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Operation and Monitoring Report

June 2013 to May 2014
Gratwick-Riverside Park Site
North Tonawanda, New York

Prepared for: City of North Tonawanda

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Section 1.0 Introduction

This report is the 12th annual Operation and Monitoring Report (O&M Report) for the remedial actions constructed at the Gratwick-Riverside Park Site (Site) located in North Tonawanda, New York. This report covers the period from June 2013 to May 2014 and was prepared pursuant to Section 7.0 of the report entitled "Operation and Maintenance Manual" (O&M Manual) dated March 2002 (revised January 2004 and May 2009). It is noted that New York State Department of Environmental Conservation (NYSDEC) approval for the O&M Manual was given on April 20, 2005. All O&M activities have been performed in accordance with the methods and frequencies specified in the O&M Manual and as modified in previous annual reports and approved by NYSDEC. In accordance with the approved monitoring changes, the groundwater is monitored annually in five wells and an additional seven wells are monitored once every two years as of and including May 2013. The surface water quality of the Niagara River adjacent to the Site is not impacted by the Site and is no longer monitored. The collected groundwater that is discharged from the Site is monitored semi-annually in accordance with the City of North Tonawanda Wastewater Discharge Permit (effective March 1, 2013). A copy of the permit is included in Appendix A.

Section 2.0 Groundwater Withdrawal System (GWS)

Full-time operation of the Groundwater Withdrawal System (GWS) at the Site started on May 4, 2001. The objectives of the GWS are to:

i) Achieve and maintain an inward gradient from the Niagara River toward the GWS

ii) Achieve and maintain an upward gradient from the fill alluvium layer beneath the GWS

In order to determine whether the objectives are being met, hydraulic and chemical monitoring programs have been developed. These programs include Site groundwater and GWS effluent monitoring. The wells, manholes, wet wells, and storm sewer outfalls that comprise the monitoring network are shown on Figure 2.1. The monitoring programs are described in the following subsections.

2.1 Hydraulic Monitoring

Hydraulic monitoring consists of the collection of water levels in monitoring wells and manholes, and River water levels at the storm sewer outfalls. These data are then used to determine the vertical and horizontal gradients for the groundwater.

The water levels in four GWS manholes and in the River were monitored to confirm that an inward gradient exists. The water levels in five GWS manholes and in four monitoring wells installed near the GWS alignment in the materials directly overlying the confining unit were monitored to confirm that an upward gradient exists. The specific manholes and monitoring wells used to determine the horizontal and vertical gradients are listed in Table 2.1.

Groundwater elevations are measured on a monthly basis. The measured water levels for the time period January 2011 through May 2014 are provided in Table 2.2. The horizontal and vertical gradients for this reporting period are provided in Tables 2.3 and 2.4, respectively. The water levels and horizontal and vertical gradients to January 2011 were previously provided and thus are not provided in this report.

The results for the horizontal gradient evaluation show that:

i) Inward horizontal gradients were achieved by May 11, 2001, within one week of the start of pumping the GWS.

ii) The inward gradients were maintained for the remainder of the 13 years except for a few short intervals in isolated areas. There was one exception in the June 2013 through May 2014 reporting period (i.e., February 2014 in the area of River North/MH2).

Short periods of outward gradient do not adversely affect the effectiveness of the remedy because:

i) The gradients were outward for only short periods of time

ii) The outward gradients occurred over only a portion of the barrier wall

iii) The 36-inch barrier wall is six inches thicker than the design thickness thereby providing extra protection

iv) Any outward migration of Site groundwater into the barrier wall during the short periods of outward gradient is more than offset by the inward migration of river water into the barrier wall during the long periods of inward gradient

The results for the vertical gradient evaluation showed that the vertical gradients during the June 2013 through May 2014 reporting period were continually upward for all four monitoring locations with the following exceptions (i.e., February 2014 in the area of MH3/MW-6 and January through April 2014 in the area of MH8/M-7).

Short periods of downward gradient do not adversely affect the effectiveness of the remedy because:

i) The gradients were downward for only short periods of time

ii) The downward gradients occurred along only a portion of the GWS

iii) The barrier wall and thick alluvium clay till underlying the fill which the barrier wall was keyed into prevented the migration of impacted groundwater from the Site

iv) Any downward migration of the Site's groundwater into the underlying fill alluvium layer during the short periods of downward migration is more than offset by upward migration during the long periods of upward gradient

2.2 Groundwater Quality Monitoring

Groundwater quality monitoring consists of the collection of water samples from on-Site overburden monitoring wells (OGC-1 through OGC-8 and MW-6 through MW-9) and the analysis of these samples to determine the concentrations of chemicals in the groundwater. The purpose of the groundwater quality monitoring program is to monitor the anticipated improvement in the quality of the overburden groundwater:

i) Between the barrier wall and the River (OGC-1 through OGC-4)

ii) In the fill/alluvium beneath the GWS (MW-6 through MW-9)

The MWs are located on the inside of the barrier wall and the OGCs are located between the barrier wall and the river.

Groundwater quality monitoring locations are presented on Figure 2.1 and the analytical parameters and frequency are listed in Table 2.5.

Groundwater sampling was performed on an annual basis between May 2004 and May 2008. As approved in the NYSDEC letter dated February 23, 2009 the sampling frequency for May 2009 through May 2012 was:

Annual	***Once Every 2 Years (2010 and 2012)***
MW-8	MW-6
MW-9	MW-7
OGC-3	OGC-1
OGC-4	OGC-2

Annual	*Once Every 2 Years (2010 and 2012)*
OGC-6	OGC-5
OGC-7	
OGC-8	

As approved by the NYSDEC on March 27, 2013, the sampling frequency for May 2013 through May 2017 will be:

Annual	*Once Every 2 Years (2014 and 2016)*
MW-8	MW-6
MW-9	MW-7
OGC-3	OGC-1
OGC-6	OGC-2
OGC-7	OGC-4
	OGC-5
	OGC-8

2.2.1 Sample Results

A summary of compounds detected in the groundwater samples for this reporting period is provided in Table 2.6 and pH levels are provided in Table 2.7.

To evaluate the trends in the groundwater chemistry and evaluate the appropriate frequency of future sampling, the VOCs and SVOCs were summed and plotted on Figures 2.2 through 2.13 for each of the 12 monitoring wells included in the program. It is believed that the sum of the VOCs (i.e., TVOCs) and SVOCs (i.e., TSVOCs) best represent the trends in the groundwater chemistry.

Review of the TVOC and TSVOC concentrations for the 12 wells sampled in 2014 show the following trends since May 2012:

i) TVOCs:

- Relatively constant concentrations with random fluctuations in all 12 wells

ii) TSVOCs:

- Decreasing concentrations in two of the 12 wells (MW-9 and OGC-3)

- Relatively constant concentrations with random fluctuations in the remaining 10 wells

All the wells had only low level TVOC concentrations in this reporting period, except for MW-8 (65 micrograms per liter [μg/L]) and OGC-6 (318 μg/L). With regard to TSVOC concentrations, three wells had higher concentrations, MW-8 (70 μg/L), MW-9 (120 μg/L), and OGC-3 (92 μg/L). The remaining wells had TSVOC concentrations <13 μg/L.

In summary, the number of wells with decreasing or constant but fluctuating low level concentrations and considering that no wells had increasing concentrations, shows that the groundwater is being remediated.

Additional description of the TVOC and TSVOC concentrations is provided in the following paragraphs.

Monitoring Wells On-Site - Inside Barrier Wall

The TVOC concentrations for MW-6 shown on Figure 2.2 have been less than 5 μg/L since May 2007. The TSVOC concentrations were low level (i.e., <5 μg/L) since May 2004 until May 2010 when they increased slightly to 20 μg/L. In May 2012 the TSVOC concentration had reduced to 10 μg/L and remained at 10 μg/L for the May 2014 sample.

The TVOC and TSVOC concentrations for MW-7 on Figure 2.3 show that both TVOC and TSVOC have remained low level. TVOC concentrations ranged from non-detect to 4 μg/L since May 2006. TSVOC concentrations ranged from non-detect to 1 μg/L since May 2004.

The TVOC concentrations for MW-8 on Figure 2.4 show that the TVOC concentrations for the May 2011 through May 2014 fluctuated between 69 and 79 μg/L. The TSVOC concentrations since May 2006 increased slightly from 31 μg/L to 117 μg/L in the May 2009 sample and since then have continually decreased to 70 μg/L in the May 2014 sample.

The TVOC concentrations for MW-9 on Figure 2.5 show that the TVOC concentrations ranged between 9 and 30 μg/L for the entire record period. The TSVOC concentrations have fluctuated between 150 to 440 μg/L between August 2002 and May 2013 and then decreased to 120 μg/L in the May 2014 sample.

All MWs are located on the inside of the barrier wall and a net inward gradient has been consistently maintained in the vicinity of these wells. Thus, the TVOCs and TSVOCs are not migrating to the Niagara River.

Monitoring Wells between Barrier Wall and River

The TVOC concentrations for OGC-1 on Figure 2.6 show that the concentrations since November 2003 ranged between non-detect and 4 µg/L. The TSVOC concentrations since November 2003 have fluctuated between non-detect and 3 µg/L.

The TVOC concentrations for OGC-2 on Figure 2.7 have been non-detect since May 2006. The TSVOC concentrations were all non-detect since monitoring of the remedy started except for the May 2014 sample which had a TSVOC concentration of 0.8 µg/L.

The TVOC concentrations for OGC-3 shown on Figure 2.8 have been less than 11 µg/L since May 2009. The TSVOC concentrations have decreased from 300 µg/L in November 2003 to 102 µg/L in May 2010. The TSVOC concentrations since May 2010 have fluctuated between 92 and 105 µg/L.

The TVOC concentrations for OGC-4 shown on Figure 2.9 fluctuated between non-detect and 6 µg/L for the time period from November 2002 to May 2010 and have been non-detect since May 2010. The TSVOC concentrations have fluctuated widely but have continually decreased since May 2004 with a concentration of 1.6 µg/L in the May 2014 sample. The single compound responsible for the higher historic concentrations was phenol.

The TVOC concentrations for OGC-5 shown on Figure 2.10, ranged from non-detect to 5 µg/L since November 2003 (except for May 2008 at 5.8 µg/L). The TSVOC concentrations ranged from non-detect to 2 µg/L since February 2003.

The TVOC concentrations for OGC-6 shown on Figure 2.11 increased continually from 3 µg/L in May 2001 to 4,200 µg/L in May 2006. Since that time the concentrations have fluctuated between 68 µg/L in May 2008 and 1,650 µg/L in the May 2013 sample. The May 2014 sample result was 318 µg/L. The primary compounds detected are PCE and TCE. The TSVOC concentrations continually decreased from 157 µg/L in May 2008 to 17 µg/L in May 2011 and have fluctuated between 12 and 20 µg/L since that time.

The TVOC concentrations for OGC-7 shown on Figure 2.12, have continually decreased since November 2003 and were 17 µg/L in the May 2012 sample. Since then, the TVOC concentrations have ranged between 17 and 18 µg/L. The TSVOC concentrations have been less than 1.6 µg/L (May 2014) since August 2002.

The TVOC concentrations for OGC-8 shown on Figure 2.13 decreased from 460 µg/L in May 2001 to 29 µg/L in May 2004 and have ranged from non-detect to 30 µg/L since that time.

The TSVOC concentrations decreased from 139 µg/L in August 2001 to 25 µg/L in May 2003 and have ranged from non-detect to 11 µg/L since that time.

The QA/QC review/ Data Usability Summary of the May 2014 groundwater results are included in Appendix C. The raw laboratory data is provided on a CD included in Appendix D.

2.3 Effluent Monitoring Program

Groundwater from the GWS is discharged to the POTW without the need for pretreatment. The monitoring performed during the construction phase of the remedy clearly showed that the minimal chemical presence in the groundwater collected in the GWS is easily treated at the POTW and therefore no on-Site pretreatment is necessary. The effluent samples are collected at the monitoring station (meter building), which is located at the south end of the Site as shown on Figure 2.1. The analytical parameters for the time period from June 2001 to February 2007, inclusive, are listed in Table 2.8 and the parameters monitored since 2007 are listed in Table 2.9.

2.3.1 Sample Results

Effluent samples are collected semi-annually and consist of a 24-hour composite sample collected for SVOCs, metals, and wet chemistry parameters. Three grab samples are also collected for VOCs at 8-hour intervals and the measured concentrations are averaged to give a 24-hour concentration.

QA/QC reviews of the discharge results to May 2012 have already been submitted to the NYSDEC. Thus, these reviews are not being resubmitted with this O&M Report. The QA/QC reviews of the discharge results from September 2013 and April 2014 are provided in Appendix C.

The effluent sample results for this reporting period are provided in Table 2.10. To assist in evaluating the chemical concentration trends in the effluent discharge from the GWS, the measured concentrations for the following parameters are plotted: TVOCs, TSVOCs, pH, total suspended solids (TSS), and biochemical oxygen demand (BOD) (see Figures 2.14 through 2.17). It is believed that these parameters are representative of the trends in the chemistry of the water discharged to the POTW and, as such, can also be used to determine an appropriate monitoring frequency for the effluent.

As shown on Figure 2.14, the TVOCs generally peak in the spring and then decline reaching a trough in the fall. This pattern may be attributable to additional flushing during the spring snow melt. The long-term trend of the TVOC concentrations shows a continual decrease with

time until September 2011 (26 μg/L). Thereafter, the TVOC concentration increased to 107 μg/L in September 2012 and then decreased to 52 μg/L in April 2014. The effluent TSVOC results on Figure 2.14 show no apparent seasonal pattern. The TSVOC concentrations decreased with time until March 2011 (non-detect) increased to 32 μg/L by March 2013 and then decreased to 18 μg/L by April 2014.

The pH levels are presented on Figure 2.15. As shown on Figure 2.15, the pH levels range between 7.3 and 11.6. An apparent trend in the pH levels is higher pH levels in the winter/spring and lower pH levels in the summer/fall.

The TSS concentrations presented on Figure 2.16 show higher concentrations occurring in the early spring and late summer/fall with elevated concentrations (maximum of 278 milligrams per liter [mg/L]) in the spring of 2005. Because TSS may be related to the discharge flow rate, the monthly discharge volume (see Table 2.11) is plotted on Figure 2.18. Comparison of the results presented on these two figures shows an apparent correlation between higher flows and greater TSS concentrations except for the 2005 spring results.

The BOD concentrations are presented on Figure 2.17. As shown on Figure 2.17, BOD concentrations have randomly ranged from 6 to 29 mg/L since May 2002 with a one-time peak of 45 μg/L in September 2012. The BOD concentrations were compared with the discharge volume but showed no apparent correlation.

In summary, the trends and low level TVOC and TSVOC concentrations described above support the semi-annual sampling frequency in the current City of North Tonawanda Industrial Wastewater Discharge Permit.

2.4 GWS Operations

The volume of water pumped on a monthly basis from the Site to the City POTW for treatment is presented in Table 2.11 and plotted on Figure 2.18. The monthly volumes show that during the time period of initial dewatering of the Site (i.e., May and June 2001) the monthly volumes ranged from 2,300,000 to 2,900,000 gallons. For the time period from June 2007 to May 2014, the monthly volumes ranged from 23,800 to 2,661,000 gallons except for March 2009 which had a volume of 4,239,000 gallons.

The total measured volume of water discharged from the Site for the time period from May 2001 to May 2014 was 97,954,100 gallons with 1,390,000 gallons (4.0 gallons per minute [gpm] average) pumped during the 8 months from June 2013 through January 2014. The discharge volumes for February through May 2014 were not included in the calculations due to a meter malfunction.

Section 5.0 of the O&M Manual describes the procedures to be followed in case pumping of the GWS needs to be stopped to prevent the discharge of untreated water from the Site by the City POTW (i.e., wet weather shutdown). Wet weather shutdowns occurred in the following time periods from June 2013 to May 2014:

Time Period
July 19 & 20, 2013
September 21, 2013
December 22 to 25, 2013

The treatment of the Site groundwater by the City POTW did not require any modifications to the standard operations of the City POTW and did not cause any operational upsets of the City POTW from June 2013 to May 2014.

2.5 GWS Maintenance

This section describes the GWS maintenance activities performed during the June 2013 through May 2014 time period.

The pump for Pump #2 (MH-9) was observed to be drawing high amperage. The pump was cleaned on June 20, 2013.

A replacement pump for Pump #3 (MH-15) was installed on July 2, 2013.

The breaker for Pump #1 (MH-3) tripped on February 13, 2014. The pump was cleaned on February 20, 2014. The cleaning was not successful in reducing the high amperage draw. A replacement pump was installed on March 6, 2014.

To decrease the pump downtime, the sediment was removed from the three pump station manholes on March 3, 2014 by vacuuming. Prior to disposal off-site, the sediments were analyzed for VOCs, SVOCs, TCLP VOCs, TCLP SVOCs, TCLP metals, and RCRA characteristics. A copy of the laboratory report is included in Appendix E. All of the detected VOCs and SVOCs were less than or equal to 6NYCRR Part 375 Table 375-6.8(b) Residential Use Cleanup Objectives. The results of the TCLP testing showed that all tested parameters were less than TCLP Regulatory Levels. The RCRA characteristic sampling showed that the material was not hazardous.

In February 2014 it was noticed that the flow meter measuring the discharge from the GWS was malfunctioning. A replacement meter has been ordered (CNT to confirm meter has been ordered).

Section 3.0 Site Inspections

Site inspections were performed on a monthly basis. Copies of the Inspection Logs for the time period to May 2013 were previously submitted and thus are not being resubmitted with this O&M Report. The Monthly Inspection Logs for June 2013 through May 2014 are included in Appendix B. In summary, the June 2013 through May 2014 inspections identified:

i) Higher water levels in the northern portion of the GWS in February due to the failure of the GWS pump in P.S. #1 (MH-3). The pump was replaced on March 6, 2014.

ii) Soil erosion from the middle river location to the down stream property boundary in June through October 2013. The areas were repaired in November 2013.

iii) Soil erosion along much of the shoreline from March through May 2014.

iv) Some wire mesh was exposed along the top of the bank from March through May 2014.

v) Large dead trees partially blocked the River North outlet from September 2013 through April 2014. The trees were removed in May 2014.

The schedule for repair of the erosion is to be determined by the City of North Tonawanda.

Section 4.0 Conclusions/Recommendations

4.1 Operation and Maintenance

The constructed remedy is achieving the remedial action objectives.

4.2 Monitoring

The groundwater TVOC and TSVOC concentrations are either decreasing or are relatively consistent with time with nine of the 12 wells sampled in May 2014 having TVOC concentrations ≤20 µg/L.

The groundwater sample collection frequency for the next 5-year period (i.e., May 2013 through May 2017) will be:

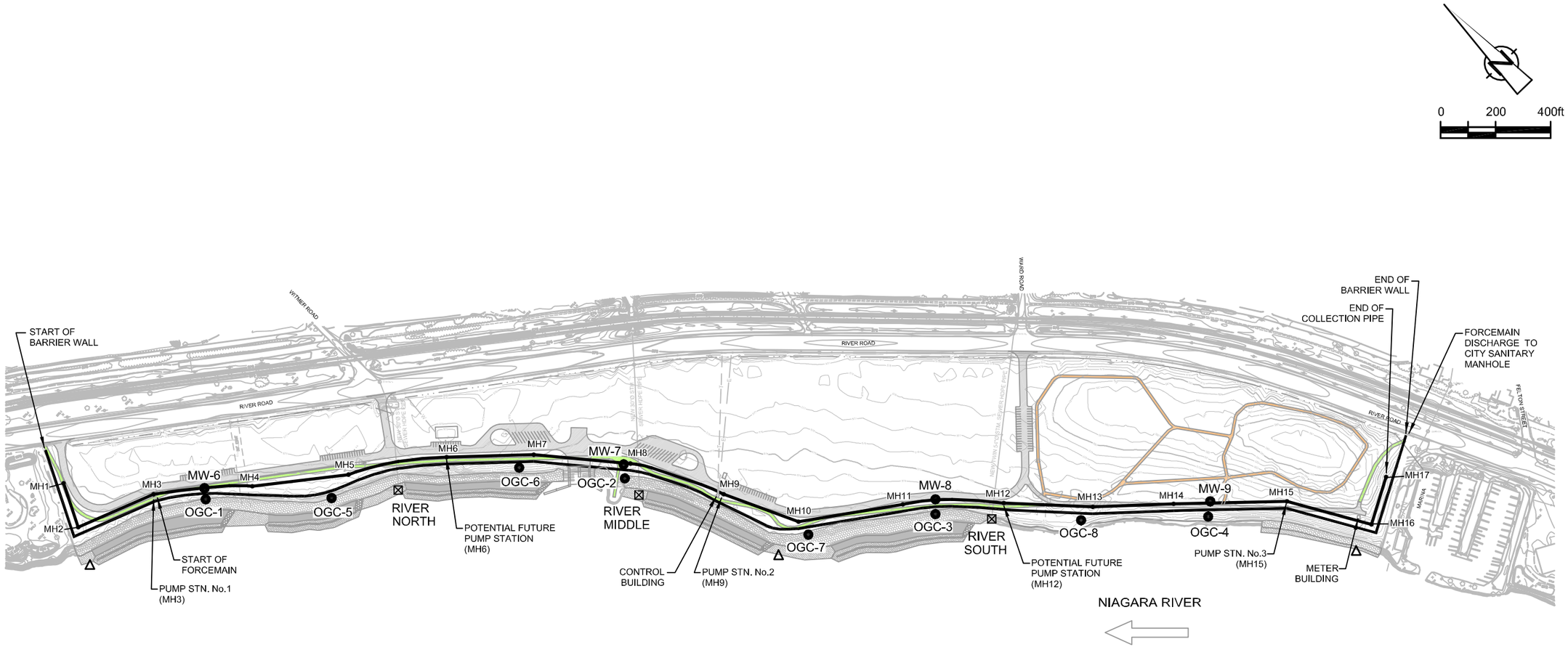
Annual	***Once Every 2 Years (2014 and 2016)***
MW-8	MW-6
MW-9	MW-7
OGC-3	OGC-1
OGC-6	OGC-2
OGC-7	OGC-4
	OGC-5
	OGC-8

Pursuant to the discharge permit effective January 31, 2007 (renewed March 1, 2010 and March 1, 2013), semi-annual monitoring commenced in September 2007. The trends in the effluent from the GWS to the POTW support the continuation of the sampling frequency at semi-annual. Flow monitoring will continue to be performed monthly as a check on the operation of the GWS.

Monthly monitoring of the sediment thickness in the GWS manholes and removal of the sediments by vacuuming are already included in Tables 6.1 and 6.2, respectively of the O&M Manual. An addendum has been inserted in the O&M Manual to add the requirement of sediment removal from those manholes in which sediment has collected. Considering that the first sediment removal was performed approximately 13 years after the start of GWS operation, removal once every five years, if necessary, is more than adequate. The sediment will be removed during low-flow conditions which typically occur in late summer. The addendum to the O&M Manual is included in Appendix F.

4.3 Notifications to City of North Tonawanda

Notifications of anomalies in the visual inspections, discharge volumes and/or groundwater levels were and will continue to be provided to the City of North Tonawanda Public Works Engineering and Wastewater Treatment Department within a few days of measurement of the anomaly to allow for timely maintenance.



LEGEND

- BARRIER WALL
- MH11 — GROUNDWATER COLLECTION SYSTEM
- OGC-1 / MW-1 — MONITORING WELL LOCATION
- RIVER SOUTH — SURFACE WATER LEVEL MONITORING LOCATION
- △ — SURFACE WATER CHEMICAL MONITORING LOCATION (NO SAMPLING AFTER APRIL 2008)

