CONESTOGA-ROVERS
& ASSOCIATES

SITE INVESTIGATION WORK PLAN

Includes:

- Appendix A - Field Sampling Plan (FSP)
- Appendix B - Quality Assurance Project Plan (QAPP)
- Appendix C - Health and Safety Plan (HASP)
- Appendix D - Citizen Participation Plan (CPP)

FORMER BUFFALO CHINA SITE
51 HAYES PLACE
BUFFALO, NEW YORK

JUNE 2007
REF. NO. 037191 (3)

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1.0 INTRODUCTION

This Site Investigation (SI) Work Plan was prepared to address environmental impacts previously identified at the Former Buffalo China Site (Site). The property is currently owned by Niagara Ceramics and is located at 51 Hayes Place, Buffalo New York, as shown on Figure 1.1. In March 2004, Buffalo China sold the property to Niagara Ceramics and retained liability for environmental impairment of the Site and adjacent properties impacted by the Site prior to the sale. Buffalo China will now enter into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) to investigate and remediate, as appropriate, potential areas of environmental concern associated with the Site.

Previous investigations at the Site include a Phase I and II Environmental Site Assessment (ESA), prepared by Environmental Audits, Inc. (EA) in 2004 and, a Supplemental Site Investigation (SSI) completed by Conestoga-Rovers & Associates (CRA) in 2006. The previous investigations identified the presence of metals, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs) at the Site at concentrations exceeding NYSDEC Soil Cleanup Objectives. In addition, VOCs were detected in groundwater samples in the vicinity of the Harrison Street warehouse at concentrations above New York Class GA Groundwater standards.

This report presents the Work Plan for completion of a site investigation to fully delineate the nature and extent of chemical presence associated with former Buffalo China operations in environmental media at and in the vicinity of the Site. The Work Plan also provides for the preparation of a Feasibility Study to evaluate remedial technologies that may be effective in mitigating adverse impacts of Buffalo China-related chemical releases at and in the vicinity of the Site as determined by the SI. This Work Plan has been prepared in accordance with the NYSDEC draft document DER-10, "Technical Guidance for Site Investigation and Remediation," dated December 2002 (DER-10) and the NYSDEC document "Draft Brownfield Cleanup Program Guide," dated May 2004.

1.1 PURPOSE

The primary objective of the SI is to gather the data necessary to complete the characterization of chemical presence attributable to former Buffalo China operations in on-Site and off-Site soil, groundwater, and other potentially affected media. The proposed investigation will be focused on those areas where concentrations of chemicals that exceed applicable NYSDEC standards may be present as a result of historic Site use.

Once the characterization is complete, a determination will be made as to the need for additional investigation activities to completely define the nature and extent of any identified contamination.

1.2 REPORT ORGANIZATION

The Work Plan is organized as follows:

i) Section 1.0 – Introduction: The introduction presents an overview of the project to date;

ii) Section 2.0 – Site History and Description: Descriptions of the Site location, physical condition, current and historic use, and results of previous investigations are presented in Section 2.0;

iii) Section 3.0 – Objectives, Scope, and Rationale: Definitions of the objectives, scope, and rationale for the work to be conducted during the SI are presented in Section 3.0;

iv) Section 4.0 – Proposed Investigation Activities: The Work Plan for the proposed SI is presented in Section 4.0;

v) Section 5.0 – Feasibility Study: The components of the FS are described in Section 5.0; and

vi) Section 6.0 – Schedule: A preliminary project schedule is presented in Section 6.0.

The Field Sampling and Analysis Plan (FSP), Quality Assurance Project Plan (QAPP), and Health and Safety Plan (HASP) for the SI are contained in Appendices A through C, respectively.

The Brownfield Cleanup Program (BCP) requires participants to conduct citizen participation activities to keep the public and concerned individuals informed during the investigation and cleanup activities. A Citizen Participation Plan (CPP) has been prepared and is contained in Appendix D.

2.0 SITE DESCRIPTION AND HISTORY

2.1 SITE DESCRIPTION

The Former Buffalo China Site is located at 51 Hayes Place in Buffalo, New York. The Site location and Site plan are shown on Figures 1.1 and 2.1, respectively. The Site comprises approximately 10 acres and is bounded on the north by Conrail railroad tracks, on the east by the adjoining Buffalo China Warehouse and other commercial/industrial facilities, and on the south and west by commercial, industrial, and residential properties. Interstate I-190 is located nearby to the south of the Site, while the City of Buffalo School 26 and adjacent playground is located a few hundred feet to the southwest. The nearest body of water is the Buffalo River, located approximately ¼ to ½ mile south and east of the Site. Figure 2.1 provides a layout of the Site.

The Site includes buildings, outdoor storage silos, a rail spur, roadways, and parking areas. The manufacturing building is a multi-story structure covering approximately 4 acres. The building is connected to the Buffalo China Warehouse to the east. Another smaller building referred to as the Harrison Street warehouse is located in the northwest end of the Site and covers an area of approximately ½ acre. The primary access to the Site is through the east side of the Site, near the Buffalo China Warehouse and via the City of Buffalo street named Hayes Place. The property has been used for the manufacture of china for the past 100 plus years. During that time period, the manufacturing facility expanded to adjacent industrial properties which included the Standard Mirror Co. and Atlas Wrecking. The Harrison Street Warehouse was once a part of the Standard Mirror facility.

Previous Site investigations included a Phase I and a Phase II Environmental Assessment performed by Environmental Audits, Inc. in 2004, and an SSI of the Site by CRA in May 2006.

2.2 PHYSICAL SETTING

As indicated in the SSI Report prepared by CRA, the Site lies within the City of Buffalo corporation limits in a relatively flat parcel of land. The site is located in an industrial area of the City. The SSI determined that the Site is underlain by fill materials ranging in thickness from 0 to 4 feet below ground surface (bgs). Fill materials are underlain by clay deposits which range in depth from 4 feet bgs extending to a depth of at least

16.9 feet bgs (the maximum depth of one of the boreholes). Underlying the clay deposits is bedrock, which for the Buffalo area typically consists of dolomite.

2.3 PRIOR ENVIRONMENTAL INVESTIGATIONS

As discussed in Section 1.0, a Phase I and Phase II ESA was conducted by EA in 2004. The information presented in the ESA documents was used by CRA to develop the scope of work for the SSI, which was completed in May 2006. The results of the SSI are discussed in the following sections.

2.3.1 SAMPLING AND ANALYSES

Seventeen soil borings were advanced along with the installation of six new groundwater monitoring wells as part of the SSI. During the investigation, a total of 32 soil samples were collected from the 17 boring locations, along with groundwater samples from the six new monitoring wells and three existing monitoring wells. The soil samples were analyzed for total lead, VOCs, and SVOCs. The groundwater samples were analyzed for VOCs, SVOCs, total lead, and filtered (dissolved) lead.

2.3.2 ANALYTICAL RESULTS

A brief discussion of the SSI results is presented in the following subsections. Data from the SSI has been previously submitted to the NYSDEC under separate cover.

2.3.2.1 SOIL

Lead was detected in each of the 32 soil samples that were collected and analyzed during the SSI. Detected concentrations ranged from 0.47 milligrams per kilogram (mg/kg) to 9,250 mg/kg. The detected lead concentrations are greater than the NYSDEC Part 375 Soil Cleanup Objectives (SCO) for restricted industrial use criterion[1] of 3,900 mg/kg in two of 32 samples; BH-7 (1.4 to 1.8 feet) and BH-9 (0.5 to 1 foot). The lead concentrations in the deeper sample intervals at BH-1, BH-5, BH-9, BH-15, and BH-16 are well below 400 mg/kg, indicating that the depth of lead impact in soil is limited to depths up to 2 feet bgs.

[1] Based on the SCO presented in the 6 NYCRR Part 375 effective December 14, 2006.

In general, the detected concentrations of lead are greatest in the area between the Former Buffalo China building and the Harrison Street warehouse, at BH-7, 1.4 to 1.8 feet (4,980 mg/kg) and BH-9, 0.5 to 1 foot (9,250 mg/kg). The maximum detected concentration of lead in soil sample locations on the north side of the Site, along the Conrail railroad tracks (BH-1, BH-15, BH-16, and BH-17) was 804 mg/kg. At sample locations along the south side of the Site (BH-3, BH-4, BH-11, BH-12, BH-13, and BH-14), the detected lead concentrations are generally below 400 mg/kg, with the exception of BH-3, where lead was detected at 2,500 mg/kg in the 0.5- to 1-foot interval, which is below the Part 375 SCO of 3,900 mg/kg.

Detected VOCs include cis-1,2-dichloroethene (cis-1,2-DCE), methylene chloride, tetrachloroethene (PCE), and trichloroethene (TCE). The detected concentrations are below the SCO for restricted industrial use with the exception of BH-5. At this location, the detected concentration of TCE in the shallow sample interval (1.6 to 2.5 feet) was 670,000 micrograms per kilogram (µg/kg), which is greater than the SCO of 400,000 µg/kg. The detected concentration of TCE in the deeper sample interval (5.5 to 6.5 feet) was 88,000 µg/kg or approximately one order of magnitude lower. This data indicates a surface or near-surface source of VOCs.

Various SVOCs, primarily including polynuclear aromatic hydrocarbons (PAHs), were detected in Site soils. In general, the detected concentrations are below the industrial restricted use SCOs, with the exception of BH-13, located along the south side of the Site. The one SVOC which was detected at a concentration above the industrial restricted use SCO was benzo(a)pyrene. The detected concentrations of SVOCs in Site soil are generally lower in the deeper sample intervals, indicating that the depth of SVOC impact is limited.

2.3.2.2 GROUNDWATER

The groundwater samples collected during the SSI were analyzed for Target Compound List (TCL) VOCs. In addition, a groundwater sample from MW-8 was analyzed for total and dissolved lead.

The detected VOCs in groundwater include 4-methyl-2-pentanone, cis-1,2-DCE, methyl tert butyl ether, TCE, and vinyl chloride. The primary detected VOCs include TCE and its daughter product cis-1,2-DCE. These chemicals were detected at MW-4, MW-5, and MW-6, in the area between the Former Buffalo China building and the Harrison Street warehouse, with the greatest concentrations being detected at MW-6. Vinyl chloride was also detected at MW-6. The concentrations of VOCs were generally non-detect at

MW-9, along the northern boundary, and at MW-7 to the south of the Former Buffalo China building. TCE and cis-1,2-DCE were also detected at MW-8, located to the north of the Former Buffalo China building, but at much lower concentrations compared to MW-5. The presence of VOCs in the groundwater confirms the soil sample results, which indicate a VOC source area near the Harrison Street Warehouse.

Lead was detected in groundwater at MW-8. The total concentration of lead reported in the sample from MW-8 was 46 micrograms per liter (µg/L); however, dissolved lead was not detected at this location at or above 3 µg/L. The turbidity of the sample collected from MW-8 was approximately 200 nephelometric turbidity unit (NTU), indicating the presence of sediment in the samples. The elevated concentration of total lead was due to the sediment in the sample and is not indicative of groundwater quality.

3.0 OBJECTIVES, SCOPE, AND RATIONALE

The primary objective of the SI is to gather the data necessary to complete the characterization of chemical presence in Site soil and groundwater and determine the extent of off-Site migration and the potential impact, if any, on potential receptors. The proposed investigation will be focused in specific areas where concentrations of chemicals that exceed applicable NYSDEC standards may be present as a result of historic Site use. The scope of the SI includes soil and groundwater sampling to characterize the Site as well as delineating the extent of off-Site migration.

4.0 PROPOSED INVESTIGATION ACTIVITIES

Prior to commencement of field activities, informational meetings will be scheduled with representatives from the NYSDEC, the City of Buffalo School District, Buffalo School #26, and with community officials, neighbors, and residents.

4.1 REVIEW AND VERIFICATION OF BACKGROUND INFORMATION

The following activity will be completed to obtain the information necessary to interpret the environmental data:

i) to the extent possible, as-built drawings of existing and prior buildings and underground utilities at the Site will be obtained and reviewed for pertinent features (e.g., basements, sumps, sewers, etc.)

If new information regarding previous activities at the Site is obtained before the completion of the SI, specific investigative activities may be modified accordingly in consultation with NYSDEC.

4.2 PREPARATION OF DETAILED WORK PLANS

4.2.1 FIELD SAMPLING PLAN

This Work Plan provides a general discussion of the FSP to be conducted. The FSP contained in Appendix A presents the detailed procedures for the performance of the investigative field activities. The FSP contains specific information regarding numbers of samples and analyses, the frequency, type, location of samples, and field procedures.

4.2.2 QUALITY ASSURANCE PROJECT PLAN

A QAPP has been prepared in accordance with the Resource Conservation and Recovery Act (RCRA) Quality Assurance Project Plan Guidance, NYSDEC, March 1991 and "EPA Guidance for Quality Assurance Project Plans," United States Environmental Protection Agency (USEPA) QA/G-5, USEPA/600/R-98/018, February 1998. The QAPP describes protocols necessary to achieve specified data quality objectives and is contained in Appendix B.

4.2.3 HEALTH AND SAFETY PLAN

A HASP has been prepared in accordance with 29 Code of Federal Regulations (CFR) Part 1910 and has been reviewed by a health and safety professional. The HASP specifies protective measures and procedures to be followed during the field activities to minimize exposure of workers and the surrounding community to hazardous Site-related materials. The HASP is contained in Appendix C.

4.3 SITE SURVEY

After the new wells are installed, CRA will survey the existing and newly installed well locations and elevations relative to mean sea level.

The top of each well casing will be surveyed to the nearest 0.01 foot relative to the National Geodetic Vertical Datum (NGVD) and survey point will be marked on the well casing. The survey will include the ground elevation at each well to the nearest 0.10 foot relative to the NGVD. The well location will be surveyed to the nearest 1.0 foot.

4.4 FIELD INVESTIGATION

A series of sampling activities will be completed to characterize the Site conditions and delineate the extent of off-Site contaminant migration and the impact on soil and groundwater underlying the Site. The following subsections describe the field activities to be conducted during the SI.

Based on the findings of the SI, additional investigation activities and data analyses may be proposed to further define the horizontal and vertical extent of contamination and its impact to on-Site and off-Site potential receptors.

4.4.1 SOIL BORINGS

Soil samples will be collected from 19 borings using direct push technology. The approximate locations of the proposed soil borings relative to the Site are shown on Figure 4.1. (Actual soil boring locations will be determined in the field based on access conditions and the presence of overhead or underground utilities or other obstructions). A description of the soil investigation proposed for the Site is presented below.

Harrison Street Warehouse: A total of 12 borings will be advanced inside and adjacent to the Harrison Street Warehouse as shown on Figure 4.1. Six borings will be located within the building, and five borings will be located directly east of the warehouse, adjacent to groundwater monitoring wells MW-4 and MW-5. One additional boring will be advanced along the exterior of the warehouse structure at the northeast corner of the warehouse, between the building and the soil mound north of the building. Each borehole location will be continuously sampled; the sub-soils visually classified and field screened using a photoionization detector (PID) monitor. Each sample will be placed in a discrete sample bottle and the headspace analyzed using a PID. Based upon the field screening and headspace results, a soil sample from each subsurface soil location will be selected (sampled) and analyzed for TCL VOCs and total lead. In addition, one soil boring location from within the footprint of the Harrison Street warehouse, and one soil boring location to the east of the Harrison Street Warehouse will also be sampled for TAL metals, TCL Pesticides and Herbicides, polychlorinated biphenyls (PCBs), and TCL SVOCs by a New York State Environmental Laboratory Approval Program (ELAP)-certified laboratory. One surface soil sample from 0 to 2 inches will also be collected from this area and analyzed for TAL metals.

Soil Mound North of the Harrison St. Warehouse: A total of three borings will be advanced through the soil mound located north of the Harrison Street Warehouse, as shown on Figure 4.1. The soil mound is believed to comprise soils that were excavated during construction of the former Buffalo China Warehouse to the east of the Site. The borings will be equidistantly spaced across the soil mound such that one boring will be placed in the west, center, and east sections of the soil mound. The borings will be advanced through the soil pile and a minimum of 5 feet into native soil located beneath the soil mound. Each borehole location will be continuously sampled; the sub-soils visually classified and field screened using a PID monitor. Each sample will be placed in a discrete sample bottle and the headspace analyzed using a PID. Based upon the field screening and headspace results, a soil sample from each subsurface soil location will be collected and analyzed for VOCs, SVOCs, and lead analysis by a New York State ELAP certified laboratory. In addition, one soil boring location from the soil mound (currently identified on Figure 4.1 as the center sample from the soil mound locations) will also be sampled for TAL metals, TCL Pesticides and Herbicides, PCBs, and TCL SVOCs by a New York State ELAP-certified laboratory. One surface soil sample from 0 to 2 inches will also be collected from this area and analyzed for TAL metals.

Off-Site Soil Boring on Harrison Street: During the installation of the groundwater monitoring well MW-14, located on Harrison Street and south of the Harrison Street Warehouse, the borehole will be continuously split-spoon sampled. The sub-soils will

be visually classified and field screened using a PID monitor. Each split-spoon sample will be placed in a discrete sample bottle and the headspace analyzed using a PID. Based upon the field screening and headspace results, a soil sample will be selected and analyzed for TAL metals, TCL Pesticides and Herbicides, PCBs, and TCL SVOCs by a New York State ELAP-certified laboratory.

20 Hayes Place and 34 Hayes Place: 20 Hayes Place and 34 Hayes Place are former Buffalo China properties, and based on the historical uses of these locations (i.e., parking areas), they are not anticipated as needing to be included in the Brownfields investigation for this Site. However, in an effort to verify this conclusion, a total of two soil borings will be advanced on the former Buffalo China properties; one soil boring located at 20 Hayes Place and one soil boring located at 34 Hayes Place as shown on Figure 4.1.

The borehole locations will be continuously sampled; the sub-soils visually classified and field screened using a PID monitor. Each split-spoon sample will be placed in a discrete sample bottle and the headspace analyzed using a PID. Based upon the field screening and headspace results, a subsurface soil sample will be selected and analyzed for TCL VOCs, TAL metals, TCL Pesticides and Herbicides, PCBs, and TCL SVOCs by a New York State ELAP-certified laboratory.

Detailed protocols for the collection of soil samples are presented in the FSP (Appendix A).

4.4.2 SURFACE SOIL SAMPLING

Collection of surface soil samples will be conducted at 23 various off-Site locations as shown on Figure 4.1. Two soil samples will be collected from each proposed location. The samples will be collected from the upper 2 inches below the surface and from 2 to 4 inches below the surface. Each of the surface samples collected from the 0- to 2-inch zone will be analyzed for total lead by a New York State ELAP-certified laboratory while the 2- to 4-inch zone samples will be retained by the laboratory for possible future analysis for total lead. The samples will be collected from areas south of the Harrison Street Warehouse and the western portion of the Former Buffalo China property. Six samples will be collected from the schoolyard along Harrison Street, while two samples will be collected from the school building grounds. Additional samples will be collected from various vacant residential lots along Lester Street, and from vacant property previously owned by Buffalo China along Hayes Place.

Surface soil samples collected from 6 of the 23 various off-Site locations shown on Figure 4.1 will also be analyzed for TAL metals in addition to total lead. The six proposed surface soil locations that will be analyzed for TAL metals are as follows:

- two surface soil sample will be collected from the schoolyard along Harrison Street,
- two surface soil samples will be collected from the school playground along Harrison Street,
- one surface soil sample will be collected from a residential property located on Harrison Street south of the former Buffalo China Site, and
- one surface soil sample will be collected from a property on Lester Street located south of the former Buffalo China Site.

These locations are shown on Figure 4.1.

Detailed protocols for the collection of surface soil samples are presented in the FSP (Appendix A).

4.4.3 GROUNDWATER

Eight groundwater monitoring wells will be installed as shown on Figure 4.1. Two wells will be installed adjacent to the demolished building west of the Harrison Street warehouse. Three wells will be installed on vacant residential lots south of the Harrison Street Warehouse, one off of Harrison Street and two off of Lester Street. One well will be installed south of the warehouse, in a parking area off of Harrison Street. Another well will be installed next to a soil boring location on the north side of the warehouse, south of the soil mound. An additional well will be installed south of the Metal Works building, off of Hayes Place, in an open area previously owned by Buffalo China.

The monitoring wells will be installed to a depth of approximately 15 feet, and will be screened in the overburden layer. The wells will be installed, at a maximum, to the top of bedrock. The screened intervals of all shallow monitoring wells will be of sufficient length to cross the water table/vadose zone interface.

Groundwater samples will be collected from each new Site monitoring wells on one occasion no sooner than 14 days following monitoring well installation and development. Both filtered and unfiltered samples will be collected from each new monitoring well and will be analyzed for both total and dissolved lead. Groundwater samples will also be analyzed for TCL VOCs. Groundwater samples collected from

MW-14 and MW-15 will also be analyzed for TCL SVOCs, Total and Filtered TAL metals, TCL Pesticides and Herbicides, and PCBs.

In addition, groundwater samples will be collected from existing wells MW-4, MW-5, MW-6, MW-7, and MW-9 located east, southeast and north of the Harrison Street Warehouse. These groundwater samples will be analyzed for total and dissolved lead as well as TCL VOCs. MW-4 and MW-9 will also be analyzed for total and dissolved TAL metals, TCL Pesticides and Herbicides, TCL SVOCs, and PCBs.

Prior to initiating the well purging and sampling activities, a complete set of static water levels from existing and newly installed groundwater monitoring wells will be measured to calculate groundwater flow direction and the volume of water present in each well.

Wells will be purged using a peristaltic pump with dedicated tubing and low-flow techniques.

All VOC samples will be collected with well-dedicated or precleaned bottom-loading stainless steel and/or Teflon™ bailers and dedicated polypropylene rope.

Detailed sampling protocols are presented in the FSP (Appendix A).

4.4.4 SAMPLE ANALYSES AND DATA VALIDATION

All samples collected during the SI will be analyzed by a New York State Department of Health (NYSDOH) ELAP- and Contract Laboratory Program (CLP)-certified laboratory. All analyses will be performed in accordance with the NYSDEC Analytical Services Protocols (ASP), 1995 revision.

All analytical data generated by the subcontract laboratory(s) will be assessed and validated by a CRA Data Validator.

4.5 HYDROGEOLOGIC INVESTIGATION

A hydrogeologic investigation is proposed to better define the groundwater flow direction and hydrogeologic properties of the overburden unit underlying the Site.

4.5.1 MONITORING WELL INSTALLATION

Groundwater monitoring wells will be installed as part of the SI to both assess the horizontal and vertical extent of the presence of chemicals in groundwater on and off the Site as described in Section 4.4.3, and to define the shallow groundwater flow system at the Site. A total of eight groundwater monitoring wells will be installed at the locations shown on Figure 4.1. The actual locations of monitoring well installations will be dependent upon access conditions and the presence of overhead or underground interferences. All drilling and monitoring well installation protocols will be as described in the FSP.

Upon completion of the monitoring well installations, a field survey will be completed to establish the horizontal location and vertical elevation of each well.

Following installation, each monitoring well will be developed by bailing or pumping and surging in accordance with the protocols contained in the FSP.

4.5.2 HYDRAULIC MONITORING

Water level measurements will be collected from all Site monitoring wells on at least two occasions. The water level elevation data will be used to estimate the direction of groundwater flow across the Site and the influence of Site features on flow direction. To allow the wells to equilibrate, the first water level monitoring event will be conducted no sooner than 14 days following the completion of well installation and development. The second monitoring event will be conducted no sooner than 30 days following the first event.

If conducted in conjunction with a groundwater sampling event, hydraulic monitoring will be performed prior to the commencement of any well purging activities.

Water level measurement techniques are presented in the FSP.

4.5.3 STORM SEWER SYSTEM EVALUATION

During the site investigation, additional information regarding the location of manholes and catch basins, as well as the number of sewer pipes, pipe inverts, and pipe sizes within the catch basins and manholes will be documented. Observations regarding the conditions (i.e., sediment buildup, sheen present, odor, etc.) of the catch basins and

manholes will also be documented. During the survey of the groundwater monitoring well locations, the location of catch basins and manholes will also be surveyed. This additional information will be added to the SI drawings and final report. No sampling of the contents of the sewers or catch basins will be conducted during the SI.

4.6 SOIL VAPOR INTRUSION STUDY

Upon completion of the Site characterization as presented in Section 4.4 and any additional activities, if necessary, the resultant data will be evaluated to determine the need for a soil vapor intrusion study. The purpose of the soil vapor intrusion study is to determine the potential for impairment to indoor air quality due to intrusion of soil vapor. A separate Work Plan presenting the proposed scope of work for the soil vapor intrusion study will be developed and submitted to the NYSDEC for review if it is determined in consultation with NYSDEC that such a study is necessary.

4.7 EXPOSURE ASSESSMENT

A qualitative human health exposure assessment will be performed utilizing the data collected during the SI. The assessment will be performed in accordance with Appendix 3B of the "Draft DER Technical Guidance for Site Investigation and Remediation," dated December 2000.

4.8 FISH AND WILDLIFE IMPACT ANALYSIS

Steps I through IIB of a Fish and Wildlife Impact Analysis will be completed during the SI. The need for comprehensive assessment of fish and wildlife habitat will be evaluated based upon the results of these screening steps and the data collected during the SI.

If necessary, an evaluation of sediments will be performed in accordance with the NYSDEC guidance document "Technical Guidance for Screening Contaminated Sediments," dated November 1993.

4.9 SITE INVESTIGATION REPORT

Following completion of the SI activities, a draft report will be prepared presenting the results. The SI Report will include all background information, the analytical and

testing data collected during the SI, an evaluation of the current Site condition, exposure assessment results, fish and wildlife impact analysis, references, and recommendations for additional work, if deemed necessary. Data will be presented in both tabulated and graphic forms.

The draft SI Report will be submitted to the NYSDEC. Comments by the NYSDEC regarding the draft report will be addressed and the final report will be revised accordingly. The revised SI Report will then be submitted to NYSDEC.

4.10 CITIZEN PARTICIPATION PLAN

A CPP has been prepared and is presented in Appendix D of this Work Plan. The CPP includes a mailing list of local residents and businesses immediately surrounding the Site, as well as other interested parties.

5.0 FEASIBILITY STUDY

Upon completion of the SI, the determination will be made whether additional investigation activities are warranted to completely delineate the nature and extent of any identified contamination. Upon completion of additional investigation activities, if necessary, an engineering report will be submitted that will be certified by a Professional Engineer registered in New York State that identifies the contamination problems at and in the vicinity of the Site, and through an engineering analysis of potential feasible technologies, demonstrates that a selected remedy can achieve the cleanup goals for the Site. The demonstration will be based upon an evaluation of the remedy against the factors given in 6 NYCRR 375-1.10(c). The report will also explain how the remedy will be protective of public health and the environment.

The following sections identify the minimum issues that the engineering evaluation will address:

1.0 Protection of Human Health and the Environment

- 1.1 Development of Remedial Action Objectives (RAOs) for the Site.
- 1.2 Does the proposed remedy achieve each of the RAOs? Describe.
- 1.3 Identify any special issues regarding protection of human health and the environment not addressed in 5.1.2.

2.0 Standards, Criteria, and Guidance (SCG)

- 2.1 List all of the major SCGs for the Site.
- 2.2 Does the proposed remedy comply with all of the SCGs? If not, identify, describe, and discuss.

3.0 Short-Term Effectiveness and Impacts

- 3.1 Identify the risks to the community, workers, and environment that would result from carrying out the proposed remedy.
- 3.2 How will these risks be controlled?
- 3.3 How effective/reliable are the controls?
- 3.4 Will the proposed remedy achieve the RAOs in less than 2 years? If not, how long will it take?

4.0 Long-Term Effectiveness and Permanence

- 4.1 Is the proposed remedy permanent or does it relay upon containment?
- 4.2 Will the ability of the remedy to achieve RAOs lessen over time? If there is uncertainty, describe the factors involved.

4.3 After completion, will there be any significant threats, exposure pathways, or risks to the community or environment from remaining wastes or treated residuals?

