THIRD ANNUAL OPERATION AND MONITORING REPORT MAY 2003 TO APRIL 2004

GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

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MAY 2003 TO APRIL 2004

GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

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1.0 INTRODUCTION

This report is the third 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 May 2003 to April 2004 and was prepared pursuant to Section 7.0 of the report entitled "Operation and Maintenance Manual" (O&M Manual) dated March 2002. It is noted that New York State Department of Environmental Conservation (NYSDEC) approval for the O&M Manual has not been received as of the date of this O&M Report. Nonetheless, all O&M activities have been performed in accordance with the methods and frequencies specified in the O&M Manual (as modified and approved), as though it were an approved document.

The frequency of sample collection and analyses has been modified pursuant to the frequency described in the previous annual report ("Second Annual Operation and Monitoring Report, May 2002 to April 2003"). The modified frequency was approved by the NYSDEC on August 21, 2003 with only minor conditions.

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; and

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; GWS effluent; and River surface water. 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 were measured on a monthly basis. The measured water levels from the beginning of the O&M period are presented in Table 2.2. Summaries of the horizontal and vertical gradients are provided in Tables 2.3 and 2.4, respectively.

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 first year except for four short-time periods around August 20, October 22, and November 27, 2001 and February 11, 2002 in the vicinity of the River North/MH6 location;

iii) the inward gradients were maintained for the second year except in the vicinity of the River North/MH6 location from June to November 2002; and

iv) the inward gradients were maintained for the entire third year (2003/2004).

The short periods of outward gradient are not anticipated to have adversely affected 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; and

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

It is observed that for the time period from September 2003 to May 2004, the river level was frequently too low to measure a river water level at the River North monitoring location. Comparison of available River North with River South water levels shows that the River North levels are generally approximately 0.25 feet lower than the River South levels. Subtracting 0.25 feet from the River South water levels and comparing this calculated level with the measured water levels at MH2 and MH6, shows an inward gradient.

The results for the vertical gradient evaluation showed that the vertical gradients are predominantly upward (35 of 38 data pairs for the first year, 32 of 36 data pairs for the second year and 35 of 36 data pairs for the third year) at 3 of the 4 monitoring pair locations. The calculated vertical gradients at the fourth monitoring pair (MH14/MW-9) are typically slightly downward with occasional periods of slight upward or neutral gradient (3 of 13 data pairs for the first year, 3 of 12 data pairs for the second year, and 1 of 10 data pairs for the third year were upward). It is possible that the upward gradients at this monitoring pair were created by the pumping/monitoring cycle on these measurement events. This may have been caused if the water levels were being monitored when the water levels in MH15 (Pump Station No. 3), located downstream of MH14, were near the pump start elevation of 561.0 ft amsl.

Review of the water levels in MH14, MH15, and MW-9 showed that generally the water levels in MH15 are:

i) lower than in MH14 and MW-9, as expected because MH15 is the pumped wet well; and

ii) the water levels in MH15 ranged from 561.62 to 562.28 ft amsl and in MW-9 ranged from 562.57 to 563.36 ft amsl for the same time period. These levels consistently showed an upward gradient.

Given that MW-9 is located between MH14 and MH15 and that comparison of the MW-9 and MH15 water levels showed a continual small upward gradient, suggested that a slight lowering of the pump start elevation should achieve a continual upward gradient when the water levels in MW-9 and MH14 are compared to each other. The City of North Tonawanda reduced the pump start elevation in MH15 to 560.5 ft amsl in June 2003. After this adjustment, slight downward gradients continued to be shown when comparing the MH14 and MW-9 water levels. In an attempt to obtain a calculated vertical gradient, the pump-on and pump-off levels were adjusted further downward by 0.5 feet in January 2004. Slight downward gradients were still calculated after this adjustment.

MW-9 is located between MH14 and MH15, approximately one-third of the distance between MH14 and MH15 as measured from MH14. As shown in Table 2.4, when the water levels in MW-9 are compared with those in MH15, an upward gradient exists for all dates in which a water level was measured, except for August 2003 when the water levels were elevated in MH14 and MH15 due to a faulty check valve. Furthermore, if a distance-weighted average of the water levels in MH14 and MH15 is used, placing more weight on the water level closest to MW-9 (i.e., water level at MH14 is assigned a weight of 2/3 and that in MH15 is assigned a weight of 1/3), again, an upward gradient is calculated for all dates except August 2003. Thus, it is shown that an upward gradient actually does exist along the entire length between MH14 and MH15 and the calculated downward gradients when the water levels in only MW-9 and MH14 were used are believed to be an artifact created by the distance between MW-9 and MH14.

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); and

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

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

The sampling frequency for the initial 2-year period after GWS startup was quarterly. Based on the 2-year results, the frequency for most wells was modified to semi-annual for the third year (May and November 2003). The exceptions to this are for SVOCs in OGC-4 and VOCs in OGC-6, which remained at quarterly for the third year. Sampling for years 4 through 7 is to be annual.

2.2.1 SAMPLE RESULTS

A summary of compounds detected in the groundwater samples is presented in Table 2.6 and pH levels are presented 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 and, as such, can be used to determine the monitoring frequency for the upcoming 4-year period.

Review of the TVOC and TSVOC concentrations with time show the following trends since May 2003:

i) TVOCs:

- decreasing concentrations in 2 of the 12 wells (MW-6 and OGC-8);
- relatively constant concentrations with random fluctuations in 7 of the 12 wells (MW-7, OGC-1, OGC-2, OGC-3, OGC-4, OGC-5, and OGC-7); and
- increasing concentrations in 3 of the 12 wells (MW-8, MW-9 and OGC-6).

ii) TSVOCs:

- decreasing concentrations in 2 of 12 wells (OGC-4 and OGC-5);
- relatively constant concentrations with random fluctuations in 6 of the 12 wells (MW-7, OGC-1, OCG-2, OGC-3, OGC-7, and OGC-8); and
- increasing concentrations in 4 of the 12 wells (MW-6, MW-8, MW-9, and OGC-6).

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

The TVOC concentrations for MW-6 shown on Figure 2.2 fluctuated randomly between 2 and 9 µg/L and then increased to 64 µg/L in May 2003 and then decreased to 16 µg/L in November 2003. The TSVOC concentrations, after the initial rapid decrease from 107 to 13 µg/L between May and November 2001, fluctuated randomly between non-detect (ND) and 25 µg/L until May 2003, then increased to 350 µg/L in November 2003 before decreasing to ND in May 2004. No reason for these large variations is apparent.

The TVOC and TSVOC concentrations for MW-7 on Figure 2.3 show that both TVOC and TSVOC peaked in May 2002 (18 and 41 µg/L, respectively) and then decreased to non-detect for both TVOC and TSVOC in May 2004.

The TVOC concentrations for MW-8 on Figure 2.4 show that the trend in the TVOC concentrations is a continual increase with some fluctuations. The TSVOC concentrations after August 2001 ranged between 200 and 500 µg/L.

The TVOC concentrations for MW-9 on Figure 2.5 show that the TVOC concentrations ranged between 10 and 21 µg/L. The TSVOC concentrations, not considering the May 2002 non-detect results which appear to be anomalous, fluctuated randomly between 140 to 280 µg/L from May 2001 to May 2003, increased to 380 µg/L in November 2003, and decreased to 270 µg/L in May 2004.

All MWs are located on the inside of the barrier wall and an inward gradient has always been maintained in the vicinity of this well. Thus, the TVOCs and TSVOCs are not migrating to the Niagara River.

The TVOC concentrations for OGC-1 on Figure 2.6 show that the concentrations since February 2002 ranged between 0.5 and 13 µg/L. The TSVOC concentrations after November 2001, have fluctuated between non-detect and 59 µg/L.

Since February 2002, the TVOC concentrations for OGC-2 on Figure 2.7 have fluctuated randomly between non-detect and 4.5 µg/L. The TSVOC concentrations were all non-detect.

The TVOC concentrations for OGC-3 on Figure 2.8 ranged from 21 to 57 µg/L with the peak in November 2001 and decreasing to 17 µg/L by May 2004. The TSVOC concentrations fluctuated randomly from 207 to 411 µg/L.

The TVOC concentrations for OGC-4 on Figure 2.9 fluctuated randomly between non-detect and 14 µg/L. The TSVOC concentrations showed a continual increase from 383 µg/L in May 2001 to 2426 µg/L in February 2003, decreased to 64 µg/L in March 2004 and then increased to 2400 µg/L in May 2004. The single compound responsible for this peak was phenol which increased from 310 µg/L in May 2001 to 2400 µg/L in May 2004. Phenol was non-detect in the March 2004 sample. The relatively constant TSVOC concentrations since February 2003, except for March 2004, support that OGC-4 no longer needs to be sampled quarterly for SVOCs and can be reduced to semi-annual sampling for the next year.

The TVOC concentrations for OGC-5 on Figure 2.10, after February 2002, ranged from non-detect to 11 µg/L whereas the TSVOC concentrations ranged from non-detect to 11 µg/L over the entire 3-year period.

The TVOC concentrations for OGC-6 on Figure 2.11 have increased continually from 3 µg/L in May 2001 to 890 µg/L in May 2004. The primary compounds detected are PCE and TCE. The TSVOC concentrations increased continually from non-detect in May 2001 to 26 µg/L in May 2002 and then held relatively constant between 11 and 30 µg/L from May 2002 to November 2003 before increasing to 74 µg/L in the May 2004 sample. The relatively rapid increase in TVOC concentration from February 2003 to May 2004 needs to continue to be tracked on a more frequent basis. OGC-6 is located a short distance upstream of the northerly river monitoring station and is between MH6 and MH8. Review of the water levels for MH6, OGC-6, MH8, and the middle river station show that the water levels in MH6 and MH8 are typically 8 and 4 feet lower, respectively, than the river north level, resulting in a strong inward gradient which has continually existed in this area since pumping began. Thus, there will be no migration of chemicals from the Site through the barrier wall to the Niagara River. The source for these VOCs is uncertain but is expected to reside outside of the barrier wall.

The TVOC concentrations for OGC-7 on Figure 2.12, since August 2001, ranged between 59 and 95 µg/L and the TSVOC concentrations ranged between non-detect and 2 µg/L with non-detect concentrations for the last 6 sampling events.

The TVOC concentrations for OGC-8 on Figure 2.13, since February 2003, have continually decreased from 106 to 29 µg/L and the TSVOC concentrations ranged between 9 and 31 µg/L.

QA/QC reviews of these quarterly groundwater results, except for May 2004, have already been submitted to the NYSDEC in the monthly progress reports. Thus, only the May 2004 QA/QC review is being submitted with this O&M Report (see Appendix B).

2.2.2 PROPOSED MONITORING FREQUENCY FOR NEXT 4-YEAR PERIOD

The previous discussion shows that, in general, the ranges of concentration fluctuations are small and in most cases the concentrations themselves are low. Consequently, it is recommended that the frequency of the groundwater sampling and analysis be annually for the next four years as was recommended in the Second Annual O&M Report, except for SVOCs in OGC-4 and VOCs in OGC-6 which will be semi-annual. The VOCs in OGC-4 and the SVOCs in OGC-6 can be monitored annually; the same as the frequency for the rest of the wells.

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 are listed in Table 2.8.

2.3.1 SAMPLE RESULTS

Effluent samples were collected monthly as specified in the City of North Tonawanda Industrial Wastewater Discharge Permit (see O&M Manual Appendix B - Wastewater Discharge Permit). Each month, a 24-hour composite sample was collected for SVOCs, metals, and wet chemistry parameters. Three grab samples were also collected for

VOCs at 8-hour intervals and the measured concentrations were averaged to give a 24-hour concentration.

The monthly effluent sample results are presented in Table 2.9 and the TVOC and TSVOC results are plotted on Figure 2.14. As shown on Figure 2.14, the TVOCs 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 effluent TSVOC results on Figure 2.14 show no apparent seasonal pattern but are slowly decreasing with time.

QA/QC reviews of the monthly discharge results have already been submitted to the NYSDEC in the monthly progress reports. Thus, the reviews are not being resubmitted with this O&M Report.

2.3.2 PROPOSED MONITORING PROGRAM FOR NEXT 4-YEAR PERIOD

2.3.2.1 SAMPLING FREQUENCY

To assist in evaluating the sampling frequency for the effluent discharge from the GWS, the measured concentrations for the following parameters were 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 be used to determine the monitoring frequency for the effluent.

The effluent TVOC concentrations versus time are presented on Figure 2.14. As shown on Figure 2.14, the TVOCs peak in the spring and then decline reaching a trough in the fall. This pattern supports semi-annual monitoring (i.e., spring and fall).

The effluent TSVOC concentrations are also presented on Figure 2.14. There is no apparent seasonal pattern in the TSVOC concentrations. However, the TSVOC concentrations are slowly decreasing with time. This slow decrease supports less frequent sampling than monthly.

The pH levels are presented on Figure 2.15. As shown on Figure 2.15, the pH levels range between 8.4 and 11.5. An apparent trend in the pH levels is higher pH levels in the winter/spring and lower pH levels in the summer/fall. This pattern supports semi-annual monitoring.

The TSS concentrations presented on Figure 2.16 show higher concentrations occurring in the early spring and late summer/fall. Because TSS may be related to the discharge flow rate, the monthly discharge volume (see Table 2.10) 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. These trends suggest that semi-annual sampling is appropriate.

The BOD concentrations are presented on Figure 2.17. As shown on Figure 2.17, BOD concentrations ranged from 20 to 29 mg/L until April 2002 then decreased to the range of 9 to 22 mg/L since May 2002. The BOD concentrations were compared with the discharge volume but showed no apparent correlation. The relatively small range in BOD concentrations supports less frequent sampling.

In summary, the trends described above support a decrease in sampling frequency to semi-annually. It is suggested that the semi-annual sampling be performed in the spring and fall. This is the same recommendation that was presented in the Second Annual O&M Report and upon which the NYSDEC provided feedback.

2.3.2.2 ANALYTICAL PARAMETERS

Review of the analytical results also shows that none of the detected metals exceeded the surface water standard/guidance values listed in Table 2.6. Thus, it is recommended that metals be deleted from the effluent analytical parameter list.

Furthermore, operation of the POTW does not require monitoring of the general chemistry parameters. Thus, it is recommended that the general chemistry parameters be deleted from the effluent analytical parameter list, other than those parameters which have a surface water standard/guidance level. These parameters are: chloride, ammonia, nitrate, sulfate, sulfide, phosphorus, and cyanide. Of these parameters, chloride, ammonia, sulphate, sulfide, and phosphorus have exceeded their respective surface water quality criteria (see Table 2.6). The parameters with standards/guidance levels will continue to be monitored to assist in the determination of when pumping to the POTW for treatment can be stopped and the groundwater thereafter can be allowed to discharge directly to the Niagara River. Phenol, even though it has a standard, is recommended to be deleted from the general parameter list because it is already included under the SVOC parameter list.

A summary of the proposed effluent monitoring program for the next 4-year period is presented in Table 2.11. This is the same list recommended in the Second Annual O&M Monitoring Report.

2.4 SURFACE WATER MONITORING PROGRAM

To determine that the River sediment remediation and enhancement is working properly, surface water samples were collected upstream of, adjacent to, and at the downstream end of the Site at the locations shown on Figure 2.1. The analytical parameters are listed in Table 2.12.

Surface water samples were collected and analyzed concurrent with the groundwater samples over the first 3 years following the GWS startup.

2.4.1 SAMPLE RESULTS

The river water analytical results are presented in Table 2.6. As shown in Table 2.6, almost all of the analytical results were non-detect. Only a few VOCs were infrequently detected at very low level concentrations and only 2 SVOCs were ever detected; once each at less than 1 µg/L. None of the above concentrations exceeded the Class A surface water criteria. The exceptions to this occurred in May 2002, November 2003, and May 2004 at the North River location. The May 2002 and May 2004 North River analytical results show elevated concentrations of primarily ethylbenzene (20 and 40 µg/L), toluene (63 and 130 µg/L), and total xylenes (80 and 210 µg/L). Given that:

i) the North River location is downstream of the on-site boat launch;

ii) boats and personnel watercraft were present in the area;

iii) the concentrations for these three compounds in the groundwater are much less than the May 2002 and May 2004 river water concentrations; and

iv) the concentrations for these three compounds were non-detect in all other quarterly samples at this location, except for toluene (0.96J µg/L) and total xylene (0.96J µg/L) in the May 2003 sample;

the most likely explanation for these measured concentrations of BTEX compounds in the river water sample is a fuel leak or spillage from watercraft.

For the November 2003 samples, benzene was detected slightly above the Class GA level at 2 µg/L in the North River location. Considering that:

i) benzene was not detected in the upstream river water sample at the River Middle location;

ii) the groundwater benzene concentrations between the River Middle and River North locations were non-detect (OGC-2) and 0.87 µg/L (OGC-6); and

iii) the dilution of the river water which would significantly reduce the groundwater concentrations,

it is unlikely that the Site was the source for the benzene detected at the North River location.

QA/QC reviews of the quarterly river water results, except for May 2004, have already been submitted to the NYSDEC in the monthly progress reports. Thus, only the May 2004 QA/QC review is being submitted with this O&M Report.

2.4.2 PROPOSED MONITORING FREQUENCY FOR NEXT 4-YEAR PERIOD

Given the infrequent and low level concentrations of VOCs and SVOCs, it is proposed that the frequency for river water sampling and analyses be annual the same as for the groundwater and as was recommended in the Second Annual O&M Report and accepted by NYSDEC.

2.5 GWS OPERATIONS

The volume of water pumped on a monthly basis from the Site to the City POTW for treatment is presented in Table 2.10 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. Thereafter, the monthly volumes ranged from 230,000 to 1,280,000 gallons, with the lower monthly volumes typically occurring during the drier summer/fall months.

The total volume of water discharged from the Site for the time period from May 2001 to April 2004 was 29,460,700 gallons.

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). No wet weather

shutdown occurred in the time period from May 2003 to April 2004. However, the pump in MH15 was shut down for a period of approximately 5 weeks to repair a check valve as described in Section 2.6.

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.

2.6 GWS MAINTENANCE

The following maintenance or service repairs were needed on the GWS components during the May 2003 to April 2004 time period.

Inspection of the groundwater collection system performed August 28 and 29, 2003 to determine the cause of the elevated water levels in MH14, MH15, and MH16 found that the pump in MH15 was not pumping properly. Further inspections on September 3, 2003 identified that a damaged check valve was the cause of the elevated water levels. The pump in MH15 was shut down while the pumps in MH3 and MH9 continued to operate. Water was pumped the week of September 29, 2003 from the manhole chamber of MH15 to MH9 using a temporary pump/pipeline to dewater MH15. The check-valve was repaired on October 3, 2003 and the pump in MH15 was restarted on that date.

3.0 SITE INSPECTIONS

Site inspections were performed on a monthly basis. Copies of the inspection logs for the time period May to October 2003 were previously submitted and thus are not being resubmitted with this O&M Report. The monthly inspection logs for November 2003 to April 2004 are included as Appendix A. In summary, the May 2003 to April 2004 inspections identified the following items that required maintenance:

i) repair of piezometer for MH14;

ii) replacement of the piezometer lid for MH8;

iii) place additional boulders to protect wet well covers;

iv) replace hydric soil in a small portion of the Island 1 area; and

v) some erosion of the shoreline has occurred.

The City is pursuing the completion of these items with Haseley's bonding company in addition to repairing of the shoreline erosion described below.

The NYSDEC performed a Site inspection on June 26, 2002 during which they identified erosion occurring along portions of the shoreline. A work plan to address the erosion was submitted to the NYSDEC on August 23, 2002 and NYSDEC comments were received on September 16, 2002. A revised work plan was submitted on October 21, 2002. Bid documents were submitted on January 2, 2003. NYSDEC comments on the Bid Documents were received on February 14, 2003 and revised pages were submitted on February 28, 2003. Final Bid Documents were submitted on March 20, 2003. A pre-bid meeting was held on April 1, 2003 and Notice of Award to the low bidder was issued on April 25, 2003. The Notice to Proceed was issued on June 2, 2003 to LDC Construction.

Discussions to modify the method of shoreline repair were held through the summer and fall of 2003. A revised work plan was submitted to the NYSDEC on October 3, 2003. Based on discussions held with NYSDEC, a final Work Plan was submitted on January 15, 2004. A preconstruction meeting was held March 2004. Repair of the shoreline is scheduled to start in July 2004.

4.0 CONCLUSIONS/RECOMMENDATIONS

4.1 OPERATION AND MAINTENANCE

The constructed remedy is achieving the remedial action objectives.

Furthermore, the following items identified during the Site inspections need to be addressed and are planned to be addressed.

i) reseed some bare areas with grass;

ii) place additional boulders to protect wet well covers;

iii) replace hydric soil in a small portion of the Island 1 area; and

iv) repair of shoreline erosion.

4.2 MONITORING

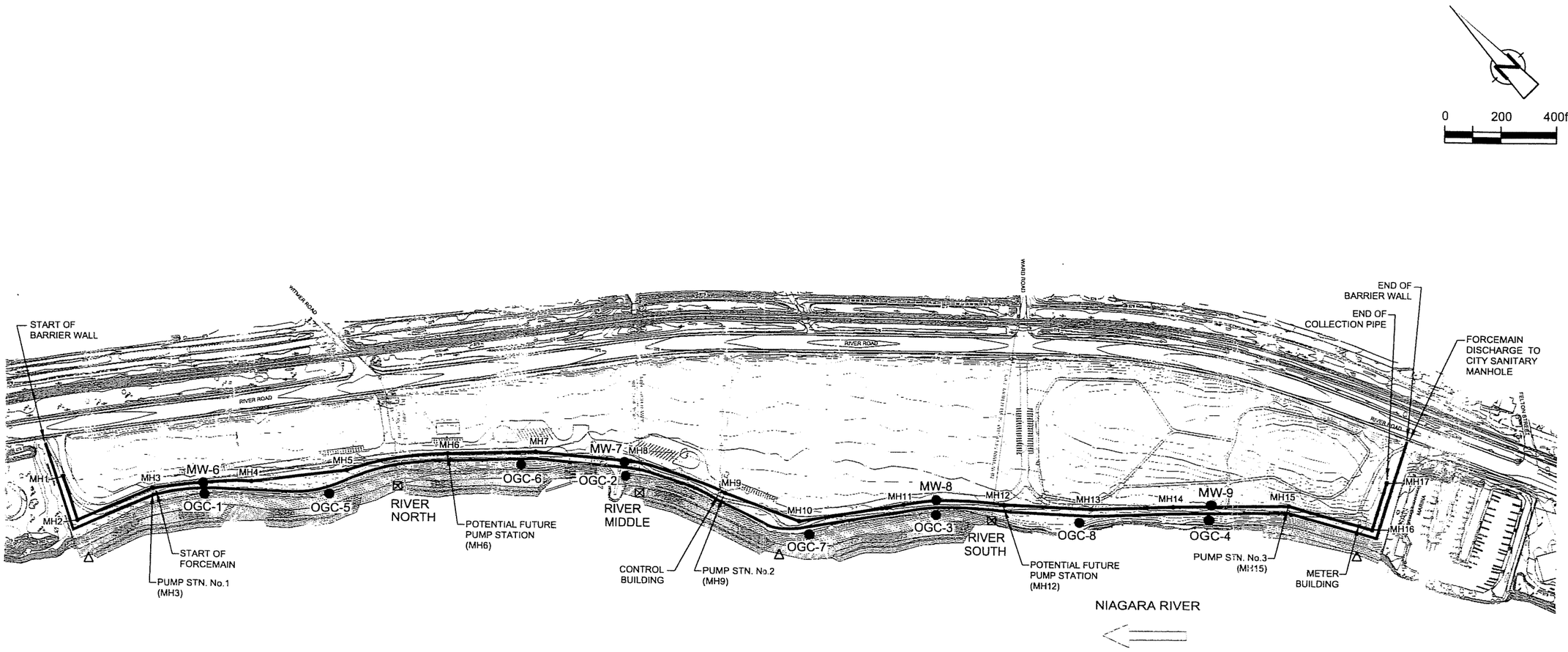
As described in Section 2.2, the trends in the groundwater analytical results are relatively consistent with time. Thus, the recommended frequency for the groundwater monitoring is annual for the next four years except for VOCs in well OGC-6 and SVOCs in OGC-4 which will be monitored semi-annually for at least the next year.