figure 2.1

MONITORING NETWORK
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

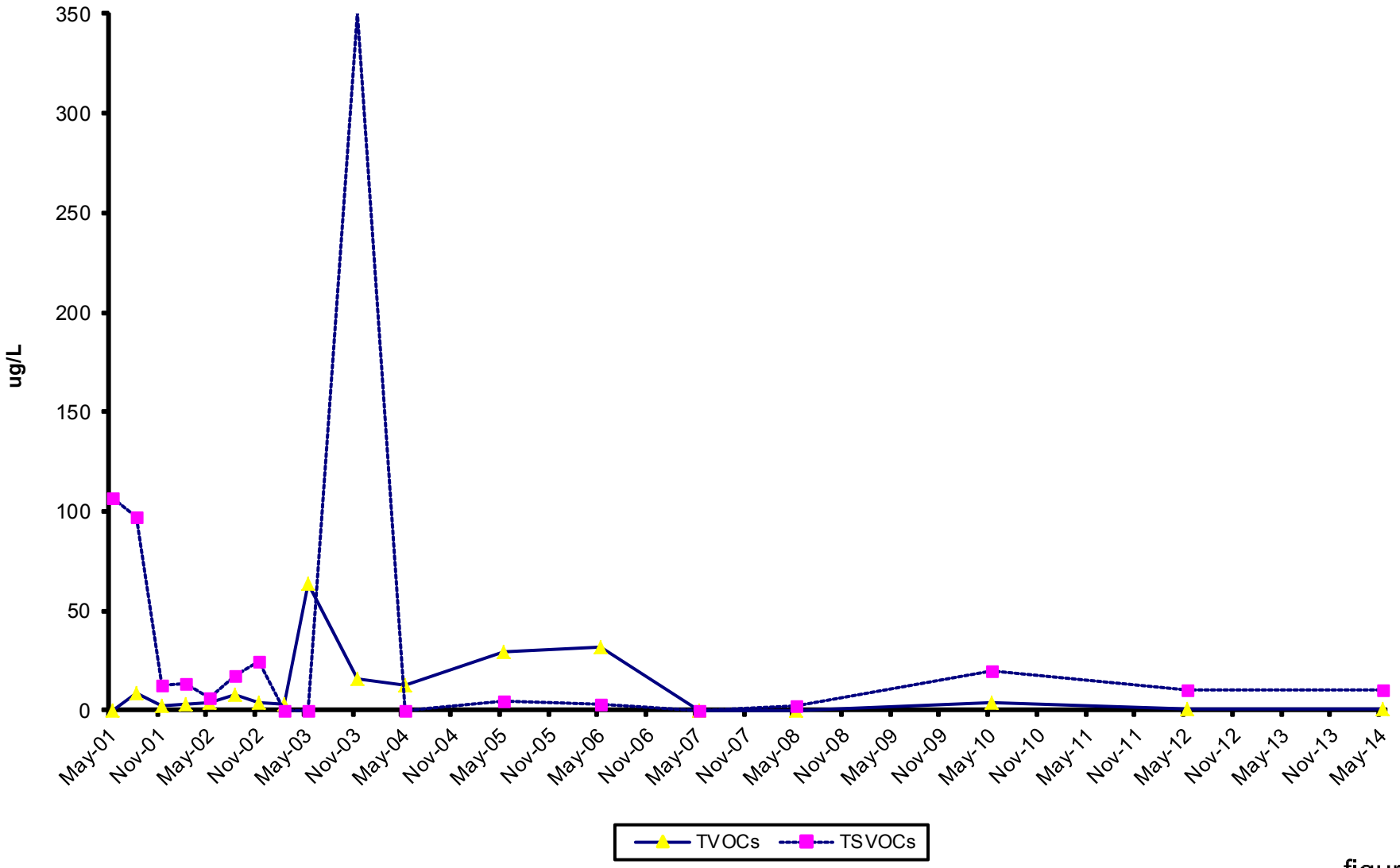


figure 2.2

MW-6 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

07987-00(042)GN-WA002 JUL 9/2014

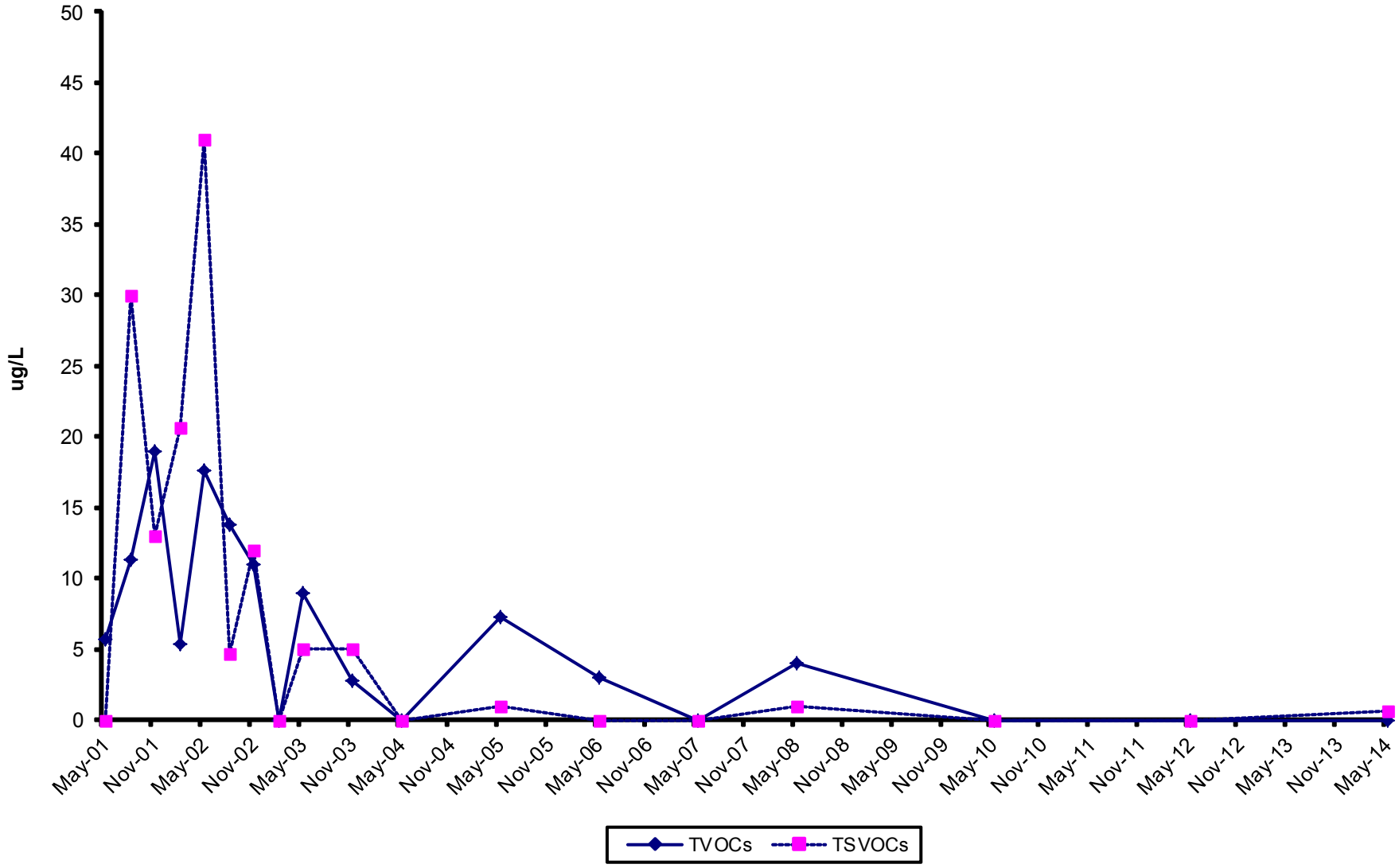


figure 2.3

MW-7 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

07987-00(042)GN-WA003 JUL 9/2014

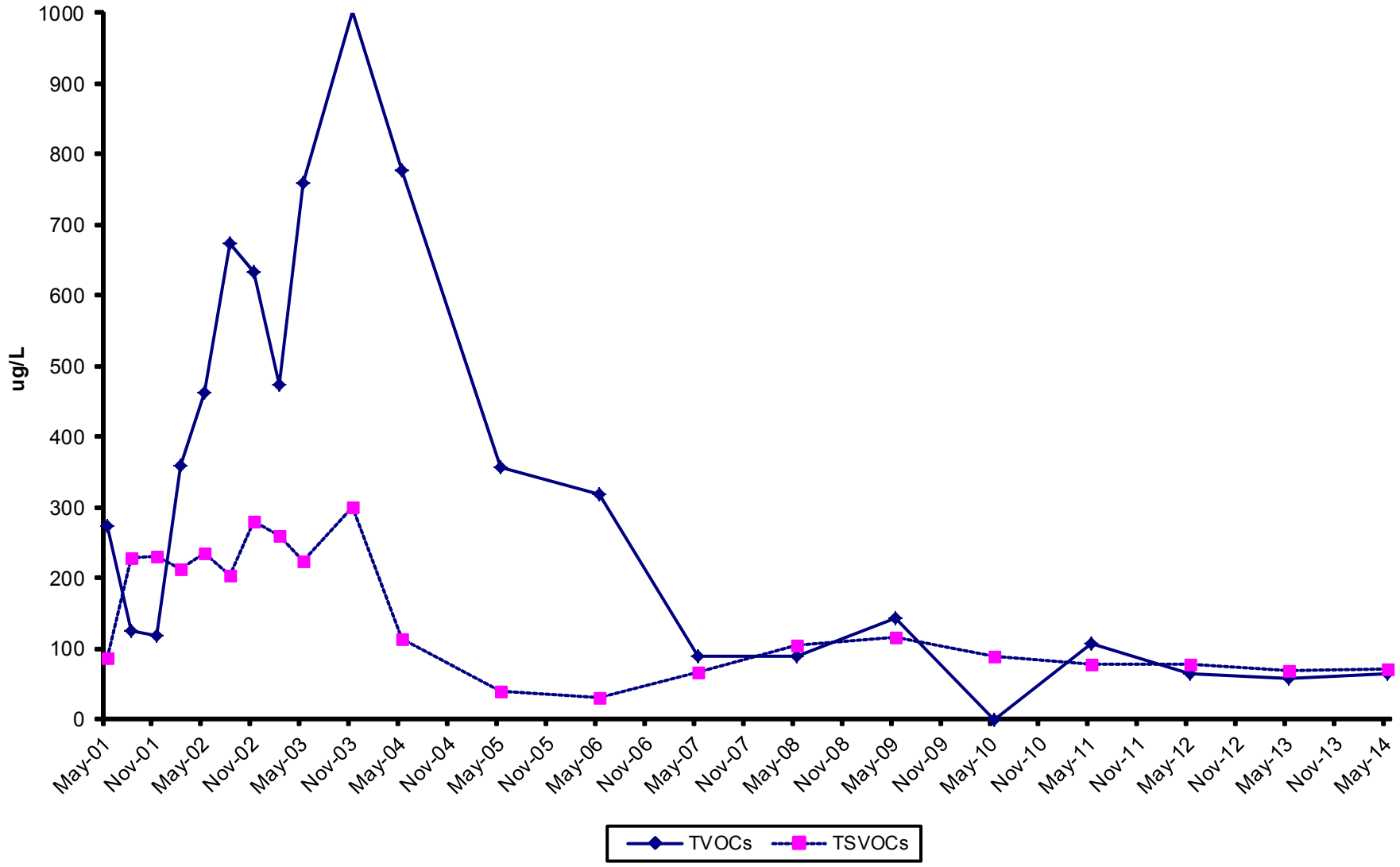


figure 2.4

MW-8 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

07987-00(042)GN-WA004 JUL 9/2014

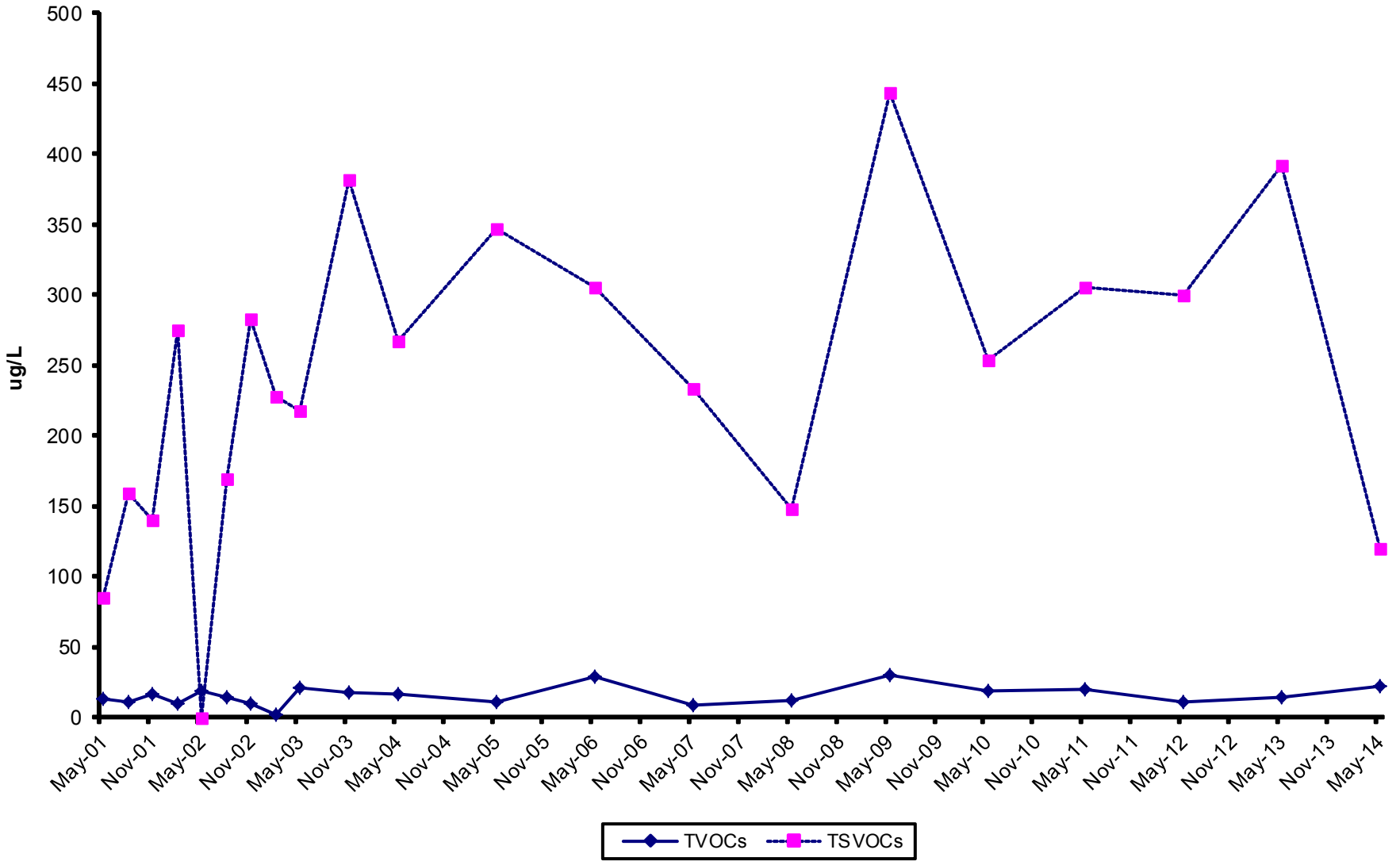


figure 2.5

MW-9 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

07987-00(042)GN-WA005 JUL 9/2014

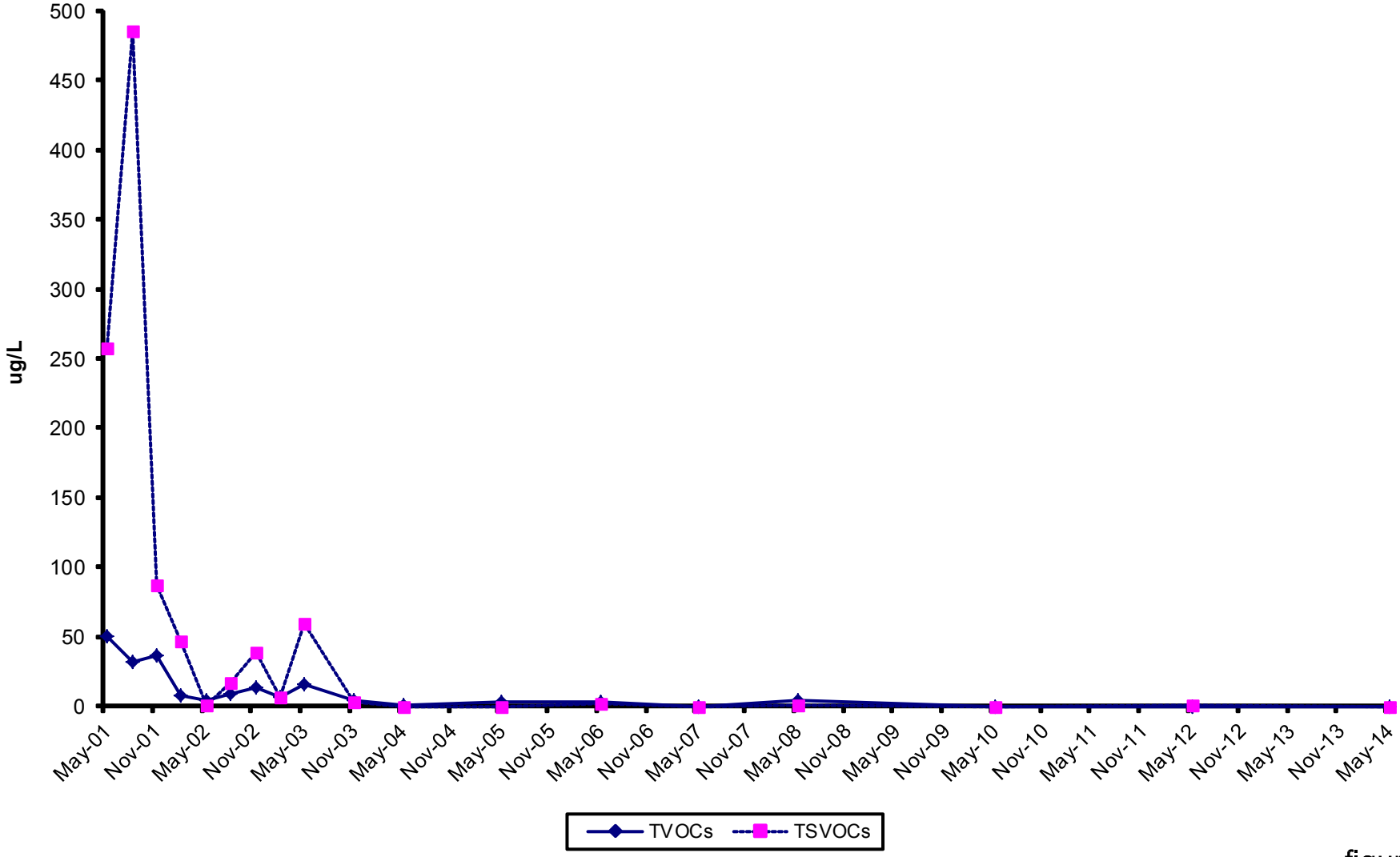


figure 2.6

OGC-1 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

07987-00(042)GN-WA006 JUL 9/2014

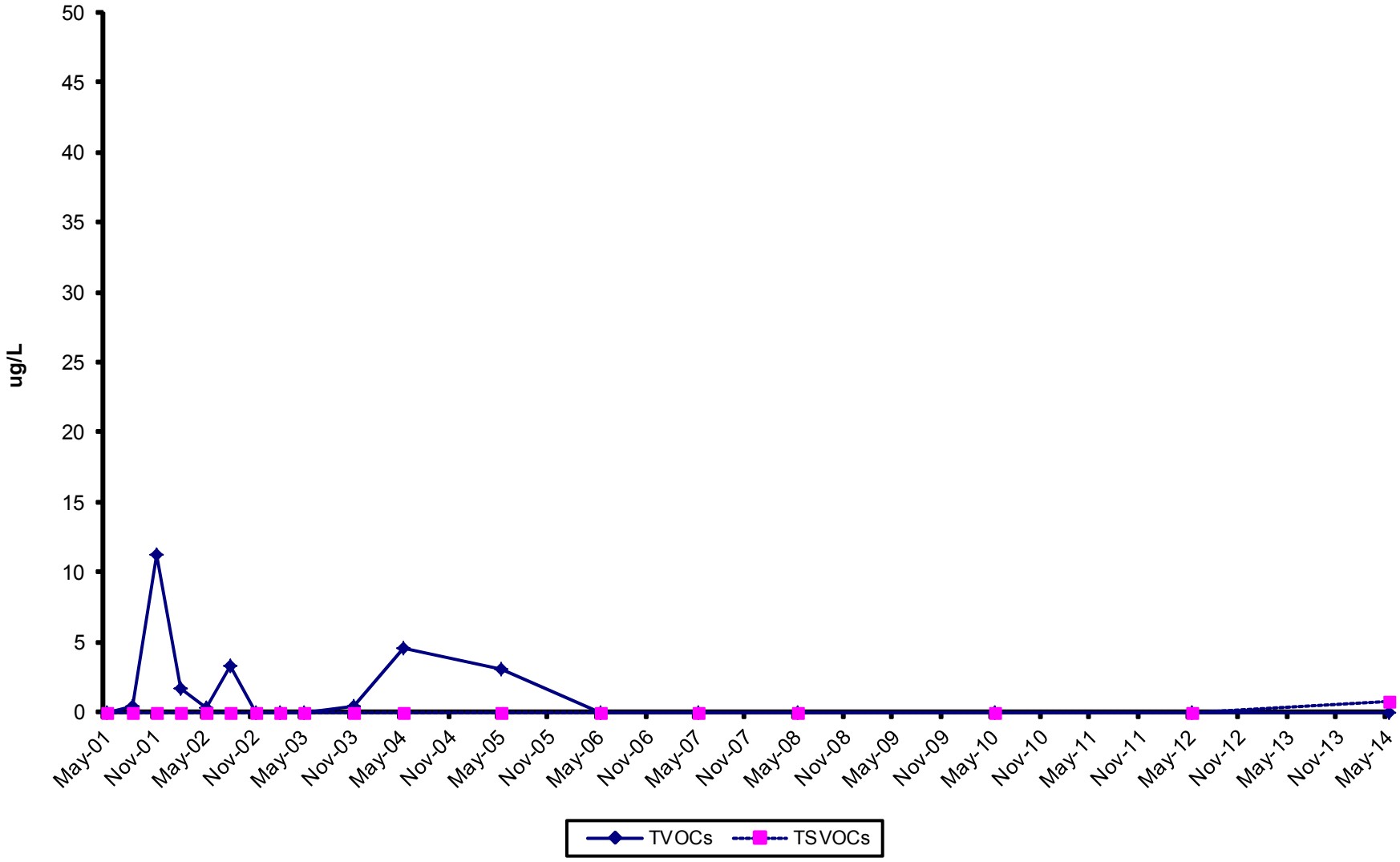


figure 2.7

OGC-2 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

07987-00(042)GN-WA007 JUL 9/2014

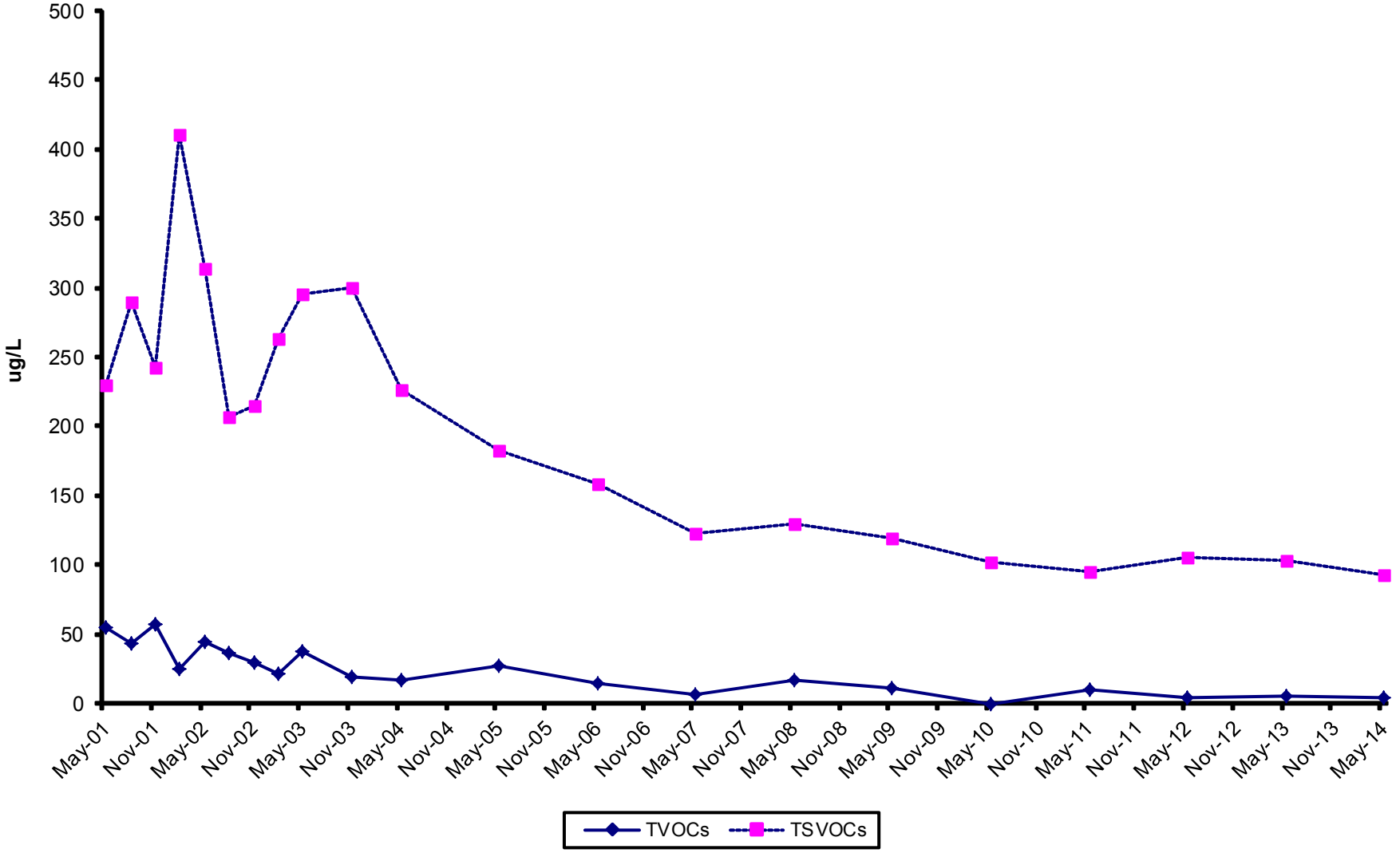


figure 2.8

OGC-3 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

07987-00(042)GN-WA008 JUL 9/2014

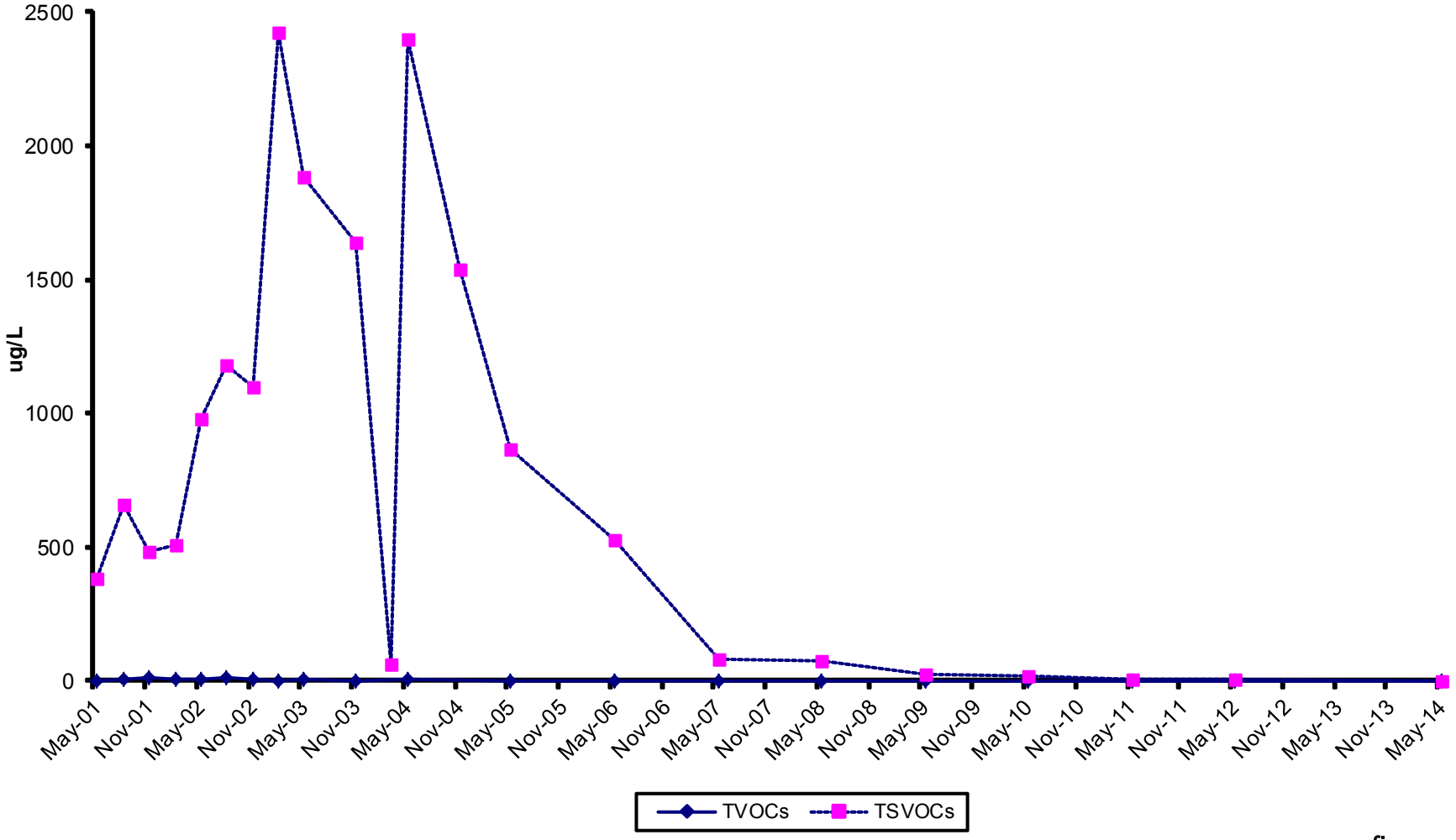


figure 2.9

OGC-4 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

07987-00(042)GN-WA009 JUL 9/2014

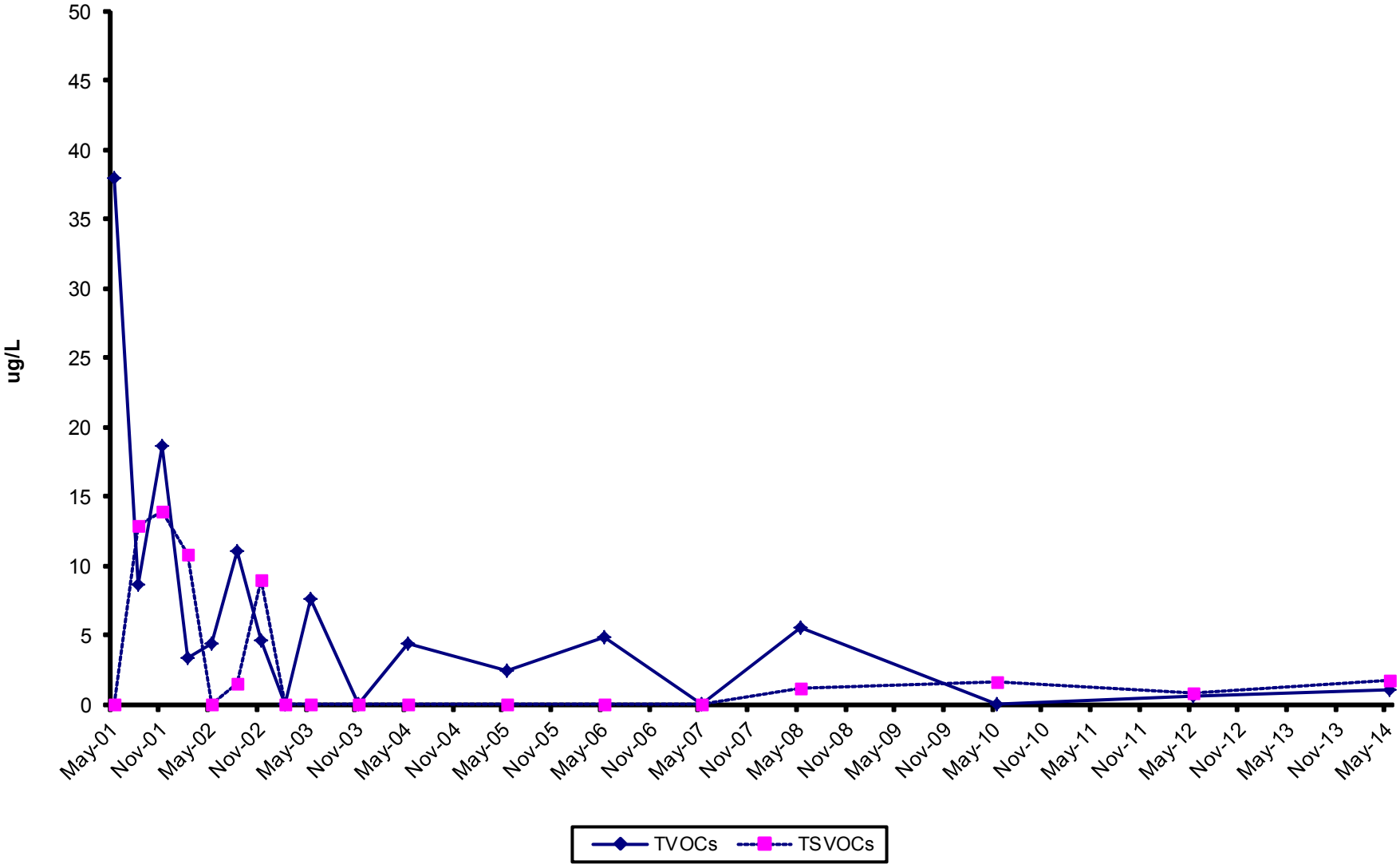


figure 2.10

OGC-5 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

07987-00(042)GN-WA010 JUL 9/2014

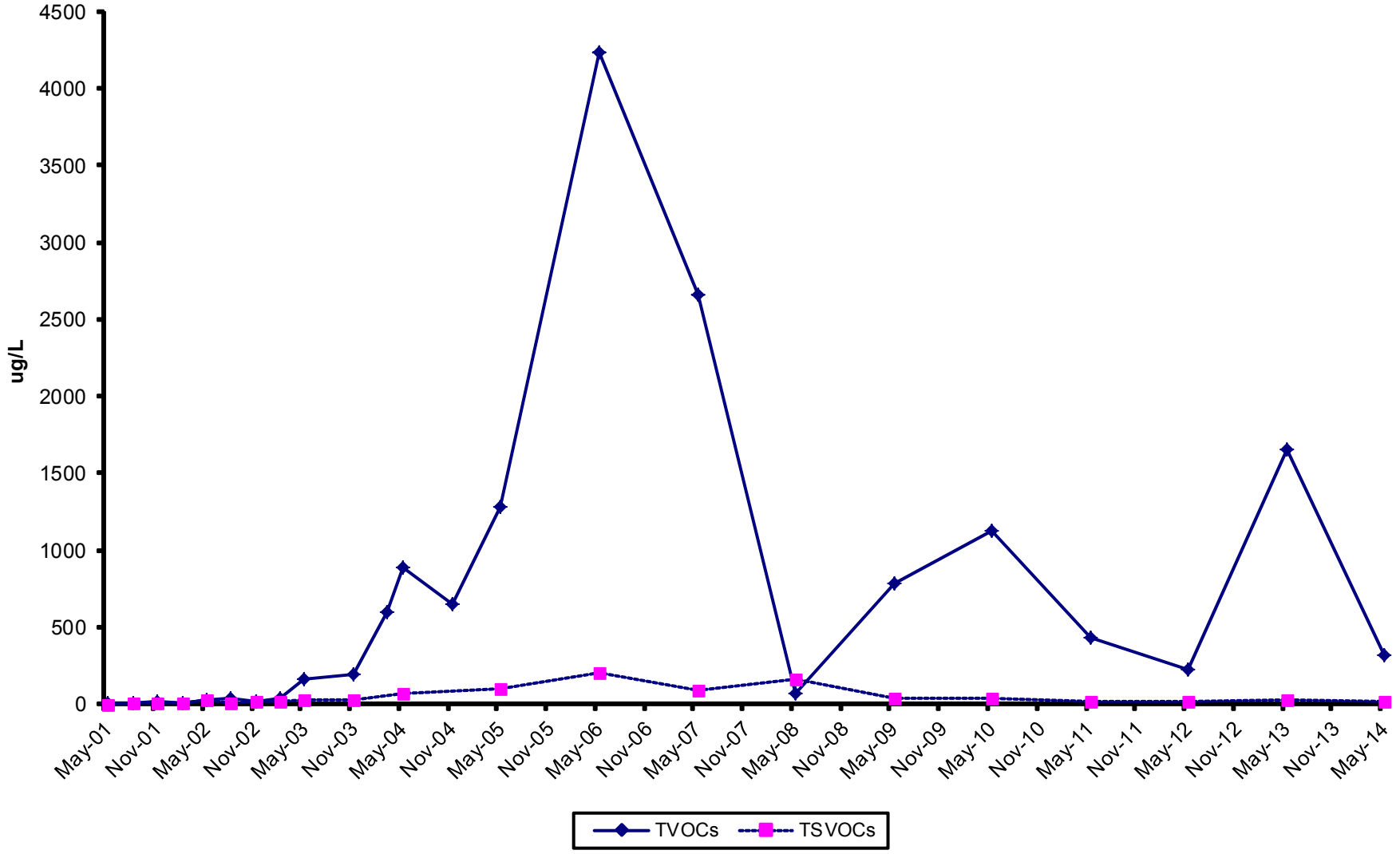


figure 2.11

OGC-6 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

07987-00(042)GN-WA011 JUL 9/2014

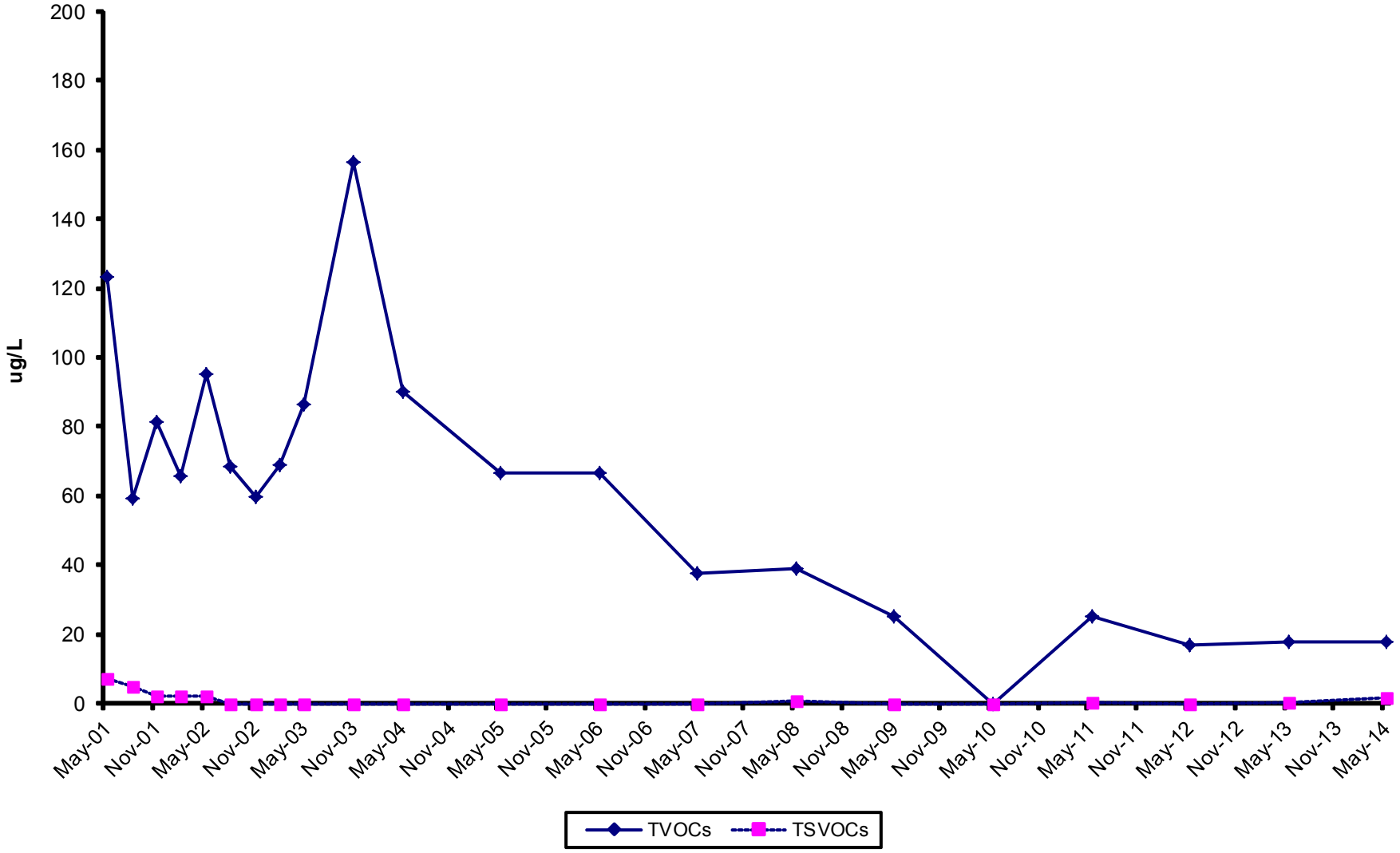


figure 2.12

OGC-7 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

07987-00(042)GN-WA012 JUL 9/2014

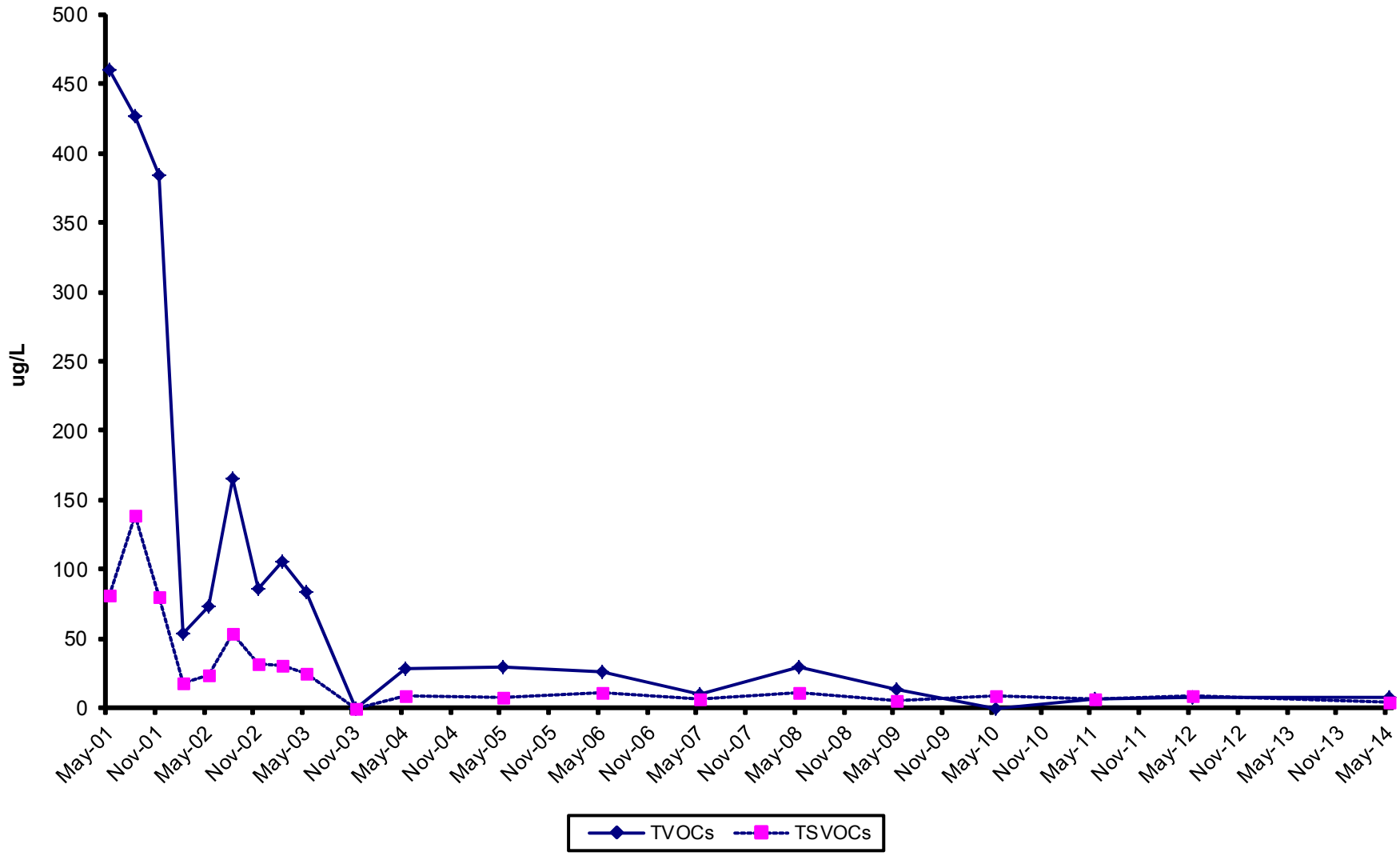


figure 2.13

OGC-8 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

07987-00(042)GN-WA013 JUL 9/2014

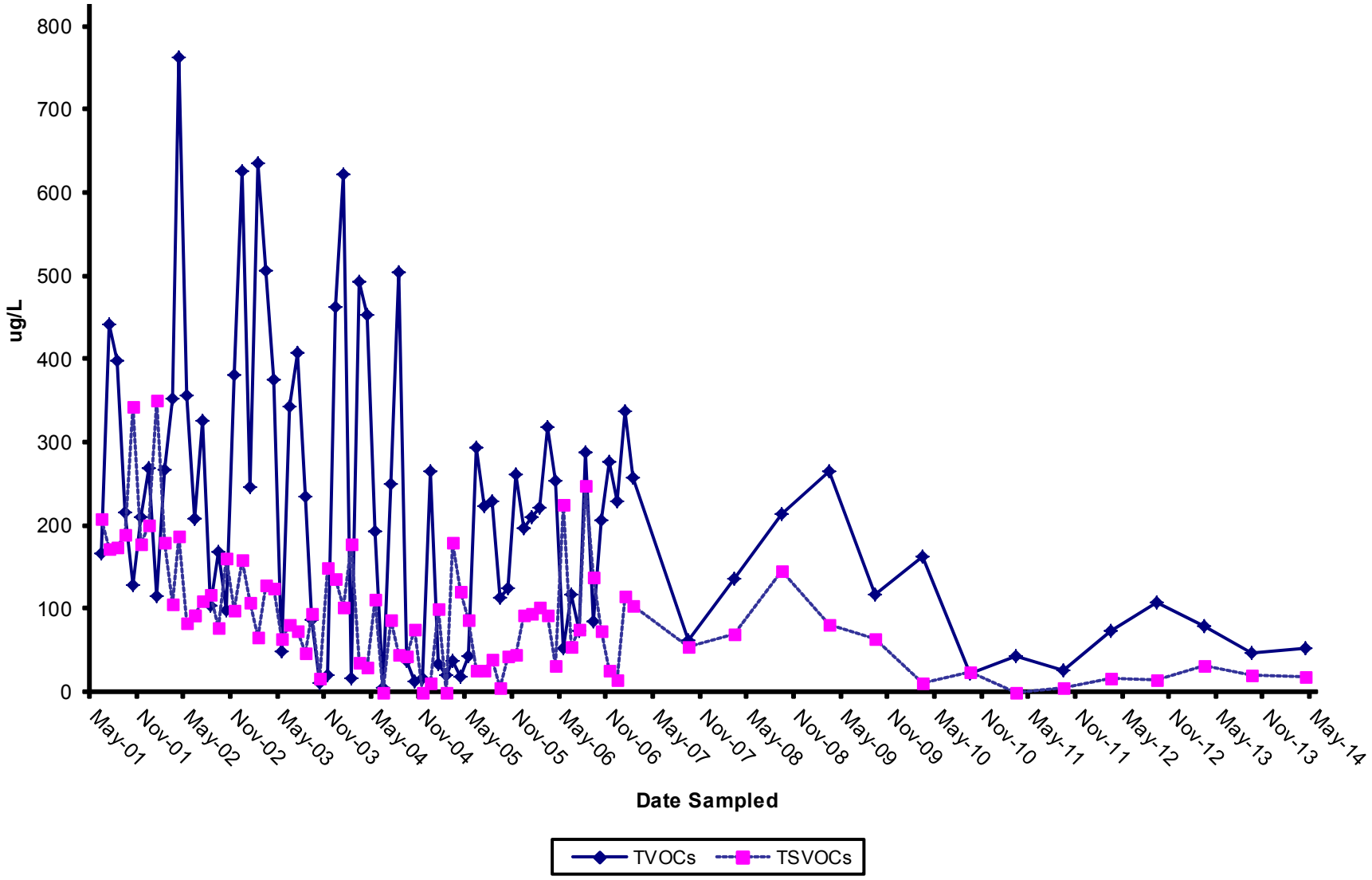


figure 2.14

EFFLUENT TVOCs AND TSVOCs vs. TIME
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

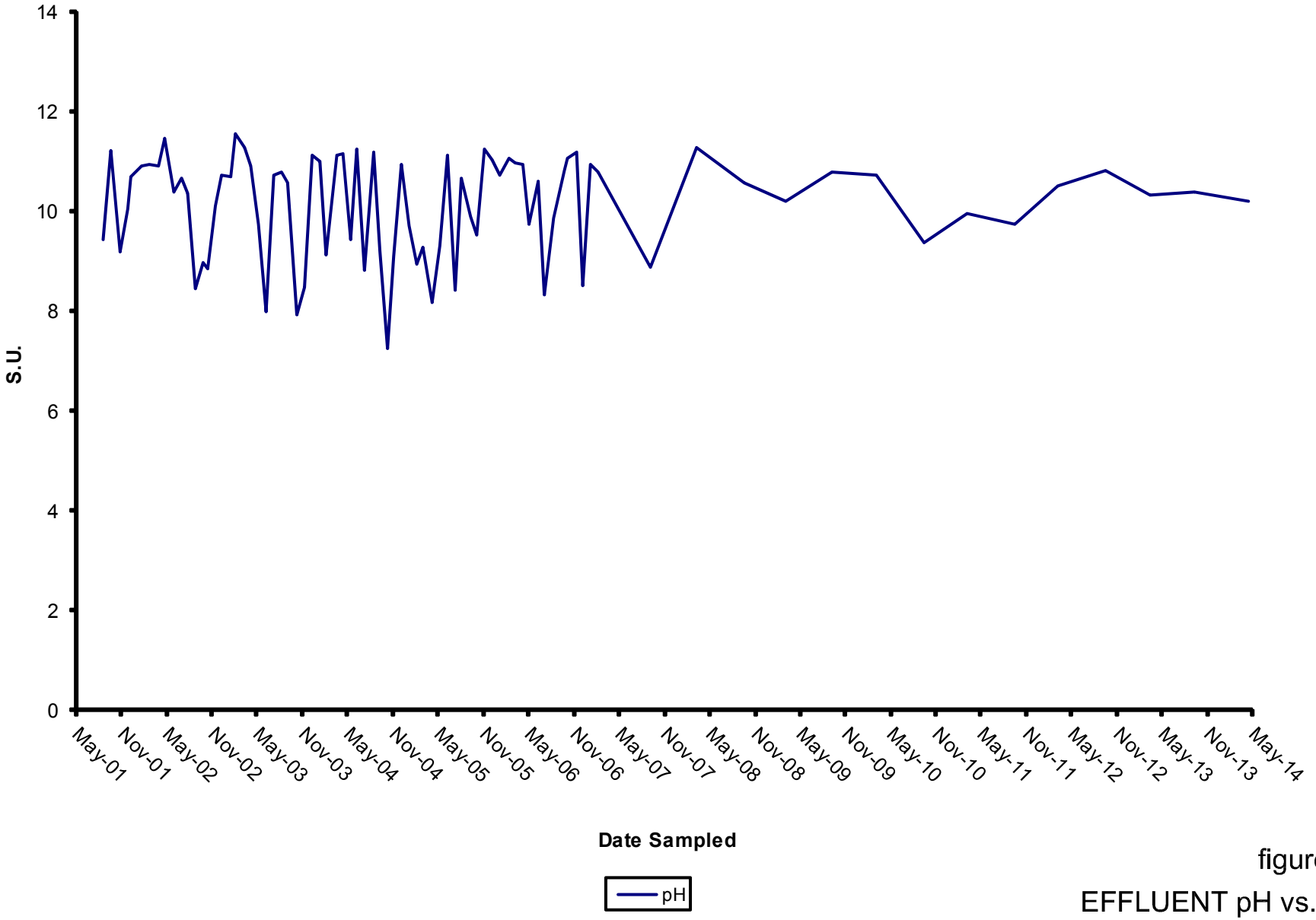


figure 2.15

EFFLUENT pH vs. TIME
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

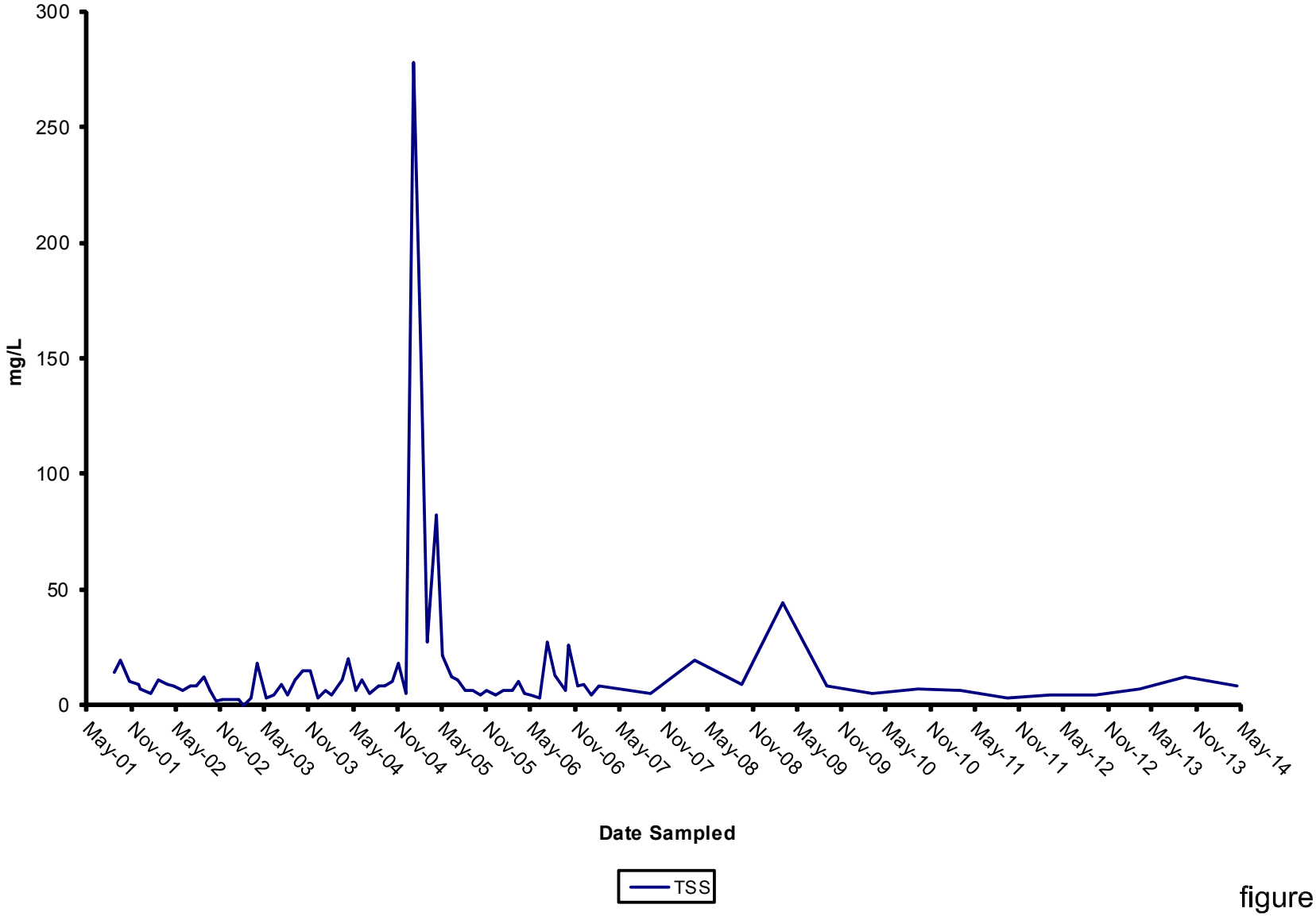


figure 2.16

EFFLUENT TOTAL SUSPENDED SOLIDS vs. TIME
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

