Remedy Review Report
for Site No. 932001
Airco Properties, Inc., Airco Parcel
Niagara Falls, New York

Prepared for

Linde, LLC
575 Mountain Avenue
Murray Hill, New Jersey 07974

Prepared by

Greenstar Environmental Solutions, LLC
6 Gellatly Drive
Wappingers Falls, New York 12590
(845) 223-9944

June 2011
Revision: 0
Project No.: 150C265.1038

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Charles E. McLeod, Jr., P.E.
Senior Engineer

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TABLE OF CONTENTS

REFERENCE LIST

LIST OF FIGURES

EXECUTIVE SUMMARY

The remedy for the Airco Parcel in Niagara Falls, New York included the construction of a modified Title 6 New York Codes of Rules and Regulations (NYCRR) Part 360 landfill cap which covers 24 of the 25 acre parcel, and a collection and treatment system for groundwater which was recharging to the ground surface in the southwest corner of the site. The remedy was constructed in two phases. Phase I included construction of the cap to eliminate the exposure pathways to the waste, and to eliminate infiltrating water into the waste which contributed to leachate production. Phase I was completed on October 2000. Phase II, which included installation of a groundwater collection and treatment system was completed in June 2003. Operation, maintenance, and system modifications have occurred since that time.

Has the remedy been operating as designed?

The assessment of the remedy found that the remedy was constructed in accordance with the requirements of the Interim Remedial Measure (IRM). The remedy is functioning as designed and the threats at the site have been eliminated through capping of the waste and prevention of releases of untreated groundwater.

Have there been reductions/improvements in Constituents of Concern since remedy implementation?

Since the site is an unlined landfill, concentrations of Constituents of Concern **(**COCs) in shallow groundwater in contact with waste may remain above some water quality standards. However, the Remedial Action Objectives (RAOs) for the site do not include restoring the groundwater to drinking water standards. The remedy was designed to prevent exposure pathways, and to prevent the release of untreated groundwater. In that regard, the remedy has significantly reduced the exposure pathways through capping of the former landfill and impacted groundwater control. Reductions and improvements in concentrations of the predominant COC in groundwater and surface water, (Hexavalent chromium) were noted during the 2006 through 2011 reporting period. The hexavalent chromium concentrations were significantly reduced in the surface water samples, and a reducing trend was noted in MW-7B. In the remaining monitoring wells, a slight increasing trend was noted in MW-2B, with the other 6 monitoring wells noting consistent concentrations throughout the last five years.

What, if any, issues have been raised, and what modification are recommended?

No issues have been raised and no modifications to the remedy are necessary. To reduce long term project costs an investigation is currently being completed to assess whether alternative groundwater control scenarios can be used to maintain the protectiveness of the remedy and reduce long term costs.

1. INTRODUCTION

Greenstar Environmental Solutions, LLC (Greenstar) has been retained by Linde, LLC to provide environmental consulting services at the Airco Parcel located in Niagara Falls, New York. The scope of services contracted to Greenstar includes the preparation of this 5-Year Remedy Review Report. The purpose of this review is to determine whether the remedy at the Airco Parcel is protective of human health and the environment. The methods, findings, and conclusions of the review are documented in this report. The report also identifies recommendations for the site for the next five year review period. The site location is shown on Figure 1.

The remedy review for the Airco Parcel is being completed at the request of the New York State Department of Environmental Conservation (NYSDEC), and under 6 NYCRR Part 375-1.10 which indicates that the remedial program not be inconsistent with the National Contingency Plan. This remedy review would constitute a similar review pursuant to the Comprehensive Environmental Response Compensation and Liability Act §121 and the National Contingency Plan.

2. BACKGROUND

2.1 Site Physical Characteristics

The Airco Parcel is a part of the Vanadium Corporation of America Site (Figure 2), which has been placed on the New York State Department of Environmental Conservation (NYSDEC), New York State Registry of Inactive Hazardous Waste Sites. The Vanadium Site includes three Operable Units (OU), which are aligned in a roughly west to east fashion, and are shown on Figure 2.

1) OU-1 is a 37-acre parcel owned by SKW Alloys, Inc. (SKW Parcel).

2) OU-2 is a 25-acre parcel owned by Airco Properties, Inc. (Airco Parcel).

3) OU-3 is a 53-acre parcel owned by Niagara Mohawk Power Corporation/New York Power Authority (NMPC/NYPA Parcel).

The Vanadium Site is currently listed as a Class 2 site in the New York State Registry of Inactive Hazardous Waste Sites (Site No. 932001). This classification indicates a significant threat to public health or the environment, and requires remedial action.

This report addresses only the Airco Parcel, although information from the other parcels is used when necessary to develop a complete understanding of the issues at the Airco Parcel.

2.2 Land and Resource Use

The current land use for the surrounding area is light industrial and commercial, with residential areas approximately 0.75 miles to the south. The Airco Parcel itself is currently fenced with a locked gate. A 24-acre modified 6 NYCRR Part 360 cap has been constructed over the former disposal area as part of an interim remedial measure (IRM) at the Site.

There are no current users of groundwater at the Vanadium Site. Regionally, groundwater yields from overburden deposits are too low for domestic or industrial purposes. The bedrock has the capability to produce higher yields; however, the bedrock groundwater is typically highly mineralized and is not used as a drinking water source in the area.

2.3 Basis of Actions

In 1985, the NYSDEC first listed the Vanadium Site as a Class 2a site in the Registry of Inactive Hazardous Waste Disposal Sites in New York (the Registry). Class 2a is a temporary classification assigned to a site that has inadequate and/or insufficient data for inclusion in any of the other classifications. In 1995, the NYSDEC listed the Vanadium Site as a Class 2 site in the Registry of Inactive Hazardous Waste Disposal Sites in New York. A Class 2 site is a site where the NYSDEC has determined hazardous waste presents a significant threat to the public health or the environment and action is required.

2.4 Basis for Taking Action at The Airco Parcel

The Airco Parcel was historically used to dispose of a wide variety of waste materials stemming from the metallurgic industry. Prior to commencement of remedial activities at the Airco Parcel, approximately 80 percent of the site was largely exposed waste, and significant flows of groundwater discharging to surface water in the eastern and southwest portions of the site were evident. The groundwater contained elevated concentrations of calcium, chromium and hexavalent chromium, and exhibited an elevated pH.

Remedial measures include operation and maintenance of the cap to prevent exposure to waste materials, and operation and maintenance of the Groundwater Collection and Treatment System (GCTS) to prevent the release of untreated groundwater. Exposure pathways are controlled since public water is available adjacent to and in the vicinity of the site. Potential exposure pathways at the Airco Parcel are being addressed through the capping of the landfill, the installation of the fence, and operation and maintenance of the GCTS.

As noted in the Proposed Remedial Action Plan (PRAP) and Record of Decision (ROD) developed for the Vanadium Site (NYSDEC 2006), the IRM for the Airco Parcel has accomplished the remedial action objectives provided that they continue to be operated and maintained in a manner consistent with the design and approved Operation, Maintenance and Monitoring Plans.

3. REMEDIAL ACTIONS

3.1 Remedy Selected

The original IRM selected for the Airco Parcel included installation of a landfill cap to limit infiltration of water into the waste material thereby reducing the amount of impacted groundwater or surface water. Since the Airco Parcel had been permitted as a 6 NYCRR Part 360 landfill, the remedy was required to conform to the provisions of 6 NYCRR Part 360, Solid Waste Management Facilities (NYSDEC 1998), including applicable subparts.

The cap design, which was prepared to meet the requirements set forth in 6 NYCRR Part 360, needed to address the following capping components:

- A gas venting layer (12-in. minimum)
- A low permeability layer (18-in. 1 x 10^{-7} cm/sec clay layer or a 40-mil geomembrane)
- A barrier protection layer (24-in. minimum)
- A topsoil layer (6-in. minimum).

The Closure Plan (EA 2000) included variances to the requirements and was approved by NYSDEC in May 2000. The approved variances modified the cap profile to include the following:

- Bedding layer (6-in.)
- Low permeability layer (40-mil VFPE geomembrane)
- Drainage layer (geocomposite drainage net)
- Barrier protection layer (12 in.)
- Topsoil (6 in.).

The original IRM was augmented in 2003 with the incorporation of the GCTS. The system was designed to prevent the uncontrolled discharge of impacted groundwater from the Airco Parcel. The design incorporated carbon dioxide (CO_2) aeration for pH adjustment, settling for precipitate removal, oxidation-reduction via zero valence iron, and final clarification via an engineered wetland. The GCTS design was based on a 15 gpm average flow rate and maximum flow rate of 25 gpm. Subsequent modifications to the system occurred following the issuance of the first Remedy Review Report (Greenstar 2006) which included replacing settling ponds with process tanks, upgrades to the collection trench and pumping systems, and installation of an emergency overflow pond for use during alarm conditions.

3.2 Remedy Implementation

3.2.1 Landfill Cap

The remedial design was completed May 23, 2000 when written approval from NYSDEC personnel was received. During construction approximately 80,000 $yd^3$of waste was relocated and graded to achieve the design grades.

The cap construction entailed the placement of a 6-in. bedding layer, geosynthetic liner, geonet-geotextile composite drainage layer, final cover soil, top soil, and vegetative cover. Storm water management systems for the cap consisted of the construction of perimeter rip-rap drainage channels. A fence was also constructed around the perimeter of the landfill property to restrict access to the landfill.

Following the completion of the landfill cap, construction-disturbed areas outside the landfill property and within the temporary construction easements obtained to implement the remedy were seeded. The site achieved construction completion status when the IRM Report (EA 2001) was submitted to NYSDEC on January 31, 2001.

3.2.2 Groundwater Collection and Treatment System

During construction of the capping system a relief pipe system was installed to allow groundwater to exit from under the cap without causing slope instability. Flow monitoring and quarterly sampling were initiated as part of post-closure operations and facility maintenance. Site data indicated that the leachate was actually shallow groundwater recharging to surface water, and the recharge of groundwater at the site would continue to flow seasonally. The data further indicated that elevated hexavalent chromium (Cr^{6+}) concentrations and pH in groundwater, upon mixing with surface water, remained in excess of the NYSDEC Ambient Water Quality Standards (AWQS) for a Class D surface water.

The GCTS was designed and implemented in 2003 as an additional remedial action, which was deemed necessary to meet the Remedial Action Objective's (RAOs). The main portion of the GCTS is located on the northwest corner of the site and contains the main control panel, carbon dioxide storage tank, carbon dioxide aeration and precipitation tanks, zero valence iron reaction tanks, iron precipitation and settling tanks, and engineered wetland. At the southwest corner of the site there is a pump station which conveys water collected in the collection trench to the treatment system.

3.3 System Operations/Operations and Maintenance

Linde, LLC has the responsibility for conducting operation and maintenance activities at the Airco Parcel. These activities are being conducted in accordance with the Post-Closure Monitoring and Facility Maintenance Plan (EA 2004).

The following are required as part of post-closure monitoring and facility maintenance.

- All drainage structures and ditches must be maintained to prevent ponding of water and erosion of the final landfill soil cap.

- Routine inspections of sediment ponds and the engineered wetland to assess the presence of mosquito larva.

- Soil cover integrity, slopes, cover vegetation, drainage structures, and the perimeter road must be maintained during the post-closure monitoring and maintenance period.

- Environmental monitoring points must be maintained and sampled during the post-closure period. Bi-annual summary reports must be submitted to the New York State Department of Environmental Conservation Division of Solid and Hazardous Materials, Region 9, the State of New York Department of Health in Albany, New York; and to the document repository located at the Town of Niagara Town Clerk's Office.

- A vegetative cover must be maintained on all exposed final cover material, and adequate measures must be taken to ensure the integrity of the final vegetated cover, topsoil layer, and underlying barrier protection layer.

- The GCTS must be operated and maintained to effectively mitigate the release of groundwater recharging to surface water in the southwest corner of the Airco Parcel.

- Records must be maintained of all sampling and analysis results.

The primary remedial activity at the Airco Parcel involved the construction of a 6 NYCRR Part 360 cap. The landfill cap was designed to eliminate the flow of water through the landfill by providing an impermeable layer which prevents precipitation from infiltrating into the landfill thereby producing leachate. The cap, therefore, effectively removes a major source of the on-going groundwater contamination by reducing leachate generation. Current activities have been focused on operation and maintenance of the treatment system, monitoring groundwater at the site perimeter monitoring wells, and inspections and maintenance of the cap and fence around the site.

4. REVIEW OF SITE ACTIVITIES

This report reviews the second five years since the IRM at the Airco Parcel was completed. The following is a brief synopsis of the activities completed during the period 1 January 2006 through 31 December 2011.

GCTS Modifications performed during January–June 2006 as follows:

- Upgrades to the pump station in the southwest corner by installing a second pump and controls to increase system reliability. This included new piping, check valves and isolation valves.
- Excavation and removal of the sump in the southwest corner which was used as a sediment trap to eliminate the potential for overland flow off-site.
- Draining of both settling ponds to facilitate cleaning. Repairs after cleaning included replacement of the pond diffusers, addition of 2 new baffles to improve settling efficiency, and repairs to the existing baffles.
- Excavation of the spent iron from the 4 tanks, re-piping of the distribution piping in the tanks, and replacement of 24 tons of new zero valiance iron.
- Excavation and relocation of the Sediment Pond A influent line to discharge directly into the deep end of Pond A.
- Installation of three 480V submersible pumps in the shallow ends of Pond A & B, and in T4 (the iron discharge collection sump) with new pressure transducers and programming so pump operations can be integrated into the Programmable Logical Controller (PLC) and Supervisory Control and Data Acquisition (SCADA) system.
- Relocation of the variable frequency drive from the control panel to the new control equipment shed to eliminate interference with the level controls.
- Installation of the solar panel high speed internet connection and PC running Iconics SCADA software to facilitate remote system management from an off-site location.

GCTS Modifications performed during July–December 2006 as follows:

- The pressure transmitter on the CO_2 storage tank was integrated into the PLC and SCADA system to track real time tank level and CO_2 consumption.
- Sediment from the southwest corner was removed and the swale was re-graded to improve stormwater flow around the pump station.
- The engineered wetland discharge line was re-routed under the access road to allow the water to directly discharge into the swale. The access road was subsequently refurbished with additional stone and geotextile fabric to restore it to specification.
- Construction of a new 40,000 gallon lined pond which enables the system to run 24/7 during system failures and system down time for maintenance.

GCTS Modifications performed during January–July 2007 as follows:

- Installation of the standby generator and automatic transfer switch.
- Installation of two 1,000 propane tanks.
- Installation of the new valve shed for operation of the GCTS influent.

GCTS Modifications performed during July–December 2007 as follows:

- Replacement of settling ponds with a series of 27 process tanks.
- Installation of the new chemical feed shed which houses various process components including the new chemical feed pumps and storage tanks to promote precipitate formation and settling.
- Upgrades to the SCADA system and web pages.

GCTS Modifications performed during January–June 2008 as follows:

- Removal of the existing leachate collection trench and installation of a new wider trench.
- Installation of a new electrical service, pumps, variable frequency drives, ethernet radios, ethernet cameras, process controls, and equipment shed.
- Installation of a dry well in the southwest corner of the parcel.
- Ceased use of polymer for iron removal as the polymer was not successful and resulted in increased iron fouling of the drainage swale used to convey water back to the southwest corner.

Most of the modifications performed above were done to address concerns or deficiencies noted in the first 5-Year Remedy Review Report (Greenstar 2006).

GCTS Modifications performed during June 2008–December 2010 as follows:

No other system modifications or improvements have been made since completion of the upgrades to address the first 5-Year Remedy Review Report comments. Only routine operations and maintenance activities were performed.

Additional Investigations performed during 2010 and 2011 as follows:

Although not required by NYSDEC, the following activities were completed in 2010 and 2011 to

assess whether improvements to the remedial measures in place at the site can maintain remedy protectiveness and lower long term project costs:

- Installation of 4 piezometers through the center of the landfill cap to collect groundwater elevation data and slug test data in support of the preparation of a groundwater model.
- Site wide gauging of available bedrock and overburden wells located throughout OU1, OU2 and OU3.
- Slug testing on the existing 8 monitoring wells located on the Airco Parcel as well as the 4 new piezometers.
- Preparation of a Site wide groundwater model to be used in evaluating alternative remedies which could reduce long-term monitoring and maintenance costs.

5. DOCUMENT REVIEW

Document review consisted of relevant documents including the Final Closure Plan (EA 2000), Post-Closure Monitoring and Facility Maintenance Plan (EA 2004), Operations and Maintenance records, and monitoring data (Greenstar 2006 – 2010).

5.1 Data Review

5.1.1 Groundwater Contours

Groundwater flow patterns have been similar during the last five years. In general, groundwater elevations are highest near MW-1B. No significant seasonal trends have been noted. The groundwater elevations inside the capped landfill are not monitored directly, although elevations are believed to have been reduced due to placement of the impermeable cap. Based on groundwater data collected at the site monitoring wells a groundwater divide appears to be located within the landfill extending between MW-1B and MW-5B. As noted in Section 4.0, additional investigations are ongoing to evaluate the groundwater elevation data within the middle of the landfill in support of preparation of a groundwater model. These activities, along with a revised conceptual site model will be presented in 2012 as discussed in Section 7.0.

5.1.2 Groundwater Monitoring

The approved Post-Closure Monitoring and Facility Maintenance Plan (EA 2004) specify that the sampling results are to be compared to NYSDEC AWQS (NYSDEC 1999) and guidance values for Class GA waters. Class GA groundwater is used as a source of drinking water and is considered to be highly conservative for this area which has no groundwater users nearby. Surface water samples were compared to NYSDEC AWQS for Class D surface waters. Class D waters are used for fishing but are not conducive to fish propagation. If no Class D standards were applicable for a particular compound, analytical results were compared to the more stringent Class C standards. Class C waters are suitable for fishing and fish propagation.

Groundwater monitoring has been conducted in accordance with the post-closure monitoring and facility maintenance plan since December 2000. Data prior to that had been collected from the existing monitoring wells quarterly for approximately 20 years. The data evaluation for this remedy review is limited to evaluating the last five years of data from the eight monitoring wells, surface water samples (Figure 3), and GCTS discharge samples as the data generated from these monitoring locations most accurately reflect current groundwater and surface water conditions since the remedy was completed.

The following is a synopsis of notable trends identified for analytes of interest for the monitoring locations.

- MW-1B - This monitoring well is located along the northern property boundary and is considered an upgradient well. This well exhibits consistent levels of manganese, magnesium, and sodium above comparison AWQS. The elevated concentrations of these three parameters are likely due to natural conditions which occur outside the Airco Parcel. As noted in the groundwater contour maps provided in Appendix A, groundwater flows onto the property at this monitoring location. Analytical results for groundwater, surface water, groundwater collection and treatment system effluent sampling for the last five years is summarized in Appendix B and monitoring well trend charts are provided in Appendix C. The data suggests that there are no significant concentrations of hexavalent chromium in groundwater upgradient of the site. Concentrations of iron, magnesium, manganese, sodium, and zinc have been consistent with time, neither showing increasing or decreasing trends. With the exception of one elevated concentration of silica in October 2006, silica concentrations have been consistent. The water quality at this location is considered background quality for purposes of evaluating data from other on-site monitoring wells.

- MW-2B – This monitoring well is located along the upper portion of the eastern site boundary. Sample results from this well have consistently indicated the highest concentrations of Cr^{6+} during the review period. The total chromium concentrations at this monitoring well show a slightly increasing trend over the last five years while the Cr^{6+} concentration has shown a decreasing trend. Other analytes sampled at this location show consistent concentrations.

- MW-3B – This monitoring well is located along the lower portion of the eastern site boundary. Groundwater data from this monitoring well indicates stable concentrations with slight increasing or decreasing trends over the last 5 years for manganese, magnesium and sodium. Only sodium, and in one instance iron in September 2008, exceed the AWQC at this location.

- MW-4B – This monitoring well is located at the southeast corner of the site and has had levels consistently above comparison AWQS for total and hexavalent chromium, iron, magnesium and sodium. The total and hexavalent chromium concentrations have shown a slightly increasing trend during the last five years while iron, magnesium and sodium have exhibited stable concentrations.

- MW-5B – This monitoring well is located along the southern boundary of the Site. Groundwater data at MW-5B is consistent with metals concentrations noted at MW-3B. No concentrations of hexavalent or total chromium were above comparable AWQS during the last five years. The data over the last five years has shown little change.

- MW-6B – This monitoring well is located at the southwest corner of the Site. The groundwater quality at MW-6B is similar to that of MW-3B and MW-5B. No exceedence of guidance values for Class GA waters for hexavalent or total chromium were observed during the five-year period. The data over the last five years has shown little change.

- MW-7B – This monitoring well is located approximately midway along the western boundary of the Site. The groundwater data indicate that total chromium is no longer in excess of the AWQC, and that hexavalent chromium is no longer detected at this location. The sodium concentration has been fairly consistent and generally does not indicate an increasing or decreasing trend.

- MW-8B – This monitoring well is located along the upper portion of the western Site boundary. In general, the data shows fairly consistent concentrations of total and hexavalent chromium, cadmium, magnesium, manganese, and selenium.

5.1.3 Surface Water Monitoring

Monitoring of the surface water in the southwest corner has been ongoing since post-closure activities initiated in December 2000. The following provides a synopsis of the trends for the surface water.

- Surface Water—Surface water is sampled in 3 locations in the southwest corner, if surface water is present. Samples are collected from the drainage swale north of the discharge point in southwest corner (SS-02), to the east in the southern drainage swale (SS-03) and at the confluence of the two drainage swales prior to the surface water exiting the site (SS-01). This is done to evaluate the effectiveness of the remedy, and to monitor for uncontrolled discharges of impacted water. Notable results are as follows:

    - Concentrations of hexavalent chromium, selenium and iron in SS-01 have been non-detect or below AWQC during monitoring completed in 2006 through 2011 with one exception, April 2006, which was prior to implementation of the first Remedy Review Report recommendations.
    - Only iron exceeded AWQC at SS-02 during monitoring completed in 2006 through 2010. Both exceedances were noted during the two sampling events completed during 2010. The 2010 year was extremely dry, and less water was processed through the system than in a normal year. This could have led to more concentrated iron concentrations in the groundwater which passed through the system.
    - No constituents exceeded AWQC at SS-03 during monitoring completed from 2006 through 2011.

5.1.4 Groundwater Collection and Treatment System

Monitoring of the GCTS has been ongoing since the system was installed. Performance sampling was initiated in November 2003. Analytical results are summarized in Appendix B with groundwater collection and treatment system effluent trend charts presented in Appendix D. The following provides a synopsis of the trends for the GCTS effluent.

- GCTS—Appendix D provides a summary of the trends of parameters monitored as part of the State Pollutant Discharge Elimination System discharge guidelines for the GCTS. During the last five years: Total Suspended Solids, BOD, and COD exceeded the discharge guidelines once during the March 2008 sampling event; iron exceeded the discharge guidelines five times, with the last time being the March 2008 sampling event; and selenium exceeded the discharge guidelines three times with the last time being the May 2010 sampling event. It should be noted that the GCTS is not designed to remove selenium. During the last five years, there were no Total or Hexavalent Chromium values which exceeded the discharge guidelines.

5.2 Site Inspection

Inspections at the Airco Parcel have been conducted quarterly since the landfill was capped in October 2000. The cap vegetation is in excellent condition with no signs of significant bare spots or areas of erosion. Routine repairs to remove any excessive growth of vegetation, some rooted, occurs in the fall of each year to maintain the cap and surrounding drainage structures. During the inspections it was noted that the security fence was intact and undamaged.

6. TECHNICAL ASSESSMENT SUMMARY

According to the data reviewed and the site inspection, the cap, is functioning as intended by the IRM for the Airco Parcel. The capping of the landfill achieved the RAOs to minimize the migration of contaminants to groundwater and to eliminate environmental and human exposure. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. Operation and maintenance of the cap and drainage structures has generally been effective. The cap and surrounding area were undisturbed, and the fence around the site is intact and in good repair.

The GCTS is functioning as designed. Questions regarding the long-term viability of maintaining the GCTS due to the high annual O&M costs have been raised. During the first quarter of 2011 Greenstar and Linde have been discussing and evaluating alternative remedies to replace the GCTS. An alternative remedy to prevent uncontrolled discharge of impacted groundwater to surface water is discussed in Section 7.

7. ISSUES, RECOMMENDATIONS, AND FOLLOW UP ACTIONS

7.1 Issues Identified during the Remedy Review

The site remedy is effectively protecting human health and the environment. Although not required by NYSDEC, an investigation is currently be completed to assess whether improvements to the remedy can maintain protectiveness and reduce long term project costs. This remedy review identified issues primarily associated with the long-term cost effectiveness of maintaining the GCTS. Specifically, the review found the following:

1) The cost associated with OM&M of the GCTS will remain indefinitely since waste is in contact with groundwater.
2) Projected costs to operate and maintain the site is estimated to be more than $5.5M over the next 20 years. With ongoing costs for the indefinite future beyond that.