Only a few VOCs and SVOCs were infrequently detected at very low level concentrations in the river water samples. Thus, the recommended frequency for the river water monitoring is annual for the next four years.

The trends in the effluent from the GWS to the POTW support reducing the sampling frequency from monthly to semi-annual. Flow monitoring will continue to be performed monthly as a check on the operation of the GWS.

It is recommended that metals be deleted from the effluent parameter list because none of the detected metals exceed their respective standard/guidance value. It is also recommended that all general chemistry parameters be deleted except those which have a surface water standard/guidance level.

FIGURES



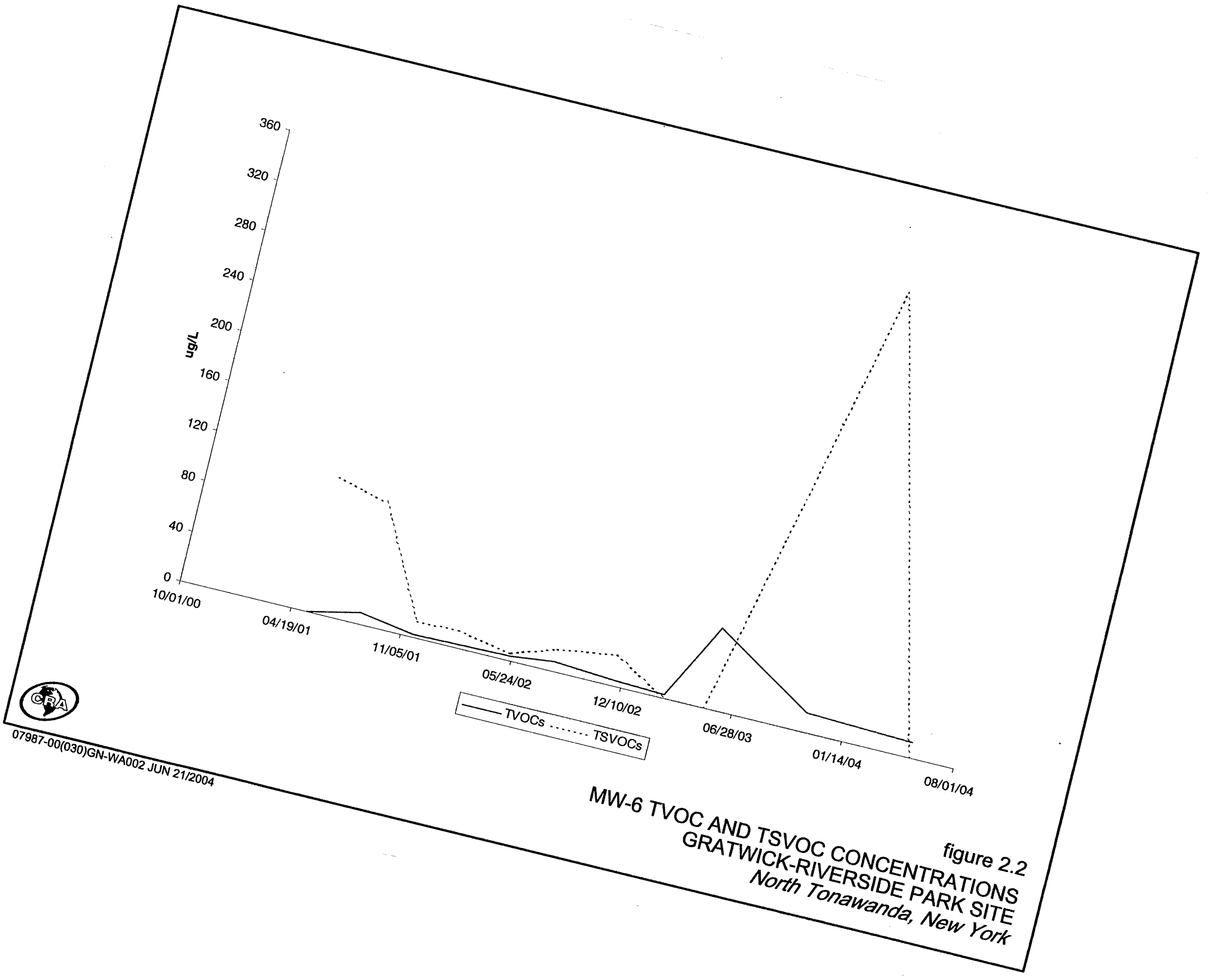
LEGEND

- 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

figure 2.1

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

07987-00(030)GN-WA001 JUN 11/2004



07987-00(030)GN-WA002 JUN 21/2004

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

figure 2.2

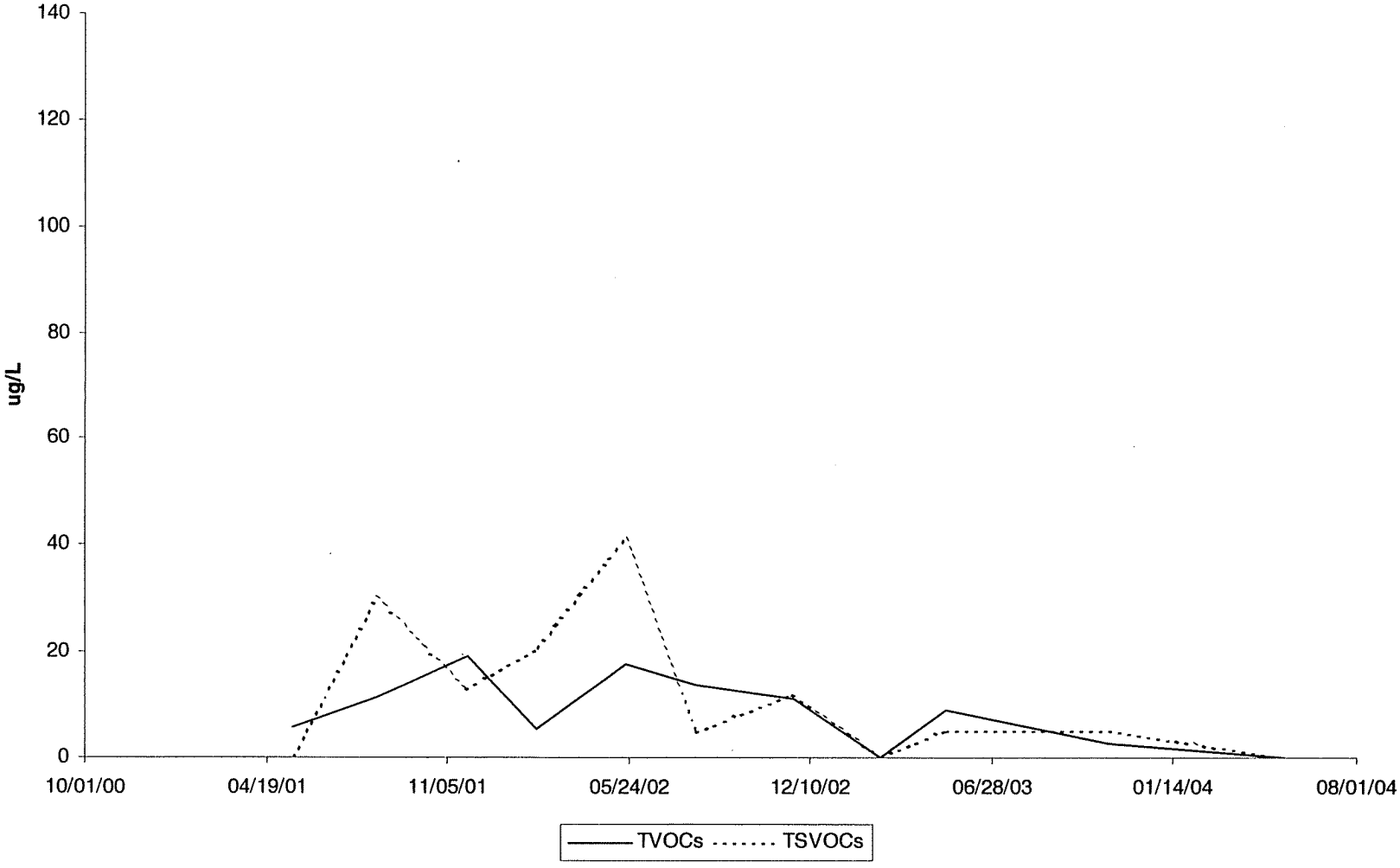


figure 2.3

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

07987-00(030)GN-WA003 JUN 21/2004

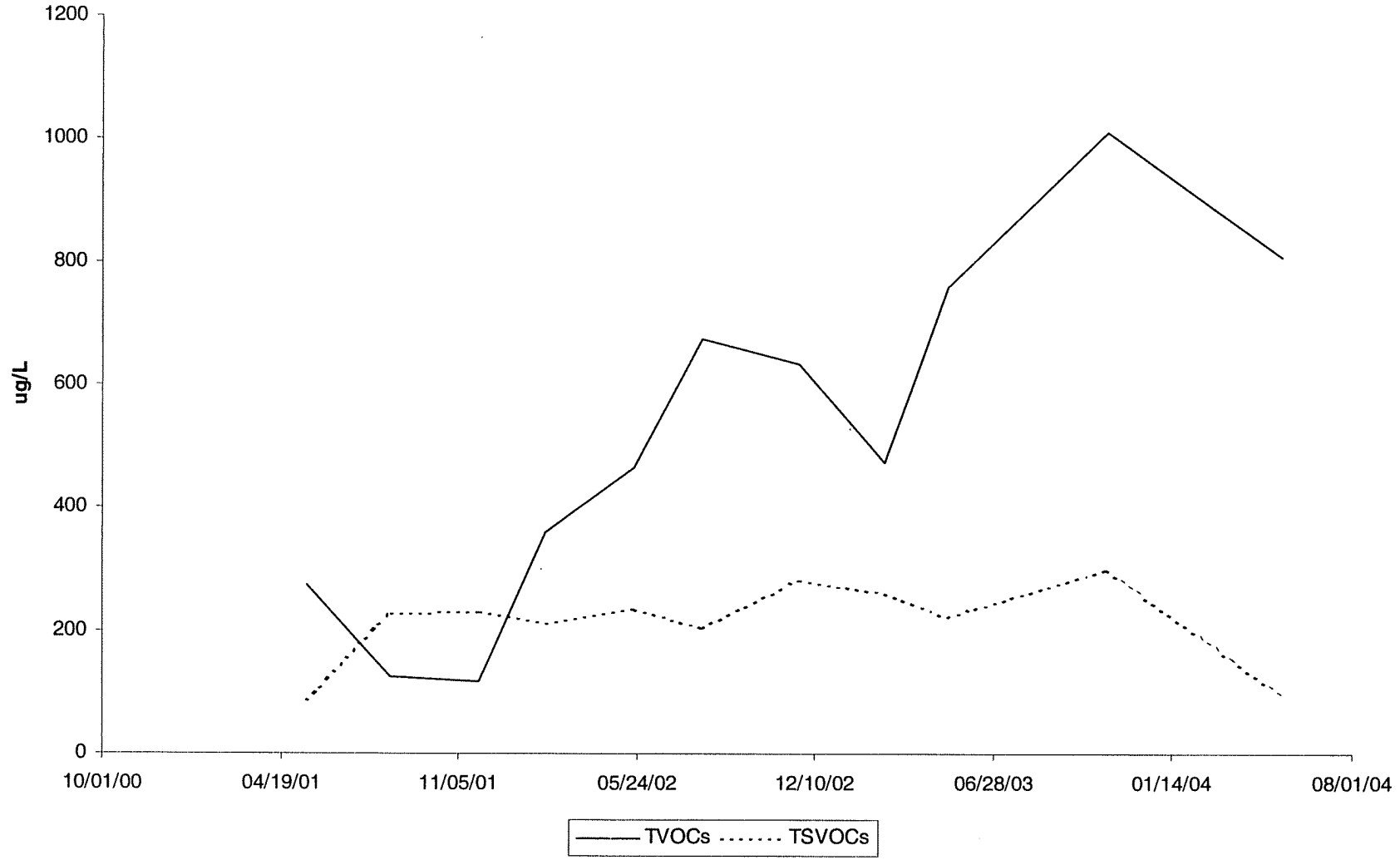


figure 2.4

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

07987-00(030)GN-WA004 JUN 21/2004

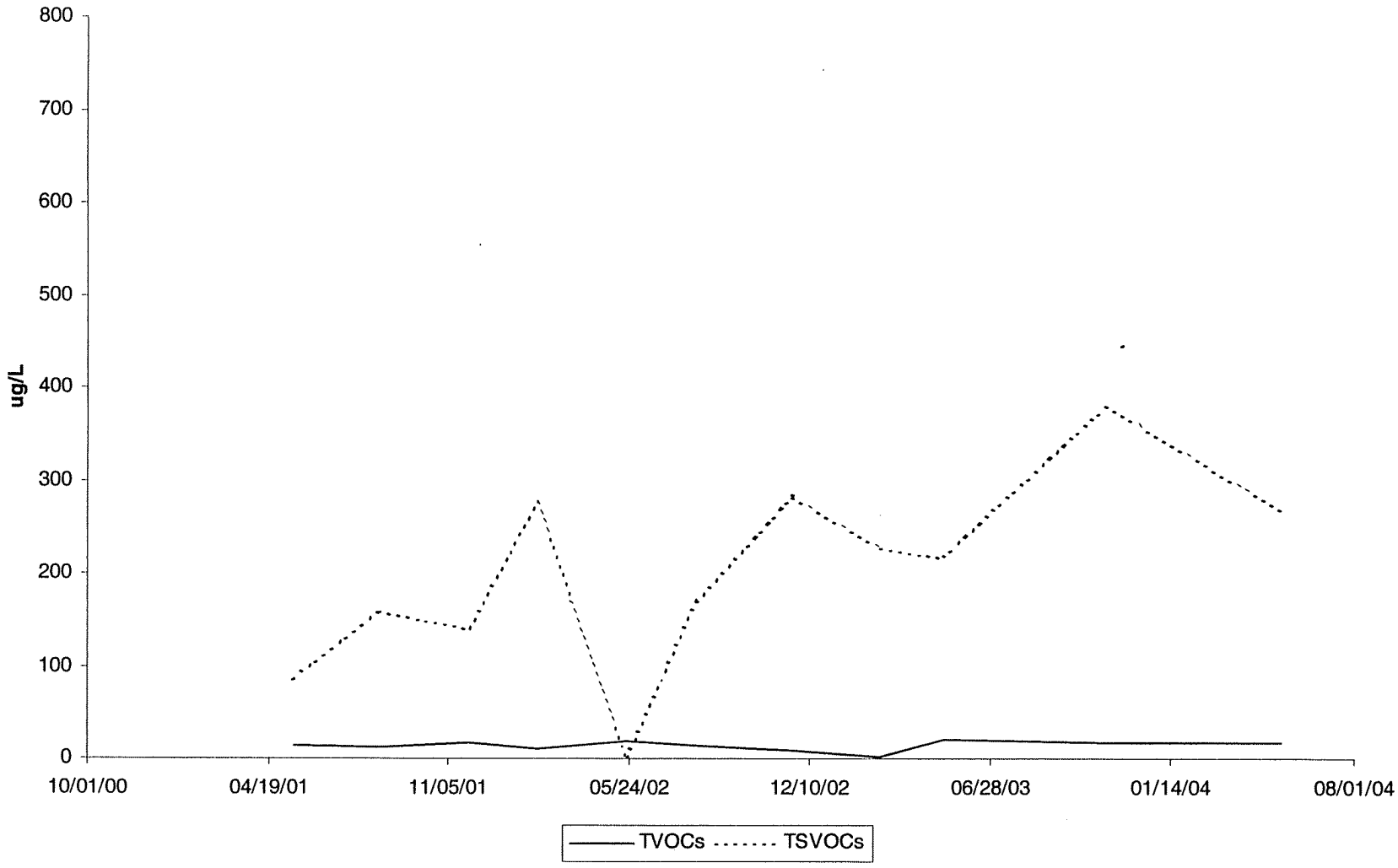


figure 2.5

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

07987-00(030)GN-WA005 JUN 21/2004

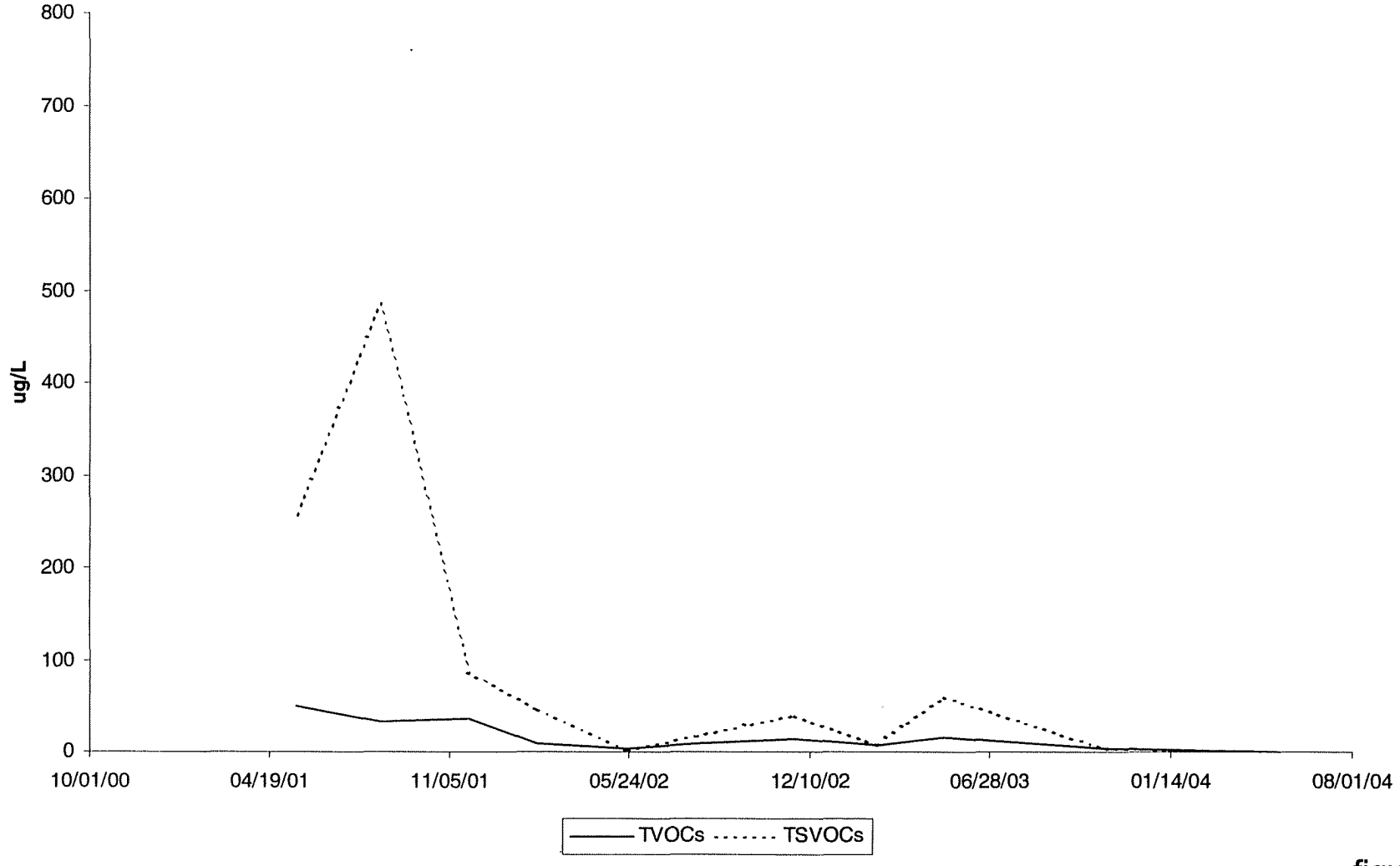


figure 2.6

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

07987-00(030)GN-WA006 JUN 21/2004

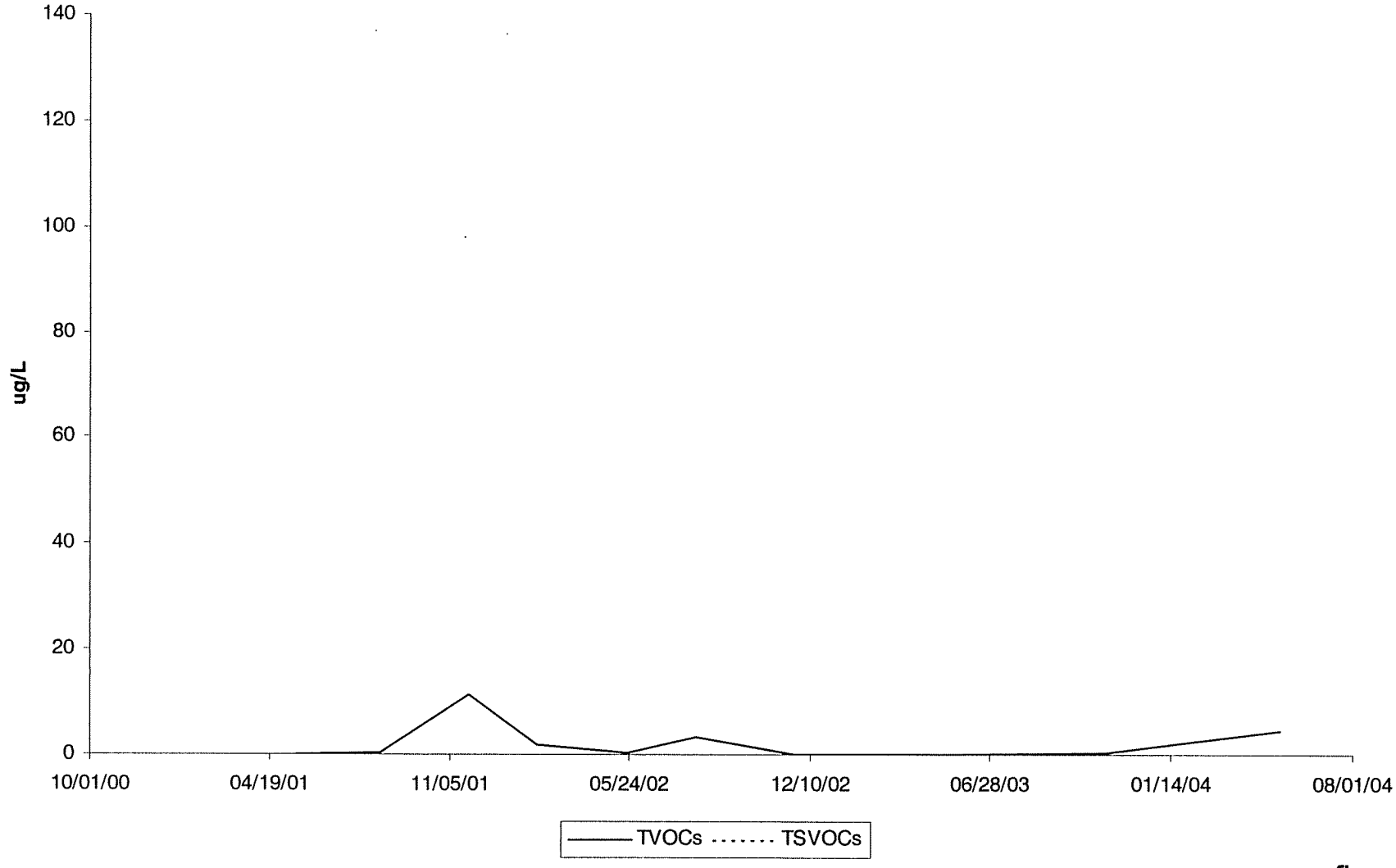


figure 2.7

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

07987-00(030)GN-WA007 JUN 21/2004

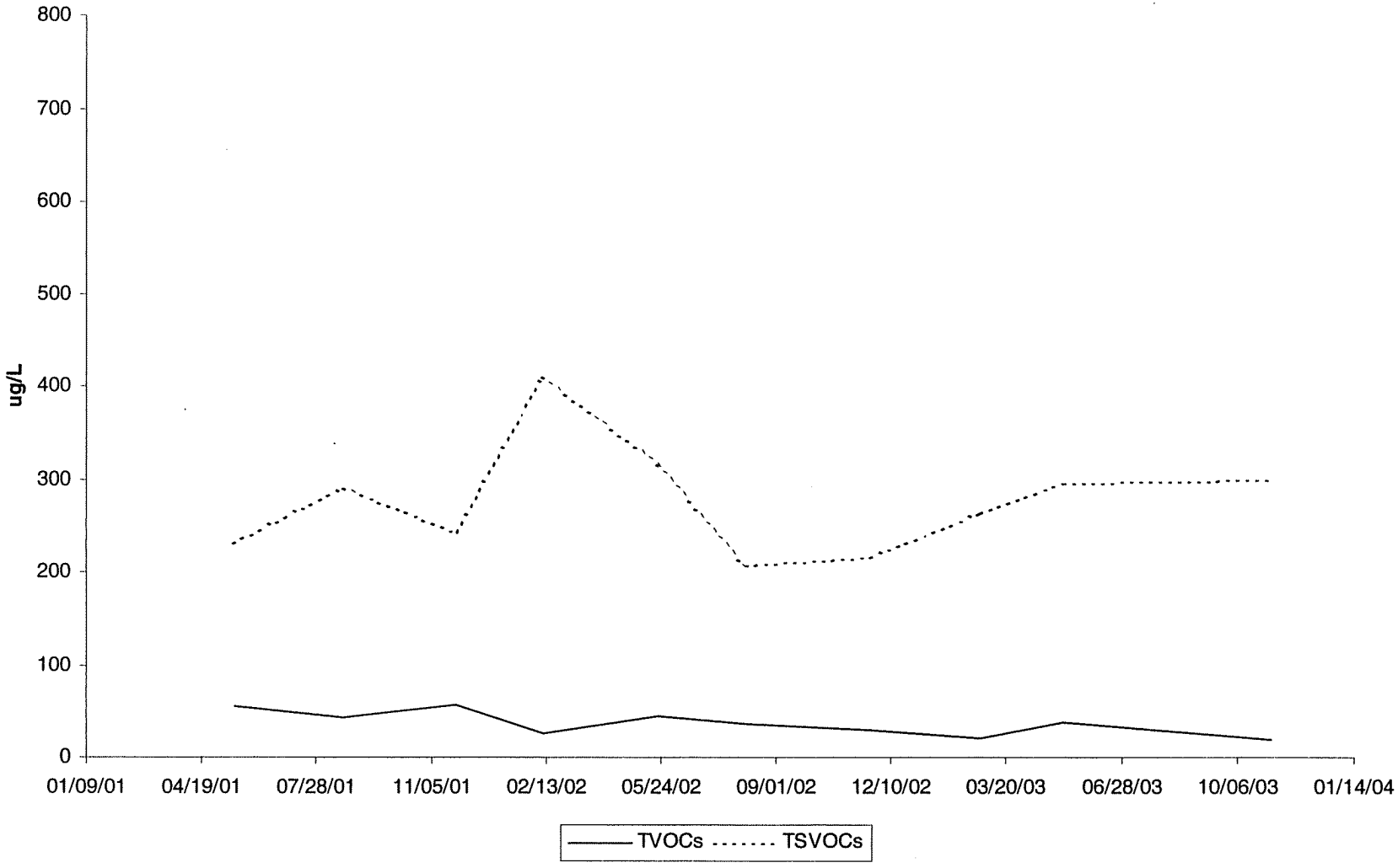


figure 2.8

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

07987-00(030)GN-WA008 JUN 21/2004

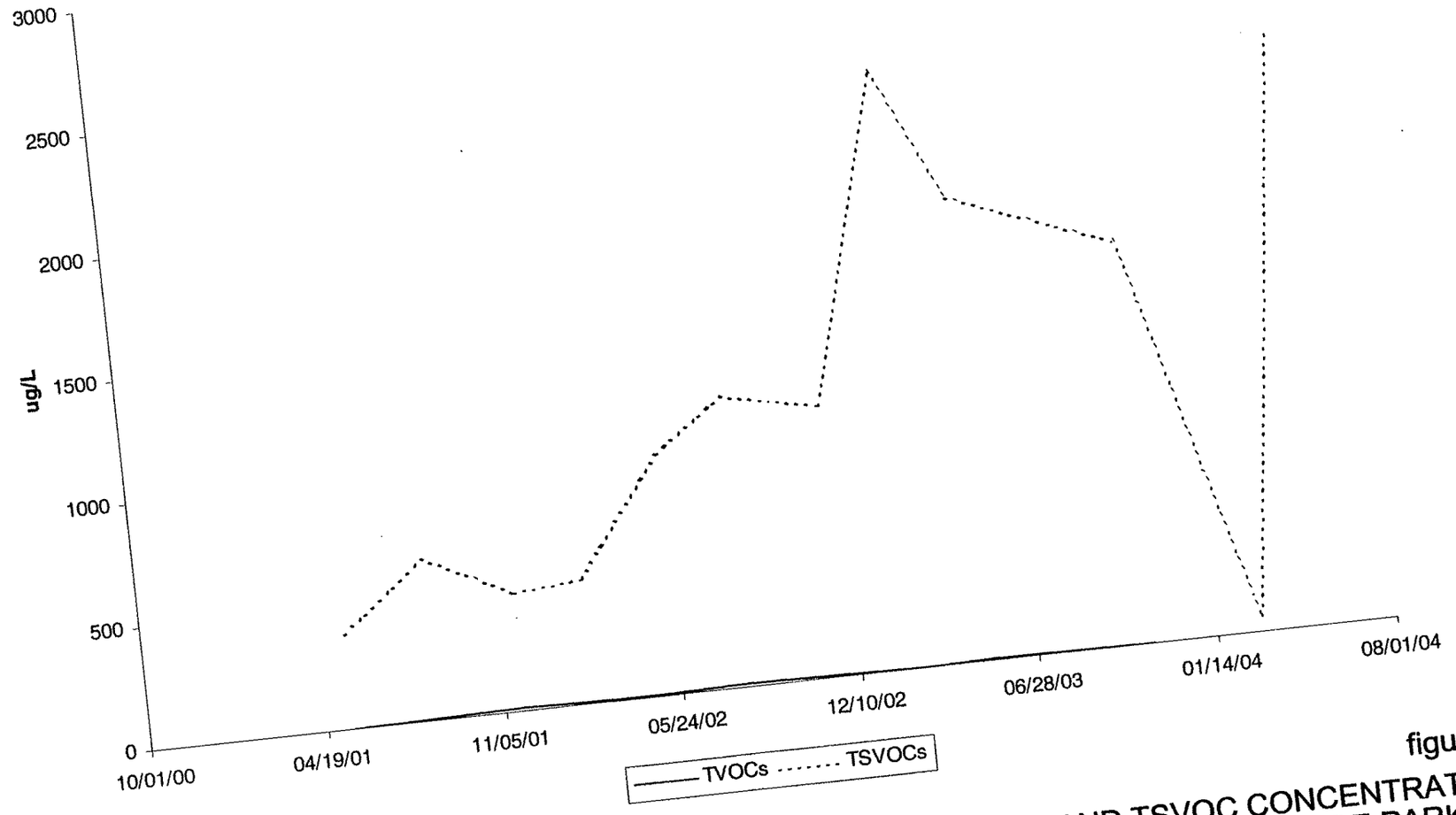


figure 2.9

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

07987-00(030)GN-WA009 JUN 21/2004

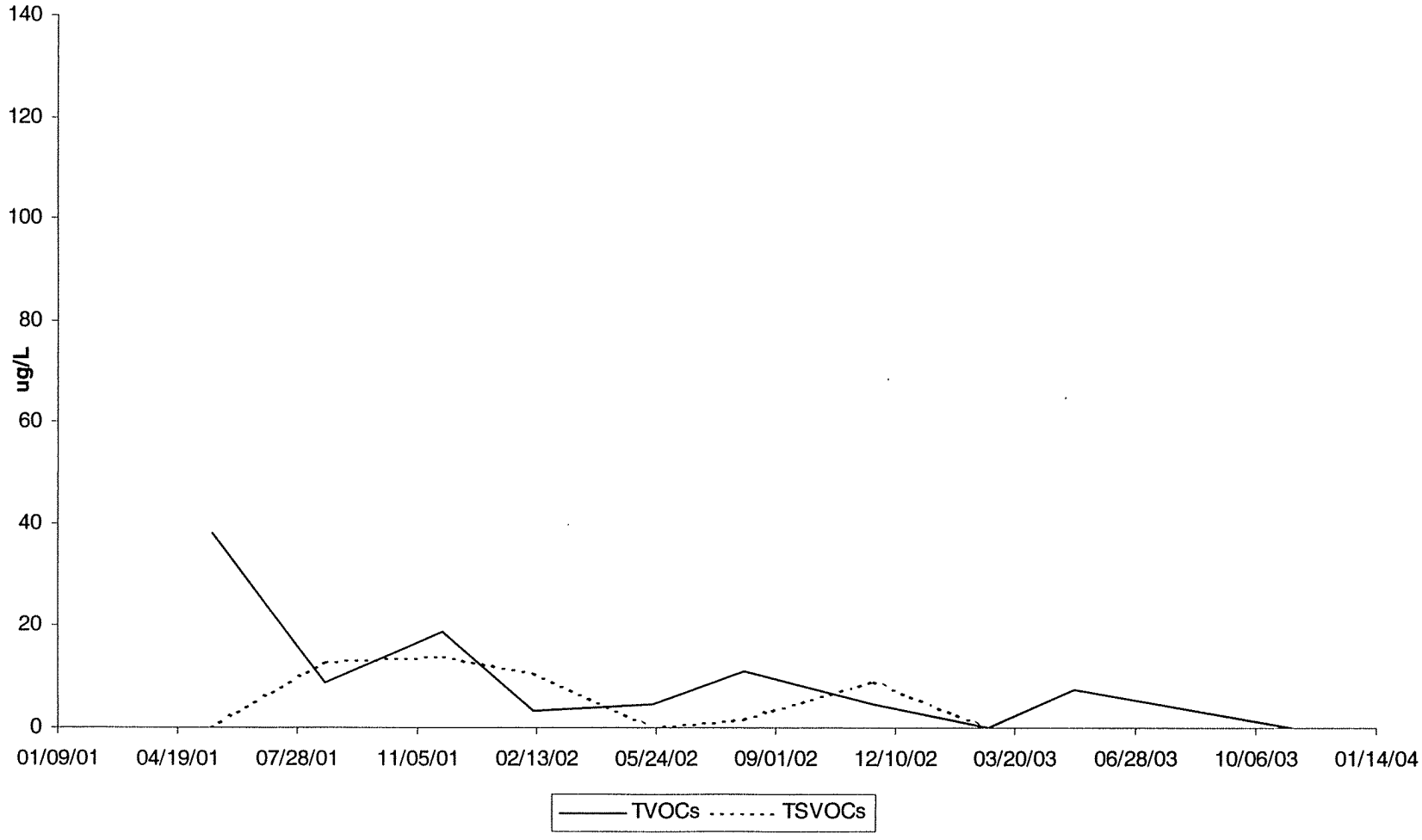


figure 2.10

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

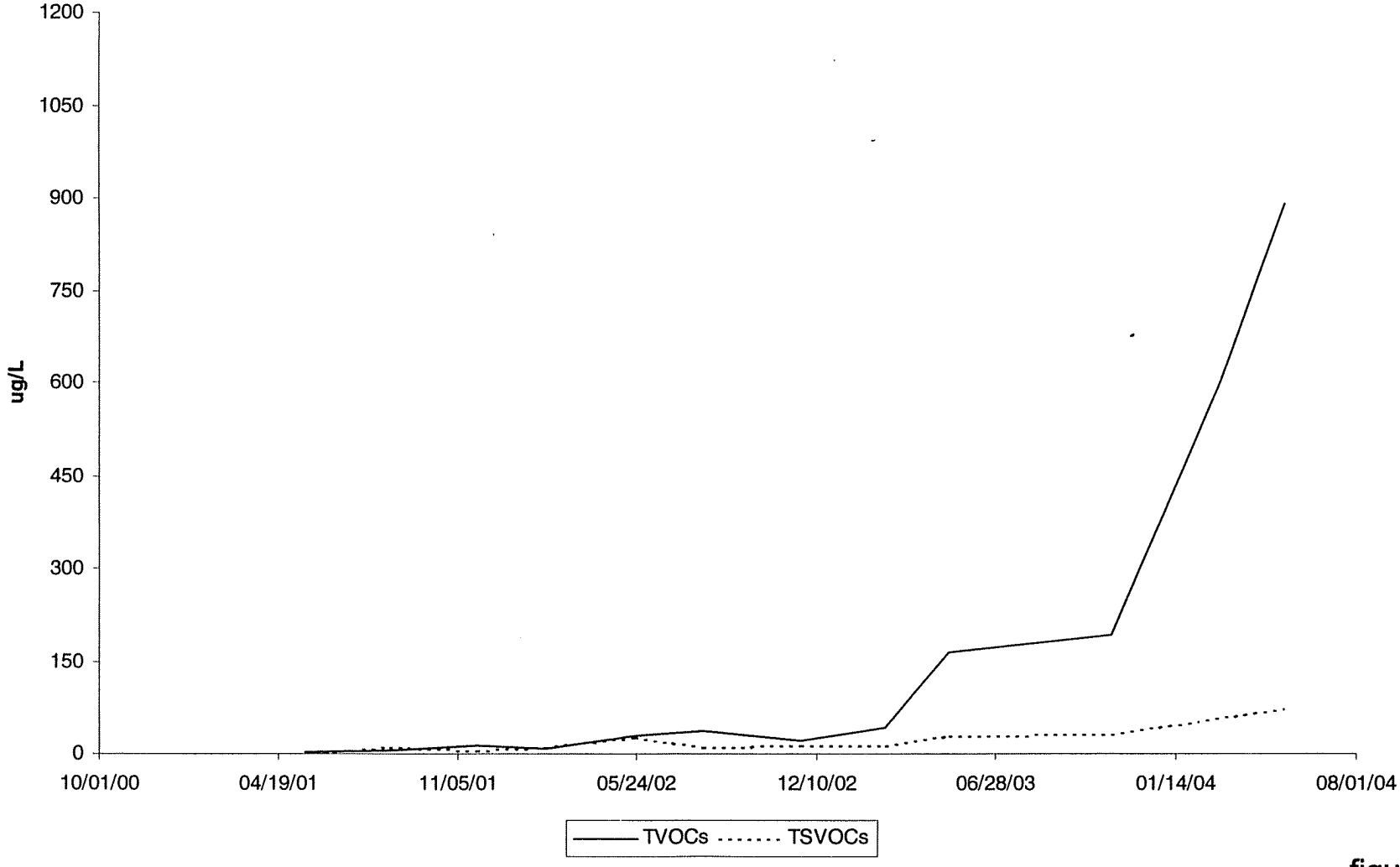


figure 2.11

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