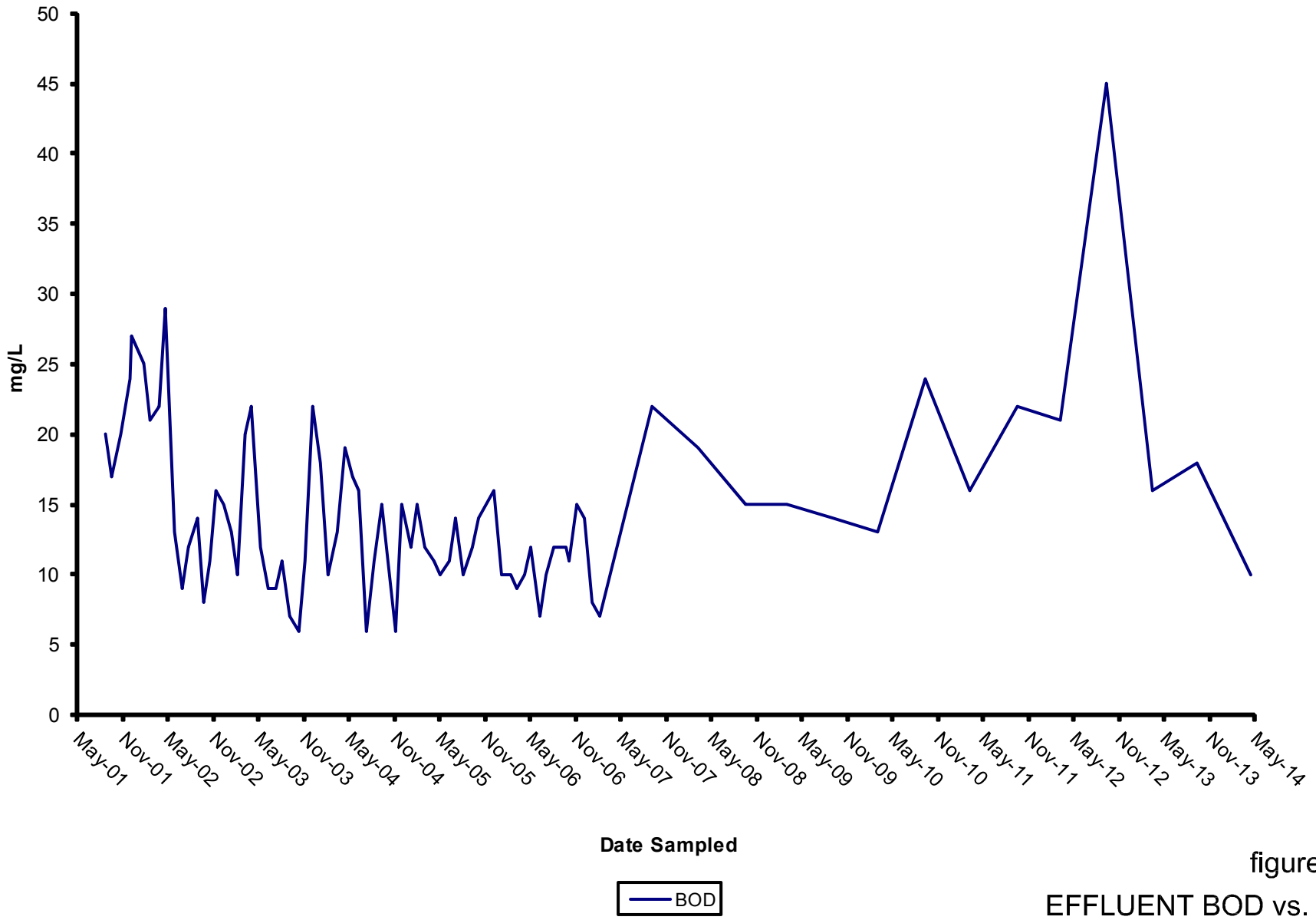


figure 2.17

EFFLUENT BOD vs. TIME
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

07987-00(042)GN-WA017 JUL 9/2014

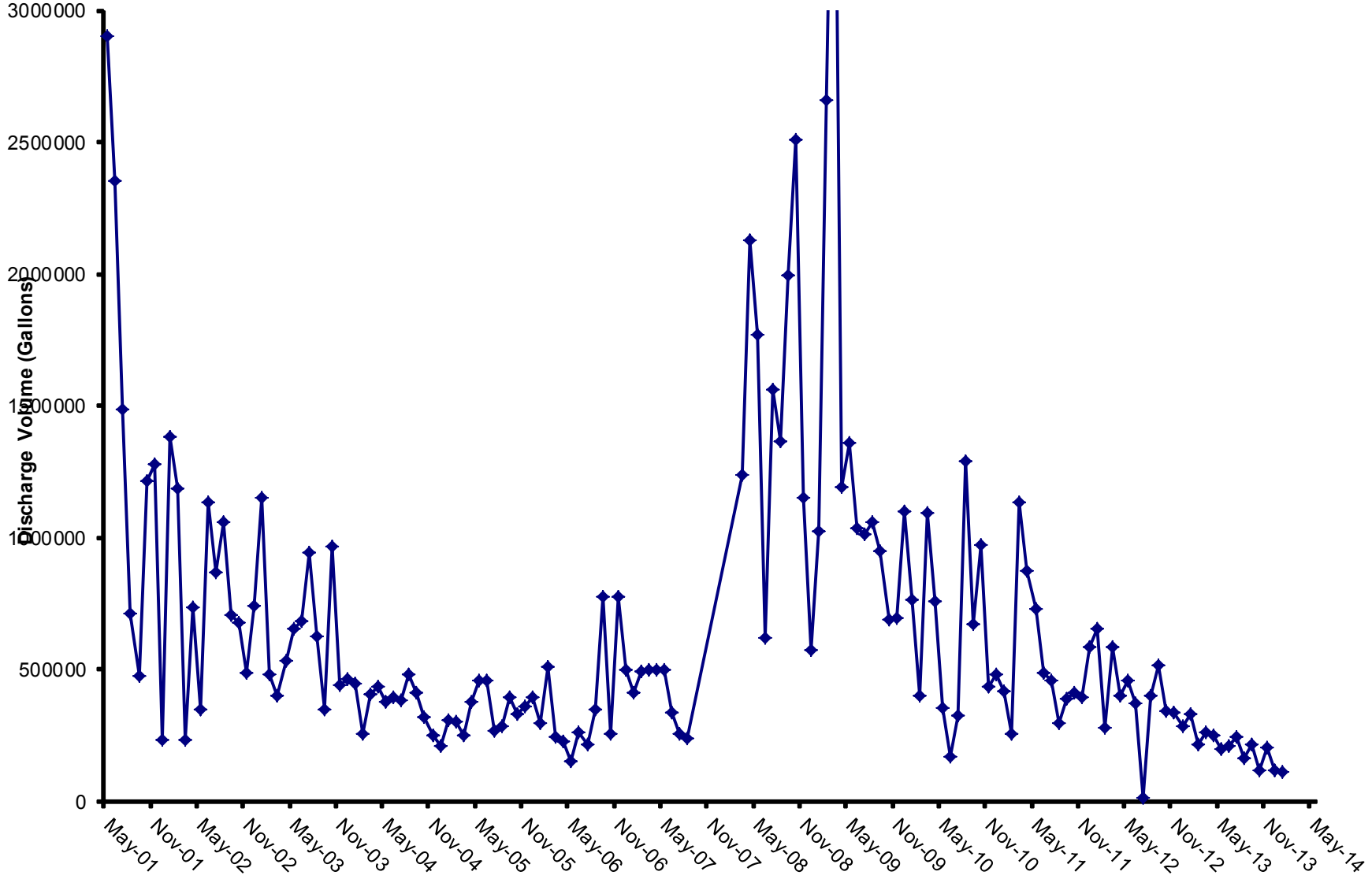


figure 2.18

EFFLUENT VOLUME vs. TIME
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

TABLE 2.1

GROUNDWATER HYDRAULIC MONITORING LOCATIONS
OPERATION AND MAINTENANCE
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

INWARD HYDRAULIC GRADIENT MONITORING LOCATIONS

Inner [1]	Outer
MH2	Niagara River North (Downstream)
MH6	Niagara River North (Downstream)
MH8	Niagara River Middle
MH12	Niagara River South (Upstream)

UPWARD HYDRAULIC GRADIENT MONITORING LOCATIONS

Upper [1]	Lower
MH3	MW-6
MH8	MW-7
MH11	MW-8
MH14/MH15 [2]	MW-9

FREQUENCY

- Weekly following GWS startup until six consecutive inward gradients are achieved; and
- Monthly thereafter for the remainder of the initial 2-year period (review after 2 years).
- 2-Year and 5-Year reviews indicated that the monitoring frequency remain monthly.

Notes:

(1) These manholes will be monitored twice daily by POTW staff during a wet weather bypass event pursuant to Section 5.0 of the O&M Manual.

(2) Distance weighted averages of water levels used (MH14 - two thirds and MH15 - one third).

TABLE 2.2

WATER LEVELS (ft amsl)
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Date	*MH2*	*MH3*	*MH6*	*OGC-1*	*MW-6*	*OGC-5*	*River North*	*OGC-6*	*MH8*	*MW-7*	*OGC-2*	*River Middle*	*OGC-7*
RIM Elevation	573.28	573.81	572.03						572.37				
TOC Elevation (ft amsl)				575.01	575.40	573.82	566.80	576.65		575.57	574.08	566.48	572.49
January 3, 2011	561.75	560.81	555.84	563.86	562.64	563.84	(1)	563.73	560.65	561.56	563.89	563.46	563.96
February 28, 2011	562.19	558.86	556.18	564.35	562.47	564.11	(1)	563.89	560.87	561.65	561.19	563.78	564.25
March 30, 2011	563.05	560.98	557.06	564.39	563.57	564.06	(1)	564.12	561.59	562.09	564.28	563.80	564.28
April 27, 2011	563.76	559.28	560.47	565.32	563.84	564.92	564.62	564.89	562.24	562.81	565.08	564.48	565.08
May 26, 2011	563.89	559.04	558.04	565.30	564.05	565.13	(1)	565.03	562.57	562.93	565.18	564.90	565.28
June 22, 2011	563.34	560.50	557.45	565.32	563.59	565.30	565.16	565.13	562.04	562.39	565.36	565.06	565.38
July 27, 2011	563.00	560.69	557.11	565.09	563.29	565.02	564.93	563.96	561.73	562.15	565.24	564.86	565.17
August 26, 2011	562.86	560.58	556.99	565.16	563.09	565.20	565.07	564.97	561.64	562.06	565.19	564.99	565.31
September 27, 2011	562.86	560.49	557.00	564.98	563.02	565.03	564.87	564.80	561.66	562.12	564.97	564.80	565.18
October 28, 2011	563.16	560.12	557.17	565.20	563.21	564.93	(1)	564.84	561.76	562.36	565.00	564.70	565.09
November 30, 2011	562.86	560.99	556.78	565.06	562.99	564.61	(1)	564.54	561.37	562.06	564.82	564.27	564.81
December 29, 2011	563.69	561.38	557.65	565.05	563.81	564.69	(1)	564.77	562.06	562.45	564.90	564.30	564.86
January 26, 2012	563.77	560.53	557.74	564.93	563.88	564.53	(1)	564.69	562.07	562.41	564.88	564.35	564.70
February 28, 2012	563.72	560.12	557.56	564.96	563.81	564.58	(1)	564.69	561.98	562.30	564.86	564.26	564.74
March 29, 2012	563.36	560.20	557.14	564.63	563.53	564.59	(1)	564.52	561.59	561.94	564.69	564.28	564.97
April 26, 2012	563.56	560.58	557.42	565.19	563.51	564.76	(1)	564.74	561.81	562.09	564.96	564.46	564.90
May 30, 2012	563.97	560.57	557.91	564.86	564.12	564.90	(1)	564.78	562.36	562.46	565.05	564.86	565.07
June 27, 2012	563.35	561.29	557.84	564.62	563.97	563.90	564.77	564.51	562.22	562.31	564.69	564.59	564.85
July 31, 2012	564.51	561.19	559.08	564.70	564.64	564.80	(1)	564.55	563.85	564.69	564.79	564.72	564.93
August 27, 2012	564.34	561.22	558.34	564.66	564.61	564.78	564.72	564.44	562.99	563.35	564.75	564.60	564.90
September 24, 212	563.36	561.20	557.36	564.84	563.60	564.82	564.67	564.65	561.94	562.29	564.79	564.60	564.98
October 26, 2012	563.39	559.91	557.40	564.54	563.54	564.31	(1)	564.32	561.94	562.34	564.49	564.04	564.49
November 26, 2012	563.50	561.25	557.20	564.09	563.57	563.99	(1)	564.01	561.66	561.94	564.17	563.71	564.11
December 26, 2012	563.64	561.19	557.37	564.00	563.66	563.39	(1)	563.94	561.75	562.21	564.04	(1)	563.71
January 30, 2013	564.00	560.19	557.80	564.27	564.12	564.16	(1)	563.96	562.33	562.45	564.26	563.03	564.35
February 27, 2013	563.96	560.71	557.86	564.27	563.92	563.86	(1)	563.87	562.79	562.38	564.77	563.18	563.98
March 27, 2013	536.97	560.29	557.45	564.13	563.98	564.13	(1)	563.97	561.94	562.05	564.06	563.86	564.21
April 24, 2013	564.33	560.57	557.97	564.69	564.58	564.64	(1)	564.54	562.49	562.57	564.65	564.31	564.75
May 24, 2013	564.09	560.85	557.81	564.44	563.18	564.39	(1)	564.36	562.41	562.40	564.54	564.16	564.49
June 27, 2013	564.37	559.69	557.96	564.70	564.59	564.78	564.23	564.57	562.69	562.86	564.78	564.58	564.89
July 24, 2013	564.38	560.60	558.10	565.22	564.52	565.11	565.11	566.04	562.93	563.28	565.25	564.95	565.28
August 22, 2013	564.18	560.40	557.71	565.02	564.24	565.10	565.02	564.93	562.41	562.46	565.05	564.95	565.25
September 30, 2013	564.17	560.68	557.72	564.88	564.28	564.98	564.87	564.76	564.40	562.48	564.97	564.74	565.11
October 30, 2013	564.47	560.63	558.05	564.81	564.64	564.57	(1)	564.53	562.79	562.98	564.76	564.30	564.69
November 27, 2013	564.44	560.33	557.69	564.44	564.52	564.14	(1)	564.24	562.35	562.40	564.43	563.63	564.29
December 31, 2013	564.41	561.39	558.11	564.64	564.74	564.41	(1)	564.33	562.86	563.09	564.45	564.43	564.56
January 30, 2014	564.13	559.88	557.64	565.03	564.14	564.90	564.80	564.87	562.41	562.40	565.09	(2)	565.07
February 26, 2014	567.53	570.48	558.01	564.44	565.29	564.32	(1)	564.20	562.81	562.78	564.44	563.98	564.45
March 28, 2014	564.10	559.36	557.62	564.26	564.01	564.09	564.96	564.13	562.21	562.01	564.29	564.39	564.21
April 25, 2014	564.42	560.21	558.36	564.81	564.74	564.50	(1)	564.44	563.03	562.95	564.67	564.28	564.63
May 29, 2014	564.46	559.12	558.41	564.92	564.71	564.57	(1)	564.70	563.20	563.21	564.91	564.60	564.88

TABLE 2.2

WATER LEVELS (ft amsl)
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Date	*MH9*	*OGC-3*	*MH11*	*MW-8*	*River South*	*MH12*	*OGC-8*	*OGC-4*	*MW-9*	*MH14*	*MH15*	*MH16*
RIM Elevation			572.11			572.37				574.30	575.84	574.82
TOC Elevation (ft amsl)	572.55	573.35		574.37	568.46		574.01	574.66	576.23			
January 31, 2011		564.01	561.22	562.02	563.96	559.59	564.08	564.10	564.39	564.47	563.42	564.43
February 28, 2011		564.33	561.76	562.63	564.31	560.26	564.37	564.37	564.85	564.88	563.84	565.63
March 30, 2011		564.30	562.14	563.15	564.46	560.68	563.87	564.37	565.20	565.21	564.18	565.29
April 27, 2011		565.09	562.68	563.50	564.97	561.06	565.18	565.23	565.40	565.42	564.36	565.46
May 26, 2011		565.45	562.76	563.52	565.37	561.03	565.49	565.35	565.42	565.59	564.52	565.51
June 22, 2011		565.51	562.24	562.95	565.44	560.52	565.50	565.55	565.04	565.11	564.07	565.04
July 27, 2011		565.27	561.80	562.55	565.22	560.13	565.28	565.28	564.71	564.77	563.73	564.71
August 26, 2011		565.43	561.55	562.35	565.43	559.94	565.48	565.40	564.50	564.52	563.47	564.44
September 27, 2011		565.24	561.47	562.28	565.24	559.86	565.28	565.26	564.40	564.39	563.36	564.36
October 28, 2011		565.18	562.13	562.78	565.11	560.37	565.23	565.23	565.02	565.09	564.02	565.03
November 30, 2011		564.86	562.17	562.72	564.80	560.36	564.93	564.94	564.88	564.96	563.88	564.95
December 29, 2011		564.92	562.69	563.34	564.77	560.88	564.90	565.02	565.36	565.34	564.25	565.39
January 26, 2012		564.72	562.97	563.48	564.56	561.06	564.78	564.80	565.61	565.59	564.53	565.63
February 28, 2012		564.72	562.78	563.39	564.58	561.02	564.71	564.88	565.62	565.59	564.53	565.61
March 29, 2012		564.77	562.54	563.15	564.73	560.79	564.85	564.85	565.31	565.32	564.23	565.31
April 26, 2012		564.92	562.37	562.99	564.84	560.61	564.95	565.02	565.17	565.19	564.11	565.16
May 30, 2012		565.21	562.35	562.89	565.27	560.57	565.27	565.20	565.11	565.22	564.11	565.17
June 27, 2012		564.96	562.11	562.70	565.03	560.31	565.08	564.94	564.84	564.88	563.82	564.83
July 31, 2012		565.01	564.00	564.55	565.07	561.88	565.11	565.02	564.71	564.77	563.72	564.66
August 27, 2012		564.99	562.42	563.00	565.03	560.56	565.08	565.00	564.81	564.87	563.81	564.79
September 24, 212		565.03	562.05	562.64	565.00	560.22	565.08	565.04	564.52	564.58	563.52	564.50
October 26, 2012		564.48	561.96	562.55	564.43	560.09	564.53	564.55	564.49	564.57	563.51	564.47
November 26, 2012		564.17	562.29	562.96	564.15	560.58	564.20	564.23	564.91	565.02	563.96	564.97
December 26, 2012		563.73	562.52	563.09	(1)	560.75	563.63	563.77	565.17	565.22	564.15	565.14
January 30, 2013		564.36	563.02	563.84	564.36	561.37	564.42	564.37	565.67	565.63	564.58	565.66
February 27, 2013		564.13	563.08	563.61	564.16	561.48	564.17	564.12	565.70	565.68	564.62	565.72
March 27, 2013		564.26	563.17	563.54	564.24	561.41	564.35	564.35	565.59	565.66	564.61	565.61
April 24, 2013		564.82	563.22	563.78	564.74	561.66	564.87	564.83	565.85	565.89	564.82	566.60
May 24, 2013		562.59	562.86	563.38	564.60	561.27	564.72	564.66	565.31	565.39	564.32	565.34
June 27, 2013		562.02	563.08	563.61	565.00	561.50	565.08	564.99	565.66	565.68	564.63	565.69
July 24, 2013		565.36	563.04	563.56	565.37	561.40	565.42	565.30	565.47	565.40	564.27	565.44
August 22, 2013		565.37	562.87	563.37	565.37	561.17	565.38	565.29	565.19	565.16	564.08	565.18
September 30, 2013		565.17	563.73	563.25	565.15	561.03	565.24	565.15	565.05	565.06	564.01	565.03
October 30, 2013		564.73	562.96	563.53	564.74	561.35	564.83	564.73	565.50	565.48	564.45	565.54
November 27, 2013		564.33	563.08	563.58	564.30	561.39	564.39	564.38	565.47	565.53	564.52	565.35
December 31, 2013		564.72	563.53	564.06	564.87	561.78	564.89	564.63	565.76	565.78	564.71	565.86
January 30, 2014		565.14	563.40	563.95	565.63	561.65	565.20	565.17	565.52	565.51	564.51	565.61
February 26, 2014		564.55	563.28	563.83	564.55	561.48	564.65	564.59	565.46	565.57	564.51	565.55
March 28, 2014	560.87	564.24	563.58	564.10	564.38	561.78	564.40	564.26	565.93	565.98	564.88	565.97
April 25, 2014	559.42	564.72	563.90	564.44	564.70	562.08	564.77	564.73	566.12	566.22	565.18	566.24
May 29, 2014	561.05	564.99	564.01	564.37	564.92	562.06	564.98	564.88	565.77	566.07	565.00	566.07

Note:

(1) River level too low to obtain a measurement at the measuring location.
(2) Unable to access

TABLE 2.3

SUMMARY OF HORIZONTAL GRADIENTS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

		06/28/2010		07/27/2010		08/26/2010		09/28/2010		10/27/2010		11/24/2010	
		Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction
Monitoring Location													
Outer	River North	564.86 [2]	Inward	564.89 [2]	Outward	564.83 [2]	Outward	564.55 [2]	Outward	564.73 [2]	Inward	563.81 [2]	Inward
Inner	MH2	564.53		566.51		567.98		567.73		562.35		561.87	
Outer	River North	564.86 [2]	Inward	564.89 [2]	Inward	564.83 [2]	Inward	564.55 [2]	Inward	564.73 [2]	Inward	563.81 [2]	Inward
Inner	MH6	559.43		560.28		559.49		559.14		556.52		555.89	
Outer	River Middle	564.68	Inward	564.78	Outward	564.75	Inward	564.49	Inward	564.51	Inward	563.55	Inward
Inner	MH8	564.25		565.12		563.68		563.35		561.26		560.69	
Outer	River South	565.11	Inward	565.14	Inward	565.19	Inward	565.80	Inward	564.98	Inward	564.06	Inward
Inner	MH12	562.32		563.02		559.84		559.33		559.20		559.16	

		12/28/2010		01/31/2011		02/28/2011		03/30/2011		04/27/2011		05/26/2011	
		Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction
Monitoring Location													
Outer	River North	564.56 [2]	Inward	563.71	Inward	564.06 [2]	Inward	564.21 [2]	Inward	564.62	Inward	565.12 [2]	Inward
Inner	MH2	562.92		561.75		562.19		563.05		563.76		563.89	
Outer	River North	564.56 [2]	Inward	563.71	Inward	564.06 [2]	Inward	564.21 [2]	Inward	564.62	Inward	565.12 [2]	Inward
Inner	MH6	557.97		555.84		556.18		557.06		560.47		558.04	
Outer	River Middle	564.33	Inward	563.46	Inward	563.78	Inward	563.80	Inward	564.48	Inward	564.90	Inward
Inner	MH8	562.85		560.65		560.87		561.59		562.24		562.57	
Outer	River South	564.81	Inward	563.96	Inward	564.31	Inward	564.46	Inward	564.97	Inward	565.37	Inward
Inner	MH12	561.27		559.59		560.26		560.68		561.06		561.03	

TABLE 2.3

SUMMARY OF HORIZONTAL GRADIENTS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

		6/22/2011		07/27/2011		08/26/2011		09/27/2011		10/28/2011		11/30/2011	
		Water Level (ft amsl)	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*
Monitoring Location													
Outer	River North	565.16	Inward	564.93	Inward	565.07	Outward	564.87	Inward	564.86 [1]	Inward	564.55 [1]	Inward
Inner	MH2	563.34		563.00		562.86		562.86		563.16		562.86	
Outer	River North	565.16	Inward	564.93	Inward	562.07	Inward	564.87	Inward	564.86 [1]	Inward	564.55 [1]	Inward
Inner	MH6	557.45		557.11		556.99		557.00		557.17		556.78	
Outer	River Middle	565.06	Inward	564.86	Outward	564.99	Inward	564.80	Inward	564.70	Inward	564.27	Inward
Inner	MH8	562.04		561.73		561.64		561.66		561.76		561.37	
Outer	River South	565.44	Inward	565.22	Inward	565.43	Inward	565.24	Inward	565.11	Inward	564.80	Inward
Inner	MH12	560.52		560.13		559.94		559.86		560.37		560.36	

		12/29/2011		01/26/2012		02/28/2012		03/29/2012		04/26/2012		05/30/2012	
		Water Level (ft amsl)	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*
Monitoring Location													
Outer	River North	564.52 [1]	Inward	564.31 [1]	Inward	564.33 [1]	Inward	564.48 [1]	Inward	564.59 [1]	Inward	565.02 [1]	Inward
Inner	MH2	563.69		563.77		563.72		563.36		563.56		563.97	
Outer	River North	564.52 [1]	Inward	564.31 [1]	Inward	564.33 [1]	Inward	564.48 [1]	Inward	564.59 [1]	Inward	565.02 [1]	Inward
Inner	MH6	557.65		557.74		557.56		557.14		557.42		557.91	
Outer	River Middle	564.30	Inward	564.35	Inward	564.26	Inward	564.28	Inward	564.46	Inward	564.86	Inward
Inner	MH8	562.06		562.07		561.98		561.59		561.81		562.36	
Outer	River South	564.77	Inward	564.56	Inward	564.58	Inward	564.73	Inward	564.84	Inward	565.27	Inward
Inner	MH12	560.88		561.06		561.02		560.79		560.61		560.57	

TABLE 2.3

SUMMARY OF HORIZONTAL GRADIENTS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

		06/27/2012		07/31/2012		08/27/2012		09/24/2012		10/26/2012		11/26/2012	
		Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction
Monitoring Location													
Outer	River North	564.77	Inward	564.82 [2]	Inward	564.72	Inward	564.67	Inward	564.18 [2]	Inward	563.90 [2]	Inward
Inner	MH2	563.35		564.51		564.34		563.36		563.39		563.50	
Outer	River North	564.77	Inward	564.82 [2]	Inward	564.72 [1]	Inward	564.67	Inward	564.18 [2]	Inward	563.90 [2]	Inward
Inner	MH6	557.84		559.08		558.34		557.36		557.40		557.20	
Outer	River Middle	564.59	Inward	564.72	Inward	564.60	Inward	564.60	Inward	564.04	Inward	563.71	Inward
Inner	MH8	562.22		563.85		562.99		561.94		561.94		561.66	
Outer	River South	565.03	Inward	565.07	Inward	565.03	Inward	565.00	Inward	564.43	Inward	564.15	Inward
Inner	MH12	560.31		561.88		560.56		560.22		560.09		560.58	

		12/26/2012		01/30/2013		02/27/2013		03/27/2013		04/24/2013		05/24/2013	
		Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction
Monitoring Location													
Outer	River North	563.67 [2]	Inward	564.11 [2]	Inward	563.91 [2]	Outward	563.99 [2]	Inward	564.49 [2]	Inward	564.35 [2]	Inward
Inner	MH2	563.64		564.00		563.96		563.97		564.33		564.09	
Outer	River North	563.67 [2]	Inward	564.11 [2]	Inward	563.91 [2]	Inward	563.99 [2]	Inward	564.49 [2]	Inward	564.35 [2]	Inward
Inner	MH6	557.37		557.80		557.86		557.45		557.97		557.81	
Outer	River Middle	563.79 [1]	Inward	563.83	Inward	563.18	Inward	563.86	Inward	564.31	Inward	564.16	Inward
Inner	MH8	561.75		562.33		562.79		561.94		562.57		562.41	
Outer	River South	563.92 [3]	Inward	564.36	Inward	564.16	Inward	564.24	Inward	564.74	Inward	564.60	Inward
Inner	MH12	560.75		561.37		561.48		561.41		561.66		561.27	

TABLE 2.3

SUMMARY OF HORIZONTAL GRADIENTS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

		06/27/2013		07/24/2013		08/22/2013		09/30/2013		10/30/2013		11/27/2013	
		Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction
Monitoring Location													
Outer	River North	564.75	Inward	565.11 [2]	Inward	565.10	Inward	564.87	Inward	564.49 [2]	Inward	564.05 [2]	Inward
Inner	MH2	564.37		564.38		564.18		564.17		564.47		564.94	
Outer	River North	564.75	Inward	565.11 [2]	Inward	565.10 [1]	Inward	564.87	Inward	564.49 [2]	Inward	564.05 [2]	Inward
Inner	MH6	557.96		558.10		557.71		557.72		558.05		557.69	
Outer	River Middle	564.58	Inward	564.95	Inward	564.95	Inward	564.74	Inward	564.30	Inward	563.63	Inward
Inner	MH8	562.69		562.93		562.41		562.48		562.79		562.35	
Outer	River South	565.00	Inward	565.37	Inward	565.37	Inward	565.15	Inward	564.74	Inward	564.30	Inward
Inner	MH12	561.50		561.40		561.17		561.03		561.35		561.39	

		12/31/2013		01/30/2014		2/26/2014		3/28/2014		4/25/2014		5/29/2014	
		Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction	Water Level (ft amsl)	Gradient Direction
Monitoring Location													
Outer	River North	564.62 [2]	Inward	564.80	Inward	564.30 [2]	Outward	564.96	Inward	564.45 [2]	Inward	564.67 [2]	Inward
Inner	MH2	564.41		564.13		567.53		564.10		564.42		564.46	
Outer	River North	564.62 [2]	Inward	564.80	Inward	564.30 [2]	Inward	564.96	Inward	564.45 [2]	Inward	564.67 [2]	Inward
Inner	MH6	558.11		557.64		558.01		557.62		558.36		558.41	
Outer	River Middle	564.93 [1]	Inward	565.50 [1]	Inward	563.98	Inward	564.39	Inward	564.28	Inward	564.60	Inward
Inner	MH8	562.86		562.41		562.81		562.21		563.03		563.20	
Outer	River South	564.87 [3]	Inward	565.63	Inward	564.55	Inward	564.38	Inward	564.70	Inward	564.92	Inward
Inner	MH12	561.78		561.65		561.48		561.78		562.08		562.06	

Notes:

(1) River level too low to obtain a measurement. Water level shown is River South water level minus 0.13 feet.
(2) River level too low to obtain a measurement. Water level shown is River South Water level minus 0.25 feet.
(3) River level too low to obtain a measurement. Lowest recorded level (i.e., 563.92) since start of system operation used

TABLE 2.4

SUMMARY OF VERTICAL GRADIENTS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Monitoring		*06/28/2010*		*07/27/2010*		*08/26/2010*		*09/28/2010*		*10/27/2010*		*11/24/2010*	
		Water Level (ft amsl)	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*
Upper	MH3	560.11	Upward	566.05	Downward	570.29	Downward	570.36	Downward	560.87	Upward	560.84	Upward
Lower	MW-6	564.61		565.92		566.27		565.98		563.53		562.97	
Upper	MH8	564.25	Upward	565.12	Upward	563.68	Upward	563.35	Upward	561.26	Upward	560.69	Upward
Lower	MW-7	565.06		565.89		563.89		563.55		562.08		561.80	
Upper	MH11	564.65	Upward	565.40	Upward	561.53	Upward	560.88	Upward	560.16	Upward	560.82	Upward
Lower	MW-8	564.98		565.72		562.41		561.89		561.81		561.76	
Average [1]		564.84	Upward	565.41	Upward	564.12	Upward	563.89	Upward	563.63	Upward	563.69	Upward
Lower	MW-9	565.06		565.68		564.46		564.28		564.00		563.97	

Monitoring		*12/28/2010*		*01/31/2011*		*02/28/2011*		*03/30/2011*		*04/27/2011*		*05/26/2011*	
		Water Level (ft amsl)	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*
Upper	MH3	561.07	Upward	560.81	Upward	558.86	Upward	560.98	Upward	559.28	Upward	559.04	Upward
Lower	MW-6	562.91		562.64		562.47		563.57		563.84		564.05	
Upper	MH8	562.85	Upward	560.65	Upward	560.87	Upward	561.59	Upward	562.24	Upward	562.57	Upward
Lower	MW-7	563.71		561.56		561.65		562.09		562.81		562.93	
Upper	MH11	563.33	Upward	561.22	Upward	561.76	Upward	562.14	Upward	562.68	Upward	562.76	Upward
Lower	MW-8	563.87		562.02		562.63		563.15		563.50		563.52	
Average [1]		564.32	Upward	564.12	Upward	564.53	Upward	564.87	Upward	565.07	Upward	565.23	Upward
Lower	MW-9	564.64		564.39		564.85		565.20		565.40		565.42	

TABLE 2.4

SUMMARY OF VERTICAL GRADIENTS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Monitoring		*06/22/2011*		*07/27/2011*		*08/26/2011*		*09/27/2011*		*10/28/2011*		*11/30/2011*	
		Water Level (ft amsl)	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*
Upper	MH3	560.50	Upward	560.69	Upward	560.58	Upward	560.49	Upward	560.12	Upward	560.99	Upward
Lower	MW-6	563.59		563.29		563.09		563.02		563.21		562.99	
Upper	MH8	562.04	Upward	561.73	Upward	561.64	Upward	561.66	Upward	561.76	Upward	561.37	Upward
Lower	MW-7	562.39		562.15		562.06		562.12		562.36		562.06	
Upper	MH11	562.24	Upward	561.80	Upward	561.55	Upward	561.47	Upward	562.13	Upward	562.17	Upward
Lower	MW-8	562.95		562.55		562.35		562.28		562.78		562.72	
Average [1]		564.76	Upward	564.42	Upward	564.17	Upward	564.05	Upward	564.73	Upward	564.60	Upward
Lower	MW-9	565.04		564.71		564.50		564.40		565.02		564.88	

Monitoring		*12/29/2011*		*01/26/2012*		*02/28/2012*		*03/29/2012*		*04/26/2012*		*05/30/2012*	
		Water Level (ft amsl)	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*
Upper	MH3	561.38	Upward	560.53	Upward	560.12	Upward	560.20	Upward	560.58	Upward	560.57	Upward
Lower	MW-6	563.81		563.88		563.81		563.53		563.51		564.12	
Upper	MH8	562.06	Upward	562.07	Upward	561.98	Upward	561.59	Upward	561.81	Upward	562.36	Upward
Lower	MW-7	562.45		562.41		562.30		561.94		562.09		562.46	
Upper	MH11	562.69	Upward	562.97	Upward	562.78	Upward	562.54	Upward	562.37	Upward	562.35	Upward
Lower	MW-8	563.34		563.48		563.39		563.15		562.99		562.89	
Average [1]		564.98	Upward	565.24	Upward	565.24	Upward	564.96	Upward	564.83	Upward	564.85	Upward
Lower	MW-9	565.36		565.61		565.62		565.31		565.17		565.11	

TABLE 2.4

SUMMARY OF VERTICAL GRADIENTS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Monitoring		*06/27/2012*		*07/31/2012*		*08/27/2012*		*09/24/2012*		*10/26/2012*		*11/26/2012*	
		Water Level (ft amsl)	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*
Upper	MH3	561.29	Upward	561.19	Upward	561.22	Upward	561.20	Upward	559.91	Upward	561.25	Upward
Lower	MW-6	563.97		564.64		564.61		563.60		563.54		563.57	
Upper	MH8	562.22	Upward	563.85	Upward	562.99	Upward	561.94	Upward	561.94	Upward	561.66	Upward
Lower	MW-7	562.31		564.69		563.35		562.29		562.34		561.94	
Upper	MH11	562.11	Upward	564.00	Upward	562.42	Upward	562.05	Upward	561.96	Upward	562.29	Upward
Lower	MW-8	562.70		564.55		563.00		562.64		562.55		562.96	
Average [1]		564.53	Upward	564.42	Upward	564.52	Upward	564.23	Upward	564.22	Upward	564.67	Upward
Lower	MW-9	564.84		564.71		564.81		564.52		564.49		564.91	

Monitoring		*12/26/2012*		*01/30/2013*		*02/27/2013*		*3/27/2013*		*4/24/2013*		*5/24/2013*	
		Water Level (ft amsl)	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*
Upper	MH3	560.19	Upward	560.19	Upward	560.71	Upward	560.29	Upward	560.57	Upward	560.85	Upward
Lower	MW-6	563.66		564.12		563.92		563.98		564.58		564.18	
Upper	MH8	561.75	Upward	562.33	Upward	562.79	Downward	561.94	Upward	562.49	Upward	562.41	Downward
Lower	MW-7	562.21		562.45		562.38		562.05		562.57		562.40	
Upper	MH11	562.52	Upward	563.02	Upward	563.08	Upward	563.17	Upward	563.22	Upward	562.86	Upward
Lower	MW-8	563.09		563.84		563.61		563.54		563.78		563.38	
Average [1]		564.86	Upward	565.28	Upward	565.33	Upward	565.31	Upward	565.53	Upward	565.03	Upward
Lower	MW-9	565.17		565.67		565.70		565.59		565.85		565.31	

TABLE 2.4

SUMMARY OF VERTICAL GRADIENTS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Monitoring Location		*06/27/2013*		*07/24/2013*		*08/22/2013*		*09/30/2013*		*10/30/2013*		*11/27/2013*	
		Water Level (ft amsl)	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*
Upper	MH3	559.69	Upward	560.60	Upward	560.40	Upward	560.68	Upward	560.63	Upward	560.33	Upward
Lower	MW-6	564.59		564.52		564.24		564.28		564.64		564.52	
Upper	MH8	562.69	Upward	562.95	Upward	562.41	Upward	562.40	Upward	562.79	Upward	562.35	Upward
Lower	MW-7	562.86		563.28		562.46		562.48		562.98		562.40	
Upper	MH11	563.08	Upward	563.04	Upward	562.87	Upward	562.73	Upward	561.96	Upward	563.08	Upward
Lower	MW-8	563.61		563.56		563.37		563.23		563.53		563.58	
Average [1]		565.33	Upward	565.06	Upward	564.80	Upward	564.71	Upward	565.14	Upward	565.19	Upward
Lower	MW-9	565.66		565.47		565.19		565.05		565.50		565.47	

Monitoring Location		*12/31/2013*		*01/30/2014*		*2/26/2014*		*3/28/2014*		*4/25/2014*		*5/29/2014*	
		Water Level (ft amsl)	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*
Upper	MH3	561.39	Upward	559.88	Upward	570.48	Downward	559.36	Upward	560.21	Upward	559.12	Upward
Lower	MW-6	564.74		564.14		565.29		564.01		564.74		564.71	
Upper	MH8	562.86	Upward	562.41	Downward	562.81	Downward	562.21	Downward	563.03	Downward	563.20	Upward
Lower	MW-7	563.09		562.40		562.78		562.01		562.95		563.21	
Upper	MH11	563.53	Upward	563.40	Upward	563.28	Upward	563.58	Upward	563.90	Upward	564.01	Upward
Lower	MW-8	564.06		563.95		563.83		564.10		564.44		564.37	
Average [1]		565.42	Upward	565.18	Upward	565.22	Upward	565.61	Upward	565.87	Upward	565.71	Upward
Lower	MW-9	565.76		565.52		565.46		565.93		566.12		565.77	

Notes:

NA - Not Applicable.
NM - Not monitored. MH11 was blocked and could not be accessed.
(1) - Distance weighted for MH14 (two thirds) and MH15 (one third).
(2) - Buried with snow.
(3) - Not Monitored - MH14 was buried with snow and could not be accessed.

TABLE 2.5

GROUNDWATER SAMPLING SUMMARY
OPERATION AND MAINTENANCE MANUAL
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

LOCATIONS

OGC1	MW-6
OGC2	MW-7
OGC3	MW-8
OGC4	MW-9
OGC5	OGC6
OGC7	OGC8

FREQUENCY

- quarterly for 2 years following GWS startup.
- semi-annually for Year 3 except for OGC-4 (quarterly for SVOCs) and OGC-6 (quarterly for VOCs).
- annually for Years 4 through 7 (until May 2008).

