

Site Management Plan

1501 College Avenue Site
BCP Site No. C932134
Niagara Falls, New York

Revised November 2012

0140-001-105

Prepared For:

Santarosa Holdings, Inc.



Prepared By:



BROWNFIELD CLEANUP PROGRAM

SITE MANAGEMENT PLAN

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NYSDEC BCP SITE No. C932134
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Prepared for:

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Revisions to Final Approved Site Management Plan:

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SITE MANAGEMENT PLAN

1501 College Avenue Site

Table of Contents

1.0	INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM	1
1.1	Introduction	1
1.1.1	<i>General</i>	1
1.1.2	<i>Purpose</i>	2
1.1.3	<i>Revisions</i>	3
1.2	Site Background.....	3
1.2.1	<i>Site Location and Description</i>	3
1.2.2	<i>Site History</i>	3
1.2.3	<i>Geologic Conditions</i>	5
1.3	Summary of Remedial Investigation Findings	6
1.4	Summary of Remedial Actions.....	7
1.4.1	<i>Removal of Contaminated Materials from the Site</i>	10
1.4.2	<i>Site-Related Treatment Systems</i>	10
1.4.3	<i>Remaining Contamination</i>	10
2.0	ENGINEERING & INSTITUTIONAL CONTROL PLAN	11
2.1	Introduction	11
2.1.1	<i>General</i>	11
2.1.2	<i>Purpose</i>	11
2.2	Engineering Controls.....	11
2.2.1	<i>Cover System</i>	11
2.3	Institutional Controls.....	12
2.3.1	<i>Excavation Work Plan</i>	13
2.4	Inspections and Notifications	14
2.4.1	<i>Inspections</i>	14
2.4.2	<i>Notifications</i>	15
2.5	Contingency Plan	16
2.5.1	<i>Emergency Telephone Numbers</i>	16
2.5.2	<i>Map and Directions to Nearest Health Facility</i>	17
2.5.3	<i>Response Procedures</i>	17
3.0	SITE MONITORING PLAN	18
3.1	Introduction	18
3.1.1	<i>General</i>	18
3.1.2	<i>Purpose and Schedule</i>	18
3.2	Site Monitoring.....	18
3.2.1	<i>Cover System</i>	18
3.2.2	<i>Short-term Groundwater Monitoring</i>	19
3.3	Site-Wide Inspection.....	19
3.4	Monitoring Quality Assurance/Quality Control	20
3.5	Monitoring Reporting Requirements	21
4.0	OPERATION & MAINTENANCE PLAN	22

SITE MANAGEMENT PLAN

1501 College Avenue Site

Table of Contents

4.1	Introduction.....	22
5.0	INSPECTIONS, REPORTING & CERTIFICATIONS.....	23
5.1	Site Inspections.....	23
5.1.1	<i>Inspection Frequency</i>	23
5.1.2	<i>Inspection Forms, Sampling Data, & Maintenance Reports</i>	23
5.1.3	<i>Evaluation of Records & Reporting</i>	23
5.2	Certification of Engineering and Institutional Controls.....	23
5.3	Periodic Review Report.....	25
5.4	Corrective Measures Plan.....	26

SITE MANAGEMENT PLAN

1501 College Avenue Site

Table of Contents

LIST OF TABLES

Table 1	Groundwater Elevation
Table 2	Summary of Soil Cleanup Objectives (Industrial)
Table 3	Summary of Materials Removed from the Site
Table 4	Summary of Remaining on-Site Soil/Fill above Unrestricted SCOs
Table 5	Summary of Groundwater Analytical Results
Table 6	Emergency Contact List
Table 7	Site Contact List
Table 8	Schedule of Monitoring/Inspection Reports
Table 9	Criteria for Imported Soils

LIST OF FIGURES

Figure 1	Site Location and Vicinity Map
Figure 2	Site Plan (Aerial)
Figure 3	Groundwater Monitoring Well Locations & Isopotential Map
Figure 4	IRM Activities
Figure 5	RI Sample Location Remaining Above Unrestricted SCOs
Figure 6	Cover System Location and Detail
HASP Figure A-1	Hospital Route Map

SITE MANAGEMENT PLAN

1501 College Avenue Site

Table of Contents

APPENDICES

Appendix A	Excavation Work Plan (EWP)
Appendix B	Environmental Easement
Appendix C	Example Health and Safety Plan (HASP)
Appendix D	Site Inspection Forms
Appendix E	Quality Assurance Project Plan (QAPP)
Appendix F	Electronic Copy of Site Management Report

1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 Introduction

This document is required as an element of the remedial program at the 1501 College Avenue Site (hereinafter referred to as the “Site”) under the New York State (NYS) Brownfield Cleanup Program (BCP) administered by New York State Department of Environmental Conservation (NYSDEC). The site was remediated in accordance with Brownfield Cleanup Agreement (BCA) Index #B9-0757-07-10, Site # C932134, which was executed on December 13, 2007 and last amended on January 31, 2011.

1.1.1 General

Santarosa Holdings, Inc. entered into a BCA with the NYSDEC to remediate a 12.4-acre property located in the City of Niagara Falls, Niagara County, New York. This BCA required the Remedial Party, Santarosa Holdings, Inc., to investigate and remediate contaminated media at the site. The site location and boundaries of the approximately 12.4-acre Site are provided in Figures 1 and 2. The boundaries of the Site are more fully described in the Environmental Easement (see Appendix B).

After completion of the remedial work described in the Remedial Investigation, Alternatives Analysis Work Plan, and Interim Remedial Measures Work Plan, some soil/fill contamination remains in the subsurface on-Site, which is hereafter referred to as ‘remaining contamination.’ This Site Management Plan (SMP) was prepared to manage remaining contamination at the site until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by TurnKey Environmental Restoration, LLC (TurnKey) in association with Benchmark Environmental Engineering and Science, PLLC (Benchmark), on behalf of Santarosa Holdings, Inc., in general accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, dated May 2010, and the guidelines provided by NYSDEC. This SMP addresses the means for

implementing the Institutional Controls (ICs) that are required by the Environmental Easement for the site.

1.1.2 Purpose

Certain contamination remains on-Site after completion of the remedial action. Engineering and Institutional Controls (ECs/ICs) have been incorporated into the Site remedy to control exposure to remaining contamination, if encountered, during the use of the site to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Niagara County Clerk, will require compliance with this SMP and all ECs and ICs placed on the site. The ICs place restrictions on site use, and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. This SMP specifies the methods necessary ensure compliance with all ECs and ICs required by the Environmental Easement for contamination that remains at the site. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage remaining contamination at the site after completion of the Remedial Action, including: (1) implementation and management of all Engineering and Institutional Controls; (2) excavation plan; and (3) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports.

To address these needs, this SMP includes three plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; and, (3) an Excavation Plan.

This plan also includes a description of Periodic Review Reports for the periodic submittal of data, information, recommendations, and certifications to NYSDEC.

It is important to note that:

- This SMP details the Site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the environmental easement, which is grounds for revocation of the Certificate of Completion (COC);

- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the BCA (Index #B9-0757-07-10; Site #932134) for the Site, and thereby subject to applicable penalties.

1.1.3 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. In accordance with the Environmental Easement for the site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.2 Site Background

1.2.1 Site Location and Description

The 1501 College Avenue Site is located in the City of Niagara Falls, Niagara County, New York. The 12.4-acre Site is comprised of two adjoining parcels as identified below.

- 1501 College Avenue - SBL 130-18-2-3.211 (12.25-acre portion of the larger 15.0 acre parcel)
- 1655 College Avenue - SBL 130.18-2-3.212 (0.16-acre parcel)

The Site is bordered by National Grid (not RR) property immediately adjacent to College Avenue to the north, and 15th Street to the west (see Figures 1 and 2). The boundaries of the site are more fully described in the Environmental Easement (see Appendix B).

1.2.2 Site History

The Site was used for heavy industrial manufacturing from at least 1910 to the mid-1980s, and at one time was part of a larger former Union Carbide Co. manufacturing complex.

In August 2007, Benchmark conducted a Phase I Environmental Site Assessment (ESA) of the subject property. Benchmark identified several areas of concern: evidence of illegal dumping is obvious across the site; various debris piles, automobile parts, abandoned

automobiles, abandoned tanker trucks, drums of unknown liquid and solid contents, sacks of unknown granular or solid materials, aboveground storage tanks (ASTs), and household debris are located throughout the interior and exterior the site.

Benchmark conducted a limited Preliminary Environmental Investigation at the 1501 College Avenue Site in August 2007. The Limited Preliminary Environmental Investigation involved collecting four surface soil samples, one galbestos roof-covering sample and two debris pile samples. The samples indicated that polycyclic aromatic hydrocarbons (PAHs), metals, and PCBs were present on-site above the NYSDEC 375 Industrial SCOs.

Santarosa Holdings, Inc. elected to pursue cleanup and redevelopment of the Site under the New York State Brownfield Cleanup Program (BCP), and executed a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) on December 13, 2007, and amended December 17, 2010 (BCP Site No. C932134). An RI/AAR Work Plan dated December 2007 was approved by the NYSDEC, with concurrence of the New York State Department of Health (NYSDOH), on January 4, 2008. An IRM Work Plan dated March 2008 was approved by the NYSDEC on June 11, 2008. TurnKey performed initial RI soil and groundwater sampling activities at the Site in September and October 2010.

Based on the findings of the RI activities, TurnKey and Santarosa met with the NYSDEC and NYSDOH in November 2010 and prepared an IRM Work Plan letter dated November 12, 2010 further describing the planned IRM activities. The IRM Work Plan letter was approved by NYSDEC on November 18, 2010. IRM activities were conducted at the Site from November 2010 through November 2012.

The RI was completed to characterize the nature and extent of contamination at the Site. Remedial investigation field activities included: advancement of soil borings and monitoring well installation; excavation of test pits; and surface soil, subsurface soil and groundwater sampling. The IRM fieldwork generally included: excavation and off-Site disposal of impacted soil/fill; backfill/Site restoration; demolition of all former buildings; removal and off-site disposal of galbestos roofing material; loading and off-Site disposal of a soil/fill/debris piles; removal of multiple drums and product containers; reutilization of approved building material for backfill and surface grading; and placement of a composite cover system across the Site.

Based on the Alternatives Analysis evaluation, it was concluded that the completed IRMs, together with implementation of this Site Management Plan, satisfies the remedial action objectives and is protective of human health and the environment, and the IRM was selected as the final remedial approach for the 1501 College Avenue Site. The RI fieldwork activities are further discussed in Section 1.3 and the IRM activities are further described in Section 1.4

1.2.3 Geologic Conditions

Overburden

The U.S. Department of Agriculture Soil Conservation Service soil survey map of Niagara County, describes the surrounding area surficial soil type, which may extend beneath the Site, as Odessa silty clay loam (OdA), with slopes ranging from 0 to 2%. Surficial Geologic Map of New York, Niagara Sheet, presented by NYS Geologic Survey (1988), indicates that the surficial soil type in the vicinity of the Site is a Till, with variable texture (e.g. clay, silt-clay, boulder clay), and a loamy matrix.

The geology at the Site was investigated during the RI and is generally described as fill materials overlying brown/reddish-brown clay. The fill materials consist of silt, sand, and gravel with varying amounts of concrete, wood, brick, and cinder-like materials at depths ranging from surface to 8.0 feet below ground surface (fbgs). The presence of overburden fill material is widespread and common throughout the City of Niagara Falls. Native materials consist of lean clay with varying amounts of fine sand to depths of 24 fbgs.

Bedrock

Based on the bedrock geologic map of Niagara County, The Niagara Falls region is underlain by Silurian and Devonian age stratified limestone, dolomite, and shale of marine origin. The bedrock is virtually flat lying, with a gentle dip to the south of only about 30 to 40 feet per mile and exhibits only very gentle folding. The bedrock surface was deeply eroded by weathering and stream action prior to glaciation and by glacial scour during glaciation. The carbonate rocks and the shale are nearly impermeable as homogeneous rock; however, due to regional tectonic stresses the bedrock is vertically and horizontally fractured, providing openings for the storage and transmission of groundwater.

The primary bedrock type that forms the bedrock surface in the northern part of the Lake Erie-Niagara River Basin is the fine- to coarse-grained Lockport Dolomite; a white or grey, magnesium-rich sedimentary rock resembling limestone, but harder and more resistant. The Lockport extends into New York for 200 miles from Niagara County to Herkimer County. The Lockport is the lowermost carbonate-rock unit in the region, which overlies the Rochester Shale, a black to gray carbonaceous shale with minor calcareous beds and limestone layers. Gypsum is also present as nodules along some bedding-plane surfaces in the Lockport. The maximum thickness of the Lockport is approximately 150 feet.

Bedrock was not encountered on-Site during the RI.

Hydrogeology

Based on the groundwater gauging completed during the RI, localized groundwater flow was determined to be west/northwest based on the depth to water measurements. The groundwater gauging data collected during this RI was collected from properly installed permanent wells that were developed prior to sampling and gauging. Figure 3 depicts the groundwater isopotential map from the October 2010 data. Groundwater elevation data from the gauging events is shown on Table 1.

1.3 Summary of Remedial Investigation Findings

A Remedial Investigation (RI) was performed to characterize the nature and extent of contamination at the site. The results of the RI are described in detail in the following reports:

- TurnKey Environmental Restoration, LLC. *Remedial Investigation / Interim Remedial Measures / Alternatives Analysis Report 1501 College Avenue Site, Niagara Falls, New York*. September 2012.

The purpose of the RI was to define the nature and extent of contamination on the BCP Site, and to collect data of sufficient quantity and quality to perform the remedial alternatives evaluation. The field investigation was completed across the BCP Site to collect environmental data and to delineate areas requiring remediation. On-Site field activities included: advancement of soil borings, excavation of test pits, collection of surface and subsurface soil samples, inspection of former manholes and subgrade structures, waste characterization of off-spec former manufacturing raw materials, well installation;

groundwater sampling, and collection of hydrogeologic data. Below is a summary of Site conditions when the RI was performed.

- Based on surface soil data, concentrations of VOCs, pesticides, herbicides and PCBs were all detected below Part 375 Industrial Use SCOs, with one exception of Aroclor 1268 at SS-6, which was remediated during IRMs (see Section 1.4 below). PAHs were detected across the Site above Industrial Use SCOs; however, PAHs tends to be ubiquitous in soils at historic industrial properties and does not appear to be attributable to a specific release on-Site. Arsenic was detected above its Industrial Use SCO at historic locations SS-1 and SS-3, and RI locations SS-11 and SS-15; those areas were remediated as part of the IRMs.
- Based on subsurface soil data, concentrations of VOCs, pesticides, herbicides and PCBs were all detected below Part 375 Industrial Use SCOs. Arsenic was detected in two RI locations, TP-15 and Rail Siding 4 above its Industrial Use SCO; those areas were remediated as part of the IRMs (see Section 1.4). SVOCs, primarily PAHs were detected across the Site above Industrial Use SCOs; however, these compounds tend to be ubiquitous in soils at historic industrial properties and do not appear to be attributable to a specific release on-Site.
- Based on groundwater sampling data, there was no exceedance of GWQS for VOCs in Site groundwater. Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and chrysene were detected above GWQS in MW-4; and select pesticides were detected at concentrations above GWQS including 4,4'-DDT, endrin, and heptachlor epoxide in monitoring wells MW-1, MW-3, and MW-4. Metals detected above GWQS, including iron, magnesium and sodium, are all naturally occurring minerals commonly encountered in uncontaminated natural environments.

1.4 Summary of Remedial Actions

The Site was remediated in accordance with the NYSDEC-approved Interim Remedial Measures Work Plan (dated November 2010). The following is a summary of the IRMs performed at the Site. Details of the IRMs are fully described within the Final Engineering Report (FER).

- Approximately 153 tons of galbestos roofing and building materials was collected and transported off-site by Buffalo Fuel Corp. (BFC) for disposal at Chemical Waste Management (CWM) landfill, located in Model City, New York
- Collection and removal of seven (7) roll-off containers of abandoned drums and containers of off-spec former carbon electrode manufacturing materials. Four roll-offs were transported by BFC for disposal at Modern Landfill , located in Model City, NY; and, three roll-offs were transported by BFC for disposal at Allied Waste (Republic), located in Niagara Falls, NY;
- Approximately 7,851 gallons of waste petroleum oil was vacuumed out of two abandoned tanker trucks by Green Environmental Specialists, Inc. (GES), and transported for stabilization at Environmental & Industrial Contracting Services, Inc. (EICS) in Niagara Falls, New York, prior to final disposal at Modern Landfill in Model City, NY;
- Cleaning and collection of steel ASTs, empty drums and two (2) abandoned tanker trucks and transported off-site with other on-Site scrap metals (i.e. building demolition metals), by BFC for recycling as scrap at Niagara Metals, located in Niagara Falls, NY;
- Approximately 2,607tons of non-friable ACMs C&D debris was collected and transported off-site by BFC for disposal, including: 735 tons was disposed of at Waste Management, Chaffee Landfill, located in Chafee, New York; 855 tons was disposed at Minerva Enterprises, LLC landfill located in Waynesburg, Ohio; and 1,016 tons was disposed at Modern Landfill, located in Model City, New York;
- Approximately 1,340 tons of C&D debris and intermingled soil/fill was removed from the former Bldg. 49 and transported off-site by BFC for disposal at Minerva Enterprises, LLC landfill located in Waynesburg, Ohio;
- Excavation of approximately 2,975 tons of non-hazardous petroleum-impacted soil/fill from the TP-15 area. Excavated material was transported off-site by BFC for disposal at Allied Waste (Republic) landfill located in Niagara Falls, New York. Confirmatory samples were collected and analytical results were below Part 375 Industrial SCOs with exception of several PAHs, of which the majority are located along the southern property boundary;
- Excavation of approximately 645 tons of non-hazardous petroleum stained soil/fill from the TP-5 area. The excavation continued until limited by former concrete foundations. Excavated material was transported off-site by BFC for disposal at Allied Waste (Republic) landfill located in Niagara Falls, New York. Confirmatory samples were collected and analytical results were below Part 375 Industrial Use SCOs with the minor exception;

- Excavation of approximately 411 tons of PCB-impacted soil/fill from the SS-6 area. Excavated soil/fill was transported off-site by BFC for disposal at CWM, located in Model City, New York;
- Extraction and temporary storage of approximately 20,000 gallons of potentially impacted water removed from the excavation. The collected excavation water was subsequently analyzed, and transported off-site by GES to EICS in Niagara Falls, NY for solidification and final disposal at Modern Landfill, in Model City, NY;
- Completion of a subgrade manhole, electrical vault and former factory sump/pit investigation was conducted during the RI. No evidence of impacts was noted during the investigation. During demolition and remedial activities, it was noted that sporadic C&D debris (i.e., brick and concrete) had entered several manholes/sumps. The accumulated C&D debris was removed by Santarosa and placed beneath the demarcation layer within the on-Site berms. Sumps and manholes were then decommissioned and covered in accordance with the cover system; and/or surface covers were restored or replaced;
- Placement of approved on-Site reuse of concrete block and brick building materials for sub-grade backfill. Backfill materials were analyzed to confirm they met NYSDEC on-Site re-use criteria and/or were pre-approved by NYSDEC; and, Construction of a composite cover system, including areas of the Site covered by existing concrete and asphalt areas, and placement of a minimum 12-inch thick approved soil and/or recycled concrete over the orange plastic mesh demarcation layer. Soil covered berms were constructed along the Site boundaries utilizing on-Site material, with NYSDEC approval, with a minimum 12-inches of approved soil placed above the demarcation layer. No soil/fill from the BCP Site was utilized as material for berms constructed on the adjacent redevelopment parcel (former Hazorb Site). Approximately 4,737 tons of soil, originating from the Lewiston Road (Rt. 104 / 10th Street) and approximately 3,158 tons of soil-clay, originating from the Witmer Road municipal road upgrade projects was used in the cover system; and, approximately 2,842 tons of recycled concrete block, originating from the Center Court complex, and approximately 4,800 tons of recycled concrete from Swift River Associates, Inc. – Tonawanda (Facility ID 15W01) was transported on-Site by BFC and placed by Santarosa across the Site as a component of the cover system including berm surface cover material.

Remedial activities were completed at the site in October 2012.

1.4.1 Removal of Contaminated Materials from the Site

The 1501 College Avenue Site was remediated to achieve a Track 4 Industrial SCOs. Table 2 presents a list of the Part 375 Industrial Use SCOs (Track 4) utilized for this Site. Materials removed from the Site included galbestos building material, PCB-contaminated soil/fill, petroleum contaminated soil/fill, C&D debris piles associated with illegal dumping, non-friable ACM C&D debris, abandoned drums and containers of off-spec former manufacturing raw materials, and impacted excavation waters. Figure 4 shows the locations of IRM activities and Table 3 shows the total quantities of each category of material removed from the Site and off-site disposal locations.

1.4.2 Site-Related Treatment Systems

No long-term treatment systems were installed as part of the site remedy.

1.4.3 Remaining Contamination

The 1501 College Avenue Site achieved a Track 4 - Industrial Use cleanup, which is consistent with the intended use of the Site. Residual contamination remaining at the Site above Unrestricted Use SCOs is present site-wide below the cover system. Potential exposure to the remaining contamination is mitigated due to the depth of the remaining contamination after the completion of the IRMs and the placement of the site-wide cover system.

Concentrations of residual contaminants above Part 375 Unrestricted Use SCOs in on-Site soil and above GWQS in groundwater are summarized in Tables 4a-4c and 5, respectively. Location of the remaining RI sample locations above Unrestricted Use SCOs is shown on Figure 5.

2.0 ENGINEERING & INSTITUTIONAL CONTROL PLAN

2.1 Introduction

2.1.1 General

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

2.1.2 Purpose

This plan provides:

- A description of all EC/ICs on the site;
- The basic implementation and intended role of each EC/IC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the features to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of the Excavation Work Plan for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the site remedy, as determined by the NYSDEC.

2.2 Engineering Controls

2.2.1 Cover System

Exposure to remaining contamination in soil/fill at the site is prevented by a composite cover system placed across the 12.4 acre site. This cover system is comprised of a

combination of existing asphalt/concrete areas; and a minimum of 12-inches of approved recycled concrete, recycled concrete block, and/or approved imported soil over the orange plastic mesh demarcation layer. Soil covered berms were constructed along the Site boundaries utilizing on-Site material, with NYSDEC approval, to construct the subgrade berm, covered in demarcation mesh, and placement of a minimum 12-inch of approved soil above the demarcation layer. No soil/fill from the BCP Site was utilized as material for berms constructed on the adjacent redevelopment parcel (former Hazorb Site). Figure 6 presents the location and cross section details for the different cover system types.