07987-00(030)GN-WA011 JUN 21/2004

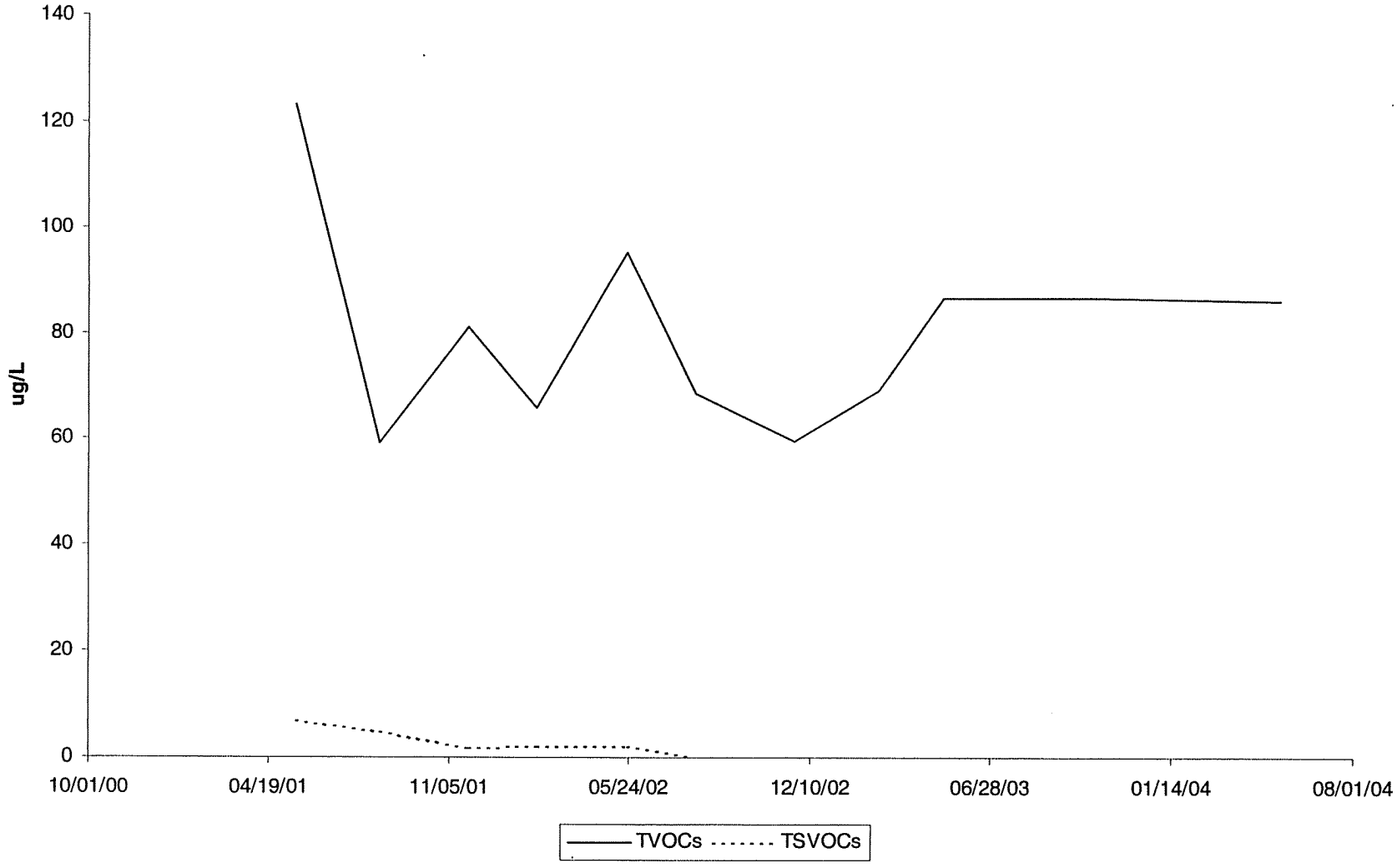


figure 2.12

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

07987-00(030)GN-WA012 JUN 21/2004

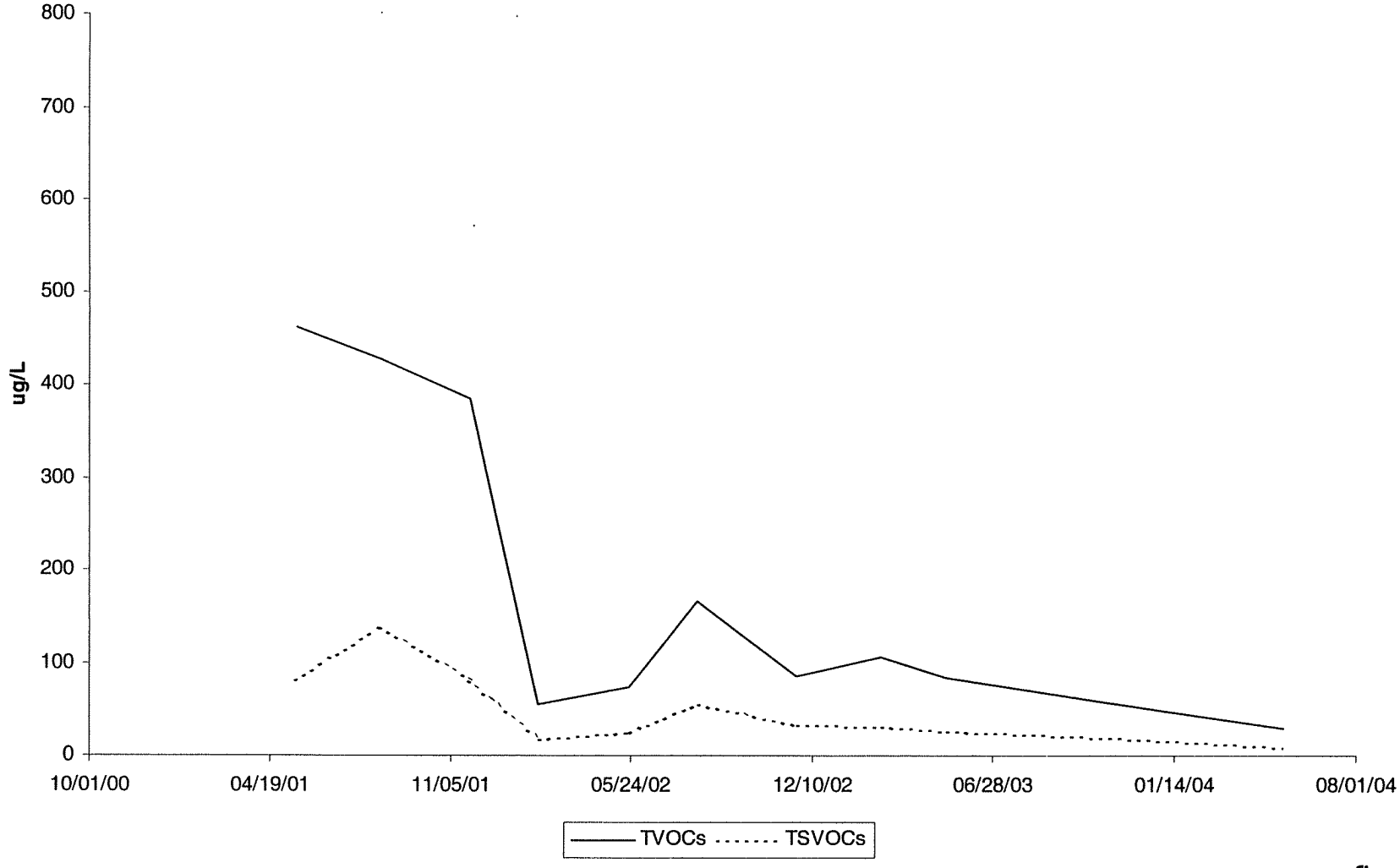


figure 2.13

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

07987-00(030)GN-WA013 JUN 21/2004

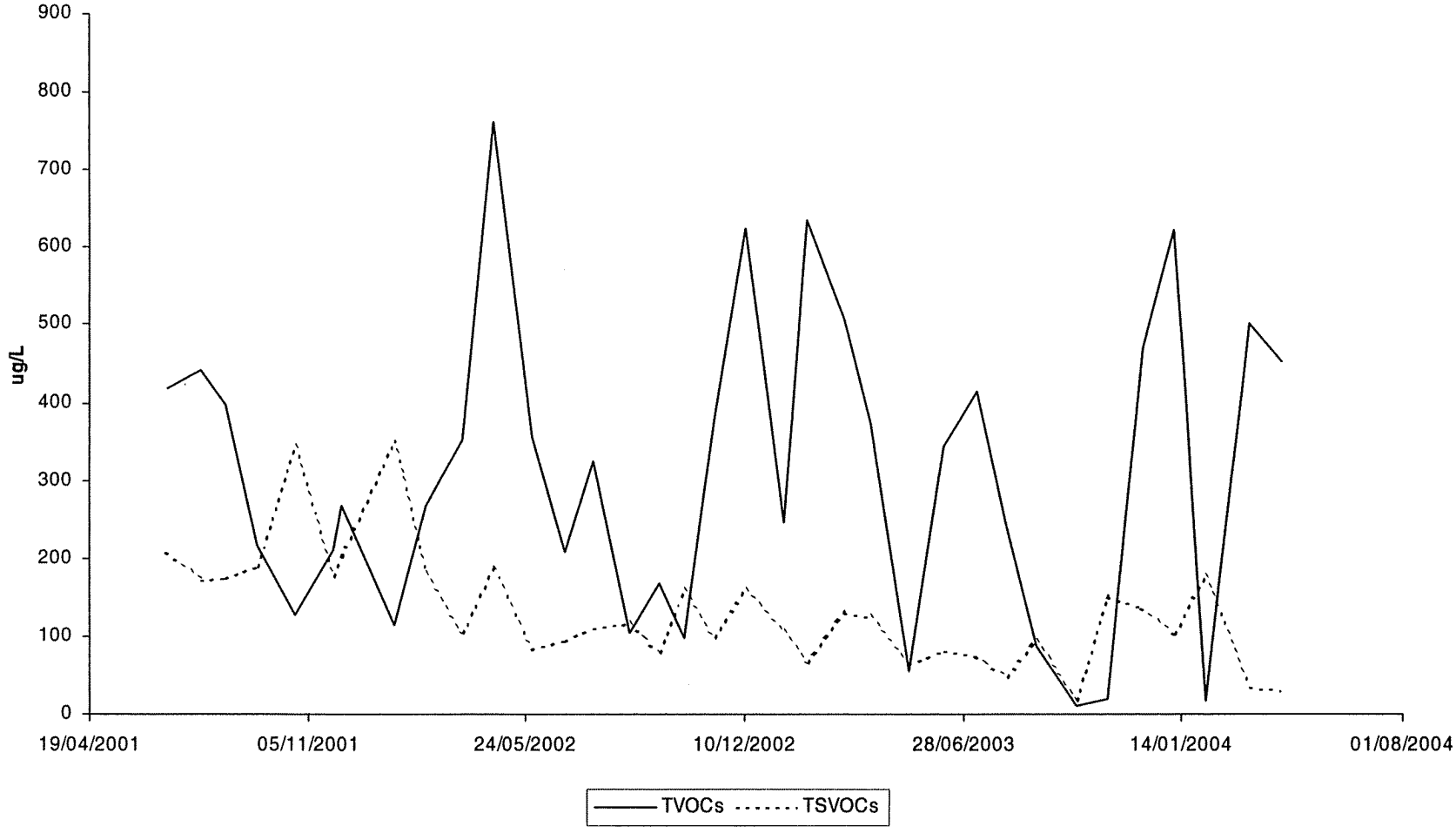


figure 2.14

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

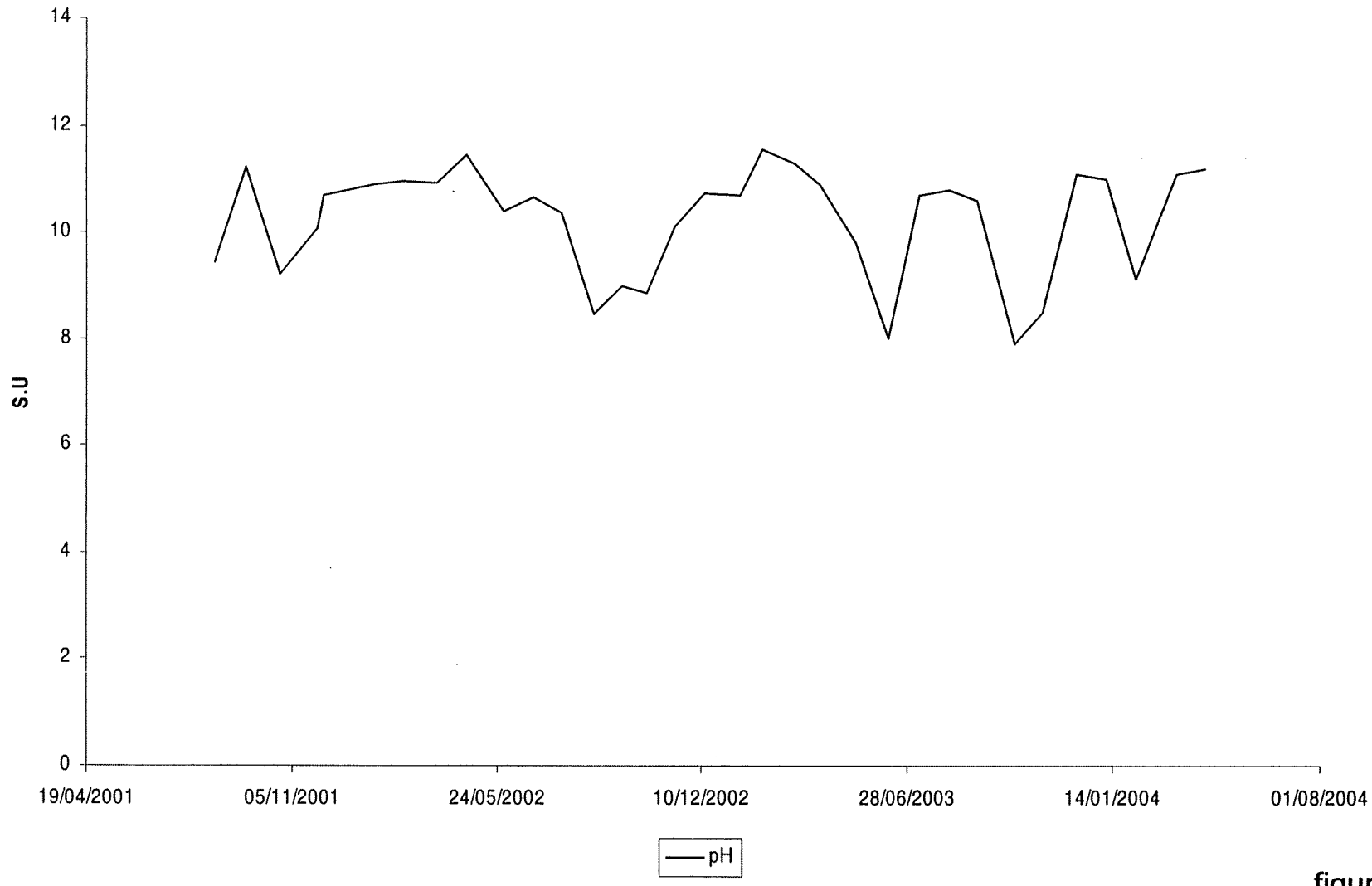


figure 2.15

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

07987-00(030)GN-WA015 JUN 11/2004

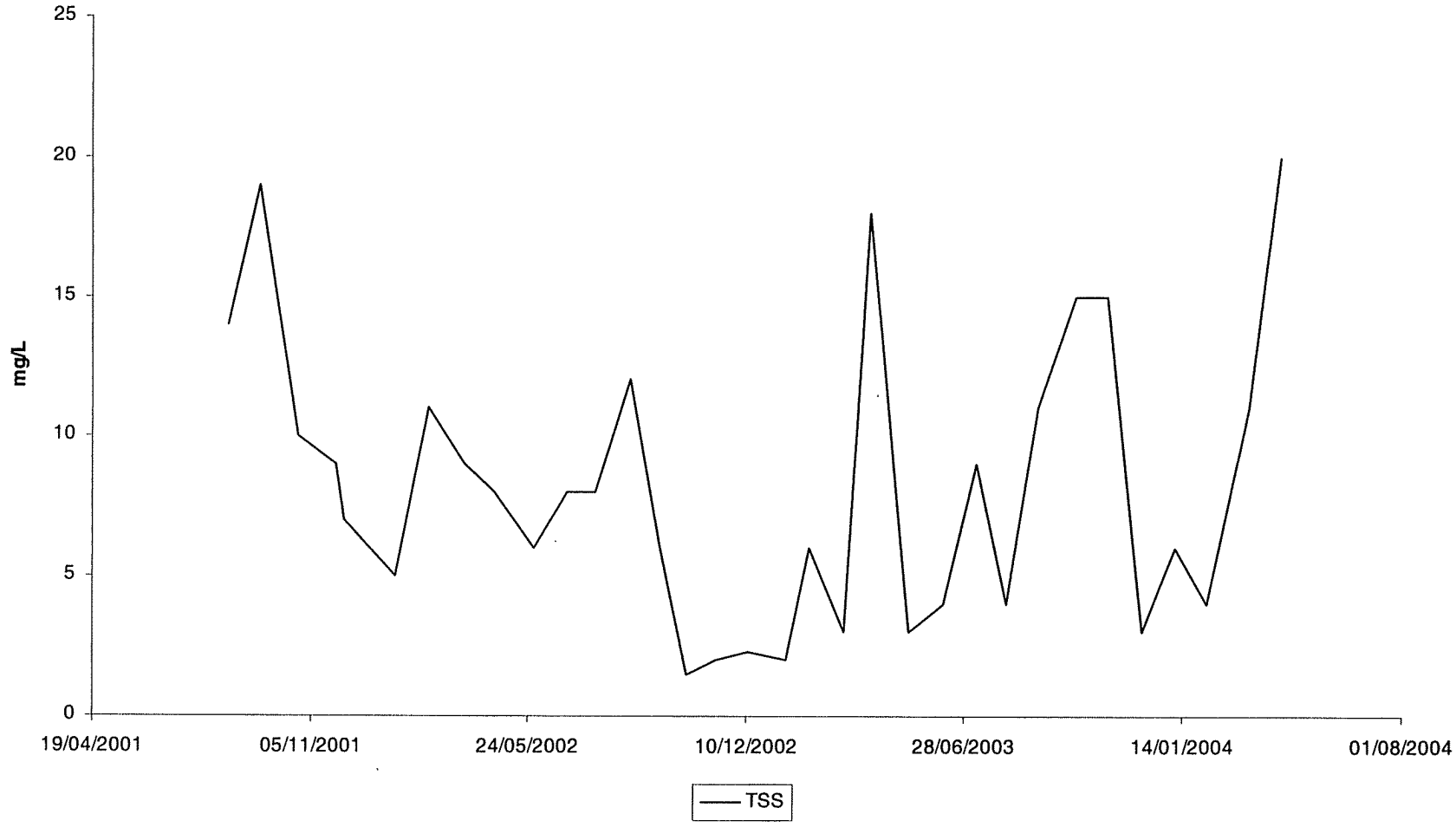


figure 2.16

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

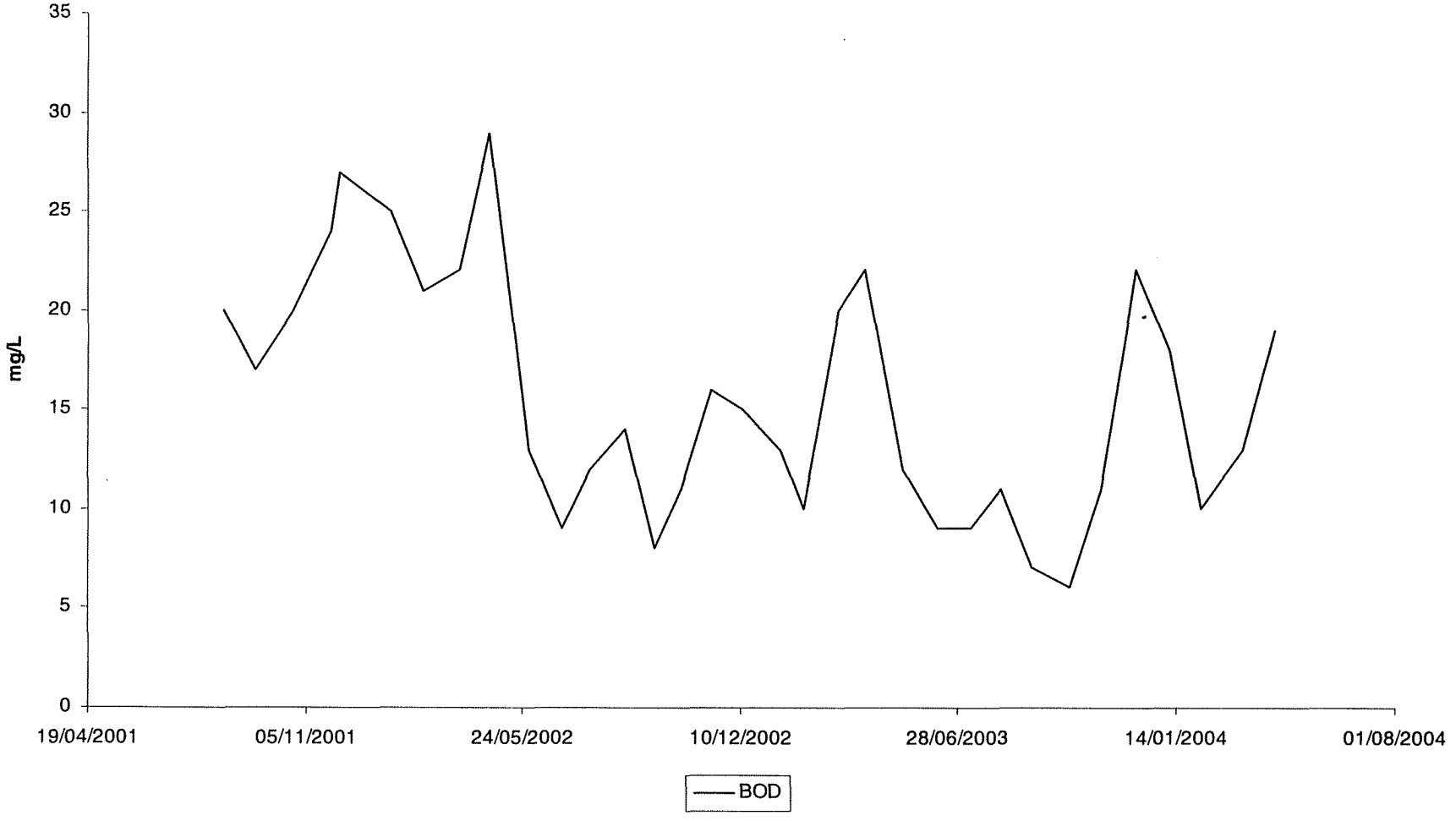


figure 2.17

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

07987-00(030)GN-WA017 JUN 11/2004

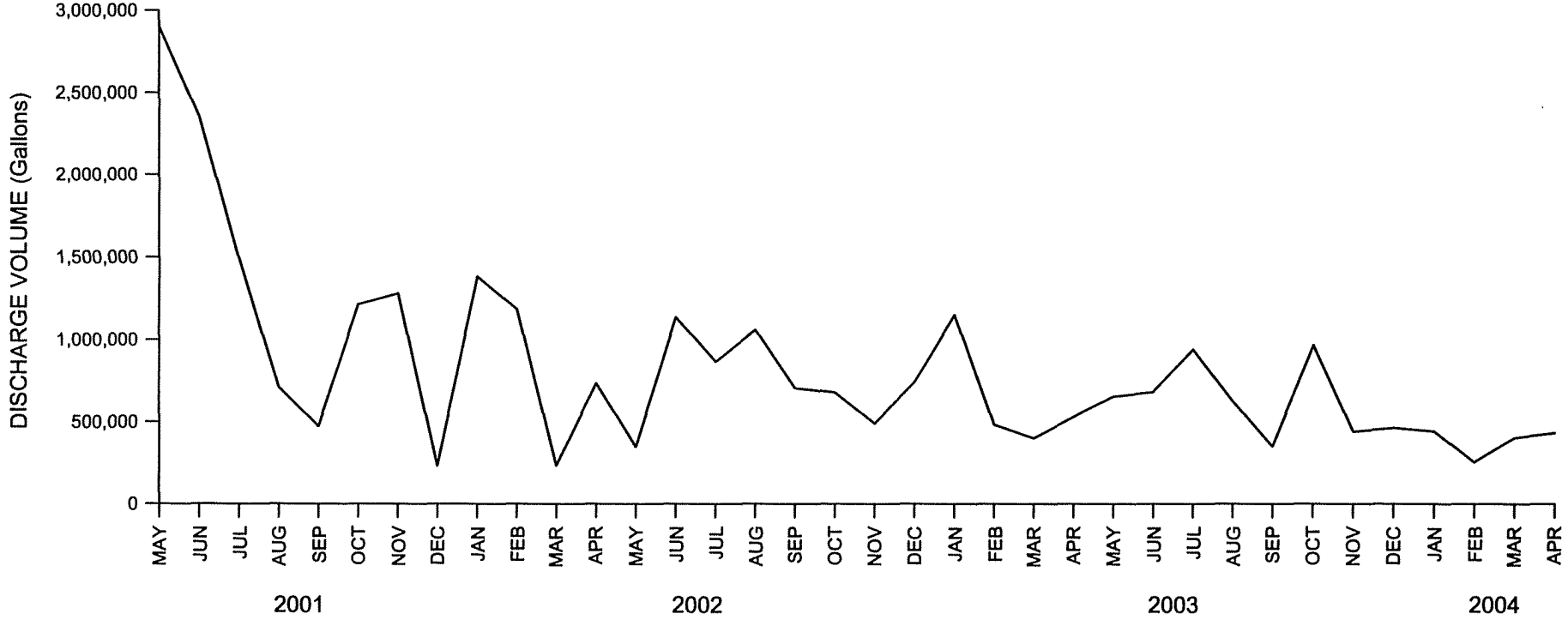


figure 2.18

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

07987-00(030)GN-WA018 JUN 11/2004

TABLES

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).

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
December 12, 2000	NM				564.26	567.05	563.84	NM	564.24		567.20	564.58	NM	565.24
January 8, 2001	NM		NM		563.94	567.21	563.82	NM	563.84		567.30	564.01	NM	563.90
March 29, 2001	NM		NM		564.19	567.80	563.82	NM	564.10		566.89	564.28	NM	564.12
May 11, 2001	559.31		561.98		564.39	563.53	564.54	564.54	564.25		561.60	564.53	564.38	564.50
May 18, 2001	NM		562.03		564.21	563.08	564.54	564.49	564.25		561.97	564.53	564.33	564.55
May 25, 2001	NM		NM		564.46	562.80	564.52	563.80	564.22		561.71	564.28	563.63	564.50
June 1, 2001	559.34		561.97		564.51	562.74	564.52	563.52	564.20		561.77	564.18	563.47	564.49
June 8, 2001	NM		562.49		564.63	562.65	564.82	564.75	564.36		561.59	564.60	564.68	564.78
June 15, 2001	560.79	560.59	562.60		564.67	562.54	564.76	564.71	564.53	560.53	561.48	564.77	564.71	564.79
June 22, 2001	560.77	560.55	562.53		564.65	562.50	564.72	564.90	564.43	560.44	561.41	564.66	564.86	564.72
June 29, 2001	560.62	560.40	562.42		564.51	562.42	564.66	564.52	564.35	560.38	561.39	564.57	564.48	564.59
July 31, 2001	559.87	559.21	562.90		564.49	562.19	564.71	564.66	564.35	560.25	561.30	564.60	564.68	565.70
