CHEM-CORE

1382 NIAGARA STREET, BUFFALO, ERIE COUNTY, NEW YORK

Site Management Plan

NYSDEC Site Number: 915176

Prepared for:

New York State Department of Environmental Conservation

Division of Environmental Remediation

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Prepared by:

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Work Assignment No.: D009812-04

Revisions to Final Approved Site Management Plan:

Revision #	Submitted Date	Summary of Revision	DEC Approval Date

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EXECUTIVE SUMMARY

The following provides a summary of the controls implemented for the Chem-Core Site (herein referred to as "Site" or "Property"), as well as the inspection, monitoring, maintenance, and reporting activities required by this Site Management Plan:

Site Identification, Institutional and Engineering Controls	
Site Identification:	NYSDEC Site Registry No. 915176, Chem-Core Site. The Property may be used for commercial and industrial use.
Institutional Controls:	The Property is subject to a Deed Restriction.
	Unless prior written approval by NYSDEC is first obtained, where contamination remains at the Property subject to the provisions of this SMP, there shall be no disturbance or excavation of the Property which threatens the integrity of the Engineering Controls or which results or may result in an increased threat to human health or the environment as a result of exposure to soils or soil vapors.
	No person shall disturb, remove, or otherwise interfere with the installation, use, operation, and maintenance of Engineering Controls required for the Remedy, including but not limited to the Engineering Controls described in this SMP, unless in each instance they first obtain a written waiver of such prohibition from NYSDEC.
	The remedy was designed to be protective for the following use: Commercial and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iii). Any use for purposes other than Commercial and Industrial is prohibited unless such prohibition is waived in writing by NYSDEC.
	No person shall use the groundwater underlying the Property without first obtaining permission to do so from NYSDEC. Use of the groundwater without appropriate treatment may result in an increased threat to human health or the environment.
	It is a violation of 6 NYCRR 375-1.11(b) to use the Property in a manner inconsistent with the Deed Restriction.
	The Site shall be (and/or remain) listed in the NYSDEC Hazardous Waste Site Registry.

	This SMP shall be complied with by the Grantor and the Grantor's successors and assigns.
	All Engineering Controls on the Property must be operated and maintained, and inspected at a frequency and in a manner defined in the SMP.
	Groundwater and other environmental or public health monitoring on the Property must be performed as defined in this SMP.
	Data and information pertinent to the Property must be reported at the frequency and in a manner defined in this SMP.
Engineering Controls:	None – N/A
Inspections, Monitoring, Maintenance, and Reporting	
Inspections:	**Frequency**
Site-Wide Inspection	Inspection conducted every 5th quarter and following severe weather events.
Groundwater Monitoring Wells and Piezometers	Inspection conducted every 5th quarter and following severe weather events.
Monitoring:	
Water Level Monitoring of Monitoring Wells and Piezometers	Water level monitoring every 5th quarter, or as directed otherwise by NYSDEC.
Groundwater Monitoring	Groundwater sample collection and analysis every 5th quarter, or as directed otherwise by NYSDEC.
Soil Vapor Intrusion Evaluation for New Buildings on the Property	As needed
Maintenance:	
Groundwater Monitoring Well Maintenance	As needed
Reporting:	
Site-Wide Inspection Report	Following each inspection event.
Groundwater Monitoring Report	Summary memorandum following each event, detailed evaluation to be prepared in the Periodic Review Report.
Periodic Review Report	Every three years

CERTIFICATION

I, Kevin D. Sullivan, certify that I am currently a New York State registered Professional Engineer and that this Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Kevin D. Sullivan, P.E.	2/17/2022	
License No. 073712	Date	Signature

1.0 INTRODUCTION

1.1 Introduction

This document is required as an element of the remedial program at the Chem-Core Site (hereinafter referred to as "Site" or "Property") under the New York State Inactive Hazardous Waste Disposal Site Remedial Program administered by New York State Department of Environmental Conservation ("NYSDEC"). This plan has been developed to ensure that the remedy remains effective and that the potential exposures to remaining contamination are effectively mitigated.

1.1.1 General

The Chem-Core Site is located at 1382 Niagara Street in the City of Buffalo, Erie County, New York (**Figure 1**). The Site was formerly occupied by a two-story 39,000 square foot industrial building on approximately 0.5 acres. NYSDEC investigated and remediated contaminated media at the Site under the State Superfund Program. The remedial investigation was conducted in two phases between December 2001 and March 2002 and revealed the presence of metals, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs) in the surface and subsurface soil, and groundwater. The Record of Decision (ROD), dated January 2003 (**Appendix A**), selected a remedy that included the demolition of the buildings, excavation of contaminated soils and implementation of a groundwater pump and treatment systems with a five year review. The Final Remediation Report was prepared by URS Corp in August 2007. A Final Remediation Report Addendum, Operations and Maintenance, was finalized in November 2007 by URS. The pump and treat system was operated for a total of five years. Operations were conducted in accordance with the Process Treatment System – Operation and Maintenance Manual, prepared by Mid Atlantic Environmental in December 2008. A System Decommissioning Report was subsequently prepared by EA Engineering in November 2011.

The Site is situated in a historically industrial corridor. The Site is in close proximity to residential neighbors to the east and adjacent to a rail corridor to the west with both the Interstate I-190 highway and Black Rock Canal (which leads from Lake Erie to the Niagara River) farther to the west. Various industrial facilities are located to the south and north of the Site. A figure showing the Site and surrounding features is included as **Figure 2**. The boundaries of the Site are more fully described in the metes and bounds Site description that is part of the Deed Restriction (**Appendix A**).

This Site Management Plan (SMP) was prepared by TRC Engineers, Inc., in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (May 2010), and the guidelines provided by NYSDEC, to manage contamination at the Site until the remedial goals, as provided in the ROD and discussed in this report, are met. A full description of the Site and remediation chronology can be found in the various Site documents listed below.

These documents can be viewed by contacting NYSDEC or its successor agency managing environmental issues in New York State (list arranged chronologically):

- Phase I and II RI Report, Chem-Core Site, Site Number 9-15-176 (URS, May 2002);
- Feasibility Study Report, Chem-Core Site, Site Number 9-15-176 (URS, November 2002);
- Record of Decision, Chem-Core Site, City of Buffalo, Erie County, New York, Site Number 9-15-176 (NYSDEC, January 2003);
- Design Engineering Report, Chem-Core Site, Site Number 9-15-176 (NYSDEC, August 2005);
- Final Remediation Report, Chem-Core Site, City of Buffalo, Erie County, New York, Site Number 9-15-176 (URS, August 2007);
- Final Remediation Report Addendum Operations and Maintenance, Chem-Core Site, City of Buffalo, Erie County, New York, Site Number 9-15-176 (URS, November 2007);
- Process Treatment System - Operations and Maintenance Manual. Chem-Core Site, Site Number 9-15-176 (Mid Atlantic Environmental, December 2008);
- System Decommissioning Report, Chem-Core Site, Site Number 9-15-176 (EA Engineering, November 2011); and
- Notice of Recorded Deed Restriction, Chem-Core Site, City of Buffalo, Erie County, New York, Site Number 9-15-176 (NYSDEC, January 2020).

1.1.2 Purpose

This SMP defines protocols for management of soil and groundwater during future activities at the Site. For the convenience of the Site owners, summaries of previous environmental investigations/remedial actions have been appended to this SMP, where appropriate. The owners should refer to the original approved investigation reports for more detail, as may be needed. Site owners and potential Site developers need to prepare and obtain appropriate approvals for all future engineering designs associated with the Site. Similarly, it is also their responsibility to comply with this SMP.

To ensure protection of public health and the environment engineering controls (ECs) and institutional controls (ICs) have been incorporated into the Site remedy to control exposure to remaining contamination. A Deed Restriction (**Appendix A**) granted to NYSDEC, and recorded with the Erie County Clerk, requires compliance with this SMP and all ECs and ICs placed on the Site. The ICs place restrictions on-Site use, and mandate operation, maintenance, monitoring and reporting measures for onsite controls. This SMP specifies the methods to be implemented to ensure compliance with established ECs and ICs required by the Deed Restriction for the contamination that remains at the Site. This plan has been approved by NYSDEC, and compliance with this plan is required by the grantor of the Deed and the grantor's successors and assigns. This SMP may only be revised with the approval of NYSDEC.

This SMP provides a detailed description of all procedures required to manage remaining contamination at the Site, including: (1) implementation and management of all EC/ICs; (2) media monitoring; and (3) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports (PRRs).

To address these needs, this SMP includes two distinct plans: (1) an EC/IC Plan (Section 2.0) for implementation and management of EC/ICs; and (2) a Monitoring and Inspection Plan (Section 3.0) for implementation of Site monitoring program.

This plan also includes a description of PRRs for the periodic submittal of data, information, recommendations, and certifications to NYSDEC. It is important to note that:

- This SMP details the Site-specific implementation procedures that are required by the Deed Restriction. Failure to properly implement the SMP is a violation of the Deed Restriction; and
- Failure to comply with this SMP is also a violation of Environmental Conservation Law (ECL), 6 New York Code of Rules and Regulations (NYCRR) Part 375 and, thereby, subject to applicable penalties.

1.1.3 Revisions

Revisions to this plan will be proposed in writing to NYSDEC. In accordance with the Notice of Recorded Deed Restriction for the Site, NYSDEC will provide written notice of any approved changes to the SMP, and these notices shall be appended to the SMP and retained in project files.

1.2 Site Background

1.2.1 Site Location and Description

The Chem-Core Site is the location of a former chemical wholesale facility located at 1382 Niagara Street in the City of Buffalo, Erie County, NY. Situated on a historically industrial corridor, the Site is in close proximity to residential neighborhoods to the east and a Rail corridor to the west with both the Interstate I-190 highway and the Black Rock Canal (which leads from Lake Erie to the Niagara River) farther to the west. The Site is occupied by a 1,000 square foot groundwater treatment system building on approximately 0.5 acres. All other facilities and buildings associated with the historic Site use (chemical wholesaler) have been demolished and removed. West Delevan Avenue, at the north end of the Property, dead-ends at the rail line and is used as a parking area/driveway. A large storm sewer line passes beneath this street and discharges into the Black Rock Canal. South of the Site is the former location of the Garrett Leather Corporation. This adjacent property has a warehouse building with enclosed loading docks at the north end abutting the Site. Parts of the Site are covered by asphalt parking and driveway areas and various concrete slabs, foundations, and sidewalks (**Figure 2**). The boundaries of the Site are more fully described in **Appendix A**.

1.2.2 Site History

Since its original development, the Property has been used for commercial operations. Initial operation of the Property involved supplying acids to metal fabrication industries. In the early 1930s, operations included a chemical handling facility, with several business and commercial tenants operating from rented portions of the former Site building. From the review of an aerial photograph taken in 1938, the on-Site building appeared to be similar to the condition that existed prior to demolition and no significant changes appear to have been made since 1938. During the 1950s, operations involved sales of chlorinated solvents for dry cleaning industries. In the 1970s and 1980s, the company sold chlorinated degreasing solvents. Another large percentage of sales involved inert materials such as diatomaceous earth, Fullers earth, and bentonite clay. The company also marketed propylene glycol and glycerin to the hand lotion industry and primary alcohol to the printing industry.

Until 1980, Chem-Core received diatomaceous earth via a rail spur located directly west of the building. During the 1970s and until 1988, the company received bulk liquid materials at a receiving station on the north side of the building. The materials were transferred into 55-gallon drums by a gravity operated drum filling machine connected to the truck with a hose. The company had a United States Environmental Protection Agency (USEPA) hazardous waste identification number and was classified as a RCRA small quantity generator.

There are no documented releases or disposal of hazardous waste into the subsurface at the Site. It is believed that improper handling of chemicals in the past have contributed contamination to the subsurface soils at the Site. Chem-Core ceased its operations at the Property around 1999.

1.2.3 Geologic Conditions

The subsurface in the vicinity of the Site consists of three layers with bedrock at the bottom, a silty clay layer above the bedrock, and a fill layer at the top. On the Site, the thickness of the fill layer ranges from 1 to 8 feet. The thickness of the silty clay layer ranges from 9 to 17.5 feet. The bedrock was found at depths ranging from 12.8 to 30 feet.

Based on the ROD, the primary water bearing unit identified at the Site is the unconfined water table aquifer present in the bedrock. The groundwater table at the Site was found to be at approximately 30 feet below the surface. Based on the water level data obtained during the remedial investigation (RI), the groundwater at the site flows generally towards the Black Rock Canal. However, a southwesterly component in the groundwater flow was observed in the shallow bedrock zone. Groundwater flow in the shallow bedrock zone emanating from the Site is impeded by a wedge of lacustrine silts and clays that drape over the sloping bedrock surface beneath the I-190 corridor. These confining sediments induce a southwesterly component in the groundwater flow. For this reason, the plume of dissolved groundwater contamination migrated southwestward from the Site.

1.3 Site Remedial History

As part of a bankruptcy agreement, Chem-Core completed a Phase I Environmental Site Assessment for the Property in March 1997. As a result of the recommendations from the Phase I, a Phase II Limited Site Evaluation was completed in June 1997, which included 24 soil borings and 15 monitoring wells, situated both on-Site and off-Site. Soil samples collected from these borings were analyzed for various constituents using the Toxicity Characteristic Leaching Procedure (TCLP), and some of which indicated the presence of hazardous waste. The hazardous constituents identified consisted primarily of tetrachloroethene (PCE), 1,1,1-trichloroethane, and trichloroethene (TCE). A study completed by the NYSDEC verified soil contamination at depth under the facility and under parking areas directly to the north and south of the facility. Installation and sampling of monitoring wells also indicated that the groundwater under the facility was contaminated. Water level measurements from these wells and from nearby Black Rock Channel suggests a hydraulic connection between the two. The Site was listed on the Registry of Inactive Hazardous Waste Sites as a Class 2 site in 2000.

A Remedial Investigation (RI) was performed in 2002. The results of the RI indicated that PCE and TCE were detected most frequently and at highest concentrations in subsurface soil samples. PCE was detected as high as 38,000 parts per million (ppm) and TCE was detected as high as 8 ppm. The highest PCE concentration were generally found in close proximity to the former PCE handling and storage areas. VOCs were detected at low concentrations in sediment samples collected from Black Rock Canal but were below the cleanup goals for sediment. Based upon the Site history and groundwater data, the Site does not appear to be the source of contamination found in canal sediments. No VOCs were detected in surface water.

Predominantly, VOCs such as PCE, TCE, vinyl chloride (VC) and other breakdown products of PCE were found in all well locations. PCE was found as high as 21,000 parts per billion (ppb) and TCE was found as high as 16,000 ppb. Cis-1,2-dichloroethene (DCE) was found as high as 30,000 ppb. The concentration of contaminants in groundwater decreased rapidly southwest of the Site and approached groundwater standards at the most distant monitoring wells. A detailed description of the RI activities and findings can be found in the RI Report completed in 2002.

A Feasibility Study (FS) was undertaken in 2003, and a ROD was subsequently issued later that year. The remedy selected in the ROD included the demolition of the buildings, excavation of contaminated soils and implementation of a groundwater pump and treatment systems with a five-year review. A pilot study of enhanced bioremediation of groundwater for off-Site groundwater contamination was included in the ROD.

The Remedial Design was subsequently completed in August 2005 and the Remedial Action (RA) construction was undertaken between April 2006 and August 2007. The RA consisted of the following major elements:

- Asbestos abatement and demolition of an existing two-story building including concrete slab and foundations, with off-Site disposal of debris;
- Pre-excavation delineation borings to determine final limits of excavation;
- Excavation of designated area, off-Site disposal of excavated material, and backfilling of the excavations;
- Installation of groundwater extraction and monitoring systems including extraction wells, underground piping, and monitoring well network;
- Construction, startup, and testing of the groundwater extraction and treatment system;
- Installation of a Site-wide stone cover and perimeter security fencing; and
- Turnover of the fully operational, fully functional groundwater extraction and treatment system to the NYSDEC for long-term operation.

After approximately 4 years of groundwater extraction and treatment system operation, active groundwater extraction was discontinued in October 2011, and the treatment system was decommissioned.

To address the residual groundwater contamination at the Site, a series of nutrient injections were performed to enhance the naturally occurring biological activity in groundwater and enhance the biodegradation of VOCs. The nutrient injections events were performed in August 2012, August-September 2013, and February 2015. An evaluation of the effectiveness of the injections indicated that biodegradation of VOCs was occurring at the Site. A summary of the results of these injections is provided in the letter report "Evaluation of Post-Treatment Groundwater Data for Samples Collected August 2015", by Empire Geo Services, dated January 14, 2016. A copy of this letter report is included in **Appendix B**.

On-Site and off-Site groundwater continues to be monitored on a periodic basis to measure effectiveness of the remedy and the progress of natural attenuation of groundwater contamination.

As specified in the ROD, the goals for the remedial program were established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to meet all Standard Criteria and Guidance (SCGs) and to be protective of human health and the environment. In addition the ROD stated that a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed at the Site through proper application of scientific and engineering principles.

The goals selected for this Site, as presented in the ROD, are:

- Provide for the attainment, to the extent practicable, of NYSDEC Class GA groundwater standards at the Site;

- Reduce, control, or eliminate, to the extent practicable, off-Site migration of groundwater that does not attain NYSDEC Class GA groundwater standards;
- Reduce, control, or eliminate, to the extent practicable, human exposures to volatile organic compounds in soil, groundwater, or indoor air; and
- Reduce, control, or eliminate, to the extent practicable, migration of volatile organic compounds into the Black Rock Canal.

1.4 Anticipated Use

The remedy assumed that development of the Property would be limited to commercial and industrial uses, and that use of groundwater as a source of potable or process water would be prohibited without necessary water quality treatment as determined by NYSDOH.

1.5 Remaining Contamination

1.5.1 Groundwater

Groundwater contaminated with VOCs remains at the Site. **Figure 2** shows the approximate locations of the former and existing extraction, injection, and monitoring wells, and groundwater piezometers. **Figure 3** illustrates the location of the monitoring wells that currently exist, as well as a summary of the residual VOC concentrations from the last three rounds of groundwater monitoring. More detailed analysis and historic sample trends in concentration are included within **Appendix B**. Data trends from August 2015 revealed the following:

- Decreasing concentrations of DCE were observed for 13 of 18 wells. However, the residual concentrations in MW-6, MW-20, MW-21, and MW-22 were still above NYSDEC groundwater standards;
- Decreasing concentrations of PCE were observed in 8 monitoring wells. However, the residual concentrations of PCE in MW-13, MW-16, MW-19, MW-20, MW-21, and MW-22 were still above NYSDEC groundwater standards;
- Decreasing concentrations of TCE were observed in 5 monitoring wells. However, MW-7, MW-12, MW-13S, MW-19, MW-20, MW-21, and MW-22 were still above NYSDEC groundwater standards; and
- Decreasing concentrations of VC were observed in 7 monitoring wells. However, MW-6, MW-11, MW-12, MW-13S, MW-16, MW-17, MW-19, MW-20, MW-21, and MW-22 were still above NYSDEC groundwater standards.

1.5.2 Sediment and Surface Water

Investigations conducted at the Site concluded that surface water in the Black Rock Canal has not been impacted by the migration of Site constituents of concern (COCs). SVOCs and PCBs were

detected above SCGs in sediment samples collected from the Canal; however, investigations concluded that these constituents are not attributed to the Site.

1.5.3 Soil Vapor

Due to the existing/residual soil and groundwater contamination, there exists a potential for vapor intrusion into future Site buildings. Prior to the construction of any enclosed buildings at the Site, which are intended for occupancy, the potential for vapor intrusion must be evaluated to determine whether any mitigation measures are necessary to eliminate potential exposure to vapors in the proposed structure. Alternatively, a vapor intrusion mitigation system may be installed as an element of the building foundation without first conducting an investigation. The mitigation system should include a vapor barrier and passive sub-slab depressurization system that is capable of being converted to an active system.

Prior to conducting a vapor intrusion investigation or installing a mitigation system, a work plan shall be developed and submitted to the NYSDEC and NYSDOH for approval. The work plan will be developed in accordance with the most recent NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, and NYSDOH Guidance for Evaluating Vapor Intrusion in the State of New York. Measures to be employed to mitigate potential vapor intrusion shall be evaluated, selected, designed, installed, and maintained based on the vapor intrusion evaluation, the NYSDOH guidance, and construction details of the proposed structure.

Preliminary (non-validated) vapor intrusion sampling data shall be forwarded to the NYSDEC and NYSDOH for review. Following validation, the final data shall be transmitted, along with a recommendation for follow-up actions. Vapor intrusion sampling activities, results, evaluations, and follow-up actions shall also be summarized in the Periodic Review Report.

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 Introduction

2.1.1 General

Since residual contamination exists beneath the Site, EC/ICs are required to protect human health and the environment. This EC/IC Plan describes the procedures for the implementation and management of all EC/ICs at the Site. The EC/IC Plan is one component of the SMP and is subject to revision by NYSDEC.

2.1.2 Purpose

This plan provides:

- A description of all EC/ICs on the Site;
- The basic implementation and intended role of each EC/IC;
- A description of the key components of the EC/ICs set forth in the ROD;
- A description of the features to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of EC/ICs; and
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the Site remedy, as determined by NYSDEC.

