932001

Fourth Quarter Year 2002 Monitoring Event Report and Annual Report for 2002 Site No. 932001 Airco Parcel, Niagara Falls, New York

Prepared for

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March 2003
Project No. 12040.69

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1. INTRODUCTION

EA Engineering, P.C. and its affiliate EA Engineering, Science, and Technology initiated the post-closure monitoring and facility maintenance program at the Airco Parcel located in Niagara Falls, New York in December 2000. Post-closure monitoring and facility maintenance is required by New York State Solid Waste Management Facilities Regulations (6 NYCRR Part 360-2.15[k][4]) and as stipulated in Order on Consent No. B9-0470-94-12. The purpose of this monitoring event/annual report is to summarize the analytical results of the fourth quarter Year 2002 ground-water monitoring event that was completed at this site in December 2002, and to summarize and evaluate analytical trends from the four monitoring/sampling events completed since calendar Year 2002.

1.1 OBJECTIVES

In accordance with the Revised Final Post-Closure Monitoring and Facility Maintenance Plan (EA 2001[1]), environmental monitoring points will be maintained and sampled during the post-closure monitoring period. Sampling includes collection of ground water, surface water, and leachate samples. The Revised Final Post-Closure Monitoring and Facility Maintenance Plan documents sampling locations and sampling parameters and methods, in addition to other required maintenance activities, such as landfill cap inspections. It is anticipated that within 5 years of the start of post-closure monitoring, this Plan will be re-evaluated based on the data collected at the site so that the monitoring plan will be focused to address site-specific issues that may be identified.

The objectives of the Post-Closure Monitoring and Facility Maintenance Program are to:

- Collect representative ground-water and surface water samples in order to monitor potential leachate migration from the landfill and to document the effectiveness of the recently installed landfill capping system
- Evaluate these data to determine whether potential impacts may be occurring that could affect human health or the environment
- Monitor and record water flow data from the ground-water relief pipe
- Conduct quarterly landfill inspections
- Provide this information to the BOC Group and the New York State Department of Environmental Conservation (NYSDEC).

1. EA Engineering, Science, and Technology. 2001. Interim Remedial Measure Report Documenting Closure of the Witmer Road Landfill, Niagara Falls, New York, Including Appendix A – Revised Final Post-Closure Monitoring and Facility Maintenance Plan. January.

As noted in the Revised Final Post-Closure Monitoring and Facility Maintenance Plan, the results of the quarterly sampling events will be summarized in a letter report describing the findings of the environmental sampling. Monitoring event letter reports will be limited to documenting the results of each sampling event. This report summarizes the findings of the ninth post-closure monitoring event completed at this site. As this document also serves as the Year 2002 Annual Report, this report also summarizes and evaluates ground water, surface water, and water flow from the ground-water relief pipe analytical results, water flow from the ground-water relief pipe data, and landfill inspection data collected for the four quarterly monitoring/sampling/inspection events completed during 2002.

2. BACKGROUND

The Airco Parcel is part of the U.S. Vanadium Corporation of America site that is located in the Town of Niagara Falls, New York (Figure 1). The Vanadium site is approximately 150 acres. This quarterly sampling event focused on the 25-acre Airco parcel owned by Airco Properties, Inc. The site contains waste material from the operation of onsite and nearby production facilities.

An Immediate Investigative Work Assignment (IIWA) was conducted by NYSDEC for a portion of the 150-acre parcel in August 1997. Approximately 70 acres from the Niagara Mohawk A National Grid Company and New York Power Authority parcel were investigated. During the investigation, NYSDEC determined that the site had been used by Vanadium Corporation of America (the owners of the site from 1924 to 1964) to dispose of wood, brick, ash, lime slag, ferrochromium silicon slag, and ferrochromium silicon dust. According to the IIWA, much of the surface material consisted of fill, including fly ash, dust, slag, and cinder materials.

Analysis of site ground water during a preliminary site assessment that was reviewed as part of the NYSDEC IIWA indicated that surface water and ground-water standards were exceeded for hexavalent chromium and pH. Based on the IIWA and other investigations, the facility has been listed as a Class 2 Hazardous Waste Site in the New York State Registry of Inactive Hazardous Waste Sites (Site No. 932001). A Class 2 listing indicates a site posing a significant threat to public health and the environment, and requiring remedial action.

Remedial measures were completed at the Airco Parcel during 2000, which included installation of a low permeability cap and ground-water relief system. A complete description of the history of the site, and the construction details of the landfill capping system, can be found in the Interim Remedial Measure Report (EA 2001).

3. FOURTH QUARTER MONITORING EVENT – DECEMBER 2002 ACTIVITIES

The fourth quarter 2002 monitoring event included the following activities:

- Relief pipe flow monitoring (for the period 1-22 October 2002)
- Monitoring well gauging
- Ground-water sampling
- Water flow from the ground-water relief pipe sampling
- Surface water sampling
- Landfill engineering inspection.

The relief pipe flow monitoring was performed from 12 March to 22 October 2002. Monitoring ceased on 22 October 2002 since monitoring equipment was scheduled to be removed from the relief pipe on that date to prevent potential damage due to inclement weather. Upon arrival at the relief pipe, it was observed that significant damage to the flow data logger had occurred. The monitoring probe and line were cut and the monitoring probe was not recovered.

Further details on the December 2002 quarterly sampling activities are discussed below.

3.1 MONITORING WELL GAUGING

The site monitoring wells (MW-1B through MW-8B [Figure 2]) were gauged to determine depth to ground water prior to sampling on 10 December 2002. The depth to water ranged from 5.11 ft below top of well casing at MW-6B to 14.57 ft below top of well casing at MW-2B. Gauging data recorded during 2002 are summarized in Table 1.

Illustrations provided in Appendix A are the interpretations of ground-water flow patterns based on water level gauging data collected during each of the four quarterly sampling events undertaken during 2002. The interpretation illustrates the data based on ground-water elevations and a hydrogeochemical analysis of the ground-water analytical results. Hydrogeochemical analysis (in this case, trend graphs and scatter plots of analytical data) is used to provide a clearer picture of site hydrogeologic conditions. In addition to ground-water elevations, ground-water analytical results are evaluated to determine if the ground-water flow patterns are consistent with the surrounding ground-water chemistry.

Based on the interpretive method, a ground-water divide bisects the landfill. This interpretation is consistent for each of the monitoring events since December 2001. Based on this evaluation, ground water flows from northwest to southeast and east and west off of the divide. This interpretation is consistent with the information from the IIWA.

3.2 GROUND-WATER, GROUND-WATER RELIEF PIPE, AND SURFACE WATER SAMPLING

3.2.1 Sampling Procedures

Monitoring wells were sampled on 10 and 11 December 2002. Seven ground-water samples were collected from the site monitoring wells. Monitoring well MW-4B was not sampled due to lack of ground-water recharge during the purging process. Monitoring wells MW-5B and MW-7B were purged using dedicated bailers due to low recharge and limited well volume. These wells were bailed dry at least once and allowed to recharge to at least 90 percent of the static (i.e., before purging) water level prior to sample collection. Monitoring wells MW-1B, MW-2B, MW-3B, MW-6B, and MW-8B had adequate recharge rates; consequently, 4 well volumes were removed and water quality indicator parameters allowed to stabilize prior to sample collection.

One ground-water relief pipe sample (L-1) and one surface water sample (SS-1) were also collected on 11 December 2002. The surface water sample was collected from the wetland adjacent to monitoring well MW-6B. The ground-water relief pipe water flow sample was collected directly from the ground-water relief pipe in the southwest corner of the landfill. Aqueous samples (unfiltered) were submitted to Environmental Laboratory Services of North Syracuse, New York for analysis of phenolics by U.S. Environmental Protection Agency (EPA) Method 420.2, sulfate by EPA Method 375.3, ammonia (expressed as nitrogen) by EPA Method 350.2, silica by EPA Method 200.7, and Target Analyte List metals by EPA Series 6010/620 (including hexavalent chromium).

Ground-water sampling results were compared to NYSDEC Ambient Water Quality Standards (AWQS) (NYSDEC 1999[2]) and guidance values for Class GA waters. Ground-water relief pipe water flow and surface water samples were compared to NYSDEC AWQS for Class D surface waters. Analytical results are summarized on the table provided in Appendix B. Copies of the field notebook, including the results for well gauging, purging, and sampling, are provided in Appendix C. Laboratory chain-of-custody records are provided in Appendix D. Laboratory Form I analytical results are included in Appendix E.

3.3 ANALYTICAL RESULTS

Based on the analytical results collected during the fourth quarter 2000 and first quarter 2001, NYSDEC approved a reduction in the sampling requirements for the remaining sampling events. As per a letter to NYSDEC dated 5 June 2001, samples were analyzed for the following water quality parameters: ammonia, phenolics, sulfate, and total (unfiltered) metals. Summary tables listing analytical results for the fourth quarter 2002 event compared to applicable NYSDEC AWQS are included in Appendix B. Notable results of chemical analyses are as follows.

2. New York State Department of Environmental Conservation (NYSDEC). 1999. Water Quality Regulations – Surface Water and Ground-Water Classifications and Standards New York State Codes, Rules and Regulations Title 6, Chapter X Parts 700-706.

3.3.1 Routine Metals

Unfiltered samples were collected from each of the site monitoring wells, the ground-water relief pipe discharge, and a surface water location (Figure 2). Notable results included the following:

- Hexavalent chromium, chromium, iron, magnesium, manganese, selenium, and sodium were detected in one or more of the ground-water samples at concentrations in excess of NYSDEC AWQS.

- Hexavalent chromium and selenium concentrations exceeded NYSDEC AWQS in both the ground-water relief pipe sample and the surface water sample.

3.3.2 Water Quality Parameters

Water quality indicator parameter data, including pH, temperature, conductivity, dissolved oxygen, turbidity, oxidation reduction potential, and salinity, were collected in the field during sampling. In addition, water quality parameters, including ammonia (expressed as N), phenolics, and sulfate, were also analyzed by the laboratory. Notable results included the following:

- Phenolics were detected at a concentration above NYSDEC AWQS in the sample collected from monitoring wells MW-2B, MW-3B, and MW-7B

- Sulfate was detected at a concentration in excess of NYSDEC AWQS in samples collected from monitoring wells MW-1B, MW-3B, MW-5B, MW-6B, and MW-8B.

3.4 LANDFILL INSPECTION

A landfill cap inspection was conducted on 11 December 2002. The Landfill Cap Inspection Checklist is provided as Appendix F. No deterioration or damage to the landfill, cap, drainage swales, or access roads was noted during the engineering inspection.

4. ANNUAL SUMMARY OF POST-CLOSURE MONITORING AND FACILITY MAINTENANCE FOR THE PERIOD 1 JANUARY THROUGH 31 DECEMBER 2002

4.1 WATER LEVEL GAUGING PROGRAM

During the 2002 monitoring events, ground-water monitoring wells were gauged to obtain depth to water measurements a total of four times (Appendix A). Well gauging was conducted as part of quarterly sampling events completed in March, June, September, and December 2002. A summary of the quarterly gauging data includes interpretive water table elevation contour maps developed for the data collected during the quarterly sampling events (Appendix A). The data are also summarized in Table 1. Based on the gauging data alone, ground water flows from northwest to southeast with localized variations.

As stated earlier, a review of the IIWA indicates that an overburden ground-water divide bisects the landfill. The divide trends along the northern and eastern perimeter. The IIWA had a number of additional monitoring wells from which to collect data, which augmented their interpretation. However, a hydrogeochemical evaluation that couples the analytical results with ground-water elevation data for each sampling event provides an alternative interpretation of ground-water flow patterns. These alternative interpretations are provided in Appendix A (interpreted ground-water contour maps). It appears that a ground-water divide exists along the central and eastern portion of the landfill. Additional information and evaluation of the data discussed in subsequent sections of this report clarify and support this interpretation of ground-water flow. Using this interpretation, ground water flows from northwest to southeast and off the flanks of the divide.

4.2 MONITORING, SAMPLING, AND ANALYSIS PROGRAM

Ground-water, surface water, and leachate samples were collected on the following dates, unless otherwise indicated: 13-14 March, 11-12 June, 5 September, and 10-11 December 2002. Summary tables and tag maps for each quarterly sampling event are provided in Appendix G. During this timeframe, four modified routine sampling events were completed (March, June, September, and December 2002). The NYSDEC-approved modification of the routine sampling events consisted of a reduced parameter list based on the analytical results for numerous sampling events completed at this site in the past. The modification of the sampling events required analysis for a limited number of metals, water quality parameters, and collection of field parameters. For the 2002 sampling events, the metals list was limited to chromium, hexavalent chromium, iron, lead, magnesium, manganese, selenium, silica, sodium, and zinc. During the March, June, September, and December 2002 sampling events, only unfiltered samples were collected.

4.2.1 Routine Metals

4.2.1.1 First Quarter – March 2002

During March 2002, eight ground-water samples, one ground-water relief pipe sample, and one surface water sample were collected during this sampling event. Monitoring wells MW-1B, MW-2B, MW-3B, MW-4B, MW-5B, MW-6B, MW-7B, and MW-8B were sampled. Both filtered and unfiltered metal samples were collected during this event.

The following is a summary of unfiltered sample results:

- Chromium, hexavalent chromium, iron, lead, magnesium, manganese, selenium, sodium, and thallium were detected in one or more of the ground-water samples at concentrations in excess of NYSDEC AWQS.
- Iron and selenium were detected in the surface water sample at concentrations in excess of NYSDEC AWQS.
- Hexavalent chromium was detected at a concentration in excess of NYSDEC AWQS in the ground-water relief pipe sample.

4.2.1.2 Second Quarter – June 2002

Eight ground-water samples, one ground-water relief pipe sample, and one surface water sample were collected during this sampling event. Monitoring wells MW-1B, MW-2B, MW-3B, MW-4B, MW-5B, MW-6B, MW-7B, and MW-8B were sampled. All of the aqueous samples were unfiltered. Notable results are summarized below:

- Cadmium, chromium, hexavalent chromium, iron, magnesium, manganese, selenium, sodium, and thallium were detected in one or more of the ground-water samples at concentrations in excess of NYSDEC AWQS.
- Hexavalent chromium, iron, and selenium were detected in the surface water sample at concentrations in excess of NYSDEC AWQS.
- Hexavalent chromium and selenium were detected at concentrations in excess of NYSDEC AWQS in the ground-water relief pipe sample.

4.2.1.3 Third Quarter – September 2002

Seven ground-water samples were collected from site monitoring wells during this sampling event. Monitoring well MW-4B contained less than 1 ft of standing water, thus providing insufficient water for sampling. Monitoring wells MW-1B, MW-2B, MW-3B, MW-5B, MW-6B, MW-7B, and MW-8B were sampled during this monitoring event. A ground-water

relief pipe sample was collected from the riser pipe at the ground-water outfall. No surface water sample was collected due to insufficient water in the wetland. All aqueous samples were unfiltered. Notable results are summarized below:

- Cadmium, chromium, hexavalent chromium, iron, lead, magnesium, manganese, selenium, and sodium were detected in ground-water samples at concentrations in excess of NYSDEC AWQS.

- Hexavalent chromium was detected at a concentration in excess of the NYSDEC AWQS in MW-2B, MW-8B, and the ground-water relief pipe (leachate) sample. Selenium was also detected at a concentration in excess of the NYSDEC AWQS in MW-8B and the ground-water relief pipe sample.

4.2.1.4 Fourth Quarter – December 2002

During December 2002, seven ground-water samples, one ground-water relief pipe (leachate) sample, and one surface water sample were collected. Monitoring wells MW-1B, MW-2B, MW-3B, MW-5B, MW-6B, MW-7B, and MW-8B were sampled. Monitoring well MW-4B contained less than 1 ft of standing water, thus providing insufficient water for sampling. All of the aqueous samples were unfiltered. Notable analytical results included the following:

- Hexavalent chromium, chromium, iron, magnesium, manganese, selenium, and sodium were detected in one or more of the ground-water samples and the ground-water relief pipe and surface water samples at concentrations in excess of NYSDEC AWQS.

4.2.2 Water Quality Parameters

Water quality parameters, including pH, temperature, conductivity, dissolved oxygen, turbidity, and salinity were collected in the field. In addition, water quality parameters, including ammonia (expressed as N), phenolics, and sulfate, were also analyzed by the laboratory.

4.2.2.1 First Quarter – March 2002

Notable results from this sampling event included:

- Sulfate was detected at a concentration in excess of the AWQS in the sample collected from monitoring well MW-8B.

- Measurements of pH exceeded NYSDEC AWQS in ground-water samples collected from monitoring wells MW-2B, MW-3B, as well as the surface water and ground-water relief pipe samples.

4.2.2.2 Second Quarter – June 2002

Notable results from this sampling event included:

- Sulfate was detected at a concentration in excess of the AWQS in samples collected from monitoring wells MW-4B, MW-5B, MW-6B, and MW-8B.
- Measurements of pH exceeded NYSDEC AWQS in ground-water samples collected from monitoring wells MW-2B and MW-3B, as well as the surface water and ground-water relief pipe samples.

4.2.2.3 Third Quarter – September 2002

Notable results from this sampling event included:

- Phenolics were detected at a concentration in excess of NYSDEC AWQS in samples collected from monitoring wells MW-1B, MW-2B, and MW-7B.
- Sulfate was detected at a concentration in excess of the NYSDEC AWQS in the sample collected from monitoring well MW-8B.
- Measurements of pH exceeded NYSDEC AWQS in ground-water samples collected from monitoring wells MW-2B, MW-3B, as well as the ground-water relief pipe (leachate) samples.

4.2.2.4 Fourth Quarter – December 2002

Notable results from this sampling event included:

- Phenolics were detected at a concentration above NYSDEC AWQS in the sample collected from monitoring wells MW-2B, MW-3B, and MW-7B.
- Sulfate was detected at a concentration in excess of NYSDEC AWQS in samples collected from monitoring wells MW-1B, MW-3B, MW-5B, MW-6B, and MW-8B.
- Hexavalent chromium and selenium concentrations exceeded NYSDEC AWQS in both the ground-water relief pipe sample and the surface water sample.

4.3 QUARTERLY LANDFILL ENGINEERING INSPECTIONS

Landfill engineering inspections were completed concurrent with each of the quarterly sampling events. The landfill inspection checklists are provided in Appendix F. Following is a summary of the findings for each quarterly inspection.

4.3.1 March 2002

The landfill cap inspection was completed 27 March 2002. Notable results are as follows:

- Warning signs were installed every 40-50 ft along the perimeter of the fence
- No deterioration or damage to the landfill, cap, drainage swales, or access roads was noted during the engineering inspection.

4.3.2 June 2002

Landfill cap inspections were completed 12 June 2002. Notable results are as follows:

- No deterioration or damage to the landfill, cap, drainage swales, or access roads was noted during the engineering inspection.
- EA noted that a 10-ft section of the perimeter fence along the eastern boundary of the landfill had been cut. Fence repairs were scheduled and completed in July 2002.
- Vegetation covering the landfill was noted at 2-3 ft high. Mowing was completed on 15-17 July 2002.

4.3.3 September 2002

Landfill cap inspections were completed 5 September 2002. Notable results are as follows:

- No deterioration or damage to the landfill, cap, drainage swales, or access roads was noted during the engineering inspection.
- The 10-ft section of perimeter fence along the eastern boundary of the landfill was repaired on 22 July 2002.
- Removal of the silt fence was scheduled for October 2002.

4.3.4 December 2002

A landfill cap inspection was conducted on 11 December 2002. Notable results are as follows:

- No deterioration or damage to the landfill, cap, drainage swales, or access roads was noted during the engineering inspection.
- Silt fence removal was completed in October 2002.

4.4 GROUND-WATER RELIEF PIPE FLOW MONITORING

A ground-water relief pipe monitoring system was re-installed after winter conditions ceased on 12 March 2002 to quantify the flow of water from the relief pipe. The system was designed to record the flow discharging from the pipe at 30-minute intervals. Flow monitoring data were recorded from 12 March to 22 October 2002. Table 2 and Figure 3 summarize the data that were collected during that time. From 24 August to 30 September 2002, no ground water discharged through the system. During the October 2002 site visit, it was noted upon arrival at the relief pipe that significant damage to the flow logger had occurred. The monitoring probe and line were cut and the monitoring probe was not recovered. Therefore, no data were recorded for the month of October 2002. The maximum daily discharge between 12 March and 30 September was 99,749 gal. The total discharge during this timeframe (i.e., 200 days) was 5,370,571 gal. The discharge rate and total observed discharge were higher than expected because the monitoring equipment was re-installed to the same height as the Fall of 2001. The water elevation in the southwest corner increased due to excess precipitation in the Spring of 2002, causing flooded conditions and erroneous data to be collected. The data between 12 March and 23 May 2002 are not representative of ground-water relief pipe flow conditions.

An evaluation of the rainfall during the reporting period (Appendix H) indicates that there was a rapid response in ground-water discharge after the start of a significant rainfall event (Figure 4) during the period from 12 March to 23 May 2002. It was determined that the monitoring equipment was flooded and not accurately depicting flow. The probe and pipe were raised on 23 May 2002 which enabled more accurate flow measurement as shown on Figure 4. The precipitation data in the Buffalo, New York area during the reporting period indicate above normal rainfall for March (+0.29 in.), April (+1.34 in.), May (+1.88 in.), and July (+0.10 in.) 2002. During the monitoring period, precipitation data indicate below normal rainfall for June (-2.35 in.), August (-2.10 in.), and September (-1.30 in.) 2002. The total rainfall during the period 12 March through 30 September 2002 was 21.91 in.

4.5 HYDROGEOCHEMICAL EVALUATION

The summary of analytical results indicates that throughout the reporting period there were a number of elevated concentrations of metals observed at various locations at this site.

In order to develop a clearer understanding of the hydrogeochemically processes occurring at the site, EA has constructed trend graphs and scatter plots of various analytes to determine the locations where leachate indicators have impacted ground water. Trend graphs provide a picture of the analytes of concern and the variations in their concentrations through time. Scatter plots of concentrations of ions provide an opportunity to improve the conceptual model of site hydrogeology and also monitor the effectiveness of the landfill cap in reducing analyte concentrations in the water flowing from the ground-water relief pipe over time. They also provide an opportunity to further modify the ground-water sampling requirements for the site by identifying the analytes of concern and designing the sampling program to monitor those specific analytes.

Appendix I provides trend graphs for the various metals and water quality parameters detected at each of the sampling locations. Analytical results collected during the NYSDEC IIWA are included in these trend graphs.

Using the leachate samples as a baseline or initial source, it is possible to determine what effect the leachate generated at the Airco Parcel has on the ambient ground-water chemistry, as well as the effect of offsite sources. This can be coupled with known hydrogeologic characteristics to provide an assessment of the ground-water chemistry at the site and the surrounding area.

A review of the trend graphs indicates the following general observations.

Wells MW-1B, MW-3B, MW-5B, and MW-6B

Ground-water samples collected from these wells contained concentrations of target analytes throughout the reporting period. Samples collected from wells MW-1B, MW-3B, MW-5B, and MW-6B had concentrations of sulfate above NYSDEC AWQS during the December 2002 sampling event.

Well MW-2B

The trend graphs for monitoring well MW-2B depicted a gradual increase in the chromium and hexavalent chromium concentrations throughout the reporting period.

Well MW-4B

The trend graphs for this sampling location indicate fluctuations in the concentrations of chromium and hexavalent chromium throughout the reporting period. The March and June 2002 sampling events indicated that the concentration of the ions was above the NYSDEC AWQS. The concentrations during the September 2002 and December 2001 sampling events were below the AWQS.

Well MW-7B

The graphs indicated a fluctuation in the concentration of chromium and hexavalent chromium since December 2000. However, the concentrations of these analytes have remained above the corresponding NYSDEC AWQS.

Well MW-8B

The graphs indicated that the concentrations of chromium and hexavalent chromium during 2002 have remained steady. The concentrations of hexavalent chromium were above the corresponding NYSDEC AWQS during each sampling event.

Surface Water Sample SS-1

The graphs for the surface water sampling point indicate that the concentration of chromium and hexavalent chromium fluctuate. The concentrations of each were typically the same throughout 2002, with the exception of March 2002 when the surface water sample was diluted due to excess precipitation.

Ground-Water Relief Pipe Sample L-1

The graphs illustrate that there are elevated concentrations of chromium, hexavalent chromium, and ammonia above NYSDEC AWQS at this sampling location. Since March 2002, it appears that the concentrations of chromium and hexavalent chromium ions have decreased. The concentration of sodium in the aqueous samples collected from this sampling station was above NYSDEC AWQS throughout 2002.

The graphs also indicate that the primary relief pipe ground-water indicators are chromium, hexavalent chromium, sodium, and ammonia. These four analytes provide a chemical signature that may be used to identify locations where leachate generated from the debris at the Airco Parcel has impacted ground water and surface water. It is important to evaluate the data to determine if these four relief pipe ground-water indicators are found in hydrogeologically upgradient sampling locations. If the analytes are found at upgradient locations at concentrations similar to those found in the ground-water relief pipe samples, it can be concluded that the concentrations of these analytes are representative of ambient water quality and should be evaluated as such.

The hydrogeochemical signature of ground water at upgradient monitoring well MW-1B indicates that, relative to the ground-water relief pipe water, ground water at this location is high in sulfate, magnesium, sodium, and silica. Other wells with similar signatures to MW-1B include MW-3B, MW-5B, and MW-6B. The wells sampled during the IIWA, including MW-103A, MW-104A, and MW-105A, also appear to be representative of the ambient water quality zone. These wells are located on the Niagara Mohawk A National Grid Company property east, north, and northeast of the BOC site, respectively. Sodium is common to both the leachate and the background ground water and in similar concentrations, making it a poor leachate indicator. The lack of ammonia, chromium, and hexavalent chromium concentrations in ambient or background ground-water samples suggests that these parameters may be effective leachate indicators and can be used to identify areas where leachate has impacted local ground water.

Scatter plots of chromium and hexavalent chromium (Appendix I) indicate that there are essentially three zones of ground water at this site: the first zone is the ambient (background) ground water, the second zone is the mixing zone where ambient ground water mixes with leachate, and the third zone is leachate. The ambient ground-water zone is characterized by low concentrations of chromium and hexavalent chromium (i.e., concentrations of these analytes are well below corresponding NYSDEC AWQS). The leachate zone is identified by elevated

concentrations of chromium and hexavalent chromium. The mixing zone, where leachate and ambient ground water combine, falls between these clusters of plots. The scatter plots reinforce the results of the trend graphs. Monitoring wells MW-1B, MW-3B, MW-5B, and MW-6B are consistent with ambient ground-water quality. Monitoring wells MW-4B, MW-7B, and MW-8B appear to fall within a mixing zone of leachate and ambient ground water. Monitoring well MW-2B is the most highly impacted monitoring well. Ground-water samples collected from MW-2B consistently exhibit higher concentrations of chromium and hexavalent chromium than the other wells. Ground-water samples from well MW-2B have also contained elevated concentrations of ammonia, similar to ground-water discharge from the ground-water relief pipe.

One of the metals of concern has been silica. From the trend graphs and scatter plots, it appears that the leachate samples have low silica concentrations, while the background ground water has relatively elevated concentrations of silica. This trend is still evident in the 2002 data. The wells located within the mixing zone have slightly elevated concentrations of silica. This suggests that the source of the silica might be a local offsite source, and not from the Airco Parcel.

The results of the scatter plots confirm the conceptual model of ground-water flow described in the IIWA report completed by NYSDEC. The mixing zone wells are found at points on either side of the overburden ground-water divide, resulting in slight variations in sample chemistry at those locations. The divide also prevents more widespread migration of leachate-impacted ground water.

5. CONCLUSIONS AND RECOMMENDATIONS

Based on the evaluation of the data through the reporting period of 1 January through 31 December 2002, the following conclusions and recommendations are offered.

5.1 GROUND-WATER ANALYSIS

Analytical results for metals indicate that the primary leachate indicators are chromium, hexavalent chromium, sodium, and ammonia. Of these, sodium is common to ground water found at this site; therefore, it was eliminated as an effective leachate indicator. Using the remaining analytes, it was observed that wells MW-1B, MW-3B, MW-5B, and MW-6B have similar ground-water chemistry and are consistent with ambient or background ground-water quality. The chemistry of these wells is also similar to three of the offsite wells sampled during the IIWA (MW-103A, MW-104A, and MW-105A), which further support the premise that the wells are consistent with ambient or background ground-water quality.

Wells MW-2B, MW-4B, MW-7B, and MW-8B have similar hydrogeochemical signatures. Their chemical signatures suggest that these wells lie in a mixing zone between leachate and ambient ground water. This is supported by the ground-water flow patterns identified at the site by NYSDEC in the IIWA report, as well as ground-water flow patterns interpreted by EA.

Silica has been identified as a contaminant of concern. Based on the concentrations of silica identified in leachate and in the samples collected from the wells in the mixing and ambient ground-water zones, it appears that concentrations of silica are the result of offsite activities and not the result of leachate migration from the landfill.

Based on a review of the analytical results for ground-water samples collected at the eight site monitoring wells since December 2000, EA recommends that the current post-closure monitoring frequency remain at four routine sampling events for calendar Year 2003. Consistent with analyses previously performed, sample analysis will include phenolics by EPA Method 420.2, sulfate by EPA Method 375.3, ammonia (expressed as nitrogen) by EPA Method 350.2, silica by EPA Method 200.7, and Target Analyte List metals by EPA Series 6010/6020, including hexavalent chromium (SM18 3500-CR D). Following the four 2003 sampling events, an evaluation of the analytical data will be completed and a modified list of analytes and sampling frequency submitted to NYSDEC for approval.

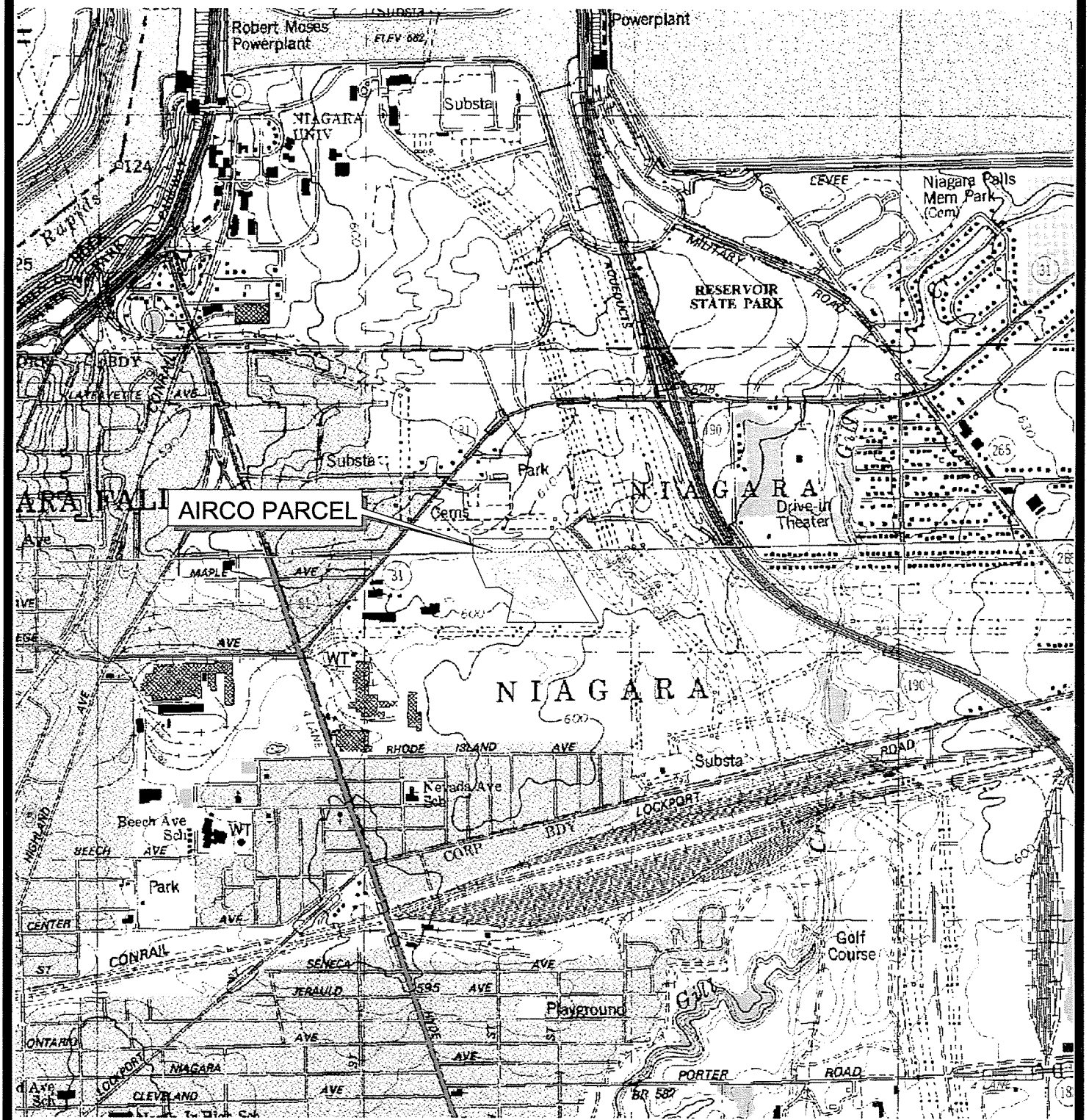
5.2 LANDFILL INSPECTIONS

Engineering inspections of the landfill and appurtenances should continue to be completed on a quarterly basis. Incidents of fences being damaged and trespassers entering the site have been noted during 2002, requiring repair of fences and installation of warning signs. These repairs addressed fence damages that occurred during the reporting period. Mowing of the vegetation

on the landfill cap was completed during July 2002, and the silt fence removal was completed in October 2002. In addition, the inspections should continue to monitor the condition of the landfill cap and the surrounding drainage areas to identify areas where excess erosion has or may occur.

5.3 RELIEF PIPE FLOW MONITORING

From 12 March to 30 September 2002, 5,370,571 gal of ground water was recorded by the monitoring equipment. The volume of water recorded was not accurate from 12 March to 23 May 2002 due to the equipment being in a flooded condition, with the depth of flow artificially inflated, resulting in higher recorded flow than actual. There was no discharge from the relief pipe throughout September 2002, and a portion of October 2002 when the equipment was vandalized (13 October 2002). Due to vandalism to the flow monitoring system, flow data will be collected during site visits only—direct read from the weir.



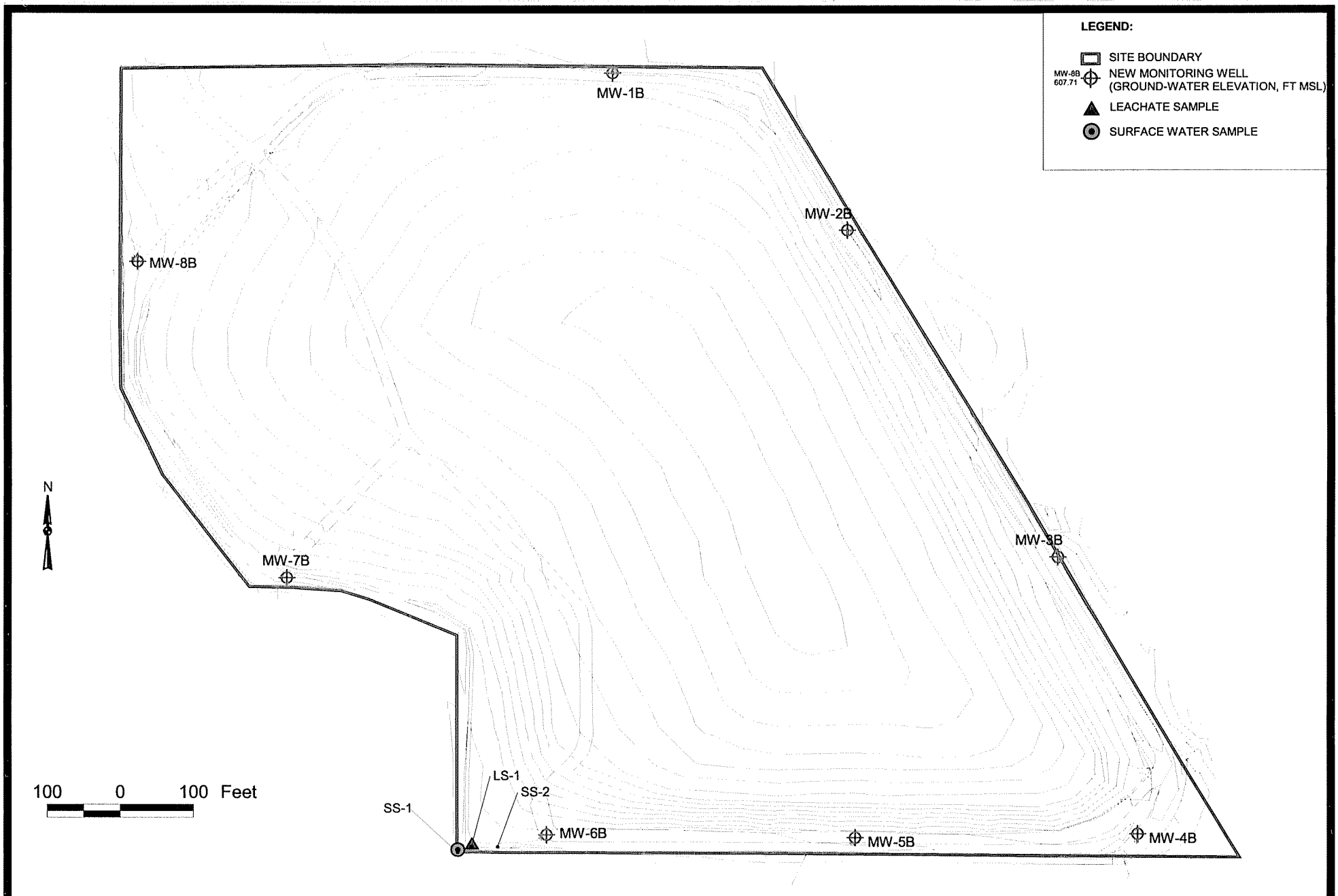
SOURCE MAP: USGS LEWISTON AND NIAGARA FALLS 7.5 MINUTE QUADRANGLES.

EA ENGINEERING, P.C. AND ITS AFFILIATE EA ENGINEERING, SCIENCE, AND TECHNOLOGY

AIRCO PARCEL
NIAGARA FALLS, NEW YORK

FIGURE 1
SITE LOCATION MAP

PROJECT MGR	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	DATE	PROJECT No	FILE No
CEM	DC	DC	CEM	AS SHOWN	FEB 2003	12040.79	I:\BOC-NIAGARA\FINAL.APR



EA ENGINEERING PC AND ITS AFFILIATE, EA ENGINEERING, SCIENCE, AND TECHNOLOGY	AIRCO PARCEL NIAGARA FALLS, NEW YORK				FIGURE 2 MONITORING WELL SITE MAP		
PROJECT MGR	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	DATE	PROJECT No	FILE No
CEM	RSC	RSC	SLG	AS SHOWN	12 MARCH 2002	12040.69	I:\BOC-NIAGARA-GIS\ FINAL_02.APR

Figure 3 Daily Leachate Discharge Rate and Precipitation Totals
12 March to 30 September 2002
Airco Parcel, Niagara Falls, NY

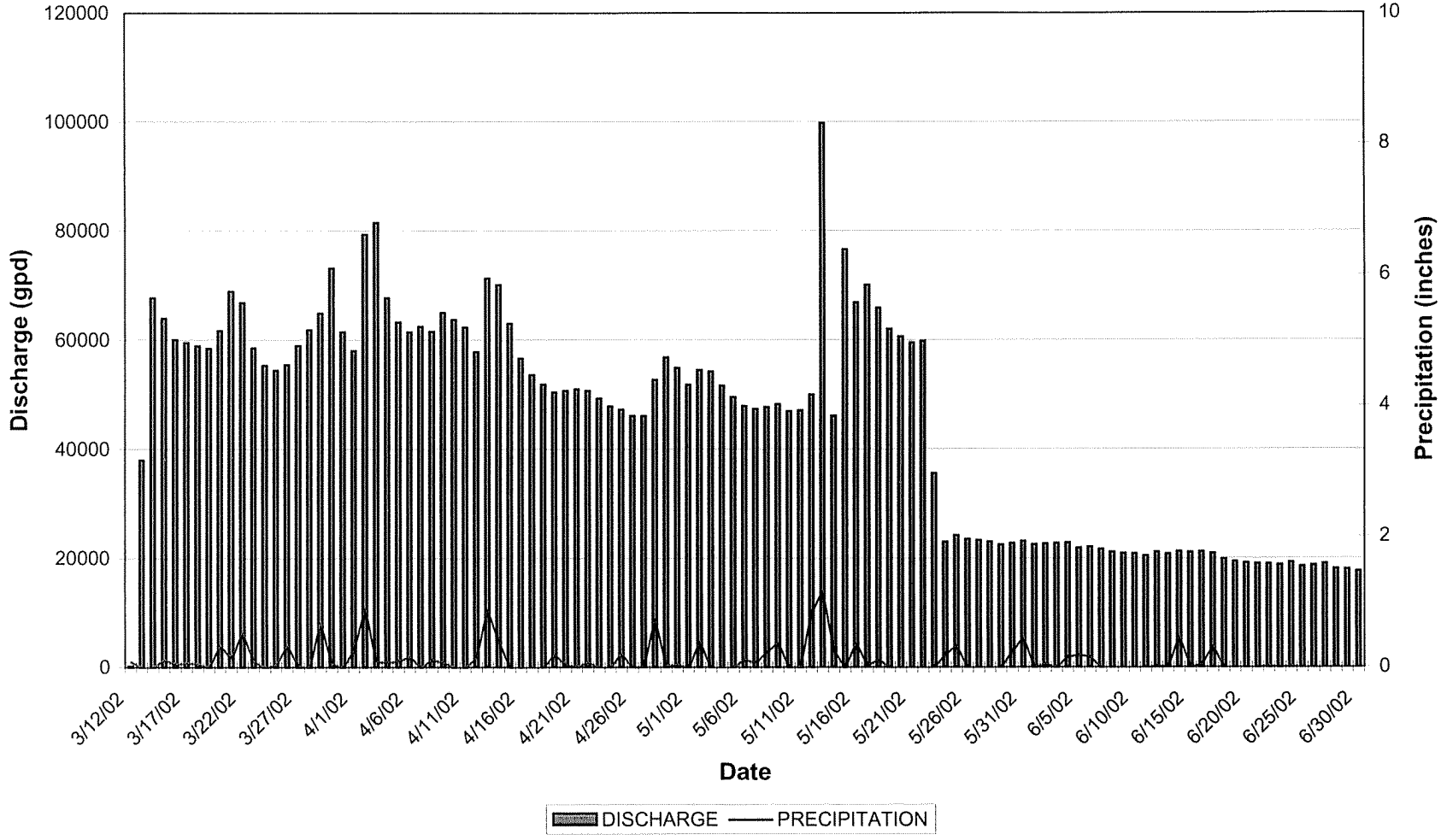


Figure 3 (Continued)

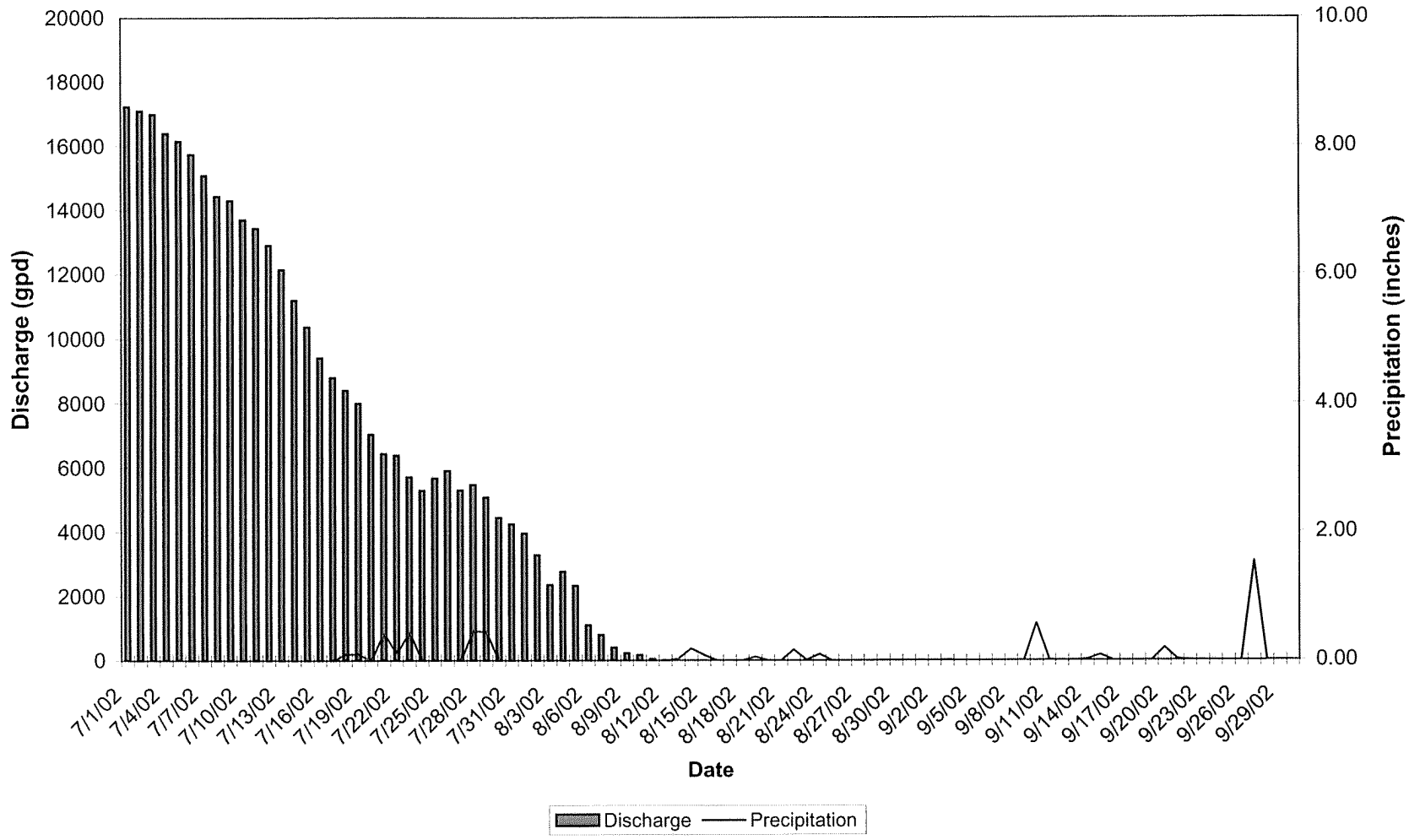


Figure 4 Water Level and Precipitation Data
March to October 2002
Airco Parcel, Niagara Falls, NY

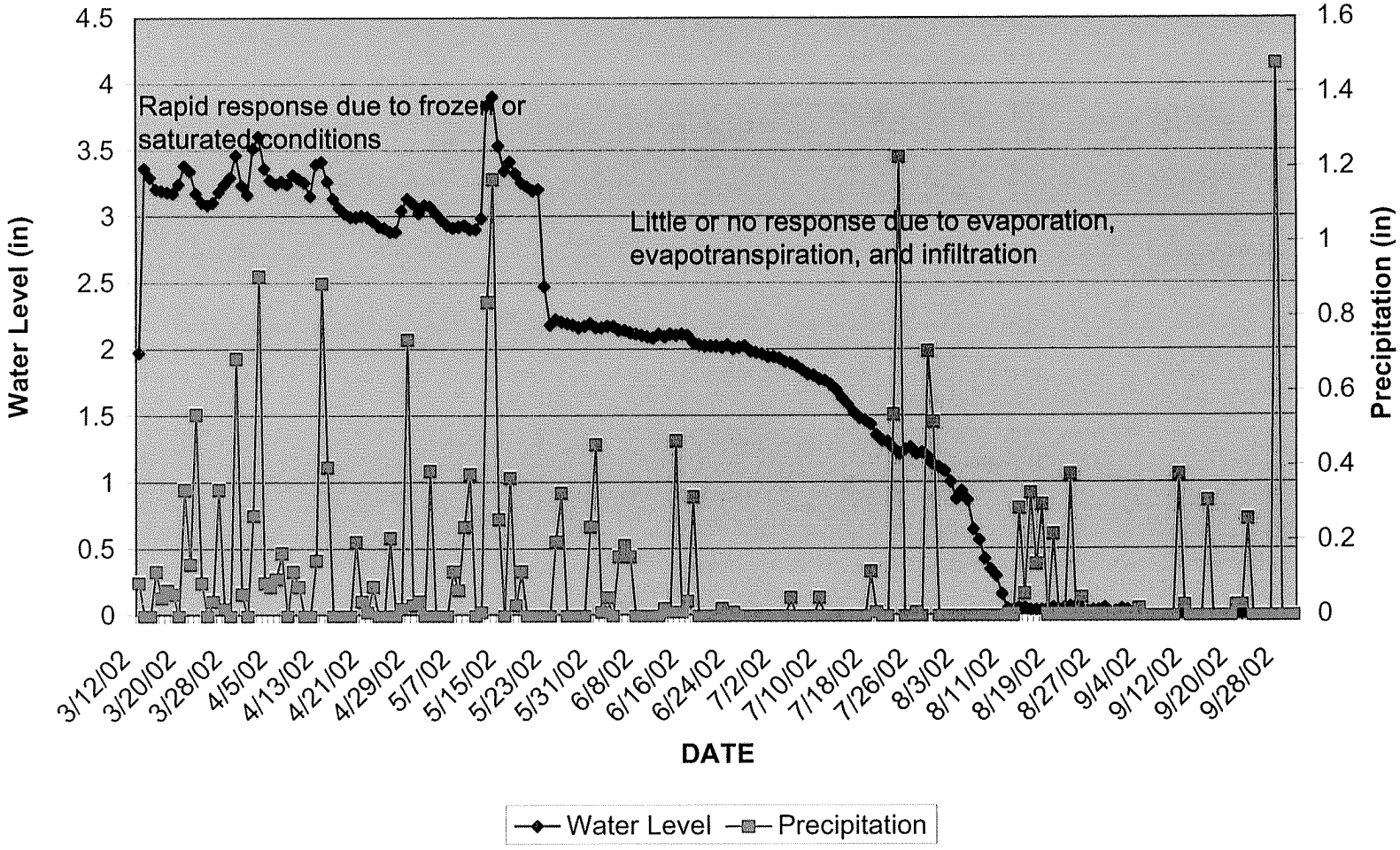


TABLE 1 SUMMARY OF QUARTERLY WATER LEVEL GAUGING DATA

Gauging Date	Depth to Water (ft below TOC)	Well Elevation (ft MSL)	Ground-Water Elevation (ft MSL)
MW-1B			
14 MAR 02	9.41	617.77	608.36
11 JUN 02	10.31	617.77	607.46
05 SEP 02	15.55	617.77	602.22
10 DEC 02	14.02	617.77	603.75
MW-2B			
14 MAR 02	12.22	615.88	603.66
11 JUN 02	12.94	615.88	602.94
05 SEP 02	16.64	615.88	599.24
10 DEC 02	14.57	615.88	601.31
MW-3B			
14 MAR 02	7.81	611.22	603.41
11 JUN 02	8.63	611.22	602.59
05 SEP 02	12.34	611.22	598.88
10 DEC 02	10.09	611.22	601.13
MW-4B			
14 MAR 02	6.01	606.68	600.67
11 JUN 02	7.74	606.68	598.94
05 SEP 02	14.36 (<1 ft)[a]	606.68	592.32
10 DEC 02	13.49 (<1 ft)[a]	606.68	593.19
MW-5B			
14 MAR 02	4.11	605.48	601.37
11 JUN 02	5.98	605.48	599.50
05 SEP 02	12.92	605.48	592.56
10 DEC 02	11.21	605.48	594.27
MW-6B			
14 MAR 02	3.41	603.47	600.06
11 JUN 02	3.74	603.47	599.73
05 SEP 02	6.25	603.47	597.22
10 DEC 02	5.11	603.47	598.36
MW-7B			
14 MAR 02	8.71	609.48	600.77
11 JUN 02	9.15	609.48	600.33
05 SEP 02	11.81	609.48	597.67
10 DEC 02	10.79	609.48	598.69
MW-8B			
14 MAR 02	5.35	611.62	606.27
11 JUN 02	5.88	611.62	605.74
05 SEP 02	10.04	611.62	601.58
10 DEC 02	8.93	611.62	602.69

(a) If water was less than 1 ft, the well was not sampled.