August 20, 2001	561.49	561.07	565.23	(1)	564.60	562.09	563.82	564.69	564.46	560.25	561.29	564.77	564.64	564.81
September 28, 2001	561.03	560.56	563.03		564.61	562.13	564.25	564.68	564.48	560.27	561.32	564.79	564.68	564.99
October 22, 2001	561.38	562.36	567.06	(3)	564.61	562.08	564.41	(2)	564.33	560.43	561.37	564.58	564.26	564.33
November 27, 2001	561.45	560.94	564.53		563.95	561.88	563.65	(2)	563.83	560.45	561.36	564.04	563.54	563.87
December 20, 2001	560.96	560.50	564.39		564.47	561.83	564.78	564.69	564.27	559.75	561.25	564.72	564.45	564.86
January 29, 2002	560.74	560.15	563.75		564.09	561.83	563.87	563.89	563.99	560.98	561.89	564.12	563.74	564.01
February 11, 2002	560.80	560.28	564.19		564.22	561.73	563.84	564.03	564.07	561.06	561.50	564.18	563.97	564.19
March 25, 2002	560.55	560.10	563.25		564.10	561.72	563.51	(2)	564.03	560.65	561.60	564.02	563.59	563.83
April 24, 2002	562.54	562.05	564.12		564.60	561.88	564.70	564.61	564.49	561.13	561.95	564.67	564.19	564.72
May 21, 2002	561.74	561.28	564.10		564.79	561.97	564.84	564.76	564.68	560.05	561.38	564.85	564.66	564.84
June 20, 2002	561.67	561.24	565.58		564.74	561.92	564.56	564.58	564.62	560.68	561.54	564.85	564.68	564.80
July 18, 2002	561.46	560.99	564.99		564.78	561.89	565.00	564.89	564.66	560.79	561.65	564.90	564.90	564.93
August 6, 2002	561.26	560.79	565.89		564.86	561.92	564.70	564.65	564.71	561.05	561.93	564.90	564.59	564.85
September 12, 2002	561.60	561.14	565.60		564.80	561.82	565.05	565.04	564.67	561.10	561.99	564.87	564.95	564.97
October 30, 2002	561.63	561.21	566.24		564.18	561.97	563.95	(2)	564.07	561.07	561.95	564.10	563.75	564.00
November 21, 2002	561.12	560.67	554.47	(4)	564.05	562.05	563.94	(2)	563.98	558.03	561.41	564.20	563.71	564.06
December 11, 2002	561.55	561.08	555.09		563.99	562.04	563.85	(2)	563.84	559.95	561.25	563.94	563.72	563.87

Notes:

(1) Water level monitored on 09/14/01 was 563.87 ft amsl which provided an inward gradient.

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

(3) Water level monitored on 10/27/01 was 563.56 ft. which provided an inward gradient.

(4) Inspection of the groundwater collection pipe valves in MH6 on November 18, 2002 identified that they were closed. The valves were opened on November 18, 2002 and the water level dropped approximately 6 feet in 10 minutes.