2.2 Engineering Controls

There are no engineering controls currently in place at the Site. It should be noted that a groundwater monitoring program is underway at the Site. The groundwater monitoring program consists of collection and analysis of groundwater samples on a routine basis to evaluate remedy progress and verify decreasing concentrations of contamination. Groundwater monitoring activities will continue, as determined by NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic at an acceptable level over an extended period. Details of the groundwater monitoring program are discussed in **Section 3.0.**

2.3 Institutional Controls

A series of ICs is required by the ROD to: (1) implement, maintain and monitor on-Site measures; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and (3) limit the use and development of the Site to “non-residential” uses only. Adherence to these ICs on the Site is required by the ROD and will be implemented under this SMP. These ICs are:

- The Property is subject to the Deed Restriction;
- Unless prior written approval by NYSDEC is first obtained, where contamination remains at the Property subject to the provisions of this SMP, there shall be no disturbance or excavation of the Property which results or may result in an increased threat to human health or the environment as a result of exposure to soils;
- No person shall disturb, remove, or otherwise interfere with the installation, use, operations, and maintenance of any elements of the Remedy, including but not limited to the programs described in this SMP, unless in each instance they first obtain a written waiver of such prohibition from NYSDEC;
- The remedy was designed to be protective for the following use: Commercial and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iii). Any use for purposes other than Commercial and Industrial without the written waiver of such prohibition by NYSDEC may result in an increased threat to human health or the environment;
- No person shall use the groundwater underlying the Property without treatment rendering it safe for drinking water or industrial purposes, as appropriate, unless the user first obtains permission to do so from NYSDEC. Use of the groundwater without appropriate treatment may result in an increased threat to human health or the environment;
- It is a violation of 6 NYCRR 375-1.11(b) to use the Property in a manner inconsistent with the Deed Restriction;
- The Site shall be (and/or remain) registered in the Hazardous Waste Site Registry;
- Compliance with this SMP by the Grantor and the Grantor's successors and assigns is required;
- All controls must be operated and maintained as specified in this SMP;
- All controls on the Property must be inspected at a frequency and in a manner defined in the SMP;
- Groundwater and other environmental or public health monitoring must be performed as defined in this SMP; and
- Data and information pertinent to Property must be reported at the frequency and in a manner defined in this SMP.

ICs identified in the Deed Restriction may not be discontinued without an amendment to or extinguishment of the Deed Restriction.

2.3.1 Hazardous Waste Site Registry

Chem-Core will be reclassed as a Class 4 site, which is assigned to sites that have been properly closed but require continued site management consisting of operation, maintenance and/or monitoring, until environmental threats have been addressed.

2.4 Site Use

There shall be no construction, use or occupancy of the Property that results in the disturbance or excavation activities that may result in human exposure to contaminated soils or groundwater, unless prior written approval by NYSDEC is obtained. Notification of NYSDEC in accordance with **Section 2.5** should precede any such work by at least 60 days, to allow time for review.

Maintenance of each parcel at the Site shall be the responsibility of the respective Property owner(s). Vegetated cover should be maintained to reduce potential erosion of the surface soils. In order to reduce the potential for erosion, vehicular access should also be limited. These actions are not required to protect elements of the remedy but are suggested primarily for aesthetic reasons.

Site owners shall not interfere with or take actions that reduce the effectiveness of the Site controls (groundwater monitoring wells). In the event that Property owners inadvertently damage or become aware of damage to any groundwater monitoring wells, they shall promptly notify NYSDEC contact listed below.

2.5 Inspections and Notifications

2.5.1 Inspections

A comprehensive Site-wide inspection, including all remedial components installed at the Site, will be conducted at the frequency specified in the Monitoring and Inspection Plan schedule. The inspections will determine and document the following:

- The Property continues to be subject to the Deed Restriction;
- Whether Site controls continue to perform as designed;
- If the Site controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Deed Restriction;
- Achievement of remedial performance criteria;
- Sampling and analysis of appropriate media during monitoring events;
- If Site records are complete and up to date; and
- Changes implemented, or required, to the remedial or monitoring system.

Inspections will be conducted in accordance with the procedures set forth in the Monitoring and Inspection Plan (**Section 3**). The reporting requirements are outlined in the Periodic Review Reporting section of this plan (**Section 4.2**).

If an emergency, such as a natural disaster occurs, an inspection of the Site will be conducted within 5 days of the event to verify the effectiveness of the EC/ICs implemented at the Site by a qualified environmental professional as determined by NYSDEC.

2.5.2 Notifications

Notifications will be submitted by the Property owner to NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in Site use that are required under the terms of the 6 NYCRR Part 375, and/or ECL;
- 7-day advance notice of any proposed ground-intrusive activities pursuant to the Excavation Work Plan in **Appendix C**;
- Next day notice (by noon of the following day) of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the Site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public; and
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the Site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of all approved work plans and reports, including this SMP; and
- Within 15 days after the transfer of all or part of the Site, the new owner's name, contact representative, and contact information will be confirmed in writing.

Notifications will be made to:

Brianna Scharf, Project Manager
NYSDEC Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7017
Phone: (518) 402-5987
E-mail: Brianna.Scharf@dec.ny.gov

2.6 Contingency Plan

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions.

2.6.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance the Owner or Owner's representative(s) should contact the appropriate party from the contact list

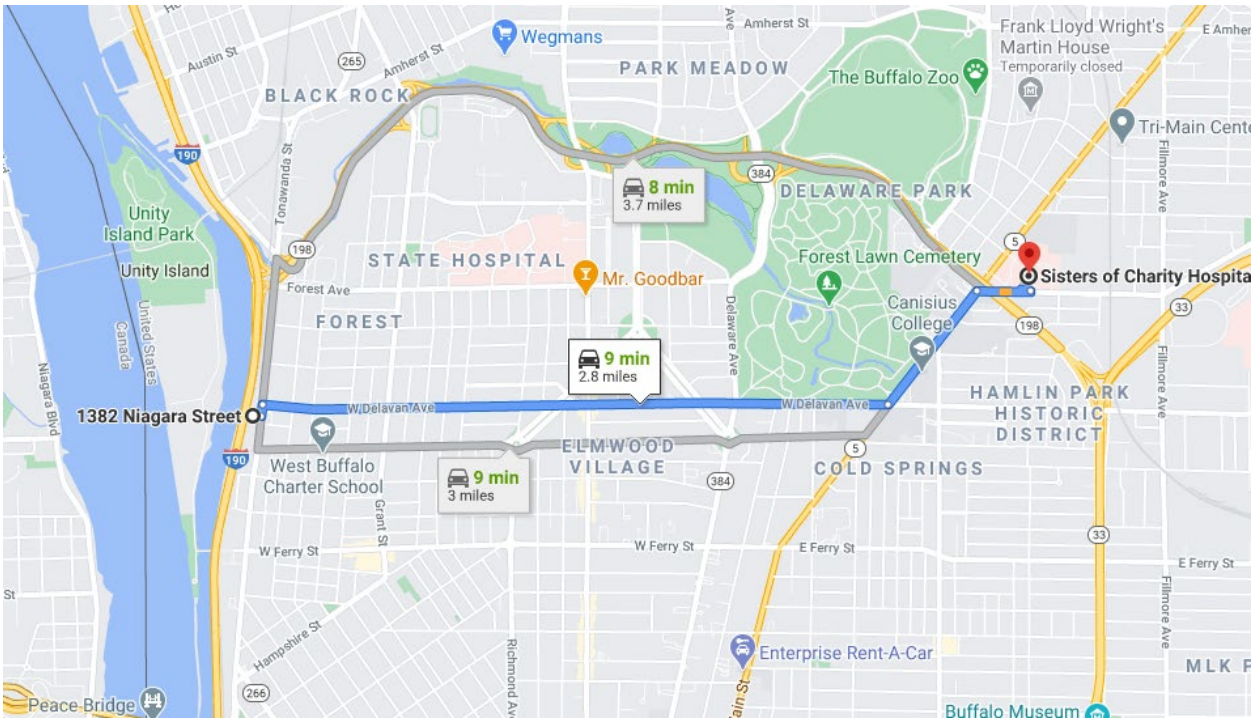
below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to William Welling of NYSDEC. These emergency contact lists must be maintained and posted in an easily accessible location at the Site.

Table 1: Emergency Contact Numbers	
Medical, Fire, and Police:	911
One Call Center (3 day notice required for utility mark-out:	(800) 272-4480
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline:	(800) 457-7362
NYSDEC Project Manager – Brianna Scharf	(518) 402-5987

* Note: Contact numbers subject to change and should be updated as necessary

2.6.2 Map and Directions to Nearest Health Facility

- Site Location: 1382 Niagara Street, Buffalo, New York
- Nearest Hospital Name: Sisters of Charity Hospital
- Hospital Location: 2157 Main St, Buffalo, NY 14214
- Hospital Telephone: (716) 862-1000
- Directions to the Hospital:
    - Travel north on Niagara St toward W Delavan Ave (200 feet);
    - Turn right onto W Delavan Ave and travel 2.1 miles to Main St.;
    - Turn left onto Main St and travel 0.5 miles to Kensington Ave.;
    - Turn right onto Kensington Ave and travel 0.2 miles to hospital on left; and
    - Arrive at Sisters of Charity Hospital on the left
- Total Distance: 2.8 miles
- Total Estimated Time: About 9 minutes



2.6.3 Response Procedures

As appropriate, the fire department and other emergency response groups will be notified immediately by telephone of the emergency (refer to **Table 1**).

3.0 MONITORING AND INSPECTION PLAN

3.1 Introduction

3.1.1 General

The Monitoring and Inspection Plan describes the measures for evaluating the effectiveness of the groundwater remediation at the Site. This Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Monitoring and Inspection Plan describes the methods to be used for:

- Sampling and analysis of groundwater;
- Assessing compliance with applicable NYSDEC standards, criteria, and guidance (SCGs), particularly ambient groundwater standards;
- Assessing achievement of the remedial performance criteria;
- Evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, this Monitoring and Inspection Plan provides information on:

- Sampling locations, protocol, and frequency;
- Laboratory analysis and reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Required reporting and certifications.

Trends in contaminant levels in groundwater will be evaluated to determine if the remedy continues to be effective in achieving remedial goals. The groundwater monitoring program is summarized in **Table 2** and detailed in **Section 3.2** below:

Table 2: Monitoring/Inspection Schedule

Monitoring Program	Frequency[(a)]	Matrix	Analysis
Groundwater	Every 5th Quarter	Aqueous	USEPA Method 8260B

[(a)] The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH

3.2 Groundwater Monitoring Program

Groundwater is the only media required to be monitored at the Site remedy and includes on-Site and off-Site groundwater. A network of 12 groundwater monitoring wells are included as part of the monitoring program and are listed in **Table 3** below and illustrated in **Figure 2**:

Table 3: Monitoring Well Network			
MW-04S	MW-04D	MW-05	MW-06
MW-07	MW-08S	MW-08D	MW-09
MW-10	MW-20	MW-21	MW-22

The groundwater monitoring program will include groundwater level gauging and sampling events approximately 15-months apart in order to collect samples that reflected seasonal groundwater fluctuation and contaminant migration. In general, all wells that could be visually identified during the most recent Site inspection are included in the monitoring well network. A summary of the well construction details and copies of the boring and construction logs are located in **Appendix G**.

3.2.1 Groundwater Level Gauging

In order to evaluate the groundwater flow direction at the Site, groundwater level gauging will be performed on all monitoring wells (**Figure 2**) in advance of sample collection. An electronic water level meter will be used for this field task capable of recording water elevations to within +/- 0.01 in. accuracy. The depth to groundwater measurements will be used to calculate groundwater surface elevations and interpret and estimate groundwater flow direction. Historically, groundwater flow has been from east to west across the Site, toward the Niagara River.

3.2.2 Sampling Protocol

The objective of this groundwater sampling protocol is to obtain samples that are representative of the aquifer in the well vicinity so that analytical results reflect the composition of the groundwater as accurately as possible. All locatable and functional groundwater monitoring well at the Site will be included in the groundwater sampling program (refer to **Table 3** and **Figure 2**). Sampling procedures will include water level measurements, well purging, groundwater quality measurements, and sample collection at each monitoring well location. A copy of the purging and sampling log form (**Appendix E**) will be used to record well purging, water quality measurements, and sampling flow rates. Water level measurements and analytical results will be included in a summary memorandum issued after each groundwater sampling event. All sampling will be conducted in accordance with the Generic Field Activities Plan (FAP).

Rapid and significant changes can occur in groundwater samples upon exposure to sunlight, temperature, and pressure changes at ground surface. Therefore, groundwater sampling will be conducted in a manner that will minimize these effects on the samples.

The sampling frequency may be modified with the approval NYSDEC. The SMP will be modified to reflect changes in sampling plans approved by NYSDEC.

Monitoring well purging will be performed and groundwater samples will be collected from the monitoring wells using a submersible or peristaltic pump (selected based on depth to groundwater) and dedicated section of polyethylene tubing. A water quality meter (Horiba U-52 or similar) with flow-through cell (flushed with distilled water before use at each well) will be used during well purging for field measurement of pH, specific conductance, temperature, Eh, turbidity, and dissolved oxygen. Each well shall be purged using the low-flow technique, evacuating a total of three well volumes or until field parameters stabilize, whichever occurs first. Unless noted otherwise in the FAP, the following procedures will be used for monitoring well groundwater sampling:

- Wear appropriate personal protective equipment as specified in the Site-specific HASP Addendum (**Appendix F**). In addition, samplers will use new nitrile gloves for the collection of each sample;
- Unlock and remove the well cap;
- Obtain photoionization detector (PID) readings and record them on the purging and sampling log form;
- Measure the static water level in the well with an electronic water level indicator; and
- Where needed, measure the overall depth of the monitoring well and complete the Monitoring Well Construction Summary Table in **Appendix G.**

The water level indicator will be washed with Alconox detergent and water, then rinsed with deionized water between individual monitoring wells to prevent cross-contamination.

- Calculate the volume of water in the well;
- Purge 3 well volumes of water from the well or until water quality parameters are stabilized, using the method described below:
    - Pump with a submersible or peristaltic pump equipped with new polyethylene tubing dedicated to each well. Set pump intake or draw tube at the approximate mid-point of the monitoring wells screened interval (assume a 10-foot-long screen for those wells for which the screened interval is unknown) and start pump;
- Allow field parameters of pH, reduction-oxidation potential (Eh), dissolved oxygen, specific conductivity, turbidity, and temperature to stabilize before sampling. Purging will be considered complete if the following conditions are met:
    - Consecutive pH readings are ±0.1 pH units of each other;

    - Consecutive dissolved oxygen readings are ±10 percent of each other;
    - Consecutive Redox readings are ±0.10 units of each other;
    - Consecutive measured specific conductance is ±3 percent of each other;
    - Turbidity < 50 Nephelometric turbidity units;
    - Purge rate of 250 ml/min with a draw down less than 0.3 ft.
- All purge water will be handled as detailed in **Section 3.2.4.**

The flow rate during monitoring well purging will not exceed 250 milliliters per minute. If these parameters are not met after purging a volume equal to 3 times the volume of standing water in the well, the Project Manager will be contacted to determine the appropriate action(s):

- If the well is purged dry before the required volumes are removed, the well may be sampled when it recovers (recovery period up to 24 hours);
- Place analytical samples in cooler and chill to 4°C. Samples will be shipped to the analytical laboratories within 24 hours;
- The pump will be decontaminated, and the polyethylene suction/discharge line will be properly discarded;
- Re-lock well cap; and
- Fill out field sampling form, labels, custody seals, and chain-of-custody forms.

Groundwater samples will be placed in appropriate sample containers, sealed, and submitted to the laboratory for analysis. The samples will be labeled, handled, and packaged following the procedures described in the Generic Quality Assurance Project Plan (QAPP). QA/QC samples will be collected at the frequency detailed in the Generic QAPP.

3.2.3 Decontamination Procedures

All non-dedicated equipment and tools used to collect samples for chemical analysis will be decontaminated prior to and between each monitoring well using an Alconox rinse and potable water rinse. Additional cleaning of the equipment with steam may be needed under some circumstances. Decontamination fluids will be discharged to the ground surface unless a visible sheen or odor is detected either on the equipment or the fluids, at which point the decontamination water will be staged in an appropriate container and disposed of appropriately.

3.2.4 Storage and Disposal of Waste

The sampling team will be responsible for the proper storage, handling, and disposal of investigative derived waste including personal protective equipment, solids and liquids generated during the well drilling, well development, and well sampling activities.

Accordingly, handling and disposal will be as follows:

- Liquids generated from contaminated equipment decontamination that exhibit visual staining, sheen, or discernable odors will be collected in drums or other containers at the point of generation. They will be stored in an appropriate staging area as approved by NYSDEC. A waste subcontractor will then remove the drums and dispose at an off-Site location;
- Liquid generated during well purging or a decontamination activity that does not exhibit visible staining, sheen, or discernable odors will be discharged to an unpaved area on the Site, where it can percolate into the ground; and
- Non-contaminated trash, debris, and PPE will be placed in a trash dumpster and disposed of by a local garbage hauler.

3.2.5 Laboratory Analysis and Reporting

Groundwater samples will be analyzed by an Environmental Laboratory Accreditation Program-certified (ELAP-certified) laboratory for VOCs by USEPA Method 8260B. It is anticipated that preliminary analytical results will be available within 2 weeks of receipt at the laboratory, and final results will be provided within the standard turnaround time (i.e., 30 days).

3.2.6 Monitoring Well Repairs, Replacement, and Decommissioning

Groundwater monitoring well repairs and/or replacement will be performed based on assessments of structural integrity and overall performance. If biofouling or silt accumulation occurs in the on-Site and/or off-Site monitoring wells, the wells will be physically agitated/surged and redeveloped. In the event that a monitoring well is no longer serviceable, it will be decommissioned and replaced as necessary.

NYSDEC will be notified prior to any repair or decommissioning of monitoring wells for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent PRR. Well decommissioning without replacement will be done only with the prior approval of NYSDEC. The decommissioning and abandonment of the monitoring well will be completed in accordance with NYSDEC standard procedures and guidance. Monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by NYSDEC. Replacement wells shall be constructed using methods consistent with those used during previous investigations or with approval of NYSDEC project manager.

3.3 Site-Wide Inspection

Site-wide inspections will be performed at the same frequency as the groundwater monitoring events (every 5th quarter). Site-wide inspections will also be performed after all severe weather conditions that may affect ECs. During these inspections, an inspection form will be completed (**Appendix D**). The form will compile sufficient information to assess the following:

- Compliance with all ICs, including Site usage;

- An evaluation of the condition and continued effectiveness of ECs;
- General Site conditions at the time of the inspection;
- The Site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection;
- Compliance with permits and schedules, if any; and
- Confirm that Site records are up to date.

All applicable inspection forms and other records, including all media sampling data and system maintenance reports, generated for the Site during the reporting period will be provided in electronic format in the PRR.

3.4 Monitoring Quality Assurance/Quality Control

All sampling and analyses will be performed in accordance with the QAPP, including:

- QA/QC objectives for data measurement;
- Sampling program:
    - Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such;
    - Sample holding times will be in accordance with NYSDEC ASP requirements;
    - Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected as necessary;
- Calibration procedures:
    - All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions;
    - The laboratory will follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods;
- Sample tracking, custody, and analytical procedures;
- Preparation of a data usability summary reports (DUSRs), which will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method;
- Internal QC and checks;
- QA performance and system audits;
- Preventative maintenance procedures and schedules; and
- Corrective action measures.

Quality control procedures will be employed to check that sampling, transportation and laboratory activities do not bias sample analytical quality. Trip blanks, field blanks, duplicate samples, matrix spike samples and matrix spike duplicates will provide a basis for validating the analytical data.

3.4.1 Trip Blanks

Trip blanks will be prepared by the laboratory by filling 40 ml vials with a Teflon-lined septum with deionized, analyte-free water. The trip blank will accompany all shipments involving analysis for VOCs (one trip blank will be returned to the laboratory with each cooler containing aqueous samples for VOC analysis). The trip blank will also be analyzed for VOCs.

3.4.2 Field Blanks

A field blank consists of an empty set of laboratory-cleaned sample containers. At the field location, deionized, analyte-free water is passed through decontaminated sampling equipment and placed in the empty set of sample containers for analysis of the same parameters as the samples collected with the sampling equipment. If sampling equipment is being decontaminated in the field for re-use at the Site, one field blank will be collected per sampling event.

3.4.3 Matric Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample pairs are analyzed by the laboratory to provide a quantitative measure of the laboratory's precision and accuracy. When performing aqueous volatile organic or organic extractable analysis, the laboratory must be supplied with additional sample volume for each Sample Delivery Group (SDG) in order to perform matrix spike and matrix spike duplicate analyses. The limits on an SDG are:

- Each Case for field samples, or
- Each 20 field samples within a Case, or
- Each fourteen-calendar day period during which field samples in a Case are received (said period beginning with receipt of the first sample in the SDG), whichever comes first.

For each aqueous MS/MSD sample location, three times the normal sample volume is needed for organics analysis. Extra volume is not required for aqueous samples for inorganic analysis.

3.4.4 Field Duplicates

For each sample matrix, a field duplicate sample will be collected at a rate of one sample per 20 environmental samples. The duplicate sample is collected at the same location as the environmental sample. The identity of the field duplicate is not revealed to the laboratory. The analytical results of the environmental sample will be compared to the field duplicate sample, to evaluate field-sampling precision.

3.4.5 Record Keeping

As part of chain-of-custody procedures, recorded on-Site sampling information shall include sample number, date, time, sampling personnel, sample type, designation of sample as a grab or composite, and any preservative used. Sample locations should be referenced by sample number on the Site sketch or map. The offer and/or act of providing sample splits to a third party (e.g., the responsible party representative; state, county, or municipal, environmental and/or health agency, etc.) shall be documented.

3.5 Data Assessment and Reporting

For on-going monitoring, Category A deliverables are acceptable, and there is not a need to complete a detailed Data Usability Summary Report (DUSR) as described in NYSDEC DER-10 Guidelines. In the event that a decision regarding possible termination or major changes/reductions to the monitoring program will be considered, Category B deliverables should be generated for that event and formal validation of the dataset should be performed.

Monitoring results shall be reported in appropriate tabular summary form that includes a comparison to the relevant ambient water quality criteria. Key results should also be reported in graphical form on figures, such as overlaid on an aerial photo. A discussion of temporal trends should be provided where appropriate.

3.6 Monitoring Reporting Requirements

Forms and any other information generated during regular monitoring events and inspections will be kept on file. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the Periodic Review Report, as specified in the Reporting Plan of this SMP.

Monitoring results will be reported/summarized in a letter report following each sampling event. The letter report will include, at a minimum:

- Date of event;
- Personnel conducting sampling;
- Description of the activities performed;
- Type of samples collected (e.g., groundwater, etc);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in NYSDEC electronic data deliverable [EDD] format);

- Any observations, conclusions, or recommendations; and
- A determination as to whether groundwater conditions have changed since the last reporting event.

All monitoring results will subsequently be reported to NYSDEC in a Periodic Review Report prepared every 3 years. Periodic Review Reports will be prepared and certified in accordance with DER-10, and as outlined in **Section 4.2** of this SMP

Data will be reported in hard copy or digital format as determined by NYSDEC.

