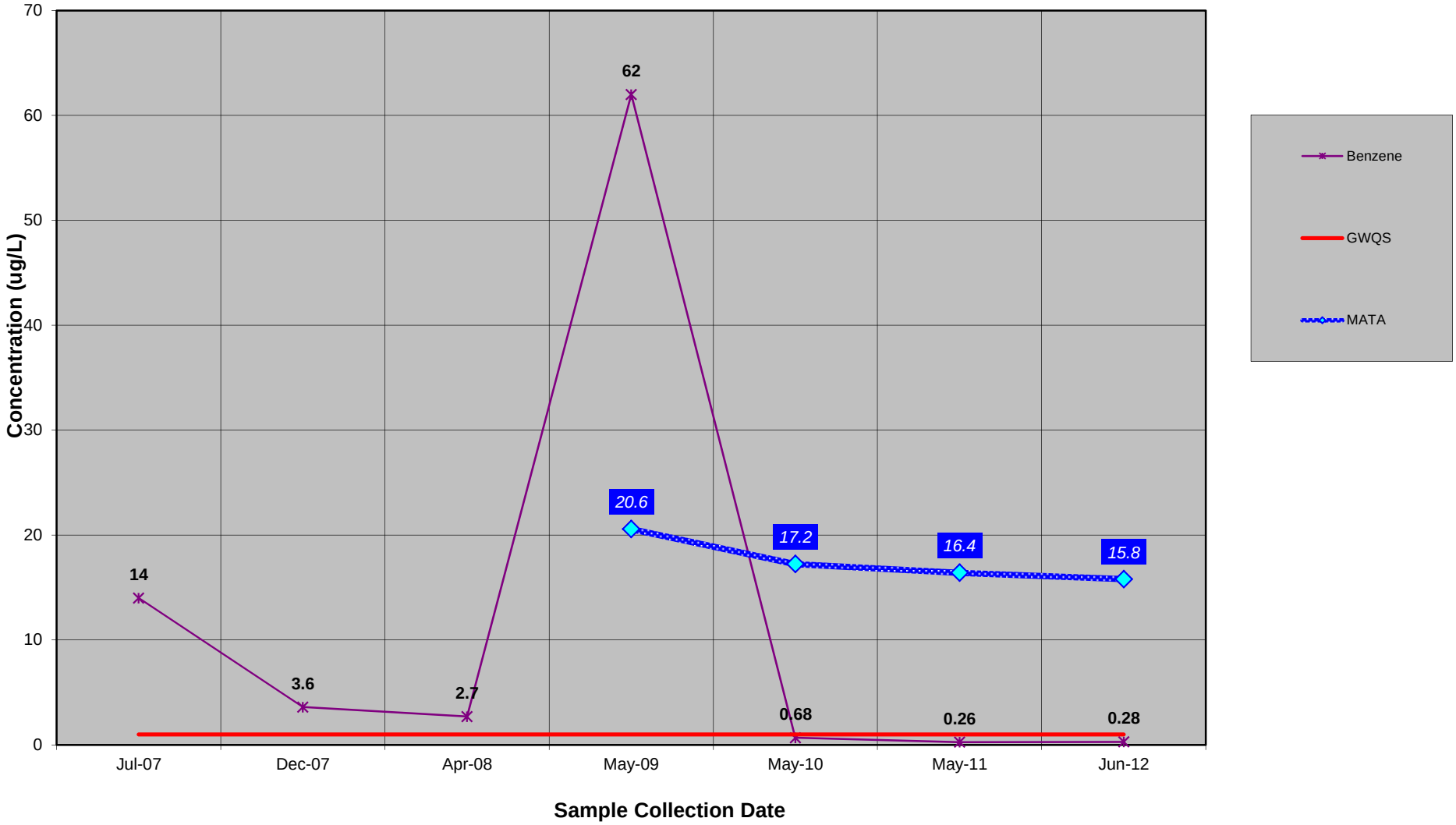
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 3