TABLE 2.2

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

Date	*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)	573.35		574.37	568.46		574.01	574.66	576.23			
December 12, 2000	565.07		567.08	NM		564.45	564.85	567.15			
January 8, 2001	563.95		567.29	NM	NM	564.01	564.00	567.35			567.29
March 29, 2001	564.21		567.96	NM	NM	564.24	564.25	568.06			NM
May 11, 2001	564.58		561.95	564.70	564.15	564.63	564.59	562.53			562.45
May 18, 2001	564.59		562.49	564.65	564.12	564.66	564.66	563.05			562.55
May 25, 2001	564.57		561.99	564.80	564.17	564.63	564.60	562.54			562.48
June 1, 2001	564.59		562.06	565.00	564.19	564.66	564.60	562.57			562.51
June 8, 2001	564.87		561.89	565.05	562.45	564.96	564.89	562.47			562.42
June 15, 2001	564.91	561.12	561.69	565.05	562.34	564.93	564.88	562.45	562.32		562.29
June 22, 2001	564.87	561.05	561.54	565.18	562.29	565.00	564.80	562.19	562.32		562.14
June 29, 2001	564.68	560.97	561.46	564.83	561.80	564.75	564.68	562.11	562.45		562.06
July 31, 2001	564.78	560.73	561.19	564.96	560.77	564.85	564.76	562.45	562.45		561.69
August 20, 2001	564.83	560.50	561.05	564.99	560.42	564.88	564.85	561.55	561.72		561.54
September 28, 2001	564.85	560.61	561.07	564.95	560.36	564.87	564.84	561.58	561.70		561.52
October 22, 2001	564.58	560.51	561.27	564.61	560.42	564.61	564.62	561.75	562.10		561.72
November 27, 2001	563.89	559.51	561.30	564.05	560.06	563.89	563.94	561.71	561.87		563.82
December 20, 2001	564.96	561.31	560.73	564.96	560.23	564.99	565.05	561.77	561.89		561.71
January 29, 2002	564.06	Blocked	561.91	563.92	560.29	564.03	564.08	562.31	562.53		562.31
February 11, 2002	564.28	561.23	561.93	564.53	560.24	564.35	564.35	562.52	562.18		562.54
March 25, 2002	563.87	560.97	561.60	564.15	560.34	563.85	563.95	562.45	562.77		562.61
April 24, 2002	564.79	561.41	561.95	564.86	560.63	564.86	564.84	562.96	563.09		562.95
May 21, 2002	564.95	560.35	560.89	565.07	560.89	565.03	564.98	563.11	563.25	562.17	563.10
June 20, 2002	564.85	560.98	561.50	564.88	561.04	564.90	564.94	562.91	562.98	562.00	562.90
July 18, 2002	565.09	561.07	561.80	565.22	560.95	565.17	565.08	562.84	561.83	561.93	562.83
August 6, 2002	564.88	561.33	561.88	564.90	561.07	564.95	564.91	562.75	562.08	561.86	562.75
September 12, 2002	565.09	561.34	561.91	565.25	561.09	565.20	565.05	562.66	562.11	561.75	562.63
October 30, 2002	564.03	561.36	561.95	564.16	561.31	564.14	564.00	562.57	562.68	561.62	562.56
November 21, 2002	564.04	561.49	560.99	564.15	561.44	564.19	564.18	562.74	562.88	561.82	562.73
December 11, 2002	564.01	561.51	560.73	564.14	561.45	564.09	564.02	562.91	563.07	562.01	562.94

Notes:

(1) Water level monitored on 09/14/01 was 563.87 ft amsl which provided an inward gradient.

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

(3) Water level monitored on 10/27/01 was 563.56 ft. which provided an inward gradient.

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 16, 2003	561.65	561.20	556.15	564.03	562.27	563.88	(2)	564.12	561.04	561.95	564.27	563.52	564.10
February 25, 2003	561.58	561.10	555.74	563.80	561.85	563.71	(2)	563.67	560.60	561.49	563.81	563.34	563.81
March 14, 2003	561.65	561.17	555.75	563.75	561.69	563.74	(2)	563.61	560.61	561.49	563.77	563.24	563.77
April 14, 2003	561.68	561.22	554.54	564.32	562.42	564.34	564.30	564.17	558.65	561.42	564.39	564.24	564.40
May 8, 2003	561.52	561.03	555.93	564.37	562.38	564.41	564.29	564.21	560.76	561.59	564.36	564.27	564.37
June 19, 2003	562.26	561.83	556.02	564.73	562.43	564.83	564.78	564.59	560.85	561.60	564.77	564.66	564.81
July 21, 2003	561.21	560.46	556.06	564.68	562.31	564.64	564.49	564.58	560.89	561.74	564.81	564.44	564.75
August 28, 2003	561.65	561.20	554.61	564.65	562.21	564.76	564.64	564.51	558.52	561.29	564.67	564.60	564.75
September 30, 2003	561.57	561.10	555.08	564.64	562.53	564.89	(2)	564.49	559.88	561.35	564.76	564.67	564.91
October 20, 2003	561.48	561.07	554.98	564.61	562.52	564.93	(2)	564.45	559.77	561.17	564.68	564.63	564.86
November 3, 2003	561.53	561.08	555.94	564.29	562.33	563.89	(2)	564.11	560.76	561.12	563.56	564.36	564.15
December 23, 2003	561.08	559.49	555.82	564.29	562.30	564.04	(2)	564.17	560.67	561.48	564.33	(2)	564.18
January 21, 2004	snow	560.33	555.84	565.24	562.32	564.19	(2)	564.12	560.7	561.55	564.3	(2)	564.26
February 12, 2004	snow	561.08	556.12	563.99	562.16	563.76	(2)	563.87	560.95	561.81	564.00	(2)	563.88
March 4, 2004	561.33	561.13	555.9	564.17	562.21	557.07	(2)	564	560.75	561.61	564.31	(2)	564.19
April 16, 2004	560.05	558.78	554.91	564.59	562.48	564.49	(2)	564.36	559.59	561.71	564.56	564.43	564.56
May 14, 2004	560.17	559.71	554.56	564.49	562.39	564.57	564.55	564.34	559.45	561.7	564.51	564.48	564.54

Notes:

(1) Water level monitored on 09/14/01 was 563.87 ft amsl which provided an inward gradient.

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

(3) Water level monitored on 10/27/01 was 563.56 ft. which provided an inward gradient.

(4) Inspection of the groundwater collection pipe valves in MH6 on November 18, 2002 identified that they were closed. The valves were opened on November 18, 2002 and the water level dropped approximately 6 feet in 10 minutes.

snow well could not be accessed due to excessive snow and ice

TABLE 2.2

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

Date	*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)	573.35		574.37	568.46		574.01	574.66	576.23			
January 16, 2003	564.13	561.68	562.00	564.11	561.83	564.14	564.20	563.17	563.37	562.28	563.20
February 25, 2003	563.87	561.60	561.48	564.21	561.56	563.90	563.94	562.89	563.07	562.01	562.91
March 14, 2003	563.79	561.57	561.46	564.11	561.54	563.92	563.91	562.90	563.09	562.05	562.93
April 14, 2003	564.48	558.53	560.98	564.45	561.56	564.54	564.52	563.36	563.54	562.49	563.40
May 8, 2003	564.48	561.03	561.56	564.61	561.61	564.59	564.44	563.07	563.26	562.01	563.11
June 19, 2003	564.92	561.12	561.56	564.96	561.94	564.99	564.95	563.10	563.41	562.25	563.15
July 21, 2003	564.81	561.10	561.69	564.78	562.03	564.84	564.88	562.89	563.03	561.98	562.89
August 28, 2003	564.86	564.37	562.35	564.91	562.19	564.94	564.85	566.17	566.48	566.36	566.59
September 30, 2003	565.02	558.68	560.17	565.08	562.26	565.08	565.02	562.77	562.89	562.02	562.78
October 30, 2003	564.94	558.66	560.02	565.03	562.25	565.05	564.96	562.75	562.88	562.01	562.76
November 3, 2003	564.26	561.01	561.57	564.28	562.52	564.27	564.31	562.85	563.00	561.91	562.83
December 23, 2003	564.24	560.94	561.34	564.36	562.75	564.08	564.28	563.20	563.31	562.28	563.20
January 21, 2004	564.33	snow	561.47	564.36	562.49	564.41	564.35	562.72	snow	561.74	562.68
February 12, 2004	563.93	561.23	561.75	564.16	562.30	563.96	563.98	562.68	snow	561.73	562.66
March 4, 2004	564.25	561.04	561.56	564.26	562.07	564.34	564.35	562.70	562.75	561.75	562.66
April 16, 2004	564.64	559.85	561.38	564.69	561.00	564.74	564.66	562.64	562.79	561.72	562.63
May 14, 2004	564.63	559.87	561.39	564.71	560.80	564.68	564.55	562.71	562.74	561.74	562.67

(1) Water level monitored on 09/14/01 was 563.87 ft amsl which provided an inward gradient.

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

(3) Water level monitored on 10/27/01 was 563.56 ft. which provided an inward gradient.

TABLE 2.3

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

Date Monitored		*5/11/2001*		*5/18/2001*		*5/25/2001*		*6/1/2001*		*6/8/2001*		*6/15/2001*	
		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	564.54	Inward	564.49	NA	563.80	NA	563.52	Inward	564.75	NA	564.71	Inward
Inner	MH2	559.31		NM		NM		559.34		NM		560.79	
Outer	River North	564.54	Inward	564.49	Inward	563.80	NA	563.52	Inward	564.75	Inward	564.71	Inward
Inner	MH6	561.98		562.03		NM		561.97		562.49		562.60	
Outer	River Middle	564.38	NA	564.33	NA	563.63	NA	563.47	NA	564.68	NA	564.71	Inward
Inner	MH8	NM		NM		NM		NM		NM		560.53	
Outer	River South	564.70	Inward	564.65	Inward	564.80	Inward	565.00	Inward	565.05	Inward	565.05	Inward
Inner	MH12	564.15		561.12		564.17		564.19		562.45		562.34	

Date Monitored		*6/22/801*		*6/29/2001*		*7/31/2001*		*8/20/2001*		*9/28/2001*		*10/22/2001*	
		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	564.90	Inward	564.52	Inward	564.66	Inward	564.69	Inward	564.68	Inward	564.36 (2)	Inward
Inner	MH2	560.77		560.62		559.87		561.49		561.03		561.38	
Outer	River North	564.90	Inward	564.52	Inward	564.66	Inward	564.69	(1) Outward	564.68	Inward	564.36 (2)	Outward
Inner	MH6	562.53		562.42		562.90		565.23		563.03		567.06	
Outer	River Middle	564.86	Inward	564.48	Inward	564.68	Inward	564.64	Inward	564.68	Inward	564.26	Inward
Inner	MH8	560.44		560.38		560.25		560.25		560.27		560.43	
Outer	River South	565.18	Inward	564.83	Inward	564.96	Inward	564.99	Inward	564.95	Inward	564.61	Inward
Inner	MH12	562.29		561.80		560.77		560.42		560.36		560.42	

Notes:

(1) Water level monitored on 9/14/01 was 563.87 ft amsl which provided an inward gradient.
(2) River level too low to obtain a measurement at the monitoring location. Water level shown is River South Water level minus 0.25 feet.
(3) Valves in MH6 were opened on November 18, 2002.
(4) Snow covered well, could not locate.
NM - Not Measured
NA - Not Applicable

TABLE 2.3

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

Date Monitored		*11/27/2001*		*12/20/2001*		*1/29/2002*		*2/11/2002*		*3/25/2002*		*4/24/2002*	
		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	563.80 (2)	Inward	564.69	Inward	563.89	Inward	564.03	Inward	563.90 (2)	Inward	564.61	Inward
Inner	MH2	561.45		560.96		560.74		560.80		560.55		562.54	
Outer	River North	563.80 (2)	Outward	564.69	Inward	563.89	Inward	564.03	Outward	563.90 (2)	Inward	564.61	Inward
Inner	MH6	564.53		564.39		563.75		564.19		563.25		564.12	
Outer	River Middle	563.54	Inward	564.45	Inward	563.74	Inward	563.97	Inward	563.59	Inward	564.19	Inward
Inner	MH8	560.45		559.75		560.98		561.06		560.65		561.13	
Outer	River South	564.05	Inward	564.96	Inward	563.92	Inward	564.53	Inward	564.15	Inward	564.86	Inward
Inner	MH12	560.06		560.23		560.29		560.28		560.34		560.63	

Date Monitored		*5/21/2002*		*6/20/2002*		*7/18/2002*		*8/6/2002*		*9/12/2002*		*10/30/2002*	
		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	564.76	Inward	564.58	Inward	564.89	Inward	564.65	Inward	565.04	Inward	563.91 (2)	Inward
Inner	MH2	561.74		561.67		561.46		561.26		561.60		561.63	
Outer	River North	564.76	Inward	564.58	Outward	564.89	Outward	564.65	Outward	565.04	Outward	563.91 (2)	Outward
Inner	MH6	564.10		565.58		564.99		565.89		565.60		566.24	
Outer	River Middle	564.66	Inward	564.68	Inward	564.90	Inward	564.59	Inward	564.95	Inward	563.75	Inward
Inner	MH8	560.05		560.68		560.79		561.05		561.10		561.07	
Outer	River South	565.07	Inward	564.88	Inward	565.22	Inward	564.90	Inward	565.25	Inward	564.16	Inward
Inner	MH12	560.84		561.04		560.95		561.07		561.09		561.31	

Notes:

(1) Water level monitored on 9/14/01 was 563.87 ft amsl which provided an inward gradient.
(2) River level too low to obtain a measurement at the monitoring location. Water level shown is River South Water level minus 0.25 feet.
(3) Valves in MH6 were opened on November 18, 2002.
(4) Snow covered well, could not locate.
NM - Not Measured
NA - Not Applicable

TABLE 2.3

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

Date Monitored		*11/21/2002*		*12/11/2002*		*1/16/2003*		*2/25/2003*		*3/14/2003*		*4/14/2003*	
		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	563.90 (2)	Inward	563.89 (2)	Inward	563.86 (2)	Inward	563.96 (2)	Inward	563.86 (2)	Inward	564.30	Inward
Inner	MH2	561.12		561.55		561.65		561.58		561.65		561.68	
Outer	River North	563.90 (2)	Inward	563.89 (2)	Inward	563.86 (2)	Inward	563.96 (2)	Inward	563.86 (2)	Inward	564.30	Inward
Inner	MH6	554.47 (3)		555.09		556.15		555.74		555.75		554.54	
Outer	River Middle	563.71	Inward	563.72	Inward	563.52	Inward	563.34	Inward	563.24	Inward	564.24	Inward
Inner	MH8	558.03		559.95		561.04		560.60		560.61		558.65	
Outer	River South	564.15	Inward	564.14	Inward	564.11	Inward	564.21	Inward	564.11	Inward	564.45	Inward
Inner	MH12	561.44		561.45		561.83		561.26		561.54		561.56	

Date Monitored		*5/8/2003*		*6/19/2003*		*7/21/2003*		*8/28/2003*		*9/30/2003*		*10/30/2003*	
		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	564.61	Inward	564.78	Inward	564.49	Inward	564.64	Inward	564.83 (2)	Inward	564.78 (2)	Inward
Inner	MH2	561.52		562.26		561.21		561.65		561.65		561.48	
Outer	River North	564.61	Inward	564.78	Inward	564.49	Inward	564.64	Inward	564.83 (2)	Inward	564.78 (2)	Inward
Inner	MH6	555.93		556.02		556.06		554.61		554.61		554.98	
Outer	River Middle	564.27	Inward	564.66	Inward	564.44	Inward	564.6	Inward	564.6	Inward	564.63	Inward
Inner	MH8	560.76		560.85		560.89		558.52		558.52		559.77	
Outer	River South	564.61	Inward	564.96	Inward	564.78	Inward	564.91	Inward	565.08	Inward	565.03	Inward
Inner	MH12	561.61		561.94		562.03		562.19		562.26		562.25	

Notes:

(1) Water level monitored on 9/14/01 was 563.87 ft amsl which provided an inward gradient.
(2) River level too low to obtain a measurement at the monitoring location. Water level shown is River South Water level minus 0.25 feet.
(3) Valves in MH6 were opened on November 18, 2002.
(4) Snow covered well, could not locate.
NM - Not Measured
NA - Not Applicable

TABLE 2.3

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

Date Monitored		*11/21/2003*		*12/11/2003*		*1/16/2004*		*2/25/2004*		*3/14/2004*		*4/14/2004*	
		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	564.03 (2)	Inward	564.11 (2)	Inward	564.11 (2)		563.91 (2)		564.01 (2)	Inward	564.44 (2)	Inward
Inner	MH2	561.53		561.08		(4)		(4)		561.33		560.05	
Outer	River North	564.03 (2)	Inward	564.11 (2)	Inward	564.11 (2)	Inward	563.91 (2)	Inward	564.01 (2)	Inward	564.44 (2)	Inward
Inner	MH6	555.94		555.82		555.84		556.12		555.9		554.91	
Outer	River Middle	564.36	Inward	564.11 (2)	Inward	564.11 (2)	Inward	563.91 (2)	Inward	564.01 (2)	Inward	564.43	Inward
Inner	MH8	560.76		560.67		560.7		560.95		560.75		559.59	
Outer	River South	564.28	Inward	564.36	Inward	564.36	Inward	564.16	Inward	564.26	Inward	564.69	Inward
Inner	MH12	562.52		562.75		562.49		562.3		562.07		561	

Notes:

(1) Water level monitored on 9/14/01 was 563.87 ft amsl which provided an inward gradient.
(2) River level too low to obtain a measurement at the monitoring location. Water level shown is River South Water level minus 0.25 feet.
(3) Valves in MH6 were opened on November 18, 2002.
(4) Snow covered well, could not locate.
NM - Not Measured
NA - Not Applicable

TABLE 2.4

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

Date Monitored		*6/15/2001*		*6/22/2001*		*6/29/2001*		*7/31/2001*		*8/20/2001*		*9/28/2001*		*10/22/2001*	
Monitoring Location		*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*	*Water Level (ft amsl)*	*Gradient Direction*
Upper	MH3	560.59	Upward	560.55	Upward	560.40	Upward	559.21	Upward	561.07	Upward	560.56	Upward	562.36	Downward
Lower	MW-6	562.54		562.50		562.42		562.90		562.09		562.13		562.08	
Upper	MH8	560.53	Upward	560.44	Upward	560.38	Upward	560.25	Upward	560.25	Upward	560.27	Upward	560.43	Upward
Lower	MW-7	561.48		561.41		561.39		561.30		561.29		561.32		561.31	
Upper	MH11	561.12	Upward	561.05	Upward	560.97	Upward	560.73	Upward	560.50	Upward	560.61	Upward	560.51	Upward
Lower	MW-8	561.69		561.54		561.46		561.19		561.05		561.07		561.27	
Upper	MH14	562.32	Upward	562.32	Downward	562.45	Downward	562.45	Neutral	561.72	Downward	561.70	Downward	562.10	Downward
Lower	MW-9	562.45		562.19		562.11		562.45		561.55		561.58		561.77	

Date Monitored		*11/27/2001*		*12/20/2001*		*1/29/2002*		*2/11/2002*		*3/25/2002*		*4/24/2002*		*5/21/2002*	
Monitoring Location		*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*	*Water Level (ft amsl)*	*Gradient Direction*
Upper	MH3	560.94	Upward	560.50	Upward	560.15	Upward	560.28	Upward	560.10	Upward	562.05	Downward	561.28	Upward
Lower	MW-6	561.88		561.83		561.83		561.73		561.72		561.88		561.97	
Upper	MH8	560.45	Upward	559.75	Upward	560.98	Upward	561.06	Upward	560.65	Upward	561.13	Upward	560.05	Upward
Lower	MW-7	561.36		561.25		561.89		561.50		561.60		561.95		561.38	
Upper	MH11	559.51	Upward	561.31	Downward	NM	--	561.23	Upward	560.97	Upward	561.41	Upward	560.35	Upward
Lower	MW-8	561.30		560.73		561.91		561.93		561.60		561.95		560.91	
Upper	MH14	561.87	Downward	561.89	Downward	562.53	Downward	562.18	Upward	562.77	Downward	563.09	Downward	563.25	Downward
Lower	MW-9	561.71		561.77		562.31		562.52		562.64		562.96		563.11	

Note:

NM - Not monitored. MH11 was blocked and could not be accessed.

TABLE 2.4

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

Date Monitored		*6/20/2002*		*7/18/2002*		*8/6/2002*		*9/12/02*		*10/30/02*		*11/21/02*		*12/11/02*	
Monitoring Location		*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*	*Water Level (ft amsl)*	*Gradient Direction*
Upper	MH3	561.24	Upward	560.99	Upward	560.79	Upward	561.14	Upward	561.21	Upward	560.67	Upward	561.08	Upward
Lower	MW-6	561.92		561.89		561.92		561.82		561.97		562.05		562.04	
Upper	MH8	560.68	Upward	560.79	Upward	561.05	Upward	561.10	Upward	561.07	Upward	558.03	Upward	559.95	Upward
Lower	MW-7	561.54		561.65		561.93		561.99		561.95		561.41		561.25	
Upper	MH11	560.98	Upward	561.07	Upward	561.33	Upward	561.34	Upward	561.36	Upward	561.49	Downward	561.51	Downward
Lower	MW-8	561.50		561.60		561.88		561.91		561.95		560.99		560.73	
Upper	MH14	562.98	Downward	561.83	Upward	562.08	Upward	562.11	Upward	562.68	Downward	562.88	Downward	563.07	Downward
Lower	MW-9	562.91		562.84		562.75		562.66		562.57		562.74		562.91	

Note:

NM - Not monitored. MH11 was blocked and could not be accessed.

TABLE 2.4

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

Date Monitored		*1/16/2003*		*2/25/2003*		*3/14/03*		*4/14/03*		*5/8/2003*		*6/19/2003*		*7/21/2003*	
Monitoring Location		*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*	*Water Level (ft amsl)*	*Gradient Direction*
Upper	MH3	561.20	Upward	561.10	Upward	561.17	Upward	561.22	Upward	561.03	Upward	561.83	Upward	560.46	Upward
Lower	MW-6	562.27		561.85		561.69		562.42		562.38		562.43		562.31	
Upper	MH8	561.04	Upward	560.60	Upward	560.61	Upward	558.65	Upward	560.76	Upward	560.85	Upward	560.89	Upward
Lower	MW-7	561.95		561.49		561.49		561.42		561.59		561.6		561.74	
Upper	MH11	561.68	Upward	561.60	Downward	561.57	Downward	558.53	Upward	561.03	Upward	561.12	Upward	561.1	Upward
Lower	MW-8	562.00		561.48		561.46		560.98		561.56		561.56		561.69	
Upper	MH14	563.37	Downward	563.07	Downward	563.09	Downward	563.54	Downward	563.26	Downward	563.41	Downward	563.03	Downward
Lower	MW-9	563.17		562.89		562.90		563.36		563.07		563.1		562.89	
Upper	MH15	562.28	Upward	562.01	Upward	562.05	Upward	562.49	Upward	561.02	Upward	562.25	Upward	561.98	Upward
Average [1]		563.01	Upward	562.72	Upward	562.74	Upward	563.19	Upward	562.84	Upward	563.02	Upward	562.68	Upward

Date Monitored		*8/28/2003*		*9/30/2003*		*10/30/2003*		*11/3/2003*		*12/23/2003*	
Monitoring Location		*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	561.20	Upward	561.10	Upward	561.07	Upward	561.08	Upward	559.49	Upward
Lower	MW-6	562.21		562.53		562.52		562.33		562.3	
Upper	MH8	558.52	Upward	559.88	Upward	559.77	Upward	560.76	Upward	560.67	Upward
Lower	MW-7	561.29		561.35		561.17		561.12		561.48	
Upper	MH11	564.37	Downward	558.68	Upward	558.66	Upward	561.01	Upward	560.94	Upward
Lower	MW-8	562.35		560.17		560.02		561.57		561.34	
Upper	MH14	566.48	Downward	562.89	Downward	562.88	Downward	563	Downward	563.31	Downward
Lower	MW-9	566.17		562.77		562.75		562.85		563.2	
Upper	MH15	566.36	Downward	562.02	Upward	562.01	Upward	561.91	Upward	562.28	Upward
Average [1]		566.44	Downward	562.6	Upward	562.59	Upward	562.64	Upward	562.97	Upward

Note:
NM - Not monitored. MH11 was blocked and could not be accessed.
[1] -Distance weighted for MH14 (two thirds) and MH15 (one third).