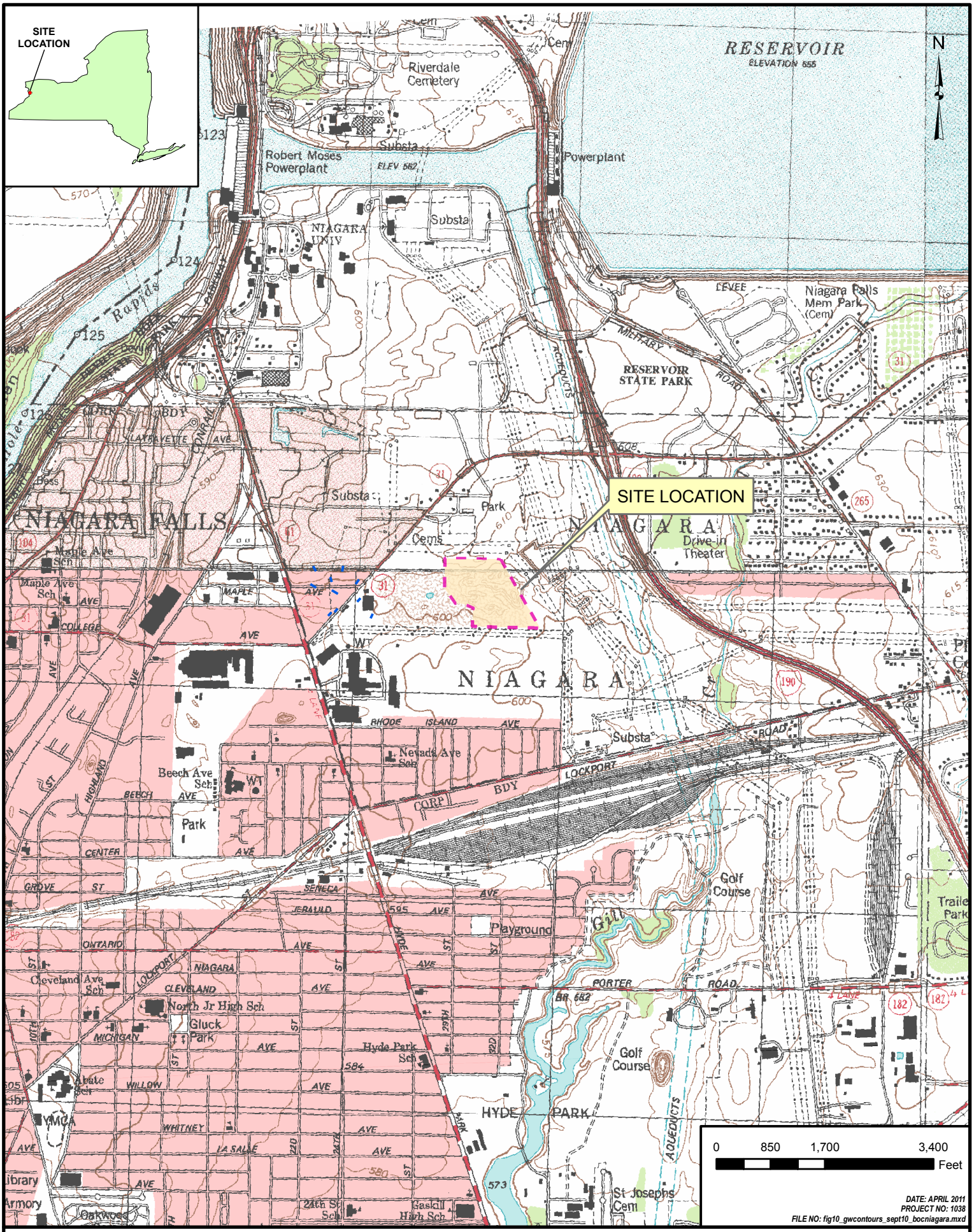
To address these issues an investigation is being completed to assess what potential remedy improvements could limit groundwater contact with the waste and thereby limit leachate treatment requirements.

7.2 Recommendations and Follow-up Actions

Additional site data is currently being collected related to site flow patterns, site hydrogeology and the potential use of groundwater extraction to eliminate the need for indefinite leachate treatment. The action items to be performed to investigate and evaluate the potential for GCTS modification to reduce long-term OM&M costs include the following:

1) Collect necessary data to develop a groundwater model with sufficient accuracy to assess the site conditions and determine where groundwater is flowing into the landfill, and assess alternatives to prevent groundwater from entering the waste.
2) Perform a pilot study, as discussed with NYSDEC during a recent meeting held at the NYSDEC offices, to further collect data regarding the weathered bedrock layer which lies beneath the landfill to assess whether alternative pumping scenarios would prevent groundwater from contacting waste and generating leachate seeps.
3) If deemed suitable, implement changes to the Record of Decision to allow full-scale implementation of an alternate pumping remedy to lower operational costs at the site.

This data will be evaluated and presented to NYSDEC with recommendations for modifications, if appropriate during 2012.



GREENSTAR
Environmental Solutions, LLC

AIRCO PARCEL
NIAGARA FALLS, NEW YORK

FIGURE 1
SITE LOCATION

N

Legend
Operable Unit Areas
- Airco Parcel
- NMPC/NYPA Parcel
- SKW Parcel

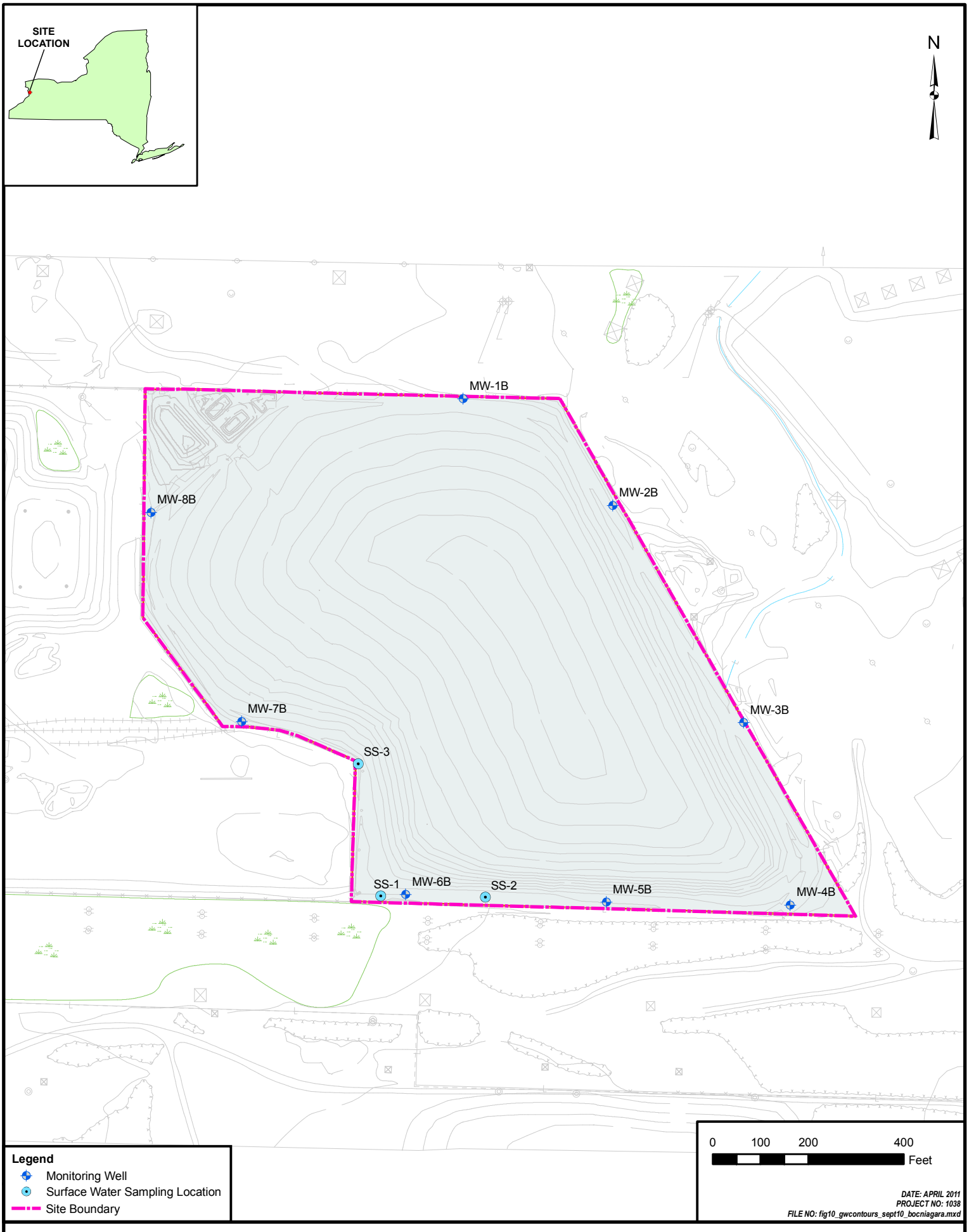
0 200 400 800
Feet

DATE: JUNE 2011
PROJECT NO: 1038
FILE NO: Fig2_OUAreas_Niagara.mxd

GREENSTAR
Environmental Solutions, LLC

AIRCO PARCEL
NIAGARA FALLS, NEW YORK

FIGURE 2
OPERABLE UNIT AREAS



GREENSTAR
Environmental Solutions, LLC

AIRCO PARCEL
NIAGARA FALLS, NEW YORK

FIGURE 3
SITE MAP

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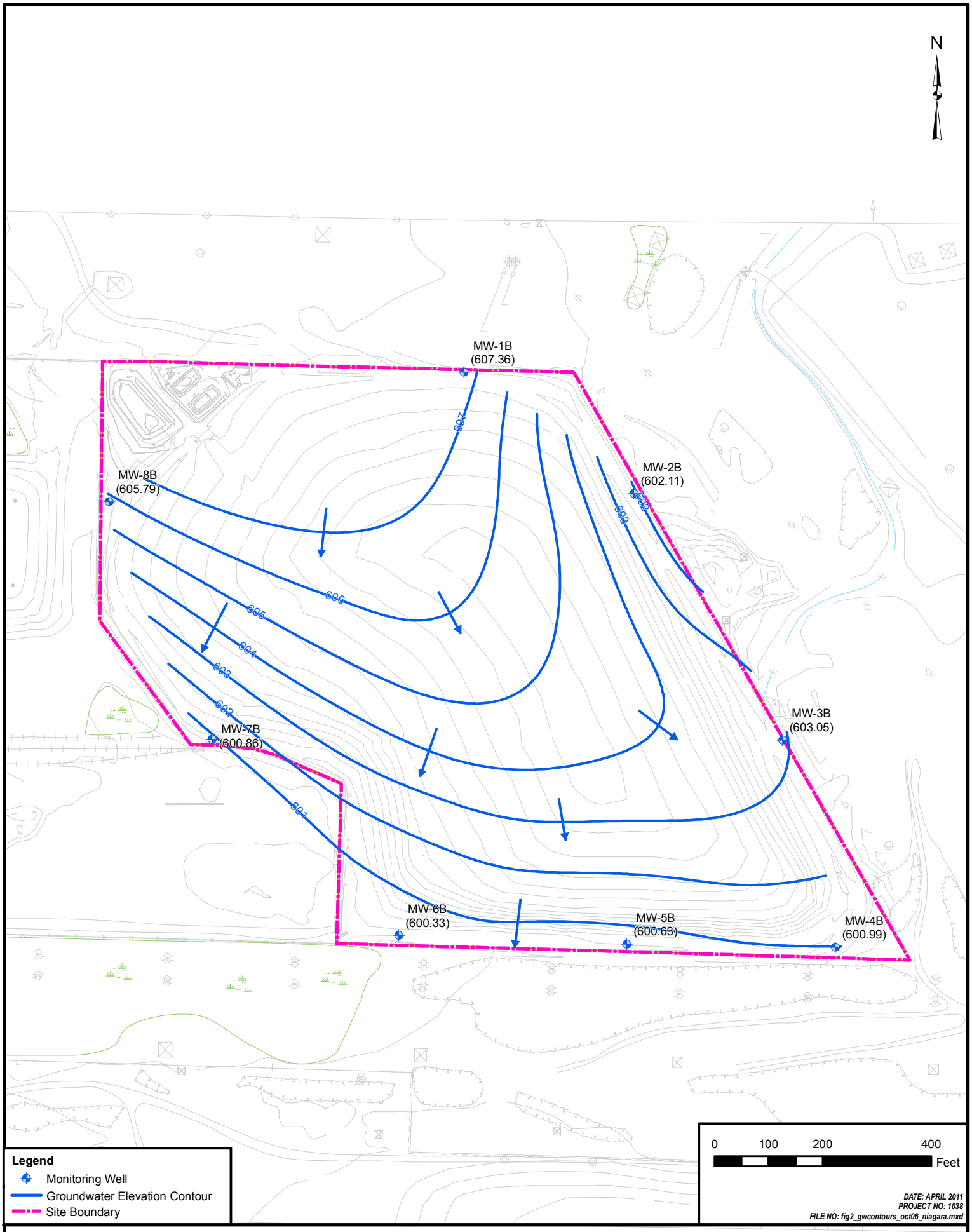
Appendix A