SAMPLING PROGRAM (MAY 2009 THROUGH MAY 2012)

Annual	***Once Every 2 Years (2010 and 2012)***
MW-8	MW-6
MW-9	MW-7
OGC-3	OGC-1
OGC-4	OGC-2
OGC-6	OGC-5
OGC-7	
OGC-8	

SAMPLING PROGRAM (MAY 2013 THROUGH MAY 2017)

Annual	***Once Every 2 Years (2014 and 2016)***
MW-8	MW-6
MW-9	MW-7
OGC-3	OGC-1
OGC-6	OGC-2
OGC-7	OGC-4
	OGC-5
	OGC-8

PARAMETERS

Volatiles

Acetone	Methylene Chloride
Benzene	Tetrachloroethene
2-Butanone	Toluene
Chlorobenzene	Trichloroethene
1,1-Dichloroethane	Vinyl Chloride
trans-1,2-Dichloroethene	Xylenes (Total)
Ethylbenzene	

Semi-Volatiles

1,2-Dichlorobenzene	4-Methylphenol
1,4-Dichlorobenzene	Naphthalene
2,4-Dimethylphenol	Di-n-octylphthalate
2-Methylphenol	Phenol

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*MW-9*												
Date		*05/18/01*	*08/20/01*	*11/27/01*	*02/11/02*	*05/21/02*	*08/06/02*	*11/22/02*	*02/25/03*	*05/08/03*	*11/04/03*	*05/14/04*	*05/27/05*	*05/30/06*
Volatiles (µg/L)	*Class GA Level*													
Acetone	50	9.4J	4.3J	7.3J/6.7J		4.2J	7.0/7.2			13/12			17	17
Benzene	1		0.24J	0.39J/0.35J		0.44J	0.29J/0.30J	0.29J/0.29J		0.40J/ND0.70				0.54J
2-Butanone	50													2.6J
Chlorobenzene	5		0.50J	0.86J/0.85J		1.3		1.0/1.1		0.91J/0.87J		1.1	1.7	1.5
trans-1,2-Dichloroethene	5			0.22J/ND		0.31J	0.24J/0.24J	0.22J/0.20J						0.42J
Ethylbenzene	5		0.30J	0.46J/0.42J		0.73J	0.44J/0.42J	0.46J/0.46J		0.40J/0.38J				0.83J
Methylene Chloride	5		0.34J	0.33J/ND	4.0J	0.53J						7.2	1.6	
Tetrachloroethene	5	1.6J	1.1J	1.0J/0.92J		1.6	0.92J/0.80J	0.77J/0.74J		0.67J/0.71J				0.57J
Toluene	5		1.6J	3.0J/2.5J	2.8J	2.7	2.1/2.0	2.7/2.7	2.0	2.0/1.9	4.6	3.2	2.6	
Trichloroethene	5	2.2J	1.8J	2.4J/2.2J	3.0J	4.4	2.0/2.0	2.2/2.3		1.8/1.8	9.5	4.9	3.0	1.8
Vinyl Chloride	2									1.7/1.7			3.6	4.0
Total Xylenes	5		1.0J	1.5J/1.5J		2.5J	1.3J/1.3J	1.4J/1.4J		0.98J/1.0J	3.0			2.0J
Semi-Volatiles (µg/L)														
1,2-Dichlorobenzene	3*				0.6J									
1,4-Dichlorobenzene	3*												2J	
2,4-Dimethylphenol	50	12	12	18/17	38		20/22	30/34	30	35/36	36	42	50	58
2-Methylphenol	NL	1J	3J	3J/3J	7J		4J/4J	6J/6J	6J	6J/6J	6J	5J	8J	8J
4-Methylphenol	NL	69	110	97/92	230		100/110	190/230	150	130/130	160	190	260	190
Naphthalene	10													
Di-n-octyl phthalate	50													
Phenol	1	3J	34	28/22	24		38/41	34/35	42	46/46	180	30	27	49

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*MW-9*							
Date		*05/25/07*	*05/29/08*	*05/27/09*	*05/26/10*	*05/26/11*	*05/30/12*	*05/24/13*	*5/29/2014*
Volatiles (µg/L)	*Class GA Level*								
Acetone	50		5.7	4.8J	5.9	4.3J			6.2
Benzene	1			0.76		0.53J	0.44J	0.62J	0.57J
2-Butanone	50								
Chlorobenzene	5	2.8	1.4	5.3	2.5	2.4	2.3	2.5	3.1
trans-1,2-Dichloroethene	5		0.55J	0.74J					
Ethylbenzene	5			1.2	0.82J	1.1	0.74J	1.0	0.97J
Methylene Chloride	5								
Tetrachloroethene	5			0.82J	0.57J	0.66J	0.54J		0.66J
Toluene	5	3.1	2.4	3.8	3.8	4.3	3.5	4.4	4.6
Trichloroethene	5	2.9	1.7	4.7	2.6	2.7	2.3	3.0	3
Vinyl Chloride	2			4.2		1.4			
Total Xylenes	5			3.3	2.2J	2.7	1.5J	2.7	2.6
Semi-Volatiles (µg/L)									
1,2-Dichlorobenzene	3*	0.9J	0.7J		1.4J	1.0J	1.1J	0.98J	1.6J
1,4-Dichlorobenzene	3*	3J	1J	2.3J	1.7J	1.6J	1.8J	1.5J	2.3J
2,4-Dimethylphenol	50	46	31	110	41	43	47	82J	76J
2-Methylphenol	NL	6	6	12	9.9J	11	11	12	13J
4-Methylphenol	NL	170	96	300	180	230	230	280	0.75J
Naphthalene	10	0.2J	0.5J						
Di-n-octyl phthalate	50								
Phenol	1	11	13	20	20	17	9.3J	16	26

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*OGC-4*														
Date		*05/18/01*	*08/20/01*	*11/27/01*	*02/11/02*	*05/21/02*	*08/06/02*	*11/22/02*	*02/25/03*	*05/08/03*	*11/04/03*	*3/04/04*	*05/14/04*	*11/23/04*	*05/27/05*	*05/30/06*
Volatiles (µg/L)	*Class GA Level*											NA		NA		
Acetone	50			7.9J			4.0J									
Benzene	1		0.21J	0.2J												
2-Butanone	50															
Chlorobenzene	5		0.49J	0.66J		0.83J/0.79J		0.46J		0.83J						
trans-1,2-Dichloroethene	5			0.22J												
Ethylbenzene	5		0.41J	0.39J		0.54J/0.53J	0.48J	0.39J		0.77J						0.44J
Methylene Chloride	5				5.1J/4.9J								4.6		2.0	
Tetrachloroethene	5	1.0J	1.2J	0.87J		0.86J/0.84J	1.1	0.78J		0.77J						
Toluene	5			1.0J		1.0/0.98J	1.4	0.72J		1.2						
Trichloroethene	5	1.6J	1.4J	1.5J		1.5/1.4	1.7	0.96J		1.5						0.53J
Vinyl Chloride	2															
Total Xylenes	5		1.0J	0.94J		0.84J/0.82J	1.1J			0.95J						
Semi-Volatiles (µg/L)																
1,2-Dichlorobenzene	3*															
1,4-Dichlorobenzene	3*															
2,4-Dimethylphenol	50	8J	12	6J	8J/6J	7J/7J	8J		7J/7J	8J	4J	6J		4J		
2-Methylphenol	NL	0.9J	2J	35	2J/ND	1J/2J	2J			3J		3J		2J		
4-Methylphenol	NL	64	86	40	58/55	61/67	68		69/68	73	32	55		31	14	15
Naphthalene	10															
Di-n-octyl phthalate	50															
Phenol	1	310	560	400	420/460	710/1100	1100	1100	2400/2300	1800	1600		2400	1500	850	510

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*OGC-4*						
Date		*05/25/07*	*05/29/08*	*05/27/09*	*05/26/10*	*05/26/11*	*05/30/12*	*05/29/14*
Volatiles (µg/L)	*Class GA Level*							
Acetone	50			1.6J				
Benzene	1							
2-Butanone	50							
Chlorobenzene	5							
trans-1,2-Dichloroethene	5							
Ethylbenzene	5							
Methylene Chloride	5							
Tetrachloroethene	5							
Toluene	5							
Trichloroethene	5							
Vinyl Chloride	2							
Total Xylenes	5							
Semi-Volatiles (µg/L)								
1,2-Dichlorobenzene	3*							
1,4-Dichlorobenzene	3*							
2,4-Dimethylphenol	50		0.9J		0.51J/ND			
2-Methylphenol	NL		0.5J	2.7J				
4-Methylphenol	NL	3J	6				2.8J	0.87J
Naphthalene	10		0.5J		3.4J/3.4J			
Di-n-octyl phthalate	50							
Phenol	1	84	66	25	15/15	5.5	0.97J	0.68J

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*OGC-8*												
Date		*05/18/01*	*08/20/01*	*11/27/01*	*02/11/02*	*05/21/02*	*08/06/02*	*11/22/02*	*02/25/03*	*05/08/03*	*05/08/03*	*05/14/04*	*05/27/05*	*05/30/06*
Volatiles (µg/L)	*Class GA Level*													
Acetone	50	78	31/29	19J		4.7J	3.6J				6.2	5.8	4.7J	
Benzene	1	11	14/14	14		2.6	5.3	3.3	3.6	3.1	1.8	1.2	1.1	0.92
2-Butanone	50	4.0J												
Chlorobenzene	5	3.7J	4.1J/4.1J	4.0J		0.87J	1.7	1.1		1.1	0.65J	0.48J	0.43J	0.44J
trans-1,2-Dichloroethene	5	4.3J	3.2J/3.1J	4.0J		0.76J	1.5	0.88J		1.0	0.50J	0.41J	1.0	
Ethylbenzene	5	13	16/16	15	1.6J	2.8	5.8	3.1	3.9	3.1	1.8	1.2		0.99J
Methylene Chloride	5		0.52J/0.48J	0.62J	1.8J									
Tetrachloroethene	5	40	51/52	59	7.7J	9.9	22	12	14	11	7.0	5.0	3.8	4.0
Toluene	5	140	140/140	110	17J	21	53	28	38	27	16	11	8.1	8.3
Trichloroethene	5	120	110/110	110	20J	22	53	27	35	27	17		7.7	7.6
Vinyl Chloride	2	3.7J	3.4/3.6	3.1	1.1J		1.4	0.70J		0.78J				
Total Xylenes	5	43	55/54	46	4.8J	8.3	18	9.5	11	9.9	5.4	3.7	3.0	3.2
Semi-Volatiles (µg/L)														
1,2-Dichlorobenzene	3*													
1,4-Dichlorobenzene	3*													
2,4-Dimethylphenol	50	2J	4J/2J	4J	0.8J	0.8J	3J	1J						
2-Methylphenol	NL	18	30/25	16	4J	5J	13	7J	11	7J	4J	2J	2J	3J
4-Methylphenol	NL	30	51/45	28	8J	10	26	14	20	14J	9	5J	6J	8J
Naphthalene	10	1J	3J/25	1J			0.9J							
Di-n-octyl phthalate	50		0.1J/ND											
Phenol	1	30	49/44	31	5J	8J	11	10		4J	6J	2J		

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*OGC-8*						
Date		*05/24/07*	*05/29/08*	*05/27/09*	*05/26/10*	*05/26/11*	*05/30/12*	*05/29/14*
Volatiles (µg/L)	*Class GA Level*							
Acetone	50		9.9	1.5J				
Benzene	1	0.54J	0.84	0.58J				0.50J
2-Butanone	50							
Chlorobenzene	5							
trans-1,2-Dichloroethene	5							
Ethylbenzene	5	0.53J	0.84J	0.50J				
Methylene Chloride	5							
Tetrachloroethene	5	2.0	2.3	1.6		0.94J	1.3	0.91J
Toluene	5	4.0	6.4	3.7		2.4	2.6	2.8
Trichloroethene	5	4.0	6.5	4.0		2.4	2.7	3.1
Vinyl Chloride	2							
Total Xylenes	5	1.1J	2.5J	1.5J		0.82J	0.86J	0.78J
Semi-Volatiles (µg/L)								
1,2-Dichlorobenzene	3*							
1,4-Dichlorobenzene	3*		0.2J					
2,4-Dimethylphenol	50		1J		0.73J		0.52J	1.1J
2-Methylphenol	NL	2J	2J		2.2J	1.5J	2.0J	2.6J
4-Methylphenol	NL	6	8	5.7	6.5J	5.3J	6.2J	
Naphthalene	10							
Di-n-octyl phthalate	50							
Phenol	1							

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*River South*														
Date		*05/18/01*	*09/17/01*	*11/27/01*	*02/11/02*	*05/21/02*	*08/06/02*	*11/22/02*	*02/25/03*	*05/08/03*	*11/04/03*	*05/14/04*	*05/27/05*	*05/30/06*	*05/24/07*	*05/29/08*
Volatiles (µg/L)	*Class GA Level*															
Acetone	50						3.0J						3.2J			12
Benzene	1										0.42J					
2-Butanone	50												3.9J			3.1J
Chlorobenzene	5															
trans-1,2-Dichloroethene	5															
Ethylbenzene	5															
Methylene Chloride	5															
Tetrachloroethene	5						0.30J									
Toluene	5			0.29J			0.72J	0.35J			1.8					
Trichloroethene	5						0.44J									
Vinyl Chloride	2						0.27J									
Total Xylenes	5										1.8J					
Semi-Volatiles (µg/L)																
1,2-Dichlorobenzene	3*															
1,4-Dichlorobenzene	3*															
2,4-Dimethylphenol	50															
2-Methylphenol	NL															
4-Methylphenol	NL															
Naphthalene	10															
Di-n-octyl phthalate	50															
Phenol	1															

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*MW-8*												
Date		*05/18/01*	*08/20/01*	*11/27/01*	*02/11/02*	*05/21/02*	*08/06/02*	*11/22/02*	*02/25/03*	*05/08/03*	*11/04/03*	*05/14/04*	*05/27/05*	*05/30/06*
Volatiles (µg/L)	*Class GA Level*													
Acetone	50	52	12J	11J	75J	67	20			73		28/33	26	16
Benzene	1	6.5	4.3	4.1		8.6	12	12	8.1	12	23/24	10/12	4.2	4.4
2-Butanone	50													
Chlorobenzene	5	1.8J	1.0J	1.0J		3.2	4.9	4.4	3.6	6.2	6.0/6.4	2.7/3.3	2.4	2.4
trans-1,2-Dichloroethene	5	2.2J	1.8J	2.9J	4.8J	7.3	11	16	12	13	10/12	7.3/9.4	7.4	5.3
Ethylbenzene	5	5.7	3.7J	4.4J	8.2J	12	18	18	15	23	30/32	20/24	4.6	5.8
Methylene Chloride	5	1.1J	0.58J	0.66J	4.4J	1.2	1.4	1.6		1.3	2.2/2.2	7.3/9.2	1.7	0.64J
Tetrachloroethene	5	21	12	9.8	23J	32	61	58	54	80	91/100	120/130	62	71
Toluene	5	75	36	31	80	100	140	160	100	120	240/240	97/120	30	33
Trichloroethene	5	82	40	35	110	180	320	280	210	320	460/460	380/390	180	150
Vinyl Chloride	2	5.2	1.6J	3.3	23	12	18	14	12	18	21/21	13/16	5.8	5.1
Total Xylenes	5	22	13	16	30J	40	68	69	58	93	120/120	92/110	32	25
Semi-Volatiles (µg/L)														
1,2-Dichlorobenzene	3*				2J	2J		2J		4J	3J/3J			
1,4-Dichlorobenzene	3*			0.6J	2J	1J	1J	2J		4J	3J/3J	19U/2J	4J	5J
2,4-Dimethylphenol	50	1J	11	16	19	18	15	27	20	27	37/38	15J/14	7J	6J
2-Methylphenol	NL	33	55	41	48	44	38	56	37	35	45/46	18J/18	18J	16
4-Methylphenol	NL	10	32	34	55	60	59	83	64	75	130/130	34/31		
Naphthalene	10				0.7J	0.8J	0.8J	1J			2J/2J			
Di-n-octyl phthalate	50													
Phenol	1	43	130	140	85	110	91	110	140	78	80/80	28/28	11J	4J

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*MW-8*							
Date		*05/24/07*	*05/29/08*	*05/29/09*	*05/26/10*	*05/26/11*	*05/30/12*	*05/24/13*	*05/29/14*
Volatiles (µg/L)	*Class GA Level*								
Acetone	50	6.6/7.5	23	2.6J		3.1J			
Benzene	1	1.6/1.5	1.5	2.7		2.7	2.1	2.5	3.5
2-Butanone	50		4.4J						
Chlorobenzene	5	0.84J/0.82J	0.54J	0.99J		3.8	3.4	3.4	7.0
trans-1,2-Dichloroethene	5	4.4/3.9	3.6	6.8		3.5	3.4	3.4	6.5
Ethylbenzene	5	2.5/2.2	1.8	4.2		5.2	4.4	4.4	6.2
Methylene Chloride	5								
Tetrachloroethene	5	16/14	9.5	12		12	7.7	5.3	3.5
Toluene	5	12/11	10	26		18	6.5	6.5	4.9
Trichloroethene	5	40/36	29	68		34	22	21	22
Vinyl Chloride	2					3.0			
Total Xylenes	5	9.8/9.1	6.7	19		22	16	12	11
Semi-Volatiles (µg/L)									
1,2-Dichlorobenzene	3*		0.4J		1.5J	1.2J	1.3J	0.87J	1.7J
1,4-Dichlorobenzene	3*	0.5J/0.4J	0.5J		2.1J	3.3J	6.9J	7.1J	21
2,4-Dimethylphenol	50	0.8J/0.6J	14	14	13	14	16	17	19
2-Methylphenol	NL	7/7	26	32	22	16	20	16	23
4-Methylphenol	NL	18/16	31	29	38	41J	30	25	1.0J
Naphthalene	10	22/22	1J						
Di-n-octyl phthalate	50								
Phenol	1	20/21	32	15	13	3.4J	4.0J	2.5J	4.5J

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*OGC-3*												
Date		*05/18/01*	*08/20/01*	*11/27/01*	*02/11/02*	*05/21/02*	*08/06/02*	*11/22/02*	*02/25/03*	*05/08/03*	*11/04/03*	*05/14/04*	*05/27/05*	*05/30/06*
Volatiles (µg/L)	*Class GA Level*													
Acetone	50	13J / 19J	3.8J	15J		7.1	6.7			5.6			10/8.4	2.8J
Benzene	1	1.6J / 1.6J	1.6	1.8		1.8	1.2	1.5		1.6	1.4		1.2/1.1	0.93J
2-Butanone	50													
Chlorobenzene	5		0.24J	0.28J		0.28J		0.22J						
trans-1,2-Dichloroethene	5	1.6J / 1.6J	1.0J	1.4J	1.1J	1.1	0.98J	0.44J		1.0				
Ethylbenzene	5	1.6J / 1.5J	2.0J	2.3J	1.5J	2.4	1.7	1.8		2.0			1.4/1.3	1.1
Methylene Chloride	5				1.9J							6.3	1.2/1.0	
Tetrachloroethene	5	2.4J / 2.2J	3.0J	2.2J	1.7J	2.2	1.8	1.8		1.5			0.71J/0.63J	0.61J
Toluene	5	5.7 / 5.1	5.9	5.3		5.1	3.7	4.6	4.0	4.3	3.6	2.6	2.6/2.4	
Trichloroethene	5	20 / 20	18	19	14J	17	14	13	12	14	9.8	7.7	6.4/6.1	5.6
Vinyl Chloride	2	ND / 1.0J	0.4	0.72						0.62J				
Total Xylenes	5	5.6J / 5.4J	7.5	8.7	4.8J	7.8	5.8	5.8	5.0	6.6	3.9		3.3/3.0	2.9J
Semi-Volatiles (µg/L)														
1,2-Dichlorobenzene	3*				1J									
1,4-Dichlorobenzene	3*				0.7J		0.5J							
2,4-Dimethylphenol	50	5J / 5J	9	8J	11	11	7J	8J	11	12	10	9J	8J/4J	6J
2-Methylphenol	NL	98 / 96	120	87	160	140	100	100	120	140	150	110	83/73	64
4-Methylphenol	NL	13 / 13	21	17	28	23	14	15	22	23	20	17	14/12	13
Naphthalene	10													
Di-n-octyl phthalate	50													
Phenol	1	120 / 110	140	130J	210	140	85	92	110	120	120	90	78/74	75

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*OGC-3*							
Date		*05/24/07*	*05/29/08*	*05/27/09*	*05/26/10*	*05/26/11*	*05/30/12*	*05/24/13*	*05/29/14*
Volatiles (µg/L)	*Class GA Level*								
Acetone	50	0.76	6.0	2.9J/2.6J		3.7J			3.1J
Benzene	1		0.93	0.75/0.78		0.67J	0.45J	0.64J/0.71	0.55J
2-Butanone	50								
Chlorobenzene	5								
trans-1,2-Dichloroethene	5								
Ethylbenzene	5	0.85J	0.92J	0.69J/0.73J		0.75J			
Methylene Chloride	5								
Tetrachloroethene	5	0.56J							
Toluene	5	1.7	1.8	1.4/1.4		1.2	0.88J	1.2/1.3	0.93J
Trichloroethene	5	4.3	4.9	3.3/3.5		2.5	1.8	2.6/2.5	1.9
Vinyl Chloride	2								
Total Xylenes	5	2.1J	2.3J	1.7J/1.7J		1.0J	0.71J	0.81J/0.77J	
Semi-Volatiles (µg/L)									
1,2-Dichlorobenzene	3*	0.6J	0.7J		0.86J	0.40J	0.61J	0.46J/0.49J	0.57J
1,4-Dichlorobenzene	3*		0.6J		0.58J				
2,4-Dimethylphenol	50		6	6.2/5.9	4.3J	3.7J	5.8J	4.8J/4.8J	4.8J
2-Methylphenol	NL	47	45	44/43	36	33	35	31/32	34
4-Methylphenol	NL	10	11	11/11	9.9	10	11	9.1J/9.5J	0.91J
Naphthalene	10		0.8J						
Di-n-octyl phthalate	50								
Phenol	1	60	65	60/57	50	48	53	58/57	52

Blank = Non-Detect

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*GW-5S*		*OGC-7*												
Date		*12/17/87*	*08/12/88*	*05/18/01*	*08/20/01*	*11/27/01*	*02/11/02*	*05/21/02*	*08/06/02*	*11/22/02*	*02/25/03*	*05/08/03*	*11/04/03*	*05/14/04*	*05/27/05*	*05/30/06*
Volatiles (µg/L)	*Class GA Level*															
Acetone	50	293		21J	0.25J	8.2J			3.6J							
Benzene	1	2				0.30J		0.28J	0.20J	0.26J				0.34J	0.34J	
2-Butanone	50	27														
Chlorobenzene	5															
trans-1,2-Dichloroethene	5	180	89	6.3	3.1J	5.4	4.9J	4.8J	4.2	4.7	4.0	5.4	5.0	5.9	4.9	5.8
Ethylbenzene	5	9	7J	1.1J	0.80J	1.0J		1.3	0.84J	0.91J		1.4	0.93J	1.5	1.4	1.3
Methylene Chloride	5	1														
Tetrachloroethene	5	11	7J	4.3J	3.6J	3.4J	2.9J	4.0	3.4	2.7	2.8	4.1	2.2	4.1	2.9	2.8
Toluene	5	75	49	12	5.8	6.7	5.7J	6.9	5.2	6.0	6.7	8.6	5.8	9.3	8.3	8.6
Trichloroethene	5	287	220	70	40	48	45	68	44	38	50	56	38	56	37J	37
Vinyl Chloride	2	7	4J	2.6J	0.84	1.7J	3.5J	2.2	1.8	1.8		2.3	2	2.9	3.0	2.9
Total Xylenes	5	54	37	6.0J	4.8J	6.5	3.9J	7.6	5.3	5.3	5.5	8.7	5.4	10	8.6	8.2
Semi-Volatiles (µg/L)																
1,2-Dichlorobenzene	3*		2J													
1,4-Dichlorobenzene	3*															
2,4-Dimethylphenol	50	10	11		2J											
2-Methylphenol	NL	24	24	3J	2J	1.0J	0.8J	1J								
4-Methylphenol	NL	38				0.9J	0.7J	1J								
Naphthalene	10															
Di-n-octyl phthalate	50						0.6J									
Phenol	1	61	92	4J	0.7J											

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*OGC-7*						
Date		*05/24/07*	*05/27/09*	*05/26/10*	*05/26/11*	*05/30/12*	*05/24/13*	*05/29/14*
Volatiles (µg/L)	*Class GA Level*							
Acetone	50							
Benzene	1							
2-Butanone	50							
Chlorobenzene	5							
trans-1,2-Dichloroethene	5	3.8		2.7	2.7	2.0	2.0	1.7
Ethylbenzene	5	0.87J	0.84J	0.62J				
Methylene Chloride	5							
Tetrachloroethene	5	1.7	1.2J	0.80J	0.72J	0.69J	0.43J	0.50J
Toluene	5	5.0	4.9J	3.3	3.4	2.4	2.6	2.5
Trichloroethene	5	22	21J	14	12	7.7	9.7	8.5
Vinyl Chloride	2		2.6J		2.4	1.6		1.7
Total Xylenes	5	5.3	5.0J	3.6	4.0	2.8	2.9	2.8
Semi-Volatiles (µg/L)								
1,2-Dichlorobenzene	3*							
1,4-Dichlorobenzene	3*							
2,4-Dimethylphenol	50							
2-Methylphenol	NL	0.6J	0.5J		0.45J		0.38J	0.52J
4-Methylphenol	NL	0.6J	0.4J					1.1J
Naphthalene	10							
Di-n-octyl phthalate	50							
Phenol	1							

Blank = Non-Detect

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*River Middle*														
Date		*05/18/01*	*09/17/01*	*11/27/01*	*02/11/02*	*05/21/02*	*08/06/02*	*11/22/02*	*02/25/03*	*05/08/03*	*11/04/03*	*05/14/04*	*05/27/05*	*05/31/06*	*05/24/07*	*05/29/08*
Volatiles (µg/L)	*Class GA Level*															
Acetone	50						3.1J									2.8J
Benzene	1															
2-Butanone	50															
Chlorobenzene	5															
trans-1,2-Dichloroethene	5															
Ethylbenzene	5															
Methylene Chloride	5															
Tetrachloroethene	5														1.3	
Toluene	5															
Trichloroethene	5							0.21J								
Vinyl Chloride	2															
Total Xylenes	5															
Semi-Volatiles (µg/L)																
1,2-Dichlorobenzene	3*															
1,4-Dichlorobenzene	3*															
2,4-Dimethylphenol	50															
2-Methylphenol	NL															
4-Methylphenol	NL															
Naphthalene	10															
Di-n-octyl phthalate	50				0.7J											
Phenol	1															

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*MW-7*															
Date		*05/18/01*	*08/20/01*	*11/27/01*	*02/11/02*	*05/21/02*	*08/06/02*	*11/22/02*	*02/25/03*	*05/08/03*	*11/04/03*	*05/14/04*	*05/27/05*	*05/31/06*	*05/24/07*	*05/29/08*	*05/26/10*
Volatiles (µg/L)	*Class GA Level*																
Acetone	50	5.7J		6.5J		4.3J	5.4			4.8			4.3J	3.0J	3.9J	3.3J/3.4J	
Benzene	1		1.9	2.0		2.0	1.3	1.8		0.90			0.58J				
2-Butanone	50																
Chlorobenzene	5																
trans-1,2-Dichloroethene	5		0.82J	1.1J		0.98J	0.89J	1					0.36J				
Ethylbenzene	5		0.85J	0.81J		1.0	0.61J	0.75J					0.32J				
Methylene Chloride	5				1.6J												
Tetrachloroethene	5			0.27J													
Toluene	5		3.5J	3.6J		3.3	1.9	3		1.1	2.8		0.93J				
Trichloroethene	5		0.55J	0.63J		0.43J	0.45J	0.36J									
Vinyl Chloride	2		1.6J	2.0	3.8J	2.9	1.7	2.2		1.3			0.80J			0.64J/0.61J	
Total Xylenes	5		2.1J	2.1J		2.7J	1.5J	1.9J		0.76J							
Semi-Volatiles (µg/L)																	
1,2-Dichlorobenzene	3*																
1,4-Dichlorobenzene	3*																
2,4-Dimethylphenol	50			2J	2J	3J	0.7J	2J									
2-Methylphenol	NL		3J	2J	4J	6J	1J	2J			2J					0.4J/0.5J	
4-Methylphenol	NL		3J	2J	4J	6J	1J	2J			1J				0.3J	0.5J/0.6J	
Naphthalene	10																
Di-n-octyl phthalate	50				0.6J												
Phenol	1		24	7J	10	26	2J	6J		5J	2J		1J				

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		***MW-7***	
Date		***05/30/12***	***05/29/14***
Volatiles (µg/L)	***Class GA Level***		
Acetone	50		
Benzene	1		
2-Butanone	50		
Chlorobenzene	5		
trans-1,2-Dichloroethene	5		
Ethylbenzene	5		
Methylene Chloride	5		
Tetrachloroethene	5		
Toluene	5		
Trichloroethene	5		
Vinyl Chloride	2		
Total Xylenes	5		
Semi-Volatiles (µg/L)			
1,2-Dichlorobenzene	3*		
1,4-Dichlorobenzene	3*		
2,4-Dimethylphenol	50		
2-Methylphenol	NL		
4-Methylphenol	NL		0.65J
Naphthalene	10		
Di-n-octyl phthalate	50		
Phenol	1		

Blank = Non-Detect

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*OGC-2*															
Date		*05/18/01*	*08/20/01*	*11/27/01*	*02/11/02*	*05/21/02*	*08/06/02*	*11/22/02*	*02/25/03*	*05/08/03*	*11/04/03*	*05/14/04*	*05/27/05*	*05/30/06*	*05/25/07*	*05/29/08*	*05/26/10*
Volatiles (µg/L)	*Class GA Level*																
Acetone	50			11J			3.0J					4.5J	3.1				
Benzene	1																
2-Butanone	50																
Chlorobenzene	5																
trans-1,2-Dichloroethene	5																
Ethylbenzene	5																
Methylene Chloride	5				1.7J												
Tetrachloroethene	5																
Toluene	5										0.37J						
Trichloroethene	5		0.39J														
Vinyl Chloride	2			0.26J		0.25J	0.26J										
Total Xylenes	5																
Semi-Volatiles (µg/L)																	
1,2-Dichlorobenzene	3*																
1,4-Dichlorobenzene	3*																
2,4-Dimethylphenol	50																
2-Methylphenol	NL																
4-Methylphenol	NL																
Naphthalene	10																
Di-n-octyl phthalate	50																
Phenol	1																

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		***OGC-2***	
Date		***05/30/12***	***05/29/14***
Volatiles (µg/L)	***Class GA Level***		
Acetone	50		
Benzene	1		
2-Butanone	50		
Chlorobenzene	5		
trans-1,2-Dichloroethene	5		
Ethylbenzene	5		
Methylene Chloride	5		
Tetrachloroethene	5		
Toluene	5		
Trichloroethene	5		
Vinyl Chloride	2		
Total Xylenes	5		
Semi-Volatiles (µg/L)			
1,2-Dichlorobenzene	3*		
1,4-Dichlorobenzene	3*		
2,4-Dimethylphenol	50		
2-Methylphenol	NL		
4-Methylphenol	NL		0.79J
Naphthalene	10		
Di-n-octyl phthalate	50		
Phenol	1		

Blank = Non-Detect

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*OGC-6*														
Date		*05/18/01*	*08/20/01*	*11/27/01*	*02/11/02*	*05/21/02*	*08/06/02*	*11/22/02*	*02/25/03*	*05/08/03*	*11/04/03*	*03/04/04*	*05/14/04*	*11/23/04*	*05/27/05*	*05/31/06*
Volatiles (µg/L)	*Class GA Level*															
Acetone	50			6.6J			5.0			3.7J						8.6/8.7
Benzene	1									0.71	0.87	1.4		2.5	5.2	12/12
2-Butanone	50															
Chlorobenzene	5															
trans-1,2-Dichloroethene	5			0.23J	0.23J	0.37J	0.45J	0.55J		1.4	2.0	2.1		3.6	5.3	11/12
Ethylbenzene	5					0.31J				0.85J	1.1	2.0	3.3	3.1	7.4	20/20
Methylene Chloride	5				2.1J								4.4	2.5	2.2	
Tetrachloroethene	5		1.4J	0.73J		6.6	7.4	5	12	49	51	230	300	260	550	2000/2100
Toluene	5			0.55J		2.0	1.6	1.5	2.4	9.3	12	27	40	35	72	240/260
Trichloroethene	5	3.0J	4.7J	3.1J	5.9	16	19	13	26	95	120	330	530	330	610	1800/1800
Vinyl Chloride	2					0.22J	0.25J			0.45J						2.9/2.8
Total Xylenes	5		0.22J	0.53J	0.26J	1.7J	1.2J	1.0J		4.1	4.7	8.6	13	12	28	79/76
Semi-Volatiles (µg/L)												NA		NA		
1,2-Dichlorobenzene	3*															
1,4-Dichlorobenzene	3*															
2,4-Dimethylphenol	50							1J								
2-Methylphenol	NL		2J	2J	32	11	8J	9J	13	22	27		63		85	89/110
4-Methylphenol	NL			1J	0.02J	10							1J		2J	84/100
Naphthalene	10															1J/2J
Di-n-octyl phthalate	50															
Phenol	1		7J	2J	4J	5J	3J	2J		5J	3J		9J		8J	13/16

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*OGC-6*							
Date		*05/24/07*	*05/29/08*	*05/27/09*	*05/26/10*	*05/26/11*	*05/30/12*	*05/24/13*	*05/29/14*
Volatiles (µg/L)	*Class GA Level*								
Acetone	50			1.6J					
Benzene	1	72		3.2	3.6	1.8	1.9	4.7	1.3/1.4
2-Butanone	50								
Chlorobenzene	5								
trans-1,2-Dichloroethene	5	7.1		4.4	8.2	7.6	4.8	7.3	4.5/4.6
Ethylbenzene	5	12		4.8	5.2	2.4	2.0	4.8	1.2/1.2
Methylene Chloride	5								
Tetrachloroethene	5	1400	34	400	640	220	100	1100	190/190
Toluene	5	97	2.9	34	38	14	16	57	10/10
Trichloroethene	5	1100	31	320	410	180	92	460	100/110
Vinyl Chloride	2	1.5			1.2				
Total Xylenes	5	46		18	20	9.1	8.9	21	5.1/5.1
Semi-Volatiles (µg/L)									
1,2-Dichlorobenzene	3*								
1,4-Dichlorobenzene	3*								
2,4-Dimethylphenol	50		0.9J						0.54J/0.59J
2-Methylphenol	NL	76	76	32	32	15	16	23	9.4J/9.3
4-Methylphenol	NL	2J	70	1.1J	1.4J	1.2J	1.1J	1.1J	
Naphthalene	10	2J	2J	1.2J	1.4J	1.1J	1.1J	1.2J	1.1J/1.1J
Di-n-octyl phthalate	50								
Phenol	1	8	8				1.5J	57	1.2J/1.2J

Blank = Non-Detect

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*River North*													
Date		*05/18/01*	*09/17/01*	*11/27/01*	*02/11/02*	*05/21/02*	*08/06/02*	*11/22/02*	*02/25/03*	*05/08/03*	*11/04/03*	*05/14/04*	*05/27/05*	*05/30/06*	*05/31/07*
Volatiles (µg/L)	*Class GA Level*														
Acetone	50						2.4J		NS			3.6J	3.6J		
Benzene	1					0.21J					2.0	0.39J			
2-Butanone	50														
Chlorobenzene	5					1.3						3.2			
trans-1,2-Dichloroethene	5					0.25J						1.0			
Ethylbenzene	5					20						40		2.9	
Methylene Chloride	5				1.6J										
Tetrachloroethene	5					3.8						7.7		1.3	
Toluene	5			0.39J		63				0.96J		130	2.2	14	
Trichloroethene	5			0.35J		4.5						6.4		0.59J	
Vinyl Chloride	2					3.7						9.3			
Total Xylenes	5					80				0.96J		210	3.7	23	
Semi-Volatiles (µg/L)															
1,2-Dichlorobenzene	3*														
1,4-Dichlorobenzene	3*														
2,4-Dimethylphenol	50							1J							
2-Methylphenol	NL														
4-Methylphenol	NL														
Naphthalene	10														
Di-n-octyl phthalate	50														
Phenol	1														

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*OGC-5*												
Date		*05/20/01*	*08/21/01*	*11/27/01*	*02/11/02*	*05/21/02*	*08/06/02*	*11/22/02*	*02/25/03*	*05/08/03*	*11/04/03*	*05/14/04*	*05/27/05*	*05/30/06*
Volatiles (µg/L)	*Class GA Level*													
Acetone	50	38J		11J			6.4			4.9J		0.61J		3.0J
Benzene	1		1.5	1.4		0.87	0.92	0.87		0.77				0.67J
2-Butanone	50													
Chlorobenzene	5													
trans-1,2-Dichloroethene	5		0.65J	0.76J		0.42J	0.57J	0.52J				0.34J		
Ethylbenzene	5		0.21J	0.23J										
Methylene Chloride	5				3.4J								2.4	
Tetrachloroethene	5		0.38J	0.27J										
Toluene	5		2.5J	2.2J		0.99J	0.87J	1.2		0.80J		0.80J		
Trichloroethene	5		0.87J	0.66J		0.36J	0.41J	0.40J				0.28J		
Vinyl Chloride	2		1.6J	1.2J		1.1	1.5	1.2		1.1		1.4		1.2
Total Xylenes	5		1.0J	1.0J		0.67J	0.37J	0.40J				1.0J		
Semi-Volatiles (µg/L)														
1,2-Dichlorobenzene	3*													
1,4-Dichlorobenzene	3*													
2,4-Dimethylphenol	50		8J	6J	5J		1J	6J						
2-Methylphenol	NL		1J	1J	1J									
4-Methylphenol	NL		2J	5J	4J			2J						
Naphthalene	10		1J	1J			0.5J	1J						
Di-n-octyl phthalate	50			1J	0.8J									
Phenol	1		0.9J											

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		***OGC-5***				
Date		***05/24/07***	***05/29/08***	***05/26/10***	***05/30/12***	***05/29/14***
Volatiles (µg/L)	***Class GA Level***					
Acetone	50		3.5J			
Benzene	1	0.54J	0.69J		0.58J	1.1
2-Butanone	50					
Chlorobenzene	5					
trans-1,2-Dichloroethene	5					
Ethylbenzene	5					
Methylene Chloride	5					
Tetrachloroethene	5					
Toluene	5					
Trichloroethene	5					
Vinyl Chloride	2	0.95J	1.4			
Total Xylenes	5					
Semi-Volatiles (µg/L)						
1,2-Dichlorobenzene	3*					
1,4-Dichlorobenzene	3*					
2,4-Dimethylphenol	50					
2-Methylphenol	NL	0.5J	0.3J			
4-Methylphenol	NL	0.9J	0.4J			0.66J
Naphthalene	10	2J	0.5J	1.6J	0.85J	1.1J
Di-n-octyl phthalate	50					
Phenol	1					

Blank = Non-Detect

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*GW-6S*		*MW-6*												
Date		*########*	*08/10/88*	*05/18/01*	*08/21/01*	*11/27/01*	*02/11/02*	*05/21/02*	*08/06/02*	*11/22/02*	*02/25/03*	*05/08/03*	*11/04/03*	*05/14/04*	*05/27/05*	*05/30/06*
Volatiles (µg/L)	*Class GA Level*															
Acetone	50	684	4.9J						4.4J			44		6.7	13	31
Benzene	1	3			0.64J			0.65J	0.59J	0.56J		0.57J				
2-Butanone	50															
Chlorobenzene	5		3.3J		1.5J	1.3J		0.65J		0.54J		0.81J		0.37J		
trans-1,2-Dichloroethene	5	58	4.4J		1.1J			0.37J	0.32J	0.34J		1.4		0.52J		
Ethylbenzene	5	2			0.21J											
Methylene Chloride	5						1.8J								2.1	
Tetrachloroethene	5	43			0.44J							0.67J		0.25J		
Toluene	5	16	3.0J		2.2J	0.29J		1.3	0.91J	1.1		2.1	3.6	0.92J		
Trichloroethene	5	62	5.1J		2.0J		1.2J		1.1	1.5	3.2	14	12	3.7	1.5	1.2
Vinyl Chloride	2	11	1.7J					0.29J	0.24J	0.22J		0.52J				
Total Xylenes	5	7			0.90J	0.44J		0.36J	0.27J							
Semi-Volatiles (µg/L)																
1,2-Dichlorobenzene	3*															
1,4-Dichlorobenzene	3*			1J		0.7J	2J						2J			
2,4-Dimethylphenol	50	5		5J	5J	3J	2J	1J	0.9J	9J			6J			
2-Methylphenol	NL	3		5J	6J	2J	2J	2J	1J	0.9J			5J			
4-Methylphenol	NL	4		15	13	5J	4J	3J	2J	2J			12			1J
Naphthalene	10			67	69		1J		14	13			76		5J	
Di-n-octyl phthalate	50						2J									
Phenol	1	3		14	4J	2J	0.8J						250			2J