TABLE 2.4

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

Date Monitored		*1/21/2004*		*2/12/2004*		*3/4/2004*		*4/16/2004*	
Monitoring Location		*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	560.33	Upward	561.08	Upward	561.13	Upward	558.78	Upward
Lower	MW-6	562.32		562.16		562.21		562.48	
Upper	MH8	560.7	Upward	560.95	Upward	560.75	Upward	559.59	Upward
Lower	MW-7	561.55		561.81		561.61		561.71	
Upper	MH11	NM		561.23	Upward	561.04	Upward	559.85	Upward
Lower	MW-8	561.47		561.75		561.56		561.38	
Upper	MH14	NM		NM		562.75	Downward	562.79	Downward
Lower	MW-9	562.72		562.68		562.70		562.64	
Upper	MH15	561.74		561.73		561.75	Upward	561.72	Upward
Average [1]		NM		NM		562.42	Upward	562.43	Upward

Note:
NM - Not monitored. MH11 was blocked and could not be accessed.
NM- Not monitored. Snow/Ice prevented MH14 location and could not be measured.
[1] -Distance weighted for MH14 (two thirds) and MH15 (one third).

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 except OGC-4 (semi-annual for SVOCs) and OGC-6 (semi-annual for VOCs) (review after Year 7)

PARAMETERS

Volatiles

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

Semi-Volatiles

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

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
QUARTERLY 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*
Volatiles (µg/L)	*Class GA Level*											
Acetone	50	9.4J	4.3J	7.3J/6.7J		4.2J	7.0/7.2			13/12		
Benzene	1		0.24J	0.39J/0.35J		0.44J	0.29J/0.30J	0.29J/0.29J		0.40J/ND0.70		
2-Butanone	50											
Chlorobenzene	5		0.50J	0.86J/0.85J		1.3		1.0/1.1		0.91J/0.87J		1.1
trans-1,2-Trichloroethene	5			0.22J/ND		0.31J	0.24J/0.24J	0.22J/0.20J				
Ethylbenzene	5		0.30J	0.46J/0.42J		0.73J	0.44J/0.42J	0.46J/0.46J		0.40J/0.38J		
Methylene Chloride	5		0.34J	0.33J/ND	4.0J	0.53J						7.2
Tetrachloroethene	5	1.6J	1.1J	1.0J/0.92J		1.6	0.92J/0.80J	0.77J/0.74J		0.67J/0.71J		
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
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
Vinyl Chloride	2									1.7/1.7		
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	
Semi-Volatiles (µg/L)												
1,2-Dichlorobenzene	3*				0.6J							
1,4-Dichlorobenzene	3*											
2,4-Dimethylphenol	50	12	12	18/17	38		20/22	30/34	30	35/36	36	42
2-Methylphenol	NL	1J	3J	3J/3J	7J		4J/4J	6J/6J	6J	6J/6J	6J	5J
4-Methylphenol	NL	69	110	97/92	230		100/110	190/230	150	130/130	160	190
Naphthalene	10											
Di-n-octyl phthalate	50											
Phenol	1	3J	34	28/22	24		38/41	34/35	42	46/46	180	30

Notes:

* Applies to sum of compounds
NL - Not listed
[ ] Exceeds Class GA Level
NS - Not Sampled

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
QUARTERLY 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*
Volatiles (µg/L)	*Class GA Level*											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-Trichloroethene	5			0.22J									
Ethylbenzene	5		0.41J	0.39J		0.54J/0.53J	0.48J	0.39J		0.77J			
Methylene Chloride	5				5.1J/4.9J								4.6
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			
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	
2-Methylphenol	NL	0.9J	2J	35	2J/ND	1J/2J	2J			3J		3J	
4-Methylphenol	NL	64	86	40	58/55	61/67	68		69/68	73	32	55	
Naphthalene	10												
Di-n-octyl phthalate	50												
Phenol	1	310	560	400	420/460	710/1100	1100	1100	2400/2300	1800	1600		2400

Notes:

* Applies to sum of compounds
NL - Not listed
[ ] Exceeds Class GA Level
NS - Not Sampled

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
QUARTERLY 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*
Volatiles (µg/L)	*Class GA Level*											
Acetone	50	78	31/29	19J		4.7J	3.6J				6.2	5.8
Benzene	1	11	14/14	14		2.6	5.3	3.3	3.6	3.1	1.8	1.2
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
trans-1,2-Trichloroethene	5	4.3J	3.2J/3.1J	4.0J		0.76J	1.5	0.88J		1.0	0.50J	0.41J
Ethylbenzene	5	13	16/16	15	1.6J	2.8	5.8	3.1	3.9	3.1	1.8	1.2
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
Toluene	5	140	140/140	110	17J	21	53	28	38	27	16	11
Trichloroethene	5	120	110/110	110	20J	22	53	27	35	27	17	
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
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
4-Methylphenol	NL	30	51/45	28	8J	10	26	14	20	14J	9	5J
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

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
QUARTERLY 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*
Volatiles (µg/L)	*Class GA Level*											
Acetone	50						3.0J					
Benzene	1										0.42J	
2-Butanone	50											
Chlorobenzene	5											
trans-1,2-Trichloroethene	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

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
QUARTERLY 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*
Volatiles (µg/L)	*Class GA Level*											
Acetone	50	52	12J	11J	75J	67	20			73		28/33
Benzene	1	6.5	4.3	4.1		8.6	12	12	8.1	12	23/24	10/12
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
trans-1,2-Trichloroethene	5	2.2J	1.8J	2.9J	4.8J	7.3	11	16	12	13	10/12	7.3/9.4
Ethylbenzene	5	5.7	3.7J	4.4J	8.2J	12	18	18	15	23	30/32	20/24
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
Tetrachloroethene	5	21	12	9.8	23J	32	61	58	54	80	91/100	120/130
Toluene	5	75	36	31	80	100	140	160	100	120	240/240	97/120
Trichloroethene	5	82	40	35	110	180	320	280	210	320	460/460	380/390
Vinyl Chloride	2	5.2	1.6J	3.3	23	12	18	14	12	18	21/21	13/16
Total Xylenes	5	22	13	16	30J	40	68	69	58	93	120/120	92/110
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
2,4-Dimethylphenol	50	1J	11	16	19	18	15	27	20	27	37/38	15J/14
2-Methylphenol	NL	33	55	41	48	44	38	56	37	35	45/46	18J/18
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

Notes:

* Applies to sum of compounds
NL - Not listed
[ ] Exceeds Class GA Level
NS - Not Sampled

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
QUARTERLY 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*
Volatiles (µg/L)	*Class GA Level*											
Acetone	50	13J / 19J	3.8J	15J		7.1	6.7			5.6		
Benzene	1	1.6J / 1.6J	1.6	1.8		1.8	1.2	1.5		1.6	1.4	
2-Butanone	50											
Chlorobenzene	5		0.24J	0.28J		0.28J		0.22J				
trans-1,2-Trichloroethene	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		
Methylene Chloride	5				1.9J							6.3
Tetrachloroethene	5	2.4J / 2.2J	3.0J	2.2J	1.7J	2.2	1.8	1.8		1.5		
Toluene	5	5.7 / 5.1	5.9	5.3		5.1	3.7	4.6	4.0	4.3	3.6	2.6
Trichloroethene	5	20 / 20	18	19	14J	17	14	13	12	14	9.8	7.7
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	
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
2-Methylphenol	NL	98 / 96	120	87	160	140	100	100	120	140	150	110
4-Methylphenol	NL	13 / 13	21	17	28	23	14	15	22	23	20	17
Naphthalene	10											
Di-n-octyl phthalate	50											
Phenol	1	120 / 110	140	130J	210	140	85	92	110	120	120	90

Notes:

* Applies to sum of compounds
NL - Not listed
[ ] Exceeds Class GA Level
NS - Not Sampled

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
QUARTERLY 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*
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
2-Butanone	50	27												
Chlorobenzene	5													
trans-1,2-Trichloroethene	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
Ethylbenzene	5	9	7J	1.1J	0.80J	1.0J		1.3	0.84J	0.91J		1.4	0.93J	1.5
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
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
Trichloroethene	5	287	220	70	40	48	45	68	44	38	50	56	38	56
Vinyl Chloride	2	7	4J	2.6J	0.84	1.7J	3.5J	2.2	1.8	1.8		2.3	2	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
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

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
QUARTERLY 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*
Volatiles (µg/L)	*Class GA Level*											
Acetone	50						3.1J					
Benzene	1											
2-Butanone	50											
Chlorobenzene	5											
trans-1,2-Trichloroethene	5											
Ethylbenzene	5											
Methylene Chloride	5											
Tetrachloroethene	5											
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

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
QUARTERLY 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*
Volatiles (µg/L)	*Class GA Level*											
Acetone	50	5.7J		6.5J		4.3J	5.4			4.8		
Benzene	1		1.9	2.0		2.0	1.3	1.8		0.90		
2-Butanone	50											
Chlorobenzene	5											
trans-1,2-Trichloroethene	5		0.82J	1.1J		0.98J	0.89J	1				
Ethylbenzene	5		0.85J	0.81J		1.0	0.61J	0.75J				
Methylene Chloride	5				1.6J							
Tetrachloroethene	5			0.27J								
Toluene	5		3.5J	3.6J		3.3	1.9	3		1.1	2.8	
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		
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	
4-Methylphenol	NL		3J	2J	4J	6J	1J	2J			1J	
Naphthalene	10											
Di-n-octyl phthalate	50				0.6J							
Phenol	1		24	7J	10	26	2J	6J		5J	2J	

Notes:

* Applies to sum of compounds
NL - Not listed
[ ] Exceeds Class GA Level
NS - Not Sampled

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
QUARTERLY 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*
Volatiles (µg/L)	*Class GA Level*											
Acetone	50						3.0J					4.5J
Benzene	1			11J								
2-Butanone	50											
Chlorobenzene	5											
trans-1,2-Trichloroethene	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

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
QUARTERLY 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*
Volatiles (µg/L)	*Class GA Level*												
Acetone	50			6.6J			5.0			3.7J			
Benzene	1									0.71	0.87	1.4	
2-Butanone	50												
Chlorobenzene	5												
trans-1,2-Trichloroethene	5			0.23J	0.23J	0.37J	0.45J	0.55J		1.4	2.0	2.1	
Ethylbenzene	5					0.31J				0.85J	1.1	2.0	3.3
Methylene Chloride	5				2.1J								4.4
Tetrachloroethene	5		1.4J	0.73J		6.6	7.4	5	12	49	51	230	300
Toluene	5			0.55J		2.0	1.6	1.5	2.4	9.3	12	27	40
Trichloroethene	5	3.0J	4.7J	3.1J	5.9	16	19	13	26	95	120	330	530
Vinyl Chloride	2					0.22J	0.25J			0.45J			
Total Xylenes	5		0.22J	0.53J	0.26J	1.7J	1.2J	1.0J		4.1	4.7	8.6	13
Semi-Volatiles (µg/L)												NA	
1,2-Dichlorobenzene	3*												
1,4-Dichlorobenzene	3*												
2,4-Dimethylphenol	50							1J					
2-Methylphenol	NL		2J	2J	5J	11	8J	9J	13	22	27		63
4-Methylphenol	NL			1J	0.02J	10							1J
Naphthalene	10												
Di-n-octyl phthalate	50												
Phenol	1		7J	2J	4J	5J	3J	2J		5J	3J		9J

Notes:

* Applies to sum of compounds
NL - Not listed
[ ] Exceeds Class GA Level
NS - Not Sampled

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
QUARTERLY 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*
Volatiles (µg/L)	*Class GA Level*											
Acetone	50						2.4J		NS			3.6J
Benzene	1					0.21J					2.0	0.39J
2-Butanone	50											
Chlorobenzene	5					1.3						3.2
trans-1,2-Trichloroethene	5					0.25J						1.0
Ethylbenzene	5					20						40
Methylene Chloride	5				1.6J							
Tetrachloroethene	5					3.8						7.7
Toluene	5			0.39J		63				0.96J		130
Trichloroethene	5			0.35J		4.5						6.4
Vinyl Chloride	2					3.7						9.3
Total Xylenes	5					80				0.96J		210
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

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
QUARTERLY 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*
Volatiles (µg/L)	*Class GA Level*											
Acetone	50	38J		11J			6.4			4.9J		0.61J
Benzene	1		1.5	1.4		0.87	0.92	0.87		0.77		
2-Butanone	50											
Chlorobenzene	5											
trans-1,2-Trichloroethene	5		0.65J	0.76J		0.42J	0.57J	0.52J				0.34J
Ethylbenzene	5		0.21J	0.23J								
Methylene Chloride	5				3.4J							
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
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

TABLE 2.6

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

Location		*GW-6S*		*MW-6*										
Date		*12/15/1987*	*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*
Volatiles (µg/L)	*Class GA Level*													
Acetone	50	684	4.9J						4.4J			44		6.7
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-Trichloroethene	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							
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
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	
Naphthalene	10			67	69		1J		14	13			76	
Di-n-octyl phthalate	50						2J							
Phenol	1	3		14	4J	2J	0.8J						250	

Notes:

* Applies to sum of compounds
NL - Not listed
[ ] Exceeds Class GA Level
NS - Not Sampled

TABLE 2.6

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

Location		*OGC-1*										
Date		*05/18/01*	*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*
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	2.0J	1.7J		0.24J		0.78J		0.91J		
trans-1,2-Trichloroethene	5	5.6	3.7J	4.6J	1.8J	0.48J	0.58J	2.7		2.8	0.85J	
Ethylbenzene	5		0.52J	0.43J				0.21J				
Methylene Chloride	5				1.6J							
Tetrachloroethene	5		0.78J	0.54J		0.42J	0.53J	0.30J			0.29J	
Toluene	5	5.2	5.4	4.2J		0.48J	0.43J	1.9	1.7	2.6	0.59J	
Trichloroethene	5	15	16	11	4.5J	2.2	2.7	6.1	5.1	8.4	2.2	0.47J
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*											
1,4-Dichlorobenzene	3*	1J	3J	2J	1J			1J				
2,4-Dimethylphenol	50	9J	16	8J	3J		0.6J	9J		4J		
2-Methylphenol	NL	6J	12	5J	2J			2J		3J		
4-Methylphenol	NL	20	35	15J	5J		1J	5J	6J	8J		
Naphthalene	10	71	130		21		7J	18		25	3J	
Di-n-octyl phthalate	50											
Phenol	1	150	290	57	15	1J	8J	4J		19		

Notes:

* Applies to sum of compounds
NL - Not listed
[ ] Exceeds Class GA Level
NS - Not Sampled

TABLE 2.7

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

Monitoring Location	*MH1*	*MH2*	*MH3*	*MW-6*	*OGC-1*	*MH4*	*OGC-5*	*MH5*	*MH6*	*OGC-6*	*MH7*	*MW-7*	*MH8*	*OGC-2*	*MH9*
Date															
07/24/00						7.8					10.3				
10/24/00						7.7					10.5				
03/29/01				7.60	10.82		NM			12.55		8.68		9.80	
05/11/01	*	*	*	*	*	*	*	8.30	8.17	8.50	10.16	8.90	11.22	9.22	11.26
05/18/01				11.05	11.14		10.42		10.00	10.50		8.19		8.70	
06/08/01	9.25						9.35		6.90	8.24		7.33		8.40	
06/15/01		10.1	10.38	9.6	9.6		9.4		6.91	8.22		7.43	10.65	8.46	
06/22/01		*	*	*	*										
06/29/01		10.9	10.8	11	10.9		10.56		7	8.97		9.27	11.33	8.63	
07/31/01		10.82	10.81	10.97	11.25		10.54		7.92	8.55		9.2	11.28	9.35	
08/20/01		11	11	9.86	10.95		10.44		7.9	8.31		7.71	11.45	8.49	
09/28/01		10.75	10.97	9.89	11.01		10.6		7.93	8.3		9.0	11.15	8.75	
10/22/01		10.7	10.45	10.5	11		7.86		6.1	9.32		8.97	8.49	8.87	
11/27/01		10.61	10.46	10.12	11.65		10.3			10.54		10.01	8.61	8.63	
12/20/01		10.17	10.11	9.97	11.22		10.19		9.98	10.37		9.68	8.42	8.51	
01/29/02		11.8	11.62	11.15	11.82		10.48		9.91	10.86		10.56	11.91	10.23	
02/11/02		10.26	10.16	10.5	10.4				7.79	11.44		10.04	11.74	8.33	
03/25/02		10.62	10.45	11.22	10.69		10.36		9.94	11.4		10.03	12.21	9.65	
04/24/02		10.37	10.22	10.68	11.36		9.97		9.46	11.15		9.73	11.3	9.52	
05/21/02		9.96	9.81	10.76	10.42		9.85		9.25	11.91		9.38	9.69	9.2	
06/20/02		10.64	9.4	10.91	11.19		9.77		9.46	11.4		10.59	11.76	9.46	
07/18/02		10.89	10.69	10.87	11.75		9.63		9.32	11.24		10.24	11.76	9.51	
08/06/02		10.62	10.47	8.21	5.67		7.25		8.79	8.78		7.46	11.24	7.83	
09/12/02		10.92	11.23	11.17	11.85		9.61		9.27	11.29		10.26	11.9	9.51	
10/30/02		10.1	11.22	10.74	10.89		9.68		9.82	10.63		9.95	11.97	9.64	
11/21/02		9.06	9.3	10.09	11.89		10.72		9.17	12.42		9.76	9.31	9.6	
12/11/02		8.92	9.17	10.16	11.03		9.87		9.02	10.39		10.19	9.5	9.18	
01/16/03		10.9	11.76	11.02	11.59		10.31		10.01	11.52		11.01	12.37	9.83	
02/25/03		10.72	11.12	10.51	11.81		10.22		9.87	12.31		9.42	9.32	8.92	
03/14/03		11.77	11.92	10.07	11.93		10.09		9.71	11.92		10.19	9.28	9.44	
04/14/03		9.78	9.71	9.67	10.82		9.74		9.21	10.45		9.74	10.48	9.01	
05/08/03		10.32	10.48	10.43	12.35		10.13		9.72	12.41		10.88	10.61	9.00	
06/19/03		10.21	10.39	10.36	12.31		10.05		9.68	12.29		10.75	10.51	8.99	
07/21/03		10.06	10.21	10.25	12.17		9.87		9.57	11.99		10.64	10.49	8.84	
08/28/03		10.22	10.91	10.32	11.16		9.8		10.17	10.96		11.04	10.38	9.89	
09/30/03		9.32	9.4	9.95	10.91		8.95		NM	10.22		9.35	9.42	9.58	
10/20/03		9.22	9.3	9	10		8.1		10.2	10.25		9.8	10	9.2	
11/03/03		9.15	9.14	8.86	9.49		7.8		10.51	10.54		10.41	10.28	9.03	
12/23/03		10.03	9.03	9.7	10.3		8.69		10.07	10.49		10.38	10.63	8.62	

TABLE 2.7

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

Monitoring Location	*MH1*	*MH2*	*MH3*	*MW-6*	*OGC-1*	*MH4*	*OGC-5*	*MH5*	*MH6*	*OGC-6*	*MH7*	*MW-7*	*MH8*	*OGC-2*	*MH9*
Date															
01/21/04		(1)	9.06	9.01	9.56		8.0		10.31	9.84		9.69	10.6	8.8	
02/12/04	8.45	(1)	9.72	13.24	11.02	7.77	8.75		7.65	10.8		10.32	11.23	9.2	
03/04/04	8.21	10.05	8.93	10.28	10.69		8.82		9.43	10.52		10.28	10.87	9.24	
04/16/04		9.52	8.77	10.16	9.28		8.61		9.2	10.96		10.41	11.18	9.12	
05/14/04		10.5	8.08	10.16	9.47		8.74		7.19	11.69	9.49	9.36	11.00	9.09	

TABLE 2.7

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

Monitoring Location	*MH10*	*OGC-7*	*MH11*	*MW-8*	*OGC-3*	*MH12*	*MH13*	*OGC-8*	*MH14*	*MW-9*	*OGC-4*	*MH15*	*MH16*	*MH17*
Date														
07/24/00	9.2						10.6		9.5				7.4	
10/24/00			8.38						7.76				8.15	
03/29/01		8.37		6.41	9.41			9.77		8.17	10.41			
05/11/01	10.9	11.51		11.55	11.59	8.25	7.5	11.58		7.37	11.16	11.21	8.83	9.27
05/18/01		10.93		11.2	11.21	8.25		11.4		10.60	11.32		12.27	
06/08/01		9.68		10.1	10.34	6.99		10.32		10.03	10.44		7.25	
06/15/01		10.0	10.3	10.7	10.8	7.03		10.54	8.75	10.34	10.55		7.27	8.88
06/22/01	*	*	*	*	10.92	7.3		11	8.98	10.47	11.1		7.57	
06/29/01		11.13	10.9	11.4	10.22	7.54		11.2	9.18	10.94	11.2		7.9	
07/31/01		11.49	10.58	11.69	11.75	7.91		11.73	9.73	11.62	11.63		8.28	
08/20/01		9.17	10.59	11.35	10.87	7.7		11.49	9.8	12.05	11.89		8.2	
09/28/01		10	10.57	11.5	11.0	7.9		11.47	9.77	11.2	11.75		8.21	
10/22/01		10.75	10.44	10.89	11.01	7.7		11.01	9.6	10.51	10.7		7.0	
11/27/01		11.98	10.87	12.46	12.46	8.1		12.28	10.01	11.87	12.25		7.26	
12/20/01		11.63	10.22	11.98	11.97	7.82		11.76	8.73	10.61	11.37		7.11	
01/29/02		12.25		12.15	12.59	7.76		12.41	8.09	11.85	12.33		7.16	
02/11/02		11.12		11.79	12.09	7.63		12.13	7.48	11.73	11.8		6.89	
03/25/02		12.38		12.59	12.77	8.01		12.66	8.51	12.11	12.46		7.88	
04/24/02		12		12.26	12.39	7.86		12.34	7.94	11.55	11.95		7.43	
05/21/02		11.86		12.25	12.49	7.94		12.5	7.45	12.16	12.24	7.72	7.22	
06/20/02		11.92		12.26	12.34	8.07		12.28	8.12	11.63	12.2	7.89	7.84	
07/18/02		11.78		12.11	12.16	8.11		12.13	9.82	11.31	11.96	7.81	7.36	
08/06/02		6.95	11.76	7.88	7.63	8.02		8.87	9.76	8.89	9.03	7.64	7.49	
09/12/02		11.93	12.19	12.23	12.32	8.76		12.3	10.81	11.77	12.04	8.16	8.17	
10/30/02		11.91	12.2	12.21	12.24	NM		12.22	8.34	11.89	12.01	7.95	7.63	
11/21/02		11.79	9.46	12.53	12.46	7.64		12.62	7.71	12.42	12.5	7.95	7.37	
12/11/02		11.26	9.41	11.39	11.54	7.56		11.51	7.86	10.76	11.29	7.35	7.18	
01/16/03		12.39		12.55	12.74	8.47		12.82	8.76	12.3	12.52	7.98	8.16	
02/25/03		11.94		12.46	12.49	8.42		12.51	8.71	12.19	12.52	7.89	8.13	
03/14/03		12.16		12.33	12.56	8.26		12.44	8.79	12.11	12.35	8.01	7.79	
04/14/03		11.02		11.63	11.18	7.92		11.62	7.87	10.89	11.89	7.62	7.42	
05/08/03		11.93		12.51	12.55	8.12		12.63	7.77	12.12	12.44	8.43	7.81	
06/19/03		11.87		12.39	12.41	8.02		12.41	7.73	12.01	12.21	8.38	7.79	
07/21/03		11.81		12.12	12.25	7.99		12.32	7.64	11.91	11.98	8.31	7.62	
08/28/03		11.79		12.13	12.24	11.26		12.21	11.52	12.04	12.04	11.46	11.32	
09/30/03		11.27		11.95	11.44	8.65		11.87	9.45	10.33	11.57	8.56	8.68	
10/20/03		11.2		11.8	11.2	8.5		11.6	8	10.42	11.44	8.31	8.01	
11/03/03		11.04		10.91	10.3	8.39		10.63	7.24	10.59	11.24	7.55	7.48	
12/23/03		10.75		11.18	11.17	8.41		11.01	7.66	10.88	11.03	7.13	7.44	

TABLE 2.7

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

Monitoring Location	*MH10*	*OGC-7*	*MH11*	*MW-8*	*OGC-3*	*MH12*	*MH13*	*OGC-8*	*MH14*	*MW-9*	*OGC-4*	*MH15*	*MH16*	*MH17*
Date														
01/21/04		10.69		11.06	11.16	8.39		11.5	(1)	9.98	10.89	9.53	6.25	
02/12/04		10.79	11.42	11.66	11.78	8.96		11.75	(1)	11.09	11.6	8.5	6.66	
03/04/04		10.79	11.07	11.06	11.29	9.02		11.37	11.5	11.25	11.6	9.03	7.75	
04/16/04		11.23	10.42	11.57	11.62	9.22		11.36	11.6	11.11	11.44	9.6	6.54	
05/15/04		11.19	11.78	11.91	12.13	8.34		11.8	11.7	11.61	11.68	9.5	6.62	

TABLE 2.7

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

Monitoring Location	*City MH1*	*City MH2*	*City MH3*
Date			
07/24/00	6.3	7.3	
10/24/00	7.08	7.52	7.41
03/29/01	7.52	7.50	7.16
06/15/01	7.7	7.69	7.4
06/22/01	8.0	7.9	7.8
07/31/01	8.0	8.0	7.7
08/20/01	8.2	8.3	8.0
09/28/01	8.1	8.3	7.9
10/22/01	8.0	8.0	7.8
11/27/01	7.9	8.2	8.01
12/20/01	*	*	*
01/29/02	7.62	7.93	7.97
02/11/02	7.52	7.73	7.79
03/25/02	*	*	*
04/24/02	7.46	7.62	7.69
05/21/02	7.47	7.66	7.72
06/20/02	7.57	7.69	7.78
07/18/02	7.72	7.84	8.01
08/06/02	7.63	7.68	7.92
09/12/02	7.72	7.79	7.98
10/30/02	7.73	7.8	7.93
11/21/02	7.32	7.37	7.41
12/11/02	7.29	7.31	7.35
01/16/03	7.62	7.7	7.79
02/25/03	7.64	7.71	7.89
03/14/03	7.39	7.54	7.61
04/14/03	7.22	7.39	7.41
05/08/03	7.29	7.43	7.48
06/19/03	7.27	7.39	7.41
07/21/03	7.25	7.36	7.38
08/28/03	7.29	7.44	7.41
09/30/03	7.29	7.45	7.40
10/20/03	7.4	7.71	7.39
11/03/03	8.46	7.14	7.27
12/23/03	9.34	7.63	7.57

TABLE 2.7

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

Monitoring Location	*City MH1*	*City MH2*	*City MH3*
Date			
01/21/04	(2)	8.12	(2)
02/12/04	8.45	7.77	7.65
03/04/04	8.21	7.76	7.79
04/16/04	10.95	8.38	8.32
05/14/04	7.30	7.62	7.75

Notes:

* - pH meter malfunctioned.
NM - Not Measured.
(1) - Buried with snow.
(2) - Road conditions were not safe to allow for monitoring.