A summary of the monitoring program deliverables is summarized in **Table 4** below:

Table 4: Schedule of Monitoring/Inspection Reports

Task	Reporting Frequency[(a)]
Groundwater Sample Letter Report	Following each sampling event
Periodic Review Report	Every 3 years

[(a)] The frequency of events will be conducted as specified until otherwise approved by NYSDEC

4.0 INSPECTIONS, REPORTING, AND CERTIFICATIONS

4.1 Evaluations of Records and Reporting

The results of the inspection and Site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring and Inspection Plan is being implemented;
- Operation and maintenance activities are being conducted properly, if needed; and
- The Site remedy continues to be protective of public health and the environment and is performing as designed in the Design Engineering Report and Final Remediation Report.

4.2 Periodic Review Report

A Periodic Review Report will be submitted to the NYSDEC every three years, beginning eighteen months after completion of the RA. In the event that the Site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the Site. The report will be prepared in accordance with NYSDEC DER-10, and submitted within 45 days of the end of each certification period. Media sampling results will also be incorporated into the Periodic Review Report. The report will include:

- Identification, assessment, and certification of all ECs/ICs required by the remedy for the Site. The certification of all ECs/ICs will be prepared in accordance with the requirements of DER-10;
- Results of the required annual Site inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated for the Site during the reporting period in electronic format;
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;
- Data summary tables and graphical representations of contaminants of concern by media (groundwater), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format; and
- A Site evaluation, which includes the following:
    - The compliance of the remedy with the requirements of the ROD;
    - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;

- Any new conclusions or observations regarding Site contamination based on inspections or data generated by the Monitoring and Inspection Plan for the media being monitored;
- Recommendations regarding any necessary changes to the remedy and/or Monitoring and Inspection Plan; and
- The overall performance and effectiveness of the remedy.

The Periodic Review Report will be submitted, in electronic format to NYSDEC Central Office, Regional Office and NYSDOH Bureau of Environmental Exposure Investigation. The following naming format will be used:

Report.HW.915176.year(xxxx).month(xx).date(xx).ChemCore.PRR.pdf

4.3 Corrective Measures Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an IC/EC, a corrective measures plan will be submitted to NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by NYSDEC.

5.0 REFERENCES

Phase I and II RI Report, Chem-Core Site, Site Number 9-15-176 (URS, May 2002).

Feasibility Study Report, Chem-Core Site, Site Number 9-15-176 (URS, November 2002).

Record of Decision, Chem-Core Site, City of Buffalo, Erie County, New York, Site Number 9-15-176 (NYSDEC, January 2003).

Design Engineering Report, Chem-Core Site, Site Number 9-15-176 (NYSDEC, August 2005).

Final Remediation Report, Chem-Core Site, City of Buffalo, Erie County, New York, Site Number 9-15-176 (URS, August 2007).

Final Remediation Report Addendum Operations and Maintenance, Chem-Core Site, City of Buffalo, Erie County, New York, Site Number 9-15-176 (URS, November 2007).

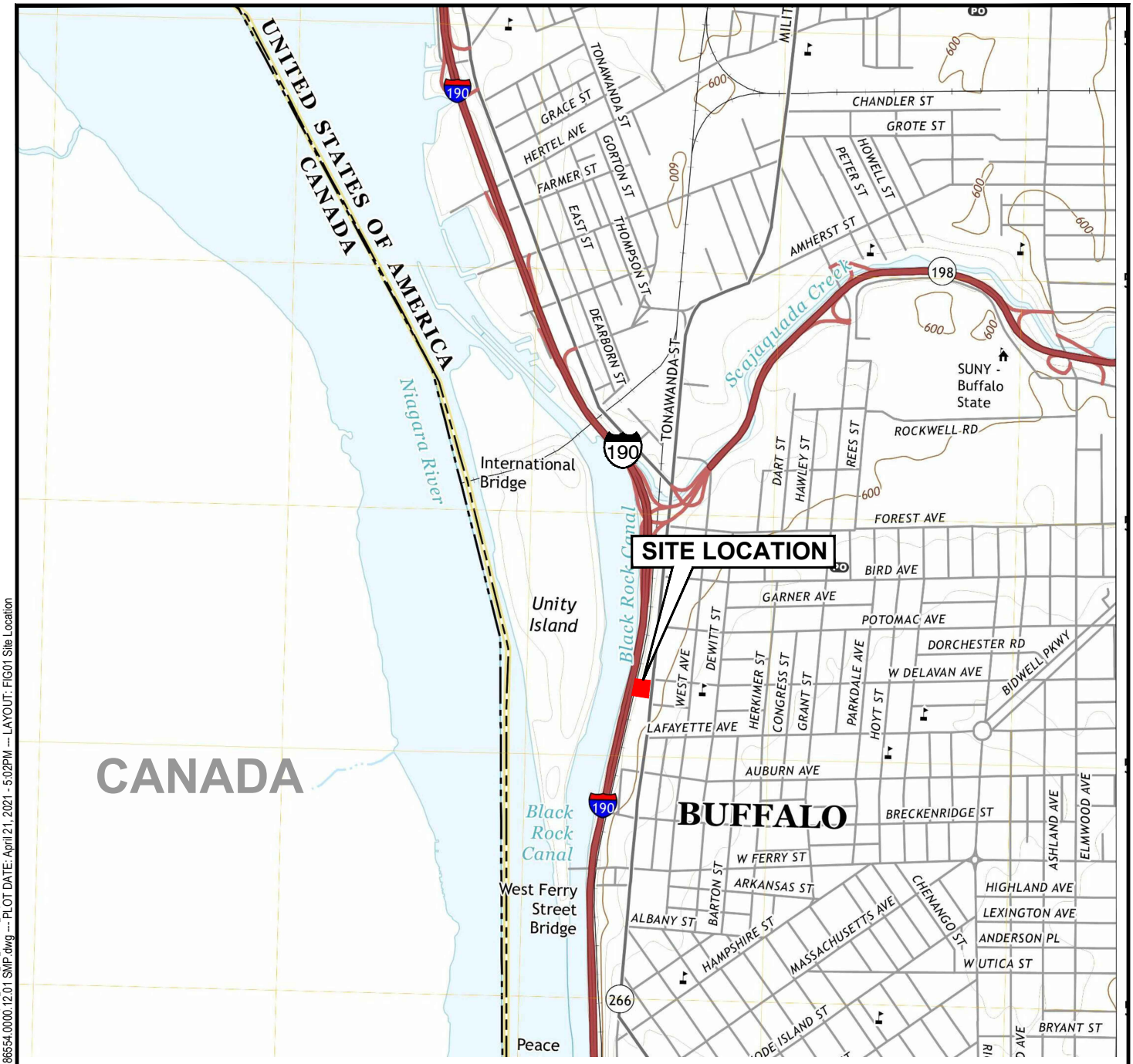
Process Treatment System - Operations and Maintenance Manual. Chem-Core Site, Site Number 9-15-176 (Mid Atlantic Environmental, December 2008).

System Decommissioning Report, Chem-Core Site, Site Number 9-15-176 (EA Engineering, November 2011).

NYSDEC, 2013. Site Management Plan Template. February 2013.

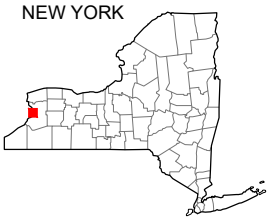
Notice of Recorded Deed Restriction, Chem-Core Site, City of Buffalo, Erie County, New York, Site Number 9-15-176 (NYSDEC, January 2020).

FIGURES



MAP SOURCE:

MAP OBTAINED THROUGH USE OF TOPOVIEW WITH THE INTERFACE CREATED BY THE NATIONAL GEOLOGIC MAP DATABASE PROJECT (NGMDB), IN SUPPORT OF THE TOPOGRAPHIC MAPPING PROGRAM, MANAGED BY THE USGS NATIONAL GEOSPATIAL PROGRAM (NGP). DATED 09/27/2019.



QUADRANGLE LOCATION

N

0 2000' 4000'

APPROXIMATE SCALE IN FEET

TRC
1090 Union Road
Suite 280
West Seneca, NY 14224
www.trccompanies.com

PROJECT:

CHEM-CORE
BUFFALO, NEW YORK

TITLE:

SITE LOCATION MAP

DRAWN BY:	D. STEHLE
CHECKED BY:	J. YEAGER
APPROVED BY:	K. SULLIVAN
DATE:	APRIL 2021
PROJ. NO.:	386554.0000.12
FILE:	386554.0000.12.01 SMP.dwg

FIGURE 1

LEGEND

- APPROXIMATE SITE BOUNDARY
- GW = EXTRACTION WELL
- IG = INJECTION WELL
- MW = MONITORING WELL
- PZ = PIEZOMETER
- EXISTING MONITORING WELL
- WELL LOCATION COULD NOT BE FIELD VERIFIED (REMOVED, DAMAGED, OR COVERED BY SURFACE IMPROVEMENTS)
- HISTORIC GROUNDWATER FLOW DIRECTION

N

0 80' 160'

APPROXIMATE SCALE IN FEET

PROJECT:

CHEM-CORE
BUFFALO, NEW YORK

TITLE:

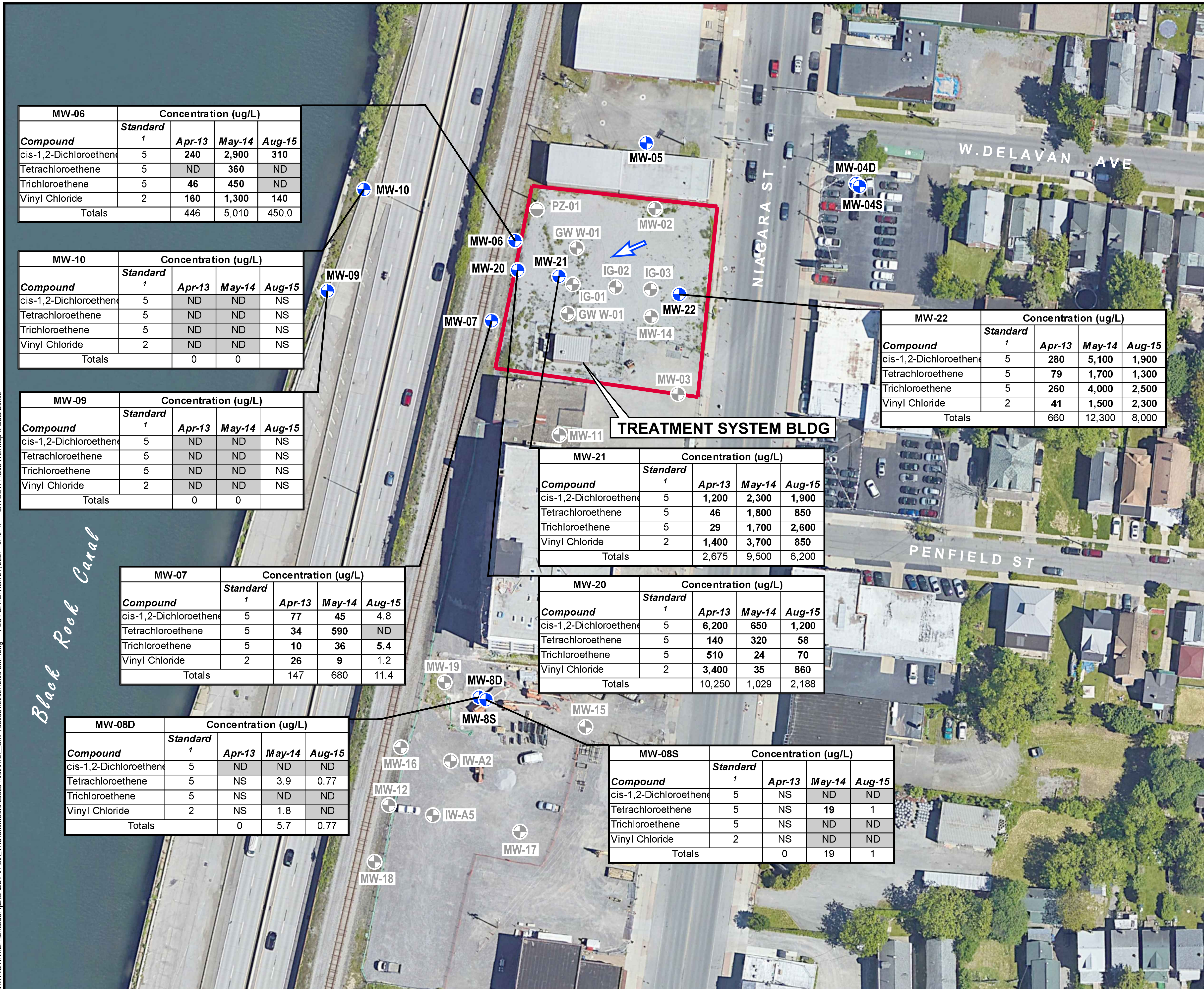
SITE LAYOUT MAP

DRAWN BY:	D. STEHLE	PROJ NO.:	386554.0000.12
CHECKED BY:	J. YEAGER		
APPROVED BY:	K. SULLIVAN		**FIGURE 2**
DATE:	APRIL 2021		

TRC
1090 Union Road
Suite 280
West Seneca, NY 14224
www.trccompanies.com

FILE NO.: 386554.0000.12.02 SMP.dwg

11x17 -- USER: tDelgado -- ATTACHED XREFS: -- ATTACHED IMAGES: chemcore 500 S, 2020.GEP: chemcore 500, 2020.GEP: Figure3_GW_Contour_Oct2009, MIS, GEP 2017-05-10 Z:
DRAWING NAME: \\anmarlon-fp2\CADD\PJT\00_TRC\ChemCore\386554\0000\12_SMP\ 386554.0000.12.02 SMP.dwg -- PLOT DATE: April 21, 2021 - 3:02PM -- LAYOUT: FIG02 Site Layout Map
Version: 2017-10-21



MW-06	Concentration (ug/L)			
Compound	Standard [1]	Apr-13	May-14	Aug-15
cis-1,2-Dichloroethene	5	**240**	**2,900**	**310**
Tetrachloroethene	5	ND	**360**	ND
Trichloroethene	5	**46**	**450**	ND
Vinyl Chloride	2	**160**	**1,300**	**140**
Totals		446	5,010	450.0

MW-10	Concentration (ug/L)			
Compound	Standard [1]	Apr-13	May-14	Aug-15
cis-1,2-Dichloroethene	5	ND	ND	NS
Tetrachloroethene	5	ND	ND	NS
Trichloroethene	5	ND	ND	NS
Vinyl Chloride	2	ND	ND	NS
Totals		0	0	

MW-09	Concentration (ug/L)			
Compound	Standard [1]	Apr-13	May-14	Aug-15
cis-1,2-Dichloroethene	5	ND	ND	NS
Tetrachloroethene	5	ND	ND	NS
Trichloroethene	5	ND	ND	NS
Vinyl Chloride	2	ND	ND	NS
Totals		0	0	

MW-07	Concentration (ug/L)			
Compound	Standard [1]	Apr-13	May-14	Aug-15
cis-1,2-Dichloroethene	5	**77**	**45**	4.8
Tetrachloroethene	5	**34**	**590**	ND
Trichloroethene	5	**10**	**36**	**5.4**
Vinyl Chloride	2	**26**	**9**	1.2
Totals		147	680	11.4

MW-08D	Concentration (ug/L)			
Compound	Standard [1]	Apr-13	May-14	Aug-15
cis-1,2-Dichloroethene	5	ND	ND	ND
Tetrachloroethene	5	NS	3.9	0.77
Trichloroethene	5	NS	ND	ND
Vinyl Chloride	2	NS	1.8	ND
Totals		0	5.7	0.77

MW-22	Concentration (ug/L)			
Compound	Standard [1]	Apr-13	May-14	Aug-15
cis-1,2-Dichloroethene	5	**280**	**5,100**	**1,900**
Tetrachloroethene	5	**79**	**1,700**	**1,300**
Trichloroethene	5	**260**	**4,000**	**2,500**
Vinyl Chloride	2	**41**	**1,500**	**2,300**
Totals		660	12,300	8,000

MW-21	Concentration (ug/L)			
Compound	Standard [1]	Apr-13	May-14	Aug-15
cis-1,2-Dichloroethene	5	**1,200**	**2,300**	**1,900**
Tetrachloroethene	5	**46**	**1,800**	**850**
Trichloroethene	5	**29**	**1,700**	**2,600**
Vinyl Chloride	2	**1,400**	**3,700**	**850**
Totals		2,675	9,500	6,200

MW-20	Concentration (ug/L)			
Compound	Standard [1]	Apr-13	May-14	Aug-15
cis-1,2-Dichloroethene	5	**6,200**	**650**	**1,200**
Tetrachloroethene	5	**140**	**320**	**58**
Trichloroethene	5	**510**	**24**	**70**
Vinyl Chloride	2	**3,400**	**35**	**860**
Totals		10,250	1,029	2,188

MW-08S	Concentration (ug/L)			
Compound	Standard [1]	Apr-13	May-14	Aug-15
cis-1,2-Dichloroethene	5	NS	ND	ND
Tetrachloroethene	5	NS	**19**	1
Trichloroethene	5	NS	ND	ND
Vinyl Chloride	2	NS	ND	ND
Totals		0	19	1

LEGEND

- APPROXIMATE SITE BOUNDARY
- GW = EXTRACTION WELL
- IG = INJECTION WELL
- MW = MONITORING WELL
- PZ = PIEZOMETER
- EXISTING MONITORING WELL
- WELL LOCATION COULD NOT BE FIELD VERIFIED (REMOVED, DAMAGED, OR COVERED BY SURFACE IMPROVEMENTS)
- HISTORIC GROUNDWATER FLOW DIRECTION

DATA KEY

NS NOT SAMPLED
ND NON DETECTED
µg/L MICROGRAMS PER LITER

BOLD INDICATES THAT COMPOUND CONCENTRATION IS ABOVE THE CLASS GA GROUNDWATER STANDARDS IN TOGS 1.1.1.

ALL DATA LABORATORY QUALIFIERS HAVE BEEN REMOVE FOR CLARITY - REFER TO APPENDIX B FOR THE COMPLETE DATA REPORT.

N

0 80' 160'
APPROXIMATE SCALE IN FEET

PROJECT:
CHEM-CORE
BUFFALO, NEW YORK

TITLE:
RESIDUAL VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER (2013 - 2015)

DRAWN BY:	D. STEHLE	PROJ NO.:	386554.0000.12
CHECKED BY:	J. YEAGER		FIGURE 3
APPROVED BY:	K. SULLIVAN		
DATE:	APRIL 2021		

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APPENDIX A

Record of Decision and Notice of Recorded Deed Restriction

Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

Chem-Core Site
Buffalo (C), Erie County, New York
Site Number 9-15-176

January 2003

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* ERIN M. CROTTY, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

Chem-Core Inactive Hazardous Waste Disposal Site
Buffalo (C), Erie County, New York
Site No. 9-15-176

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the Chem-Core site, a Class 2 inactive hazardous waste disposal site. The selected remedial program was chosen in accordance with the New York State Environmental Conservation Law and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Chem-Core inactive hazardous waste disposal site, and the public's input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened releases of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential significant threat to public health and/or the environment.

Description of Selected Remedy

Based on the results of the Remedial Investigation and Feasibility Study (RI/FS) for the Chem-Core site and the criteria identified for evaluation of alternatives, the NYSDEC has selected building demolition to provide access to areas of subsurface contamination, excavation of contaminated soil and off-site disposal and groundwater extraction and treatment, in stages. The components of the remedy are as follows:

- Demolish the building and dispose of the demolition debris off-site in a permitted facility.
- Excavate the contaminated subsurface soil (approximately 7,600 cubic yards) and dispose of the soil in off-site permitted facilities. The goal is to reduce soil contamination to levels consistent with those given in NYSDEC Technical and Administrative Guidance Memorandum (TAGM) No. 4046 to the extent practicable.
- Install groundwater recovery wells at the site to extract the contaminated groundwater.

- Install and operate a treatment system at the site to treat the extracted groundwater for disposal into the sanitary sewer system.

- Evaluate the results from the five-year operation of groundwater extraction and treatment. If concentrations have been reduced sufficiently, implement enhanced bioremediation or another available technology to achieve groundwater standards to the extent practicable.

- Implement a bioremediation pilot study for off-site groundwater contamination. This would occur during construction of the remedy. Based on the results from the pilot study, implement a full-scale remediation of off-site groundwater, if necessary.

- Implement a long-term operation, maintenance, and monitoring program for the groundwater extraction and treatment system.

- A notification will be sent to the county clerk for filing, to notify future owners of the site about the presence of residual contamination remaining in groundwater.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy selected for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

JAN 2 9 2003

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

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RECORD OF DECISION

Chem-Core Site
City of Buffalo, Erie County, New York
Site No. 9-15-176
January 2003

SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health has selected this remedy for the Chem-Core site. The presence of hazardous waste has created significant threats to human health and/or the environment that are addressed by this remedy. As more fully described in Sections 3 and 4 of this document, past activities and disposal practices at the site have resulted in the disposal of a number of hazardous wastes, including trichloroethene (TCE), tetrachloroethene (PCE), and other volatile chemicals. These wastes have contaminated the subsurface soils and groundwater and have resulted in:

- a significant threat to human health associated with potential for human exposure to contaminated soil and groundwater at the site; and
- continuing releases of contaminants from soil to groundwater have created a significant environmental threat.

To eliminate or mitigate these threats, the NYSDEC has selected the following remedy:

- building demolition to provide access to areas of subsurface contamination;
- excavation of contaminated soil and off-site disposal; and
- groundwater extraction and treatment, in stages.

The selected remedy, discussed in detail in Section 7 of this document, is intended to attain the remediation goals selected for this site in Section 6. The remedy must conform with officially promulgated standards and criteria that are directly applicable, or that are relevant and appropriate. The selection of the remedy must also take into consideration guidance, as appropriate. Standards, criteria and guidance hereafter called as SCGs.

SECTION 2: SITE LOCATION AND DESCRIPTION

The Chem-Core site is located at 1382 Niagara Street in the City of Buffalo, Erie County, New York (Figure 1). The site is occupied by a 39,000 square foot industrial building on approximately 0.5 acres. The facility structure occupies most of the property, with exposed soil in a driveway/yard area at the north end of the site. Situated on an historically industrial corridor,

the site is in close proximity to residential neighborhoods to the east and a rail corridor to the west with both the Interstate I-190 highway and the Black Rock Canal (which leads from Lake Erie to the Niagara River) farther to the west. Various industrial facilities are located to the south and north of the site.