NOTE: TOC = Top of casing.
MSL = Mean sea level.

TABLE 2 SUMMARY OF FLOW MEASUREMENTS RECORDED AT GROUND-WATER RECHARGE PIPE

Date	Minimum Flow Rate (gpm)	Maximum Flow Rate (gpm)	Average Daily Flow Rate (gpm)	Total Flow Per Day (gal)	Total Precipitation
MARCH 2002					
12 MAR 2002	0.00	8.44	0.53	253.13	0.09
13 MAR 2002	0.00	49.25	26.43	38,064	0.00
14 MAR 2002	45.13	48.55	46.99	67,673	0.00
15 MAR 2002	42.37	46.48	44.41	63,955	0.12
16 MAR 2002	41.09	42.37	41.72	60,080	0.05
17 MAR 2002	40.46	41.73	41.32	59,506	0.07
18 MAR 2002	40.46	41.73	40.90	58,900	0.06
19 MAR 2002	39.83	41.73	40.61	58,483	0.00
20 MAR 2002	41.09	46.48	42.85	61,706	0.34
21 MAR 2002	46.48	48.55	47.83	68,879	0.14
22 MAR 2002	42.37	47.85	46.36	66,765	0.54
23 MAR 2002	38.61	43.14	40.64	58,525	0.09
24 MAR 2002	37.40	39.83	38.42	55,332	0.00
25 MAR 2002	37.40	38.00	37.78	54,404	0.04
26 MAR 2002	38.00	39.22	38.52	55,473	0.34
27 MAR 2002	38.61	45.13	40.94	58,957	0.02
28 MAR 2002	42.37	43.80	42.93	61,827	0.00
29 MAR 2002	40.46	73.75	45.03	64,857	0.69
30 MAR 2002	44.46	72.85	50.77	73,125	0.06
31 MAR 2002	41.09	44.46	42.66	61,444	0.00
Monthly Results	0.00	73.75	41.24	1,148,208	2.65

(a) Flow data logger removed at approximately 1530 hours on 22 October 2002.

NOTE: gpm = Gallons per minute.
Data are recorded every 30 minutes, 24 hours per day.

Date	Minimum Flow Rate (gpm)	Maximum Flow Rate (gpm)	Average Daily Flow Rate (gpm)	Total Flow Per Day (gal)	Total Precipitation
APRIL 2002					
01 APR 2002	39.83	41.09	40.27	57,992	0.27
02 APR 2002	39.22	133.27	55.11	79,374	0.91
03 APR 2002	49.25	108.64	56.55	81,448	0.09
04 APR 2002	45.13	49.25	47.00	67,689	0.08
05 APR 2002	43.14	45.13	43.95	63,300	0.10
06 APR 2002	41.73	43.14	42.67	61,455	0.17
07 APR 2002	42.37	43.80	43.38	62,482	0.00
08 APR 2002	41.09	43.80	42.76	61,579	0.12
09 APR 2002	43.14	45.80	45.14	65,018	0.08
10 APR 2002	43.80	45.13	44.24	63,715	0.00
11 APR 2002	42.37	43.80	43.27	62,316	0.00
12 APR 2002	35.06	43.80	40.15	57,818	0.15
13 APR 2002	35.06	87.17	49.48	71,267	0.89
14 APR 2002	45.80	52.26	48.66	70,086	0.40
15 APR 2002	41.73	45.80	43.73	62,984	0.00
16 APR 2002	38.00	41.09	39.30	56,607	0.00
17 APR 2002	35.06	38.61	37.25	53,641	0.00
18 APR 2002	34.37	37.40	36.03	51,891	0.00
19 APR 2002	33.24	36.21	35.03	50,454	0.20
20 APR 2002	34.37	35.63	35.18	50,668	0.04
21 APR 2002	34.37	36.21	35.40	50,983	0.01
22 APR 2002	34.37	36.21	35.20	50,696	0.08
23 APR 2002	33.24	35.06	34.22	49,290	0.00
24 APR 2002	31.60	34.37	33.23	47,857	0.00
25 APR 2002	32.14	34.37	32.80	47,235	0.21
26 APR 2002	31.06	32.69	32.05	46,161	0.00
27 APR 2002	31.06	33.24	32.05	46,165	0.02
28 APR 2002	33.24	43.80	36.62	52,738	0.74
29 APR 2002	38.00	39.83	39.46	56,834	0.03
30 APR 2002	36.81	39.22	38.16	54,954	0.04
Monthly Results	31.06	133.27	40.61	1,754,697	4.63

Date	Minimum Flow Rate (gpm)	Maximum Flow Rate (gpm)	Average Daily Flow Rate (gpm)	Total Flow Per Day (gal)	Total Precipitation
MAY 2002					
01 MAY 2002	35.06	36.81	35.99	51,829	0.00
02 MAY 2002	35.63	39.22	37.87	54,540	0.39
03 MAY 2002	36.21	39.22	37.66	54,235	0.00
04 MAY 2002	35.06	36.81	35.85	51,636	0.00
05 MAY 2002	33.24	35.63	34.39	49,530	0.00
06 MAY 2002	32.14	34.37	33.28	47,931	0.12
07 MAY 2002	32.14	33.80	32.91	47,399	0.07
08 MAY 2002	32.14	34.37	33.12	47,699	0.24
09 MAY 2002	32.69	34.37	33.51	48,265	0.38
10 MAY 2002	31.06	33.80	32.60	46,954	0.00
11 MAY 2002	31.6	33.80	32.69	47,086	0.01
12 MAY 2002	33.24	36.21	34.73	50,018	0.84
13 MAY 2002	35.63	109.78	69.26	99,749	1.17
14 MAY 2002	57.54	88.17	68.56	98,736	0.26
15 MAY 2002	49.25	57.54	53.17	76,571	0.00
16 MAY 2002	44.46	48.55	46.39	66,813	0.37
17 MAY 2002	47.85	49.95	48.67	70,091	0.03
18 MAY 2002	44.46	47.85	45.74	65,870	0.12
19 MAY 2002	42.37	44.46	43.06	62,022	0.00
20 MAY 2002	41.73	42.37	42.09	60,617	0.00
21 MAY 2002	40.46	41.73	41.36	59,565	0.00
22 MAY 2002	39.83	43.14	41.50	59,762	0.00
23 MAY 2002	0.00	42.37	24.72	35,597	0.00
24 MAY 2002	14.34	17.27	15.98	23,013	0.20
25 MAY 2002	15.72	17.64	16.83	24,243	0.33
26 MAY 2002	15.03	17.27	16.33	23,515	0.00
27 MAY 2002	14.68	17.64	16.19	23,311	0.00
28 MAY 2002	14.34	17.27	16.01	23,064	0.00
29 MAY 2002	14.34	16.82	15.63	22,510	0.00
30 MAY 2002	14.68	16.45	15.78	22,731	0.24
31 MAY 2002	14.68	16.82	16.09	23,179	0.46
Monthly Results	0.00	109.78	34.45	1,538,081	5.23

Date	Minimum Flow Rate (gpm)	Maximum Flow Rate (gpm)	Average Daily Flow Rate (gpm)	Total Flow Per Day (gal)	Total Precipitation
JUNE 2002					
01 JUN 2002	14.34	17.27	15.65	22,546	0.01
02 JUN 2002	14.34	16.82	15.72	22,646	0.05
03 JUN 2002	14.34	16.82	15.79	22,740	0.00
04 JUN 2002	14.68	16.82	15.84	22,812	0.16
05 JUN 2002	14.34	16.08	15.21	21,906	0.19
06 JUN 2002	14.34	16.08	15.35	22,103	0.16
07 JUN 2002	13.35	16.08	15.02	21,625	0.00
08 JUN 2002	13.35	16.08	14.68	21,149	0.00
09 JUN 2002	13.03	15.72	14.54	20,941	0.00
10 JUN 2002	13.03	15.72	14.48	20,853	0.00
11 JUN 2002	13.03	15.37	14.21	20,471	0.00
12 JUN 2002	14.34	15.03	14.69	21,156	0.02
13 JUN 2002	13.35	15.03	14.46	20,819	0.01
14 JUN 2002	13.68	15.37	14.74	21,233	0.47
15 JUN 2002	13.35	15.37	14.65	21,094	0.01
16 JUN 2002	13.68	15.37	14.71	21,181	0.04
17 JUN 2002	13.03	15.03	14.52	20,910	0.32
18 JUN 2002	12.04	15.03	13.81	19,885	0.00
19 JUN 2002	11.74	14.68	13.50	19,436	0.00
20 JUN 2002	11.44	14.68	13.29	19,141	0.00
21 JUN 2002	11.74	14.68	13.20	19,012	0.00
22 JUN 2002	11.98	13.94	13.14	18,931	0.02
23 JUN 2002	11.68	13.94	13.06	18,807	0.00
24 JUN 2002	12.35	14.2	13.38	19,267	0.01
25 JUN 2002	11.15	14.2	12.88	18,548	0.00
26 JUN 2002	11.68	13.61	13.01	18,734	0.00
27 JUN 2002	11.98	13.61	13.19	18,994	0.00
28 JUN 2002	11.15	13.61	12.56	18,095	0.00
29 JUN 2002	11.15	13.61	12.46	17,946	0.00
30 JUN 2002	10.81	13.61	12.24	17,635	0.00
Monthly Results	10.81	17.27	14.13	610,616	1.47

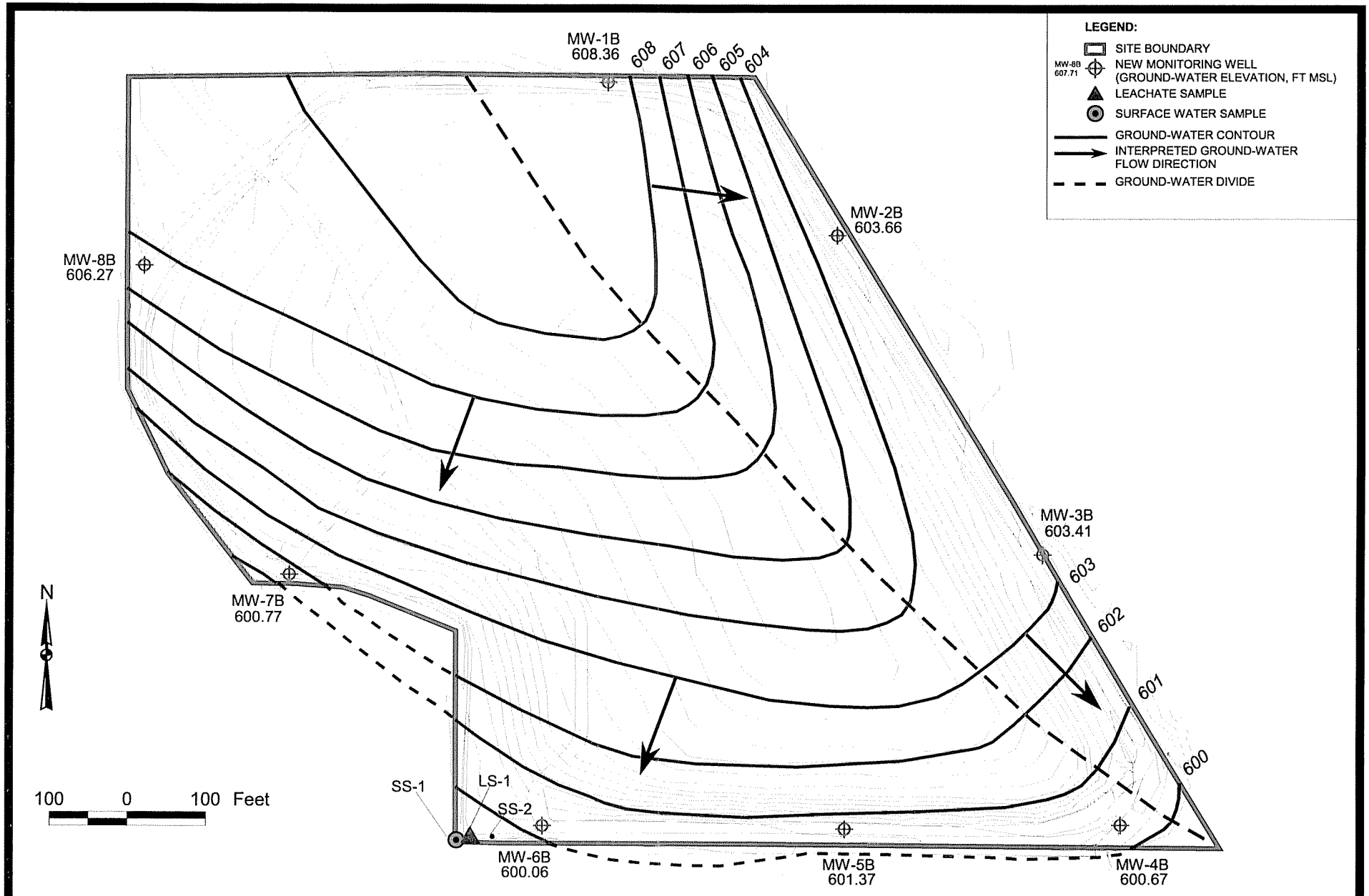
Date	Minimum Flow Rate (gpm)	Maximum Flow Rate (gpm)	Average Daily Flow Rate (gpm)	Total Flow Per Day (gal)	Total Precipitation
JULY 2002					
01 JUL 2002	10.81	12.91	11.97	17,243	0.00
02 JUL 2002	10.58	12.66	11.88	17,107	0.00
03 JUL 2002	10.58	12.66	11.81	17,002	0.00
04 JUL 2002	9.98	12.35	11.39	16,404	0.00
05 JUL 2002	9.98	12.35	11.22	16,158	0.00
06 JUL 2002	9.5	11.98	10.93	15,737	0.00
07 JUL 2002	8.83	11.98	10.48	15,088	0.00
08 JUL 2002	8.68	11.15	10.03	14,441	0.00
09 JUL 2002	8.68	10.58	9.93	14,305	0.00
10 JUL 2002	8.39	10.19	9.51	13,702	0.00
11 JUL 2002	7.86	10.58	9.33	13,441	0.00
12 JUL 2002	7.72	10.19	8.97	12,918	0.00
13 JUL 2002	7.26	9.71	8.44	12,157	0.00
14 JUL 2002	6.57	9.13	7.78	11,201	0.00
15 JUL 2002	6.11	8.39	7.2	10,370	0.00
16 JUL 2002	5.53	7.72	6.55	9,429	0.00
17 JUL 2002	5.34	6.95	6.12	8,808	0.00
18 JUL 2002	5.12	6.57	5.85	8,419	0.10
19 JUL 2002	5.01	5.87	5.56	8,006	0.10
20 JUL 2002	4.01	5.87	4.89	7,044	0.00
21 JUL 2002	3.52	5.34	4.48	6,445	0.43
22 JUL 2002	3.61	5.12	4.44	6,396	0.11
23 JUL 2002	3.35	4.66	3.97	5,715	0.44
24 JUL 2002	3.24	4.13	3.68	5,297	0.00
25 JUL 2002	3.52	4.42	3.94	5,678	0.00
26 JUL 2002	3.79	4.66	4.11	5,914	0.00
27 JUL 2002	3.05	4.29	3.68	5,302	0.00
28 JUL 2002	2.97	5.87	3.8	5,472	0.46
29 JUL 2002	2.11	4.13	3.52	5,076	0.45
30 JUL 2002	2.69	3.61	3.09	4,443	0.00
31 JUL 2002	2.31	3.52	2.95	4,243	0.00
Monthly Results	2.11	12.91	7.14	318,969	2.09

Date	Minimum Flow Rate (gpm)	Maximum Flow Rate (gpm)	Average Daily Flow Rate (gpm)	Total Flow Per Day (gal)	Total Precipitation
AUGUST 2002					
01 AUG 2002	2.31	3.35	2.75	3,964	0.00
02 AUG 2002	1.59	3.35	2.29	3,293	0.00
03 AUG 2002	1.19	2.22	1.64	2,356	0.00
04 AUG 2002	1.41	2.45	1.93	2,775	0.00
05 AUG 2002	0.85	2.31	1.62	2,331	0.00
06 AUG 2002	0.56	0.97	0.76	1,101	0.00
07 AUG 2002	0.39	0.85	0.55	798	0.00
08 AUG 2002	0.18	0.52	0.28	402	0.00
09 AUG 2002	0.07	0.28	0.16	231	0.00
10 AUG 2002	0.03	0.24	0.11	165	0.00
11 AUG 2002	0.00	0.15	0.04	51	0.00
12 AUG 2002	0.00	0.05	0.01	7.44	0.00
13 AUG 2002	0.00	0.01	0.00	0.91	0.03
14 AUG 2002	0.00	0.00	0.00	1.45	0.19
15 AUG 2002	0.00	0.01	0.00	0.54	0.09
16 AUG 2002	0.00	0.00	0.00	0.00	0.00
17 AUG 2002	0.00	0.00	0.00	0.00	0.00
18 AUG 2002	0.00	0.00	0.00	0.00	0.00
19 AUG 2002	0.00	0.00	0.00	0.00	0.06
20 AUG 2002	0.00	0.01	0.00	0.91	0.00
21 AUG 2002	0.00	0.00	0.00	0.00	0.00
22 AUG 2002	0.00	0.00	0.00	0.00	0.17
23 AUG 2002	0.00	0.01	0.00	0.73	0.01
24 AUG 2002	0.00	0.00	0.00	0.00	0.10
25 AUG 2002	0.00	0.00	0.00	0.00	0.00
26 AUG 2002	0.00	0.00	0.00	0.00	0.00
27 AUG 2002	0.00	0.00	0.00	0.00	0.00
28 AUG 2002	0.00	0.00	0.00	0.00	0.00
29 AUG 2002	0.00	0.00	0.00	0.00	0.00
30 AUG 2002	0.00	0.00	0.00	0.00	0.00
31 AUG 2002	0.00	0.00	0.00	0.00	0.00
Monthly Results	0.00	3.35	0.39	17,485	0.65

Date	Minimum Flow Rate (gpm)	Maximum Flow Rate (gpm)	Average Daily Flow Rate (gpm)	Total Flow Per Day (gal)	Total Precipitation
SEPTEMBER 2002					
01 SEP 2002	0.00	0.00	0.00	0.00	0.00
02 SEP 2002	0.00	0.00	0.00	0.00	0.00
03 SEP 2002	0.00	0.00	0.00	0.00	0.01
04 SEP 2002	0.00	0.00	0.00	0.00	0.00
05 SEP 2002	0.00	0.00	0.00	0.00	0.00
06 SEP 2002	0.00	0.00	0.00	0.00	0.00
07 SEP 2002	0.00	0.00	0.00	0.00	0.00
08 SEP 2002	0.00	0.00	0.00	0.00	0.00
09 SEP 2002	0.00	0.00	0.00	0.00	0.00
10 SEP 2002	0.00	0.00	0.00	0.00	0.58
11 SEP 2002	0.00	0.00	0.00	0.00	0.01
12 SEP 2002	0.00	0.00	0.00	0.00	0.00
13 SEP 2002	0.00	0.00	0.00	0.00	0.00
14 SEP 2002	0.00	0.00	0.00	0.00	0.02
15 SEP 2002	0.00	0.00	0.00	0.00	0.09
16 SEP 2002	0.00	0.00	0.00	0.00	0.00
17 SEP 2002	0.00	0.00	0.00	0.00	0.00
18 SEP 2002	0.00	0.00	0.00	0.00	0.00
19 SEP 2002	0.00	0.00	0.00	0.00	0.00
20 SEP 2002	0.00	0.00	0.00	0.00	0.20
21 SEP 2002	0.00	0.00	0.00	0.00	0.02
22 SEP 2002	0.00	0.00	0.00	0.00	0.00
23 SEP 2002	0.00	0.00	0.00	0.00	0.00
24 SEP 2002	0.00	0.00	0.00	0.00	0.00
25 SEP 2002	0.00	0.00	0.00	0.00	0.00
26 SEP 2002	0.00	0.00	0.00	0.00	0.00
27 SEP 2002	0.00	0.00	0.00	0.00	1.55
28 SEP 2002	0.00	0.00	0.00	0.00	0.00
29 SEP 2002	0.00	0.00	0.00	0.00	0.00
30 SEP 2002	0.00	0.00	0.00	0.00	0.00
Monthly Results to Date	0.00	0.00	0.00	0.00	2.48
NOTE: No data were collected during October 2002 due to damage to the flow logger.					

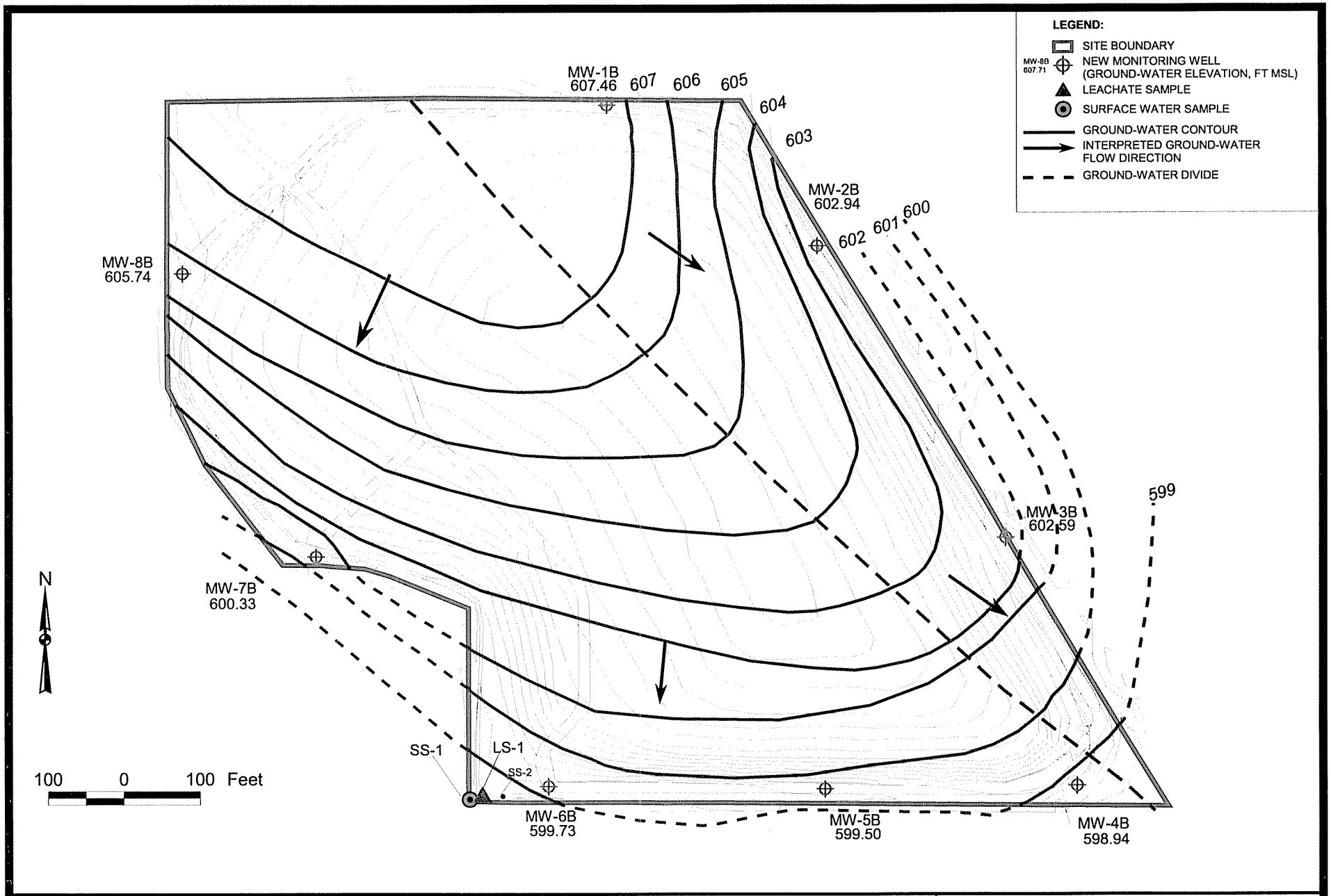
Appendix A

Interpreted Ground-Water Contour Maps



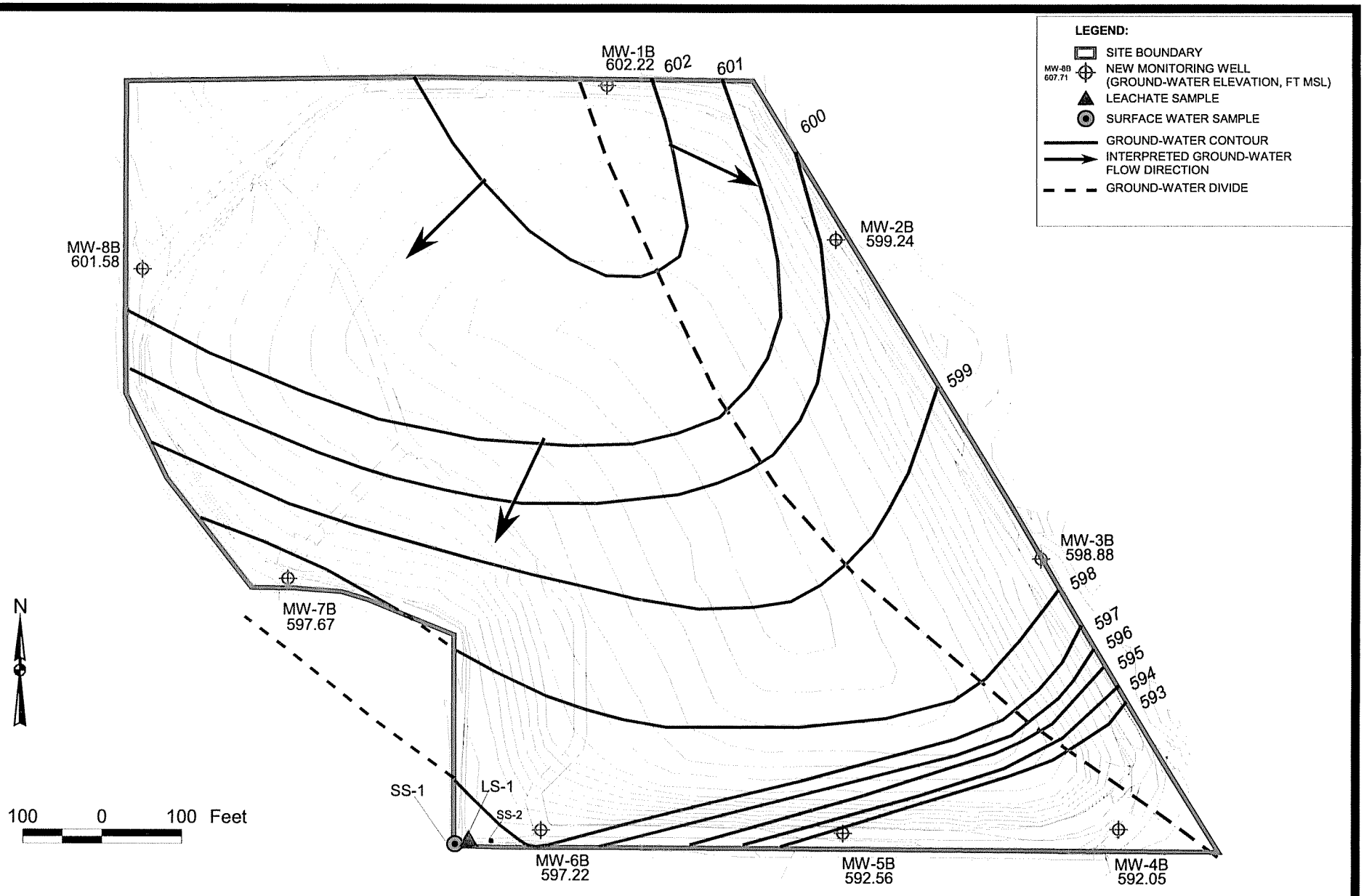
EA ENGINEERING PC AND ITS AFFILIATE, EA ENGINEERING, SCIENCE, AND TECHNOLOGY	AIRCO PARCEL NIAGARA FALLS, NEW YORK	INTERPRETED GROUND-WATER CONTOUR MAP MARCH 2002

PROJECT MGR	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	DATE	PROJECT No	FILE No
CEM	BT/JAM	BT/BLH	SLG	AS SHOWN	11 APRIL 2002	12040.69	I:\BOC-NIAGARA-GIS\ FINAL02.APR



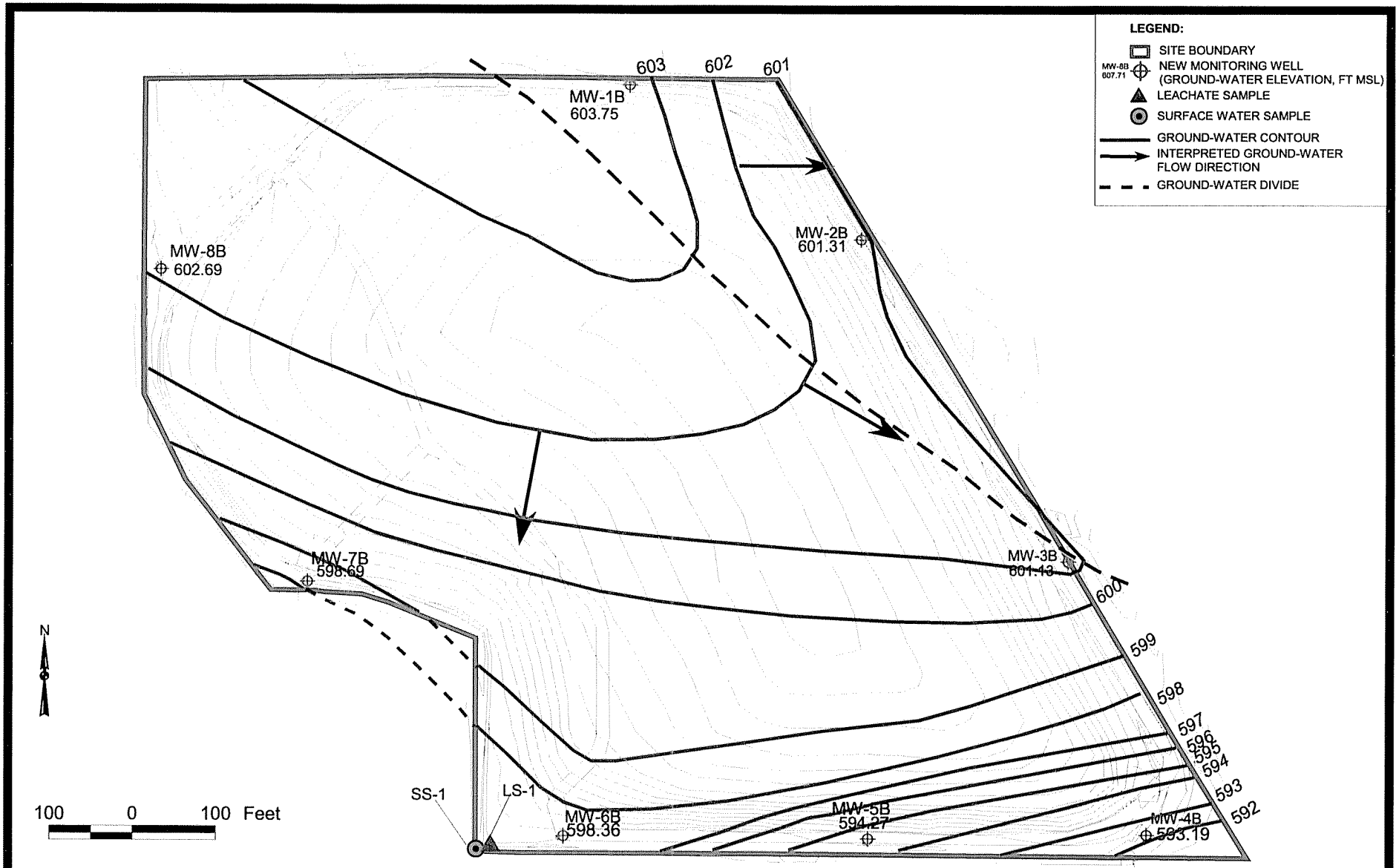
EA ENGINEERING PC AND ITS AFFILIATE, EA ENGINEERING, SCIENCE, AND TECHNOLOGY	AIRCO PARCEL NIAGARA FALLS, NEW YORK	INTERPRETED GROUND-WATER CONTOUR MAP JUNE 2002

PROJECT MGR	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	DATE	PROJECT No	FILE No
CEM	BT/RSC	BT/RSC	SLG	AS SHOWN	12 JUNE 2002	12040.69	I:\BOC-NIAGARA-GIS\ FINAL02.APR



EA ENGINEERING PC AND ITS AFFILIATE, EA ENGINEERING, SCIENCE, AND TECHNOLOGY	AIRCO PARCEL NIAGARA FALLS, NEW YORK	INTERPRETED GROUND-WATER CONTOUR MAP SEPTEMBER 2002

PROJECT MGR	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	DATE	PROJECT No	FILE No
CEM	BT/RSC	BT/BH	SLG	AS SHOWN	12 JUNE 2002	12040.69	I:\BOC-NIAGARA-GIS\ FINAL02.APR



EA ENGINEERING PC AND ITS AFFILIATE, EA ENGINEERING, SCIENCE, AND TECHNOLOGY	AIRCO PARCEL NIAGARA FALLS, NEW YORK				INTERPRETED GROUND-WATER CONTOUR MAP DECEMBER 2002		
PROJECT MGR	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	DATE	PROJECT No	FILE No
CEM	RSC	RSC	SLG	AS SHOWN	10 DECEMBER 2002	12040.69	G: SYR_fp\BOC-NIAGARA-GIS\ PRJECTS\FINAL02.APR

Appendix B

December 2002 Analytical Results

APPENDIX B SUMMARY OF ANALYTICAL RESULTS OF GROUND-WATER, SURFACE WATER, AND RELIEF PIPE SAMPLES COLLECTED IN DECEMBER 2002, AIRCO PARCEL, NIAGARA FALLS, NEW YORK

Ground Water

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		MW-1B	MW-2B	MW-3B	MW-5B	MW-6B	MW-6B (Dup)	MW-7B	MW-8B
Compound/Element	**AWQS**								
Chromium	0.05	**0.079**	**0.428**	0.013	(<0.005U)	0.031	(<0.005U)	**0.133**	**0.091**
Chromium, Hexavalent	0.05	(<0.01U)	**0.43**	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	0.02	0.03
Iron	0.3	**5.27**	0.175	0.17	**3.54**	**1.57**	**0.625**	**12.1**	**2.32**
Lead	0.025	0.023	0.006	(<0.005U)	0.007	(<0.005U)	(<0.005U)	(<0.005U)	0.006
Magnesium	35*	**79.3**	(<1U)	4.69	**71.3**	**82.7**	**76.1**	15.1	**50.8**
Manganese	0.3	**0.914**	(<0.005U)	0.007	0.136	0.141	0.073	0.236	0.109
Selenium	0.01	(<0.005U)	0.007	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	**0.05**
Silica	---	34.4	3.13	18.2	29.7	20.1	18.6	60.3	25.5
Sodium	20	**107**	**57.1**	**73.3**	**94.8**	**67.9**	**62.1**	**66.7**	**159**
Zinc	2*	0.468	0.051	(<0.005U)	0.131	0.038	0.009	0.048	0.099

Water Quality Parameters (mg/L)

Total (Unfiltered)

		MW-1B	MW-2B	MW-3B	MW-5B	MW-6B	MW-6B (Dup)	MW-7B	MW-8B
Compound/Element	**AWQS**								
Ammonia (expressed as N)	2	(<1U)	1.6	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Phenolics	0.001	(<0.002U)	**0.002**	**0.003**	(<0.002U)	(<0.002U)	(<0.002U)	**0.007**	(<0.002U)
Sulfate	250	**2550**	21.5	**1390**	**2630**	**2510**	248	38.6	**399**

Surface Water

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		SS
Compound/Element	**AWQS**	
Chromium	---	0.392
Iron	0.3	(<0.025U)
Lead	---	(<0.005U)
Magnesium	---	3.61
Manganese	---	(<0.005U)
Selenium	0.0046	**0.016**
Silica	---	1.16
Sodium	---	71.9
Sulfate	---	13.4
Zinc	---	(<0.005U)

Water Quality Parameters (mg/L)

Total (Unfiltered)

		SS
Compound/Element	**AWQS**	
Ammonia (expressed as N)	---	3.8
Chromium, Hexavalent	0.016	**0.37**
Phenolics	---	0.044

Ground Water Relief Pipe

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		L1
Compound/Element	**AWQS**	
Chromium	---	0.412
Chromium, Hexavalent	0.016	**0.4**
Iron	0.3	(<0.025U)
Lead	---	(<0.005U)
Magnesium	---	(<1U)
Manganese	---	(<0.005U)
Selenium	0.0046	**0.017**
Silica	---	0.451
Sodium	---	72.7
Zinc	---	(<0.005U)

Water Quality Parameters (mg/L)

Total (Unfiltered)

		L1
Compound/Element	**AWQS**	
Ammonia (expressed as N)	---	4
Phenolics	---	0.012
Sulfate	---	9.64

QA/QC

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		Rinse Blank	Source Water Blank
Compound/Element	**AWQS**		
Chromium	---	(<0.005U)	(<0.005U)
Chromium, Hexavalent	---	(<0.01U)	(<0.01U)
Iron	---	(<0.025U)	(<0.025U)
Lead	---	(<0.005U)	(<0.005U)
Magnesium	---	(<1U)	(<1U)
Manganese	---	(<0.005U)	(<0.005U)
Selenium	---	(<0.005U)	(<0.005U)
Silica	---	(<107U)	(<107U)
Sodium	---	(<1U)	(<1U)
Zinc	---	(<0.005U)	(<0.005U)

Water Quality Parameters (mg/L)

		Rinse Blank	Source Water Blank
Compound/Element	**AWQS**		
Ammonia (expressed as N)	---	(<1U)	(<1U)
Phenolics	---	(<0.002U)	(<0.002U)
Sulfate	---	(<2U)	(<2U)

TABLE NOTES

AWQS	=	New York State Ambient Water Quality Standards and Guidance Values from Water Quality Regulations, Title 6, Chapter X Parts 700-706 August 1999.
*	=	Indicates guidance value.
---	=	Indicates no standard or guidance value exists.
U	=	Not detected. Sample quantitation limits shown as (<__U).

Only those analytes detected in at least one of the samples is shown on this table.
Results shaded and in boldface indicate concentrations in excess of New York State Ambient Water Quality Standards or Guidance Values.

Analytical Methods for Water Quality Parameters

Ammonia (expressed as Nitrogen)	=	EPA 350.2
Phenolics	=	EPA 420.2
Sulfate	=	EPA 375.3

Appendix C

December 2002 Field Notes

T. 10 DEC 2002

QUARTERLY SAMPLING, LEACHATE PUMP TEST & ENGINEERING INSPEC.

- R. CASEY / J. CLARK ONSITE @ 0900.
  WEATHER: 20°, CLEAR & SUNNY

- MW - GAUGING

	DTW	DTB	
MW1B	14.02	27.90	PUMP
MW2B	14.57	27.58	PUMP
MW3B	10.09	18.35	PUMP
MW4B	13.49	15.05	BAIL
MW5B	11.21	14.17	BAIL
MW6B	5.11	22.98	PUMP
MW7B	10.79	21.72	~~PUMP~~ BAIL
MW8B	8.93	15.60	BAIL

CAL HORIBA

PINE 10 # 02412

pH → 4.0
COND → 4.72
TURB → 0
DO → 14.93

T10DEC02

MW-7B

METHOD: HAND BAIL DTW 10.79

TIME: 1100 GAL. REMOVED 2½

H2O QUALITY

	(I)	(P)	(E)
pH	~~3.41~~	5.56	7.36
COND	~~0.881~~	0.263	0.224
TURB	~~316~~	0	>1,000
DO	~~13.47~~	10.48	9.44
TEMP	~~3.26~~	8.19	11.20
~~SAL~~			
~~ORP~~	~~301~~		
ORP		246	187

- BAILED DRY 10DEC02
- TO BE SAMPLED 11DEC02

- WRL - MW7B - 1202 @ 1205, 12/11/02

T10DEC02

MW-4B

METHOD: HAND BAIL
TIME: 11:20

DTW: 13.49
GAL REMOVED: ~~3~~ 2 1/4

H_2O QUALITY

pH: 7.52
COND: 0.668
TURB: 0
DO: 10.38
TEMP: 10.32
ORP: 221

- BAILED DRY
- TO BE SAMPLED 12/11/02
- ONLY (I) H_2O QUALITY, NOT ENOUGH WATER LEFT AFTER BAILING (ONLY 2 1/4 GAL TOTAL BAILED), APPROX 3/4 BAILER FULL.