5.0 Reduction of Toxicity, Mobility, or Volume

5.1 By media, how much of the contamination will be treated?

5.2 Will the process be complete or partial (quantify)? Is the treatment process reversible?

5.3 Will the mobility of contaminants be reduced? Describe the uncertainties.

6.0 Implementability

6.1 What are the potential construction and Operation and Maintenance (O&M) difficulties?

6.2 How would these difficulties be overcome?

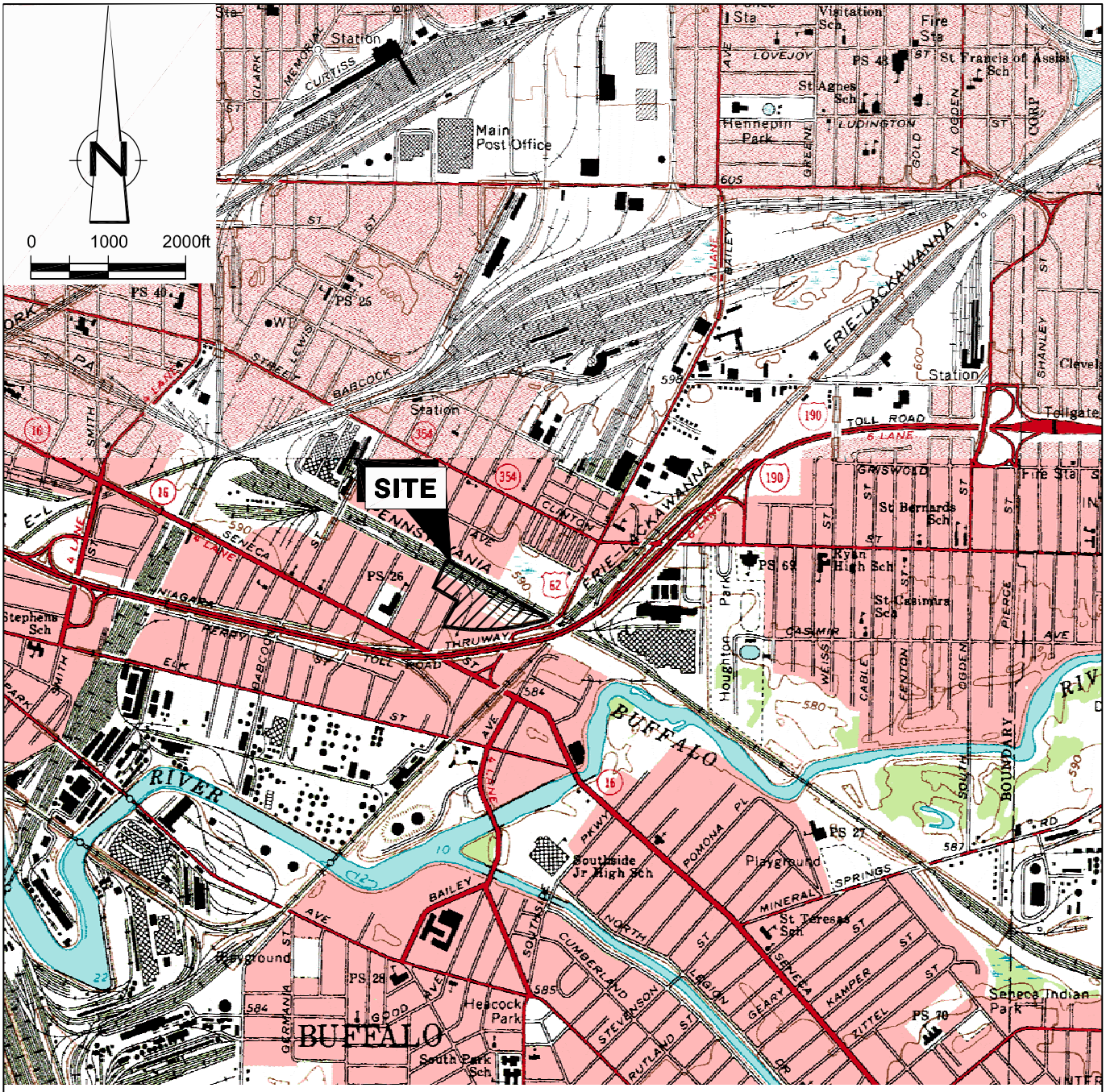
6.3 Are services and materials readily available (consider long-term O&M)?

6.4 Any problem coordinating with other agencies (e.g., obtaining approval/permits)?

In the Feasibility Study evaluation, cost shall not be considered in the initial Identification of Remedial Alternatives. Cost will only be considered in the final detailed Selection of Remedial Alternatives.

6.0 SCHEDULE

The preliminary Project Schedule for the SI is presented on Figure 6.1.



REFERENCE:

UNITED STATES GEOLOGIC SURVEY BUFFALO NE, BUFFALO SE QUADRANGLE, NY
TOPOGRAPHIC, 7.5 MINUTES SERIES 1965
SCALE: 1:24,000

figure 1.1

SITE LOCATION MAP
FORMER BUFFALO CHINA SITE
51 HAYES PLACE
Buffalo, New York

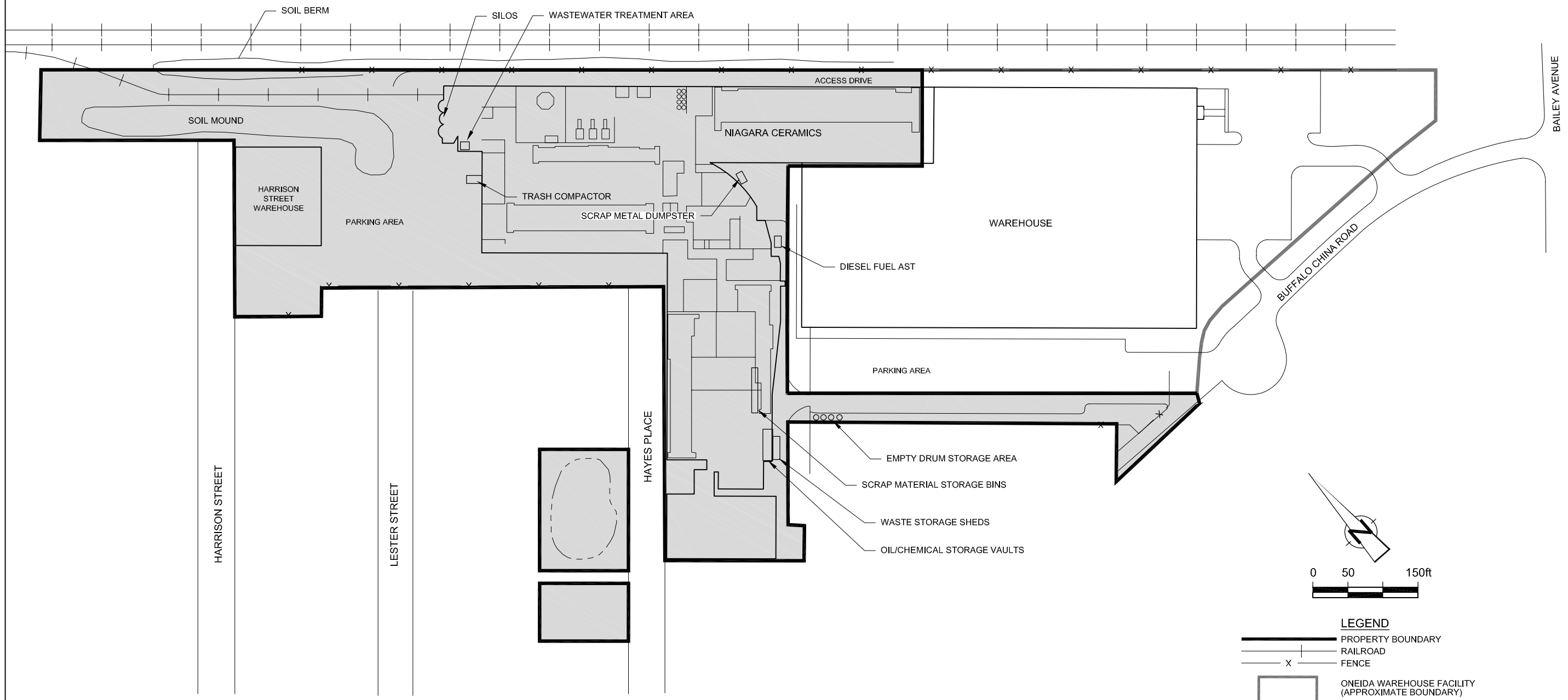
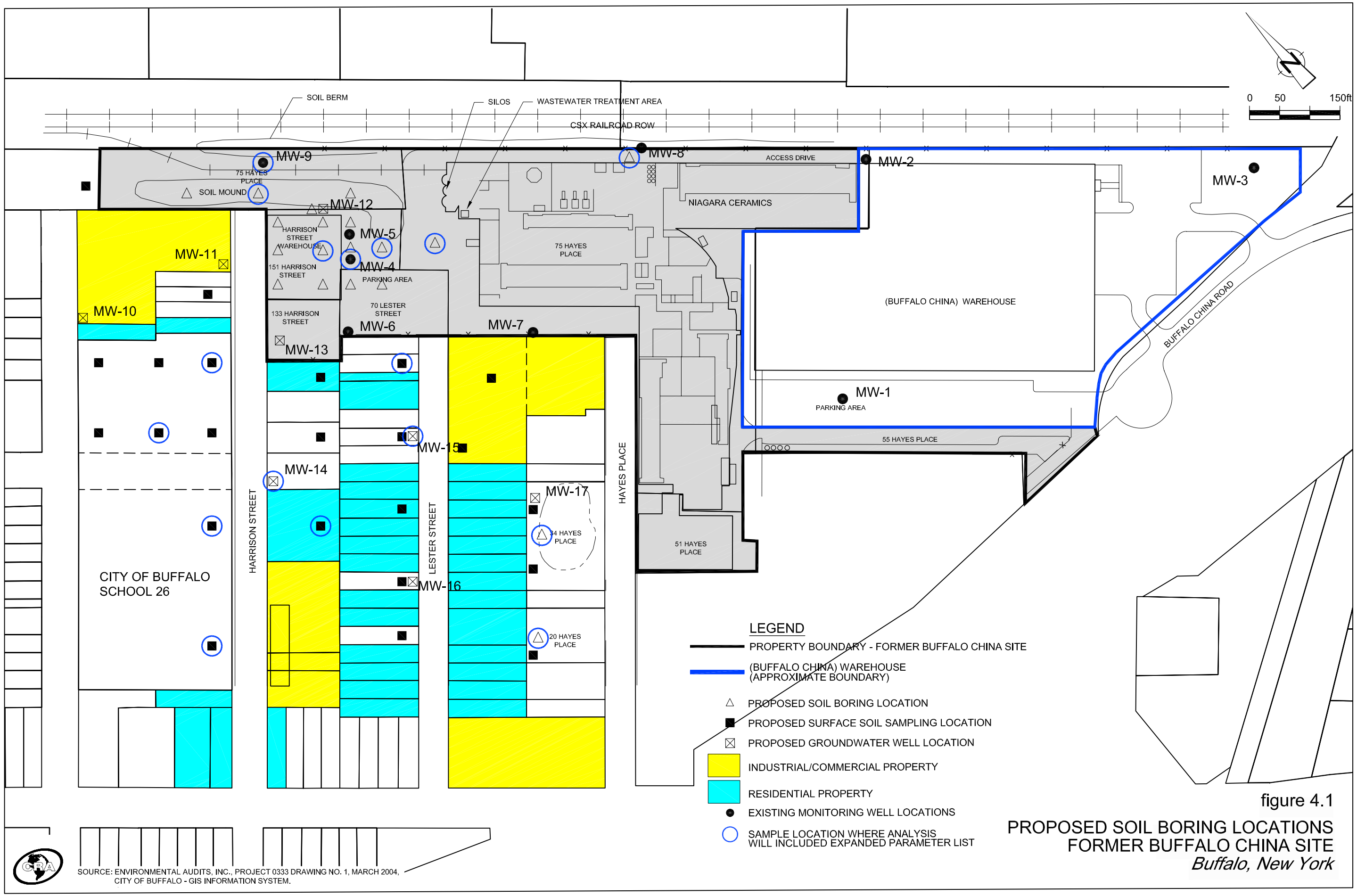


figure 2.1

SITE PLAN
FORMER BUFFALO CHINA SITE
Buffalo, New York

SOURCE: ENVIRONMENTAL AUDITS, INC., PROJECT 0333 DRAWING NO. 1, MARCH 2004.

37191-00(003)GN-NF007 NOV 22/2006



SOURCE: ENVIRONMENTAL AUDITS, INC., PROJECT 0333 DRAWING NO. 1, MARCH 2004, CITY OF BUFFALO - GIS INFORMATION SYSTEM.

figure 4.1

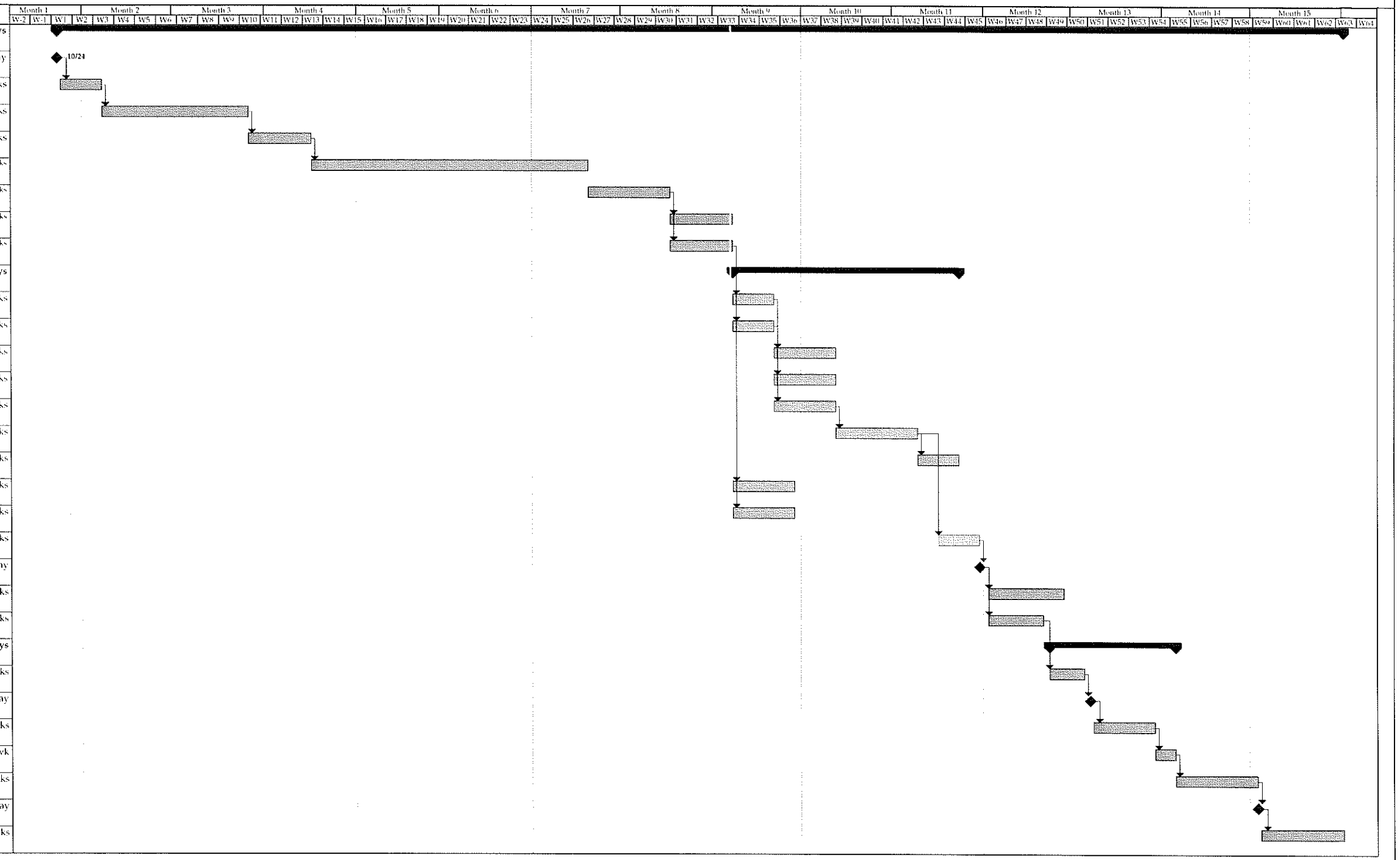
PROPOSED SOIL BORING LOCATIONS FORMER BUFFALO CHINA SITE

Buffalo, New York

37191-00(003)GN-NF002 APR 20/2007

Figure 6.1
Proposed Site Investigation Schedule
Brownfields Cleanup Program
Former Buffalo China Site
Buffalo, New York

ID	Task Name	Duration
1	**Niagara Ceramics Site Investigation**	**311 days**
2	**Submit BCP Aplication and Site Investigation Work Plan**	1 day
3	**NYSDEC Review of Application and Work Plan (10 days)**	2 wks
4	**Public Comment Period (45 days)**	7 wks
5	**NYSDEC Rev. & Approval of Applic. & Work Plan (after Public Comment)(15 days)**	3 wks
6	**Revise Work Plan Based on NYSDEC Draft Comments**	13.4 wks
7	**Resubmit Work Plan-NYSDEC Review of Revised Work Plan**	4 wks
8	**Conduct Pre-Work Meetings with Buffalo School District**	3 wks
9	**Conduct Pre-Work Meetings with Community**	3 wks
10	**Implement Site Investigation Work Plan**	**55 days**
11	Selection of Contractors/Vendors	2 wks
12	Obtain Access Agreements, Clear Utilities	2 wks
13	Soil Boring Installation & Sampling	3 wks
14	Monitoring Well Installation, Development & Sampling	3 wks
15	Surface Soil Sampling	3 wks
16	Laboratory Analysis (Soil and Groundwater)	4 wks
17	Data Validation	2 wks
18	Complete Exposure Assessment	3 wks
19	Complete Fish & Wildlife Impact Analysis	3 wks
20	**Prepare Interim Report**	2 wks
21	**Submit Interim Report to NYSDEC**	1 day
22	**NYSDEC Review of Interim Report**	4 wks
23	**Consultation w/NYSDEC regarding Site Conditions**	3 wks
24	**Soil Vapor Intrusion Study (SVI) (if necessary)**	**31 days**
25	Develop Soil Vapor Intrusion Study Work Plan (if necessary)	2 wks
26	Submit SVI Study Work Plan to NYSDEC	1 day
27	NYSDEC Review & Approval	3 wks
28	Perform SVI Study	1 wk
29	**Prepare Site Investigation Report**	4 wks
30	**Submit Site Investigation Report to NYSDEC**	1 day
31	**NYSDEC Review of SI Report**	4 wks



Project: Schedule Revision 1 - 04-26-0
Date: Thu 6/7/07

Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External Milestone | Deadline

APPENDIX A

FIELD SAMPLING PLAN

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LIST OF FIGURES
(Following Text)

LIST OF TABLES
(Following Text)

1.0 INTRODUCTION

The Former Buffalo China Site (Site) is located at 51 Hayes Place in Buffalo, New York. The Site location and Site layout are shown on Figures 1.1 and 1.2, respectively. The Site comprises approximately 10 acres and is bounded on the north by Conrail railroad tracks, on the east by the adjoining Buffalo China Warehouse and other commercial/industrial facilities, and on the south and west by commercial, industrial, and residential properties. Interstate I-190 is located nearby to the south of the Site, while the City of Buffalo School 26 and adjacent playground is located a few hundred feet to the southwest. The nearest body of water is the Buffalo River, located approximately ¼ to ½ mile south and east of the Site. Figure 2.1 provides a layout of the Site.

The Site includes buildings, outdoor storage silos, a rail spur, roadways, and parking areas. The manufacturing building is a multi-story structure covering approximately 4 acres. The building is connected to the Buffalo China Warehouse to the east. Another smaller building referred to as the Harrison Street warehouse is located in the northwest end of the Site and covers an area of approximately ½ acre. The primary access to the Site is through the east side of the Site, near the Buffalo China Warehouse, and via the City of Buffalo street named Hayes Place. The property has been used for the manufacture of china for the past 100 plus years. During that time period, the manufacturing facility expanded to adjacent industrial properties, which included the Standard Mirror Co. and Atlas Wrecking. The Harrison Street Warehouse was once a part of the Standard Mirror facility.

Previous Site investigations included a Phase I and a Phase II Environmental Assessment performed by Environmental Audits, Inc. in 2004, and a Supplemental Site Investigation of the Site by CRA in May 2006.

This Field Sampling Plan (FSP) has been prepared to present a description of the field efforts associated with the Site Investigation. A detailed description of the Site is presented in Section 2.0 of the Work Plan.

1.1 SAMPLING OBJECTIVES

The primary objective of the Site Investigation is further delineate the extent of contamination at and near the Site, specifically in the area surrounding the Harrison Street warehouse and off-Site areas located to the west of the Site. The proposed investigation is focused on those areas where concentrations of chemicals exceeding applicable New York State Department of Environmental Conservation (NYSDEC) standards may be present as a result of historic Site use.

2.0 SOIL

2.1 SUBSURFACE SOIL

Analytical soil samples will be collected from 19 borings at the locations described below:

i) six boreholes advanced within the footprint of the Harrison Street warehouse;

ii) five boreholes advanced directly east of the Harrison Street warehouse;

iii) one borehole advanced between the Harrison Street warehouse and the soil mound north of the warehouse, just north of the north wall of the warehouse;

iv) three boreholes advanced on the soil mound north of the Harrison Street Warehouse. The boreholes will be staggered so that there will be one borehole advanced in the west, center, and east sections of the soil mound;

v) one borehole advanced on the north side of the manufacturing building, outside the glazing room of the Niagara Ceramics facility;

vi) one borehole advanced on the west side of the Niagara Ceramics building, in the parking lot/ loading dock area;

vii) one borehole advanced on 20 Hayes Place; and

viii) one borehole advanced on 34 Hayes Place.

Refer to Figure 4.1 of the Site Investigation (SI) Work Plan for the approximate locations of the proposed soil borings.

Boreholes will be advanced with direct-push drilling (Geoprobe®) beginning with a top or surface soil sample at each location. All samples collected will be subject to headspace screening. Samples will be selected for analysis based on the results of the headspace screening and other field observations (i.e., color, odor, etc.) All samples selected shall be analyzed for the United States Environmental Protection Agency (USEPA) Target Compound List (TCL) volatile organic compounds (VOCs). Samples from the soil mound will also be analyzed for semi-volatile organic compounds (SVOCs) and lead. Boreholes advanced in seven locations on the former Buffalo China Site will also be analyzed for Target Analyte List (TAL) for metals, TCL Pesticides and Herbicides, and polychlorinated biphenyls (PCBs).

Analytical samples for TAL metals, TCL Pesticides and Herbicides, and PCBs will be collected from 7 of the 19 borings at the locations described above and from a continuous split-spoon sample taken during the drilling of an off-Site monitoring well (MW-14). The borings that will be analyzed for the expanded parameter list are outlined below (refer to Figure 4.1 for exact locations):

i) the center borehole on the eastern side of the Harrison Street warehouse within the Harrison Street warehouse footprint;

ii) the north-east most of the five boreholes advanced directly east of the Harrison Street warehouse;

iii) the center borehole of the three boreholes advanced on the soil mound north of the Harrison Street warehouse;

iv) the borehole advanced on the north side of the manufacturing building, outside the glazing room of the Niagara Ceramics facility;

v) the borehole advanced on the west side of the Niagara Ceramics facility, in the parking lot/ loading dock area;

vi) the borehole advanced on 20 Hayes Place;

vii) the borehole advanced on 34 Hayes Place; and

viii) the location of proposed monitoring well MW-14.

The subsurface soil sampling program is summarized below and in detail in Table 2.1 and shown on Figure 4.1:

- Boreholes within the Harrison Street Warehouse footprint:
  - i) 5 boreholes analyzed for TCL VOCs and total lead; and
  - ii) 1 borehole analyzed for TCL VOCs, TCL SVOCs, TAL metals, TCL Pesticides and Herbicides, and PCBs.
- Boreholes Directly east of Harrison Street Warehouse:
  - i) 4 boreholes analyzed for TCL VOCs and lead; and
  - ii) 1 borehole analyzed for TCL VOCs, TCL SVOCs, TAL metals, TCL Pesticides and Herbicides, and PCBs.
- Borehole between Harrison Street Warehouse and Soil mound:
  - i) 1 borehole analyzed for TCL VOCs and total lead.

- Boreholes on Soil Mound:
  - i) 2 boreholes analyzed for TCL VOCs, TCL SVOCs, and total lead;
  - ii) 1 borehole analyzed for TCL VOCs, TCL SVOCs, TAL metals, TCL Pesticides and Herbicides, and PCBs.
- Borehole on north side of Niagara Ceramics near glazing room:
  - i) 1 borehole analyzed for TCL VOCs, TCL SVOCs, TAL metals, TCL Pesticides and Herbicides, and PCBs.
- Borehole on west side of Niagara Ceramics in parking lot area:
  - i) 1 borehole analyzed for TCL VOCs, TCL SVOCs, TAL metals, TCL Pesticides and Herbicides, and PCBs.
- Boreholes at 20 and 34 Hayes Place:
  - i) 2 boreholes analyzed for TCL VOCs, TCL SVOCs, TAL metals, TCL Pesticides and Herbicides, and PCBs.

Soil samples will be analyzed by a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)- and Contract Laboratory Program (CLP)-certified laboratory in accordance with the NYSDEC Analytical Services Protocol (ASP), 1995 revision.

Sampling equipment will be decontaminated prior to use at each sample location.

Detailed protocols for sample collection, handling, and analysis, as well as equipment decontamination, are presented in Section 6.0. Health and safety procedures are presented in the Health and Safety Plan (HASP) contained in Appendix C of the Work Plan.

2.2 SURFACE SOIL SAMPLING

Surface soil samples will be collected from 23 off-Site locations as described below:

i) two samples collected along the east boundary of the school building located on Harrison Street;

ii) six samples collected from a school playground located north of the school building on Harrison Street;

iii) one sample collected west of the soil mound;

iv) one sample collected from a vacant residential lot east of the vacant industrial building on Harrison Street;

v) two samples collected from residential lots on Harrison Street;

vi) one sample collected from a vacant residential lot on Harrison Street;

vii) one sample collected from a residential lot on Lester Street;

viii) four samples collected from vacant residential lots on Lester Street;

ix) two samples collected from the industrial Metal Works lot located on Lester Street; and

x) three samples collected from the Former Buffalo China parking area located on Hayes Place.

Surface soil samples collected from 6 of the 23 locations described above will be analyzed for TAL metals from the locations described below:

i) two samples collected from the school playground located north of the school building on Harrison Street;

ii) two samples collected from the school yard on Harrison Street;

iii) one samples collected from a residential lot on Harrison Street; and

iv) one sample collected from a residential lot on Lester Street.

The remaining sample locations will be analyzed for total lead only.

Refer to Figure 4.1 of the SI Work Plan for the approximate locations of the proposed surface soil samples.

Surface soil samples will be collected from each location from 0 to 2 inches and 2 to 4 inches below ground surface (bgs). The surface samples will be collected and analyzed for total lead at all 23 locations, and for TAL metals at 6 of the 23 locations. Soil samples will be analyzed by a NYSDOH ELAP- and CLP-certified laboratory in accordance with the NYSDEC ASP, 1995 revision.

3.0 GROUNDWATER

3.1 MONITORING WELL INSTALLATION AND DEVELOPMENT

A total of eight shallow groundwater monitoring wells (MW-10 through MW-17) will be installed at the approximate locations shown on Figure 4.1 of the SI Work Plan. The actual locations of monitoring well installations will be dependent upon access conditions and the presence of overhead or underground interferences.

The monitoring wells will be installed at the locations described below:

i) two wells will be installed on the east and southwest corners of the vacant demolished industrial building west of the Harrison Street Warehouse;

ii) one well will be installed between the Harrison Street Warehouse and the soil mound north of the warehouse;

iii) one well installed in the open parking area south of the Warehouse, off of Harrison Street;

iv) one well installed in a vacant residential lot off of Harrison Street;

v) two wells installed in vacant residential lots off of Lester Street; and

vi) one well installed on the vacant Former Buffalo China lot on Hayes Place.

Monitoring wells are anticipated to be installed to a depth of 15 feet below grade with 10-foot well screens. Monitoring wells will be placed at a maximum to the top of the bedrock layer. Well installation details are presented in Section 6.2. Subsequent to installation, the wells will be developed by bailing or pumping and surging.