MOVING AVERAGE TREND ANALYSIS
A2-MW-17
BENZENE

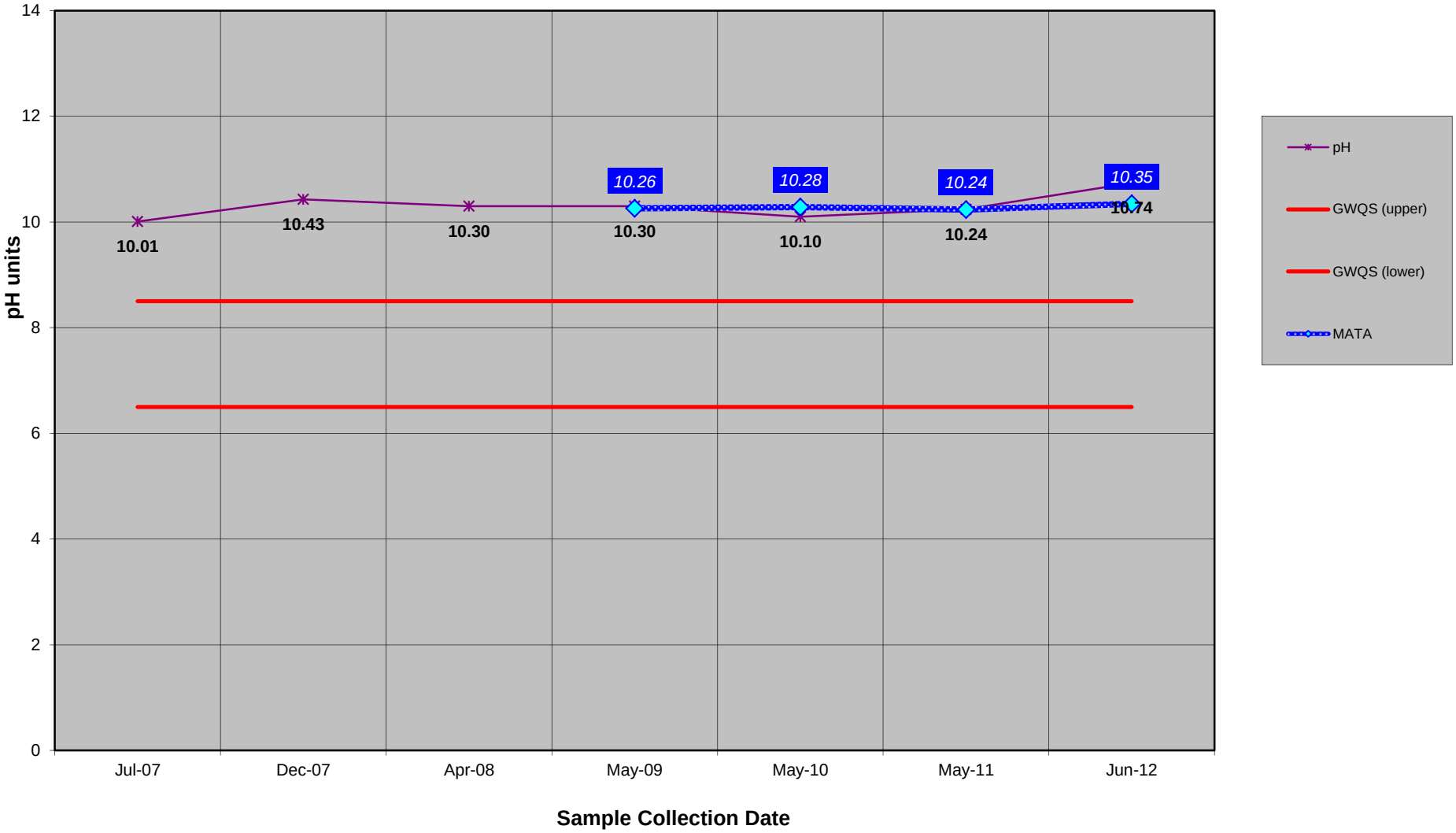
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 3

MOVING AVERAGE TREND ANALYSIS
A3-MW-7
pH

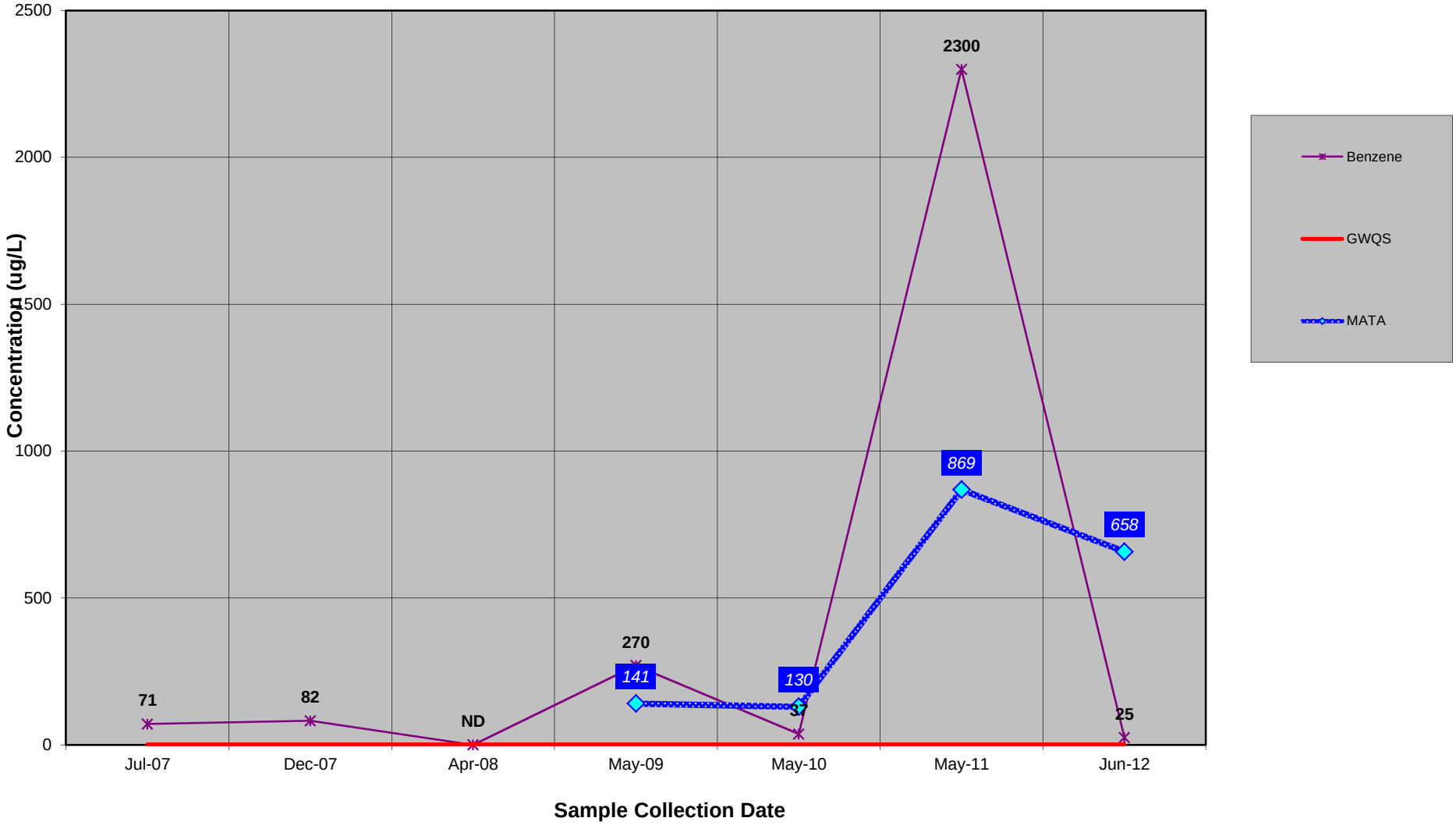
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 3