- 12/11/02, GAUGE MW-4B DTW: 13.50'
  - NOT ENOUGH WATER FOR SAMPLING, VERY SLOW RECHARGE

T1DEC02

MW-5B

METHOD: HAND BAIL
TIME: 11:25

DTW: 11.21
GAL REMOVED: 1/2

H_2O QUALITY

	(I)	(E)
pH	7.51	7.42
COND	0.750	0.752
TURB	59.5	> 1,000
DO	10.42	10.18
TEMP	11.04	11.46
ORP	223	218

- BAILED DRY
- TO BE SAMPLED 12/11/02

- WEL-MW5B-1202 @ 1130, 12/11/02

T10DEC2002

MW 1B

Method: 2" sub DTW: 14.02

time: 1155 GAL PURGED 2½ gal

H_2O QUALITY

PARAM	INITIAL	①	②	③	④	⑤
time	1202	1206	1210	1214	1218	1222
purge rate	0.25 L/min	→	→	→	→	→
vol purg	—	1L	2L	3L	4L	5L
pH	7.42	7.34	7.27	7.18	7.14	7.13
COND	1.49	1.50	1.49	1.48	1.47	1.46
TURB	7999	7999	868	256	37.5	47.3
DO	1.51	0.52	0.36	0.32	0.29	0.29
temp	10.55	9.64	9.55	10.28	10.76	10.91
ORP	-80	-81	-72	-57	-62	-60
DTW	14.02	15.14	14.98	14.89	14.89	14.89

SAMPLE COLLECTION TIME 1230

T10DEC02

MW2B

Method 2" sub DTW 14.57

time 1250 GAL PURGED 2 gal

H_2O QUALITY

PARAM	INITIAL	①	②	③	④	⑤
time	1257	1301	1305	1309	1313	1317
purge rate	0.25 L/min	→	→	→	→	→
vol purg	—	1L	2L	3L	4L	5L
pH	12.47	12.99	13.09	13.10	13.02	13.03
COND	4.04	4.20	4.55	4.42	4.21	4.28
TURB	0	0	0	8.4	4.7	0
DO	5.22	1.73	1.89	1.63	1.52	1.53
temp	9.63	8.14	5.94	5.36	5.61	5.72
ORP	-95	-108	-104	-105	-104	-101
DTW	14.57	16.53	16.62	17.07	17.07	17.09

SAMPLE COLLECTION TIME 1320

TIODE02

MW3B

Method 2" sub
time 1345

DTW 10.09
vol purged 3 gal

H_2O QUALITY

FROM	INITIAL	①	②	③	④	⑤	⑥
time	1338	1342	1346	1350	1354	1358	1402
purge rate	0.25 gpm	→	→	→	→	→	
vol purg	—	1L	2L	3L	4L	5L	6L
pH	11.36	10.99	10.83	10.78	10.35	10.29	10.26
COND	0.396	0.362	0.379	0.382	0.384	0.391	0.387
TURB	32.6	0	0	0	0	0	0
DO	4.95	3.13	2.50	0.85	0.68	0.64	0.65
TEMP	10.42	12.21	14.66	12.69	11.51	8.45	8.42
ORP	-18	-14	-14	-14	-15	-14	-15
DTW	10.09	13.91	14.34	13.91	13.91	13.91	13.91

SAMPLE COLLECTION TIME 1410

TIODE02

MW8B

Method: 2" sub
time: 1430

DTW 8.93
vol purg 1½ L

H_2O QUALITY

FROM	INITIAL	①	②	③	④	⑤	⑥
time	1432	1436	1440	1444	1448	1452	1456
purge rate	0.25 gpm	→	→	→	→	→	
vol purg	—	1L	2L	3L	4L	5L	6L
pH	8.54	8.24	8.17	8.03	7.95	7.93	7.89
COND	1.53	1.61	1.66	1.53	1.54	1.54	1.52
TURB	0	68	74	352	329	318	311
DO	3.77	3.86	3.94	3.23	2.80	2.69	2.86
TEMP	11.35	8.81	7.58	8.59	8.58	8.67	8.90
ORP	106	114	116	86	84	84	84
DTW	8.93	10.68	10.86	10.86	10.87	10.86	10.86

SAMPLE COLLECTION TIME 1505

TIODEC02

- J.C/R.C OFFSITE @ 1600.
  - DROPPED OFF SAMPLES @ UPS FOR NEXT DAY DELIVERY.

WIIDEC02

- J.CLARK & R.CASEY ONSITE FOR COMPLETION OF QUARTERLY SAMPLING PUMP TEST & ~~CONTINUING~~ INSPEC.

- LEACHATE H_2O QUALITY

pH	13.15
temp	7.43
COND	6.72
DO	8.98
TURB	0
ORP	-89

LEACHATE SAMPLE COLLECTION TIME 0945

- PUMP TEST

METHOD (2) 2" submersibles
time 1000
DTW initial → 0.82 FTO

W11DEC02

1 ft 3/4 24 interval

TIME	FLOW	DTW
1000	12 gpm	0.97 FTO
1015	20 gpm	1.31
1030	24 gpm*	1.52
1045	24 gpm	1.52
1100	24 gpm	1.56*

* 24gpm is maximum flow rate for 2-2" submersible pumps.
* GAUGE MW 6B @ 1040, DTW: 5.06'
  ↳ 10DEC02 DTW: 5.11'
* CALL S.G., SUGGESTS PUMPING FOR AT LEAST ANOTHER HOUR AND CHECKING MW-6B TO SEE IF WE ARE DEWATERING LEACHATE DISCHARGE AREA
* GAUGE MW-6B @ 1100 DTW: 5.06
  @ 1130 DTW: 5.06
* 1145 NOTICABLE DEWATERING OF STANDING WATER SURROUNDING LEACHATE DISCHARGE PIPE.
* WATER LEVEL STAYED CONSTANT FOR REMAINDER OF PUMP TEST.
* GAUGE MW6B @ 1225, DTW: 5.28' (SHORTLY AFTER SHUTING PUMPS DOWN)

W11DEC02

SURFACE WATER

TIME: 1055 (SAMPLE COLLETION TIME)
PH: 13.26
COND: 5.85
TURB: 0
DO: 11.15
TEMP: 5.48
ORP: -23

* SAMPLE COLLECTED 20 yds SOUTH OF THE LEACHATE DISCHARGE PIPE ON THE OTHER SIDE OF THE SW FENCE LINE.

* WRL-RB-1202 @ 1330
* WRL-SW-1202 @ 1335

WILDECO2

MW6B

method 2" sub
time 1225

DTW 5.28
GAL PURGED 1½ gal

H_2O QUALITY

PARAM	INITIAL	①	②	③	④	⑤
time	1228	1232	1236	1240	1244	1248
purg rate	0.25L/m	→	→	→	→	→
vol purg	—	1L	2L	3L	4L	5L
pH	8.77	8.23	8.01	7.92	7.85	7.91
COND	0.771	0.785	0.778	0.779	0.777	0.776
TURB	845	>999	>999	49.3	39.5	30.3
DO	4.02	3.51	3.80	4.16	4.18	4.12
Temp	10.76	9.83	9.92	9.54	9.39	9.32
ORP	69	69	80	93	94	96
DTW	4.02	6.91	6.91	6.91	6.91	6.91

SAMPLE COLLECTION TIME 1255

DUP

WRL-DUP-1202 COLLECTED @ WRL-MW6B-1202

Appendix D

December 2002 Laboratory Chain-of-Custody Records

Environmental LABORATORY SERVICES

7280 Caswell Street, Hancock Air Park North Syracuse, NY 13212
(315) 458-8033 FAX (315) 458-0249 (800) 843-8265

CHAIN OF CUSTODY RECORD
and Authorization for Analysis

Name	Robert Casey	Title	
Company	EA Engineering	Dept.	
Address	~~7037 Hwy 31~~ 6713 COLLAMER	Proj/PO No.	12040.69 0015
City, State, Zip	East Syracuse NY 13057		

The following services may result in additional charges:
☐ Telephone Results Telephone No. 431-4610 Express Service
☐ Fax Results Fax No. 431-4280 Advance Agreement Required ☐ 1 Week ☐ 48 Hour

ELS Number	To be completed by Sampler. Please remember to record this information on the container label. *Date	*Time	*Comp.	*Grab	*Matrix	*Sampling Location	Number of Containers	Container Type/Preservative: Plastic/No Preservatives	Plastic/HNO_3	Plastic/H_2SO_4	Plastic/NaOH+Ascorbic Acid	Plastic/NaOH+Zinc Acetate	Glass/No Preservative	Glass/Sodium Thiosulfate	Amber Glass/No Pres.	Amber Glass/H_2SO_4	Other: (specify)	Analyses Required, Remarks, and/or Special Instructions
	11DEC02	1130		X	NGW	WRL-MW5B-1202	1									1L		Phenolics, NH3-N
	↓	↓		↓	↓	↓	1	H										Sulfate
	↓	↓		↓	↓	↓	1		SL									Total Cd, Cr, Fe, Pb, Mg, Mn, Si, Se, Na, Tl, Zn
	11DEC02	1205		X	NGW	WRL-MW7B-1202	1									1L		Phenolics, NH3-N
	↓	↓		↓	↓		1	H										Sulfate
	↓	↓		↓	↓		1		SL									Total Cd, Cr, Fe, Pb, Mg, Mn, Si, Se, Na, Tl, Zn
	11DEC02	1255		X	NGW	WRL-MW6B-1202	1									1L		Phenolics, NH3-N
	↓	↓		↓	↓	↓	1	H										Sulfate
	↓	↓		↓	↓	↓	1		SL									Total Cd, Cr, Fe, Pb, Mg, Na, Si, Se, Na, Tl, Zn

Containers Dispensed by:		Date 12/1/02	Time 1400	Container(s) Received by:		Date	Time
Relinquished by:		Date 12/12/02	Time 0800	Received by:		Date	Time
Relinquished by:		Date	Time	Received by:		Date	Time
Relinquished by:		Date	Time	Received by:		Date	Time
Your signature authorizes ELS to analyze the sample(s) as indicated. Relinquished by:		Date	Time	Received at Lab by:	Matthew Hatch	Date 12/12/02	Time 0800
Sampler Signature:							

Pink - CLIENT
2217.ELS..202.9310

OTHERS

Environmental LABORATORY SERVICES

7280 Caswell Street, Hancock Air Park North Syracuse, NY 13212
(315) 458-8033 FAX (315) 458-0249 (800) 843-8265

CHAIN OF CUSTODY RECORD
and Authorization for Analysis

Name Robert Casey	Title
Company EA Engineering	Dept.
Address ~~Day Hill Road~~ 6713 Collamer	PO/PO No. 12040.19 0015
City, State, Zip East Syracuse, NY 13057	

The following services may result in additional charges:

☐ Telephone Results Telephone No. 431-4610 Express Service Advance Agreement Required

☐ Fax Results Fax No. 431-4280 ☐ 1 Week ☐ 48 Hour

ELS Number	To be completed by Sampler. Please remember to record this information on the container label. *Date	*Time	*Comp.	*Grab	*Matrix	*Sampling Location	Number of Containers	Container Type/Preservative: Plastic/No Preservatives	Plastic/HNO_3	Plastic/H_2SO_4	Plastic/NaOH+Ascorbic Acid	Plastic/NaOH+Zinc Acetate	Glass/No Preservative	Glass/Sodium Thiosulfate	Amber Glass/No Pres.	Amber Glass/H_2SO_4	Other: (specify)	Analyses Required, Remarks, and/or Special Instructions
	10DEC02	1230		X	NGW	WRL-MW1B-1202	1									1L		Phenolics, NH_3-N
	↓	↓		↓	↓	↓	1	.5Z										Sulfate
	↓	↓		↓	↓	↓	1		.5Z									Total Cd, Cr, Fe, Pb, Mg, Mn
																		Si, Se, Na, Tl, Zn
	10DEC02	1320		X	NGW	WRL-MW2B-1202	1									1L		Phenolics, NH_3-N
	↓	↓		↓	↓	↓	1	.5Z										Sulfate
	↓	↓		↓	↓	↓	1		.5Z									Total Cd, Cr, Fe, Pb, Mg, Mn
																		Si, Se, Na, Tl, Zn
	10DEC02	1410		X	NGW	WRL-MW3B-1202	1									1L		Phenolics, NH_3-N
	↓	↓		↓	↓	↓	1	.5Z										Sulfate
	↓	↓		↓	↓	↓	1		.5Z									Total Cd, Cr, Fe, Pb, Mg, Mn
																		Si, Se, Na, Tl, Zn

Containers Dispensed by: K. Chehovich	Date 12/2/02	Time 1400	Container(s) Received by:	Date	Time
Relinquished by:	Date 12/10/02	Time 1600	Received by:	Date	Time
Relinquished by: Robert A Casey	Date 12/11/02	Time 0900	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Your signature authorizes ELS to analyze the sample(s) as indicated. Relinquished by:	Date	Time	Received at Lab by: Matthew McCabe	Date 12/12/02	Time 0900
Sampler Signature:					

White - LABORATORY Canary - ACCOMPANIES RESULTS Pink - CLIENT

Please return completed form and all sample containers to Environmental Laboratory Services.

Environmental LABORATORY SERVICES

7280 Caswell Street, Hancock Air Park North Syracuse, NY 13212
(315) 458-8033 FAX (315) 458-0249 (800) 843-8265

CHAIN OF CUSTODY RECORD
and Authorization for Analysis

Name Robert Casey | Title
Company EA Engineering | Dept.
Address ~~7037 Ley Road~~ 6713 COLLAMER | Job/PO No. 12040.69 0015
City, State, Zip East Syracuse, NY 13057

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☐ Telephone Results Telephone No. 431-4610 Advance Agreement Required
☐ Fax Results Fax No. 431-4280 ☐ 1 Week ☐ 48 Hour

ELS Number	To be completed by Sampler. Please remember to record this information on the container label. *Date	*Time	*Comp.	*Grab	*Matrix	*Sampling Location	Number of Containers	Container Type/Preservative: Plastic/No Preservatives	Plastic/HNO_3	Plastic/H_2SO_4	Plastic/NaOH+Ascorbic Acid	Plastic/NaOH+Zinc Acetate	Glass/No Preservative	Glass/Sodium Thiosulfate	Amber Glass/No Pres.	Amber Glass/H_2SO_4	Other: (specify)	Analyses Required, Remarks, and/or Special Instructions
	10DEC02	1505		X	NGW	WRL-MWBB-1202	1									1L		Phenolics, NH_3-N
	↓			↓	↓	↓	1	.5L										Sulfate
							1		.5L									Total Cd, Cr, Fe, Pb, Mg, Mn,
																		Si, Se, Na, Tl, Zn
	11DEC02	0945		X	NGW	WRL-LI-1202	1									1L		Phenolics, NH_3-N
	↓	↓		↓	↓	↓	1	.5L										Sulfate
							1		.5L									Total Cd, Cr, Fe, Pb, Mg, Mn
																		Si, Se, Na, Tl, Zn
	11DEC02	1055			NGW	WRL-SS-1202	1									1L		Phenolics, NH_3-N
		↓			↓	↓	1	.5L										Sulfate
							1		.5L									Total Cd, Cr, Fe, Pb, Mg, Mn,
																		Si, Se, Na, Tl, Zn

hovich

Date 12/3/02	Time 1400	Container(s) Received by:		Date	Time
Date 12/4/02	Time 1600	Received by:		Date	Time
Date 12/5/02	Time 0806	Received by:		Date	Time
Date	Time	Received by:		Date	Time
Date	Time	Received at Lab by:	Matthew A. Fenco	Date 12/12/02	Time 0800

White - LABORATORY Canary - ACCOMPANIES RESULTS Pink - CLIENT
Please return completed form and all sample containers to Environmental Laboratory Services.

Environmental LABORATORY SERVICES

7280 Caswell Street, Hancock Air Park North Syracuse, NY 13212
(315) 458-8033 FAX (315) 458-0249 (800) 843-8265

CHAIN OF CUSTODY RECORD
and Authorization for Analysis

Name: Robert Casey — Title:
Company: E/A Engineering — Dept.:
Address: ~~[illegible]~~ 6713 COLLAMER — Job/PO No. 12040.69.0015
City, State, Zip: East Syracuse NY 13057

The following services may result in additional charges:

☐ Telephone Results — Telephone No. 431-4610
☐ Fax Results — Fax No. 431-4280

Express Service
Advance Agreement Required
☐ 1 Week ☐ 48 Hour

To be completed by Sampler. Please remember to record this information on the container label.

ELS Number	*Date	*Time	*Comp.	*Grab	*Matrix	*Sampling Location	Number of Containers	Plastic/No Preservatives	Plastic/HNO$_3$	Plastic/H$_2$SO$_4$	Plastic/NaOH+Ascorbic Acid	Plastic/NaOH+Zinc Acetate	Glass/No Preservative	Glass/Sodium Thiosulfate	Amber Glass/No Pres.	Amber Glass/H$_2$SO$_4$	Other: (specify)	Analyses Required, Remarks, and/or Special Instructions
	11DEC02	1330		X	WGW	WRL-RB-1202	1									1L		Phenolics, NH3-N
	↓	↓		↓	↓	↓	1	1L										Sulfate
							1		.5L									Total Cd, Cr, Fe, Pb, Mg, Mn,
																		S, Se, Na, Tl, Zn
	11DEC02	1335		X	WGW	WRL-SW-1202	1									1L		Phenolics, NH3-N
	↓	↓		↓	↓	↓	1	1L										Sulfate
							1		.5L									Total Cd, Cr, Fe, Pb, Mg, Mn,
																		S, Se, Na, Tl, Zn
	11DEC02	—		X	WGW	WRL-DUP-1202	1									1L		Phenolics, NH3-N
	↓			↓	↓	↓	1	1L										Sulfate
							1		.5L									Total Cd, Cr, Fe, Pb, Mg, Mn,
																		S, Se, Na, Tl, Zn

	Date	Time		Date	Time
Containers Dispensed by: R Clebranch	12/3/02	1400	Container(s) Received by:		
Relinquished by: Robert [signature]	12/11/02	0800	Received by:		
Relinquished by:			Received by:		
Relinquished by:			Received by:		
Your signature authorizes ELS to analyze the sample(s) as indicated. Relinquished by:			Received at Lab by: Matthew A. [signature]	12/11/02	0800
Sampler Signature:					

White - LABORATORY Canary - ACCOMPANIES RESULTS Pink - CLIENT

Please return completed form and all sample containers to Environmental Laboratory Services.

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HEX CHROME

Environmental LABORATORY SERVICES

7280 Caswell Street, Hancock Air Park North Syracuse, NY 13212
(315) 458-8033 FAX (315) 458-0249 (800) 843-8265

CHAIN OF CUSTODY RECORD
and Authorization for Analysis

Name Robert Casey	Title
Company EA Engineering	Dept.
Address ~~7037 Hogsback~~ 6713 COLLAMER RD	Job/PO No. 12040.69 0015
City, State, Zip East Syracuse, NY 13057	

The following services may result in additional charges: Express Service

☐ Telephone Results Telephone No. 431-4610 Advance Agreement Required

☐ Fax Results Fax No. 431-4280 ☐ 1 Week ☐ 48 Hour

To be completed by Sampler. Please remember to record this information on the container label.

ELS Number	*Date	*Time	*Comp.	*Grab	*Matrix	*Sampling Location	Number of Containers	Plastic/No Preservatives	Plastic/HNO_3	Plastic/H_2SO_4	Plastic/NaOH+Ascorbic Acid	Plastic/NaOH+Zinc Acetate	Glass/No Preservative	Glass/Sodium Thiosulfate	Amber Glass/No Pres.	Amber Glass/H_2SO_4	Other: (specify)	Analyses Required, Remarks, and/or Special Instructions
	10DEC02	1230		✓	NGW	WRL-MW1B-1202	1	✓										NOTE: SAMPLES
	↓	1320		✓	NGW	WRL-MW2B-1202	1	✓										COLLECTED ON
		1410		✓	NGW	WRL-MW3B-1202	1	✓										10DEC02 WILL BE
		1505		✓	NGW	WRL-MW8B-1202	1	✓										SHIPPED WITH PINK
	11DEC02	0945		✓	NGW	WRL-L1-1202	1	✓										COPIES OF COC TO
		1055		✓	NGW	WRL-SS-1202	1	✓										ARRIVE AT ELS ON
		1130		✓	NGW	WRL-MW5B-1202	1	✓										11DEC02. SAMPLES
		1205		✓	NGW	WRL-MW7B-1202	1	✓										COLLECTED ON 11DEC02
		1255		✓	NGW	WRL-MW6B-1202	1	✓										WILL BE HAND DELIVERED
		1330		✓	NGW	WRL-RB-1202	1	✓										WITH WHITE AND
		1335		✓	NGW	WRL-SW-1202	1	✓										YELLOW COPIES OF
	↓	—		✓	NGW	WRL-DUP-1202	1	✓										COC ON 12DEC02.
				✓	NGW		1	✓										
				✓	NGW		1	✓										
				✓	NGW		1	✓										

Containers Dispensed by: K. Chehovich	Date 12/3/02	Time 1400	Container(s) Received by:	Date	Time
Relinquished by:	Date 12/10/02	Time 1600	Received by:	Date	Time
Relinquished by:	Date 12/11/02	Time 0800	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Your signature authorizes ELS to analyze the sample(s) as indicated. Relinquished by:	Date	Time	Received at Lab by:	Date 12/12/02	Time 0800
Sampler Signature:					

White - LABORATORY Canary - ACCOMPANIES RESULTS Pink - CLIENT

Please return completed form and all sample containers to Environmental Laboratory Services.

MARCH 23

Environmental LABORATORY SERVICES

7280 Caswell Street, Hancock Air Park North Syracuse, NY 13212
(315) 458-8033 FAX (315) 458-0249 (800) 843-8265

CHAIN OF CUSTODY RECORD
and Authorization for Analysis

Name ROBERT CASEY	Title
Company EA ENGINEERING	Dept.
Address 6713 COLLAMER RD.	Job/PO No. 12040.79 0002
City, State, Zip E. SYRACUSE NY 13057	

The following services may result in additional charges: Express Service
☐ Telephone Results Telephone No. (315) 431-4610 Advance Agreement Required
☐ Fax Results Fax No. (315) 431-4280 ☐ 1 Week ☐ 48 Hour

ELS Number	To be completed by Sampler. Please remember to record this information on the container label. *Date	*Time	*Comp.	*Grab	*Matrix	*Sampling Location	Number of Containers	Container Type/Preservative: ic/No P atives	Plastic/HNO_3 • 5L	Plastic/H_2SO_4	Plastic/NaOH+Ascorbic Acid	Plastic/NaOH+Zinc Acetate	Glass/No Preservative	Glass/Sodium Thiosulfate	Amber Glass/No Pres.	Amber Glass/H_2SO_4	Other: (specify)	Analyses Required, Remarks, and/or Special Instructions
	10DEC02	1230		X	NGW	WRL-MW1B-1202	1		✓									HARDNESS
	↓	1320		↓	↓	WRL-MW2B-1202	1		✓									↓
	↓	1410		↓	↓	WRL-MW3B-1202	1		✓									
	↓	1505		↓	↓	WRL-MW8B-1202	1		✓									
	11DEC02	0945		X	NGW	WRL-L1-1202	1		✓									HARDNESS
	↓	1055		↓	↓	WRL-SS-1202	1		✓									↓
		1130				WRL-MW5B-1202	1		✓									
		1205				WRL-MW7B-1202	1		✓									
		1255				WRL-MW6B-1202	1		✓									
		1330				WRL-RB-1202	1		✓									
		1335				WRL-SW-1202	1		✓									
	↓	—		↓	↓	WRL-DUP-1202	1		✓									↓

Containers Dispensed by:	Date	Time	Container(s) Received by:	Date	Time
Relinquished by:	Date 12/10/02	Time 1600	Received by:	Date	Time
Relinquished by:	Date 12/11/02	Time 0800	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Your signature authorizes ELS to analyze the sample(s) as indicated. Relinquished by:	Date	Time	Received at Lab by:	Date 12/12/02	Time 0800
Sampler Signature:					

White - LABORATORY Canary - ACCOMPANIES RESULTS Pink - CLIENT
Please return completed form and all sample containers to Environmental Laboratory Services.

Appendix E

December 2002 Form I
Analytical Results

Environmental
LABORATORY SERVICES

7280 Caswell Street, Hancock Air Park, North Syracuse, NY 13212
(315) 458-8033, FAX (315) 458-0249, (800) 842-4867

E.A. ENGINEERING, SCIENCE & TECHNOLOGY
6731 Collamer Road

East Syracuse, NY 13057
ATTN: Mr. Scott Graham

PROJECT #: 203259
RECEIVED: 12/12/2002

CLIENT JOB NUMBER: 12040.790002

TEST PERFORMED	RESULTS	UNITS	DATE/TIME PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 335146 CLIENT SAMPLE ID:	WRL-MW1B-1202			**DATE SAMPLED:**	12/10/02
CHROMIUM, HEXAVALENT	<0.01	MG/L	12/11/02 @ 10:30	SM18 3500-CR D	CSA
SAMPLE #: 335147 CLIENT SAMPLE ID:	WRL-MW2B-1202			**DATE SAMPLED:**	12/10/02
CHROMIUM, HEXAVALENT	0.43	MG/L	12/11/02 @ 10:30	SM18 3500-CR D	CSA
SAMPLE #: 335148 CLIENT SAMPLE ID:	WRL-MW3B-1202			**DATE SAMPLED:**	12/10/02
CHROMIUM, HEXAVALENT	<0.01	MG/L	12/11/02 @ 10:30	SM18 3500-CR D	CSA
SAMPLE #: 335149 CLIENT SAMPLE ID:	WRL-MW8B-1202			**DATE SAMPLED:**	12/10/02
CHROMIUM, HEXAVALENT	0.03	MG/L	12/11/02 @ 10:30	SM18 3500-CR D	CSA
SAMPLE #: 335150 CLIENT SAMPLE ID:	WRL-MW1B-1202			**DATE SAMPLED:**	12/10/02
TOTAL HARDNESS	826	MG/L as CaCO3	12/23/02	SM 18 2340B	NSH
Metals Digestion			12/12/02	EPA 3005A	BDR
SAMPLE #: 335151 CLIENT SAMPLE ID:	WRL-MW2B-1202			**DATE SAMPLED:**	12/10/02
TOTAL HARDNESS	989	MG/L as CaCO3	12/17/02	SM 18 2340B	NSH
Metals Digestion			12/12/02	EPA 3005A	BDR
SAMPLE #: 335152 CLIENT SAMPLE ID:	WRL-MW3B-1202			**DATE SAMPLED:**	12/10/02
TOTAL HARDNESS	93.9	MG/L as CaCO3	12/17/02	SM 18 2340B	NSH
Metals Digestion			12/12/02	EPA 3005A	BDR
SAMPLE #: 335153 CLIENT SAMPLE ID:	WRL-MW8B-1202			**DATE SAMPLED:**	12/10/02
TOTAL HARDNESS	691	MG/L as CaCO3	12/23/02	SM 18 2340B	NSH
Metals Digestion			12/12/02	EPA 3005A	BDR

E.A. ENGINEERING, SCIENCE & TECHNOLOGY
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East Syracuse, NY 13057
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PROJECT #: 203259
RECEIVED: 12/12/2002

CLIENT JOB NUMBER: 12040.790002

TEST PERFORMED	RESULTS	UNITS	DATE/TIME PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 335154 CLIENT SAMPLE ID:	WRL-MW1B-1202			**DATE SAMPLED:**	12/10/02
AMMONIA NITROGEN	<1.0	MG/L	12/13/02	SM18 4500-NH3-E	CSA
PHENOLICS	<0.002	MG/L	12/24/02	EPA 420.2	CSA
SAMPLE #: 335155 CLIENT SAMPLE ID:	WRL-MW1B-1202			**DATE SAMPLED:**	12/10/02
SULFATE	2550	MG/L	12/18/02	EPA 375.2	CSA
SAMPLE #: 335156 CLIENT SAMPLE ID:	WRL-MW1B-1202			**DATE SAMPLED:**	12/10/02
ICP/MS					
cadmium	<0.005	MG/L	12/19/02	EPA 6020	NSH
chromium	0.079	MG/L	12/19/02	EPA 6020	NSH
lead	0.023	MG/L	12/19/02	EPA 6020	NSH
manganese	0.914	MG/L	12/19/02	EPA 6020	NSH
selenium	<0.005	MG/L	12/19/02	EPA 6020	NSH
thallium	<0.005	MG/L	12/19/02	EPA 6020	NSH
zinc	0.468	MG/L	12/19/02	EPA 6020	NSH
ICP					
iron	5.27	MG/L	12/17/02	EPA 6010	NSH
magnesium	79.3	MG/L	12/23/02	EPA 6010	NSH
silica (sio2)	34.4	MG/L	12/23/02	EPA 6010	NSH
sodium	107	MG/L	12/17/02	EPA 6010	NSH
Metals Digestion			12/12/02	EPA 3005A	BDR
SAMPLE #: 335157 CLIENT SAMPLE ID:	WRL-MW2B-1202			**DATE SAMPLED:**	12/10/02
AMMONIA NITROGEN	1.6	MG/L	12/13/02	SM18 4500-NH3-E	CSA
PHENOLICS	0.002	MG/L	12/24/02	EPA 420.2	CSA
SAMPLE #: 335158 CLIENT SAMPLE ID:	WRL-MW2B-1202			**DATE SAMPLED:**	12/10/02
SULFATE	21.5	MG/L	12/18/02	EPA 375.2	CSA
SAMPLE #: 335159 CLIENT SAMPLE ID:	WRL-MW2B-1202			**DATE SAMPLED:**	12/10/02
ICP/MS					
cadmium	<0.005	MG/L	12/19/02	EPA 6020	NSH
chromium	0.428	MG/L	12/19/02	EPA 6020	NSH
lead	0.006	MG/L	12/19/02	EPA 6020	NSH
manganese	<0.005	MG/L	12/19/02	EPA 6020	NSH

E.A. ENGINEERING, SCIENCE & TECHNOLOGY
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PROJECT #: 203259
RECEIVED: 12/12/2002

CLIENT JOB NUMBER: 12040.790002

TEST PERFORMED	RESULTS	UNITS	DATE/TIME PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 335159 CLIENT SAMPLE ID:	WRL-MW2B-1202			**DATE SAMPLED:**	12/10/02
ICP/MS					
selenium	0.007	MG/L	12/19/02	EPA 6020	NSH
thallium	<0.005	MG/L	12/19/02	EPA 6020	NSH
zinc	0.051	MG/L	12/19/02	EPA 6020	NSH
ICP					
iron	0.175	MG/L	12/17/02	EPA 6010	NSH
magnesium	<1.0	MG/L	12/17/02	EPA 6010	NSH
silica (sio2)	3.13	MG/L	12/23/02	EPA 6010	NSH
sodium	57.1	MG/L	12/17/02	EPA 6010	NSH
Metals Digestion			12/12/02	EPA 3005A	BDR
SAMPLE #: 335160 CLIENT SAMPLE ID:	WRL-MW3B-1202			**DATE SAMPLED:**	12/10/02
AMMONIA NITROGEN	<1.0	MG/L	12/13/02	SM18 4500-NH3-E	CSA
PHENOLICS	0.003	MG/L	12/24/02	EPA 420.2	CSA
SAMPLE #: 335161 CLIENT SAMPLE ID:	WRL-MW3B-1202			**DATE SAMPLED:**	12/10/02
SULFATE	1390	MG/L	12/18/02	EPA 375.2	CSA
SAMPLE #: 335162 CLIENT SAMPLE ID:	WRL-MW3B-1202			**DATE SAMPLED:**	12/10/02
ICP/MS					
cadmium	<0.005	MG/L	12/19/02	EPA 6020	NSH
chromium	0.013	MG/L	12/19/02	EPA 6020	NSH
lead	<0.005	MG/L	12/19/02	EPA 6020	NSH
manganese	0.007	MG/L	12/19/02	EPA 6020	NSH
selenium	<0.005	MG/L	12/19/02	EPA 6020	NSH
thallium	<0.005	MG/L	12/19/02	EPA 6020	NSH
zinc	<0.005	MG/L	12/19/02	EPA 6020	NSH
ICP					
iron	0.170	MG/L	12/17/02	EPA 6010	NSH
magnesium	4.69	MG/L	12/17/02	EPA 6010	NSH
silica (sio2)	18.2	MG/L	12/23/02	EPA 6010	NSH
sodium	73.3	MG/L	12/17/02	EPA 6010	NSH
Metals Digestion			12/12/02	EPA 3005A	BDR
SAMPLE #: 335163 CLIENT SAMPLE ID:	WRL-MW8B-1202			**DATE SAMPLED:**	12/10/02
AMMONIA NITROGEN	<1.0	MG/L	12/18/02	SM18 4500-NH3-E	CSA
PHENOLICS	<0.002	MG/L	12/24/02	EPA 420.2	CSA

E.A. ENGINEERING, SCIENCE & TECHNOLOGY
6731 Collamer Road

East Syracuse, NY 13057
ATTN: Mr. Scott Graham

PROJECT #: 203259
RECEIVED: 12/12/2002

CLIENT JOB NUMBER: 12040.790002

TEST PERFORMED	RESULTS	UNITS	DATE/TIME PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 335163 CLIENT SAMPLE ID:	WRL-MW8B-1202			**DATE SAMPLED:**	12/10/02
SAMPLE #: 335164 CLIENT SAMPLE ID:	WRL-MW8B-1202			**DATE SAMPLED:**	12/10/02
SULFATE	399	MG/L	12/18/02	EPA 375.2	CSA
SAMPLE #: 335165 CLIENT SAMPLE ID:	WRL-MW8B-1202			**DATE SAMPLED:**	12/10/02
ICP/MS					
cadmium	<0.005	MG/L	12/19/02	EPA 6020	NSH
chromium	0.091	MG/L	12/19/02	EPA 6020	NSH
lead	0.006	MG/L	12/19/02	EPA 6020	NSH
manganese	0.109	MG/L	12/19/02	EPA 6020	NSH
selenium	0.050	MG/L	12/19/02	EPA 6020	NSH
thallium	<0.005	MG/L	12/19/02	EPA 6020	NSH
zinc	0.099	MG/L	12/19/02	EPA 6020	NSH
ICP					
iron	2.32	MG/L	12/17/02	EPA 6010	NSH
magnesium	50.8	MG/L	12/23/02	EPA 6010	NSH
silica (slo2)	25.5	MG/L	12/23/02	EPA 6010	NSH
sodium	159	MG/L	12/17/02	EPA 6010	NSH
Metals Digestion			12/12/02	EPA 3005A	BDR
SAMPLE #: 335264 CLIENT SAMPLE ID:	WRL-L1-1202			**DATE SAMPLED:**	12/11/02
TOTAL HARDNESS	1720	MG/L as CaCO3	12/26/02	SM 18 2340B	NSH
Metals Digestion			12/22/02	EPA 3005A	BDR
SAMPLE #: 335265 CLIENT SAMPLE ID:	WRL-SS-1202			**DATE SAMPLED:**	12/11/02
TOTAL HARDNESS	1630	MG/L as CaCO3	12/26/02	SM 18 2340B	NSH
Metals Digestion			12/22/02	EPA 3005A	BDR
SAMPLE #: 335266 CLIENT SAMPLE ID:	WRL-MW5B-1202			**DATE SAMPLED:**	12/11/02
TOTAL HARDNESS	769	MG/L as CaCO3	12/26/02	SM 18 2340B	NSH
Metals Digestion			12/22/02	EPA 3005A	BDR
SAMPLE #: 335267 CLIENT SAMPLE ID:	WRL-MW7B-1202			**DATE SAMPLED:**	12/11/02
TOTAL HARDNESS	147	MG/L as CaCO3	12/26/02	SM 18 2340B	NSH
Metals Digestion			12/22/02	EPA 3005A	BDR

E.A. ENGINEERING, SCIENCE & TECHNOLOGY
6731 Collamer Road

East Syracuse, NY 13057
ATTN: Mr. Scott Graham

PROJECT #: 203259
RECEIVED: 12/12/2002

CLIENT JOB NUMBER: 12040.790002

TEST PERFORMED	RESULTS	UNITS	DATE/TIME PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 335268 CLIENT SAMPLE ID:	WRL-MW6B-1202			**DATE SAMPLED:**	12/11/02
TOTAL HARDNESS	578	MG/L as CaCO3	12/26/02	SM 18 2340B	NSH
Metals Digestion			12/22/02	EPA 3005A	BDR
SAMPLE #: 335269 CLIENT SAMPLE ID:	WRL-RB-1202			**DATE SAMPLED:**	12/11/02
TOTAL HARDNESS	<6.61	MG/L as CaCO3	12/26/02	SM 18 2340B	NSH
Metals Digestion			12/22/02	EPA 3005A	BDR
SAMPLE #: 335270 CLIENT SAMPLE ID:	WRL-SW-1202			**DATE SAMPLED:**	12/11/02
TOTAL HARDNESS	<6.61	MG/L as CaCO3	12/26/02	SM 18 2340B	NSH
Metals Digestion			12/22/02	EPA 3005A	BDR
SAMPLE #: 335271 CLIENT SAMPLE ID:	WRL-DUP-1202			**DATE SAMPLED:**	12/11/02
TOTAL HARDNESS	597	MG/L as CaCO3	12/26/02	SM 18 2340B	NSH
Metals Digestion			12/22/02	EPA 3005A	BDR
SAMPLE #: 335272 CLIENT SAMPLE ID:	WRL-L1-1202			**DATE SAMPLED:**	12/11/02
CHROMIUM, HEXAVALENT	0.40	MG/L	12/12/02 @ 9:15	SM18 3500-CR D	CSA
SAMPLE #: 335273 CLIENT SAMPLE ID:	WRL-SS-1202			**DATE SAMPLED:**	12/11/02
CHROMIUM, HEXAVALENT	0.37	MG/L	12/12/02 @ 9:15	SM18 3500-CR D	CSA
SAMPLE #: 335274 CLIENT SAMPLE ID:	WRL-MW5B-1202			**DATE SAMPLED:**	12/11/02
CHROMIUM, HEXAVALENT	<0.01	MG/L	12/12/02 @ 9:15	SM18 3500-CR D	CSA
SAMPLE #: 335275 CLIENT SAMPLE ID:	WRL-MW7B-1202			**DATE SAMPLED:**	12/11/02
CHROMIUM, HEXAVALENT	0.02	MG/L	12/12/02 @ 9:15	SM18 3500-CR D	CSA
SAMPLE #: 335276 CLIENT SAMPLE ID:	WRL-MW6B-1202			**DATE SAMPLED:**	12/11/02
CHROMIUM, HEXAVALENT	<0.01	MG/L	12/12/02 @ 9:15	SM18 3500-CR D	CSA
SAMPLE #: 335277 CLIENT SAMPLE ID:	WRL-RB-1202			**DATE SAMPLED:**	12/11/02
CHROMIUM, HEXAVALENT	<0.01	MG/L	12/12/02 @ 9:15	SM18 3500-CR D	CSA

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CLIENT JOB NUMBER: 12040.790002

TEST PERFORMED	RESULTS	UNITS	DATE/TIME PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 335278 CLIENT SAMPLE ID: WRL-SW-1202				**DATE SAMPLED:** 12/11/02	
CHROMIUM, HEXAVALENT	<0.01	MG/L	12/12/02 @ 9:15	SM18 3500-CR D	CSA
SAMPLE #: 335279 CLIENT SAMPLE ID: WRL-DUP-1202				**DATE SAMPLED:** 12/11/02	
CHROMIUM, HEXAVALENT	<0.01	MG/L	12/12/02 @ 9:15	SM18 3500-CR D	CSA
SAMPLE #: 335280 CLIENT SAMPLE ID: WRL-RB-1202				**DATE SAMPLED:** 12/11/02	
AMMONIA NITROGEN	<1.0	MG/L	12/16/02	SM18 4500-NH3-E	CSA
PHENOLICS	<0.002	MG/L	12/24/02	EPA 420.2	CSA
SAMPLE #: 335281 CLIENT SAMPLE ID: WRL-RB-1202				**DATE SAMPLED:** 12/11/02	
SULFATE	<2.0	MG/L	12/18/02	EPA 375.2	CSA
SAMPLE #: 335282 CLIENT SAMPLE ID: WRL-RB-1202				**DATE SAMPLED:** 12/11/02	
ICP/MS					
cadmium	<0.005	MG/L	12/27/02	EPA 6020	NSH
chromium	<0.005	MG/L	12/27/02	EPA 6020	NSH
lead	<0.005	MG/L	12/27/02	EPA 6020	NSH
manganese	<0.005	MG/L	12/27/02	EPA 6020	NSH
selenium	<0.005	MG/L	12/27/02	EPA 6020	NSH
thallium	<0.005	MG/L	12/27/02	EPA 6020	NSH
zinc	<0.005	MG/L	12/27/02	EPA 6020	NSH
ICP					
iron	<0.025	MG/L	12/26/02	EPA 6010	NSH
magnesium	<1.0	MG/L	12/26/02	EPA 6010	NSH
silica (sio2)	<107	MG/L	12/26/02	EPA 6010	NSH
sodium	<1.0	MG/L	12/26/02	EPA 6010	NSH
Metals Digestion			12/22/02	EPA 3005A	BDR
SAMPLE #: 335283 CLIENT SAMPLE ID: WRL-SW-1202				**DATE SAMPLED:** 12/11/02	
AMMONIA NITROGEN	<1.0	MG/L	12/16/02	SM18 4500-NH3-E	CSA
PHENOLICS	<0.002	MG/L	12/24/02	EPA 420.2	CSA
SAMPLE #: 335284 CLIENT SAMPLE ID: WRL-SW-1202				**DATE SAMPLED:** 12/11/02	
SULFATE	<2.0	MG/L	12/18/02	EPA 375.2	CSA

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TEST PERFORMED	RESULTS	UNITS	DATE/TIME PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 335285 CLIENT SAMPLE ID: WRL-SW-1202				**DATE SAMPLED:** 12/11/02	
ICP/MS					
cadmium	<0.005	MG/L	12/27/02	EPA 6020	NSH
chromium	<0.005	MG/L	12/27/02	EPA 6020	NSH
lead	<0.005	MG/L	12/27/02	EPA 6020	NSH
manganese	<0.005	MG/L	12/27/02	EPA 6020	NSH
selenium	<0.005	MG/L	12/27/02	EPA 6020	NSH
thallium	<0.005	MG/L	12/27/02	EPA 6020	NSH
zinc	<0.005	MG/L	12/27/02	EPA 6020	NSH
ICP					
iron	<0.025	MG/L	12/26/02	EPA 6010	NSH
magnesium	<1.0	MG/L	12/26/02	EPA 6010	NSH
silica (sio2)	<107	MG/L	12/26/02	EPA 6010	NSH
sodium	<1.0	MG/L	12/26/02	EPA 6010	NSH
Metals Digestion			12/22/02	EPA 3005A	BDR
SAMPLE #: 335286 CLIENT SAMPLE ID: WRL-DUP-1202				**DATE SAMPLED:** 12/11/02	
AMMONIA NITROGEN	<1.0	MG/L	12/18/02	SM18 4500-NH3-E	CSA
PHENOLICS	<0.002	MG/L	12/24/02	EPA 420.2	CSA
SAMPLE #: 335287 CLIENT SAMPLE ID: WRL-DUP-1202				**DATE SAMPLED:** 12/11/02	
SULFATE	248	MG/L	12/18/02	EPA 375.2	CSA
SAMPLE #: 335288 CLIENT SAMPLE ID: WRL-DUP-1202				**DATE SAMPLED:** 12/11/02	
ICP/MS					
cadmium	<0.005	MG/L	12/27/02	EPA 6020	NSH
chromium	<0.005	MG/L	12/27/02	EPA 6020	NSH
lead	<0.005	MG/L	12/27/02	EPA 6020	NSH
manganese	0.073	MG/L	12/27/02	EPA 6020	NSH
selenium	<0.005	MG/L	12/27/02	EPA 6020	NSH
thallium	<0.005	MG/L	12/27/02	EPA 6020	NSH
zinc	0.009	MG/L	12/27/02	EPA 6020	NSH
ICP					
iron	0.625	MG/L	12/26/02	EPA 6010	NSH
magnesium	76.1	MG/L	12/26/02	EPA 6010	NSH
silica (sio2)	18.6	MG/L	12/27/02	EPA 6010	NSH
sodium	62.1	MG/L	12/26/02	EPA 6010	NSH
Metals Digestion			12/22/02	EPA 3005A	BDR

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TEST PERFORMED	RESULTS	UNITS	DATE/TIME PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 335289 CLIENT SAMPLE ID:	WRL-L1-1202			**DATE SAMPLED:**	12/11/02
AMMONIA NITROGEN	4.0	MG/L	12/18/02	SM18 4500-NH3-E	CSA
PHENOLICS	0.012	MG/L	12/24/02	EPA 420.2	CSA
SAMPLE #: 335290 CLIENT SAMPLE ID:	WRL-L1-1202			**DATE SAMPLED:**	12/11/02
SULFATE	9.64	MG/L	12/18/02	EPA 375.2	CSA
SAMPLE #: 335291 CLIENT SAMPLE ID:	WRL-L1-1202			**DATE SAMPLED:**	12/11/02
ICP/MS					
cadmium	<0.005	MG/L	12/27/02	EPA 6020	NSH
chromium	0.412	MG/L	12/27/02	EPA 6020	NSH
lead	<0.005	MG/L	12/27/02	EPA 6020	NSH
manganese	<0.005	MG/L	12/27/02	EPA 6020	NSH
selenium	0.017	MG/L	12/27/02	EPA 6020	NSH
thallium	<0.005	MG/L	12/27/02	EPA 6020	NSH
zinc	<0.005	MG/L	12/27/02	EPA 6020	NSH
ICP					
iron	<0.025	MG/L	12/26/02	EPA 6010	NSH
magnesium	<1.0	MG/L	12/26/02	EPA 6010	NSH
silica (sio2)	0.451	MG/L	12/27/02	EPA 6010	NSH
sodium	72.7	MG/L	12/26/02	EPA 6010	NSH
Metals Digestion			12/22/02	EPA 3005A	BDR
SAMPLE #: 335292 CLIENT SAMPLE ID:	WRL-SS-1202			**DATE SAMPLED:**	12/11/02
AMMONIA NITROGEN	3.8	MG/L	12/18/02	SM18 4500-NH3-E	CSA
PHENOLICS	0.044	MG/L	12/24/02	EPA 420.2	CSA
SAMPLE #: 335293 CLIENT SAMPLE ID:	WRL-SS-1202			**DATE SAMPLED:**	12/11/02
SULFATE	13.4	MG/L	12/18/02	EPA 375.2	CSA
SAMPLE #: 335294 CLIENT SAMPLE ID:	WRL-SS-1202			**DATE SAMPLED:**	12/11/02
ICP/MS					
cadmium	<0.005	MG/L	12/27/02	EPA 6020	NSH
chromium	0.392	MG/L	12/27/02	EPA 6020	NSH
lead	<0.005	MG/L	12/27/02	EPA 6020	NSH
manganese	<0.005	MG/L	12/27/02	EPA 6020	NSH

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TEST PERFORMED	RESULTS	UNITS	DATE/TIME PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 335294 **CLIENT SAMPLE ID:** WRL-SS-1202				**DATE SAMPLED:**	12/11/02
ICP/MS					
selenium	0.016	MG/L	12/27/02	EPA 6020	NSH
thallium	<0.005	MG/L	12/27/02	EPA 6020	NSH
zinc	<0.005	MG/L	12/27/02	EPA 6020	NSH
ICP					
iron	<0.025	MG/L	12/26/02	EPA 6010	NSH
magnesium	3.61	MG/L	12/26/02	EPA 6010	NSH
silica (sio2)	1.16	MG/L	12/27/02	EPA 6010	NSH
sodium	71.9	MG/L	12/26/02	EPA 6010	NSH
Metals Digestion			12/22/02	EPA 3005A	BDR
SAMPLE #: 335295 **CLIENT SAMPLE ID:** WRL-MW5B-1202				**DATE SAMPLED:**	12/11/02
AMMONIA NITROGEN	<1.0	MG/L	12/18/02	SM18 4500-NH3-E	CSA
PHENOLICS	<0.002	MG/L	12/24/02	EPA 420.2	CSA
SAMPLE #: 335296 **CLIENT SAMPLE ID:** WRL-MW5B-1202				**DATE SAMPLED:**	12/11/02
SULFATE	2630	MG/L	12/18/02	EPA 375.2	CSA
SAMPLE #: 335297 **CLIENT SAMPLE ID:** WRL-MW5B-1202				**DATE SAMPLED:**	12/11/02
ICP/MS					
cadmium	<0.005	MG/L	12/27/02	EPA 6020	NSH
chromium	<0.005	MG/L	12/27/02	EPA 6020	NSH
lead	0.007	MG/L	12/27/02	EPA 6020	NSH
manganese	0.136	MG/L	12/27/02	EPA 6020	NSH
selenium	<0.005	MG/L	12/27/02	EPA 6020	NSH
thallium	<0.005	MG/L	12/27/02	EPA 6020	NSH
zinc	0.131	MG/L	12/27/02	EPA 6020	NSH
ICP					
iron	3.54	MG/L	12/26/02	EPA 6010	NSH
magnesium	71.3	MG/L	12/26/02	EPA 6010	NSH
silica (sio2)	29.7	MG/L	12/27/02	EPA 6010	NSH
sodium	94.8	MG/L	12/26/02	EPA 6010	NSH
Metals Digestion			12/22/02	EPA 3005A	BDR
SAMPLE #: 335298 **CLIENT SAMPLE ID:** WRL-MW7B-1202				**DATE SAMPLED:**	12/11/02
AMMONIA NITROGEN	<1.0	MG/L	12/18/02	SM18 4500-NH3-E	CSA
PHENOLICS	0.007	MG/L	12/24/02	EPA 420.2	CSA

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TEST PERFORMED		RESULTS	UNITS	DATE/TIME PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 335298	**CLIENT SAMPLE ID:**	WRL-MW7B-1202			**DATE SAMPLED:**	12/11/02
SAMPLE #: 335299	**CLIENT SAMPLE ID:**	WRL-MW7B-1202			**DATE SAMPLED:**	12/11/02
SULFATE		38.6	MG/L	12/18/02	EPA 375.2	CSA
SAMPLE #: 335300	**CLIENT SAMPLE ID:**	WRL-MW7B-1202			**DATE SAMPLED:**	12/11/02
ICP/MS						
cadmium		<0.005	MG/L	12/27/02	EPA 6020	NSH
chromium		0.133	MG/L	12/27/02	EPA 6020	NSH
lead		<0.005	MG/L	12/27/02	EPA 6020	NSH
manganese		0.236	MG/L	12/27/02	EPA 6020	NSH
selenium		<0.005	MG/L	12/27/02	EPA 6020	NSH
thallium		<0.005	MG/L	12/27/02	EPA 6020	NSH
zinc		0.048	MG/L	12/27/02	EPA 6020	NSH
ICP						
iron		12.10	MG/L	12/26/02	EPA 6010	NSH
magnesium		15.1	MG/L	12/26/02	EPA 6010	NSH
silica (sio2)		60.3	MG/L	12/27/02	EPA 6010	NSH
sodium		66.7	MG/L	12/26/02	EPA 6010	NSH
Metals Digestion				12/22/02	EPA 3005A	BDR
SAMPLE #: 335301	**CLIENT SAMPLE ID:**	WRL-MW6B-1202			**DATE SAMPLED:**	12/11/02
AMMONIA NITROGEN		<1.0	MG/L	12/18/02	SM18 4500-NH3-E	CSA
PHENOLICS		<0.002	MG/L	12/24/02	EPA 420.2	CSA
SAMPLE #: 335302	**CLIENT SAMPLE ID:**	WRL-MW6B-1202			**DATE SAMPLED:**	12/11/02
SULFATE		2510	MG/L	12/18/02	EPA 375.2	CSA
SAMPLE #: 335303	**CLIENT SAMPLE ID:**	WRL-MW6B-1202			**DATE SAMPLED:**	12/11/02
ICP/MS						
cadmium		<0.005	MG/L	12/27/02	EPA 6020	NSH
chromium		0.031	MG/L	12/27/02	EPA 6020	NSH
lead		<0.005	MG/L	12/27/02	EPA 6020	NSH
manganese		0.141	MG/L	12/27/02	EPA 6020	NSH
selenium		<0.005	MG/L	12/27/02	EPA 6020	NSH
thallium		<0.005	MG/L	12/27/02	EPA 6020	NSH
zinc		0.038	MG/L	12/27/02	EPA 6020	NSH

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TEST PERFORMED	RESULTS	UNITS	DATE/TIME PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 335303 CLIENT SAMPLE ID:	**WRL-MW6B-1202**			**DATE SAMPLED:**	**12/11/02**
ICP					
iron	1.57	MG/L	12/26/02	EPA 6010	NSH
magnesium	82.7	MG/L	12/26/02	EPA 6010	NSH
silica (sio2)	20.1	MG/L	12/27/02	EPA 6010	NSH
sodium	67.9	MG/L	12/26/02	EPA 6010	NSH
Metals Digestion			12/22/02	EPA 3005A	BDR

Wendy J. Umberger
Laboratory Director

12/27/2002
Print Date

All tests performed under NYS ELAP Laboratory Certification # 11375 unless otherwise stated.