TABLE 2.8

EFFLUENT SAMPLING SUMMARY
OPERATION AND MAINTENANCE MANUAL
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

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE

Sample ID:		*Discharge Sample Port GRATWICK-RIVERSIDE*							
Sample Date:		*6/29/2001*	*7/30/2001*	*8/21/2001*	*9/20/2001*	*10/24/2001*	*11/29/2001*	*12/6/2001*	
Parameter	*Unit*								*Surface Water Standard* [1]
Volatiles									
1,1,1-Trichloroethane	µg/L	3.0J	1.8J	1.1J	7.6U	7.6U	3.8U	3.8U	5
1,1-Dichloroethane	µg/L	8.8	7.3	5.8	3.4J	2.1U	2.6J	3.5J	5
1,2-Dichloroethane	µg/L	5.0U	5.0U	5.0U	10U	10U	5.0U	5.0U	0.6
2-Butanone	µg/L	7.6J	10	10U	20U	20U	6.8J	6.7J	50
Acetone	µg/L	77	93	140	36	26	55	55	50
Benzene	µg/L	6.4	7.2	6.2	3.5J	3.2J	3.1J	4.0J	1
Chlorobenzene	µg/L	3.7J	4.9J	5.0J	3.4J	16	3.5J	5.4J	5
Ethylbenzene	µg/L	8.9	11	9	8.6J	3.6J	4.8J	6.8J	5
Methylene chloride	µg/L	1.1J	2.8U	2.8U	5.6U	5.6U	2.8U	2.8U	5
Styrene	µg/L	1.0J	5.0U	5.0U	10U	10U	5.0U	5.0U	5
Tetrachloroethene	µg/L	22	33	25	16	8.3	15	23	0.7 [2]
Toluene	µg/L	74	84	68	42	20	37	50	5
trans-1,2-Dichloroethene	µg/L	2.6	2.1	2.8	3.3J	1.8J	1.5J	2.4	5
Trichloroethene	µg/L	150J	130	87	55	32	56	72	5
Vinyl chloride	µg/L	11	13	13	13J	5.6J	8.0J	13	0.3 [2]
Xylene (total)	µg/L	40	44	34	32	11	17	26	5
Semi-Volatiles									
1,2-Dichlorobenzene	µg/L	9U	2U	1J	6	0.6J	0.9J	9U	3
1,4-Dichlorobenzene	µg/L	21U	4U	1J	2J	1J	4U	1J	3
2,4-Dimethylphenol	µg/L	14	13	19	12	8	17	13	50 [2]
2-Methylphenol	µg/L	49	46	38	28	15	38	37J	NL
4-Methylphenol	µg/L	58	47	46	30	21	46	40J	NL
Di-n-octyl phthalate	µg/L	12U	2U	2U	2U	1J	2U	12U	50 [2]
Naphthalene	µg/L	1J	1J	1J	1J	67J	0.8J	8U	10
Phenol	µg/L	86	64	67	110	230	74	110	1

TABLE 2.9

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE

Sample ID:		*Discharge Sample Port GRATWICK-RIVERSIDE*							
Sample Date:		*6/29/2001*	*7/30/2001*	*8/21/2001*	*9/20/2001*	*10/24/2001*	*11/29/2001*	*12/6/2001*	
Parameter	*Unit*								*Surface Water Standard* [1]
Metals									
Aluminum	mg/L	0.31	0.24	0.24	0.34	0.20U	0.20	0.20U	NL
Antimony	mg/L	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.003
Arsenic	mg/L	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.050
Barium	mg/L	0.059	0.063	0.061	0.081	0.067	0.064	0.064	1.0
Beryllium	mg/L	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.003 [2]
Cadmium	mg/L	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.005
Chromium	mg/L	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.050
Copper	mg/L	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.023 [3]
Iron	mg/L	0.050U	0.050U	0.050U	0.16	0.095	0.057	0.062	0.30
Lead	mg/L	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.012
Magnesium	mg/L	0.35	0.66	1	0.77	6.8	1.1	0.94	35
Manganese	mg/L	0.0030U	0.0030U	0.0036	0.012	0.028	0.0043	0.004	0.30
Mercury	mg/L	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	0.10
Selenium	mg/L	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.0046 [4]
Silver	mg/L	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.050
Sodium	mg/L	273	271	262	310	290	293	286	NL
Zinc	mg/L	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	2.0 [2]
General Chemistry									
pH	S.U.	NA	NA	9.45	11.23	9.20	10.06	10.71	NL
Hardness	mg/L	524	488	465	529	301	456	410	NL
Total Dissolved Solids (TDS)	mg/L	1500	1450	1530	1520	1280	1200	1200	NL
Total Suspended Solids (TSS)	mg/L	NA	NA	14	19	10	9.0	7.0	NL
Chloride	mg/L	497	123	497	820	577	436	389	250
BOD	mg/L	NA	NA	20	17	20	24	27	NL
COD	mg/L	NA	NA	155	240	240	50	49	NL
Oil and Grease	mg/L	NA	NA	0.60U	1.0	0.87U	1.0U	1.0U	NL
Organic Carbon	mg/L	NA	NA	16	10	18	9.0	11	--
Alkalinity, Total (As CaCO3)	mg/L	131	115	120	115	20.9	22.2	57	NL
Bicarbonate (as CaCO3)	mg/L	5.0U	5.0U	5.0U	5.0U	20.9	22.2	57	NL
Ammonia	mg/L	NA	NA	6	4.9	4.9	21	11.6	2.0
Nitrate (as N)	mg/L	0.050U	0.050U	0.50U	0.20	0.050U	0.050U	0.050U	10

TABLE 2.9

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE

Sample ID:		*Discharge Sample Port GRATWICK-RIVERSIDE*							
Sample Date:		*6/29/2001*	*7/30/2001*	*8/21/2001*	*9/20/2001*	*10/24/2001*	*11/29/2001*	*12/6/2001*	
Parameter	*Unit*								*Surface Water Standard* (1)
General Chemistry									
TKN	mg/L	NA	NA	10	7.6	7.6	14.8	10.6	NL
Sulfate	mg/L	281	20.4	307	196	329	245	263	250
Sulfide	mg/L	13.2	16.0	14.3	5.6	2.5	10.6	14	0.002
Phenol	mg/L	NA	NA	0.28	0.24	0.28	0.15	0.11	0.001
Phosphorous	mg/L	NA	NA	0.29	NA	0.05	0.13	0.06	0.020 (2)
Cyanide	mg/L	NA	NA	0.005U	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

TABLE 2.9

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE

Sample ID:														
Sample Date:		*1/23/2002*	*2/21/2002*	*3/27/2002*	*4/24/2002*	*5/30/2002*	*6/29/2002*	*6/29/2002*	*7/25/2002*	*8/27/02*	*9/23/02*	*10/17/02*	*11/13/02*	*12/12/2002*	
Parameter	*Unit*														*Surface Water Standard* [1]
Volatiles															
1,1,1-Trichloroethane	µg/L	7.3U	7.6U	7.6U	7.6U	7.6U	7.6U	7.6U	7.6U	3.8U	3.8U	3.8U	3.8U	7.6U	5
1,1-Dichloroethane	µg/L	2.3J	4.1J	4.9J	9.9	9.4U	9.4U	9.4U	2.7J	1.4J	1.8J	1.2J	4.5J	7.3J	5
1,2-Dichloroethane	µg/L	10U	10U	10U	10U	10U	10U	10U	10U	5.0U	5.0U	5.0U	5.0U	10U	0.6
2-Butanone	µg/L	20U	20U	20U	110	20U	20U	20U	20U	10U	10U	2.1J	10U	5.2J	50
Acetone	µg/L	42	53	56	98	52	25	25	130	7.0J	28	15	48	96	50
Benzene	µg/L	2.1J	3.2J	4.6J	9.1	4.7J	2.1J	2.1J	3.3J	1.9J	3.3J	2.1J	5.3	7.8J	1
Chlorobenzene	µg/L	3.8J	6.6J	5.2J	4.4J	8.9J	5.8J	5.8J	5.4J	6.9	4.0J	5.6J	6.1	4.3J	5
Ethylbenzene	µg/L	2.0J	7.6J	9.6J	18	10J	5.3J	5.3J	7.8J	6.4J	7.2	4.6J	13	18	5
Methylene chloride	µg/L	6.4U	5.6U	5.6U	2.9J	5.6U	5.6U	5.6U	3.2J	3.5U	3.5U	3.5U	3.5U	2.2J	5
Styrene	µg/L	10U	10U	10U	10U	10U	10U	10U	10U	5.0U	5.0U	5.0U	5.0U	10U	5
Tetrachloroethene	µg/L	4.9J	23	28	46	48	27	27	19	9.6	12	6.0	42	48	0.7 [2]
Toluene	µg/L	15	46	57	110	42	33	33	41	18	30	14	64	110	5
trans-1,2-Dichloroethene	µg/L	3.6U	2.4J	2.5J	4.2	3.6U	3.6U	3.6U	2.1J	2.2	1.8U	2.0	1.8U	3.2J	5
Trichloroethene	µg/L	27	92	140	260	140	80	80	74	20	48	20	130	230	5
Vinyl chloride	µg/L	8.4J	20U	5.1J	14J	13J	8.6J	8.6J	6.6J	11	10	11	18	15J	0.3 [2]
Xylene (total)	µg/L	7.3J	29	40	76	37	21	21	30	20	24	15	50	78	5
Semi-Volatiles															
1,2-Dichlorobenzene	µg/L	2J	1J	1J	3	9U	0.8J	0.8J	1J	0.6J	0.6J	1J	0.9J	3	3
1,4-Dichlorobenzene	µg/L	2J	2J	1J	3J	2J	1J	1J	1J	1J	0.8J	2J	1J	3J	3
2,4-Dimethylphenol	µg/L	11J	9J	8	14	5J	4	4	9	6	7	8	12	21	50[2]
2-Methylphenol	µg/L	28J	21J	17	36	10J	8J	8J	18	8J	13	15	19	32	NL
4-Methylphenol	µg/L	40J	27J	24	57	19J	13	13	27	13	20	21	30	61	NL
Di-n-octyl phthalate	µg/L	14U	12U	2U	2U	12U	2U	2U	2U	2U	0.3J	3U	2U	2U	50 [2]
Naphthalene	µg/L	57	24	12	1J	7U	15	15	13	23	8	29	2U	1J	10
Phenol	µg/L	210	96	42	73	46	51	51	41	66	28	84	35	38	1

TABLE 2.9

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE

Sample ID:														
Sample Date:		*1/23/2002*	*2/21/2002*	*3/27/2002*	*4/24/2002*	*5/30/2002*	*6/29/2002*	*6/29/2002*	*7/25/2002*	*8/27/02*	*9/23/02*	*10/17/02*	*11/13/02*	*12/12/2002*	
Parameter	*Unit*														*Surface Water Standard* [1]
Metals															
Aluminum	mg/L	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	NL
Antimony	mg/L	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.003
Arsenic	mg/L	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.050
Barium	mg/L	0.077	0.075	0.078	0.095	0.064	0.058	0.058	0.059	0.073	0.054	0.064	0.068	0.096	1.0
Beryllium	mg/L	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.003 [2]
Cadmium	mg/L	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.005
Chromium	mg/L	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.050
Copper	mg/L	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.023 [3]
Iron	mg/L	0.050U	0.050U	0.050U	0.050U	0.090	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	0.10	0.050U	0.30
Lead	mg/L	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.012
Magnesium	mg/L	1.5	1.4	0.92	0.34	2.5	1.7	1.7	1.8	8.8	3.5	6.4	1.9	0.43	35
Manganese	mg/L	0.0034	0.0042	0.0049	0.003U	0.0090	0.0030U	0.0030U	0.0030U	0.0094	0.0030U	0.0098	0.0030U	0.0030U	0.30
Mercury	mg/L	0.00020U	0.00020U	0.00020U	0.00020U	0.00020U	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	0.010U	0.010U	0.010U	0.010U	0.010U	0.10
Selenium	mg/L	0.010U	0.010UJ	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.0046 [4]
Silver	mg/L	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.050
Sodium	mg/L	317	336	360	242	329	318	318	270	189	195	204	289	272	NL
Zinc	mg/L	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	2.0 [2]
General Chemistry															
pH	S.U.	10.91	10.96	10.92	11.46	10.4	10.66	10.66	10.37	8.44	8.97	8.84	10.11	10.72	NL
Hardness	mg/L	415	449	440	484	349	300	300	300	316	277	274	372	507	NL
Total Dissolved Solids (TDS)	mg/L	1450	1490	1640	1610	1530	1130	1130	1100	868	1040	945	1330	1410	NL
Total Suspended Solids (TSS)	mg/L	5.0	11.0	9	8	6	8	8	8	12	6	1.5	2	2.3	NL
Chloride	mg/L	514	545	577	545	518	452	452	424	377	320	329	502	489	250
BOD	mg/L	25	21	22	29	13	9	9	12	14	8	11	16	15	NL
COD	mg/L	45	58	255	50	23	26	26	58	49	19	46	16	64	NL
Oil and Grease	mg/L	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	NL
Organic Carbon	mg/L	14	6	10	12	9	11	11	8	6.9	10	7	(5)	(5)	NL
Alkalinity, Total (As CaCO3)	mg/L	62.4	53.8	102	126	36.3	43.1	43.1	16.7	27.2	5.0U	22.4	14.3	110	NL
Bicarbonate (as CaCO3)	mg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	16.7	27.2	5.0U	22.4	14.3	5.0U	NL
Ammonia	mg/L	9.1	6.0	6.0	5.2	SL	2.0	2.0	1.7	9.1	10.5	9.4	9.4	7.0	2.0
Nitrate (as N)	mg/L	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	10

TABLE 2.9

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE

Sample ID:														
Sample Date:		*1/23/2002*	*2/21/2002*	*3/27/2002*	*4/24/2002*	*5/30/2002*	*6/29/2002*	*6/29/2002*	*7/25/2002*	*8/27/02*	*9/23/02*	*10/17/02*	*11/13/02*	*12/12/2002*	
Parameter	*Unit*														*Surface Water Standard* (1)
General Chemistry															
TKN	mg/L	8.1	4.5	5.0	4.8	SL	2.0	2.0	1.7	5.6	6.2	7.8	10.5	10.8	NL
Sulfate	mg/L	261	250	262	239	239	226	226	215	236	214	213	254	302	250
Sulfide	mg/L	9.9	9.9	11.2	13.7	4.4	1.0U	1.0U	1.0U	1.4	1.0U	1.0U	7.4	21.6	0.002
Phenol	mg/L	0.12	0.28	0.22	0.22	SL	0.40	0.40	0.27	0.16	0.16	0.16	0.12	0.12	0.001
Phosphorous	mg/L	0.09	0.08	0.09	0.17	0.02	0.10	0.10	0.04	0.018	0.04	0.06	0.12	0.10	0.020 (2)
Cyanide	mg/L	0.005U	0.005U	0.040J	0.005U	0.005	0.005U	0.005U	0.005U	0.005U	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.

TABLE 2.9

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE

Sample ID:																	
Sample Date:		*1/16/03*	*2/06/03*	*3/11/03*	*4/04/03*	*5/09/03*	*6/10/03*	*7/10/03*	*8/7/03*	*9/4/03*	*10/10/03*	*11/7/03*	*12/10/03*	*1/8/04* (1)	*2/6/04*	*3/16/04*	*04/13/04*	*Surface Water Standard*	
Parameter	*Unit*																		
Volatiles																			
1,1,1-Trichloroethane	µg/L	2.6U	2.6U	2.6U	5.2U	1.3U	2.6U	5.2U	5.2U	5.2U	1.3U	2.6U	2.6U	2.6U	5.2U	1.3U	5.2U	5	
1,1-Dichloroethane	µg/L	4.1	9.6	5.6	6.4	0.84U	5.4	7.4	4.6	3.3U	0.84U	1.7U	7.0	9.2	3.3U	11	14	5	
1,2-Dichloroethane	µg/L	1.7U	1.7U	1.7U	3.4U	0.85U	1.7U	3.4U	3.4U	3.4U	0.85U	1.7U	1.7U	1.7U	3.4U	0.85U	3.4U	0.6	
2-Butanone	µg/L	9.3U	9.3U	9.3U	19U	4.6U	9.3U	19U	19U	19U	4.6U	9.3U	9.3U	9.3U	19U	4.6U	19U	50	
Acetone	µg/L	21	56	51	42	10U	28	52	42U	42U	10U	21U	35	53	42U	38	42U	50	
Benzene	µg/L	3.4	7.9	6.2	4.4U	1.1U	3.2	4.6	4.4U	4.4U	1.1U	2.2U	7.2	7.8	4.4U	6.1	4.4	1	
Chlorobenzene	µg/L	6.1	6.6	6.9	7.5	6.9	4.1	7.0	5.0	3.6U	5.4	9.3	6.3	6.7	8.8	3.0	3.6U	5	
Ethylbenzene	µg/L	9.9	2.3	15	12	1.9	11	12	9.5	4.3	1.8	2.1	17	19	0.11U	17	14	5	
Methylene chloride	µg/L	7.0U	7.0U	7.0U	14U	3.5U	7.0U	14U	14U	14U	3.5U	7.0U	7.0U	7.0U	14U	3.5U	14U	5	
Styrene	µg/L	5.2U	5.2U	5.2U	10U	2.6U	5.2U	10U	10U	10U	2.6U	5.2U	5.2U	5.2U	10U	2.6U	10U	5	
Tetrachloroethene	µg/L	22	59	46	31	8.3	45	38	32	12	1.3U	2.5U	47 (2)	60	5.0U	50	38	0.7	(2)
Toluene	µg/L	37	110	81	56	7.1	46	57	39	17	1.2U	3.2	82	98	4.9U	80	75	5	
trans-1,2-Dichloroethene	µg/L	3.0U	4.3	3.0U	6.0U	1.8	4.5	6.0U	6.0U	6.0U	1.5U	3.0U	3.3	3.6	6.0U	4.0	6.0U	5	
Trichloroethene	µg/L	92	260	220	160	17	140	170	110	53	1.7	5.7	180	260	7.5	200	220	5	
Vinyl chloride	µg/L	10	20	11	9.6	5.8	12	9.5	5.7U	5.7U	1.9	2.8U	11 (2)	14	5.7U	10	8.9	0.3	(2)
Xylene (total)	µg/L	41	99	64	50	7.0	44	56	40	28U	6.9U	14U	73	91	28U	81	78	5	
Semi-Volatiles																			
1,2-Dichlorobenzene	µg/L	4U	20U	20U	20U	20U	20U	19U	16U	16U	16U	16U	16U	16U	16U	16U	16U	3	
1,4-Dichlorobenzene	µg/L	4U	18U	19U	19U	19U	19U	18U	15U	15U	15U	15U	14U	15U	15U	15U	15U	3	
2,4-Dimethylphenol	µg/L	10	18U	19U	19U	19U	19U	18U	12U	20	12U	13U	18 (2)	15	12U	13U	12U	50	(2)
2-Methylphenol	µg/L	12	16U	22	16U	16U	16U	15U	15U	15U	15U	16U	15	16U	15U	16U	15U	NL	
4-Methylphenol	µg/L	24	35	45	31	18U	19	17U	15U	46	15U	16U	57	48	15U	24	16	NL	
Di-n-octyl phthalate	µg/L	4U	19U	20U	19U	19U	20U	19U	26U	26U	26U	27U	26U (2)	27U	27U	27U	26U	50	(2)
Naphthalene	µg/L	3U	18U	18U	18U	18U	18U	17U	17U	17U	17U	18U	17U	18U	37	18U	17U	10	
Phenol	µg/L	61	30	62	94	64	61	74	46	28	16	150	46	39	140	11	14	1	