An approximately ten foot tall concrete retaining wall separates the I-190 highway from the railway. The Black Rock Canal is immediately beyond a concrete and sheet-pile retaining wall to the west of the highway right-of-way. Refer to Figure 2 for the details of the site and the surrounding areas.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

Since its construction, the facility has been used for commercial operations. During the initial operation of the company, a significant percentage of the business was related to supplying acids to metal fabrication industries. In the early 1930s, operations included a chemical-handling facility, with several business and commercial tenants operating from rented portions of the site structure. From the review of an aerial photograph taken in 1938, the on-site building appeared to be similar to the existing condition and no significant changes have been made since 1938. During the 1950s, sales involved chlorinated solvents for dry-cleaning industries. In the 1970s and 1980s, the company sold chlorinated degreasing solvents. Another large percentage of sales involved inert materials such as diatomaceous earth, Fuller's earth, and bentonite clay. The company also marketed propylene glycol and glycerine to the hand lotion industry and primary alcohol to the printing industry.

Until 1980, Chem-Core received diatomaceous earth via a rail spur located directly west of the building. During the 1970s and until 1988, the company received bulk liquid materials at a receiving station on the north side of the building. The materials were transferred into 55 gallon drums by a gravity operated drum filling machine connected to the truck with a hose. The company had an EPA hazardous waste identification number and was classified as a RCRA small quantity generator.

There are no documented releases or disposal of hazardous waste into the subsurface at the site. It is believed that improper handling of chemicals in the past have contributed contamination to the subsurface soils at the site. Chem-Core ceased its operations at the Buffalo facility in approximately 1999. Currently, the site is unoccupied but still owned by Chem-Core, Inc.

3.2: Remedial History

A Phase I study in March 1997 and a Phase II Limited Site Investigation in June 1997 were completed for Chem-Core, Inc. The aboveground storage tank that existed at the site was removed prior to these investigations. The Phase I study included a literature survey to compile all the past activities at the site. The Phase II study involved the installation of soil borings to obtain shallow subsurface soil samples. The results from this study showed elevated levels of

various volatile organic compounds (VOCs), some in exceedance of the Toxicity Characteristic for Hazardous Waste (by Toxicity Characteristic Leaching Procedure: TCLP). Due to high levels of hazardous waste described in the Phase II report, as well as Chem-Core's subsequent bankruptcy and closure in 1999, an immediate investigative work assignment (IIWA) was implemented by the NYSDEC in February 1999. This investigation involved the installation and sampling of bedrock groundwater monitoring wells and installation of deeper (approximately 20-30 feet from the surface) soil borings.

The results from these studies showed soil contamination at the site exceeding the soil cleanup goals established by the NYSDEC. Areas of highest concentrations in soil include the former tanker loading area at the north end of the building and the former PCE above-ground storage tank area inside of the loading dock area near the center of the building. Both have high levels of VOCs and are believed to be the potential sources for groundwater contamination, as contaminants are present primarily at the soil-bedrock interface.

Groundwater analyses showed that significant volatile organic compound (VOC) contamination exists in groundwater in all four monitoring wells installed previously at the site. It is evident that source contamination from the soil has traveled into the bedrock aquifer. In February 2000, the Chem-Core site was classified as a class 2 site which signifies that the contamination at the site poses a threat to human health and the environment.

SECTION 4: SITE CONTAMINATION

To evaluate the contamination present at the site and to evaluate alternatives to address the significant threat to human health and the environment posed by the presence of hazardous waste at the site, the NYSDEC has completed a remedial investigation/feasibility study (RI/FS).

4.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site.

The RI was conducted in two phases. The first phase was conducted between July and October 2001. The second phase was completed between December 2001 and March 2002. A report entitled, "Phase I and II RI Report," dated July 2002, has been prepared which describes the field activities and findings of the RI in detail.

The RI included the following activities:

- installation of 24 deeper soil borings and 15 monitoring wells on-site and off-site,
- analysis of soils and groundwater for chemical, physical, and hydrogeologic properties, and
- sampling of surface water and sediment samples from the Black Rock Canal to identify any impacts to the canal from the site.

To determine which media (soil, groundwater, surface water and sediment) are contaminated at levels of concern, the RI analytical data were compared to environmental SCGs. Groundwater, drinking water and surface water SCGs identified for the Chem-Core site are based on NYSDEC ambient water quality standards and guidance values and Part 5 of the New York State Sanitary Code. For soils, NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 provides soil cleanup guidelines for the protection of groundwater, background conditions, and health-based exposure scenarios. In addition, for soils, site-specific background concentration levels can be considered for certain classes of contaminants. Guidance values for evaluating contamination in sediments are provided by the NYSDEC "Technical Guidance for Screening Contaminated Sediments."

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized below. More complete information can be found in the RI report.

Chemical concentrations are reported in parts per billion (ppb) or parts per million (ppm). For comparison purposes, where applicable, SCGs are provided for each medium.

4.1.1: Site Geology and Hydrogeology

The subsurface in the vicinity of the site has three layers with bedrock at the bottom, a silty clay layer above the bedrock, and a fill layer at the top. At the Chem-Core site, the thickness of the fill layer ranged from one to eight feet. The thickness of the silty clay layer ranged from 9 to 17.5 feet. The bedrock was found at depths ranging from 12.8 to 30 feet. Refer to Figure 6 for details.

The primary water-bearing unit identified at the site is the unconfined water table aquifer present in the bedrock. The groundwater table at the site was found to be at approximately 30 feet below the surface. Based on the water level data obtained during the RI, the groundwater at the site flows generally towards the Black Rock Canal. However, a southwesterly component in the groundwater flow was observed in the shallow bedrock zone. Groundwater flow in the shallow bedrock zone emanating from the site is impeded by a wedge of lacustrine silts and clays that drape over the sloping bedrock surface beneath the I-190 corridor. These confining sediments induce a southwesterly component in the groundwater flow. For this reason, the plume of dissolved groundwater contamination has migrated southwestward from the site.

4.1.2: Nature of Contamination

As described in the RI report, subsurface soil samples were collected on a 50-foot grid at the site. Monitoring wells were installed on-site and off-site to collect groundwater samples. Surface water and sediment samples were collected from Black Rock Canal. These samples were collected and analyzed to characterize the nature and extent of contamination at the site. The main categories of contaminants found at the site which exceed their SCGs are volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and inorganics (metals).

The primary contaminants found in soil and groundwater at the site were VOCs such as perchloroethene (PCE) and trichloroethene (TCE) which are classified as chlorinated hydrocarbons. These two contaminants were found at most of the sampling locations and at highest concentrations. Other VOCs were also found at the site which exceed the SCGs. SVOCs detected at the site include polycyclic aromatic hydrocarbons (PAHs). Some inorganics (metals) were also found in concentrations above the SCGs.

4.1.3:. Extent of Contamination

Tables 1 and 2 present the nature and extent of contaminants of concern (COC) in subsurface soil and groundwater and compares the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Soil

A total of 64 subsurface soil samples were collected at different depths at the site. Ten (10) soil samples were collected during the Phase II investigation, ten (10) samples collected during the IIWA and forty four (44) samples collected during the RI . PCE and TCE were detected most frequently and at highest concentrations. PCE was detected as high as 38,000 ppm or milligram per kilogram (mg/kg) compared to its SCG value of 1.4 ppm and TCE was detected as high as 8 ppm or mg/kg compared to its SCG value of 0.7 ppm in the IIWA samples. In the RI samples, PCE was detected as high as 340 ppm or mg/kg and TCE was detected as high as 4 ppm or mg/kg. The highest PCE concentration was found in the IIWA sample because it is most likely that the sampling location was closer to the former PCE tank area. SVOCs were found at relatively low levels (ND-3.9 ppm or mg/kg). Figure 3 shows the locations of subsurface soil samples that had organic contaminants above the SCGs. Metals such as arsenic, beryllium, cadmium, chromium, copper, nickel, and zinc had concentrations marginally above the SCGs.

Sediments & Surface Water

Six sediment and six surface water samples were collected from the Black Rock Canal. VOCs were detected at low concentrations but were below the SCGs for sediment. SVOCs were also detected in low concentrations in comparison to the sediment guidance values except for benzo(a)pyrene at 8.5 ppm compared to its SCG value of 0.013 ppm and Aroclor 1260 at 0.34 ppm compared to its SCG value of 0.014 ppm. However, based upon the site history and groundwater data, the site does not appear to be the source of these compounds found in canal sediments.

No VOCs or SVOCs were detected in surface water. Metals were detected in surface water but were found to be below the SCGs.

Groundwater

Two rounds of groundwater samples were collected from a total of four existing wells and twelve new wells. Predominantly, VOCs such as PCE, TCE, vinyl chloride and other

breakdown products of PCE were found in all well locations. PCE was found as high as 21,000 ppb or microgram per liter (ug/l) at MW-14 compared to its SCG value of 5 ppb. TCE was found as high as16,000 ppb or ug/l at PZ-1compared to its SCG value of 5 ppb. Also, breakdown products such as *cis*-1,2-dichloroethene was found as high as 30,000 ppb or ug/l . Figure 4 shows the VOCs found in groundwater above SCGs. SVOCs were found to be marginally above SCGs. Metals such as iron, magnesium and thallium were found to be above SCGs. As stated in Section 4.1.1, there is a southwesterly component to the groundwater plume with elevated concentration of VOCs. The concentration of contaminants in groundwater decreases rapidly southwest of the site and approaches groundwater standards at the farthest monitoring well, MW-13.

4.2: Summary of Human Exposure Pathways

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the health risks can be found in Section 6.0 of the RI report.

An exposure pathway is the manner by which an individual may come into contact with a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

At this site, significant contamination exists in soil and groundwater below the building and in groundwater to the west and south of the building. For a complete exposure pathway to occur, persons would have to come into contact with subsurface soil or groundwater. Currently, these points of exposure are not complete. Homes and businesses in the area are connected to a public water supply. Contaminated soil is covered by the concrete slab of the building.

Complete pathways could occur in the future during subsurface construction activities, or by use of groundwater, or possibly by the migration of contaminated soil vapor into the building. The building is currently unoccupied. Surface water and sediment in the Black Rock Canal were not identified as media of concern for potential exposure pathways.

In summary, under the current site use scenario, the possibilities of contact with contaminated soils and groundwater are minimal and unlikely. However, under the future use scenario, there is a potential for contact with contaminated soils, groundwater and inhalation of vapors from structures.

4.3: Summary of Environmental Exposure Pathways

This section summarizes the types of environmental exposures and ecological risks which may be presented by the site. The Fish and Wildlife Impact Assessment included in Section 6.0 of the RI report presents a more detailed discussion of the potential impacts from the site to fish and wildlife resources.

The results of the impact analysis indicate that fish in the Black Rock Canal are the only ecological resources near the site. The data obtained from the RI indicate that surface water runoff and contaminated groundwater from the site are not impacting the Black Rock canal. No contaminants of potential concern were identified in the surface water of the canal. Contaminants identified in the sediment related to the site were not found in significant concentrations and therefore, do not pose any ecological risk.

SECTION 5: ENFORCEMENT STATUS

Potentially responsible parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The PRP for the site, documented to date, include Chem-Core Inc., the past owner and operator of the site.

The PRP filed for bankruptcy after the company ceased all the operations at the site. The NYSDEC has implemented the RI/FS under the State Superfund. The implementation of the remedial program at the site under the State Superfund depends on the availability of funds.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to meet all Standards, Criteria and Guidance (SCGs) and to be protective of human health and the environment. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The goals selected for this site are:

- provide for the attainment, to the extent practicable, of NYSDEC Class GA groundwater standards at the site,
- reduce, control or eliminate, to the extent practicable, off-site migration of groundwater that does not attain NYSDEC Class GA groundwater standards,
- reduce, control or eliminate, to the extent practicable, human exposures to volatile organic compounds in soil, groundwater or indoor air and
- reduce, control or eliminate, to the extent practicable, migration of volatile organic compounds into the Black Rock Canal.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost-effective, comply with other statutory laws and utilize permanent solutions, alternative

technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Chem-Core site were identified, screened and evaluated in the report entitled "Feasibility Study Report," dated September 2002.

A summary of the detailed analysis follows. As presented below, the time to implement reflects only the time required to construct the remedy, and does not include the time required to design the remedy, procure contracts for design and construction, or to negotiate with responsible parties for implementation of the remedy.

7.1: Description of Remedial Alternatives

The potential remedies are intended to address the contaminated subsurface soils and groundwater at the site.

Alternative 1: No Action

The No Action alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, allowing the site to remain in an unremediated state. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Present Worth	$84,000
Capital Cost	$0
O&M Present Cost	$84,000
Annual O&M Cost	$5,000
Time to Implement	NA

Alternative 2: Monitored Natural Attenuation and Cover System

This alternative would include the installation of five new groundwater monitoring wells. The wells would be monitored to develop a fate and transport model for natural attenuation. This alternative would also involve the development and implementation of an operation, maintenance, and monitoring (OM&M) plan to monitor the groundwater. Five years of data evaluation is included to evaluate the progress of natural attenuation. Under this alternative, the building would remain in place to provide containment that would reduce the infiltration and migration of contamination from soil to groundwater and would prevent contact with subsurface contamination.

Present Worth	$400,000
Capital Cost	$130,000
O&M Present Cost	$270,000
Annual O&M Cost	$16,000
Time to Implement	Three months

Alternative 3: Building Demolition, Excavation of Soil and Off-site Disposal, and Phased Approach of Groundwater Extraction and Treatment

Under this alternative, the building would be demolished and the demolition debris would be either recycled or disposed in an environmentally acceptable manner . Approximately 7600 cubic yards (cu. yds.) of contaminated soil would be excavated for off-site disposal. Based on the results from the toxicity characteristic leaching procedure and other chemical analyses, it is estimated that approximately 770 cu. yds. would not meet the land disposal criteria and would have to be transported for off-site treatment and proper disposal. Approximately 1,540 cu. yds would be disposed of in a hazardous waste landfill and 5,390 cu. yds. would be disposed of in a nonhazardous solid waste landfill. The excavated areas would be backfilled with certified clean soil.

Remediation of on-site groundwater contamination would occur in two phases for this alternative. The first phase would be conducted over a period of about five years and would involve the extraction and treatment of groundwater at the site and discharge of the treated water into the sanitary sewer. The goal would be to greatly reduce the high levels of groundwater contamination in the source area. At the end of about five years, the data will be evaluated and if favorable, the second phase of groundwater remediation would begin. The goal of the second phase treatment would be to reduce contamination to levels approaching the groundwater standards, to the extent practicable. Enhanced bio-remediation or similar technologies would be employed. If the first phase remediation of groundwater was not successful, further evaluation of alternatives would be needed.

To address the off-site groundwater contamination, a pilot scale bio-remediation study would be conducted followed by full-scale implementation of bio-remediation, if feasible.

Figures 5 and 6 show the horizontal and vertical extent of contaminated soil to be removed, respectively. Figure 7 shows the proposed plan for the extraction and treatment of on-site groundwater. Figure 8 shows the area to be utilized for the pilot study to be conducted as part of the off-site groundwater remediation.

Present Worth $3,170,000
Capital Cost $2,800,000
O&M Present Cost $370,000
Annual O&M Cost $89,000
Time to Implement ..... 6 months

Alternative 4: Building Demolition, Soil Vapor Extraction, and Phased Approach to Groundwater Extraction and Treatment

This alternative is similar to Alternative 3 except that soil vapor extraction (SVE) technology would be utilized to remove the contaminants from the soil instead of excavation of soil and off-site disposal. The SVE technology would remove the vapors from the contaminated soil by a vacuum process and the vapors would be treated, if necessary, prior to discharging into the atmosphere. The results from the SVE pilot study conducted at the site indicated that many

wells would be required for this technology to be effective. This is because of the existing soil conditions at the site. For this reason, the capital cost to implement this technology would be high.

The on-site and off-site groundwater contamination would be addressed as described in Alternative 3.

Present Worth $3,400,000
Capital Cost $2,100,000
O&M Present Cost $1,300,000
Annual O&M Cost $310,000
Time to Implement ..... 6 months

Alternative 5: Soil Vapor Extraction, and Phased Approach of Groundwater Extraction and Treatment

This alternative is similar to Alternative 4 except that the existing building would not be demolished.

Present Worth $3,300,000
Capital Cost $2,000,000
O&M Present Cost $1,300,000
Annual O&M Cost $310,000
Time to Implement ..... 6 months

7.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6 NYCRR Part 375). For each of the criteria, a brief description is provided, followed by an evaluation of the alternatives against that criterion. A detailed discussion of the evaluation criteria and comparative analysis is included in the feasibility study.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance.

The major SCGs applicable for this site include groundwater quality standards in 6 NYCRR Part 703, NYSDEC guidance for soil clean up goals (Technical and Administrative Guidance Memorandum (TAGM) No. 4046), land disposal regulations, and air quality standards. The discharge of treated groundwater into the sanitary sewer system have to meet the requirements of the Buffalo Sewer Authority.

Alternative 1 would not meet SCGs. Alternative 2 would not meet the SCGs for soil but would prevent exposures by containing the contaminated soil under the concrete slab and would mitigate the further migration of contamination from soil into the groundwater. Alternative 3 would have the highest level of compliance with soil SCGs because it includes direct removal. Alternatives 4 and 5 would produce similar results compared to each other but would take much longer than Alternative 3.

It would take a very long time to achieve groundwater SCGs for Alternative 2 due to the very high existing concentrations. Alternatives 3-5 would produce similar results for groundwater but Alternative 3 would have a somewhat greater ability to achieve SCGs due to a higher degree of soil remediation. The existing soil conditions at the site would make achieving SCGs for soil more difficult for SVE (Alternatives 4 and 5) than soil excavation (Alternative 3).

2. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

Alternative 1 would not be protective of human health and the environment. Alternative 2 would comply (marginally) with this criterion but to a much lesser degree than Alternatives 3-5 because contaminated soil would remain at the site. Alternatives 3-5 would be protective of human health and the environment but Alternative 3 would be more effective than other alternatives because the source of contamination would be completely removed from the site. As stated earlier, the existing soil conditions at the site would make achieving SCGs for soil more difficult for SVE (Alternatives 4 and 5) than soil excavation (Alternative 3).

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

There would be no short-term impacts, under Alternative 1, because there would be no construction activities. Under Alternative 2, there would be essentially no short-term impacts since the only invasive activities would be the installation of additional monitoring wells. Alternative 3 would pose greater short-term impacts compared to Alternatives 4 and 5 because of the excavation and transportation of contaminated soil. Building demolition (Alternatives 3 and 4) could create short-term impacts from the generation of dust. A site-specific health and safety plan that would include engineering controls such as air monitoring and dust suppression measures would be implemented to protect the workers and the community.

Alternative 1 would not have any short-term effectiveness. Soil clean up goals would not be achieved under Alternative 2. Alternative 3 would require less time to achieve soil cleanup goals compared to Alternatives 4 and 5. For achieving groundwater goals, Alternatives 3, 4 and 5 would need less time compared to Alternative 2.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

Alternative 1 has no long-term effectiveness because all the contaminated soil and groundwater would remain on-site and risks would not change. Under Alternative 2, long-term effectiveness for soil would be dependant upon using the existing building and floor slab as a "cover system." The long-term effectiveness would be very low for groundwater under Alternative 2 because of the very long time needed to achieve the remedial goals. Alternative 3 would have greater long-term effectiveness compared to Alternatives 4 and 5 due to the complete removal of contaminated soil from the site and the better performance of excavation over SVE due to site-specific conditions. The long-term effectiveness for groundwater would be appreciably higher for Alternatives 3, 4, and 5 compared to Alternative 2.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

Alternative 1 would not reduce toxicity, mobility, or volume. Under Alternative 2, the mobility of the contamination in soil would be controlled but not toxicity or volume. The soil removal under Alternative 3 would effectively reduce toxicity, mobility and volume. The soil treatment under Alternatives 4 and 5 would reduce toxicity, mobility and volume but to a lesser degree compared to Alternative 3. This is because the existing soil conditions at the site would make achieving SCGs for soil more difficult for SVE (Alternatives 4 and 5) than soil excavation (Alternative 3).

Groundwater remediation under Alternatives 3, 4 and 5 would reduce the toxicity, mobility and volume in a lesser period of time compared to Alternative 2.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.

Alternative 1 would be easiest to implement since no construction is involved. Alternative 2 would involve the installation of monitoring wells and would be easy to implement. Although Alternative 3 would involve more construction activities, it is technically implementable with many experienced contractors available. Demolition and soil removal would be difficult but manageable due to the limited space available at the site. Alternatives 4 and 5 would require more engineering design for the SVE system but are both implementable.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where

two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision.

The costs for each alternative are presented in Table 3. Alternative 1 is the least expensive with a total present worth of $84,000 and Alternative 4 is the most expensive at $3,400,000.

This final criterion, community acceptance, is considered a modifying criterion and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

8. Community Acceptance. Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan have been evaluated. The responsiveness summary (Appendix A) presents the public comments received and the manner in which the NYSDEC addressed the concerns raised. In general, the public comments received during the public meeting held on December 5, 2002 were supportive of the selected remedy.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the Administrative Record (Appendix B) and the discussion presented below, the NYSDEC has selected Alternative 3 as the remedy for this site. The elements of the remedy are described at the end of this section. The selected remedy is based on the results of the RI and the evaluation of alternatives presented in the FS.

This selection is based on the evaluation of the five alternatives developed for this site. With the exception of the No Action alternative, each of the alternatives would comply with the threshold criteria (compliance by Alternative 2 would be marginal). In addition, all four alternatives would comply with the balancing criteria but the level of compliance varies for each alternative. The major differences between the four alternatives are overall effectiveness and cost. Essentially, Alternative 3 provides the greatest certainty of achieving the remediation goals for the site and is cost-effective.