Drill cuttings and spoils generated during completion of the monitoring wells will be handled in accordance with applicable regulations.

Drilling equipment will be decontaminated before use at each drilling location.

Detailed protocols for monitoring well installation, development, waste material handling, and equipment decontamination are presented in Section 6.0. Health and safety procedures are presented in the HASP contained in Appendix C of the Work Plan.

3.2 HYDRAULIC MONITORING

Water level measurements will be collected from all of the monitoring wells on at least two occasions. The water level elevation data will be used to estimate the direction of groundwater flow across and north, northwest, and west of the Site. To allow the wells to equilibrate, the first water level monitoring event will be conducted no sooner than 14 days following the completion of well development. A detailed description of the water level measurement procedure is provided in Section 6.5.

3.3 GROUNDWATER SAMPLING

Groundwater samples will be collected from each of the eight newly installed monitoring wells on one occasion. To allow the wells to equilibrate, the groundwater sampling event will be conducted no sooner than 14 days following the completion of well development. In addition, groundwater samples will be collected from existing monitoring wells MW-4, MW-5, MW-6, MW-7, and MW-9.

The groundwater samples collected from the 13 new and existing groundwater monitoring wells will be analyzed for various organic, inorganic, and wet chemistry parameters. Both filtered and unfiltered samples will be collected from each groundwater well and analyzed for both total and dissolved lead. In addition, each groundwater well location will be sampled and analyzed for TCL VOCs. Four of the 13 well locations will also be sampled and analyzed for an expanded list for parameters. The expanded parameter list and the locations of the four wells are described as follows:

i) groundwater monitoring well (MW-9) located north of the soil mound will serve as the upgradient monitoring well location and will be sampled and analyzed for TCL VOCs, TCL SVOCs, total and dissolved TAL metals, TCL Pesticides and Herbicides, and PCBs;

ii) groundwater monitoring well (MW-4) is located in an area which is suspected to be in the vicinity of the source area for groundwater impacts. This well location will be sampled and analyzed for TCL VOCs, TCL SVOCs, total and dissolved TAL metals, TCL Pesticides and Herbicides, and PCBs; and

iii) two groundwater monitoring wells located off the property Site (MW-14 and MW-15) are considered to be located downgradient of the potential source area. These well locations will be sampled and analyzed for TCL VOCs, TCL SVOCs, total and dissolved TAL metals, TCL Pesticides and Herbicides, and PCBs.

The remaining 9 groundwater monitoring well locations will be sampled for TCL VOCs, filtered and unfiltered samples will be collected and analyzed for dissolved and total lead, respectively. All analyses will be performed in accordance with the NYSDEC ASP, 1995 revision. Field measurements of turbidity, pH, specific conductance, and temperature will also be collected and recorded on the groundwater sampling field logs

Prior to initiating the well purging and sampling activities, a complete set of static water levels will be measured to evaluate groundwater flow direction and to calculate the volume of water present in each well.

Wells will be purged using the following types of equipment:

i) peristaltic pump with dedicated tubing; or

ii) bottom-loading stainless steel or Teflon™ bailer with dedicated polypropylene rope.

All VOC samples will be collected with well-dedicated or pre-cleaned bottom-loading stainless steel and/or Teflon bailers and dedicated polypropylene rope.

Decontamination of purging or sampling equipment, if necessary, will be performed prior to use at each well.

Detailed protocols for sample collection, handling, and analysis, as well as equipment decontamination, are presented in Section 6.0. Health and safety procedures are presented in the HASP contained in Appendix C of the Work Plan.

4.0 SAMPLE DESIGNATION

A unique sample numbering system will be used to identify each collected sample. This system will provide a tracking number to allow retrieval and cross-referencing of sample information. The sample numbering system to be used is described as follows:

Example:	SO-12345-052605- AA-XXX
Where:	SO- Designates Sample Type
	(SO = Soil, WG = Groundwater)
12345:	Conestoga-Rovers & Associates (CRA) Project Number
052605:	Date of Collection (mm/dd/yy)
AA:	Sampler Initials
XXX:	Unique Sample Number

Quality control (QC) samples will also be numbered with a unique sample number.

5.0 DATA VALIDATION

Analytical data collected during the Site Investigation will be validated to demonstrate the usability of the data to support the conclusions of the Site Investigation.

All analytical work will be subcontracted to an ELAP- and CLP-certified laboratory(s). All analytical data generated by the subcontract laboratory(s) will be assessed and validated by a CRA Data Validator.

6.0 FIELD PROCEDURES

All monitoring and sampling activities described in this document shall be conducted in accordance with the protocols detailed in this section as well as the standards and criteria set forth in the Work Plan, Quality Assurance Project Plan (QAPP), and HASP.

Site dedicated equipment will be used whenever possible.

6.1 BOREHOLE DRILLING/SOIL SAMPLING

Borehole drilling for the geologic logging and sampling of subsurface soils will be performed using either hollow stem auger or direct push technique. At locations where a monitoring well will be installed, the borehole will be advanced using approximately 4-inch inside diameter (ID) (8-inch outside diameter [OD]) hollow-stem augers from ground surface to the desired depth of installation. All other boring locations will be sampled using direct push technology.

Soil samples from augered boreholes will be collected from the specified depth intervals by the standard penetration test method (American Society for Testing and Materials [ASTM]-1586-84) using split-spoon samplers of appropriate length and diameter. Sampling equipment will be cleaned between samples in accordance with the protocols described in Section 6.7. All soil samples collected will be described and classified according to the Unified Soil Classification System (USCS).

In locations that are covered by pavement, the pavement and granular sub-base will be penetrated to the original ground surface prior to commencement of continuous sampling or augering for sample collection. After the borehole has been completed and the sample has been obtained, either a monitoring well shall be installed as described in Section 6.2, or the borehole shall be backfilled as follows:

i) boreholes in areas covered with pavement shall be backfilled to within approximately 6 inches of the ground surface using a cement/bentonite grout. The remainder of the borehole shall be filled with asphalt or concrete; or

ii) boreholes in areas not covered with pavement (i.e., gravel or soil surfaces) shall be backfilled to within 1 foot of the ground surface using cement/bentonite grout. The remainder of the borehole will be filled with material similar to the surrounding ground surface.

6.1.1 ANALYTICAL SAMPLE COLLECTION

Each soil sample will be collected using a precleaned continuous soil sampling system or a split-spoon sampler in conjunction with the hollow-stem augering technique described previously.

Soil samples for chemical analysis will be collected in the following manner:

i) upon retrieval of the sample core or the split-spoon, the sampler will be laid on a surface which has been covered with plastic or aluminum foil and shall be carefully opened to avoid sample disturbance;

ii) using a precleaned stainless steel knife, a thin section will be removed from the top and bottom of the sample and discarded;

iii) the remainder of the core will then be cut longitudinally with a clean cutting tool. Two continuous soil sample (one for headspace analysis and one for possible analysis) will be taken from the center of the core using a clean stainless steel spatula;

iv) analytical samples shall be placed into precleaned sample jars provided by the analytical laboratory. Sample homogenization or splitting will be performed in the analytical laboratory;

v) headspace screening samples will either be placed in glass jars covered with aluminum foil or in zip-lock bags and left at room temperature for ½ hour. If sampling is conducted during cold weather, the samples will be moved to a heated vehicle or building before testing. The bag or aluminum foil cover will then be punctured with the instrument probe tube and the headspace gases drawn through the instrument. Peak readings will be recorded and analytical samples selected. If necessary, the head space sample will be used for metals analysis; and

vi) the remainder of the core not used for chemical analysis will be retained in precleaned jars for geologic record.

A clean pair of disposable latex gloves and a new piece of plastic or foil will be used to handle each sample.

Samples will be placed on ice or cooler packs in laboratory supplied coolers immediately after collection and labeling. Samples will be delivered to the laboratory by courier under approved Chain of Custody procedures in accordance with the requirements of the QAPP.

6.2 SURFACE SOIL SAMPLING

Surface soil samples shall be collected from designated locations using pre-cleaned steel trowels. At each location, a representative soil sample will be collected from zero to 2 inches bgs and 2 inches to 4 inches bgs and placed in pre-cleaned sample bottles. Upon completion of sample collection, the equipment will be decontaminated in accordance with the procedures outlined in Section 6.7 prior to being reused.

6.3 MONITORING WELL INSTALLATION

Monitoring wells shall be installed in the indicated completed boreholes as follows:

i) install a 2-inch diameter well consisting of a 10-foot long polyvinyl chloride (PVC) well screen (#10 slot) and a 2-inch diameter PVC pipe of threaded or welded construction with lockable cap and lock. The well construction material will be dependent on the nature of subsurface contaminants. The well screen and riser pipe shall be steam cleaned and inspected for any foreign matter including greases or coatings adhering to surfaces prior to well construction;

ii) backfill each well installation with a measured sandpack around the well screen (Montery, Filter No. 20 [12x20] sand) placed to a minimum of 2.0 feet above top of screen and a 2.0-foot measured bentonite pellet seal over the sandpack;

iii) wait ½ hour after the placement of the bentonite seal and then grout the remaining annular space between the well pipe and borehole by positive displacement using a tremie tube. The grout shall consist of Portland cement, bentonite, and clean water. The grout shall be mixed in the

proportion of not less than 5 nor more than 6 gallons of water to one bag of cement. Bentonite powder shall be added at a ratio of 3 percent by volume. Hydrated lime, up to 10 percent by volume, may be added to facilitate pumping; and

iv) flush-mount wells shall be set 3 inches bgs and an approved protective curb box (12-inch minimum length) casing will be grouted in place around the well for protection. The flush-mount casings will be raised slightly above ground surface to allow the sealing grout to be sloped away from the well to prevent surface water run-in.

A typical monitoring well installation is shown on Figure 6.1.

6.4 WELL DEVELOPMENT

All new monitoring wells will be developed no sooner than 48 hours following installation.

Well development will be accomplished by either pumping or bailing accompanied by surging. Well development will continue until the purged water exhibits a turbidity of 50 nephelometric turbidity units (NTUs) or lower or for a maximum of 1 hour. Groundwater removed from the wells will be collected for disposal, or advance approval will be obtained for direct discharge to the municipal wastewater treatment system. Equipment placed in a monitoring well will be cleaned following decontamination procedures as described in Section 6.6.

6.5 WATER LEVEL MEASUREMENT

Each well shall have a permanent easily identified reference point on the well casing from which its water level elevation is taken. The reference point will be marked on the well and described in the field notebook. The reference points shall be established by a licensed surveyor in relation to an established USGS datum.

An electric tape water level measuring device sufficiently sensitive to reliably provide a measurement accurate to 0.01 foot shall be used to determine the depth to groundwater. The water level probe and wire will be cleaned in accordance

with the protocols described in Section 6.0 before use each day and between wells.

The steps for obtaining an accurate water level reading are as follows:

i) identify the well by comparison to the name labeled on it, well log details, and/or a Site map;

ii) lower the tip of the water level probe until a tone is emitted and the red light indicates contact with the water;

iii) slowly raise the tip until the light and/or tone just begins to activate. This indicates the presence of the static water level;

iv) note the reading of the tape to the nearest 0.01 foot;

v) recheck the reading before removing the tape from the well;

vi) record the water level measurement in the field book or on the field sheets. Compare it to previous readings to see if significant changes have occurred. Recheck the water level of significant differences are measured; and

vii) decontaminate the tape prior to leaving the well Site.

Data shall be recorded in a bound notebook and shall include the following:

i) well number;

ii) date;

iii) time;

iv) top of casing (measuring point) elevation;

v) measured depth to water; and

vi) initials of person taking the measurement.

6.6 GROUNDWATER SAMPLING

The sampling procedures for the groundwater monitoring wells are described below. These procedures are used to maintain consistent and reproducible methods in obtaining groundwater samples.

The initial step at each well will be to measure the static water level. This will be accomplished following the procedures described in Section 6.5.

All purging and sampling equipment will either be well-dedicated or will be cleaned in accordance with the procedures contained in Section 6.7 prior to use in each well.

6.6.1 PURGING

Two criteria for purging requirements have been developed. For wells in which sufficient groundwater is readily available, a minimum of three to a maximum of five well volumes of groundwater will be removed from the well prior to sampling. Turbidity, temperature, pH, and specific conductance will be measured after the removal of each well volume of water. A goal of 50 NTUs will be used as a criteria for purging. Wells with slow groundwater recovery will be evacuated to dryness once prior to sample collection.

A well volume is defined as the volume of groundwater (at static condition) contained within the open cavity (i.e., casing and open section of rock) of a well. This volume must be calculated prior to each well purging event as the static water level will vary according to seasonal conditions. To assist in the calculation of well volume, the following volumes of water per foot of submerged cavity are provided:

i)	2-inch diameter cavity	=	0.163 gallon per foot;
ii)	3-inch diameter cavity	=	0.367 gallon per foot;
iii)	4-inch diameter cavity	=	0.653 gallon per foot; and
iv)	6-inch diameter cavity	=	1.469 gallons per foot.

The groundwater shall be purged from the wells to be sampled by one of the methods listed below:

i) purging with a peristaltic pump fitted with well-dedicated tubing. When used, the pump will be staged from the top of the water column downward to ensure removal of stagnant water. Peristaltic pumps will not be used for VOC sample collection:

- water will be sampled using standard low flow procedures, using a ground peristaltic pump and a flow-through cell:
  - turbidity below 50 NTU or stable for three consecutive readings;
  - temperature within one degree of previous reading;
  - conductivity within 10 percent of previous reading; and
  - pH ranging only a tenth from the previous readings;
- groundwater samples will be taken for lead and VOCs;
- a trip blank containing lab water should be carried with the samples at all times and sent to the lab for processing with samples;
- one matrix spike/matrix spike duplicate (MS/MSD) and one duplicate should be preformed during a full groundwater sampling round; and

ii) bailing with a bottom loading Teflon or stainless steel bailer.

6.6.2 SAMPLE COLLECTION

Wells will be sampled as soon after purging as possible. In the case of slow recovery wells, sampling will be conducted as soon as the recovered volume of water is adequate to provide the full sample volume or 100 percent of the well volume, whichever occurs first. If a full sample volume cannot be obtained over a maximum of 4 days, the well will be considered to be non-sampleable.

A well-dedicated Teflon or stainless steel bailer will be used for VOC sample collection in order to minimize the stripping of volatile compounds from the groundwater samples and adsorption of trace constituents and eliminate the potential for cross-contamination of wells. If a non-dedicated bailer is used for sample collection, the first bailer volume of sample will be discarded to acclimate the bailer.

Groundwater turbidity will be measured and recorded when groundwater samples are collected. Filtered and unfiltered samples will be submitted for analysis. Samples will be field filtered using a 0.45-micron in-line filter.

For all unfiltered samples, groundwater will be poured directly into laboratory supplied sample containers from the bailer.

Samples will be placed on ice or cooler packs in laboratory supplied coolers immediately after collection and labeling. Samples will be delivered to the laboratory by courier under approved chain of custody procedures in accordance with the QAPP.

6.6.3 RECORDKEEPING

A bound logbook will be used to record all pertinent sampling data including:

i) date(s) and time(s) of well purging and sampling;
ii) sounded depth of well;
iii) names of sampling personnel;
iv) calculation of well volume;
v) volume of water purged;
vi) methods of purging and sampling;
vii) initial and final water quality descriptions;
viii) water quality measurements;
ix) sample volume collected and analyses requested;
x) sample identification number; and
xi) Chain of Custody number.

Field logbooks will be numbered and maintained in a safe location. Entries will be made only in indelible ink. Any corrections will be marked through with a single line so as to remain legible and will be initialed.

6.7 DECONTAMINATION OF SAMPLING AND DRILLING EQUIPMENT

Decontamination procedures will be applicable to all drilling, sampling, and testing activities. Drilling and well construction equipment mobilized to the Site will receive an initial decontamination prior to use. Decontamination will consist of steam cleaning of the drill rig and associated equipment to the satisfaction of the Site Representative. The rear portion of the drill rig will also be decontaminated by steam cleaning between monitoring well installations. In addition, equipment entering a well but not used for sample collection (e.g.,

augers) will be decontaminated using a high pressure steam cleaner to remove soil and volatilize organics. Drilling equipment will be decontaminated prior to removing the equipment from the Site.

The field sampling equipment (including soil and groundwater sampling equipment) decontamination procedures will be as follows:

i) non-phosphate detergent wash;

ii) tap water rinse;

iii) distilled water rinse;

iv) isopropanol rinse;

v) air dry; and

vi) distilled water rinse.

When practicable, sampling equipment will be wrapped in a material that will prevent it from becoming contaminated. When cleaning pressure transducer and water level measurement equipment, the isopropanol rinse shall not be used. Field decontamination wastes will be handled in accordance with all applicable regulations.

6.8 WASTE HANDLING

Borehole cuttings, wastewater, and cleaning solvents shall be placed in separate containers and covered. At the end of every day, all containers will be securely covered, and full containers will be transferred to an on-Site staging area. All containers will be properly labeled as to contents in conformance with all Federal and State regulations.

Following characterization, waste material will be disposed in accordance with the appropriate regulations.

6.9 SAMPLE PREPARATION AND PRESERVATION

Immediately after collection, samples will be transferred to properly labeled sample containers and properly preserved. Table 5.1 of the QAPP lists the proper container materials, volume requirements, and preservation needed for

the Site analyses. Samples requiring refrigeration for preservation will be immediately transferred to coolers packed with ice and/or ice packs. Samples will be shipped within 24 hours of being collected and will arrive at the laboratory no later than 48 hours after sample collection. Proper Chain of Custody documentation will be maintained as discussed in the QAPP.

6.10 WELL ABANDONMENT

Should an installed monitoring well require abandonment, the procedures will be in accordance with the NYSDEC "Decommissioning Procedures" dated April 1993. A copy of the Decommissioning Procedures document is contained in Appendix A of this FSP.

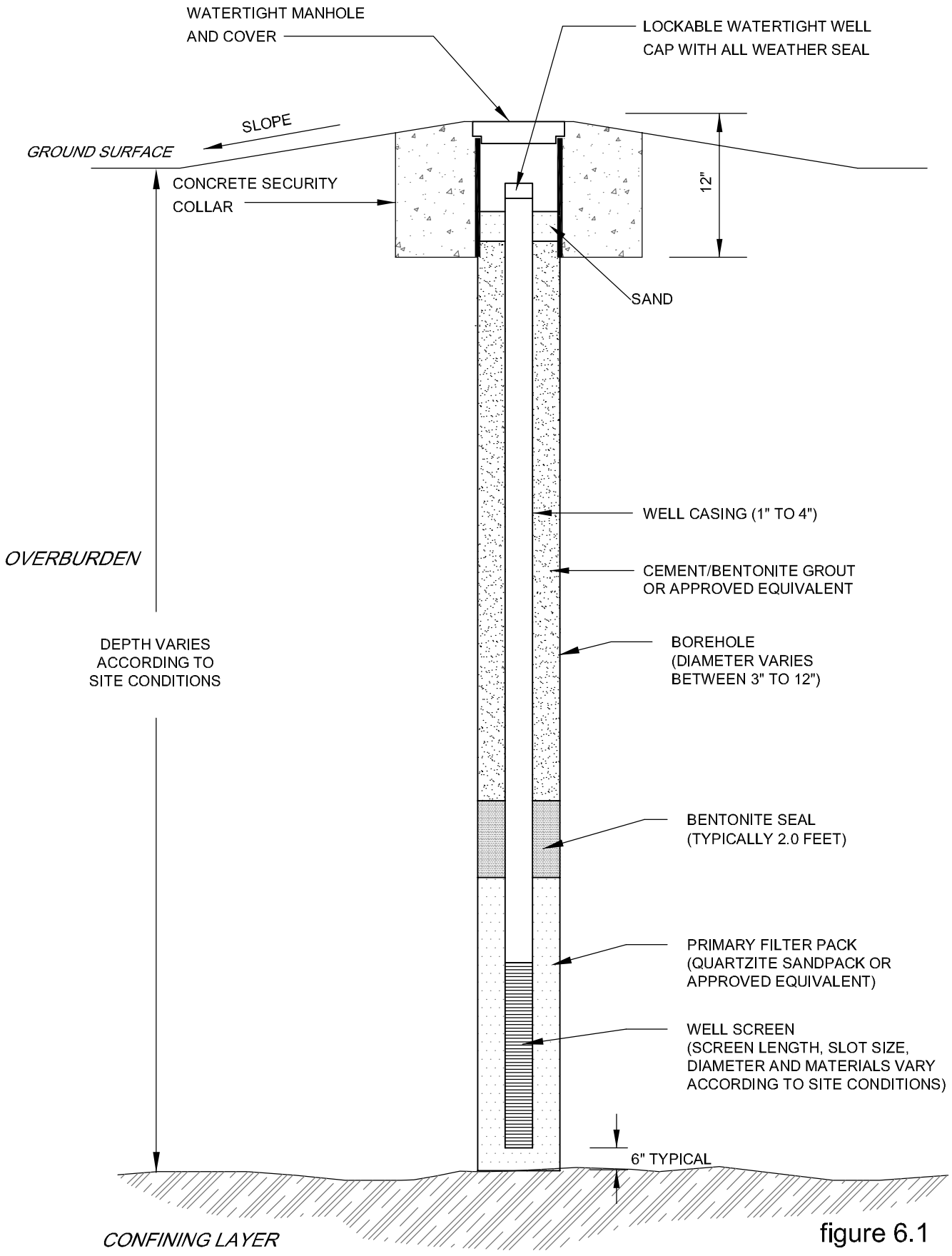

figure 6.1

APPENDIX A

TYPICAL OVERBURDEN WELL INSTALLATION

TABLE 2.1
PROPOSED SAMPLING AND ANALYSIS SUMMARY
SITE INVESTIGATION
THE FORMER BUFFALO CHINA SITE
BUFFALO, NEW YORK

	Analytical Parameters	*Estimated Number of Samples*			
		Originals	*FD*	*MS/MSD*	*TB*
Sub-Surface Soil					
Soil Mound	TCL VOCs, Lead, TCL SVOCs	2	1	1/1	0
	TCL VOCs, TCL SVOCs, TAL Metals, TCL Pesticides/Herbicides, PCBs	1	0	0/0	0
Soil Borings (Harrison Street Warehouse Area)	TCL VOCs, Lead, TCL SVOCs	9	2	2/2	0
	TCL VOCs, TCL SVOCs, TAL Metals, TCL Pesticides/Herbicides, PCBs	2	0	0/0	0
Soil Borings (Niagara Ceramics Parking Lot and North of Glazing Room)	TCL VOCs, TCL SVOCs, TAL Metals, TCL Pesticides/Herbicides, PCBs	2	0	0/0	0
Soil Borings (34 and 20 Hayes Place)	TCL VOCs, TCL SVOCs, TAL Metals, TCL Pesticides/Herbicides, PCBs	2	0	0/0	0
Off-Site Soil Boring (MW-14 Location)	TCL VOCs, TCL SVOCs, TAL Metals, TCL Pesticides/Herbicides, PCBs	1	0	0/0	0
Sub-Surface Soil					
Off-Site Surface Soil	Lead	20	2	2/2	0
	TAL metals	6	1	0/0	0
Groundwater					
New Groundwater Monitoring Wells (MW-14, MW-15)	TCL VOCs, TCL SVOCs, Total and Dissolved TAL Metals, TCL Pesticide/Herbicide, PCBs	2	0	0/0	1
New Groundwater Monitoring Wells (MW-10, MW-11, MW-12, MW-13, MW-17)	TCL VOCs, Total Lead, Dissolved lead	6	1	1/1	1
Existing Groundwater Monitoring Wells (MW-9, MW-4)	TCL VOCs, TCL SVOCs, Total and Dissolved TAL Metals, TCL Pesticide/Herbicide, PCBs	2	1	1/1	1
Existing Groundwater Monitoring Wells (MW-5, MW-6, MW-8)	TCL VOCs, Total Lead, Dissolved Lead	3	0	0/0	1

Notes:

(1) Surface samples will be collected only in unpaved outdoor areas.
FD Field Duplicate.
MS Matrix Spike.
MSD Matrix Spike Duplicate.
SVOCs Semi-Volatile Organic Compounds.
TB Trip Blank (VOCs Only).
VOCs Volatile Organic Compounds.
TAL Target Analyte List.
TCL Target Compound List.

APPENDIX B

QUALITY ASSURANCE PROJECT PLAN

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LIST OF TABLES
(Following Text)

1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) is Site-specific and has been prepared for the Site Investigation of the Former Buffalo China property, 51 Hayes Place, Buffalo, New York (Site).

The objectives of this QAPP are to provide data and documentation to characterize and determine the nature and extent of contaminants at the Site. This QAPP provides comprehensive information regarding the project personnel responsibilities, and sets forth specific procedures to be used during sampling of relevant environmental matrices and analyses of data.

2.0 PROJECT BACKGROUND

2.1 GENERAL

This QAPP provides quality assurance/quality control (QA/QC) criteria for work efforts associated with soil and groundwater analyses. Methods for sample analyses have been selected to provide results, which characterize the samples, such that the sampling objectives can be met.

3.0 PROJECT ORGANIZATION AND RESPONSIBILITY

A brief description of the duties of the key project personnel is presented below.

Project Director

i) provides overall project management;

ii) ensures professional services by the Contractor are cost effective and of highest quality;

iii) ensures all resources of the Contractor are available on an as-required basis;

iv) participates in key technical negotiations; and

v) provides managerial and technical guidance to the Contractor's Coordinator.

Project Manager

i) provides day-to-day project management;

ii) provides managerial guidance to the QA/QC Officer - Sampling and Analytical Activities;

iii) prepares and reviews reports;

iv) conducts preliminary chemical data interpretation and assessment; and

v) responsible for overall project completion in accordance with the approved design.

QA/QC Officer - Sampling and Analytical Activities

i) oversees and reviews laboratory activities;

ii) determines laboratory data corrective action;

iii) performs analytical data validation and assessment;

iv) reviews laboratory QA/QC;

v) assists in preparation and review of final report;

vi) provides technical representation for analytical activities;

vii) oversees and reviews field activities;

viii) provides managerial and technical guidance to the Field Sampling Supervisor;

ix) performs field sampling performance audit(s);

x) ensures that field and Chain of Custody records are properly maintained; and

xi) determines field procedure corrective actions.

Field Sampling Supervisor

i) provides immediate supervision of all on-Site activities;

ii) provides field management of sample collection and field QA/QC;

iii) provides technical representation for field activities; and

iv) is responsible for maintenance of the field equipment.

Laboratory - Project Manager, Analytical Contractor

i) ensures resources of laboratory are available on an as-required basis;

ii) coordinates laboratory analyses;

iii) supervises laboratory's in-house Chain of Custody;

iv) schedules analyses of samples;

v) oversees review of data;

vi) oversees preparation of analytical reports; and

vii) approves final analytical reports.

Laboratory - Quality Assurance/Quality Control Officer, Analytical Contractor

i) overviews laboratory QA/QC;

ii) overviews QA/QC documentation;

iii) conducts detailed data review;

iv) decides laboratory corrective actions, if required; and

v) provides technical representation for laboratory QA/QC procedures.

Laboratory - Sample Custodian - Analytical Contractor

i) receives and inspects the sample containers;

ii) records the condition of the sample containers;

iii) signs appropriate documents;

iv) verifies Chain of Custody and their correctness;

v) notifies laboratory Project Manager and laboratory QA/QC Officer of sample receipt and inspection;

vi) assigns a unique laboratory identification number correlated to the field sample identification number, and enters each into the sample receiving log;

vii) initiates transfer of samples to the appropriate lab sections with assistance from the laboratory project manager; and

viii) controls and monitors access to and storage of samples and extracts.

The analytical laboratory selected to perform the analyses will be a full-service chemical analytical laboratory certified by the New York State Department of Health (NYSDOH) through the Environmental Laboratory Approval Program (ELAP) and the Contract Laboratory Program (CLP) for the appropriate categories of analysis.

4.0 PROJECT OBJECTIVES

4.1 QUALITY ASSURANCE OBJECTIVES FOR MEASUREMENT DATA

The overall QA objective is to develop and implement procedures for sample collection and analyses which will provide data with an acceptable level of accuracy and precision.

Quality assurance measures for this project will begin with sample containers. Sample containers will be purchased from a certified manufacturer and will be precleaned (I-Chem Series 200 or equivalent).

4.2 LABORATORY QUALITY ASSURANCE

The following subsections define the QA goals required to meet the Data Quality Objectives (DQOs) of the project.