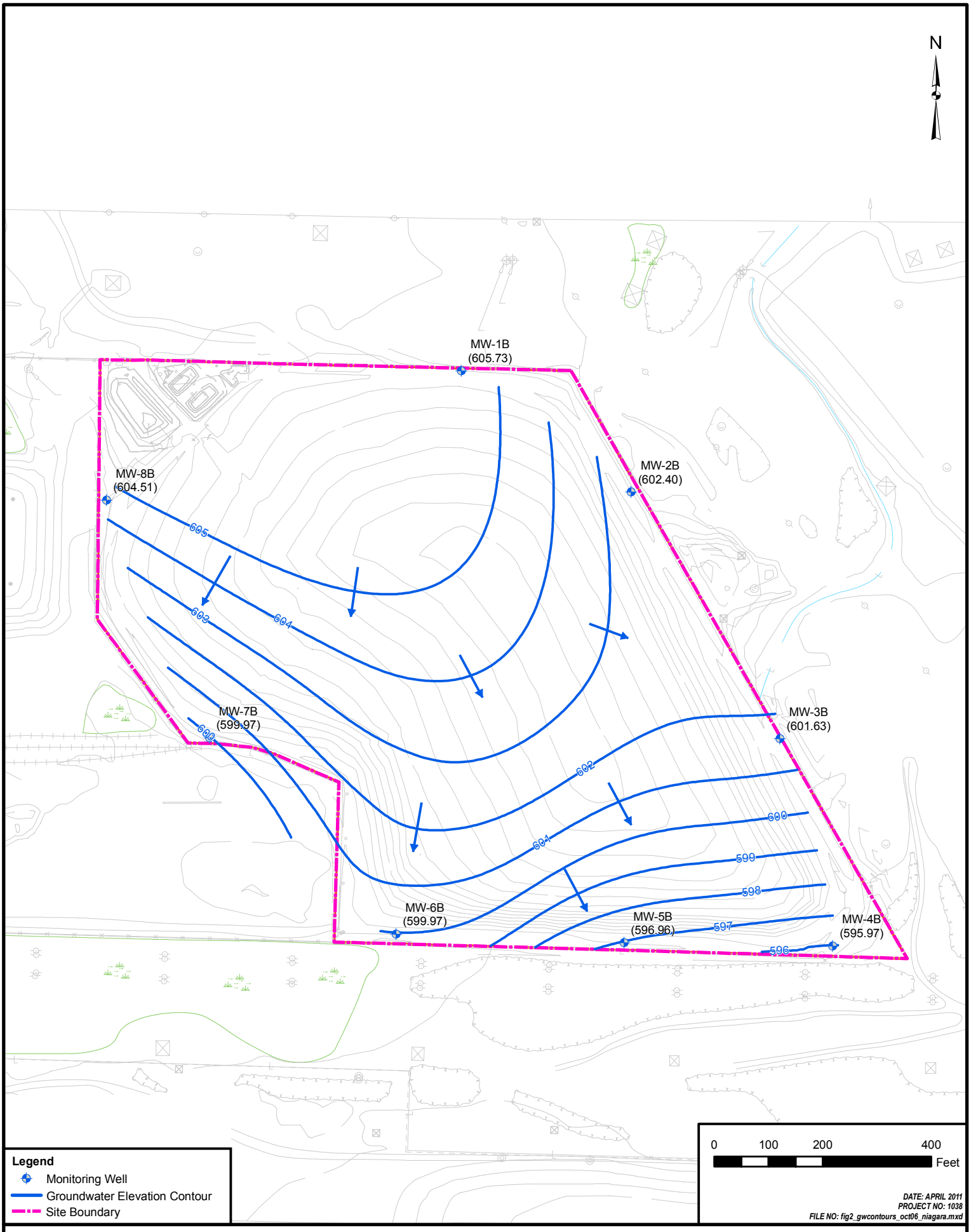
Groundwater Contour Maps



GREENSTAR
Environmental Solutions, LLC

AIRCO PARCEL
NIAGARA FALLS, NEW YORK

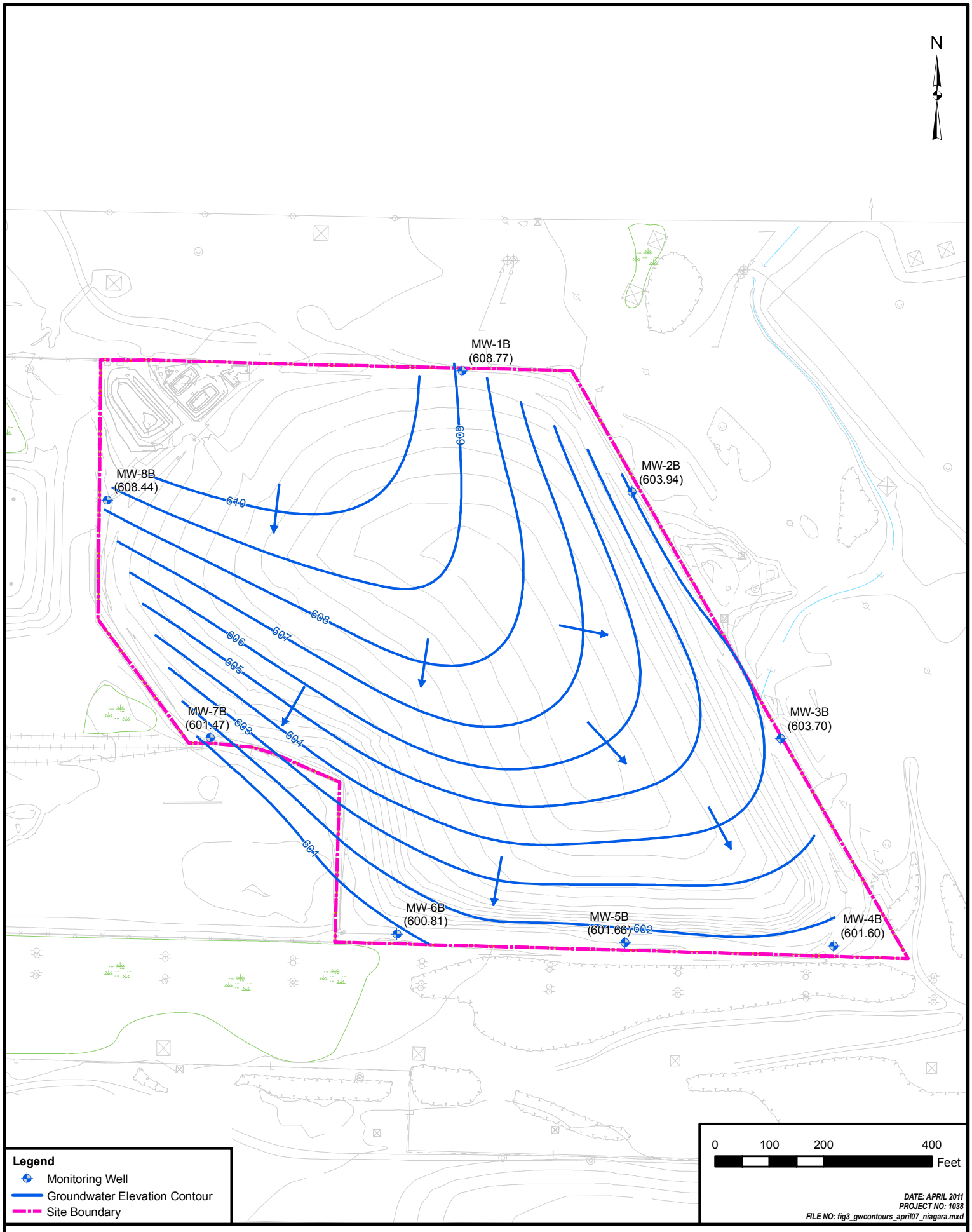
GROUNDWATER CONTOURS
APRIL 2006



GREENSTAR
Environmental Solutions, LLC

AIRCO PARCEL
NIAGARA FALLS, NEW YORK

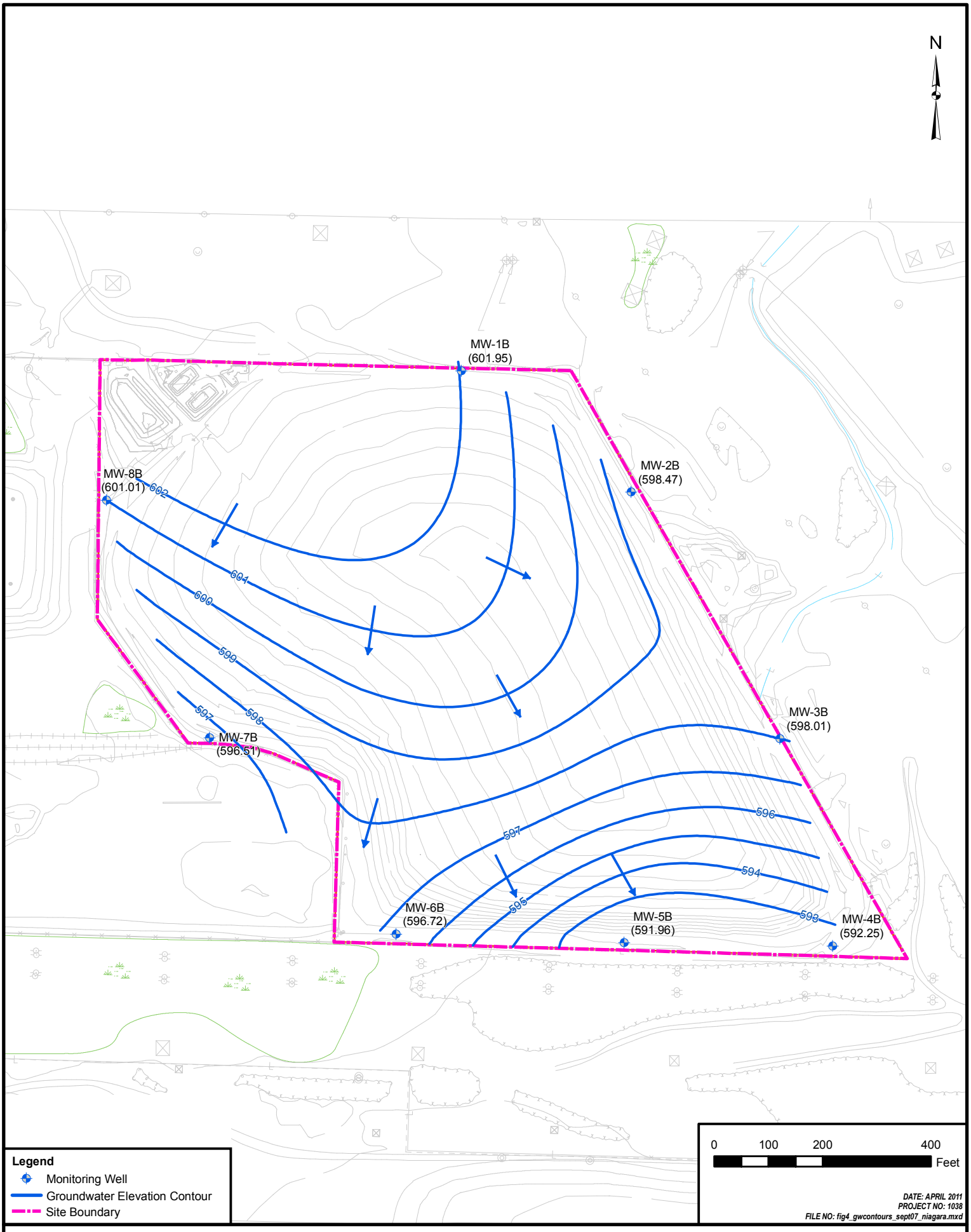
GROUNDWATER CONTOURS
OCTOBER 2006



GREENSTAR
Environmental Solutions, LLC

AIRCO PARCEL
NIAGARA FALLS, NEW YORK

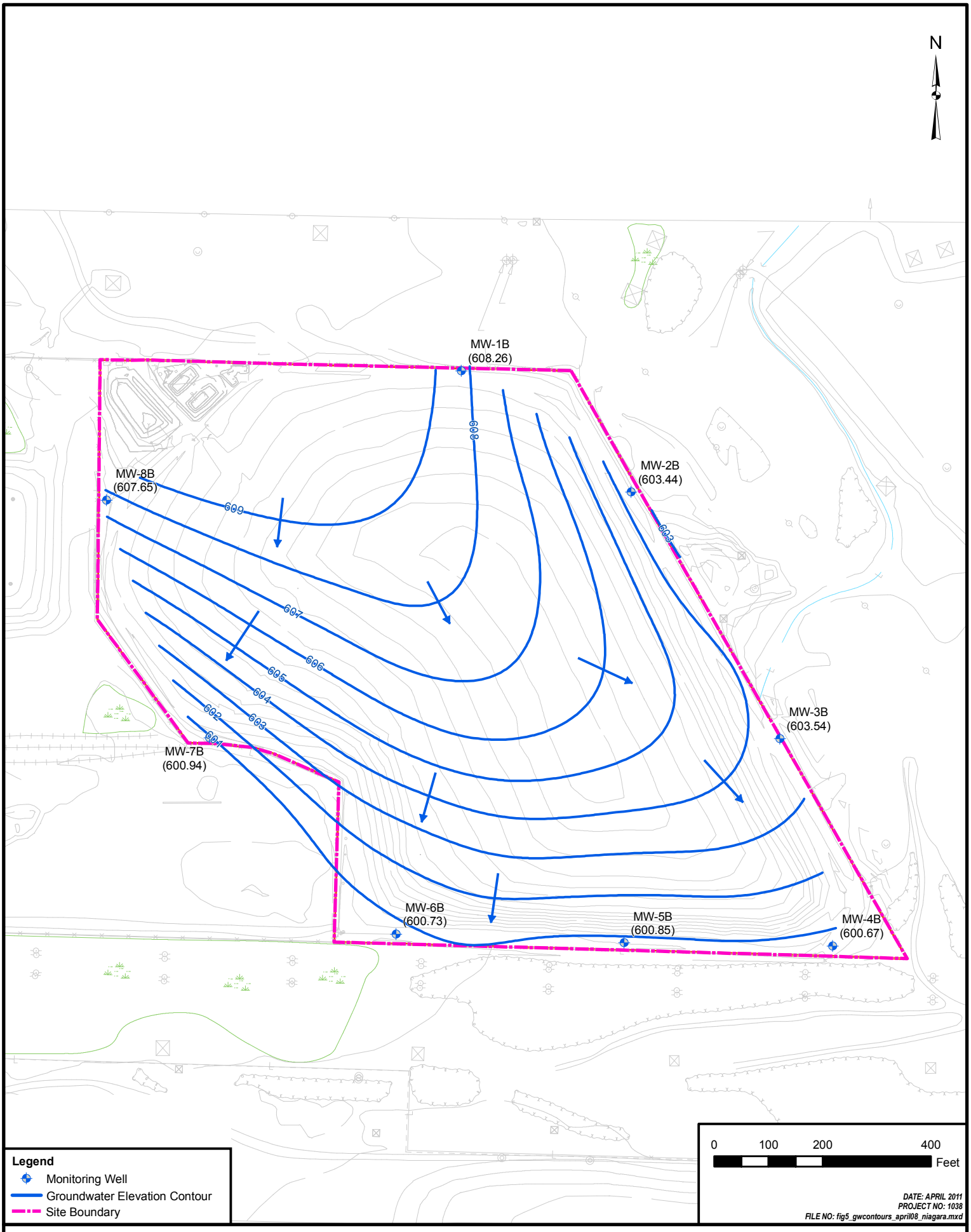
GROUNDWATER CONTOURS
APRIL 2007



GREENSTAR
Environmental Solutions, LLC

AIRCO PARCEL
NIAGARA FALLS, NEW YORK

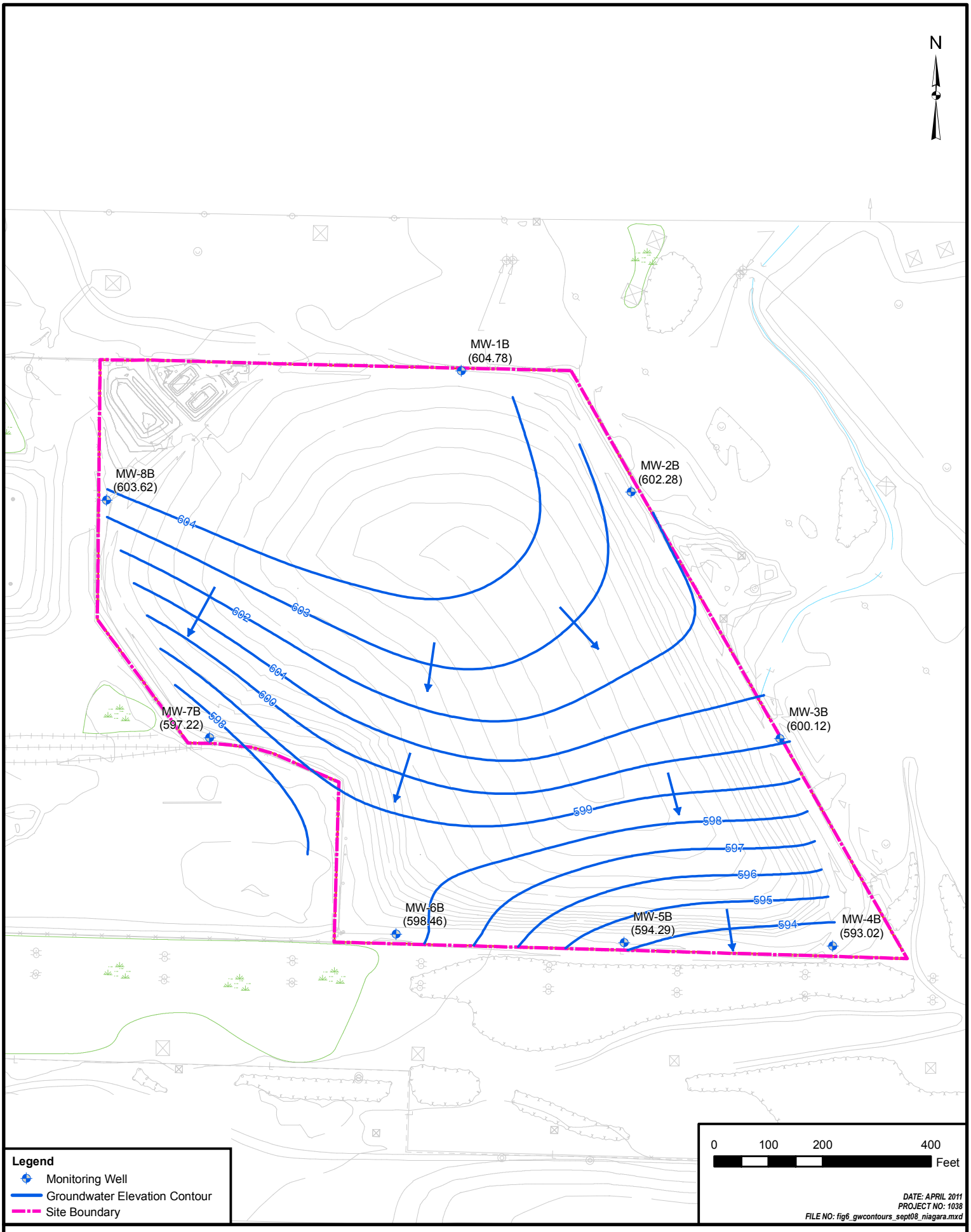
GROUNDWATER CONTOURS
SEPTEMBER 2007



GREENSTAR
Environmental Solutions, LLC

AIRCO PARCEL
NIAGARA FALLS, NEW YORK

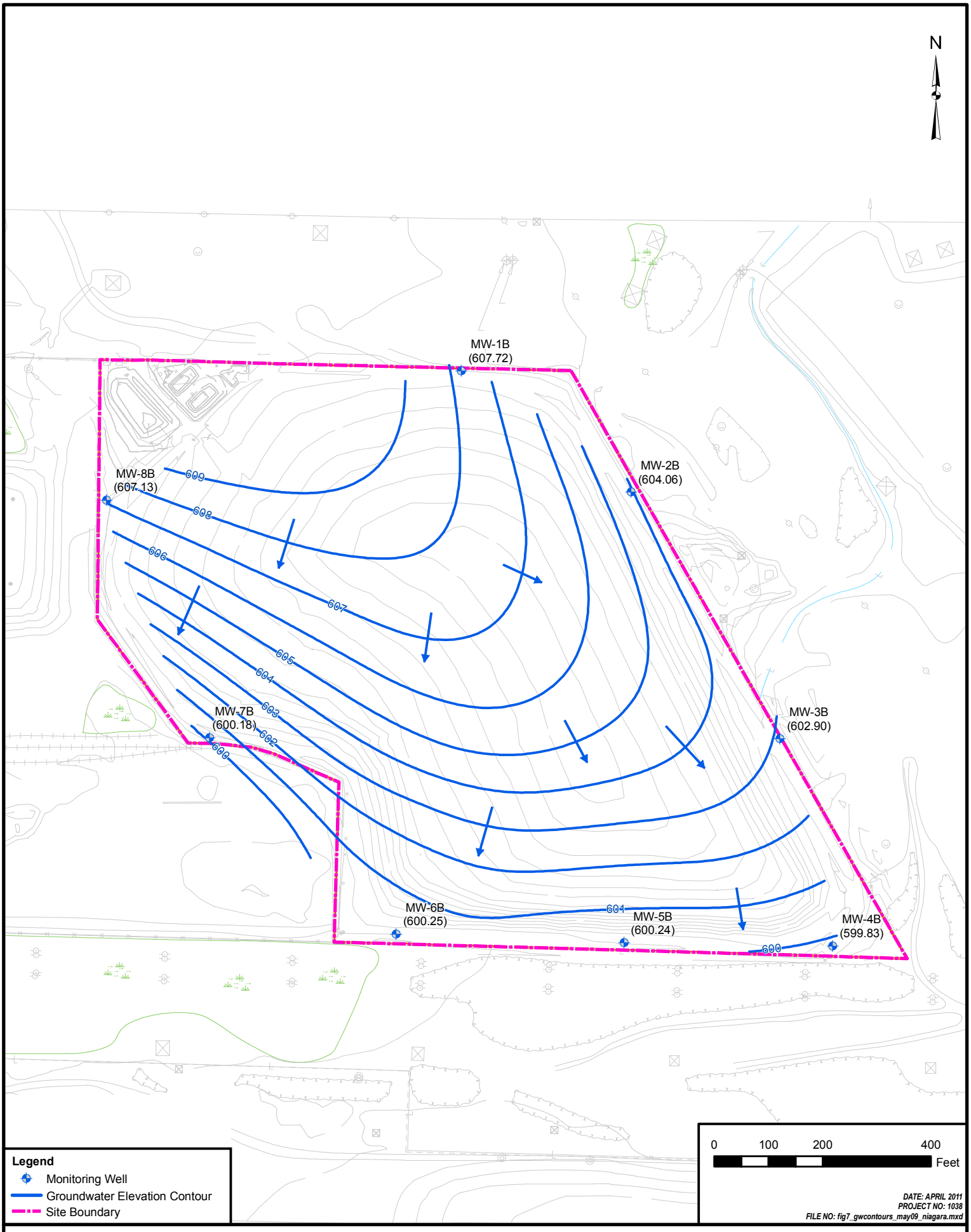
GROUNDWATER CONTOURS
APRIL 2008



GREENSTAR
Environmental Solutions, LLC

AIRCO PARCEL
NIAGARA FALLS, NEW YORK

GROUNDWATER CONTOURS
SEPTEMBER 2008



GREENSTAR
Environmental Solutions, LLC

AIRCO PARCEL
NIAGARA FALLS, NEW YORK

GROUNDWATER CONTOURS
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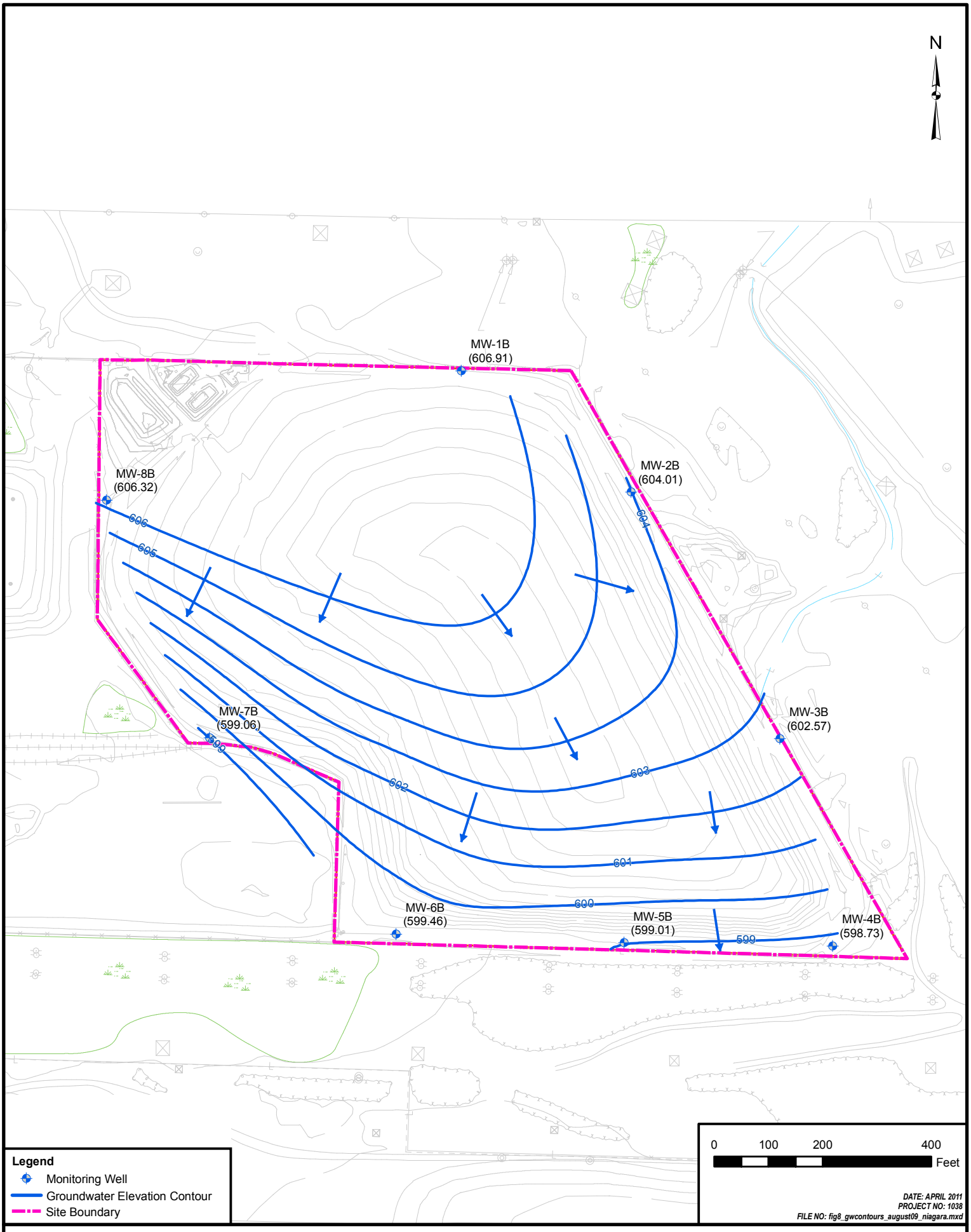
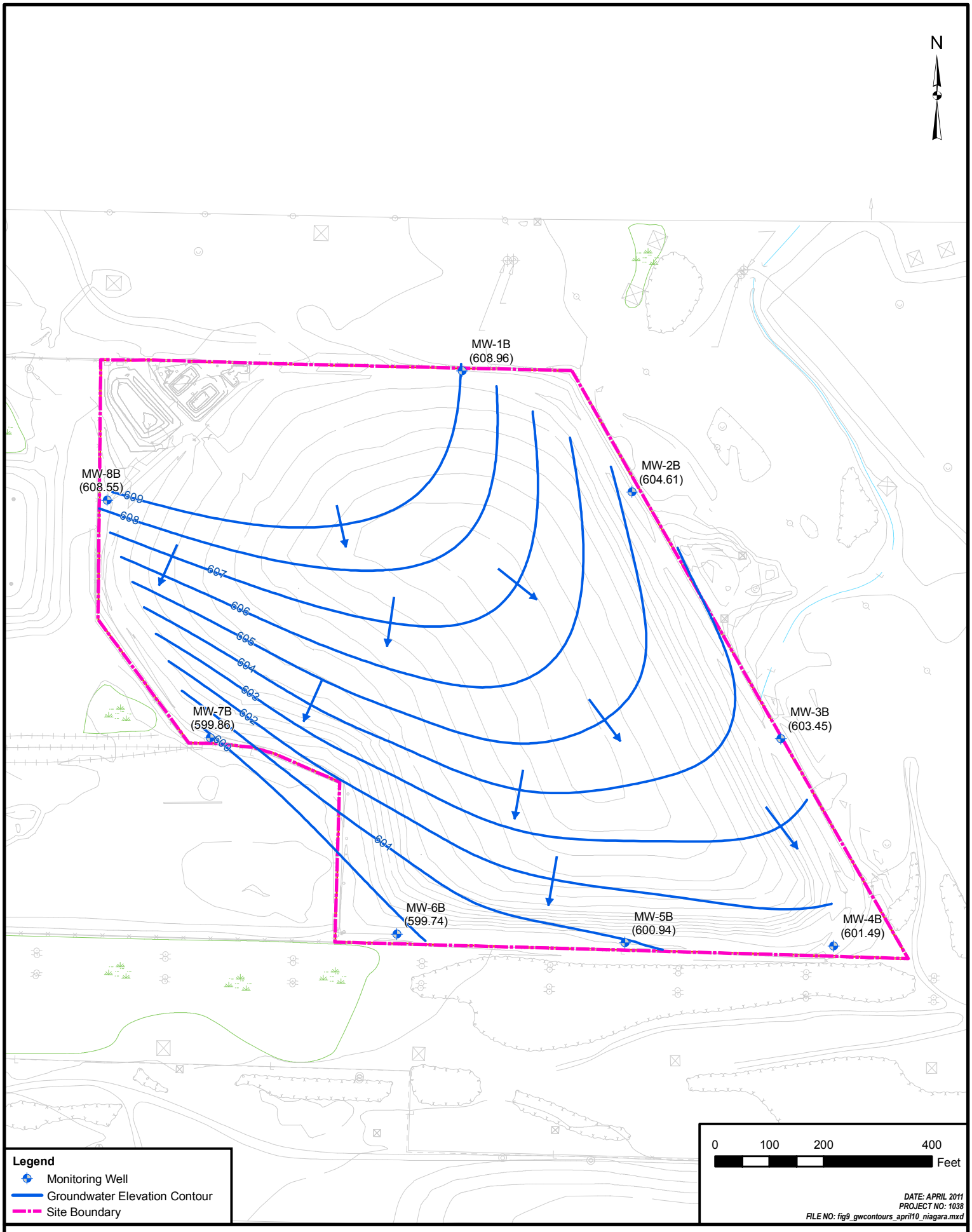


GREENSTAR
Environmental Solutions, LLC

AIRCO PARCEL
NIAGARA FALLS, NEW YORK

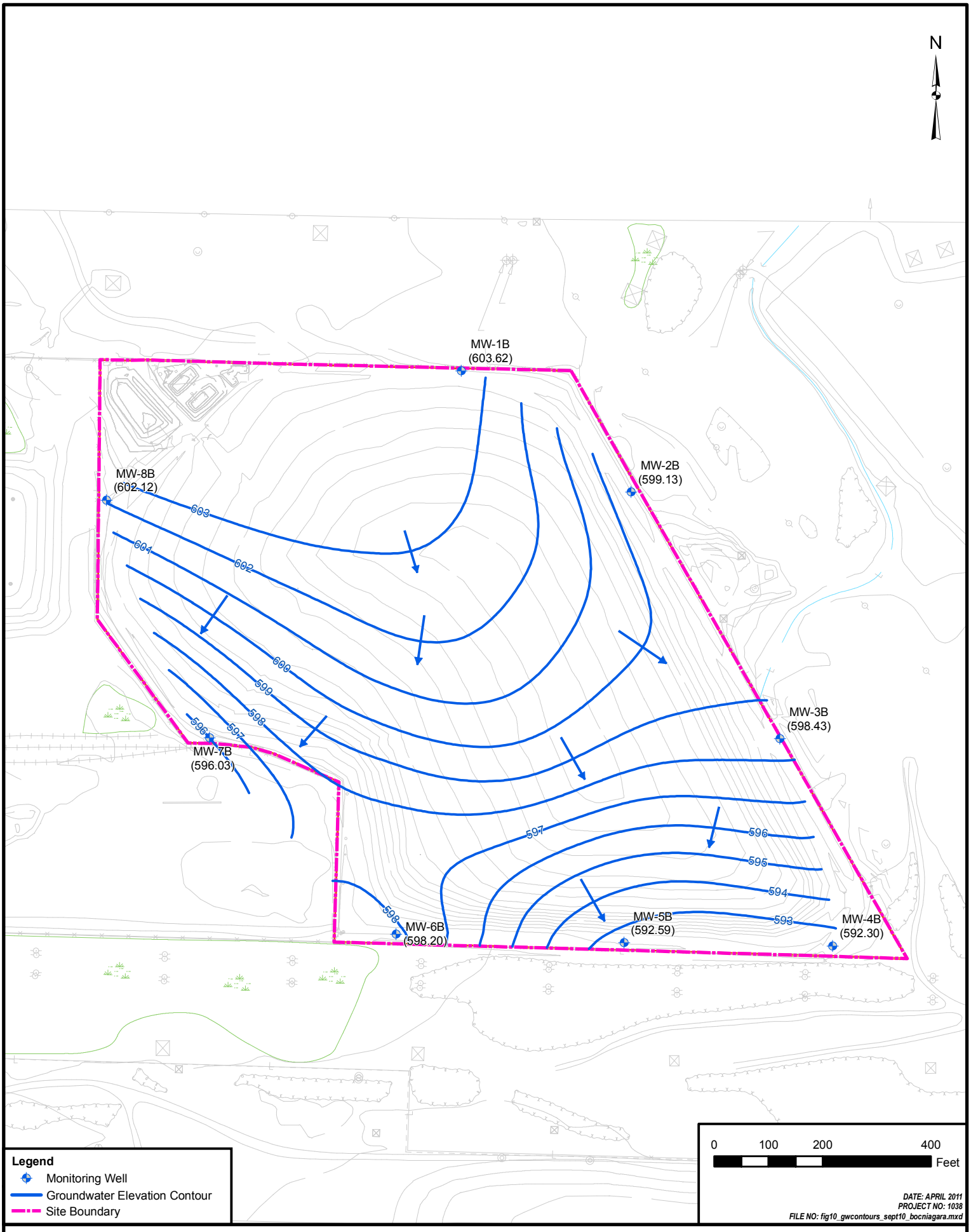
GROUNDWATER CONTOURS
AUGUST 2009



GREENSTAR
Environmental Solutions, LLC

AIRCO PARCEL
NIAGARA FALLS, NEW YORK

GROUNDWATER CONTOURS
APRIL 2010



GREENSTAR
Environmental Solutions, LLC

AIRCO PARCEL
NIAGARA FALLS, NEW YORK

GROUNDWATER CONTOURS
SEPTEMBER 2010

Appendix B

Analytical Results for Groundwater, Surface Water, Groundwater Collection and Treatment System Effluent Sampling

APPENDIX B
ANALYTICAL RESULTS FOR GROUNDWATER, SURFACE WATER, AND TREATMENT SYSTEM DISCHARGE SAMPLES COLLECTED DURING THE FIVE YEAR REVIEW PERIOD FROM APRIL 2006 TO SEPTEMBER 2010
AIRCO PARCEL, NIAGARA FALLS, NEW YORK

Groundwater

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

Total (Unfiltered)

		MW-1B									
		Apr-06	Oct-06	Apr-07	Sep-07	Apr-08	Sep-08	May-09	Aug-09	Apr-10	Sep-10
Analyte	**AWQS**										
Cadmium	0.005	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)
Chromium	0.05	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)
Chromium, Hexavalent	0.05	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)
Iron	0.3	0.24	0.17	0.25	0.12	0.14	0.15	0.0899	0.119	0.093	0.1
Lead	0.025	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)
Magnesium	35*	**65.9**	**63.5**	**67.7**	**68.7**	**64.4**	**61**	**64.8**	**65.5**	**64.4**	**61.3**
Manganese	0.3	**0.76**	**0.7**	**0.88**	**0.76**	**0.71**	**0.7**	**0.675**	**0.808**	**0.681**	**0.684**
Selenium	0.01	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)
Silica	---		7510	9.1	6.9	7.1	6.9	6.77	6.99	7.06	6.86
Sodium	20	**103**	**112**	**108**	**115**	**123**	**117**	**120**	**113**	**119**	**118**
Thallium	0.0005*	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)
Zinc	2*	0.48	0.48	0.55	0.52	0.47	0.5	0.518	0.627	0.523	0.561

Groundwater

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

Total (Unfiltered)