Alternative 2 (monitored natural attenuation with containment) is the lowest in cost compared to Alternatives 3, 4, and 5 but the soil cleanup goals would not likely be achieved under Alternative 2. Groundwater goals would not likely be achieved in a reasonable amount of time. Alternative 3 is the only alternative that would remove soil from the ground for off-site disposal. Alternative 3 will provide for the removal of the source materials from the ground, allowing a visual and analytical inspection to ensure that all of the soils containing contaminants of concern in excess of the proposed remedial goals will be removed for off-site disposal. It is also lower in cost compared to Alternatives 4 and 5.

The results of the SVE pilot test show that due to problems with subsurface conditions, SVE (Alternatives 4 and 5) would not likely remediate soil as well as Alternative 3. Alternatives 2, 4, and 5 would require the implementation of additional studies to collect data necessary to properly design full scale systems for the site.

Figures 5-8 shows the details of Alternative 3 such as the extent of contaminated soil removal and the proposed plan for the remediation of groundwater.

The estimated present worth cost to implement the remedy is $3,170,000. The cost to construct the remedy is estimated to be $2,800,000 and the estimated present worth cost of operation and maintenance is $370,000.

The elements of the selected remedy are as follows:

1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program.

2. Demolish the building and dispose of the demolition debris off-site in a permitted facility.

3. Excavate the contaminated subsurface soil (approximately 7,600 cubic yards) and dispose of the soil in off-site permitted facilities. Confirmatory samples will be collected and analyzed to determine whether the clean up goals have been achieved. The excavated areas will be backfilled with certified clean soil. The goal is to excavate the soils to TAGM levels to the extent practicable.

4. Install monitoring wells and groundwater recovery wells at the site to extract the contaminated groundwater.

5. Install a treatment system at the site to treat the extracted groundwater for disposal into the sanitary sewer system.

6. Operate the groundwater extraction and treatment system for about five years and evaluate the results. If concentrations have been reduced sufficiently, implement enhanced bioremediation or other available technology to achieve groundwater standards to the extent practicable.

7. Implement a bioremediation pilot study for off-site groundwater contamination. This will occur during construction of the remedy. Based on the results from the pilot study, implement a full-scale remediation of off-site groundwater, if necessary.

8. Implement a long-term operation, maintenance, and monitoring program for the groundwater extraction and treatment system.

9. A notification will be sent to the county clerk for filing, to notify future owners of the site about the presence of residual contamination remaining in groundwater.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation activities were undertaken to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- Repositories for documents pertaining to the site were established.
- A public contact list, which included nearby property owners, elected officials, local media and other interested parties, was established.
- A fact sheet was mailed in August 2001 providing the current status of the investigation to be conducted at the site.
- A fact sheet and a public meeting notice was mailed in November 2002 providing the results of the investigation and the proposed remedial action plan for the site.
- A public meeting was held on December 5, 2002 to present and receive comment on the PRAP.
- A responsiveness summary (Appendix A) was prepared to address the comments received during the public comment period for the PRAP.

Table 1
Nature and Extent of Contamination
Subsurface Soil

MEDIUM	CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppm)	FREQUENCY of EXCEEDING SCGs/Background	SCG/ Bkgd. (ppm)
Soils	Volatile Organic Compounds (VOCs)	Tetrachloroethene	0.001 to 38,000	16 of 64	1.4
		Methylene Chloride	0.004 to 160	3 of 64	0.1
		1,1-Dichloroethane	0.001 to 1.0	1 of 64	0.2
		1,1-Dichloroethene	0.001 to 0.65	1 of 64	0.4
		Acetone	0.004 to 2.4	5 of 64	0.2
		cis-1,2-Dichloroethene	0.001 to 3.2	5 of 64	0.2
		Trichloroethene	0.002 to 8.0	14 of 64	0.7
		1,1,1,-Trichloroethane	0.002 to 3.1	1 of 64	0.8
Soils	Semi-Volatile Organic Compounds (SVOCs)	Benzo(a)anthracene	ND to 2.9	2 of 4	0.224
		Benzo(a) pyrene	ND to 2.8	2 of 4	0.61
		Chrysene	ND to 2.7	2 of 4	0.4
		Benzo(b)fluoranthene	ND to 3.9	1 of 4	1.1
		Benzo(k)fluoranthene	ND to 1.3	1 of 4	1.1
		Dibenz(a,h)anthracene	ND to 0.3	1 of 4	0.014
Soils	Inorganic Compounds (Metals)	Beryllium	0.33 to 0.86	4 of 4	0.16
		Chromium	11.3 to 24.1	4 of 4	10
		Zinc	62 to 104	4 of 4	20
		Nickel	11.9 to 34.5	3 of 4	13
		Copper	11.5 to 29.3	1 of 4	25
		Arsenic	1.1 to 7.8	1 of 4	7.5
		Cadmium	0.4 to 1.1	1 of 4	0.16

Table 2
Nature and Extent of Contamination
Groundwater

MEDIUM	CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs/Background	SCG/ Bkgd. (ppb)
Groundwater	Volatile Organic Compounds (VOCs)	Acetone	ND to 1,000	1 of 19	50.0
		Methylene Chloride	ND to 3,000	2 of 19	5.0
		Toluene	ND to 2,200	2 of 19	5.0
		Benzene	ND to 52	3 of 19	1.0
		1,1-Dichloroethane	ND to 4,500	9 of 19	5.0
		1,1-Dichloroethene	ND to 1,400	9 of 19	0.7
		Vinyl Chloride	ND to 9,300	9 0f 19	2.0
		Tetrachloroethene	ND to 21,000	10 of 19	5.0
		1,1,1,-Trichloroethane	ND to 25,000	10 of 19	5.0
		Trichloroethene	ND to 16,000	11 of 19	5.0
		cis-1,2-Dichloroethene	ND to 30,000	15 of 19	5.0
Groundwater	Semi-Volatile Organic Compounds (SVOCs)	2-Methylphenol	ND to 3	1 of 5	1
		4-Methylphenol	ND to 3	1 of 5	1
		bis(2-ethylhexyl)phthalate	7 to 14	3 of 5	5
Groundwater	Inorganic Compounds (Metals)	Iron	60.3 to 17,000	5 of 5	300
		Magnesium	17,200 to 126,000	4 of 5	35000
		Thallium	ND to 11.4	2 of 5	0.5

Table 3
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual O&M Cost	O&M Capital Cost	Total Present Worth
1. No Action	$0	$5,000	$84,000	$84,000
2. Monitored Natural Attenuation and Cover System	$130,000	$16,000	$270,000	$400,000
3. Building Demolition, Excavation, off-site disposal, groundwater extraction and treatment	$2,800,000	$89,000	$370,000	$3,170,000
4. Building Demolition, SVE, groundwater extraction and treatment	$2,100,000	$310,000	$1,300,000	$3,400,000
5. SVE, groundwater extraction and treatment	$2,000,000	$310,000	$1,300,000	$3,300,000

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Chem-Core Site
City of Buffalo, Erie County, New York
Site No. 9-15-176

The Proposed Remedial Action Plan (PRAP) for the Chem-Core site, was prepared by the New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on November 25, 2002. The PRAP outlined the remedial measure proposed for the contaminated subsurface soils and groundwater at the Chem-Core site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on December 5, 2002, which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. No written comments were received during the public comment period. The public comment period for the PRAP ended on December 23, 2002.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the NYSDEC's responses:

Comment 1: What is a Class 2 site?

Response 1: The Class 2 designation is given to sites which pose a significant threat to public health or the environment and remedial action is required to address the contamination found at the site.

Comment 2: What is PCE?

Response 2: Perchloroethene (PCE), also known as tetrachloroethene, is a manufactured chemical that is widely used for dry cleaning of fabrics and for some metal-degreasing.

Comment 3: What is bioremediation?

Response 3: Bioremediation is a technology that encourages growth and reproduction of indigenous microorganisms to enhance the biodegradation of contaminants in groundwater and saturated soils. Bioremediation can effectively degrade organic constituents including chlorinated solvents which are dissolved in groundwater. Bioremediation generally requires an injection system to deliver the nutrients to the affected media.

Comment 4: What is the depth to bedrock?

Response 4: Based on the data obtained from the investigation, the depth to bedrock at the site ranges from approximately 13 feet to 30 feet below the ground surface.

Comment 5: How did contamination get into soil? How did the PCE get under the concrete slab?

Response 5: There are no documented releases of chemicals to the soil at the site. We believe that PCE was released into the soil through spills into floor drains and floor cracks and perhaps from releases from piping used for the transfer of chemicals.

Comment 6: What was the level of contamination in well MW-5? What was the level of contamination in the well by Great Lakes Steel? What are the contaminants found in soil between the two buildings - the parking lot area? Will the State excavate all the soil down to the bedrock?

Response 6: No site-related contaminants were found in the MW-5 well cluster located upgradient of the site. Two shallow wells and one deep well are located in the gravel parking lot at the site. Great Lakes Steel is located north of the parking lot. The wells located in the parking lot were found to be contaminated above groundwater standards with PCE and other breakdown products of PCE. The subsurface soil in the parking lot, from approximately six feet below the ground surface down to the bedrock, was found to be contaminated with PCE and semi-volatile organic compounds classified as polycyclic aromatic hydrocarbons (PAHs). The proposed remedy includes the excavation of contaminated soil down to the bedrock and off-site disposal.

Comment 7: Where will the new pumping system wells be located? Will the extraction system use the same wells used for monitoring? Will the groundwater extraction system interfere with the future use of this site?

Response 7: The groundwater pumping wells would be located in areas where significant contamination in groundwater was found. Figure 7 in the PRAP shows the approximate location of the pumping wells. The monitoring wells installed during the investigation will not be used for collecting groundwater because the monitoring wells are smaller diameter wells and would not be suitable for pumping operations. New larger diameter wells will be installed to pump the contaminated groundwater. The groundwater pumping wells would not necessarily interfere with future development at the site. Based on the need for future development, an appropriate location could be identified to set up the groundwater treatment system.

Comment 8: What is the cost of proposed remedy? Do you have a breakout of the cost for the various parts of the remediation?

Response 8: It would cost approximately $3.2 million to implement the proposed remedy at the site. The feasibility study (FS) report prepared for the site has the cost breakdown for the proposed remedy. The FS report can be reviewed at the DEC's Buffalo office located at 270 Michigan Avenue. Please call Mr. Maurice Moore at 716-851-7220 to make an appointment to review the report.

Comment 9: When will the ROD be issued? When will construction start? Will this be held up by the Superfund issues?

Response 9: The Record of Decision (ROD) for the site should be issued in January 2003. The schedule for construction depends on the availability of funds in the Superfund program. If funds are available after the completion of the ROD, the design of the remedy would take approximately 12 months and the construction would start in early 2004. Currently, funds are not appropriated for the implementation of the proposed remedy at the site. The remediation work at the Chem-Core site could be delayed because of the unavailability of funds.

Comment 10: Who owned the property? Does the State of New York own the site? Will the state own the property while the remediation is underway?

Response 10: Chem-Core Inc. was the past owner and operator of the site. The State of New York does not own the site and will not own the site to implement the proposed remedy.

Comment 11: Are there any other sites in Erie County that have a PCE problem?

Response 11: Yes, there are other sites in Erie County with PCE contamination problem. Mr. Paul Kranz of Erie County Department of Environment and Planning who was present at the meeting offered to provide this information to interested citizens.

APPENDIX B

Administrative Record

Administrative Record

Chem-Core Site
Site No. 9-15-176

1. "Phase I Environmental Site Assessment", March 1997, prepared by Maxim Technologies of New York, Inc.

2. "Phase II Limited Site Investigation", June 1997, prepared by Maxim Technologies of New York, Inc.

3. "Report on Activities under the Immediate Investigation Assignment", August 1999, prepared by the NYSDEC.

4. "Limited Indoor Air Quality Investigation and Asbestos Sampling and Analysis Report", September 2000, prepared by Chopra-Lee, Inc.

5. "Remedial Investigation/Feasibility Study Work Plan", May 2001, prepared by URS Corporation.

6. "Phase I and II Remedial Investigation Report", May 2002, prepared by URS Corporation.

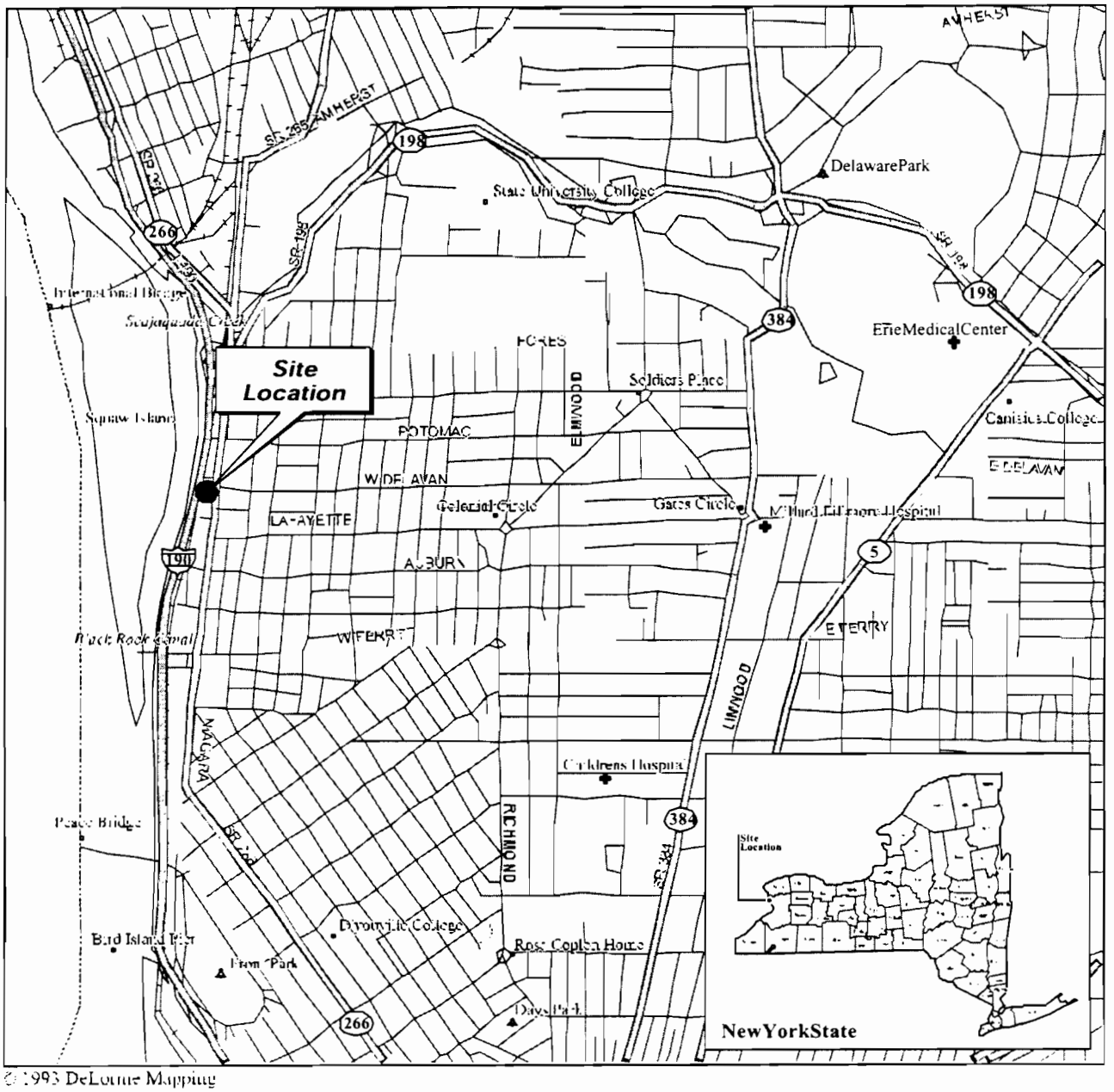
7. "Pilot Study Report", June 2002, prepared by URS Corporation.

8. "Data Usability Summary Report", July 2002, prepared by URS Corporation.

9. "Feasibility Study Report", November 2002, prepared by URS Corporation.

10. Proposed Remedial Action Plan for the Chem-Core site, dated November 2002, prepared by the NYSDEC.

11. Record of Decision for the Chem-Core Site, dated January, 2003, prepared by the NYSDEC.



APPROXIMATE SCALE IN FEET

2500 0 2500

URS

CHEM-CORE FACILITY
SITE LOCATION MAP

FIGURE 1

J:\0.02\CAD\ 1=40 5/9/02-3 PAL

BLACK ROCK CANAL

APPROXIMATE EDGE OF WATER

WATER ELEV. 571.55'
AT 3:00 PM FEB. 14, 1999

TOP HEADWALL
ELEV. : 578.82'

NEW YORK STATE THRUWAY (I-190)
(NORTHBOUND LANE)

R.O.W.

TOP WALL 590.33'

TOP WALL 590.40'

CONCRETE RETAINING WALL

592

TOP WALL 590.03'

TOP WALL 589.97'

R.O.W.

CONCRETE LOADING DOCK

CONCRETE LOADING DOCK

594

(FORMERLY PENN-CENTRAL \ NEW YORK CENTRAL RAILROAD)

599

FORMERLY MENTHOLATUM, INC. BRICK BUILDING

LOADING DOCK AREA

MW-1

GRAVEL

DELAVAN AVENUE (PAPER STREET)

GRAVEL

UTILITY POLE

BLACKTOP

BLACKTOP

SAN.MH. RIM: 593.89' INV.: 570.39'

CONC. LOADING DOCK

FF = 596.1

CHEM-CORE 2 STY. BRICK & CONC. BLOCK BUILDING

No. 1382

2 STY. BRICK & CONC. BLOCK BUILDING

SAN.MH. RIM: 594.08' INV.: 570.43'

SAN.MH. RIM: 594.52' E. INV.: 580.78' S. INV.: 575.42'

1 STY. BRICK BUILDING

No. 1400

WEST

GUIDE RAIL

598

BLACKTOP

MW-2

BLACKTOP

GRAVEL

FENCE

LOADING DOCK AREA

GAS METER

BOLLARD

No. 1396

SAN.MH. RIM: 596.86' N. INV.: 585.56' W. INV.: 585.39'

SAN.MH. RIM: 595.67' NE. INV.: 585.24' SW. INV.: 585.01'

GUIDE RAIL

MW-3

CONC. RETAINING WALL

R.O.W.

CONC. STEPS

GAS METERS

BLACKTOP

WALK

BRICK

598

BLACKTOP

BLACKTOP

BLACKTOP

WV

CONCRETE

BRICK

GV

WALK

WV

CONCRETE

BRICK

CURB LINE

CURB LINE

D.I. RIM: 595.19' INV. 591.74'

SAN.MH. RIM: 595.09'

596

WATER MH. RIM: 595.92'

TEL. MH RIM 595.27'

SAN.MH. RIM: 595.09'

NIAGARA STREET

(FORMERLY MAIN STREET)

LEGEND

- EXISTING MONITORING WELL - NYSDEC 1999
- UTILITY POLE
- SUMP LOCATION (APPROXIMATE)
- HEADWALL
- 863 GROUND CONTOUR
- CHAIN LINK FENCE
- PROPERTY LINE

40' 0 40'

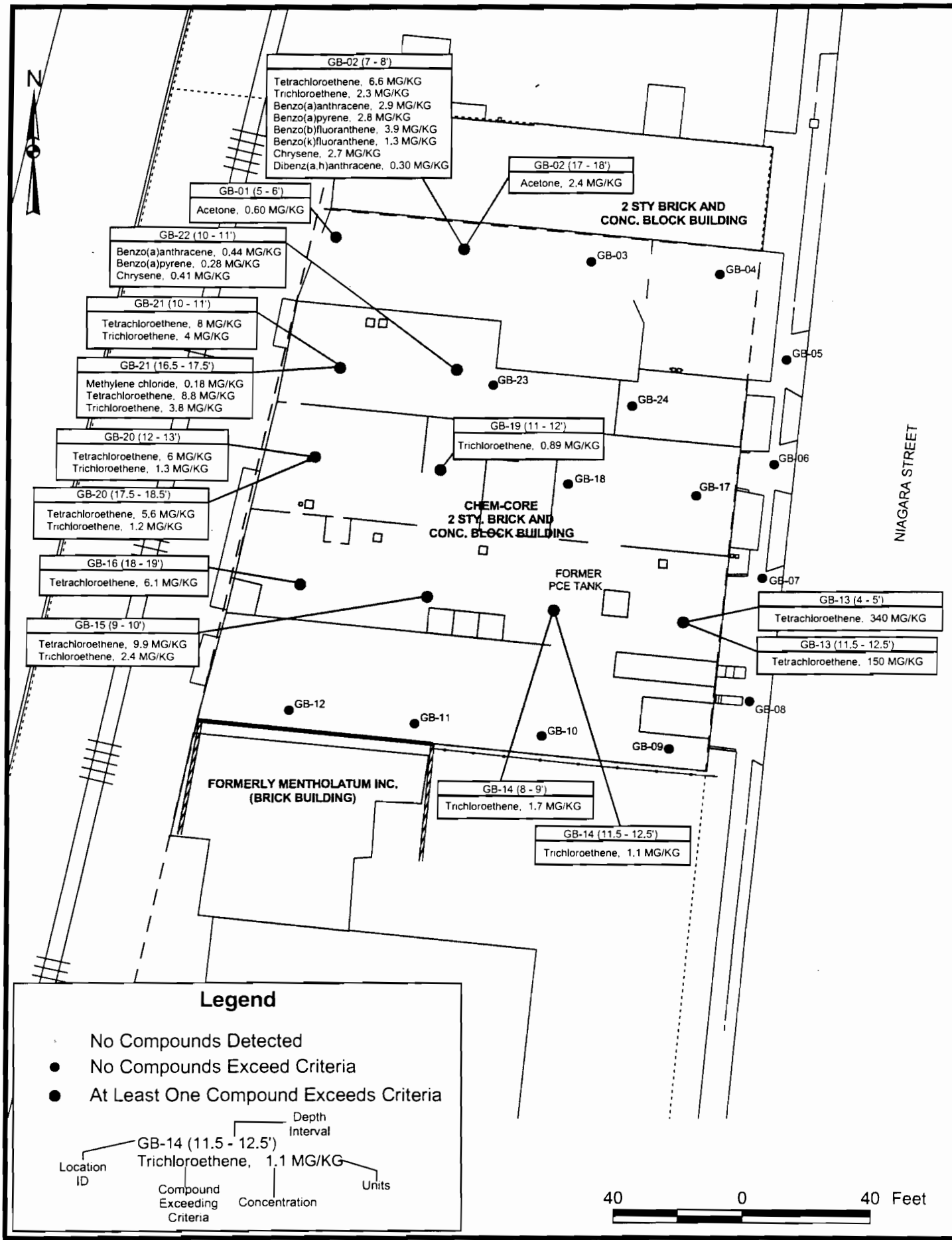
SCALE: 1"= 40'

SITE PLAN

URS

FIGURE 2

CC-7115



35890.00\GIS\chemical.apr (MG/KG) 2001 RI SOIL EXCEEDANCES
01/29/2002

URS

CHEM CORE
SOIL CONTAMINANTS ABOVE SCGs (2001)

FIGURE 3

J:\35890.00\GIS\chemical.apr 2002 GROUNDWATER EXCEEDANCES
5/1/2002

N

BLACK ROCK CANAL

NYS THRUWAY (I-190)

(SOUTHBOUND LANE)

(NORTHBOUND LANE)

FORMERLY PENN-CENTRAL/NEW YORK CENTRAL RAILROAD

WEST DELAVAN AVENUE

NIAGARA STREET

1 STY. BRICK BUILDING

2 STY BRICK AND CONC. BLOCK BUILDING

CHEM-CORE 2 STY. BRICK AND CONC. BLOCK BUILDING

SUMP (TYP.)