4.2.1 ACCURACY, PRECISION, AND SENSITIVITY OF ANALYSES

The fundamental QA objective with respect to the accuracy, precision, and sensitivity of analytical data is to meet the QC acceptance criteria of each analytical protocol. Analytical methods and targeted detection limits listed have been specified to meet DQOs.

A summary of the targeted detection limits is provided in Table 4.1. It should be noted that these limits are targeted detection limits only; limits are highly matrix dependent and may not always be achieved.

The method accuracy (percent recovery) will be determined by spiking selected samples (matrix spikes) with the method recommended spiking compounds. Accuracy will be reported as the percent recovery of the spiking compound(s) and will compare with the criteria given in the appropriate methods, as identified in Section 7.0.

The method(s) precision (reproducibility between duplicate analyses) will be determined based on the duplicate analysis of matrix spike samples for organic parameters and duplicate sample analyses for inorganic parameters. Precision will be

reported as Relative Percent Differences (RPDs) between duplicate analyses; acceptance criteria will be as specified in the appropriate methods identified in Section 7.0.

4.2.2 COMPLETENESS, REPRESENTATIVENESS AND COMPARABILITY

A completeness requirement of 90 percent will be targeted for the program (see Section 13.1.3 for definition of completeness).

The quantity of samples to be collected has been estimated in an effort to effectively represent the population being studied.

4.3 FIELD MEASUREMENT QUALITY ASSURANCE

Measurement data will be generated during field activities. These activities include, but are not limited to, the following:

i) documenting time and weather conditions; and

iii) observation of sample appearance and other conditions.

The general QA objective for measurement data is to obtain reproducible and comparable measurements to a degree of accuracy consistent with the use of standardized procedures.

5.0 SAMPLING PROCEDURES

The sample collection procedures are described in the Field Sampling Plan (FSP) contained in Appendix A of the Site Investigation Work Plan.

The sample container, preservation, shipping, and packaging requirements are identified in Section 6.9 of the FSP.

6.0 SAMPLE CUSTODY AND DOCUMENT CONTROL

The following documentation procedures will be used during sampling and analysis to provide Chain of Custody control during transfer of samples from collection through storage. Record keeping documentation will include use of the following:

i) field log books (bound with numbered pages) to document sampling activities in the field;

ii) labels to identify individual samples;

iii) Chain of Custody record sheet to document analyses to be performed; and

iv) laboratory sample custody log book.

6.1 FIELD LOG BOOK

In the field, the sampler will record the following information in the field log book (bound) for each sample collected:

i) project number;

ii) sample matrix;

iii) name of sampler;

iv) sample source;

v) time and date;

vi) pertinent data (e.g., depth);

vii) analysis to be conducted;

viii) sampling method;

ix) appearance of each sample (i.e., color, evidence of soil staining);

x) preservation added, if any;

xi) number of sample bottles collected; and

xii) pertinent weather data.

Each field log book page will be signed by the sampler.

6.2 SAMPLE NUMBERING

A sample numbering system will be used that assigns a unique number to each sample. This system will provide a tracking number to allow retrieval and cross-referencing of sample information. The sample numbering system to be used is described as follows:

Example:	SO-12345-052605 - AA-XXX
Where:	SO - Designates sample Type
	(SO = Soil, WG = Groundwater)
12345:	CRA Project Number
052605:	Date of collection (mm/dd/yy)
AA:	Sampler initials
XXX:	Unique sample number

QC samples will also be numbered with a unique sample number.

6.3 CHAIN OF CUSTODY RECORDS

Chain of Custody forms will be completed for all samples collected during the program.

The Chain of Custody form will document the transfer of sample containers. Custody seals will be placed on each cooler. The cooler will then be sealed with packing tape. Sample container labels will include sample number, place of collection and date and time of collection. All samples will be refrigerated using wet ice at 4°C (±2°C) and delivered to the analytical laboratory within 24 to 48 hours of collection. All samples will be delivered to the laboratory by commercial courier or Contractor personnel. All samples will be stored at 4°C (±2°C) at the laboratory.

The Chain of Custody record, completed at the time of sampling, will contain, but not be limited to, the sample number, date and time of sampling, and the name of the sampler. The Chain of Custody document will be signed, timed, and dated by the sampler when transferring the samples.

Each sample cooler being shipped to the laboratory will contain a Chain of Custody form. The Chain of Custody form will consist of four copies which will be distributed as follows: the shipper will maintain a copy while the other three copies will be enclosed in a waterproof envelop within the cooler with the samples. The cooler will then be affixed with a custody seal and sealed properly for shipment. The laboratory, upon

receiving the samples, will complete the three remaining copies. The laboratory will maintain one copy for their records. One copy will be returned to the QA/QC Officer-Sampling and Analytical Activities upon receipt of the samples by the laboratory. One copy will be returned with the data deliverables package.

Upon receipt of the cooler at the laboratory, the shipping cooler and the custody seal will be inspected by the Sample Custodian. The condition of the cooler and the custody seal will be noted on the Chain of Custody record sheet by the Sample Custodian. The Sample Custodian will record the temperature of one sample (or temperature blank) from each cooler and the temperature will be noted on the Chain of Custody. If the shipping cooler seal is intact, the sample containers will be accepted for analyses. The Sample Custodian will document the date and time of receipt of the container, and sign the form.

If damage or discrepancies are noticed (including sample temperature exceedances), they will be recorded in the remarks column of the record sheet, dated and signed. Any damage or discrepancies will be reported to the Laboratory Project Manager and Laboratory QA/QC Officer before samples are processed.

6.4 SAMPLE DOCUMENTATION IN THE LABORATORY

Each sample or group of samples shipped to the laboratory for analysis will be given a unique identification number. The Sample Custodian will record the client name, number of samples and date of receipt of samples in the Sample Control Log book. Samples removed from storage for analyses will be documented in the Sample Control Log book.

The laboratory will be responsible for maintaining analytical log books and laboratory data as well as a sample (on hand) inventory for submittal to the QA/QC Officer - Sampling and Analytical Activities on an "as required" basis. Raw laboratory data produced from the analysis of samples submitted for this program will be inventoried and maintained by the laboratory for a period of 5 years at which time the QA/QC Officer - Sampling and Analytical Activities will advise the laboratory regarding the need for additional storage.

6.5 STORAGE OF SAMPLES

After the Sample Custodian has completed the Chain of Custody forms and the incoming sample log, the Chain of Custody will be checked to ensure that all samples are stored in the appropriate locations. All samples will be stored within an access-controlled custody room and will be maintained at 4°C (±2°C) until all analytical work is complete.

6.6 SAMPLE DOCUMENTATION

Evidentiary files for the entire project shall be inventoried and maintained by the QA/QC Officer - Sampling and Analytical Activities and shall consist of the following:

i) project related plans;
ii) project log books;
iii) field data records;
iv) sample identification documents;
v) Chain of Custody records;
vi) report notes, calculations, etc.;
vii) lab data, etc.;
viii) references, copies of pertinent literature;
ix) miscellaneous - photos, maps, drawings, etc.; and
x) copies of all final reports pertaining to the project.

The evidentiary file materials shall be the responsibility of the Project Manager with respect to maintenance and document removal.

7.0 ANALYTICAL PROCEDURES FOR CHEMICAL ANALYSES

Samples collected for laboratory chemical analyses will be analyzed for the parameters listed in Table 4.1, using the methods cited in Table 4.2. These methods have been selected to meet the DQOs for each sampling activity. All reporting and deliverables will be consistent with Analytical Services Protocol (ASP) Category A format, but including QA/QC summary forms. The data package should include all items listed in Table 9.1.

Internal standards or isotopic dilution will be employed for analyte quantitation as detailed in the appropriate analytical methods.

8.0 CALIBRATION PROCEDURES AND FREQUENCY

Calibration of instrumentation is required to ensure that the analytical system is operating correctly and functioning at the proper sensitivity to meet established reporting limits. Each instrument is calibrated with standard solutions appropriate to the type of instrument and the linear range established for the analytical method. The frequency of calibration and the concentration of calibration standards is determined by the manufacturers guidelines, the analytical method, or the requirements of special contracts.

A bound notebook will be kept with each instrument requiring calibration in which will be recorded activities associated with QA monitoring and repairs program. These records will be checked during periodic equipment review and internal and external QA/QC audits.

8.1 GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)

It is necessary to establish that a given GC/MS meets the standard mass spectral abundance criteria prior to initiating any ongoing data collection. This is accomplished through the analyses of tuning compounds as specified in the analytical methods.

Calibration of the GC/MS system will be performed daily at the beginning of the day or with each 12 hours of instrument operating time. All method-specified calibration criteria must be met prior to sample analyses. All calibrations must be performed using either average response factors or first-order linear regression (with a correlation coefficient requirement of ≥ 0.995). Higher order fits will not be allowed.

9.0 DATA REDUCTION, VALIDATION ASSESSMENT AND REPORTING

9.1 GENERAL

The contract laboratory will perform analytical data reduction and validation in-house under the direction of the Laboratory QA/QC Officer. The Laboratory QA/QC Officer will be responsible for assessing data quality and advising of any data which were rated "preliminary" or "unacceptable" or other qualifications based on the QC criteria outlined in the relevant methods, which would caution the data user of possible unreliability. Data reduction, validation and reporting by the laboratory will be conducted as detailed in the following:

i) raw data produced and checked by the responsible analysts is turned over for independent review by another analyst;

ii) the area supervisor reviews the data for attainment of quality control criteria presented in the referenced analytical methods;

iii) upon completion of all reviews and acceptance of the raw data by the laboratory operations manager, a computerized report will be generated and sent to the Laboratory QA/QC Officer;

iv) the Laboratory QA/QC Officer will complete a thorough inspection of all reports;

v) the Laboratory QA/QC Officer and area supervisor will decide whether any sample reanalysis is required; and

vi) upon acceptance of the preliminary reports by the Laboratory QA/QC Officer, final reports will be generated and signed by the Laboratory Project Manager.

Validation of the analytical data will be performed by the QA/QC Officer - Sampling and Analytical Activities. Assessment of analytical data will include checks on data consistency by looking for comparability of duplicate analyses, comparability to previous data from the same sampling location (if available), adherence to accuracy and precision control criteria detailed in this QAPP and anomalously high or low parameter values. The results of these data validations will be reported to the Project Manager and the contract laboratory, noting any discrepancies and their effect upon acceptability of the data.

Raw data from field measurements and sample collection activities that are used in project reports will be appropriately identified and appended to the report. Where data

have been reduced or summarized, the method of reduction will be documented in the report. Field data will be audited for anomalously high or low values that may appear to be inconsistent with other data.

9.2 LABORATORY REPORTING, DATA, PRESENTATION AND FINAL REPORT

Reporting and deliverables should be ASP Category A and shall include, but not be limited to, all items listed in Table 9.1.

All sample data and corresponding QA/QC data as specified in the analytical methods, shall be maintained accessible either in hard copy or on magnetic tape or disk (computer data files).

The laboratory will submit one copy of the final analytical report within 21 calendar days of receipt of the final sample included in the sample delivery group (SDG) and an electronic data deliverable in EQuIS format.

9.3 DOCUMENT CONTROL SYSTEM

A document control system ensures that all documents are accounted for when the project is complete.

A project number will be assigned to the project. This number will appear on sample identification tags, log books, data sheets, control charts, project memos and analytical reports, document control logs, corrective action forms and logs, QA plans, and other project analytical records.

9.4 QC CHECK POINTS AND DATA FLOW

The following specific QC check points will be common to all metals, GC, and GC/MS analyses. They are presented with the decision points:

Chemist - bench level checks

i) systems check: sensitivity, linearity, and reproducibility within specified limits;

ii) duplicate analyses within control limits;

iii) matrix spike results within control limits;

iv) surrogate spike results within control limits (organics only); and

v) calculation/data reduction checks: calculations cross-checked, any discrepancies between forms and results evident, results tabulated sequentially on the correct forms.

Laboratory Project Manager

i) systems operating within limits;

ii) data transcription correct;

iii) data complete; and

iv) data acceptable.

Sample Control

i) samples returned to sample control following analysis.

Laboratory QA/QC Officer

i) QA objectives met;

ii) QC checks are completed; and

iii) final data and report package is complete.

10.0 INTERNAL QUALITY CONTROL CHECKS AND FREQUENCY

10.1 QC FOR LABORATORY ANALYSES

Specific procedures related to internal laboratory QC samples are described in the following subsections.

10.1.1 REAGENT BLANKS

A reagent blank will be analyzed by the laboratory at a frequency of one blank per analytical batch. The reagent blank, an aliquot of analyte-free water or solvent, will be carried through the entire analytical procedure.

10.1.2 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD)/DUPLICATE ANALYSES

An MS/MSD sample will be analyzed for organic parameters (except high resolution gas chromatograph/high resolution mass spectrometer [HRGC/HRMS]) and a duplicate and matrix spike will be analyzed for inorganic parameters at a minimum frequency of one per analytical batch. Acceptable criteria and analytes that will be used for matrix spikes are identified in the methods. Where method specified limits were not available, general control limits should be used. Percent spike recoveries will be used to evaluate analytical accuracy while percent relative standard deviation or the RPD between duplicate analyses will be used to assess analytical precision.

10.1.3 SURROGATE ANALYSES

Surrogates are organic compounds which are similar to the analytes of interest, but which are not normally found in environmental samples. Surrogates are added to samples to monitor the effect of the matrix on the accuracy of the analysis. Every blank, standard and environmental sample analyzed by GC or GC/MS, including MS/MSD samples, will be spiked with surrogate compounds prior to sample preparation.

The compounds that will be used as surrogates and the levels of recommended spiking are specified in the methods. Surrogate spike recoveries must fall within the control limits specified in the methods. If surrogate recoveries are excessively low

(<10 percent), the laboratory will contact the QA/QC Officer - Sampling and Analytical Activities for further instructions. Dilution of samples to bring the analyte concentration into the linear range of calibration may dilute the surrogates out of the quantification limit. Reanalysis of these samples is not required. Assessment of analytical quality in these cases will be based on the MS/MSD sample analysis results.

10.2 QC FOR FIELD SAMPLING

To assess the quality of data resulting from the field sampling program, field duplicate and field blank samples will be collected (where appropriate) and submitted to the analytical laboratory as samples.

10.2.1 FIELD (RINSE) BLANKS

Field blanks will be used during the sampling programs to detect contamination introduced through sample collection procedures and equipment, external field conditions, sample transport, sample container preparation, sample storage, and/or the analytical process.

10.2.2 FIELD DUPLICATE SAMPLES

Field duplicate samples will be collected and used to assess the aggregate precision of sampling techniques and laboratory analysis. For every 10 investigative samples, a field duplicate sample will be collected using standard sampling procedures. This duplicate will be packed and shipped to the laboratory for analysis.

11.0 PERFORMANCE AND SYSTEM AUDITS

For the purpose of external evaluation, performance evaluation check samples are analyzed periodically by the laboratory. Internally, the evaluation of data from these samples is done on a continuing basis over the duration of a given project.

The QA/QC Officer - Sampling and Analytical Activities may carry out performance and/or systems audits to insure that data of known and defensible quality are consistently produced during this program.

Systems audits are qualitative evaluations of all components of field and laboratory quality control measurement systems. They determine if the measurement systems are being used appropriately. The audits may be carried out before all systems are operational, during the program, or after completion of the program. Such audits typically involve a comparison of the activities given in the QA/QC Plan described herein, with activities actually scheduled or performed. A special type of systems audit is the data management audit. This audit addresses only data collection and management activities.

The performance audit is a quantitative evaluation of the measurement systems used for a monitoring program. It requires testing the measurement systems with samples of known composition or behavior to quantitatively evaluate precision and accuracy. A performance audit may be carried out by or under the auspices of the QA/QC Officer - Sampling and Analytical Activities without the knowledge of the analyst during each sampling event for this program.

It should be noted, however, that any additional external QA audits will only be performed if deemed necessary.

12.0 PREVENTATIVE MAINTENANCE

This section applies to both field and laboratory equipment. Specific preventive maintenance procedures for field equipment will be consistent with the manufacturer's guidelines. Specific preventive maintenance protocols for laboratory equipment will be consistent with the contract laboratory's standard operating procedures.

All analytical instruments to be used in this project will be serviced by laboratory personnel at regularly scheduled intervals in accordance with the manufacturers' recommendations. Instruments may also be serviced at other times due to failure. Requisite servicing beyond the abilities of laboratory personnel will be performed by the equipment manufacturer or their designated representative.

Routine maintenance of the instruments will be performed as per manufacturers' recommendations. The Laboratory Project Manager is responsible for the preventive maintenance of the instruments.

13.0 SPECIFIC ROUTINE PROCEDURES USES TO ASSESS DATA PRECISION, ACCURACY AND COMPLETENESS

13.1 QA MEASUREMENT QUALITY INDICATORS

13.1.1 PRECISION

Precision will be assessed by comparing the analytical results between duplicate spike analyses. Precision as percent relative difference will be calculated as follows for values significantly greater than the associated detection limit:

$$\text{Precision} = \left| \frac{(D_2 - D_1)}{(D_1 + D_2)/2} \right| \times 100$$

D_1 = matrix spike recovery

D_2 = matrix spike duplicate spike recovery

For results near the associated detection limits, precision will be assessed based on the following criteria:

$$\text{Precision} = \left| \text{Original result - duplicate result} \right| < \text{CRDL}^1$$

13.1.2 ACCURACY

Accuracy will be assessed by comparing a set of analytical results to the accepted or "true" values that would be expected. In general, MS/MSD and check sample recoveries will be used to assess accuracy. Accuracy as percent recovery will be calculated as follows:

$$\text{Accuracy} = \frac{A - B}{C} \times 100$$

A = The analyte determined experimentally from the spike sample

B = The background level determined by a separate analysis of the unspiked sample

C = The amount of spike added

[1] Contract Required Detection Limit (CRDL).

In some cases, MS and/or MSD recoveries may not be available due to elevated levels of the spiked analyte in the investigative sample. In such cases, accuracy will be assessed based on surrogate spike recoveries and/or laboratory control samples.

13.1.3 COMPLETENESS

Completeness is a measure of the amount of valid data obtained from a measurement system compared with the amount that was expected to be obtained under normal conditions.

To be considered complete, the data set must contain all QC check analyses verifying precision and accuracy for the analytical protocol. In addition, all data are reviewed in terms of stated goals in order to determine if the database is sufficient.

When possible, the percent completeness for each set of samples will be calculated as follows:

$$\text{Completeness} = \frac{\text{usable data obtained}}{\text{total data planned}} \times 100 \text{ percent}$$

13.1.4 OUTLIERS

Procedures discussed previously will be followed for documenting deviations. In the event that a result deviates significantly from method established control limits, this deviation will be noted and its effect on the quality of the remaining data assessed and documented.

14.0 CORRECTIVE ACTION

The need for corrective action may be identified by system or performance audits or by standard QC procedures. The essential steps in the corrective actions system will be:

i) checking the predetermined limits for data acceptability beyond which corrective action is required;

ii) identifying and defining problems;

iii) assigning responsibility for investigating the problem;

iv) investigating and determining the cause of the problem;

v) determination of a corrective action to eliminate the problem (this may include reanalysis or resampling and analyses);

vi) assigning and accepting responsibility for implementing the corrective action;

vii) implementing the corrective action and evaluating the effectiveness;

viii) verifying that the corrective action has eliminated the problem; and

ix) documenting the corrective action taken.

For each measurement system, the laboratory QA/QC Officer will be responsible for initiating the corrective action and the Laboratory Project Manager will be responsible for implementing the corrective action.

15.0 QUALITY ASSURANCE REPORTS

Final reports will contain a discussion on QA/QC summarizing the quality of the data collected and/or used as appropriate for each phase of the project. The Project Manager who has responsibility for these summaries, will rely on written reports/memoranda documenting the data assessment activities, performance and systems audits and footnotes identifying qualifications to the data, if any.

Each summary of sampling activities will include a tabulation of the data including:

i) field blank and field duplicate sample results;

ii) maps showing well locations; and

iii) an explanation of any sampling conditions or quality assurance problems and their effect on data quality.

QA reports will be prepared by the QA/QC Officer - Sampling and Analytical Activities following receipt of all analytical data. These reports will include discussions of the following and their effects on the quality of the data reported:

i) sample holding times,

ii) laboratory/reagent blank data

iii) surrogate spike, matrix spike and matrix spike duplicate data;

iv) field QA/QC data;

v) pertinent instrument performance per method protocols; and

vi) audit results (if performed).

In addition, the QA reports will summarize all QA problems, and give a general assessment of QA results versus control criteria for such parameters as accuracy, precision, etc.

The QA reports will be forwarded to the Project Manager.

TABLE 4.1

TARGET QUANTITATION LIMITS
SITE INVESTIGATION
FORMER BUFFALO CHINA SITE
BUFFALO, NEW YORK

	CAS Number	*Water Quantitation Limits*	*Soil/Sediment Quantitation Limits*
Volatiles		*µg/L*	*µg/Kg*
1,1,2,2-Tetrachloroethane	79-34-5	10	10
1,1,2-Trichloroethane	79-00-5	10	10
1,1-Dichloroethane	75-34-3	10	10
1,1-Dichloroethylene	75-35-4	10	10
1,2-Dibromo-3-chloropropane	96-12-8	10	10
1,2-Dibromoethane	106-93-4	10	10
1,2-Dichloroethane	107-06-2	10	10
1,2-Dichloropropane	78-87-5	10	10
Bromodichloromethane	75-27-4	10	10
Bromoform	75-25-2	10	10
Carbon tetrachloride	56-23-5	10	10
Chlorobenzene	108-90-7	10	10
Chloroethane	75-00-3	10	10
Chloroform	67-66-3	10	10
cis-1,3-Dichloropropene	10061-01-5	10	10
Dibromochloromethane	124-48-1	10	10
Dichlorodifluoromethane	75-71-8	10	10
m-Dichlorobenzene	541-73-1	10	10
Bromomethane	74-83-9	10	10
Chloromethane	74-87-3	10	10
Methylene chloride	75-09-2	10	10
o-Dichlorobenzene	95-50-1	10	10
p-Dichlorobenzene	106-46-7	10	10
Tetrachloroethylene	127-18-4	10	10
trans-1,2-Dichloroethylene	156-60-5	10	10
trans-1,3-Dichloropropene	10061-02-6	10	10
Trichloroethylene	79-01-6	10	10
Trichlorofluoromethane	75-69-4	10	10
Vinyl chloride	75-01-4	10	10
4-Methyl-2-pentanone	108-10-1	10	10
2-Butanone	78-93-3	10	10
Benzene	71-43-2	10	10
Ethylbenzene	100-41-4	10	10
Styrene	100-42-5	10	10
Toluene	108-88-3	10	10
Xylene(total)	1330-20-7	10	10
1,1,1-Trichloroethane	71-55-6	10	10
2-Hexanone	591-78-6	10	10
Acetone	67-64-1	10	10
Carbon disulfide	75-15-0	10	10
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	10	10
Methyl Acetate	79-20-9	10	10
Methyl tert-Butyl Ether	1634-04-4	10	10
cis-1,2-Dichloroethene	156-59-2	10	10
Cyclohexane	110-82-7	10	10
Methylcyclohexane	108-87-2	10	10
Isopropylbenzene	98-82-8	10	10
1,2,-Trichlorobenzene	120-82-1	10	10

TABLE 4.1

TARGET QUANTITATION LIMITS
SITE INVESTIGATION
FORMER BUFFALO CHINA SITE
BUFFALO, NEW YORK

	CAS Number	*Water Quantitation Limits*	*Soil/Sediment Quantitation Limits*
Semi-Volatiles		***µg/L***	***µg/Kg***
2,4,6-Trichlorophenol	88-06-2	10	330
2,4-Dichlorophenol	120-83-2	10	330
2,4-Dimethylphenol	105-67-9	10	330
2,4-Dinitrophenol	51-28-5	25	830
2-Chlorophenol	95-57-8	10	330
4,6-Dinitro-o-creol	534-52-1	25	830
o-Nitrophenol	88-75-5	10	330
p-Chloro-m-cresol	59-50-7	10	330
Pentachlorophenol	87-86-5	25	830
Phenol	108-95-2	10	330
p-Nitrophenol	100-02-7	25	830
Bis(2-ethylhexyl) phthalate	117-81-7	10	330
Butyl benzyl phthalate	85-68-7	10	330
Diethyl phthalate	84-66-2	10	330
Dimethyl phthalate	131-11-3	10	330
Di-n-butyl phthalate	84-74-2	10	330
Di-n-octyl phthalate	117-84-0	10	330
2,4-Dinitrotoluene	121-14-2	10	330
2,6-Dinitrotoluene	606-20-2	10	330
Isophorone	78-59-1	10	330
Nitrobenzene	98-95-3	10	330
Acenaphthene	83-32-9	10	330
Acenaphthylene	208-96-8	10	330
Anthracene	120-12-7	10	330
Benzo[a]anthracene	56-55-3	10	330
Benzo[a]pyrene	50-32-8	10	330
Benzo[b]fluoranthene	205-99-2	10	330
Benzo[ghi]perylene	191-24-2	10	330
Benzo[k]fluoranthene	207-08-9	10	330
Chrysene	218-01-9	10	330
Dibenz[a,h]anthracene	53-70-3	10	330
Fluoranthene	206-44-0	10	330
Fluorene	86-73-7	10	330
Indeno(1,2,3 cd)pyrene	193-39-5	10	330
Naphthalene	91-20-3	10	330
Phenanthrene	85-01-8	10	330
Pyrene	129-00-0	10	330
2-Chloronaphthalene	91-58-7	10	330
Hexachlorobenzene	118-74-1	10	330
Hexachlorobutadiene	87-68-3	10	330
Hexachlorocyclopentadiene	77-47-4	10	330
Hexachloroethane	67-72-1	10	330
2,4,5-Trichlorophenol	95-95-4	25	830
2-Methylnaphthalene	91-57-6	10	330
3,3'-Dichlorobenzidine	91-94-1	10	330
4-Chlorophenyl phenyl ether	7005-72-3	10	330
Bis(2-chloroethoxy)methane	111-91-1	10	330
Bis(2-chloroethyl)ether	111-44-4	10	330
Dibenzofuran	132-64-9	10	330
m-Nitroaniline	99-09-2	25	830

TABLE 4.1

TARGET QUANTITATION LIMITS
SITE INVESTIGATION
FORMER BUFFALO CHINA SITE
BUFFALO, NEW YORK

	CAS Number	*Water Quantitation Limits*	*Soil/Sediment Quantitation Limits*
Semi-Volatiles (Cont'd.)		***µg/L***	***µg/Kg***
N-Nitrosodiphenylamine	86-30-6	10	330
N-Nitrosodipropylamine	621-64-7 1	10	330
o-Cresol	95-48-7	10	330
o-Nitroaniline	88-74-4	25	830
p-Chloroaniline	106-47-8	10	330
p-Cresol	106-44-5	10	330
p-Nitroaniline	100-01-6	25	830
Benzaldehyde	100-52-7	10	330
2,2'-oxybis(1-Chloropropane)	108-60-1	10	330
Acetophenone	98-86-2	10	330
Caprolactam	105-60-2	10	330
1,1'-Biphenyl	92-52-4	10	330
4-Bromophenyl-phenylether	101-55-3	10	330
Atrazine	1912-24-9	10	330
Carbazole	86-74-8	10	330
TAL Metals		***µg/L***	***mg/Kg***
Aluminum	7429-90-5	200	20
Antimony	7440-36-0	60	6.0
Arsenic	7440-38-2	10	1.0
Barium	7440-39-3	200	20
Beryllium	7440-41-7	5.0	0.5
Cadmium	7440-43-9	5.0	0.5
Calcium	7440-70-2	5000	500
Chromium	7440-47-3	10	1.0
Cobalt	7440-48-4	50	5.0
Copper	7440-50-8	25	2.5
Iron	7439-89-6	100	10
Lead	7439-92-1	10.0	1
Magnesium	7439-95-4	5000	500
Manganese	7439-96-5	15	1.5
Mercury	7439-97-6	0.2	0.1
Nickel	7440-02-0	40	4.0
Potassium	7440-09-7	5000	500
Selenium	7782-49-2	35.0	3.5
Silver	7440-22-4	10	1.0
Sodium	7440-23-5	5000	500
Thallium	7440-28-0	25	2.5
Vanadium	7440-62-2	50	5.0
Zinc	7440-66-6	60	6.0
Cyanide	57-12-5	10	1.0

TABLE 4.2

SAMPLING AND ANALYSIS SUMMARY
SITE INVESTIGATION
FORMER BUFFALO CHINA SITE
BUFFALO, NEW YORK

Sample Matrix	*Analytical Parameters*	*Analytical Method*	*Estimated Number of Samples*	*Field Duplicates*	*Trip Blanks*	*MS/MSD*
Soil	TCL VOCs	SW-846 8260	19	3	-	3/3
	TCL SVOCs	SW-846 8270	19	3	-	3/3
	Total Lead Only	SW-846 6010/7471	11	1	-	1/1
	TAL Metals	SW-846 6010/7471	8	0	-	0/0
Surface Soils	Total Lead Only	SW-846 6010/7471	20	2	-	2/2
	TAL Metals	SW-846 6010/7471	6	1	-	0/0
Groundwater	TCL VOCs	SW-846 8260	13	2	1/day	2/2
	Total Lead Only	SW-846 6010/7470	9	1	-	1/1
	TAL Metals, Total	SW-846 6010/7471	4	0	-	0/0
	Dissolved Lead Only	SW-846 6010/7470	9	1	-	1/1
	TAL Metals, Dissolved	SW-846 6010/7471	4	0	-	0/0

Notes:
Dup Laboratory Duplicate.
MS Matrix Spike.
MSD Matrix Spike Duplicate.
PCBs Polychlorinated Biphenyls.
SVOCs Semi-Volatile Organic Compounds.
TAL Target Analyte List.
TCL Target Compound List.
VOCs Volatile Organic Compounds.