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		***MW-6***				
Date		***05/24/07***	***05/29/08***	***05/26/10***	***05/30/12***	***05/29/14***
Volatiles (µg/L)	***Class GA Level***					
Acetone	50					
Benzene	1					
2-Butanone	50					
Chlorobenzene	5					
trans-1,2-Dichloroethene	5					
Ethylbenzene	5					
Methylene Chloride	5					
Tetrachloroethene	5			0.55J		
Toluene	5			0.73J		
Trichloroethene	5	0.97J		2.3J	0.66J	1.0
Vinyl Chloride	2					
Total Xylenes	5					
Semi-Volatiles (µg/L)						
1,2-Dichlorobenzene	3*			0.66J		
1,4-Dichlorobenzene	3*	0.8J	0.6J	4.2J	2.9J	2.9J
2,4-Dimethylphenol	50			1.4J	1.4J	1.0J
2-Methylphenol	NL	0.5J	0.3J	1.8J	0.71J	1.1J
4-Methylphenol	NL	1J		2.5J	1.3J	1.0J
Naphthalene	10	2J	1J	7.8J	3.9J	
Di-n-octyl phthalate	50					
Phenol	1	0.6J	0.4J	1.9J		4.4J

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*OGC-1*													
Date		*05/18/01*	*05/25/07*	*8/21/2001*	*11/27/01*	*02/11/02*	*05/21/02*	*08/06/02*	*11/22/02*	*02/25/03*	*05/08/03*	*11/04/03*	*05/14/04*	*05/27/05*	*05/31/06*
Volatiles (µg/L)	*Class GA Level*														
Acetone	50	20J			11J			4.8J							
Benzene	1			0.64J	0.55J				0.26J						
2-Butanone	50	1.1J													
Chlorobenzene	5	2.2J	2.8	2.0J	1.7J		0.24J		0.78J		0.91J				
trans-1,2-Dichloroethene	5	5.6		3.7J	4.6J	1.8J	0.48J	0.58J	2.7		2.8	0.85J			0.55J
Ethylbenzene	5			0.52J	0.43J				0.21J						
Methylene Chloride	5					1.6J								1.8	
Tetrachloroethene	5			0.78J	0.54J		0.42J	0.53J	0.30J			0.29J			
Toluene	5	5.2	3.1	5.4	4.2J		0.48J	0.43J	1.9	1.7	2.6	0.59J			
Trichloroethene	5	15	2.9	16	11	4.5J	2.2	2.7	6.1	5.1	8.4	2.2	0.47J	1.2	1.9
Vinyl Chloride	2	1.3J		0.51J	0.72J				0.42J		0.64J				
Total Xylenes	5			2.1J	1.6J				0.49J		0.86J				
Semi-Volatiles (µg/L)															
1,2-Dichlorobenzene	3*		0.9J												
1,4-Dichlorobenzene	3*	1J	3J	3J	2J	1J			1J						
2,4-Dimethylphenol	50	9J	46	16	8J	3J		0.6J	9J		4J				
2-Methylphenol	NL	6J	6	12	5J	2J			2J		3J				
4-Methylphenol	NL	20	170	35	15J	5J		1J	5J	6J	8J				2J
Naphthalene	10	71	0.2J	130		21		7J	18		25	3J			
Di-n-octyl phthalate	50														
Phenol	1	150	11	290	57	15	1J	8J	4J		19				

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*OGC-1*				
Date		*05/24/07*	*05/29/08*	*05/26/10*	*05/30/12*	*05/29/14*
Volatiles (µg/L)	*Class GA Level*					
Acetone	50					
Benzene	1					
2-Butanone	50					
Chlorobenzene	5					
trans-1,2-Dichloroethene	5					
Ethylbenzene	5					
Methylene Chloride	5					
Tetrachloroethene	5					
Toluene	5					
Trichloroethene	5	0.53J	4.2			
Vinyl Chloride	2					
Total Xylenes	5					
Semi-Volatiles (µg/L)						
1,2-Dichlorobenzene	3*					
1,4-Dichlorobenzene	3*					
2,4-Dimethylphenol	50					
2-Methylphenol	NL					
4-Methylphenol	NL		0.4J		0.46J	
Naphthalene	10		0.5J			
Di-n-octyl phthalate	50					
Phenol	1					
					0.97J	

Notes:

* Applies to sum of compounds
NL - Not listed
Exceeds Class GA Level
NS - Not Sampled
J - Estimated
Blank = Non-Detect

TABLE 2.7

PH READINGS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Monitoring Location	*MH2*	*MH3*	*MW-6*	*OGC-1*	*OGC-5*	*MH6*	*OGC-6*	*MW-7*	*MH8*	*OGC-2*
Date										
01/29/10	9.52	9.33	10.04	9.96	9.53	9.91	10.47	10.64	11.11	10.37
02/26/10	9.98	9.79	10.03	10.01	9.55	9.84	10.78	10.28	10.87	10.43
03/30/10	9.48	9.45	9.78	10.06	9.91	9.85	10.68	10.58	10.08	10.76
04/30/10	9.60	9.53	9.82	10.01	9.65	9.94	11.09	11.00	10.91	10.77
05/26/10	9.54	9.84	10.63	9.33	9.27	9.84	11.24	10.60	9.37	10.75
06/28/10	8.46	8.82	9.63	9.51	8.62	9.17	9.86	10.25	9.14	9.44
07/27/10	8.53	8.82	10.88	10.82	9.42	9.77	11.21	11.73	10.75	10.98
08/26/10	10.03	10.89	10.73	10.33	8.73	9.81	11.96	10.51	9.77	10.69
09/28/10	9.94	10.83	10.87	10.38	9.40	10.33	10.61	10.82	10.20	10.97
10/27/10	9.53	9.75	10.56	10.15	9.63	10.02	10.28	10.47	10.31	10.19
11/24/10	9.54	9.90	10.70	10.04	9.24	9.54	10.32	10.09	9.65	9.97
12/28/10	9.48	9.56	10.84	10.37	9.60	10.00	10.42	10.17	9.76	10.33
01/31/11	11.01	10.24	10.53	10.37	9.20	8.72	10.49	10.37	9.80	10.47
02/28/11	9.45	9.33	9.87	9.95	9.56	9.59	10.75	10.11	9.76	10.13
03/30/11	8.72	8.40	10.40	8.65	9.42	8.98	10.56	9.46	9.23	9.51
04/21/11	8.86	8.80	10.80	9.34	9.17	9.80	11.32	10.13	9.40	9.86
05/26/11	8.59	8.50	10.49	9.22	8.95	9.49	11.11	9.80	8.84	9.91
06/22/11	8.91	9.63	10.63	9.07	8.92	9.42	11.21	9.68	9.10	9.00
07/27/11	8.87	9.56	10.94	10.21	8.85	9.32	10.97	10.22	9.08	9.84
08/26/11	8.84	9.51	11.16	10.20	8.87	9.45	11.01	10.34	9.21	9.89
09/27/11	8.61	9.22	10.47	9.74	8.86	9.37	10.60	9.26	9.10	9.51
10/28/11	9.21	9.65	10.60	10.25	9.33	9.77	10.70	9.71	9.33	9.87
11/30/11	9.25	9.93	10.00	9.34	8.24	9.82	10.84	10.46	9.26	9.57
12/29/11	9.24	9.28	10.82	9.80	9.38	9.66	10.91	9.86	9.31	10.02
01/26/12	9.21	8.93	10.84	9.46	9.13	9.36	10.99	10.02	9.06	10.47
02/28/12	9.49	9.33	10.69	9.74	9.51	9.60	11.22	10.49	9.10	10.73
03/29/12	9.75	9.69	10.05	9.97	9.57	9.63	9.93	9.98	9.62	10.13
04/26/12	10.05	11.29	11.22	9.92	9.58	9.59	11.85	10.05	9.14	10.26
05/30/12	10.20	11.54	11.54	10.91	6.33	9.84	11.87	10.24	9.49	9.30
06/27/12	10.20	10.53	10.18	10.23	9.62	9.91	10.55	10.08	9.86	10.19
07/31/12	9.80	11.00	11.34	10.74	9.22	9.42	11.15	11.84	9.56	10.48
08/27/12	9.55	10.69	11.55	10.77	8.56	9.44	10.94	11.89	8.98	10.54
09/24/12	9.50	9.67	10.42	9.89	9.31	9.82	10.31	10.27	9.71	10.29
10/26/12	9.56	9.97	10.14	9.41	9.32	9.90	10.11	10.37	9.77	10.17
11/26/12	9.43	9.59	10.02	9.79	8.87	9.64	10.18	9.63	9.48	9.49
12/26/12	9.79	9.69	10.62	8.78	8.71	9.37	10.05	9.50	9.31	9.42

TABLE 2.7

PH READINGS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Monitoring Location	*MH2*	*MH3*	*MW-6*	*OGC-1*	*OGC-5*	*MH6*	*OGC-6*	*MW-7*	*MH8*	*OGC-2*	
Date *Monitoring Location*	*MH2*	*MH3*	*MW-6*	*OGC-1*	*OGC-5*	*MH6*	*OGC-6*	*MW-7*	*MH8*	*OGC-2*	*MH9*
Date											
01/30/13	9.91	8.85	8.45	8.52	8.53	9.07	9.46	8.76	8.76	8.94	
02/27/13	9.14	9.20	9.26	9.30	8.46	8.39	9.97	9.09	8.87	8.91	
03/27/13	10.65	9.01	9.82	8.54	8.30	8.57	9.73	9.01	8.74	8.90	
04/24/13	10.20	8.75	9.32	9.09	8.63	9.06	9.78	9.36	9.74	9.16	
05/24/13	9.44	9.29	10.02	8.49	8.39	8.70	10.49	9.00	8.85	8.94	
06/27/13	8.49	8.74	9.89	8.39	8.63	9.55	10.75	8.66	8.84	9.16	
07/24/13	8.02	8.59	9.75	9.16	8.13	8.73	10.82	9.68	8.43	8.80	
08/22/13	8.99	9.07	10.08	8.83	8.32	8.84	10.58	9.25	8.53	9.26	
09/30/13	8.45	9.48	9.17	8.46	8.20	8.95	10.52	9.24	8.17	9.00	
10/30/13	8.45	10.00	9.68	8.24	8.09	8.83	10.13	8.77	8.05	8.77	
11/27/13	8.70	10.06	10.01	7.99	8.04	8.62	10.38	8.89	8.29	8.90	
12/31/13	9.10	7.45	10.07	8.63	8.23	7.62	10.14	9.52	8.51	9.17	
01/30/14	8.98	8.56	9.97	9.06	8.17	8.52	10.44	9.45	8.89	9.26	
02/26/14	10.35	10.21	10.46	9.12	8.60	9.33	10.34	9.41	8.95	9.24	
03/28/14	8.97	8.54	10.15	9.24	8.43	8.61	10.37	9.24	8.63	9.06	10.33
04/25/14	8.68	8.29	10.19	8.24	8.43	8.68	10.52	8.94	8.57	9.04	10.36
05/29/14	8.81	8.42	10.74	8.76	8.57	9.34	11.23	9.88	9.04	9.81	11.01

TABLE 2.7

PH READINGS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Monitoring Location	*MH2*	*MH3*	*MW-6*	*OGC-1*	*OGC-5*	*MH6*	*OGC-6*	*MW-7*	*MH8*	*OGC-2*	
Date Monitoring Location	*OGC-7*	*MH11*	*MW-8*	*OGC-3*	*MH12*	*OGC-8*	*MH14*	*MW-9*	*OGC-4*	*MH15*	*MH16*
Date											
01/29/10	11.19	11.03	11.58	11.45	10.60	11.62	11.39	10.52	11.29	9.71	9.22
02/26/10	11.30	10.91	11.59	11.74	10.27	11.64	11.32	11.02	11.30	10.62	8.64
03/30/10	11.68	11.74	11.51	12.06	10.62	11.78	11.24	11.49	11.76	10.86	9.14
04/30/10	11.78	11.67	12.11	12.16	10.30	12.15	10.85	11.44	11.92	10.85	9.58
05/26/10	11.81	10.92	11.85	12.14	10.51	11.88	10.14	11.14	11.60	11.10	9.12
06/28/10	10.30	9.26	10.70	10.70	9.18	10.42	8.81	9.90	10.24	8.36	7.48
07/27/10	12.18	10.31	12.76	12.77	10.08	12.31	10.49	11.56	12.03	9.19	8.46
08/26/10	12.23	11.60	11.62	12.37	10.04	11.56	8.17	11.50	11.38	7.52	8.87
09/28/10	12.29	11.89	12.39	12.43	10.21	11.68	10.04	11.24	11.45	7.69	8.48
10/27/10	11.76	11.53	11.81	11.89	9.81	11.65	10.12	11.10	11.39	8.52	9.50
11/24/10	11.67	11.48	11.85	12.08	9.90	11.42	9.97	10.67	11.64	8.12	8.30
12/28/10	11.72	11.17	12.03	12.12	10.17	11.57	9.70	10.91	11.73	8.00	7.87
01/31/11	11.75	11.52	11.27	11.08	9.68	12.36	9.80	11.03	11.53	8.47	10.08
02/28/11	11.68	10.82	11.88	11.96	10.00	12.23	11.12	11.30	11.51	7.93	8.05
03/30/11	11.03	10.46	11.21	11.59	9.71	11.13	9.62	11.00	11.50	8.32	8.11
04/27/11	11.69	9.99	11.78	12.17	9.05	12.09	9.59	11.40	11.78	8.39	8.84
05/26/11	11.48	10.08	11.58	11.97	9.55	11.25	9.27	11.26	11.32	7.62	8.26
6/22/2011	11.62	10.75	11.83	12.00	9.55	11.43	9.09	11.12	11.29	7.73	8.27
7/27/2011	11.58	10.51	11.88	11.92	9.85	11.34	8.91	11.11	11.12	7.71	8.45
8/26/2011	11.78	10.56	12.16	12.30	9.56	11.59	9.31	11.39	11.05	7.39	8.12
9/27/2011	11.54	10.07	11.83	11.99	9.51	11.30	8.85	11.06	11.00	7.28	7.66
10/28/11	11.35	9.57	11.50	11.72	9.82	11.12	9.78	10.91	11.19	8.48	8.52
11/30/11	11.46	10.49	11.87	12.06	9.60	10.92	9.51	11.20	10.53	7.84	8.19
12/29/11	11.57	9.74	11.94	11.98	9.99	11.50	9.39	11.00	11.62	8.48	8.92
01/26/12	11.61	10.44	11.73	12.43	10.21	11.71	9.51	11.19	11.81	7.99	8.45
02/28/12	11.74	10.55	11.79	12.23	9.90	11.66	9.73	11.44	11.89	8.16	8.94
03/29/12	11.23	10.41	11.38	11.29	10.09	11.22	9.64	10.51	11.17	8.49	9.13
04/26/12	12.20	10.52	12.31	12.87	9.51	12.47	9.72	11.74	12.29	8.08	8.95
05/30/12	12.52	10.88	12.42	12.84	10.17	12.65	10.14	11.95	12.48	8.42	9.68
06/27/12	11.33	11.02	11.03	11.32	10.20	11.23	10.27	10.80	11.32	8.88	9.65
07/31/12	11.73	10.93	12.12	12.07	9.73	11.84	9.78	11.60	11.39	8.12	8.74
08/27/12	12.23	10.51	12.44	12.48	9.63	12.06	9.57	11.98	11.61	7.46	8.07
09/24/12	11.41	10.96	11.40	11.41	9.91	11.37	9.83	11.07	11.21	9.15	9.14
10/26/12	11.13	10.92	11.26	11.85	9.97	11.32	10.04	10.17	11.21	8.32	8.23
11/26/12	11.46	10.82	11.48	11.94	9.92	10.87	9.92	11.50	11.59	8.51	8.63
12/26/12	11.45	10.26	11.60	12.05	9.92	11.43	8.92	11.33	10.34	8.65	8.03

TABLE 2.7

PH READINGS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Monitoring Location	*MH2*	*MH3*	*MW-6*	*OGC-1*	*OGC-5*	*MH6*	*OGC-6*	*MW-7*	*MH8*	*OGC-2*	
Date *Monitoring Location*	*OGC-7*	*MH11*	*MW-8*	*OGC-3*	*MH12*	*OGC-8*	*MH14*	*MW-9*	*OGC-4*	*MH15*	*MH16*
Date											
01/30/13	10.95	9.36	10.67	11.42	9.44	10.37	8.38	11.04	11.28	7.60	7.56
02/27/13	10.80	9.53	11.20	11.45	9.58	11.25	8.80	10.95	11.26	8.80	8.27
03/27/13	10.93	9.59	11.14	11.20	9.47	11.12	8.77	10.99	11.19	7.95	8.14
04/24/13	11.01	10.00	11.21	10.89	9.57	10.16	8.94	10.65	10.74	8.06	8.22
05/24/13	11.01	9.19	11.25	11.47	9.37	11.36	8.33	11.01	11.20	8.10	8.08
06/27/13	10.27	10.61	10.48	10.86	8.78	8.69	8.82	11.25	11.25	9.05	9.07
07/24/13	10.96	8.54	11.17	11.30	8.70	10.60	8.10	10.62	10.54	8.71	8.94
08/22/13	11.26	8.63	11.37	11.66	9.01	11.16	8.41	11.23	11.16	7.51	7.56
09/30/13	10.97	8.81	11.10	11.39	8.87	11.00	8.25	10.95	10.98	7.54	7.42
10/30/13	10.71	8.62	10.83	11.08	8.66	10.47	8.25	10.57	10.46	7.18	6.85
11/27/13	10.91	8.97	11.05	11.31	8.88	10.21	8.02	10.65	10.80	6.83	6.34
12/31/13	11.07	9.11	11.27	11.58	7.60	11.15	8.55	11.08	11.32	7.11	6.39
01/30/14	11.06	9.14	11.37	11.53	9.24	11.37	9.15	11.14	11.47	7.56	7.83
02/26/14	10.94	9.22	11.37	11.48	9.39	11.09	9.41	10.93	11.27	8.04	7.84
03/28/14	10.90	9.41	11.16	11.40	9.15	11.11	8.48	11.09	11.18	8.07	8.43
04/25/14	10.89	8.75	10.97	11.43	9.38	11.18	8.18	11.02	10.80	7.54	7.47
05/29/14	11.55	8.88	11.97	12.18	8.54	11.90	8.72	11.73	11.10	8.46	8.65

TABLE 2.7

PH READINGS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Monitoring Location	*MH2*	*MH3*	*MW-6*	*OGC-1*	*OGC-5*	*MH6*	*OGC-6*	*MW-7*	*MH8*	*OGC-2*
Date Monitoring Location	*City MH1*	*City MH2*	*City MH3*							
Date										
01/29/10	8.64	8.94	8.74							
02/26/10	10.42	10.15	9.35							
03/30./10	10.14	9.11	9.29							
04/30/10	11.25	11.09	10.99							
05/26/10	9.97	9.26	8.96							
06/28/10	8.15	7.86	7.69							
07/27/10	9.71	8.92	8.61							
08/26/10	10.06	8.96	9.50							
09/29/10	10.22	9.54	9.48							
10/27/10	11.42	10.80	10.43							
11/24/10	10.98	9.03	9.12							
12/28/10	9.12	8.27	8.26							
01/31/11	11.66	10.34	10.45							
02/28/11	9.62	8.82	8.57							
03/30/11	10.22	10.05	10.03							
04/27/11	10.54	9.86	9.60							
05/26/11	10.42	10.01	9.79							
6/22/2011	10.90	9.42	9.69							
7/27/2011	10.72	10.51	10.13							
8/26/2011	10.38	9.81	9.27							
09/27/11	10.35	8.48	8.46							
10/28/11	10.50	9.52	9.40							
11/30/11	10.63	9.69	8.71							
12/29/11	10.78	10.27	10.02							
01/26/12	10.07	10.02	9.73							
02/28/12	11.21	10.15	9.48							
03/29/12	10.80	9.90	9.86							
04/26/12	11.16	10.52	10.52							
05/30/12	11.28	10.85	10.52							
06/27/12	10.99	10.92	10.83							
07/31/12	9.83	8.60	7.98							
08/27/12	10.19	10.21	9.81							
09/24/12	11.10	9.86	10.01							
10/26/12	9.41	9.13	9.10							
11/26/12	10.02	9.75	9.47							
12/26/12	8.89	9.17	8.08							

TABLE 2.7

PH READINGS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Monitoring Location	*MH2*	*MH3*	*MW-6*	*OGC-1*	*OGC-5*	*MH6*	*OGC-6*	*MW-7*	*MH8*	*OGC-2*
Date										
Monitoring Location	*City MH1*	*City MH2*	*City MH3*							
Date										
01/30/13	6.20	6.49	8.05							
02/27/13	9.84	9.69	9.34							
03/27/13	10.15	8.91	8.64							
04/24/13	9.06	9.10	9.04							
05/24/13	10.21	8.97	9.02							
06/27/13	9.55	9.05	9.34							
07/24/13	6.49	6.99	7.03							
08/22/13	8.09	7.96	7.92							
09/30/13	8.74	7.75	7.57							
10/30/13	8.88	7.48	7.30							
11/27/13	NM	NM	NM							
12/31/13	NM	NM	NM							
01/30/14	10.87	8.86	7.57							
02/26/14	8.59	7.91	7.70							
03/28/14	9.61	8.79	9.06							
04/25/14	8.70	8.57	8.76							
05/29/14	10.66	9.69	9.53							

Note:

NM - Not Measured due to Unsafe Road Conditions.

TABLE 2.8

EFFLUENT SAMPLING SUMMARY
JUNE 2001 TO FEBRUARY 2007
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

LOCATIONS

effluent monitoring station at Site discharge point

FREQUENCY

monthly (as dictated by the City of North Tonawanda Industrial Wastewater Discharge Permit

PARAMETERS

Volatiles

Acetone
Benzene
2-Butanone
Chlorobenzene
1,1-Dichloroethane
1,2-Dichloroethane
trans-1,2-Dichloroethene
Ethylbenzene
Methylene Chloride
Styrene
Tetrachloroethene
Toluene
1,1,1-Trichloroethane
Trichloroethene
Vinyl Chloride
Xylenes (Total)

Semi-Volatiles

1,4-Dichlorobenzene
1,2-Dichlorobenzene
2,4-Dimethylphenol
2-Methylphenol
4-Methylphenol
Naphthalene
Di-n-octylphthalate
Phenols (4AAP)

Inorganics

Aluminum
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Copper
Iron
Lead
Magnesium
Manganese
Mercury
Nickel
Selenium
Silver
Sodium
Zinc

Wet Chemistry

Alkalinity (Bicarbonate)
Alkalinity (Total)
BOD
Chloride
COD
Cyanide
Hardness
NH3
NO3
Oil and Grease
pH
Phosphorous
Sulfate
Sulfide
TDS
TKN
TOC
TSS

TABLE 2.9

EFFLUENT SAMPLING SUMMARY
SUBSEQUENT TO FEBRUARY 2007
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

LOCATIONS

effluent monitoring station at Site discharge point

FREQUENCY

Semi-Annual (Spring and Fall as dictated by the City of North Tonawanda Industrial Wastewater Discharge Permit dated January 31, 2007)

PARAMETERS

Volatiles

Acetone
Benzene
2-Butanone
Chlorobenzene
1,1-Dichloroethane
1,2-Dichloroethane
trans-1,2-Dichloroethene
Ethylbenzene
Methylene Chloride
Styrene
Tetrachloroethene
Toluene
1,1,1-Trichloroethane
Trichloroethene
Vinyl Chloride
Xylenes (Total)

Semi-Volatiles

1,4-Dichlorobenzene
1,2-Dichlorobenzene
2,4-Dimethylphenol
2-Methylphenol
4-Methylphenol
Naphthalene
Di-n-octylphthalate
Phenols (4AAP)

Wet Chemistry

Chloride
Cyanide
NH3
NO3
Phosphorous
Sulfate
Sulfide

TABLE 2.10

ANALYTICAL RESULTS SUMMARY
SITE EFFLUENT
GRATWICK-RIVERSIDE PARK SITE

Sample ID:											
Sample Date:		*09/13/10*	*03/07/11*	*09/15/11*	*03/08/12*	*09/13/12*	*03/14/13*	*9/12/13*	*04/16/14*	*Surface Water Standard*	(1)
Parameter	*Unit*										
Volatiles											
1,1,1-Trichloroethane	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5	
1,1-Dichloroethane	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5	
1,2-Dichloroethane	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	0.6	
2-Butanone	µg/L	25U	25U	25U	25U	25U	25U	25U	25U	50	
Acetone	µg/L	25U	25U	25U	25U	25U	25U	25U	25U	50	
Benzene	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	1	
Chlorobenzene	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5	
Ethylbenzene	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5	
Methylene chloride	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5	
Styrene	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5	
Tetrachloroethene	µg/L	5.0U	5.0U	5.0U	5.0U	6.3	5.0U	5.0U	5.0U	0.7	(2)
Toluene	µg/L	7.5	12	11	15	27	16	13	14	5	
trans-1,2-Dichloroethene	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5	
Trichloroethene	µg/L	15	30	20	43	50	45	34	38	5	
Vinyl chloride	µg/L	5.0U	5.0U	5.0U	5.0U	5.3	5.0U	5.0U	5.0U	0.3	(2)
Xylene (total)	µg/L	10U	10U	10U	17	18	18	10U	10U	5	
Semi-Volatiles											
1,2-Dichlorobenzene	µg/L	0.68U	0.15U	0.15U	0.84	0.68	1.2	6.2	0.92	3	(7)
1,4-Dichlorobenzene	µg/L	0.42U	0.090U	1.7	3.6	3.6	7.7	5.7	6.4	3	(7)
2,4-Dimethylphenol	µg/L	3.5	0.13U	2.5	7.4	5.5	7.3	6.5	10	50	(2)
2-Methylphenol	µg/L	1.0U	0.22U	0.22U	0.91	0.62	3.4	0.22U	0.44	NL	
4-Methylphenol	µg/L	5.0U	0.62U	0.62U	3.1	3.0	6.7	1.3	0.62	NL	
Di-n-octyl phthalate	µg/L	21	4.6U	4.6U	4.6U	4.6U	4.6U	4.6U	4.6U	50	(2)
Naphthalene	µg/L	0.38U	0.080U	0.080U	0.57	1.4	0.53	0.080U	0.47	10	
Phenol	µg/L	0.57U	0.12U	0.12U	0.12U	0.12U	5.5	0.12U	0.12U	1	

TABLE 2.10

ANALYTICAL RESULTS SUMMARY
SITE EFFLUENT
GRATWICK-RIVERSIDE PARK SITE

Sample ID:											
Sample Date:		***09/13/10***	***03/07/11***	***09/15/11***	***03/08/12***	***09/13/12***	***03/14/13***	***9/12/13***	***04/16/14***	***Surface Water Standard***	
Parameter	***Unit***										(1)
Metals											
Aluminum	mg/L	0.20U	0.45	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	NL	
Antimony	mg/L	0.20U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.003	
Arsenic	mg/L	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.050	
Barium	mg/L	0.069	0.086	0.063	0.083	0.068	0.085	0.064	0.096	1.0	
Beryllium	mg/L	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	1.1	(6)
Cadmium	mg/L	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.005	
Chromium	mg/L	0.0040U	0.0040U	0.0040U	0.0040U	0.0040U	0.0040U	0.0040U	0.0040U	0.050	
Copper	mg/L	0.027	0.023	0.010U	0.010U	0.013	0.050	0.013	0.010U	0.023	(3)
Iron	mg/L	0.050U	0.39	0.050U	0.050U	0.050U	0.050U	0.050U	0.40	0.30	
Lead	mg/L	0.0050U	0.0050U	0.0050U	0.0050U	0.0067	0.0050U	0.0050U	0.0050U	0.012	
Magnesium	mg/L	1.43	3.5	1.6	2.2	0.99	2.9	0.78	5.5	35	
Manganese	mg/L	0.030U	0.012	0.030U	0.0030U	0.0030U	0.0030U	0.0030U	0.010	0.30	
Mercury	mg/L	0.00020U	0.00020U	0.00020U	0.00020U	0.00020U	0.00020U	0.00020U	0.00020U	0.0000026	(4)
Nickel	mg/L	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.10	
Selenium	mg/L	0.015U	0.015U	0.015U	0.015U	0.015U	0.015U	0.015U	0.015U	0.0046	(4)
Silver	mg/L	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.050	
Sodium	mg/L	253	372	267	380	238	353	206	359	NL	
Zinc	mg/L	0.010U	0.010	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	2.0	(2)

TABLE 2.10

ANALYTICAL RESULTS SUMMARY
SITE EFFLUENT
GRATWICK-RIVERSIDE PARK SITE

Sample ID:											
Sample Date:		***09/13/10***	***03/07/11***	***09/15/11***	***03/08/12***	***09/13/12***	***03/14/13***	***9/12/13***	***04/16/14***	***Surface Water Standard***	(1)
Parameter	***Unit***										
General Chemistry											
pH	S.U.	9.39	9.95	9.75	10.51	10.82	10.32	10.38	10.22	NL	
Hardness	mg/L	213	235	244	268	176	250	192	252	NL	
Total Dissolved Solids (TDS)	mg/L	1040	1450	1030	1280	911	1170	823	1360	NL	
Total Suspended Solids (TSS)	mg/L	7	6	3	4	4	7	12	8	NL	
Chloride	mg/L	423	655	425	551	326	398	333	633	250	
BOD	mg/L	24	16	22	21	45	16	18	10.3	NL	
COD	mg/L	33	37	28	33	70	37	21	17	NL	
Oil and Grease	mg/L	0.10U	0.10U	0.10U	0.20	0.10U	0.2	0.10U	0.10U	NL	
Organic Carbon	mg/L	7.1	8.1	7.2	6.9	8.2	8.0	7.6	6.6	NL	
Alkalinity, Total (As CaCO3)	mg/L	53.9	57	30.5	32.0	44.6	48.9	47.2	29	NL	
Bicarbonate (as CaCO3)	mg/L	53.9	11.1	5.0	8.0	5.0U	5.0U	5.0U	21	NL	
Ammonia	mg/L	1.96	1.12	1.12	1.68	2.52	2.52	0.84	1.1	2.0	
Nitrate (as N)	mg/L	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	10	
TKN	mg/L	2.24	2.24	1.68	2.24	4.48	3.08	1.12	1.68	NL	
Sulfate	mg/L	184	135	150	191	159	118	166	183	250	
Sulfide	mg/L	2.0	2.0	4.8	4.0	3.0	4.4	3.6	3.2	0.002	
Phenol	mg/L	0.008U	0.008U	0.009U	0.009	0.008U	0.012U	0.011U	0.009U	0.001	
Phosphorous	mg/L	0.12	0.13	0.17	0.09	0.15	0.12	0.16	0.16	0.020	(2)
Cyanide	mg/L	0.005U	0.005	0.005U	0.005	0.005U	0.005U	0.005U	0.005U	0.0052	

Notes:

U - Non-detect at associated value
- - Not Analyzed
J - Estimated
NL - Not Listed
SL - Sample Lost
(1) - Lowest Standard/Guidance Value shown
(2) - Guidance Value
(3) - Calculated using a hardness of 300 ppm
(4) - Applies to dissolved form
(5) - TOC analyzer malfunction prevented analysis of this compound
(6) - Hardness >75 mg/L
(7) - Sum of isomers <5 µg/L

TABLE 2.11

GROUNDWATER VOLUMES DISCHARGED
TO NORTH TONAWANDA POTW
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

	Volumes (gallons)	
Month	***Monthly***	***Total***
May 2001	2,900,000	2,900,000
June 2001	2,353,800	5,253,800
July 2001	1,488,500	6,742,300
August 2001	712,800	7,455,100
September 2001	473,100	7,928,200
October 2001	1,213,100	9,141,300
November 2001	1,281,100	10,422,400
December 2001	231,700 [(1)]	10,654,100
January 2002	1,383,200 [(2)]	12,037,300
February 2002	1,186,000	13,223,300
March 2002	233,600	13,456,900
April 2002	736,000	14,192,900
May 2002	348,200	14,541,100
June 2002	1,137,200	15,678,300
July 2002	869,300	16,547,600
August 2002	1,060,800	17,608,400
September 2002	707,000	18,315,400
October 2002	679,800	18,995,100
November 2002	489,500	19,484,700
December 2002	743,500	20,228,200
January 2003	1,150,700	21,378,900
February 2003	483,300	21,862,200
March 2003	402,300	22,264,500
April 2003	531,900	22,796,400
May 2003	655,600	23,452,000
June 2003	682,100	24,134,000
July 2003	942,000	25,076,100
August 2003	627,500	25,703,600
September 2003	349,600	26,053,200
October 2003	966,500	27,019,700
November 2003	442,200	27,461,900
December 2003	463,900	27,925,800
January 2004	443,900	28,369,700
February 2004	253,700	28,623,400
March 2004	403,700	29,027,100
April 2004	433,600	29,460,700
May 2004	377,400	29,838,100
June 2004	395,000	30,233,100
July 2004	384,300	30,617,400
August 2004	479,700	31,097,100
September 2004	413,900	31,511,000
October 2004	319,400	31,902,400
November 2004	249,200	32,151,600
December 2004	209,900	32,361,500

TABLE 2.11

GROUNDWATER VOLUMES DISCHARGED
TO NORTH TONAWANDA POTW
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

	Volumes (gallons)	
Month	***Monthly***	***Total***
January 2005	310,100	32,671,600
February 2005	301,100	32,972,700
March 2005	250,200	33,222,900
April 2005	378,400	33,601,300
May 2005	458,800	34,060,100
June 2005	455,900	34,516,000
July 2005	270,200	34,786,200
August 2005	285,100	35,071,300
September 2005	395,600	35,466,900
October 2005	333,200	35,800,100
November 2005	360,200	36,160,300
December 2005	395,300	36,555,600
January 2006	297,500	36,853,100
February 2006	508,300	37,361,400
March 2006	244,700	37,606,100
April 2006	224,400	37,830,500
May 2006	153,300	37,983,800
June 2006	262,300	38,246,100
July 2006	212,900	38,459,000
August 2006	357,500	38,816,500
September 2006	777,000	39,593,500
October 2006	254,700	39,848,200
November 2006	778,700	40,626,900
December 2006	496,600	41,123,500
January 2007	410,500	41,534,000
February 2007	494,600	42,028,600
March, April & May 2007	1,489,200[3]	43,517,800
June 2007	334,300	43,852,100
July 2007	258,600	44,110,700
August 2007	239,000	44,349,700
September 2007	59,500[4]	44,409,200
October 2007 through January 2008	50,600[4]	44,459,800
February 2008	23,800[4]	44,483,600
March 2008	1,238,300	45,721,900
April 2008	2,126,700	47,848,600
May 2008	1,771,100	49,619,700
June 2008	618,000	50,237,700
July 2008	1,559,200	51,796,900
August 2008	1,365,900	53,162,800
September 2008	1,998,000	55,160,800
October 2008	2,511,100	57,671,900
November 2008	1,151,600	58,823,500
December 2008	572,700	59,396,200

TABLE 2.11

GROUNDWATER VOLUMES DISCHARGED
TO NORTH TONAWANDA POTW
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

	Volumes (gallons)	
Month	***Monthly***	***Total***
January 2009	1,021,700	60,417,900
February 2009	2,661,400	63,079,300
March 2009	4,239,300	67,318,600
April 2009	1,189,900	68,508,500
May 2009	1,362,500	69,871,000
June 2009	1,035,200	70,906,200
July 2009	1,010,100	71,916,300
August 2009	1,058,000	72,974,400
September 2009	947,000	73,921,400
October 2009	690,800	74,612,200
November 2009	697,500	75,309,700
December 2009	1,100,900	76,410,600
January 2010	767,100	77,177,700
February 2010	398,600	77,576,300
March 2010	1,094,500	78,670,800
April 2010	761,000	79,431,800
May 2010	354,700	79,786,500
June 2010	170,300	79,956,800
July 2010	323,600	80,280,400
August 2010	1,292,400	81,572,800
September 2010	672,800	82,245,600
October 2010	972,800	83,218,400
November 2010	433,500	83,651,900
December 2010	483,900	84,135,800
January 2011	420,300	84,556,100
February 2011	257,000	84,813,100
March 2011	1,136,700	85,949,800
April 2011	875,300	86,825,100
May 2011	727,500	87,552,600
June 2011	489,500	88,042,100
July 2011	459,300	88,501,400
August 2011	296,900	88,798,300
September 2011	390,300	89,188,600
October 2011	414,800	89,603,400
November 2011	393,100	89,996,500
December 2011	583,300	90,579,800
January 2012	651,800	91,231,600
February 2012	276,900	91,508,500
March 2012	586,600	92,095,100
April 2012	400,600	92,495,700
May 2012	458,800	92,954,500
June 2012	369,300	93,323,800
July 2012	15,600[(5)]	93,339,400
August 2012	399,400	93,738,800
September 2012	513,500	94,252,300

TABLE 2.11

GROUNDWATER VOLUMES DISCHARGED
TO NORTH TONAWANDA POTW
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

	Volumes (gallons)	
Month	***Monthly***	***Total***
October 2012	344,500	94,596,800
November 2012	336,600	94,933,400
December 2012	286,800	95,220,200
January 2013	329,800	95,550,000
February 2013	217,400	95,767,400
March 2013	260,200	96,027,600
April 2013	249,900	96,277,500
May 2013	200,500	96,478,000
June 2013	211,300	96,689,300
July 2013	245,600	96,934,900
August 2013	165,100	97,100,000
September 2013	216,500	97,316,500
October 2013	118,600	97,435,100
November 2013	203,800	97,638,900
December 2013	117,400	97,756,300
January 2014	111,700	97,868,000
February 2014 [6]	66,700	97,934,700
March 2014 [6]	5,800	97,940,500
April 2014 [6]	5,000	97,945,500
May 2014 [6]	8,600	97,954,100

Notes:

(1) To December 7, 2001.

(2) From December 8, 2001.

(3) Plotted as 496,400 gallons on Figure 2.18 for each of March, April, and May 2007.

(4) Flow Meter malfunctioned due to tar-like material buildup inside meter. Meter was cleaned on March 14, 2008. Volumes not plotted on Figure 2.18 as volumes are not representative of actual volume removed.

(5) Flow low due to pump failure. Two pumps replaced.

(6) Flow meter malfunctioning. To be replaced. Volumes not plotted on Figure 2.18

Appendix A

City of North Tonawanda Industrial Wastewater Discharge Permit

CITY OF NORTH TONAWANDA
INDUSTRIAL WASTEWATER DISCHARGE PERMIT

Permit Number: 2628011

In accordance with the provisions of the Clean Water Act as amended, all terms and conditions set forth in this permit, the City of North Tonawanda Local Sewer Use Ordinance and any applicable Federal, State or local laws or regulations, authorization is hereby granted to: City of North Tonawanda
830 River Road
North Tonawanda, New York 14120

Site: **Gratwick Riverside Park**
River Road
North Tonawanda, New York 14120

Classified by S.I.C. Number(s): N/A

for the discharge of remedial action ground water into the City of North Tonawanda Sewerage System.

This permit is granted in accordance with an application filed on 05/01/96 in the offices of the Wastewater Treatment Plant Superintendent located at 830 River Road, and in conformity with specifications and other required data submitted in support of the above named application, all of which are filed with and considered part of this permit. This permit is also granted in accordance with discharge limitations and requirements, monitoring and reporting requirements, and all other conditions set forth in Parts I and II hereof.

Effective this 1st day of March, 2013

To expire the 28th day of February, 2016

_____

David A. Scott, Water Works Superintendent

Signed this ____ day of March, 2013

PART I. SPECIFIC CONDITIONS

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning the effective date of this permit and lasting until the expiration date, discharge from the permitted facility outfall(s) shall be limited and monitored by the permittee as specified below (Refer to attached map for sampling and monitoring sites).

Sample Point	Parameter	Discharge Limitations mg/l except pH Daily Max.	Sampling Period	Sampling Type
001	Total Flow		1 Sampling Day Monthly	continuous
	pH	Monitor Only	1 Sampling Day Monthly	grab
	Vinyl Chloride	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	Acetone	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	Methylene Chloride	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	1,1,1-Trichloroethane	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	1,1-Dichloroethane	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	1,2-Dichloroethane (total)	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	2-Butanone	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	Trichlorethene	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	Benzene	Monitor Only	1 Sampling Day semi-annual	24 hr comp.