The Excavation Work Plan, included in Appendix A, outlines the procedures required to be implemented in the event the cover system, including on-Site berms, is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection and maintenance of this cover are provided in the Monitoring Plan included in Section 4 of this SMP.

2.3 Institutional Controls

A series of Institutional Controls are required by the Decision Document to: (1), maintain and monitor Engineering Control (Cover system); (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and, (3) limit the use and development of the site to industrial uses only. Adherence to these Institutional Controls on the site is required by the Environmental Easement and will be implemented under this Site Management Plan. These Institutional Controls are:

- Compliance with the Environmental Easement and this SMP by the Grantor and the Grantor's successors and assigns;
- All Engineering Controls must be maintained as specified in this SMP;
- All Engineering Controls on the Controlled Property must be inspected at a frequency and in a manner defined in the SMP;
- Environmental or public health monitoring must be performed as defined in this SMP; and,
- Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in this SMP.

Institutional Controls identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

The site has a series of Institutional Controls in the form of site restrictions. Adherence to these Institutional Controls is required by the Environmental Easement. Site restrictions that apply to the Controlled Property are:

- The property may only be used for industrial use provided that the long-term Engineering and Institutional Controls included in this SMP are employed.
- The property may not be used for a higher level of use, such as unrestricted, residential, restricted residential, or commercial use without additional remediation and amendment of the Environmental Easement, as approved by the NYSDEC;
- All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with this SMP;
- Vegetable gardens and farming on the property are prohibited.

The Site owner or remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

2.3.1 Excavation Work Plan

The Site has been remediated for industrial use. Any future intrusive work that will penetrate the cover system, including berms, or encounter or disturb the remaining contamination will be performed in compliance with the Excavation Work Plan (EWP) that is attached as Appendix A to this SMP. Any work conducted pursuant to the EWP must

also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the site. A sample HASP is attached as Appendix C to this SMP that is in current compliance with DER-10, and 29 CFR 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be updated and re-submitted with the notification provided in Section A-1 of the EWP. Any intrusive construction work will be performed in compliance with the EWP, HASP and CAMP, and will be included in the periodic inspection and certification reports submitted under the Site Management Plan.

The site owner and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all intrusive work, the structural integrity of excavations, proper disposal of excavation de-water, control of runoff from open excavations into remaining contamination, and for structures that may be affected by excavations (such as building foundations and bridge footings). The site owner will ensure that site development activities will not interfere with, or otherwise impair or compromise, the engineering controls described in this SMP.

2.4 Inspections and Notifications

2.4.1 Inspections

Inspections of the cover system and all ICs will be conducted at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive site-wide inspection will be conducted annually, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether the Engineering Control (cover system) continues to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- If site records are complete and up to date; and changes, or needed changes, to the remedial or monitoring system; and,

- Inspections will be conducted in accordance with this SMP.

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

2.4.2 Notifications

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

- 60-day advance notice of any proposed changes in site use that are required under the terms of the Brownfield Cleanup Agreement (BCA), 6NYCRR Part 375, and/or Environmental Conservation Law.
- 15-day advance notice of any proposed ground-intrusive activities pursuant to the Excavation Work Plan.
- Notice within 48-hours of any damage or defect that has the potential to reduce the effectiveness of the cover system and likewise any action to be taken to mitigate the damage or defect.
- Notice within 48-hours of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of the cover system at the site, including a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

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

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of the Brownfield Cleanup Agreement (BCA), and all approved work plans and reports, including this SMP

- Within 15 days after the transfer of all or part of the site, the new owner’s name, contact representative, and contact information will be confirmed in writing.

2.5 Contingency Plan

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions. This Contingency Plan, a summary of the Emergency Response Plan (appended to the HASP), describes potential emergencies that may occur at the Site; procedures for responding to those emergencies; roles and responsibilities during emergency response; and training all workers must receive in order to follow emergency procedures. This Contingency Plan also describes the provisions this Site has made to coordinate its emergency response planning with other contractors on-Site and with off-site emergency response organizations.

2.5.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance the Owner or Owner’s representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to qualified environmental professional. These emergency contact lists must be maintained in an easily accessible location at the site.

Table 6: Emergency Contact Numbers

Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480 (3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

Table 7: Site Contact Numbers

Santarosa Holdings, Inc.	716-278-2000
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* Note: Contact numbers subject to change and should be updated as necessary

2.5.2 Map and Directions to Nearest Health Facility

Site Location: 1501 College Avenue Site

Nearest Hospital Name: Niagara Falls Memorial Medical Center

Hospital Location: 621 10th Street, Niagara Falls, New York

Hospital Telephone: 716-278-4000

Directions to the Hospital:

1. Turn Left onto College Avenue
2. Turn Left on Highland Avenue
3. Turn Left on Portage Road
4. Turn Right on Pine Avenue
5. Turn Left on 10th Street

Total Distance: 2.1 miles

Total Estimated Time: 5 minutes

Figure A-1 (included in SMP Appendix C – HASP) presents a Hospital Route Map

2.5.3 Response Procedures

As appropriate, the fire department and other emergency response group will be notified immediately by telephone of the emergency. An emergency telephone number list will also be posted prominently at the Site and made readily available to all personnel at all times.

3.0 SITE MONITORING PLAN

3.1 Introduction

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the site, the soil cover system, and all affected site media identified below. This Monitoring Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

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

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

- Reporting requirements; and
- Annual inspection and periodic certification.

3.2 Site Monitoring

3.2.1 Cover System

Site-wide inspection of the cover system, as described above, will be performed annually in association with the PRR, and will also be performed after all severe weather conditions that may affect the cover system.

The site-wide inspection will include a general visual evaluation of all areas of the Site. Non-paved areas (e.g. vegetated areas) including berms, concrete and asphalt paved areas, and gravel/stone areas across the Site will be inspected to verify that these areas are being maintained, as appropriate to prevent potential off-site migration of remaining contaminants by surface water run-off. Any surface or subsurface disturbances related to redevelopment activities will be performed in compliance with the Excavation Work Plan (Appendix A).

3.2.2 Short-term Groundwater Monitoring

At the request of the Department, an additional round of groundwater sampling was attempted in August 2012. Due to low water levels and well recovery rates, samples were unable to be collected for analysis. Though not a component of the long-term monitoring program for the Site, the Site Owners have agreed to collect one round of groundwater samples from the three (3) remaining monitoring wells in spring 2013. The results of the sampling event will be forwarded to the Department for review and determination whether future additional groundwater monitoring is required. All sampling will be in accordance with the Department's approved work plan for the Site.

3.3 Site-Wide Inspection

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect the EC/ICs. During the annual inspections, the NYSDEC auto-generated certification form will be completed. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection;
- Compliance with permits and schedules included in the Operation and Maintenance Plan; and
- Confirm that site records are up to date.

3.4 Monitoring Quality Assurance/Quality Control

If media sampling is determined to be necessary (i.e. intrusive excavation), all sampling and analyses will be performed in accordance with the requirements of the Quality Assurance Project Plan (QAPP) prepared for the Site (Appendix E). Main components of the QAPP include:

- QA/QC Objectives for Data Measurement;
- Sampling Program:
 - Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.
 - Sample holding times will be in accordance with the NYSDEC ASP requirements.
 - Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected as necessary.
- Sample Tracking and Custody;
- Calibration Procedures:
 - All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.
 - The laboratory will follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.
- Analytical Procedures;
- Preparation of a Data Usability Summary Report (DUSR), which will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.
- Internal QC and Checks;
- QA Performance and System Audits;
- Preventative Maintenance Procedures and Schedules;
- Corrective Action Measures.

3.5 Monitoring Reporting Requirements

Forms and any other information generated during regular monitoring events and inspections will be kept on file by the Site owner or its designated representative. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the Periodic Review Report. The initial PRR will be due to the Department 18 months after receipt of the Certificate of Completion (COC), with annual reporting thereafter.

All monitoring results will be reported to NYSDEC on a periodic basis in the Periodic Review Report. The report will include, at a minimum:

- Date of event;
- Personnel conducting sampling;
- Description of the activities performed;
- Type of samples collected, if any (e.g., soil/fill, groundwater, etc.);
- Copies of all field forms completed (e.g., 1 sampling logs, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format); and,
- Any observations, conclusions, or recommendations.

Data will be reported in hard copy or digital format as determined by NYSDEC. A summary of the monitoring program deliverables are summarized in Table 8 below.

Table 8: Schedule of Monitoring/Inspection Reports

Task	Reporting Frequency*
Site Inspection (PRR)	Annual

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC

4.0 OPERATION & MAINTENANCE PLAN

4.1 Introduction

The site remedy does not rely on any mechanical systems, such as sub-slab depressurization systems or air sparge/ soil vapor extraction systems to protect public health and the environment. Therefore, the operation and maintenance of such components is not included in this SMP.

5.0 INSPECTIONS, REPORTING & CERTIFICATIONS

5.1 Site Inspections

5.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 of this SMP. At a minimum, a site-wide inspection will be conducted annually.

5.1.2 Inspection Forms, Sampling Data, & Maintenance Reports

A NYSDEC Institutional and Engineering Control Certification Form will be completed during the Site-wide inspection (see Appendix D). These forms are auto-generated by the NYSDEC.

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

5.1.3 Evaluation of Records & Reporting

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

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented; and
- The site remedy continues to be protective of public health and the environment and is performing as designed in the RAWP and FER.

5.2 Certification of Engineering and Institutional Controls

After the last inspection of the reporting period, a qualified environmental professional will prepare the following certification:

For each institutional or engineering control identified for the site, I certify that all of the following statements are true:

- The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;
- The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;
- Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- Use of the site is compliant with the environmental easement;
- The engineering control systems are performing as designed and are effective;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program; and
- The information presented in this report is accurate and complete.
- I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class “A” misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner or Owner’s Designated Site Representative] (and if the site consists of multiple properties): [I have been authorized and designated by all site owners to sign this certification] for the site.

Every five years the following certification will be added:

- The assumptions made in the qualitative exposure assessment remain valid.

The signed certification will be included in the Periodic Review Report described below.

5.3 Periodic Review Report

A Periodic Review Report will be submitted to the Department every year, beginning eighteen months after the Certificate of Completion is issued. In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the Site described in the Environmental Easement. The report will be prepared in accordance with NYSDEC DER-10 and submitted within 45 days of the end of each certification period. Media sampling results, if any, will also be incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site;
- Results of the required annual site inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated for the site during the reporting period in electronic format;
- Data summary tables and graphical representations of contaminants of concern by media which include a listing of all compounds analyzed, along with the applicable standards, with all exceedance highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format;
- A site evaluation, which includes the following:
 - The compliance of the remedy with the requirements of the site-specific remedial action;
 - Any new conclusions or observations regarding site contamination based on inspections;
 - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
 - The overall performance and effectiveness of the remedy.

The Periodic Review Report will be submitted in electronic format, with the fully executed NYSDEC Institutional and Engineering Control Certification Form submitted in hard-copy format, to the NYSDEC Regional Office in which the site is located.

5.4 Corrective Measures Plan

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

TABLES



TABLE 1
Site Management Plan
Summary of Groundwater Elevations
1501 College Avenue Site
Niagara Falls, New York

Location	TOR Elevation ¹ (fmsl)	DTW (fbTOR)	Groundwater Elevation (fmsl)
			Oct 14, 2010
MW-1	106.42	11.15	95.27
MW-2	108.97	7.35	101.62
MW-3	110.01	9.16	100.85
MW-4	109.83	8.46	101.37
MW-5	110.11	10.82	99.29

Notes:

1. Top of riser elevation based upon an assumed datum of 100.00 fmsl; from Man hole cover east of access road and south of College Ave. Surveyed on Oct 14, 2010 by Turnkey personnel.
2. DTW = depth to water
3. TOR = top of riser.
4. fmsl = feet above mean sea level.
5. fbgs = feet below ground surface.



TABLE 2
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
1501 COLLEGE AVENUE SITE
NIAGARA FALLS, NEW YORK

PARAMETER	Industrial SCOs ¹
<i>Volatile Organic Compounds (VOCs) - mg/Kg</i>	
1,1,1-Trichloroethane	1,000
1,1-Dichloroethane	480
1,1-Dichloroethene	1,000
1,2-Dichlorobenzene	1,000
1,2-Dichloroethane	60
cis-1,2-Dichloroethene	1000
trans-1,2-Dichloroethene	1,000
1,3-Dichlorobenzene	560
1,4-Dichlorobenzene	250
1,4-Dioxane	250
Acetone	1,000
Benzene	89
Butylbenzene	1000
Carbon tetrachloride	44
Chlorobenzene	1000
Chloroform	700
Ethylbenzene	780
Hexachlorobenzene	12
Methyl ethyl ketone	1000
Methyl tert butyl ether	1,000
Methylene chloride	1,000
n-Propylbenzene	1,000
sec-Butylbenzene	1,000
tert-Butylbenzene	1000
Tetrachloroethene	300
Toluene	1,000
Trichloroethene	400
1,2,4-Trimethylbenzene	380
1,3,4-Trimethylbenzene	380
Vinyl chloride	27
Xylene	1,000



TABLE 2
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
1501 COLLEGE AVENUE SITE
NIAGARA FALLS, NEW YORK

PARAMETER	Industrial SCOs ¹
<i>Semi-Volatile Organic Compounds (SVOCs) - mg/Kg</i>	
Acenaphthene	1,000
Acenaphthylene	1,000
Anthracene	1,000
Benzo(a)anthracene	11
Benzo(a)pyrene	1.1
Benzo(b)fluoranthene	11
Benzo(g,h,i)perylene	1,000
Benzo(k)fluoranthene	110
Chrysene	110
Dibenzo(a,h)anthracene	1.1
Fluoranthene	1,000
Fluorene	1,000
Indeno(1,2,3-cd)pyrene	11
m-Cresol	1,000
Naphthalene	1,000
o-Cresol	1,000
p-Cresol	1,000
Pentachlorophenol	55
Phenanthrene	1,000
Phenol	1,000
Pyrene	1,000
<i>Metals - mg/Kg</i>	
Arsenic	16
Barium	10,000
Beryllium	2,700
Cadmium	60
Chromium, trivalent	800
Chromium, hexavalent	6,800
Copper	10,000
Cyanide	10,000
Lead	3,900
Manganese	10,000
Mercury	5.7
Nickel	10,000
Selenium	6,800
Silver	6,800
Zinc	109



TABLE 2
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
1501 COLLEGE AVENUE SITE
NIAGARA FALLS, NEW YORK

PARAMETER	Industrial SCOs ¹
<i>Pesticides/Herbicides and PCBs - mg/Kg</i>	
Silvex (2,4,5-TP)	1,000
4,4'-DDE	120
4,4'-DDT	94
4,4'-DDD	180
Aldrin	1.4
alpha-BHC	6.8
beta-BHC	14
alpha-Chlordane	47
delta-BHC	1,000
Dibenzofuran	1,000
Dieldrin	2.8
Endosulfan I	920
Endosulfan II	920
Endosulfan sulfate	920
Endrin	410
Heptachlor	29
Lindane	23
Polychlorinated biphenyls (PCBs)	25

Notes:

1. Values per 6NYCRR NYSDEC Part 375 Soil Cleanup Objectives (SCOs).



TABLE 3

SUMMARY OF MATERIALS RECYCLED/DISPOSED OFF-SITE

1501 College Avenue Site

Niagara Falls, New York

Material / Item	Quantity	Units	Treatment and/or Disposal Location
Galbestos building materials	153.04	ton	Chemical Waste Management
PCB-contaminated C&D debris & Soil-Fill (SS-6)	411.63	ton	Chemical Waste Management
Recycled scrap metal (building materials, steel AST, steel tanker trucks)	--	--	Niagara Metals
Non-friable asbestos containing materials (ACMs) construction and demolition (C&D) debris	735.59	ton	Waste Management
Non-friable ACMs C&D debris	854.95	ton	Minerva Landfill
Non-friable ACMs C&D debris	1,016.51	ton	Modern Landfill
Friable ACMs C&D debris	468.68	ton	Minerva Landfill
Building C&D debris/soil (Building 49)	1,340.07	ton	Minerva Landfill
Petroleum-Impacted Soil/Fill (non-haz) (TP-5 and TP-15 areas)	3,620.50	ton	Allied Waste Landfill
Roll-off containers with miscellaneous waste and drums (non-haz)	3	roll-offs	Allied Waste Landfill
Roll-off containers with miscellaneous waste and drums (non-haz)	4	roll-offs	Waste Management
Oil from tanker trucks	7,851.20	gallon	Green Environmental Services, Inc. / Environmental & Industrial Contracting Services, Inc.
Frac tank water	20,000	gallon	Green Environmental Services, Inc. / Environmental & Industrial Contracting Services, Inc.



TABLE 4a

Summary of Remaining On-Site Soil Analytical Data Above Unrestricted SCOs

1501 College Avenue Site

Niagara Falls, New York

PARAMETER ¹	Unrestricted SCOs ²	Sample Location																
		August 2007				September 2010												
		SS-1	SS-2	SS-3	SS-4	SS-1	SS-2	SS-4	SS-7A	SS-10	SS-11	SS-12	SS-13	SS-14	SS-18	SS-19	SS-23	
Volatile Organic Compounds (VOCs) - mg/Kg																		
1,2,4-Trimethylbenzene	3.6	--	--	--	--	--	ND	--	--	--	--	--	--	--	0.055	--	--	--
1,3,5-Trimethylbenzene	8.4	--	--	--	--	--	ND	--	--	--	--	--	--	--	0.014 J	--	--	--
p-Cymene (p-isopropyltoluene)	--	--	--	--	--	--	ND	--	--	--	--	--	--	--	0.012 J	--	--	--
Methylene chloride	0.05	--	--	--	--	--	0.0024 J	--	--	--	--	--	--	--	0.019 J	--	--	--
Semi-Volatile Organic Compounds (SVOCs) - mg/Kg																		
2-Methylnaphthalene	--	ND	0.13 J	43	1.8	ND	ND	0.28 D,J	0.25 D,J	0.59 D,J	2.7 D,J	ND	0.59 D,J	8.7 D,J,T	ND	1.2 D,J	0.038 D,J	
Acenaphthene	20	ND	2.5	36	6.9	0.47 D,J	0.087	1.6 D,J	1.2 D,J	2.8 D	5.5 D	3.5 D,J	3.1 D,J	6.1 D,J,T	4 D	3.1 D,J	0.28 D,J	
Acenaphthylene	100	ND	0.33 J	39	0.6	0.39 D,J	ND	0.86 D,J	ND	0.6 D,J	3.4 D,J	0.57 D,J	1.3 D,J	2.6 D,J,T	ND	0.37 D,J	ND	
Anthracene	100	ND	3.1	140	12	1.1 D,J	130	4.4 D	1.2 D,J	3.9 D	6 D	5 D	4.6 D	7.3 D,J,T	3.5 D	5.3 D	0.4 D,J	
Benzo(a)anthracene	1	1.5 J	28	340	28	4.6 D	0.72	13 D	5.6 D	24 D	21 D	28 D	21 D	22 D,T	22 D	28 D	3 D	
Benzo(a)pyrene	1	2.2 J	38	210	28	7 D	1.4 D	17 D	9.8 D	20 D	41 D	48 D	29 D	30 D,T	38 D	39 D	4.3 D	
Benzo(b)fluoranthene	1	3.2 J	48	360	41	7.4 D	1.5 D	16 D	9.9 D	39 D	43 D	51 D	29 D	29 D,T	38 D	41 D	5.4 B,D	
Benzo(ghi)perylene	100	1.6 J	24	96	15	5.1 D	1.5 D	12 D	8.8 D	9.1 D	32 D	40 D	22 D	20 D,T	40 D	26 D	2.7 B,D	
Benzo(k)fluoranthene	0.8	0.92 J	17	120	13	3 D,J	0.52	8.1 D	3.5 D	9.5 D	18 D	14 D	13 D	12 D,T	11 D	13 D	1.4 B,D	
Biphenyl	--	--	--	--	--	ND	ND	0.11 D,J	ND	ND	0.28 D,J	ND	ND	1.6 D,J,T	ND	ND	ND	
Bis(2-ethylhexyl) phthalate	--	ND	ND	150	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Butyl benzyl phthalate	--	ND	ND	60	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Carbazole	--	--	--	--	--	0.7 D,J	0.065 D,J	1.9 D	0.77 D,J	2 D	3.7 D	3.1 D,J	2.8 D,J	ND	2.3 D,J	3.9 D	0.36 D,J	
Chrysene	1	1.8 J	27	340	29	4.7 D	0.76 D,J	13 D	5.5 D	38 D	22 D	28 D	21 D	20 D,T	21 D	27 D	3.6 D	
Dibenzo(a,h)anthracene	0.33	ND	6.1	35	4.2	ND	ND	ND	ND	2.4 D	ND	ND	ND	ND	ND	ND	ND	
Dibenzofuran	7	ND	0.4 J	36	4.8	ND	ND	0.7 D,J	0.47 D,J	1.1 D,J	1.7 D,J	0.8 D,J	1.3 D,J	2.8 D,J,T	0.6 D,J	1.5 D,J	0.064 D,J	
Fluoranthene	100	1.7 J	34	780 D	57	7.7 D	1 D	22 D	31 D	33 D	43 D	37 D	37 D	37 D,T	30 D	42 D	5 D	
Fluorene	30	ND	0.97 J	65	5.4	0.35 D,J	ND	1.3 D,J	0.71 D,J	1.4 D,J	2.2 D,J	1.6 D,J	2 D,J	5.3 D,J,T	1.2 D,J	2.1 D,J	0.11 D,J	
Indeno(1,2,3-cd)pyrene	0.5	2.4 J	22	96	14	4.3 D	1.1 D	9.7 D	6.9 D	8.2 D	27 D	34 D	18 D	17 D,T	30 D	22 D	2.5 B,D	
Naphthalene	12	ND	0.24 J	26	3.6	ND	ND	0.53 D,J	0.94 D,J	1.3 D,J	3.2 D,J	0.75 D,J	0.97 D,J	2.1 D,J,T	0.63 D,J	2.7 D,J	ND	
Phenanthrene	100	1 J	12	920 D	52	4.8 D	0.52 D,J	14 D	5.8 D	17 D	21 D	22 D	28 D,T	14 D	25 D	19 D	ND	
Phenol	0.33	--	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Pyrene	100	1.9 J	27	480	37	7.1 D	0.94 D	19 D	8.9 D	25 D	29 D	42 D	33 D	31 D,T	31 D	41 D	4 D	
Polychlorinated biphenyls (PCBs) - mg/Kg																		
Aroclor 1242	0.1	ND	ND	ND	ND	ND	ND	ND	0.12	0.24 D,J	ND	1.1 D	0.33 D	0.22 D,J	ND	ND	ND	
Aroclor 1248	0.1	ND	0.11	7.1	ND	ND	ND	0.025 J	ND	ND	ND	ND	ND	ND	ND	6.3 D	ND	
Aroclor 1254	0.1	ND	0.089	ND	ND	0.081 D,J	0.01 J	0.086 J	ND	ND	ND	ND	ND	ND	ND	ND	0.048 D,N,J	
Aroclor 1260	0.1	ND	ND	ND	ND	0.52 D	0.056	ND	0.28	ND	0.34	1.1 D	4.9 D	ND	ND	ND	0.11 D,N,J	
Aroclor 1268	0.1	8.4 B	0.12 B	1.4 B	0.34 B	0.39 D	0.035	0.074 J	0.16	7.6 D	0.1	0.64 D	2.4 D	2.9 D	0.19 D,J	13 D	0.1 D,N,J	
Total Metals - mg/Kg																		
Aluminum	--	--	--	--	--	5290 B	5850 B	5460 B,J	10500 B	6600 B	5110 B	8310 B	6490 B	5020 B	9900 B,J	2010 B	5500 B	
Antimony	--	--	--	--	--	3.4 J	1.1 B,J	ND UJ	ND	1.8 J	2.5 J	0.6 J	1.9 J	2.1 J	ND UJ	1.6 J	ND UJ	
Arsenic	13	89	2.8	23.9	8.1	11.7	1.7 B,J	3.1 B	4.5	7.1	21.8	9.9	6.9	11.2	3.1 B	10.6	2.8	
Barium	350	127	75.8	2520	81.2	334 B	51.8 B	57.4 B,J	75.1 B	110 B,J	87.2 B	86.6 B	167 B	260 B	76.8 B,J	63.1 B,J	75.7 B,J	
Beryllium	7.2	--	--	--	--	0.353	0.728 B	0.253	0.493	0.671	0.459	0.518	0.418	0.318	0.342	0.368	0.377	
Cadmium	2.5	30.8	1.8	12.6	0.96	4.14	1.13	0.642	0.714	1.77	1.22	3.13	1.9 J	8.56 J	0.906	3.05	1.01	
Calcium	--	--	--	--	--	57400 B	18300 B	1E+05 B,D,J	21500 B	85100 B,D	27200 B	26100 B	46200 B	63900 B	40400 B,J	19300 B	6910 B	
Chromium	1	73.2	38	297	66.1	173	22.4	10.4 J	25.5	27.7	41.7	44.8	35.3	118	41.4 J	80.3	25.2	
Cobalt	--	--	--	--	--	6.54	2.87 B	2.74	6.13	7.46	5.97	12.2	6.31	9.85	4.52	6.22	6.38	
Copper	50	--	--	--	--	497 B	25.9	16.6 J	19.5 B	82.1	122 B	2770 B	150 B	163 B	28.6 J	83.4	26.4	
Iron	2000	--	--	--	--	26200	3650 B	10200 J	16500	26600 B	10700	64500 D	18200	4910	21400 J	12300 B	10.3 B	
Lead	63	171	208	3310	232	465 B	60.2	117 J	49.6 B	325	211 B	2060 B	549 B,J	591 B,J	156 J	156	43.4	
Magnesium	--	--	--	--	--	25800 B	7560	23000 J	9580 B	17300	15000 B	6970 B	16500 B	25000 B	9510 J	9890	11400	
Manganese	1600	--	--	--	--	633	403 B	353 J	371	1210 B	404	653	695	1240	2010 J	794 B	211 B	
Nickel	30	--	--	--	--	73.5	19.7	8.07 J	14.7	30.1 J	30.4	58.1	54.7	55.2	14.1 J	120 J	18.9 J	
Potassium	--	--	--	--	--	913 B	141	665	1310 B	821 B	627 B	1120 B	656 B	530	308 B	3400 B	--	
Selenium	3.9	ND	ND	ND	ND	1.7 J	0.6 J	0.9 J	1.5 J	1.2 J	1.1 J	5.7	1.5 J	3.4 J	1.4 J	1.6 J	4.4 J	
Silver	2	ND	ND	1.1	ND	0.467 J	ND	ND	0.071 J	0.154 J	0.212 J	0.338 J	0.144 J	0.168 J	0.17 J	0.221 J	0.29 J	
Sodium	--	--	--	--	--	286	110 J	191 J	109 J	283	113 J	169	314	21	92.2 J	143 J	16400	
Vanadium	--	--	--	--	--	141	221	130 J	21.9	31.6	21.6	66.7	130	62.5	512 J	25.3	80.5	
Zinc	109	--	--	--	--	955 B	54.6	136 B,J	93.9 B	804 B	182 B	365 B	462 B,J	797 B,J	164 B,J	322 B	250 B	
Mercury	0.18	0.086	0.035	3.1	0.046	5.25 D	0.0078 J	0.0417	0.164	0.226	0.945	0.481	0.177	0.115	0.168	0.366	ND	
Pesticides and Herbicides - mg/Kg																		
4,4'-DDT	0.0033	--	--	--	--	--	0.0084 D,J	--	--	0.058 D,J	0.0084 D,J	--	--	--	--	--	--	
Dieldrin	0.005	--	--	--	--	--	0.016 D,J	--	--	ND	0.016 D,J	--	--	--	--	--	--	
Endrin	0.014	--	--	--	--	--	ND	--	--	0.029 D,J	ND	--	--	--	--	--	--	