Environmental
LABORATORY SERVICES

Appendix F

Landfill Inspection Checklists

LANDFILL CAP INSPECTION CHECKLIST
WITMER ROAD LANDFILL, NIAGARA FALLS, NEW YORK

EA Personnel:	Jim Hayward, Chris Canonica
Date:	27 Mar 2002
Weather:	Cloudy, 30°F

1. Inspection of ground surface for exposure of geotextile cover (cap erosion):
   NO DEFICIENCIES OBSERVED

2. Inspection of ground surface for differential settlement resulting in soil cracking or ponded water:
   NO DEFICIENCIES OBSERVED

3. Identification of stressed vegetation:
   NONE OBSERVED

4. Identification of seeps, rooted vegetation (trees), and/or animal burrows:
   NONE OBSERVED

5. Identification of deteriorating equipment (i.e., monitoring wells, fencing, or drainage structures):
   NONE OBSERVED

6. Inspection of stormwater drainage swales for erosion, sloughing, or flow-through:
   NO DEFICIENCIES OBSERVED

7. Inspection of east side of the landfill (Niagara Mohawk Power Corporation parcel) along the intermittent stream for the presence of erosion or sloughing:
   NO DEFICIENCIES OBSERVED

8. Inspection of access roads:
   NO DEFICIENCIES OBSERVED

LANDFILL CAP INSPECTION CHECKLIST
WITMER ROAD LANDFILL, NIAGARA FALLS, NEW YORK

EA Personnel:	John Clark
Date:	12 June 2001
Weather:	Clear, breezy, low 80s

1. Inspection of ground surface for exposure of geotextile cover (cap erosion):
   NO DEFICIENCIES OBSERVED

2. Inspection of ground surface for differential settlement resulting in soil cracking or ponded water:
   NO DEFICIENCIES OBSERVED

3. Identification of stressed vegetation:
   VEGETATION ON LANDFILL (GRASS), APPROXIMATELY 2- TO 3-FT HIGH, NEEDS TO BE CUT

4. Identification of seeps, rooted vegetation (trees), and/or animal burrows:
   NONE OBSERVED

5. Identification of deteriorating equipment (i.e., monitoring wells, fencing, or drainage structures):
   FENCE HAS BEEN CUT (SECOND OCCURANCE) ON THE EASTERN BOUNDARY

6. Inspection of stormwater drainage swales for erosion, sloughing, or flow-through:
   NO DEFICIENCIES OBSERVED

7. Inspection of east side of the landfill (Niagara Mohawk Power Corporation parcel) along the intermittent stream for the presence of erosion or sloughing:
   NO DEFICIENCIES OBSERVED

8. Inspection of access roads:
   NO DEFICIENCIES OBSERVED

LANDFILL CAP INSPECTION CHECKLIST
WITMER ROAD LANDFILL, NIAGARA FALLS, NEW YORK

EA Personnel:	Robert Casey
Date:	6 September 2002
Weather:	Clear, mid-70s

1. Inspection of ground surface for exposure of geotextile cover (cap erosion):
   NO DEFICIENCIES OBSERVED

2. Inspection of ground surface for differential settlement resulting in soil cracking or ponded water:
   NO DEFICIENCIES OBSERVED

3. Identification of stressed vegetation:
   VEGETATION ON LANDFILL (GRASS), APPROXIMATELY 1 FT HIGH

4. Identification of seeps, rooted vegetation (trees), and/or animal burrows:
   NONE OBSERVED

5. Identification of deteriorating equipment (i.e., monitoring wells, fencing, or drainage structures):
   NONE OBSERVED

6. Inspection of stormwater drainage swales for erosion, sloughing, or flow-through:
   NO DEFICIENCIES OBSERVED

7. Inspection of east side of the landfill (Niagara Mohawk Power Corporation parcel) along the intermittent stream for the presence of erosion or sloughing:
   NO DEFICIENCIES OBSERVED

8. Inspection of access roads:
   NO DEFICIENCIES OBSERVED; EAST AND NORTH ACCESS ROADS HAVE VEGETATION COMING THROUGH

LANDFILL CAP INSPECTION CHECKLIST
WITMER ROAD LANDFILL, NIAGARA FALLS, NEW YORK

EA Personnel:	Robert Casey
Date:	11 December 2002
Weather:	Clear and Sunny, low 20s

1. Inspection of ground surface for exposure of geotextile cover (cap erosion):
   NO DEFICIENCIES OBSERVED

2. Inspection of ground surface for differential settlement resulting in soil cracking or ponded water:
   NO DEFICIENCIES OBSERVED

3. Identification of stressed vegetation:
   NO DEFICIENCIES OBSERVED

4. Identification of seeps, rooted vegetation (trees), and/or animal burrows:
   NONE OBSERVED

5. Identification of deteriorating equipment (i.e., monitoring wells, fencing, or drainage structures):
   NONE OBSERVED

6. Inspection of stormwater drainage swales for erosion, sloughing, or flow-through:
   NO DEFICIENCIES OBSERVED

7. Inspection of east side of the landfill (Niagara Mohawk Power Corporation parcel) along the intermittent stream for the presence of erosion or sloughing:
   NO DEFICIENCIES OBSERVED

8. Inspection of access roads:
   NO DEFICIENCIES OBSERVED.

Appendix G

Analytical Summary Tables and Tag Maps

APPENDIX G SUMMARY OF ANALYTICAL RESULTS OF GROUND-WATER, SURFACE WATER, AND RELIEF PIPE SAMPLES COLLECTED IN MARCH 2002, AIRCO PARCEL, NIAGARA FALLS, NEW YORK

Ground Water

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		MW-1B	MW-2B	MW-3B	MW-4B	MW-5B	MW-6B	MW-6B (Dup)	MW-7B	MW-8B
Compound/Element	**AWQS**									
Chromium	0.05	(<0.005U)	**0.351**	(<0.005U)	**0.17**	0.007	0.006	0.006	**0.092**	**0.134**
Chromium, Hexavalent	0.05	(<0.01U)	**0.387**	(<0.01U)	**0.194**	(<0.01U)	(<0.01U)	(<0.01U)	**0.064**	0.036
Iron	0.3	**0.376**	**1**	0.244	**0.798**	**2.3**	**0.861**	**0.695**	**4.2**	**13.4**
Lead	0.025	(<0.005U)	0.005	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	**0.032**
Magnesium	35*	**58.6**	1	2.5	**49**	**74.4**	**84.1**	**82.5**	12.8	**62.3**
Manganese	0.3	**0.722**	0.024	0.007	0.013	0.054	0.134	0.114	0.139	**0.532**
Selenium	0.01	(<0.005U)	0.009	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	**0.052**
Silica	---	17.6	9.6	20.8	19.5	24.4	18.9	15.5	29.5	35.1
Sodium	20	**127**	**46.8**	**61.7**	**77**	**58.9**	**69.2**	**65.1**	**72.4**	**233**
Thallium	0.0005*	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	**0.009**
Zinc	2*	0.192	0.026	(<0.005U)	0.014	0.045	(<0.005U)	0.006	0.012	0.661

Water Quality Parameters (mg/L)

		MW-1B	MW-2B	MW-3B	MW-4B	MW-5B	MW-6B	MW-6B (Dup)	MW-7B	MW-8B
Compound/Element	**AWQS**									
Ammonia (expressed as N)	2	(<1U)	1.5	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Phenolics	0.001	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)
Sulfate	250	177	12.8	61.5	144	169	233	224	48.4	**457**

Surface Water

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		SS
Compound/Element	**AWQS**	
Chromium	---	0.016
Chromium, Hexavalent	0.016	(<0.01U)
Iron	0.3	**0.674**
Lead	---	(<0.005U)
Magnesium	---	41.1
Manganese	---	0.019
Selenium	0.0046	**0.006**
Silica	---	18.3
Sodium	---	68
Thallium	0.02	0.008
Zinc	---	(<0.005U)

Water Quality Parameters (mg/L)

		SS
Compound/Element	**AWQS**	
Ammonia (expressed as N)	---	13.3
Phenolics	---	0.011
Sulfate	---	406

Leachate

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		L1
Compound/Element	**AWQS**	
Chromium	---	0.532
Chromium, Hexavalent	0.016	**0.562**
Iron	0.3	(<0.025U)
Lead	---	(<0.005U)
Magnesium	---	(<1U)
Manganese	---	(<0.005U)
Selenium	0.0046	**0.023**
Silica	---	0.4
Sodium	---	78.5
Thallium	0.02	(<0.005U)
Zinc	---	(<0.005U)

Water Quality Parameters (mg/L)

		L1
Compound/Element	**AWQS**	
Ammonia (expressed as N)	---	4.9
Phenolics	---	0.01
Sulfate	---	10.4

QA/QC

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		Rinse Blank	Source Water Blank
Compound/Element	**AWQS**		
Chromium	---	(<0.005U)	(<0.005U)
Chromium, Hexavalent	---	(<0.01U)	(<0.01U)
Iron	---	(<0.025U)	(<0.025U)
Lead	---	(<0.005U)	(<0.005U)
Magnesium	---	(<1U)	(<1U)
Manganese	---	(<0.005U)	(<0.005U)
Selenium	---	(<0.005U)	(<0.005U)
Silica	---	(<0.107U)	(<0.107U)
Sodium	---	(<1U)	(<1U)
Thallium	---	0.007	(<0.005U)
Zinc	---	(<0.005U)	(<0.005U)

Water Quality Parameters (mg/L)

		Rinse Blank	Source Water Blank
Compound/Element	**AWQS**		
Ammonia (expressed as N)	---	(<1U)	(<1U)
Phenolics	---	(<0.002U)	(<0.002U)
Sulfate	---	(<2U)	(<2U)

TABLE NOTES

AWQS	=	New York State Ambient Water Quality Standards and Guidance Values from Water Quality Regulations, Title 6, Chapter X Parts 700-706 August 1999.
*	=	Indicates guidance value.
---	=	Indicates no standard or guidance value exists.
U	=	Not detected. Sample quantitation limits shown as (<__U).

Only those analytes detected in at least one of the samples is shown on this table.
Results shaded and in boldface indicate concentrations in excess of New York State Ambient Water Quality Standards or Guidance Values.

Analytical Methods for Water Quality Parameters

Ammonia (expressed as Nitrogen)	=	EPA 350.2
Phenolics	=	EPA 420.2
Sulfate	=	EPA 375.3

APPENDIX G SUMMARY OF ANALYTICAL RESULTS OF GROUND-WATER, SURFACE WATER, AND RELIEF PIPE SAMPLES COLLECTED IN JUNE 2002, AIRCO PARCEL, NIAGARA FALLS, NEW YORK

Ground Water

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

Compound/Element	AWQS	MW-1B	MW-2B	MW-3B	MW-4B	MW-5B	MW-6B	MW-6B (Dup)	MW-7B	MW-8B
Cadmium	0.005	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	**0.008**	(<0.005U)	(<0.005U)	**0.014**	(<0.005U)
Chromium	0.05	(<0.005U)	**0.369**	(<0.005U)	**0.185**	0.008	0.018	0.008	**0.173**	**0.088**
Chromium, Hexavalent	0.05	(<0.01U)	**0.416**	(<0.01U)	**0.2**	(<0.01U)	(<0.01U)	(<0.01U)	**0.0612**	**0.0583**
Iron	0.3	**0.521**	**0.385**	0.11	**3.8**	**4.5**	**1.3**	**0.863**	**16.1**	**1.5**
Lead	0.025	(<0.005U)	(<0.005U)	(<0.005U)	0.005	(<0.005U)	(<0.005U)	(<0.005U)	0.008	(<0.005U)
Magnesium	35*	**63.9**	(<1U)	1.8	**44**	**74.6**	**79.2**	**81.7**	16	**61**
Manganese	0.3	**0.816**	0.006	(<0.005U)	0.066	0.119	0.139	0.108	0.258	0.079
Selenium	0.01	(<0.005U)	0.007	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	**0.07**
Silica	---	19.2	3.3	20.4	24.6	26	19.2	17.7	87.2	22.8
Sodium	20	**137**	**49.1**	**64.8**	**123**	**104**	**72**	**81.8**	**67.1**	**205**
Thallium	0.0005*	(<0.005U)	(<0.005U)	(<0.005U)	**0.006**	(<0.005U)	(<0.005U)	**0.005**	**0.006**	(<0.005U)
Zinc	2*	0.248	(<0.005U)	(<0.005U)	0.035	0.062	(<0.005U)	0.021	0.063	0.232

Water Quality Parameters (mg/L)

Compound/Element	AWQS	MW-1B	MW-2B	MW-3B	MW-4B	MW-5B	MW-6B	MW-6B (Dup)	MW-7B	MW-8B
Ammonia (expressed as N)	2	(<1U)	1.3	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Phenolics	0.001	(<0.002U)	(<0.002U)	**0.0026**	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)
Sulfate	250	170	14.7	25	142	148	201	204	36.3	**365**

Surface Water

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		SS
Compound/Element	**AWQS**	
Cadmium	---	(<0.005U)
Chromium	---	0.559
Chromium, Hexavalent	0.016	**0.402**
Iron	0.3	**9.3**
Lead	---	0.033
Magnesium	---	170
Manganese	---	0.215
Selenium	0.0046	**0.03**
Silica	---	53.3
Sodium	---	127
Thallium	0.02	(<0.005U)
Zinc	---	0.082

Water Quality Parameters (mg/L)

		SS
Compound/Element	**AWQS**	
Ammonia (expressed as N)	---	4.5
Phenolics	---	0.0594
Sulfate	---	10.7

Ground Water Relief Pipe

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		L1
Compound/Element	**AWQS**	
Cadmium	---	(<0.005U)
Chromium	---	0.49
Chromium, Hexavalent	0.016	**0.525**
Iron	0.3	(<0.025U)
Lead	---	(<0.005U)
Magnesium	---	(<1U)
Manganese	---	(<0.005U)
Selenium	0.0046	**0.02**
Silica	---	0.476
Sodium	---	90.6
Thallium	0.02	(<0.005U)
Zinc	---	(<0.005U)

Water Quality Parameters (mg/L)

		L1
Compound/Element	**AWQS**	
Ammonia (expressed as N)	---	4.7
Phenolics	---	0.013
Sulfate	---	11.5

QA/QC

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		Rinse Blank	Source Water Blank
Compound/Element	**AWQS**		
Cadmium	---	(<0.005U)	(<0.005U)
Chromium	---	(<0.005U)	(<0.005U)
Chromium, Hexavalent	---	(<0.01U)	(<0.01U)
Iron	---	(<0.025U)	(<0.025U)
Lead	---	(<0.005U)	(<0.005U)
Magnesium	---	(<1U)	(<1U)
Manganese	---	(<0.005U)	(<0.005U)
Selenium	---	(<0.005U)	(<0.005U)
Silica	---	0.32	0.32
Sodium	---	(<1U)	(<1U)
Thallium	---	0.005	(<0.005U)
Zinc	---	(<0.005U)	(<0.005U)

Water Quality Parameters (mg/L)

		Rinse Blank	Source Water Blank
Compound/Element	**AWQS**		
Ammonia (expressed as N)	---	(<1U)	(<1U)
Phenolics	---	(<0.002U)	0.0254
Sulfate	---	(<2U)	(<2U)

TABLE NOTES

AWQS	=	New York State Ambient Water Quality Standards and Guidance Values from Water Quality Regulations, Title 6, Chapter X Parts 700-706 August 1999.
*	=	Indicates guidance value.
---	=	Indicates no standard or guidance value exists.
U	=	Not detected. Sample quantitation limits shown as (<__U).

Only those analytes detected in at least one of the samples is shown on this table.
Results shaded and in boldface indicate concentrations in excess of New York State Ambient Water Quality Standards or Guidance Values.

Analytical Methods for Water Quality Parameters

Ammonia (expressed as Nitrogen)	=	EPA 350.2
Phenolics	=	EPA 420.2
Sulfate	=	EPA 375.3

APPENDIX G SUMMARY OF ANALYTICAL RESULTS OF GROUND-WATER, SURFACE WATER, AND RELIEF PIPE SAMPLES COLLECTED IN SEPTEMBER 2002, AIRCO PARCEL, NIAGARA FALLS, NEW YORK

Ground Water

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		MW-1B	MW-2B	MW-3B	MW-5B	MW-6B	MW-6B (Dup)	MW-7B	MW-8B
Compound/Element	**AWQS**								
Cadmium	0.005	(<0.005U)	(<0.005U)	(<0.005U)		(<0.005U)	(<0.005U)	(<0.005U)	**0.007**
Chromium	0.05	0.019	**0.385**	0.006		(<0.005U)	0.007	**0.189**	**0.132**
Chromium, Hexavalent	0.05	(<0.01U)	**0.4**	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	**0.16**	**0.09**
Iron	0.3	**2.43**	0.213	**2.87**		0.268	**0.466**	**22.9**	**39**
Lead	0.025	0.008	(<0.005U)	0.005		(<0.005U)	(<0.005U)	0.01	**0.073**
Magnesium	35*	**68.8**	(<1U)	9.5		**77.1**	**81.4**	21.7	**108**
Manganese	0.3	**0.844**	0.007	0.056		0.128	0.128	**0.488**	**1.36**
Selenium	0.01	(<0.005U)	0.007	(<0.005U)		(<0.005U)	(<0.005U)	(<0.005U)	**0.064**
Silica	---	18.8	1.7	16.6		11.6	12.6	42.1	52.8
Sodium	20	**127**	**55.2**	**70.3**		**73.1**	**70.6**	**69**	**185**
Zinc	2*	0.237	(<0.005U)	0.041		(<0.005U)	(<0.005U)	0.066	0.59

Water Quality Parameters (mg/L)

Total (Unfiltered)

		MW-1B	MW-2B	MW-3B	MW-5B	MW-6B	MW-6B (Dup)	MW-7B	MW-8B
Compound/Element	**AWQS**								
Ammonia (expressed as N)	2	(<1U)	**2.5**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Phenolics	0.001	**0.009**	**0.01**	(<0.002U)	0	(<0.002U)	(<0.002U)	**0.003**	(<0.002U)
Sulfate	250	206	14.3	44.9		213	211	33.5	**398**

Ground Water Relief Pipe

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		L1
Compound/Element	**AWQS**	
Cadmium	---	(<0.005U)
Chromium	---	0.413
Chromium, Hexavalent	0.016	**0.41**
Iron	0.3	(<0.025U)
Lead	---	(<0.005U)
Magnesium	---	(<1U)
Manganese	---	(<0.005U)
Selenium	0.0046	**0.018**
Silica	---	0.346
Sodium	---	81.1
Zinc	---	(<0.005U)

Water Quality Parameters (mg/L)

Total (Unfiltered)

		L1
Compound/Element	**AWQS**	
Ammonia (expressed as N)	---	5.6
Phenolics	---	0.019
Sulfate	---	9.09

QA/QC

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		Rinse Blank	Source Water Blank
Compound/Element	**AWQS**		
Cadmium	---	(<0.005U)	(<0.005U)
Chromium	---	(<0.005U)	(<0.005U)
Chromium, Hexavalent	---	(<0.01U)	(<0.01U)
Iron	---	(<0.025U)	(<0.025U)
Lead	---	(<0.005U)	(<0.005U)
Magnesium	---	(<1U)	(<1U)
Manganese	---	(<0.005U)	(<0.005U)
Selenium	---	(<0.005U)	(<0.005U)
Silica	---	(<0.107U)	(<0.107U)
Sodium	---	(<1U)	(<1U)
Zinc	---	(<0.005U)	(<0.005U)

Water Quality Parameters (mg/L)

		Rinse Blank	Source Water Blank
Compound/Element	**AWQS**		
Ammonia (expressed as N)	---	(<1U)	(<1U)
Phenolics	---	(<0.002U)	(<0.002U)
Sulfate	---	(<2U)	(<2U)

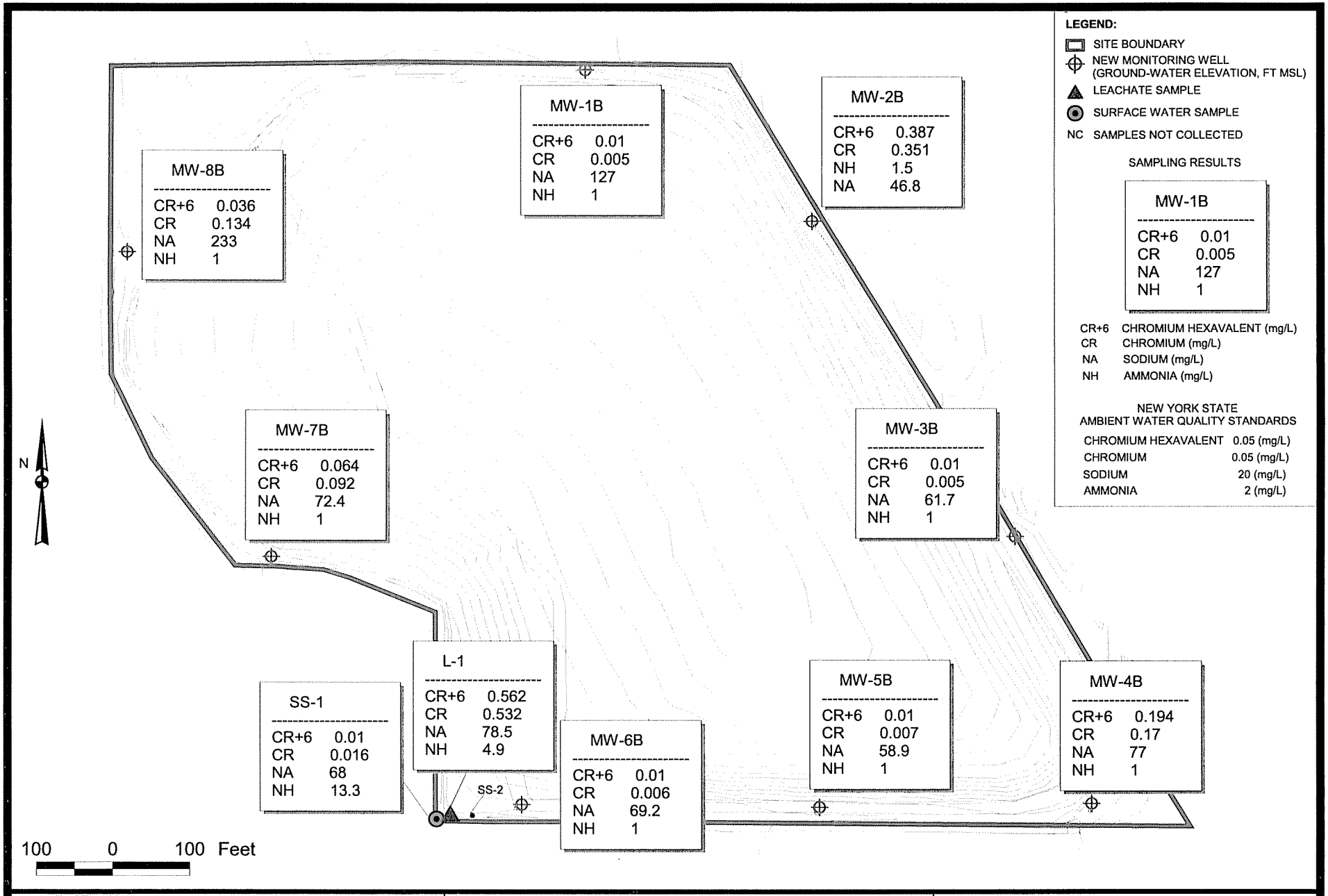
TABLE NOTES

AWQS	=	New York State Ambient Water Quality Standards and Guidance Values from Water Quality Regulations, Title 6, Chapter X Parts 700-706 August 1999.
*	=	Indicates guidance value.
---	=	Indicates no standard or guidance value exists.
U	=	Not detected. Sample quantitation limits shown as (<__U).

Only those analytes detected in at least one of the samples is shown on this table.
Results shaded and in boldface indicate concentrations in excess of New York State Ambient Water Quality Standards or Guidance Values.

Analytical Methods for Water Quality Parameters

Ammonia (expressed as Nitrogen)	=	EPA 350.2
Phenolics	=	EPA 420.2
Sulfate	=	EPA 375.3



EA ENGINEERING, P.C. AND ITS AFFILIATE EA ENGINEERING, SCIENCE, AND TECHNOLOGY	AIRCO PARCEL NIAGARA FALLS, NEW YORK	MARCH 2002 SAMPLING RESULTS

PROJECT MGR	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	DATE	PROJECT No	FILE No
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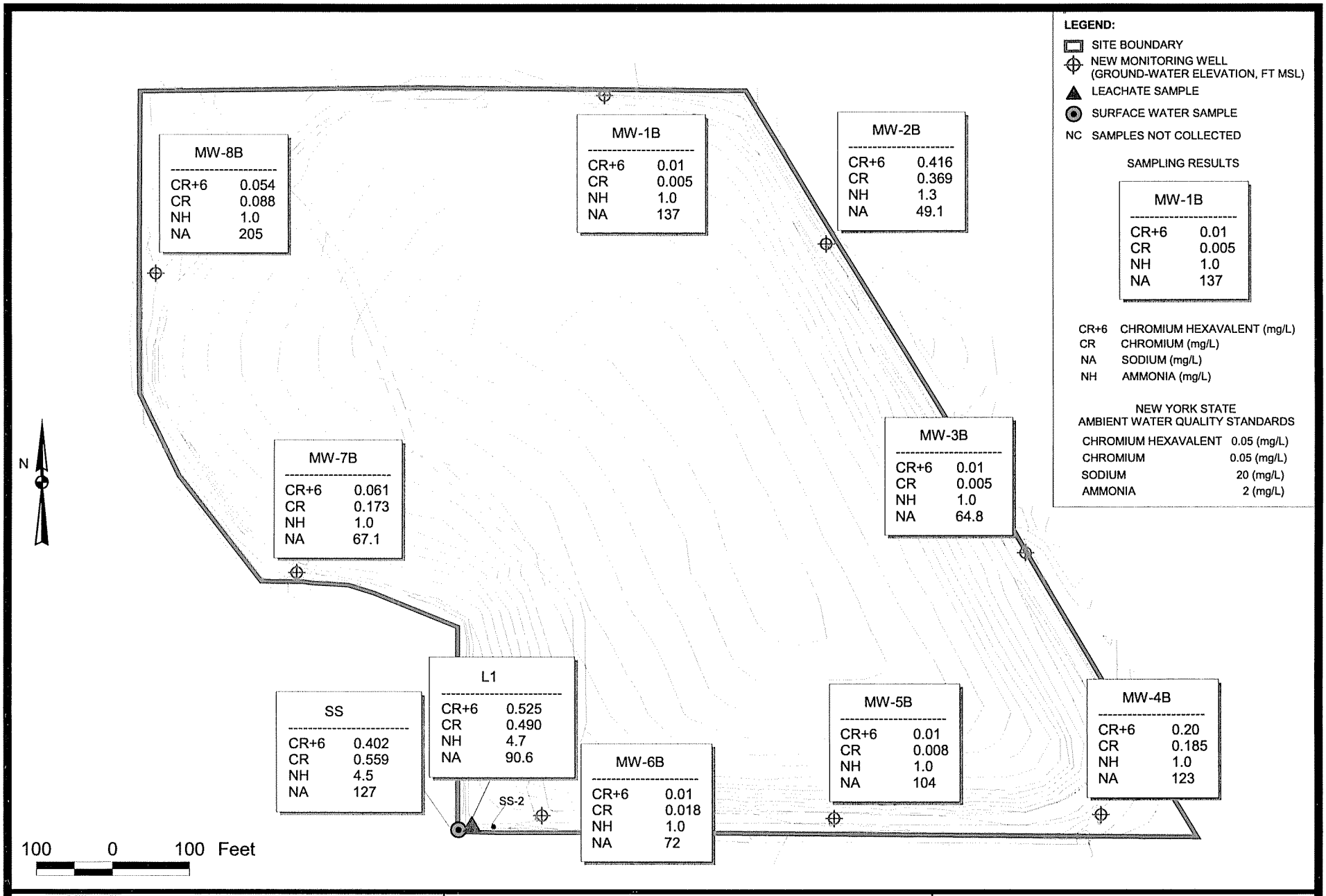
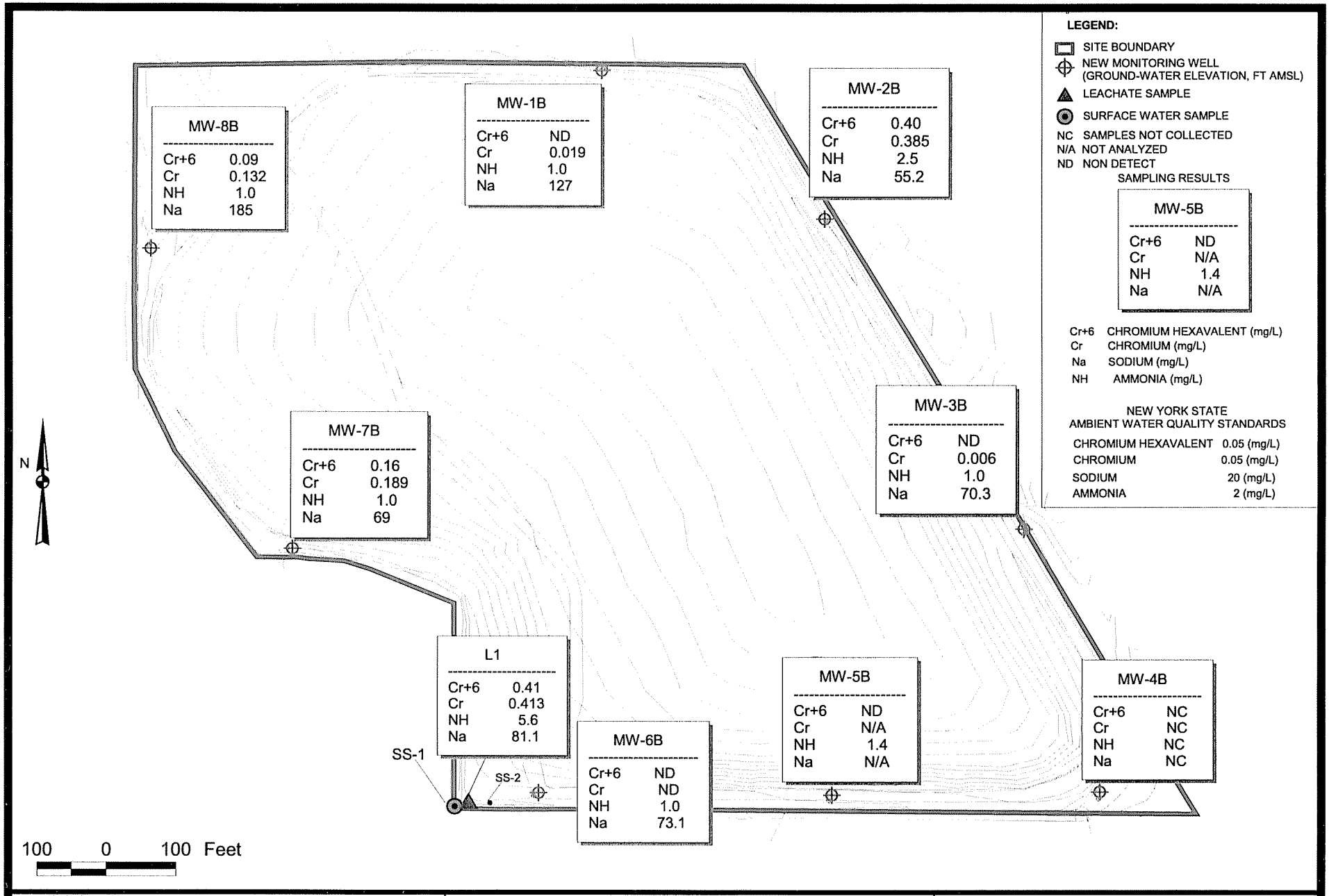


EA ENGINEERING, P.C. AND ITS AFFILIATE
EA ENGINEERING,
SCIENCE, AND TECHNOLOGY

AIRCO PARCEL
NIAGARA FALLS, NEW YORK

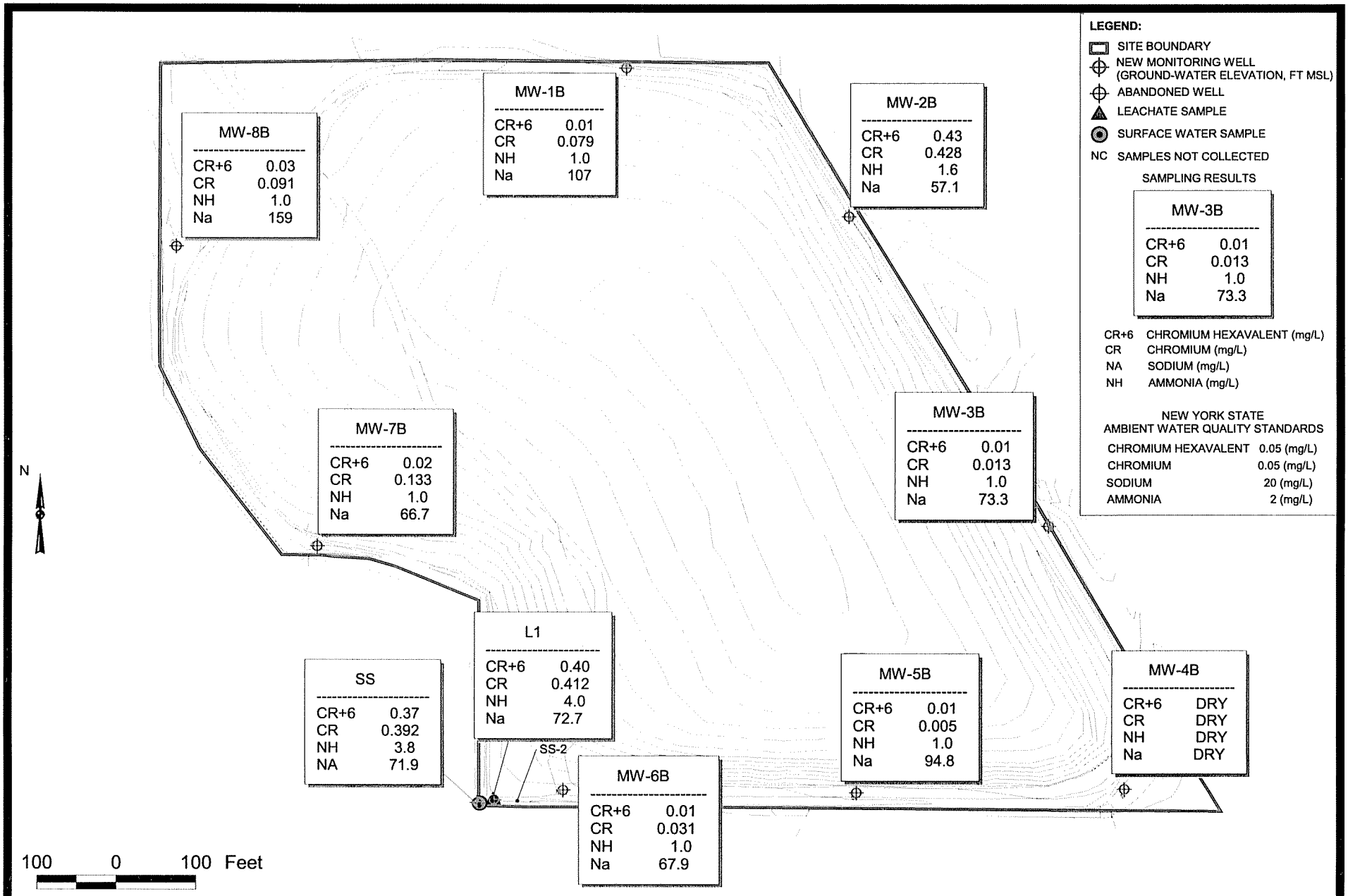
JUNE 2002 SAMPLING RESULTS

PROJECT MGR	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	DATE	PROJECT No	FILE No
CEM	RSC	RSC	SLG	AS SHOWN	30 JUNE 2002	12040.69	G:\BOC-NIAGARA-GIS\ FINAL02.APR



EA ENGINEERING, P.C. AND ITS AFFILIATE EA ENGINEERING, SCIENCE, AND TECHNOLOGY	AIRCO PARCEL NIAGARA FALLS, NEW YORK	SEPTEMBER 2002 SAMPLING RESULTS

PROJECT MGR	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	DATE	PROJECT No	FILE No
CEM	RSC	RSC	SLG	AS SHOWN	5 SEPTEMBER 2002	12040.69	G:\BOC-NIAGARA-GIS\ FINAL02.APR



EA ENGINEERING, P.C. ITS AFFILIATE
EA ENGINEERING, SCIENCE, AND TECHNOLOGY

AIRCO PARCEL
NIAGARA FALLS, NEW YORK

DECEMBER 2002 SAMPLING RESULTS

PROJECT MGR	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	DATE	PROJECT No	FILE No
CEM	RSC	RSC	SLG	AS SHOWN	11 DECEMBER 2002	12040.69	G:\BOC-NIAGARA-GIS\ FINAL02.APR

Appendix H

National Weather Service Precipitation Data
March–October 2002

National Weather Service
Buffalo, New York

NOTE: The data contained on this page is PRELIMINARY.
It may contain errors. Official climate data is available from
the National Climate Data Center.

Preliminary Local Climatological Data (WS Form: F-6)

Station: Buffalo NY
Month: March
Year: 2002

	Temperature in F						Pcpn	Snow		Wind			Sunshine		Sky	
							Columns									
1	2	3	4	5	6a	6b	7	8	9	10	11	12	13	14	15	16	17
Dy	Max	Min	Avg	Dep	HDD	CDD	Wtr	Snw	Dpth	Avg Spd	Dir		Min	Psbl	S-S	Wx	Sp
1	34	23	29	0	36	0	0.05	1.2	6	14.6	28	24	357	53	1		3
2	50	23	37	7	28	0	0.10	0.0	4	14.9	37	16	324	48			4
3	49	22	36	6	29	0	0.19	T	0	20.8	43	24	18	3	1		5
4	22	15	19	-11	46	0	T	T	0	14.5	25	25	263	39			3
5	28	13	21	-10	44	0	0.09	1.8	T	12.0	26	24	75	11	1		3
6	40	27	34	3	31	0	0.22	3.6	4	6.7	18	25	394	57	1,8		2
7	32	27	30	-1	35	0	0.07	0.4	T	9.3	16	06	0	0	1		1
8	64	29	47	16	18	0	T	0.0	T	9.3	23	19	350	50	1,8		2
9	69	29	49	17	16	0	0.26	T	0	20.3	48	24	347	50	1		6
10	30	20	25	-7	40	0	0.27	2.7	1	27.0	48	24	162	23	1,9		5
11	33	19	26	-7	39	0	0.00	0.0	T	11.1	23	25	468	67			2
12	43	32	38	5	27	0	0.09	T	T	9.8	26	24	323	46	1		3
13	54	32	43	10	22	0	0.00	0.0	0	7.7	15	23	309	44			1
14	50	34	42	8	23	0	0.00	0.0	0	9.8	21	09	422	59			2
15	63	34	49	15	16	0	0.12	0.0	0	11.7	26	26	185	26	1		3
16	43	26	35	1	30	0	0.05	0.0	0	7.4	18	36	231	32	1		2
17	39	24	32	-3	33	0	0.07	T	0	12.2	23	08	265	37	1,4		2
18	41	34	38	3	27	0	0.06	0.0	0	13.3	26	23	0	0	1		3
19	41	32	37	2	28	0	0.00	0.0	0	7.4	18	08	126	17			2
20	42	35	39	3	26	0	0.34	0.0	0	8.7	18	31	2	0	1		2
21	41	17	29	-7	36	0	0.07	0.7	0	16.2	35	24	33	5	1		4
22	23	15	19	-17	46	0	0.12	4.2	3	17.5	26	27	452	61	9		3
23	37	22	30	-7	35	0	0.03	0.6	3	20.7	40	24	11	1	9		5
24	37	26	32	-5	33	0	T	T	T	5.8	22	36	341	46			2
25	27	19	23	-14	42	0	0.01	0.3	T	14.3	21	05	325	44	1		2
26	34	24	29	-9	36	0	0.31	0.3	1	11.6	20	07	0	0	1,4,6		2
27	36	28	32	-6	33	0	0.01	0.1	T	11.1	20	24	157	21	1		2
28	42	27	35	-3	30	0	0.00	0.0	0	7.8	16	24	749	100			2
29	60	35	48	9	17	0	0.69	0.0	0	9.2	23	19	199	26	1		2
30	52	36	44	5	21	0	0.06	0.0	0	15.1	29	23	392	52	1		3
31	51	33	42	3	23	0	0.00	0.0	0	6.2	13	25	545	72			1
Sm	1307	812		6	946	0	3.28	15.9		384.0			7825				

```
================================================================================
Avg
   42.2 26.2 34.2                          12.4


Notes:
Column 17 Peak Wind in M.P.H.



Preliminary Local Climatological Data (WS Form: F-6) , Page 2
                                        Station:   Buffalo NY
                                        Month:     March
                                        Year:      2002

  Temperature Data       Precipitation Data        SYMBOLS USED IN COLUMN 16

Average Monthly: 34.2   Total for Month:  3.28     1 = FOG
Dptr fm normal:  -0.1    Dptr fm normal: 0.29      2 = FOG REDUCING VISIBILITY
Highest:  69 on     9   Grtst 24hr 0.75 on 29-30      TO 1/4 MILE OR LESS
Lowest:   13 on     5                             3 = THUNDER
                        SNOW, ICE PELLETS, HAIL   4 = ICE PELLETS
                        Total month:  15.9        5 = HAIL
                        Grtst 24hr   4.9  on21-22  6 = GLAZE OR RIME
                        Grtst depth:  6 on  1     7 = BLOWING DUST OR SAND
                        Seasonal Total: 129.9         VSBY 1/2 MILE OR LESS
                                                  8 = SMOKE OR HAZE
 No. of Days with        WEATHER - Days with      9 = BLOWING SNOW
                                                  x = TORNADO

Max 32 or below:  6     0.01 inch or more: 22
Max 90 or above:  0     0.10 inch or more: 10
Min 32 or below: 24     0.50 inch or more:  1
Min  0 or below:  0     1.00 inch or more:  0

 HDD (Base 65)
Total this Mo.  946
Dptr fm normal  -21
Seasonal total 4859
Dptr fm normal -956

 CDD  (Base 65)
Total this Mo.    0
Dptr fm normal    0          Pressure Data
Seasonal total    0      Highest SLP 30.52 on  1
Dptr fm normal    0      Lowest  SLP 29.46 on 30
```

National Weather Service
Buffalo, New York

NOTE: The data contained on this page is PRELIMINARY.
It may contain errors. Official climate data is available from
the National Climate Data Center.