FORMER PCE TANK

FORMERLY MENTHOLATUM INC. (BRICK BUILDING)

GARRETT LEATHER CORP.

PARKING LOT

~ 600 FEET SOUTH OF MW-12

MW-01S
1,1,1-Trichloroethane, 970 UG/L
1,1-Dichloroethane, 700 UG/L
1,1-Dichloroethene, 170 UG/L
cis-1,2-Dichloroethene, 4800 UG/L
Methylene chloride, 74 UG/L
Tetrachloroethene, 68 UG/L
trans-1,2-Dichloroethene, 33 UG/L
Trichloroethene, 120 UG/L
Vinyl chloride, 1000 UG/L

MW-01D
1,1,1-Trichloroethane, 59 UG/L
1,1-Dichloroethane, 45 UG/L
1,1-Dichloroethene, 10 UG/L
cis-1,2-Dichloroethene, 310 UG/L
Tetrachloroethene, 8 UG/L
Trichloroethene, 18 UG/L
Vinyl chloride, 12 UG/L

MW-05
cis-1,2-Dichloroethene, 9 UG/L
Vinyl chloride, 3 UG/L

MW-04D
Benzene, 2 UG/L

MW-04S

MW-10
Chloroethane, 8 UG/L
cis-1,2-Dichloroethene, 6 UG/L

MW-02
1,1,1-Trichloroethane, 470 UG/L
1,1-Dichloroethane, 730 UG/L
1,1-Dichloroethene, 130 UG/L
Benzene, 52 UG/L
cis-1,2-Dichloroethene, 6600 UG/L
Tetrachloroethene, 550 UG/L
Toluene, 2200 UG/L
trans-1,2-Dichloroethene, 51 UG/L
Trichloroethene, 520 UG/L
Vinyl chloride, 2700 UG/L

PZ-1
1,1,1-Trichloroethane, 25,000 UG/L
1,1-Dichloroethane, 1500 UG/L
1,1-Dichloroethene, 1400 UG/L
Acetone, 1000 UG/L
cis-1,2-Dichloroethene, 23,000 UG/L
Methylene chloride, 3000 UG/L
Tetrachloroethene, 1500 UG/L
Trichloroethene, 16,000 UG/L

MW-14
1,1,1-Trichloroethane, 7700 UG/L
1,1-Dichloroethane, 1400 UG/L
1,1-Dichloroethene, 1000 UG/L
cis-1,2-Dichloroethene, 30,000 UG/L
Tetrachloroethene, 21,000 UG/L
Trichloroethene, 14,000 UG/L
Vinyl chloride, 1900 UG/L

MW-06
1,1,1-Trichloroethane, 3000 UG/L
1,1-Dichloroethane, 4500 UG/L
1,1-Dichloroethene, 530 UG/L
cis-1,2-Dichloroethene, 25,000 UG/L
Toluene, 480 UG/L
Vinyl chloride, 9300 UG/L

MW-09

MW-07
1,1,1-Trichloroethane, 2100 UG/L
1,1-Dichloroethane, 1400 UG/L
1,1-Dichloroethene, 320 UG/L
Chloroform, 180 UG/L
cis-1,2-Dichloroethene, 8500 UG/L
Tetrachloroethene, 880 UG/L
trans-1,2-Dichloroethene, 56 UG/L
Trichloroethene, 4400 UG/L
Vinyl chloride, 2900 UG/L

MW-03
1,1,1-Trichloroethane, 640 UG/L
1,1-Dichloroethene, 140 UG/L
cis-1,2-Dichloroethene, 990 UG/L
Tetrachloroethene, 5400 UG/L
Trichloroethene, 1900 UG/L

MW-11
1,1,1-Trichloroethane, 87 UG/L
1,1-Dichloroethane, 11 UG/L
1,1-Dichloroethene, 11 UG/L
Benzene, 2 UG/L
cis-1,2-Dichloroethene, 110 UG/L
Tetrachloroethene, 160 UG/L
Trichloroethene, 85 UG/L
Vinyl chloride, 14 UG/L

MW-08D
1,1,1-Trichloroethane, 38 UG/L
1,1-Dichloroethane, 210 UG/L
cis-1,2-Dichloroethene, 340 UG/L
trans-1,2-Dichloroethene, 6 UG/L
Trichloroethene, 17 UG/L
Vinyl chloride, 540 UG/L

MW-08S
cis-1,2-Dichloroethene, 93 UG/L
Tetrachloroethene, 75 UG/L
Trichloroethene, 22 UG/L

MW-12
cis-1,2-Dichloroethene, 550 UG/L
Tetrachloroethene, 2300 UG/L
Trichloroethene, 310 UG/L

MW-13S
1,1,2-Trichloro-1,2,2-trifluoroethane, 46 UG/L
cis-1,2-Dichloroethene, 9 UG/L

MW-13D

Legend

- No Compounds Detected
- No Compounds Exceed Criteria
- At Least One Compound Exceeds Criteria

MW-08S
Trichloroethene, 22 UG/L

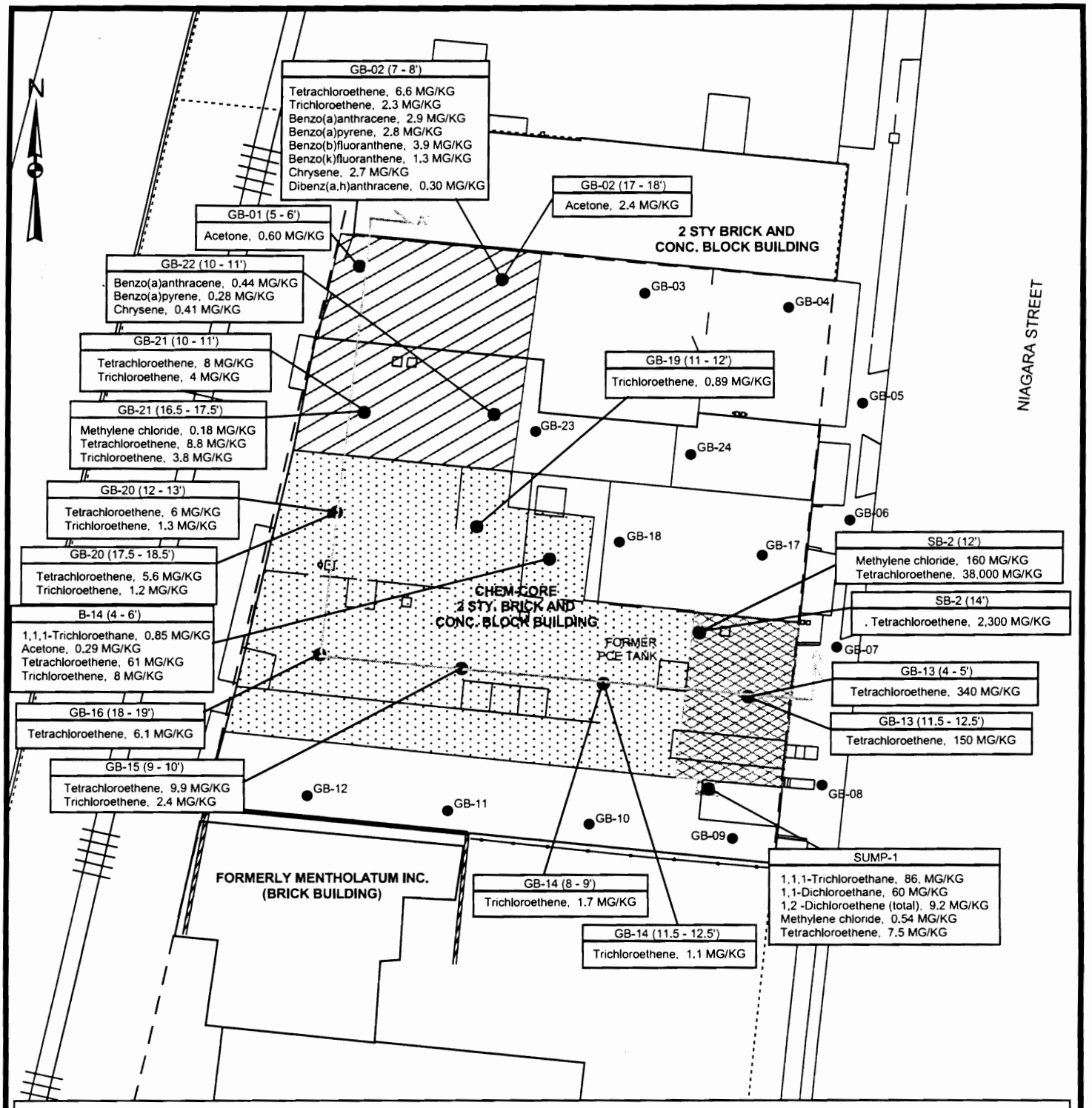
Location ID — Compound Exceeding Criteria — Concentration — Units

60 0 60 Feet

URS

CHEM CORE
GROUNDWATER CONTAMINANTS ABOVE SCGs (2002)

FIGURE 4



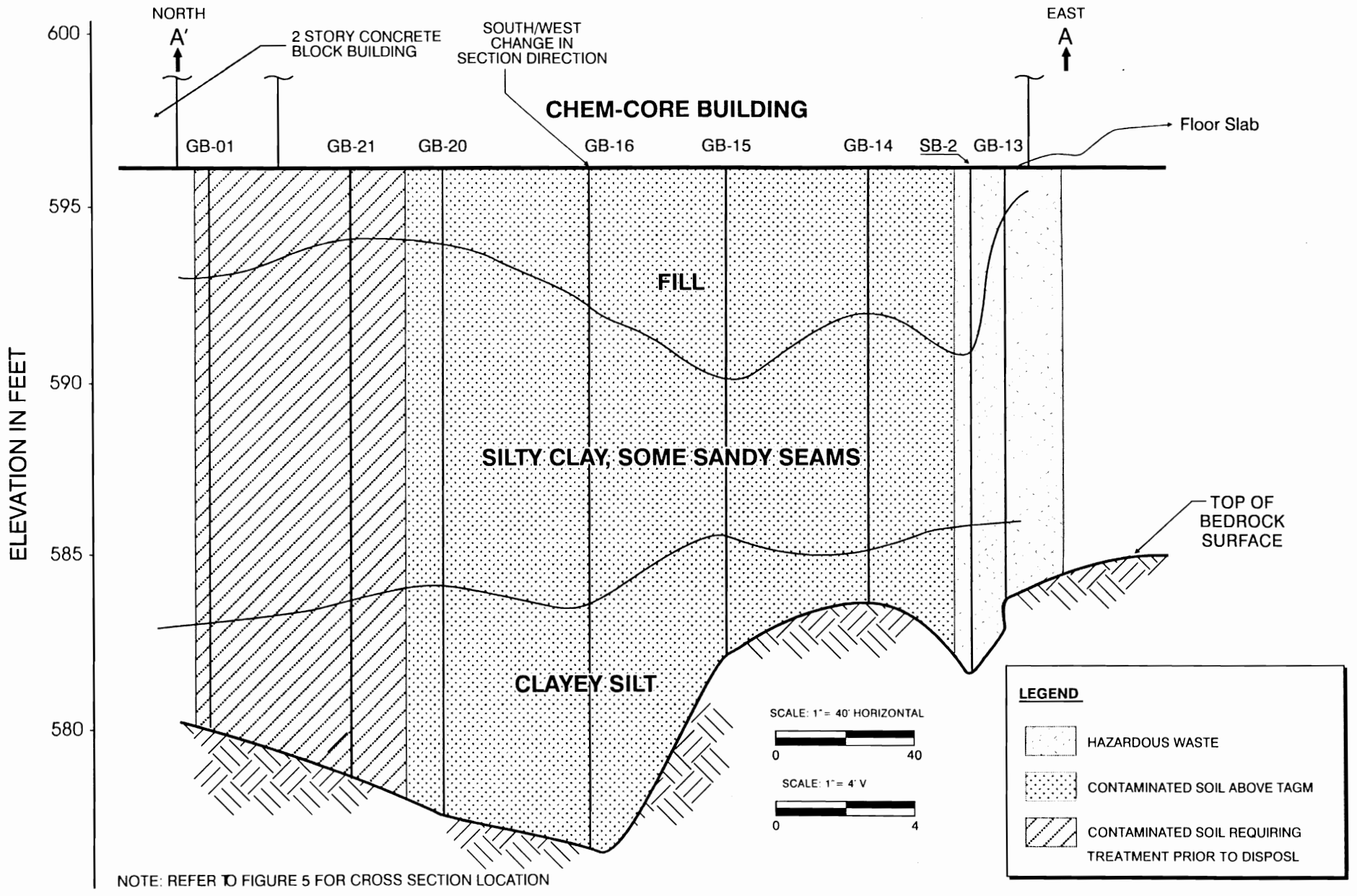
J:\35890.00\GIS\chemical.apr (MG/KG 1-6) CONTAMINATED SOIL
10/29/2002

URS

CHEM CORE
CONTAMINATED SOIL

FIGURE 5

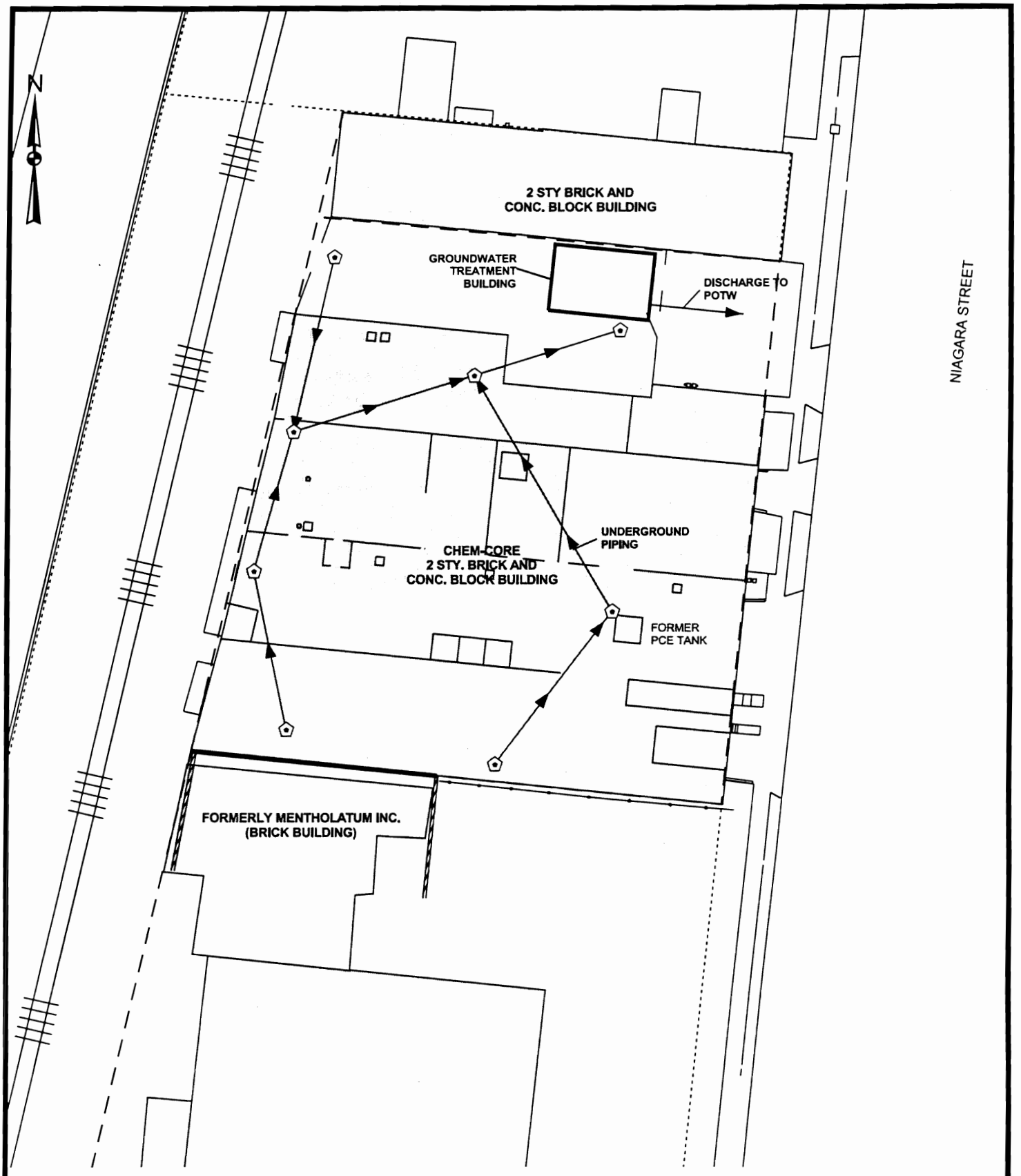
AG17714-35890.00-080902-CYT



URS

CHEM CORE(A-A') CROSS SECTION

FIGURE 6



Legend

⬠ Proposed Pumping Well

40 0 40 Feet

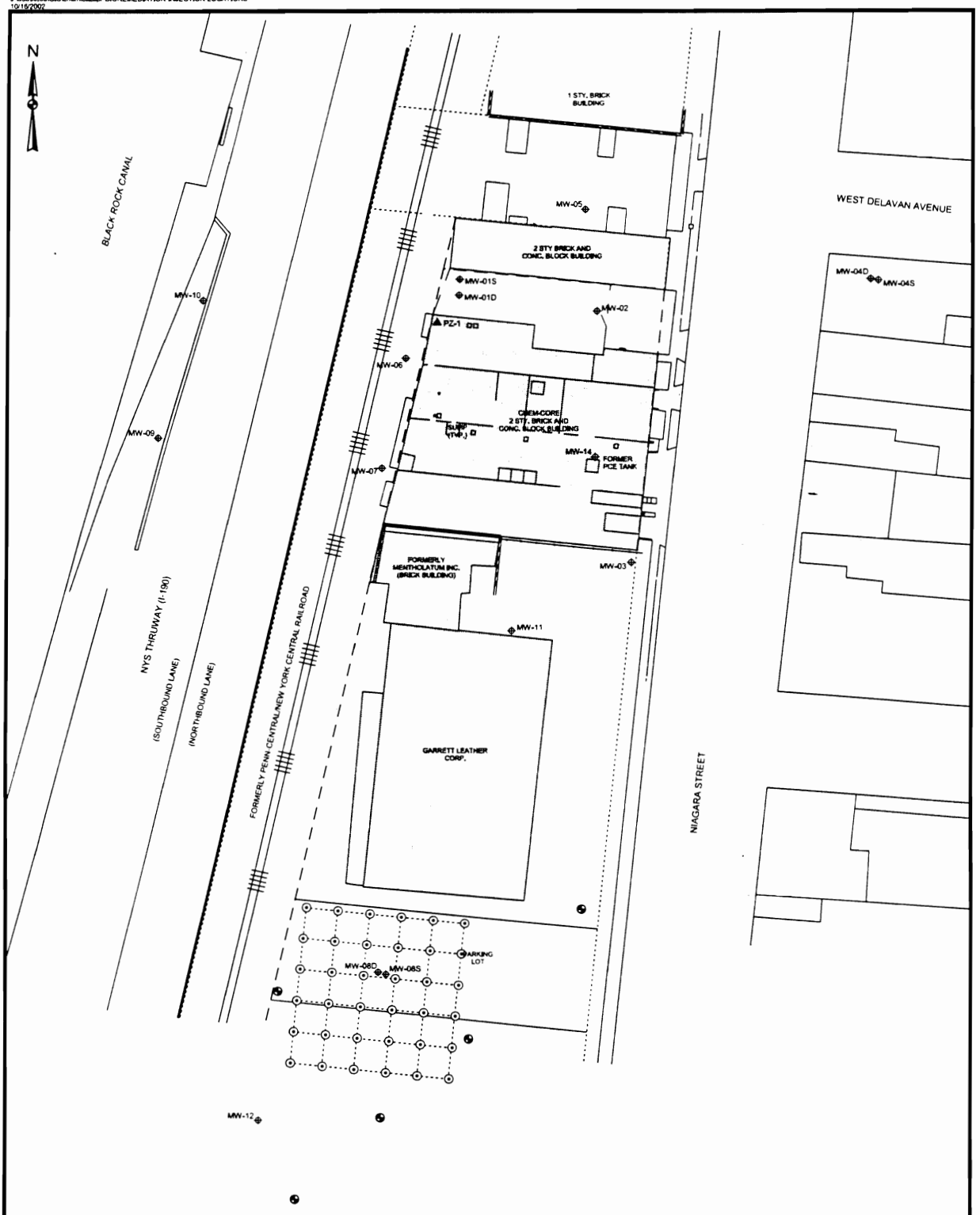
URS

CHEM CORE
CONCEPTUAL GROUNDWATER
EXTRACTION/TREATMENT SYSTEM

FIGURE 7

\35890.00\GIS\chemical.apr CONCEPTUAL GROUNDWATER EXTRACTION SYSTEM
0/16/2002

J:\35890.02\GIS\chemcal.apr BIOREMEDIATION INJECTION LOCATIONS
10/15/2002



Legend

- ⊙ Proposed Bioremediation Injection Location
- Proposed Monitoring Well
- ◆ Existing Monitoring Well
- ▲ Existing Piezometer

60 0 60 Feet

URS	CHEM CORE CONCEPTUAL GROUNDWATER PILOT TEST PLAN FOR IN-SITU BIOREMEDIATION	FIGURE 8

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau E
625 Broadway, 12th Floor, Albany, NY 12233-7017
P: (518) 402-9813 I F: (518) 402-9819
www.dec.ny.gov

January 30, 2020

Mr. Hector Rodriguez
HJM Enterprises, LLC
198 Potomac Avenue, Apt 2
Buffalo, NY 14213

Re: Notice of Recorded Deed Restriction
1382 Niagara St., Buffalo, NY 14213
Section 88.81, Block 1, Lot 5
Site Name: Chemcore, Site No. 915176

Dear Mr. Rodriguez:

The Deed Restriction which you executed on November 21, 2019 was recorded by the Erie County Clerk on January 8, 2020. Attached for your records is a copy of the recording receipt and the Deed Restriction.