Definitions:

- ND = Parameter not detected above laboratory detection limit.
- "--" = Sample not analyzed for parameter or no SCO available for the parameter.
- J = Estimated value; result is less than the sample quantitation limit but greater than zero.
- B = Indicates a value greater than or equal to the instrument detection limit, but less than the quantitation limit.
- D = Compounds were identified in an analysis at the secondary dilution factor.
- NJ = Estimated value; potential false positive and/or elevated quantitative value.
- Bold** = Result exceeds Unrestricted SCOs.



TABLE 4b
Summary of Remaining On-Site Soil Analytical Data Above Unrestricted SCOs

1501 College Avenue Site
Niagara Falls, New York

PARAMETER ¹	Unrestricted SCOs ²	Sample Location																													
		September 2010										September 2010										July 2011									
		BCP MW-1 (0-4)	BCP MW-2 (0-4)	BCP MW-3 (0-4)	BCP MW-4 (8-11.5)	BCP MW-5 (4-8)	TP-1 (5-7)	TP-2 (3-5)	TP-3 (1-4)	TP-4 (1-2)	TP-7A (1-2.5)	TP-9 (0.5-1.5)	TP-10 (5-7)	TP-11 (1-2)	TP-12 (1-2.5)	TP-13 (1-3)	TP-14 (1.5-2)	TP-18 (0.5-1.5)	TP-19 (4-6)	TP-20 (2-4)	TP-21 (0.5-2)	TP-22 (0.5-6)	TP-23 (1-5)	TP-24 (1-7)	TP-25 (1-7)	Railroad Siding 1	Railroad Siding 2	Railroad Siding 3	Railroad Siding 4		
Volatile Organic Compounds (VOCs) - mg/Kg																															
1,1-Dichloroethane	0.33	--	--	--	ND	ND	ND	ND	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND		
1,2,4-Trimethylbenzene	3.6	--	--	--	ND	0.66	23 D,W	ND	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND		
1,3,5-Trimethylbenzene	8.4	--	--	--	ND	0.22	6.1 D,W	ND	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND		
2-Butanone (MEK)	0.12	--	--	--	ND	ND	0.026 J	ND	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND		
p-Cymene (p-isopropyltoluene)	--	--	--	--	ND	0.048 J	1.3 D,W	ND	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND		
Acetone	0.05	--	--	--	ND	ND	ND	0.15	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	0.013 J	ND	ND	ND	ND		
Benzene	0.06	--	--	--	ND	ND	ND	ND	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND		
Chloroethane	--	--	--	--	ND	ND	ND	ND	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND		
Cyclohexane	--	--	--	--	ND	ND	0.55 D,J,W	ND	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND		
Ethylbenzene	1	--	--	--	ND	0.33	4 D,W	ND	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND		
Isopropylbenzene (Cumene)	--	--	--	--	ND	0.054	0.88 D,J,W	ND	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND		
Methylcyclohexane	--	--	--	--	ND	ND	2.6 D,W	ND	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND		
Methylene chloride	0.05	--	--	--	ND	ND	ND	0.0033 J	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	8.9	0.0031 J	0.0026 J	0.0075	0.0075		
n-Butylbenzene	--	--	--	--	ND	1	5 D,W	ND	--	--	--	--	0.014 J	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND		
n-Propylbenzene	3.9	--	--	--	ND	ND	2.9 D,W	ND	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND		
sec-Butylbenzene	11	--	--	--	ND	ND	1.2 D,W	ND	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND		
Styrene	--	--	--	--	ND	ND	ND	ND	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND		
Toluene	0.7	--	--	--	ND	0.18	ND	ND	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND		
Total Xylene	0.26	--	--	--	ND	0.76	19 D,W	ND	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND		
Semi-Volatile Organic Compounds (SVOCs) - mg/Kg																															
2-Methylnaphthalene	--	0.43 D,J	ND	0.57 D,J	0.65 D,J	260 D	110 T,D	ND	ND	0.58 D	ND	0.21 D,J	0.36 D,J	ND	ND	0.35 D,J	ND	ND	0.33 D,J	0.27 D,J	ND	ND	ND	0.093 D,J	ND	ND	2.4	27	7.5 J		
Acenaphthene	20	0.18 D,J	3.1 D,J	1.3 D,J	0.48 D,J	210 D	6.7 T,D,J	0.51 D,J	0.018 J	2.3 D	6.2 D,J	0.81 D,J	0.63 D,J	ND	ND	0.9 D,J	ND	11 D	1.3 D	0.92 D,J	0.022 J	12 D	ND	1.6 D	ND	3 J	12 J	46	29		
Acenaphthylene	100	ND	ND	ND	ND	ND	0.033 J	0.033 J	0.67 D,J	0.67 D,J	0.17 D,J	ND	ND	ND	ND	ND	ND	ND	0.12 D,J	0.12 D,J	ND	ND	ND	0.054 D,J	ND	ND	ND	4.2 J	6.7 J		
Anthracene	100	0.2 D,J	5.5 D	3.6 D	0.28 D,J	13 D	ND	2.8 D	0.065 J	5.3 D	8.2 D,J	1.7 D	0.78 D,J	ND	0.032 J	2.2 D	ND	14 D	3.5 D	1.9 D	0.024 J	13 D	0.14 D,J	0.38 T,D,J	4.6 J	21	98	44			
Benzo(a)anthracene	1	1.2 D,J	29 D	13 D	1 D	7.4 D	ND	8.3 D	0.49	17 D	39 D	4.7 D	4 D	0.055 J	19 J	2.9 D	0.022 J	62 D	16 D	5.5 D	0.17 J	83 D	0.87 D,J	0.81 D,J	1.9 T,D,J	23	84	170	110		
Benzo(a)pyrene	1	1.4 D,J	45 D	15 D	1.3 D	12 D	12 T,D,J	10 D	0.63	20 D	69 D	5.4 D	5.8 D	0.074 J	0.3	3.2 D	0.03 J	83 D	19 D	5.4 D	0.27	110 D	0.55 D,J	9.4 D	2.1 T,D,J	36	110	140	120		
Benzo(b)fluoranthene	1	1.7 D,J	44 D	16 D	1.4 D	12 D	6.2 T,D,J	12 D	0.67	21 D	61 D	6.7 D	6.4 D	0.085 J	0.31	3.2 D	0.029 J	81 D	24 D	6.6 D	0.3	110 D	1.2 B,D	9.3 B,D	2.1 T,D,J	33	110	170	120		
Benzo(g)perylene	100	0.96 D,J	28 D	8.9 D	0.84 D,J	4.4 D	ND	7.7 D	0.44	12 D	57 D	1.8 D	3.2 D	0.06 J	0.31	2.1 D	0.023 J	67 D	9.1 D	2.2 D	0.23	81 D	0.48 B,D,J	6.2 B,D	1.5 T,D,J	27	82	86	88		
Benzo(k)fluoranthene	0.8	0.46 D,J	16 D	6.7 D	0.41 D,J	2.9 D	ND	3.3 D	0.24	6.6 D	34 D	2.9 D	2.5 D	0.034 J	0.083 J	1 D	ND	30 D	6.8 D	2.6 D	0.1 J	49 D	0.4 B,D,J	3.8 B,D	1.2 T,D,J	22	56	72	68		
Biphenyl	--	ND	ND	ND	0.19 D,J	350 D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.067 D,J	ND	ND	ND	ND	ND	ND	ND	4.8 J	1.9 J		
Bis(2-ethylhexyl) phthalate	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.087 J	ND	ND	ND	ND	ND	ND	ND	ND	0.62 D,J	ND	11 J	ND	ND	ND	ND	
Butyl benzyl phthalate	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Carbazole	--	0.14 D,J	3 D,J	1.9 D,J	0.16 D,J	0.93 D,J	ND	0.67 D,J	ND	2.7 D	5.4 D,J	0.78 D,J	0.5 D,J	ND	0.024 J	0.83 D,J	ND	8.7 D,J	2.2 D	0.99 D,J	0.016 J	8.7 D	0.055 D,J	0.6 D,J	ND	2.7 J	13 J	55	22		
Chrysene	1	1.1 D,J	29 D	14 D	0.99 D,J	12 D	33 T,D,J	8.3 D	0.48	17 D	39 D	5.4 D	4 D	0.056 J	0.19 J	2.6 D	0.015 J	57 D	16 D	5.4 D	0.18 J	78 D	1.4 D	6.2 D	1.8 T,D,J	26	84	150	110		
Dibenzo(a,h)anthracene	0.33	ND	ND	ND	ND	ND	ND	0.11 J	ND	ND	ND	0.45 D,J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.9 J	18 J	29	19
Dibenzofuran	7	ND	0.94 D,J	0.78 D,J	0.18 D,J	400 D	ND	0.26 D,J	ND	1.3 D,J	ND	0.41 D,J	ND	ND	ND	0.81 D,J	ND	3.4 D,J	0.68 D,J	0.49 D,J	ND	2.1 D,J	0.043 D,J	0.18 D,J	ND	ND	5.1 J	39	14 J		
Fluoranthene	100	2 D	39 D	24 D	1.7 D	29 D	6.9 T,D,J	17 D	0.6	28 D	64 D	9.1 D	6.2 D	0.087 J	0.28	6.2 D	0.023 J	94 D	31 D	9.9 D	0.23	97 D	1.7 D	7.3 D	2.7 T,D,J	36	130	350	200		
Fluorene	30	ND	1.7 D,J	1.3 D,J	0.35 D,J	290 D	13 T,D,J	0.68 D,J	0.019 J	2 D,J	2.7 D,J	0.7 D,J	0.42 D,J	ND	ND	1.2 D	ND	4.7 D,J	1.3 D	0.81 D,J	ND	4.7 D,J	0.4 D,J	ND	1.5 J	9.5 J	54	22	22		
Indeno(1,2,3-cd)pyrene	0.5	0.79 D,J	24 D	8 D	0.69 D,J	4.3 D	ND	6 D	0.38	10 D	46 D	1.5 D	2.6 D	0.041 J	0.21 J	1.7 D	0.02 J	ND	7.3 D	2 D	0.19 J	73 D	0.43 B,D,J	5.7 B,D	1.2 T,D,J	21	66	77	77		
Naphthalene	12	0.3 D,J	0.62 D,J	0.79 D,J	0.49 D,J	930 D	40 T,D	ND	0.073 J	1 D,J	ND	0.5 D,J	0.17 D,J	ND	ND	0.6 D,J	0.1 J	ND	0.73 D,J	0.47 D,J	ND	1.6 D,J	ND	0.12 D,J	ND	ND	7.6	71	23		
Phenanthrene	100	1.1 D,J	20 D	1.3 D	0.35 D,J	39 D	77 T,D	5.6 D	19 D	35 D	5.4 D	3.4 D	7.7 D,J	0.053 J	0.19 J	6.8 D	ND	56 D	17 D	7.9 D	0.097 J	48 D	0.73 D,J	3.4 D	1.5 T,D,J	19	86	380	170		
Phenol	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.1 J	ND	ND	
Pyrene	100	1.8 D,J	40 D	21 D	1.4 D	22 D	29 T,D,J	12 D	0.79	25 D	61 D	5.7 D	5.1 D	0.077 J	0.29	5.4 D	0.023 J	87 D	24 D	7.6 D	0.2 J	95 D	0.94 D,J	6.6 D	2.2 T,D,J	32	120	270	190		
Polychlorinated biphenyls (PCBs) - mg/Kg																															
Aroclor 1242	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.8 D	ND	ND	ND	0.0086 J	0.012 J	ND	ND	ND	ND	ND	0.44 D	ND	0.28 D	0.077	ND	ND	ND	ND		
Aroclor 1248	0.1	ND	ND	ND	ND	ND	ND	ND	0.029	ND	ND	0.011 J	ND	ND	ND	ND	ND	0.052	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Aroclor 1254	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.26 D	0.082 J	ND	ND	ND	ND	ND	
Aroclor 1260	0.1	ND	0.2 D	ND	ND	ND	ND	ND	ND	ND	1.8 D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.014 J	1.5 D,NJ	0.16	ND	ND	ND	ND	ND		
Aroclor 1262	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Aroclor 1268	0.1	0.037	0.074 D,J	ND	0.041	ND	ND	ND	0.093	0.59 D	0.7 D	0.093	ND	0.0066 J	0.068 NJ	ND	0.054 D,J	0.14	7.6 D	ND	ND	0.03	1.8 D	0.099 NJ	2.7	0.85	1.4	3.4			
Total Metals - mg/Kg																															
Aluminum	--	13300 B	3730 B	17800 B	8100 B	14000 B	4500 B	16100 B	15400 B,J	14100 B,J	9690 B	8830 B	5340 B	15900 B	16100 B	7890 B	19800 B	8040 B,J	9980 B	5430 B	11000 B	1880 B	8910 B	8010 B	6100 B	22200	9730	4370	6030		
Antimony	--	0.8 B,J	1.1 B,J	ND UJ	ND UJ	ND UJ	ND	ND	ND UJ	ND UJ	ND	1.2 J	0.6 J	ND	ND	ND UJ	ND UJ	ND UJ	ND UJ	0.9 J	ND UJ	ND UJ	0.7 J	1.1 J	1.1 J	0.97 J	0.93	4.6 J	2.6	2.6	
Arsenic	13	11.5 B	4 B	5.3 B	2.1 B,J	3.4 B	1.2 J	3.9	6.9 B	4.3 B	5.9	4.5	4.7	3.9	3	7.2	5	3 B	5.8	7.1	12.3	1.4 J	13.8	7.2	5.3						



TABLE 4c

Summary of On-Site Soil Analytical Data Above Unrestricted SCOs
 1501 College Avenue Site
 Niagara Falls, New York

PARAMETER ¹	Unrestricted SCOs ²	Sample Locations																
		TP-15 Area														TP-5 Area		
		SW-1	SW-2	SW-3	SW-4	SW-5	SW-6	SW-7	SW-8	SW-9	SW-10	SW-11	SW-12	SW-16	Northwall Pipe Trench	Southwall 1	Eastwall 1	
Volatile Organic Compounds (VOCs) - mg/Kg																		
1,2,4-Trimethylbenzene	3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
2-Butanone (MEK)	0.12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
p-Cymene (p-isopropyltoluene)	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Acetone	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Ethylbenzene	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Isopropylbenzene (Cumene)	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Methylcyclohexane	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Methylene chloride	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0046 J	NA	NA	NA	NA	NA
Naphthalene	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0075	NA	NA	NA	NA	NA
n-Butylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Total Xylene	0.26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds (SVOCs) - mg/Kg																		
2-Methylnaphthalene	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
Acenaphthene	20	0.9	0.25	50	6 J	4.2 J	28	2.1 J	19 J	5 J	5.8 J	2.4	0.99 J	0.15 J	0.44 J	30	0.29 J	
Acenaphthylene	100	0.3	0.011 J	ND	0.9 J	ND	2.7 J	4.5 J	ND	4.3 J	12	0.14 J	0.094 J	0.5	0.44 J	ND	ND	
Anthracene	100	1.5	0.56	68	9.5 J	7 J	35	19	48	13	19	5.7	4.2	0.67	1.9	4.9	0.34 J	
Benzo(a)anthracene	1	4.9	2	190	33	24	93	19	120	35	70	21	23	2.3	3.9	3.8	1 J	
Benzo(a)pyrene	1	6	2.5	230	46	30	120	30	140	42	87	25	25	4.1	2.5	1.2		
Benzo(b)fluoranthene	1	6.9	2.7	240	44	32	140	32	150	39	86	26	28	2.8	5.1	3.1	1.4	
Benzo(ghi)perylene	100	4.1	2	160	37	23	82	29	110	31	49	19	18	2	2.3	1.6 J	1 J	
Benzo(k)fluoranthene	0.8	2.8	1.3	110	24	15	46	15	66	21	40	12	13	1.4	1.9	0.84 J	0.68 J	
Chrysene	1	5.2	2.3	200	33	26	100	23	130	33	66	23	23	2.2	3.5	3.7	1.2	
Dibenzo(a,h)anthracene	0.33	1.5	0.45	42	7.7 J	5.6 J	24	5.6 J	23 J	8.6 J	13	5.5	5	0.56	1.1	ND	ND	
Fluoranthene	100	9.6	4.1	360	60	48	190	39	310	66	110	40	40	4.7	8.5	23	2 J	
Fluorene	30	1.1	0.18 J	33	3.6 J	2.4 J	19	1.5 J	21 J	7.3 J	6.5 J	2.4	0.89 J	0.29	1.7	15	0.16 J	
Indeno(1,2,3-cd)pyrene	0.5	3.7	1.4	120	28	17	74	20	78	26	44	15	16	1.7	2.3	1.3 J	0.78 J	
Naphthalene	--	0.34	0.14 J	53	5.4 J	2.4 J	29	ND	6.4 J	3.5 J	3.5 J	1.1 J	0.27 J	0.055 J	0.52 J	5.5	ND	
Phenanthrene	100	6.3	2.8	300	41	31	150	20	250	28	56	20	19	1.9	7.4	60	1.7	
Pyrene	100	8.2	3.4	280	55	39	160	36	230	52	100	32	33	3.4	5.8	19	1.8 J	

Definitions:
 ND = Parameter not detected above laboratory detection limit.
 NA = Parameter not analyzed.
 "--" = Sample not analyzed for parameter or no SCO available for the parameter.
 J = Estimated value; result is less than the sample quantitation limit but greater than zero.
 B = Indicates a value greater than or equal to the instrument detection limit, but less than the quantitation limit.
Bold = Result exceeds 6NYCRR Part 375 Unrestricted.