Preliminary Local Climatological Data (WS Form: F-6)

Station: Buffalo NY
Month: April
Year: 2002

	Temperature in F						:Pcpn	:Snow :		Wind			:Sunshine:		Sky	:P
							Columns									
1	2	3	4	5	6a	6b	7	8	9	10	11	12	13	14	15	16	17
Dy	Max	Min	Avg	Dep	HDD	CDD	Wtr	Snw	Dpth	Avg Spd		Dir	Min	Psbl	S-S	Wx	Sp
1	42	32	37	-3	28	0	0.26	0.1	T	12.4	26	24	31	4		1	3
2	48	30	39	-1	26	0	0.91	T	0	8.4	21	12	0	0		1,8	2
3	45	30	38	-3	27	0	0.09	T	0	14.6	24	23	75	10		1	3
4	34	27	31	-10	34	0	0.03	0.5	0	9.9	18	27	136	18		1	2
5	34	27	31	-10	34	0	0.02	0.8	T	7.6	15	23	81	10		1	1
6	36	25	31	-11	34	0	0.06	1.1	1	7.5	17	24	484	62		1	2
7	47	23	35	-7	30	0	0.00	0.0	0	5.3	15	18	327	42			2
8	57	43	50	8	15	0	0.12	0.0	0	10.0	24	20	80	10		1	2
9	61	41	51	8	14	0	0.08	0.0	0	13.5	26	24	54	7		1	3
10	52	35	44	1	21	0	0.00	0.0	0	6.9	14	20	785	100			1
11	73	41	57	14	8	0	0.00	0.0	0	10.6	23	170	713	90			
12	69	52	61	17	4	0	0.15	0.0	0	12.9	25	20	361	45		1	3
13	55	46	51	7	14	0	0.89	0.0	0	4.7	10	31	0	0		2	1
14	64	46	55	10	10	0	0.40	0.0	0	5.4	17	23	160	20		2,3	2
15	71	50	61	16	4	0	0.00	0.0	0	9.7	21	22	280	35		1,2	2
16	77	58	68	23	0	3	0.00	0.0	0	10.1	24	24	807	100		1	2
17	75	57	66	20	0	1	0.00	0.0	0	13.2	28	24	810	100			3
18	81	51	66	20	0	1	0.00	0.0	0	6.9	14	24	803	99		1,8	1
19	73	49	61	14	4	0	0.20	0.0	0	10.9	30	28	621	76		1,3	3
20	54	37	46	-1	19	0	0.04	0.0	0	8.1	16	34	293	36		8	2
21	41	33	37	-10	28	0	0.01	T	0	10.5	20	09	258	31			2
22	36	31	34	-14	31	0	0.08	0.1	T	11.1	21	08	0	0		1,4	2
23	48	27	38	-10	27	0	0.00	0.0	0	11.2	26	24	826	100			3
24	62	31	47	-2	18	0	0.00	0.0	0	6.4	13	14	828	100			1
25	57	38	48	-1	17	0	0.21	0.0	0	15.6	32	24	257	31		1	3
26	45	36	41	-8	24	0	0.00	0.0	0	9.8	18	26	411	49			2
27	52	30	41	-9	24	0	0.02	0.0	0	7.0	20	07	590	71			2
28	53	35	44	-7	21	0	0.74	0.0	0	12.1	26	08	14	2		1,3	3
29	42	33	38	-13	27	0	0.03	T	0	10.0	17	23	0	0		1,4	2
30	53	40	47	-4	18	0	0.04	0.0	0	13.4	25	32	308	36		1	3
Sm	1637	1134		34	561	5	4.38	2.6		295.7			10393				

Avg
54.6 37.8 46.2 9.9

Notes:
Column 17 Peak Wind in M.P.H.

Preliminary Local Climatological Data (WS Form: F-6) , Page 2
Station: Buffalo NY
Month: April
Year: 2002

Temperature Data	Precipitation Data	SYMBOLS USED IN COLUMN 16
Average Monthly: 46.2	Total for Month: 4.38	1 = FOG
Dptr fm normal: 0.9	Dptr fm normal: 1.34	2 = FOG REDUCING VISIBILITY
Highest: 81 on 18	Grtst 24hr 1.04 on 12-13	TO 1/4 MILE OR LESS
Lowest: 23 on 7		3 = THUNDER
	SNOW, ICE PELLETS, HAIL	4 = ICE PELLETS
	Total month: 2.6	5 = HAIL
	Grtst 24hr 1.9 on 5-6	6 = GLAZE OR RIME
	Grtst depth: 1 on 6	7 = BLOWING DUST OR SAND
	Seasonal Total: 132.5	VSBY 1/2 MILE OR LESS
		8 = SMOKE OR HAZE
No. of Days with	WEATHER - Days with	9 = BLOWING SNOW
		x = TORNADO
Max 32 or below: 0	0.01 inch or more: 20	
Max 90 or above: 0	0.10 inch or more: 9	
Min 32 or below: 11	0.50 inch or more: 3	
Min 0 or below: 0	1.00 inch or more: 0	

HDD (Base 65)
Total this Mo. 561
Dptr fm normal -33
Seasonal total 5420
Dptr fm normal -989

CDD (Base 65)
Total this Mo. 5
Dptr fm normal 1
Seasonal total 5
Dptr fm normal 1

Pressure Data
Highest SLP 30.55 on 10
Lowest SLP 29.38 on 28

National Weather Service
Buffalo, New York

NOTE: The data contained on this page is PRELIMINARY.
It may contain errors. Official climate data is available from
the National Climate Data Center.

Preliminary Local Climatological Data (WS Form: F-6)

Station: Buffalo NY
Month: May
Year: 2002

Temperature in F							Pcpn	Snow		Wind			Sunshine		Sky	P
Columns																
1	2	3	4	5	6a	6b	7	8	9	10	11	12	13	14	15	16	17
Dy	Max	Min	Avg	Dep	HDD	CDD	Wtr	Snw	Dpth	Avg Spd		Dir	Min	Psbl	S-S	Wx	Sp
1	57	36	47	-5	18	0	T	0.0	0	7.4	16	10	749	89			1
2	53	41	47	-5	18	0	0.39	0.0	0	14.4	26	30	0	0	1		3
3	48	36	42	-10	23	0	0.00	0.0	0	13.9	26	28	468	55			3
4	63	31	47	-5	18	0	0.00	0.0	0	6.1	15	03	854	100			1
5	66	38	52	-1	13	0	0.00	0.0	0	9.2	18	23	771	90			2
6	75	55	65	12	0	0	0.12	0.0	0	12.0	24	26	250	29	1		3
7	67	44	56	2	9	0	0.07	0.0	0	10.9	21	24	149	17	1		2
8	53	42	48	-6	17	0	0.24	0.0	0	13.3	21	09	167	19	1		2
9	76	50	63	9	2	0	0.38	0.0	0	15.7	35	25	202	23	1,3		4
10	55	43	49	-6	16	0	0.00	0.0	0	19.6	38	23	855	99			5
11	57	37	47	-8	18	0	0.01	0.0	0	5.6	16	07	614	71			1
12	51	44	48	-7	17	0	0.84	0.0	0	9.1	17	09	0	0	1		2
13	45	42	44	-12	21	0	1.17	0.0	0	9.9	16	28	0	0	1		2
14	49	40	45	-12	20	0	0.26	0.0	0	14.9	30	30	34	4	1		3
15	52	37	45	-12	20	0	0.00	0.0	0	12.4	25	22	879	100			2
16	68	44	56	-1	9	0	0.37	0.0	0	16.9	29	22	302	34	1		3
17	55	41	48	-10	17	0	0.03	0.0	0	6.7	21	32	38	4	1		2
18	47	37	42	-16	23	0	0.12	0.0	0	9.9	20	05	70	8	1		2
19	45	34	40	-18	25	0	T	T	0	8.6	16	31	303	34	4		2
20	45	33	39	-20	26	0	T	T	0	6.8	15	29	166	19			2
21	52	37	45	-14	20	0	0.00	0.0	0	10.3	22	23	394	44			2
22	57	36	47	-12	18	0	0.00	0.0	0	10.2	17	22	893	100			2
23	70	41	56	-4	9	0	0.00	0.0	0	11.3	25	23	894	100			3
24	66	41	54	-6	11	0	0.20	0.0	0	12.4	25	23	150	17	1,3,8		3
25	67	38	53	-7	12	0	0.33	0.0	0	10.2	22	18	566	63	1,3		2
26	62	46	54	-6	11	0	T	0.0	0	11.6	25	24	577	64	1		3
27	76	43	60	-1	5	0	0.00	0.0	0	4.0	12	03	898	100			1
28	80	51	66	4	0	1	0.00	0.0	0	7.4	17	03	885	98			2
29	81	61	71	9	0	6	0.00	0.0	0	7.3	15	25	702	78			2
30	75	64	70	8	0	5	0.24	0.0	0	9.7	18	23	339	37	1,3,8		2
31	77	59	68	6	0	3	0.46	0.0	0	14.4	32	24	427	47	1,3,8		4
Sm	1890	1322		-154	416	15	5.23	T		332.1			13596				

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================================================================================
Avg
   61.0 42.6 51.8                          10.7


Notes:
Column 17 Peak Wind in M.P.H.
```

Preliminary Local Climatological Data (WS Form: F-6) , Page 2

Station: Buffalo NY
Month: May
Year: 2002

Temperature Data

Average Monthly: 51.8
Dptr fm normal: -5.2
Highest: 81 on 29
Lowest: 31 on 4

Precipitation Data

Total for Month: 5.23
Dptr fm normal: 1.88
Grtst 24hr 1.23 on 13-14

SNOW, ICE PELLETS, HAIL
Total month: T
Grtst 24hr T on19-20
Grtst depth: 0 on 31
Seasonal Total: 132.5

SYMBOLS USED IN COLUMN 16

1 = FOG
2 = FOG REDUCING VISIBILITY TO 1/4 MILE OR LESS
3 = THUNDER
4 = ICE PELLETS
5 = HAIL
6 = GLAZE OR RIME
7 = BLOWING DUST OR SAND VSBY 1/2 MILE OR LESS
8 = SMOKE OR HAZE
9 = BLOWING SNOW
x = TORNADO

No. of Days with

Max 32 or below: 0
Max 90 or above: 0
Min 32 or below: 1
Min 0 or below: 0

WEATHER - Days with

0.01 inch or more: 16
0.10 inch or more: 13
0.50 inch or more: 2
1.00 inch or more: 1

HDD (Base 65)
Total this Mo. 416
Dptr fm normal 137
Seasonal total 5836
Dptr fm normal -852

CDD (Base 65)
Total this Mo. 15
Dptr fm normal -11
Seasonal total 20
Dptr fm normal -10

Pressure Data

Highest SLP 30.51 on 11
Lowest SLP 29.31 on 2

National Weather Service
Buffalo, New York

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the National Climate Data Center or the Northeast Regional Climate Center.

Preliminary Local Climatological Data (WS Form: F-6)

Station: Buffalo NY
Month: June
Year: 2002

	Temperature in F						:Pcpn	:Snow :		Wind			:Sunshine:		Sky	:P
							Columns									
1	2	3	4	5	6a	6b	7	8	9	10	11	12	13	14	15	16	17
Dy	Max	Min	Avg	Dep	HDD	CDD	Wtr	Snw	Dpth	Avg Spd		Dir	Min	Psbl	S-S	Wx	Sp
1	68	59	64	2	1	0	0.01	0.0	0	13.5	26	24	890	98			3
2	65	48	57	-5	8	0	0.05	0.0	0	10.9	21	32	865	95	1		2
3	62	44	53	-9	12	0	T	0.0	0	6.4	14	36	466	51			1
4	69	49	59	-3	6	0	0.16	0.0	0	6.2	13	07	215	24	1,3		1
5	76	56	66	3	0	1	0.19	0.0	0	11.8	26	24	261	29	1,3		3
6	61	50	56	-8	9	0	0.16	0.0	0	8.9	17	07	151	17	1		2
7	73	45	59	-5	6	0	0.00	0.0	0	4.0	13	03	914	100			1
8	76	52	64	0	1	0	0.00	0.0	0	8.9	17	23	864	94			2
9	76	63	70	6	0	5	0.00	0.0	0	7.4	16	23	424	46	1,8		1
10	82	58	70	5	0	5	0.00	0.0	0	5.0	13	10	914	100	1,8		1
11	82	66	74	9	0	9	T	0.0	0	13.8	26	24	797	87	1		3
12	74	59	67	2	0	2	0.02	0.0	0	9.9	22	24	0	0	1		2
13	72	57	65	0	0	0	0.01	0.0	0	8.9	14	09	168	18	1		1
14	69	60	65	-1	0	0	0.47	0.0	0	8.0	18	22	251	27	1		2
15	67	57	62	-4	3	0	0.01	0.0	0	11.8	20	22	270	29			2
16	62	55	59	-7	6	0	0.04	0.0	0	15.6	29	23	50	5	1		3
17	64	51	58	-8	7	0	0.32	0.0	0	10.8	33	26	483	53	1,3		4
18	73	50	62	-4	3	0	0.00	0.0	0	5.1	13	30	908	99			1
19	79	53	66	-1	0	1	0.00	0.0	0	6.1	16	05	921	100			2
20	86	60	73	6	0	8	0.00	0.0	0	5.7	13	15	921	100			1
21	86	64	75	8	0	10	T	0.0	0	9.1	20	30	540	59	8		2
22	81	66	74	6	0	9	0.02	0.0	0	6.4	13	23	440	48	1,8		1
23	82	70	76	8	0	11	T	0.0	0	13.1	25	23	713	77	1,8		3
24	78	66	72	4	0	7	0.01	0.0	0	5.9	15	06	219	24	1		1
25	85	66	76	8	0	11	0.00	0.0	0	7.0	16	24	719	78	1,8		1
26	86	70	78	10	0	13	0.00	0.0	0	13.0	22	24	738	80	1,3,8		2
27	80	67	74	6	0	9	T	0.0	0	13.7	30	24	334	36	1		3
28	81	65	73	4	0	8	0.00	0.0	0	8.0	14	34	786	86			1
29	82	62	72	3	0	7	0.00	0.0	0	7.0	13	23	876	95			1
30	86	67	77	8	0	12	0.00	0.0	0	7.8	16	26	919	100			2
Sm	2263	1755		43	62	128	1.47	0.0		269.7			17017				

Avg
75.4 58.5 67.0 9.0

Notes:
Column 17 Peak Wind in M.P.H.

Preliminary Local Climatological Data (WS Form: F-6) , Page 2
Station: Buffalo NY
Month: June
Year: 2002

Temperature Data	Precipitation Data	SYMBOLS USED IN COLUMN 16
Average Monthly: 67.0	Total for Month: 1.47	1 = FOG
Dptr fm normal: 1.2	Dptr fm normal: -2.35	2 = FOG REDUCING VISIBILITY
Highest: 86 on 30	Grtst 24hr 0.47 on 14	TO 1/4 MILE OR LESS
Lowest: 44 on 3		3 = THUNDER
	SNOW, ICE PELLETS, HAIL	4 = ICE PELLETS
	Total month: 0.0	5 = HAIL
	Grtst 24hr 0.0 on	6 = GLAZE OR RIME
	Grtst depth: 0 on 30	7 = BLOWING DUST OR SAND
	Seasonal Total: 132.5	VSBY 1/2 MILE OR LESS
		8 = SMOKE OR HAZE
No. of Days with	WEATHER - Days with	9 = BLOWING SNOW
		x = TORNADO
Max 32 or below: 0	0.01 inch or more: 13	
Max 90 or above: 0	0.10 inch or more: 5	
Min 32 or below: 0	0.50 inch or more: 0	
Min 0 or below: 0	1.00 inch or more: 0	

HDD (Base 65)
Total this Mo. 62
Dptr fm normal 3
Seasonal total 5898
Dptr fm normal -849

CDD (Base 65)
Total this Mo. 128
Dptr fm normal 27
Seasonal total 148
Dptr fm normal 15

Pressure Data
Highest SLP 30.42 on 20
Lowest SLP 29.55 on 15

National Weather Service
Buffalo, New York

NATIONAL WEATHER SERVICE

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the National Climate Data Center or the Northeast Regional Climate Center.

Preliminary Local Climatological Data (WS Form: F-6)

Station: Buffalo NY
Month: July
Year: 2002

	Temperature in F						:Pcpn	:Snow		Wind			:Sunshine:		Sky	:P
							Columns									
1	2	3	4	5	6a	6b	7	8	9	10	11	12	13	14	15	16	17
Dy	Max	Min	Avg	Dep	HDD	CDD	Wtr	Snw	Dpth	Avg Spd		Dir	Min	Psbl	S-S	Wx	Sp
1	87	67	77	8	0	12	0.00	0.0	0	9.8	18	23	919	100	8		2
2	88	74	81	11	0	16	0.00	0.0	0	11.3	20	24	863	94		1,8	2
3	87	73	80	10	0	15	0.00	0.0	0	11.0	20	24	883	96			2
4	85	70	78	8	0	13	0.05	0.0	0	11.0	18	24	683	75			2
5	76	56	66	-4	0	1	0.00	0.0	0	8.8	16	33	870	95			2
6	80	59	70	0	0	5	0.00	0.0	0	6.9	18	36	852	93	8		2
7	79	57	68	-2	0	3	0.00	0.0	0	8.5	16	22	721	79		1,8	2
8	86	65	76	6	0	11	0.00	0.0	0	10.3	18	23	883	97			2
9	80	70	75	4	0	10	0.05	0.0	0	7.1	17	03	102	11		1,3,8	2
10	74	60	67	-4	0	2	0.00	0.0	0	11.5	22	04	909	100			3
11	76	51	64	-7	1	0	0.00	0.0	0	5.9	15	35	908	100			2
12	80	51	66	-5	0	1	0.00	0.0	0	5.9	13	23	906	100			1
13	86	56	71	0	0	6	0.00	0.0	0	5.3	13	31	905	100			2
14	85	61	73	2	0	8	0.00	0.0	0	8.0	14	21	903	100			1
15	82	65	74	3	0	9	0.00	0.0	0	11.1	23	23	797	88			2
16	84	63	74	3	0	9	0.00	0.0	0	8.4	17	24	900	100			2
17	88	73	81	10	0	16	0.00	0.0	0	13.2	23	24	775	86			3
18	84	71	78	7	0	13	0.12	0.0	0	7.3	14	24	347	39		1,8	1
19	79	65	72	1	0	7	0.01	0.0	0	4.7	12	03	148	17		1	1
20	84	60	72	1	0	7	0.00	0.0	0	6.3	15	06	894	100			1
21	87	62	75	4	0	10	T	0.0	0	9.0	18	22	873	98			2
22	91	73	82	11	0	17	0.54	0.0	0	14.6	26	24	543	61		1,3,8	3
23	78	65	72	0	0	7	1.23	0.0	0	8.4	16	36	436	49		1,3	2
24	72	57	65	-7	0	0	0.00	0.0	0	8.4	16	02	800	90			2
25	80	55	68	-4	0	3	T	0.0	0	9.1	18	18	530	60			2
26	79	68	74	3	0	9	0.01	0.0	0	10.3	20	17	111	13		3	2
27	83	65	74	3	0	9	0.00	0.0	0	8.2	16	22	811	92		1,3	2
28	83	69	76	5	0	11	0.71	0.0	0	14.8	28	22	400	46		1,3	3
29	84	73	79	8	0	14	0.52	0.0	0	12.3	35	23	381	43		1,3	4
30	80	71	76	5	0	11	T	0.0	0	11.1	21	22	781	89		1	2
31	85	69	77	6	0	12	T	0.0	0	10.1	21	24	642	74		1	2
Sm	2552	1994		86	1	267	3.24	0.0		288.6			21476				

```
================================================================================
Avg
   82.3 64.3 73.3                              9.3


Notes:
Column 17 Peak Wind in M.P.H.
```

Preliminary Local Climatological Data (WS Form: F-6) , Page 2

Station: Buffalo NY
Month: July
Year: 2002

Temperature Data	Precipitation Data	SYMBOLS USED IN COLUMN 16
Average Monthly: 73.3	Total for Month: 3.24	1 = FOG
Dptr fm normal: 2.5	Dptr fm normal: 0.10	2 = FOG REDUCING VISIBILITY
Highest: 91 on 22	Grtst 24hr 1.59 on 22-23	TO 1/4 MILE OR LESS
Lowest: 51 on 12		3 = THUNDER
	SNOW, ICE PELLETS, HAIL	4 = ICE PELLETS
	Total month: 0.0	5 = HAIL
	Grtst 24hr 0.0 on	6 = GLAZE OR RIME
	Grtst depth: 0 on 31	7 = BLOWING DUST OR SAND
	Seasonal Total: 0.0	VSBY 1/2 MILE OR LESS
		8 = SMOKE OR HAZE
No. of Days with	WEATHER - Days with	9 = BLOWING SNOW
		x = TORNADO
Max 32 or below: 0	0.01 inch or more: 9	
Max 90 or above: 1	0.10 inch or more: 5	
Min 32 or below: 0	0.50 inch or more: 4	
Min 0 or below: 0	1.00 inch or more: 1	

HDD (Base 65)

Total this Mo.	1
Dptr fm normal	-7
Seasonal total	1
Dptr fm normal	-7

CDD (Base 65)

Total this Mo.	267
Dptr fm normal	64
Seasonal total	415
Dptr fm normal	79

Pressure Data

Highest SLP 30.27 on 24
Lowest SLP 29.73 on 29

National Weather Service
Buffalo, New York

NATIONAL WEATHER SERVICE

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It may contain errors. Official climate data is available from
the National Climate Data Center or the Northeast Regional Climate Center.

Preliminary Local Climatological Data (WS Form: F-6)

Station: Buffalo NY
Month: August
Year: 2002

Temperature in F							Pcpn	Snow		Wind			Sunshine			Pk Wnd	
Columns																	
1	2	3	4	5	6a	6b	7	8	9	10	11	12	13	14	16	17	18
Dy	Max	Min	Avg	Dep	HDD	CDD	Wtr	Snw	Dpth	Avg	Spd	Dir	Min	Psbl	Wx	Spd	Dr
1	88	71	80	9	0	15	T	0.0	0	9.1	17	23	793	91	1	21	SW
2	87	68	78	7	0	13	0.00	0.0	0	10.0	20	23	679	78		24	SW
3	84	64	74	3	0	9	0.00	0.0	0	4.5	10	36	866	100		12	N
4	85	63	74	3	0	9	0.00	0.0	0	7.9	15	24	782	91	3	18	SW
5	83	66	75	4	0	10	0.00	0.0	0	9.8	18	22	653	76		24	SW
6	69	57	63	-8	2	0	0.00	0.0	0	9.7	17	02	590	69		23	N
7	73	56	65	-6	0	0	0.00	0.0	0	6.7	15	36	842	98		18	NW
8	74	54	64	-6	1	0	0.00	0.0	0	4.3	15	34	850	100		21	NE
9	81	53	67	-3	0	2	0.00	0.0	0	4.6	9	11	851	100		13	NW
10	85	57	71	1	0	6	0.00	0.0	0	6.9	15	23	825	97		20	W
11	87	63	75	5	0	10	0.00	0.0	0	8.3	16	24	846	100		18	W
12	87	65	76	6	0	11	0.00	0.0	0	8.4	21	22	636	75	8	25	SW
13	89	69	79	9	0	14	0.29	0.0	0	8.9	20	19	753	90	1	23	S
14	90	72	81	11	0	16	0.06	0.0	0	10.2	23	25	545	65	1,3,8	26	SW
15	84	72	78	8	0	13	0.33	0.0	0	9.3	21	26	287	34	1,3	26	W
16	83	72	78	9	0	13	0.14	0.0	0	13.9	29	24	295	35	1	36	SW
17	83	71	77	8	0	12	0.30	0.0	0	10.7	24	22	568	68	1,3	29	SW
18	83	65	74	5	0	9	T	0.0	0	13.0	25	24	611	74		31	SW
19	74	56	65	-4	0	0	0.22	0.0	0	6.0	13	36	220	27	1	14	N
20	77	60	69	0	0	4	T	0.0	0	6.3	15	02	746	91	1	18	NE
21	82	55	69	1	0	4	0.00	0.0	0	5.1	13	20	821	100		17	S
22	80	65	73	5	0	8	0.38	0.0	0	10.3	22	23	63	8	1	30	SW
23	77	64	71	3	0	6	0.00	0.0	0	9.1	15	08	384	47		18	E
24	75	65	70	2	0	5	0.05	0.0	0	5.8	13	34	80	10	1	16	NW
25	79	59	69	1	0	4	0.00	0.0	0	5.5	15	24	497	61	1	18	W
26	80	59	70	3	0	5	0.00	0.0	0	4.6	13	22	757	94		16	SW
27	75	58	67	0	0	2	0.00	0.0	0	10.4	18	05	804	100		23	NE
28	81	53	67	0	0	2	0.00	0.0	0	8.3	16	10	716	89		18	SE
29	76	58	67	0	0	2	0.00	0.0	0	5.8	14	10	183	23		20	E
30	80	52	66	0	0	1	0.00	0.0	0	4.6	13	07	796	100		15	E
31	84	58	71	5	0	6	0.00	0.0	0	7.5	15	10	771	97		18	SE
Sm	2515	1920		81	3	211	1.77	0.0		245.5			19110				

```
================================================================================
Avg
  81.1 61.9 71.5                              7.9