Sample Point	Parameter	Discharge Limitations mg/l except pH Daily Max. Monthly Avg.	Sampling Period	Sampling Type
001	Tetrachloroethene	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	Toluene	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	Chlorobenzene	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	Ethylbenzene	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	Styrene	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	Xylenes (total)	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	Phenol (4AAP)	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	trans-1,2-Dichloroethene	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	1,4-Dichlorobenzene	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	1,2-Dichlorobenzene	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	2-Methylephenol	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	4-Methylephenol	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	2,4-Dimethylphenol	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	Di-n-octylphthalate	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	Napthalene	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	Cyanide	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	NH3	Monitor Only	1 Sampling Day semi-annual	grab
	Chloride	Monitor Only	1 Sampling Day semi-annual	24 hr comp.

Sample Point	Parameter	Discharge Limitations mg/l except pH Daily Max. Monthly Avg.	Sampling Period	Sampling Type
001	NO3	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	Phosphorous	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	Sulfate	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	Sulfide	Monitor Only	1 Sampling Day semi-annual	24 hr comp.

*/- See Special requirements page for sub-note requirements.

PART I. SPECIFIC CONDITIONS
DISCHARGE MONITORING AND REPORTING REQUIREMENTS

During the period beginning the effective date of this permit and lasting until the expiration date, discharge monitoring results shall be summarized and reported by the permittee no later than the days specified below.

Sample Point	Parameter	Initial Monitoring Report	Subsequent Monitoring Reports
001	Vinyl Chloride	January 31, 2007	Semi-annual for all
	Acetone	January 31, 2007	
	Carbon Disulfide	January 31, 2007	
	1,1-Dichloroethene	January 31, 2007	
	1,1-Dichloroethane	January 31, 2007	
	1,2-Dichloroethane (total)	January 31, 2007	
	2-Butanone	January 31, 2007	
	Trichlorethene	January 31, 2007	
	Benzene	January 31, 2007	
	Tetrachloroethene	January 31, 2007	
	Toluene	January 31, 2007	
	Chlorobenzene	January 31, 2007	
	Ethylbenzene	January 31, 2007	
	Styrene	January 31, 2007	
	Xylenes (total)	January 31, 2007	

Sample Point	Parameter	Initial Monitoring Report	Subsequent Monitoring Reports
001	Phenol	January 31, 2007	Semi-annual for all
	1,3-Dichlorobenzene	January 31, 2007	
	1,4-Dichlorobenzene	January 31, 2007	
	1,2-Dichlorobenzene	January 31, 2007	
	2-Methylephenol	January 31, 2007	
	4-Methylephenol	January 31, 2007	
	2,4-Dimethylphenol	January 31, 2007	
	1,2,4-Trichlorobenzene	January 31, 2007	
	Napthalene	January 31, 2007	
	2-Methylnaphthalene	January 31, 2007	
	n-Nitrosodidiphenylamine	January 31, 2007	
	Di-n-butylphthalate	January 31, 2007	

PART I. SPECIFIC CONDITIONS

C. SPECIAL REQUIREMENTS

1) This permit is written for a duration of three (3) years. Upon renewal of this permit, all parameters will be re-evaluated to develop a parameter list based on chemical concentrations present in the extracted groundwater.

2) Fequency of monitoring is to be re-evaluated after each year. Sampling to be done semi-annual (Spring – Fall).

3) All monitoring reports (initial and subsequent), are to be received by the Superintendent, no later than thirty (30) days after receipt of validated data.

4) It is required that the Permittee have a Site Operations Manual available at all times. All emergency phone numbers must be listed in an appropriate place for easy access by operations personnel. All pumping operations shall be accomplished under no-bypass conditions. The Permittee is required to cease all pumping operations upon verbal request of the North Tonawanda Water/Wastewater Superintendent or his designee. Pumping operations shall not recommence until approval by the North Tonawanda Water/Wastewater Superintendent or his designee.

5) Analysts are required to use GC/MS method detection limits for most organics (if GC/MS is appropriate); GC/ECD for PCB's/Pesticides and GF method detection limits for metals (where GF is appropriate), as contained in attachment 5 of the NYSDEC TOGs 1.3.8 – New Discharges to Publicly Owned Treatment Works – dated 10/26/94.

Appendix B

Monthly Inspection Logs (June 2013 to May 2014)

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 06/27/13 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

Item	*Inspect For*	*Action Required*	*Comments*
1. **Perimeter Collection System/Off-Site Forcemain**			
Manholes	- cover on securely	NONE	
	- condition of cover		
	- condition of inside of manhole		
	- flow conditions		
Wet Wells	- cover on securely		
	- condition of cover		
	- condition of inside of wet well		
2. **Landfill Cap**			
Vegetated Soil Cover	- erosion	WIRE MESH EXPOSED @ SHORELINE FROM OGC-4 SOUTH TO THE SOUTH PL. MESH EXPOSED FROM OGC-3 NORTH ALONG EMBANKMENT TO OGC-7 THEN NORTH FROM OGC-7 TO RIVER MIDDLE. SEVERAL LARGE HOLES ON THE EMBANKMENT EAST OF RIPRAP WHERE WATER HAS WASHED DOWN TO MESH	
	- bare areas		
	- washouts		
	- leachate seeps		
	- length of vegetation		
	- dead/dying vegetation		

FORM 17

CRA 7987 (24)

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

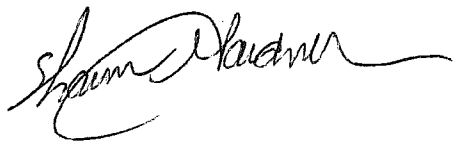
LOCATION: Wheatfield, New York

DATE: 06/27/13 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

Item	Inspect For	Action Required	Comments
2. Landfill Cap (continued)			
[X] Access Roads	- bare areas, dead/dying veg.	LARGE HOLE AROUND MH LOCATED HALF WAY BETWEEN OGC-5 AND MW-6. JUST WEST OF MH SEVERAL HOLES IN THE EMBANKMENT EXPOSING WIRE MESH, MESH EXPOSED ALL THE WAY DOWN TO WATER.	
	- erosion		
	- potholes or puddles		
	- obstruction		
3. Wetlands (Area "F")	- dead/dying vegetation	EXPOSED MESH IN SECTIONS AS YOU HEAD NORTH FROM OGC-1 ALL THE WAY TO NORTH EDGE OF THE PARK	
[X]	- change in water budget		
	- general condition of wetlands		
4. Other Site Systems			
[ ] Perimeter Fence	- integrity of fence	NA	
	- integrity of gates		
	- integrity of locks		
	- placement and condition of signs		

FORM 17



GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 06/27/13 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

	Item	*Inspect For*	*Action Required*	*Comments*
	4. **Other Site Systems (continued)**			
☒	Drainage Ditches/ Swale Outlets	- sediment build-up	NONE	
		- erosion		
		- condition of erosion protection		
		- flow obstructions		
		- dead/dying vegetation		
		- cable concrete/gabion mats and riprap		
☒	Culverts	- sediment build-up	NONE	
		- erosion		
		- condition of erosion protection		
		- flow obstructions		
☐	Gas Vents	- intact / damage		
☒	Wells	- locks secure		

FORM 17

CRA 7987 (24)

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 07/24/13 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

Item	*Inspect For*	*Action Required*	*Comments*
1. Perimeter Collection System/Off-Site Forcemain			
Manholes	- cover on securely	NONE	
	- condition of cover		
	- condition of inside of manhole		
	- flow conditions		
Wet Wells	- cover on securely		
	- condition of cover		
	- condition of inside of wet well		
2. Landfill Cap			
Vegetated Soil Cover	- erosion		
	- bare areas		
	- washouts		
	- leachate seeps	SAME AS THE MONTH OF JUNE 2013	
	- length of vegetation		
	- dead/dying vegetation		

FORM 17

Shawn Gardner

CRA 7987 (24)

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 07/24/13 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

Item	Inspect For	Action Required	Comments
2. Landfill Cap (continued)			
Access Roads	- bare areas, dead/dying veg.	WASH OUT HAS OCCURED MAKING THE HOLE EVEN LARGER	
	- erosion	SE AROUND MH LOCATED HALF WAY BETWEEN OGC-5 AND	
	- potholes or puddles	MW-6. JUST WEST OF MH SEVERAL HOLES IN THE EMBANKMENT	
	- obstruction	EXPOSING WIRE MESH, MESH EXPOSED ALL THE WAY DOWN TO THE WATER	
3. Wetlands (Area "F")	- dead/dying vegetation		
	- change in water budget	EXPOSED MESH IN SECTIONS AS YOU HEAD NORTH FROM	
	- general condition of wetlands	OGC-1 ALL THE WAY TO THE NORTH EDGE OF THE PARK	
4. Other Site Systems			
Perimeter Fence	- integrity of fence	NA	
	- integrity of gates		
	- integrity of locks		
	- placement and condition of signs		

FORM 17

Sharon Gardner

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 07/24/13 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

	Item	*Inspect For*	*Action Required*	*Comments*
4.	**Other Site Systems (continued)**			
☒	Drainage Ditches/ Swale Outlets	- sediment build-up	AN 8' LOG WAS LODGED INTO RIVER NORTH PIPE, IT WAS	
		- erosion	REMOVED	
		- condition of erosion protection		
		- flow obstructions		
		- dead/dying vegetation		
		- cable concrete/gabion mats and riprap		
☒	Culverts	- sediment build-up	NONE	
		- erosion		
		- condition of erosion protection		
		- flow obstructions		
☐	Gas Vents	- intact / damage		
☒	Wells	- locks secure		

FORM 17

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 0 8 2 2 1 3 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

Item	Inspect For	Action Required	Comments
1. Perimeter Collection System/Off-Site Forcemain			
Manholes	- cover on securely	NONE	
	- condition of cover		
	- condition of inside of manhole		
	- flow conditions		
Wet Wells	- cover on securely		
	- condition of cover		
	- condition of inside of wet well		
2. Landfill Cap			
Vegetated Soil Cover	- erosion	WIRE MESH EXPOSED @ SHORE LINE FROM OGC-4 SOUTH TO THE SOUTH P	
	- bare areas	MESH EXPOSED FROM OGC-3 NORTH ALONG EMBANKMENT TO OGC-7	
	- washouts	THEN NORTH FROM OGC-7 TO RIVER MIDDLE. SEVERAL LARGE	
	- leachate seeps	HOLES ON THE EMBANKMENT EAST OF RIPRAP WHERE WATER	
	- length of vegetation	HAS WASHED DOWN TO MESH	
	- dead/dying vegetation		

FORM 17

Shawn Gardner

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 0 8 2 2 1 3 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

Item	*Inspect For*	*Action Required*	*Comments*
2. **Landfill Cap (continued)**			
[X] Access Roads	- bare areas, dead/dying veg.	WASH OUT HAS OCCURED MAKING THE HOLES EVEN LARGER AROUND	
	- erosion	MH LOCATED HALF WAY BETWEEN OBC-5 AND MW-6, JUST WEST	
	- potholes or puddles	OF MH SEVERAL HOLES IN THE EMBANKMENT EXPOSING WIRE MESH	
	- obstruction	MESH EXPOSED ALL THE WAY DOWN TO THE WATER	
3. **Wetlands (Area "F")**	- dead/dying vegetation	EXPOSED MESH IN SECTIONS AS YOU HEAD NORTH FROM OBC-1	
[X]	- change in water budget	ALL THE WAY TO THE NORTH EDGE OF THE PARK	
	- general condition of wetlands		
4. **Other Site Systems**			
[ ] Perimeter Fence	- integrity of fence	NA	
	- integrity of gates		
	- integrity of locks		
	- placement and condition of signs		

FORM 17

CRA 7987 (24)

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 08/22/13 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

Item	*Inspect For*	*Action Required*	*Comments*
4. **Other Site Systems (continued)**			
Drainage Ditches/ Swale Outlets	- sediment build-up	NONE	
	- erosion		
	- condition of erosion protection		
	- flow obstructions		
	- dead/dying vegetation		
	- cable concrete/gabion mats and riprap		
Culverts	- sediment build-up	NONE	
	- erosion		
	- condition of erosion protection		
	- flow obstructions		
Gas Vents	- intact / damage		
Wells	- locks secure		

FORM 17

CRA 7987 (24)

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

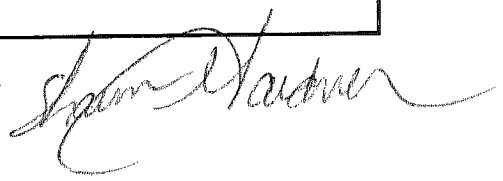
LOCATION: Wheatfield, New York

DATE: 0 9 3 0 1 3 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

Item	*Inspect For*	*Action Required*	*Comments*
1. Perimeter Collection System/Off-Site Forcemain			
Manholes	- cover on securely	NONE	
	- condition of cover		
	- condition of inside of manhole		
	- flow conditions		
Wet Wells	- cover on securely		
	- condition of cover		
	- condition of inside of wet well		
2. Landfill Cap			
Vegetated Soil Cover	- erosion	NO CHANGE FROM AUGUST	
	- bare areas	(SEE LAST MONTH)	
	- washouts		
	- leachate seeps		
	- length of vegetation		
	- dead/dying vegetation		

FORM 17



GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 09/30/13 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

Item	Inspect For	Action Required	Comments
2. Landfill Cap (continued)			
X Access Roads	- bare areas, dead/dying veg.	SAME AS AUGUST	
X	- erosion		
X	- potholes or puddles		
X	- obstruction		
3. Wetlands (Area "F")			
X	- dead/dying vegetation		
X	- change in water budget		
X	- general condition of wetlands		
4. Other Site Systems			
Perimeter Fence	- integrity of fence	NA	
	- integrity of gates		
	- integrity of locks		
	- placement and condition of signs		

FORM 17

Shawn Gardner

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

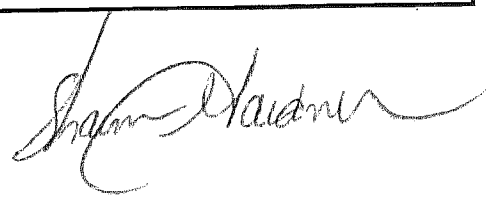
LOCATION: Wheatfield, New York

DATE: 0 9 3 0 1 3 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

	Item	*Inspect For*	*Action Required*	*Comments*
4.	**Other Site Systems (continued)**			
☒	Drainage Ditches/ Swale Outlets	- sediment build-up	LARGE PIECE OF DRIFT WOOD PARTCIALLY BLOCKING	
		- erosion	OPENING OF NORTH OUTFALL	
		- condition of erosion protection		
		- flow obstructions		
		- dead/dying vegetation		
		- cable concrete/gabion mats and riprap		
☒	Culverts	- sediment build-up	NONE	
		- erosion		
		- condition of erosion protection		
		- flow obstructions		
☐	Gas Vents	- intact / damage		
☒	Wells	- locks secure		

FORM 17



GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 10/30/13 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

Item	*Inspect For*	*Action Required*	*Comments*
1. Perimeter Collection System/Off-Site Forcemain			
Manholes	- cover on securely	NONE	
	- condition of cover		
	- condition of inside of manhole		
	- flow conditions		
Wet Wells	- cover on securely		
	- condition of cover		
	- condition of inside of wet well		
2. Landfill Cap			
Vegetated Soil Cover	- erosion	WIRE MESH EXPOSED @ SHORELINE FROM OGC-4 SOUTH TO THE SOUTH PT. MESH EXPOSED FROM OGC-3 NORTH ALONG EMBANKMENT TO OGC-7 THEN NORTH FROM OGC-7 TO RIVER MIDDLE, SEVERAL LARGE HOLES ON THE EMBANKMENT EAST OF RIP RAP WHERE WATER WAS WASHED DOWN TO MESH	
	- bare areas		
	- washouts		
	- leachate seeps		
	- length of vegetation		
	- dead/dying vegetation		

FORM 17

Shawn Gardner

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 1 0 3 0 1 3 (MM DD YY)

INSPECTOR(S): D TYRAN, S. GARDNER

Item	*Inspect For*	*Action Required*	*Comments*
2. Landfill Cap (continued)			
☒ Access Roads	- bare areas, dead/dying veg. - erosion - potholes or puddles - obstruction	WASH OUT HAS OCCURED VERY LARGE HOLES ABOUT 1' TO 1½' IN DEPTH AROUND MH LOCATED HALF WAY BETWEEN OGC-5 AND MW-62. JUST WEST OF MH SEVERAL HOLES IN THE EMBANKMENT EXPOSING WIRE MESH, MESH EXPOSED ALL THE WAY DOWN TO THE RIVER	
3. Wetlands (Area "F")			
☒	- dead/dying vegetation - change in water budget - general condition of wetlands	EXPOSED MESH IN SECTIONS AS YOU HEAD NORTH FROM OGC-1 ALL THE WAY TO THE NORTH EDGE OF THE PARK	
4. Other Site Systems			
☐ Perimeter Fence	- integrity of fence - integrity of gates - integrity of locks - placement and condition of signs	NA	

FORM 17

Shawn Gardner

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 1 0 3 0 1 3 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

Item	Inspect For	Action Required	Comments
4. **Other Site Systems (continued)**			
Drainage Ditches/ Swale Outlets	- sediment build-up	LARGE PIECE OF DRIFT WOOD PARTIALLY BLOCKING OPENING OF NORTH OUTFALL	
	- erosion		
	- condition of erosion protection		
	- flow obstructions		
	- dead/dying vegetation		
	- cable concrete/gabion mats and riprap		
Culverts	- sediment build-up		
	- erosion		
	- condition of erosion protection		
	- flow obstructions		
Gas Vents	- intact / damage		
Wells	- locks secure		

FORM 17

Shawn Maidment

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 1 1 | 2 7 | 1 3 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

Item	*Inspect For*	*Action Required*	*Comments*
1. **Perimeter Collection System/Off-Site Forcemain**			
Manholes	- cover on securely	NONE	
	- condition of cover		
	- condition of inside of manhole		
	- flow conditions		
Wet Wells	- cover on securely		
	- condition of cover		
	- condition of inside of wet well		
2. **Landfill Cap**			
Vegetated Soil Cover	- erosion	GROUND COVERED IN 5" OF SNOW	
	- bare areas		
	- washouts		
	- leachate seeps		
	- length of vegetation		
	- dead/dying vegetation		

FORM 17

Shawn Gardner

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 1 1 2 7 1 3 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

	Item	*Inspect For*	*Action Required*	*Comments*
2.	**Landfill Cap (continued)**			
X	Access Roads	- bare areas, dead/dying veg.	GROUND COVERED IN 5" OF SNOW	
		- erosion		
		- potholes or puddles		
		- obstruction		
3.	**Wetlands (Area "F")**	- dead/dying vegetation		
X		- change in water budget		
X		- general condition of wetlands		
4.	**Other Site Systems**			
	Perimeter Fence	- integrity of fence	NA	
		- integrity of gates		
		- integrity of locks		
		- placement and condition of signs		

FORM 17

Shawn Hardner

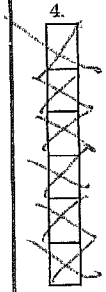
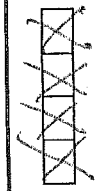
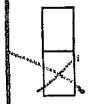
GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 1 1 2 7 1 3 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

Item	Inspect For	Action Required	Comments
4. **Other Site Systems (continued)**			
 Drainage Ditches/ Swale Outlets	- sediment build-up	LARGE PIECE OF DRIFT WOOD PARTIALLY BLOCKING OPENING	
	- erosion	OF NORTH OUTFALL	
	- condition of erosion protection		
	- flow obstructions		
	- dead/dying vegetation		
	- cable concrete/gabion mats and riprap		
 Culverts	- sediment build-up	GROUND COVERED IN 5" OF SNOW	
	- erosion		
	- condition of erosion protection		
	- flow obstructions		
 Gas Vents	- intact / damage		
Wells	- locks secure		

FORM 17

Shawn Gardner

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 12/31/13 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

Item	Inspect For	Action Required	Comments
1. **Perimeter Collection System/Off-Site Forcemain**			
Manholes	- cover on securely	W/L HIGH ON MH-15, PUMP NOT RUNNING AS PER DEC	
	- condition of cover	GRABBED AHOLD OF FLOAT AND LIFTED IT INTO A VERTICAL POSITION	
	- condition of inside of manhole	TO MANUALLY TRIP PUMP. PUMP DIDN'T ACTIVATE, PUMP POSSIBLY	
	- flow conditions	MALFUNCTIONING.	
Wet Wells	- cover on securely		
	- condition of cover		
	- condition of inside of wet well		
2. **Landfill Cap**			
Vegetated Soil Cover	- erosion	GROUND COVERED IN SEVERAL INCHES OF SNOW	
	- bare areas		
	- washouts		
	- leachate seeps		
	- length of vegetation		
	- dead/dying vegetation		

FORM 17

CRA 7987 (24)

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 1 1 2 3 1 1 3 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

Item	*Inspect For*	*Action Required*	*Comments*
2. **Landfill Cap (continued)**			
Access Roads	- bare areas, dead/dying veg.	GROUND COVERED IN SEVERAL INCHES OF SNOW	
	- erosion		
	- potholes or puddles		
	- obstruction		
3. **Wetlands (Area "F")**	- dead/dying vegetation		
	- change in water budget		
	- general condition of wetlands		
4. **Other Site Systems**			
Perimeter Fence	- integrity of fence	NA	
	- integrity of gates		
	- integrity of locks		
	- placement and condition of signs		

FORM 17

Shawn Gardner

CRA 7987 (24)

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 1 2 3 1 1 3 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

	Item	*Inspect For*	*Action Required*	*Comments*
	4. **Other Site Systems (continued)**			
☒	Drainage Ditches/ Swale Outlets	- sediment build-up	LARGE PIECE OF DRIFT WOOD PARTIALLY BLOCKING OPENING	
		- erosion	OF NORTH OUTFALL	
		- condition of erosion protection		
		- flow obstructions		
		- dead/dying vegetation		
		- cable concrete/gabion mats and riprap		
☒	Culverts	- sediment build-up	GROUND COVERED IN SEVERAL INCHES OF SNOW	
		- erosion		
		- condition of erosion protection		
		- flow obstructions		
☐	Gas Vents	- intact / damage		
☒	Wells	- locks secure		

FORM 17

Shawn Gardner

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 01/30/14 (MM DD YY)

INSPECTOR(S): D. Tyran / S. Gardner

	Item	*Inspect For*	*Action Required*	*Comments*
1.	**Perimeter Collection System/Off-Site Forcemain**			
X	Manholes	- cover on securely	W/L in MH 15 (Pump Station 3) is still high. City is planning on pulling pump next week	
X		- condition of cover		
X		- condition of inside of manhole		
X		- flow conditions		
X	Wet Wells	- cover on securely		
X		- condition of cover		
X		- condition of inside of wet well		
2.	**Landfill Cap**			
X	Vegetated Soil Cover	- erosion	Area snow covered	
X		- bare areas		
X		- washouts		
X		- leachate seeps		
X		- length of vegetation		
X		- dead/dying vegetation		

FORM 17

CRA 7987 (24)

Dave J Tyran

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 01 / 30 / 14 (MM DD YY)

INSPECTOR(S): D. Tyran / S. Gardner

	Item	Inspect For	Action Required	Comments
2.	**Landfill Cap (continued)**			
X	Access Roads	- bare areas, dead/dying veg.	Area Covered in Snow	
X		- erosion	↓	
X		- potholes or puddles	↓	
X		- obstruction	↓	
3.	**Wetlands (Area "F")**	- dead/dying vegetation	Area iced over	
		- change in water budget	↓	
		- general condition of wetlands	↓	
4.	**Other Site Systems**			
	Perimeter Fence	- integrity of fence	N/A	
		- integrity of gates	↓	
		- integrity of locks	↓	
		- placement and condition of signs	↓	

FORM 17

CRA 7987 (24)

Dave J Tyran

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 6/13/14 (MM DD YY)

INSPECTOR(S): D. Tyran / S. Gardner

	Item	*Inspect For*	*Action Required*	*Comments*
4.	**Other Site Systems (continued)**			
X	Drainage Ditches/ Swale Outlets	- sediment build-up	Large piece of driftwood blocking opening of	
X		- erosion	North cut fall	
X		- condition of erosion protection	Area covered in Snow	
X		- flow obstructions		
X		- dead/dying vegetation		
X		- cable concrete/gabion mats and riprap		
X	Culverts	- sediment build-up		
X		- erosion		
X		- condition of erosion protection		
X		- flow obstructions		
	Gas Vents	- intact / damage		
✓	Wells	- locks secure		

FORM 17

CRA 7987 (24)

Dave D Tyran

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 02/26/14 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

	Item	*Inspect For*	*Action Required*	*Comments*
1.	**Perimeter Collection System/Off-Site Forcemain**			
X	Manholes	- cover on securely	W/L IN MH 15 IS STILL HIGH	
X		- condition of cover	W/L IN MH 3 VERY HIGH	
X		- condition of inside of manhole	W/L IN MH 2 HIGH	
X		- flow conditions		
X	Wet Wells	- cover on securely		
X		- condition of cover		
X		- condition of inside of wet well		
2.	**Landfill Cap**			
X	Vegetated Soil Cover	- erosion	AREA COVERED IN SNOW	
X		- bare areas		
X		- washouts		
X		- leachate seeps		
X		- length of vegetation		
X		- dead/dying vegetation		

FORM 17

Shaun Gardner

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 02/26/14 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

	Item	*Inspect For*	*Action Required*	*Comments*
	2. Landfill Cap (continued)			
X	Access Roads	- bare areas, dead/dying veg.	AREA COVERED IN SNOW	
X		- erosion		
X		- potholes or puddles		
X		- obstruction		
	3. Wetlands (Area "F")	- dead/dying vegetation		
X		- change in water budget		
X		- general condition of wetlands		
	4. Other Site Systems			
	Perimeter Fence	- integrity of fence	NA	
		- integrity of gates		
		- integrity of locks		
		- placement and condition of signs		

FORM 17

Shawn Gardner

CRA 7987 (24)

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 02/26/14 (MM DD YY)

INSPECTOR(S): D TYRAN, S GARDNER

	Item	*Inspect For*	*Action Required*	*Comments*
	4.	**Other Site Systems (continued)**		
X	Drainage Ditches/ Swale Outlets	- sediment build-up	LARGE PIECE OF DRIFT WOOD BLOCKING OPENING OF	
X		- erosion	RIVER NORTH OUTFALL	
X		- condition of erosion protection		
X		- flow obstructions	AREA COVERED IN SNOW	
X		- dead/dying vegetation		
X		- cable concrete/gabion mats and riprap		
X	Culverts	- sediment build-up		
X		- erosion		
X		- condition of erosion protection		
		- flow obstructions		
	Gas Vents	- intact / damage		
X	Wells	- locks secure		

FORM 17

Stephen Gardner

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: North Tonawanda, New York

DATE: 03/28/14 (MM DD YY)

INSPECTOR(S): S. Gardner

Item	*Inspect For*	*Action Required*	*Comments*
1. Perimeter Collection System/Off-Site Forcemain			
☑ Manholes	- cover on securely	None	
☑	- condition of cover		
☑	- condition of inside of manhole		
☑	- flow conditions		
☑ Wet Wells	- cover on securely		
☑	- condition of cover		
☑	- condition of inside of wet well		
2. Landfill Cap			
☑ Vegetated Soil Cover	- erosion	None	
☑	- bare areas	Some wire mesh exposed along top of bank	
☑	- washouts	none	
☑	- leachate seeps		
☑	- length of vegetation		
☑	- dead/dying vegetation		

FORM 17

CRA 7987 (24)

Daniel J. Tyron

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: North Tonawanda, New York

DATE: 03/28/14 (MM DD YY)

INSPECTOR(S): S. Gardner

Item	*Inspect For*	*Action Required*	*Comments*
2. **Landfill Cap (continued)**			
☑ Access Roads	- bare areas, dead/dying veg.	None	
☑	- erosion		
☑	- potholes or puddles		
☑	- obstruction		
3. **Wetlands (Area "F")**	- dead/dying vegetation		
	- change in water budget		
	- general condition of wetlands		
4. **Other Site Systems**			
☐ Perimeter Fence	- integrity of fence	NA	
☐	- integrity of gates		
☐	- integrity of locks		
☐	- placement and condition of signs		

FORM 17

CRA 7987 (24)

David J Tyron

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: North Tonawanda, New York

DATE: 03/28/14 (MM DD YY)

INSPECTOR(S): S. Gardner

Item	Inspect For	Action Required	Comments
4. **Other Site Systems (continued)**			
✓ Drainage Ditches/ Swale Outlets	- sediment build-up	None	
✓	- erosion		
✓	- condition of erosion protection		
✓	- flow obstructions		
✓	- dead/dying vegetation		
✓	- cable concrete/gabion mats and riprap		
✓ Culverts	- sediment build-up		
✓	- erosion		
✓	- condition of erosion protection		
✓	- flow obstructions	Large piece of driftwood in front of River North	
✓ Gas Vents	- intact / damage	None	
✓ Wells	- locks secure		
✓ Shoreline Stabilization	- condition of gabion mats and riprap	Some wire mesh exposed along entire length of Shore line	

FORM 17

CRA 7987 (24)

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: North Tonawanda, New York

DATE: 04/25/14 (MM DD YY)

INSPECTOR(S): D. Tyran / S. Gardner

	Item	Inspect For	Action Required	Comments
1.	**Perimeter Collection System/Off-Site Forcemain**			
X	Manholes	- cover on securely	None	
X		- condition of cover		
X		- condition of inside of manhole		
X		- flow conditions		
X	Wet Wells	- cover on securely		
X		- condition of cover		
X		- condition of inside of wet well		
2.	**Landfill Cap**			
X	Vegetated Soil Cover	- erosion	None	wire mesh exposed in areas along top of bank
X		- bare areas		
X		- washouts		
X		- leachate seeps		
X		- length of vegetation		
X		- dead/dying vegetation		

FORM 17

CRA 7987 (24)

Dave Tyran

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: North Tonawanda, New York

DATE: 04/25/14 (MM DD YY)

INSPECTOR(S): D. Tyran / S. Gardner

	Item	*Inspect For*	*Action Required*	*Comments*
2.	**Landfill Cap (continued)**			
☒	Access Roads	- bare areas, dead/dying veg.	None	
☒		- erosion		
☒		- potholes or puddles		
☒		- obstruction		
3.	**Wetlands (Area "F")**	- dead/dying vegetation		
		- change in water budget		
		- general condition of wetlands		
4.	**Other Site Systems**			
☐	Perimeter Fence	- integrity of fence	N/A	
☐		- integrity of gates		
☐		- integrity of locks		
☐		- placement and condition of signs		

FORM 17

CRA 7987 (24)

David Tyran

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: North Tonawanda, New York

DATE: 04/25/14 (MM DD YY)

INSPECTOR(S): D. Tyran / S. Gardner

	Item	Inspect For	Action Required	Comments
4.	**Other Site Systems (continued)**			
X	Drainage Ditches/ Swale Outlets	- sediment build-up	None	
X		- erosion		
X		- condition of erosion protection		
X		- flow obstructions		
X		- dead/dying vegetation		
X		- cable concrete/gabion mats and riprap	Lots of wire mesh & gabion mats exposed along the Shoreline	
X	Culverts	- sediment build-up	none	
X		- erosion		
X		- condition of erosion protection		
X		- flow obstructions	18" Diameter piece of driftwood in front of River North	
X	Gas Vents	- intact / damage		
X	Wells	- locks secure		
X	Shoreline Stabilization	- condition of gabion mats and riprap	Gabion mats exposed along southern section of Shoreline	

FORM 17

CRA 7987 (24)

D. Tyran

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: North Tonawanda, New York

DATE: 05/29/14 (MM DD YY)

INSPECTOR(S): D. Tyran / S. Gardner

	Item	*Inspect For*	*Action Required*	*Comments*
1.	**Perimeter Collection System/Off-Site Forcemain**			
X	Manholes	- cover on securely	None	
X		- condition of cover		
X		- condition of inside of manhole		
		- flow conditions		
X	Wet Wells	- cover on securely		
X		- condition of cover		
X		- condition of inside of wet well		
2.	**Landfill Cap**			
X	Vegetated Soil Cover	- erosion		Wire mesh exposed in areas along top of bank
X		- bare areas		
X		- washouts		
X		- leachate seeps		
X		- length of vegetation		
X		- dead/dying vegetation		

FORM 17

Dave J Tyran

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: North Tonawanda, New York

DATE: 05/29/14 (MM DD YY)

INSPECTOR(S): D. Tyran / S. Gardner

	Item	*Inspect For*	*Action Required*	*Comments*
2.	**Landfill Cap (continued)**			
X	Access Roads	- bare areas, dead/dying veg.	None	
X		- erosion		
X		- potholes or puddles		
X		- obstruction		
3.	**Wetlands (Area "F")**	- dead/dying vegetation		
		- change in water budget		
		- general condition of wetlands		
4.	**Other Site Systems**			
	Perimeter Fence	- integrity of fence	NA	
		- integrity of gates		
		- integrity of locks		
		- placement and condition of signs		

FORM 17

CRA 7987 (24)

David J. Tyran

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: North Tonawanda, New York

DATE: 05/29/14 (MM DD YY)

INSPECTOR(S): D. Tyran / S. Gardner

	Item	*Inspect For*	*Action Required*	*Comments*
4.	**Other Site Systems (continued)**			
X	Drainage Ditches/ Swale Outlets	- sediment build-up	None	
X		- erosion		
X		- condition of erosion protection		
X		- flow obstructions		
X		- dead/dying vegetation		
		- cable concrete/gabion mats and riprap	Lots of gabion mats exposed along Shoreline	
X	Culverts	- sediment build-up	None	
X		- erosion		
X		- condition of erosion protection		Large diameter driftwood has been removed from River North
X		- flow obstructions		
X	Gas Vents	- intact / damage		
X	Wells	- locks secure		
X	Shoreline Stabilization	- condition of gabion mats and riprap	Gabion mats exposed along Shoreline	

FORM 17

CRA 7987 (24)

David J. Tyran

Appendix C

AQ/QC Reviews and Data Usability Summary

September 2013 Groundwater Discharge
April 2014 Groundwater Discharge
May 2014 Groundwater

CONESTOGA-ROVERS
& ASSOCIATES

2055 Niagara Falls Blvd., Suite #3
Niagara Falls, New York 14304
Telephone: (716) 297-6150 Fax: (716) 297-2265
www.CRAworld.com

MEMORANDUM

TO: Klaus Schmidtke

REF. NO.: 7987

FROM: Susan Scrocchi/bjw/16

DATE: June 26, 2014

RE: **Analytical Results and Reduced Validation**
Waste Water Treatment Plant Sampling
Gratwick-Riverside Park
North Tonawanda, New York
September 2013

1.0 Introduction

The following document details a reduced validation of analytical results for one effluent sample collected in support of the semi-annual monitoring program at the North Tonawanda Wastewater Treatment Plant during September 2013. Samples were submitted to TestAmerica Laboratory, located in Amherst, New York. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Table 2. A summary of the analytical methodology is presented in Table 3.

Standard Conestoga--Rovers & Associates (CRA) report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody form, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples (LCS), matrix spikes (MS), and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the documents entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", United States Environmental Protection Agency (USEPA) 540-R-10-011, January 2010

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008

These items will subsequently be referred to as the "Guidelines" in this Memorandum.

2.0 Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 3. Sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All samples were properly preserved, delivered on ice, and stored by the laboratory at the required temperature (<6°C).

3.0 Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4.0 Surrogate Spike Recoveries - Organic Analyses

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample extraction and/or analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile and semi-volatile determinations were spiked with the appropriate number of surrogate compounds prior to sample extraction and/or analysis.

Each individual surrogate compound is expected to meet the laboratory control limits with the exception of semi-volatile organic compound (SVOC) analyses. According to the "Guidelines" for SVOC analyses, up to one outlying surrogate in the base/neutral or acid fractions is acceptable as long as the recovery is at least 10 percent.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries met the above criteria.

5.0 Laboratory Control Sample Analyses

LCS and/or laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference [RPD] of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch. Some LCS were prepared and analyzed in duplicate.

The LCS or LCS/LCSD contained all compounds of interest. All LCS recoveries and RPDs were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

6.0 Matrix Spike Analyses - Inorganic Analyses

To evaluate the effects of sample matrices on the preparation, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS samples. For this study, MS samples were prepared and analyzed for methods 300.0 and 353.2.

All MS analyses performed were acceptable, demonstrating acceptable analytical accuracy.

7.0 Duplicate Sample Analyses – Inorganic Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed for methods 300.0 and 353.2. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

8.0 Field QA/QC Samples

The field QA/QC consisted of one trip blank sample.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for volatile organic compound (VOC) analysis. All results were non-detect for the compounds of interest.

9.0 Analyte Reporting

The laboratory reported detected results down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the practical quantitation limit (PQL) but greater than the MDL were qualified as estimated (J) in Table 2 unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the PQL in Table 2 for all parameters except SVOCs. The laboratory reported to project specific reporting limits. These limits were less than the PQL, but greater than or equal to the MDL.

10.0 Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are acceptable without qualification.

TABLE 1

SAMPLE COLLECTION AND ANALYSIS SUMMARY
WASTE WATER TREATMENT PLANT SAMPLING
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK
SEPTEMBER 2013

					Analysis/Parameters									
Sample Identification	*Location*	*Matrix*	*Collection Date (mm/dd/yyyy)*	*Collection Time (hr:min)*	*TAL Metals*	*Chloride/Sulfate*	*Nitrate/Nitrite*	*Site-Specific VOCs*	*Site-Specific SVOCs*	*Alkalinity*	*Total Hardness*	*TDS*	*Sulfide*	*Comments*
GRATWICK RIVERSIDE	Effluent	Water	9/12/2013	8:00	X	X	X	X	X	X	X	X	X	
TRIP BLANK	-	-	9/12/2013	-				X						Trip Blank

Notes:

TAL - Target Analyte List
VOCs - Volatile Organic Compounds
SVOCs - Semi-Volatile Organic Compounds
TDS - Total Dissolved Solids

TABLE 2

ANALYTICAL RESULTS SUMMARY
WASTE WATER TREATMENT PLANT SAMPLING
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK
SEPTEMBER 2013

	Sample Location:	*Effluent*
	Sample ID:	*GRATWICK RIVERSIDE*
	Sample Date:	*9/12/2013*
Parameters:	***Units***	
Volatile Organic Compounds		
1,1,1-Trichloroethane	µg/L	5.0 U
1,1-Dichloroethane	µg/L	5.0 U
1,2-Dichloroethane	µg/L	5.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	25 U
Acetone	µg/L	25 U
Benzene	µg/L	5.0 U
Chlorobenzene	µg/L	5.0 U
Ethylbenzene	µg/L	5.0 U
Methylene chloride	µg/L	5.0 U
Styrene	µg/L	5.0 U
Tetrachloroethene	µg/L	5.0 U
Toluene	µg/L	13
trans-1,2-Dichloroethene	µg/L	5.0 U
Trichloroethene	µg/L	34
Vinyl chloride	µg/L	5.0 U
Xylenes (total)	µg/L	10 U
Semi-volatile Organic Compounds		
1,2-Dichlorobenzene	µg/L	6.2
1,4-Dichlorobenzene	µg/L	5.7
2,4-Dimethylphenol	µg/L	6.5
2-Methylphenol	µg/L	0.22 U
4-Methylphenol	µg/L	1.3
Di-n-octyl phthalate (DnOP)	µg/L	4.6 U
Naphthalene	µg/L	0.080 U
Phenol	µg/L	0.12 U
Metals		
Aluminum	mg/L	0.20 U
Antimony	mg/L	0.020 U
Arsenic	mg/L	0.010 U
Barium	mg/L	0.064
Beryllium	mg/L	0.0020 U
Cadmium	mg/L	0.0010 U
Chromium	mg/L	0.0040 U
Copper	mg/L	0.013
Iron	mg/L	0.050 U
Lead	mg/L	0.0050 U

TABLE 2

ANALYTICAL RESULTS SUMMARY
WASTE WATER TREATMENT PLANT SAMPLING
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK
SEPTEMBER 2013

	Sample Location:	*Effluent*
	Sample ID:	*GRATWICK RIVERSIDE*
	Sample Date:	*9/12/2013*
Parameters:	***Units***	
Metals (Continued)		
Magnesium	mg/L	0.78
Manganese	mg/L	0.0030 U
Mercury	mg/L	0.00020 U
Nickel	mg/L	0.010 U
Selenium	mg/L	0.015 U
Silver	mg/L	0.0030 U
Sodium	mg/L	206
Zinc	mg/L	0.010 U
General Chemistry		
Alkalinity, bicarbonate	mg/L	5.0 U
Alkalinity, total (as CaCO3)	mg/L	47.2
Ammonia	mg/L	0.84
Biochemical oxygen demand (BOD)	mg/L	18.4
Chemical oxygen demand (COD)	mg/L	21
Chloride	mg/L	333
Cyanide (total)	mg/L	0.005 U
Hardness, carbonate	mg/L	192
Nitrate (as N)	mg/L	0.050 U
Nitrite (as N)	mg/L	0.050 U
Oil and grease	mg/L	0.10 U
pH (water)	s.u.	10.38
Phenolics (total)	mg/L	0.011 U
Phosphorus	mg/L	0.16
Sulfate	mg/L	166
Sulfide	mg/L	3.6
Total dissolved solids (TDS)	mg/L	823
Total kjeldahl nitrogen (TKN)	mg/L	1.12
Total organic carbon (TOC)	mg/L	7.58
Total suspended solids (TSS)	mg/L	12
Volatile suspended solids	mg/L	8

Notes:

U - Not present at or above the associated value.