MOVING AVERAGE TREND ANALYSIS
A3-MW-7
BENZENE

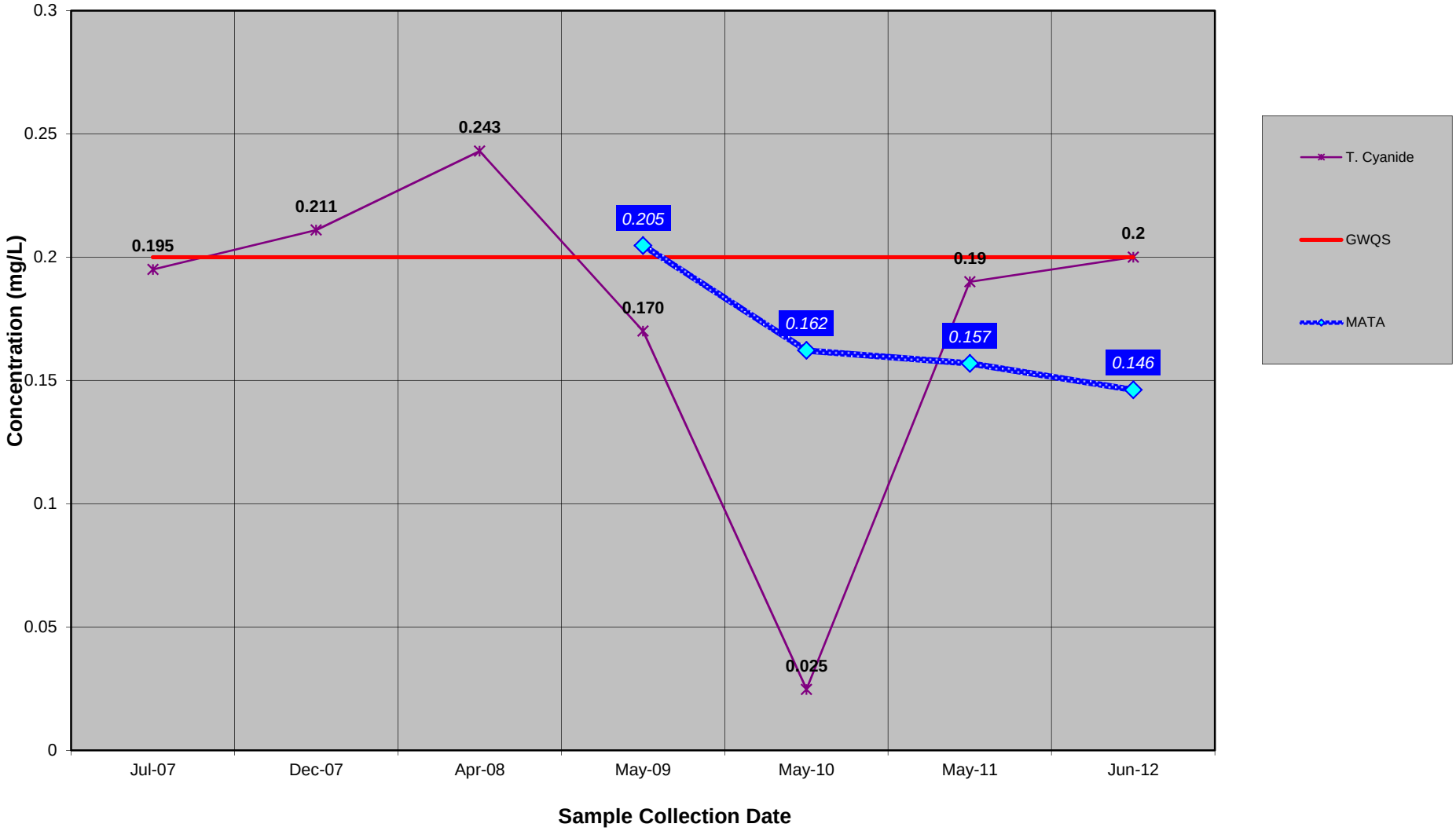
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 3