		MW-2B									
		Apr-06	Oct-06	Apr-07	Sep-07	Apr-08	Sep-08	May-09	Aug-09	Apr-10	Sep-10
Analyte	**AWQS**										
Cadmium	0.005	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)
Chromium	0.05	**0.48**	**0.5**	**0.31**	**0.46**	**0.29**	**0.65**	**0.563**	**0.777**	**0.551**	**0.574**
Chromium, Hexavalent	0.05	**0.416**	**0.332**	**0.194**	**0.26**	**0.184**	**0.197**	**0.158**	**0.233**	0.0361	**0.271**
Iron	0.3	0.16	(<0.05U)	(<0.05U)	**0.42**	0.17	**0.57**	0.151	(<0.05U)	(<0.05U)	**2.89**
Lead	0.025	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	0.0097
Magnesium	35*	(<0.2U)	(<0.2U)	(<0.2U)	0.28	(<0.2U)	0.21	(<0.2U)	(<0.2U)	(<0.2U)	1.49
Manganese	0.3	0.0075	(<0.003U)	(<0.003U)	0.012	0.01	0.035	0.0097	(<0.003U)	(<0.003U)	0.123
Selenium	0.01	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)
Silica	---		522B	0.8J	(<2.5U)	3.7	1.7	1.12	0.395J	0.635	1.09
Sodium	20	**53.5**	**56.7**	**34.2**	**39.7**	**33.3**	**73.3**	**50.2**	**32.3**	**39.6**	**46.7**
Thallium	0.0005*	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)
Zinc	2*	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	0.0312

		MW-2B (Dup)						
		Apr-06	Oct-06	Apr-07	Sep-07	Apr-08	Apr-10	Sep-10
Analyte	**AWQS**							
Cadmium	0.005	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	0.0011
Chromium	0.05	**0.48**	**0.51**	**0.3**	**0.46**	**0.29**	**0.558**	**0.573**
Chromium, Hexavalent	0.05	**0.35**	**0.314**	**0.258**	**0.4**	**0.202**	**0.0953**	**0.248**
Iron	0.3	**0.47**	(<0.05U)	(<0.05U)	(<0.05U)	**0.88**	(<0.05U)	**1.93**
Lead	0.025	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	0.0076
Magnesium	35*	0.24	(<0.2U)	(<0.2U)	(<0.2U)	0.34	(<0.2U)	0.898
Manganese	0.3	0.0095	(<0.003U)	(<0.003U)	(<0.003U)	0.054	(<0.003U)	0.0927
Selenium	0.01	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)
Silica	---		544B	0.74J	(<2.5U)	3.1	0.598	0.892
Sodium	20	**61.9**	**55.5**	**33.2**	**40.8**	**37.6**	**40.9**	**45.9**
Thallium	0.0005*	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)
Zinc	2*	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	0.011	(<0.01U)	0.0203

Groundwater

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

Total (Unfiltered)

		MW-3B									
		Apr-06	Oct-06	Apr-07	Sep-07	Apr-08	Sep-08	May-09	Aug-09	Apr-10	Sep-10
Analyte	**AWQS**										
Cadmium	0.005	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)
Chromium	0.05	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)
Chromium, Hexavalent	0.05	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)
Iron	0.3	(<0.05U)	(<0.05U)	(<0.05U)	0.17	(<0.05U)	**0.33**	0.122	(<0.05U)	(<0.05U)	(<0.05U)
Lead	0.025	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)
Magnesium	35*	0.69	2.7	6.1	4.6	9	7.7	7.88	8.6	9.96	8.14
Manganese	0.3	(<0.003U)	(<0.003U)	0.0054	0.0081	0.018	0.019	0.0126	0.0117	0.0139	0.0064
Selenium	0.01	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)
Silica	---		8960	7.3	7.9	6.9	7.7	6.34	6.51	4.81	7.31
Sodium	20	**83.8**	**76.9**	**62.8**	**59.8**	**51.4**	**53.3**	**54.3**	**52.8**	**51.8**	**57.7**
Thallium	0.0005*	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)
Zinc	2*	(<0.01U)	(<0.01U)	(<0.01U)	0.015	(<0.01U)	0.026	0.0184	(<0.01U)	(<0.01U)	(<0.01U)

		MW-4B						
		Apr-06	Oct-06	Apr-07	Apr-08	May-09	Aug-09	Apr-10
Analyte	**AWQS**							
Cadmium	0.005	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)
Chromium	0.05	**0.21**	**0.22**	**0.24**	**0.21**	**0.247**	**0.257**	**0.252**
Chromium, Hexavalent	0.05	(<0.011U)	**0.172**	**0.226**	**0.199**	**0.229**	**0.212**	**0.239**
Iron	0.3	**1.2**	**0.96**	**1**	**1.3**	**2.19**	**0.676**	**0.933**
Lead	0.025	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)
Magnesium	35*	**43.3**	**41.8**	**43.6**	**45.4**	**44.7**	**51.1**	**56**
Manganese	0.3	0.024	0.022	0.017	0.024	0.0387	0.0108	0.0181
Selenium	0.01	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)
Silica	---		7730	7.7	9.4	8.41	11.4	7.65
Sodium	20	**80.1**	**93.3**	**86**	**101**	**98**	**92.8**	**69.2**
Thallium	0.0005*	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)
Zinc	2*	0.024	0.025	0.025	0.029	0.0474	0.0132	0.0229

Groundwater

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

Total (Unfiltered)

		MW-5B								
		Apr-06	Oct-06	Apr-07	Apr-08	Sep-08	May-09	Aug-09	Apr-10	Sep-10
Analyte	**AWQS**									
Cadmium	0.005	0.0018	(<0.001U)	(<0.001U)	(<0.001U)	0.0022	(<0.001U)	(<0.001U)	(<0.001U)	0.001
Chromium	0.05	(<0.004U)	0.0042	(<0.004U)	0.0051	0.04	(<0.004U)	(<0.004U)	(<0.004U)	0.0053
Chromium, Hexavalent	0.05	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)
Iron	0.3	**0.77**	**0.78**	**0.88**	**0.76**	**28.9**	**0.347**	0.226	0.234	**2.76**
Lead	0.025	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	**0.059**	(<0.005U)	(<0.005U)	(<0.005U)	0.0129
Magnesium	35*	**72.6**	**73.3**	**75.8**	**79**	**105**	**84.7**	**85**	**90.8**	**95.4**
Manganese	0.3	0.039	0.045	0.024	0.019	**0.67**	0.0123	0.0081	0.009	0.119
Selenium	0.01	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)
Silica	---		9650	9.2	9.4	22.1	7.98	10.1	7.23	11.1
Sodium	20	**55.3**	**44.4**	**48.7**	**42**	**31.5**	**31.4**	**27.2**	**32.1**	**44**
Thallium	0.0005*	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)
Zinc	2*	0.057	0.057	0.07	0.12	0.7	0.063	0.0347	0.0545	0.138

		MW-6B									
		Apr-06	Oct-06	Apr-07	Sep-07	Apr-08	Sep-08	May-09	Aug-09	Apr-10	Sep-10
Analyte	**AWQS**										
Cadmium	0.005	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)
Chromium	0.05	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)
Chromium, Hexavalent	0.05	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)
Iron	0.3	0.23	0.14	**0.45**	**0.34**	**0.57**	0.27	**0.478**	**0.415**	0.189	0.155
Lead	0.025	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)
Magnesium	35*	**85.6**	**79.5**	**92.3**	**81.3**	**85.9**	**74.2**	**82.6**	**75.7**	**74.5**	**78**
Manganese	0.3	0.15	0.15	0.18	0.16	0.16	0.15	0.163	0.156	0.117	0.152
Selenium	0.01	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)
Silica	---		7000	6.5	7	6.6	7.1	5.92	5.86	5.17	6.18
Sodium	20	**55.7**	**70.2**	**52.9**	**69.9**	**52.4**	**69.1**	**57**	**72.6**	**71**	**84.9**
Thallium	0.0005*	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)
Zinc	2*	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)

Groundwater

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

Total (Unfiltered)

		MW-7B									
		Apr-06	Oct-06	Apr-07	Sep-07	Apr-08	Sep-08	May-09	Aug-09	Apr-10	Sep-10
Analyte	**AWQS**										
Cadmium	0.005	0.0027	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)
Chromium	0.05	**0.09**	**0.088**	0.021	0.01	0.012	0.028	0.0133	0.004	0.0125	0.0204
Chromium, Hexavalent	0.05	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)
Iron	0.3	**7.7**	**6.9**	**0.58**	0.2	0.27	**0.86**	**0.329**	0.081	0.114	0.189
Lead	0.025	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)
Magnesium	35*	11.9	11.1	9.8	7.8	10.5	7.4	10.7	10	10.4	11.3
Manganese	0.3	0.14	0.14	0.037	0.022	0.035	0.047	0.0582	0.0309	0.0225	0.049
Selenium	0.01	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)
Silica	---		9220	4.9	5.3	4.7	5.1	4.69	4.71	4.9	8.46
Sodium	20	**56.4**	**56.5**	**56.3**	**54.3**	**57.2**	**52.9**	**56.3**	**57.5**	**57.5**	**63.1**
Thallium	0.0005*	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)
Zinc	2*	0.04	0.032	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)

		MW-8B									
		Apr-06	Oct-06	Apr-07	Sep-07	Apr-08	Sep-08	May-09	Aug-09	Apr-10	Sep-10
Analyte	**AWQS**										
Cadmium	0.005	(<0.001U)	(<0.001U)	(<0.001U)	0.0032	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	0.0012	0.0016
Chromium	0.05	**0.18**	**0.18**	**0.28**	**0.19**	**0.25**	**0.11**	**0.179**	**0.173**	**0.155**	**0.0962**
Chromium, Hexavalent	0.05	0.013	**0.116**	**0.316**	**0.116**	**0.086**	**0.066**	**0.144**	(<0.011U)	**0.135**	**0.0985**
Iron	0.3	**0.49**	**1.7**	**1.3**	**34.8**	**0.6**	**1.8**	**0.787**	**0.311**	**1.25**	**8.64**
Lead	0.025	(<0.005U)	(<0.005U)	(<0.005U)	**0.077**	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	0.0056	**0.0253**
Magnesium	35*	**50.3**	**51.4**	**66.2**	**85.3**	**66.1**	**64.2**	**71.2**	**71.1**	**73.8**	**80.2**
Manganese	0.3	0.048	0.14	0.14	**1.5**	0.077	0.2	0.125	0.134	0.116	**0.586**
Selenium	0.01	**0.071**	**0.077**	**0.086**	**0.083**	**0.064**	**0.03**	**0.0444**	**0.0401**	**0.0362**	**0.0244**
Silica	---		8260	7.9	31.6	7.6	9.1	7.59	7.51	6.61	27
Sodium	20	**147**	**157**	**106**	**122**	**95.3**	**93.1**	**84**	**87.8**	**81.2**	**82.5**
Thallium	0.0005*	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)
Zinc	2*	0.028	0.052	0.058	0.67	0.079	0.11	0.115	0.0845	0.111	0.256

Water Quality Parameters (mg/L)

Groundwater

Water Quality Parameters (mg/L)

		MW-1B									
		Apr-06	Oct-06	Apr-07	Sep-07	Apr-08	Sep-08	May-09	Aug-09	Apr-10	Sep-10
Analyte	**AWQS**										
Ammonia (expressed as N)	2	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)
Phenolics	0.001	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.01U)
Silica	---	6.95									
Sulfate	250	**264**	230	**293**	**258**	219	223	**260**	238	227	194

		MW-2B									
		Apr-06	Oct-06	Apr-07	Sep-07	Apr-08	Sep-08	May-09	Aug-09	Apr-10	Sep-10
Analyte	**AWQS**										
Ammonia (expressed as N)	2	(<9.2U)	(<9.2U)	(<18.4U)	(<18.4U)	(<18.4U)	(<18.4U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)
Phenolics	0.001	(<0.008U)	**0.008**	(<0.008U)	**0.023**	(<0.008U)	**0.015**	**0.0096**	(<0.008U)	(<0.008U)	(<0.01U)
Silica	---	(<5U)									
Sulfate	250	17	18.7	17	17.2	16.3	17.1	(<10U)	22J	(<10U)	22.4

		MW-2B (Dup)						
		Apr-06	Oct-06	Apr-07	Sep-07	Apr-08	Apr-10	Sep-10
Analyte	**AWQS**							
Ammonia (expressed as N)	2	(<9.2U)	(<9.2U)	(<18.4U)	(<18.4U)	(<18.4U)	(<9.2U)	(<9.2U)
Phenolics	0.001	**0.01**	**0.008**	(<0.008U)	**0.018**	**0.0088**	(<0.008U)	(<0.01U)
Silica	---	1.03B						
Sulfate	250	17.4	19.3	16.9	17.7	16.6	14.2	22.3

		MW-3B									
		Apr-06	Oct-06	Apr-07	Sep-07	Apr-08	Sep-08	May-09	Aug-09	Apr-10	Sep-10
Analyte	**AWQS**										
Ammonia (expressed as N)	2	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)
Phenolics	0.001	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.01U)
Silica	---	9.16									
Sulfate	250	116	102	81.4	41.8	44.8	51	66	67.2J	57.2	58.7

Groundwater

Water Quality Parameters (mg/L)

		MW-4B						
		Apr-06	Oct-06	Apr-07	Apr-08	May-09	Aug-09	Apr-10
Analyte	**AWQS**							
Ammonia (expressed as N)	2	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)
Phenolics	0.001	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)
Silica	---	6.81						
Sulfate	250	146	159	170	150	160	156	152

		MW-5B								
		Apr-06	Oct-06	Apr-07	Apr-08	Sep-08	May-09	Aug-09	Apr-10	Sep-10
Analyte	**AWQS**									
Ammonia (expressed as N)	2	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)
Phenolics	0.001	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.01U)
Silica	---	8.09								
Sulfate	250	154	154	184	148	145	160	145	154	160

		MW-6B									
		Apr-06	Oct-06	Apr-07	Sep-07	Apr-08	Sep-08	May-09	Aug-09	Apr-10	Sep-10
Analyte	**AWQS**										
Ammonia (expressed as N)	2	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)
Phenolics	0.001	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.01U)
Silica	---	5.92									
Sulfate	250	246	**337**	225	**305**	198	**376**	**260**	**350**	**400**	**392**

		MW-7B									
		Apr-06	Oct-06	Apr-07	Sep-07	Apr-08	Sep-08	May-09	Aug-09	Apr-10	Sep-10
Analyte	**AWQS**										
Ammonia (expressed as N)	2	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)
Phenolics	0.001	(<0.008U)	**0.009**	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.01U)
Silica	---	7.11									
Sulfate	250	39.6	45	38.5	28.8	38.9	34	36	37.2J	75.8	35

Groundwater

Water Quality Parameters (mg/L)

		MW-8B									
		Apr-06	Oct-06	Apr-07	Sep-07	Apr-08	Sep-08	May-09	Aug-09	Apr-10	Sep-10
Analyte	**AWQS**										
Ammonia (expressed as N)	2	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)
Phenolics	0.001	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.01U)
Silica	---	7.49									
Sulfate	250	(<2U)	**328**	**316**	**282**	140	**263**	230	237	247	225

Surface Water

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

Total (Unfiltered)

		SS-01								
		Apr-06	Oct-06	Apr-07	Apr-08	Sep-08	May-09	Aug-09	Apr-10	Sep-10
Analyte	**AWQS**									
Cadmium	---	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)
Chromium	---	0.099	(<0.004U)	0.0064	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)
Chromium, Hexavalent	0.016	**0.059**	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)
Iron	0.3	**0.48**	0.28	0.16	0.098	0.1	0.0975	0.073	(<0.05U)	(<0.05U)
Lead	---	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)
Magnesium	---	4.2	15.7	14.4	5.8	3.8	1.37	1.47	4.59	2.14
Manganese	---	0.017	0.014	0.0059	0.064	(<0.003U)	0.0055	0.0072	(<0.003U)	(<0.003U)
Selenium	0.0046	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)
Silica	---		2.25B	1.1J	4.8	2.8	0.832	1.1	0.384	1.33
Sodium	---	47.5	17.7	12	60.4	64.5	65.1	65.1	57.7	69.1
Thallium	0.02	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)
Zinc	---	(<0.01U)	0.014	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)

		SS-02								
		Apr-06	Oct-06	Apr-07	Apr-08	Sep-08	May-09	Aug-09	Apr-10	Sep-10
Analyte	**AWQS**									
Cadmium	---	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)
Chromium	---	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)
Chromium, Hexavalent	0.016	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)
Iron	0.3	0.14	0.067	0.1	0.14	0.1	(<0.05U)	0.153	**0.633**	**0.971**
Lead	---	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)
Magnesium	---	25.5	15.9	14.9	5.9	15	4.95	5.02	19.8	4.72
Manganese	---	0.018	0.007	0.003	0.068	0.011	(<0.003U)	0.0658	0.197	0.592
Selenium	0.0046	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)
Silica	---		2.61	1.1J	4.9	4.9	1.48	2.6	4	4.14
Sodium	---	15.9	15.9	10.7	61.2	6.8	63.6	58.5	3.5	61.2
Thallium	0.02	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)
Zinc	---	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	0.0148	(<0.01U)

Surface Water

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

Total (Unfiltered)

		SS-03				
		Apr-07	May-09	Aug-09	Apr-10	Sep-10
Analyte	**AWQS**					
Cadmium	---	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)	(<0.001U)
Chromium	---	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)
Chromium, Hexavalent	0.016	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)
Iron	0.3	0.066	(<0.05U)	(<0.05U)	(<0.05U)	0.092
Lead	---	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)
Magnesium	---	16.3	1.24	1.16	4.25	2.12
Manganese	---	(<0.003U)	0.0067	(<0.003U)	0.003	0.0059
Selenium	0.0046	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)	(<0.015U)
Silica	---	3.7	0.673	1.11	0.424	1.25
Sodium	---	2.6	65.1	64.7	56	69.8
Thallium	0.02	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)	(<0.02U)
Zinc	---	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)

Water Quality Parameters (mg/L)

		SS-01								
		Apr-06	Oct-06	Apr-07	Apr-08	Sep-08	May-09	Aug-09	Apr-10	Sep-10
Analyte	**AWQS**									
Ammonia (expressed as N)	---	(<18.4U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)
Phenolics	---	0.029	0.008	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.01U)
Silica	---	(<5U)								
Sulfate	---	16.6	29.4	26.9	10.8	21.4	11	(<10U)	15	22.5

		SS-02								
		Apr-06	Oct-06	Apr-07	Apr-08	Sep-08	May-09	Aug-09	Apr-10	Sep-10
Analyte	**AWQS**									
Ammonia (expressed as N)	---	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)
Phenolics	---	0.008	0.008	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.01U)
Silica	---	2.93B								
Sulfate	---	75.3	3.7	28.4	10.2	107	12	12.5J	(<10U)	22.1

Surface Water

Water Quality Parameters (mg/L)

		SS-03				
		Apr-07	May-09	Aug-09	Apr-10	Sep-10
Analyte	**AWQS**					
Ammonia (expressed as N)	---	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)
Phenolics	---	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.01U)
Sulfate	---	13.6	11	(<10U)	14.9	21.3

Treatment System Discharge

All Monitored Parameters
Total (Unfiltered)

Parameter	NYSDEC Discharge Criteria	Treatment System Discharge												
		2006		2007				2008						
		04-Aug	10-Oct	06-Mar	09-Aug	17-Sep	06-Dec	14-Feb	10-Mar	29-Apr	04-Jun	30-Jun	16-Sep	02-Dec
pH	6-8 SU	7.37	7.23	7.52	7.67	NA	7.33	7.00	6.82	7.86	7.58	7.30	7.80	7.91
Total suspended solids	10 mg/L	(<10U)	(<10U)	(<10U)	(<10U)	NA	(<10U)	NA	**111**	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Ammonia as N	9.2 mg/L	(<9.2U)	(<9.2U)	(<18.4U)	(<9.2U)	NA	(<9.2U)	NA	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)	(<9.2U)
Total Kjeldahl nitrogen	Monitor	1.1	(<1.0U)	3.8	1.9	NA	4.0	NA	5.9	(<1.0U)	15.5	(<5.0U)	(<1.0U)	(<1.0U)
Biochemical oxygen demand	5.0 mg/L	(<5.0U)	(<5.0U)	(<5.0U)	(<5.0U)	NA	(<5.0U)	NA	**17.8**	(<5.0U)	(<5.0U)	(<5.0U)	(<5.0U)	(<5.0U)
1,1-Dichloroethane	5.0 mg/L	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	NA	(<0.005U)	NA	(<0.005U)	(<0.005U)	0.014	(<0.005U)	(<0.005U)	(<0.005U)
Trichloroethane	5.0 mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0 mg/L	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	NA	(<0.005U)	NA	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)
Nickel	0.07 mg/L	(<0.07U)	(<0.07U)	(<0.07U)	(<0.07U)	NA	(<0.07U)	(<0.07U)	(<0.07U)	(<0.07U)	(<0.07U)	(<0.07U)	(<0.07U)	(<0.07U)
Copper	0.0147 mg/L	(<0.0147U)	(<0.0147U)	(<0.0147U)	(<0.0147U)	NA	(<0.0147U)	(<0.0147U)	(<0.0147U)	(<0.0147U)	(<0.0147U)	(<0.0147U)	(<0.0147U)	(<0.0147U)
Barium	2 mg/L	(<2U)	(<2U)	(<2U)	(<2U)	NA	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)
Total chromium	0.05 mg/L	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)	(<0.0040U)	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)
Hexavalent chromium	0.011 mg/L	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)
Iron	0.3 mg/L	**1.38**	(<0.3U)	**0.603**	(<0.3U)	NA	**1.37**	**110**	**126**	(<0.3U)	(<0.3U)	(<0.3U)	(<0.3U)	(<0.3U)
Selenium	0.0046 mg/L	(<0.0046U)	(<0.0046U)	**0.0094**	(<0.0046U)	NA	(<0.0046U)	(<0.0046U)	(<0.0046U)	(<0.0046U)	(<0.0046U)	(<0.0046U)	(<0.0046U)	(<0.0046U)
Thallium	0.004 mg/L	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	NA	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)
Zinc	0.115 mg/L	(<0.115U)	(<0.115U)	(<0.115U)	(<0.115U)	NA	(<0.115U)	(<0.115U)	(<0.115U)	(<0.115U)	(<0.115U)	(<0.115U)	(<0.115U)	(<0.115U)
Nitrate as N	Monitor	(<0.050U)	(<0.050U)	0.41	3.4	NA	(<0.050U)	NA	(<0.050U)	1.3	0.26	2.3	3.0	1.3
Nitrite as N	Monitor	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemical oxygen demand	40 mg/L	(<40.0U)	(<40.0U)	(<40.0U)	(<40.0U)	NA	(<40.0U)	NA	**41.5**	(<40.0U)	(<40.0U)	(<40.0U)	(<40.0U)	(<40.0U)
Total dissolved solids	Monitor	608	774	947	649	NA	763	NA	1410	726	823	613	590	566
Total Recoverable Phenolics	0.008 mg/l	(<0.008U)	(<0.008U)	**0.0098**	(<0.008U)	NA	(<0.008U)	NA	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)	(<0.008U)

Parameter	NYSDEC Discharge Criteria	Treatment System Discharge						
		2009				2010		
		19-Mar	19-May	10-Aug	16-Nov	29-Mar	12-May	25-Aug
pH	6-8 SU	7.8	7.88	8.00	7.55	**8.06**	7.67	7.90
Total suspended solids	10 mg/L	(<10.0U)	(<10.0U)	(<10.0U)	(<10.0U)	(<10.0U)	(<10.0U)	(<10.0U)
Ammonia as N	9.2 mg/L	(<9.20U)	(<9.20U)	(<9.20U)	(<9.20U)	(<9.20U)	(<9.20U)	(<9.20U)
Total Kjeldahl nitrogen	Monitor	(<1.00U)	(<1.00U)	2.82	0.25	(<1.00U)	(<1.00U)	(<1.00U)
Biochemical oxygen demand	5.0 mg/L	(<5.0U)	(<5.0U)	(<5.0U)	(<5.0U)	(<5.0U)	(<5.0U)	(<5.0U)
1,1-Dichloroethane	5.0 mg/L	<0.00059U)	<0.00059U)	<0.00059U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)
Trichloroethane	5.0 mg/L	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0 mg/L	(<0.0006U)	(<0.0006U)	(<0.0006U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)
Nickel	0.07 mg/L	(<0.07U)	(<0.07U)	(<0.07U)	(<0.07U)	(<0.07U)	(<0.07U)	(<0.07U)
Copper	0.0147 mg/L	(<0.0147U)	(<0.0147U)	(<0.0147U)	(<0.0147U)	(<0.0147U)	(<0.0147U)	(<0.0147U)
Barium	2 mg/L	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)
Total chromium	0.05 mg/L	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)
Hexavalent chromium	0.011 mg/L	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)	(<0.011U)
Iron	0.3 mg/L	(<0.3U)	(<0.3U)	(<0.3U)	(<0.3U)	(<0.3U)	(<0.3U)	(<0.3U)
Selenium	0.0046 mg/L	(<0.0046U)	(<0.0046U)	(<0.0046U)	**0.0051**	(<0.0046U)	**0.0054**	(<0.0046U)
Thallium	0.004 mg/L	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)	(<0.004U)
Zinc	0.115 mg/L	(<0.115U)	(<0.115U)	(<0.115U)	(<0.115U)	(<0.115U)	(<0.115U)	(<0.115U)
Nitrate as N	Monitor	1.17	2.30	0.504	3.22	2.43	2.77	0.543
Nitrite as N	Monitor	NA	NA	NA	NA	NA	NA	NA
Chemical oxygen demand	40 mg/L	(<40.0U)	(<40.0U)	(<40.0U)	(<40.0U)	(<40.0U)	(<40.0U)	(<40.0U)
Total dissolved solids	Monitor	591	657	248	734	574	542	526
Total Recoverable Phenolics	0.008 mg/l	(<0.008U)	(<0.008U)	(<0.008U)	**0.0082**	(<0.008U)	(<0.008U)	(<0.01U)

TABLE NOTES

Groundwater sampling results were compared to NYSDEC Ambient Water Quality Standards (AWQS) (NYSDEC 1999) and guidance values for Class GA waters. Class GA groundwater is used as a source of drinking water. Surface water samples were compared to NYSDEC AWQS for Class D surface waters. Class D waters are used for fishing but are not conducive to fish propagation. If no Class D standards were applicable for a particular compound, analytical results were compared to the more stringent Class C standards. Class C waters are suitable for fishing and fish propagation.