TABLE 3

ANALYTICAL METHODS AND HOLDING TIME CRITERIA
WASTE WATER TREATMENT PLANT SAMPLING
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK
SEPTEMBER 2013

Parameter	*Method*	*Matrix*	*Holding Time*	
			Collection to Extraction (Days)	*Collection or Extraction to Analysis (Days)*
VOC	EPA 624	Water	-	14
SVOC	EPA 625	Water	7	40
TAL Metals	EPA 200.7	Water	-	180
Mercury	EPA 245.1	Water	-	28
Chloride/Sulfate	EPA 300.0	Water	-	28
Nitrate/Nitrite	EPA 353.2	Water	-	48 hours
Hardness	SM 2340	Water	-	180
Alkalinity	SM2320B	Water	-	24 hours
TDS	SM2540C	Water	-	7
Sulfide	SM4500-S2-F	Water	-	7

Notes:

[1] - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
[2] - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
[3] - "Methods for Chemical Analysis of Water and Wastes", USEPA-600/4-79-020, March 1983, with subsequent revisions
VOCs - Volatile Organic Compounds
SVOCs - Semi-Volatile Organic Compounds
TAL - Target Analyte List
TDS - Total Dissolved Solids

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MEMORANDUM

TO: Klaus Schmidtke

REF. NO.: 7987

FROM: Susan Scrocchi/bjw/15

DATE: June 26, 2014

RE: **Analytical Results and Reduced Validation**
Waste Water Treatment Plant Sampling
Gratwick-Riverside Park
North Tonawanda, New York
April 2014

1.0 Introduction

The following document details a reduced validation of analytical results for one effluent sample collected in support of the semi-annual monitoring program at the North Tonawanda Wastewater Treatment Plant during April 2014. Samples were submitted to TestAmerica Laboratory, located in Amherst, New York. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Table 2. A summary of the analytical methodology is presented in Table 3.

Standard Conestoga--Rovers & Associates (CRA) report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody form, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples (LCS), matrix spikes (MS), and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the documents entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", United States Environmental Protection Agency (USEPA) 540-R-10-011, January 2010

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008

These items will subsequently be referred to as the "Guidelines" in this Memorandum.

2.0 Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 3. Sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All samples were properly preserved, delivered on ice, and stored by the laboratory at the required temperature (<6°C).

3.0 Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4.0 Surrogate Spike Recoveries - Organic Analyses

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample extraction and/or analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile and semi-volatile determinations were spiked with the appropriate number of surrogate compounds prior to sample extraction and/or analysis.

Each individual surrogate compound is expected to meet the laboratory control limits with the exception of semi-volatile organic compound (SVOC) analyses. According to the "Guidelines" for SVOC analyses, up to one outlying surrogate in the base/neutral or acid fractions is acceptable as long as the recovery is at least 10 percent.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries met the above criteria.

5.0 Laboratory Control Sample Analyses

LCS and/or laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference [RPD] of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch. Some LCS were prepared and analyzed in duplicate.

The LCS or LCS/LCSD contained all compounds of interest. All LCS recoveries and RPDs were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

6.0 Matrix Spike Analyses - Inorganic Analyses

To evaluate the effects of sample matrices on the preparation, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS samples. For this study, MS samples were prepared and analyzed for methods 300.0 and 353.2.

All MS analyses performed were acceptable, demonstrating acceptable analytical accuracy.

7.0 Duplicate Sample Analyses – Inorganic Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed for methods 300.0 and 353.2. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

8.0 Field QA/QC Samples

The field QA/QC consisted of one trip blank sample.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for volatile organic compound (VOC) analysis. All results were non-detect for the compounds of interest.

9.0 Analyte Reporting

The laboratory reported detected results down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the practical quantitation limit (PQL) but greater than the MDL were qualified as estimated (J) in Table 2 unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the PQL in Table 2 for all parameters except SVOCs. The laboratory reported to project specific reporting limits. These limits were less than the PQL, but greater than or equal to the MDL.

10.0 Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are acceptable without qualification.

TABLE 1

SAMPLE COLLECTION AND ANALYSIS SUMMARY
WASTE WATER TREATMENT PLANT SAMPLING
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK
APRIL 2014

					Analysis/Parameters									
Sample Identification	*Location*	*Matrix*	*Collection Date (mm/dd/yyyy)*	*Collection Time (hr:min)*	*TAL Metals*	*Chloride/Sulfate*	*Nitrate/Nitrite*	*Site-Specific VOCs*	*Site-Specific SVOCs*	*Alkalinity*	*Total Hardness*	*TDS*	*Sulfide*	*Comments*
GRATWICK RIVERSIDE	Effluent	Water	4/16/2014	8:00	X	X	X	X	X	X	X	X	X	
TRIP BLANK	-	-	4/16/2014	-				X						Trip Blank

Notes:

TAL - Target Analyte List
VOCs - Volatile Organic Compounds
SVOCs - Semi-Volatile Organic Compounds
TDS - Total Dissolved Solids

TABLE 2

ANALYTICAL RESULTS SUMMARY
WASTE WATER TREATMENT PLANT SAMPLING
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK
APRIL 2014

	Sample Location:	*Effluent*
	Sample ID:	*GRATWICK RIVERSIDE*
	Sample Date:	*4/16/2014*
Parameters:	***Units***	
Volatile Organic Compounds		
1,1,1-Trichloroethane	µg/L	5.0 U
1,1-Dichloroethane	µg/L	5.0 U
1,2-Dichloroethane	µg/L	5.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	25 U
Acetone	µg/L	25 U
Benzene	µg/L	5.0 U
Chlorobenzene	µg/L	5.0
Ethylbenzene	µg/L	5.0 U
Methylene chloride	µg/L	5.0 U
Styrene	µg/L	5.0 U
Tetrachloroethene	µg/L	5.0 U
Toluene	µg/L	14
trans-1,2-Dichloroethene	µg/L	5.0 U
Trichloroethene	µg/L	38
Vinyl chloride	µg/L	5.0 U
Xylenes (total)	µg/L	10 U
Semi-volatile Organic Compounds		
1,2-Dichlorobenzene	µg/L	0.92
1,4-Dichlorobenzene	µg/L	6.4
2,4-Dimethylphenol	µg/L	10
2-Methylphenol	µg/L	0.44
4-Methylphenol	µg/L	0.62 U
Di-n-octyl phthalate (DnOP)	µg/L	4.6 U
Naphthalene	µg/L	0.47
Phenol	µg/L	0.12 U
Metals		
Aluminum	mg/L	0.20 U
Antimony	mg/L	0.020 U
Arsenic	mg/L	0.010 U
Barium	mg/L	0.096
Beryllium	mg/L	0.0020 U
Cadmium	mg/L	0.0010 U
Chromium	mg/L	0.0040 U

TABLE 2

ANALYTICAL RESULTS SUMMARY
WASTE WATER TREATMENT PLANT SAMPLING
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK
APRIL 2014

	Sample Location:	*Effluent*
	Sample ID:	*GRATWICK RIVERSIDE*
	Sample Date:	*4/16/2014*
Parameters:	***Units***	
Metals (Continued)		
Copper	mg/L	0.010 U
Iron	mg/L	0.40
Lead	mg/L	0.0050 U
Magnesium	mg/L	5.5
Manganese	mg/L	0.010
Mercury	mg/L	0.00020 U
Nickel	mg/L	0.010 U
Selenium	mg/L	0.015 U
Silver	mg/L	0.0030 U
Sodium	mg/L	359
Zinc	mg/L	0.010 U
General Chemistry		
Alkalinity, bicarbonate	mg/L	20.5
Alkalinity, total (as CaCO3)	mg/L	29.0
Ammonia	mg/L	1.12
Biochemical oxygen demand (BOD)	mg/L	10.33
Chemical oxygen demand (COD)	mg/L	17
Chloride	mg/L	633
Cyanide (total)	mg/L	0.005 U
Hardness, carbonate	mg/L	252
Nitrate (as N)	mg/L	0.050 U
Nitrite (as N)	mg/L	0.050 U
Oil and grease	mg/L	0.10 U
pH (water)	s.u.	10.22
Phenolics (total)	mg/L	0.009 U
Phosphorus	mg/L	0.16
Sulfate	mg/L	183
Sulfide	mg/L	3.2
Total dissolved solids (TDS)	mg/L	1360
Total kjeldahl nitrogen (TKN)	mg/L	1.68
Total organic carbon (TOC)	mg/L	6.62
Total suspended solids (TSS)	mg/L	8
Volatile suspended solids	mg/L	5

Notes:

U - Not present at or above the associated value.

TABLE 3

ANALYTICAL METHODS AND HOLDING TIME CRITERIA
WASTE WATER TREATMENT PLANT SAMPLING
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK
APRIL 2014

Parameter	*Method*	*Matrix*	*Holding Time*	
			Collection to Extraction (Days)	*Collection or Extraction to Analysis (Days)*
VOC	EPA 624	Water	-	14
SVOC	EPA 625	Water	7	40
TAL Metals	EPA 200.7	Water	-	180
Mercury	EPA 245.1	Water	-	28
Chloride/Sulfate	EPA 300.0	Water	-	28
Nitrate/Nitrite	EPA 353.2	Water	-	48 hours
Hardness	SM 2340	Water	-	180
Alkalinity	SM2320B	Water	-	24 hours
TDS	SM2540C	Water	-	7
Sulfide	SM4500-S2-F	Water	-	7

Notes:

[1] - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
[2] - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
[3] - "Methods for Chemical Analysis of Water and Wastes", USEPA-600/4-79-020, March 1983, with subsequent revisions
VOCs - Volatile Organic Compounds
SVOCs - Semi-Volatile Organic Compounds
TAL - Target Analyte List
TDS - Total Dissolved Solids

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MEMORANDUM

TO:	Klaus Schmidtke	REF. NO.:	007987
FROM:	Susan Scrocchi/adh/17	DATE:	July 1, 2014
RE:	**Analytical Results and Reduced Validation Annual Groundwater Monitoring Gratwick-Riverside Park Site North Tonawanda, New York May 2014**		

1.0 Introduction

This Data Usability Summary Report (DUSR) has been prepared per the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation DER-10, Technical Guidance for the Site Investigation and Remediation, Appendix 2B-Guidance for the Data Deliverables and Development of Data Usability Summary Reports, May 2010.

The following document details a reduced validation of analytical results for groundwater samples collected in support of the Annual Monitoring Program at the Gratwick-Riverside Part Site (Site) during May 2014.

2.0 Analytical Methodologies and Data Validation

Samples were submitted to TestAmerica Laboratory (TA), located in Amherst, New York. Samples were analyzed for:

i) Selected Volatile Organic Compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method SW-846 8260
ii) Selected Semi-volatile Organic Compounds (SVOCs) by USEPA Method SW-846 8270

The quality assurance/quality control (QA/QC) criteria by which these data have been assessed are outlined in the analytical methods and the document entitled "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008.

The reduced validation included a review of completeness of all required deliverables to determine if the data are within acceptable QC limits and specification. These included reviews of holding times, instrument tunes, calibration summaries, blanks, spike recoveries, field duplicate analyses, and surrogate/internal

standard recoveries. Evaluation of the data was based on information obtained from the chain of custody form, finished report forms, QC summary forms, and calibration summary forms.

A summary of qualified data is presented in Table 1.

3.0 Data Deliverable Completeness

A full deliverable data package (NYSDEC ASP Category B or equivalent) was provided by the laboratory, including all reporting forms and raw data necessary to fully evaluate and verify the reported analytical results.

4.0 Sample Holding Time and Preservation

Sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All samples were properly preserved, delivered on ice, and stored by the laboratory at the required temperature (0-6°C).

5.0 Instrument Tuning

The Gas Chromatograph/Mass Spectrometer (GC/MS) and GC were properly tuned and calibrated prior to sample analyses.

6.0 Initial and Continuing Calibration

Initial and continuing calibration summary forms were reviewed for VOCs and SVOCs.

The proper calibration procedures were followed, and all compounds met the method criteria for sensitivity and linearity.

7.0 Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

8.0 Surrogate Spike Recoveries - Organic Analyses

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample extraction and/or analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile and semi-volatile determinations were spiked with the appropriate number of surrogate compounds prior to sample extraction and/or analysis.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries met the above criteria.

9.0 Laboratory Control Sample Analyses

Laboratory control samples (LCS) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects.

For this study, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

The LCS contained the compounds specified in the method. All LCS recoveries were within the laboratory control limits, demonstrating acceptable analytical accuracy.

10.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the extraction or digestion process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The relative percent difference (RPD) between the MS and MSD is used to assess analytical precision.

MS/MSD analyses were performed using investigative sample MW-8.

The MS/MSD samples were spiked with the compounds specified in the method. All percent recoveries and RPD values were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision.

11.0 Field QA/QC Samples

The field QA/QC consisted of one trip blank sample and one field duplicate sample set.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for VOC analysis. All results were non-detect for the compounds of interest.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, one field duplicate sample was collected and submitted "blind" to the laboratory. The RPDs associated with these duplicate samples must be less than 50 percent for water samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the practical quantitation limit (PQL), the evaluation criterion is one times the PQL value for water samples.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

12.0 Analyte Reporting

The laboratory reported detected results down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the PQL but greater than the MDL were qualified as estimated (J) in Table 1 unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the PQL in Table 1.

13.0 Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 1 are acceptable without qualification.

TABLE 1

ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK
MAY 2014

Sample Location:		*MW6*	*MW7*	*MW8*	*MW9*	*OGC1*	*OGC2*	*OGC3*
Sample ID:		*WG-7987-052914-002*	*WG-7987-052914-006*	*WG-7987-052914-013*	*WG-7987-052914-011*	*WG-7987-052914-001*	*WG-7987-052914-005*	*WG-7987-052914-012*
Sample Date:		*5/29/2014*	*5/29/2014*	*5/29/2014*	*5/29/2014*	*5/29/2014*	*5/29/2014*	*5/29/2014*
Parameters:	*Units*							
Volatile Organic Compounds								
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Acetone	µg/L	5.0 U	5.0 U	5.0 U	6.2	5.0 U	5.0 U	3.1 J
Benzene	µg/L	0.70 U	0.70 U	3.5	0.57 J	0.70 U	0.70 U	0.55 J
Chlorobenzene	µg/L	1.0 U	1.0 U	7.0	3.1	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	6.2	0.97 J	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	µg/L	1.0 U	1.0 U	3.5	0.66 J	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	4.9	4.6	1.0 U	1.0 U	0.93 J
trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	6.5	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	1.0	1.0 U	22	3.0	1.0 U	1.0 U	1.9
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	µg/L	2.0 U	2.0 U	11	2.6	2.0 U	2.0 U	2.0 U
Semi-volatile Organic Compounds								
1,2-Dichlorobenzene	µg/L	9.3 U	9.1 U	1.7 J	1.6 J	9.1 U	9.5 U	0.57 J
1,4-Dichlorobenzene	µg/L	2.9 J	9.1 U	21	2.3 J	9.1 U	9.5 U	9.1 U
2,4-Dimethylphenol	µg/L	1.0 J	9.1 U	19	76 J	9.1 U	9.5 U	4.8 J
2-Methylphenol	µg/L	1.1 J	9.1 U	23	13 J	9.1 U	9.5 U	34
4-Methylphenol	µg/L	1.0 J	0.65 J	1.0 J	0.75 J	9.1 U	0.79 J	0.91 J
Di-n-octyl phthalate (DnOP)	µg/L	9.3 U	9.1 U	9.1 U	9.2 U	9.1 U	9.5 U	9.1 U
Naphthalene	µg/L	9.3 U	9.1 U	9.1 U	9.2 U	9.1 U	9.5 U	9.1 U
Phenol	µg/L	4.4 J	9.1 U	4.5 J	26	9.1 U	9.5 U	52

TABLE 1

ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK
MAY 2014

Sample Location:		*OGC4*	*OGC5*	*OGC6*	*OGC6*	*OGC7*	*OGC8*
Sample ID:		*WG-7987-052914-010*	*WG-7987-052914-004*	*WG-7987-052914-007*	*WG-7987-052914-008*	*WG-7987-052914-009*	*WG-7987-052914-003*
Sample Date:		*5/29/2014*	*5/29/2014*	*5/29/2014*	*5/29/2014 (Duplicate)*	*5/29/2014*	*5/29/2014*
Parameters:	***Units***						
Volatile Organic Compounds							
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Acetone	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Benzene	µg/L	0.70 U	1.1	1.3	1.4	0.70 U	0.50 J
Chlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.2	1.2	1.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	µg/L	1.0 U	1.0 U	190	190	0.50 J	0.91 J
Toluene	µg/L	1.0 U	1.0 U	10	10	2.5	2.8
trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	4.5	4.6	1.7	1.0 U
Trichloroethene	µg/L	1.0 U	1.0 U	100	110	8.5	3.1
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U	1.3	1.7	1.0 U
Xylenes (total)	µg/L	2.0 U	2.0 U	5.1	5.1	2.8	0.78 J
Semi-volatile Organic Compounds							
1,2-Dichlorobenzene	µg/L	9.3 U	9.3 U	9.5 U	9.1 U	9.2 U	9.1 U
1,4-Dichlorobenzene	µg/L	9.3 U	9.3 U	9.5 U	9.1 U	9.2 U	9.1 U
2,4-Dimethylphenol	µg/L	9.3 U	9.3 U	0.54 J	0.59 J	9.2 U	1.1 J
2-Methylphenol	µg/L	9.3 U	9.3 U	9.4 J	9.3	0.52 J	2.6 J
4-Methylphenol	µg/L	0.87 J	0.66 J	9.5 U	9.1 U	1.1 J	9.1 U
Di-n-octyl phthalate (DnOP)	µg/L	9.3 U	9.3 U	9.5 U	9.1 U	9.2 U	9.1 U
Naphthalene	µg/L	9.3 U	1.1 J	1.1 J	1.1 J	9.2 U	9.1 U
Phenol	µg/L	0.68 J	9.3 U	1.2 J	1.2 J	9.2 U	9.1 U

Notes:

J Estimated concentration
U Not detected at the associated reporting limit

Appendix D

Laboratory Deliverables
(on CD)

Appendix E

Sediment Characterization Laboratory Report

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-54211-1
Client Project/Site: City of N. Tonawanda Gratwick Riverside
Sampling Event: S/A Gratwick Riverside Park

For:
N Tonawanda Water Works
830 River Road
North Tonawanda, New York 14120

Attn: William Davignon

Joseph V. Giacomazza

Authorized for release by:
2/10/2014 4:37:08 PM
Joe Giacomazza, Project Management Assistant II
joe.giacomazza@testamericainc.com

Designee for

Judy Stone, Senior Project Manager
(484)685-0868
judy.stone@testamericainc.com

Table of Contents

Definitions/Glossary

Client: N Tonawanda Water Works
Project/Site: City of N. Tonawanda Gratwick Riverside

TestAmerica Job ID: 480-54211-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD exceeds the control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: N Tonawanda Water Works
Project/Site: City of N. Tonawanda Gratwick Riverside

TestAmerica Job ID: 480-54211-1

Job ID: 480-54211-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-54211-1

Receipt
The sample was received on 2/4/2014 2:15 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 9.8º C.

GC/MS VOA
Method(s) 8260C: Reported analyte concentrations in the following sample(s) are below 200ug/kg and may be biased low due to the sample(s) not being collected according to 5035-L/5035A-L low-level specifications: Pump Station #3 (480-54211-1).

Method(s) 8260C: The following sample(s) was diluted due to the nature of the TCLP matrix: (LB 480-164610/1-A), Pump Station #3 (480-54211-1). Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

GC/MS Semi VOA
Method(s) 8270D: The continuing calibration verification (CCV) associated with batch 165093 recovered above the upper control limit for multiple analytes. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: (CCVIS 480-165093/3).

Method(s) 8270D: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 164860 recovered outside control limits for the following analyte: Hexachlorobenzene. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

Method(s) 8270D: The laboratory control sample and the laboratory control sample duplicate (LCS/LCSD) for preparation batch 164927 recovered outside control limits for multiple analytes. This method allows for 3 analytes to recover outside of the control limits; therefore, re-extraction/re-analysis was not performed. <<INCLUDE IF APPLICABLE>> Batch precision also exceeded control limits for these analytes. These results have been reported and qualified.

Method(s) 8270D: The following analyte has been identified, in the reference method and/or via historical data, to be poor and/or erratic performer: Benzaldehyde. This analyte may have a %D>60% if the average %D of all the analytes in the initial calibration verification (ICV) is 30%.

No other analytical or quality issues were noted.

Metals
Method(s) 6010C: The TCLP Extractor Blank, LB 480-164604, contained total chromium above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of sample Pump Station #3 (480-54211-1) was not performed.

Method(s) 6010C: The TCLP Extractor Blank, LB 480-164604, contained total barium above the reporting limit (RL). The associated sample Pump Station #3 (480-54211-1) contained a detect for this analyte at a concentration greater than 10X the value found in the TCLP Extractor Blank; therefore, re-extraction and/or re-analysis of the sample was not performed.

Method(s) 6010C: The Continuing Calibration Blank (CCB 480-164942/28) contained total barium above the reporting limit (RL). All reported samples (LCS 480-164761/3-A), (MB 480-164761/2-A), Pump Station #3 (480-54211-1) associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.

No other analytical or quality issues were noted.

General Chemistry
No analytical or quality issues were noted.

Job ID: 480-54211-1 (Continued)

Laboratory: TestAmerica Buffalo (Continued)

Organic Prep

Method(s) 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike (MS/MSD) associated with batch 164860.

Method(s) 3550C: The following sample: Pump Station #3 (480-54211-1) was decanted prior to preparation.

No other analytical or quality issues were noted.

Detection Summary

Client: N Tonawanda Water Works
Project/Site: City of N. Tonawanda Gratwick Riverside

TestAmerica Job ID: 480-54211-1

Client Sample ID: Pump Station #3

Lab Sample ID: 480-54211-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,3-Dichlorobenzene	25		9.1	0.47	ug/Kg	1	☼	8260C	Total/NA
1,4-Dichlorobenzene	24		9.1	1.3	ug/Kg	1	☼	8260C	Total/NA
Chlorobenzene	25		9.1	1.2	ug/Kg	1	☼	8260C	Total/NA
Toluene	1.4	J	9.1	0.69	ug/Kg	1	☼	8260C	Total/NA
Benzo[a]pyrene	24	J	310	7.5	ug/Kg	1	☼	8270D	Total/NA
Bis(2-ethylhexyl) phthalate	160	J *	310	100	ug/Kg	1	☼	8270D	Total/NA
Chrysene	25	J	310	3.1	ug/Kg	1	☼	8270D	Total/NA
Fluoranthene	44	J	310	4.5	ug/Kg	1	☼	8270D	Total/NA
Barium	0.57	B	0.0020	0.00070	mg/L	1		6010C	TCLP
Cadmium	0.00064	J	0.0010	0.00050	mg/L	1		6010C	TCLP
Chromium	0.0013	J B	0.0040	0.0010	mg/L	1		6010C	TCLP
Lead	0.0061		0.0050	0.0030	mg/L	1		6010C	TCLP

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Flashpoint	>176.0		50.0	50.0	Degrees F	1		1010A	Total/NA
corrosivity by pH	7.37		0.100	0.100	SU	1		9045D	Total/NA

This Detection Summary does not include radiochemical test results.

Client: N Tonawanda Water Works
Project/Site: City of N. Tonawanda Gratwick Riverside

TestAmerica Job ID: 480-54211-1

Client Sample ID: Pump Station #3
Date Collected: 02/04/14 13:45
Date Received: 02/04/14 14:15

Lab Sample ID: 480-54211-1
Matrix: Solid
Percent Solids: 53.9

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		9.1	0.66	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
1,1,2,2-Tetrachloroethane	ND		9.1	1.5	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
1,1,2-Trichloroethane	ND		9.1	1.2	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		9.1	2.1	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
1,1-Dichloroethane	ND		9.1	1.1	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
1,1-Dichloroethene	ND		9.1	1.1	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
1,2,4-Trichlorobenzene	ND		9.1	0.56	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
1,2-Dibromo-3-Chloropropane	ND		9.1	4.6	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
1,2-Dichlorobenzene	ND		9.1	0.72	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
1,2-Dichloroethane	ND		9.1	0.46	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
1,2-Dichloropropane	ND		9.1	4.6	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
1,3-Dichlorobenzene	**25**		9.1	0.47	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
1,4-Dichlorobenzene	**24**		9.1	1.3	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
2-Butanone (MEK)	ND		46	3.3	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
2-Hexanone	ND		46	4.6	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
4-Methyl-2-pentanone (MIBK)	ND		46	3.0	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Acetone	ND		46	7.7	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Benzene	ND		9.1	0.45	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Bromodichloromethane	ND		9.1	1.2	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Bromoform	ND		9.1	4.6	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Bromomethane	ND		9.1	0.82	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Carbon disulfide	ND		9.1	4.6	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Carbon tetrachloride	ND		9.1	0.89	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Chlorobenzene	**25**		9.1	1.2	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Dibromochloromethane	ND		9.1	1.2	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Chloroethane	ND		9.1	2.1	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Chloroform	ND		9.1	0.57	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Chloromethane	ND		9.1	0.55	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
cis-1,2-Dichloroethene	ND		9.1	1.2	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
cis-1,3-Dichloropropene	ND		9.1	1.3	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Cyclohexane	ND		9.1	1.3	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Dichlorodifluoromethane	ND		9.1	0.76	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Ethylbenzene	ND		9.1	0.63	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
1,2-Dibromoethane	ND		9.1	1.2	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Isopropylbenzene	ND		9.1	1.4	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Methyl acetate	ND		9.1	1.7	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Methyl tert-butyl ether	ND		9.1	0.90	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Methylcyclohexane	ND		9.1	1.4	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Methylene Chloride	ND		9.1	4.2	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Styrene	ND		9.1	0.46	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Tetrachloroethene	ND		9.1	1.2	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Toluene	**1.4**	**J**	9.1	0.69	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
trans-1,2-Dichloroethene	ND		9.1	0.94	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
trans-1,3-Dichloropropene	ND		9.1	4.0	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Trichloroethene	ND		9.1	2.0	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Trichlorofluoromethane	ND		9.1	0.87	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Vinyl chloride	ND		9.1	1.1	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1
Xylenes, Total	ND		18	1.5	ug/Kg	☼	02/05/14 21:24	02/06/14 19:00	1

Client Sample ID: Pump Station #3
Date Collected: 02/04/14 13:45
Date Received: 02/04/14 14:15

Lab Sample ID: 480-54211-1
Matrix: Solid
Percent Solids: 53.9

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*71 - 125*	*02/05/14 21:24*	*02/06/14 19:00*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*64 - 126*	*02/05/14 21:24*	*02/06/14 19:00*	*1*
4-Bromofluorobenzene (Surr)	*100*		*72 - 126*	*02/05/14 21:24*	*02/06/14 19:00*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.010	0.0021	mg/L			02/07/14 08:02	10
2-Butanone (MEK)	ND		0.050	0.013	mg/L			02/07/14 08:02	10
Benzene	ND		0.010	0.0041	mg/L			02/07/14 08:02	10
Carbon tetrachloride	ND		0.010	0.0027	mg/L			02/07/14 08:02	10
Chlorobenzene	ND		0.010	0.0075	mg/L			02/07/14 08:02	10
Chloroform	ND		0.010	0.0034	mg/L			02/07/14 08:02	10
Tetrachloroethene	ND		0.010	0.0036	mg/L			02/07/14 08:02	10
Trichloroethene	ND		0.010	0.0046	mg/L			02/07/14 08:02	10
Vinyl chloride	ND		0.010	0.0090	mg/L			02/07/14 08:02	10
1,1-Dichloroethene	ND		0.010	0.0029	mg/L			02/07/14 08:02	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*91*		*66 - 137*		*02/07/14 08:02*	*10*
4-Bromofluorobenzene (Surr)	*79*		*73 - 120*		*02/07/14 08:02*	*10*
Toluene-d8 (Surr)	*96*		*71 - 126*		*02/07/14 08:02*	*10*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		310	19	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
bis (2-chloroisopropyl) ether	ND		310	33	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
2,4,5-Trichlorophenol	ND		310	68	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
2,4,6-Trichlorophenol	ND		310	21	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
2,4-Dichlorophenol	ND		310	16	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
2,4-Dimethylphenol	ND		310	84	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
2,4-Dinitrophenol	ND		610	110	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
2,4-Dinitrotoluene	ND		310	48	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
2,6-Dinitrotoluene	ND		310	76	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
2-Chloronaphthalene	ND		310	21	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
2-Chlorophenol	ND		310	16	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
2-Methylphenol	ND		310	9.6	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
2-Methylnaphthalene	ND		310	3.8	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
2-Nitroaniline	ND		610	100	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
2-Nitrophenol	ND		310	14	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
3,3'-Dichlorobenzidine	ND		310	270	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
3-Nitroaniline	ND		610	72	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
4,6-Dinitro-2-methylphenol	ND		610	110	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
4-Bromophenyl phenyl ether	ND		310	99	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
4-Chloro-3-methylphenol	ND		310	13	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
4-Chloroaniline	ND		310	92	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
4-Chlorophenyl phenyl ether	ND		310	6.7	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
4-Methylphenol	ND		610	17	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
4-Nitroaniline	ND		610	35	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
4-Nitrophenol	ND		610	76	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Acenaphthene	ND		310	3.7	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Acenaphthylene	ND		310	2.6	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1

Client Sample ID: Pump Station #3
Date Collected: 02/04/14 13:45
Date Received: 02/04/14 14:15

Lab Sample ID: 480-54211-1
Matrix: Solid
Percent Solids: 53.9

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetophenone	ND		310	16	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Anthracene	ND		310	8.0	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Atrazine	ND		310	14	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Benzaldehyde	ND		310	34	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Benzo[a]anthracene	ND		310	5.4	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Benzo[a]pyrene	**24**	**J**	310	7.5	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Benzo[b]fluoranthene	ND		310	6.1	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Benzo[g,h,i]perylene	ND		310	3.7	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Benzo[k]fluoranthene	ND		310	3.4	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Bis(2-chloroethoxy)methane	ND		310	17	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Bis(2-chloroethyl)ether	ND		310	27	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Bis(2-ethylhexyl) phthalate	**160**	**J ***	310	100	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Butyl benzyl phthalate	ND	*	310	84	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Caprolactam	ND		310	140	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Carbazole	ND		310	3.6	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Chrysene	**25**	**J**	310	3.1	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Dibenz(a,h)anthracene	ND		310	3.7	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Di-n-butyl phthalate	ND		310	110	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Di-n-octyl phthalate	ND	*	310	7.3	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Dibenzofuran	ND		310	3.2	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Diethyl phthalate	ND		310	9.4	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Dimethyl phthalate	ND		310	8.1	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Fluoranthene	**44**	**J**	310	4.5	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Fluorene	ND		310	7.2	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Hexachlorobenzene	ND		310	16	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Hexachlorobutadiene	ND		310	16	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Hexachlorocyclopentadiene	ND		310	94	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Hexachloroethane	ND		310	24	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Indeno[1,2,3-cd]pyrene	ND		310	8.6	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Isophorone	ND		310	16	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
N-Nitrosodi-n-propylamine	ND		310	25	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
N-Nitrosodiphenylamine	ND		310	17	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Naphthalene	ND		310	5.2	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Nitrobenzene	ND		310	14	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Pentachlorophenol	ND		610	110	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Phenanthrene	ND		310	6.5	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Phenol	ND		310	33	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1
Pyrene	ND		310	2.0	ug/Kg	☼	02/07/14 07:38	02/08/14 08:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*81*		*34 - 132*	*02/07/14 07:38*	*02/08/14 08:50*	*1*
Phenol-d5 (Surr)	*82*		*11 - 120*	*02/07/14 07:38*	*02/08/14 08:50*	*1*
p-Terphenyl-d14 (Surr)	*89*		*65 - 153*	*02/07/14 07:38*	*02/08/14 08:50*	*1*
2,4,6-Tribromophenol (Surr)	*94*		*39 - 146*	*02/07/14 07:38*	*02/08/14 08:50*	*1*
2-Fluorobiphenyl	*85*		*37 - 120*	*02/07/14 07:38*	*02/08/14 08:50*	*1*
2-Fluorophenol (Surr)	*80*		*18 - 120*	*02/07/14 07:38*	*02/08/14 08:50*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.010	0.00046	mg/L		02/06/14 15:45	02/08/14 07:38	1

Client Sample ID: Pump Station #3
Date Collected: 02/04/14 13:45
Date Received: 02/04/14 14:15

Lab Sample ID: 480-54211-1
Matrix: Solid

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrotoluene	ND		0.0050	0.00045	mg/L		02/06/14 15:45	02/08/14 07:38	1
2,4,5-Trichlorophenol	ND		0.0050	0.00048	mg/L		02/06/14 15:45	02/08/14 07:38	1
2,4,6-Trichlorophenol	ND		0.0050	0.00061	mg/L		02/06/14 15:45	02/08/14 07:38	1
2-Methylphenol	ND		0.0050	0.00040	mg/L		02/06/14 15:45	02/08/14 07:38	1
3-Methylphenol	ND		0.010	0.00040	mg/L		02/06/14 15:45	02/08/14 07:38	1
4-Methylphenol	ND		0.010	0.00036	mg/L		02/06/14 15:45	02/08/14 07:38	1
Hexachlorobenzene	ND	*	0.0050	0.00051	mg/L		02/06/14 15:45	02/08/14 07:38	1
Hexachlorobutadiene	ND		0.0050	0.00068	mg/L		02/06/14 15:45	02/08/14 07:38	1
Hexachloroethane	ND		0.0050	0.00059	mg/L		02/06/14 15:45	02/08/14 07:38	1
Nitrobenzene	ND		0.0050	0.00029	mg/L		02/06/14 15:45	02/08/14 07:38	1
Pentachlorophenol	ND		0.010	0.0022	mg/L		02/06/14 15:45	02/08/14 07:38	1
Pyridine	ND		0.025	0.00041	mg/L		02/06/14 15:45	02/08/14 07:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*107*		*52 - 132*	*02/06/14 15:45*	*02/08/14 07:38*	*1*
2-Fluorobiphenyl	*88*		*48 - 120*	*02/06/14 15:45*	*02/08/14 07:38*	*1*
2-Fluorophenol (Surr)	*47*		*20 - 120*	*02/06/14 15:45*	*02/08/14 07:38*	*1*
Nitrobenzene-d5 (Surr)	*84*		*46 - 120*	*02/06/14 15:45*	*02/08/14 07:38*	*1*
p-Terphenyl-d14 (Surr)	*98*		*67 - 150*	*02/06/14 15:45*	*02/08/14 07:38*	*1*
Phenol-d5 (Surr)	*33*		*16 - 120*	*02/06/14 15:45*	*02/08/14 07:38*	*1*

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.010	0.0056	mg/L		02/06/14 08:00	02/06/14 17:04	1
Barium	**0.57**	**B**	0.0020	0.00070	mg/L		02/06/14 08:00	02/06/14 17:04	1
Cadmium	**0.00064**	**J**	0.0010	0.00050	mg/L		02/06/14 08:00	02/06/14 17:04	1
Chromium	**0.0013**	**J B**	0.0040	0.0010	mg/L		02/06/14 08:00	02/06/14 17:04	1
Lead	**0.0061**		0.0050	0.0030	mg/L		02/06/14 08:00	02/06/14 17:04	1
Selenium	ND		0.015	0.0087	mg/L		02/06/14 08:00	02/06/14 17:04	1
Silver	ND		0.0030	0.0017	mg/L		02/06/14 08:00	02/06/14 17:04	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		02/06/14 08:00	02/06/14 12:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Reactive	ND		10.0	0.0030	mg/Kg		02/06/14 01:20	02/06/14 04:53	1
Sulfide, Reactive	ND		10.0	0.57	mg/Kg		02/06/14 01:20	02/06/14 06:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	**>176.0**		50.0	50.0	Degrees F			02/06/14 17:17	1
corrosivity by pH	**7.37**		0.100	0.100	SU			02/05/14 19:03	1

Surrogate Summary

Client: N Tonawanda Water Works
Project/Site: City of N. Tonawanda Gratwick Riverside

TestAmerica Job ID: 480-54211-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		TOL	12DCE	BFB
Lab Sample ID	Client Sample ID	(71-125)	(64-126)	(72-126)
480-54211-1	Pump Station #3	100	93	100
LCS 480-164836/4	Lab Control Sample	100	90	97
MB 480-164836/5	Method Blank	101	90	97

Surrogate Legend

TOL = Toluene-d8 (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		TOL	12DCE	BFB
Lab Sample ID	Client Sample ID	(71-126)	(66-137)	(73-120)
LCS 480-164875/4	Lab Control Sample	101	93	87
MB 480-164875/6	Method Blank	98	92	84

Surrogate Legend

TOL = Toluene-d8 (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Solid **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)		
		12DCE	BFB	TOL
Lab Sample ID	Client Sample ID	(66-137)	(73-120)	(71-126)
480-54211-1	Pump Station #3	91	79	96
LB 480-164610/1-A	Method Blank	90	86	98

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		NBZ	PHL	TPH	TBP	FBP	2FP
Lab Sample ID	Client Sample ID	(34-132)	(11-120)	(65-153)	(39-146)	(37-120)	(18-120)
480-54211-1	Pump Station #3	81	82	89	94	85	80
LCS 480-164927/2-A	Lab Control Sample	88	90	101	112	93	88
MB 480-164927/1-A	Method Blank	76	79	98	94	78	73

Surrogate Legend

NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPH = p-Terphenyl-d14 (Surr)

TBP = 2,4,6-Tribromophenol (Surr)
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		NBZ	PHL	TPH	TBP	FBP	2FP
Lab Sample ID	Client Sample ID	(46-120)	(16-120)	(67-150)	(52-132)	(48-120)	(20-120)
LCS 480-164860/2-A	Lab Control Sample	95	36	99	112	94	53
LCSD 480-164860/3-A	Lab Control Sample Dup	98	39	104	116	100	54
MB 480-164860/1-A	Method Blank	92	36	98	102	94	53

Surrogate Legend

NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPH = p-Terphenyl-d14 (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	TPH	PHL
Lab Sample ID	Client Sample ID	(52-132)	(48-120)	(20-120)	(46-120)	(67-150)	(16-120)
480-54211-1	Pump Station #3	107	88	47	84	98	33
LB 480-164604/1-E	Method Blank	99	88	40	83	100	29

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
TPH = p-Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)

Client: N Tonawanda Water Works
Project/Site: City of N. Tonawanda Gratwick Riverside

TestAmerica Job ID: 480-54211-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-164836/5
Matrix: Solid
Analysis Batch: 164836