MOVING AVERAGE TREND ANALYSIS
A3-MW-7
TOTAL CYANIDE

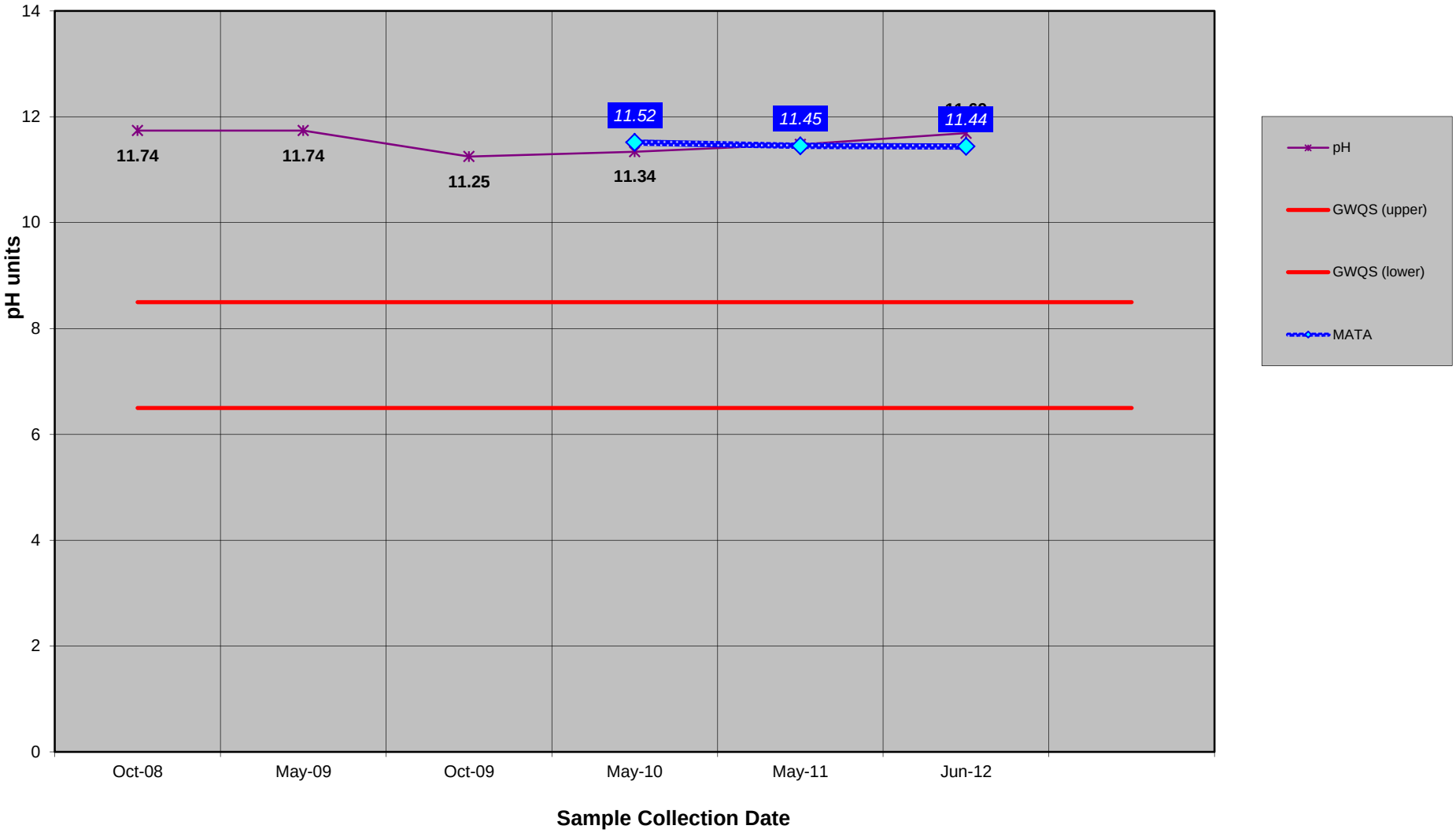
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 3