NA = Sample not analyzed for parameter.
* = Indicates guidance value.
U = Not detected. Sample quantitation limits shown as (<__U).

Results shaded and in boldface indicate concentrations above the New York State Ambient Water Quality Standards or Guidance Values.

The analytes shown for each well were detected at concentrations above the AWQS in at least one of the samples from that well.

Analytical Methods for Water Quality Parameters

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

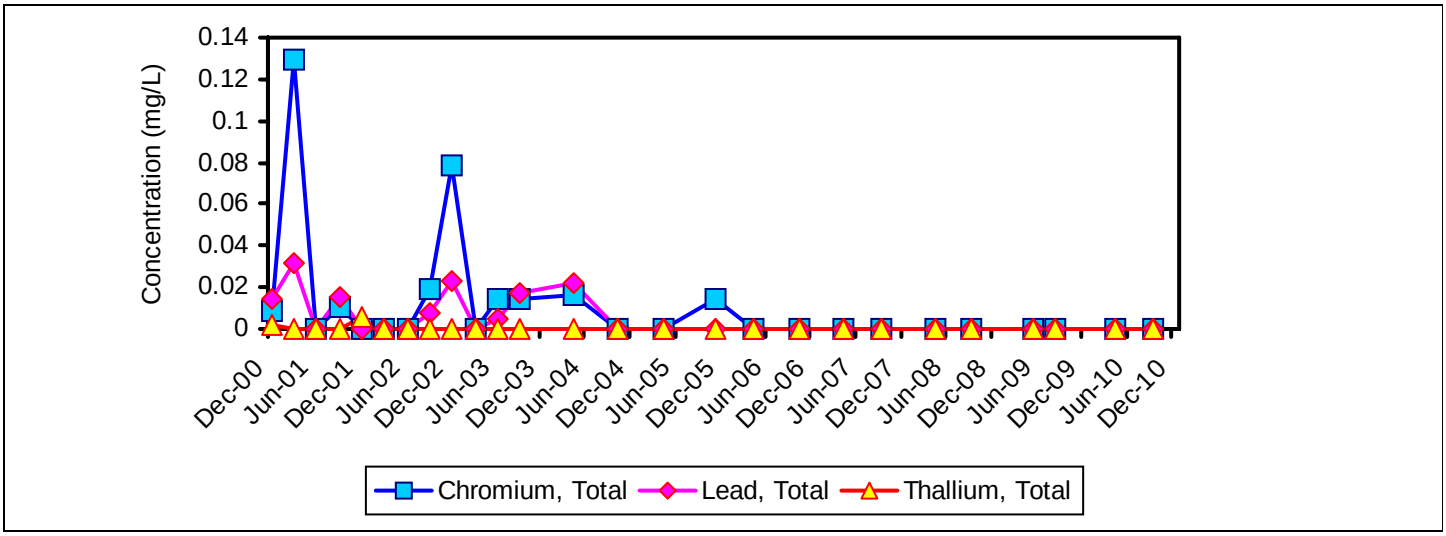
Appendix C

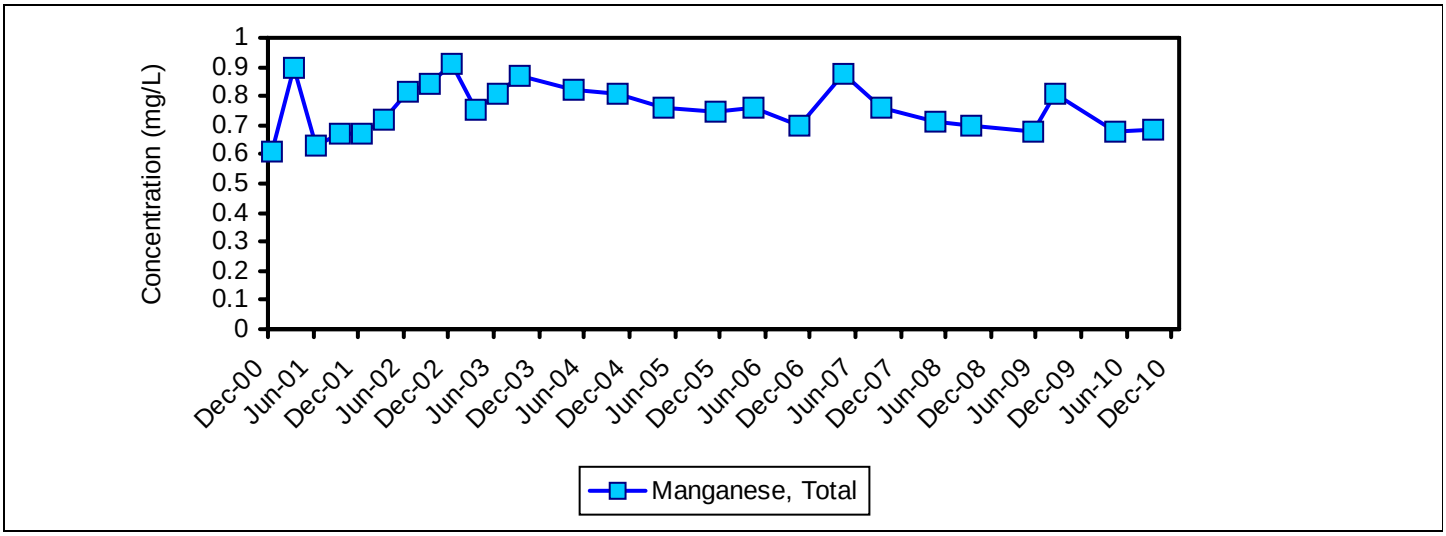
Monitoring Well Trend Charts

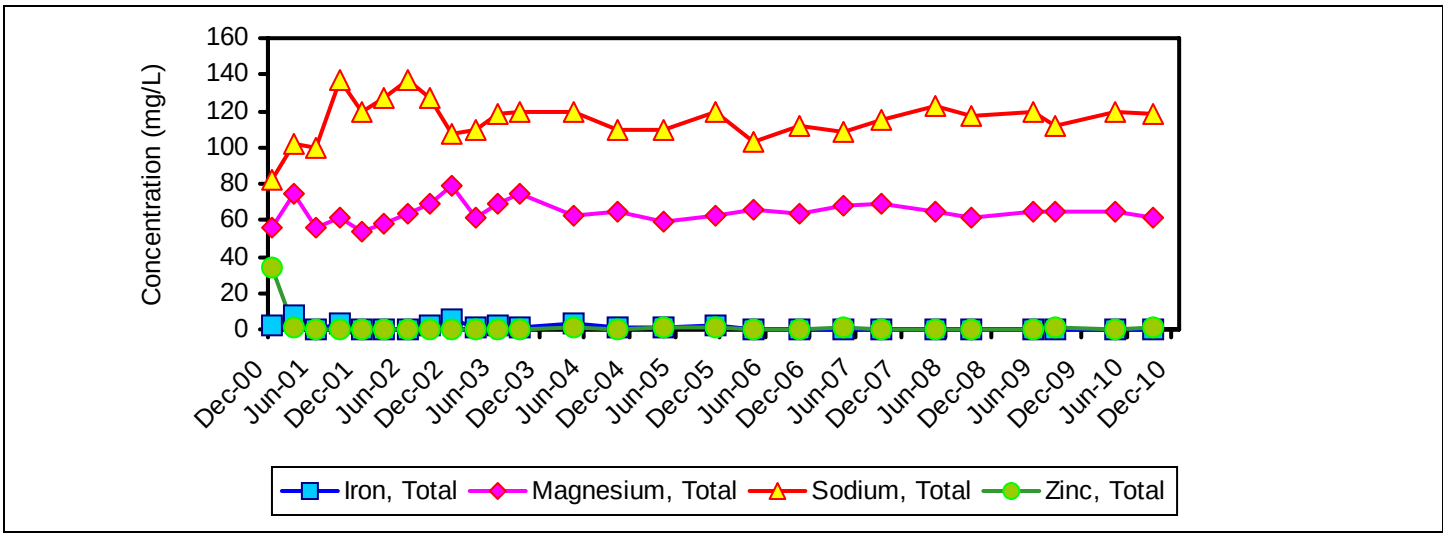
APPENDIX C MONITORING WELL TREND CHARTS

Sample Location: MW-1B

Sample Matrix: Groundwater

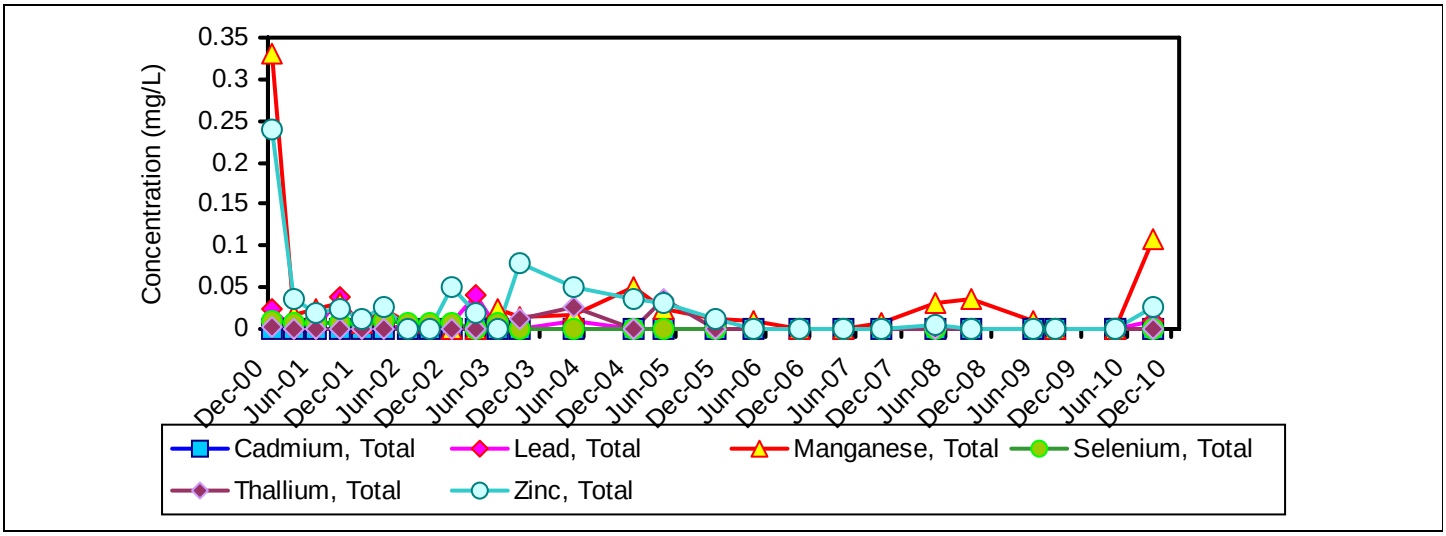


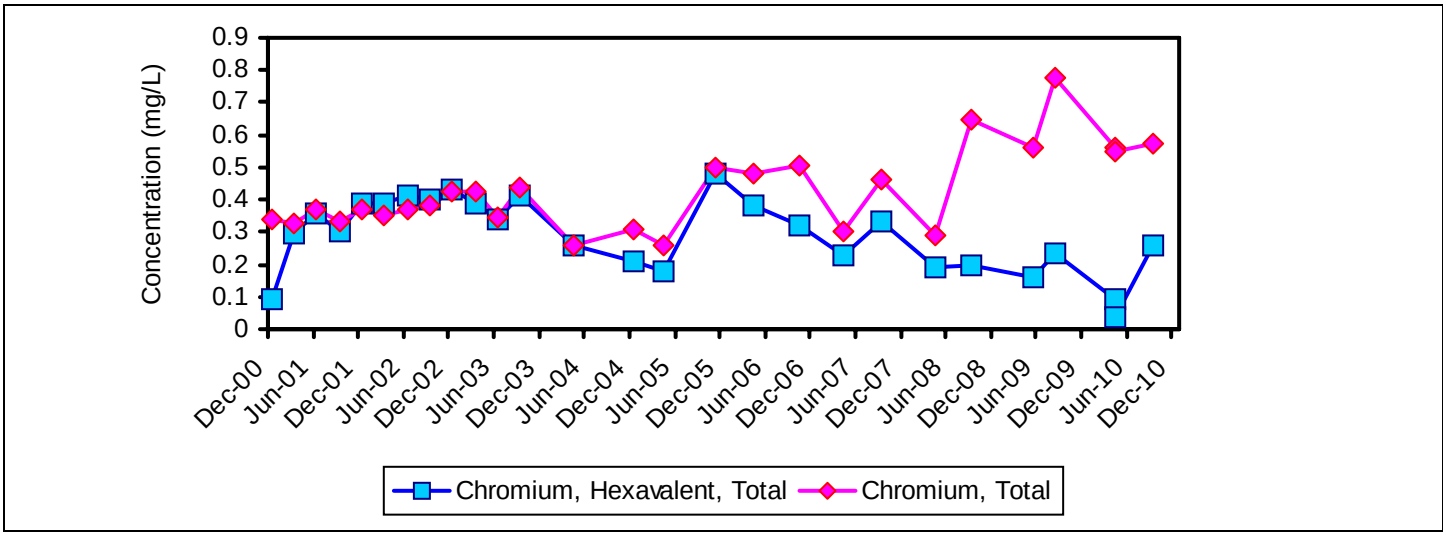


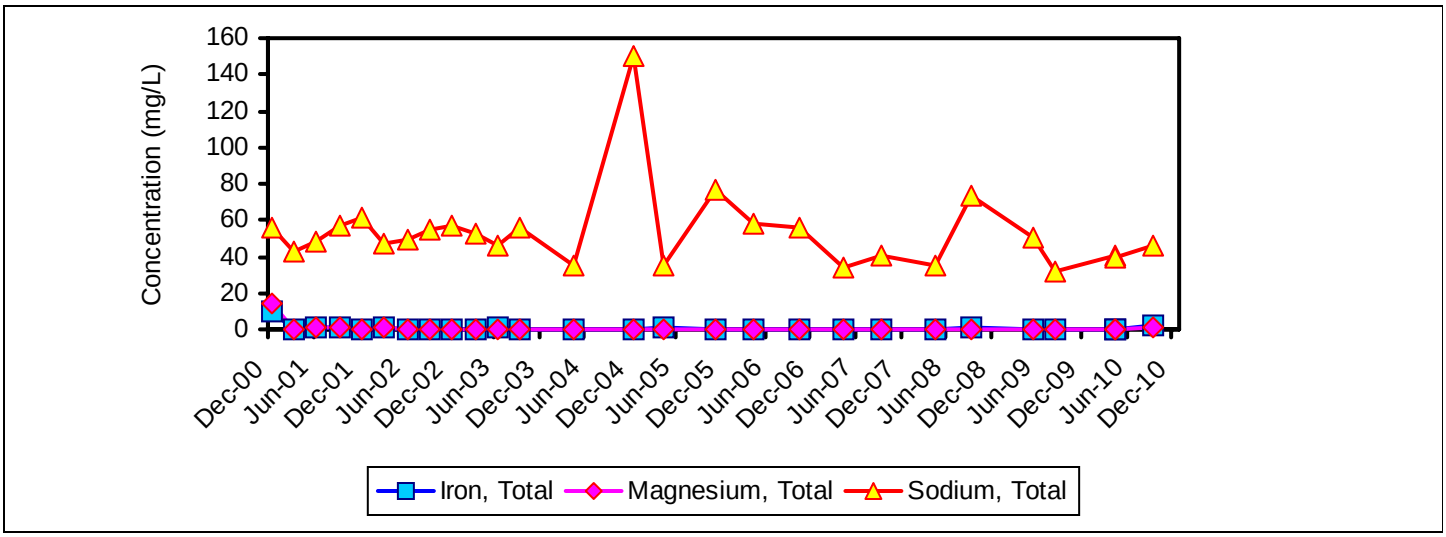


Sample Location: MW-2B

Sample Matrix: Groundwater

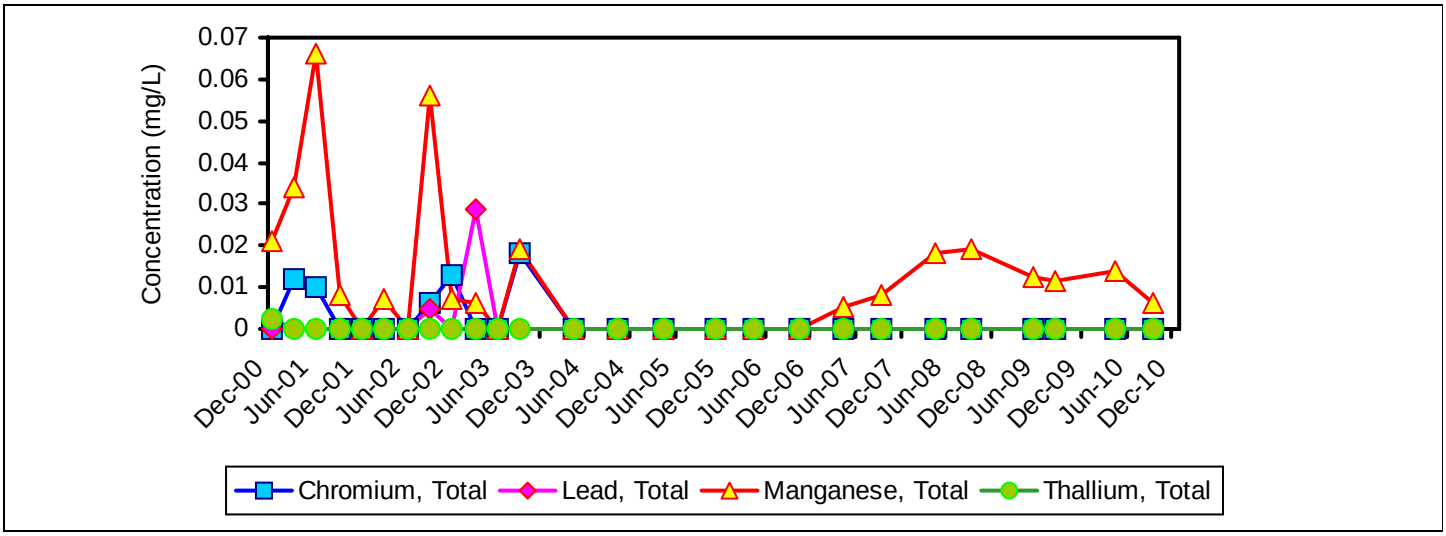


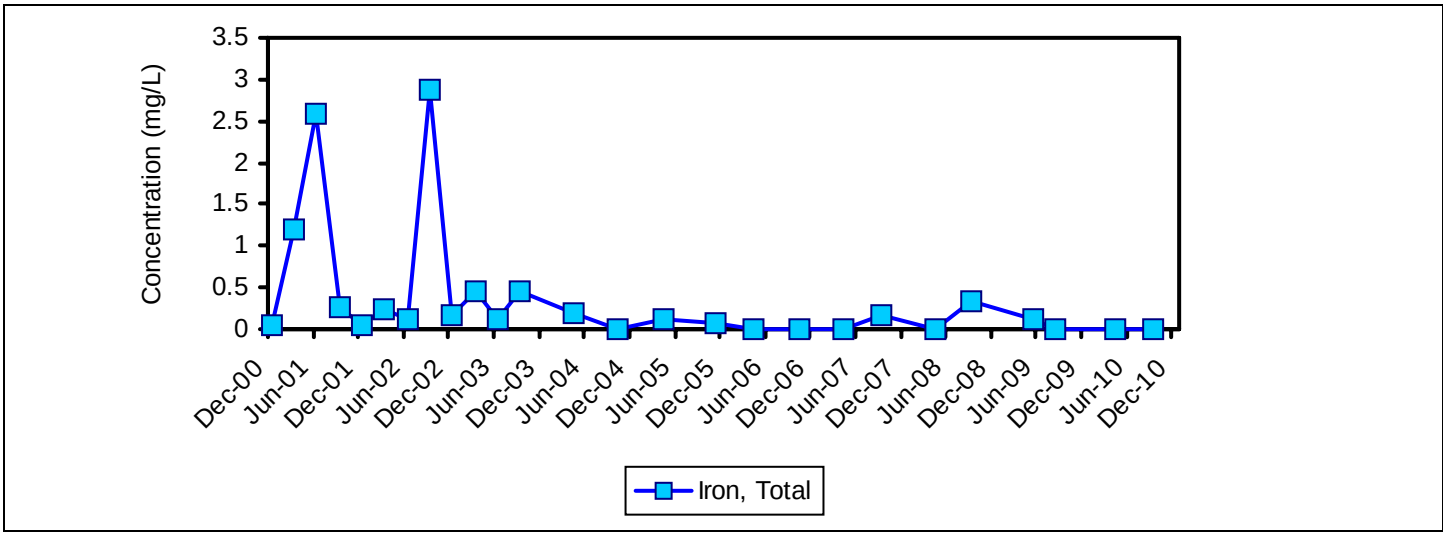


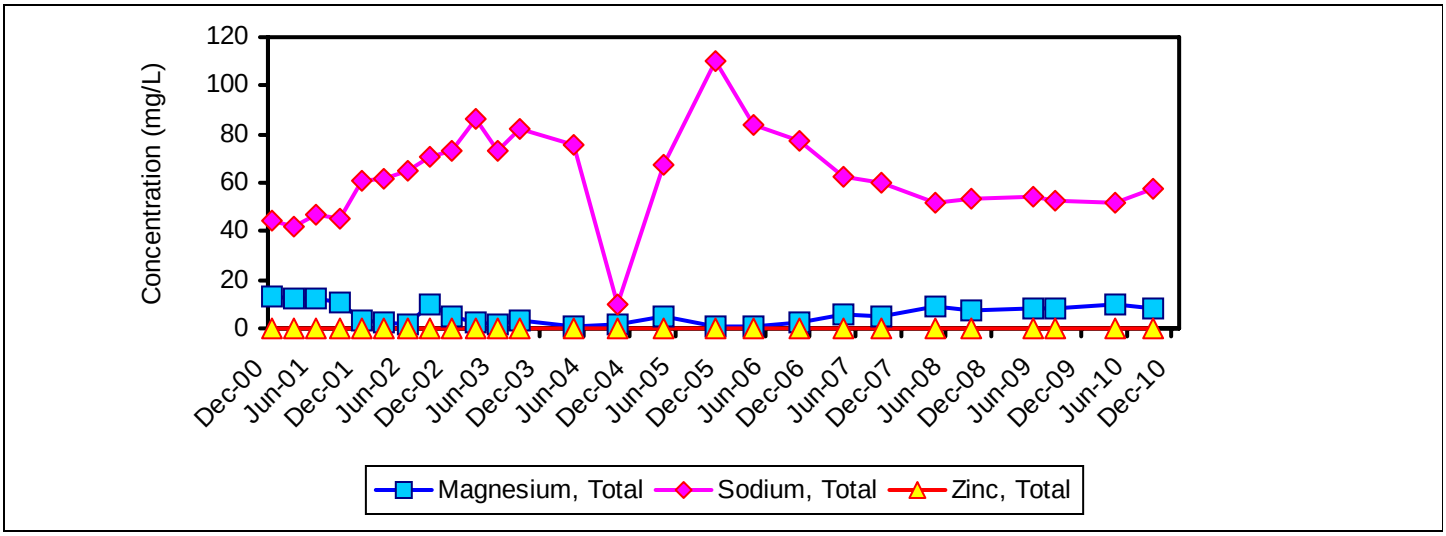