Notes:
Column 17 Peak Wind in M.P.H.
```

Preliminary Local Climatological Data (WS Form: F-6) , Page 2

Station: Buffalo NY
Month: August
Year: 2002

Temperature Data	Precipitation Data	SYMBOLS USED IN COLUMN 16
Average Monthly: 71.5	Total for Month: 1.77	1 = FOG
Dptr fm normal: 2.4	Dptr fm normal: -2.10	2 = FOG REDUCING VISIBILITY
Highest: 90 on 14	Grtst 24hr 0.47 on 15-16	TO 1/4 MILE OR LESS
Lowest: 52 on 30		3 = THUNDER
	SNOW, ICE PELLETS, HAIL	4 = ICE PELLETS
	Total month: 0.0	5 = HAIL
	Grtst 24hr 0.0 on 00	6 = GLAZE OR RIME
	Grtst depth: 0 on 31	7 = BLOWING DUST OR SAND
	Seasonal Total: 0.0	VSBY 1/2 MILE OR LESS
		8 = SMOKE OR HAZE
No. of Days with	WEATHER - Days with	9 = BLOWING SNOW
		x = TORNADO
Max 32 or below: 0	0.01 inch or more: 8	
Max 90 or above: 1	0.10 inch or more: 6	
Min 32 or below: 0	0.50 inch or more: 0	
Min 0 or below: 0	1.00 inch or more: 0	

HDD (Base 65)	
Total this Mo.	3
Dptr fm normal	-18
Seasonal total	4
Dptr fm normal	-25

CDD (Base 65)	
Total this Mo.	211
Dptr fm normal	53
Seasonal total	627
Dptr fm normal	133

Pressure Data	
Highest SLP	30.43 on 31
Lowest SLP	29.77 on 24

National Weather Service
Buffalo, New York

NOTE: The data contained on this page is PRELIMINARY.
It may contain errors. Official climate data is available from
the National Climate Data Center or the Northeast Regional Climate Center.

Preliminary Local Climatological Data (WS Form: F-6)

Station: Buffalo NY
Month: September
Year: 2002

Temperature in F							Pcpn	Snow		Wind			Sunshine			Pk Wnd	
Columns																	
1	2	3	4	5	6a	6b	7	8	9	10	11	12	13	14	16	17	18
Dy	Max	Min	Avg	Dep	HDD	CDD	Wtr	Snw	Dpth	Avg	Spd	Dir	Min	Psbl	Wx	Spd	Dr
1	80	61	71	5	0	6	0.00	0.0	0	7.5	15	13	714	90		17	SE
2	83	61	72	6	0	7	0.00	0.0	0	7.2	13	19	706	90		14	S
3	86	66	76	11	0	11	0.02	0.0	0	11.4	29	22	213	27	1,3,8	36	SW
4	77	58	68	3	0	3	0.00	0.0	0	9.9	20	23	616	79		24	SW
5	74	58	66	1	0	1	0.00	0.0	0	5.6	17	36	686	88		21	N
6	80	53	67	2	0	2	0.00	0.0	0	4.3	10	27	751	97		12	SW
7	89	59	74	10	0	9	0.00	0.0	0	4.9	10	21	773	100		14	SW
8	89	62	76	12	0	11	0.00	0.0	0	5.6	12	19	771	100		15	SW
9	91	61	76	12	0	11	0.00	0.0	0	5.8	10	21	768	100	8	17	SW
10	85	62	74	11	0	9	0.38	0.0	0	10.4	24	29	722	94	1,3,8	29	W
11	69	54	62	-1	3	0	0.03	0.0	0	13.9	28	31	437	57	1	33	NW
12	71	47	59	-4	6	0	0.00	0.0	0	9.2	21	21	720	95		24	SW
13	77	55	66	4	0	1	0.00	0.0	0	11.6	23	24	756	100		29	SW
14	77	60	69	7	0	4	T	0.0	0	10.6	21	19	221	29		24	S
15	74	62	68	6	0	3	0.31	0.0	0	8.1	15	24	7	1	1	20	SW
16	74	60	67	6	0	2	T	0.0	0	4.9	13	24	270	36	1	15	SW
17	74	53	64	3	1	0	0.00	0.0	0	8.2	18	23	745	100	1	22	SW
18	82	54	68	7	0	3	T	0.0	0	6.4	12	14	631	85		15	S
19	83	67	75	14	0	10	0.00	0.0	0	10.6	18	19	577	78	8	22	S
20	85	72	79	19	0	14	0.03	0.0	0	11.6	21	18	475	65	8	25	S
21	78	62	70	10	0	5	0.03	0.0	0	12.4	25	22	179	24	1	32	SW
22	77	55	66	7	0	1	0.26	0.0	0	8.6	25	31	490	67	1	31	NW
23	67	49	58	-1	7	0	0.00	0.0	0	7.6	16	20	691	95		18	S
24	71	48	60	1	5	0	0.00	0.0	0	9.1	22	23	725	100		26	SW
25	69	45	57	-1	8	0	0.00	0.0	0	4.9	12	12	484	67		14	E
26	70	57	64	6	1	0	0.00	0.0	0	8.1	16	19	287	40		20	S
27	59	57	58	0	7	0	1.48	0.0	0	7.8	15	03	0	0	1	18	N
28	66	49	58	1	7	0	T	0.0	0	7.1	16	36	620	87	1	20	N
29	70	47	59	2	6	0	0.00	0.0	0	7.8	14	21	650	92		16	SW
30	77	55	66	9	0	1	0.00	0.0	0	11.7	22	21	676	96		28	21
Sm	2304	1709		168	51	114	2.54	0.0		252.8			16361				

Avg
76.8 57.0 66.9 8.4

Notes:
Column 17 Peak Wind in M.P.H.

Preliminary Local Climatological Data (WS Form: F-6) , Page 2
Station: Buffalo NY
Month: September
Year: 2002

Temperature Data	Precipitation Data	SYMBOLS USED IN COLUMN 16
Average Monthly: 66.9	Total for Month: 2.54	1 = FOG
Dptr fm normal: 5.4	Dptr fm normal: -1.30	2 = FOG REDUCING VISIBILITY
Highest: 91 on 9	Grtst 24hr 1.48 on 27-28	TO 1/4 MILE OR LESS
Lowest: 45 on 25		3 = THUNDER
	SNOW, ICE PELLETS, HAIL	4 = ICE PELLETS
	Total month: 0.0	5 = HAIL
	Grtst 24hr 0.0 on	6 = GLAZE OR RIME
	Grtst depth: 0 on 30	7 = BLOWING DUST OR SAND
	Seasonal Total: 0.0	VSBY 1/2 MILE OR LESS
		8 = SMOKE OR HAZE
No. of Days with	WEATHER - Days with	9 = BLOWING SNOW
		x = TORNADO
Max 32 or below: 0	0.01 inch or more: 8	
Max 90 or above: 1	0.10 inch or more: 4	
Min 32 or below: 0	0.50 inch or more: 1	
Min 0 or below: 0	1.00 inch or more: 1	

HDD (Base 65)
Total this Mo. 51
Dptr fm normal -98
Seasonal total 55
Dptr fm normal -123

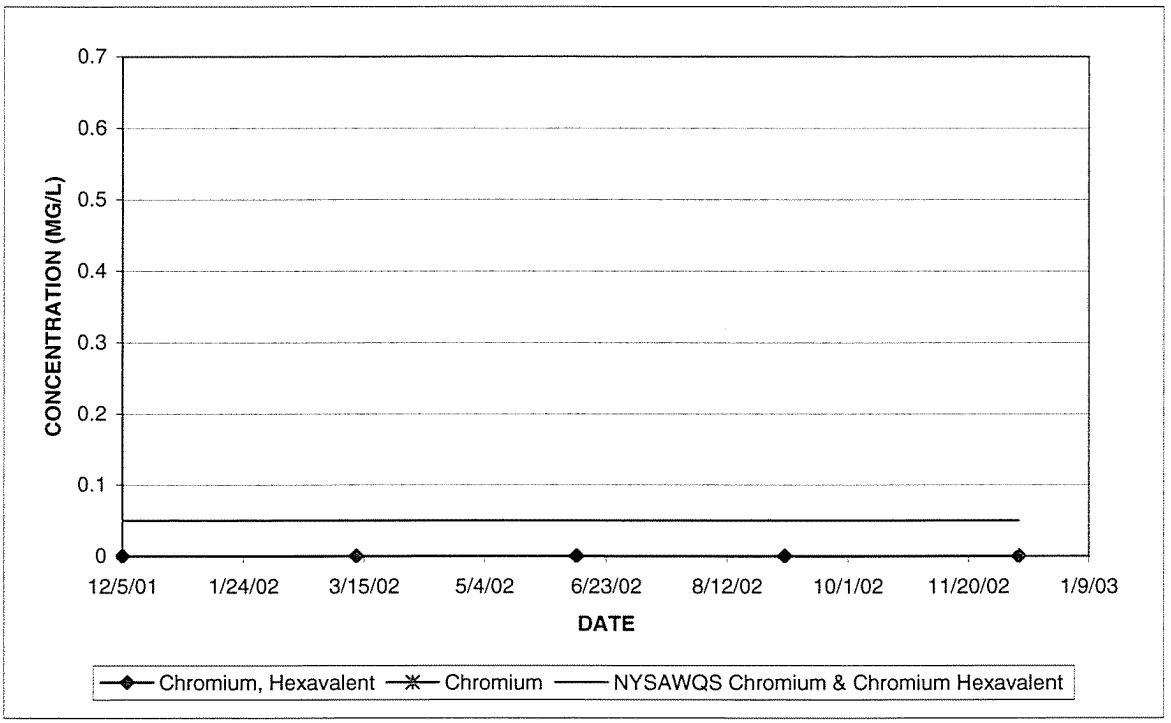
CDD (Base 65)
Total this Mo. 114
Dptr fm normal 64
Seasonal total 741
Dptr fm normal 197

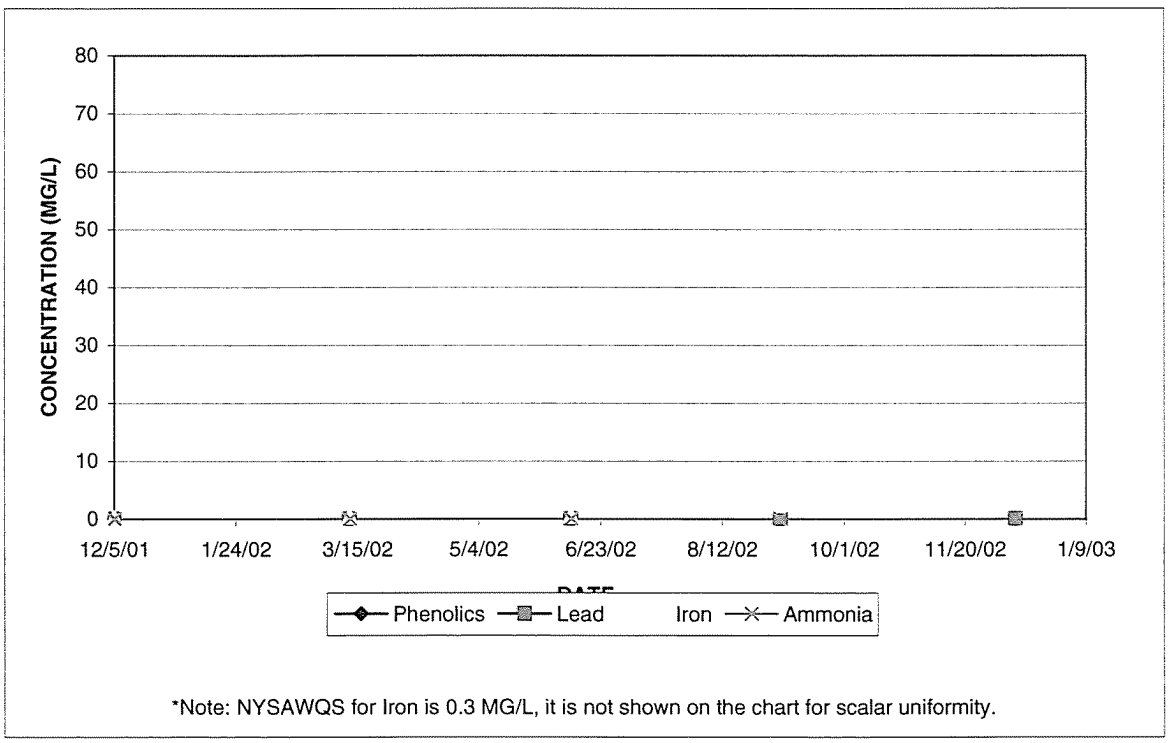
Pressure Data
Highest SLP 30.40 on 25