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	0.36	ug/Kg			02/06/14 16:40	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.81	ug/Kg			02/06/14 16:40	1
1,1,2-Trichloroethane	ND		5.0	0.65	ug/Kg			02/06/14 16:40	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	1.1	ug/Kg			02/06/14 16:40	1
1,1-Dichloroethane	ND		5.0	0.61	ug/Kg			02/06/14 16:40	1
1,2,4-Trichlorobenzene	ND		5.0	0.30	ug/Kg			02/06/14 16:40	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.5	ug/Kg			02/06/14 16:40	1
1,2-Dichlorobenzene	ND		5.0	0.39	ug/Kg			02/06/14 16:40	1
1,2-Dichloroethane	ND		5.0	0.25	ug/Kg			02/06/14 16:40	1
1,2-Dichloropropane	ND		5.0	2.5	ug/Kg			02/06/14 16:40	1
1,3-Dichlorobenzene	ND		5.0	0.26	ug/Kg			02/06/14 16:40	1
1,4-Dichlorobenzene	ND		5.0	0.70	ug/Kg			02/06/14 16:40	1
2-Butanone (MEK)	ND		25	1.8	ug/Kg			02/06/14 16:40	1
2-Hexanone	ND		25	2.5	ug/Kg			02/06/14 16:40	1
1,1-Dichloroethene	ND		5.0	0.61	ug/Kg			02/06/14 16:40	1
4-Methyl-2-pentanone (MIBK)	ND		25	1.6	ug/Kg			02/06/14 16:40	1
Acetone	ND		25	4.2	ug/Kg			02/06/14 16:40	1
Benzene	ND		5.0	0.25	ug/Kg			02/06/14 16:40	1
Bromodichloromethane	ND		5.0	0.67	ug/Kg			02/06/14 16:40	1
Bromoform	ND		5.0	2.5	ug/Kg			02/06/14 16:40	1
Bromomethane	ND		5.0	0.45	ug/Kg			02/06/14 16:40	1
Carbon disulfide	ND		5.0	2.5	ug/Kg			02/06/14 16:40	1
Carbon tetrachloride	ND		5.0	0.48	ug/Kg			02/06/14 16:40	1
Chlorobenzene	ND		5.0	0.66	ug/Kg			02/06/14 16:40	1
Dibromochloromethane	ND		5.0	0.64	ug/Kg			02/06/14 16:40	1
Chloroethane	ND		5.0	1.1	ug/Kg			02/06/14 16:40	1
Chloroform	ND		5.0	0.31	ug/Kg			02/06/14 16:40	1
Chloromethane	ND		5.0	0.30	ug/Kg			02/06/14 16:40	1
cis-1,2-Dichloroethene	ND		5.0	0.64	ug/Kg			02/06/14 16:40	1
cis-1,3-Dichloropropene	ND		5.0	0.72	ug/Kg			02/06/14 16:40	1
Cyclohexane	ND		5.0	0.70	ug/Kg			02/06/14 16:40	1
Dichlorodifluoromethane	ND		5.0	0.41	ug/Kg			02/06/14 16:40	1
Ethylbenzene	ND		5.0	0.35	ug/Kg			02/06/14 16:40	1
1,2-Dibromoethane	ND		5.0	0.64	ug/Kg			02/06/14 16:40	1
Isopropylbenzene	ND		5.0	0.75	ug/Kg			02/06/14 16:40	1
Methyl acetate	ND		5.0	0.93	ug/Kg			02/06/14 16:40	1
Methyl tert-butyl ether	ND		5.0	0.49	ug/Kg			02/06/14 16:40	1
Methylcyclohexane	ND		5.0	0.76	ug/Kg			02/06/14 16:40	1
Methylene Chloride	ND		5.0	2.3	ug/Kg			02/06/14 16:40	1
Styrene	ND		5.0	0.25	ug/Kg			02/06/14 16:40	1
Tetrachloroethene	ND		5.0	0.67	ug/Kg			02/06/14 16:40	1
Toluene	ND		5.0	0.38	ug/Kg			02/06/14 16:40	1
trans-1,2-Dichloroethene	ND		5.0	0.52	ug/Kg			02/06/14 16:40	1
trans-1,3-Dichloropropene	ND		5.0	2.2	ug/Kg			02/06/14 16:40	1
Trichloroethene	ND		5.0	1.1	ug/Kg			02/06/14 16:40	1
Trichlorofluoromethane	ND		5.0	0.47	ug/Kg			02/06/14 16:40	1
Vinyl chloride	ND		5.0	0.61	ug/Kg			02/06/14 16:40	1
Xylenes, Total	ND		10	0.84	ug/Kg			02/06/14 16:40	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-164836/5
Matrix: Solid
Analysis Batch: 164836

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*101*		*71 - 125*		*02/06/14 16:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*64 - 126*		*02/06/14 16:40*	*1*
4-Bromofluorobenzene (Surr)	*97*		*72 - 126*		*02/06/14 16:40*	*1*

Lab Sample ID: LCS 480-164836/4
Matrix: Solid
Analysis Batch: 164836

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethane	50.0	45.1		ug/Kg		90	73 - 126
1,2-Dichlorobenzene	50.0	51.5		ug/Kg		103	75 - 120
1,2-Dichloroethane	50.0	44.6		ug/Kg		89	77 - 122
1,1-Dichloroethene	50.0	45.8		ug/Kg		92	59 - 125
Benzene	50.0	44.8		ug/Kg		90	79 - 127
Chlorobenzene	50.0	49.4		ug/Kg		99	76 - 124
cis-1,2-Dichloroethene	50.0	45.0		ug/Kg		90	81 - 117
Ethylbenzene	50.0	49.9		ug/Kg		100	80 - 120
Methyl tert-butyl ether	50.0	43.7		ug/Kg		87	63 - 125
Tetrachloroethene	50.0	49.5		ug/Kg		99	74 - 122
Toluene	50.0	48.7		ug/Kg		97	74 - 128
trans-1,2-Dichloroethene	50.0	45.4		ug/Kg		91	78 - 126
Trichloroethene	50.0	45.1		ug/Kg		90	77 - 129

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	*100*		*71 - 125*
1,2-Dichloroethane-d4 (Surr)	*90*		*64 - 126*
4-Bromofluorobenzene (Surr)	*97*		*72 - 126*

Lab Sample ID: MB 480-164875/6
Matrix: Solid
Analysis Batch: 164875

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			02/06/14 23:13	1
2-Butanone (MEK)	ND		0.0050	0.0013	mg/L			02/06/14 23:13	1
1,1-Dichloroethene	ND		0.0010	0.00029	mg/L			02/06/14 23:13	1
Benzene	ND		0.0010	0.00041	mg/L			02/06/14 23:13	1
Carbon tetrachloride	ND		0.0010	0.00027	mg/L			02/06/14 23:13	1
Chlorobenzene	ND		0.0010	0.00075	mg/L			02/06/14 23:13	1
Chloroform	ND		0.0010	0.00034	mg/L			02/06/14 23:13	1
Tetrachloroethene	ND		0.0010	0.00036	mg/L			02/06/14 23:13	1
Trichloroethene	ND		0.0010	0.00046	mg/L			02/06/14 23:13	1
Vinyl chloride	ND		0.0010	0.00090	mg/L			02/06/14 23:13	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*98*		*71 - 126*		*02/06/14 23:13*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*66 - 137*		*02/06/14 23:13*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-164875/6
Matrix: Solid
Analysis Batch: 164875

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	84		73 - 120		02/06/14 23:13	1

Lab Sample ID: LCS 480-164875/4
Matrix: Solid
Analysis Batch: 164875

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,2-Dichloroethane			0.0250	0.0243		mg/L		97	75 - 127		
1,1-Dichloroethene			0.0250	0.0223		mg/L		89	58 - 121		
Benzene			0.0250	0.0263		mg/L		105	71 - 124		
Chlorobenzene			0.0250	0.0263		mg/L		105	72 - 120		
Tetrachloroethene			0.0250	0.0250		mg/L		100	74 - 122		
Trichloroethene			0.0250	0.0263		mg/L		105	74 - 123		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	101		71 - 126
1,2-Dichloroethane-d4 (Surr)	93		66 - 137
4-Bromofluorobenzene (Surr)	87		73 - 120

Lab Sample ID: LB 480-164610/1-A
Matrix: Solid
Analysis Batch: 164875

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.010	0.0021	mg/L			02/07/14 07:14	10
2-Butanone (MEK)	ND		0.050	0.013	mg/L			02/07/14 07:14	10
1,1-Dichloroethene	ND		0.010	0.0029	mg/L			02/07/14 07:14	10
Benzene	ND		0.010	0.0041	mg/L			02/07/14 07:14	10
Carbon tetrachloride	ND		0.010	0.0027	mg/L			02/07/14 07:14	10
Chlorobenzene	ND		0.010	0.0075	mg/L			02/07/14 07:14	10
Chloroform	ND		0.010	0.0034	mg/L			02/07/14 07:14	10
Tetrachloroethene	ND		0.010	0.0036	mg/L			02/07/14 07:14	10
Trichloroethene	ND		0.010	0.0046	mg/L			02/07/14 07:14	10
Vinyl chloride	ND		0.010	0.0090	mg/L			02/07/14 07:14	10

Surrogate	LB %Recovery	LB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		71 - 126		02/07/14 07:14	10
1,2-Dichloroethane-d4 (Surr)	90		66 - 137		02/07/14 07:14	10
4-Bromofluorobenzene (Surr)	86		73 - 120		02/07/14 07:14	10

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 480-164860/1-A
Matrix: Solid
Analysis Batch: 165093

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 164860

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0025	0.00012	mg/L		02/06/14 15:45	02/08/14 04:50	1
2,4,5-Trichlorophenol	ND		0.0013	0.00012	mg/L		02/06/14 15:45	02/08/14 04:50	1
2,4,6-Trichlorophenol	ND		0.0013	0.00015	mg/L		02/06/14 15:45	02/08/14 04:50	1
2,4-Dinitrotoluene	ND		0.0013	0.00011	mg/L		02/06/14 15:45	02/08/14 04:50	1
3-Methylphenol	ND		0.0025	0.00010	mg/L		02/06/14 15:45	02/08/14 04:50	1
2-Methylphenol	ND		0.0013	0.00010	mg/L		02/06/14 15:45	02/08/14 04:50	1
Pyridine	ND		0.0063	0.00010	mg/L		02/06/14 15:45	02/08/14 04:50	1
4-Methylphenol	ND		0.0025	0.000090	mg/L		02/06/14 15:45	02/08/14 04:50	1
Hexachlorobenzene	ND		0.0013	0.00013	mg/L		02/06/14 15:45	02/08/14 04:50	1
Hexachlorobutadiene	ND		0.0013	0.00017	mg/L		02/06/14 15:45	02/08/14 04:50	1
Hexachloroethane	ND		0.0013	0.00015	mg/L		02/06/14 15:45	02/08/14 04:50	1
Nitrobenzene	ND		0.0013	0.000073	mg/L		02/06/14 15:45	02/08/14 04:50	1
Pentachlorophenol	ND		0.0025	0.00055	mg/L		02/06/14 15:45	02/08/14 04:50	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*92*		*46 - 120*	*02/06/14 15:45*	*02/08/14 04:50*	*1*
Phenol-d5 (Surr)	*36*		*16 - 120*	*02/06/14 15:45*	*02/08/14 04:50*	*1*
p-Terphenyl-d14 (Surr)	*98*		*67 - 150*	*02/06/14 15:45*	*02/08/14 04:50*	*1*
2,4,6-Tribromophenol (Surr)	*102*		*52 - 132*	*02/06/14 15:45*	*02/08/14 04:50*	*1*
2-Fluorobiphenyl	*94*		*48 - 120*	*02/06/14 15:45*	*02/08/14 04:50*	*1*
2-Fluorophenol (Surr)	*53*		*20 - 120*	*02/06/14 15:45*	*02/08/14 04:50*	*1*

Lab Sample ID: LCS 480-164860/2-A
Matrix: Solid
Analysis Batch: 165093

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 164860

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dichlorobenzene			0.0500	0.0377		mg/L		75	32 - 120		
2,4-Dinitrotoluene			0.0500	0.0529		mg/L		106	65 - 154		
Hexachloroethane			0.0500	0.0355		mg/L		71	14 - 101		
Pentachlorophenol			0.100	0.112		mg/L		112	39 - 136		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*95*		*46 - 120*
Phenol-d5 (Surr)	*36*		*16 - 120*
p-Terphenyl-d14 (Surr)	*99*		*67 - 150*
2,4,6-Tribromophenol (Surr)	*112*		*52 - 132*
2-Fluorobiphenyl	*94*		*48 - 120*
2-Fluorophenol (Surr)	*53*		*20 - 120*

Lab Sample ID: LCSD 480-164860/3-A
Matrix: Solid
Analysis Batch: 165093

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 164860

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dichlorobenzene			0.0500	0.0387		mg/L		77	32 - 120	3	36
2,4-Dinitrotoluene			0.0500	0.0569		mg/L		114	65 - 154	7	20

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 480-164860/3-A
Matrix: Solid
Analysis Batch: 165093

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 164860

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hexachloroethane			0.0500	0.0375		mg/L		75	14 - 101	5	46
Pentachlorophenol			0.100	0.119		mg/L		119	39 - 136	6	37

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*98*		*46 - 120*
Phenol-d5 (Surr)	*39*		*16 - 120*
p-Terphenyl-d14 (Surr)	*104*		*67 - 150*
2,4,6-Tribromophenol (Surr)	*116*		*52 - 132*
2-Fluorobiphenyl	*100*		*48 - 120*
2-Fluorophenol (Surr)	*54*		*20 - 120*

Lab Sample ID: MB 480-164927/1-A
Matrix: Solid
Analysis Batch: 165093

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 164927

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		170	10	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
bis (2-chloroisopropyl) ether	ND		170	17	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
2,4,5-Trichlorophenol	ND		170	36	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
2,4,6-Trichlorophenol	ND		170	11	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
2,4-Dichlorophenol	ND		170	8.7	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
2,4-Dimethylphenol	ND		170	45	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
2,4-Dinitrophenol	ND		320	58	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
2,4-Dinitrotoluene	ND		170	26	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
2,6-Dinitrotoluene	ND		170	41	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
2-Chloronaphthalene	ND		170	11	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
2-Chlorophenol	ND		170	8.4	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
2-Methylphenol	ND		170	5.1	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
2-Methylnaphthalene	ND		170	2.0	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
2-Nitroaniline	ND		320	53	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
2-Nitrophenol	ND		170	7.6	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
3,3'-Dichlorobenzidine	ND		170	150	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
3-Nitroaniline	ND		320	38	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
4,6-Dinitro-2-methylphenol	ND		320	57	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
4-Bromophenyl phenyl ether	ND		170	53	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
4-Chloro-3-methylphenol	ND		170	6.8	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
4-Chloroaniline	ND		170	49	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
4-Chlorophenyl phenyl ether	ND		170	3.5	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
4-Methylphenol	ND		320	9.2	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
4-Nitroaniline	ND		320	19	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
4-Nitrophenol	ND		320	40	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Acenaphthene	ND		170	1.9	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Acenaphthylene	ND		170	1.4	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Acetophenone	ND		170	8.5	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Anthracene	ND		170	4.2	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Atrazine	ND		170	7.4	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Benzaldehyde	ND		170	18	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Benzo[a]anthracene	ND		170	2.9	ug/Kg		02/07/14 07:38	02/08/14 08:02	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 480-164927/1-A
Matrix: Solid
Analysis Batch: 165093

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 164927

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]pyrene	ND		170	4.0	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Benzo[b]fluoranthene	ND		170	3.2	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Benzo[g,h,i]perylene	ND		170	2.0	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Benzo[k]fluoranthene	ND		170	1.8	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Bis(2-chloroethoxy)methane	ND		170	9.0	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Bis(2-chloroethyl)ether	ND		170	14	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Bis(2-ethylhexyl) phthalate	ND		170	53	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Butyl benzyl phthalate	ND		170	44	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Caprolactam	ND		170	72	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Carbazole	ND		170	1.9	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Chrysene	ND		170	1.7	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Dibenz(a,h)anthracene	ND		170	1.9	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Di-n-butyl phthalate	ND		170	57	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Di-n-octyl phthalate	ND		170	3.9	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Dibenzofuran	ND		170	1.7	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Diethyl phthalate	ND		170	5.0	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Dimethyl phthalate	ND		170	4.3	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Fluoranthene	ND		170	2.4	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Fluorene	ND		170	3.8	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Hexachlorobenzene	ND		170	8.2	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Hexachlorobutadiene	ND		170	8.5	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Hexachlorocyclopentadiene	ND		170	50	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Hexachloroethane	ND		170	13	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Indeno[1,2,3-cd]pyrene	ND		170	4.6	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Isophorone	ND		170	8.3	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
N-Nitrosodi-n-propylamine	ND		170	13	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
N-Nitrosodiphenylamine	ND		170	9.1	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Naphthalene	ND		170	2.8	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Nitrobenzene	ND		170	7.3	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Pentachlorophenol	ND		320	57	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Phenanthrene	ND		170	3.5	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Phenol	ND		170	17	ug/Kg		02/07/14 07:38	02/08/14 08:02	1
Pyrene	ND		170	1.1	ug/Kg		02/07/14 07:38	02/08/14 08:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*76*		*34 - 132*	*02/07/14 07:38*	*02/08/14 08:02*	*1*
Phenol-d5 (Surr)	*79*		*11 - 120*	*02/07/14 07:38*	*02/08/14 08:02*	*1*
p-Terphenyl-d14 (Surr)	*98*		*65 - 153*	*02/07/14 07:38*	*02/08/14 08:02*	*1*
2,4,6-Tribromophenol (Surr)	*94*		*39 - 146*	*02/07/14 07:38*	*02/08/14 08:02*	*1*
2-Fluorobiphenyl	*78*		*37 - 120*	*02/07/14 07:38*	*02/08/14 08:02*	*1*
2-Fluorophenol (Surr)	*73*		*18 - 120*	*02/07/14 07:38*	*02/08/14 08:02*	*1*

Lab Sample ID: LCS 480-164927/2-A
Matrix: Solid
Analysis Batch: 165093

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 164927

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-Dinitrotoluene	1660	1760		ug/Kg		106	55 - 125

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 480-164927/2-A
Matrix: Solid
Analysis Batch: 165093

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 164927

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Chlorophenol	1660	1450		ug/Kg		87	38 - 120
4-Chloro-3-methylphenol	1660	1670		ug/Kg		101	49 - 125
4-Nitrophenol	3330	3490		ug/Kg		105	43 - 137
Acenaphthene	1660	1610		ug/Kg		97	53 - 120
Atrazine	1660	1460		ug/Kg		88	60 - 164
Bis(2-ethylhexyl) phthalate	1660	2510	*	ug/Kg		151	61 - 133
Fluorene	1660	1670		ug/Kg		101	63 - 126
Hexachloroethane	1660	1300		ug/Kg		78	41 - 120
N-Nitrosodi-n-propylamine	1660	1490		ug/Kg		90	46 - 120
Pentachlorophenol	3330	3610		ug/Kg		109	33 - 136
Phenol	1660	1410		ug/Kg		85	36 - 120
Pyrene	1660	1660		ug/Kg		100	51 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*88*		*34 - 132*
Phenol-d5 (Surr)	*90*		*11 - 120*
p-Terphenyl-d14 (Surr)	*101*		*65 - 153*
2,4,6-Tribromophenol (Surr)	*112*		*39 - 146*
2-Fluorobiphenyl	*93*		*37 - 120*
2-Fluorophenol (Surr)	*88*		*18 - 120*

Lab Sample ID: LB 480-164604/1-E
Matrix: Solid
Analysis Batch: 165093

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 164860

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.010	0.00046	mg/L		02/06/14 15:45	02/08/14 06:50	1
2,4,5-Trichlorophenol	ND		0.0050	0.00048	mg/L		02/06/14 15:45	02/08/14 06:50	1
2,4,6-Trichlorophenol	ND		0.0050	0.00061	mg/L		02/06/14 15:45	02/08/14 06:50	1
2,4-Dinitrotoluene	ND		0.0050	0.00045	mg/L		02/06/14 15:45	02/08/14 06:50	1
3-Methylphenol	ND		0.010	0.00040	mg/L		02/06/14 15:45	02/08/14 06:50	1
2-Methylphenol	ND		0.0050	0.00040	mg/L		02/06/14 15:45	02/08/14 06:50	1
Pyridine	ND		0.025	0.00041	mg/L		02/06/14 15:45	02/08/14 06:50	1
4-Methylphenol	ND		0.010	0.00036	mg/L		02/06/14 15:45	02/08/14 06:50	1
Hexachlorobenzene	ND		0.0050	0.00051	mg/L		02/06/14 15:45	02/08/14 06:50	1
Hexachlorobutadiene	ND		0.0050	0.00068	mg/L		02/06/14 15:45	02/08/14 06:50	1
Hexachloroethane	ND		0.0050	0.00059	mg/L		02/06/14 15:45	02/08/14 06:50	1
Nitrobenzene	ND		0.0050	0.00029	mg/L		02/06/14 15:45	02/08/14 06:50	1
Pentachlorophenol	ND		0.010	0.0022	mg/L		02/06/14 15:45	02/08/14 06:50	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*83*		*46 - 120*	*02/06/14 15:45*	*02/08/14 06:50*	*1*
Phenol-d5 (Surr)	*29*		*16 - 120*	*02/06/14 15:45*	*02/08/14 06:50*	*1*
p-Terphenyl-d14 (Surr)	*100*		*67 - 150*	*02/06/14 15:45*	*02/08/14 06:50*	*1*
2,4,6-Tribromophenol (Surr)	*99*		*52 - 132*	*02/06/14 15:45*	*02/08/14 06:50*	*1*
2-Fluorobiphenyl	*88*		*48 - 120*	*02/06/14 15:45*	*02/08/14 06:50*	*1*
2-Fluorophenol (Surr)	*40*		*20 - 120*	*02/06/14 15:45*	*02/08/14 06:50*	*1*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-164761/2-A
Matrix: Solid
Analysis Batch: 164942

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 164761

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.010	0.0056	mg/L		02/06/14 08:00	02/06/14 16:44	1
Barium	ND		0.0020	0.00070	mg/L		02/06/14 08:00	02/06/14 16:44	1
Cadmium	ND		0.0010	0.00050	mg/L		02/06/14 08:00	02/06/14 16:44	1
Chromium	ND		0.0040	0.0010	mg/L		02/06/14 08:00	02/06/14 16:44	1
Lead	ND		0.0050	0.0030	mg/L		02/06/14 08:00	02/06/14 16:44	1
Selenium	ND		0.015	0.0087	mg/L		02/06/14 08:00	02/06/14 16:44	1
Silver	ND		0.0030	0.0017	mg/L		02/06/14 08:00	02/06/14 16:44	1

Lab Sample ID: LCS 480-164761/3-A
Matrix: Solid
Analysis Batch: 164942

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 164761

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	1.09		mg/L		109	80 - 120
Barium	1.00	0.976		mg/L		98	80 - 120
Cadmium	1.00	1.05		mg/L		105	80 - 120
Chromium	1.00	0.974		mg/L		97	80 - 120
Lead	1.00	0.995		mg/L		99	80 - 120
Selenium	1.00	1.11		mg/L		111	80 - 120
Silver	1.00	1.11		mg/L		111	80 - 120

Lab Sample ID: LB 480-164604/1-C
Matrix: Solid
Analysis Batch: 164942

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 164761

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.010	0.0056	mg/L		02/06/14 08:00	02/06/14 16:33	1
Barium	0.00929		0.0020	0.00070	mg/L		02/06/14 08:00	02/06/14 16:33	1
Cadmium	ND		0.0010	0.00050	mg/L		02/06/14 08:00	02/06/14 16:33	1
Chromium	0.00198	J	0.0040	0.0010	mg/L		02/06/14 08:00	02/06/14 16:33	1
Lead	ND		0.0050	0.0030	mg/L		02/06/14 08:00	02/06/14 16:33	1
Selenium	ND		0.015	0.0087	mg/L		02/06/14 08:00	02/06/14 16:33	1
Silver	ND		0.0030	0.0017	mg/L		02/06/14 08:00	02/06/14 16:33	1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 480-164758/2-A
Matrix: Solid
Analysis Batch: 164830

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 164758

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		02/06/14 08:00	02/06/14 12:05	1

Lab Sample ID: LCS 480-164758/3-A
Matrix: Solid
Analysis Batch: 164830

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 164758

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00668	0.00595		mg/L		89	80 - 120

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LB 480-164604/1-B
Matrix: Solid
Analysis Batch: 164830

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 164758

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		02/06/14 08:00	02/06/14 12:03	1

Method: 1010A - Ignitability,Pensky-Martens Closed Cup Method

Lab Sample ID: LCS 480-164888/1
Matrix: Solid
Analysis Batch: 164888

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Flashpoint	81.0	79.00		Degrees F		98	97.5 - 102.5

Method: 9012 - Cyanide, Reactive

Lab Sample ID: MB 480-164752/1-A
Matrix: Solid
Analysis Batch: 164755

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 164752

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Reactive	ND		10.0	0.0030	mg/Kg		02/06/14 01:20	02/06/14 04:50	1

Lab Sample ID: LCS 480-164752/2-A
Matrix: Solid
Analysis Batch: 164755

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 164752

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Reactive	1000	407.5		mg/Kg		41	10 - 100

Method: 9034 - Sulfide, Reactive

Lab Sample ID: MB 480-164753/1-A
Matrix: Solid
Analysis Batch: 164757

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 164753

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Reactive	ND		10.0	0.57	mg/Kg		02/06/14 01:20	02/06/14 06:10	1

Lab Sample ID: LCS 480-164753/2-A
Matrix: Solid
Analysis Batch: 164757

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 164753

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide, Reactive	1000	781.5		mg/Kg		78	10 - 100

Client: N Tonawanda Water Works
Project/Site: City of N. Tonawanda Gratwick Riverside

TestAmerica Job ID: 480-54211-1

Method: 9045D - pH

Lab Sample ID: 480-54211-1 DU
Matrix: Solid
Analysis Batch: 164714

Client Sample ID: Pump Station #3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
corrosivity by pH	7.37			7.400		SU				0.4	5

QC Association Summary

Client: N Tonawanda Water Works
Project/Site: City of N. Tonawanda Gratwick Riverside

TestAmerica Job ID: 480-54211-1

GC/MS VOA

Leach Batch: 164610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-54211-1	Pump Station #3	TCLP	Solid	1311	
LB 480-164610/1-A	Method Blank	TCLP	Solid	1311	

Prep Batch: 164730

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-54211-1	Pump Station #3	Total/NA	Solid	5035A	

Analysis Batch: 164836

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-54211-1	Pump Station #3	Total/NA	Solid	8260C	164730
LCS 480-164836/4	Lab Control Sample	Total/NA	Solid	8260C	
MB 480-164836/5	Method Blank	Total/NA	Solid	8260C	

Analysis Batch: 164875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-54211-1	Pump Station #3	TCLP	Solid	8260C	164610
LB 480-164610/1-A	Method Blank	TCLP	Solid	8260C	164610
LCS 480-164875/4	Lab Control Sample	Total/NA	Solid	8260C	
MB 480-164875/6	Method Blank	Total/NA	Solid	8260C	

GC/MS Semi VOA

Leach Batch: 164604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-54211-1	Pump Station #3	TCLP	Solid	1311	
LB 480-164604/1-E	Method Blank	TCLP	Solid	1311	

Prep Batch: 164860

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-54211-1	Pump Station #3	TCLP	Solid	3510C	164604
LB 480-164604/1-E	Method Blank	TCLP	Solid	3510C	164604
LCS 480-164860/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCSD 480-164860/3-A	Lab Control Sample Dup	Total/NA	Solid	3510C	
MB 480-164860/1-A	Method Blank	Total/NA	Solid	3510C	

Prep Batch: 164927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-54211-1	Pump Station #3	Total/NA	Solid	3550C	
LCS 480-164927/2-A	Lab Control Sample	Total/NA	Solid	3550C	
MB 480-164927/1-A	Method Blank	Total/NA	Solid	3550C	

Analysis Batch: 165093

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-54211-1	Pump Station #3	TCLP	Solid	8270D	164860
480-54211-1	Pump Station #3	Total/NA	Solid	8270D	164927
LB 480-164604/1-E	Method Blank	TCLP	Solid	8270D	164860
LCS 480-164860/2-A	Lab Control Sample	Total/NA	Solid	8270D	164860
LCS 480-164927/2-A	Lab Control Sample	Total/NA	Solid	8270D	164927
LCSD 480-164860/3-A	Lab Control Sample Dup	Total/NA	Solid	8270D	164860
MB 480-164860/1-A	Method Blank	Total/NA	Solid	8270D	164860

GC/MS Semi VOA (Continued)

Analysis Batch: 165093 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-164927/1-A	Method Blank	Total/NA	Solid	8270D	164927

Metals

Leach Batch: 164604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-54211-1	Pump Station #3	TCLP	Solid	1311	
LB 480-164604/1-B	Method Blank	TCLP	Solid	1311	
LB 480-164604/1-C	Method Blank	TCLP	Solid	1311	

Prep Batch: 164758

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-54211-1	Pump Station #3	TCLP	Solid	7470A	164604
LB 480-164604/1-B	Method Blank	TCLP	Solid	7470A	164604
LCS 480-164758/3-A	Lab Control Sample	Total/NA	Solid	7470A	
MB 480-164758/2-A	Method Blank	Total/NA	Solid	7470A	

Prep Batch: 164761

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-54211-1	Pump Station #3	TCLP	Solid	3010A	164604
LB 480-164604/1-C	Method Blank	TCLP	Solid	3010A	164604
LCS 480-164761/3-A	Lab Control Sample	Total/NA	Solid	3010A	
MB 480-164761/2-A	Method Blank	Total/NA	Solid	3010A	

Analysis Batch: 164830

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-54211-1	Pump Station #3	TCLP	Solid	7470A	164758
LB 480-164604/1-B	Method Blank	TCLP	Solid	7470A	164758
LCS 480-164758/3-A	Lab Control Sample	Total/NA	Solid	7470A	164758
MB 480-164758/2-A	Method Blank	Total/NA	Solid	7470A	164758

Analysis Batch: 164942

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-54211-1	Pump Station #3	TCLP	Solid	6010C	164761
LB 480-164604/1-C	Method Blank	TCLP	Solid	6010C	164761
LCS 480-164761/3-A	Lab Control Sample	Total/NA	Solid	6010C	164761
MB 480-164761/2-A	Method Blank	Total/NA	Solid	6010C	164761

General Chemistry

Analysis Batch: 164523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-54211-1	Pump Station #3	Total/NA	Solid	Moisture	

Analysis Batch: 164714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-54211-1	Pump Station #3	Total/NA	Solid	9045D	
480-54211-1 DU	Pump Station #3	Total/NA	Solid	9045D	
LCS 480-164714/1	Lab Control Sample	Total/NA	Solid	9045D	

General Chemistry (Continued)

Prep Batch: 164752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-54211-1	Pump Station #3	Total/NA	Solid	7.3.3	
LCS 480-164752/2-A	Lab Control Sample	Total/NA	Solid	7.3.3	
MB 480-164752/1-A	Method Blank	Total/NA	Solid	7.3.3	

Prep Batch: 164753

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-54211-1	Pump Station #3	Total/NA	Solid	7.3.4	
LCS 480-164753/2-A	Lab Control Sample	Total/NA	Solid	7.3.4	
MB 480-164753/1-A	Method Blank	Total/NA	Solid	7.3.4	

Analysis Batch: 164755

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-54211-1	Pump Station #3	Total/NA	Solid	9012	164752
LCS 480-164752/2-A	Lab Control Sample	Total/NA	Solid	9012	164752
MB 480-164752/1-A	Method Blank	Total/NA	Solid	9012	164752

Analysis Batch: 164757

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-54211-1	Pump Station #3	Total/NA	Solid	9034	164753
LCS 480-164753/2-A	Lab Control Sample	Total/NA	Solid	9034	164753
MB 480-164753/1-A	Method Blank	Total/NA	Solid	9034	164753

Analysis Batch: 164888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-54211-1	Pump Station #3	Total/NA	Solid	1010A	
LCS 480-164888/1	Lab Control Sample	Total/NA	Solid	1010A	

Lab Chronicle

Client: N Tonawanda Water Works
Project/Site: City of N. Tonawanda Gratwick Riverside

TestAmerica Job ID: 480-54211-1

Client Sample ID: Pump Station #3
Date Collected: 02/04/14 13:45
Date Received: 02/04/14 14:15

Lab Sample ID: 480-54211-1
Matrix: Solid
Percent Solids: 53.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035A			164730	02/05/14 21:24	CDC	TAL BUF
Total/NA	Analysis	8260C		1	164836	02/06/14 19:00	CDC	TAL BUF
TCLP	Leach	1311			164610	02/05/14 09:42	KEB	TAL BUF
TCLP	Analysis	8260C		10	164875	02/07/14 08:02	LCH	TAL BUF
TCLP	Leach	1311			164604	02/05/14 09:33	KEB	TAL BUF
TCLP	Prep	3510C			164860	02/06/14 15:45	JRL	TAL BUF
TCLP	Analysis	8270D		1	165093	02/08/14 07:38	AR1	TAL BUF
Total/NA	Prep	3550C			164927	02/07/14 07:38	TRG	TAL BUF
Total/NA	Analysis	8270D		1	165093	02/08/14 08:50	AR1	TAL BUF
TCLP	Leach	1311			164604	02/05/14 09:33	KEB	TAL BUF
TCLP	Prep	7470A			164758	02/06/14 08:00	JRK	TAL BUF
TCLP	Analysis	7470A		1	164830	02/06/14 12:25	JRK	TAL BUF
TCLP	Leach	1311			164604	02/05/14 09:33	KEB	TAL BUF
TCLP	Prep	3010A			164761	02/06/14 08:00	JRK	TAL BUF
TCLP	Analysis	6010C		1	164942	02/06/14 17:04	LMH	TAL BUF
Total/NA	Analysis	Moisture		1	164523	02/04/14 20:17		TAL BUF
Total/NA	Analysis	9045D		1	164714	02/05/14 19:03	JMB	TAL BUF
Total/NA	Prep	7.3.3			164752	02/06/14 01:20	LAW	TAL BUF
Total/NA	Analysis	9012		1	164755	02/06/14 04:53	LAW	TAL BUF
Total/NA	Prep	7.3.4			164753	02/06/14 01:20	LAW	TAL BUF
Total/NA	Analysis	9034		1	164757	02/06/14 06:10	LAW	TAL BUF
Total/NA	Analysis	1010A		1	164888	02/06/14 17:17	JMB	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Certification Summary

Client: N Tonawanda Water Works
Project/Site: City of N. Tonawanda Gratwick Riverside

TestAmerica Job ID: 480-54211-1

Laboratory: TestAmerica Buffalo

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0686	07-06-14
California	NELAP	9	1169CA	09-30-14
Connecticut	State Program	1	PH-0568	09-30-14
Florida	NELAP	4	E87672	06-30-14
Georgia	State Program	4	N/A	03-31-14
Illinois	NELAP	5	200003	09-30-14
Iowa	State Program	7	374	03-01-15
Kansas	NELAP	7	E-10187	04-01-14
Kentucky (DW)	State Program	4	90029	12-31-14
Kentucky (UST)	State Program	4	30	04-01-14
Louisiana	NELAP	6	02031	06-30-14
Maine	State Program	1	NY00044	12-04-14
Maryland	State Program	3	294	03-31-14
Massachusetts	State Program	1	M-NY044	06-30-14
Michigan	State Program	5	9937	04-01-14
Minnesota	NELAP	5	036-999-337	12-31-14
New Hampshire	NELAP	1	2337	11-17-14
New Jersey	NELAP	2	NY455	06-30-14
New York	NELAP	2	10026	03-31-14
North Dakota	State Program	8	R-176	03-31-14
Oklahoma	State Program	6	9421	08-31-14
Oregon	NELAP	10	NY200003	06-09-14
Pennsylvania	NELAP	3	68-00281	07-31-14
Rhode Island	State Program	1	LAO00328	12-30-14
Tennessee	State Program	4	TN02970	04-01-14
Texas	NELAP	6	T104704412-11-2	07-31-14
USDA	Federal		P330-11-00386	11-22-14
Virginia	NELAP	3	460185	09-14-14
Washington	State Program	10	C784	02-10-14 *
West Virginia DEP	State Program	3	252	03-31-14
Wisconsin	State Program	5	998310390	08-31-14

* Expired certification is currently pending renewal and is considered valid.

Method Summary

Client: N Tonawanda Water Works
Project/Site: City of N. Tonawanda Gratwick Riverside

TestAmerica Job ID: 480-54211-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL BUF
6010C	Metals (ICP)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF
1010A	Ignitability,Pensky-Martens Closed Cup Method	SW846	TAL BUF
9012	Cyanide, Reactive	SW846	TAL BUF
9034	Sulfide, Reactive	SW846	TAL BUF
9045D	pH	SW846	TAL BUF
Moisture	Percent Moisture	EPA	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: N Tonawanda Water Works
Project/Site: City of N. Tonawanda Gratwick Riverside

TestAmerica Job ID: 480-54211-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-54211-1	Pump Station #3	Solid	02/04/14 13:45	02/04/14 14:15

CHAIN OF CUSTODY RECORD

COC NO.: 40950

PAGE 1 OF 1

(See Reverse Side for Instructions)

CONESTOGA-ROVERS & ASSOCIATES

Address: NF Office

Phone: _____ Fax: _____

Project No/ Phase/Task Code: 7987	Laboratory Name: Test America	Lab Location: Amherst	SSOW ID:
Project Name: Gratwick Park	Lab Contact:	Lab Quote No:	Cooler No:
Project Location: North Tonawanda			Carrier:
Chemistry Contact: Susan Scrocchi			Airbill No:
Sampler(s): S. Zimmerman D. Tyran			Date Shipped: 2.4.14

Item	Sample Identification (Containers for each sample may be combined on one line)	Date (mm/dd/yy)	Time (hh:mm)	Sample Type: Matrix Code (see back of COC)	Sample Type: Grab (G) or Comp (C)	Container Quantity & Preservation: Unpreserved	Hydrochloric Acid (HCl)	Nitric Acid (HNO_3)	Sulfuric Acid (H_2SO_4)	Sodium Hydroxide (NaOH)	Methanol/Water (Soil VOC)	EnCores 3x5-g, 1x25-g	Other:	Total Containers/Sample	Analysis Requested: VOCs	SVOCs	TCLP VOCs	TCLP SVOCs	TCLP Metals	Reactivity	Corrosivity	Ignitability	MS/MSD Request	Comments/ Special Instructions:
1	Pump Station #3	2.4.14	1345	SL	G	X								4	X	X	X	X	X	X	X	X		
2																								DJT
3																								
4																								
5																								
8																								
9																								
10																								
11																								
12																								
13																								
14																								
15																								

480-54211 Chain of Custody

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TAT Required in business days (use separate COCs for different TATs):

☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 1 Week ☐ 2 Week ☒ Other: 5 day

Total Number of Containers: 4

All Samples in Cooler must be on COC

Notes/ Special Requirements: Temp 9.8 no ice #1

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
1. Dave Tyran	CRA	2.4.14		1. Chuck Kolb	TA	2/4/14	1415
2.				2.			
3.				3.			

2/10/2014

THE CHAIN OF CUSTODY IS A LEGAL DOCUMENT – ALL FIELDS MUST BE COMPLETED ACCURATELY

Distribution: WHITE – Fully Executed Copy (CRA) YELLOW – Receiving Laboratory Copy PINK – Shipper GOLDENROD – Sampling Crew

CRA Form COC-10B (20110804)

Login Sample Receipt Checklist

Client: N Tonawanda Water Works

Job Number: 480-54211-1

Login Number: 54211

List Source: TestAmerica Buffalo

List Number: 1

Creator: Kolb, Chris M

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	
Cooler Temperature is acceptable.	True	Yes: Received same day of collection (within an hour)
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	cra
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Appendix F

June 2014 Addendum, O&M Manual

Operation and Maintenance Manual
June 2014 Addendum
Gratwick-Riverside Park Site
North Tonawanda, New York

This addendum of the Operation and Maintenance Manual (O&M Manual) updates the monitoring and maintenance procedures for sediments collected in the Groundwater Withdrawal System (GWS) manholes, including the Pumping Station manholes (i.e., P.S. No. 1/MH-3; P.S. No. 2/MH-9, and P.S. No. 3/MH-15) at the Gratwick-Riverside Park Site (Site) located in North Tonawanda, New York.

The monthly monitoring of the sediment thickness in the manholes is already included in Table 6.1 of the O&M Manual. Also, the removal of sediments by vacuuming is already included in Table 6.2 of the O&M Manual.

This update adds the requirement to remove sediment once every five years. The sediment will be removed during low flow conditions (i.e., July or August) from those manholes in which sediment has collected.

Prior to removal, the sediment will be sampled and analyzed to characterize for off-site disposal. The sediment sample will be analyzed for the parameters required by the planned disposal facility to comply with their permit. The sediment will then be removed and disposed of off-site.