TABLE 5.1

SAMPLE CONTAINER, PRESERVATION, AND HOLDING TIME PERIODS
SITE INVESTIGATION
FORMER BUFFALO CHINA SITE
BUFFALO, NEW YORK

Analyses	*Sample Containers*	*Preservation*	*Maximum Holding Time*	*Notes*
Soil/Sediment				
TCL VOCs	1 - 4 oz. glass jar with Teflon-lined septum	Cool to 4°C	14 days from collection to analysis	Fill completely, little or no headspace
TCL SVOCs	1 - 1L glass jar	Cool to 4°C	14 days from collection to analysis	Fill completely, little or no headspace
TAL Metals	1 - 4 oz. glass jar with Teflon-lined septum	Cool to 4°C	180 days from collection to analysis with exception of mercury which is 28 days from collection to analysis.	Fill completely
Water				
TCL VOCs	2 - 40 mL glass vial with Teflon-lined septum	HCl to pH<2, cool to 4°C	14 days from collection to analysis	Fill completely, no headspace
TAL Metals	1 - 1L plastic bottle	HNO_3 to pH<2 cool to 4°C	180 days from collection to analysis with exception of mercury which is 28 days	Fill to neck of bottle

Notes:
TAL Target Analyte List.
TCL Target Compound List.
VOCs Volatile Organic Compounds.

TABLE 9.1

LABORATORY REPORTING DELIVERABLES - STANDARD DATA PACKAGE
SITE INVESTIGATION
FORMER BUFFALO CHINA SITE
BUFFALO, NEW YORK

A detailed report narrative should accompany each submission, summarizing the contents and results.

A. Chain of Custody Documentation and Detailed Narrative [(1)]

B. Sample Information
- i) date collected
- ii) date extracted or digested
- iii) date analyzed
- iv) analytical method and reference

C. Field Results
- i) samples
- ii) laboratory duplicates [(2)]
- iii) method blanks
- iv) spikes; spike duplicates [(2)(3)]
- v) surrogate recoveries [(2)]
- vi) internal standard recoveries
- vii) TICs (if applicable)

D. Miscellaneous
- i) method detection limits and/or instrument detection limits
- ii) percent solids (where applicable)
- iii) metals run logs
- iv) dates of extraction or digestion and analysis for method blanks and blank spikes

All sample data and its corresponding QA/QC data shall be maintained accessible to CRA either in hard copy or on magnetic tape or disc (computer data files). All solid sample results must be reported on a dry-weight basis.

Notes:

(1) Any QC outliers must be addressed, and corrective action taken must be specified.

(2) Laboratory must specify applicable control limits for all QC sample results.

(3) A blank spike must be prepared and analyzed with each sample batch.

TICs Tentative Identified Compounds.

APPENDIX C

HEALTH AND SAFETY PLAN

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF TABLES
(Following Text)

LIST OF ATTACHMENTS

HEALTH AND SAFETY PLAN
Signature Page

Site Name: The Former Buffalo China Site

Location Address: 51 Hayes Place, Buffalo, New York 14210

Ref. No. 037191 CRA Office: Niagara Falls

Anticipated Start Date: _____ Anticipated Project Duration: _____

Prepared By (Signature): _____ Date: _____

Project Manager (Signature): _____ Date: _____

Reviewed By (Signature): _____ Date: _____

This signature page must be completed and be available on site for review. This page does not, however, replace the QSF-016 requirements.

1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this Site-specific health and safety plan (HASP) is to provide specific guidelines and establish procedures for the protection of personnel performing the activities described in Section 2.0 — Site Operations. The information in this HASP has been developed in accordance with applicable standards and is, to the extent possible, based on information available to date. The HASP is also living document in that it must continually evolve as site conditions and knowledge of the site work activities develop.

A vital element of Conestoga-Rovers & Associates' (CRA's) Health and Safety Policies and Procedures is the implementation of a site-specific HASP for field activities. This HASP, as applicable to this project, includes the following measures:

- Communicate the contents of this HASP to site personnel.
- Eliminate unsafe conditions. Efforts must be initiated to identify conditions that can contribute to an accident and to remove exposure to these conditions.
- Reduce unsafe acts. Personnel shall make a conscious effort to work safely. A high degree of safety awareness must be maintained so that safety factors involved in a task become an integral part of the task.
- Inspect frequently. Regular safety inspections of the work site, materials, and equipment by qualified persons ensure early detection of unsafe conditions. Safety and health deficiencies shall be corrected as soon as possible, or project activities shall be suspended. Documentation of daily inspections and corrective actions should be kept with the project files.

1.2 STOP WORK AUTHORITY

All CRA employees are empowered and expected to stop the work of co-workers, subcontractors, client employees, or other contractors if any person's safety or the environment are at risk. NO repercussions will result from this action.

The discovery of any condition that would suggest the existence of a situation more hazardous than anticipated shall result in the removal of site personnel from that area and reevaluation of the hazard and the levels of protection.

1.3 PERSONNEL REQUIREMENTS

All personnel conducting activities on site must conduct their activities in compliance with all applicable safety and health legislation throughout North America to include, but not limited to, the Occupational Safety and Health Administration (OSHA) 29 CFR 1910, 29 CFR 1926, Provincial Canadian legislation, and CRA polices and procedures. **Project personnel must also be familiar with the procedures and requirements of this HASP**. In the event of conflicting safety procedures/ requirements, personnel must implement those safety practices which afford the highest level of safety and protection.

Employees identified as CRA Short Service Employees (6 months or less) shall not be permitted to work without another non-short service CRA employee present.

1.4 PROJECT MANAGEMENT AND SAFETY RESPONSIBILITIES

Project Manager – CRA – (Dennis Hoyt)

The CRA Project Manager (PM) shall be responsible for the overall implementation of the HASP, and for ensuring that all health and safety responsibilities are carried out in conjunction with this project. This shall include, but is not limited to, review and approval of the HASP. The PM will also ensure the appropriate resources are provided to support the project with respect to all operations.

Site Supervisor – CRA – (To be Determined)

The Site Supervisor (SS) is the person who, under the supervision of the project manager, shall be responsible for the communication of the site requirements to site project personnel and subcontractors, and is responsible for carrying out the health and safety responsibilities by making sure that:

1. All necessary cleanup and maintenance of safety equipment is conducted by project personnel.
2. Emergency phone numbers/services including hospital/clinic locations are verified/contacted.
3. Forms attached to the HASP are completed, filed, and submitted correctly.

4. A pre-entry briefing is conducted and documented, which will serve to familiarize on-site personnel with the procedures, requirements, and provisions of this HASP.

Other duties include overall implementation of the HASP, and ensuring all health and safety responsibilities are carried out in conjunction with this project. This shall include, but is not limited to, review and approval of the HASP, communication of site requirements to subcontractor personnel, and consultation with the client/site representative regarding appropriate changes to the HASP.

The SS also has the responsibility of enforcing safe work practices for project employees. The SS watches for any ill affects on any crewmember, especially those symptoms caused by cold/heat stress or chemical exposure. The SS oversees the safety of any visitors who enter the site. The SS maintains communication with the client/site representative(s).

Other specific duties of the SS include:

- Orders the immediate shutdown and/or stop work of site activities in the case of a medical emergency, unsafe condition, or unsafe practice.
- Provides the safety equipment, personal protective equipment (PPE), and other items necessary for employees.
- Enforces the use of required safety equipment, PPE, and other items necessary for employee or community safety.
- Conducts site inspections as a part of quality assurance for safety and health.
- Reports safety and health concerns to site and/or project management as necessary.

<u>Regional Safety and Health Manager – CRA – (Craig Gebhardt)</u>

The Regional Safety and Health Manager (SHM) is a full-time CRA employee who is trained as a health and safety professional, who serves in a consulting role to the PM, Safety and Health Officer (SHO) and SS regarding potential health and safety issues.

Employee Safety Responsibility

CRA employees are responsible for their own safety as well as the safety of those around them. CRA employees shall use any equipment provided in a safe and responsible manner, as directed by their supervisor.

Employees are directed to take the following actions when appropriate:

- Suspend any operations which may cause an imminent health hazard to employees, subcontractors, or others.
- Correct job site hazards when possible to do so without endangering life or health.
- Report safety and health concerns to the SS, PM, or Regional SHM.

Subcontractors

CRA subcontractors are responsible for the implementation of their HASP and agree to comply with its contents. In the event of conflicting safety procedures/requirements, personnel must implement those safety practices, which afford the highest level of safety and protection. In addition, it is also understood that non-compliance with health and safety policies and procedures may subject the subcontractor to disciplinary action up to and including termination of their contract with CRA. Subcontractors will be required to attend an initial site orientation and attend subsequent safety meetings.

Authorized Visitors

Shall be provided with all known information with respect to the site operations and hazards as applicable to the purpose of their visit.

1.5 TRAINING REQUIREMENTS

All personnel conducting work at this site shall have completed the appropriate health and safety training as applicable to their job tasks/duties. The required training is referenced throughout the HASP and identified on each task hazard analysis sheet.

1.5.1 SITE-SPECIFIC TRAINING

An initial site-specific training session or briefing shall be conducted by the PM or SS prior to commencement of work activities. During this initial training session, employees shall be instructed on the following topics:

- Personnel responsibilities.
- Content and implementation of the HASP.
- Site hazards and controls.
- Site-specific hazardous procedures (e.g., drilling, etc.).
- Training requirements.
- PPE requirements.
- Emergency information, including local emergency response team phone numbers, route to nearest hospital, accident reporting procedures, and emergency response procedures.
- Instruction in the completion of required inspections and forms.
- Location of safety equipment (e.g., portable eyewash, first aid kit, fire extinguishers, etc.).

The various components of the HASP will be presented followed by an opportunity to ask questions to ensure that each attendee understands the HASP. Personnel will not be permitted to enter or work in potentially contaminated areas of the site until they have completed the site-specific training session. Personnel successfully completing this training session shall sign the HASP Training Acknowledgement Form, which is presented in Attachment A.

In addition to the initial site briefing conducted at the commencement of the project, supplemental brief safety meetings shall be conducted by the SS to discuss potential health and safety hazards associated with upcoming tasks and necessary precautions to be taken.

1.5.2 SAFETY MEETING/HEALTH AND SAFETY PLAN REVIEW

"Tailgate" safety meetings will take place each day prior to beginning the day's work. All site personnel will attend these safety meetings conducted by the SS. The safety

meetings will cover specific health and safety issues, site activities, changes in site conditions, and a review of topics covered in the site-specific pre-entry briefing. The safety meetings will be documented with written sign-in sheets containing a list of topics discussed. This form is located in Attachment A.

2.0 SITE OPERATIONS

2.1 SITE HISTORY/BACKGROUND

The Former Buffalo China Site (Site) is located at 51 Hayes Place in Buffalo, New York. The Site location and Site layout are shown on Figures 1.1 and 1.2, respectively, of the Site Investigation Work Plan. The Site comprises approximately 10 acres and is bounded on the north by Conrail railroad tracks, on the east by the adjoining Buffalo China warehouse and other commercial/industrial facilities, and on the south and west by commercial, industrial, and residential properties. Interstate I-190 is located nearby to the south of the Site while the City of Buffalo School 26 and adjacent playground is located a few hundred feet to the southwest. The nearest body of water is the Buffalo River, located approximately 1/4 to 1/2 mile south and east of the site.

The Site includes buildings, outdoor storage silos, a rail spur, and roadways and parking areas. The manufacturing building is a multi-story structure covering approximately four acres. The building is connected to the Buffalo China Warehouse to the east. Another smaller building referred to as the Harrison Street warehouse is located in the northwest end of the Site, and covers an area of approximately 0.5 acres. The primary access to the Site is through the east side of the Site, near the Buffalo China warehouse.

Previous Site investigations included a Phase II Environmental Assessment performed by Environmental Audits, Inc. in 2004, and a Supplemental Site Investigation of the Site by CRA in May of 2006.

2.2 SCOPE OF WORK

The objectives of this project are to further delineate the extent of contamination at the Site, specifically in the area surrounding the Harrison Street warehouse, and off-Site areas to the west of the Site. The primary objective of the SI is to gather the data necessary to complete the characterization of chemical presence in Site soil and groundwater.

This HASP covers the specific site activities that will be conducted by CRA personnel and their subcontractors. These activities are as follows:

- Mobilization of personnel, materials, and equipment to and from the site.
- Installation of soil borings and soil sampling activities.
- Installation of groundwater monitoring wells and groundwater sampling activities.
- Surface soil sampling activities.
- Hydraulic monitoring.
- Decontamination activities.

If site operations are altered or if additional tasks are assigned, an addendum to this HASP shall be developed to address the specific hazards associated with these changes. All addendum are to be developed in conjunction with project management and a CRA safety professional.

3.0 HAZARD EVALUATION

This section identifies and evaluates the potential chemical, physical, and biological hazards, which may be encountered during the completion of this project. Specific activity task hazard analysis (THA) tables (located in Attachment B) have been developed to address the hazards associated with the site operations outlined in Section 2.

3.1 CHEMICAL HAZARDS

The chemical hazards associated with conducting site operations include the potential exposure to on-site contaminants encountered during field activities such as soil and groundwater sampling, products used in decontamination of equipment, and support products such as fuel. The potential routes of exposure from these products during normal use may occur through inhalation of vapors/dusts or direct contact or absorption with the materials. The chemical hazards of concern that may be encountered during the tasks identified in the project's scope of work include lead, trichloroethene, tetrachloroethene, and methylene chloride. A listing of the contaminants of concern are found in Table 1, which includes exposure limits, signs and symptoms of exposure, chemical properties, and physical characteristics.

3.1.1 CHEMICAL HAZARD CONTROLS

Exposure to potential on site contaminants/chemicals, such as those listed in Table 1, shall be controlled by:

- Monitoring air concentrations for volatile organic vapors shall be conducted in the breathing zone.
- Dust control measures, such as wetting the immediate area, shall be employed.
- Using PPE/respiratory protection as appropriate, in areas known to have concentrations above the specified action level for each contaminant.

3.1.2 SKIN CONTACT AND ABSORPTION CONTAMINANTS

Skin contact with chemicals may be controlled by use of the proper PPE and good housekeeping procedures. The proper PPE (e.g., Tyvek, gloves) as described in Section 4.0 shall be worn for all activities where contact with potentially harmful media or materials is anticipated. Utilize manufacturer data on permeation and degradation to minimize skin contact potential (see Section 4.2.1 for additional information).

3.1.3 FLAMMABLE AND COMBUSTIBLE LIQUIDS

The storage, dispensing, and handling of flammable and combustible liquids must be in accordance with industry standards such as National Fire Protection Agency (NFPA) guidelines. The specific flammable or combustible liquids used at the site may include gasoline, diesel, kerosene, oils, and solvents.

Flammable and combustible liquids are classified according to flash point. This is the temperature at which the liquid gives off sufficient vapors to readily ignite. Flammable liquids have flash points below 100°F (37.8°C). Combustible liquids have flash points above 100°F (37.8°C) and below 200°F (93.3°C).

Storage

Many flammables can ignite at temperatures at or below room temperature. They are far more dangerous than combustibles when they are heated. As a result, these products must be handled very carefully. At normal temperatures, these liquids can release vapors that are explosive and hazardous to employee health. Exposure to heat can cause some of these liquids to break down into acids, corrosives, or toxic gases. For this reason, flammable/combustible liquids should be stored in cool, well ventilated areas away from any source of ignition. Always consult the MSDS of the product for specific information.

Flammable and combustible liquids must be stored in designated areas. Such areas must be isolated from equipment and work activity, which may produce flames, sparks, heat or any form of ignition, including smoking. The most practical method is the use of one or more approved (commercially available) flammable/combustible liquid storage cabinets.

Cabinets must be labeled "Flammable – Keep Fire Away". Doors must be kept closed and labeled accordingly. Containers must be kept in the cabinet when not in use.

General Requirements

- Keep containers of flammable/combustible liquids closed when not in use.
- Keep flammable/combustible liquids in designated areas and approved cabinets.
- Do not allow use of unapproved containers for transfer or storage. Use only approved safety cans (5-gallon maximum) with a spring closing lid and spout cover, designated to safely relieve internal pressure when exposed to heat or fire.
- Use only approved self-closing spigots, faucets, and manual pumps when drawing flammable/combustible liquids from larger containers/barrels.
- Use only approved metal waste cans with lids for disposal of shop towels/oily rags.
- Designate "Smoking" and "No Smoking" areas.
- Designate fueling areas.
- Observe all signs indicating "No Smoking," "No Flames," "No Ignition."

Transferring Flammable/Combustible Liquids

- This seemingly routine task can be hazardous if certain precautions are not followed. Grounding and bonding must be observed at all times to prevent the accumulation of static electricity when transferring containers/barrels one to another.
- Drums should be grounded (No. 4 copper conductor) to a grounding rod.
- Bonding is necessary between conductive containers (e.g., a barrel and a 5-gallon container).

3.2 PHYSICAL HAZARDS

Physical hazards that may be present during project work include: potential for close proximity to heavy equipment and drilling devices, noise, overhead or under ground utilities, vehicle traffic, material handling, heavy lifting use of hand and power tools, slip/trip/hit/fall injuries, heat stress/cold stress, biological hazards, and other potential adverse weather conditions. In addition, personnel must be aware that the PPE worn may limit dexterity and visibility and may increase the difficulty of performing some tasks.

3.2.1 NOISE

Project activities that include working in close proximity to heavy equipment and/or drilling operations, or using power tools, that generate noise levels exceeding the decibel range of 85 dBA will require the use of hearing protection with a Noise Reduction Rating (NRR) of at least 20. Hearing protection (earplugs/muffs) will be available to personnel and visitors that would require entry into these areas.

When it is difficult to hear a coworker at normal conversation distance, the noise level is approaching or exceeding 85 dBA, and hearing protection is necessary. All Site personnel who may be exposed to high noise levels will participate in CRA's Hearing Conservation Program.

3.2.2 UTILITY CLEARANCES

Elevated superstructures (e.g., drill rigs, back hoes, scaffolding, ladders, cranes) shall remain a distance of 10 feet away from utility lines (<50 kV) and 20 feet away from power lines (>50 kV). Underground utilities, if present, shall be clearly marked and identified prior to commencement of work. Follow local/state/provincial regulations with regards to utility locating requirements (i.e., One-Call, etc.).

Personnel involved in intrusive work shall:

- Review and adhere to CRA's Subsurface Utility Clearance Protocol.
- Utilize the Property Access/Utility Clearance Data Sheet (QSF-019).
- Be able to determine the minimum distance from marked utilities which work can be conducted with the assistance of the locator line service.

3.2.3 VEHICLE TRAFFIC AND CONTROL

The following safety measures are to be taken by CRA personnel that have the potential to be exposed to vehicle traffic:

- A high visibility safety vest meeting ANSI Class II garment requirements is to be worn at all times.
- Employees will work using the "buddy system".
- Cones, etc. will be used to demarcate a safe work zone around the monitoring wells.
- Appropriate signage will be posted as necessary to inform roadway/parking lot users of any additional control measures necessary to protect the public and CRA employees.

Additionally**, when it is necessary to work on an active roadway or along the shoulder or side of the road**, project personnel must follow the requirements presented in the Manual on Uniform Traffic Control Devices (MUTCD), which is found at http://mutcd.fhwa.dot.gov/kno-millennium.htm. This will include the implementation of a Temporary Traffic Control Plan (TTCP) and discussion with the local municipality as to the responsible party who will implement the TTCP. The TTCP has four components: The Advanced Warning Area; the Transition Area; the Activity Area; and the Termination Area.

3.2.4 MATERIAL HANDLING AND STORAGE

Material handling and storage practices to be conducted at the site include manual lifting of materials and possibly the use of hoisting and rigging equipment. As a rule, use mechanical means for lifting heavy loads whenever possible.

General Storage Practices

The basic safety requirement for storage areas is that the storage of materials and supplies shall not create a hazard. Additional general storage area practices include the following:

- Bags, containers, bundles, etc. stored in tiers shall be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse.
- All stacked materials, cargo, etc. shall be examined for sharp edges, protrusions, signs of damage, or other factors likely to cause injury to persons handling these objects. Defects should be corrected as they are attached.
- Storage areas shall be kept free from accumulation of materials that constitute hazards from tripping, fire, explosion, or pest harborage.

- Storage areas shall have provisions to minimize manual lifting and carrying. Aisles and passageways shall provide for the movement of mechanical lifting and conveyance devices.
- Stored materials shall not block or obstruct access to emergency exits, fire extinguishers, alarm boxes, first aid equipment, lights, electrical control panels, or other control boxes.
- "NO SMOKING" signs shall be conspicuously posted, as needed, in areas where combustible or flammable materials are stored and handled.
- Cylindrical materials such as pipes and poles shall be stored in racks, or stacked on the ground and blocked.

Special Precautions for Hazardous or Incomplete Materials Storage

Generally, materials are considered hazardous if they are ignitable, corrosive, reactive, or toxic. Manufacturers and suppliers of these materials must provide the recipient with MSDSs, which describe their hazardous characteristics and give instructions for their safe handling and storage.

Many hazardous materials are incompatible, which means they form mixtures that may have hazardous characteristics not described on the individual MSDSs. The following special precautions shall be followed regarding the storage of hazardous materials:

- Based on the information available on the MSDSs, incompatible materials shall be kept in separate storage areas.
- Warning signs shall be conspicuously posted, as needed, in areas where hazardous materials are stored.

3.2.5 MANUAL LIFTING

When lifting objects, use the following proper lifting techniques:

- Feet must be parted, with one foot alongside the object being lifted and one foot behind. When the feet are comfortably spread, a more stable lift can occur and the rear foot is in a better position for the upward thrust of the lift.
- Use the squat position and keep the back straight – but remember that straight does not mean vertical. A straight back keeps the spine, back muscles, and organs of the

body in correct alignment. It minimizes the compression of the guts that can cause a hernia.

- Grip is one of the most important elements of correct lifting. The fingers and the hand are extended around the object you're going to lift – using the full palm. Fingers have very little power – use the strength of your entire hand.
- The load must be drawn close, and the arms and elbows must be tucked into the side of the body. Holding the arms away from the body increases the strain on the arms and elbows. Keeping the arms tucked in helps keep the body weight centered.

The body must be positioned so that the weight of the body is centered over the feet. This provides a more powerful line of thrust and also ensures better balance. Start the lift with a thrust of the rear foot. Do not twist.

3.2.6 HAND AND POWER TOOLS

Hand Tools

- Hand tools must meet the manufacturer's safety standards.
- Hand tools must not be altered in any way.
- At a minimum, eye protection must be used when working with hand tools.
- Wrenches (including adjustable, pipe, end, and socket wrenches) must not be used when jaws are sprung to the point that slippage occurs.
- Impact tools (such as drift pins, wedges, and chisels) must be kept free of mushroom heads.
- Wooden handles must be free of splinters or cracks and secured tightly to the tool.

Power Tools

- All power tools must be inspected regularly and used in accordance with the manufacturer's instructions and the tool's capabilities.
- Electric tools must not be used in areas subject to fire or explosion hazards, unless they are approved for that purpose.
- Portable electric tools must be connected to a Ground Fault Circuit Interrupter (GFCI) when working in wet areas.
- Proper eye protection must be used when working with power tools.

- Personnel must be trained in the proper use of each specific tool.
- Any damaged or defective power tools must be immediately tagged and removed from service.

3.2.7 SLIP/TRIP/HIT/FALL

Slip/trip/hit/fall injuries are the most frequent of all injuries to workers. They occur for a wide variety of reasons, but can be minimized by the following prudent practices:

- Spot check the work area to identify hazards.
- Establish and utilize a pathway which is most free of slip and trip hazards.
- Beware of trip hazards such as wet floors, slippery floors, and uneven surfaces or terrain.
- Carry only loads which you can see over.
- Keep work areas clean and free of clutter, especially in storage rooms and walkways.
- Communicate hazards to on-site personnel.
- Secure all loose clothing and ties, and remove jewelry while around machinery.
- Report and/or remove hazards.
- Keep a safe buffer zone between workers using equipment and tools.

3.2.8 HEAT STRESS

Recognition and Symptoms

Temperature stress is one of the most common illnesses that project personnel face when working during periods when temperatures and/or humidity are elevated. Acclimatization and frequent rest periods must be established for conducting activities where temperature stress may occur. Below are listed signs and symptoms of heat stress. Personnel should follow appropriate guidelines if any personnel exhibit these symptoms:

Heat Rash	Redness of skin. Frequent rest and change of clothing.
Heat Cramps	Painful muscle spasms in hands, feet, and/or abdomen. Administer lightly salted water by mouth, unless there are medical restrictions.

Heat Exhaustion Clammy, moist, pale skin, along with dizziness, nausea, rapid pulse, fainting. Remove to cooler area and administer fluids.

Heat Stroke Hot dry skin; red, spotted or bluish; high body temperature of 104°F; mental confusion; loss of consciousness; convulsions or coma. Immediately cool victim by immersion in cool water. Wrap with wet sheet while fanning, sponge with cool liquid while fanning; treat for shock. **DO NOT DELAY TREATMENT. COOL BODY WHILE AWAITING AMBULANCE.**

Work Practices

The following procedures will be carried out to reduce heat stress:

- Heat stress monitoring.
- Acclimatization.
- Work/rest regimes (schedule of breaks) – Mandatory breaks scheduled in summer months or during high risk activities for heat stress.
- Heat stress safety personal protective equipment (cool-vests, bandanas, etc.).
- Liquids that replace electrolytes, water, and salty foods available during rest.
- Use of buddy system.

Acclimatization

The level of heat stress at which excessive heat strain will result depends on the heat tolerance capabilities of the worker. Each worker has an upper limit for heat stress beyond which the resulting heat strain can cause the worker to become a heat casualty. In most workers, appropriate repeated exposure to elevated heat stress causes a series of physiologic adaptations called acclimatization, whereby the body becomes more efficient in coping with the heat stress. Work/rest regimes planned as a component of project preparation and discussed during the daily tailgate safety meetings.

Worker Information and Training

All new and current employees who work in areas where there is a reasonable likelihood of heat injury or illness should be kept informed through continuing

education programs (hazards, effects, preventative measures, drug/alcohol interaction, etc.).

3.2.9 COLD STRESS

Cold stress is similar to heat stress in that it is caused by a number of interacting factors including environmental conditions, clothing, workload, etc., as well as the physical and conditioning characteristics of the individual. Fatal exposures to cold have been reported in employees failing to escape from low environmental air temperatures or from immersion in low temperature water. Hypothermia, a condition in which the body's deep core temperature falls significantly below 98.6°F (37°C), can be life threatening. A drop in core temperature to 95°F (35°C) or lower must be prevented.