Notes:
 1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detected.



TABLE 5

Site Management Plan

Summary of Groundwater Analytical Data

1501 College Avenue Site

Niagara Falls, New York

PARAMETER ¹	GWQS ²	MW-1	MW-2	MW-3	MW-4	MW-5
		10/1/2010	10/1/2010	10/1/2010	10/1/2010	10/1/2010
Volatile Organic Compounds (VOCs) - (ug/L)						
1,2,4-Trimethylbenzene	5	ND	ND	ND	0.78 J	ND
Acetone	50	3.4 J	ND	ND	4.3 J	4.7 J
Trichlorofluoromethane (Freon-11)	5	ND	ND	ND	1.4	ND
Semi-Volatile Organic Compounds (SVOCs) (ug/L)						
2-Methylnaphthalene	--	ND	ND	ND	0.58 J	ND
Acenaphthene	20	ND	ND	ND	2.8 J	12
Acetophenone	--	ND	ND	ND	ND	0.88 J
Anthracene	50	ND	ND	ND	0.95 J	ND
Benzo(a)anthracene	0.002	ND	ND	ND	0.71 J	ND
Benzo(a)pyrene	ND	ND	ND	ND	0.63 J	ND
Benzo(b)fluoranthene	0.002	ND	ND	ND	0.71 J	ND
Carbazole	--	ND	ND	ND	1.7 J	ND
Chrysene	0.002	ND	ND	ND	0.58 J	ND
Dibenzofuran	--	ND	ND	ND	1 J	ND
Di-n-butyl phthalate	50	0.57 B,J	0.53 B,J	0.32 B,J	0.39 B,J	0.49 B,J
Fluoranthene	50	ND	ND	ND	2 J	ND
Fluorene	50	ND	ND	ND	1.8 J	ND
Naphthalene	10	ND	ND	ND	1.5 J	ND
Phenanthrene	50	0.52 J	ND	ND	0.94 J	ND
Pyrene	50	ND	ND	ND	1.4 J	ND
Total Metals (ug/L)						
Aluminum - Total	--	585	1590	2410	2250	454
Barium - Total	1000	20.1	34.6	32.1	86.1	21
Cadmium - Total	5	0.4 J	ND	ND	ND	ND
Calcium - Total	--	103000	77800	108000	121000	224000
Chromium - Total	50	1.4 J	1.6 J	3.1 J	2.3 J	ND
Cobalt - Total	5	2.5 J	1.7 J	3.8 J	0.9 J	2.7 J
Copper - Total	200	4.3 J	3.9 J	4.3 J	3.2 J	2.5 J
Iron - Total	300	565	1360	2170	1610	580
Lead - Total	25	ND	ND	ND	4.2 J	ND
Magnesium - Total	35000	100000	93700	114000	13800	132000
Manganese - Total	300	105	99.6	240	245	564
Nickel - Total	100	5.6 J	5.4 J	6.9 J	3.2 J	4.4 J
Potassium - Total	--	3830	3020	6520	11300	4820
Sodium - Total	20000	52400	51400	48600	31000	53400
Vanadium - Total	14	2.3 J	4.7 J	4.8 J	8	2.4 J
Zinc - Total	2000	12.5	12.4	8.2	6.7 J	9.6 J
Pesticides and Herbicides (ug/L)						
4,4'-DDD	0.3	0.22 D,J	0.21 D,J	0.21 D,J	0.071	0.24 D
4,4'-DDT	0.2	0.22 D,J	0.2 D,J	0.21 D,J	ND	ND
delta-BHC	--	ND	ND	ND	0.038 J	ND
Endosulfan I	--	ND	ND	ND	ND	0.072 D,J
Endosulfan II	--	ND	ND	ND	0.022 J	ND
Endrin	ND	0.17 D,J	ND	ND	ND	ND
Endrine ketone	5	ND	ND	ND	ND	0.082 D,J
gamma-Chlordane	--	0.1 D,J	0.095 D,J	0.094 D,J	0.025 J	0.095 D,J
Heptachlor epoxide	0.03	0.051	ND	ND	ND	0.075 D,J
Methoxychlor	35	0.088	ND	ND	0.025 J	ND

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC Division of Water Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations - GA Class (TOGS 1.1.1)

Definitions:

- ND = Parameter not detected above laboratory detection limit.
- "--" = No SCO available for the parameter.
- J = Estimated value; result is less than the sample quantitation limit but greater than zero.
- B = Indicates a value greater than or equal to the instrument detection limit, but less than the quantitation limit.
- D = Compounds were identified in an analysis at the secondary dilution factor.

Result exceeds GWQS.



TABLE 9

Site Management Plan

Criteria for Use of Off-Site Soil

1501 College Avenue Site

Niagara Falls, New York

Parameter	Commercial or Industrial Use
Volatile Organic Compounds (mg/kg)	
1,1,1-Trichloroethane	0.68
1,1-Dichloroethane	0.27
1,1-Dichloroethene	0.33
1,2-Dichlorobenzene	1.1
1,2-Dichloroethane	0.02
1,2-Dichloroethene(cis)	0.25
1,2-Dichloroethene(trans)	0.19
1,3-Dichlorobenzene	2.4
1,4-Dichlorobenzene	1.8
1,4-Dioxane	0.1
Acetone	0.05
Benzene	0.06
Butylbenzene	12
Carbon tetrachloride	0.76
Chlorobenzene	1.1
Chloroform	0.37
Ethylbenzene	1
Hexachlorobenzene	3.2
Methyl ethyl ketone	0.12
Methyl tert-butyl ether	0.93
Methylene chloride	0.05
Propylbenzene-n	3.9
Sec-Butylbenzene	11
Tert-Butylbenzene	5.9
Tetrachloroethene	1.3
Toluene	0.7
Trichloroethene	0.47



TABLE 9

Site Management Plan

Criteria for Use of Off-Site Soil

1501 College Avenue Site

Niagara Falls, New York

Parameter	Commercial or Industrial Use
Volatile Organic Compounds (mg/kg)	
Trimethylbenzene-1,2,4	3.6
Trimethylbenzene-1,3,5	8.4
Vinyl chloride	0.02
Xylene (mixed)	1.6
Semi-Volatile Organic Compounds (mg/kg)	
Acenaphthene	98
Acenaphthylene	107
Anthracene	500
Benzo(a)anthracene	1
Benzo(a)pyrene	1
Benzo(b)fluoranthene	1.7
Benzo(g,h,i)perylene	500
Benzo(k)fluoranthene	1.7
Chrysene	1
Dibenz(a,h)anthracene	0.56
Fluoranthene	500
Fluorene	386
Indeno(1,2,3-cd)pyrene	5.6
m-Cresol(s)	0.33
Naphthalene	12
o-Cresol(s)	0.33
p-Cresol(s)	0.33
Pentachlorophenol	0.8
Phenanthrene	500
Phenol	0.33
Pyrene	500



TABLE 9

Site Management Plan

Criteria for Use of Off-Site Soil

1501 College Avenue Site

Niagara Falls, New York

Parameter	Commercial or Industrial Use
Metals (mg/kg)	
Arsenic	16
Barium	400
Beryllium	47
Cadmium	7.5
Chromium, Hexavalent ¹	19
Chromium, Trivalent ¹	1500
Copper	270
Cyanide	27
Lead	450
Manganese	2000
Mercury (total)	0.73
Nickel	130
Selenium	4
Silver	8.3
Zinc	2480
PCBs/Pesticides (mg/kg)	
2,4,5-TP Acid (Silvex)	3.8
4,4'-DDE	17
4,4'-DDT	47
4,4'-DDD	14
Aldrin	0.19
Alpha-BHC	0.02
Beta-BHC	0.09
Chlordane (alpha)	2.9
Delta-BHC	0.25
Dibenzofuran	210
Dieldrin	0.1
Endosulfan I	102



TABLE 9

Site Management Plan
Criteria for Use of Off-Site Soil
1501 College Avenue Site
Niagara Falls, New York

Parameter	Commercial or Industrial Use
PCBs/Pesticides (mg/kg)	
Endosulfan II	102
Endosulfan sulfate	200
Endrin	0.06
Heptachlor	0.38
Lindane	0.1
Polychlorinated biphenyls	1

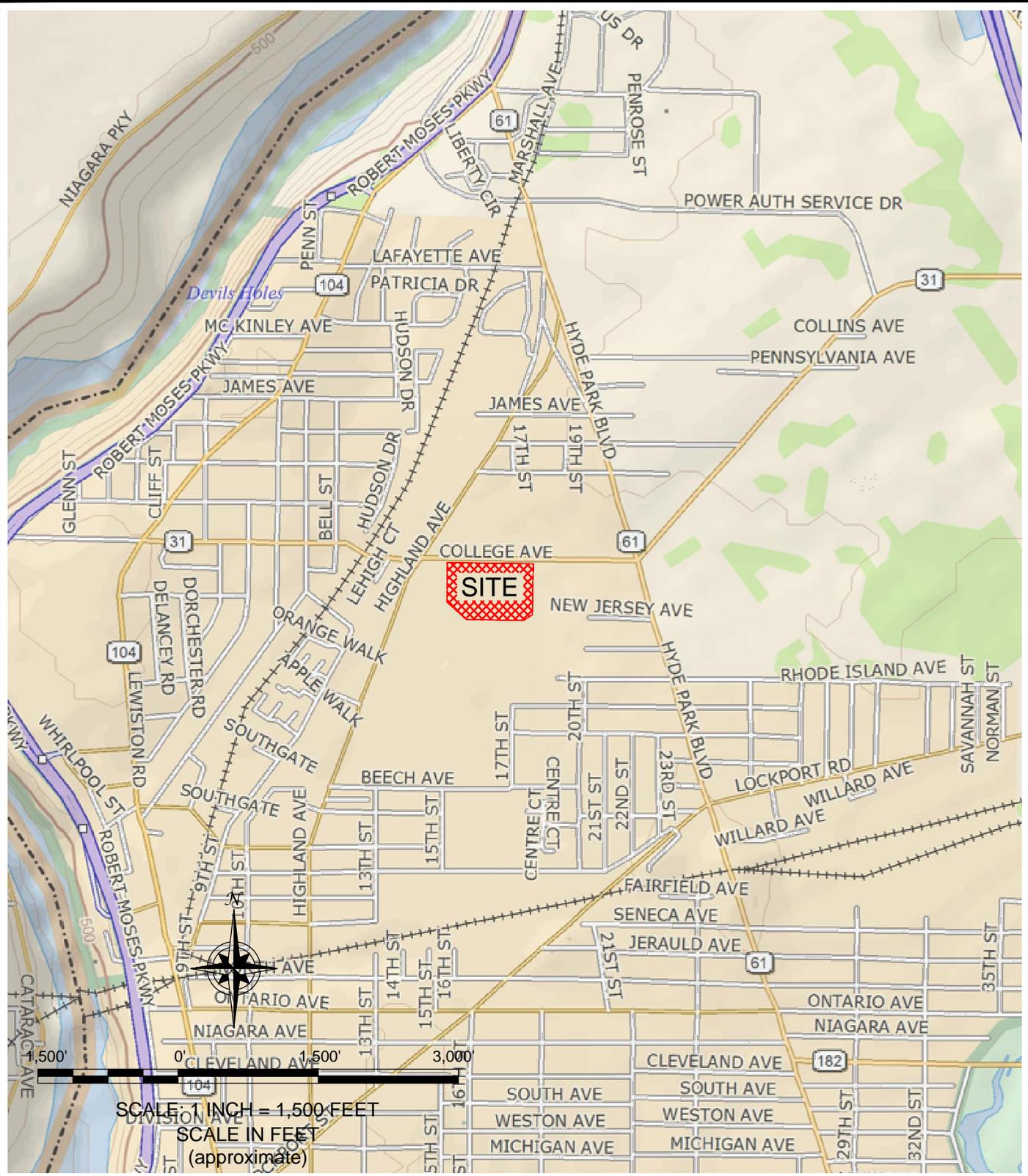
Notes:

1. The SCO for Hexavalent or Trivalent Chromium is considered to be met if the analysis for the total species of this contaminant is below the specific SCO for Hexavalent Chromium.

FIGURES

FIGURE 1

F:\CAD\TurnKey\Santorosa Holdings\Site Management Plan\Figure 1- Site Location and Vicinity Map - JGT.dwg



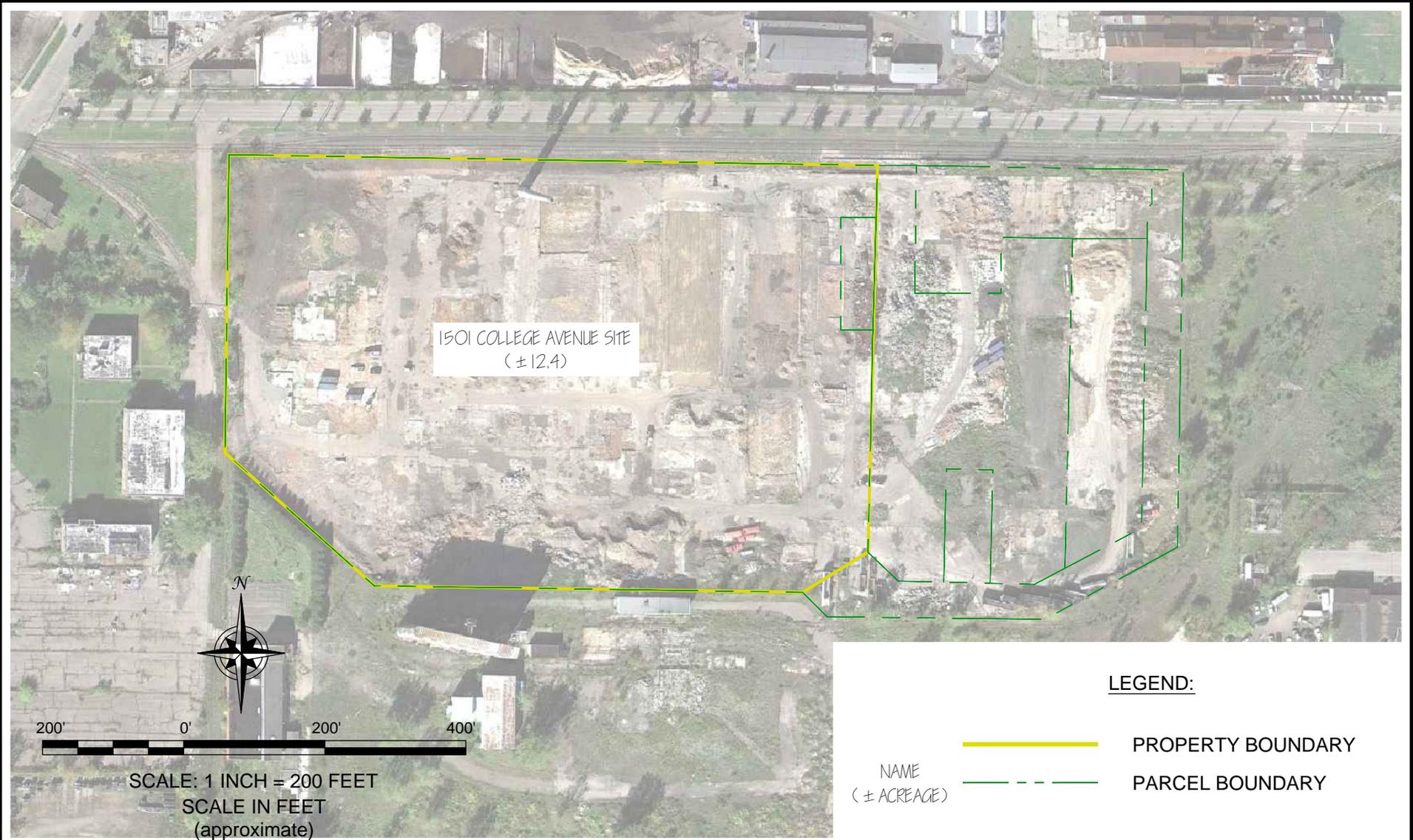
SITE LOCATION AND VICINITY MAP

SITE MANAGEMENT PLAN
 1501 COLLEGE AVENUE SITE
 NIAGARA FALLS, NEW YORK
 PREPARED FOR
 SANTAROSA HOLDINGS, INC



2558 HAMBURG TURNPIKE
 SUITE 300
 BUFFALO, NY 14218
 (716) 856-0635

PROJECT NO.: 0140-001-105
 DATE: OCTOBER 2012
 DRAFTED BY: JGT



2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0835

SITE PLAN (AERIAL)

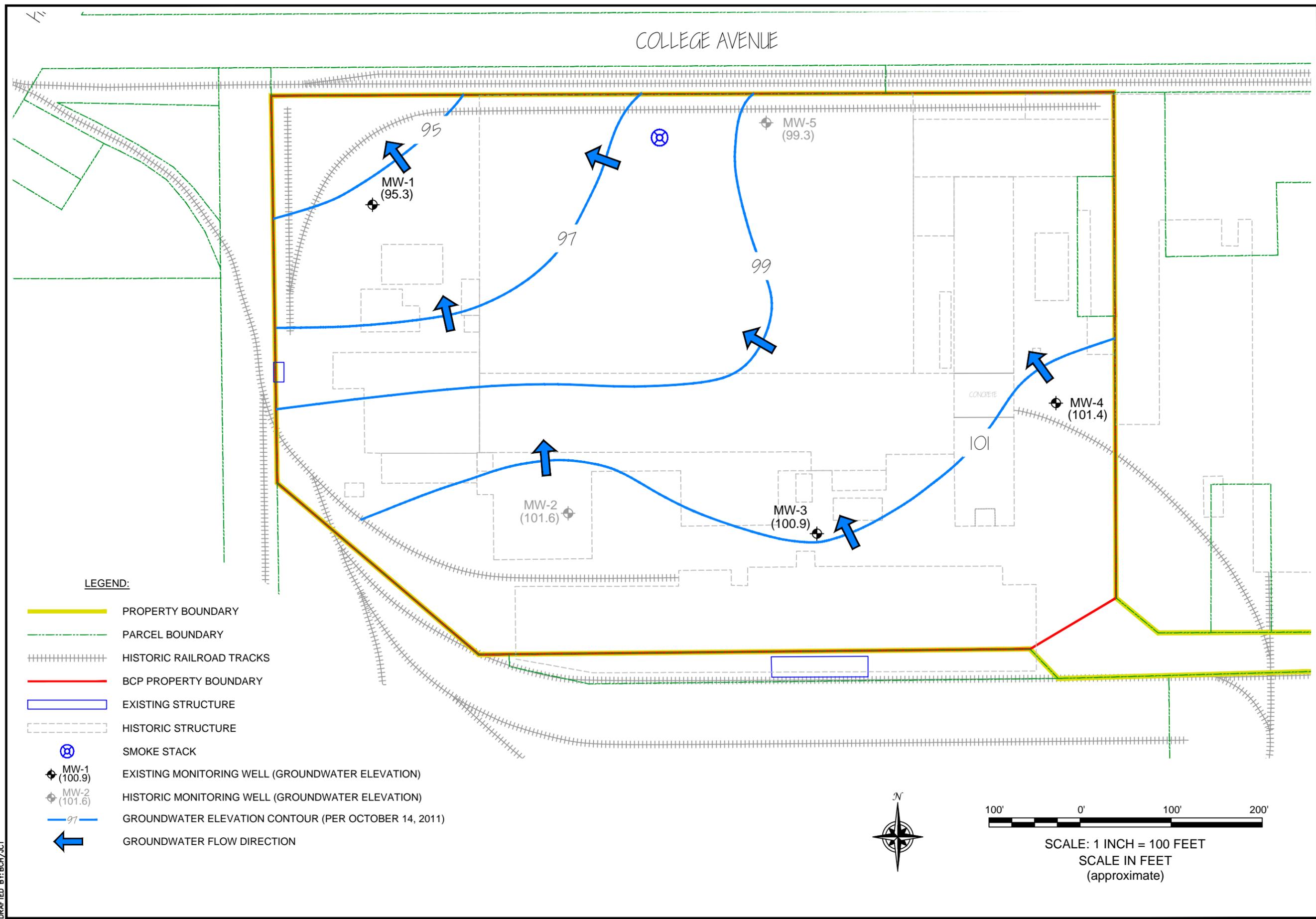
SITE MANAGEMENT PLAN
1501 COLLEGE AVENUE SITE
NIAGARA FALLS, NEW YORK
PREPARED FOR
SANTAROSA HOLDINGS, INC

PROJECT NO.: 0140-001-105

DATE: OCTOBER 2012

DRAFTED BY: JGT

FIGURE 2



GROUNDWATER MONITORING WELL LOCATIONS & ISOPOTENTIAL MAP

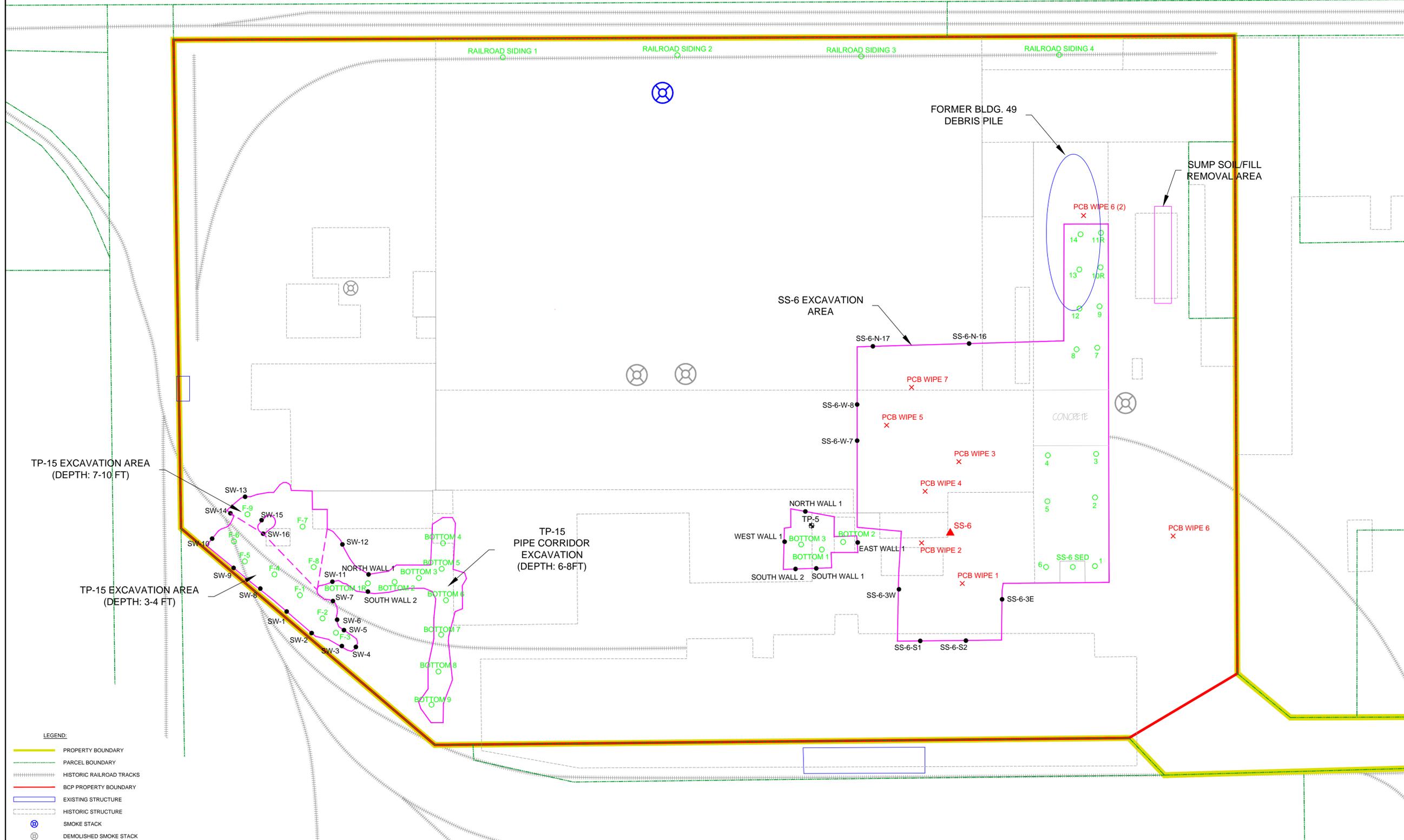
SITE MANAGEMENT PLAN
1501 COLLEGE AVENUE SITE
NIAGARA FALLS, NEW YORK
PREPARED FOR
SANTOROSA HOLDINGS, INC.