MOVING AVERAGE TREND ANALYSIS
A3-MW-9
pH

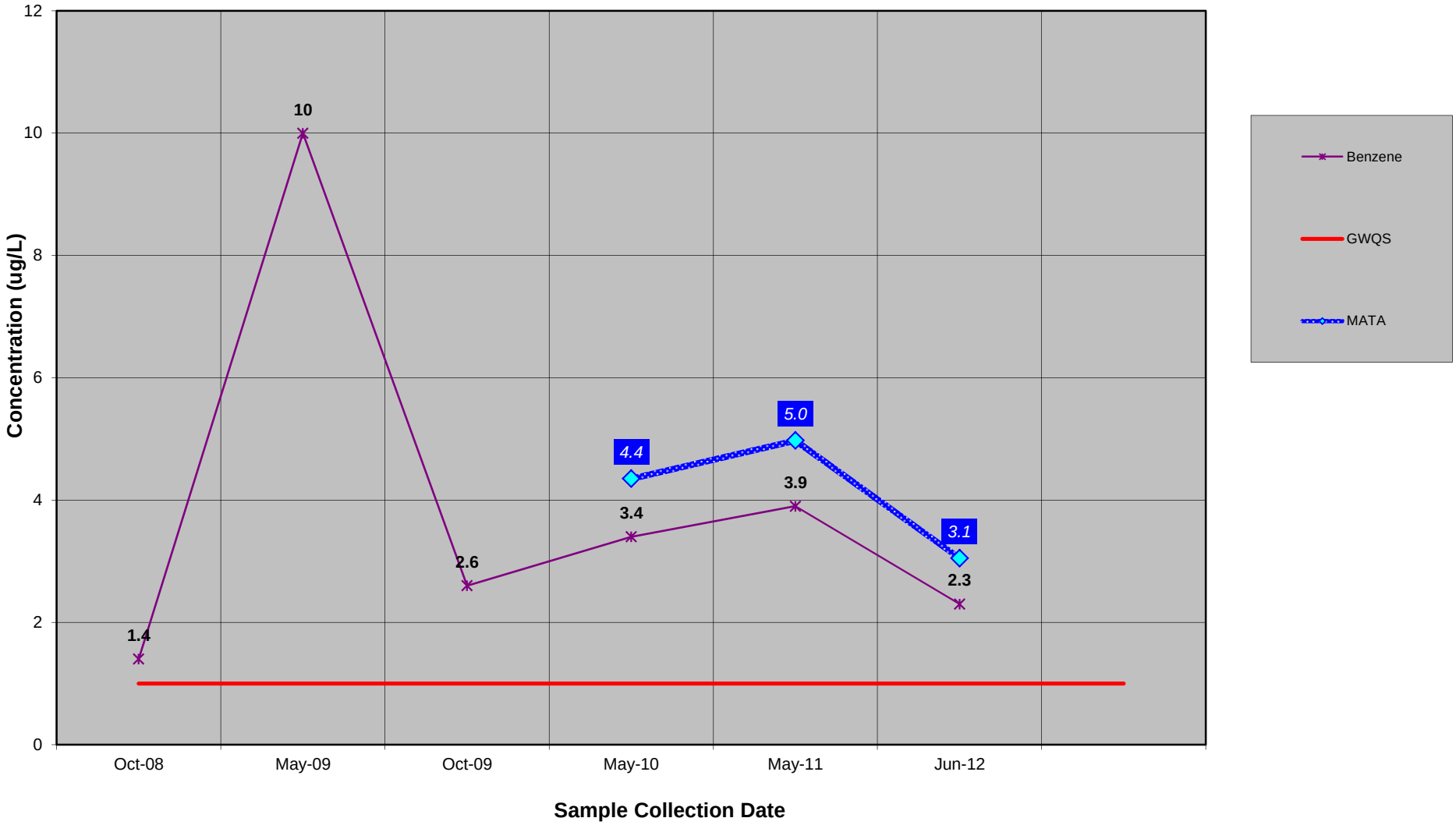
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 3