Lowest SLP 29.55 on 27

Appendix I

Analytical Trend Graphs and Scatter Plots

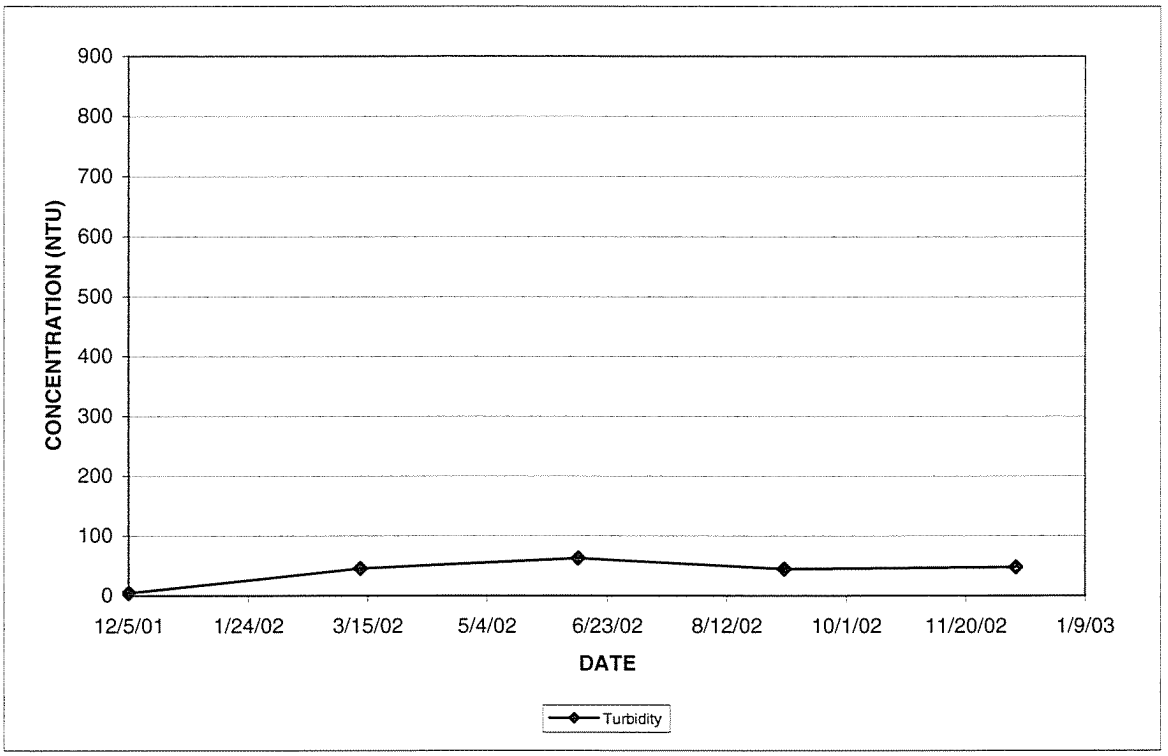
WRL-MW1B



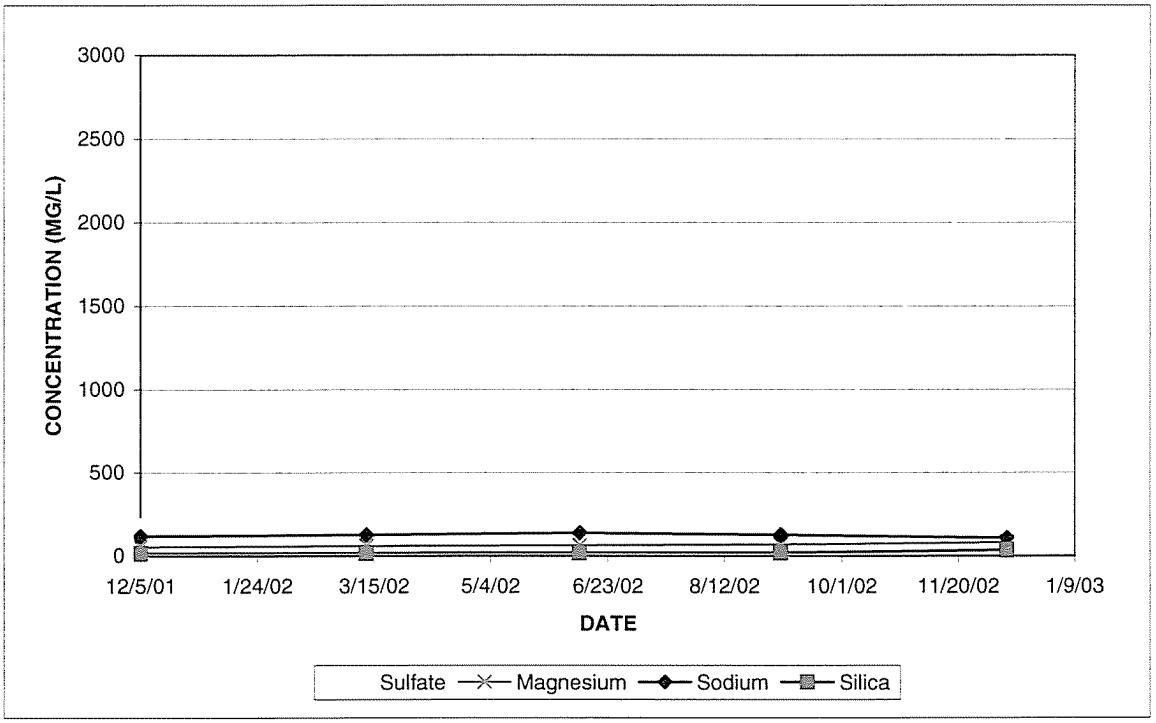


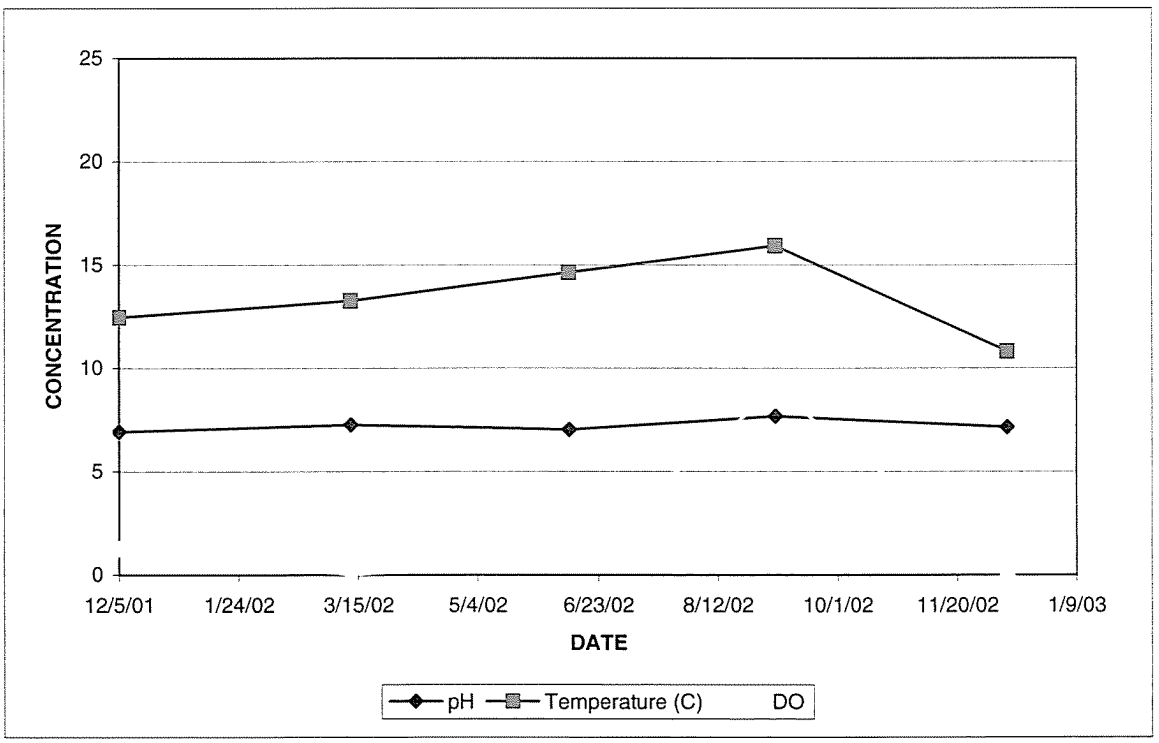
*Note: NYSAWQS for Iron is 0.3 MG/L, it is not shown on the chart for scalar uniformity.

WRL-MW1B

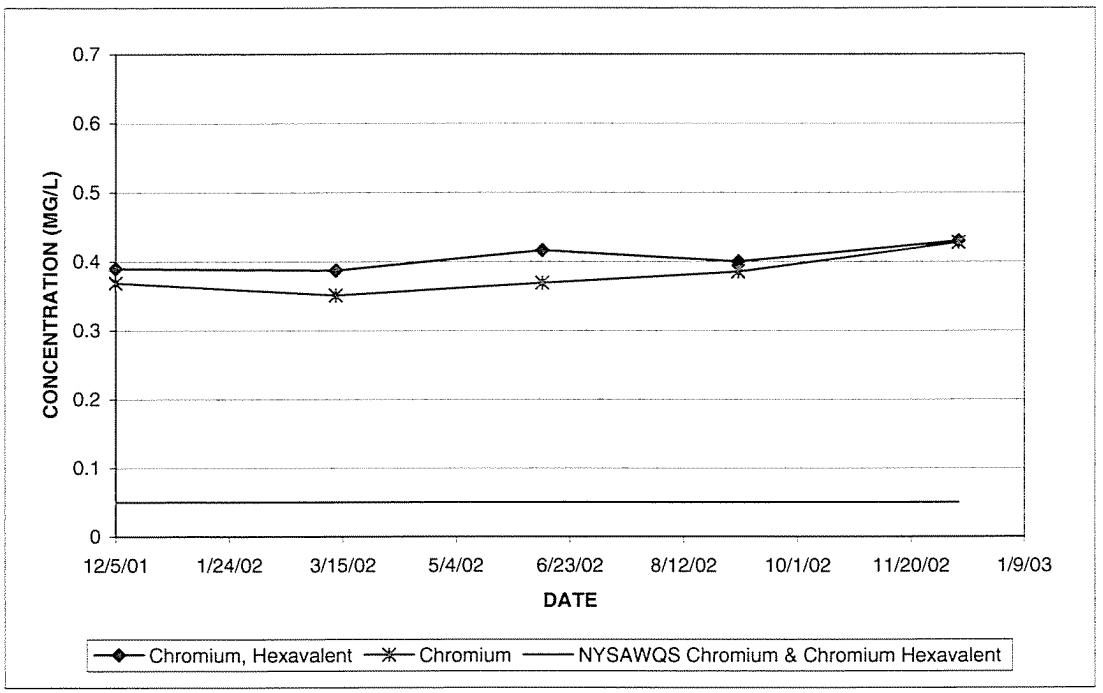

900
800
700
600
500
400
300
200
100
0
CONCENTRATION (NTU)
12/5/01
1/24/02
3/15/02
5/4/02
6/23/02
8/12/02
10/1/02
11/20/02
1/9/03
DATE
Turbidity

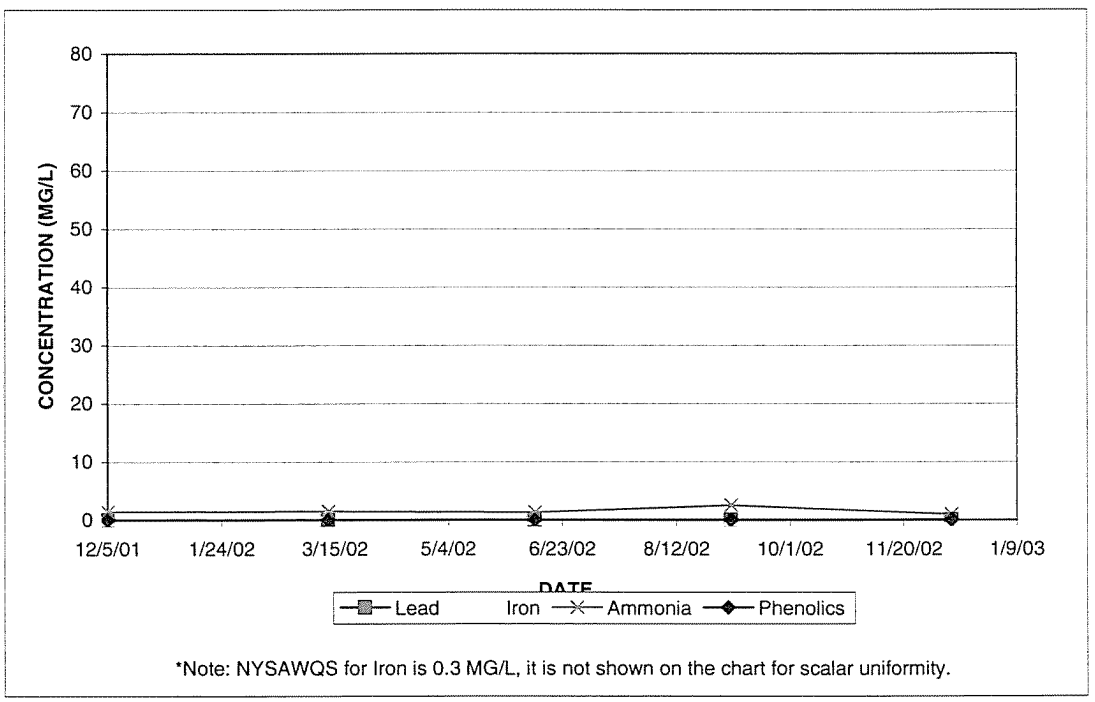
WRL-MW1B


3000
2500
2000
1500
1000
500
0
CONCENTRATION (MG/L)
12/5/01
1/24/02
3/15/02
5/4/02
6/23/02
8/12/02
10/1/02
11/20/02
1/9/03
DATE
Sulfate
Magnesium
Sodium
Silica

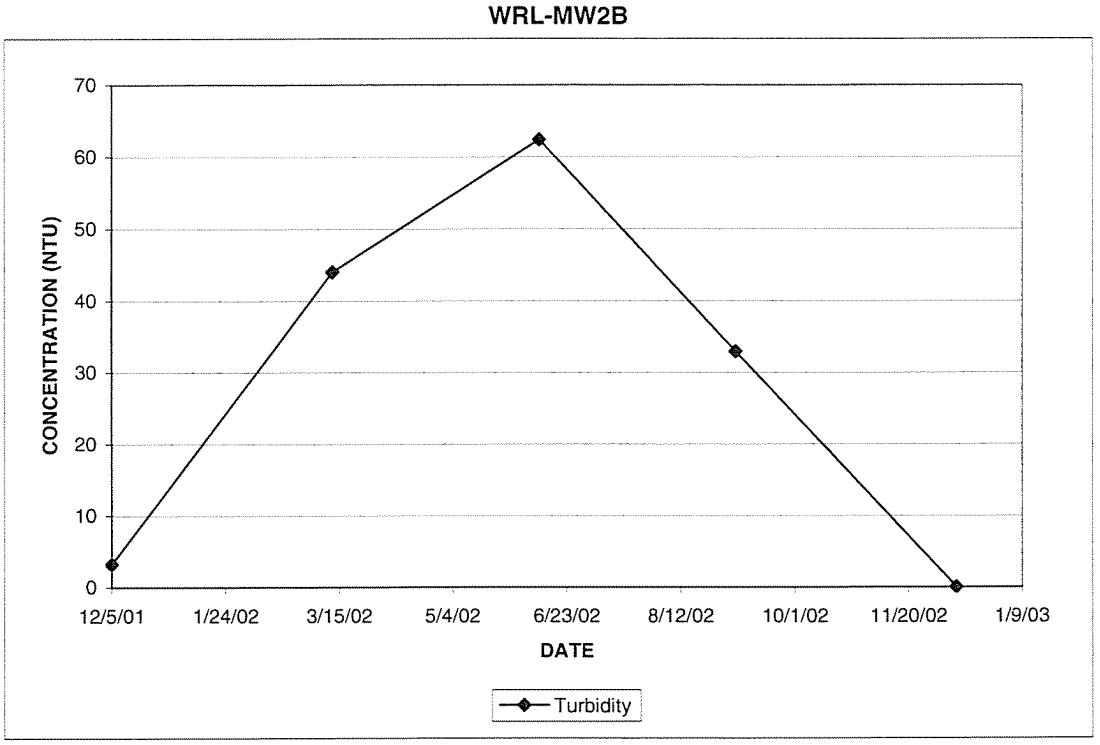

25
20
15
10
5
0
CONCENTRATION
12/5/01
1/24/02
3/15/02
5/4/02
6/23/02
8/12/02
10/1/02
11/20/02
1/9/03
DATE
pH
Temperature (C)
DO

WRL-MW2B

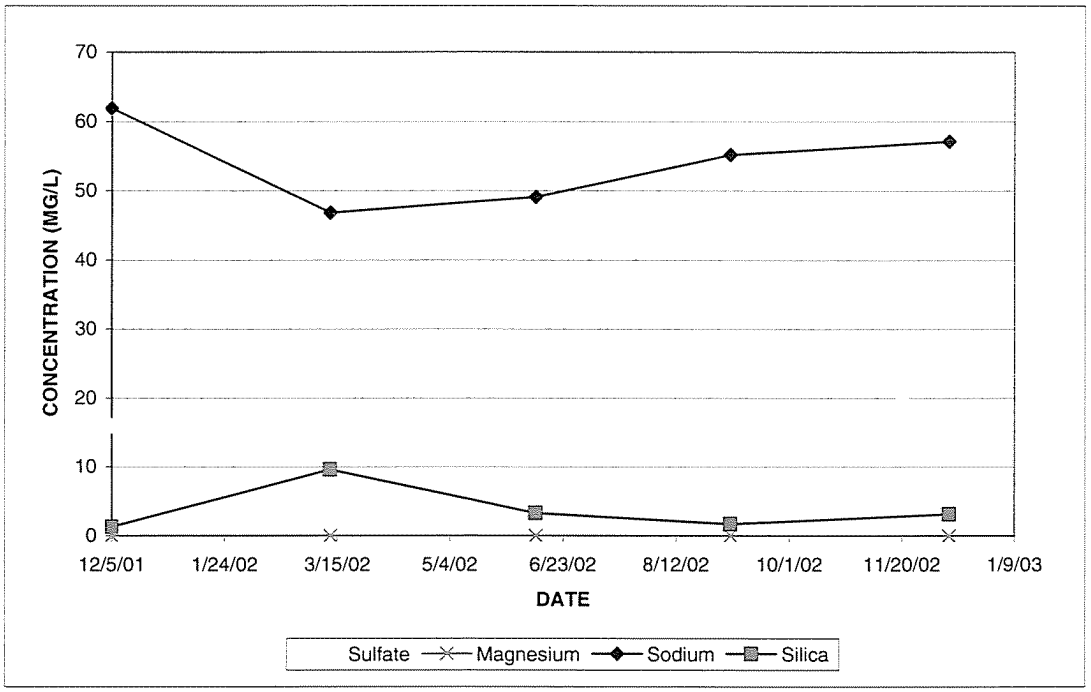


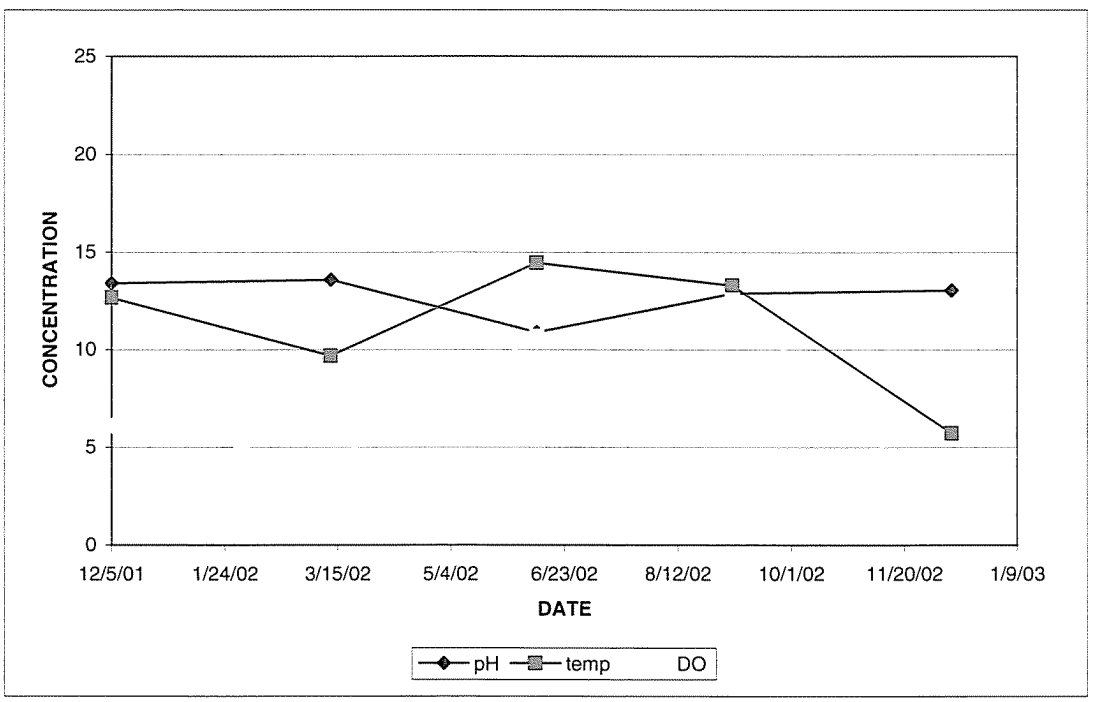


*Note: NYSAWQS for Iron is 0.3 MG/L, it is not shown on the chart for scalar uniformity.

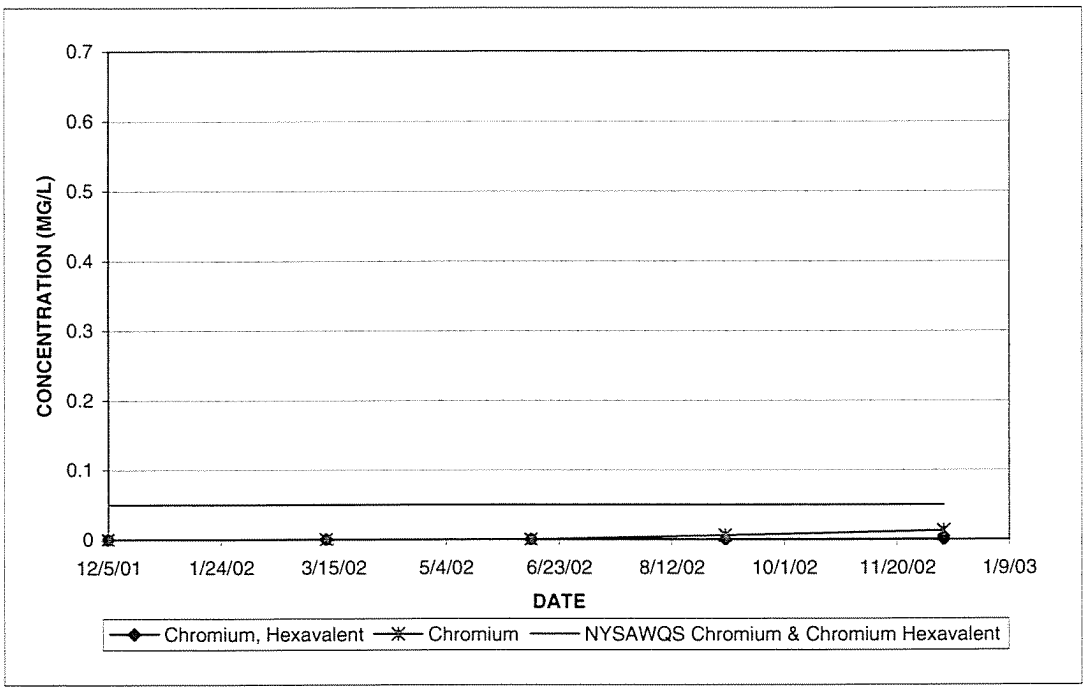

WRL-MW2B
70
60
50
40
30
20
10
0
CONCENTRATION (NTU)
12/5/01
1/24/02
3/15/02
5/4/02
6/23/02
8/12/02
10/1/02
11/20/02
1/9/03
DATE
Turbidity

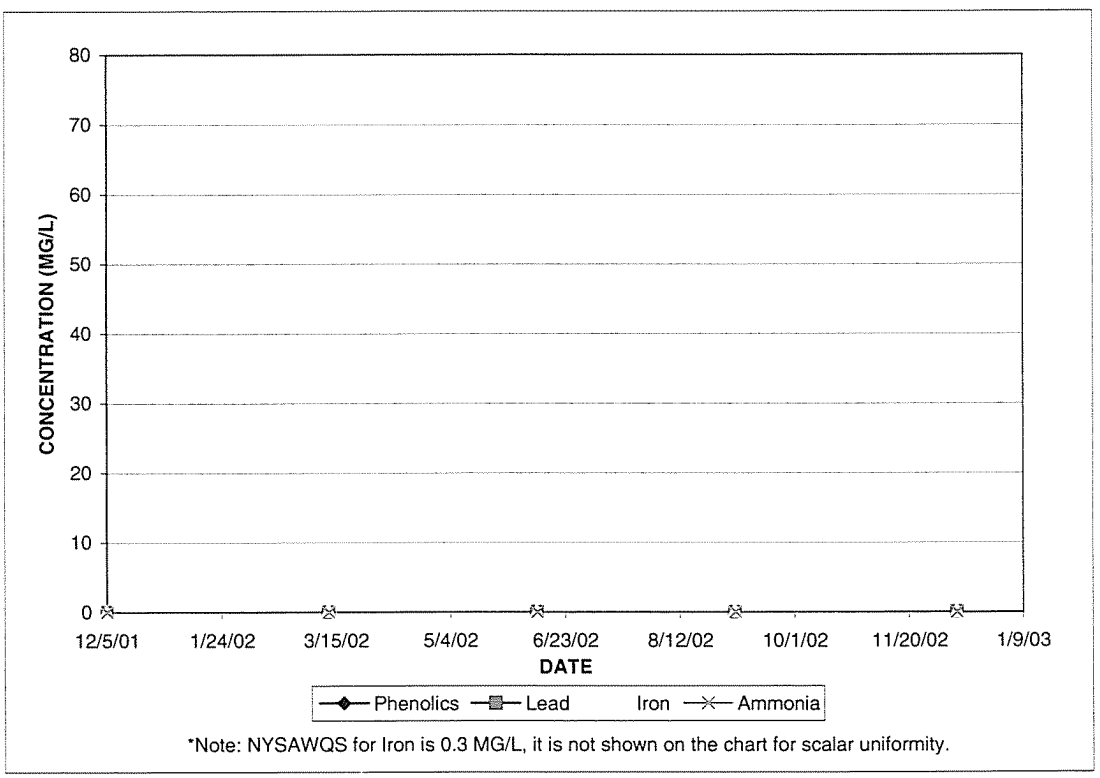
WRL-MW2B


70
60
50
40
30
20
10
0
CONCENTRATION (MG/L)
12/5/01
1/24/02
3/15/02
5/4/02
6/23/02
8/12/02
10/1/02
11/20/02
1/9/03
DATE
Sulfate
Magnesium
Sodium
Silica

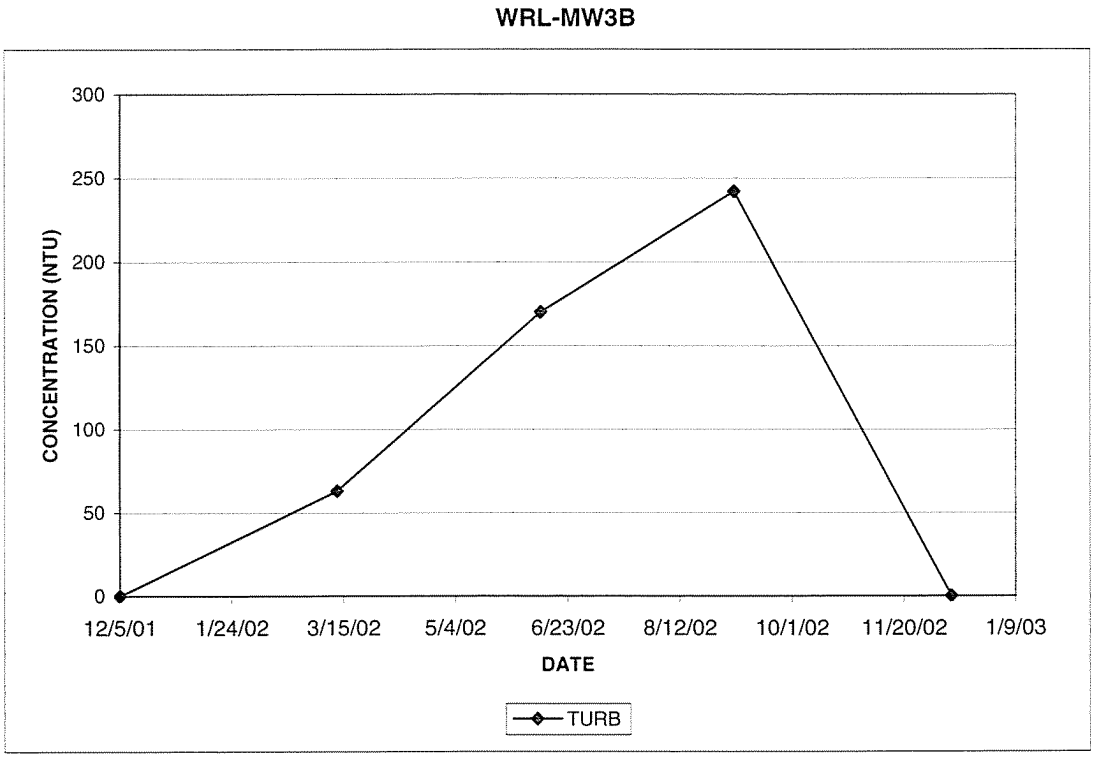

25
20
15
10
5
0
CONCENTRATION
12/5/01
1/24/02
3/15/02
5/4/02
6/23/02
8/12/02
10/1/02
11/20/02
1/9/03
DATE
pH
temp
DO

WRL-MW3B

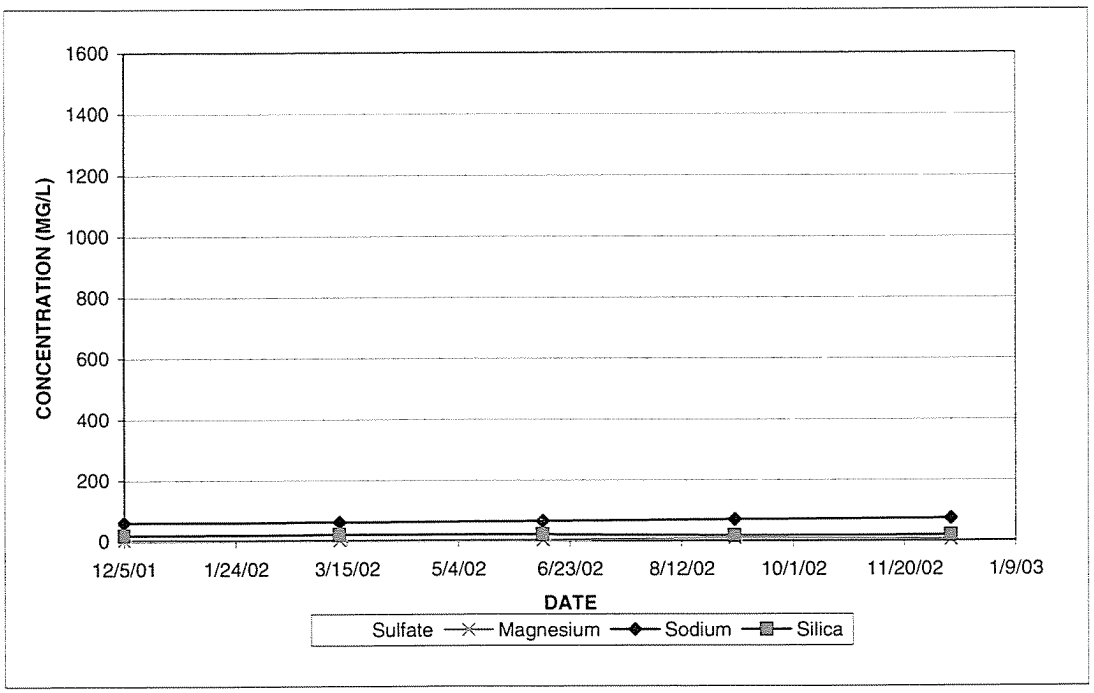


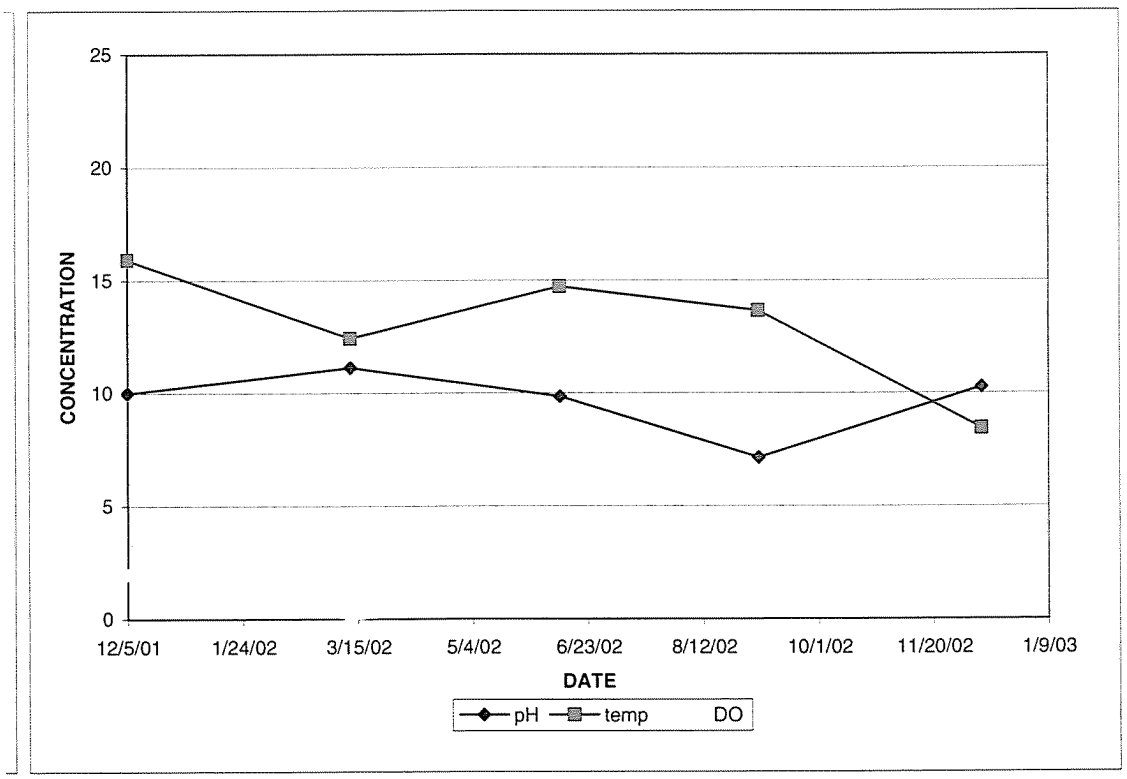


*Note: NYSAWQS for Iron is 0.3 MG/L, it is not shown on the chart for scalar uniformity.

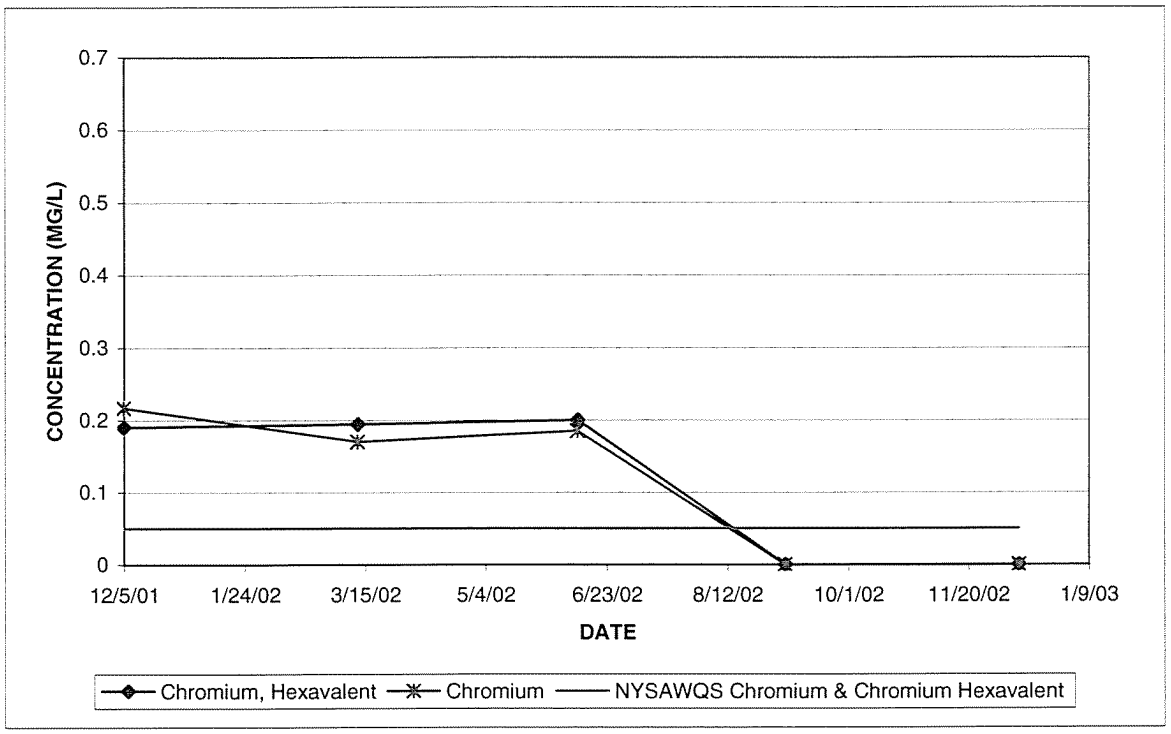

WRL-MW3B
300
250
200
150
100
50
0
CONCENTRATION (NTU)
12/5/01
1/24/02
3/15/02
5/4/02
6/23/02
8/12/02
10/1/02
11/20/02
1/9/03
DATE
TURB

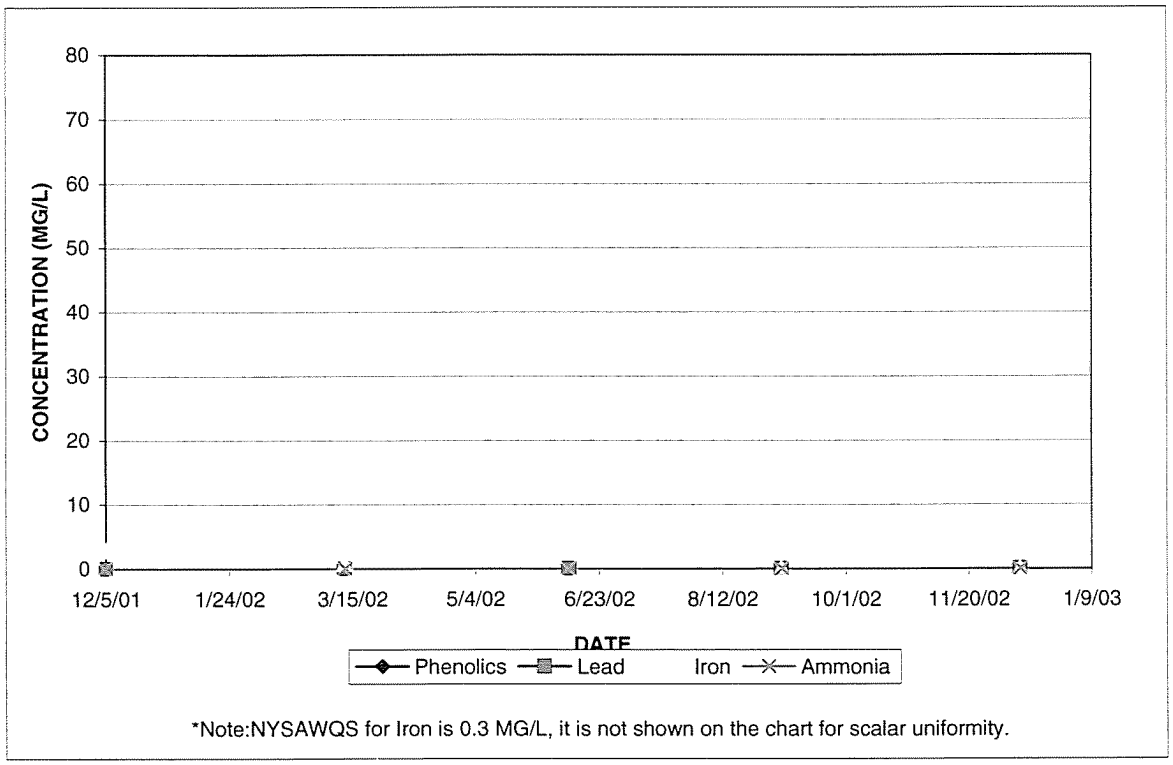
WRL-MW3B


1600
1400
1200
1000
800
600
400
200
0
CONCENTRATION (MG/L)
12/5/01
1/24/02
3/15/02
5/4/02
6/23/02
8/12/02
10/1/02
11/20/02
1/9/03
DATE
Sulfate
Magnesium
Sodium
Silica


25
20
15
10
5
0
CONCENTRATION
12/5/01
1/24/02
3/15/02
5/4/02
6/23/02
8/12/02
10/1/02
11/20/02
1/9/03
DATE
pH
temp
DO

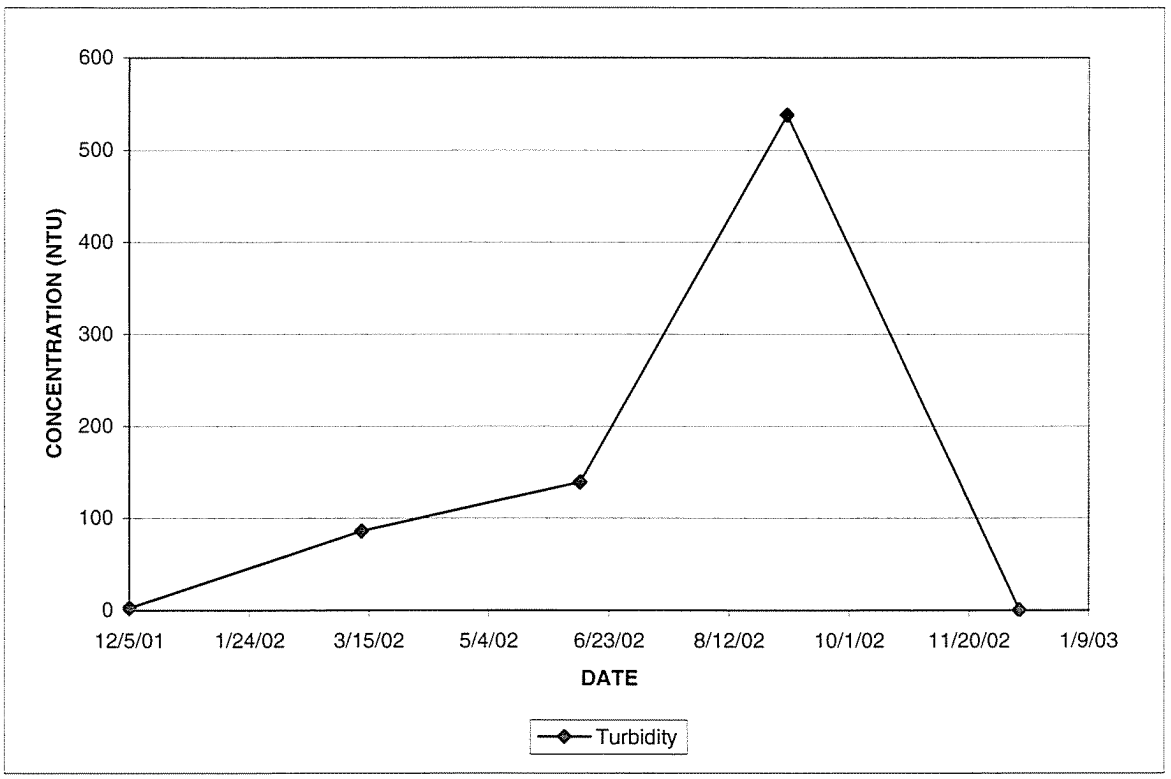
WRL-MW4B



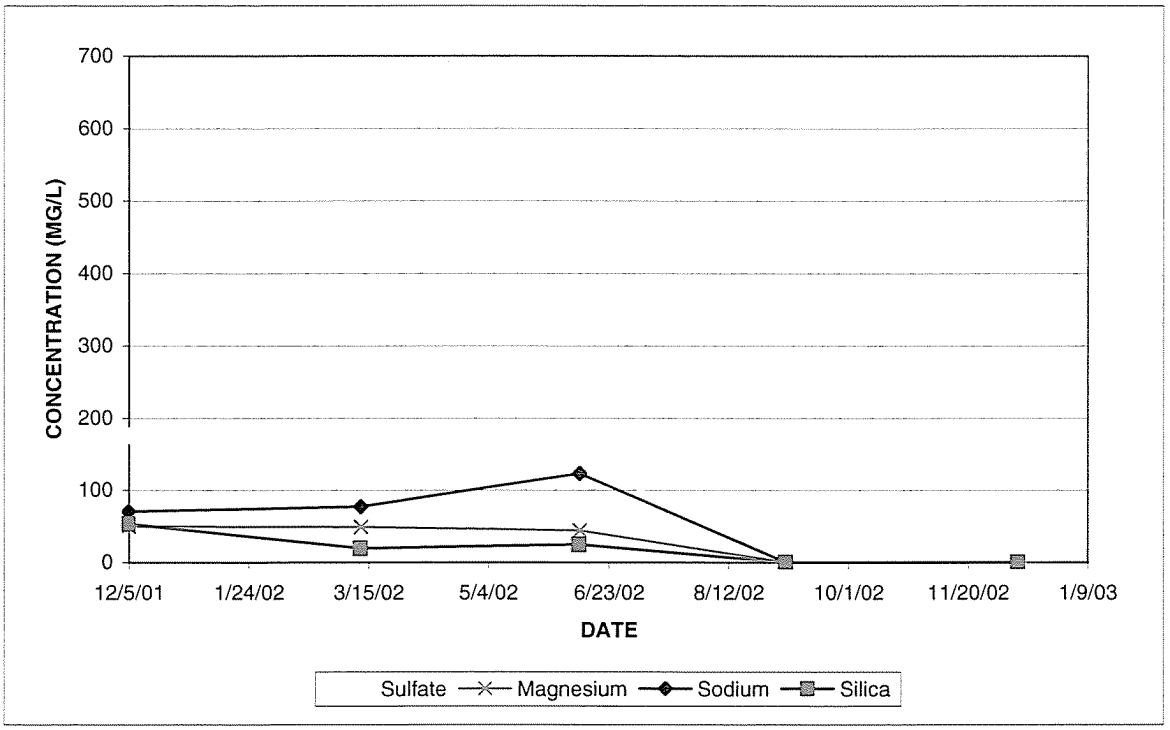


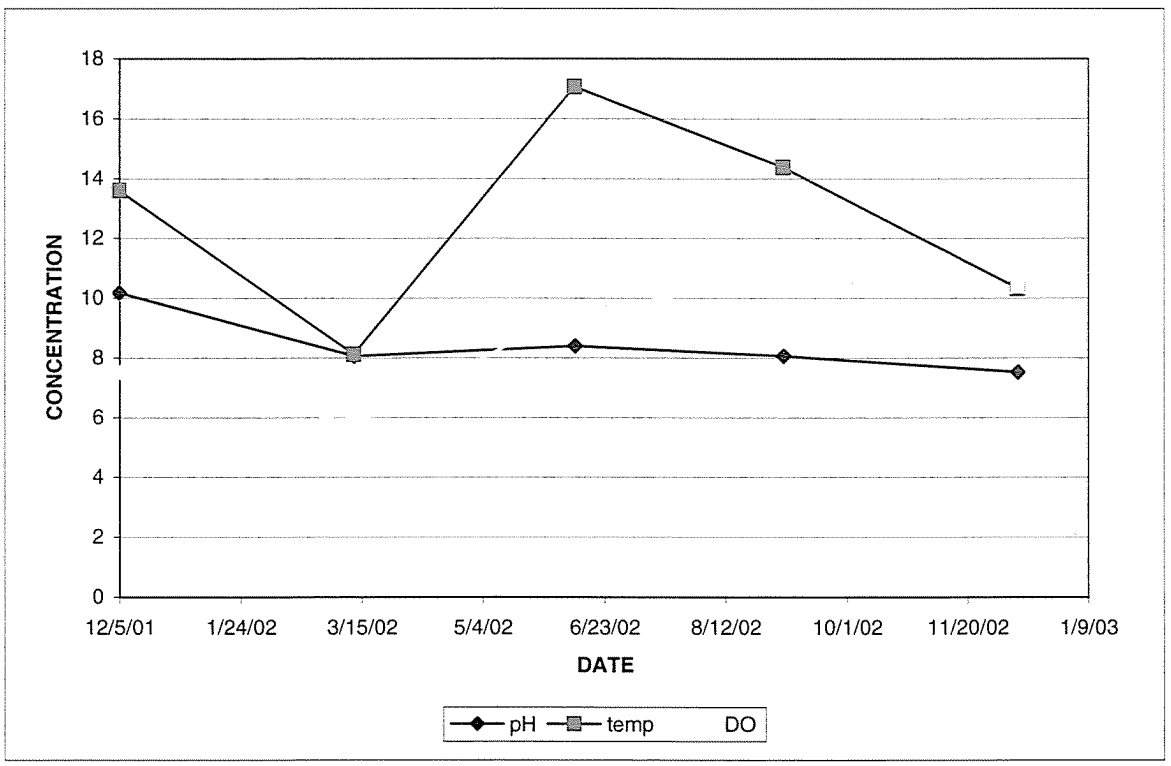
*Note:NYSAWQS for Iron is 0.3 MG/L, it is not shown on the chart for scalar uniformity.

WRL-MW4B

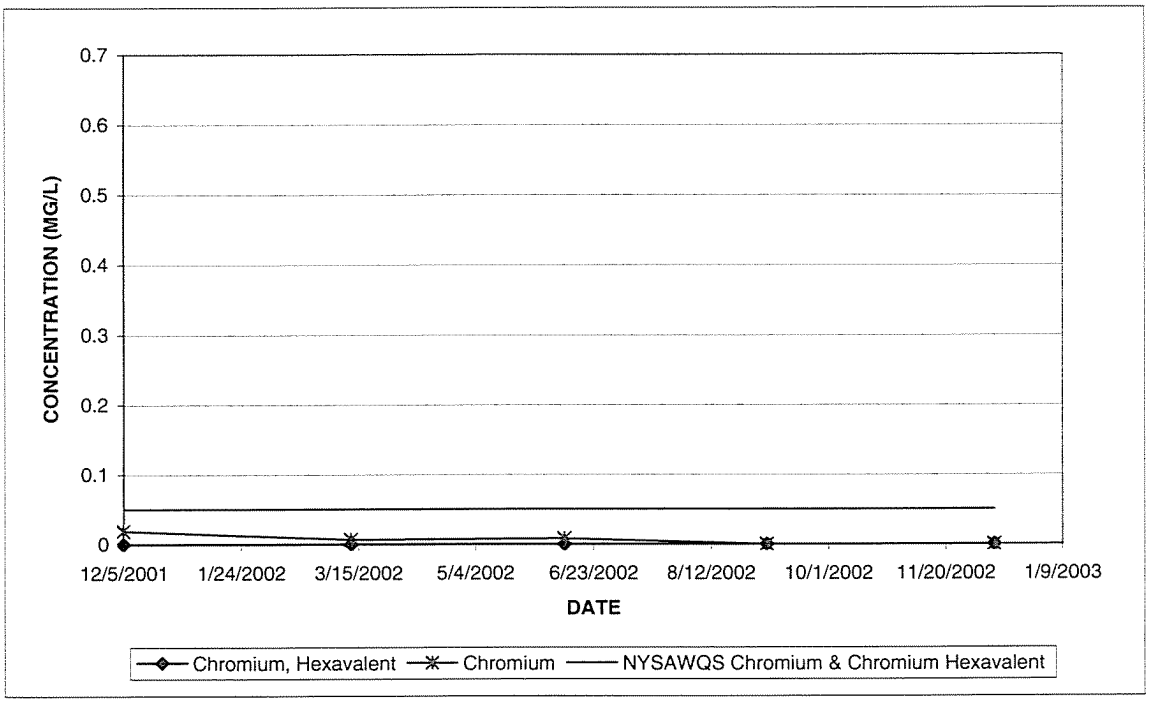

600
500
400
300
200
100
0
CONCENTRATION (NTU)
12/5/01
1/24/02
3/15/02
5/4/02
6/23/02
8/12/02
10/1/02
11/20/02
1/9/03
DATE
Turbidity

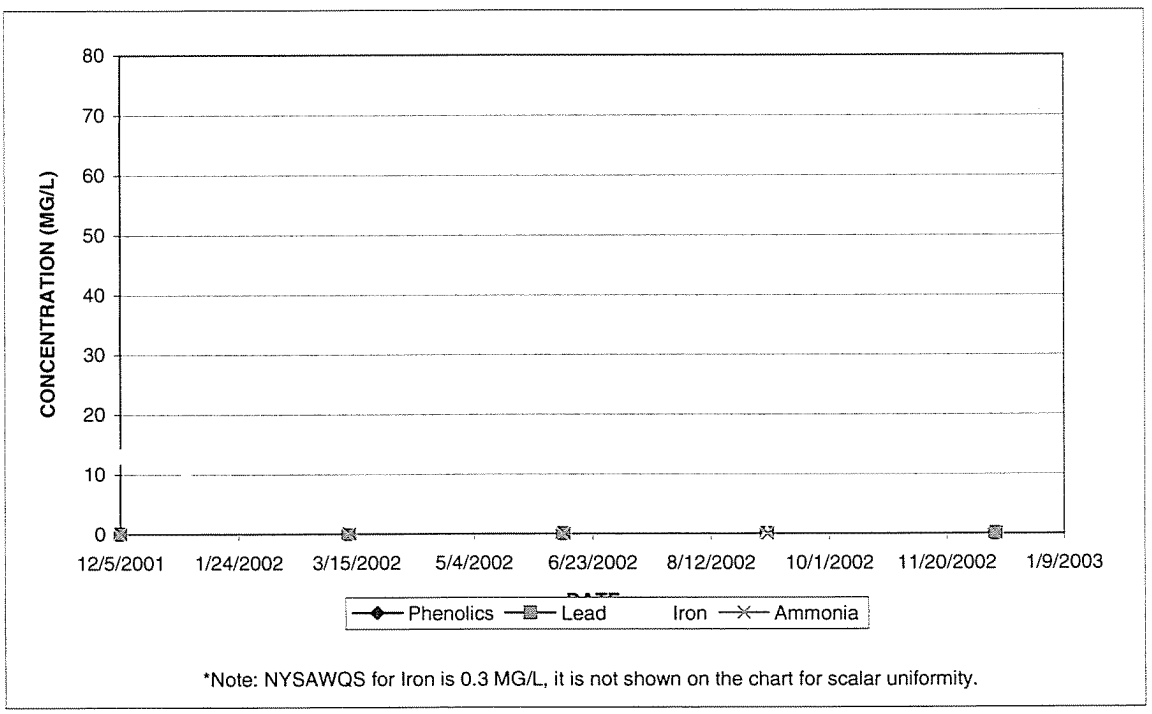
WRL-MW4B


700
600
500
400
300
200
100
0
CONCENTRATION (MG/L)
12/5/01
1/24/02
3/15/02
5/4/02
6/23/02
8/12/02
10/1/02
11/20/02
1/9/03
DATE
Sulfate
Magnesium
Sodium
Silica


18
16
14
12
10
8
6
4
2
0
CONCENTRATION
12/5/01
1/24/02
3/15/02
5/4/02
6/23/02
8/12/02
10/1/02
11/20/02
1/9/03
DATE
pH
temp
DO

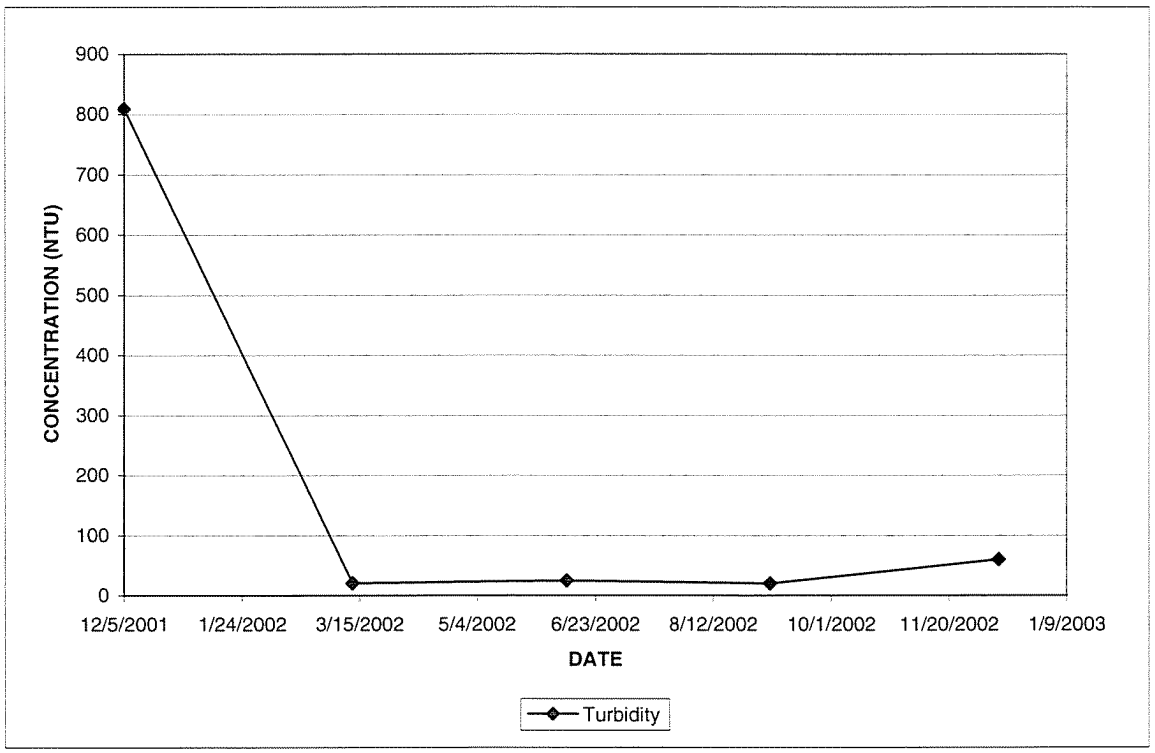
WRL-MW5B



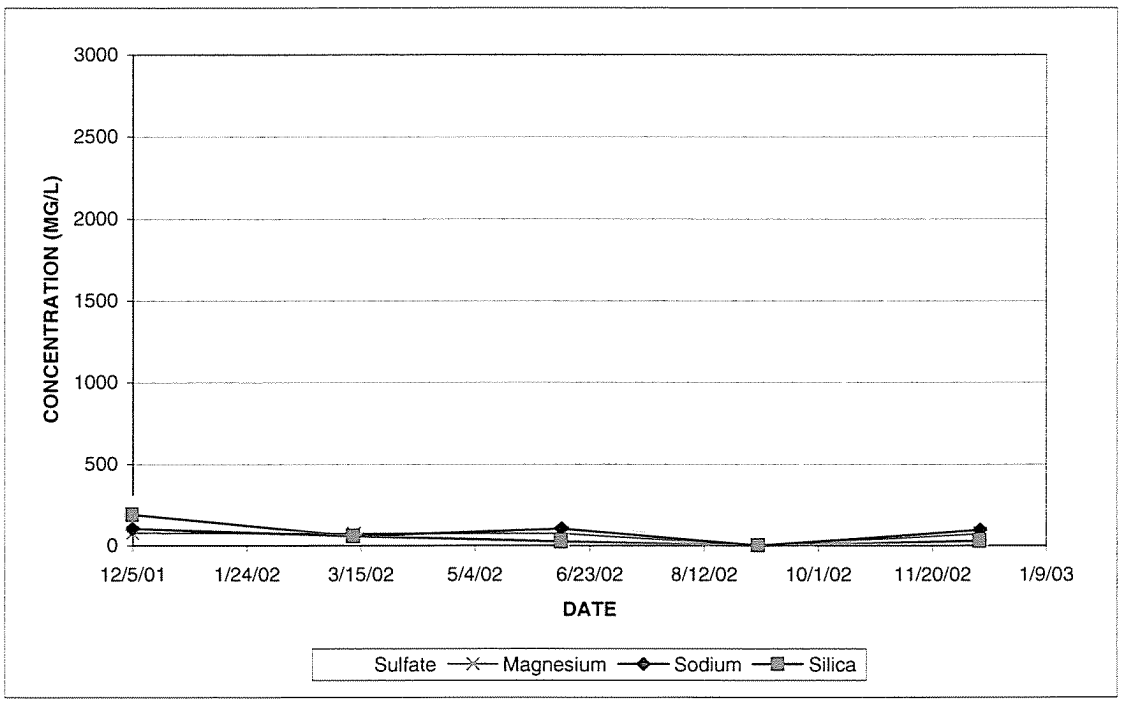


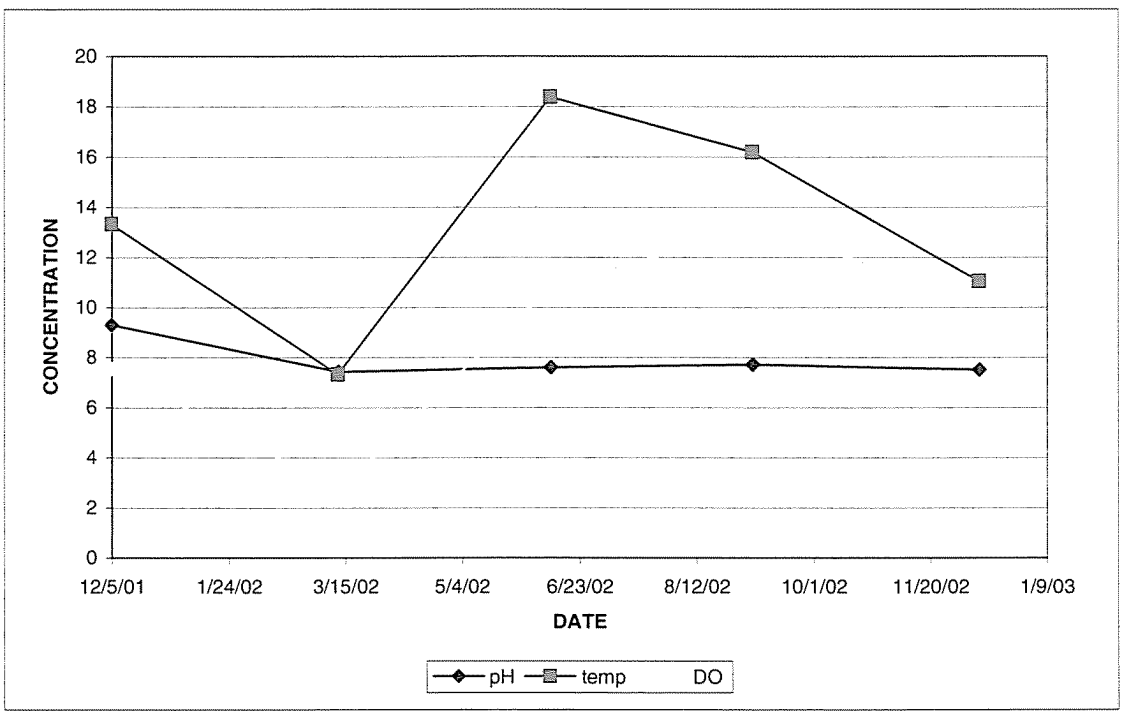
*Note: NYSAWQS for Iron is 0.3 MG/L, it is not shown on the chart for scalar uniformity.

WRL-MW5B

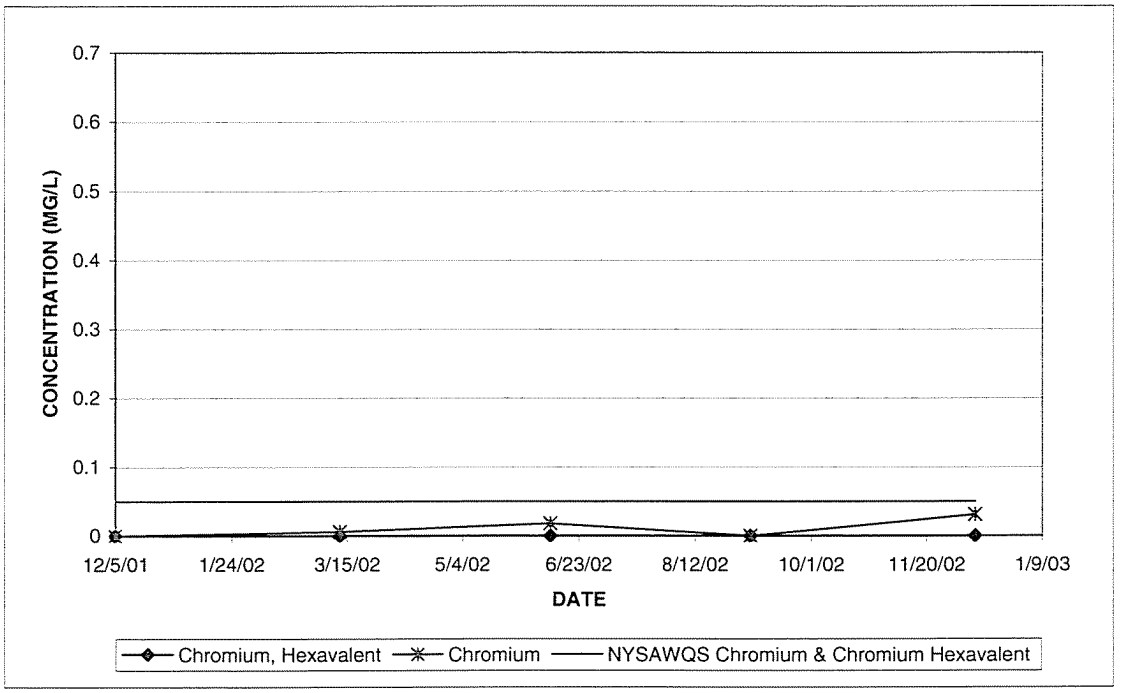

900
800
700
600
500
400
300
200
100
0
CONCENTRATION (NTU)
12/5/2001
1/24/2002
3/15/2002
5/4/2002
6/23/2002
8/12/2002
10/1/2002
11/20/2002
1/9/2003
DATE
Turbidity

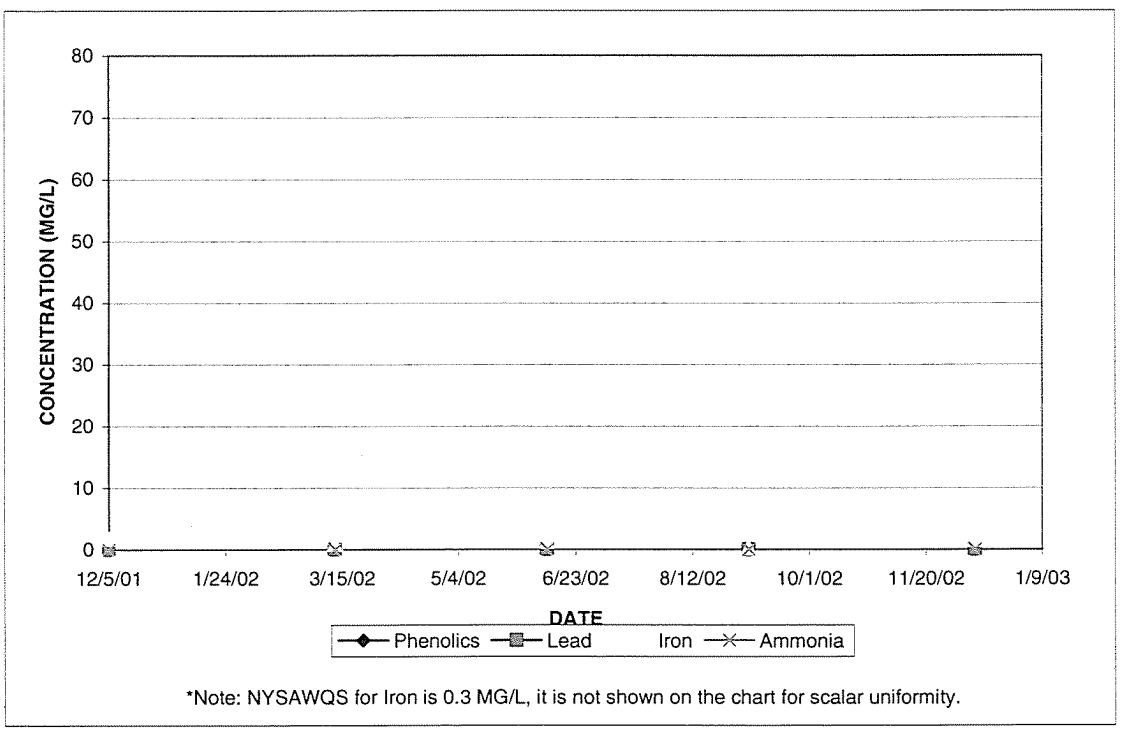
WRL-MW5B


3000
2500
2000
1500
1000
500
0
CONCENTRATION (MG/L)
12/5/01
1/24/02
3/15/02
5/4/02
6/23/02
8/12/02
10/1/02
11/20/02
1/9/03
DATE
Sulfate
Magnesium
Sodium
Silica


20
18
16
14
12
10
8
6
4
2
0
CONCENTRATION
12/5/01
1/24/02
3/15/02
5/4/02
6/23/02
8/12/02
10/1/02
11/20/02
1/9/03
DATE
pH
temp
DO

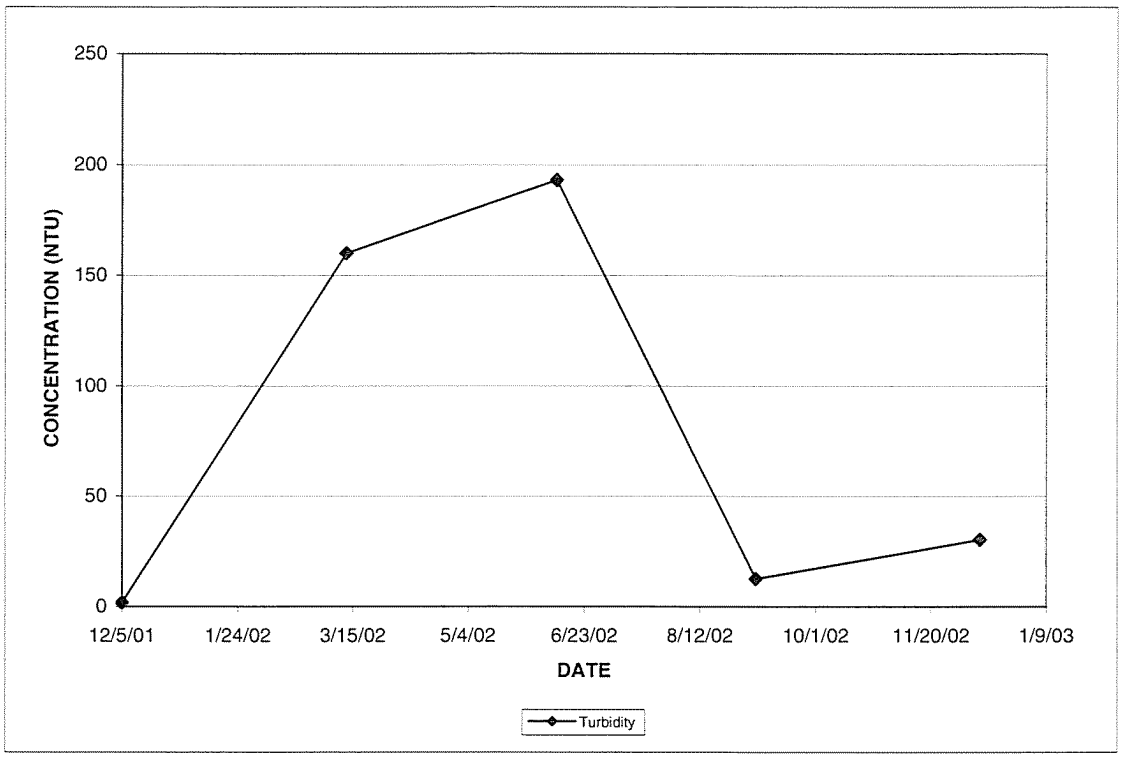
WRL-MW6B



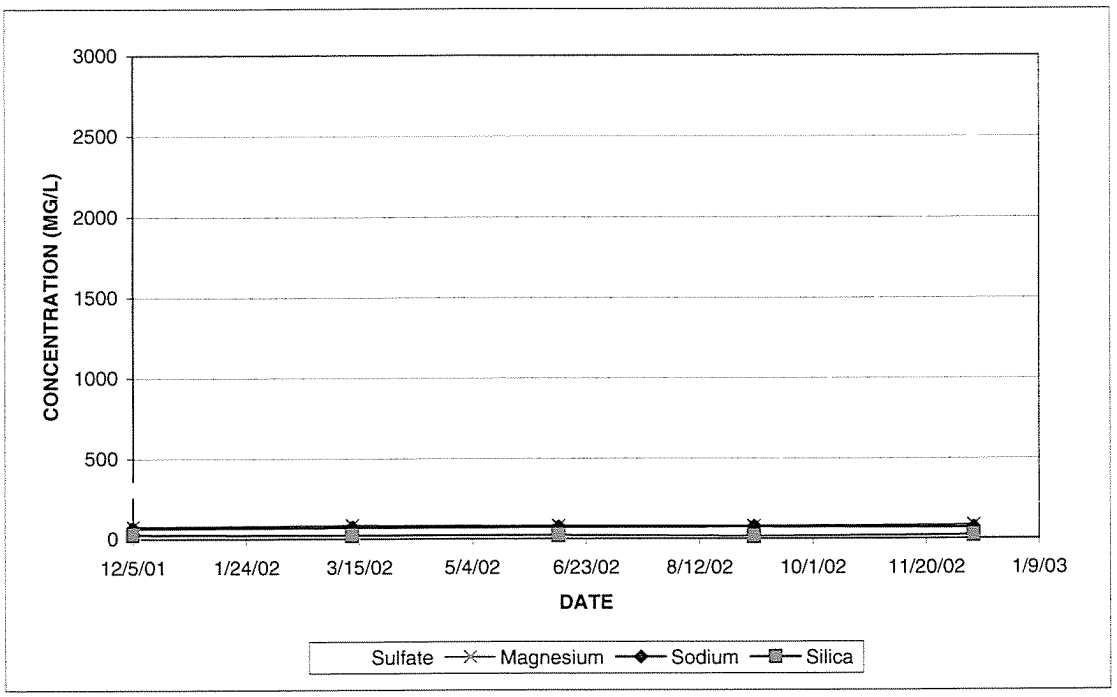


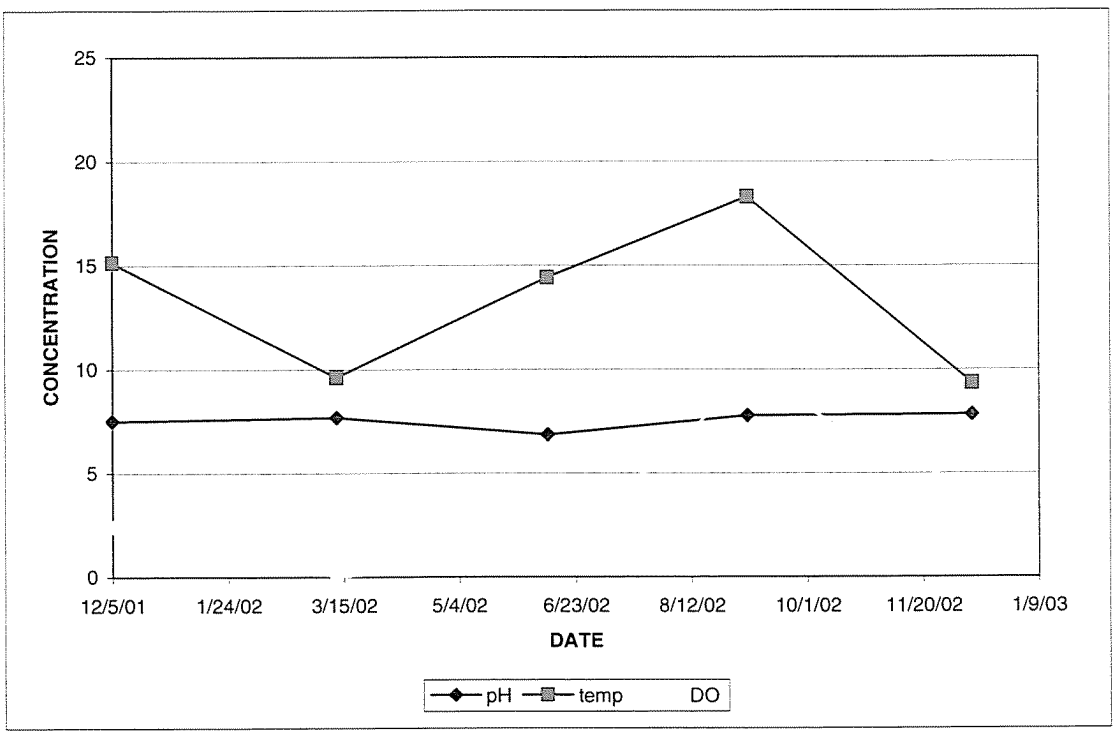
*Note: NYSAWQS for Iron is 0.3 MG/L, it is not shown on the chart for scalar uniformity.

WRL-MW6B

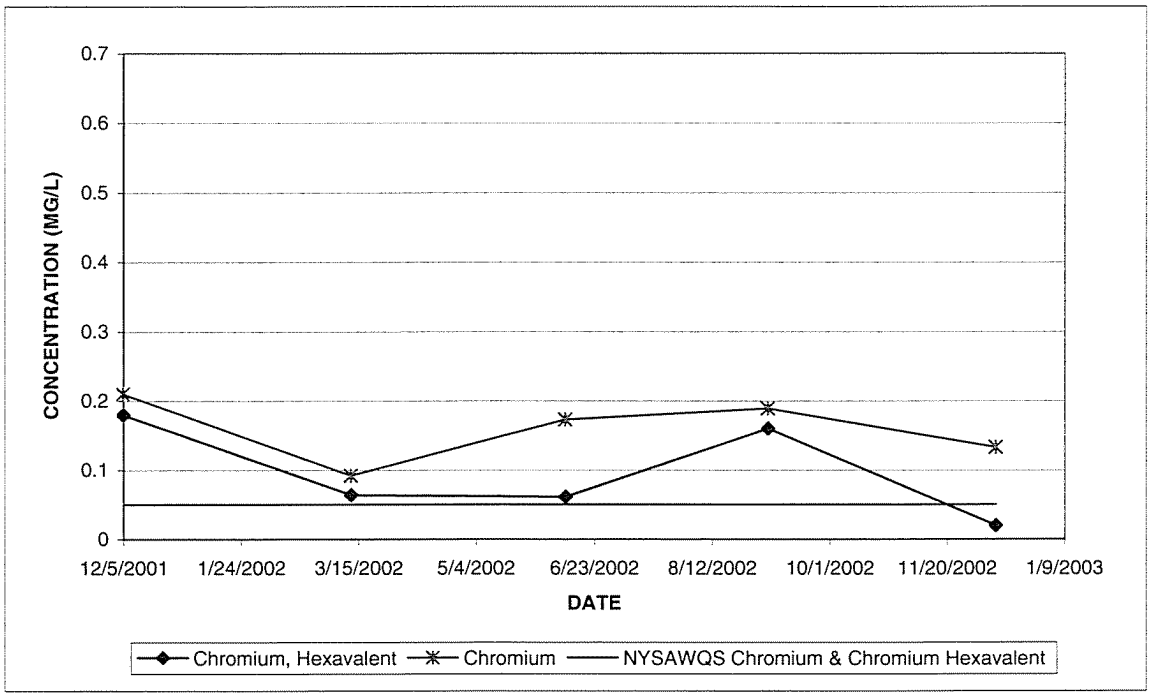

250
200
150
100
50
0
CONCENTRATION (NTU)
12/5/01
1/24/02
3/15/02
5/4/02
6/23/02
8/12/02
10/1/02
11/20/02
1/9/03
DATE
Turbidity

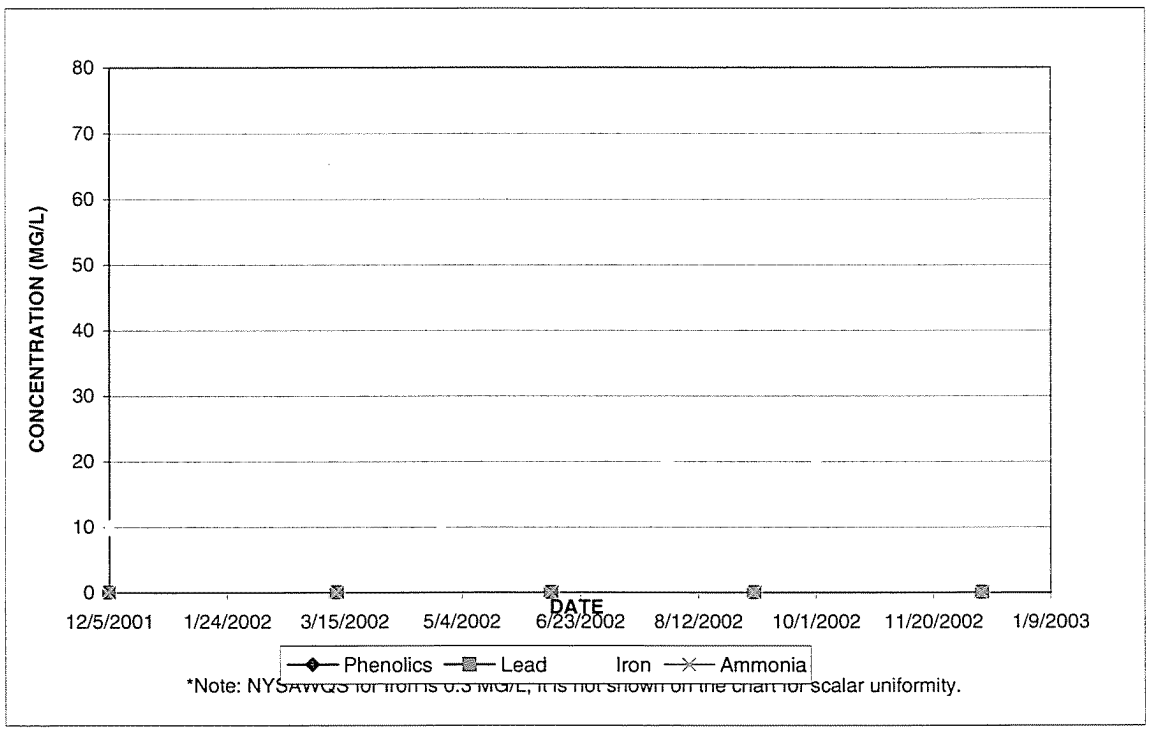
WRL-MW6B


3000
2500
2000
1500
1000
500
0
CONCENTRATION (MG/L)
12/5/01
1/24/02
3/15/02
5/4/02
6/23/02
8/12/02
10/1/02
11/20/02
1/9/03
DATE
Sulfate
Magnesium
Sodium
Silica


25
20
15
10
5
0