Air temperature is not sufficient to determine the cold hazard of the work environment. The wind chill must be considered as it contributes to the effective temperature and insulating capabilities of clothing. The equivalent chill temperature should be used when estimating the combined cooling effect of wind and low air temperatures on exposed skin or when determining clothing insulation requirements to maintain the body's core temperature.

The body's physiologic defense against cold includes constriction of the blood vessels, inhibition of the sweat glands to prevent loss of heat via evaporation, glucose production, and involuntary shivering to produce heat by rapid muscle contraction.

The frequency of accidents increases with cold temperature exposures as the body's nerve impulses slow down, individuals react sluggishly, and numb extremities make for increased clumsiness. Additional safety hazards include ice, snow blindness, reflections from snow, and possible skin burns from contact with cold metal.

Pain in the extremities may be the first early warning of danger to cold stress. During exposure to cold, maximum severe shivering develops when the body temperature has fallen to 95°F (35°C). This must be taken as a sign of danger to the employees on site, and cold exposures should be immediately terminated for any employee when severe shivering becomes evident. Useful physical or mental work is limited when severe shivering occurs.

Predisposing Factors for Cold Stress

There are certain predisposing factors that make an individual more susceptible to cold stress. It is the responsibility of the project team members to inform the SHO/SS to monitor an individual, if necessary, or use other means of preventing/reducing the individual's likelihood of experiencing a cold related illness or disorder.

Predisposing factors that will increase an individual's susceptibility to cold stress are listed below:

- **Dehydration:** The use of diuretics and/or alcohol, or diarrhea can cause dehydration. Dehydration reduces blood circulation to the extremities.
- **Fatigue During Physical Activity:** Exhaustion reduces the body's ability to constrict blood vessels. This results in the blood circulation occurring closer to the surface of the skin and the rapid loss of body heat.
- **Age:** Some older and very young individuals may have an impaired ability to sense cold.
- **Poor Circulation:** Vasoconstriction of peripheral vessels reduces blood flow to the skin surface.
- **Heavy Work Load:** Heavy workloads generate metabolic heat and make an individual perspire even in extremely cold environments. If perspiration is absorbed by the individual's clothing and is in contact with the skin, cooling of the body will occur.
- **The Use of PPE:** PPE usage that traps sweat inside the PPE may increase an individual's susceptibility to cold stress.
- **Lack of Acclimatization:** Acclimatization, the gradual introduction of workers into a cold environment, allows the body to physiologically adjust to cold working conditions.
- **History of Cold Injury:** Previous injury from cold exposures may result in increased cold sensitivity.

Prevention of Cold Stress

There are a variety of measures that can be implemented to prevent or reduce the likelihood of employees developing cold related ailments and disorders. These include acclimatization, fluid and electrolyte replenishment, eating a well balanced diet, wearing

warm clothing, the provision of shelter from the cold, thermal insulation of metal surfaces, adjusting work schedules, and employee education.

- **Acclimatization:** Acclimatization is the gradual introduction of workers into the cold environment to allow their bodies to physiologically adjust to cold working conditions. However, the physiological changes are usually minor and require repeated uncomfortably cold exposures to induce them.
- **Fluid and Electrolyte Replenishment:** Cold, dry air can cause employees to lose significant amounts of water through the skin and lungs. Dehydration affects the flow of blood to the extremities and increases the risk of cold injury. Warm, sweet, caffeine-free, non-alcoholic drinks and soup are good sources to replenish body fluids.
- **Eating a Well Balanced Diet:** Restricted diets including low salt diets can deprive the body of elements needed to withstand cold stress. Eat high-energy foods throughout the day.
- **Warm Clothing:** It is beneficial to maintain air space between the body and outer layers of clothing in order to retain body heat. However, the insulating effect provided by such air spaces is lost when the skin or clothing is wet.
- **Work/Rest Regimes:** Schedule work during the warmest part of the day, if possible. Rotate personnel and adjust the work/rest schedule to enable employees to recover from the effects of cold stress.

The parts of the body most important to keep warm are the feet, hands, head, and face. As much as 40 percent of body heat can be lost when the head is exposed.

3.2.10 ADVERSE WEATHER CONDITIONS

The SS shall decide on the continuation or discontinuation of work based on current and pending weather conditions. Electrical storms, heavy rains, hurricanes, tornado warnings, and sustained strong winds [approximately 40 mph (65 k/hr)] are examples of conditions that would call for the discontinuation of work and evacuation of site.

In addition, no work with elevated super structures (e.g., drilling, crane operations, etc.) will be permitted during any type of electrical storm or during wind events that have wind speeds exceeding 40 mph (65 k/hr).

3.2.11 SPECIAL WORK CONDITIONS/SITUATIONS

CRA may be asked to conduct work that requires special precautions/considerations due to the following factors:

- Remote work locations.
- Project site is in an area known for high crime or violence activity.
- Entry into abandoned buildings.
- Entry into wooded areas during hunting season.

If these situations are a potential, please consult with your Regional SHM to develop a plan.

Safety During Hunting Season

Since the project site is located within the corporate limits of the City of Buffalo, and hunting within the City limits is prohibited, should CRA employees observe hunting activities, they should immediately contact the City of Buffalo Police Department at 911.

3.3 BIOLOGICAL HAZARDS

CRA employees conduct numerous project activities that have the possibility of encountering biological hazards, which include bloodborne pathogens, insects, spiders, scorpions, rodents, snakes, and large predators. This section identifies precautions to be taken if these hazards are encountered.

3.3.1 VEGETATION OVERGROWTH

Overgrown weeds, bushes, trees, grass, and other vegetation are fire and safety hazards.

There are a number of hidden hazards not immediately recognized due to the overgrowth of vegetation in areas where field activities may occur, including discarded junk, litter, and debris. Construction materials such as boards, nails, concrete, and other debris may be hidden beneath blades of tall grass, weeds, and bushes. Other hazards may include steep slopes, potholes, trenches, soft spots, dips, etc.; all dangerously

concealed from the view of the individual walking or operating motorized equipment in the area. Additionally, there are biological hazards such as snakes, ticks, chiggers, and mosquitoes that breed in overgrowth conditions.

Here are some simple actions you can take:

- Assess the work area and determine if the area requires vegetation clearance. Consider that overgrowth that extends above the lowest level of motorized equipment (i.e., bumper or fender) or 6 inches (15 cm) above your ankle has hidden hazards that you will not be able to readily identify.
- Determine if the area is safe to walk or whether you need motorized equipment. Consider the limitations of the equipment.
- Identify slip, trip, and fall hazards and remove from the general work area. Remember to give adequate clearance so that the items being removed do not pose future hazards.
- Adequately protect yourself against the hazards by wearing boots that protect the ankles, long pants, and using insecticides.
- Consider the limitations of manual or mechanical equipment for the clearance of overgrowth, particularly the safety hazards when using sling blades, machetes, weed eaters, bush hogs, or other brush removing equipment.

Before taking any action, determine whether there any ecological issues that would affect or prevent the removal of overgrowth in protected areas such as wetlands, wildlife habitats, or sanctuaries for endangered and/or protected species.

3.3.2 POISONOUS PLANTS

Common **Poison Ivy** grows as a small plant, a vine, and a shrub. Poison Ivy occurs in every state. The leaves always consist of three glossy leaflets. **Poison Sumac** grows as a woody shrub or small tree 5 to 25 feet (1.5 to 7.5 meters) tall. It usually contains nine leaves, with eight paired leaves and one on top, and is common in swampy areas. The plants are potent sensitizers and can cause a mild to severe allergic reaction, referred to as "contact dermatitis." These plants are found in the U.S. and Canada.

Dermatitis, in Rhus-sensitive persons, may result from contact with the milky sap found in the roots, stems, leaves, and fruit, and may be carried by contacted animals, equipment or APPCrel.

The best form of prevention is to avoid contact. Wearing long sleeves and gloves, and disposable clothing, such as Tyvek, is recommended in high-risk areas to avoid exposure from contaminated APPCrel. Barrier creams and cleaners are also recommended.

3.3.3 INSECTS

Bees, Wasps, and Yellow Jackets

Insects that sting are members of the order Hymenoptera of the class Insecta. There are two major subgroups: aphids (honeybees, bumblebees) and vespids (wasps, yellow jackets, hornets). Aphids are docile and usually do not sting unless provoked. The stinger of the honeybee has multiple barbs, which usually detaches after a sting. Vespids have few barbs and can inflict multiple stings.

Types of stinging insects that might be encountered on a site may include:

- Carpenter Bees
- Bumblebees
- Mud Dauber Wasps
- Africanized Killer Bees
- Cicada Killer Wasps
- Giant Hornets
- Honeybees
- Paper Wasps
- Yellow Jackets

Symptoms

If you are stung there are three types of reactions you can have, a normal, a toxic, or an allergic reaction.

- Normal reaction – only lasts a few hours and consists of pain, redness, swelling, itching, and warmth near the sting area.
- Toxic reaction – will last for several days and results from multiple stings and may cause cramps, headaches, fever, and drowsiness.

- Allergic reaction – might cause hives, itching, swelling, tightness in the chest area and a possibility of breathing difficulties, dizziness, unconsciousness, and cardiac arrest.

The stingers of many Hymenoptera may remain in the skin and should be removed as quickly as possible without concern for the method of removal. An ice cube placed over the sting will reduce pain; aspirin may also be useful. Persons with known hypersensitivity to such stings should carry a kit containing epinephrine in a prefilled syringe. Antihistamines may help decrease hives and angioedema. Persons who have severe symptoms of anaphylaxis, have positive venom skin test results, and are at risk for subsequent stings should receive immunotherapy regardless of age or time since anaphylaxis.

Precautions

The following precautions can help you avoid stings. Try to wear light colored clothing and shy away from dark or floral prints. Avoid wearing perfumes, hairsprays, colognes, and scented deodorants while working outside. If eating outside, keep all food and drinks covered; sweet foods and strong scents attract stinging insects as well. Never swat or swing at the insect, it is best to wait for it to leave, softly blow it away, or gently brush it aside. Seek medical attention when the reaction to a sting includes swelling, itching, dizziness or shortness of breath.

If physical control measures are not effective, use a pesticide that will have a minimal impact on both you and the environment.

<u>Mosquitoes</u>

Mosquitoes are common pests that can be found in any state and any work environment where warm, humid conditions exist. Mosquitoes can pass along diseases such as West Nile virus and Malaria. Several different methods can be used to control adult mosquito populations: repellants such as DEET, mosquito traps, foggers, and vegetation and water management. Mosquitoes are found from the tropics to the Arctic Circle and from lowlands to the peaks of high mountains.

3.3.4 BLOODBORNE PATHOGENS

Hepatitis B is largely transmitted through exposure to bodily fluids containing the virus which could be found on refuse encountered in subsurface investigations. This includes medical wastes, contaminated needles and syringes, and so on. The primary method of transmission depends on the prevalence of the disease in a given area.

Prevention

Preventative measures include wearing appropriate PPE – leather work gloves, long sleeved shirt, and safety footwear. Several vaccines have been developed for the prevention of hepatitis B virus infection. These rely on the use of one of the viral proteins (hepatitis B surface antigen or HbsAg). The vaccine was originally prepared from plasma obtained from patients who had long-standing hepatitis B virus infection. However, currently these are more often made using recombinant technology, though plasmC-derived vaccines continue to be used; the two types of vaccines are equally effective and safe.

3.3.5 LARGE PREDATORS AND SNAKES

The presence of large predators and snakes is likely the result of person having released a personal pet that had become too large to manage or keep. Although it is not anticipated that CRA personnel will encounter this hazard, should snakes or large predator animals be encountered, CRA personnel should immediately contact the City of Buffalo's Animal control Officers by dialing 911.

4.0 PERSONAL PROTECTIVE EQUIPMENT

4.1 GENERAL

This section shall cover the applicable PPE requirements, which shall include eye, face, head, foot, and respiratory protection.

The purpose of PPE is to shield or isolate individuals from the chemical and physical hazards that may be encountered during work activities.

4.2 TYPES OF PPE

The type of PPE for a project will vary based on the level of protection required to protect the employee from site physical, chemical, biological, and thermal hazards.

4.2.1 TYPES OF PROTECTIVE MATERIAL

Protective clothing is constructed of a variety of different materials for protection against exposure to specific chemicals. No universal protective material exists. All will decompose, be permeated, or otherwise fail to protect under certain circumstances.

Fortunately, most manufacturers list guidelines for the use of their products. These guidelines usually concern gloves or coveralls and generally only measure rate of degradation (failure to maintain structure). It should be noted that a protective material may not necessarily degrade but may allow a particular chemical to permeate its surface. For this reason, guidelines must be used with caution. When permeation tables are available, they should be used in conjunction with degradation tables.

In order to obtain optimum usage from PPE, the following procedures are to be followed by all site personnel using PPE:

- When using disposable coveralls, don a clean, new garment after each rest break or at the beginning of each shift.
- Inspect all clothing, gloves, and boots both prior to and during use for:
  - imperfect seams;
  - non-uniform coatings;

- tears; and
- poorly functioning closures.

- Inspect reusable garments, boots, and gloves both prior to and during use for:
  - visible signs of chemical permeation;
  - swelling;
  - discoloration;
  - stiffness;
  - brittleness;
  - cracks;
  - any sign of puncture; and
  - any sign of abrasion.

Reusable gloves, boots, or coveralls exhibiting any of the characteristics listed above shall be discarded. PPE used in areas known or suspected to exhibit elevated concentrations of chemicals shall not be reused.

4.3 RESPIRATORY PROTECTION

Respiratory protection may be worn by personnel during project activities. Personnel required to work in these areas shall wear an air-purifying respirator and follow the procedures and guidelines as described below and follow CRA's Respiratory Protection Program.

All personnel required to use this equipment shall first be instructed in how to properly fit a respirator to achieve the required face-piece-to-face seal for respiratory protective purposes. Conditions, which could affect this face seal, are the presence of beards, sideburns, eyeglasses, and the absence of upper or lower dentures.

The air-purifying respirator cartridges selected for use during project work at this site are P-100, for organic vapors and particulates. These cartridges have the ability to protect against the known contaminant concentrations.

All cartridges shall be changed prior to breakthrough or at a minimum daily. Changes shall also be made when personnel begin to experience increased inhalation resistance or breakthrough of a chemical warning property.

4.3.1 RESPIRATOR CLEANING

Respiratory equipment and other non-disposable equipment shall be fully decontaminated and then placed in a clean storage area. Respirator decontamination shall be conducted at a minimum once daily. Face pieces shall be disassembled, the cartridges thrown away, and all other parts placed in a cleansing solution. After an appropriate amount of time in the solution, the parts shall be removed and re-seated with tap water.

Face pieces shall be allowed to air dry before being placed in sanitized bags, and then stored in a clean area.

4.4 LEVELS OF PROTECTION

The level of protection must correspond to the level of hazard known, or suspected, in the specific work area. PPE has been selected with specific considerations to the hazards associated with site activities. The specific PPE to be used for each activity is outlined in each THA table located in Attachment B.

- All PPE shall be disposed of and/or decontaminated at the conclusion of each work day as described below. Decontamination procedures shall follow the concept of decontaminating the most contaminated PPE first.
- All disposable equipment shall be removed before meal breaks and at the conclusion of the workday and replaced with new equipment prior to commencing work.
- Eating, drinking, chewing gum or tobacco, and smoking are prohibited while working in areas where the potential for chemical and/or explosive hazards may be present. Personnel must wash thoroughly before initiating any of the aforementioned activities.

4.4.1 REASSESSMENT OF PROTECTION LEVELS

Protection levels provided by PPE selection shall be upgraded or downgraded based upon a change in site conditions or the review of the results of air monitoring or the initial exposure assessment monitoring program, if one was conducted.

When a significant change occurs, the hazards shall be reassessed. Some indicators of the need for reassessment are:

- Commencement of a new work phase.
- Change in job tasks during a work phase.
- Change of season/weather.
- When temperature extremes or individual medical considerations limit the effectiveness of PPE.
- Chemicals other than those expected to be encountered are identified.
- Change in ambient levels of chemicals.
- Change in work scope, which affects the degree of contact with areas of potentially elevated chemical presence.

All proposed changes to protection levels and PPE requirements shall be reviewed and approved prior to their implementation by the SS.

5.0 AIR MONITORING PROGRAM

Inhalation hazards are caused from the intake of vapors and contaminated dust. Air monitoring shall be performed while intrusive activities are taking place to detect the presence and relative level of those air contaminants which are inhalation hazards. The purpose of air monitoring is to identify and quantify airborne contaminants in order to determine the level of worker protection needed. Initial screening for identification is often qualitative, but the determination of its concentration (quantification) must wait subsequent testing.

The data collected throughout the monitoring effort shall be used to determine the appropriate levels of protection.

5.1 EXPOSURE MONITORING

Air monitoring equipment to be used during site activities shall consist of a photoionization detector.

5.1.1 PHOTOIONIZATION DETECTORS

Exposure to volatile organic compounds (VOCs) shall be monitored with a photoionization detector (PID) with a 11.3 eV lamp. The PID has the ability to detect organic vapor concentrations from 1 part per million (ppm) to 2,000 ppm. All PID monitoring shall be conducted in the breathing zone.

5.1.2 MONITORING FREQUENCY

A summary of the monitoring equipment and frequency for each work activity is presented in the task hazard analysis tables. As noted in the table, the monitoring equipment listed per work activity relates to the initial level of protection. The monitoring frequency may be decreased if the work areas and activities are unchanging, the result of the first hour of monitoring indicate contaminant concentrations are non-detect, and no differing conditions are observed.

5.1.3 HEALTH AND SAFETY ACTION LEVELS

An action level is a point at which increased protection or cessation of activities is required due to the concentration of contaminants in the work area. All activities shall be initiated in Modified Level D. The appropriate actions are to be taken at designated action levels. The initial action level for site work is 25 ppm sustained in the breathing zone.

In addition to the action level, an upgrade to Level C is required if:

- Any symptoms occur, as described in Section 3.0.
- Requested by an individual performing the task.
- Any irritation to eye, nose, throat, or skin occurs.

A work stoppage and evacuation (cease and desist) at the specific work area is required if levels in the breathing zone exceed the protection factor of the respirator.

6.0 SITE CONTROL

The purpose of site control is to minimize potential contamination of workers and protect the public from hazards found on site. Site control is especially important in emergency situations.

Site control and work area demarcation will be achieved through posting of signage and placement of barricades. All construction areas will have the appropriate signage posted. Barricades and warning signs will be placed to warn personnel of potential hazards. A standby person (spotter) may be utilized in place of barricades, where appropriate. The following materials may be used to barricade construction areas, crane swing radius, and control traffic, etc.:

- Temporary fence.
- High visibility tape, rope, or chains.
- Traffic cones.
- Sawhorses.
- Wood or metal guardrails.

One pathway should be established for heavy equipment and one for personnel decontamination.

The majority of site operations, as well as access to the site, could be controlled from the support zone. The support trailer would provide for team communications and emergency response, and sanitary facilities (i.e., PortC-Potty). Appropriate safety and support equipment also will be located in this zone.

The support zone will be located upwind of site operations, if possible, and would be used as a potential evacuation point, if appropriate. No potentially contaminated personnel or materials are allowed in this zone.

6.1 COMMUNICATION

Each member of the site entry team will be able to communicate with another entry team member at all times. Communications may be by way of an air horn, walkie-talkie, telephone, or hand signals.

The primary means for external communication are telephones and radio. If telephone lines are not installed at a site, all team members should:

- Know the location of the nearest telephone.
- Have the necessary telephone numbers readily available.

The following standard hand signals will be mandatory for all employees to understand regardless of other means of communication:

- Hand gripping throat - Cannot breathe.
- Hands on top of head - Need assistance.
- Thumbs up - OK, I'm all right, I understand.
- Thumbs down - No, negative.
- Gripping partner's wrist, or gripping both of your own hands on wrist (if partner is out of reach) - Leave area immediately.

6.2 BUDDY SYSTEM

6.2.1 RESPONSIBILITIES

A buddy system shall be implemented when conducting intrusive activities on the site. This buddy shall be able to:

- Provide his or her partner with assistance.
- Observe his or her partner for signs of chemical exposure or temperature stress.
- Periodically check the integrity of his or her partner's protective clothing.
- Notify emergency personnel if emergency help is needed.

6.3 SITE SECURITY

Site security is necessary to prevent the exposure of unauthorized, unprotected people to site hazards and to avoid interference with safe working procedures. Security shall be

maintained outside of the actual work area(s) so as to prevent unauthorized entry into the work area(s). Members of the general public are to be protected from site hazards.

6.4 DECONTAMINATION

It is the responsibility of the SS to ensure that all personnel and pieces of equipment coming off site are properly decontaminated according to the procedures outlined below. Documentation of decontamination must be made in the field log notebook that will become part of the permanent project file.

6.4.1 PERSONNEL AND EQUIPMENT DECONTAMINATION PROCEDURES

All PPE shall be disposed of and/or decontaminated at the conclusion of each workday as described below. Decontamination procedures shall follow the concept of decontaminating the most contaminated PPE first.

All disposable equipment shall be doffed before meal breaks and at the conclusion of the workday and replaced with new equipment prior to commencing work.

Procedures for decontamination must be followed to prevent the spread of contamination and to eliminate the potential for chemical exposure.

Personnel: Decontamination shall be initiated prior to exiting the contaminated work area and be completed in the Contamination Reduction Zone.

Modified Level D: First, remove outer protective wear. Remove gloves and properly dispose of in a designated waste container. Wash hands and face.

Level C: Wash and rinse outer gloves, boots and suit, and remove; then remove respirator; dispose of cartridges; wash respirator; remove inner gloves and dispose of them. Wash hands and face.

Handle all clothing inside out when possible.

Equipment: All equipment must be decontaminated with Alconox/Liquinox solution or discarded upon exit from the contaminated area in a well ventilated area. A temporary decontamination pad with a low-volume high-pressure washer will be set up on site during drilling operations. All decontamination materials shall be drummed for subsequent disposal.

7.0 EMERGENCY PROCEDURES

7.1 ON-SITE EMERGENCIES

Emergencies can range from minor to serious conditions. Various procedures for responding to site emergencies are listed in this section. The PM or SS is responsible for contacting local emergency services, if necessary, for specific emergency situations. Various individual site characteristics will determine preliminary action to be taken to assure that these entry procedures are successfully implemented in the event of an emergency. Address necessary facility/client emergency protocols to ensure compatibility between this document and facility/client programs and/or expectations.

An Emergency Information Sheet containing the hospital location, directions, government agency phone numbers, emergency phone numbers, and a map with directions to the hospital is located in Attachment A.

7.2 ACCIDENT, INJURY, AND ILLNESS REPORTING AND INVESTIGATION

Any work-related incident, accident, injury, illness, exposure, or property loss must be reported to your supervisor, the SS, and **within 1 hour** through the CRA Accident Reporting System. Motor vehicle accidents must also be reported through this system. CRA's Accident Report Form, located in Attachment A, must also be filled out and provided to the SS. The report must be filed for the following circumstances:

- Accident, injury, illness, or exposure of an employee.
- Injury of a subcontractor.
- Damage, loss, or theft of property.
- Any motor vehicle accident, regardless of fault, which involves a company vehicle, rental vehicle, or personal vehicle while the employee is acting in the course of employment.

Occupational accidents resulting in employee injury or illness will be investigated by the SS. This investigation will focus on determining the cause of the accident and modifying future work activities to eliminate the hazard.

All employees have the obligation and right to report unsafe work conditions, previously unrecognized safety hazards, or safety violations of others. If you wish to make such a report, it may be made orally to your supervisor or other member of management, or you may submit your concern in writing, either signed or anonymously.

7.3 EMERGENCY EQUIPMENT/FIRST AID

Safety equipment will be available for use by site personnel, will be located within 30 feet (9 meters) of the work area(s), and will be maintained at the site. The safety equipment will include, but is not limited to, the following: a 10-unit first aid kit (dependent upon the number of personnel), emergency alarm (i.e., air horn), emergency eyewash, an ABC fire extinguisher (2A/10BC), potable water, anti-bacterial soap, and telephone.

1. **First-degree burns** are superficial but can be painful because these burns usually do not damage the nerves. These types of burns will cause outer layers of skin to redden or discolor and to swell slightly.
2. **Second-degree burns** penetrate skin more deeply and are more severe than first-degree burns. In addition, second-degree burns affect skin by creating a red or mottled appearance, blisters, and swelling. These burns are also very painful because the nerve endings are still intact.
3. **Third-degree burns** are the most severe burns and have the deepest penetration of the types of burns. Third-degree burns may appear white or charred. They may even look like second-degree burns but they extend through all skin layers. In addition, third-degree burns destroy nerve endings, so third-degree burns can be less painful than second-degree burns.

Burns must be treated by medical personnel. However, you may need to provide first aid until professional help arrives. Listed below are several actions that you can take if someone is burned:

- Cool minor burns with water.
- Refrain from applying ice to any but the most minor first-degree burns.
- Refrain from breaking open blisters.

- Refrain from touching a burned area because touching the burned area increases the risk of infection.
- Refrain from applying ointment to a severe burn.
- Refrain from removing anything stuck to a burned area.

7.4 EMERGENCY PROCEDURES FOR CONTAMINATED PERSONNEL

Whenever possible, personnel should be decontaminated in the contamination reduction zone before administering first aid, without causing further harm to the patient.

Skin Contact: Remove contaminated clothing, wash immediately with water and use soap if available.

Inhalation: Remove victim from contaminated atmosphere. Remove any respiratory protection equipment. Initiate artificial respiration, if necessary. Transport to the hospital.

Ingestion: Remove from contaminated atmosphere. Do not induce vomiting if victim is unconscious. Also never induce vomiting when acids, alkalis, or petroleum products are suspected. Transport to the hospital, if necessary.

Any person transporting an injured/exposed person to a clinic or hospital for treatment should take with them directions to the hospital and a listing of the contaminants of concern to which they may have been exposed.

Any vehicle used to transport contaminated personnel shall be cleaned or decontaminated, as necessary.

7.5 SITE EVACUATION

In the event of an emergency situation such as fire, explosion, significant release of toxic gases, etc., an air horn or other appropriate device will be sounded for approximately 10 seconds indicating the initiation of evacuation procedures. Personnel in the field will be notified through established communications to evacuate the area. In the event of an emergency, CRA personnel shall gather at their primary mustering point for a head

count. The mustering point location will be determined by the SHO and SS and will be communicated to the work crew(s) during the site-specific training prior to commencement of work activities.

7.6 SPILL AND RELEASE CONTINGENCIES

If a spill has occurred, the first step is personal safety, then controlling the spread of contamination if possible. CRA personnel shall immediately contact site management to inform them of the spill and activate emergency spill procedures.

8.0 RECORDKEEPING

The SS shall establish and maintain records of all necessary and prudent monitoring activities as described below:

- Name and job classification of the employees involved on specific tasks.
- Air monitoring/sampling results and instrument calibration logs.
- Records of training acknowledgment forms (site-specific training, toolbox meetings, etc.)
- Documentation of site inspections, results of inspections and corrective actions implemented.
- Records of OSHA Training Certifications for site personnel (40-Hour HAZWOPER, 8-hour refreshers, etc.)
- Records of qualitative fit-testing and physical examination results for site personnel (as necessary).
- Emergency reports describing any incidents or accidents.

ATTACHMENT A

FORMS

- EMERGENCY CONTACT SHEET
- HASP ACKNOWLEDGEMENT FORM
- TAILGATE SAFETY MEETING FORM
- CRA ACCIDENT REPORTING FORM
- PROPERTY ACCESS/UTILITY CLEARANCE DATA SHEET

FORMER BUFFALO CHINA SITE

EMERGENCY INFORMATION		
Contact	**Phone Number**	**Hospital Directions**
Local Police	911	Fill in Directions: Turn left out of site onto Buffalo China Rd. Turn right onto Bailey Avenue (Rt. 62 South). Go south on Bailey Ave., crossing Buffalo Creek and Cazenovia Creek. Bear left onto McKinley Parkway. Turn left onto Abbott Rd. Mercy Hospital is approximately 1 mile on right at corner of Cazenovia St.
Fire Department	911	
Ambulance: Rural Metro Ambulance and Buffalo Fire	911	
Local Hospital: Mercy Hospital 565 Abbott Rd. Buffalo, NY 14210	716 826-7000	
National Poison Center	800-222-1222	
Project Manager: Work: Cell:	Rick Shepherd 519 884-0510 519 748-8831	Driving Time: 4 to 8 minutes Driving Distance: +/- 2 miles Attach Map.
Site Supervisor Work: Cell:	Dennis Hoyt 716 297-6150 716 583-5718	CRA – Accident Reporting System Please call (866) 529-4886 and provide: • Name and location of caller • Description of incident • Name of any injured persons • Description of injuries • Phone number for return call
CRA Regional SHM (Name) Work: Cell:	Craig Gebhardt 716 297-6150	
Site Contact (Name) Work: Cell:		
Client Contact (Name) Work: Cell:		
Other Contact (Name) Work: Cell:		

Hospital route must be field validated before site work commences.