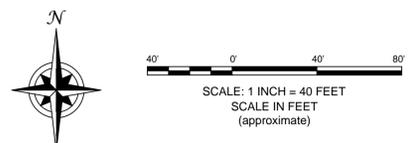
JOB NO.: 0140-001-105

FIGURE 3

COLLEGE AVENUE



- LEGEND:**
- PROPERTY BOUNDARY
 - PARCEL BOUNDARY
 - HISTORIC RAILROAD TRACKS
 - BCP PROPERTY BOUNDARY
 - EXISTING STRUCTURE
 - HISTORIC STRUCTURE
 - ⊗ SMOKE STACK
 - ⊗ DEMOLISHED SMOKE STACK
 - ▲ SS-4 REMEDIAL INVESTIGATION SURFACE SAMPLE (SEPTEMBER 2010)
 - IRM EXCAVATION AREA
 - F-4 FLOOR SAMPLE
 - SW-8 SIDEWALL SAMPLE
 - ✕ PCB WIPE 1 PCB SAMPLE



TURNKEY ENVIRONMENTAL, LLC
2558 HAMBURG TURNPIKE
BUFFALO, NY 14218
(716) 856-0635
JOB NO.: 0140-001-105

REVISIONS		REMARKS
NO.	BY	DATE

DRAWN BY:	JCT

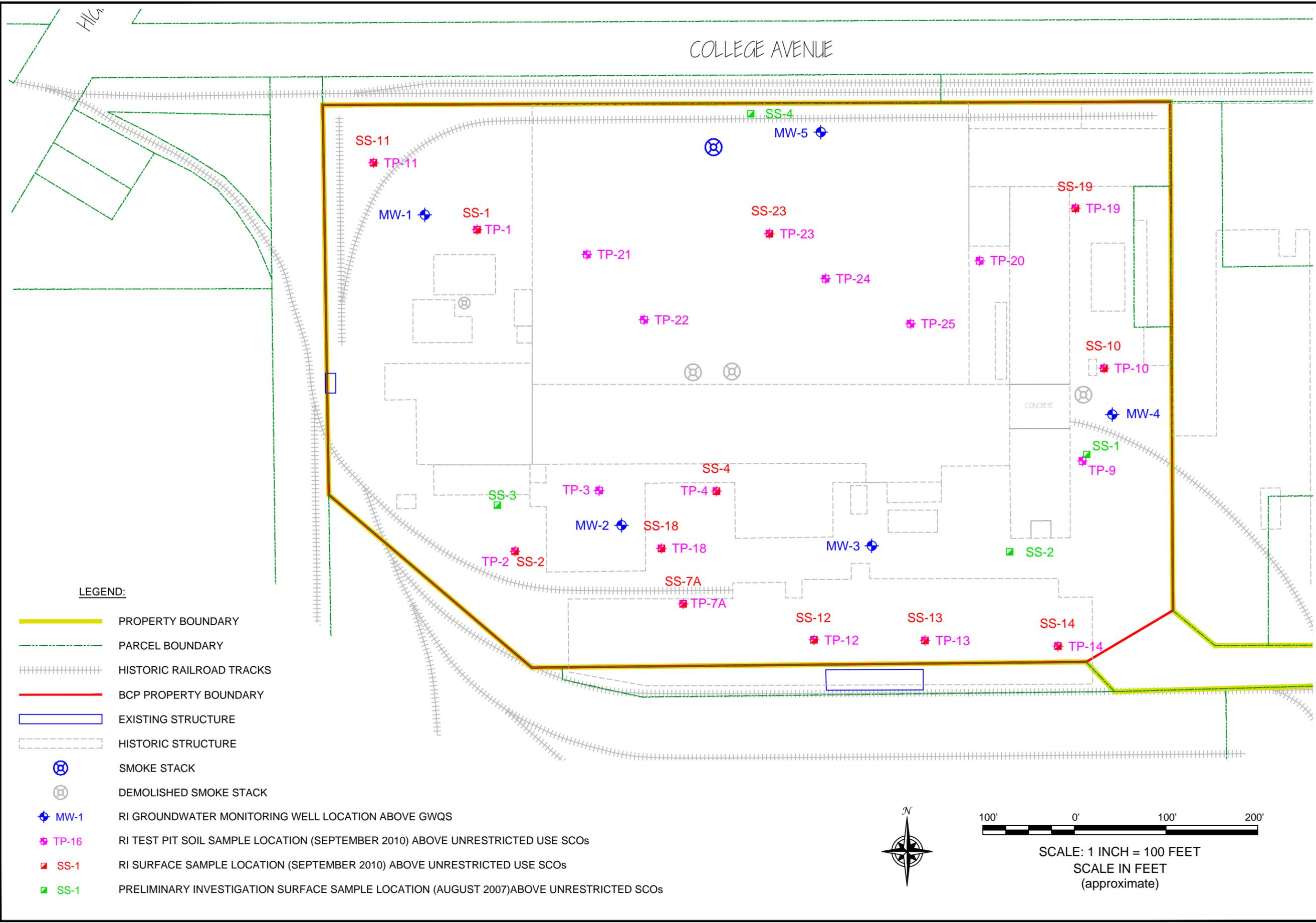
DATE:	OCTOBER 2012
CHECKED BY:	NTM
APPROVED BY:	MAL

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IRM EXCAVATION AREAS
SITE MANAGEMENT PLAN

1501 COLLEGE AVENUE SITE
NIAGARA FALLS, NEW YORK
PREPARED FOR
SANTAROSA HOLDINGS, INC.

FIGURE 4



REMAINING ON-SITE SAMPLE LOCATIONS ABOVE SCOs & GWQs

SITE MANAGEMENT PLAN
1501 COLLEGE AVENUE SITE
NIAGARA FALLS, NEW YORK
PREPARED FOR
SANTOROSA HOLDINGS, INC.



JOB NO.: 0140-001-105

FIGURE 5

APPENDIX A

EXCAVATION WORK PLAN

BROWNFIELD CLEANUP PROGRAM SITE MANAGEMENT PLAN

APPENDIX A EXCAVATION PLAN

1501 COLLEGE AVENUE SITE
NYSDEC SITE NUMBER: C932134
NIAGARA FALLS, NEW YORK

November 2012

0140-001-105

Prepared for:

Santarosa Holdings, Inc.
4870 Packard Road
Niagara Falls, New York, 14304

Prepared By:



TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218

SITE MANAGEMENT PLAN
1501 College Avenue Site

Table of Contents

A-1: NOTIFICATION 3

A-2: SOIL SCREENING METHODS 3

A-3: STOCKPILE METHODS 4

A-4: MATERIALS EXCAVATION AND LOAD OUT 4

A-5: MATERIALS TRANSPORT OFF-SITE 5

A-6: MATERIALS DISPOSAL OFF-SITE 6

A-7: MATERIALS REUSE ON-SITE 6

A-8: FLUIDS MANAGEMENT 7

A-9: COVER SYSTEM RESTORATION 8

A-10: BACKFILL FROM OFF-SITE SOURCES 8

A-11: STORMWATER POLLUTION PREVENTION 9

A-12: CONTINGENCY PLAN 10

A-13: COMMUNITY AIR MONITORING PLAN 10

A-14: ODOR CONTROL PLAN 12

A-15: DUST CONTROL PLAN 13

A-16: OTHER NUISANCES 13

A-1: NOTIFICATION

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

New York State Department of Environmental Conservation
Region 9
Division of Environmental Remediation
270 Michigan Avenue
Buffalo, NY 14203-2999

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent, plans for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control,
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work,
- A summary of the applicable components of this EWP,
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120,
- A copy of the contractor's health and safety plan, in electronic format, if it differs from the HASP provided in Appendix C of this document,
- Identification of disposal facilities for potential waste streams, and,
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

A-2: SOIL SCREENING METHODS

Visual, olfactory and instrument-based soil screening will be performed by a qualified environmental professional during all remedial and development excavations into known or

potentially contaminated material (remaining contamination). Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC.

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

A-3: STOCKPILE METHODS

Material that requires testing and/or off-Site disposal will be placed on and covered with polyethylene sheeting to prevent infiltration of precipitation and wind erosion. If off-Site disposal of the material is planned, the stockpiled impacted material will be characterized per the requirements of a permitted disposal facility. Stockpiled impacted material will not remain on-Site for more than 90 days. Upon obtaining an approved waste profile, the impacted material will be transported and disposed of off-Site.

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

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

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC.

A-4: MATERIALS EXCAVATION AND LOAD OUT

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan.

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

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

A truck wash will be operated on-site, if deemed necessary. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the site until the activities performed under this section are complete.

Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

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

A-5: MATERIALS TRANSPORT OFF-SITE

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

Material transported by trucks exiting the site will be secured with tight-fitting covers, when appropriate based on material and waste characterization. If loads contain wet material capable of producing free liquid, truck liners will be used.

If necessary, trucks will be washed prior to leaving the site. Truck wash waters will be collected and disposed of off-site in an appropriate manner.

All trucks loaded with site materials for off-site disposal will exit the vicinity of the site using only approved truck routes. Truck routes will take into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport. Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development.

Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

A-6: MATERIALS DISPOSAL OFF-SITE

All soil/fill/solid waste excavated and removed from the site will be treated as contaminated and regulated material unless waste characterization analytical results determine otherwise. Any material requiring off-site disposal will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of soil/fill from this site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this site will not occur without formal NYSDEC approval.

Off-site disposal locations for excavated soil/fill will be identified in the pre-excavation notification, as described above. This will include estimated quantities and a breakdown by class of disposal facility. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet Track 1 unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

A-7: MATERIALS REUSE ON-SITE

“Reuse on-Site” means reuse on-Site of material that originates at the Site and which does not leave the Site during excavation. The criteria under which soil/fill originating on-Site may be used as on-Site are presented below.

- **Excavated, Non-Impacted On-Site Soil/Fill:** Non-impacted soil/fill (i.e., soil/fill that does not exhibit visible or olfactory evidence of contamination and does not exhibit sustained PID readings that exceed 5 parts per million above background that is excavated from the Site may be used on-Site as backfill beneath the cover system without special handling. The qualified environmental professional will ensure that

procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-site.

- **Excavated, Potentially Impacted On-Site Soil/Fill:** Potentially impacted soil/fill (i.e., soils that exhibit visible or olfactory evidence of contamination or with elevated PID readings) may not be used on-Site unless tested and determined to meet the chemical criteria for Industrial SCOs per 6NYCRR Part 375. Excavated on-Site material meeting Industrial SCOs is acceptable for re-use on-Site as backfill beneath the cover system.
- **On-Site Demolition Material:** Any demolition material proposed for reuse on-Site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-Site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site without prior NYSDEC permission.

Chemical criteria for on-Site reuse of material have been approved by NYSDEC and are listed in Table 2 of the SMP. The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-site. Contaminated on-Site material, including historic fill and contaminated soil, that is acceptable for re-use on-site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping, or as backfill for subsurface utility lines.

A-8: FLUIDS MANAGEMENT

All liquids to be removed from the site, including excavation dewatering and groundwater monitoring well purge and development waters, will be handled in accordance with applicable Local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the site, without a written request to the Department seeking permission to discharge.

If water generated during large-scale construction activities is proposed to be discharged to a surface waters (i.e. a local pond, stream or river), the discharge will be performed under a SPDES permit.

A-9: COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with the SMP. The demarcation layer will be replaced to provide a visual reference to the top of the remaining in-place material. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in any updates to the Site Management Plan.

A-10: BACKFILL FROM OFF-SITE SOURCES

The criteria under which off-Site material may be used as backfill are presented below.

- **Off-Site Soil/Fill:** Off-Site soil/fill may be used as backfill provided that it originates from known sources having no evidence of disposal or releases of hazardous substances; hazardous, toxic or radioactive wastes; or petroleum, and is tested and meet the criteria shown on Table 9 of the SMP. In addition, no off-Site materials meeting the definition of a solid waste as defined in 6 NYCRR, Part 360-1.2 (a) shall be used as backfill.
- **Other Off-Site Material:** Certain material may be imported as backfill, without chemical testing, provided it contains less than 10% (by weight) material that would pass through a size 100 sieve: 1) Rock or stone, consisting of virgin material from a permitted mine or quarry; 2) Recycled concrete, brick, or asphalt from a NYSDEC-registered or permitted C&D debris processing facility (as specified in Section 360-16.1 of 6 NYCRR Part 360) that conforms to Section 304 of the New York State Department of Transportation Standard Specifications Construction and Materials Volume 1 (2002). As stated in Section 360-16.4(b)(2), the facility may only accept recognizable, uncontaminated, non-pulverized C&D debris or C&D debris from other authorized C&D processing facilities. According to Section 360-16.2(c), “uncontaminated” means C&D debris that is not mixed or commingled with other solid waste at the point of generation, processing, or disposal, and that is not contaminated with spills of a petroleum product, hazardous waste, or industrial waste.

If an off-Site soil/fill borrow source is of unknown origin or originates from a commercial, industrial or urban site, then a tiered approach based on the volume of impacted soil/fill being excavated will be used to determine the frequency of characterization sampling in accordance with DER-10.

All materials proposed for import onto the site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the site.

Material from industrial sites, spill sites, or other environmental remediation sites or contaminated sites will not be imported to the site.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Based on an evaluation of the land use, the resulting soil quality standards are listed in Table 9 of the SMP. Soils that meet ‘exempt’ fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC. Solid waste will not be imported onto the site.

Trucks entering the site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

A-11: STORMWATER POLLUTION PREVENTION

If construction activities will disturb more than 1-acre of land, barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

A-12: CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for full a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs), unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the periodic reports prepared pursuant to Section 5 of the SMP.

A-13: COMMUNITY AIR MONITORING PLAN

Community air monitoring for organic vapors will be performed at the downwind perimeter of the exclusion zone on a continuous basis during intrusive activities performed outdoors that may be reasonably expected to potentially release organic vapors, or when sustained readings are detected in the work zone (i.e., proximate to the source of the intrusive activity). Otherwise, the monitoring will be performed on an hourly basis. A photoionization detector (PID) or other equipment will be suitable to the types of contaminants known or suspected to be present will be used, and will be capable of calculating 15-minute running average concentrations. All air monitoring equipment will be calibrated at least daily and an upwind concentration will be taken at least daily to establish background conditions. The 15-minute average concentrations will be compared to the levels specified below.

ORGANIC VAPOR PERIMETER MONITORING:

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.
- All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

EXPLOSIVE VAPORS:

Explosive vapor community air monitoring will be performed at the downwind perimeter of the Site on a continuous basis whenever sustained atmospheric concentrations of greater than 10% of the LEL are recorded in the exclusion zone. If sustained atmospheric concentrations of greater than 10% LEL are recorded at the downwind Site perimeter, the local Fire Department will be contacted (see Section 2.5.1 of the SMP for phone number).

AIRBORNE PARTICULATE COMMUNITY AIR MONITORING

Respirable (PM-10) particulate monitoring will be performed on a continuous basis at the downwind perimeter of the exclusion zone. The monitoring will be performed using real-time monitoring equipment capable of measuring less than PM-10 and integrating over a period of 15-minutes for comparison to the airborne particulate action levels. The equipment will be equipped with an audible alarm to indicate exceedance of the action level.

In addition, fugitive dust migration will be visually assessed during all work activities. All readings will be recorded and will be available for NYSDEC and NYSDOH review. Readings will be interpreted as follows:

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (ug/m^3) greater than the background reading for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression provided that the downwind PM-10 particulate levels do not exceed $150 \text{ ug}/\text{m}^3$ above the background level and that visible dust is not migrating from the work area.
- If, after implementation of dust suppression techniques downwind PM-10 levels are greater than $150 \text{ ug}/\text{m}^3$ above the background level, work activities must be stopped and dust suppression controls re-evaluated. Work can resume provided that supplemental dust suppression measures and/or other controls are successful in reducing the downwind PM-10 particulate concentration to within $150 \text{ ug}/\text{m}^3$ of the background level and in preventing visible dust migration.

The location of air sampling stations will be based on generally prevailing wind conditions. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide upwind and downwind monitoring stations.

Exceedance of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

A-14: ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off-site. If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the property owner's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of

soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

A-15: DUST CONTROL PLAN

Dust suppression techniques will be employed as necessary to mitigate fugitive dust from non-vegetated or disturbed soil/fill during post-remediation construction and redevelopment.

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of on-site water truck for road wetting. The truck will be capable of spraying water directly onto off-road areas including excavations and stockpiles;
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production;
- Gravel will be used on roadways to provide a clean and dust-free road surface;
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling;
- Covering or proof-rolling excavated areas and materials after excavation activity ceases; and,
- Reducing the excavation size and/or number of excavations.

A-16: OTHER NUISANCES

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

APPENDIX B

ENVIRONMENTAL EASEMENT



NIAGARA COUNTY CLERK
WAYNE F. JAGOW

RECEIPT

Create Time: 12/21/2012 2:52:42 PM
RECEIPT # 2012141857

Recording Clerk: MKS
Account: cash4
Rec'd Frm: MICHAEL O MORSE
By Mail/In Person (M/P): P

Instr#: 2012-27063
DOC: EASEMENT
DEED STAMP: 2137
OR Party: SANTAROSA HOLDINGS INC
EE Party: PEOPLE OF THE STATE OF NEW

DEEDTP

Cover Page	1	\$8.00
Recording Fee	9	\$32.00
Cultural Ed	1	\$14.25
Records Management - County	1	\$1.00
Records Management - State	1	\$4.75
TP584-2 (Public Utilities)	1	\$1.00

Transfer Tax		
Transfer Tax		\$0.00

Receipt Summary

TOTAL RECEIPT: ---->	\$61.00
TOTAL RECEIVED: ---->	\$61.00

Cash Back	_____	\$0.00
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PAYMENTS

Check # 2661 ->	\$61.00
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MICHAEL O MORSE

ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36
OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW

ORIGINAL FILED
DEC 21 2012

WYNNE F. JAGOW
NIAGARA COUNTY CLERK

THIS INDENTURE made this 19th day of December, 2012 between Owner(s) SANTAROSA HOLDINGS, INC., having an office at 4870 Packard Rd. in the City of Niagara Falls, County of Niagara, State of New York (the "Grantor"), and The People of the State of New York (the "Grantee."), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of 1501 College Ave. in the City of Niagara Falls, County of Niagara and State of New York, known and designated on the tax map of the County Clerk of Niagara County as tax map parcel numbers: Section 130.18 Block 2 Lot 19. Grantor is also the owner of real property located at the address of 1655 College Avenue known and designated on the tax map of the County Clerk of Niagara County as tax map parcel number: Section 130.18 Block 2 Lot 3.212. Both parcels being the same as that property conveyed to Grantor by deed dated August 11, 2011 and recorded in the Niagara County Clerk's Office in Instrument # 2011-13304. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 12.357 +/- acres, and is hereinafter more fully described in the ATLA / ACSM Land Title Survey dated August 3, 2012 and revised on November 15, 2012 and further revised on December 12, 2012 prepared by Apex Consulting Survey & Engineering Services, P.C., which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of public health and the environment and to achieve the requirements for remediation

established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Brownfield Cleanup Agreement Index Number: B9-0757-10 as amended by Amendment #1 dated January 31, 2011, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement")

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for: Industrial purposes;

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP.

(4) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(5) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(6) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(7) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP.

(8) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP.

(9) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Residential, Restricted Residential or Commercial purposes as defined in 6 NYCRR 375-1.8(g)(i), (ii) and (iii), and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall annually, or such time as NYSDEC may allow, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:

(i) are in-place;
(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this

Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to: Site Number: C923134
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to: Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

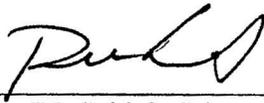
All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the

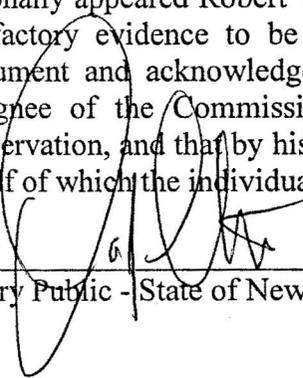
THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting By and Through the Department of Environmental Conservation as Designee of the Commissioner,

By: 
Robert W. Schick, Director
Division of Environmental Remediation

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF ALBANY)

On the 19th day of December, in the year 2012, before me, the undersigned, personally appeared Robert W. Schick, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.