MOVING AVERAGE TREND ANALYSIS
A3-MW-9
BENZENE

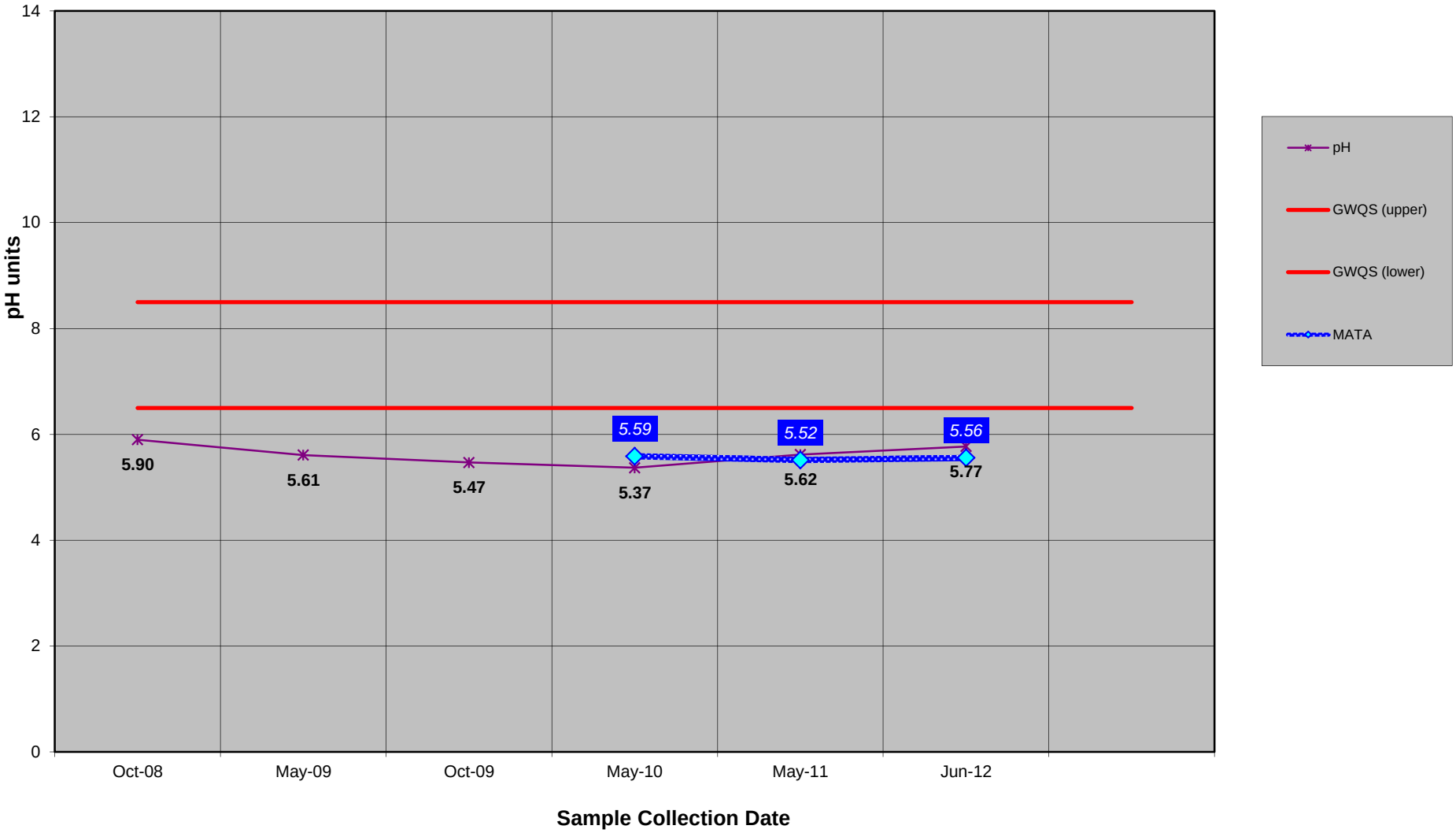
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 3

MOVING AVERAGE TREND ANALYSIS
A3-MW-10
pH

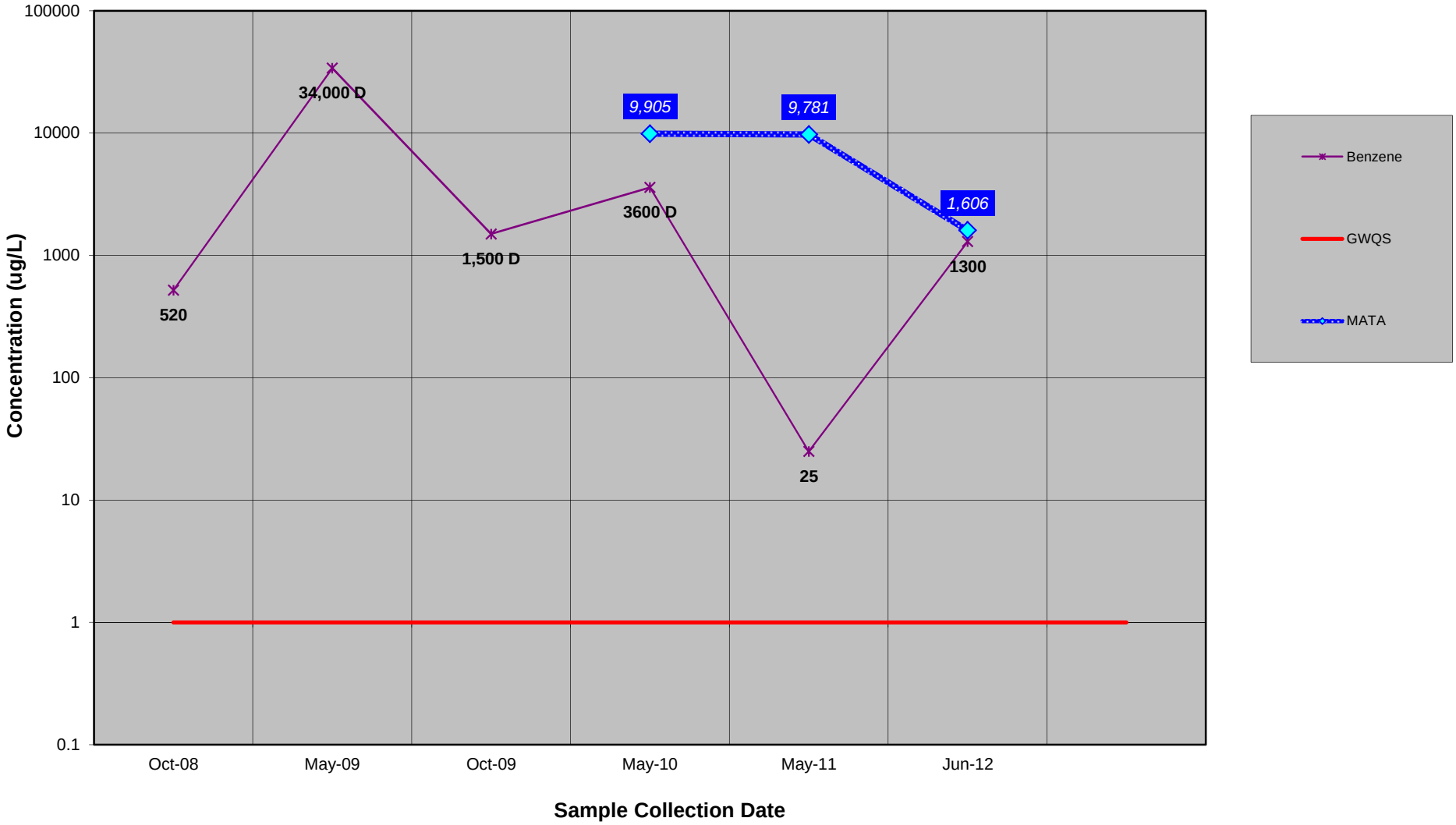
Riverbend Area I LTGWM
Buffalo, New York