Thank you for your cooperation in this matter; please contact me with any questions at (518) 402-9826 or benjamin.rung@dec.ny.gov .

Sincerely,

Benjamin Rung, PE
Project Manager
Remedial Bureau E, Section A

Enclosure

ERIE COUNTY CLERK'S OFFICE

County Clerk's Recording Page

Return to:
FRONTIER ABSTRACT
69 Cascade Drive, Suite 101
Rochester, NY 14614

Party 1:
HJM ENTERPRISES LLC

Party 2:
NEW YORK STATE DEPT OF
ENVIRONMENTAL CONSERVATION

Book Type: D Book: 11355 Page: 2602
Page Count: 6
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COVENANT/DECLAR/RESTRICT
Rec Date: 01/08/2020
Rec Time: 10:29:23 AM
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Trans #: 20204088
Document Sequence Number

Recording Fees:

RECORDING	$50.00
COE CO $1 RET	$1.00
COE STATE $14.25 GEN	$14.25
COE STATE $4.75 RM	$4.75
MARKOFF FEE	$0.50

Consideration Amount:

BASIC MT	$0.00
SONYMA MT	$0.00
ADDL MT/NFTA	$0.00
SP MT/M-RAIL	$0.00
NY STATE TT	$0.00
ROAD FUND TT	$0.00

Total: $70.50

STATE OF NEW YORK
ERIE COUNTY CLERK'S OFFICE

WARNING – THIS SHEET CONSTITUTES THE CLERK'S ENDORSEMENT REQUIRED BY SECTION 319&316-a (5) OF THE REAL PROPERTY LAW OF THE STATE OF NEW YORK. DO NOT DETACH. THIS IS NOT A BILL.

Michael P. Kearns
Erie County Clerk

DECLARATION of COVENANTS and RESTRICTIONS

THIS COVENANT is made the 21 day of NOVEMBER 2019, by HJM Enterprises, LLC, a limited liability company organized and existing under the laws of the State of New York and having an office for the transaction of business at 198 Potomac Avenue Buffalo, NY 14213.

WHEREAS, Chem-Core is the subject of a remedial program performed by the New York State Department of Environmental Conservation (the "Department") , namely that parcel of real property located on 1382 Niagara Street in the City of Buffalo, County of Erie, State of New York, which is part of lands conveyed by City of Buffalo to HJM Enterprises, LLC by deed dated March 20, 2008 and recorded in the Erie County Clerk's Office in Liber and Page Liber No. 11142, Page 2923, and being more particularly described in Appendix "A," attached to this declaration and made a part hereof, and hereinafter referred to as "the Property"; and

WHEREAS, the Department approved a remedy to eliminate or mitigate all significant threats to the environment presented by the contamination disposed at the Property and such remedy requires that the Property be subject to restrictive covenants (the "Remedy".)

NOW, THEREFORE, HJM Enterprises, LLC, for itself and its successors and/or assigns, covenants that:

First, the Property subject to this Declaration of Covenants and Restrictions is as shown on a map attached to this declaration as Appendix "B" and made a part hereof.

Second, unless prior written approval by the Department or, if the Department shall no longer exist, any New York State agency or agencies subsequently created to protect the environment of the State and the health of the State's citizens, hereinafter referred to as "the Relevant Agency," is first obtained, where contamination remains at the Property subject to the provisions of the Site Management Plan ("SMP"), there shall be no construction, use or occupancy of the Property that results in the disturbance or excavation of the Property which threatens the integrity of the engineering controls or which results in unacceptable human exposure to contaminated soils.

Third, the owner of the Property shall not disturb, remove, or otherwise interfere with the installation, use, operation, and maintenance of engineering controls required for the Remedy, which are described in the SMP, unless in each instance the owner first obtains a written waiver of such prohibition from the Department or Relevant Agency.

Fourth, the owner of the Property shall prohibit the Property from ever being used for purposes other than for Commercial or Industrial use without the express written waiver of such prohibition by the Department or Relevant Agency.

[06/14]

005844
MP 774-5-1

Fifth, the owner of the Property shall prohibit the use of the groundwater underlying the Property without treatment to render it safe for drinking water or for industrial purposes, as appropriate, and the user must first notify and obtain written approval to do so from the Department or Relevant Agency.

Sixth, the owner of the Property shall provide a periodic certification, prepared and submitted by a professional engineer or environmental professional acceptable to the Department or Relevant Agency, which will certify that the institutional and engineering controls put in place are unchanged from the previous certification, comply with the SMP, and have not been impaired.

Seventh, the owner of the Property shall continue in full force and effect any institutional and engineering controls required for the Remedy and maintain such controls, unless the owner first obtains permission to discontinue such controls from the Department or Relevant Agency, in compliance with the approved SMP, which is incorporated and made enforceable hereto, subject to modifications as approved by the Department or Relevant Agency.

Eighth, this Declaration is and shall be deemed a covenant that shall run with the land and shall be binding upon all future owners of the Property, and shall provide that the owner and its successors and assigns consent to enforcement by the Department or Relevant Agency of the prohibitions and restrictions that the Department or Relevant Agency requires to be recorded, and the owner and its successors and assigns hereby covenant not to contest the authority of the Department or Relevant Agency to seek enforcement.

Ninth, any deed of conveyance of the Property, or any portion thereof, shall recite, unless the Department or Relevant Agency has consented to the termination of such covenants and restrictions, that said conveyance is subject to this Declaration of Covenants and Restrictions.

IN WITNESS WHEREOF, the undersigned has executed this instrument the day written below.

By: Hector Rodriguez

Print Name: HECTOR RODRIGUEZ

Title: PRESIDENT Date: 11/21/19

HJM ENTERPRISES LLC

[06/14]

STATE OF NEW YORK)

) s.s.:

COUNTY OF Erie)

On the 25 day of November, in the year 2019, before me, the undersigned, personally appeared Hector Rodriguez, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public State of New York

MAYRA G. SEIN ROSA
Notary Public, State of New York
Qualified in Erie County
Reg. No. 01SE6381833
My Commission Expires 10/09/2022

Mayra G. Sein Rosa
Notary Public, State of New York
Qualified in Erie County
Com Exp. 10.9.2022

R+R
Frontier Abstract
129 Cascade Dr Ste 101
Rochester NY 14614

[06/14]

Appendix A

Real Property Description

ALL THAT TRACT OR PARCEL OF LAND situate in the City of Buffalo, County of Erie and State of New York and being part of Lots Nos. 11 and 12 of the Stevens Survey, bounded and described as follows:

Beginning at a point in the westerly line of Niagara Street distant 62 feet southerly from the intersection of the westerly line of Niagara Street with the southerly line of West Delavan Avenue; thence southerly along the westerly line of Niagara Street 135.56 feet to a point therein distant 233.69 feet northerly from the northerly line of Brace Street as measured along the westerly line of Niagara Street; thence westerly at right angles to the westerly line of Niagara Street 159.78 feet to the Penn-Central Railroad land; thence northerly along said Penn-Central Railroad lands, 135.42 feet to a point in a line drawn parallel with the southerly line of West Delavan Avenue and distant 62 feet southerly therefrom as measured at right angles thereto; thence easterly parallel with the southerly line of West Delavan 142.45 feet to the westerly line of Niagara Street at the point or place of beginning.

Appendix B

ChemCore Site Site
No. 915176

NEW YORK STATE OF OPPORTUNITY
Department of Environmental Conservation

APPENDIX B

Post Excavation Sampling Results and Evaluation of Post-Treatment Groundwater Data for Samples Collected August 2015

EMPIRE GEO SERVICES, INC.
A SUBSIDIARY OF SJB SERVICES, INC.

CORPORATE/ BUFFALO OFFICE
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716)-649-8110
Fax: (716) 649-8051

ALBANY OFFICE
P.O. Box 2199
Ballston Spa, NY 12020

5 Knabner Road
Mechanicville, NY 12118
Phone: (518) 899-7491
Fax: (518) 899-7496

CORTLAND OFFICE
60 Miller Street
Cortland, NY 13045
Phone: (607) 758-7182
Fax: (607) 758-7188

ROCHESTER OFFICE
535 Summit Point Drive
Henrietta, NY 14467
Phone: (585) 359-2730
Fax: (585) 359-9668

January 14, 2016
Empire Project No. BEV-08-048A

New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, New York 12233-7013

Phone: 716-851-7220
Fax: 716-851-7226

Attention: Benjamin Rung, P.E.

Reference: Evaluation of Post-Treatment Groundwater Data
For Samples Collected August, 2015
Chemcore Site
1382 Niagara Street, Buffalo, New York
NYSDEC Site No. 915176

Dear Mr. Rung:

As requested by the New York State Department of Environmental Conservation (NYSDEC), Empire GeoServices, Inc. (Empire) has evaluated analytical data for the groundwater samples collected during August, 2015 at the Chemcore site in Buffalo, New York. The recent groundwater data are compared to previous groundwater data collected during the past few years.

BACKGROUND

Groundwater sampling and analysis of onsite and offsite monitoring wells have been periodically completed during the past several years to monitor volatile organic compound (VOC) concentrations. As directed by the NYSDEC, Empire injected Edible Oil Substrate (EOS^{TM}), a bioremediation compound, into three onsite infiltration galleries and selected onsite and offsite monitoring wells during recent years. The purpose of the injection was to stimulate bio-degradation of chlorinated VOCs present in groundwater. The first injection was completed in November 2011, the second injection was completed in August 2012, the third injection was completed August to September 2013, and the most recent injection was completed in February 2015. Empire collected groundwater samples during August 2015, approximately six months after the February 2015 EOS injection, to obtain an indication of its effectiveness.

For the February 2015 EOS injection, the compound was mixed with water at the ratio of 1:1 and injected into the three infiltration galleries, and five onsite monitoring wells (MW-3, MW-6, MW-7, MW-21, and MW-22). Each infiltration gallery and monitoring wells MW-21 and MW-22 received one drum of the compound diluted appropriately. Monitoring wells MW-3 and MW-7 each received two drums of the compound diluted appropriately. It was planned to place two drums of EOS into monitoring well MW-6, but since the infiltration rate was extremely slow, MW-6 only received the amount of diluted compound that filled the well casing to the surface. The remainder of the two drums of compound was distributed equally between the three infiltration galleries, as directed by NYSDEC.

GROUNDWATER SAMPLING AND ANALYSIS

Empire collected groundwater samples from selected monitoring wells during August 2015. Three standing well volumes were purged from each well prior to sampling. If the well went dry during purging, the well was allowed to recover prior to sampling. The groundwater samples were analyzed by TestAmerica Laboratories, Inc. in Amherst, New York for Target Compound List (TCL) VOCs, under contract to the NYSDEC. TestAmerica's analytical report is attached. The sampled wells included MW-3, MW-6, MW-7, MW-8S, MW-8D, MW-11, MW-12, MW-13S, MW-13D, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, and MW-22. Monitoring wells MW-9 and MW-10 were not sampled during the August 2015 sampling event, as directed by NYSDEC.

The attached figure indicates the well locations and includes data tables of individual VOC concentrations in groundwater for 2009 – 2015.

GROUNDWATER DATA EVALUATION

Empire compared the August 2015 post-injection groundwater monitoring data to the May 2014, April 2013, April-May 2012, and July 2011 data for cis-1,2-Dichloroethene (DCE), tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride (VC). These data are summarized below.

DCE

(All concentrations in ppb)

(ND = not detected; ns = not sampled)

Well No.	July 2011	April-May 2012	April 2013	May 2014	August 2015	Change
MW-3	16,000	4,300	210	160	ND	Overall Decrease
MW-6	27,000	3,300	240	2,900	310	Overall Decrease
MW-7	2.9	6.1	77	45	4.8	Continuing Recent Decreasing Trend
MW-8S	ND	ns	ns	ND	ND	Unchanged
MW-8D	0.91	ns	ns	0.2	ND	Overall Decrease
MW-9	ND	ND	ND	ND	ns	Unchanged
MW-10	ND	ND	ND	ND	ns	Unchanged
MW-11	1,600	29	200	2.4	6.3	Overall Decrease
MW-12	5,000	ns	ns	ND	ND	Overall Decrease
MW-13D	ND	ND	1.8	ND	ND	Overall Decrease
MW-13S	3.4	25	12	ND	ND	Overall Decrease
MW-16	66	ns	ns	ND	ND	Overall Decrease
MW-17	ns	ns	ns	ND	ND	Unchanged
MW-18	2	ns	ns	ND	ND	Overall Decrease
MW-19	64	ns	ns	ND	ND	Overall Decrease
MW-20	1,200	1,700	6,200	650	1,200	Overall Unchanged
MW-21	2,000	850	1,200	2,300	1,900	Overall Decrease
MW-22	3,700	750	280	5,100	1,900	Overall Decrease

DCE concentrations in groundwater slightly decreased at four (4) locations (MW-3, MW-6, MW-21, and MW-22) relative to the May 2014 sampling event. Significant concentration decreases were observed at two (2) locations (MW-7 and MW-8D) relative to the May 2014 sampling event. A significant concentration increase was noted at one (1) location (MW-20). A slight concentration increase was observed at one (1) location (MW-11). DCE was not detected at 10 locations (MW-3, MW-8S, MW-8D, MW-12, MW-13D, MW-13S, MW-16, MW-17, MW-18, and MW-19). Although increases in DCE concentrations were obtained in two wells, most of the wells showed decreasing or unchanged concentrations comparing May 2014 data to August 2015 data.

Monitoring wells MW-9 and MW-10 were not sampled during the August 2015 sampling event.

PCE

(All concentrations in ppb)

(ND = not detected; ns = not sampled)

Well No.	July 2011	April-May 2012	April 2013	May 2014	August 2015	Change
MW-3	170	360	550	180	ND	Overall Decrease
MW-6	1	ND	ND	360	ND	Overall Decrease
MW-7	6	4.8	34	590	3.6	Overall Decrease
MW-8S	0.61	ns	ns	19	1	Overall Increase
MW-8D	ND	ns	ns	3.9	0.77	Overall Increase
MW-9	ND	ND	ND	ND	ns	Unchanged
MW-10	ND	ND	ND	ND	ns	Unchanged
MW-11	170	ND	ND	72	ND	Overall Decrease
MW-12	300	ns	ns	5.4	87	Overall Decrease
MW-13D	ND	ND	1.0	ND	0.4	Overall Decrease
MW-13S	3.1	4.1	3.0	3.4	2.5	Overall Decrease
MW-16	ND	ns	ns	ND	14	Overall Increase
MW-17	ns	ns	ns	ND	ND	Unchanged
MW-18	ND	ns	ns	ND	ND	Unchanged
MW-19	2.4	ns	ns	1.3	47	Overall Increase
MW-20	1,200	130	140	320	58	Overall Decrease
MW-21	580	2,500	46	1,800	850	Overall Increase
MW-22	ND	ND	79	1,700	1,300	Overall Increase

PCE concentrations in groundwater slightly decreased at three (3) locations (MW-8S, MW-8D, and MW-13S) relative to the May 2014 sampling event. Significant concentration decreases were observed at seven (7) locations (MW-3, MW-6, MW-7, MW-11, MW-20, MW-21, and MW-22) relative to the May 2014 sampling event. Slight concentration increases were observed at four (4) locations (MW-12, MW-13D, MW-16, and MW-19). PCE concentrations were not detected at five (5) locations (MW-3, MW-6, MW-11, MW-17, and MW-18). Although slight increases in PCE concentrations were obtained in four wells, most of the wells showed decreasing or unchanged concentrations comparing May 2014 data to August 2015 data.

Monitoring wells MW-9 and MW-10 were not sampled during the August 2015 sampling event.

TCE

(All concentrations in ppb)

(ND = not detected; ns = not sampled)

Well No.	July 2011	April-May 2012	April 2013	May 2014	August 2015	Change
MW-3	2,000	900	280	97	ND	Overall Decrease
MW-6	5.8	ND	45	450	ND	Overall Decrease
MW-7	3.9	3.3	10	36	5.4	Overall Increase
MW-8S	ND	ns	ns	ND	ND	Unchanged
MW-8D	ND	ns	ns	ND	ND	Unchanged
MW-9	ND	ND	ND	ND	ns	Unchanged
MW-10	ND	ND	ND	ND	ns	Unchanged
MW-11	200	ND	ND	ND	0.62	Overall Decrease
MW-12	35	ns	ns	ND	11	Overall Decrease
MW-13D	ND	ND	0.53	ND	ND	Overall Unchanged
MW-13S	2.1	3.5	2.3	ND	11	Overall Increase
MW-16	ND	ns	ns	ND	ND	Unchanged
MW-17	ns	ns	ns	ND	0.7	Overall Increase
MW-18	ND	ns	ns	ND	ND	Unchanged
MW-19	1.1	ns	ns	ND	5.3	Overall Increase
MW-20	830	210	510	24	70	Overall Decrease
MW-21	95	850	29	1,700	2,600	Overall Increase
MW-22	ND	15	260	4,000	2,500	Overall Increase

TCE concentrations in groundwater slightly decreased at one (1) location (MW-7) relative to the May 2014 sampling event. Significant concentration decreases were observed at three (3) locations (MW-3, MW-6 and MW-22) relative to the May 2014 sampling event. Slight concentration increases were observed at six (6) locations (MW-11, MW-12, MW-13S, MW-17, MW-19, and MW-20). A significant concentration increase was observed at one (1) location (MW-21). TCE concentrations were not detected at seven (7) locations (MW-3, MW-6, MW-8S, MW-8D, MW-13D, MW-16, and MW-18). Although a few increases in TCE concentrations were obtained, most of the wells showed decreasing or unchanged concentrations comparing May 2014 data to August 2015 data.

Monitoring wells MW-9 and MW-10 were not sampled during the August 2015 sampling event.

VC

(All concentrations in ppb)

(ND = not detected; NS = not sampled)

Well No.	July 2011	April-May 2012	April 2013	May 2014	August 2015	Change
MW-3	3,700	2,400	39	330	ND	Overall Decrease
MW-6	14,000	5,300	160	1,300	140	Overall Decrease
MW-7	ND	ND	26	9	1.2	Overall Increase
MW-8S	ND	ns	ns	ND	ND	Unchanged
MW-8D	1.8	ns	ns	1.8	ND	Overall Decrease
MW-9	ND	ND	ND	ND	ns	Unchanged
MW-10	ND	ND	ND	ND	ns	Unchanged
MW-11	1,900	30	77	ND	7.6	Overall Decrease
MW-12	220	ns	ns	250	230	Overall Increase
MW-13D	ND	1.2	3.3	1.2	1.4	Overall Increase
MW-13S	ND	3.0	2.8	2.5	190	Overall Increase
MW-16	150	ns	ns	130	190	Overall Increase
MW-17	ns	ns	ns	1.2	4.1	Overall Increase
MW-18	2.9	ns	ns	ND	2	Overall Decrease
MW-19	110	ns	ns	4	20	Overall Decrease
MW-20	350	1,300	3,400	35	860	Overall Increase
MW-21	6,900	1,300	1,400	3,700	850	Overall Decrease
MW-22	1,200	230	41	1,500	2,300	Overall Increase

VC concentrations in groundwater slightly decreased at three (3) locations (MW-7, MW-8D and MW-12) relative to the May 2014 sampling event. Significant concentration decreases were observed at three (3) locations (MW-3, MW-6, and MW-21) relative to the May 2014 sampling event. Slight concentration increases were observed at six (6) locations (MW-11, MW-13D, MW-16, MW-17, MW-18, and MW-19). Significant concentration increases were observed at three (3) locations (MW-13S, MW-20, and MW-22). VC concentrations were not detected at three (3) locations (MW-3, MW-8S, and MW-8D). Increases in VC concentrations were obtained in nine wells and the remaining wells showed decreasing or unchanged concentrations comparing May 2014 data to August 2015 data.

Monitoring wells MW-9 and MW-10 were not sampled during the August 2015 sampling event.

DISCUSSION

Overall, decreasing VOC groundwater concentrations continued in some of the sampled monitoring wells. Where indicated, increasing VOC concentrations may be due to seasonal variations or other factors. Some locations experienced a decrease in one or more VOC concentrations after the second or third injection of EOS. Table 1 (attached) includes the groundwater results from 2002 through 2015.

CLOSING

This report has been prepared for the exclusive use of New York State Department of Environmental Conservation for the specific application to the referenced site in accordance with generally accepted environmental practices. If you have any questions or we can provide further assistance, please contact our office at (716) 649-8110.

Respectfully submitted,
EMPIRE GEOSERVICES, INC.