Notary Public - State of New York

David J. Chiusano
Notary Public, State of New York
No. 01CH5032146
Qualified in Schenectady County
Commission Expires August 22, 2014

SCHEDULE "A" PROPERTY DESCRIPTION

ALL THAT TRACT OR PARCEL OF LAND situate in the City of Niagara Falls, County of Niagara and State of New York being part of Lots 32 and 33 of The Mile Reservation and being more particularly bounded and described as follows:

BEGINNING at a point in the east Right Of Way of 15th Street (60' wide), said point being 30.0 feet south of the south right of way line of College Avenue (60' wide) (formerly Whirlpool Street); thence southerly along the east right of way line of 15th Street S 00° - 06' - 55" E a distance of 422.18 feet to a point; thence S 49° - 02' - 20" E a distance of 286.53 feet to a point; thence N 89° - 57' - 24" E , 606.12 feet to a point; thence N 58° - 52' - 35" E a distance of 113.33 feet to a point; thence N 00° - 11' - 48" E a distance of 550.98 feet to a point being 30.00 feet south of the south Right of Way of College Avenue as measured at right angles thereto, said point being in the south line of lands formerly of the Penn Central Railroad; thence N 90° - 00' - 00" W along the south line of lands of the Penn Central Railroad and parallel with the south Right of Way of College Avenue a distance of 922.25 feet to the point of beginning.

Containing 12.357+/- acres of land, more or less.

NEW YORK STATE D.E.C.
SITE: 1501 COLLEGE AVENUE
SITE CODE: C932134

REFERENCES:

LIBER 3423 PAGE 251, DESCRIBES S.B.L. NOS. 130.18-2-15, 16, 17, 3, 22, 3, 211, 3, 212 INCLUSIVE. REPUTED OWNER: SANTAROSA HOLDINGS, INC. FILED 12/13/2007

LOTS 1, 2, 3, 5, 5A, 6, 7, 8, 9, 10, 11 AS DEPICTED ON MICROFILM MAP BOOK 53, PAGES 5390, 5391 & MICROFILM MAP BOOK 55, PAGES 5552, 5553

MAP REFERENCES:

MICROFILM MAP BOOK 51, PAGES 5043, 5044, FILED 5/26/89
MICROFILM MAP BOOK 51, PAGES 4946, 4947, FILED 12/22/1987
MICROFILM MAP BOOK 53, PAGES 5390, 5391, FILED 3/1/1993
MICROFILM MAP BOOK 55, PAGES 5552, 5553, FILED 5/26/1989

NOTE: SUBJECT PROPERTY ZONING DESIGNATION "M-2: HEAVY INDUSTRIAL DISTRICT"

THIS PROPERTY IS SUBJECT TO AN ENVIRONMENTAL EASEMENT HELD BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION PURSUANT TO TITLE 36 OF ARTICLE 71 OF THE NEW YORK ENVIRONMENTAL CONSERVATION LAW.

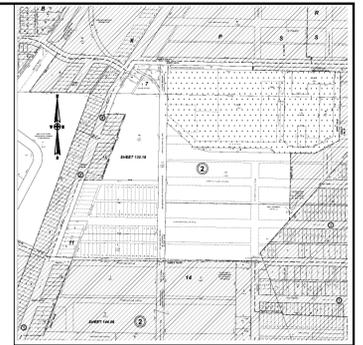
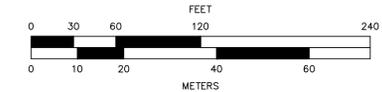
THE ENGINEERING AND INSTITUTIONAL CONTROLS FOR THIS EASEMENT ARE SET FORTH IN THE SITE MANAGEMENT PLAN (SMP). A COPY OF THE SMP MUST BE OBTAINED BY ANY PARTY WITH AN INTEREST IN THE PROPERTY. THE SMP CAN BE OBTAINED FROM NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION, DIVISION OF ENVIRONMENTAL REMEDIATION, SITE CONTROL SECTION, 625 BROADWAY, ALBANY, NY 12233 OR AT "derweb@gw.dec.state.ny.us".

NOTES:

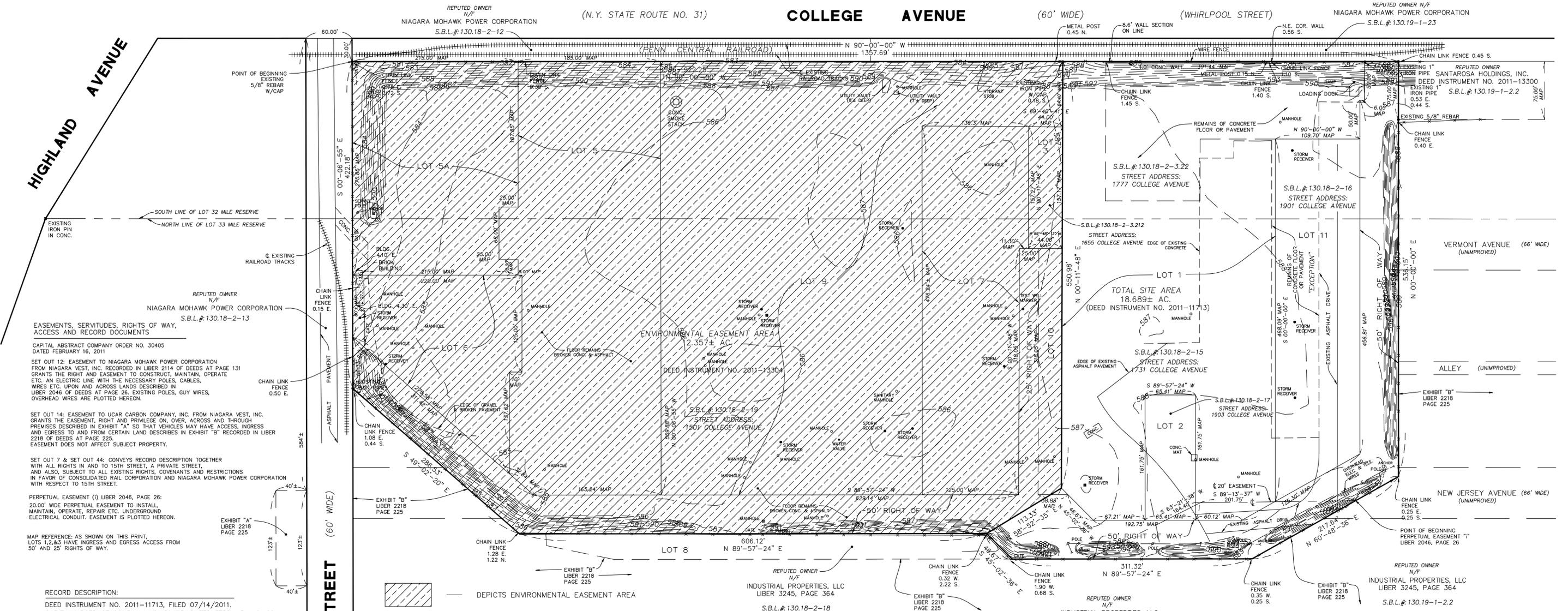
- 1. THE LOCATION OF UTILITIES SHOWN HEREON ARE FROM OBSERVED EVIDENCE OF ABOVE GROUND APPURTENANCES ONLY. THE SURVEYOR WAS NOT PROVIDED WITH UNDERGROUND PLANS OR SURFACE GROUND MARKINGS TO DETERMINE THE LOCATION OF ANY SUBTERRANEAN USES.
2. THIS SURVEY HAS BEEN REVISED WITH THE BENEFIT OF ABSTRACT SEARCH NO. 30405 AS PREPARED BY CAPITAL ABSTRACT COMPANY, DATED FEBRUARY 16, 2011.
3. THERE WAS OBSERVABLE EVIDENCE OF EARTH MOVING WORK. CURRENTLY THERE IS NO OBSERVABLE EVIDENCE OF BUILDING CONSTRUCTION OR BUILDING ADDITIONS AT THE SITE.
4. AT THE TIME OF THE SURVEY THERE WAS NO OBSERVABLE EVIDENCE OF SITE USE AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL.
5. THE BASIS OF BEARINGS FOR THIS SURVEY IS N 90°-00'-00" ALONG THE SOUTH LINE OF COLLEGE AVENUE AS DESCRIBED IN THE RECORD DESCRIPTION.
6. CHAIN LINK FENCES & GATES ALONG THE PERIMETER OF THE SURVEYED PROPERTY VARY AND ARE LOCATED ON THE SURVEYED PROPERTY AND ONTO ADJOINING PROPERTY.
7. THE SURVEYED PROPERTY IS CURRENTLY ACCESSED FROM 15TH STREET.

LEGEND:

- HYD. - HYDRANT
POLE - UTILITY POLE
RCVR. - RECEIVER
M.H. - MANHOLE
< - POLE ANCHOR
W.V. - WATER VALVE
CONC. - CONCRETE
E - OVERHEAD ELECTRIC WIRES
T - OVERHEAD TELEPHONE WIRES
- - - - - CHAIN LINK FENCE
- - - - - EXISTING CONTOUR



SITE LOCATION MAP



EASEMENTS, SERVITUDES, RIGHTS OF WAY, ACCESS AND RECORD DOCUMENTS
CAPITAL ABSTRACT COMPANY ORDER NO. 30405 DATED FEBRUARY 16, 2011
SET OUT 12: EASEMENT TO NIAGARA MOHAWK POWER CORPORATION FROM NIAGARA VEST, INC. RECORDED IN LIBER 2114 OF DEEDS AT PAGE 131 GRANTS THE RIGHT AND EASEMENT TO CONSTRUCT, MAINTAIN, OPERATE ETC. AN ELECTRIC LINE WITH THE NECESSARY POLES, CABLES, WIRES ETC. UPON AND ACROSS LANDS DESCRIBED IN LIBER 2048 OF DEEDS AT PAGE 28. EXISTING POLES, GUY WIRES, OVERHEAD WIRES ARE PLOTTED HEREON.

RECORD DESCRIPTION:
DEED INSTRUMENT NO. 2011-11713, FILED 07/14/2011.
CAPITAL ABSTRACT COMPANY NO. 30405, DATED FEBRUARY 16, 2011.

ENVIRONMENTAL EASEMENT DESCRIPTION
1501 COLLEGE AVENUE SITE, CODE NO. C932134
DEED INSTRUMENT NO. 2011-13304, FILED 08/12/2011
ALL THAT TRACT OR PARCEL OF LAND SITUATE IN THE CITY OF NIAGARA FALLS, COUNTY OF NIAGARA, STATE OF NEW YORK, BEING PART OF LOTS 32 AND 33 OF THE MILE RESERVE AND BEING MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS:
BEGINNING AT A POINT IN THE EAST R.O.W. LINE OF 15TH STREET (60' WIDE), 30.00 FEET SOUTH OF THE SOUTH RIGHT OF WAY LINE OF COLLEGE AVENUE (60' WIDE) (FORMERLY WHIRLPOOL STREET);
THENCE S 00 DEGREES 06' 55" E ALONG THE EAST RIGHT OF WAY OF 15TH STREET, 422.18 FEET;

CONTAINING 18.689± ACRES OF LAND MORE OR LESS.

CERTIFICATION

TO:
THE PEOPLE OF THE STATE OF NEW YORK ACTING THROUGH ITS COMMISSIONER OF THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION AND TO CAPITAL ABSTRACT COMPANY
THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2011 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 4, 6, 7(a), 7(b), 11(a), & 16 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON 8/3/12.
DATE OF MAP: 8/13/2012, REVISED 11/15/12; REVISED 12/12/12
Christian J. Voss
CHRISTIAN J. VOSS, L.S. NEW YORK STATE LICENSE NO. 050637



APPEX CONSULTING SURVEY & ENGINEERING SERVICES, P.C.
NIAGARA COUNTY
102 EAST AVENUE, LOCKPORT, NEW YORK 14094
Phone: (716) 439-0188 FAX: (716) 439-0189
PART OF LOTS 32 & 33 OF THE MILE RESERVE, SITUATE IN THE CITY OF NIAGARA FALLS, COUNTY OF NIAGARA AND STATE OF NEW YORK.
SCALE: 1" = 60' JOB NO. 10-130
DATE: 8/3/12 DWG. FILE: 10-130_ALTA_
DRAWN BY: CTA CHECKED BY: CJV
REVISIONS: 11/15/12: ADD SITE MANAGEMENT PLAN STATEMENT, 11/15/12: OMIT FORMER LIBER AND PAGE REFERENCES; 12/12/12 S.B.L. NUMBER
CHRISTIAN J. VOSS, L.S. N.Y.S. LICENSE NO. 050637

APPENDIX C

EXAMPLE HEALTH & SAFETY PLAN (HASP)

**SITE MANAGEMENT PLAN
APPENDIX C**

HEALTH AND SAFETY PLAN

**1501 COLLEGE AVENUE SITE
NIAGARA FALLS, NEW YORK**

October 2012

0140-001-106

Prepared for:

Santorosa Holdings, Inc.

Prepared by:



**1501 COLLEGE AVENUE SITE
HEALTH AND SAFETY PLAN FOR BCP ACTIVITIES**

ACKNOWLEDGEMENT

Plan Reviewed by (initial):

Corporate Health and Safety Director: _____ Michael M. Yount

Project Manager: _____ Michael Lesakowski

Designated Site Safety and Health Officer: _____ Bryan C. Hann

Acknowledgement:

I acknowledge that I have reviewed the information contained in this site-specific Health and Safety Plan, and understand the hazards associated with performance of the field activities described herein. I agree to comply with the requirements of this plan.

NAME (PRINT)	SIGNATURE	DATE
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
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_____	_____	_____
_____	_____	_____
_____	_____	_____

**1501 COLLEGE AVENUE SITE
HEALTH AND SAFETY PLAN FOR BCP ACTIVITIES**

TABLE OF CONTENTS

1.0 INTRODUCTION.....	1
1.1 General.....	1
1.2 Background.....	1
1.3 Known and Suspected Environmental Conditions.....	2
1.3.1 August 2007– Phase I Environmental Site Assessment.....	2
1.3.2 August 2007 – Limited Preliminary Environmental Investigation.....	2
1.3.3 January 2008 – Remedial Investigation/ Alternatives Analysis Report Work Plan.....	3
1.3.4 March 2008 – Interim Remedial Measures Work Plan.....	3
1.4 Parameters of Interest.....	3
1.5 Overview of IRM and RA Activities.....	3
2.0 ORGANIZATIONAL STRUCTURE.....	5
2.1 Roles and Responsibilities.....	5
2.1.1 Corporate Health and Safety Director.....	5
2.1.2 Project Manager.....	5
2.1.3 Site Safety and Health Officer.....	6
2.1.4 Site Workers.....	7
2.1.5 Other Site Personnel.....	7
3.0 HAZARD EVALUATION.....	8
3.1 Chemical Hazards.....	8
3.2 Physical Hazards.....	10
4.0 TRAINING.....	11
4.1 Site Workers.....	11
4.1.1 Initial and Refresher Training.....	11
4.1.2 Site Training.....	12
4.2 Supervisor Training.....	13
4.3 Emergency Response Training.....	13
4.4 Site Visitors.....	13
5.0 MEDICAL MONITORING.....	15
6.0 SAFE WORK PRACTICES.....	17
7.0 PERSONAL PROTECTIVE EQUIPMENT.....	19
7.1 Equipment Selection.....	19
7.2 Protection Ensembles.....	20

**1501 COLLEGE AVENUE SITE
HEALTH AND SAFETY PLAN FOR BCP ACTIVITIES**

TABLE OF CONTENTS

7.2.1	Level A/B Protection Ensemble	20
7.2.2	Level C Protection Ensemble	21
7.2.3	Level D Protection Ensemble.....	21
7.2.4	Recommended Level of Protection for Site Tasks	22
8.0	EXPOSURE MONITORING	23
8.1	General.....	23
8.1.1	On-Site Work Zone Monitoring.....	23
8.1.2	Off-Site Community Air Monitoring.....	23
8.2	Monitoring Action Levels	24
8.2.1	On-Site Work Zone Action Levels	24
8.2.2	Community Air Monitoring Action Levels	26
9.0	SPILL RELEASE/RESPONSE	30
9.1	Potential Spills and Available Controls	30
9.2	Initial Spill Notification and Evaluation.....	31
9.3	Spill Response	32
9.4	Post-Spill Evaluation.....	33
10.0	HEAT/COLD STRESS MONITORING	34
10.1	Heat Stress Monitoring.....	34
10.2	Cold Stress Monitoring.....	36
11.0	WORK ZONES AND SITE CONTROL	38
12.0	DECONTAMINATION.....	40
12.1	Decontamination for TurnKey-Benchmark Employees	40
12.2	Decontamination for Medical Emergencies	41
12.3	Decontamination of Field Equipment	41
13.0	CONFINED SPACE ENTRY	42
14.0	FIRE PREVENTION AND PROTECTION	43
14.1	General Approach	43
14.2	Equipment and Requirements	43
14.3	Flammable and Combustible Substances.....	43
14.4	Hot Work.....	44
15.0	EMERGENCY INFORMATION	44

**1501 COLLEGE AVENUE SITE
HEALTH AND SAFETY PLAN FOR BCP ACTIVITIES**

TABLE OF CONTENTS

16.0 REFERENCES45

LIST OF TABLES

Table 1	Toxicity Data for Constituents of Concern
Table 2	Potential Routes of Exposure to Constituents of Concern
Table 3	Required Levels of Protection for RA Tasks

LIST OF FIGURES

Figure 1	Site Vicinity and Location Map
Figure 2	Site Plan

APPENDICES

Appendix A-1	Emergency Response Plan
Appendix A-2	Hot Work Permit Form
Appendix A-3	NYSDOH Generic Community Air Monitoring Plan

1.0 INTRODUCTION

1.1 General

In accordance with OSHA requirements contained in 29 CFR 1910.120, this Health and Safety Plan (HASP) describes the specific health and safety practices and procedures to be employed by TurnKey Environmental Restoration, LLC and Benchmark Environmental Engineering & Science, PLLC employees (referred to jointly hereafter as “TurnKey-Benchmark”) during Remedial Action (RA) activities at the 1501 College Avenue Site located at 1501 College Avenue in the City of Niagara Falls, New York (see Figure 1). This HASP presents procedures for TurnKey-Benchmark employees who will be involved with RA field activities; it does not cover the activities of other contractors, subcontractors or other individuals on the Site. These firms will be required to develop and enforce their own HASPs as discussed in Section 2.0. TurnKey-Benchmark accepts no responsibility for the health and safety of contractor, subcontractor or other personnel.

This HASP presents information on known Site health and safety hazards using available historical information, and identifies the equipment, materials and procedures that will be used to eliminate or control these hazards. Environmental monitoring will be performed during the course of field activities to provide real-time data for on-going assessment of potential hazards.

1.2 Background

The subject property (hereinafter, the “Project Site” or the “Site”) is an approximate 12.4-acre Site comprised of two adjoining parcels identified below:

- 1501 College Avenue – SBL 130-18-2-3.211 (12.25-acre portion of the larger 15.0 acre parcel)
- 1655 College Avenue – SBL 130.18-2-3.212 (0.16-acre parcel)

The Site is bordered by National Grid property immediately adjacent to College Avenue to the north, and 15th Street to the west (see Figures 1 and 2). The boundaries of the site are more fully described in the Environmental Easement (see Appendix B of the Site Management Plan)

The Site was historically used for heavy industrial manufacturing from at least 1910 to the mid-1980s, and at one time was part of a larger former Union Carbide Co. manufacturing complex.

Santorosa Holdings, Inc. (Santorosa) has elected to pursue cleanup and redevelopment of the 1501 College Avenue Site under the New York State Brownfield Cleanup Program (BCP or Program) administered by New York State Department of Environmental Conservation (NYSDEC). The site was remediated in accordance with Brownfield Cleanup Agreement (BCA) (Index# B9-0757-07-10) Site # No. C932134, which was executed on December 13, 2007, and amended December 17, 2010.

1.3 Known and Suspected Environmental Conditions

1.3.1 August 2007– Phase I Environmental Site Assessment

Benchmark conducted a Phase I Environmental Site Assessment (ESA) of the subject property in August 2007. Benchmark identified several areas of concern: evidence of illegal dumping is obvious across the site; various debris piles, automobile parts, abandoned automobiles, abandoned tanker trucks, drums of unknown liquid and solid contents, sacks of unknown granular or solid materials, aboveground storage tanks (ASTs), and household debris are located throughout the interior and exterior the site.

1.3.2 August 2007 – Limited Preliminary Environmental Investigation

Benchmark conducted a limited Preliminary Environmental Investigation at the 1501 College Avenue Site in August 2007. The Limited Preliminary Environmental Investigation involved collecting four surface soil samples, one galbestos roof-covering sample, two debris pile samples, and one paint chip sample. The samples indicated that polyaromatic hydrocarbons (PAHs), metals, and PCBs are present on-site above the NYSDEC 375 restricted-industrial SCOs.

Santarosa Holdings, Inc. elected to pursue cleanup and redevelopment of the Site under the New York State Brownfield Cleanup Program (BCP), and executed a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) on December 13, 2007, and amended December 17, 2010 (BCP Site No. C932134).

1.3.3 January 2008 – Remedial Investigation/ Alternatives Analysis Report Work Plan

A RI/AAR Work Plan dated December 2007 was approved by the NYSDEC, with concurrence of the New York State Department of Health (NYSDOH), on January 4, 2008.

1.3.4 March 2008 – Interim Remedial Measures Work Plan

An IRM Work Plan dated March 2008 was approved by the NYSDEC on June 11, 2008. TurnKey performed initial RI soil and groundwater sampling activities at the Site in September and October 2010.

1.3.4.1 November 2010 – Interim Remedial Measures Work Plan Letter

Based on the findings of the RI activities, TurnKey and Santarosa met with the NYSDEC and NYSDOH in November 2010 and prepared an IRM Work Plan letter dated November 12, 2010 further describing the planned IRM activities. The IRM Work Plan letter was approved by NYSDEC on November 18, 2010.

1.4 Parameters of Interest

Based on the previous investigations, constituents of concern (COCs) in soil and groundwater at the Site are petroleum-related VOCs and SVOCs.