ATTACHMENT 3

MOVING AVERAGE TREND ANALYSIS
A3-MW-10
BENZENE

Riverbend Area I LTGWM
Buffalo, New York



APPENDIX D

AREA III – ORC ANNUAL INSPECTION FORMS
JUNE & DECEMBER 2012

ORC WELL ANNUAL INSPECTION FORM

Project Name: LTGWM | Project No.: 0171-011-500

Project Location: Area III | Client: Riverbend, LLC

Preparer's Name: TAB | Date/Time: 6/22/12

sample location:	A3-ORC-1	A3-ORC-2	A3-ORC-3	A3-ORC-4	A3-ORC-5	A3-ORC-6
purge start:	6/18/12	6/18/12	6/18/12	6/18/12	6/18/12	6/18/12
purge end:	6/21/12	6/20/12	6/21/12	6/21/12	6/21/12	6/21/12
total volumes purged:	36.0	57.0	34.5	27.5	40.5	33.5
sampling dates:	6/21/12	6/20/12	6/21/12	6/21/12	6/21/12	6/21/12

Field groundwater quality measurements:

Water Level	5.69	5.79	5.59	5.35	5.52	5.80
Bottom Depth	14.08	14.43	14.88	14.38	14.03	14.36
pH	11.22	4.68	5.86	5.86	3.95	4.45
Temperature	19.3	16.9	16.7	16.7	17.60	17.3
DO	0.12	2.70	0.70	0.92	1.13	1.04
ORP	-84	+389	+356	-85	+370	+372

Well Integrity:

Cement seal	Poor	Poor	Poor	Poor	Poor	Poor
Pro-Casing condition	N/A	N/A	N/A	N/A	N/A	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 on what date and why.

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 please state why.

Initial: TAB | Date: 6/22/12

ORC WELL ANNUAL INSPECTION FORM

Project Name: LTGWM | Project No.: 0171-011-500

Project Location: Area III | Client: Riverbend, LLC

Preparer's Name: TAB | Date/Time: 6/22/12

sample location:	A3-ORC-7	A3-ORC-8	A3-ORC-9	A3-ORC-10	A3-ORC-11	
purge start:	6/18/12	6/18/12	6/20/12	6/18/12	6/18/12	
purge end:	6/21/12	6/21/12	6/20/12	6/21/12	6/21/12	
total volumes purged:	33.5	37.0	67.0	33.5	56.0	
sampling dates:	6/21/12	6/21/12	6/20/12	6/21/12	6/21/12	
Field groundwater quality measurements:						
Water Level	6.34	6.02	3.81	6.19	5.98	
Bottom Depth	14.36	14.63	14.03	14.55	14.57	
pH	5.38	3.53	3.10	3.74	5.40	
Temperature	17.7	17.7	17.8	17.5	17.9	
DO	1.32	0.75	1.20	1.07	1.47	
ORP	+361	-446	+384	+379	+158	
Well Integrity:						
Cement seal	Poor	Poor	Poor	Poor	Poor	
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 replaced on what date and why.

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 please state why.