Andrew Koons
Staff Geologist

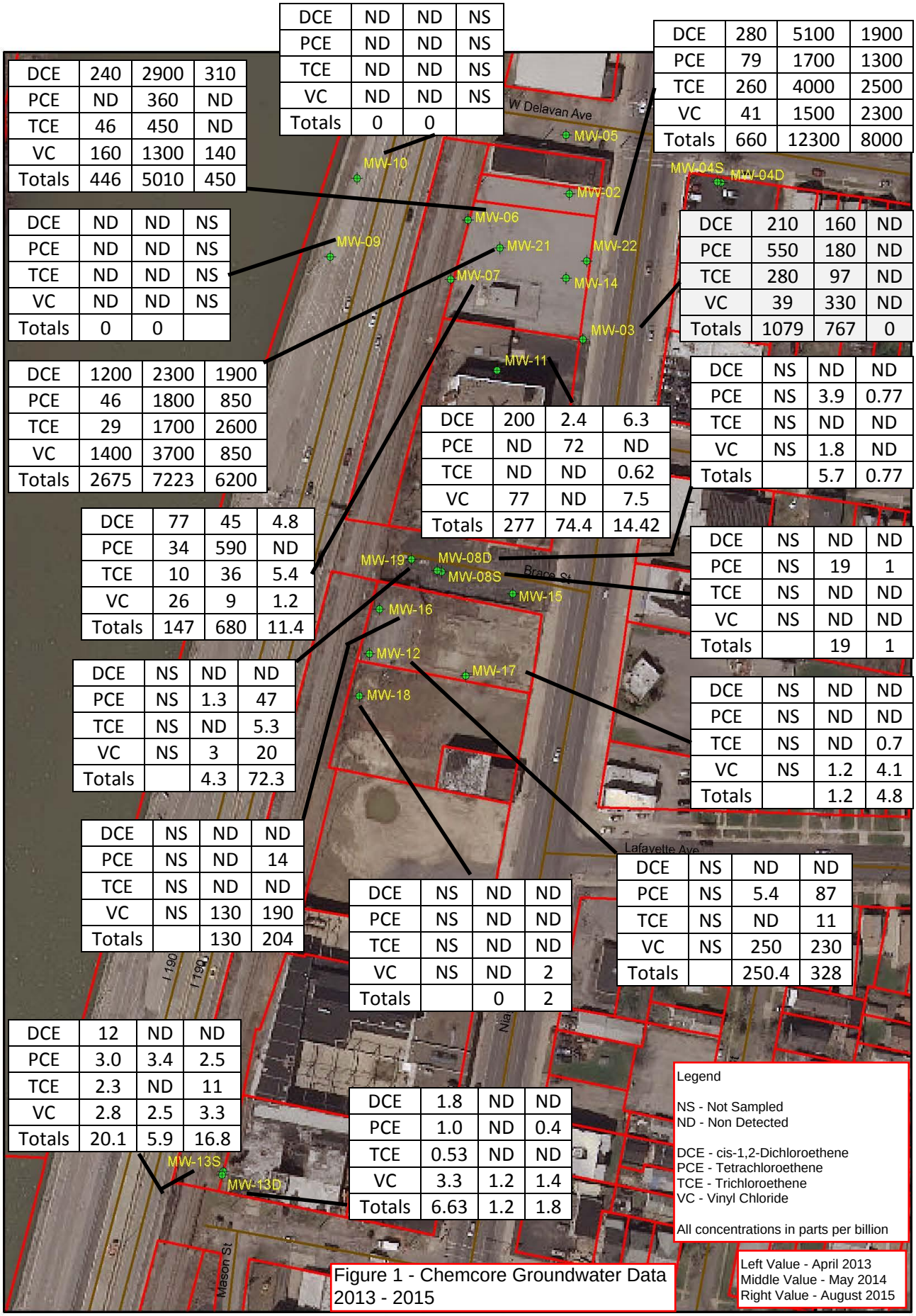
David R. Steiner
Senior Engineering Geologist
Environmental Services Manager

Attachments:

Figure – Well Locations and VOC Concentrations in Groundwater

Table 1 - VOC Concentrations 2002 to 2015

TestAmerica, Inc. Laboratory Reports



DCE	240	2900	310
PCE	ND	360	ND
TCE	46	450	ND
VC	160	1300	140
Totals	446	5010	450

DCE	ND	ND	NS
PCE	ND	ND	NS
TCE	ND	ND	NS
VC	ND	ND	NS
Totals	0	0	

DCE	280	5100	1900
PCE	79	1700	1300
TCE	260	4000	2500
VC	41	1500	2300
Totals	660	12300	8000

DCE	ND	ND	NS
PCE	ND	ND	NS
TCE	ND	ND	NS
VC	ND	ND	NS
Totals	0	0	

DCE	210	160	ND
PCE	550	180	ND
TCE	280	97	ND
VC	39	330	ND
Totals	1079	767	0

DCE	1200	2300	1900
PCE	46	1800	850
TCE	29	1700	2600
VC	1400	3700	850
Totals	2675	7223	6200

DCE	200	2.4	6.3
PCE	ND	72	ND
TCE	ND	ND	0.62
VC	77	ND	7.5
Totals	277	74.4	14.42

DCE	NS	ND	ND
PCE	NS	3.9	0.77
TCE	NS	ND	ND
VC	NS	1.8	ND
Totals		5.7	0.77

DCE	77	45	4.8
PCE	34	590	ND
TCE	10	36	5.4
VC	26	9	1.2
Totals	147	680	11.4

DCE	NS	ND	ND
PCE	NS	19	1
TCE	NS	ND	ND
VC	NS	ND	ND
Totals		19	1

DCE	NS	ND	ND
PCE	NS	1.3	47
TCE	NS	ND	5.3
VC	NS	3	20
Totals		4.3	72.3

DCE	NS	ND	ND
PCE	NS	ND	ND
TCE	NS	ND	0.7
VC	NS	1.2	4.1
Totals		1.2	4.8

DCE	NS	ND	ND
PCE	NS	ND	14
TCE	NS	ND	ND
VC	NS	130	190
Totals		130	204

DCE	NS	ND	ND
PCE	NS	ND	ND
TCE	NS	ND	ND
VC	NS	ND	2
Totals		0	2

DCE	NS	ND	ND
PCE	NS	5.4	87
TCE	NS	ND	11
VC	NS	250	230
Totals		250.4	328

DCE	12	ND	ND
PCE	3.0	3.4	2.5
TCE	2.3	ND	11
VC	2.8	2.5	3.3
Totals	20.1	5.9	16.8

DCE	1.8	ND	ND
PCE	1.0	ND	0.4
TCE	0.53	ND	ND
VC	3.3	1.2	1.4
Totals	6.63	1.2	1.8

Legend

NS - Not Sampled
ND - Non Detected

DCE - cis-1,2-Dichloroethene
PCE - Tetrachloroethene
TCE - Trichloroethene
VC - Vinyl Chloride

All concentrations in parts per billion

Left Value - April 2013
Middle Value - May 2014
Right Value - August 2015

Figure 1 - Chemcore Groundwater Data 2013 - 2015

Chemcore Site

TABLE 1

[All concentrations in ppb]

Well No.	DCE											PCE										
	2002	2004	Apr. 09	Jul. 09	Oct. 09	Feb. 10	Jul. 11	Apr. 12	Apr. 13	May 2014	Aug 2015	2002	2004	Apr. 09	Jul. 09	Oct. 09	Oct. 10	Jul. 11	Apr. 12	Apr.13	May 2014	Aug 2015
MW-3	990	170	10000	4900	9600	18000	16000	4300	210	160	ND	5400	2000	410	1100	ND	16	170	360	550	180	ND
MW-5	9	6	97	81	97	14	4.5					ND	ND	ND	ND	ND	ND	ND				
MW-6	25000	27000	13000	14000	13000	12000	27000	3300	240	2900	310	ND	29	ND	ND	ND	ND	1	ND	ND	360	ND
MW-7	8500	7000	11	15	28	39	2.9	6.1	77	45	4.8	880	360	12	11	19	26	6	4.8	34	590	3.6
MW-9				ND			ND		ND	ND					ND			ND		ND	ND	
MW-10				ND		ND	ND		ND	ND					ND		ND	ND		ND	ND	
MW-11	110	420	650	66	100	2000	1600	29	200	2.4	6.3	160	340	290	19	27	58	170	ND	ND	72	ND
MW-15		62	1	ND	ND	0.74	1.4						53	ND	ND	ND	ND	0.72				
MW-20			31	1600	12000	110	1200	1700	6200	650	1200			ND	160	ND	0.66	1200	130	140	320	58
MW-21			ND	6.3	87	14	2000	850	1200	2300	1900			ND	2.1	5.7	ND	580	2500	46	1800	850
MW-22			16000	14000	7400	3400	3700	750	280	5100	1900			ND	50	ND	6.9	ND	ND	79	1700	1300
MW-14	30000	4900										21000	5600									
MW-1S	4800	2100										68	84									
MW-1D	310	49										8	ND									
MW-2	6600	5300										550	5700									
MW-8S	93	140				0.74	ND			ND	ND	75	180				ND	0.61			19	1
MW-8D	340	ND				0.58	0.91			0.2	ND	ND	ND				ND	ND			3.9	0.77
MW-12	550	410			3000	3100	5000			ND	ND	2300	1400			ND	4.6	300			5.4	87
MW-13S	9	39	11	8.2	6.7	3.7	3.4	25	12	ND	ND	ND	ND	3.7	4.4	3.7	4.3	3.1	4.1	3.0	3.4	2.5
MW-13D	ND	ND	1.3	0.4	0.46	0.71	ND	ND	1.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.0	ND	0.4
MW-16					390	160	66			ND	ND					ND	ND	ND			ND	14
MW-17										ND	ND										ND	ND
MW-18						5.7	2			ND	ND						ND	ND			ND	ND
MW-19						110	64			ND	ND						ND	2.4			1.3	47

Well No.	TCE											VC										
	2002	2004	Apr. 09	Jul. 09	Oct. 09	Oct. 10	Jul. 11	Apr. 12	Apr. 13	May 2014	Aug 2015	2002	2004	Apr. 09	Jul. 09	Oct. 09	Oct. 10	Jul. 11	Apr. 12	Apr. 13	May 2014	Aug 2015
MW-3	1900	390	1200	1200	280	790	2000	900	280	97	ND	ND	9	2100	760	3700	7000	3700	2400	39	330	ND
MW-5	ND	ND	1.1	ND	1.5	ND	ND					3	ND	61	84	99	28	6.9				
MW-6	ND	130	ND	5	ND	3.8	5.8	ND	46	450	ND	9300	5900	8600	8900	11000	11000	14000	5300	160	1300	140
MW-7	4400	480	11	17	21	26	3.9	3.3	10	36	5.4	2900	2200	ND	0.83	5.9	9.2	ND	ND	26	9	1.2
MW-9				ND			ND		ND	ND					ND			ND		ND	ND	
MW-10				ND		ND	ND		ND	ND					ND		ND	ND		ND	ND	
MW-11	85	240	290	44	33	38	200	ND	ND	ND	0.62	14	120	ND	1.4	34	1000	1900	30	77	ND	7.6
MW-15		10	0.86	ND	ND	ND	6.3						ND	ND	ND	ND	ND	ND				
MW-20			0.79	330	ND	1.3	830	210	510	24	70			54	920	5100	93	350	1300	3400	35	860
MW-21			ND	5.8	17	0.82	95	850	29	1700	2600			270	6.8	120	23	6900	1300	1400	3700	850
MW-22			ND	210	ND	7.7	ND	15	260	4000	2500			3000	4800	11000	8400	1200	230	41	1500	2300
MW-14	14000	3800										1900	410									
MW-1S	120	170										1000	590									
MW-1D	18	ND										12	11									
MW-2	520	5400										2700	2300									
MW-8S	22	30				ND	ND			ND	ND	ND	5				ND	ND			ND	ND
MW-8D	17	ND				ND	ND			ND	ND	540	13				0.51	1.8			1.8	ND
MW-12	310	300			ND	1.1	35			ND	11	ND	3			650	920	220			250	230
MW-13S	ND	ND	2.8	3.3	3.2	2.2	2.1	3.5	2.3	ND	11	ND	4	ND	1.1	0.82	ND	ND	3.0	2.8	2.5	3.3
MW-13D	ND	ND	ND	ND	ND	ND	ND	ND	0.53	ND	ND	ND	ND	ND	0.39	0.45	ND	ND	1.2	3.3	1.2	1.4
MW-16					ND	ND	ND			ND	ND					140	120	150			130	190
MW-17										ND	0.7										1.2	4.1
MW-18						ND	ND			ND	ND						3.6	2.9			ND	2
MW-19						ND	1.1			ND	5.3						62	110			3	20

Highlighted values exceed NYSDEC groundwater standards

APPENDIX C

Excavation Work Plan

APPENDIX C – EXCAVATION WORK PLAN

C-1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the Site owner or their representative will notify the NYSDEC. Currently, this notification will be made to:

Brianna Scharf, Project Manager
NYSDEC Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7017
Phone: (518) 402-5987
E-mail: Brianna.Scharf@dec.ny.gov

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent, plans for Site re-grading, intrusive elements, or utilities to be installed below the ground surface, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control;
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this Excavation Work Plan (EWP);
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the Contractor's Health and Safety Plan (HASP), in electronic format, if it differs from the HASP Addendum provided as Appendix F of this SMP;
- A copy of the Contractor's Community Air Monitoring Plan (separate plan, not embedded in the HASP), prepared in accordance with NYSDEC DER-10 / Technical Guidance for Site Investigation and Remediation (DER-10);
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

C-2 SOIL SCREENING METHODS

Prior to intrusive soil screening, on-Site utilities shall be field located and appropriate notifications to public utility locating services shall be made. Soil screening is to take place prior to any excavation or disposal of soil from within the Site boundaries. Soil boring methods or test pit methods may be used to screen soils in advance of excavation. Soil samples shall be collected at a minimum of 5-6 per 500 yd^3 of planned soil excavation (per NYSDEC DER-10, Table 5.4(e)10) and analyzed for volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (EPA) Method 8260 or per the disposal facility's requirements, if applicable.

Visual, olfactory, and instrument-based soil screening will be performed by a qualified environmental professional during all remedial and development excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after completion of the RA.

Soils will be segregated based on previous environmental data and screening results into materials that require off-Site disposal, materials that require testing, materials that can be returned to the subsurface, and materials that can be used as cover soil.

C-3 STOCKPILE METHODS

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay or straw bales will be used as needed near catch basins, surface waters, and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by the New York State Department of Environmental Conservation (NYSDEC).

C-4 MATERIALS EXCAVATION AND LOAD OUT

Surface features such as asphalt or concrete shall be saw-cut, removed, and stockpiled prior to excavation of underlying soil. Surficial stone shall also be removed prior to excavation of underlying soil. Excavated underlying soil shall be stockpiled separate from asphalt, concrete, stone, or other debris prior to load out. Excavations left open overnight or longer shall be surrounded by temporary construction fencing. A qualified environmental professional or person under their supervision will oversee all invasive work, and the excavation and load-out of all excavated material. The owner of the Property and its contractors are solely responsible for safe execution of all invasive and other work performed under this Excavation Work Plan. The contractor shall prepare and implement a Community Air Monitoring Plan (CAMP) in accordance

with DER-10. The CAMP shall be implemented on a full-time basis during any and all ground intrusive work at the Site.

The presence of utilities and easements on the Site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the Site.

Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and New York State Department of Transportation requirements (and all other applicable transportation requirements).

If Site conditions during excavation activities require that trucks drive over bare soil, a truck wash will be operated on-Site. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at a truck wash before leaving the Site until the activities performed under this section are complete. Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-Site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the Site are clean of dirt and other materials derived from the Site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

C-5 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the Site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

All trucks will be washed prior to leaving the Site if necessary. Truck wash waters will be collected and disposed of off-Site in an appropriate manner.

Trucks leaving the Site shall head south on Niagara Street, to Busti Avenue, and to I-190 south for south-bound disposal facilities. Trucks leaving the Site shall head north on Niagara Street, and enter I-190 north at the Ontario Street interchange for north-bound disposal facilities.

APPENDIX D

Template Inspection and Monitoring Forms

SITE-WIDE INSPECTION **Day: _____ Date: _____**

NYSDEC		Temperature: (F)	F	(am)	F	(pm)
Site Owner: _____ **Current Site Use: _____**		Wind Direction/Speed:		(am)		(pm)
CHEM-CORE SITE **NYSDEC Site # 915176**		Weather:	(am) (pm)			
Buffalo, New York		Arrive at site		(am)		
		Leave site:		(pm)		

Site Security

Evidence of vandalism (fence, gate, wells):

Evidence of digging:

General site condition (fence, gate, wells, vegetative cover):

Additional Comments:

SITE-WIDE INSPECTION **Day: _____ Date: _____**

Vegetative Cover

Evidence of vegetation mortality:

Evidence of erosion/dust:

Additional Comments:

Site Drainage

Evidence of ponding within retention area:

Evidence of site runoff:

Additional Comments:
Site Monitoring Wells
Are there any new cracks in the concrete collars of the site related MWs?
Are monitoring wells locked?
Do monitoring wells have caps?
Are the private wells operational?

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME		LOCATION ID	DATE
PROJECT NUMBER		START TIME	END TIME
SAMPLE ID	SAMPLE TIME	SITE NAME/NUMBER	PAGE OF

WELL DIAMETER (INCHES) ☐ 1 ☐ 2 ☐ 4 ☐ 6 ☐ 8 ☐ OTHER _____

TUBING ID (INCHES) ☐ 1/8 ☐ 1/4 ☐ 3/8 ☐ 1/2 ☐ 5/8 ☐ OTHER _____

MEASUREMENT POINT (MP) ☐ TOP OF RISER (TOR) ☐ TOP OF CASING (TOC) ☐ OTHER _____

WELL INTEGRITY

	YES	NO	N/A
CAP			
CASING			
LOCKED			
COLLAR			

INITIAL DTW (BMP)	FT	FINAL DTW (BMP)	FT	PROT. CASING STICKUP (AGS)	FT	TOC/TOR DIFFERENCE	FT
WELL DEPTH (BMP)	FT	SCREEN LENGTH	FT	PID AMBIENT AIR	PPM	REFILL TIMER SETTING	SEC
WATER COLUMN	FT	DRAWDOWN VOLUME (final DTW - initial DTW X well diam. squared X 0.041)	GAL	PID WELL MOUTH	PPM	DISCHARGE TIMER SETTING	SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	GAL	TOTAL VOL. PURGED (mL per minute X total minutes X 0.00026 gal/mL)	GAL	DRAWDOWN/ TOTAL PURGED		PRESSURE TO PUMP	PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
	BEGIN PURGING									

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	DECON FLUIDS USED	TUBING/PUMP/BLADDER MATERIALS		EQUIPMENT USED
☐ PERISTALTIC	☐ LIQUINOX	☐ SILICON TUBING	☐ S. STEEL PUMP MATERIAL	☐ WL METER
☐ SUBMERSIBLE	☐ DEIONIZED WATER	☐ TEFLON TUBING	☐ PVC PUMP MATERIAL	☐ PID
☐ BLADDER	☐ POTABLE WATER	☐ TEFLON LINED TUBING	☐ GEOPROBE SCREEN	☐ WQ METER
	☐ NITRIC ACID	☐ HDPE TUBING	☐ TEFLON BLADDER	☐ TURB. METER
☐ WATTERA	☐ HEXANE	☐ LDPE TUBING	☐ OTHER	☐ PUMP
☐ OTHER	☐ METHANOL	☐ OTHER	☐ OTHER	☐ OTHER
☐ OTHER	☐ OTHER	☐ OTHER	☐ OTHER	☐ FILTERS NO. ___ TYPE

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
☐								
☐								
☐								
☐								
☐								
☐								
☐								

PURGE OBSERVATIONS

	YES	NO
PURGE WATER CONTAINERIZED	☐	☐
NO-PURGE METHOD UTILIZED	☐	☐

NUMBER OF GALLONS GENERATED _____

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signature: Print Name:

Checked By: Date:

APPENDIX E

Generic Field Activities Plan

(under separate cover)

APPENDIX F

Health and Safety Plan

(under separate cover)

APPENDIX G

Monitoring Well Construction Summary

New York State Department of Environmental Conservation
Chem-Core Site - Site No. 915176
City of Buffalo, New York
Monitoring Well Construction Summary

Monitoring Well	Well Diameter (inches)	Well Material	Total Depth (feet bgs)	Screened Formation	Depth to Water (DTW)			Elevation (feet AMSL)			Location (STD UTM)	
					Top (feet bgs)	Bottom (feet bgs)	Length (feet)	Casing Top	Screen		Northing	Easting
									Top	Bottom		
MW-04S	3	Steel	34.0	SILTY CLAY/BEDROCK	25.1	34.0	8.9	598.88	574.88	564.88	1064882.016	1064046.794
MW-04D	3	Steel	50.7	SILTY CLAY/BEDROCK	29.6	50.7	21.2	598.67	557.93	547.93	1064882.864	1064042.039
MW-05	6	Steel	34.4	SILTY CLAY/BEDROCK	22.5	34.4	11.9	594.79	570.39	560.39	1064926.553	1063864.57
MW-06	6	Steel	34.1	SILTY CLAY/BEDROCK	14.3	34.1	19.8	592.55	568.45	558.45	1064832.232	1063752.372
MW-07	6	Steel	34.1	SILTY CLAY/BEDROCK	18.5	34.1	15.7	592.53	568.43	558.43	1064762.937	1063737.645
MW-08S	6	Steel	24.6	SILTY CLAY/BEDROCK	13.7	24.6	11.0	587.82	573.22	563.22	1064443.284	1063740.854
MW-08D	3	PVC	44.7	SILTY CLAY/BEDROCK	15.1	44.7	29.5	587.5	552.85	542.85	1064444.677	1063735.802
MW-09	2	Steel	20.0	SILTY CLAY/BEDROCK	8.1	20.0	11.9	582.6	572.60	562.60	1064781.803	1063597.075
MW-10	6	Steel	41.7	SILTY CLAY/BEDROCK	9.9	41.7	31.9	582.87	551.17	541.17	1064868.721	1063624.929
MW-20	6	Steel	47.5	BEDROCK	21.7	47.5	25.7	595.12	557.67	547.67	1064756.34	1063705.58
MW-21	6	Steel	48.8	BEDROCK	23.7	48.8	25.2	596.88	558.08	548.08	1064752.63	1063740.73
MW-22	6	Steel	48.4	BEDROCK	24.8	48.4	23.6	596.84	558.49	548.49	1064743.3	1063842.25

Notes

AMSL : above mean sea level
feet bgs : feet below ground surface
PVC : polyvinyl chloride
N/A : not avaliable

1. Bottom of screen starts at bottom of well
2. Top of screen is estimated to be 10 feet above the bottom of the well