Sample Location: MW-3B

Sample Matrix: Groundwater

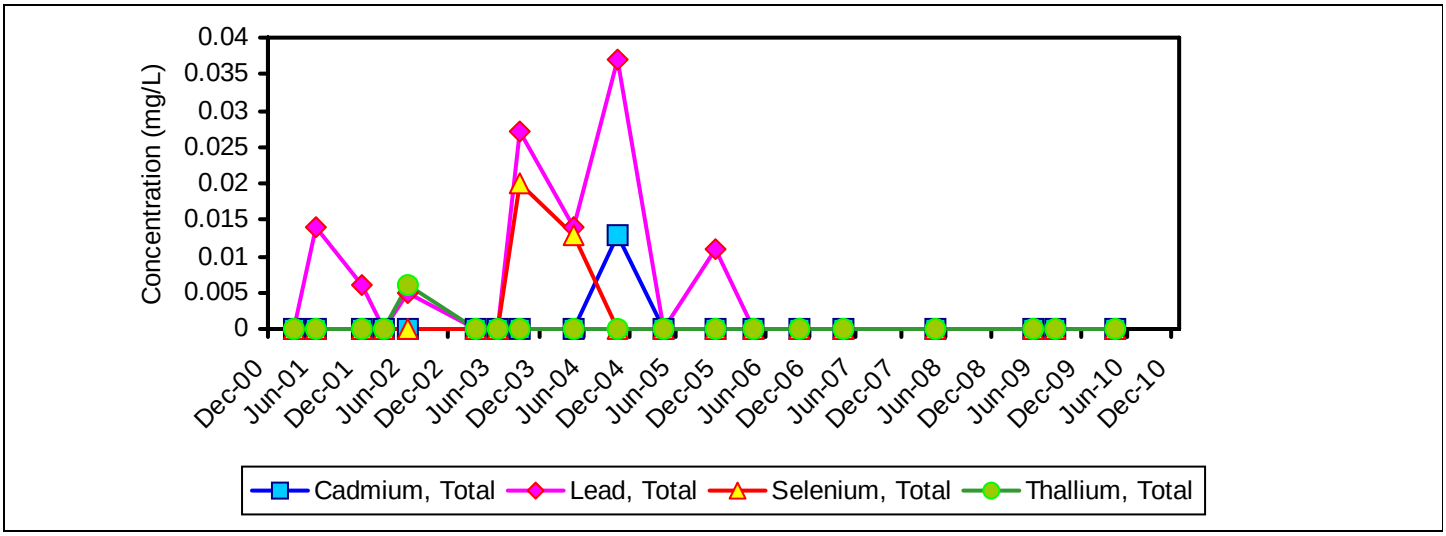


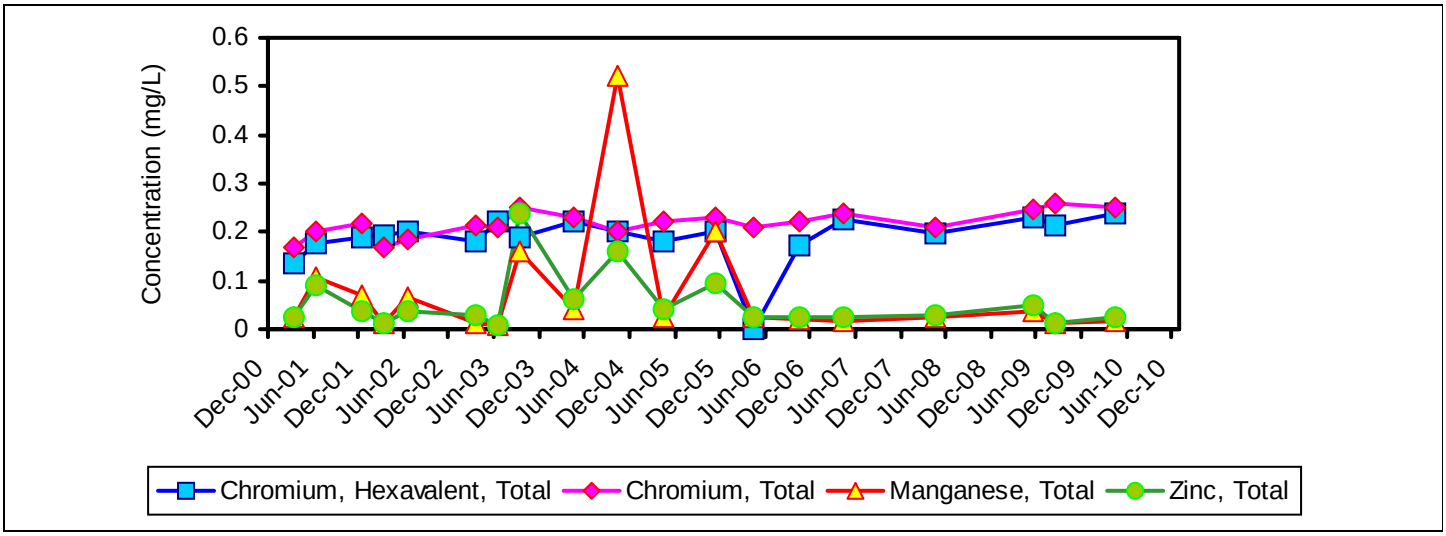


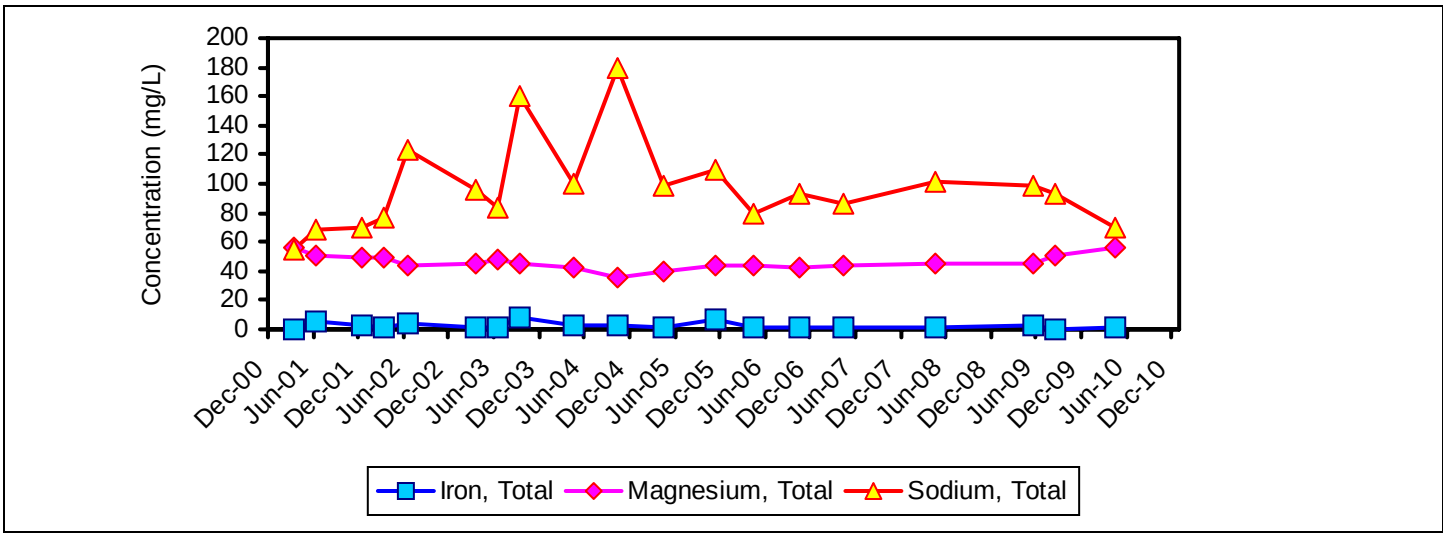


Sample Location: MW-4B

Sample Matrix: Groundwater

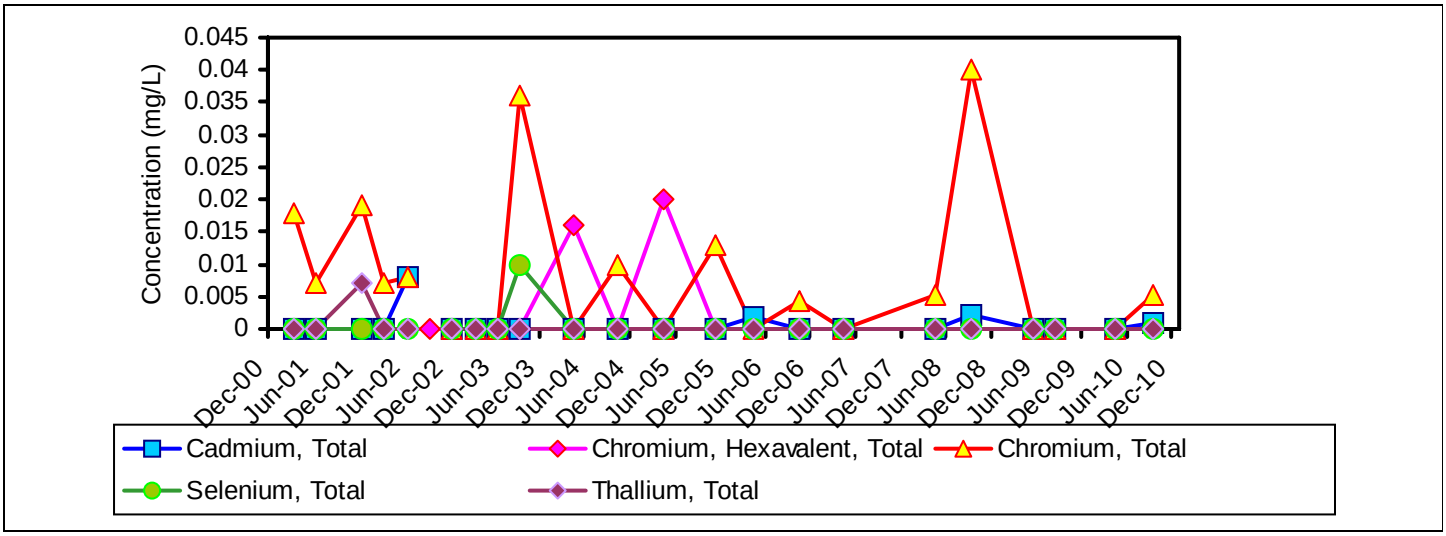


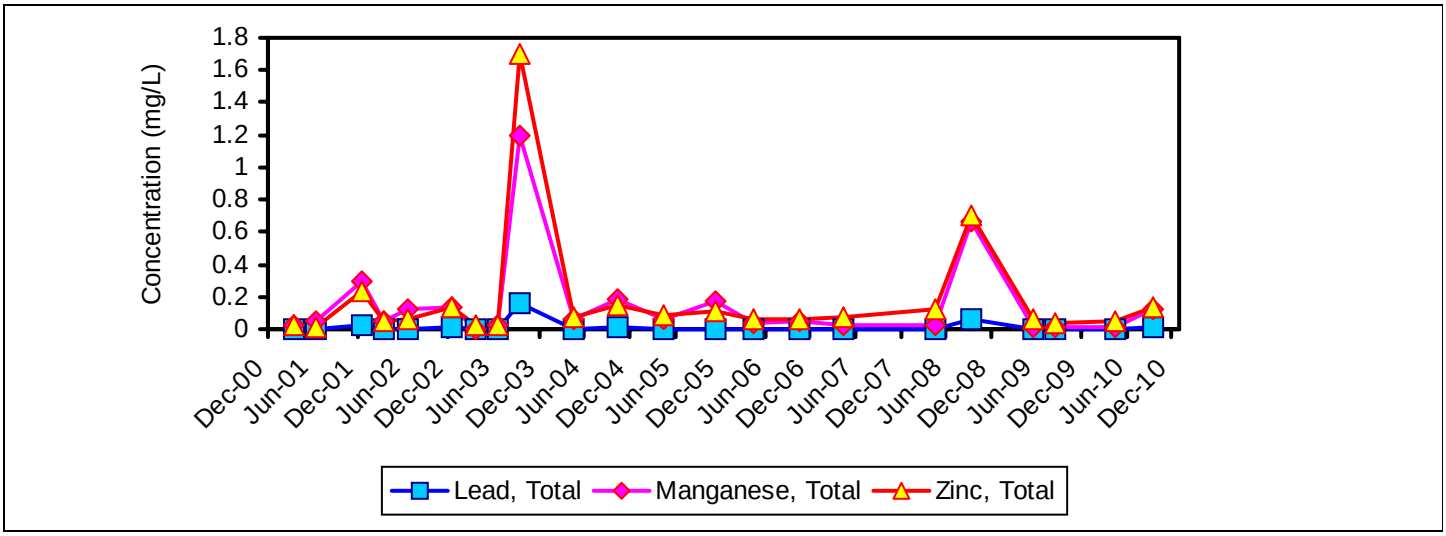


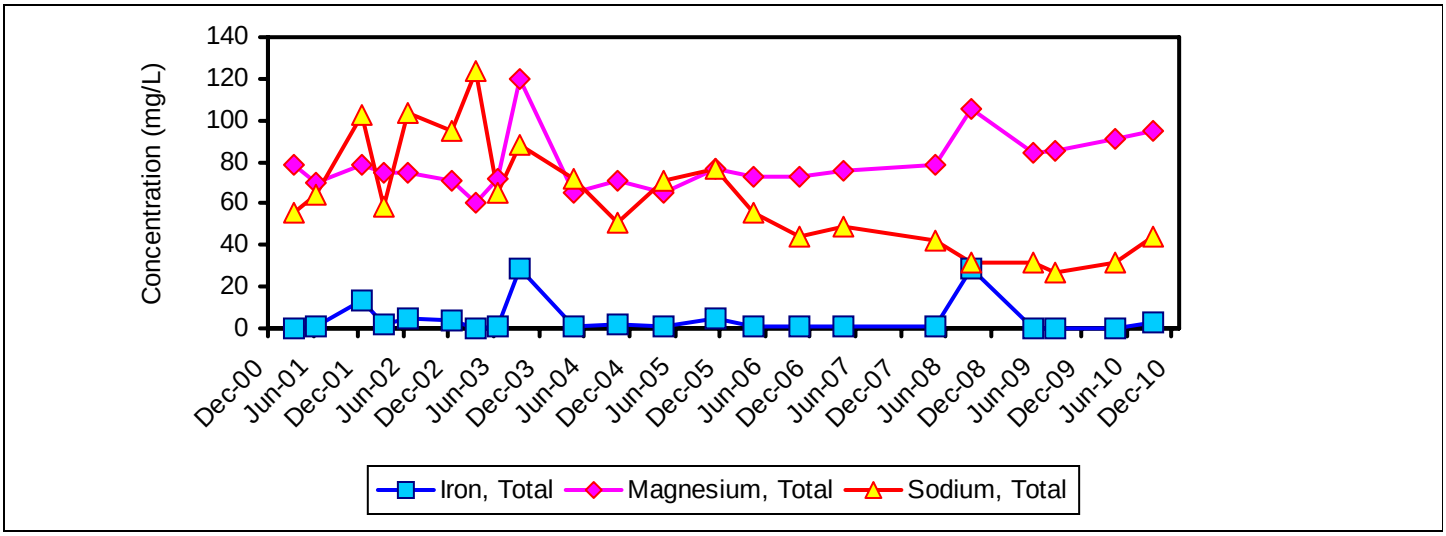


Sample Location: MW-5B

Sample Matrix: Groundwater

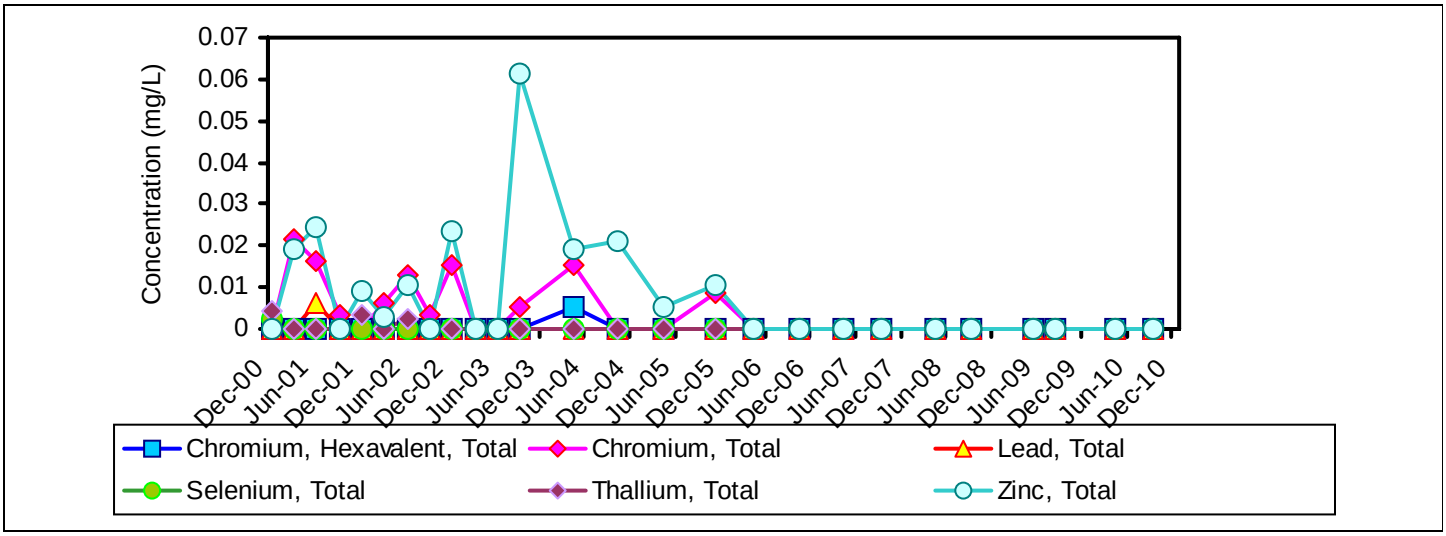


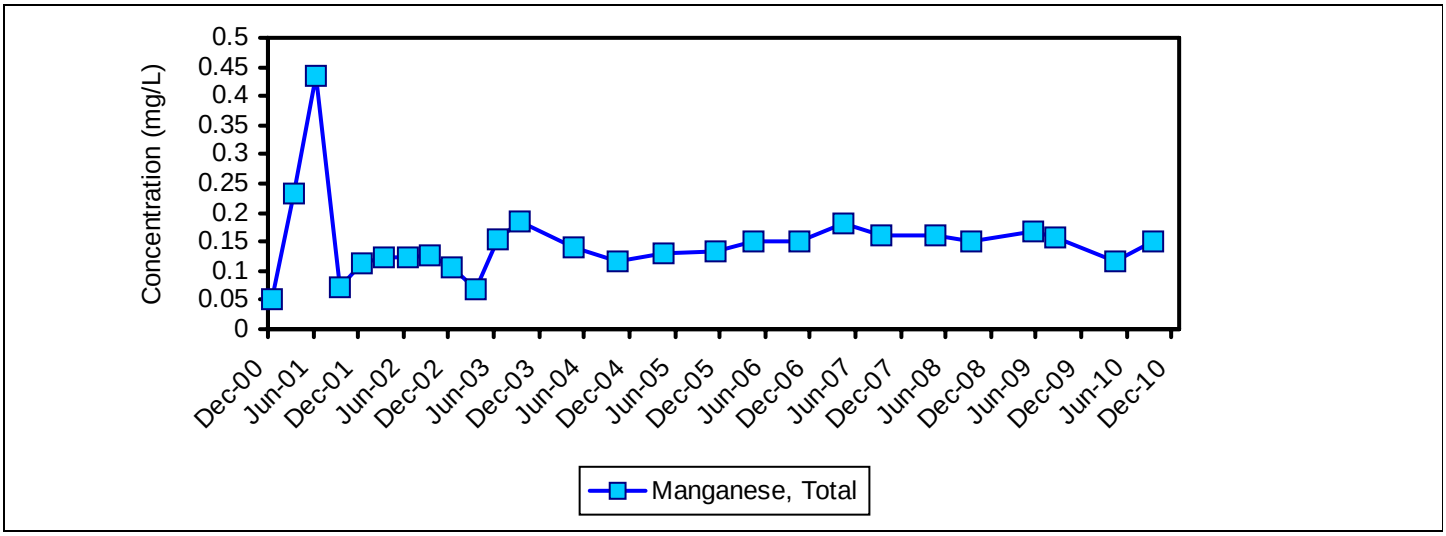


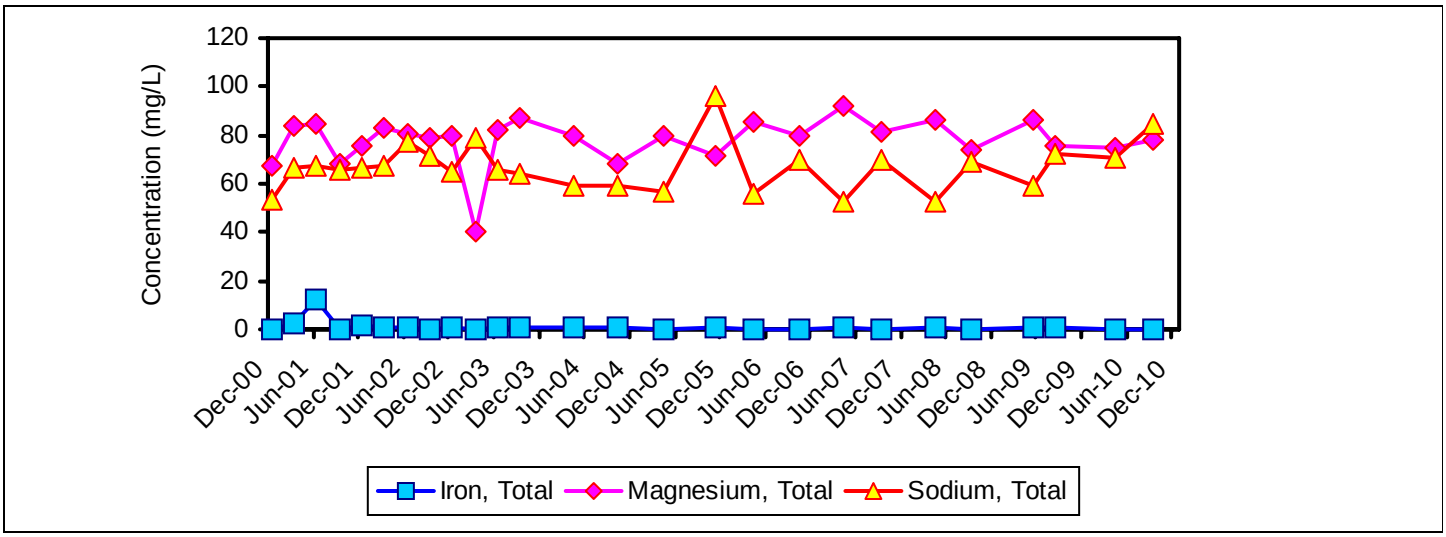


Sample Location: MW-6B

Sample Matrix: Groundwater

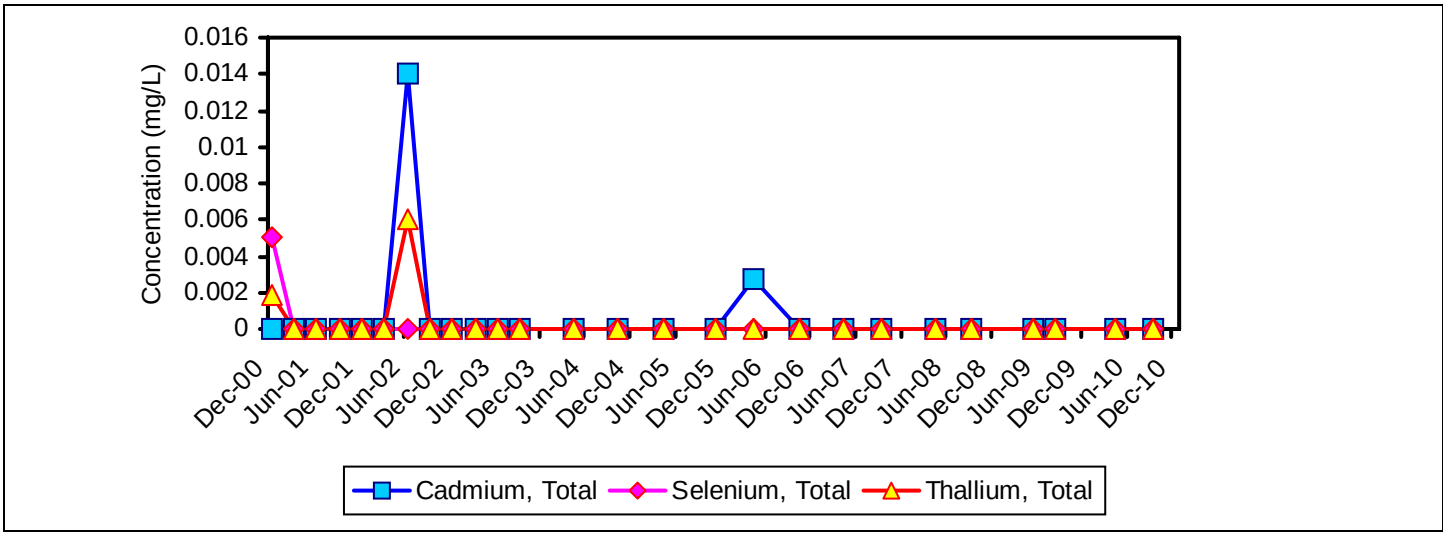


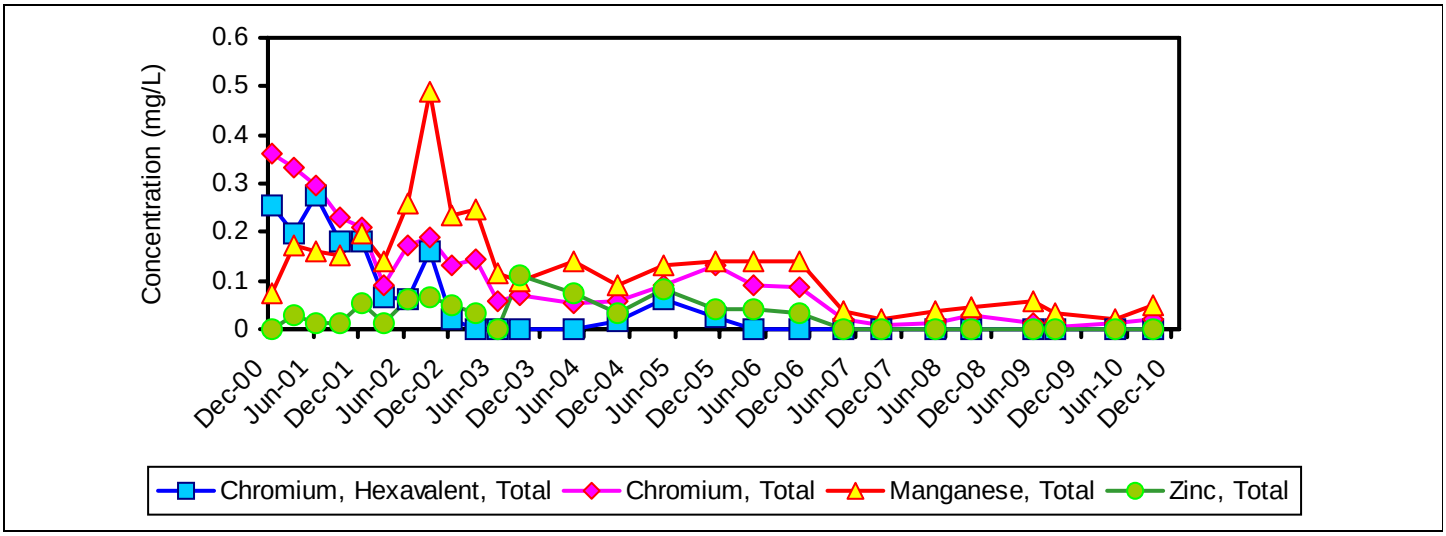


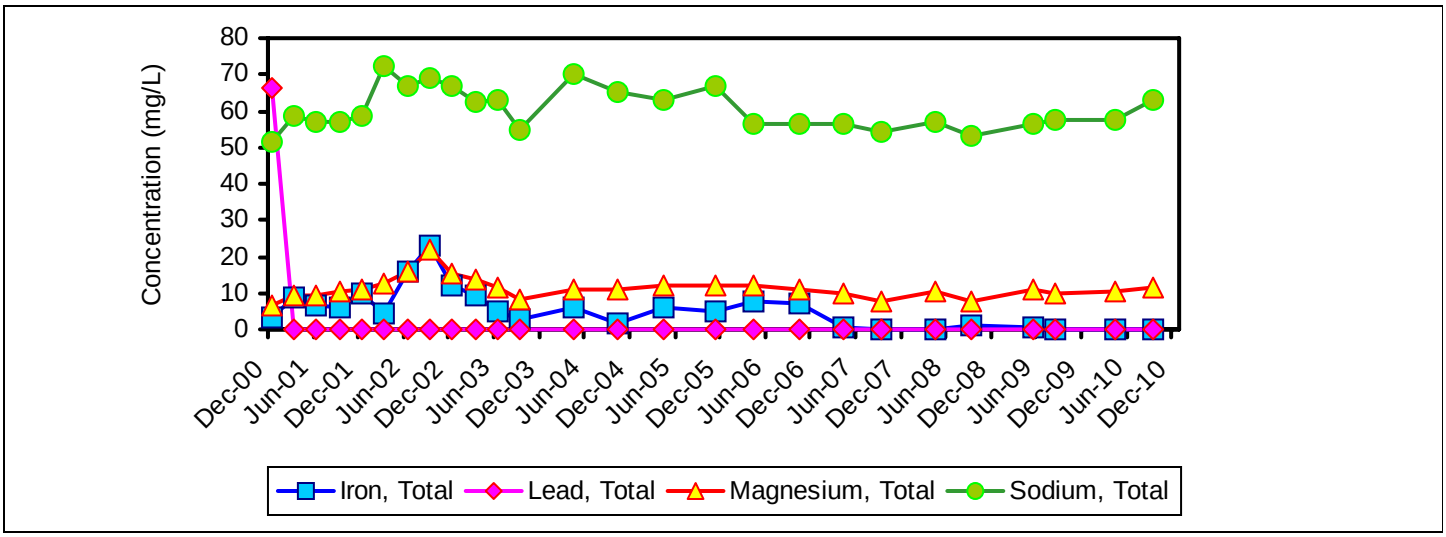


Sample Location: MW-7B

Sample Matrix: Groundwater

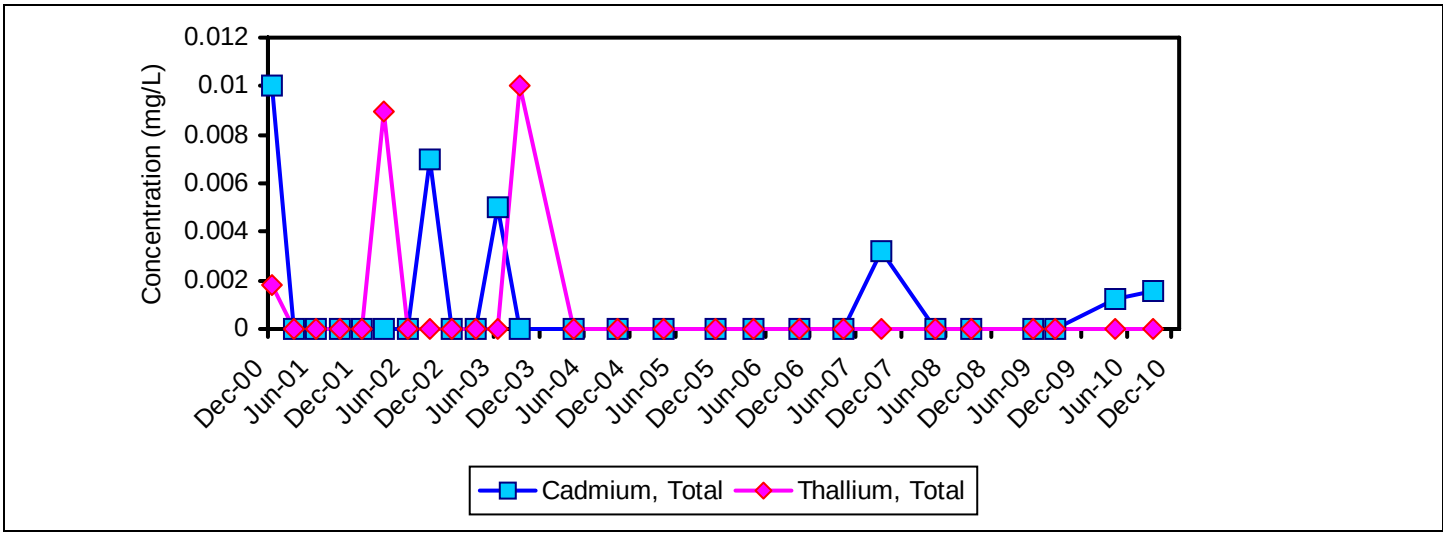


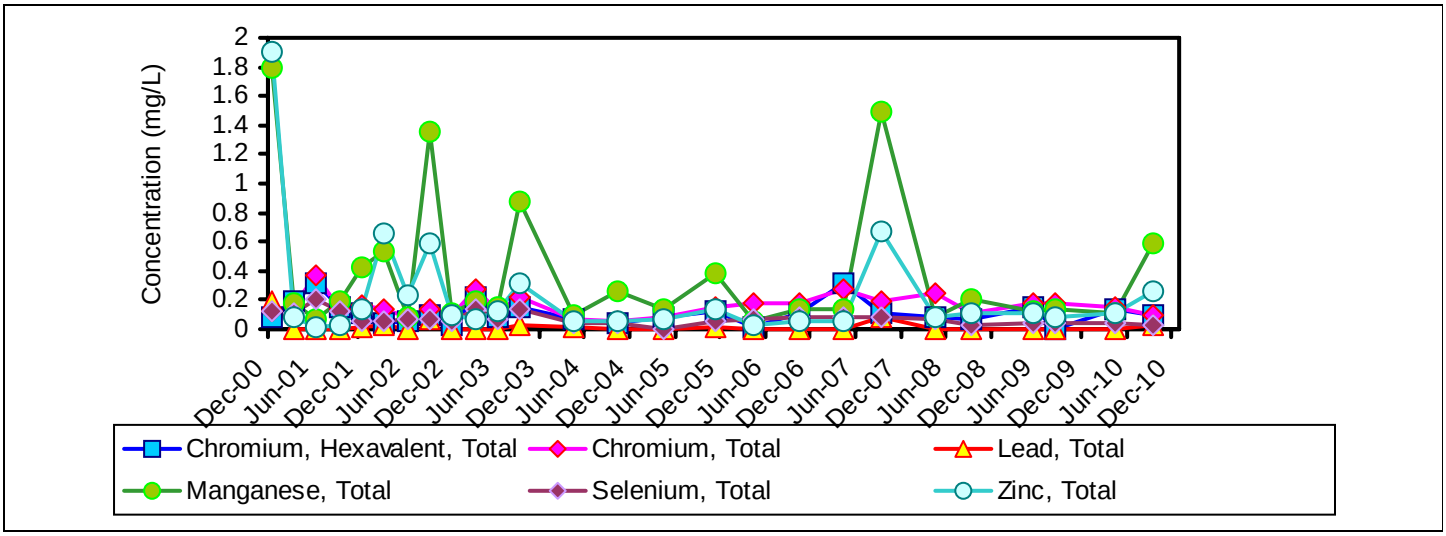


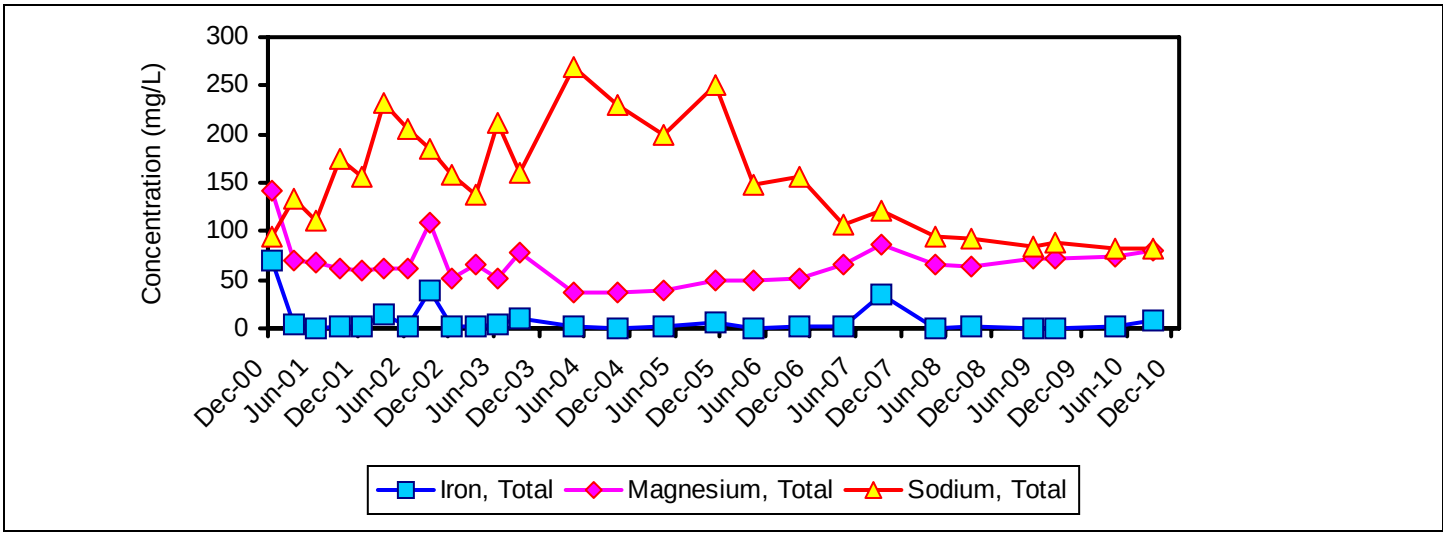


Sample Location: MW-8B

Sample Matrix: Groundwater

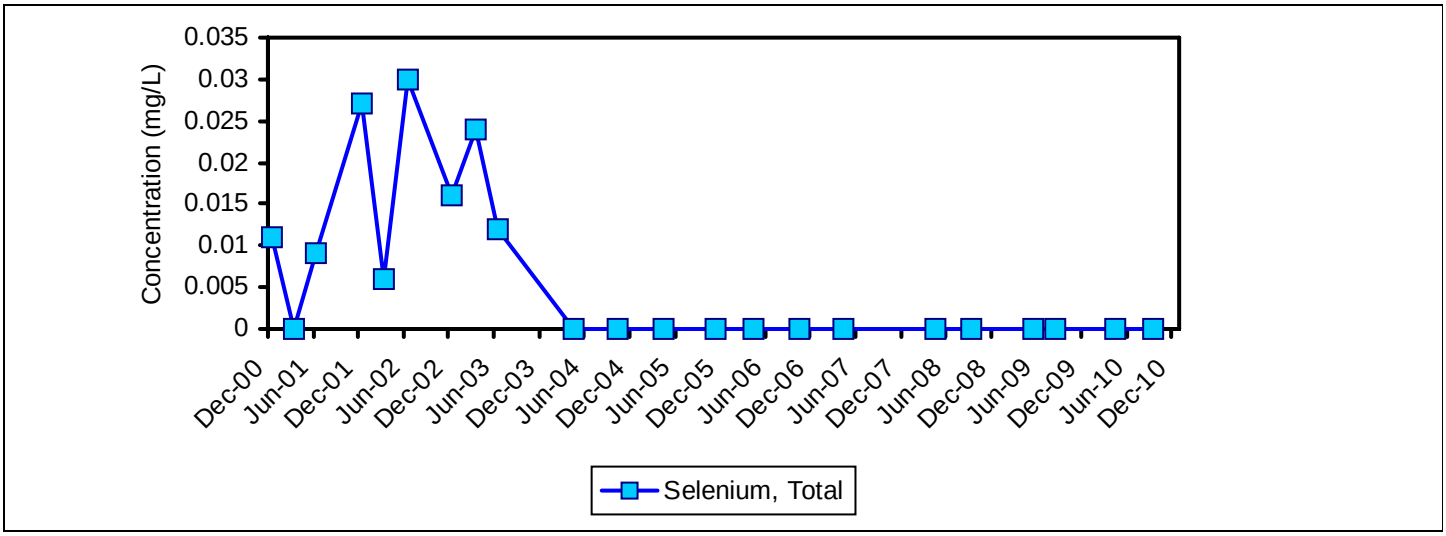


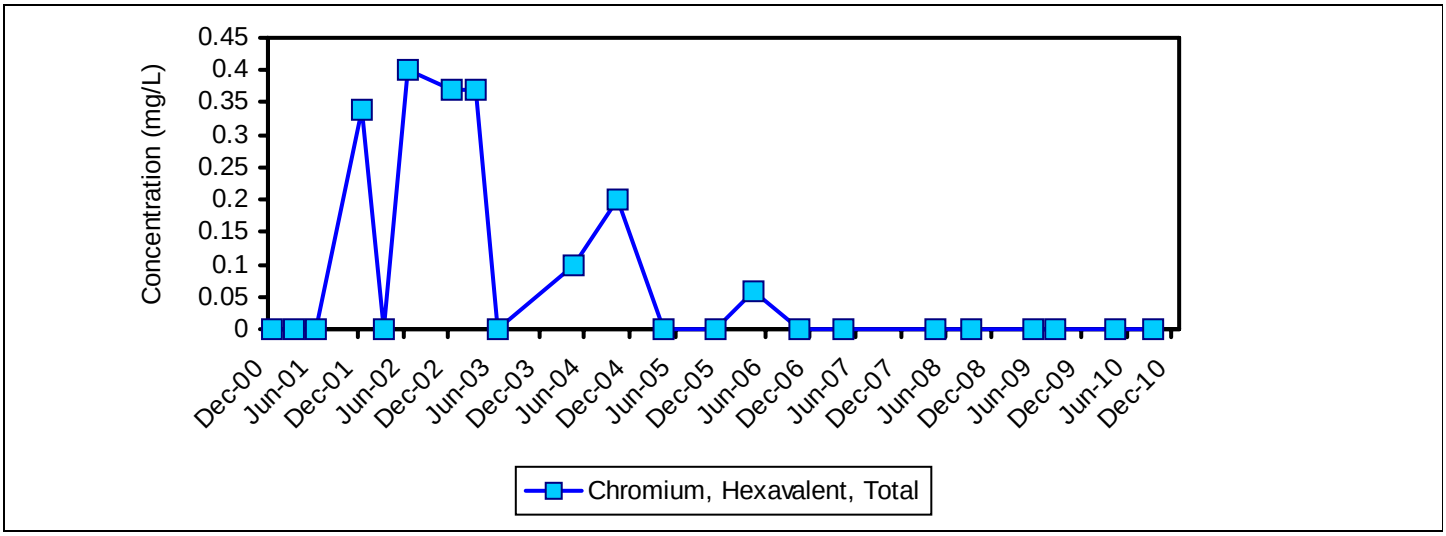