TABLE 2.9

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE

Sample ID:																		
Sample Date:		*1/16/03*	*2/06/03*	*3/11/03*	*4/04/03*	*5/09/03*	*6/10/03*	*7/10/03*	*8/7/03*	*9/4/03*	*10/10/03*	*11/7/03*	*12/10/03*	*1/8/04*	*2/6/04*	*3/16/04*	*04/13/04*	*Surface Water Standard*	
Parameter	*Unit*													(1)					
Metals																			
Aluminum	mg/L	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	NL	
Antimony	mg/L	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.003	
Arsenic	mg/L	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.050	
Barium	mg/L	0.091	0.097	0.090	0.094	0.065	0.070	0.080	0.074	0.082	0.072	0.092	0.10	0.095	0.092	0.11	0.096	1.0	
Beryllium	mg/L	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.0020U	0.0020U	0.0020U	0.0020U	(2) 0.0020U	0.0020U	0.0020U	0.0020U	0.003	(2)
Cadmium	mg/L	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.005	
Chromium	mg/L	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0040U	0.0055	0.0040U	0.0040U	0.0040U	0.0040U	0.0040U	0.0040U	0.050	
Copper	mg/L	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	(3) 0.010U	0.010U	0.010U	0.010U	0.023	(3)
Iron	mg/L	0.050U	0.050U	0.050U	0.11	0.050U	0.050U	0.17	0.050U	0.050U	0.072	0.050U	0.050U	0.050U	0.066	0.050U	0.055	0.30	
Lead	mg/L	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.0060U	0.0060U	0.0060U	0.0060U	0.0060U	0.0060U	0.0060U	0.0060U	0.012	
Magnesium	mg/L	1.4	0.26	0.31	3.6	4.8	1.6	2.3	1.4	1.2	7.4	5.9	0.72	0.68	4.2	1.2	1.0	35	
Manganese	mg/L	0.0030U	0.0030U	0.0030U	0.012	0.0030	0.0030U	0.0080	0.0030U	0.0030U	0.018	0.0055	0.0030U	0.0030U	0.19	0.0033	0.0058	0.30	
Mercury	mg/L	0.00020U	0.00020U	0.00020U	0.00020U	0.00020U	0.00020U	0.00020U	0.00020U	0.00020U	0.00020U	0.00020U	0.00020U	(4) 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	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.10	
Selenium	mg/L	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.015U	0.015U	0.015U	0.015U	(4) 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	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.050	
Sodium	mg/L	343	391	195	401	310	276	293	231UJ	272	239	375	361	362	425	425	422	NL	
Zinc	mg/L	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	0.020U	0.020U	0.020U	0.020U	0.020U	(2) 0.030	0.020U	0.020U	0.020U	2.0	(2)
General Chemistry																			
pH	S.U.	10.71	11.55	11.3	10.91	9.75	8.0	10.73	10.8	10.59	7.92	8.48	11.13	11	9.13	11.13	11.16	NL	
Hardness	mg/L	388	435	459	430	368	374	365	294	431	380	399	420	450	452	446	484	NL	
Total Dissolved Solids (TDS)	mg/L	1500	1580	1590	1750	1120	1230	1440	1050	1400	1000	1590	1400	1490	1770	1780	1760	NL	
Total Suspended Solids (TSS)	mg/L	2.0	6.0	3.0	18.0	3.0	4	9	4	11	15	15	3	6	4	11	20	NL	
Chloride	mg/L	511	512	628	778	524	416	474	410	347	383	615	834	742	986	869	809	250	
BOD	mg/L	13	10	20	22	12	9	9	11	7	6	11	22	18	10	13	19	NL	
COD	mg/L	55	73	46	44	39	73	48	24	21	8	40	53	55	30	51	51	NL	
Oil and Grease	mg/L	1.0U	0.28	1.0U	1.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	NL	
Organic Carbon	mg/L	6	13	12	12	9	8	9	6	10	5	10	9	9	9	6	5	NL	
Alkalinity, Total (As CaCO3)	mg/L	104	155	121	48	7.9	NA	74	119	58.0	38.0	13.4	74.8	56.0	23.0	71.2	110.0	NL	
Bicarbonate (as CaCO3)	mg/L	22.5	5.0U	5.0U	5.0U	7.9	NA	10U	10U	10U	38.0	13.4	10U	10UJ	23	10U	10U	NL	
Ammonia	mg/L	7.35	3.15	2.10	5.6	5.25	6.3	5.25	3.15	3.15	2.45	4.2	3.5	0.32	0.7	0.35	1.75	2.0	
Nitrate (as N)	mg/L	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	0.051	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	10	

TABLE 2.9

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE

Sample ID:																	
Sample Date:		*1/16/03*	*2/06/03*	*3/11/03*	*4/04/03*	*5/09/03*	*6/10/03*	*7/10/03*	*8/7/03*	*9/4/03*	*10/10/03*	*11/7/03*	*12/10/03*	*1/8/04*	*2/6/04*	*3/16/04*	*04/13/04*	*Surface Water Standard*	
Parameter	*Unit*													(1)					
General Chemistry																			
TKN	mg/L	9.24	2.52	1.1	4.48	5.04	8.4	6.7	5.88	5.88	2.24	7.28	5.88	0.56	2.8	1.4	0.28	NL	
Sulfate	mg/L	202	177	184	230	236	234	170	208	254	149	242	386	276	315	381	568	250	
Sulfide	mg/L	3.2	4.0	8.0	10	2.2	4.0	4.8	4.8	2.4	1.0U	1.0U	2.0	4.0	1.2	3.2	5.6	0.002	
Phenol	mg/L	0.11	0.10	0.009	0.006	0.01U	0.008U	0.034	0.08U	0.014U	0.006U	0.012U	0.015U	0.015U	0.008U	0.009U	0.012U	0.001	
Phosphorous	mg/L	0.12	0.10	0.18	0.10	0.04	0.11	0.10	0.13	0.16	0.11	0.24	0.13	(2) 0.20	0.11	0.24	0.23	0.020	(2)
Cyanide	mg/L	0.005U	0.005U	0.005U	0.005	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	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.

TABLE 2.10

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

Month	*Volumes (gallons)*	
	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

TABLE 2.10

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

Month	*Volumes (gallons)*	
	Monthly	*Total*
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

Notes:

(1) To December 7, 2001.
(2) From December 8, 2001.

TABLE 2.11

PROPOSED EFFLUENT SAMPLING SUMMARY - NEXT 4-YEAR PERIOD
OPERATION AND MAINTENANCE MANUAL
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

LOCATIONS

effluent monitoring station at Site discharge point

FREQUENCY

Semi-Annual (Spring and Fall)

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 2.12

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

LOCATIONS

River South
River Middle
River North

FREQUENCY

- quarterly for 2 years following GWS startup (concurrent with groundwater sampling)
- semi-annually for Year 3 (concurrent with groundwater sampling)
- annually for Years 3 through 7 (concurrent with groundwater sampling) (review after Year 7)

PARAMETERS

Volatiles

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

Semi-Volatiles

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

APPENDICES

APPENDIX A

MONTHLY INSPECTION LOGS (NOVEMBER 2003 TO APRIL 2004)

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 11/04/13 (MM DD YY)

INSPECTOR(S): D. Carr + D. Tyra

	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		
X		- bare areas		
X		- washouts		
X		- leachate seeps		
X		- length of vegetation		
X		- dead/dying vegetation		

FORM 17

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 11/04/13 (MM DD YY)

INSPECTOR(S): D. Carlson, W. Tyran

Item	Inspect For	Action Required	Comments
2. Landfill Cap (continued)			
[X] Access Roads	- bare areas, dead/dying veg.	NONE	
	- erosion		
	- potholes or puddles		
	- obstruction		
3. Wetlands (Area "F")	- dead/dying vegetation	None	
	- change in water budget		
	- general condition of wetlands		
4. Other Site Systems			
[ ] Perimeter Fence	- integrity of fence		
	- 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: 11/10/4/03 (MM DD YY)

INSPECTOR(S): D. Carr + D Tyson

	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		
	Culverts	- sediment build-up		
		- erosion		
		- condition of erosion protection		
		- flow obstructions		
	Gas Vents	- intact / damage		
X	Wells	- locks secure	NONE	

FORM 17

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 11/21/13 (MM DD YY)

INSPECTOR(S): D. Carra D. Tyran

	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		
X		- bare areas		
X		- washouts		
X		- leachate seeps		
X		- length of vegetation		
X		- dead/dying vegetation		

FORM 17

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 11/23/93 (MM DD YY)

INSPECTOR(S): D. Carra D. Tyran

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	X	
	- general condition of wetlands		
4. Other Site Systems			
☐ Perimeter Fence	- integrity of fence		
☐	- 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: 11/21/3913 (MM DD YY)

INSPECTOR(S): D. Carra · D. Tyran

	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		
	Culverts	- sediment build-up		
		- erosion		
		- condition of erosion protection		
		- flow obstructions		
	Gas Vents	- intact / damage		
X	Wells	- locks secure	NONE	

FORM 17

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 10/12/2014 (MM DD YY)

INSPECTOR(S): R. Carra & R. Tyran

	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		
☒		- washouts		
☒		- leachate seeps		
☒		- length of vegetation		
☒		- dead/dying vegetation	Same as before (Bushes, Trees, Grass)	Snow covered

FORM 17

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 01 | 21 | 04 (MM DD YY)

INSPECTOR(S): D. Gallka + D. Tyska

Item	Inspect For	Action Required	Comments
2. Landfill Cap (continued)			
☒ Access Roads	- bare areas, dead/dying veg.	NONE	SNOW covered
☒	- erosion	↓	
☒	- potholes or puddles		
☒	- obstruction		
3. Wetlands (Area "F")	- dead/dying vegetation	NONE	
	- change in water budget	Water level is low	
	- general condition of wetlands	Good.	
4. Other Site Systems			
☐ Perimeter Fence	- integrity of fence		
☐	- 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: 10/12/14 (MM DD YY)

INSPECTOR(S): D. Cosa + D Tyran

	Item	*Inspect For*	*Action Required*	*Comments*
4.	**Other Site Systems (continued)**			
☒	Drainage Ditches/ Swale Outlets	- sediment build-up	In Good Condition	
☒		- 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	NONE	

FORM 17

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 01/12/10 (MM DD YY)

INSPECTOR(S): Danielle Cuva

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		
	- 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: 02/26/07 (MM DD YY)

INSPECTOR(S): Danielle Cerra

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	NONE	
	- change in water budget	↓	
	- general condition of wetlands	Good	
4. **Other Site Systems**			
Perimeter Fence	- integrity of fence		
	- 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: 06/12/2014 (MM DD YY)

INSPECTOR(S): Danielle Cerra

Item	*Inspect For*	*Action Required*	*Comments*
4. **Other Site Systems (continued)**			
Drainage Ditches/ Swale Outlets	- sediment build-up	Good Condition	
	- 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~~ N/A		
Wells	- locks secure	NONE	

FORM 17

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 03/04/04 (MM DD YY)

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

Item	*Inspect For*	*Action Required*	*Comments*
1. Perimeter Collection System/Off-Site Forcemain			
Manholes	- cover on securely	No action	
	- 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 action	
	- bare areas		
	- 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: 01/31/14 (MM DD YY)

INSPECTOR(S): Danielle Cira / D. Tyran

Item	*Inspect For*	*Action Required*	*Comments*
2. Landfill Cap (continued)			
Access Roads	- bare areas, dead/dying veg.	No Action	
	- erosion		
	- potholes or puddles		
	- obstruction		
3. Wetlands (Area "F")	- dead/dying vegetation	No Action	
	- change in water budget		
	- general condition of wetlands		
4. Other Site Systems			
Perimeter Fence	- integrity of fence	Not Applicable	
	- 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: 10|3|0|4|0|4| (MM DD YY)

INSPECTOR(S): D. Cerik / T. Tyran

	Item	*Inspect For*	*Action Required*	*Comments*
	4. Other Site Systems (continued)			
X	Drainage Ditches/ Swale Outlets	- sediment build-up	No Action	
X		- erosion	↓	
X		- condition of erosion protection	↓	
X		- flow obstructions	↓	
X		- dead/dying vegetation	↓	
X		- cable concrete/gabion mats and riprap	↓	
X	Culverts	- sediment build-up	No Action	
X		- erosion	↓	
X		- condition of erosion protection	↓	
X		- flow obstructions	↓	
	Gas Vents	- intact / damage	No Action	
X	Wells	- locks secure	↓	

FORM 17

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 01/16/14 (MM DD YY)

INSPECTOR(S): Danielle Cook

Item	Inspect For	Action Required	Comments
1. **Perimeter Collection System/Off-Site Forcemain**			
Manholes	- cover on securely	No action	
	- 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 Action	
	- bare areas		
	- 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: 04/16/04 (MM DD YY)

INSPECTOR(S): Danielle Cuscia

Item	Inspect For	Action Required	Comments
2. Landfill Cap (continued)			
Access Roads	- bare areas, dead/dying veg.	No action	
	- erosion		
	- potholes or puddles		
	- obstruction		
3. Wetlands (Area "F")	- dead/dying vegetation	None	
	- change in water budget	water level consistent	
	- general condition of wetlands	Good	
4. Other Site Systems			
Perimeter Fence	- integrity of fence	Snow fence down for season	
	- 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: 01/16/11 (MM DD YY)

INSPECTOR(S): Danielle Carr

Item	Inspect For	Action Required	Comments
4. Other Site Systems (continued)			
Drainage Ditches/ Swale Outlets	- sediment build-up	Good Condition	
	- 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	None	

FORM 17

B

APPENDIX B

QA/QC REVIEW, MAY 2004 QUARTERLY SAMPLING EVENT

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/js/51	DATE:	June 15, 2004
RE:	**Analytical Results and QA/QC Review Semi-Annual Groundwater/River Water Sampling Gratwick-Riverside Park Site May 2004**		

INTRODUCTION

Sixteen (16) samples were collected in support of the Semi-Annual Groundwater/River Water Sampling at the Gratwick-Riverside Park Site (Site) during May 2004. Samples were submitted to Severn Trent Laboratories (STL) in Amherst, New York, and analyzed for the following:

Parameter	*Methodology*
Site-Specific Volatile Organic Compounds (VOCs)	SW-846 8260[1]
Site-Specific Semi-Volatile Organic Compounds (SVOCs)	SW-846 8270[1]

The sample collection and analysis summary is presented in Table 1. The analytical results are summarized in Table 2. The quality assurance/quality control (QA/QC) criteria by which these data have been assessed are outlined in the analytical methods, the "National Functional Guidelines for Organic Data Review" (October 1999), and the "National Functional Guidelines for Inorganic Data Review" (February 1994).

Data assessment was based on information obtained from final data sheets, blank data, duplicate results, surrogate recoveries, and spike recoveries.

QA/QC REVIEW

All samples were prepared and/or analyzed within the method specified holding times. All samples were received in good condition and properly preserved.

Surrogates were added to all samples, blanks, and QC samples prior to extraction and/or analysis for VOCs and SVOCs. All VOC and SVOC surrogate recoveries met the method criteria indicating acceptable analytical efficiency.

---

1 "Test Methods for Solid Waste Physical/Chemical Methods", SW-846, 3rd Edition, September 1986 (with all subsequent revisions).

Method blanks were extracted and/or analyzed for all parameters. The results were non-detect for the compounds of interest indicating acceptable analytical procedures.

A trip blank was submitted with the samples for VOC analysis. All VOC results were non-detect for the compounds of interest.

Blank spikes (BS) were prepared and analyzed for all parameters. All recoveries showed acceptable analytical accuracy.

Sample MW-8 was collected in duplicate and submitted "blind" to the laboratory. All results demonstrated acceptable agreement indicating adequate sampling and analytical procedures.

A matrix spike/matrix spike duplicate (MS/MSD) was prepared and analyzed for SVOCs and VOCs using sample OGC-7. All recoveries were acceptable indicating adequate analytical accuracy and precision.

CONCLUSION

Based on the preceding assessment, the data were acceptable without qualification.

TABLE 1

SAMPLE COLLECTION AND ANALYSIS SUMMARY
SEMI-ANNUAL GROUNDWATER/RIVER WATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
GRATWICK-RIVERSIDE PARK SITE
MAY 2004

				Analysis/Parameters		
Sample I.D.	*Location I.D.*	*Collection Date (mm/dd/yy)*	*Collection Time (hr:min)*	*VOCs*	*SVOCs*	*Comments*
GW-7987-0504-001	OGC-4	05/14/04	7:20:00	X	X	
GW-7987-0504-002	MW-9	05/14/04	7:45:00	X	X	
GW-7987-0504-003	OGC-8	05/14/04	8:10:00	X	X	
GW-7987-0504-004	RIVER SOUTH	05/14/04	8:30:00	X	X	
GW-7987-0504-005	OGC-3	05/14/04	9:25:00	X	X	
GW-7987-0504-006	MW-8	05/14/04	9:35:00	X	X	
GW-7987-0504-007	MW-8	05/14/04	9:45:00	X	X	Field duplicate of GW-7987-0504-006
GW-7987-0504-008	OGC-7	05/14/04	10:10:00	X	X	MS/MSD
GW-7987-0504-009	RIVER MIDDLE	05/14/04	10:45:00	X	X	
GW-7987-0504-010	OGC-2	05/14/04	10:55:00	X	X	
GW-7987-0504-011	MW-7	05/14/04	11:05:00	X	X	
GW-7987-0504-012	OGC-6	05/14/04	12:50:00	X	X	
GW-7987-0504-013	RIVER NORTH	05/14/04	13:15:00	X	X	
GW-7987-0504-014	OGC-5	05/14/04	13:40:00	X	X	
GW-7987-0504-015	MW-6	05/14/04	15:50:00	X	X	
GW-7987-0504-016	OGC-1	05/14/04	16:00:00	X	X	
TB-051404-DC	-	05/14/04	-	X		

Notes:
- Not applicable.
MS Matrix Spike.
MSD Matrix Spike Duplicate.
SVOC Semi-Volatile Organic Compounds.
VOC Volatile Organic Compounds.

TABLE 2
ANALYTICAL RESULTS SUMMARY
SEMI-ANNUAL GROUNDWATER/RIVER WATER SAMPLING
MILLER SPRINGS REMDEIATION MANAGEMENT, INC.
GRATWICK-RIVERSIDE PARK SITE
MAY 2004

Sample Location:		*Middle River*	*MW6*	*MW7*	*MW8*	*MW8*	*MW9*	*NORTH-RIVER*	*OGC1*
Sample ID:		*GW-7987-0504-009*	*GW-7987-0504-015*	*GW-7987-0504-011*	*GW-7987-0504-006*	*GW-7987-0504-007*	*GW-7987-0504-002*	*GW-7987-0504-013*	*GW-7987-0504-016*
Sample Date:		*5/14/2004*	*5/14/2004*	*5/14/2004*	*5/14/2004*	*5/14/2004*	*5/14/2004*	*5/14/2004*	*5/14/2004*
						Duplicate			
Parameter	*Units*								
Volatiles									
2-Butanone (Methyl Ethyl Ketone)	ug/L	5.0 U	5.0 U	5.0 U	14 U	11 U	14 U	5.0 U	5.0 U
Acetone	ug/L	5.0 U	6.7	5.0 U	28	33	12 U	3.6 J	5.0 U
Benzene	ug/L	0.70 U	0.70 U	0.70 U	10	12	1.4 U	0.39 J	0.70 U
Chlorobenzene	ug/L	1.0 U	0.37 J	1.0 U	2.7	3.3	1.1	3.2	1.0 U
Ethylbenzene	ug/L	1.0 U	1.0 U	1.0 U	20	24	1.6 U	40	1.0 U
Methylene chloride	ug/L	1.0 U	1.0 U	1.0 U	7.3	9.2	7.2	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	0.25 J	1.0 U	120	130	1.3 U	7.7	1.0 U
Toluene	ug/L	1.0 U	0.92 J	1.0 U	97	120	3.2	130	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	0.52 J	1.0 U	7.3	9.4	1.6 U	1.0	1.0 U
Trichloroethene	ug/L	1.0 U	3.7	1.0 U	380	390	4.9	6.4	0.47 J
Vinyl chloride	ug/L	1.0 U	1.0 U	1.0 U	13	16	2.9 U	9.3	1.0 U
Xylene (total)	ug/L	3.0 U	3.0 U	3.0 U	92	110	5.0 U	210	3.0 U
Semi-Volatiles									
1,2-Dichlorobenzene	ug/L	10 U	38 U	10 U	19 U	10 U	20 U	10 U	9 U
1,4-Dichlorobenzene	ug/L	10 U	38 U	10 U	19 U	2 J	20 U	10 U	9 U
2,4-Dimethylphenol	ug/L	10 U	38 U	10 U	15 J	14	42	10 U	9 U
2-Methylphenol	ug/L	10 U	38 U	10 U	18 J	18	5 J	10 U	9 U
4-Methylphenol	ug/L	10 U	38 U	10 U	34	31	190	10 U	9 U
Di-n-octyl phthalate	ug/L	10 U	38 U	10 U	19 U	10 U	20 U	10 U	9 U
Naphthalene	ug/L	10 U	38 U	10 U	19 U	10 U	20 U	10 U	9 U
Phenol	ug/L	10 U	38 U	10 U	28	28	30	10 U	9 U

Notes:
J - Estimated.
U - Non-detect at associated value.

TABLE 2
ANALYTICAL RESULTS SUMMARY
SEMI-ANNUAL GROUNDWATER/RIVER WATER SAMPLING
MILLER SPRINGS REMDEIATION MANAGEMENT, INC.
GRATWICK-RIVERSIDE PARK SITE
MAY 2004

Sample Location:		*OGC2*	*OGC3*	*OGC4*	*OGC5*	*OGC6*	*OGC7*	*OGC8*	*South River*
Sample ID:		*GW-7987-0504-010*	*GW-7987-0504-005*	*GW-7987-0504-001*	*GW-7987-0504-014*	*GW-7987-0504-012*	*GW-7987-0504-008*	*GW-7987-0504-003*	*GW-7987-0504-004*
Sample Date:		*5/14/2004*	*5/14/2004*	*5/14/2004*	*5/14/2004*	*5/14/2004*	*5/14/2004*	*5/14/2004*	*5/14/2004*
Parameter	*Units*								
Volatiles									
2-Butanone (Methyl Ethyl Ketone)	ug/L	5.0 U	14 U	11 U	5.0 U	29 U	5.0 U	5.0 U	5.0 U
Acetone	ug/L	4.5 J	12 U	9.2 U	5.0 U	23 U	5.0 U	5.8	5.0 U
Benzene	ug/L	0.70 U	1.4 U	1.1 U	0.61 J	2.8 U	0.34 J	1.2	0.70 U
Chlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.1 U	1.0 U	0.48 J	1.0 U
Ethylbenzene	ug/L	1.0 U	1.6 U	1.3 U	1.0 U	3.3	1.5	1.2	1.0 U
Methylene chloride	ug/L	1.0 U	6.3	4.6	1.0 U	4.4	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.3 U	1.0 U	1.0 U	300	4.1	5.0	1.0 U
Toluene	ug/L	1.0 U	2.6	1.4 U	0.80 J	40	9.3	11	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	1.6 U	1.3 U	0.34 J	3.3	5.9	0.41 J	1.0 U
Trichloroethene	ug/L	1.0 U	7.7	1.0 U	0.28 J	530	56	11	1.0 U
Vinyl chloride	ug/L	1.0 U	2.9 U	2.4 U	1.4	5.9 U	2.9	1.0 U	1.0 U
Xylene (total)	ug/L	3.0 U	5.0 U	4.0 U	1.0 J	13	10	3.7	3.0 U
Semi-Volatiles									
1,2-Dichlorobenzene	ug/L	9 U	10 U	190 U	9 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	ug/L	9 U	10 U	190 U	9 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	ug/L	9 U	9 J	190 U	9 U	10 U	10 U	10 U	10 U
2-Methylphenol	ug/L	9 U	110	190 U	9 U	63	10 U	2 J	10 U
4-Methylphenol	ug/L	9 U	17	190 U	9 U	1 J	10 U	5 J	10 U
Di-n-octyl phthalate	ug/L	9 U	10 U	190 U	9 U	10 U	10 U	10 U	10 U
Naphthalene	ug/L	9 U	10 U	190 U	9 U	10 U	10 U	10 U	10 U
Phenol	ug/L	9 U	93	2400	9 U	9 J	10 U	2 J	10 U

Notes:
J - Estimated.
U - Non-detect at associated value.