CONCENTRATION
12/5/01
1/24/02
3/15/02
5/4/02
6/23/02
8/12/02
10/1/02
11/20/02
1/9/03
DATE
pH
temp
DO

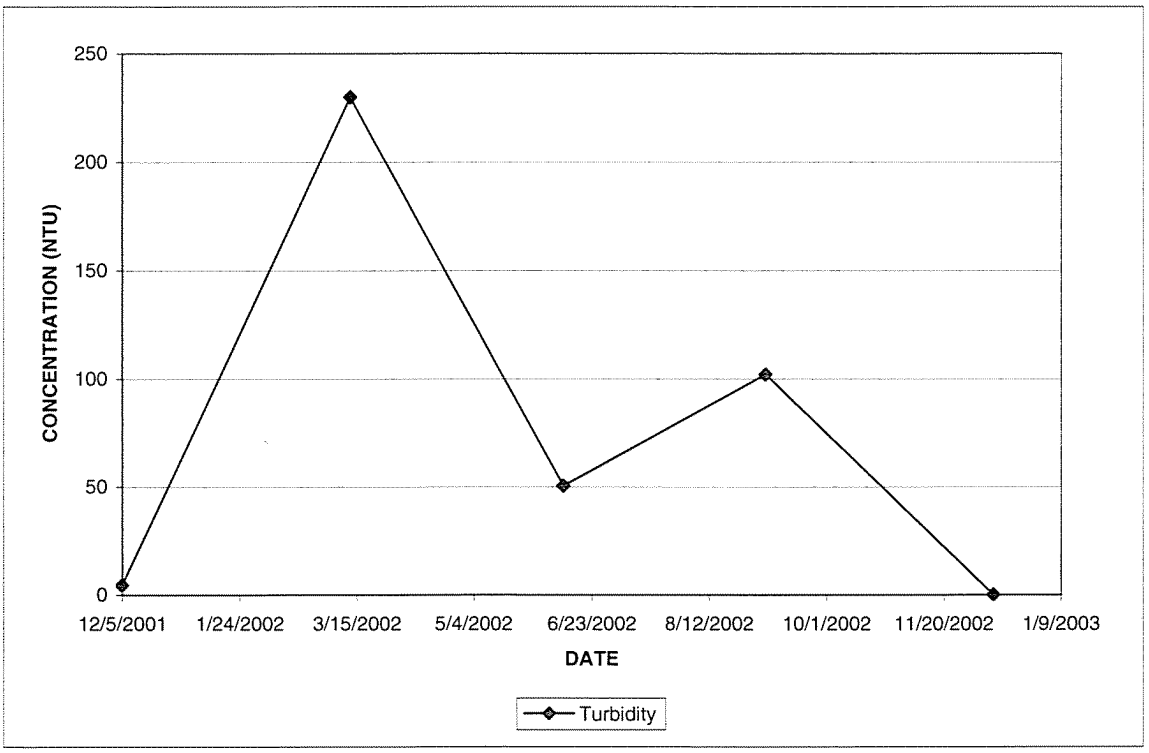
WRL-MW7B



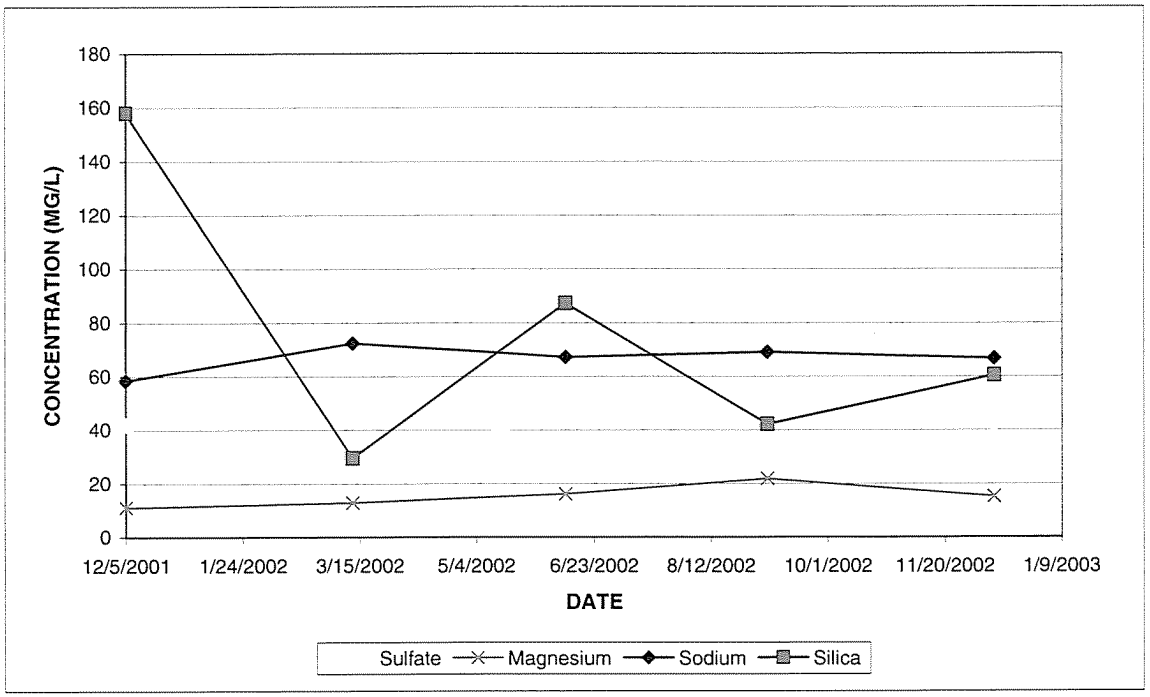


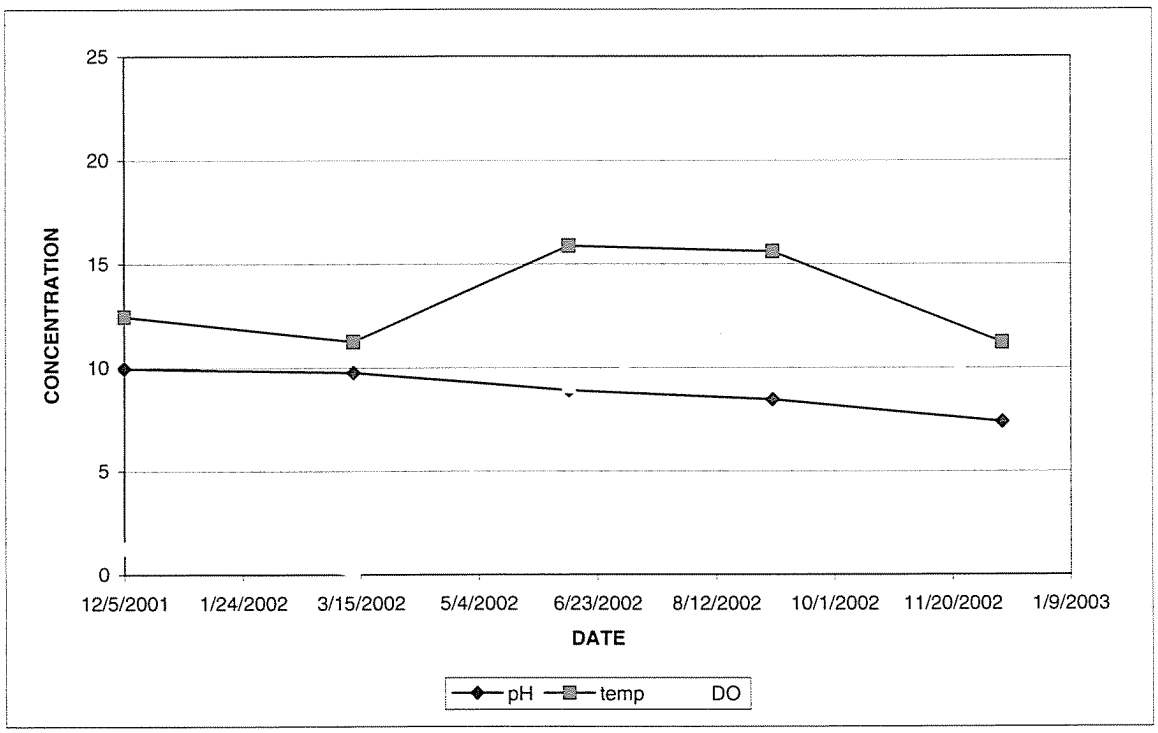
*Note: NYSAWQS for iron is 0.3 MG/L, it is not shown on the chart for scalar uniformity.

WRL-MW7B

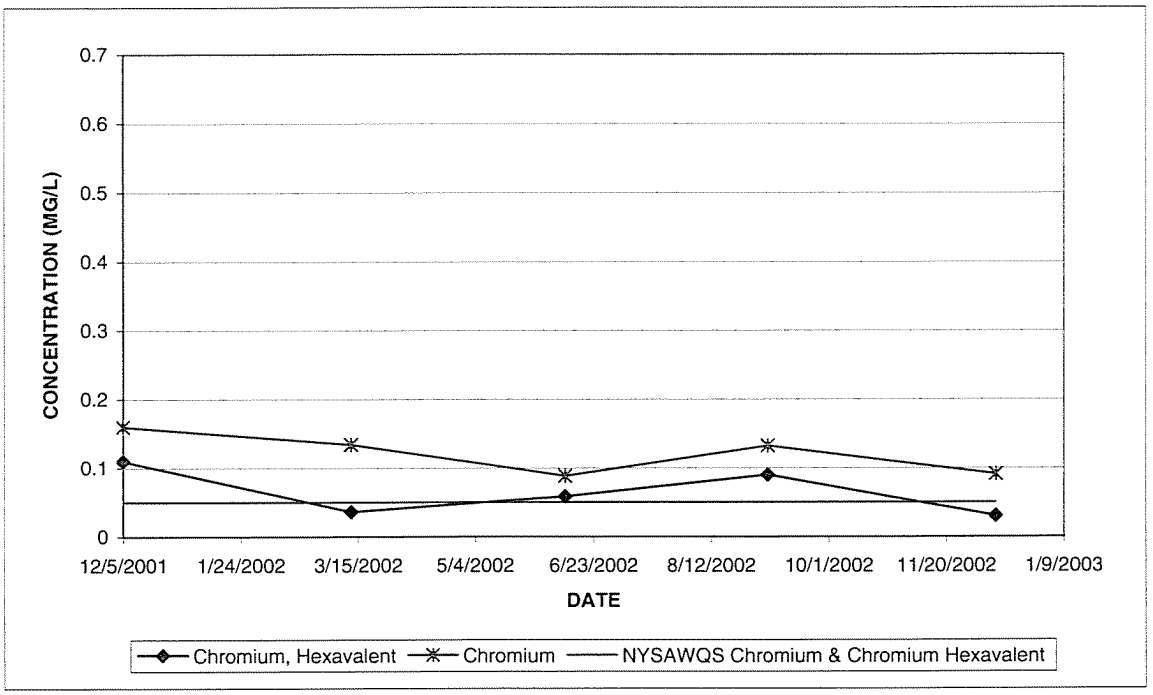

250
200
150
100
50
0
CONCENTRATION (NTU)
12/5/2001
1/24/2002
3/15/2002
5/4/2002
6/23/2002
8/12/2002
10/1/2002
11/20/2002
1/9/2003
DATE
Turbidity

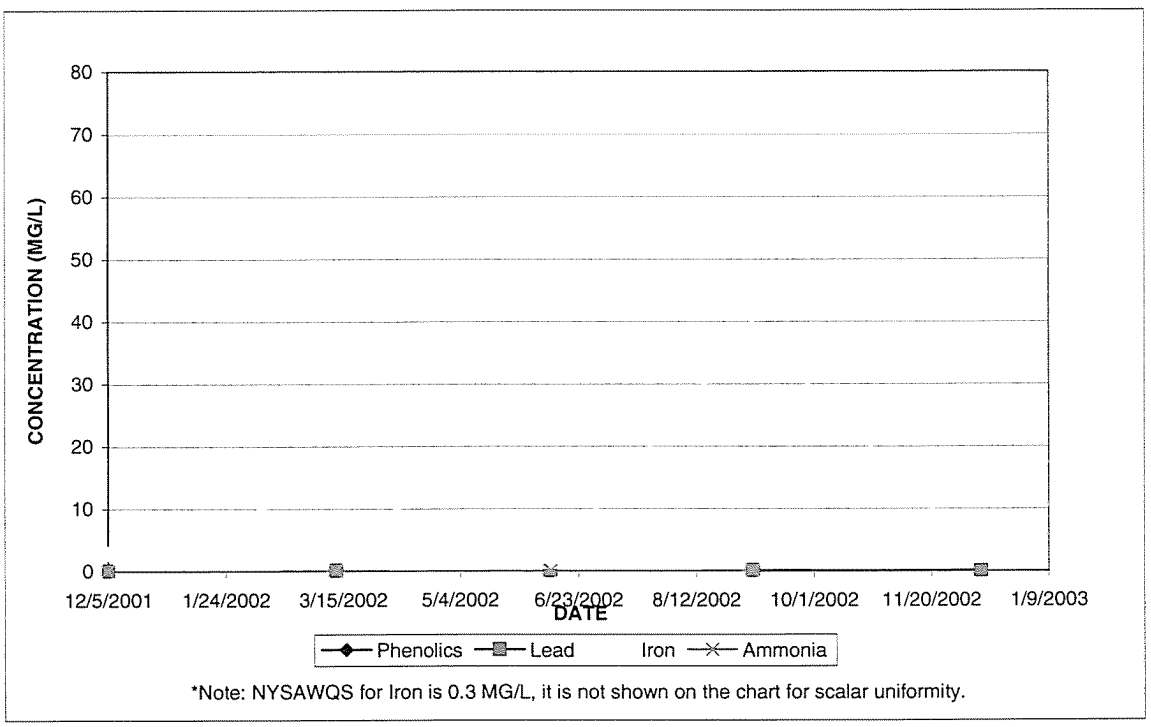
WRL-MW7B


180
160
140
120
100
80
60
40
20
0
CONCENTRATION (MG/L)
12/5/2001
1/24/2002
3/15/2002
5/4/2002
6/23/2002
8/12/2002
10/1/2002
11/20/2002
1/9/2003
DATE
Sulfate
Magnesium
Sodium
Silica


25
20
15
10
5
0
CONCENTRATION
12/5/2001
1/24/2002
3/15/2002
5/4/2002
6/23/2002
8/12/2002
10/1/2002
11/20/2002
1/9/2003
DATE
pH
temp
DO

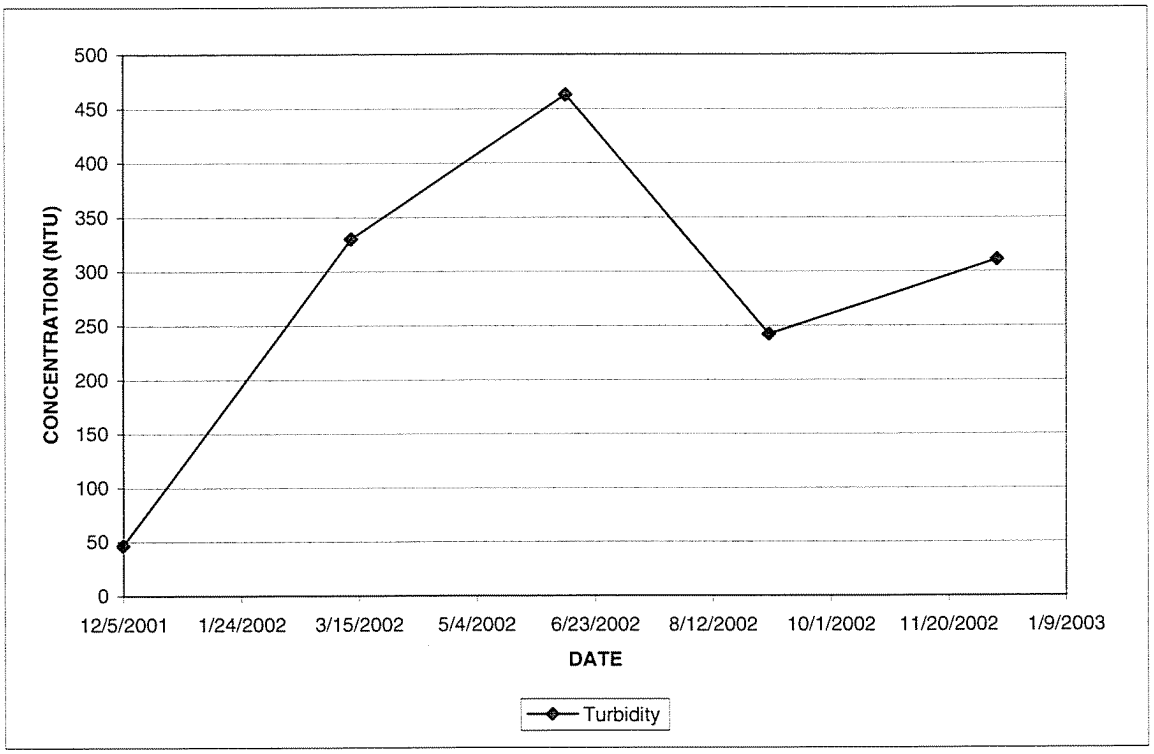
WRL-MW8B



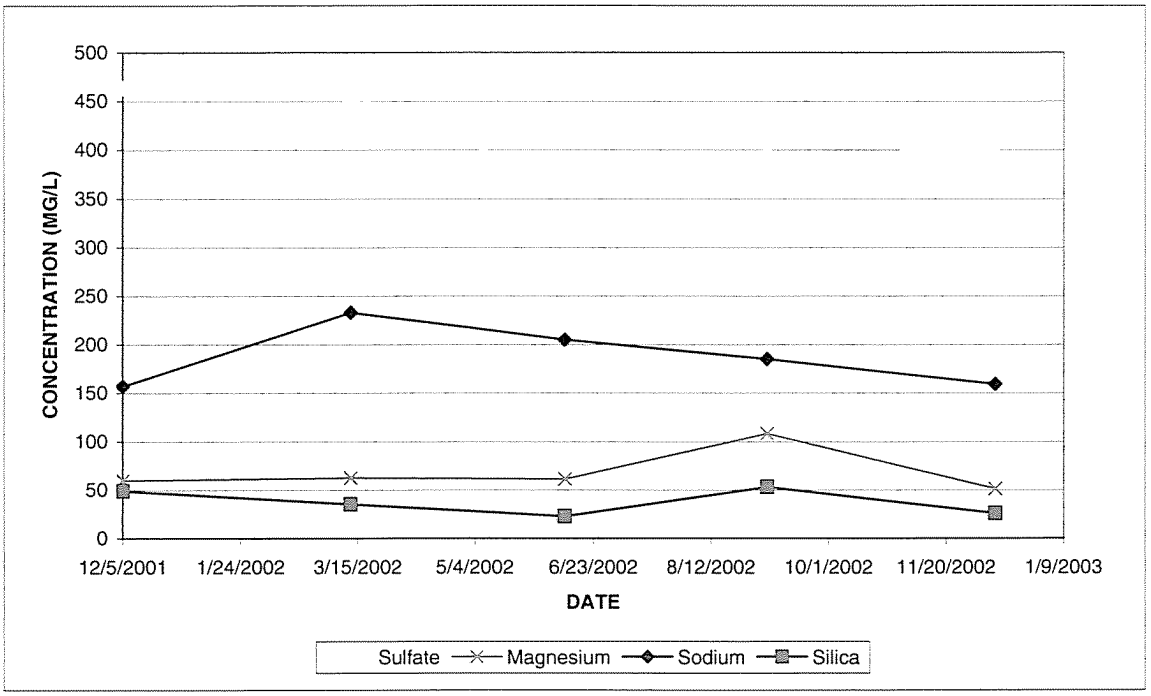


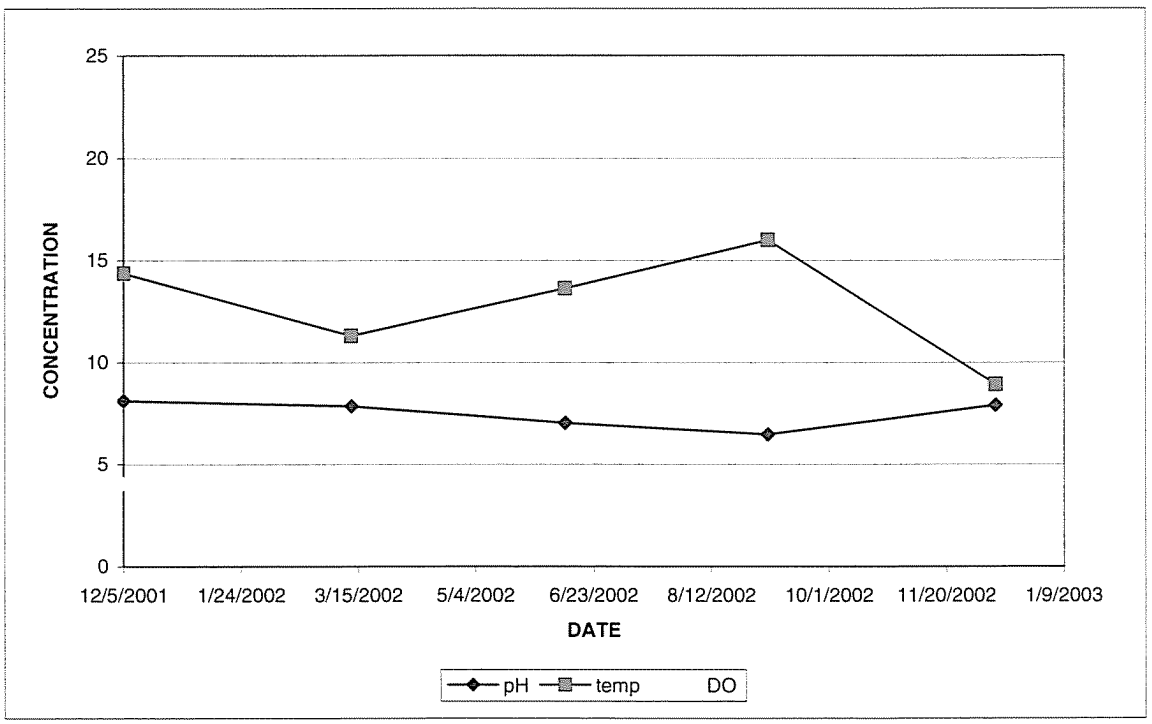
*Note: NYSAWQS for Iron is 0.3 MG/L, it is not shown on the chart for scalar uniformity.

WRL-MW8B

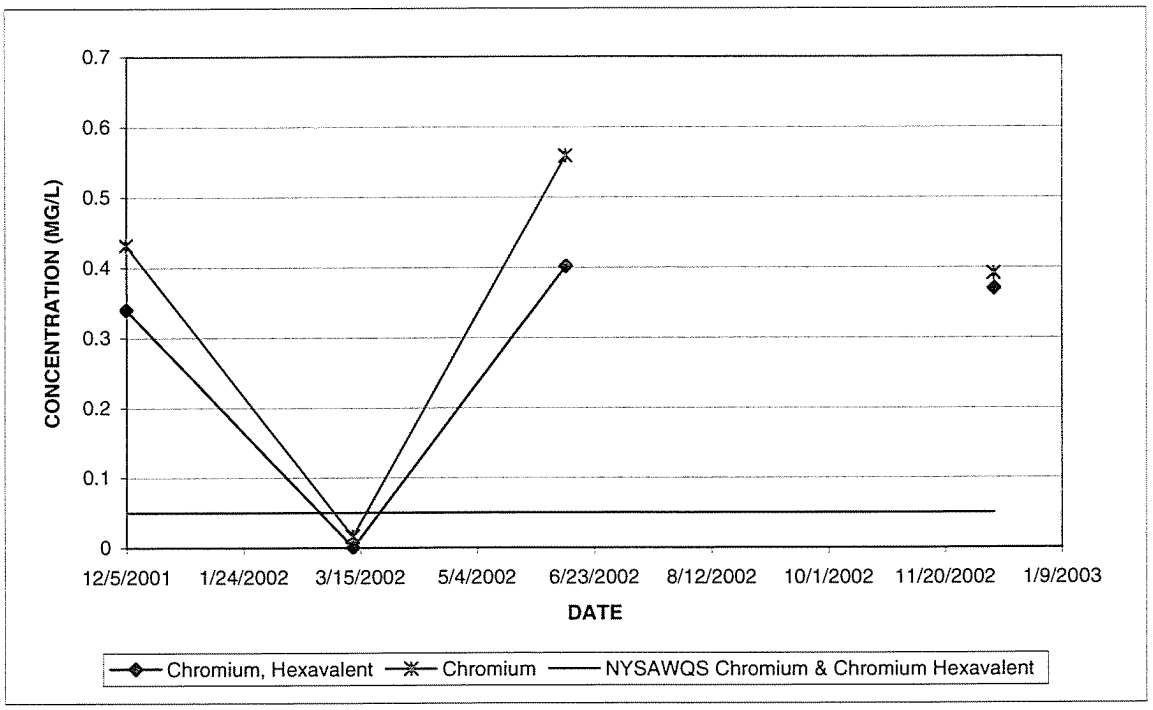

500
450
400
350
300
250
200
150
100
50
0
CONCENTRATION (NTU)
12/5/2001
1/24/2002
3/15/2002
5/4/2002
6/23/2002
8/12/2002
10/1/2002
11/20/2002
1/9/2003
DATE
Turbidity

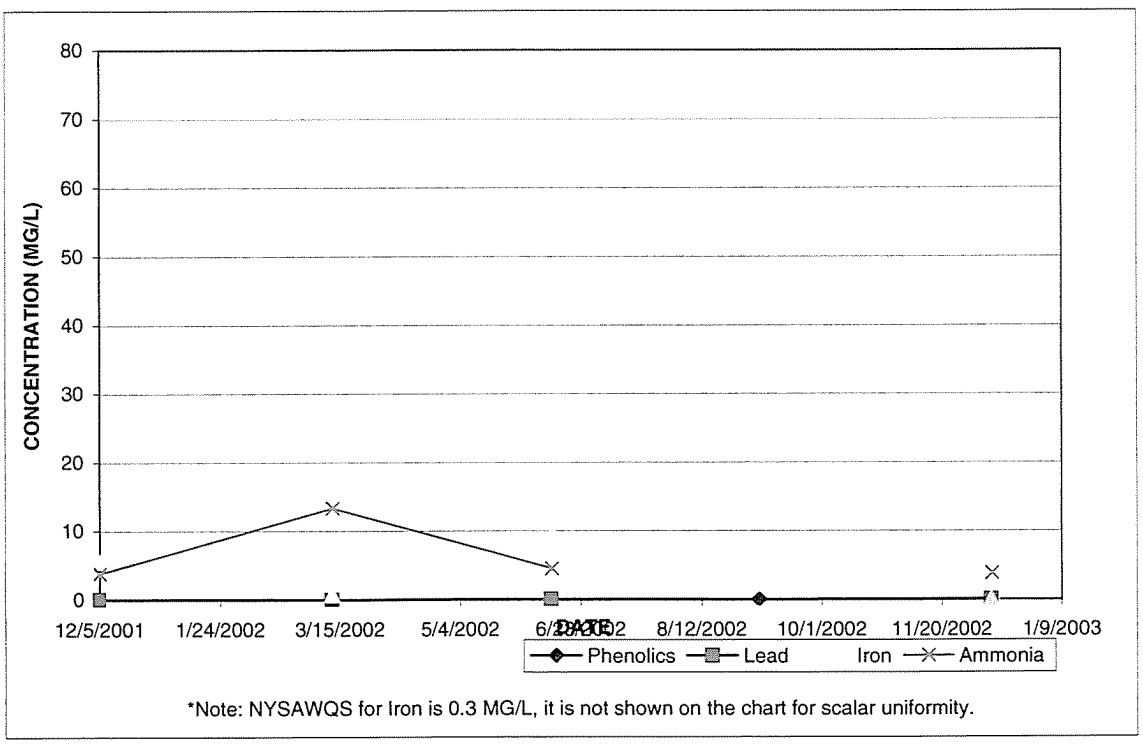
WRL-MW8B


500
450
400
350
300
250
200
150
100
50
0
CONCENTRATION (MG/L)
12/5/2001
1/24/2002
3/15/2002
5/4/2002
6/23/2002
8/12/2002
10/1/2002
11/20/2002
1/9/2003
DATE
Sulfate
Magnesium
Sodium
Silica


25
20
15
10
5
0
CONCENTRATION
12/5/2001
1/24/2002
3/15/2002
5/4/2002
6/23/2002
8/12/2002
10/1/2002
11/20/2002
1/9/2003
DATE
pH
temp
DO

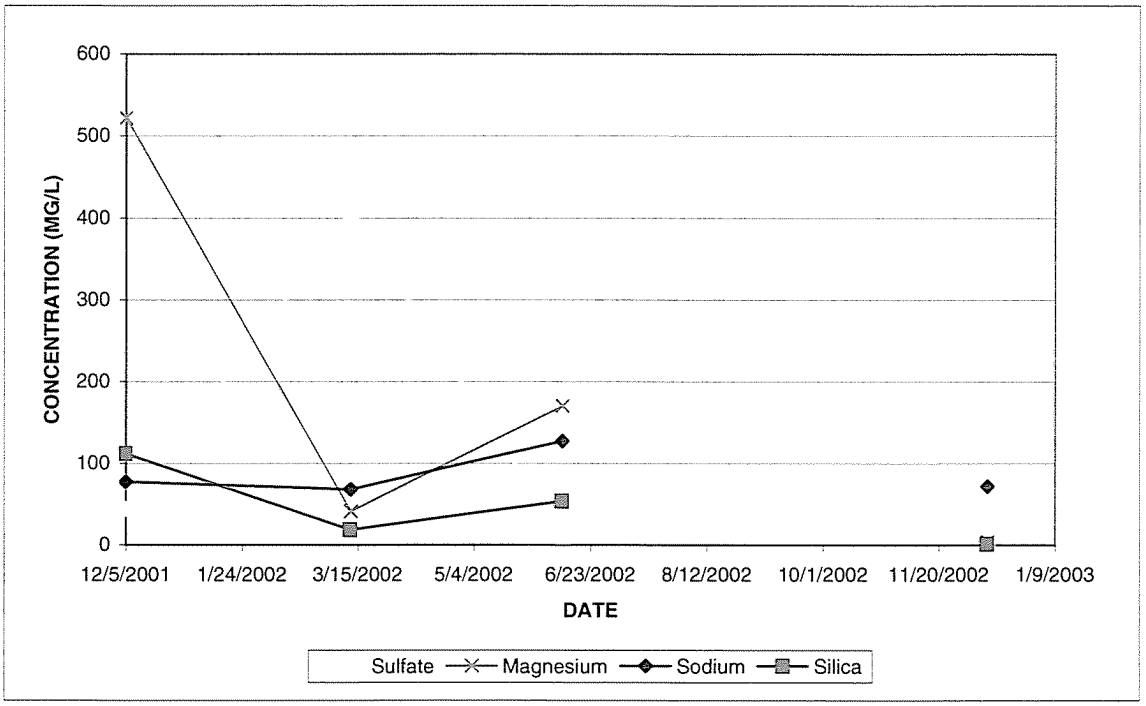
WRL-SS



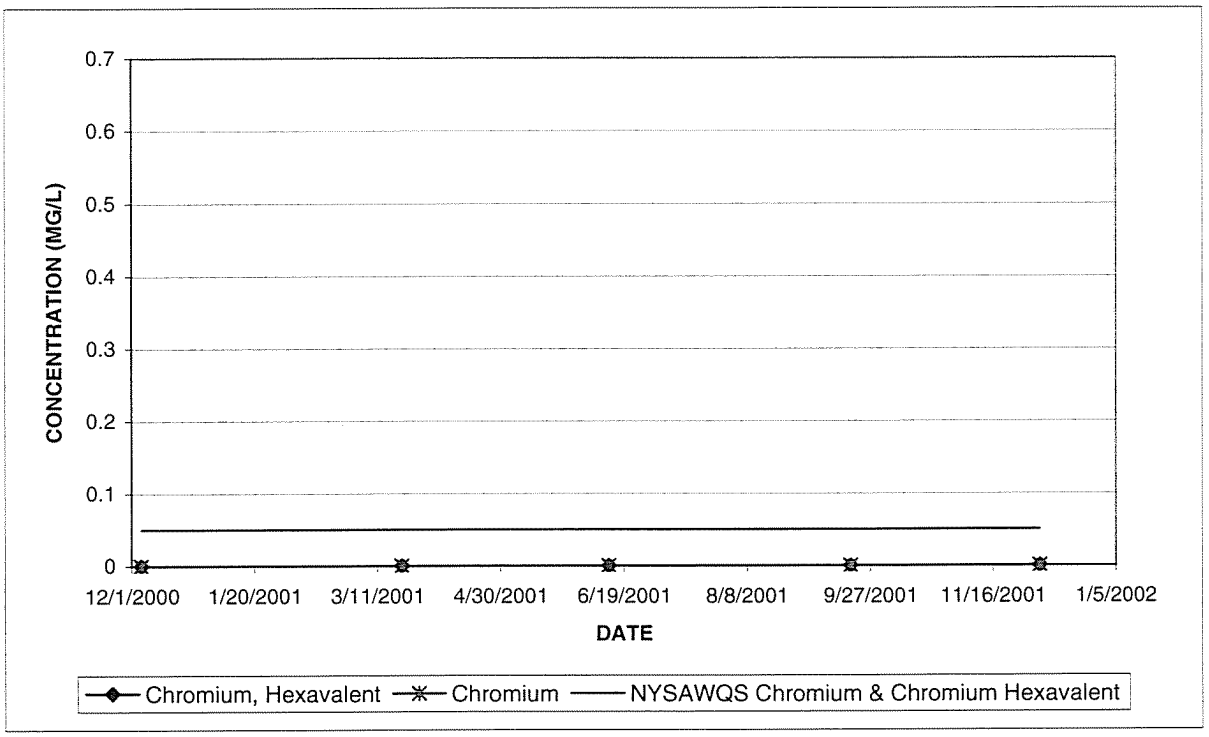


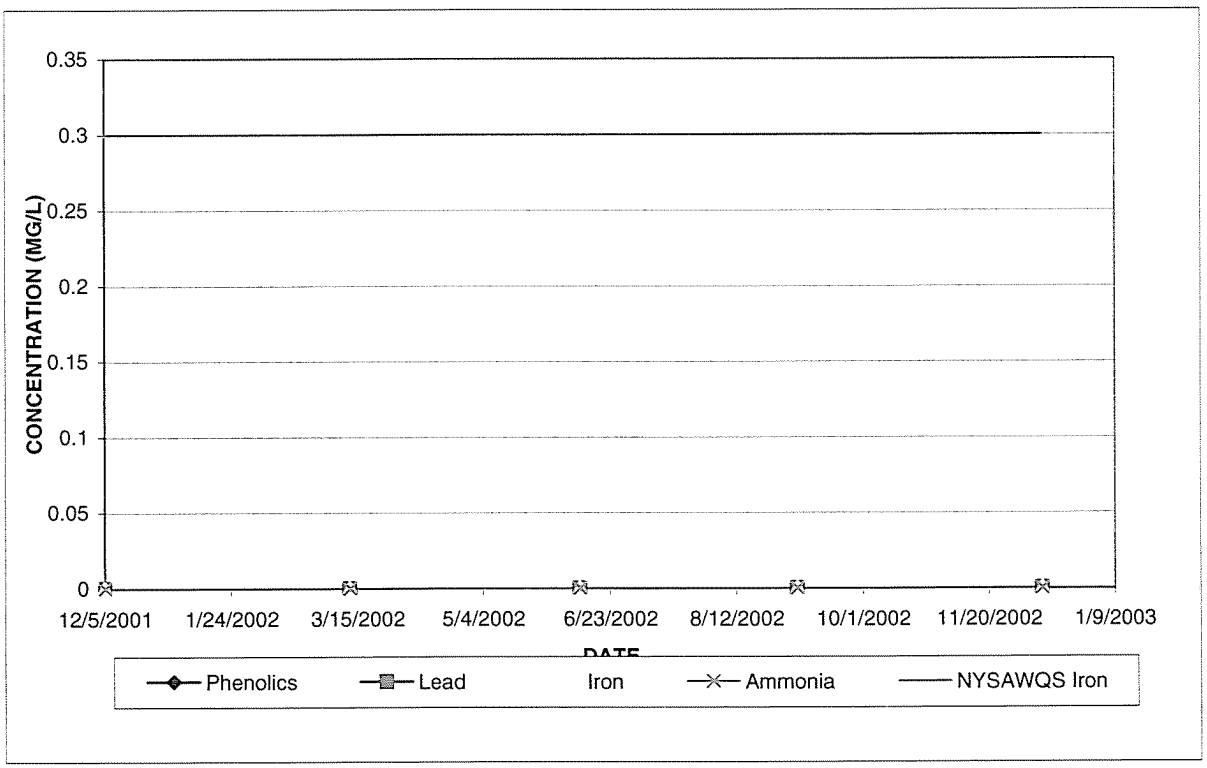
*Note: NYSAWQS for Iron is 0.3 MG/L, it is not shown on the chart for scalar uniformity.

WRL-SS

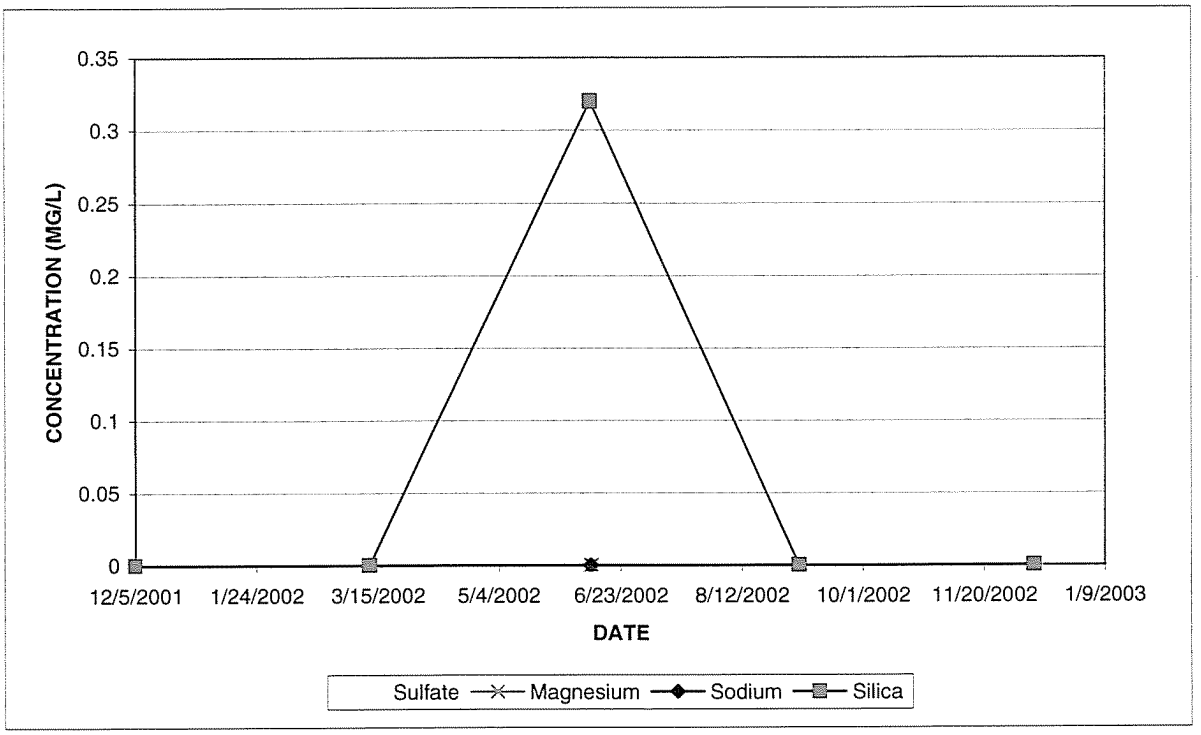

600
500
400
300
200
100
0
CONCENTRATION (MG/L)
12/5/2001
1/24/2002
3/15/2002
5/4/2002
6/23/2002
8/12/2002
10/1/2002
11/20/2002
1/9/2003
DATE
Sulfate
Magnesium
Sodium
Silica

WRL-SW

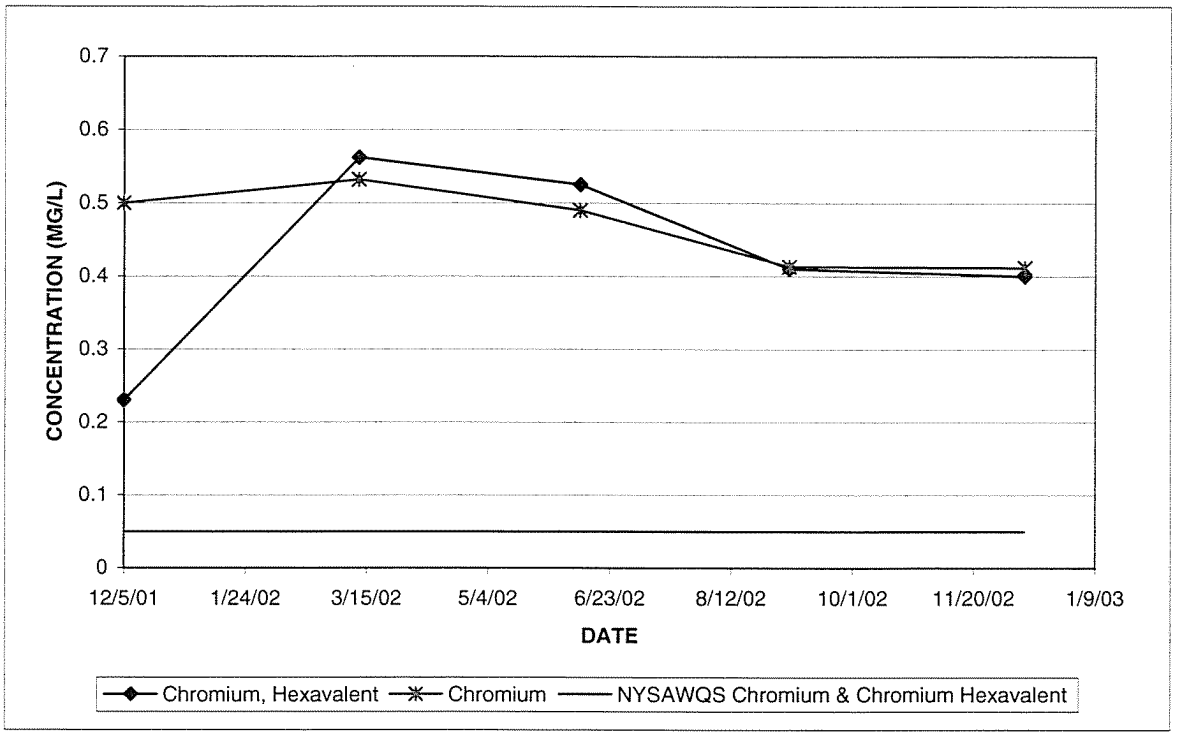

0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
CONCENTRATION (MG/L)
12/1/2000
1/20/2001
3/11/2001
4/30/2001
6/19/2001
8/8/2001
9/27/2001
11/16/2001
1/5/2002
DATE
Chromium, Hexavalent
Chromium
NYSAWQS Chromium & Chromium Hexavalent

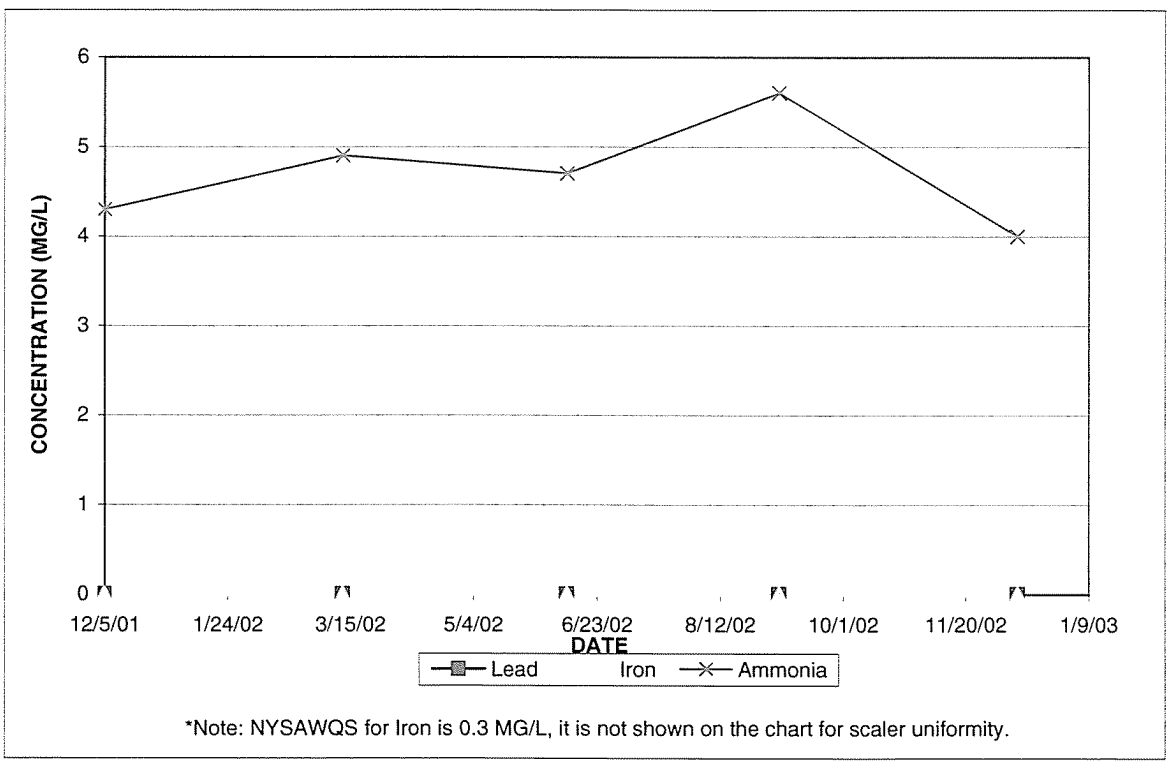

0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
CONCENTRATION (MG/L)
12/5/2001
1/24/2002
3/15/2002
5/4/2002
6/23/2002
8/12/2002
10/1/2002
11/20/2002
1/9/2003
Phenolics
Lead
Iron
Ammonia
NYSAWQS Iron

WRL-SW


0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
CONCENTRATION (MG/L)
12/5/2001
1/24/2002
3/15/2002
5/4/2002
6/23/2002
8/12/2002
10/1/2002
11/20/2002
1/9/2003
DATE
Sulfate
Magnesium
Sodium
Silica

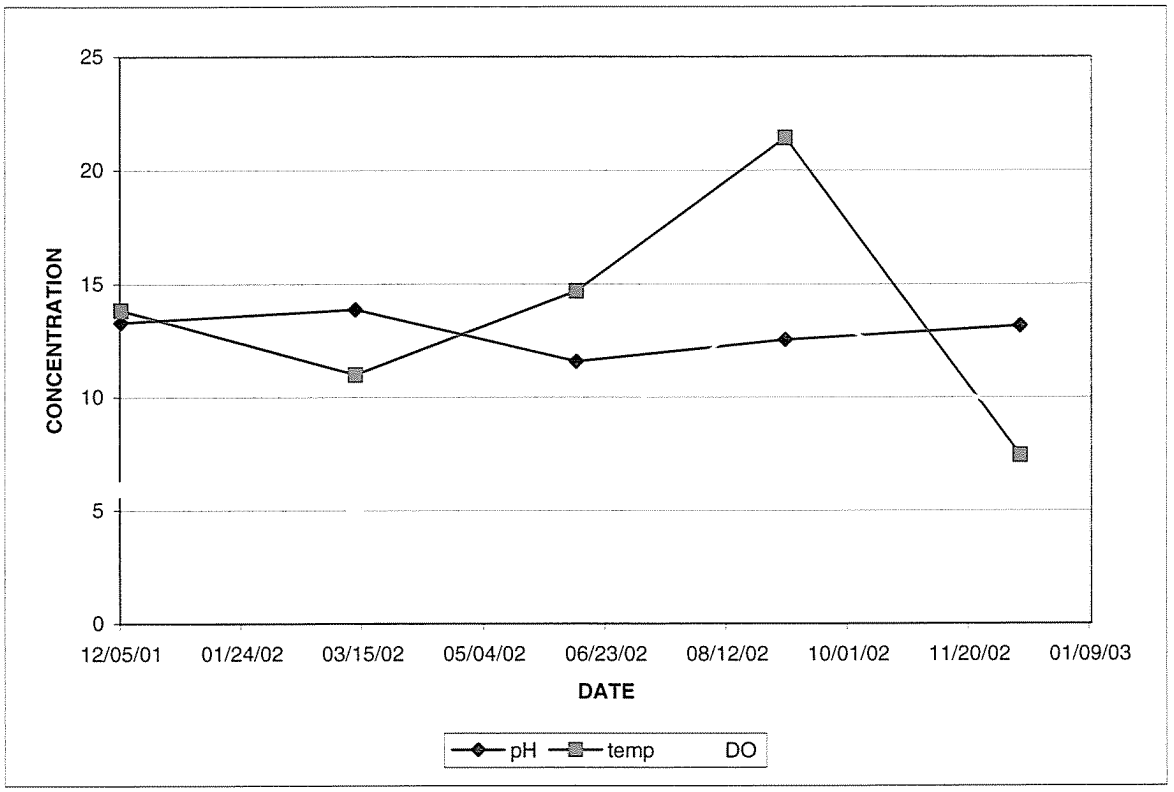
WRL-L1



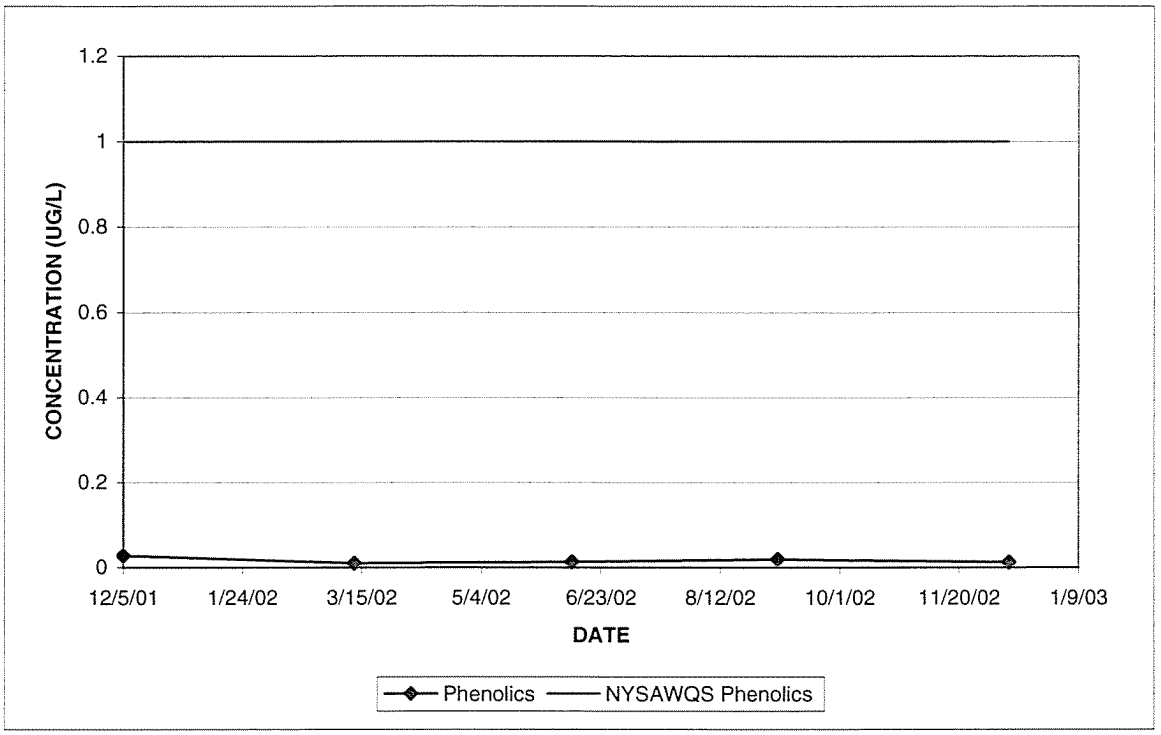


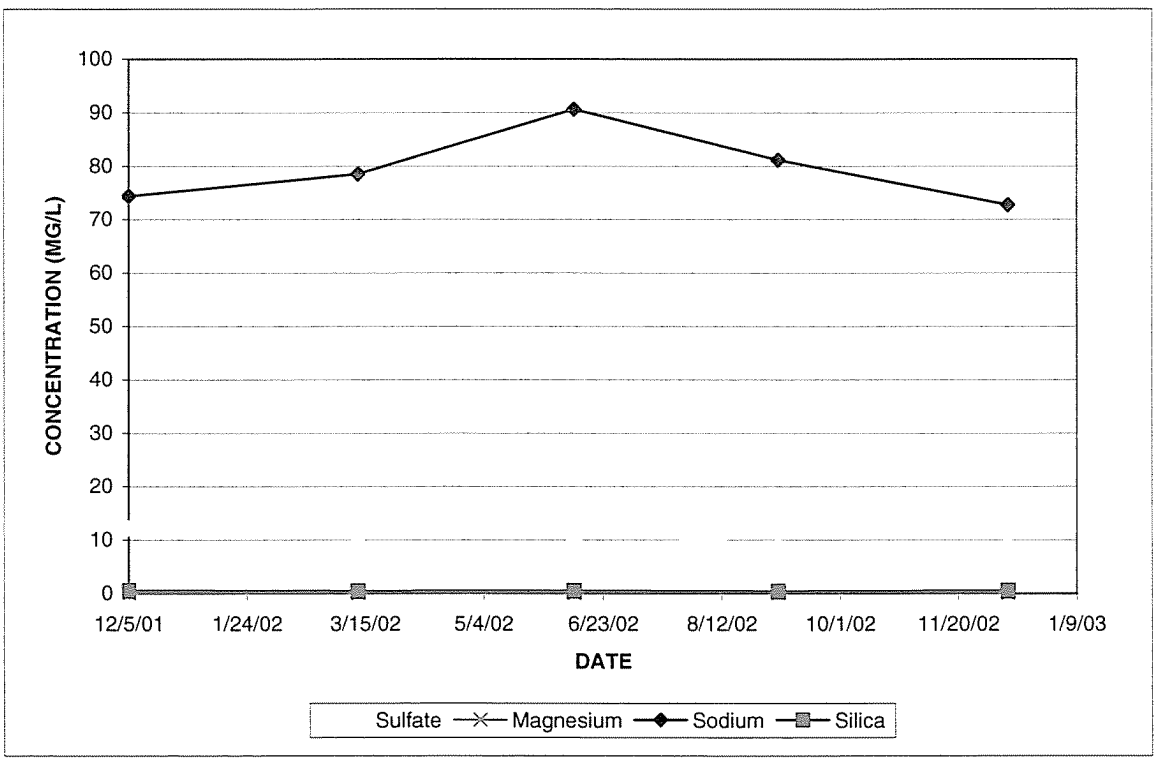
*Note: NYSAWQS for Iron is 0.3 MG/L, it is not shown on the chart for scaler uniformity.

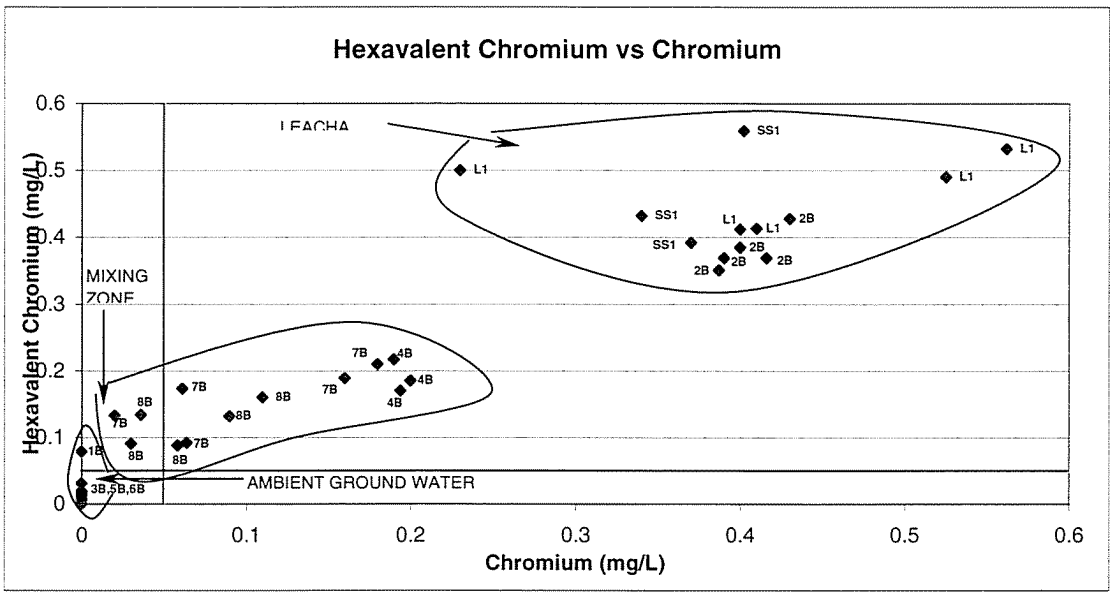
WRL-L1

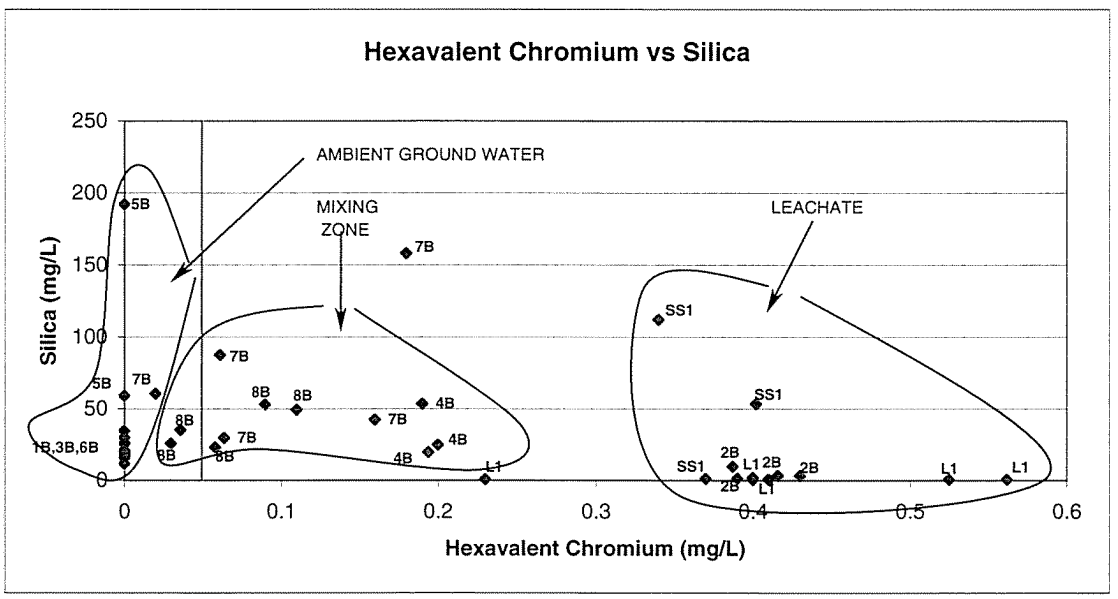

25
20
15
10
5
0
CONCENTRATION
12/05/01
01/24/02
03/15/02
05/04/02
06/23/02
08/12/02
10/01/02
11/20/02
01/09/03
DATE
pH
temp
DO

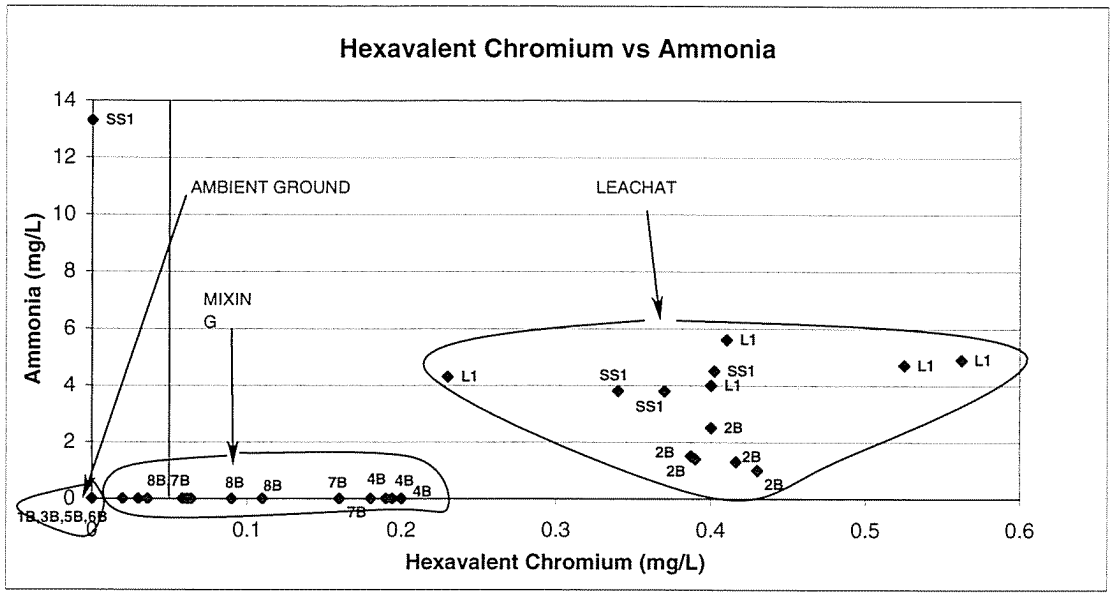
WRL-L1

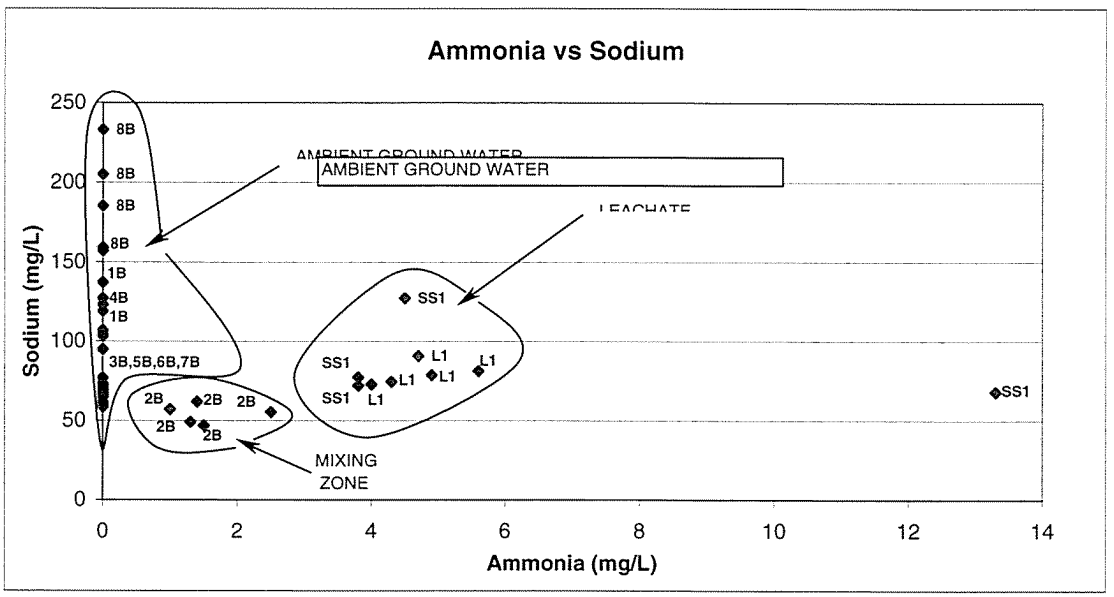

1.2
1
0.8
0.6
0.4
0.2
0
CONCENTRATION (UG/L)
12/5/01
1/24/02
3/15/02
5/4/02
6/23/02
8/12/02
10/1/02
11/20/02
1/9/03
DATE
Phenolics
NYSAWQS Phenolics


100
90
80
70
60
50
40
30
20
10
0
CONCENTRATION (MG/L)
12/5/01
1/24/02
3/15/02
5/4/02
6/23/02
8/12/02
10/1/02
11/20/02
1/9/03
DATE
Sulfate
Magnesium
Sodium
Silica


Hexavalent Chromium vs Chromium
Hexavalent Chromium (mg/L)
Chromium (mg/L)
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.1
0.2
0.3
0.4
0.5
0.6
LEACHA
MIXING
ZONE
AMBIENT GROUND WATER
SS1
L1
2B
7B
4B
8B
1B
3B,5B,6B


Hexavalent Chromium vs Silica
Silica (mg/L)
Hexavalent Chromium (mg/L)
250
200
150
100
50
0
0
0.1
0.2
0.3
0.4
0.5
0.6
AMBIENT GROUND WATER
MIXING
ZONE
LEACHATE
5B
7B
8B
4B
SS1
L1
2B
1B,3B,6B


Hexavalent Chromium vs Ammonia
Ammonia (mg/L)
Hexavalent Chromium (mg/L)
AMBIENT GROUND
LEACHAT
MIXIN
G
SS1
L1
2B
8B
7B
4B
1B,3B,5B,6B
0
2
4
6
8
10
12
14
0.1
0.2
0.3
0.4
0.5
0.6


Ammonia vs Sodium
Sodium (mg/L)
Ammonia (mg/L)
AMBIENT GROUND WATER
MIXING
ZONE
SS1
L1
2B
8B
4B
1B
3B,5B,6B,7B
0
50
100
150
200
250
2
4
6
8
10
12
14