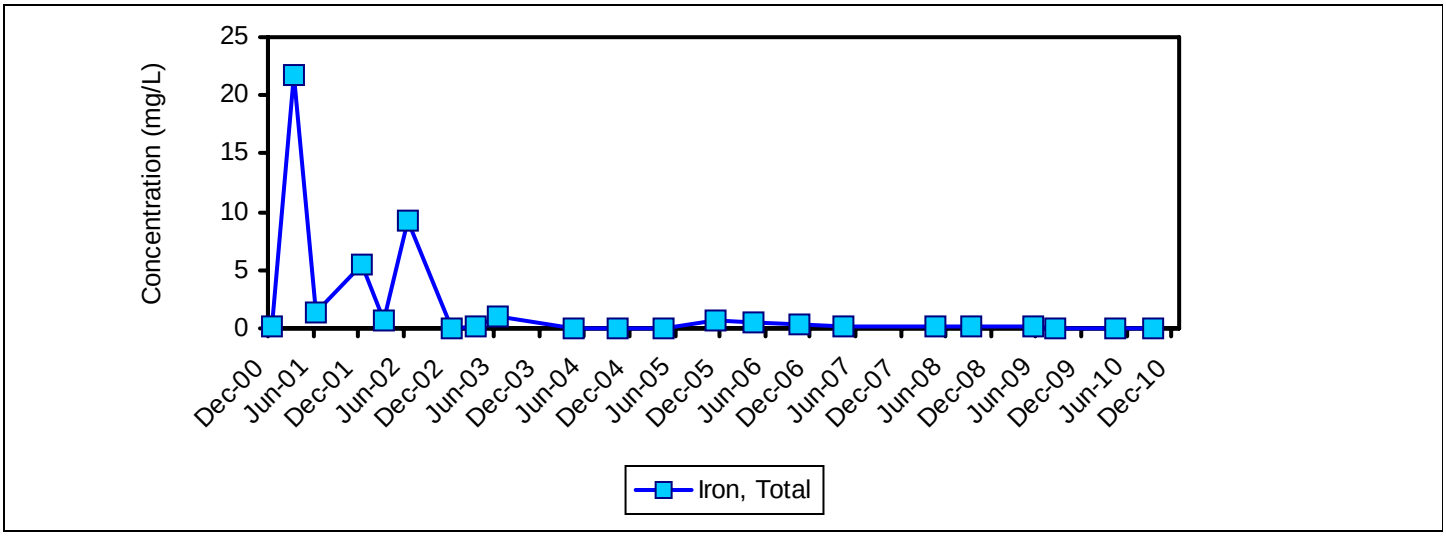


Sample Location: SS-01

Sample Matrix: Surface Water

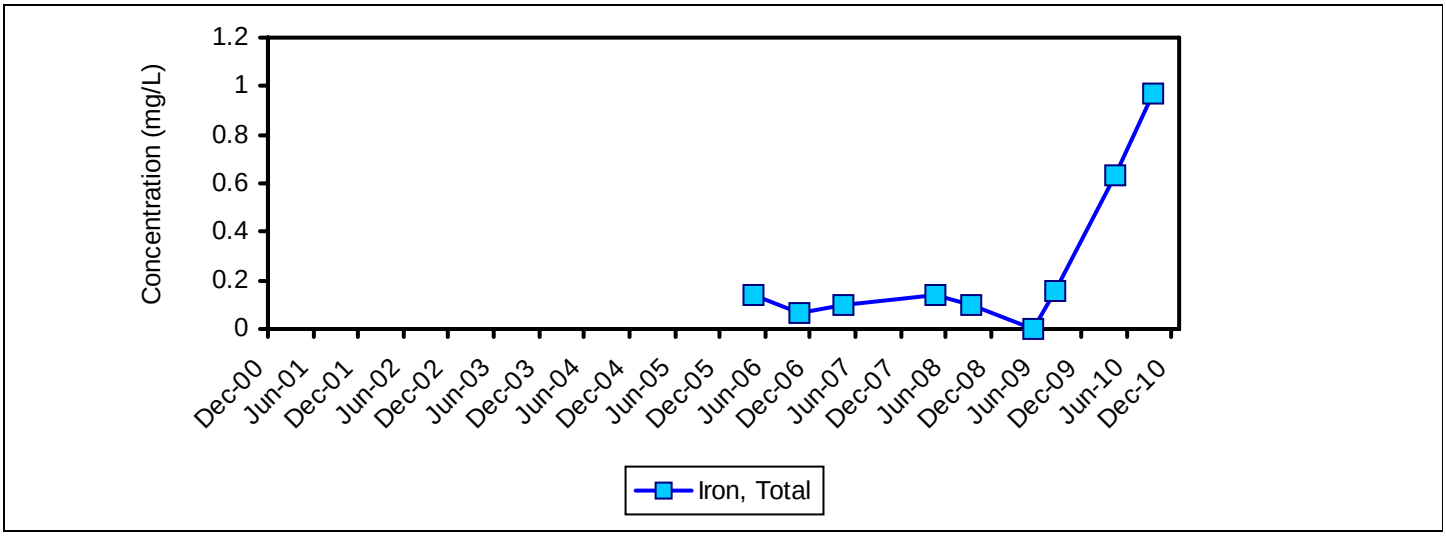






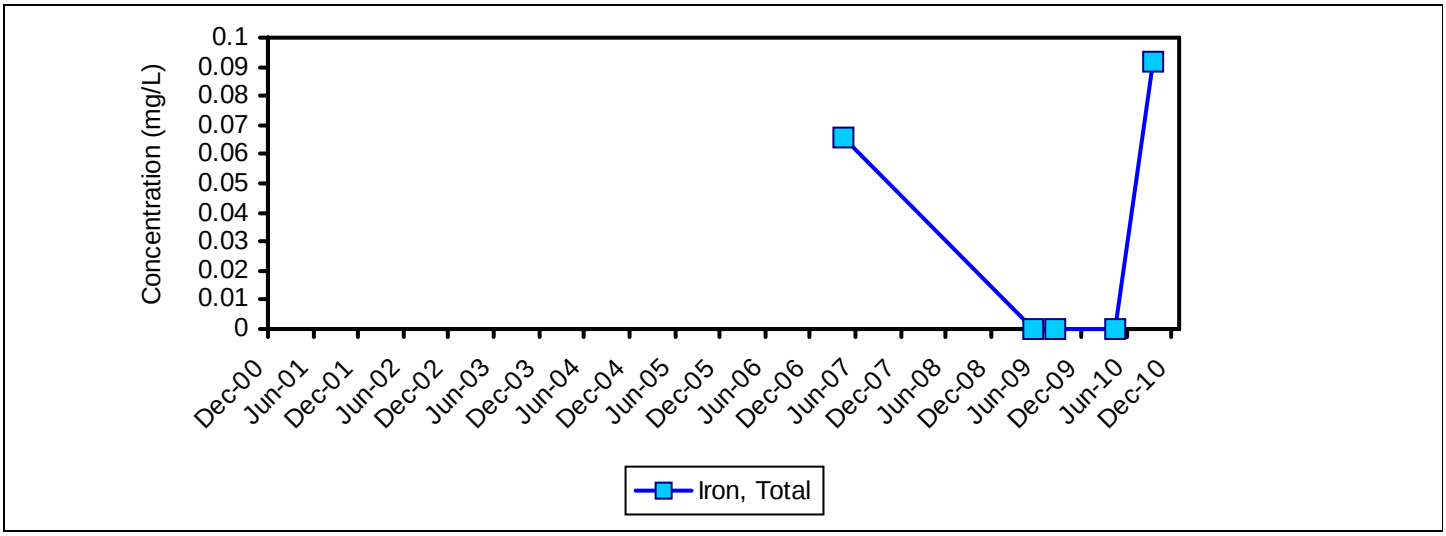
Sample Location: SS-02

Sample Matrix: Surface Water



Sample Location: SS-03

Sample Matrix: Surface Water



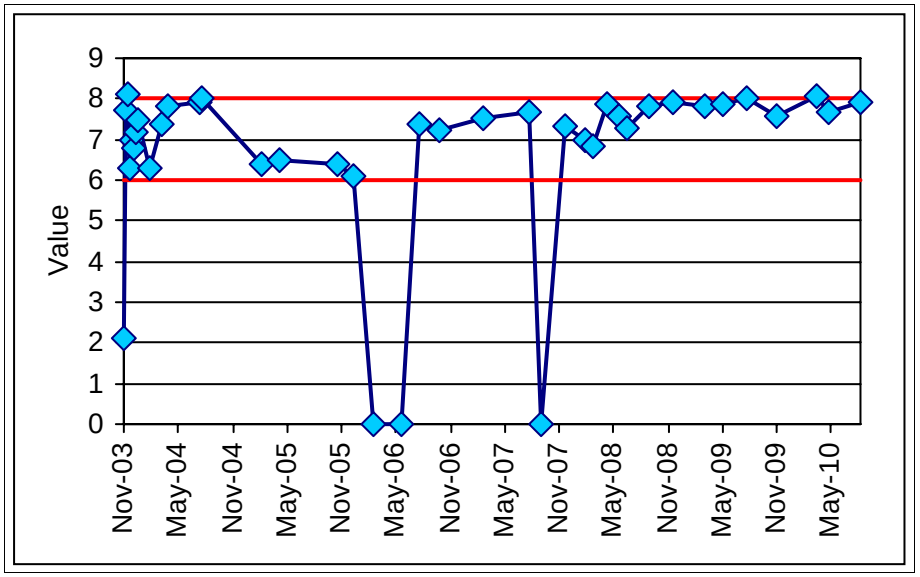
Appendix D

Groundwater Collection and Treatment System Effluent Trend Charts

APPENDIX D GROUNDWATER COLLECTION AND TREATMENT SYSTEM EFFLUENT TREND CHARTS

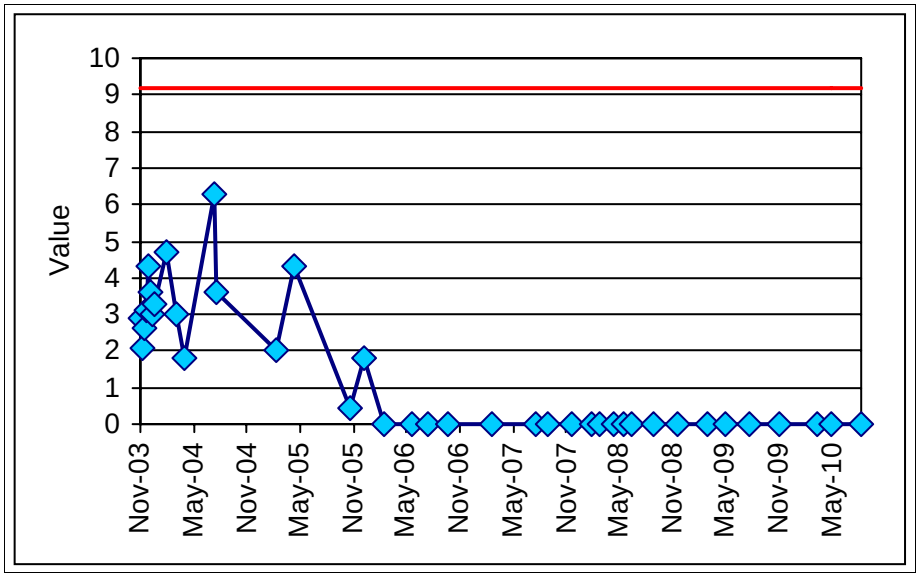
Parameter: pH

New York State Effluent Limit: 6-8 SU



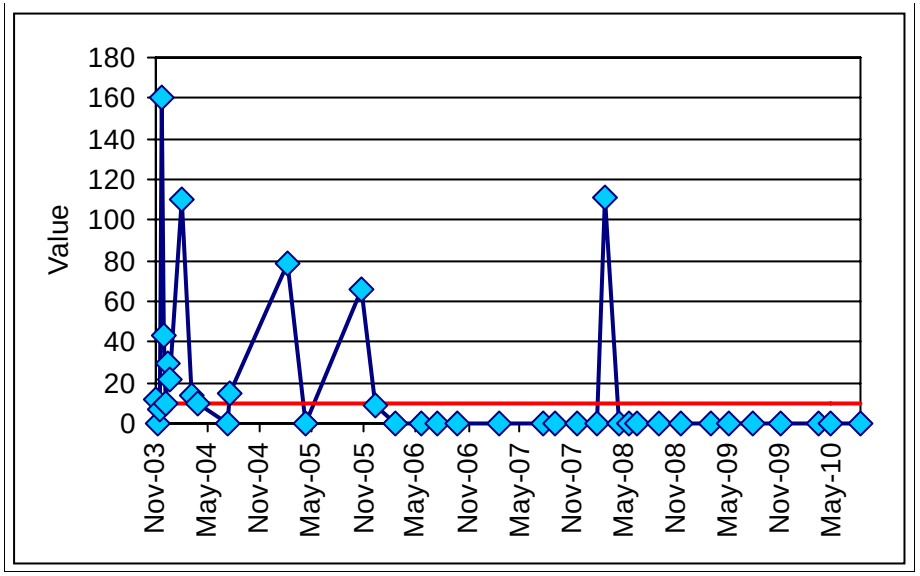
Parameter: Ammonia as N

New York State Effluent Limit: 9.2 mg/L



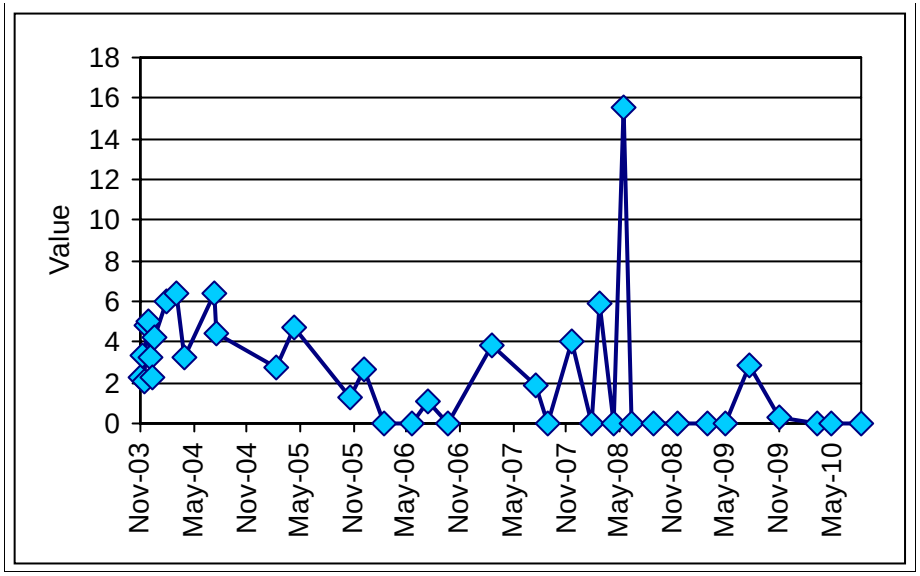
Parameter: Total suspended solids

New York State Effluent Limit: 10 mg/L



Parameter: Total Kjeldahl nitrogen

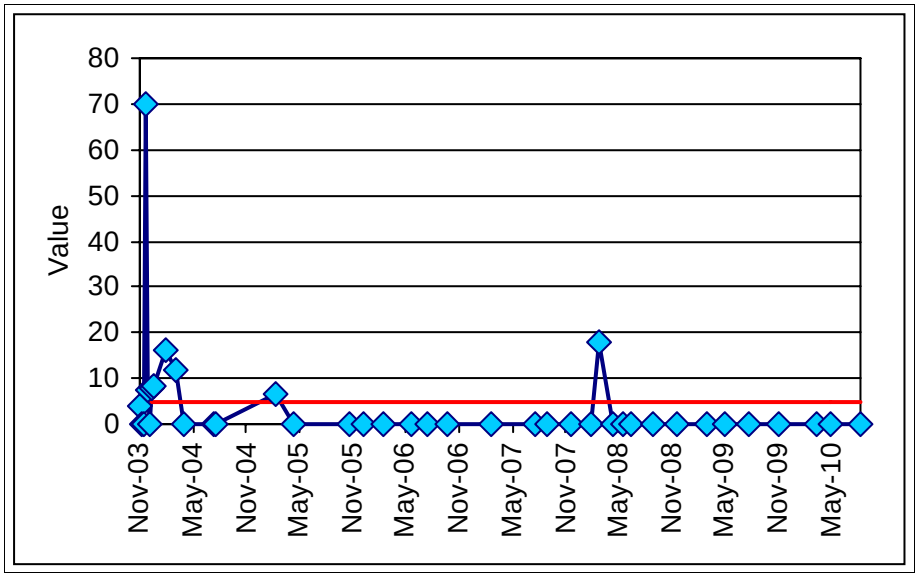
New York State Effluent Limit: Monitor



APPENDIX D, CONTINUED

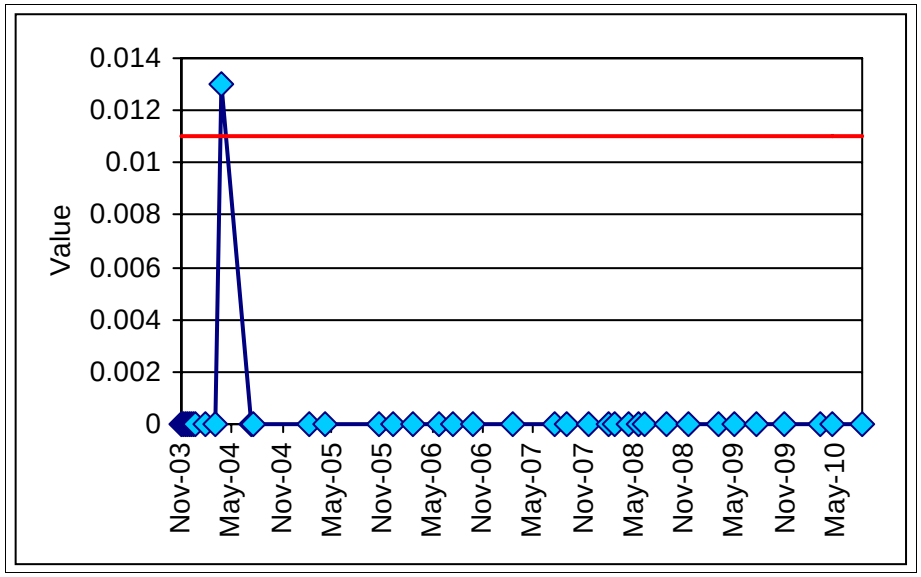
Parameter: Biochemical oxygen demand

New York State Effluent Limit: 5.0 mg/L