HASP ACKNOWLEDGMENT SHEET

This is to certify that I have received a pre-entry briefing regarding this HASP and I understand its contents. My failure to follow and comply with the requirements contained in this plan may result in disciplinary action and/or termination.

Print Name	Signature	Date

This page must be available on site during the project for review and filed with the project files upon project field work completion.

TAILGATE SAFETY MEETING FORM
FORMER BUFFALO CHINA SITE

Date: _____ Time: _____

Site Location: _____

Site Personnel in attendance:

Print Name	Signature	Company

Safety Topics/Items discussed:

_____

_____

_____

_____

Supervisor

Name: _____ Date: _____

This page must be available on site during the project for review and filed with the project files upon project field work completion.

CONESTOGA-ROVERS & ASSOCIATES (CRA) ACCIDENT REPORTING FORM

Report all accidents immediately by calling 1-866-529-4886

Instructions: For Personal Injuries and Property Damage Complete Sections 1 and 2.
For Vehicle Accidents, Complete Sections 1, 2, and 4. Form must be completed within 24 hours.

SECTION 1

A. Employee Identification	**( ) CRA Employee**	**( ) Temporary Employee**	**( ) Subcontractor**	
Employee No.	Last Name	First Name	Middle Name/Initial	M or F

Area Code Telephone Number	Address (Street, City, State, Province, Zip Code)
( )	

Date of Hire	Position/Title	Supervisor	Employee's Company/Office Location
/ /			

B. General Information

Where did the accident occur?	Type of Occurrence
( ) Office ( ) Project Site ( ) Canada ( ) United States	( ) Employee Injury ( ) Vehicle Accident ( ) Property Damage Only

Date and Hour of Accident		Date and Hour Reported to Employer		Date and Hour Last Worked		Time Employee Began Work
Month Day Year	a.m. p.m.	Month Day Year	a.m. p.m.	Month Day Year	a.m. p.m.	a.m. p.m.

Normal Work Hours on Last Day Worked		Witnesses?	Witness Name and Telephone Number
From: To:	a.m. p.m.	( ) Yes ( ) No	

C. Project Information (Project Related Accidents Only)

Project #	Project Name	Project Manager	Site Telephone Number	Employee Cell Number
			( )	( )

Was the Client Advised of the Accident?	Project Address (Street, City, State, Province, Zip Code)
( ) Yes ( ) No	
Name:	Specific Location of Accident

SECTION 2

A. Details of the Accident

1. What job/task was being performed when the accident occurred? (Example: collecting groundwater samples).
2. Describe the employee's specific activities at the time of the accident. Include details of equipment/materials being used, including the size and weights of objects being handled.
3. For injuries, identify the part of body injured, and specify left or right side.
4. Identify the object or substance that directly injured employee and how.
5. Identify Property Damaged (include owner of property, nature and source of damage, model and serial number, if appropriate).

B. Health Care/Medical Treatment

Employee received health care?	Identify the type of health care provided and where it was performed. (Check all that apply).
( ) Yes ( ) No	( ) First Aid ( ) Medical treatment other than first aid (sutures, etc.) ( ) Hospitalized ( ) Clinic ( ) Hospital emergency room ( ) On location by self or CRA employee) ( ) On site by EMT

Name of Health Care Provider, Physician's Name, Address (Street, City, Province/State, and Postal/Zip Code)

Section 2 (Continued)

C. Accident Investigation		
H&S plan prepared and on site? ( ) Yes ( ) Not applicable	Did the safety plan identify and provide safety procedures for the specific tasks the employee was conducting when injured? ( ) Yes ( ) No If no, why not? (Explain).	
Did the employee have the proper safety training to conduct these tasks or use the equipment? ( ) Yes ( ) No If not, why not?		
Identify all of the potential contributing factors and how they led to the occurrence of the accident. (Lack of attention, wrong use of equipment, lack of training, etc.)		
What contributing factor above was the underlying root cause of the accident.		
Is any training or retraining recommended? If yes, describe.		
What actions have been or will be taken to correct this accident from reoccurring?		
Additional information: Attach photos, accident diagrams, as applicable.		
Report Date Month Day Year	Report Prepared by: (please print)	Report Prepared by: (signature)

Fax Completed Form to CRA's Accident Reporting Fax: (716) 297-3389
Send Original to CRA's Accident Reporting Department, Niagara Falls, New York

SECTION 3

D. Agency Reporting and Recording Information (To be completed by the Regional Safety and Health Manager)			
CANADA			
Form 7 Sent to WSIB? ( ) Yes ( ) Not required	Employee Injury Information (Injury met the following criteria) ( ) First Aid ( ) Medical Treatment ( ) Critical Injury ( ) Modified Duty ( ) Lost Time Injury If medical treatment, what?		
Joint Safety and Health Committee Notified? ( ) Yes ( ) No	Total days of modified duty If exceeds 7 days, report to WSIB.	Total days of lost time (if any)	Date employee returned to work Month Day Year
UNITED STATES			
OSHA Recordable Injury? ( ) Yes ( ) No	Employee Injury Information (Injury met the following OSHA 300 Log criteria) ( ) First Aid ( ) Medical Treatment ( ) Restricted Duty ( ) Lost Time Injury If medical treatment, what?		
Total days of restricted duty	Total days of lost time (if any)		Date employee returned to work Month Day Year

VEHICLE ACCIDENT SECTION

(Complete this Section for all Vehicle Accidents)

SECTION 4

A. CRA Vehicle

License Plate No.	State/Province	Police Department	City	State/Province

Vehicle Year/Make/Model	Odometer Reading at Time of Accident	Police Report Number	Weather Conditions

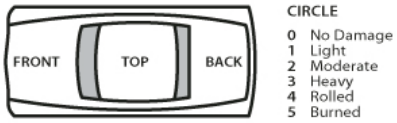
Name of Person Operating Vehicle

Address

City State/Province Zip Code

Telephone: Area Code ( )

"X" IN AREA OF VEHICLE DAMAGE



Vehicle Type: ( ) Personal ( ) Rental ( ) CRC-Own

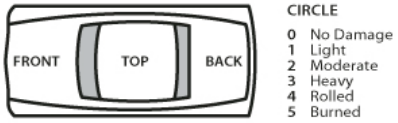
Description of Vehicle Damage:

B. Other Vehicles Involved

Name of Owner	Address	City/State/Prov./Zip	Area Code and Telephone Number ( )
Operator's Name (if different from above)	Address	City/State/Prov./Zip	Area Code and Telephone Number ( )

Year/Make/Model	Description of Property Damage:
Insurance Co. Name & Telephone	
License Plate No./State/Province	

"x" IN AREA OF VEHICLE DAMAGE



C. Injured Persons

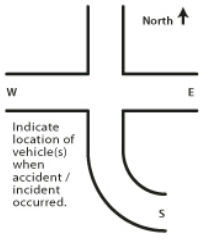
Name	Address Street, City, State/Prov./Zip Code	Phone Number	Nature of Injury	Indicate if Injured was a Vehicle Driver/ Passenger, CRA Employee, Other, or Pedestrian
1.				
2.				
3.				

D. Witnesses

Name	Address Street, City, State/Prov./Zip Code	Area Code and Telephone Number
1.		( )
2.		( )

E. Description of Accident

PLEASE COMPLETE OR ATTACH SEPARATE DIAGRAM



Was Ticket Issued: Reason: _____

Other Operator ☐ _____

CRA Operator ☐ _____

Report Prepared by: (please print)

Report Date Month Day Year		

Note: If Additional Space is Required to Complete this Report, Use Separate Sheet of Paper and Attach.

Fax Completed form to CRA's Accident Reporting Fax: (716) 297-3389 (Send Original to CRA's Accident Reporting Department, Niagara Falls, New York)

ATTACHMENT B

TASK HAZARD ANALYSIS TABLES

ACTIVITY: MOBILIZATION AND DEMOBILIZATION ACTIVITIES

Description of Task	*Potential Hazards*	*Preventative Measures and Controls*	*PPE and Action Levels*
Mobilization and Demobilization	Slip, Trip, Falls	Continuously inspect work areas for slip, trip, and fall hazards. Be aware of surroundings	Level D: Hard hat; safety glasses; hearing protection (as necessary); work gloves; safety vest (as necessary); and steel-toed boots. There are no action levels required for this activity.
	Noise	Wear appropriate hearing protection if noise levels exceed 85 dBA.	
	Utilities	Maintain proper utility clearances. All utilities will be located prior to conducting work.	
	Pinch Points	Keep hands, feet, and clothing away from moving parts/devices. Provide barriers and/or signage indicating swing radius of equipment.	
	Heavy Lifting	Follow safe lifting practices found in the HASP. Lift items within your capabilities. Ask for assistance.	
	Use of Hand and Power Tools	Follow manufacturer's safety precautions, inspect tools daily prior to use, replace defective tools, and wear the appropriate eye and foot protection.	
	Heat/Cold Stress	Dress appropriately, and follow guidelines found in the HASP.	
	Dangerous Weather Conditions	Consult local weather reports daily, watch for signs of severe weather, etc. Suspend or reduce operations during severe weather.	
	Biological Hazards	Survey area for potential biological hazards that might impact the project. Use appropriate measures to remove hazard or evacuate area until rendered safe.	
	Fueling Equipment	No smoking; allow device to cool before refueling; and follow proper storage requirements. Bond metal containers when refueling.	
	Electrical Hazards	GFCIs will be used to reduce electric shock. All electrical equipment will be inspected prior to use.	

TRAINING REQUIREMENTS

- Inspect Site daily to recognize and correct hazards (inspect equipment and hand/power tools daily/before use);
- Hazard Communication;
- Personal Protective Equipment;
- Site-specific training on specific site tasks; and

ACTIVITY: DECONTAMINATION OF PERSONNEL AND EQUIPMENT

Description of Task	*Potential Hazards*	*Preventative Measures and Controls*	*PPE and Action Levels*
Personnel/equipment decontamination activities	Slip, Trip, Falls	Use three points of contact to mount and dismount equipment. Continuously inspect work areas for slip, trip, and fall hazards. Be aware of surroundings. Practice good housekeeping.	Modified D: Hard hat, safety glasses or faceshield, steel-toed boots, Tyvek® or polycoated Tyvek coveralls (as needed), nitrile inner and neoprene or nitrile outer gloves; and rubber overboots. Level C (not expected): >25 ppm Modified Level D plus full-face air purifying respirator equipped with cartridges for organic vapors and particulates (P-100). (See Note[1])
	Noise	Wear appropriate hearing protection if noise levels exceed 85 dBA.	
	Pinch Points	Keep hands, feet, and clothing away from moving parts/devices.	
	Heavy Lifting	Follow safe lifting practices in the HASP. Lift items within your capabilities. Ask for assistance if necessary.	
	Heat/Cold Stress	Dress appropriately, and follow guidelines in the HASP.	
	Dangerous Weather Conditions	Consult local weather reports daily, watch for signs of severe weather, etc. Suspend or reduce work during severe weather.	
	Fueling Equipment	No smoking; allow device to cool before refueling; and follow storage requirements. Bond metal containers when refueling.	
	Biological Hazards	Survey area for potential biological hazards that might impact the project. Use appropriate measures to remove hazard or evacuate area until rendered safe.	
	Chemical Hazards	PID will be used where potential for exposure to contaminated materials exists. Air monitoring will be conducted at regular intervals.	

Training Requirements

- Inspect Site daily to recognize and correct hazards (inspect equipment before using);
- Hazard Communication;
- 40-hour/8-hour OSHA HAZWOPER training;
- Personal Protective Equipment;
- Site-specific training on specific site tasks (i.e., use of pressure washer); and
- Decontamination

[1] If sustained PID reading in breathing zone is >0.5 ppm, collect Colorimetric Tube samples for benzene and vinyl chloride. If compounds are present >0.5 ppm, upgrade to Level C. If compounds are not present, default to action level of 25 ppm.

ACTIVITY: SUBCONTRACTOR OVERSIGHT

Description of Task	*Potential Hazards*	*Preventative Measures and Controls*	*PPE*
Oversight of subcontractor performing drilling.	Dangerous Weather Conditions	Consult local weather reports daily, watch for signs of severe weather, etc. Suspend or reduce operations during severe weather.	Modified D: Hard hat, safety glasses or faceshield, steel-toed boots, Tyvek® or polycoated Tyvek coveralls (as needed), nitrile inner and neoprene or nitrile outer gloves; and rubber overboots. Level C (not expected): >25 ppm Modified Level D plus full-face air purifying respirator equipped with cartridges for organic vapors and particulates (P-100). (See Note[1])
	Proximity of Heavy Equipment	Beware of moving equipment and parts, and struck-by hazards.	
	Noise	Wear appropriate hearing protection if noise levels exceed 85 dBA.	
	Utilities	Maintain proper utility clearances. All utilities will be located prior to conducting work.	
	Slips/Trips/Falls	Use three points of contact to mount/dismount machinery. Continuously inspect work areas for slip, trip & fall hazards. Be aware of surroundings.	
	Chemical Hazards	Wear proper PPE. PID will be used where potential for exposure to contaminated materials exists. Air monitoring will be conducted at regular intervals.	
	Chemical Hazards	Wear proper PPE. PID will be used where potential for exposure to contaminated materials exists. Air monitoring will be conducted at regular intervals.	

[1] If sustained PID reading in breathing zone is >0.5 ppm, collect Colorimetric Tube samples for benzene and vinyl chloride. If compounds are present >0.5 ppm, upgrade to Level C. If compounds are not present, default to action level of 25 ppm.

ACTIVITY: DRILLING ACTIVITIES

Description of Task	*Potential Hazards*	*Preventative Measures and Controls*	*PPE*
Installation of monitoring wells and soil borings.	Moving Heavy Equipment and Vehicles	Inspect work area and be aware of surroundings at all times.	Modified D: Hard hat, safety glasses or faceshield, steel-toed boots, Tyvek® or polycoated Tyvek coveralls (as needed), nitrile inner and neoprene or nitrile outer gloves; and rubber overboots. Level C (not expected): >25 ppm Modified Level D plus full-face air purifying respirator equipped with cartridges for organic vapors and particulates (P-100). (See Note[1])
	Fueling Equipment	No smoking, allow device to cool before re-fueling and follow proper storage requirements.	
	Dangerous Weather Conditions	Consult local weather reports daily, watch for signs of severe weather, etc. Suspend or reduce operations during severe weather.	
	Proximity of Drill Rig	Beware of drill rig and struck-by hazards.	
	Slips/Trips/Falls	Use three points of contact to mount/dismount machinery. Continuously inspect work areas for slip, trip & fall hazards. Be aware of surroundings.	
	Noise	Wear appropriate hearing protection if noise levels exceed 85 dBA.	
	Chemical Hazards	Wear proper PPE. PID will be used where potential for exposure to contaminated materials exists. Air monitoring will be conducted at regular intervals.	

Training Requirements

- Hazard Communication;
- 40-hour/8-hour OSHA HAZWOPER training;
- Personal Protective Equipment;
- Inspect Site daily to recognize and correct hazards (inspect equipment before using); and
- Site-specific training on specific tasks.

[1] If sustained PID reading in breathing zone is >0.5 ppm, collect Colorimetric Tube samples for benzene and vinyl chloride. If compounds are present >0.5 ppm, upgrade to Level C. If compounds are not present, default to action level of 25 ppm.

ACTIVITY: GROUNDWATER SAMPLING AND MONITORING

Description of Task	*Potential Hazards*	*Preventative Measures and Controls*	*PPE and Action Levels*
Collect monitoring well water elevations, water samples, and other relevant data	Heat/Cold Stress	Dress appropriately, and follow guidelines found in the HASP.	Modified D: Hard hat, safety glasses or faceshield, steel-toed boots, Tyvek® or polycoated Tyvek coveralls (as needed), nitrile inner and neoprene or nitrile outer gloves; and rubber overboots. Level C (not expected): >25 ppm Modified Level D plus full-face air purifying respirator equipped with cartridges for organic vapors and particulates (P-100). (See Note[1])
	Fueling Equipment	No smoking; allow device to cool before refueling, and follow proper storage requirements. Bond metal containers when refueling.	
	Heavy Lifting	Follow safe lifting practices in the HASP. Lift items within your capabilities. Ask for assistance if necessary.	
	Slips, Trips, Falls	Use three points of contact to mount/dismount machinery. Continuously inspect work areas for slip, trip, and fall hazards. Be aware of surroundings.	
	Chemical Hazards	Wear proper PPE. PID will be used where potential for exposure to contaminated materials exists. Air monitoring will be conducted at regular intervals.	
	Dangerous Weather Conditions	Consult local weather reports daily, watch for signs of severe weather, etc. Suspend or reduce operations during severe weather.	
	Electrical Hazards	GFCIs will be used to reduce electric shock. All electrical equipment will be inspected prior to use.	
	Biological Hazards	Inspect work areas carefully; avoid contact with insects and poisonous plants.	
	Use of Hand and Power Tools	Follow manufacturers' safety precautions, inspect tools regularly, replace defective tools, and wear appropriate eye and foot protection.	

Training Requirements

- Inspect Site daily to recognize and correct hazards (inspect equipment before using);
- Hazard Communication;
- 40-hour/8-hour OSHA HAZWOPER training;
- Personal Protective Equipment;
- Site-specific training on specific site tasks (i.e., use of sampling equipment); and
- Decontamination.

[1] If sustained PID reading in breathing zone is >0.5 ppm, collect Colorimetric Tube samples for benzene and vinyl chloride. If compounds are present >0.5 ppm, upgrade to Level C. If compounds are not present, default to action level of 25 ppm.

ACTIVITY: SOIL SAMPLING

Description of Task	*Potential Hazards*	*Preventative Measures and Controls*	*PPE and Action Levels*
Soil Sampling	Heat/Cold Stress	Dress appropriately, and follow guidelines found in the HASP.	Modified D: Hard hat, safety glasses or faceshield, steel-toed boots, Tyvek® or polycoated Tyvek coveralls (as needed), nitrile inner and neoprene or nitrile outer gloves; and rubber overboots. Level C (not expected): >25 ppm Modified Level D plus full-face air purifying respirator equipped with cartridges for organic vapors and particulates (P-100). (See Note[1])
	Heavy Lifting	Follow safe lifting practices in the HASP. Life items within your capabilities. Ask for assistance if necessary.	
	Slips, Trips, Falls	Use three points of contact to mount/dismount machinery. Continuously inspect work areas for slip, trip, and fall hazards. Be aware of surroundings.	
	Chemical Hazards -	Wear proper PPE, including full-face air purifying respirator.	
	Utilities	Maintain proper utility clearances. All utilities will be located prior to conducting work.	
	Proximity of Drill Rig	Be aware of drill rig and struck-by hazards. Be aware of rotating parts. Discuss location and operation of kill switches.	
	Dangerous Weather Conditions	Consult local weather reports daily, watch for signs of severe weather, etc. Suspend or reduce operations during severe weather.	

Training Requirements

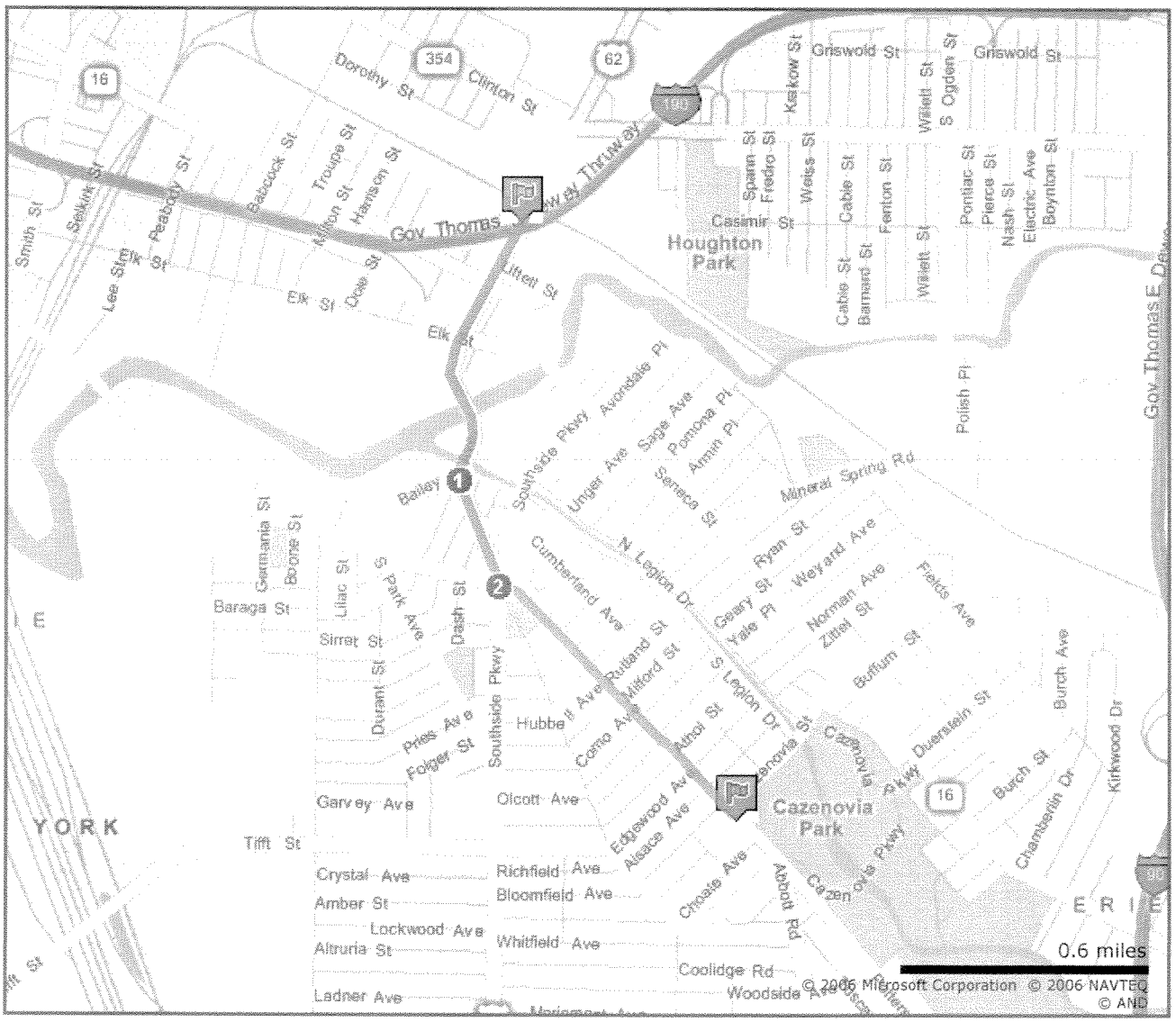
- Inspect Site daily to recognize and correct hazards (inspect equipment before using);
- Hazard Communication;
- 40-hour/8-hour OSHA HAZWOPER training;
- Personal Protective Equipment;
- Site-specific training on specific site tasks (i.e., use of sampling equipment) ; and
- Decontamination.

[1] If sustained PID reading in breathing zone is >0.5 ppm, collect Colorimetric Tube samples for benzene and vinyl chloride. If compounds are present >0.5 ppm, upgrade to Level C. If compounds are not present, default to action level of 25 ppm.

Live Local
powered by Virtual Earth

Start: 500 Bailey Avenue, Buffalo, NY
End: 565 Abbott Road, buffalo, NY

Distance: 1.8 mi
Time: 4 Minutes



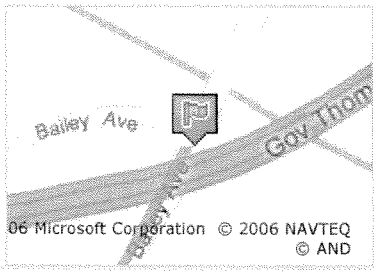
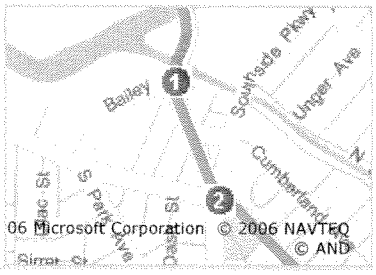
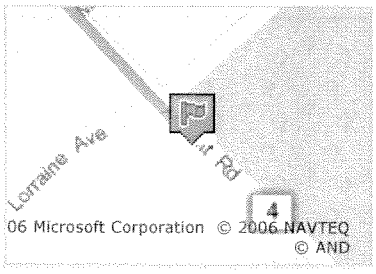
Directions		Distance	Detail Map
Start:	Depart on US-62 [Bailey Ave] (South)	0.7 mi	
1:	Bear LEFT (South) onto McKinley Pkwy	0.3 mi	
2:	Bear RIGHT (South) onto Southside Pkwy, then immediately turn LEFT (East) onto CR-4 [Abbott Rd]	0.8 mi	
End:	Arrive at 565 Abbott Road, buffalo, NY		

TABLE 1

PROPERTIES OF POTENTIAL SITE CONTAMINANTS

Chemical Name (Synonyms)	*Concentration at Site*	*Exposure Limits*	*Routes Of Entry*	*Symptoms/Health Effects*	*Chemical Properties*	*Physical Characteristics*
Lead (metal) CAS-7439-92-1	9250 mg/kg	TLV: 0.05 mg/m3 PEL: 0.05 mg/m3 STEL: NE IDLH: 100 mg/m3	Inhalation Ingestion Skin contact Eye contact	ACUTE: Lead is a cummulative poison, however, it may cause eye and skin irritation. CHRONIC: Effects blood, bone marrow, CNS, PNS and kidneys resulting in anemia, convulsions, peripheral nerve disease and kidney impairment. Toxicity to human reproduction or development.	(FP) NA (VP) NA (IP) NA (UEL) NA (LEL) NA	A heavy, ductile, soft, gray solid. Turns tarnished on exposure to air.
Methylene Chloride DMC Dichloromethane CAS-75-09-2	850 ppb	TLV: 50 ppm PEL: 25 ppm STEL: 125 ppm IDLH: 2,300 ppm	Inhalation Ingestion Absorption	ACUTE: Irritation of the eyes, skin and respiratory tract. Exposure could cause lowering of consciousness and formation of carboxyhemoglobin. CHRONIC: Dermatitis. May cause damage to CNS and liver. Possible human carcinogen.	(FP) NE (VP) 350 mm (IP) 11.32 eV (UEL) 23.0% (LEL) 13.0%	Colorless liquid with a chloroform-like odor. Gas above 104°F.
Tetrachloroethene PCE Perchloroethylene Tetrachloroethylene CAS-127-18-4	1,300 ppb	TLV: 25 ppm PEL: 100 ppm STEL: 100 ppm IDLH: 150 ppm	Inhalation Ingestion Absorption	ACUTE: Irritation to skin, eyes and respiratory tract. Ingestion may cause chemical pneumonitis. Affects CNS. Unconsciousness at high level exposures. CHRONIC: Dermatitis. May cause liver and kidney damage. Probable human carcinogen.	(FP) NA (VP) 14 mm (IP) 9.32 eV (UEL) NA (LEL) NA	Colorless liquid with a mild, chloroform-like odor.
Trichloroethene TCE Trichloroethylene Ethylene trichloride CAS-79-01-6	88,000 ppb	TLV: 50 ppm PEL: 100 ppm STEL: 100 ppm IDLH: 1,000 ppm	Inhalation Ingestion Absorption	ACUTE: Irritation to eyes and skin. Ingestion may cause chemical pneumonitis. Affects CNS. Unconsciousness due to exposure. CHRONIC: Dermatitis. Affects CNS, loss of memory. May damage liver and kidneys. Probable human carcinogen.	(FP) NE (VP) 58 mm (IP) 9.45 eV (UEL) 10.5% @ 77°F (LEL) 8.0% @ 77°F	Colorless liquid with a chloroform-like odor. Sometimes dyed blue.