Initial: TAB Date: 6/22/12

ORC WELL ANNUAL INSPECTION FORM

Project Name: LTGWM | Project No.: 0171-011-500

Project Location: Area III | Client: Riverbend, LLC

Preparer's Name: BMG | Date/Time: 12/15/12

sample location:	A3-ORC-1	A3-ORC-2	A3-ORC-3	A3-ORC-4	A3-ORC-5	A3-ORC-6
purge start:	12/11/12	12/11/12	12/11/12	12/11/12	12/12/12	12/12/12
purge end:	12/14/12	12/14/12	12/14/12	12/14/12	12/14/12	12/14/12
total volumes purged:	62.0	62.0	34.0	32.0	68.0	39.0
sampling dates:	12/14/12	12/14/12	12/14/12	12/14/12	12/14/12	12/14/12

Field groundwater quality measurements:

Water Level	4.61	4.95	5.14	4.50	4.66	5.05
Bottom Depth	14.08	14.43	14.38	14.38	14.03	14.36
pH	9.65	4.74	4.76	5.86	4.60	4.55
Temperature	9.6	10.2	7.6	7.6	8.2	8.8
DO	1.82	2.24	4.84	3.11	3.72	2.04
ORP	-280	119	129	-11	139	126

Well Integrity:

Cement seal	CRACKED	CRACKED	CRACKED	CRACKED	CRACKED	CRACKED
Pro-Casing condition	N/A	N/A	N/A	N/A	N/A	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 on what date and why.

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 please state why.

Initial: BMG Date: 12/15/12

ORC WELL ANNUAL INSPECTION FORM

Project Name: LTGWM | Project No.: 0171-011-500

Project Location: Area III | Client: Riverbend, LLC

Preparer's Name: BMG | Date/Time: 12/15/12

sample location:	A3-ORC-7	A3-ORC-8	A3-ORC-9	A3-ORC-10	A3-ORC-11	
purge start:	12/12/12	12/11/12	12/14/12	12/12/12	12/13/12	
purge end:	12/14/12	12/14/12	12/14/12	12/14/12	12/14/12	
total volumes purged:	38.0	41.0	71.0	60.0	62.0	
sampling dates:	12/14/12	12/14/12	12/14/12	12/14/12	12/14/12	
Field groundwater quality measurements:						
Water Level	5.78	5.50	3.17	5.47	5.09	
Bottom Depth	14.36	14.63	14.03	14.55	14.57	
pH	5.57	3.77	3.04	6.52	5.43	
Temperature	9.3	8.9	10.1	10.1	10.4	
DO	2.07	2.13	2.23	2.70	1.82	
ORP	-11	212	263	-47	41	
Well Integrity:						
Cement seal	CRACKED	CRACKED	CRACKED	CRACKED	CRACKED	
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 replaced on what date and why.

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 please state why.

Initial: BMG Date: 12/15/12

APPENDIX E

SITE PHOTOGRAPH LOG

SITE PHOTOGRAPHS

Photo 1:

Photo 2:

Photo 3:

Photo 4:

Photo 1: Area I - Site Conditions (looking west)

Photo 2: Area I – Site Conditions (looking north)

Photo 3: Abbey Street Berm & Drain Area - Site Conditions (looking south)

Photo 4: Abbey Street Berm & Drain Area - Site Conditions (looking north); discharge manhole to sanitary sewer in foreground

SITE PHOTOGRAPHS

Photo 5:

Photo 6:

Photo 7:

Photo 8:

Photo 5: Abbey Street Berm & Drain Area - Site Conditions (looking north); discharge manhole to O'Conner sanitary sewer and drop inlet in foreground

Photo 6: Abbey Street Berm & Drain Area – Baraga/Abbey Street manhole showing unobstructed flow

Photo 7: Area II – Baraga Street entrance gate with pump station PS-3 in foreground (looking north)

Photo 8: Area II – Containment Cell Final Cover in foreground, former Feine Building footprint showing ponded storm water (looking east)

SITE PHOTOGRAPHS

Photo 9:

Photo 10:

Photo 11:

Photo 12:

Photo 9: Area II – Exterior of GWTS building along Baraga Street (looking north)

Photo 10: Area II – Interior of GWTS building showing carbon vessels and day tank

Photo 11: Area II - Interior of GWTS building showing tar-separator tank

Photo 12: Area II – Containment Cell Final Cover south side (looking west)

SITE PHOTOGRAPHS

Photo 13:

Photo 14:

Photo 15:

Photo 16:

Photo 13: Area II – Containment Cell Detention Pond at right (dry) (looking north)

Photo 14: Area II – Containment Cell along Abby Street berm (looking south)

Photo 15: Area II – Terminal Basin (looking east)

Photo 16: Area II – Pump Station PS-3 (looking north)

SITE PHOTOGRAPHS

Photo 17:

Photo 18:

Photo 19:

Photo 20:

Photo 17: Area III - Site Conditions (looking east)

Photo 18: Area III - showing condition of fence (looking west)

Photo 19: Area III – southern perimeter fence (looking east)

Photo 20: Area III toward Area II – gate between Areas (looking north)