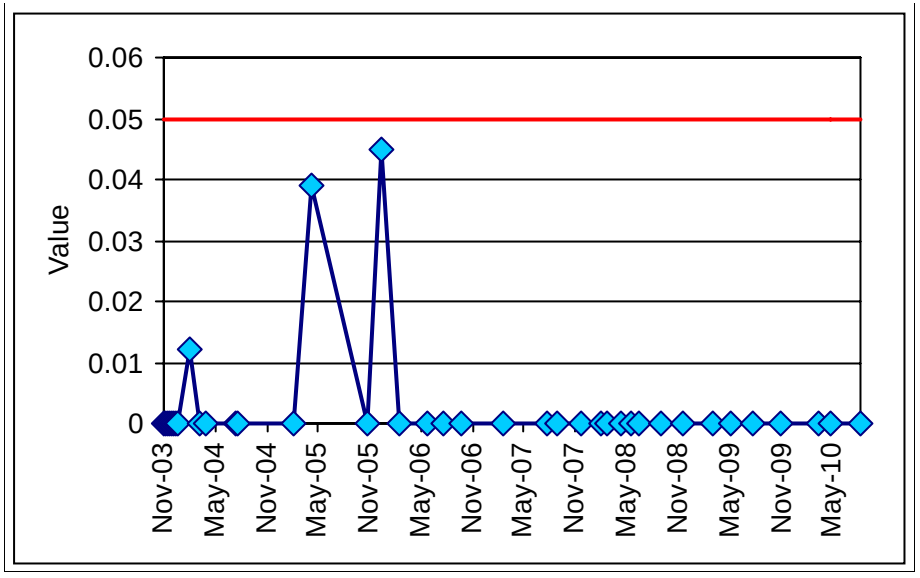
Parameter: Hexavalent chromium

New York State Effluent Limit: 0.011 mg/L



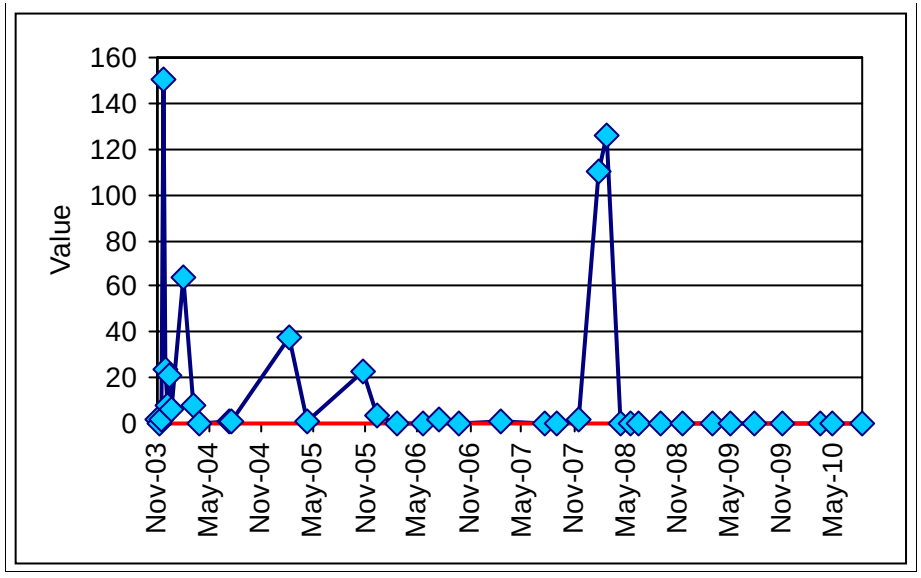
Parameter: Total chromium

New York State Effluent Limit: 0.05 mg/L



Parameter: Iron

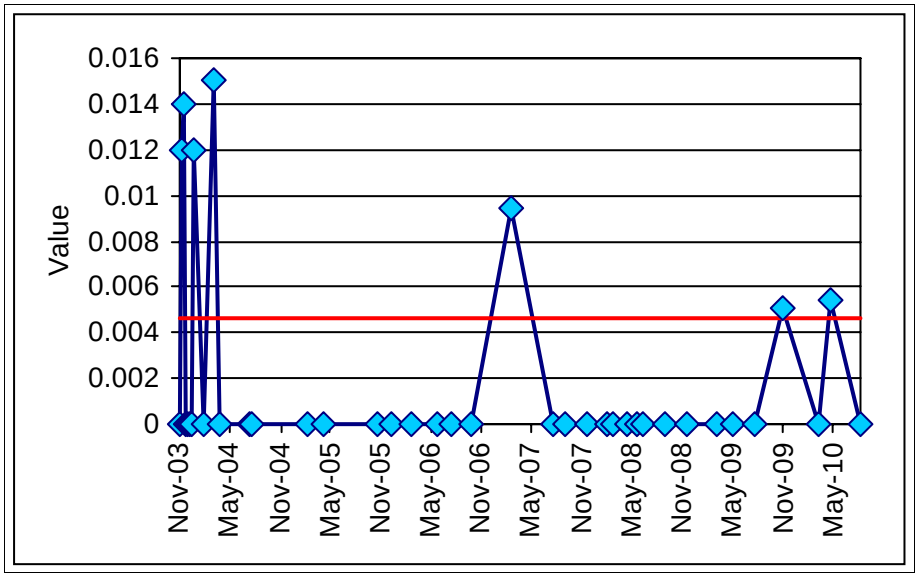
New York State Effluent Limit: 0.3 mg/L



APPENDIX D, CONTINUED

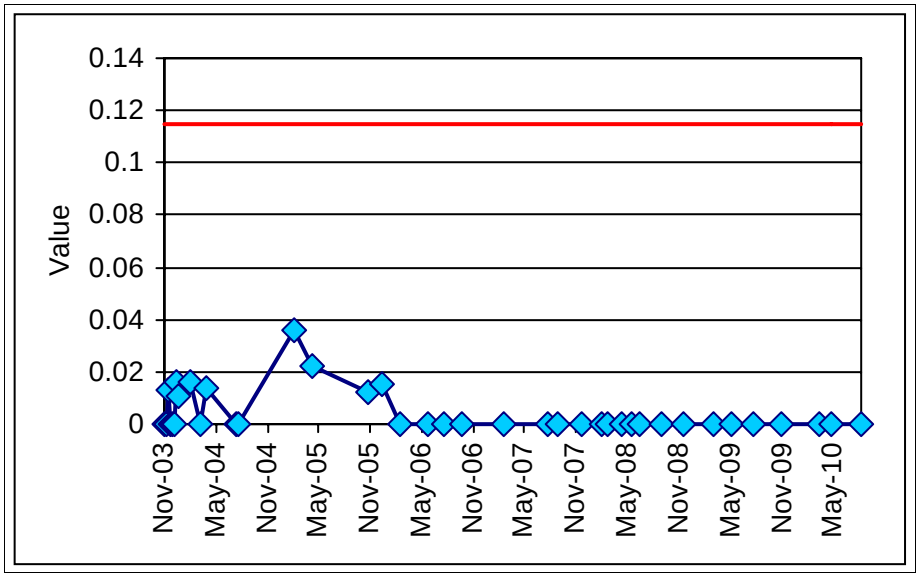
Parameter: Selenium

New York State Effluent Limit: 0.0046 mg/L



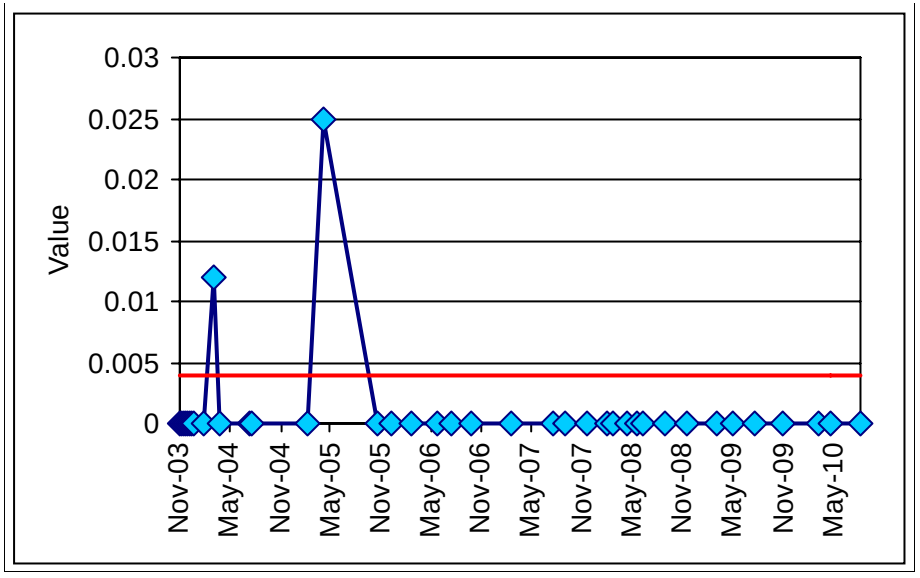
Parameter: Zinc

New York State Effluent Limit: 0.115 mg/L



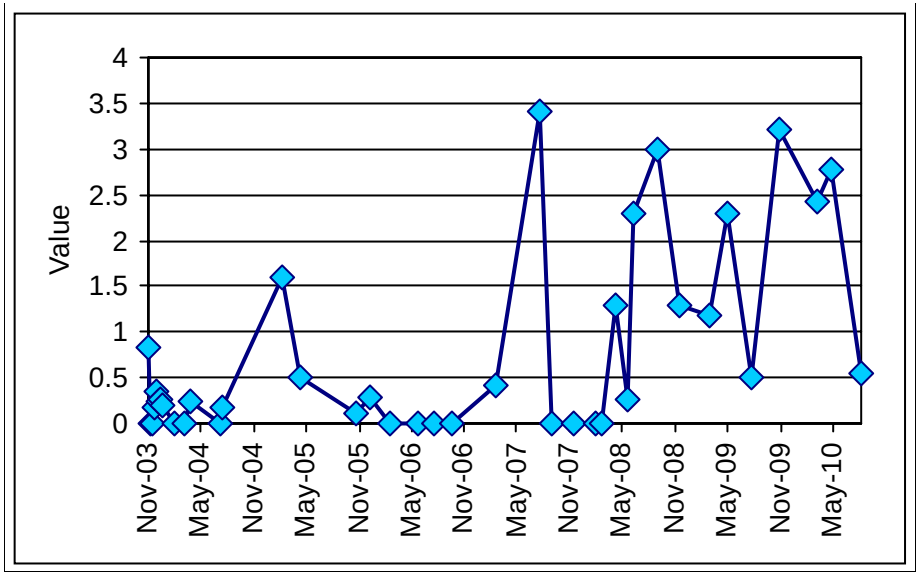
Parameter: Thallium

New York State Effluent Limit: 0.004 mg/L



Parameter: Nitrate as N

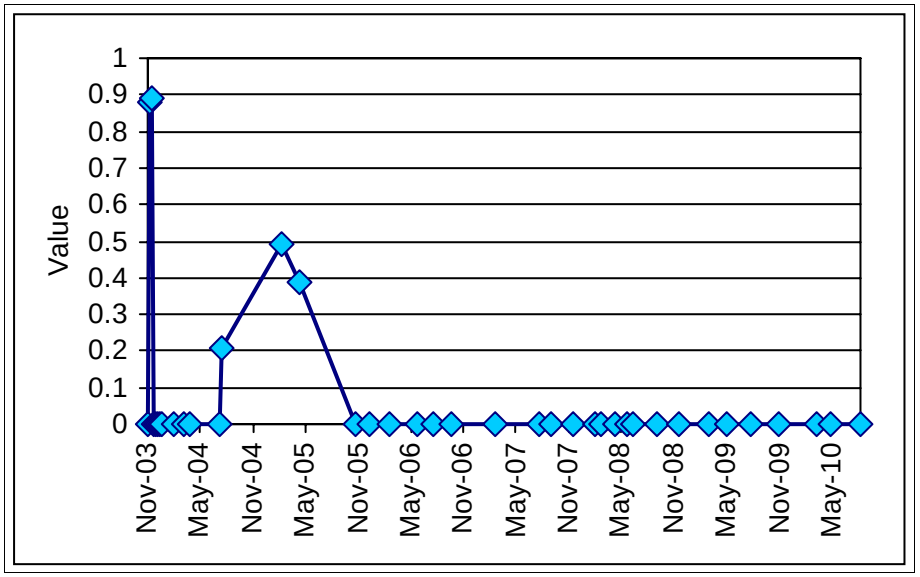
New York State Effluent Limit: Monitor



APPENDIX D, CONTINUED

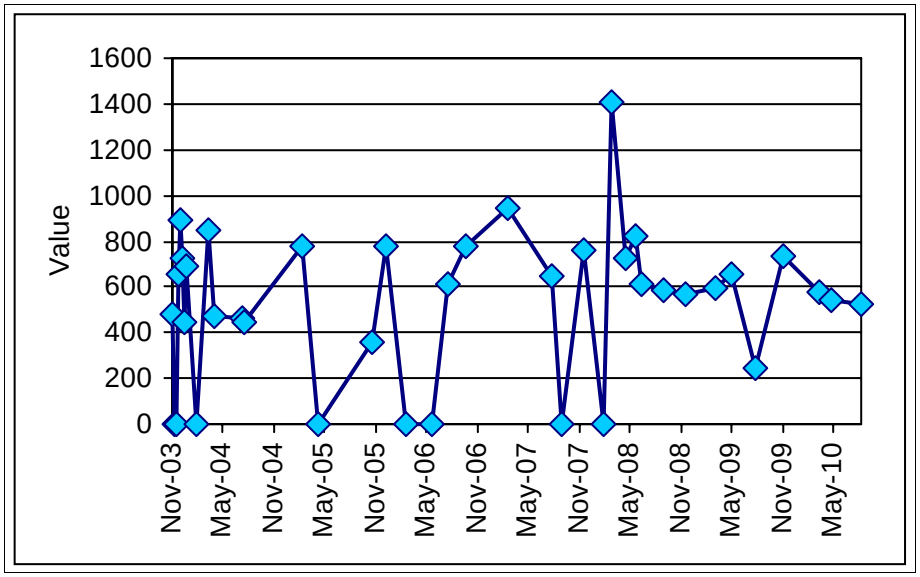
Parameter: Nitrite as N

New York State Effluent Limit: Monitor



Parameter: Total dissolved solids

New York State Effluent Limit: Monitor



Parameter: Chemical oxygen demand

New York State Effluent Limit: 40 mg/L