APPENDIX D

CITIZEN PARTICIPATION PLAN

ew York State Department of Environmental Conservation

Brownfield Cleanup Program

Citizen Participation Plan
for
Former Buffalo China Site

51 Hayes Place
Buffalo
Erie County, New York

October 2006

Contents

* * * * *

Note: The information presented in this Citizen Participation Plan was current as of the date of its approval by the New York State Department of Environmental Conservation. Portions of this Citizen Participation Plan may be revised during the site's remedial process.

Applicant: **Buffalo China**
Site Name **Former Buffalo China**
Site Number:
Site Address: **51 Hayes Place, Buffalo, NY 14210**
Site County: **Erie County**

1. What is New York's Brownfield Cleanup Program?

New York's Brownfield Cleanup Program (BCP) is designed to encourage the private sector to investigate, remediate (clean up), and redevelop brownfields. A brownfield is any real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant. A brownfield typically is a former industrial or commercial property where operations may have resulted in environmental contamination. A brownfield can pose environmental, legal and financial burdens on a community. If the brownfield is not addressed, it can reduce property values in the area and affect economic development of nearby properties.

The BCP is administered by the New York State Department of Environmental Conservation (NYSDEC) which oversees Applicants accepted into the BCP as they conduct brownfield site remedial activities. The BCP contains strict investigation and remediation (cleanup) requirements, ensuring that cleanups protect public health and the environment based on the intended use of the brownfield site. When NYSDEC certifies that these requirements have been met, the property can be reused or redeveloped for the intended use. For more information about the BCP, go online at: www.dec.state.ny.us/website/der/bcp.

2. Citizen Participation Plan Overview

A Citizen Participation (CP) Plan provides members of the affected and interested public with information about how NYSDEC will inform and involve them during the investigation and remediation (cleanup) of a site under the BCP.

This CP Plan has been developed for the Former Buffalo China Site (hereafter referred to as "the site") under the BCP. Appendix D contains a map locating the site. NYSDEC is committed to informing and involving the public concerning the investigation and remediation (cleanup) of the site. This CP Plan describes the public information and involvement program that will be carried out with assistance from Buffalo China (hereafter referred to as "the Applicant") who has applied and been accepted to participate in the BCP.

Appendix A of this CP Plan identifies NYSDEC project contact(s) to whom the public may address questions or request information about the site's remedial program. The locations of the site's document repositories also are identified in Appendix A. The document repositories provide convenient access to important project documents for public review and comment. Appendix B contains the brownfield site contact list. This list has been developed to keep the community informed about, and involved in, the site's investigation and remediation process. The brownfield site contact list includes, at a minimum:

- chief executive officer and zoning board of each county, city, town and village in which the site is located;
- residents on and/or adjacent to the site;
- the public water supplier which services the area in which the site is located;
- any person who has requested to be placed on the site contact list;
- the administrator of any school or day care facility located on and/or adjacent to the site for purposes of posting and/or dissemination at the facility;and
- document repositories and their contacts.

The brownfield site contact list will be used periodically to distribute fact sheets that provide updates about the status of the project, including notifications of upcoming remedial activities at the site (such as fieldwork), as well as availability of project documents and announcements about public comment periods.

The brownfield site contact list will be reviewed periodically and updated as appropriate. Individuals and organizations will be added to the site contact list upon request. Such requests should be submitted to the NYSDEC project contact(s) identified in Appendix A.

Appendix C identifies the CP activities that have been and will be conducted during the site's remedial program.

The CP activities are designed to achieve the following objectives:

- Help the interested and affected public to understand contamination issues related to a brownfield site, and the nature and progress of an Applicant's efforts, under State oversight, to investigate and, if appropriate, remediate (clean up) a brownfield site.

- Ensure open communication between the public and project staff throughout a brownfield site's remedial process.

- Create opportunities for the public to contribute information, opinions and perspectives that have potential to influence decisions about a brownfield site's investigation and remediation (cleanup).

This CP Plan may be revised due to changes in major issues of public concern or in the nature and scope of remedial activities. Modifications may include additions to the site contact list, updates to major issues of concern to the public, and changes in planned citizen participation activities. The public is encouraged to discuss its ideas and suggestions about the citizen participation program with the project contact(s) listed in Appendix A.

3. Site Information

Site Description and History

The Former Buffalo China Site is located at 51 Hayes Place in the City of Buffalo, in Erie County, New York. The site is located in an area of mixed residential and commercial development. A site location map is provided as Figure D-1.

The Site comprises approximately 10 acres and is bounded on the north by Conrail railroad tracks, on the east by the adjoining Buffalo China warehouse and other commercial/industrial facilities, and on the south and west by commercial, industrial, and residential properties. Interstate I-190 is located nearby to the south of the Site, while the City of Buffalo School 26 and adjacent playground is located a few hundred feet to the southwest. The nearest body of water is the Buffalo River, located approximately ¼ to ½ mile south and east of the site.

The Site includes buildings, outdoor storage silos, a rail spur, and roadways and parking areas. The manufacturing building is a multi-story structure covering approximately four acres. The building is connected to the Buffalo China Warehouse to the east. Another smaller building referred to as the Harrison Street warehouse is located in the northwest end of the Site, and covers an area of approximately 0.5 acres. The primary access to the Site is through the east side of the Site, near the Buffalo China warehouse and via the City of Buffalo street named Hayes Place. The property has been used for the manufacture of china for the past 100 plus years. During that time period, the manufacturing facility expanded to adjacent industrial properties which included the Standard Mirror Co. and Atlas Wrecking. The Harrison Street Warehouse was once a part of the Standard Mirror facility.

Previous Site investigations included a Phase I and a Phase II Environmental Assessment performed by Environmental Audits, Inc. in 2004, and a Supplemental Site Investigation (SSI) of the Site by CRA in May of 2006.

Based on the long history of the site and the nature of the operations, the suspected contaminants at the site are metals, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs) at concentrations exceeding NYSDEC Soil Cleanup Objectives. There is the potential for these contaminants of concern to have impacted site soils and groundwater.

Environmental History

A Phase I and II Environmental Site Assessment (ESA), was conducted by Environmental Audits, Inc. (EA) in 2004. The information presented in the ESA documents was used by CRA to develop the scope of work for the SSI, which was completed in May 2006. The SSI included the following investigation activities:

i) the collection of 32 soil samples from seventeen soil borings that were advanced at various locations at the Site; and
ii) the collection of groundwater samples from nine monitoring wells at the Site.

The sampling indicated the presence of lead, as well as various volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) in the soil. Lead and VOCs were also detected in the groundwater.

4. Remedial Process

The Applicant has applied to the NYSDEC for acceptance into New York's Brownfield Cleanup Program as a Participant, and their application is currently being considered. This means that the Applicant was the owner of the site at the time of the disposal or discharge of contaminants or was otherwise liable for the disposal or discharge of the contaminants.

The Applicant in its Application proposes that the site will be used for industrial purposes.

To achieve this goal, the Applicant will conduct remedial activities at the site with oversight provided by NYSDEC. The Applicant and NYSDEC have signed a Brownfield Cleanup Agreement that sets forth the responsibilities of each party in conducting a remedial program at the site.

The Applicant will conduct a site investigation (SI) of the site with NYSDEC oversight. The SI has several goals:

1) Define the nature and extent of contamination in soil, groundwater and any other impacted media;

2) Identify the source(s) of the contamination;

3) Assess the impact of the contamination on public health and/or the environment; and

4) Provide information to support the development of a Remedial Work Plan to address the contamination, or to support a conclusion that the contamination does not need to be addressed.

The Applicant will prepare an SI Report after it completes the SI. This report will summarize the results of the SI and will include the Applicant's recommendation of whether remediation (cleanup) is needed to address site-related contamination. The SI Report is subject to review and approval by NYSDEC. Before the SI Report is approved, a fact sheet that describes the SI Report will be sent to the site's contact list.

NYSDEC determines whether the site poses a significant threat to public health and/or the environment. If NYSDEC determines that the site is a "significant threat," a qualifying community group may be eligible to apply for a technical assistance grant (TAG). The purpose of a TAG is to provide funds to the qualifying community group to obtain independent technical

assistance. This assistance helps the TAG recipient to interpret and understand existing environmental information about the nature and extent of contamination related to the site and the development/implementation of a remedy.

For more information about the TAG Program and the availability of TAGs, go online at: www.dec.state.ny.us/website/der.

After NYSDEC approves the SI Report, the Applicant will be able to develop a Remedial Work Plan. The Remedial Work Plan describes how the Applicant would address the contamination related to the site.

The public would have the opportunity to review and comment on the remediation (cleanup) proposal. The site contact list would be sent a fact sheet that describes the Remedial Work Plan and announces a 45-day public comment period. NYSDEC would factor this input into its decision to approve, reject or modify the Remedial Work Plan.

Approval of the Remedial Work Plan by NYSDEC would allow the Applicant to design and construct the alternative selected to remediate (clean up) the site. The site contact list would receive notification before the start of site remediation. When the Applicant completes remedial activities, it will prepare a Remedial Action Report that certifies that remediation (cleanup) activities have been achieved or will be achieved within a specific time frame. NYSDEC will review the report to be certain that the remediation is protective of public health and the environment for the intended use for the site. The site contact list would receive a fact sheet that announces the completion of remedial activities and the review of the Remedial Action Report.

NYSDEC would then issue the Applicant a Certificate of Completion. This Certificate states that remediation (cleanup) goals have been achieved, relieves the Applicant from future liability, and allows the Applicant to begin to redevelop the site. If the Applicant used institutional controls or engineering controls to achieve remedial objectives, the site contact list would receive a fact sheet discussing such controls.

An institutional control is a non-physical means of enforcing a restriction on the use of real property that limits human or environmental exposure, restricts the use of groundwater, provides notice to potential owners, operators, or members of the public, or prevents actions that would interfere with the effectiveness of a remedial program or with the effectiveness and/or integrity of site management at or pertaining to a brownfield site. An example of an institutional control is a deed restriction.

An engineering control is a physical barrier or method employed to actively or passively contain, stabilize, or monitor contamination, restrict the movement of contamination to ensure the long-term effectiveness of a remedial program, or eliminate potential exposure pathways to contamination. Examples include caps and vapor barriers.

Site management will be conducted by the Applicant as required with appropriate NYSDEC oversight.

Activities required to be conducted to inform and involve the public during the site's remedial process are introduced in section 5 and identified in the chart in Appendix C.

5. Citizen Participation Activities

CP activities that have already occurred and are planned during the investigation and remediation of the site under the BCP are included in Appendix C: Summary of Citizen Participation Activities. NYSDEC will ensure that these CP activities are conducted, with appropriate assistance from the Applicant.

All CP activities seek to provide the public with significant information about site findings and planned remedial activities, and some activities announce comment periods and request public input about important draft documents such as the Proposed Remedial Work Plan.

The CP Plan for the site may be revised based on changes in the site's remedial program or major issues of public concern.

All written materials developed for the public will be reviewed and approved by NYSDEC for clarity and accuracy before they are distributed.

6. Major Issue of Public Concern

This section of the CP Plan identifies major issues of public concern as they relate to the site. Additional major issues of public concern may be identified during the site's remedial process.

No major issues of public concern have been presented to the NYSDEC or Buffalo China to date.

Appendix A – Project Contacts and Document Repositories

Project Contacts

For information about the site's remedial program, the public may contact the following NYSDEC project contacts:

Linda Ross
Project Manager
NYSDEC Region 9
Division of Environmental Remediation
270 Michigan Avenue
Buffalo, New York 14203-2999
(716) 851-7200

Megan Gollwitzer
Citizen Participation Specialist
NYSDEC Region 9
270 Michigan Avenue
Buffalo, New York 14203-2999
(716) 851-7200

Government Representatives:

Ms. Abby Snyder
Regional Director
NYSDEC Region 9
270 Michigan Avenue
Buffalo, New York 14203

Ms. Megan Gollwitzer
NYSDEC Region 9
270 Michigan Avenue
Buffalo, New York 14203

Community Outreach File
NYSDEC Region 9
270 Michigan Avenue
Buffalo, New York 14203

Ms. Meaghan Boice-Green
NYSDEC Region 9
270 Michigan Avenue
Buffalo, New York 14203

Mr. Daniel David
NYSDEC Region 9
270 Michigan Avenue
Buffalo, New York 14203

Ms. Linda Ross
NYSDEC Region 9
270 Michigan Avenue
Buffalo, New York 14203

Mr. Cameron O'Connor
NYSDOH
584 Delaware Avenue
Buffalo, New York 14202

Mr. Rich Fedigan
NYSDOH, Room 205
547 River Street
Troy, New York 12180

Mr. Michael Basile
USEPA - Public Info. Office
186 Exchange St.
Buffalo, NY 14204

Locations to View Project-Related Documents:

The document repositories identified below have been established to provide the public with convenient access to important project documents:

East Clinton Branch Library
1929 East Clinton Street
Buffalo, New York 14206
(716) 823-5626
Hours: Tuesday (11 a-6 p), Wednesday (4-8p), Friday (11a-6p)

NYSDEC Region 9 Office
270 Michigan Avenue
Buffalo, New York 12403-2999
(716) 851-7200 (Call for Appointment)

Appendix B – Identification of Citizen Participation Activities

Required Citizen Participation Activity	CP activity(ies) occur at this point	Date Completed
Application Process:		
• Prepare brownfield site contact list (BSCL)	At time of preparation of application to participate in BCP	October 2006
□ Establish document repositories		October 2006
□ Publish notice in Environmental Notice Bulletin (ENB) announcing receipt of application and 30-day comment period	When NYSDEC determines that BCP application is complete. The 30-day comment period begins on date of publication of notice in ENB. End date of comment period is as	
□ Publish above ENB content in local newspaper	stated in ENB notice. Therefore, ENB notice, newspaper notice and notice to the BSCL	
□ Mail above ENB content to BSCL	should be provided to the public at the same time.	
After Execution of Brownfield Site Cleanup Agreement:		
□ Prepare citizen participation (CP) plan	Draft CP Plan must be submitted within 20 days of entering Brownfield Site Cleanup Agreement. CP Plan must be approved by NYSDEC before distribution	October 2006
After Remedial Investigation (RI) Work Plan Received:		
□ Mail fact sheet to BSCL about proposed SI activities and announcing 30-day public comment period on draft RI Work Plan	Before NYSDEC approves SI Work Plan. If RI Work Plan is submitted with application, comment periods will be combined and public notice will include fact sheet. 30-day comment period begins/ends as per dates identified in fact sheet.	
After RI Completion:		
□ Mail fact sheet to BSCL describing results of SI	Before NYSDEC approves SI Report	
After Remedial Work Plan (RWP) Received:		
□ Mail fact sheet to BSCL about proposed RWP and announcing 45-day comment period □ Public meeting by NYSDEC about proposed RWP (if requested by public)	Before NYSDEC approves RWP. 45-day comment period begins/ends as per dates identified in fact sheet. Public meeting would be held within the 45-day comment period.	
After Approval of RWP:		
□ Mail fact sheet to BSCL summarizing upcoming remedial construction	Before the start of remedial construction	
After Remedial Action Completed:		
□ Mail fact sheet to BSCL announcing that remedial construction has been completed □ Mail fact sheet to BSCL announcing issuance of Certificate of Completion (COC)	At the time NYSDEC approves Final Engineering Report. These two fact sheets should be combined when possible if there is not a delay in issuance of COC	

Appendix C – Brownfield Site Contact List

CHIEF EXECUTIVE OFFICERS AND ZONING BOARD

Erie County Zoning Board Chairperson
James Lewis III
Room 901, City Hall
Buffalo, NY 14202
(716) 851-5201

Erie County Executive
Joel A. Giambra
95 Franklin Street
Buffalo, NY 14202
(716) 858-8500

City of Buffalo Mayor
Byron W. Brown
65 Niagara Square
Buffalo, NY 14202
(315) 597-9640

ELECTED OFFICIALS

Assemblywoman Crystal Peoples
141st Assembly District
792 East Delavan
Buffalo, NY 14215

Assemblyman Mark Schroeder
145th Assembly District
2019 Seneca St.
Buffalo, NY 14210

Congressman Brian Higgins
27th District
726 Exchange St. St 601
Buffalo, NY 14210

Congresswoman Louise Slaughter
28th District, U.S. Congress
465 Main Street
Buffalo, NY 14203

Senator William Stachowski
58th District, N.Y.S. Senate
2030 Clinton Street
Buffalo, NY 14206

Senator Hillary Rodham-Clinton
U.S. Senate, 203 Guaranty Blvd.
28 Church Street
Buffalo, NY 14202

Senator Charles Schumer
U.S. Senate, Room 620
111 West Huron Street
Buffalo, NY 14202

Mayor Byron Brown
Buffalo Mayor's Office, R 201
City Hall
Buffalo, NY 14202

Councilman David Franczyk, Pres.
Buffalo Common Council, Fill.
1315 City Hall
Buffalo, NY 14202

Councilman Brian Davis
Buffalo Common Council, Ellicott Dist.
1408 City Hall
Buffalo, NY 14202

Councilman Antoine Thompson
Buffalo Common Council, Mast.
1316A City Hall
Buffalo, NY 14202

Commissioner Tim Wanamaker
Buffalo Community Development
920 City Hall
Buffalo, NY 14202

Honorable Joel Giambra
Erie County Executive
95 Franklin Street
Buffalo, NY 14202

Legislator George Holt
Erie County Legislature, 3rd.
25 Delaware Avenue
Buffalo, NY 14202

Legislator Demone Smith
Erie County Legislature, 7th.
25 Delaware Avenue
Buffalo, NY 14202

CIVIL SERVICE PERSONNEL

Mr. Gary Ziolkowski
Buffalo Community Development
304 City Hall
Buffalo, NY 14202

Mr. Bill Grillo, Director
Planning Dept.
901 City Hall
Buffalo, NY 14202

Mr. Chuck Thomas
Good Neighbor Planning Alliance
901 City Hall
Buffalo, NY 14202

Mr. Andrew SanFilippo
Buffalo Comptroller's Office
1225 City Hall
Buffalo, NY 14202

Mr. Robert Rua
Buffalo Director of Safety
406 City Hall
Buffalo, NY 14202

Mr. John Sniderhan
Buffalo Disaster Coordinator
195 Court Street
Buffalo, NY 14202

Mr. Thomas Fitzpatrick
Buffalo Haz. Mat. Captain
195 Court Street
Buffalo, NY 14202

Mr. Joe Giambra
Buffalo Public Works Dept.
503 City Hall
Buffalo, NY 14202

Chairman Edward Pawlik
Buffalo Sewer Authority
City Hall Room 1038
Buffalo, NY 14202

Ms. Sandy Nasca
Buffalo Urban Renewal Agency
920 City Hall
Buffalo, NY 14202

Mr. Dennis Sutton
BURA
920 City Hall
Buffalo, NY 14202

Mr. Patrick Daley
Erie Co. Emergency Services
95 Franklin Street
Buffalo, NY 14202

Commissioner Andrew Eszak
Erie Co. Environment & Plan.
95 Franklin Street
Buffalo, NY 14202

Mr. Paul Kranz
Erie Co. Environment & Plan.
95 Franklin Street
Buffalo, NY 14202

Mr. Michael Raab
Erie Co. Environment & Plan.
95 Franklin Street
Buffalo, NY 14202

Commissioner Anthony Billittier
Erie Co. Health Dept., Rm 931
95 Franklin Street
Buffalo, NY 14202

Mr. Peter Cammarata
Erie County IDA
275 Oak St.
Buffalo, NY 14203

Mr. Kevin Kelley
Erie County Legislature Clerk
25 Delaware Avenue
Buffalo, NY 14202

ENVIRONMENTAL/CITIZEN GROUPS

Dr. Joseph Gardella
BEMC
176 Admiral Road
Buffalo, NY 14216

Citizens Campaign-Environment
227 McConkey Drive
Tonawanda, NY 14223

President Neddy Anderson
Community Action Coalition
70 Harvard Place
Buffalo, NY 14209

James Loesch
Chairman, Erie County EMC
National Fuel
6363 Main St.
Williamsville, NY 14221

Mr. Julien Terrell
608 William St.
Buffalo, NY 14206

Mr. James Metzger
League of Women Voters
70 Haverford Lane
Williamsville, NY 14221

WNY Director
Citizens' Env. Coalition
543 Franklin St., Rm. 2
Buffalo, NY 14202-1109

Mr. Richard Lippes
Environmental Management Com.
1260 Delaware Avenue
Buffalo, NY 14209

Ms. Judith Anderson
Lupus Coalition
462 Grider St., CC173
Buffalo, NY 14215

LOCAL NEWS MEDIA

Newspapers:

The Buffalo News
One News Plaza
PO Box 100
(716) 849-4444

Television Stations:

WGRZ TV -2
259 Delaware Avenue
Buffalo, NY 14202
(716) 849-2222
EMail: WIVBWeb@wivb.com

WKBW TV - 7
7 Broadcast Plaza
Buffalo, NY 14202
(716) 845-6100

WIVB TV - 4
2077 Elmwood Avenue
Buffalo, NY 14207
(716) 874-4410

Radio Stations:

930 AM WBEN
Entercom Radio of Buffalo
500 Corporate Parkway, Suite 200
Buffalo, NY 14226

MEDIA

The Buffalo Challenger
1337 Jefferson Avenue
Buffalo, NY 14208

ATTN: Environmental News Desk
WGRZ TV - CH. 2
259 Delaware Avenue
Buffalo, NY 14202

ATTN: Jay Bonfatti
Buffalo News
1 News Plaza
Buffalo, NY 14240

Editor
Bee Group Newspapers
P.O. Box 150
Buffalo, NY 14231

Buffalo Alternative Press
P.O. Box 729
Buffalo, NY 14205

News Director
WDCX 99.5
625 Delaware Avenue
Buffalo, NY 14202

Bob Hill
Infinity Broadcasting
14 Lafayette Sq. #1300
Buffalo, NY 14203

News Director
Citadel Communications
50 James E. Casey Drive
Buffalo, NY 14203

Attn: Anne Marie Franczyk
Business First, Environment
465 Main Street
Buffalo, NY 14203-1793

Attn: Michael Desmond
WNED, Environmental News Desk
P.O. Box 1263, Horizons Plaza
Buffalo, NY 14240

ATTN: Environmental News Desk
WKBW News Channel 7
7 Broadcast Plaza
Buffalo, NY 14202

Margaret Sullivan, Editor
Buffalo News
1 News Plaza, P.O. Box 100
Buffalo, NY 14240

Editor
Metro Community News
25 Boxwood Lane
Buffalo, NY 14227

ATTN: Environmental News Desk
WBEN Radio 930 & WMJQ
500 Corporate Pkwy
Buffalo, NY 14226

Mark Scott, News Director
WBFO 88.7/WOLN 91.3
3435 Main St.
Buffalo, NY 14214

News Director
WUFO 10870
89 Lasalle Avenue
Buffalo, NY 14240

ATTN: Environmental News Desk
WIVB - CH. 4
2077 Elmwood Avenue
Buffalo, NY 14207

Other Interested Parties:

Mr. Michael Podd
4827 Rogers Rd.
Hamburg, NY 14075

RESIDENTS AND ADJACENT PROPERTY OWNERS

The adjacent/affected property owner and resident portion of the list is maintained confidentially in project files. If you would like to add someone to the list, please contact the NYSDEC at (716) 851-7200.

PUBLIC WATER SUPPLIER

Buffalo Water Authority
65 Niagara Square
Buffalo, NY 14202
(716) 851-4777

ANY PERSON WHO HAS REQUESTED TO BE PLACED ON THE SITE CONTACT LIST

There have been no known requests by individuals to be placed on the contact list.

ADMINISTRATOR OF ANY SCHOOL OR DAYCARE FACILITY

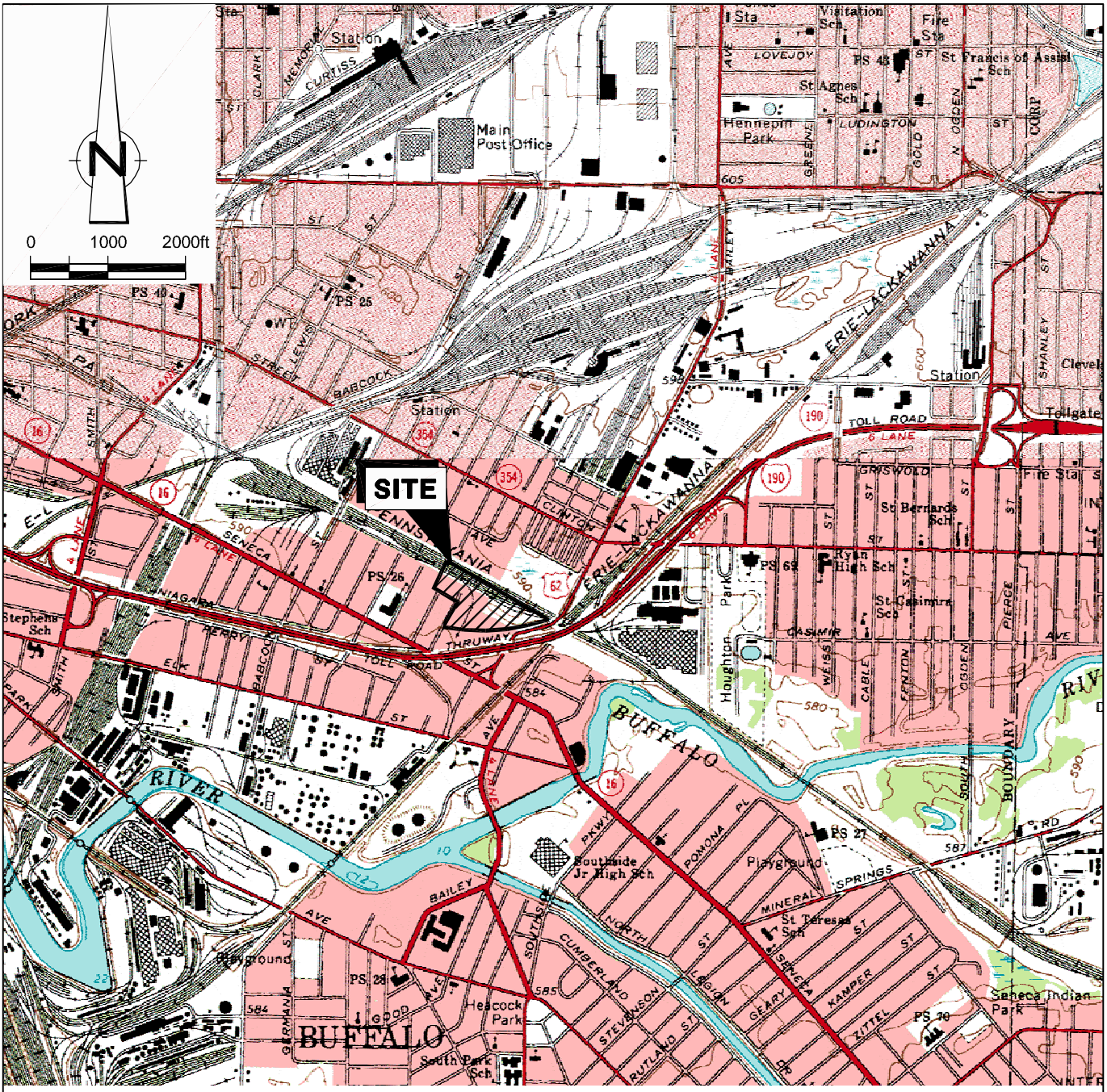
Buffalo City School 26
Buffalo Public Schools
713 City Hall
Buffalo, NY 14202
(716)816-3600

DOCUMENT REPOSITORY

East Clinton Branch Library
1929 East Clinton Street
Buffalo, New York 14206
Phone: (716) 823-5626
Hours: Tuesday 11a-6p, Wednesday 4p-8p, Friday 11a-6p.

Appendix D – Site Location Map

{Note to preparer: Insert a map locating the site under the above heading. Alternately, replace this page with such a map. Be sure to label the page/map as Appendix D – Site Location Map and number the page consecutively with the others.}



REFERENCE:

UNITED STATES GEOLOGIC SURVEY BUFFALO NE, BUFFALO SE QUADRANGLE, NY
TOPOGRAPHIC, 7.5 MINUTES SERIES 1965
SCALE: 1:24,000

figure D.1

APPENDIX D - SITE LOCATION MAP
FORMER BUFFALO CHINA SITE
51 HAYES PLACE
Buffalo, New York

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