1.5 Overview of IRM and RA Activities

The Site was remediated in accordance with the NYSDEC-approved, Interim Remedial Measure Work Plan and letter dated October and November 2010 respectively. TurnKey-Benchmark personnel were present on-site during all IRM field activities as described below. Planned IRM activities are more fully described in the IRM Work Plan and work plan Letter for the Site (Ref. 4 & 5). The following is a summary of the IRM performed at the Site:

- Excavation and Off-Site disposal of impacted soil/fill.
- Backfill/Site restoration.
- Demolition of all former buildings.
- Removal and Off-Site disposal of galbestos roofing material.

- Loading and Off-Site disposal of a soil/fill/debris piles.
- Removal of multiple drums and product containers.
- Reutilization of approved building material for backfill and surface grading.
- Placement of composite cover system across the Site.

2.0 ORGANIZATIONAL STRUCTURE

This chapter of the HASP describes the lines of authority, responsibility, and communication as they pertain to health and safety functions at the Site. The purpose of this chapter is to identify the personnel who impact the development and implementation of the HASP and to describe their roles and responsibilities. This chapter also identifies other contractors and subcontractors involved in work operations, and establishes the lines of communications among them for health and safety matters. The organizational structure described in this chapter is consistent with the requirements of 29 CFR 1910.120(b)(2). This section will be reviewed by the Project Manager and updated as necessary to reflect the current organizational structure at this Site.

2.1 Roles and Responsibilities

All TurnKey-Benchmark personnel on the Site must comply with the minimum requirements of this HASP. The specific responsibilities and authority of management, safety and health, and other personnel on this Site are detailed in the following paragraphs.

2.1.1 Corporate Health and Safety Director

The TurnKey-Benchmark Corporate Health and Safety Director is ***Mr. Michael M. Yount***. The Corporate Health and Safety Director is responsible for developing and implementing the Health and Safety program and policies for Benchmark-TurnKey and consulting with corporate management to ensure adequate resources are available to properly implement these programs and policies. The Corporate Health and Safety Director coordinates TurnKey-Benchmark's Health and Safety training and medical monitoring programs and assists project management and field staff in developing site-specific health and safety plans.

2.1.2 Project Manager

The Project Manager for this Site is ***Mr. Michael Lesakowski***. The Project Manager has the responsibility and authority to direct all TurnKey-Benchmark work operations at the Site. The Project Manager coordinates safety and health functions with the Site Safety and Health Officer, and bears ultimate responsibility for proper implementation

of this HASP. He may delegate authority to expedite and facilitate any application of the program, including modifications to the overall project approach as necessary to circumvent unsafe work conditions. Specific duties of the Project Manager include:

- Preparing and coordinating the Work Plan for the Site.
- Providing TurnKey-Benchmark workers with work assignments and overseeing their performance.
- Coordinating health and safety efforts with the Site Safety and Health Officer (SSHO).
- Reviewing the emergency response coordination plan to assure its effectiveness.
- Serving as the primary liaison with Site contractors and the property owner.

2.1.3 Site Safety and Health Officer

The Site Safety and Health Officer (SSHO) for this Site is **Mr. Bryan C. Hann**. The qualified alternate SSHO is **Mr. Richard L. Dubisz**. The SSHO reports to the Project Manager. The SSHO is on-site or readily accessible to the Site during all work operations and has the authority to halt Site work if unsafe conditions are detected. The specific responsibilities of the SSHO are:

- Managing the safety and health functions for TurnKey-Benchmark personnel on the Site.
- Serving as the point of contact for safety and health matters.
- Ensuring that TurnKey-Benchmark field personnel working on the Site have received proper training (per 29 CFR Part 1910.120(e)), that they have obtained medical clearance to wear respiratory protection (per 29 CFR Part 1910.134), and that they are properly trained in the selection, use and maintenance of personal protective equipment, including qualitative respirator fit testing.
- Performing or overseeing Site monitoring as required by the HASP.
- Assisting in the preparation and review of the HASP.
- Maintaining site-specific safety and health records as described in this HASP.
- Coordinating with the Project Manager, Site Workers, and Contractor's SSHO as necessary for safety and health efforts.

2.1.4 Site Workers

Site workers are responsible for: complying with this HASP or a more stringent HASP, if appropriate (i.e., Contractor and Subcontractor’s HASP); using proper PPE; reporting unsafe acts and conditions to the SSHO; and following the safety and health instructions of the Project Manager and SSHO.

2.1.5 Other Site Personnel

Other Site personnel who will have health and safety responsibilities will include the Drilling Contractor, who will be responsible for developing, implementing, and enforcing a Health and Safety Plan equally stringent or more stringent than TurnKey-Benchmark’s HASP. TurnKey-Benchmark assumes no responsibility for the health and safety of anyone outside its direct employ. Each Contractor’s HASP shall cover all non-TurnKey/Benchmark Site personnel. Each Contractor shall assign a SSHO who will coordinate with TurnKey-Benchmark’s SSHO as necessary to ensure effective lines of communication and consistency between contingency plans.

In addition to TurnKey-Benchmark and Contractor personnel, other individuals who may have responsibilities in the work zone include subcontractors and governmental agencies performing Site inspection work (i.e., NYSDEC). The Contractor shall be responsible for ensuring that these individuals have received OSHA-required training (29 CFR 1910.120(e)), including initial, refresher and site-specific training, and shall be responsible for the safety and health of these individuals while they are on-site.

3.0 HAZARD EVALUATION

Due to the presence of certain contaminants at the Site, the possibility exists that workers will be exposed to hazardous substances during subgrade activities beneath the cover system. The principal routes of exposure would be direct contact with and incidental ingestion of soil, and through the inhalation of contaminated particles or vapors. Other points of exposure may include direct contact with groundwater. In addition, the use of drilling and/or medium to large-sized construction equipment (e.g., excavator) will also present conditions for potential physical injury to workers. Further, since work will be performed outdoors, the potential exists for heat/cold stress to impact workers, especially those wearing protective equipment and clothing. Adherence to the medical evaluations, worker training relative to chemical hazards, safe work practices, proper personal protection, environmental monitoring, establishment work zones and Site control, appropriate decontamination procedures and contingency planning outlined herein will reduce the potential for chemical exposures and physical injuries.

3.1 Chemical Hazards

As discussed in Section 1.3, historic activities have potentially resulted in impacts to Site soils and groundwater. Visual and olfactory observations, as well as elevated PID readings, indicate a potential VOC impact to Site soil and groundwater. Table 1 lists exposure limits for airborne concentrations of the COCs identified to-date. Brief descriptions of the toxicology of the prevalent COCs and related health and safety guidance and criteria are provided below.

- **Arsenic (CAS #7440-38-2)** is a naturally occurring element and is usually found combined with one or more elements, such as oxygen or sulfur. Inhalation is a more important exposure route than ingestion. First phase exposure symptoms include nausea, vomiting, diarrhea and pain in the stomach. Prolonged contact is corrosive to the skin and mucus membranes. Arsenic is considered a Group A human carcinogen by the USEPA. Exposure via inhalation is associated with an increased risk of lung cancer. Exposure via the oral route is associated with an increased risk of skin cancer.
- **Cadmium** is a natural element and is usually combined with one or more elements, such as oxygen, chloride or sulfur. Breathing high levels of cadmium severely damages the lungs and can cause death. Ingestion of high levels of cadmium severely irritates the stomach, leading to vomiting and diarrhea. Long

term exposure to lower levels of cadmium leads to a buildup of this substance in the kidneys and possible kidney disease. Other potential long term effects are lung damage and fragile bones. Cadmium is suspected to be a human carcinogen.

- **Chromium (CAS #7440-47-3)** is used in the production of stainless steel, chrome plated metals, and batteries. Two forms of chromium, hexavalent (CR+6) and trivalent (CR+3) are toxic. Hexavalent chromium is an irritant and corrosive to the skin and mucus membranes. Chromium is a potential occupational carcinogen. Acute exposures to dust may cause coughing, wheezing, headaches, pain and fever.
- **Lead (CAS #7439-92-1)** can affect almost every organ and system in our bodies. The most sensitive is the central nervous system, particularly in children. Lead also damages kidneys and the immune system. The effects are the same whether it is breathed or swallowed. Lead may decrease reaction time, cause weakness in fingers, wrists or ankles and possibly affect memory. Lead may cause anemia.
- **Polycyclic Aromatic Hydrocarbons (PAHs)** are SVOCs formed as a result of the pyrolysis and incomplete combustion of organic matter such as fossil fuel. PAH aerosols formed during the combustion process disperse throughout the atmosphere, resulting in the deposition of PAH condensate in soil, water and on vegetation. In addition, several products formed from petroleum processing operations (e.g., roofing materials and asphalt) also contain elevated levels of PAHs. Hence, these compounds are widely dispersed in the environment. PAHs are characterized by a molecular structure containing three or more fused, unsaturated carbon rings. Seven of the PAHs are classified by USEPA as probable human carcinogens (Class B2). These are: benzo(a)pyrene; **benzo(a)anthracene** (Site COC); benzo(b)fluoranthene; benzo(k)fluoranthene; **chrysene** (Site COC); dibenzo(a,h)anthracene; and indeno(1,2,3-cd)pyrene. The primary route of exposure to PAHs is through incidental ingestion and inhalation of contaminated particulates. PAHs are characterized by an organic odor, and exist as oily liquids in pure form. Acute exposure symptoms may include acne-type blemishes in areas of the skin exposed to sunlight.
- **Polychlorinated Biphenyls (PCBs)** are a series of compounds that were commonly used in transformer oil and are suspected carcinogens. PCBs may vary in form from oily liquids to white solids. Exposure may cause nausea, vomiting, weight loss, jaundice, edema and abdominal pain.

With respect to the Site Management activities discussed in Section 1.5, possible routes of exposure to the above-mentioned contaminants are presented in Table 2. The use of proper respiratory equipment, as outlined in Section 7.0 of this HASP, will minimize the potential for exposure to airborne contamination. Exposure to contaminants through dermal

and other routes will also be minimized through the use of protective clothing (Section 7.0), safe work practices (Section 6.0), and proper decontamination procedures (Section 12.0).

3.2 Physical Hazards

Site Management field activities may present the following physical hazards:

- The potential for physical injury during heavy construction equipment use, such as backhoes, excavators and drilling equipment.
- The potential for heat/cold stress to employees during the summer/winter months (see Section 10.0).
- The potential for slip and fall injuries due to rough, uneven terrain and/or open excavations.

These hazards represent only some of the possible means of injury that may be present during Site Management activities at the Site. Since it is impossible to list all potential sources of injury, it shall be the responsibility of each individual to exercise proper care and caution during all phases of the work.

4.0 TRAINING

4.1 Site Workers

All personnel performing Site Management activities at the Site (such as, but not limited to, equipment operators, general laborers, and drillers) who may be exposed to hazardous substances, health hazards, or safety hazards and their supervisors/managers responsible for the Site shall receive training in accordance with 29 CFR 1910.120(e) before they are permitted to engage in operations in the exclusion zone or contaminant reduction zone. This training includes an initial 40-hour Hazardous Waste Site Worker Protection Course, an 8-hour Annual Refresher Course subsequent to the initial 40-hour training, and 3 days of actual field experience under the direct supervision of a trained, experienced supervisor. Additional site-specific training shall also be provided by the SSHO prior to the start of field activities. A description of topics to be covered by this training is provided below.

4.1.1 Initial and Refresher Training

Initial and refresher training is conducted by a qualified instructor as specified under OSHA 29 CFR 1910.120(e)(5), and is specifically designed to meet the requirements of OSHA 29 CFR 1910.120(e)(3) and 1910.120(e)(8). The training covers, as a minimum, the following topics:

- OSHA HAZWOPER regulations.
- Site safety and hazard recognition, including chemical and physical hazards.
- Medical monitoring requirements.
- Air monitoring, permissible exposure limits, and respiratory protection level classifications.
- Appropriate use of personal protective equipment (PPE), including chemical compatibility and respiratory equipment selection and use.
- Work practices to minimize risk.
- Work zones and Site control.
- Safe use of engineering controls and equipment.
- Decontamination procedures.

- Emergency response and escape.
- Confined space entry procedures.
- Heat and cold stress monitoring.
- Elements of a Health and Safety Plan.
- Spill containment.

Initial training also incorporates workshops for PPE and respiratory equipment use (Levels A, B and C), and respirator fit testing. Records and certification received from the course instructor documenting each employee's successful completion of the training identified above are maintained on file at TurnKey-Benchmark's Buffalo, NY office. Contractors and Subcontractors are required to provide similar documentation of training for all their personnel who will be involved in on-site work activities.

Any employee who has not been certified as having received health and safety training in conformance with 29 CFR 1910.120(e) is prohibited from working in the exclusion and contamination reduction zones, or to engage in any on-site work activities that may involve exposure to hazardous substances or wastes.

4.1.2 Site Training

Site workers are given a copy of the HASP and provided a site-specific briefing prior to the commencement of work to ensure that employees are familiar with the HASP and the information and requirements it contains. The Site briefing shall be provided by the SSHO prior to initiating field activities and shall include:

- Names of personnel and alternates responsible for Site safety and health.
- Safety, health and other hazards present on the Site.
- The site lay-out including work zones and places of refuge.
- The emergency communications system and emergency evacuation procedures.
- Use of PPE.
- Work practices by which the employee can minimize risks from hazards.
- Safe use of engineering controls and equipment on the site.
- Medical surveillance, including recognition of symptoms and signs of over-exposure as described in Chapter 5 of this HASP.

- Decontamination procedures as detailed in Chapter 12 of this HASP.
- The emergency response plan as detailed in Chapter 15 of this HASP.
- Confined space entry procedures, if required, as detailed in Chapter 13 of this HASP.
- The spill containment program as detailed in Chapter 9 of this HASP.
- Site control as detailed in Chapter 11 of this HASP.

Supplemental health and safety briefings will also be conducted by the SSHO on an as-needed basis during the course of the work. Supplemental briefings are provided as necessary to notify employees of any changes to this HASP as a result of information gathered during ongoing Site characterization and analysis. Conditions for which the SSHO may schedule additional briefings include, but are not limited to: a change in Site conditions (e.g., based on monitoring results); changes in the work schedule/plan; newly discovered hazards; and safety incidents occurring during Site work.

4.2 Supervisor Training

On-site safety and health personnel who are directly responsible for or who supervise the safety and health of workers engaged in hazardous waste operations (i.e., SSHO) shall receive, in addition to the appropriate level of worker training described in Section 4.1, above, 8 additional hours of specialized supervisory training, in compliance with 29 CFR 1910.120(e)(4).

4.3 Emergency Response Training

Emergency response training is addressed in Appendix A-1 of this HASP, Emergency Response Plan.

4.4 Site Visitors

Each Contractor's SSHO will provide a site-specific briefing to all Site visitors and other non-TurnKey/Benchmark personnel who enter the Site beyond the Site entry point. The site-specific briefing will provide information about Site hazards, the Site layout including work zones and places of refuge, the emergency communications system and

emergency evacuation procedures, and other pertinent safety and health requirements as appropriate.

Site visitors will not be permitted to enter the exclusion zone or contaminant reduction zones unless they have received the level of training required for Site workers as described in Section 4.1.

5.0 MEDICAL MONITORING

Medical monitoring examinations are provided to TurnKey-Benchmark employees as stipulated under 29 CFR Part 1910.120(f). These exams include initial employment, annual and employment termination physicals for all TurnKey-Benchmark employees involved in hazardous waste site field operations. Post-exposure examinations are also provided for employees who may have been injured, received a health impairment, or developed signs or symptoms of over-exposure to hazardous substances or were accidentally exposed to substances at concentrations above the permissible exposure limits without necessary personal protective equipment. Such exams are performed as soon as possible following development of symptoms or the known exposure event.

Medical evaluations are performed by ADP Screening & Selection Services, an occupational health care provider under contract with TurnKey-Benchmark. ADP's local facility is Health Works WNY, Seneca Square Plaza, 1900 Ridge Road, West Seneca, New York 14224. The facility can be reached at (716) 823-5050 to schedule routine appointments or post-exposure examinations.

Medical evaluations are conducted according to the TurnKey-Benchmark Medical Monitoring Program and include an evaluation of the workers' ability to use respiratory protective equipment. The purpose of the medical evaluation is to determine an employee's fitness for duty on hazardous waste sites; and to establish baseline medical data. The examinations include:

- Occupational/medical history review.
- Physical exam, including vital sign measurement.
- Spirometry testing.
- Eyesight testing.
- Audio testing (minimum baseline and exit, annual for employees routinely exposed to greater than 85db).
- EKG (for employees >40 yrs age or as medical conditions dictate).
- Chest X-ray (baseline and exit, and every 5 years).
- Blood biochemistry (including blood count, white cell differential count, serum multiplastic screening).
- Medical certification of physical requirements (i.e., sight, musculoskeletal, cardiovascular) for safe job performance and to wear respiratory protection

equipment.

In conformance with OSHA regulations, TurnKey-Benchmark will maintain and preserve medical records for a period of 30 years following termination of employment. Employees are provided a copy of the physician' post-exam report, and have access to their medical records and analyses.

6.0 SAFE WORK PRACTICES

All TurnKey-Benchmark employees shall conform to the following safe work practices during all on-site work activities conducted within the exclusion and contamination reduction zones:

- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth contact is strictly prohibited.
- The hands and face must be thoroughly washed upon leaving the work area and prior to engaging in any activity indicated above.
- Respiratory protective equipment and clothing must be worn by all personnel entering the Site as required by the HASP or as modified by the Site safety officer. Excessive facial hair (i.e., beards, long mustaches or sideburns) that interferes with the satisfactory respirator-to-face seal is prohibited.
- Contact with surfaces/materials either suspected or known to be contaminated will be avoided to minimize the potential for transfer to personnel, cross contamination and need for decontamination.
- Medicine and alcohol can synergize the effects of exposure to toxic chemicals. Due to possible contraindications, use of prescribed drugs should be reviewed with the TurnKey-Benchmark occupational physician. Alcoholic beverage and illegal drug intake are strictly forbidden during the workday.
- All personnel shall be familiar with standard operating safety procedures and additional instructions contained in this Health and Safety Plan.
- On-site personnel shall use the “buddy” system. No one may work alone (i.e., out of earshot or visual contact with other workers) in the exclusion zone.
- Personnel and equipment in the contaminated area shall be minimized, consistent with effective Site operations.
- All employees have the obligation to immediately report and if possible, correct unsafe work conditions.
- Use of contact lenses on-site will not be permitted. Spectacle kits for insertion into full-face respirators will be provided for TurnKey-Benchmark employees, as requested and required.

The recommended specific safety practices for working around the contractor’s equipment (e.g., backhoes, bulldozers, excavators, drill rigs etc.) are as follows:

- Although the Contractor and subcontractors are responsible for their equipment and safe operation of the Site, TurnKey-Benchmark personnel are also

- responsible for their own safety.
- Subsurface work will not be initiated without first clearing underground utility services.
 - Heavy equipment should not be operated within 20 feet of overhead wires. This distance may be increased if windy conditions are anticipated or if lines carry high voltage. The Site should also be sufficiently clear to ensure the project staff can move around the heavy machinery safely.
 - Care should be taken to avoid overhead wires when moving heavy-equipment from location to location.
 - Hard hats, safety boots and safety glasses should be worn at all times in the vicinity of heavy equipment. Hearing protection is also recommended.
 - The work Site should be kept neat. This will prevent personnel from tripping and will allow for fast emergency exit from the Site.
 - Proper lighting must be provided when working at night.
 - Construction activities should be discontinued during an electrical storm or severe weather conditions.
 - The presence of combustible gases should be checked before igniting any open flame.
 - Personnel shall stand upwind of any construction operation when not immediately involved in sampling/logging/observing activities.
 - Personnel will not approach the edge of an unsecured trench/excavation closer than 2 feet.

7.0 PERSONAL PROTECTIVE EQUIPMENT

7.1 Equipment Selection

Personal protective equipment (PPE) will be donned when work activities may result in exposure to physical or chemical hazards beyond acceptable limits, and when such exposure can be mitigated through appropriate PPE. The selection of PPE will be based on an evaluation of the performance characteristics of the PPE relative to the requirements and limitations of the Site, the task-specific conditions and duration, and the hazards and potential hazards identified at the Site.

Equipment designed to protect the body against contact with known or suspect chemical hazards are grouped into four categories according to the degree of protection afforded. These categories are consistent with United States Environmental Protection Agency (USEPA) Level of Protection designation:

- **Level A:** Should be selected when the highest level of respiratory, skin, and eye protection is needed.
- **Level B:** Should be selected when the highest level of respiratory protection is needed, but a lesser level of skin protection is required. Level B protection is the minimum level recommended on initial Site entries until the hazards have been further defined by on-site studies. Level B (or Level A) is also necessary for oxygen-deficient atmospheres.
- **Level C:** Should be selected when the types of airborne substances are known, the concentrations have been measured and the criteria for using air-purifying respirators are met. In atmospheres where no airborne contaminants are present, Level C provides dermal protection only.
- **Level D:** Should not be worn on any Site with elevated respiratory or skin hazards. This is generally a work uniform providing minimal protection.

OSHA requires the use of certain PPE under conditions where an immediate danger to life and health (IDLH) may be present. Specifically, OSHA 29 CFR 1910.120(g)(3)(iii) requires use of a positive pressure self-contained breathing apparatus, or positive pressure air-line respirator equipped with an escape air supply when chemical exposure levels present a substantial possibility of immediate serious injury, illness or death, or impair the ability to escape. Similarly, OSHA 29 CFR 1910.120(g)(3)(iv) requires donning totally-encapsulating

chemical protective suits (with a protection level equivalent to Level A protection) in conditions where skin absorption of a hazardous substance may result in a substantial possibility of immediate serious illness, injury or death, or impair the ability to escape.

In situations where the types of chemicals, concentrations, and possibilities of contact are unknown, the appropriate level of protection must be selected based on professional experience and judgment until the hazards can be further characterized. The individual components of clothing and equipment must be assembled into a full protective ensemble to protect the worker from site-specific hazards, while at the same time minimizing hazards and drawbacks of the personal protective gear itself. Ensemble components are detailed below for levels A/B, C, and D protection.

7.2 Protection Ensembles

7.2.1 Level A/B Protection Ensemble

Level A/B ensembles include similar respiratory protection; however, Level A provides a higher degree of dermal protection than Level B. Use of Level A over Level B is determined by: comparing the concentrations of identified substances in the air with skin toxicity data, and assessing the effect of the substance (by its measured air concentrations or splash potential) on the small area of the head and neck unprotected by Level B clothing. The recommended PPE for level A/B is:

- Pressure-demand, full-face piece self-contained breathing apparatus (MSHA/-NIOSH approved) or pressure-demand supplied-air respirator with escape self-contained breathing apparatus (SCBA).
- Chemical-resistant clothing. For Level A, clothing consists of totally-encapsulating chemical resistant suit. Level B incorporates hooded one-or two-piece chemical splash suit.
- Inner and outer chemical resistant gloves.
- Chemical-resistant safety boots/shoes.
- Hardhat.

7.2.2 Level C Protection Ensemble

Level C protection is distinguished from Level B by the equipment used to protect the respiratory system, assuming the same type of chemical-resistant clothing is used. The main selection criterion for Level C is that conditions permit wearing an air-purifying device. The device (when required) must be an air-purifying respirator (MSHA/NIOSH approved) equipped with filter cartridges. Cartridges must be able to remove the substances encountered. Respiratory protection will be used only with proper fitting, training and the approval of a qualified individual. In addition, an air-purifying respirator can be used only if: oxygen content of the atmosphere is at least 19.5% in volume; substances are identified and concentrations measured; substances have adequate warning properties; the individual passes a qualitative fit-test for the mask; and an appropriate cartridge/canister is used, and its service limit concentration is not exceeded. Recommended PPE for Level C conditions includes:

- Full-face piece, air-purifying respirator equipped with MSHA and NIOSH approved organic vapor/acid gas/dust/mist combination cartridges or as designated by the SSHO.
- Chemical-resistant clothing (hooded, one or two-piece chemical splash suit or disposable chemical-resistant one-piece suit).
- Inner and outer chemical-resistant gloves.
- Chemical-resistant safety boots/shoes.
- Hardhat.

An air-monitoring program is part of all response operations when atmospheric contamination is known or suspected. It is particularly important that the air be monitored thoroughly when personnel are wearing air-purifying respirators. Continual surveillance using direct-reading instruments is needed to detect any changes in air quality necessitating a higher level of respiratory protection.

7.2.3 Level D Protection Ensemble

As indicated above, Level D protection is primarily a work uniform. It can be worn in areas where only boots can be contaminated, where there are no inhalable toxic substances and where the atmospheric contains at least 19.5% oxygen. Recommended PPE for Level D

includes:

- Coveralls.
- Safety boots/shoes.
- Safety glasses or chemical splash goggles.
- Hardhat.
- Optional gloves; escape mask; face shield.

7.2.4 Recommended Level of Protection for Site Tasks

Based on current information regarding both the contaminants suspected to be present at the Site and the various tasks that are included in the remedial activities, the minimum required levels of protection for these tasks shall be as identified in Table 3.

8.0 EXPOSURE MONITORING

8.1 General

During intrusive activities beneath the cover system, the potential for organic vapors and/or particulates to be released to the air exists. Ambient breathing zone concentrations may at times, exceed the permissible exposure limits (PELs) established by OSHA for the individual compounds (see Table 1), in which case respiratory protection will be required. Respiratory and dermal protection may be modified (upgraded or downgraded) by the SSHO based upon real-time field monitoring data.

8.1.1 On-Site Work Zone Monitoring

TurnKey personnel will conduct routine, real-time air monitoring during all intrusive construction phases such as excavation, backfilling, drilling, etc. The work area will be monitored at regular intervals using a photo-ionization detector (PID), combustible gas meter and a particulate meter. Observed values will be recorded and maintained as part of the permanent field record.

Additional air monitoring measurements may be made by TurnKey personnel to verify field conditions during subcontractor oversight activities. Monitoring instruments will be protected from surface contamination during use. Additional monitoring instruments may be added if the situations or conditions change. Monitoring instruments will be calibrated in accordance with manufacturer's instructions before use.

8.1.2 Off-Site Community Air Monitoring

In addition to on-site monitoring within the work zone(s), monitoring at the downwind portion of the Site perimeter will be conducted. This will provide a real-time method for determination of vapor and/or particulate releases to the surrounding community as a result of ground intrusive investigation work.

Ground intrusive activities are defined by NYSDOH Appendix 1A Generic Community Air Monitoring Plan (Ref. 6) and attached as Appendix A-3. Ground intrusive activities include soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells. Non-intrusive activities include the collection

of soil and sediment samples or the collection of groundwater samples from existing wells. Continuous monitoring is required for ground intrusive activities and periodic monitoring is required for non-intrusive activities. Periodic monitoring consists of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring while bailing a well, and taking a reading prior to leaving a sampling location. This may be upgraded to continuous if the sampling location is in close proximity to individuals not involved in the Site activity (i.e., on a curb of a busy street). The action levels below will be used during periodic monitoring.

8.2 Monitoring Action Levels

8.2.1 On-Site Work Zone Action Levels

The PID, or other appropriate instrument(s), will be used by TurnKey personnel to monitor organic vapor concentrations as specified in this HASP. Combustible gas will be monitored with the “combustible gas” option on the combustible gas meter or other appropriate instrument(s). In addition, fugitive dust/particulate concentrations will be monitored during major soil intrusion (i.e., well/boring installation) using a real-time particulate monitor as specified in this plan. In the absence of such monitoring, appropriate respiratory protection for particulates shall be donned. Sustained readings obtained in the breathing zone may be interpreted (with regard to other Site conditions) as follows for TurnKey-Benchmark personnel:

- Total atmospheric concentrations of unidentified vapors or gases ranging from 0 to 1 ppm above background on the PID) - Continue operations under Level D (see Appendix A).
- Total atmospheric concentrations of unidentified vapors or gases yielding sustained readings from >1 ppm to 5 ppm above background on the PID (vapors not suspected of containing high levels of chemicals toxic to the skin) - Continue operations under Level C (see Appendix A).
- Total atmospheric concentrations of unidentified vapors or gases yielding sustained readings of >5 ppm to 50 ppm above background on the PID - Continue operations under Level B, re-evaluate and alter (if possible) construction methods to achieve lower vapor concentrations.
- Total atmospheric concentrations of unidentified vapors or gases above 50 ppm

on the PID - Discontinue operations and exit the work zone immediately.

The explosimeter will be used to monitor levels of both combustible gases and oxygen during RA activities. Action levels based on the instrument readings shall be as follows:

- Less than 10% LEL - Continue engineering operations with caution.
- 10-25% LEL - Continuous monitoring with extreme caution, determine source/cause of elevated reading.
- Greater than 25% LEL - Explosion hazard, evaluate source and leave the Work Zone.
- 19.5% - 21% oxygen - proceed with extreme caution; attempt to determine potential source of oxygen displacement.
- Less than 19.5% oxygen - leave work zone immediately.
- 21-25% oxygen - Continue engineering operations with caution.
- Greater than 25% oxygen - Fire hazard potential, leave Work Zone immediately.

The particulate monitor will be used to monitor respirable dust concentrations during all intrusive activities and during handling of Site soil/fill. Action levels based on the instrument readings shall be as follows:

- Less than 50 $\mu\text{g}/\text{m}^3$ - Continue field operations.
- 50-150 $\mu\text{g}/\text{m}^3$ - Don dust/particulate mask or equivalent
- Greater than 150 $\mu\text{g}/\text{m}^3$ - Don dust/particulate mask or equivalent. Initiate engineering controls to reduce respirable dust concentration (i.e., wetting of excavated soils or tools at discretion of Site Safety and Health Officer).

Readings with the organic vapor analyzer, combustible gas meter, and particulate monitor will be recorded and documented on the appropriate Project Field Forms. All instruments will be calibrated before use on a daily basis and the procedure will be documented on the appropriate Project Field Forms.

8.2.2 Community Air Monitoring Action Levels

In addition to the action levels prescribed in Section 8.2.1 for Benchmark personnel on-site, the following criteria shall also be adhered to for the protection of downwind receptors consistent with NYSDOH requirements (Appendix C):

- o **ORGANIC VAPOR PERIMETER MONITORING:**
 - If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
 - If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
 - If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.
 - All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.
- o **Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures**
 - When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the

location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices should be considered to prevent exposures related to the work activities and to control dust and odors. Consideration should be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure (s). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.
- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 mcg/m³, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 mcg/m³ or less at the monitoring point.
- Depending upon the nature of contamination and remedial activities, other parameters (e.g., explosivity, oxygen, hydrogen sulfide, carbon monoxide) may also need to be monitored. Response levels and actions should be pre-determined, as necessary, for each site.

Additionally, if following the cessation of work and efforts to abate the emission source are unsuccessful, and if sustained organic vapor levels exceed 25 ppm above background within the 20-foot zone for more than 30 minutes, then the **Major Vapor Emission Response Plan** (see below) will automatically be placed into effect.

- **MAJOR VAPOR EMISSION RESPONSE PLAN:**

Upon activation, the following activities will be undertaken:

1. All Emergency Response Contacts as listed in this Health and Safety Plan and the Emergency Response Plan (Appendix A) will be advised.
2. The local police authorities will immediately be contacted by the Site Health and Safety Officer and advised of the situation.
3. The Site Safety and Health Officer will determine if site workers can safely undertake source abatement measures. Abatement measures may include covering the source area with clean fill or plastic sheeting, or consolidating contaminated materials to minimize surface area. The Site Safety and Health Officer will adjust worker personal protective equipment as necessary to protect workers from over-exposure to organic vapors.

The following personnel are to be notified in the listed sequence in the event that a Major Vapor Emission Plan is activated:

:

Responsible Person	Contact	Phone Number
SSHO	Police	911
SSHO	State Emergency Response Hotline	(800) 457-7362

Additional emergency numbers are listed in the Emergency Response Plan included as Appendix A.

- o **EXPLOSIVE VAPORS:**
 - Sustained atmospheric concentrations of greater than 10% LEL in the work area - Initiate combustible gas monitoring at the downwind portion of the Site perimeter.
 - Sustained atmospheric concentrations of greater than 10% LEL at the downwind Site perimeter – Halt work and contact local Fire Department.

- o **AIRBORNE PARTICULATE COMMUNITY AIR MONITORING**

Respirable (PM-10) particulate monitoring will be performed on a continuous basis at the upwind and downwind perimeter of the exclusion zone. The monitoring will be performed using real-time monitoring equipment capable

of measuring PM-10 and integrating over a period of 15-minutes for comparison to the airborne particulate action levels. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities. All readings will be recorded and will be available for NYSDEC and NYSDOH review. Readings will be interpreted as follows:

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (ug/m^3) greater than the background (upwind perimeter) reading for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression provided that the downwind PM-10 particulate levels do not exceed $150 \text{ ug}/\text{m}^3$ above the upwind level and that visible dust is not migrating from the work area.
- If, after implementation of dust suppression techniques downwind PM-10 levels are greater than $150 \text{ ug}/\text{m}^3$ above the upwind level, work activities must be stopped and dust suppression controls re-evaluated. Work can resume provided that supplemental dust suppression measures and/or other controls are successful in reducing the downwind PM-10 particulate concentration to within $150 \text{ ug}/\text{m}^3$ of the upwind level and in preventing visible dust migration.

Pertinent emergency response information including the telephone number of the Fire Department is included in the Emergency Response Plan (Appendix A).

9.0 SPILL RELEASE/RESPONSE

This chapter of the HASP describes the potential for and procedures related to spills or releases of known or suspected petroleum and/or hazardous substances on the Site. The purpose of this Section of the HASP is to plan appropriate response, control, counter-measures and reporting, consistent with OSHA requirements in 29 CFR 1910.120(b)(4)(ii)(J) and (j)(1)(viii). The spill containment program addresses the following elements:

- Potential hazardous material spills and available controls.
- Initial notification and evaluation.
- Spill response.
- Post-spill evaluation.

9.1 Potential Spills and Available Controls

An evaluation was conducted to determine the potential for hazardous material and oil/petroleum spills at this Site. For the purpose of this evaluation, hazardous materials posing a significant spill potential are considered to be:

- CERCLA Hazardous Substances as identified in 40 CFR Part 302, where such materials pose the potential for release in excess of their corresponding Reportable Quantity (RQ).
- Extremely Hazardous Substances as identified in 40 CFR Part 355, Appendix A, where such materials pose the potential for release in excess of their corresponding Reportable Quantity (RQ).
- Hazardous Chemicals as defined under Section 311(e) of the Emergency Planning and Community Right-To-Know Act of 1986, where such chemicals are present or will be stored in excess of 10,000 lbs.
- Toxic Chemicals as defined in 40 CFR Part 372, where such chemicals are present or will be stored in excess of 10,000 lbs.
- Chemicals regulated under 6NYCRR Part 597, where such materials pose the potential for release in excess of their corresponding Reportable Quantity (RQ).

Oil/petroleum products are considered to pose a significant spill potential whenever the following situations occur:

- The potential for a “harmful quantity” of oil (including petroleum and non-petroleum-based fuels and lubricants) to reach navigable waters of the U.S. exists (40 CFR Part 112.4). Harmful quantities are considered by USEPA to be volumes that could form a visible sheen on the water or violate applicable water quality standards.
- The potential for any amount of petroleum to reach any waters of NY State, including groundwater, exists. Petroleum, as defined by NY State in 6NYCRR Part 612, is a petroleum-based heat source, energy source, or engine lubricant/maintenance fluid.
- The potential for any release, to soil or water, of petroleum from a bulk storage facility regulated under 6NYCRR Part 612. A regulated petroleum storage facility is defined by NY State as a site having stationary tank(s) and intra-facility piping, fixtures and related equipment with an aggregate storage volume of 1,100 gallons or greater.

The evaluation indicates that, based on Site history and decommissioning records, a hazardous material spill and/or a petroleum product spill is not likely to occur during RA efforts.

9.2 Initial Spill Notification and Evaluation

Any worker who discovers a hazardous substance or oil/petroleum spill will immediately notify the Project Manager and SSHO. The worker will, to the best of his/her ability, report the material involved, the location of the spill, the estimated quantity of material spilled, the direction/flow of the spill material, related fire/explosion incidents, if any, and any associated injuries. The Emergency Response Plan presented in Appendix A-1 of this HASP will immediately be implemented if an emergency release has occurred.

Following initial report of a spill, the Project Manager will make an evaluation as to whether the release exceeds RQ levels. If an RQ level is exceeded, the Project Manager will notify the Site owner and NYSDEC at 1-800-457-7362 within 2 hours of spill discovery. The Project Manager will also determine what additional agencies (e.g., USEPA) are to be contacted regarding the release, and will follow-up with written reports as required by the applicable regulations.

9.3 Spill Response

For all spill situations, the following general response guidelines will apply:

- Only those personnel involved in overseeing or performing containment operations will be allowed within the spill area. If necessary, the area will be roped, ribboned, or otherwise blocked off to prevent unauthorized access.
- Appropriate PPE, as specified by the SSHO, will be donned before entering the spill area.
- Ignition points will be extinguished/removed if fire or explosion hazards exist.
- Surrounding reactive materials will be removed.
- Drains or drainage in the spill area will be blocked to prevent inflow of spilled materials or applied materials.

For minor spills, the Contractor will maintain a Spill Control and Containment Kit in the Field Office or other readily accessible storage location. The kit will consist of, at a minimum, a 50 lb. bag of “speedy dry” granular absorbent material, absorbent pads, shovels, empty 5-gallon pails and an empty open-top 55-gallon drum. Spilled materials will be absorbed, and shoveled into a 55-gallon drum for proper disposal (NYSDEC approval will be secured for on-site treatment of the impacted soils/absorbent materials, if applicable). Impacted soils will be hand-excavated to the point that no visible signs of contamination remains, and will be drummed with the absorbent.

In the event of a major release or a release that threatens surface water, a spill response contractor will be called to the Site. The response contractor may use heavy equipment (e.g., excavator, backhoe, etc.) to berm the soils surrounding the spill Site or create diversion trenching to mitigate overland migration or release to navigable waters. Where feasible, pumps will be used to transfer free liquid to storage containers. Spill control/cleanup contractors in the Western New York area that may be contacted for assistance include:

- The Environmental Service Group of NY, Inc.: (716) 695-6720
- Op-Tech: (716) 873-7680
- Environmental Products and Services of Vermont, Inc.: (716) 597-0001

9.4 Post-Spill Evaluation

If a reportable quantity of hazardous material or oil/petroleum is spilled as determined by the Project Manager, a written report will be prepared as indicated in Section 9.2. The report will identify the root cause of the spill, type and amount of material released, date/time of release, response actions, agencies notified and/or involved in cleanup, and procedures to be implemented to avoid repeat incidents. In addition, all re-useable spill cleanup and containment materials will be decontaminated, and spill kit supplies/disposable items will be replenished.

10.0 HEAT/COLD STRESS MONITORING

Since some of the work activities at the Site will be scheduled for both the summer and winter months, measures will be taken to minimize heat/cold stress to TurnKey-Benchmark employees. The Site Safety and Health Officer and/or his or her designee will be responsible for monitoring TurnKey-Benchmark field personnel for symptoms of heat/cold stress.

10.1 Heat Stress Monitoring

Personal protective equipment may place an employee at risk of developing heat stress, a common and potentially serious illness often encountered at construction, landfill, waste disposal, industrial or other unsheltered sites. The potential for heat stress is dependent on a number of factors, including environmental conditions, clothing, workload, physical conditioning and age. Personal protective equipment may severely reduce the body's normal ability to maintain temperature equilibrium (via evaporation and convection), and require increased energy expenditure due to its bulk and weight.

Proper training and preventive measures will mitigate the potential for serious illness. Heat stress prevention is particularly important because once a person suffers from heat stroke or heat exhaustion, that person may be predisposed to additional heat related illness. To avoid heat stress, the following steps should be taken:

- Adjust work schedules.
- Modify work/rest schedules according to monitoring requirements.
- Mandate work slowdowns as needed.
- Perform work during cooler hours of the day if possible or at night if adequate lighting can be provided.
- Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods.
- Maintain worker's body fluids at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluid intake must approximately equal the amount of water lost in sweat (i.e., eight fluid ounces must be ingested for approximately every 1 lb of weight lost). The normal thirst mechanism is not sensitive enough to ensure that enough water will be consumed to replace lost perspiration. When heavy sweating occurs, workers should be encouraged to drink more.

- Train workers to recognize the symptoms of heat related illness.

Heat-Related Illness - Symptoms:

- Heat rash may result from continuous exposure to heat or humid air.
- Heat cramps are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include: muscle spasms; pain in the hands, feet and abdomen.
- Heat exhaustion occurs from increased stress on various body organs including inadequate blood circulation due to cardiovascular insufficiency or dehydration. Signs and symptoms include: pale, cool, moist skin; heavy sweating; dizziness; nausea; fainting.
- Heat stroke is the most serious form of heat stress. Temperature regulation fails and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury and death occur. Competent medical help must be obtained. Signs and symptoms are: red, hot, usually dry skin; lack of or reduced perspiration; nausea; dizziness and confusion; strong, rapid pulse; coma.

The monitoring of personnel wearing protective clothing should commence when the ambient temperature is 70 degrees Fahrenheit or above. For monitoring the body's recuperative ability to excess heat, one or more of the following techniques should be used as a screening mechanism.

- Heart rate may be measured by the radial pulse for 30 seconds as early as possible in the resting period. The rate at the beginning of the rest period should not exceed 100 beats per minute. If the rate is higher, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest periods stay the same, If the pulse rate is 100 beats per minute at the beginning of the next rest period, the following work cycle should be further shortened by 33%.
- Body temperature may be measured orally with a clinical thermometer as early as possible in the resting period. Oral temperature at the beginning of the rest period should not exceed 99.6 degrees Fahrenheit. If it does, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest period remains the same. However, if the oral temperature exceeds 99.6 degrees Fahrenheit at the beginning of the next period, the work cycle may be further shortened by 33%. Oral temperature should be measured at the end of the rest period to make sure that it has dropped below 99.6 degrees Fahrenheit. No TurnKey-Benchmark employee will be permitted to continue wearing semi-permeable or impermeable garments when his/her oral temperature exceeds

100.6 degrees Fahrenheit.

10.2 Cold Stress Monitoring

Exposure to cold conditions may result in frostbite or hypothermia, each of which progresses in stages as shown below.

- **Frostbite** occurs when body tissue (usually on the extremities) begins to freeze. The three states of frostbite are:
 - 1) **Frost nip** - This is the first stage of the freezing process. It is characterized by a whitened area of skin, along with a slight burning or painful sensation. Treatment consists of removing the victim from the cold conditions, removal of boots and gloves, soaking the injured part in warm water (102 to 108 degrees Fahrenheit) and drinking a warm beverage. Do not rub skin to generate friction/ heat.
 - 2) **Superficial Frostbite** - This is the second stage of the freezing process. It is characterized by a whitish gray area of tissue, which will be firm to the touch but will yield little pain. The treatment is identical for Frost nip.
 - 3) **Deep Frostbite** - In this final stage of the freezing process the affected tissue will be cold, numb and hard and will yield little to no pain. Treatment is identical to that for Frost nip.

- **Hypothermia** is a serious cold stress condition occurring when the body loses heat at a rate faster than it is produced. If untreated, hypothermia may be fatal. The stages of hypothermia may not be clearly defined or visible at first, but generally include:
 - 1) Shivering
 - 2) Apathy (i.e., a change to an indifferent or uncaring mood)
 - 3) Unconsciousness
 - 4) Bodily freezing

Employees exhibiting signs of hypothermia should be treated by medical professionals. Steps that can be taken while awaiting help include:

- 1) Remove the victim from the cold environment and remove wet or frozen clothing. (Do this carefully as frostbite may have started.)
- 2) Perform active re-warming with hot liquids for drinking (Note: do not

give the victim any liquid containing alcohol or caffeine) and a warm water bath (102 to 108 degrees Fahrenheit).

- 3) Perform passive re-warming with a blanket or jacket wrapped around the victim.

In any potential cold stress situation, it is the responsibility of the Site Health and Safety Officer to encourage the following:

- Education of workers to recognize the symptoms of frostbite and hypothermia.
- Workers should dress warmly, with more layers of thin clothing as opposed to one thick layer.
- Personnel should remain active and keep moving.
- Personnel should be allowed to take shelter in heated areas, as necessary.
- Personnel should drink warm liquids (no caffeine or alcohol if hypothermia has set in).
- For monitoring the body's recuperation from excess cold, oral temperature recordings should occur:
 - At the Site Safety Technicians discretion when suspicion is based on changes in a worker's performance or mental status.
 - At a workers request.
 - As a screening measure, two times per shift, under unusually hazardous conditions (e.g., wind chill less than 20 degrees Fahrenheit or wind chill less than 30 degrees Fahrenheit with precipitation).
 - As a screening measure, whenever anyone worker on-site develops hypothermia.

Any person developing moderate hypothermia (a core body temperature of 92 degrees Fahrenheit) will not be allowed to return to work for 48 hours without the recommendation of a qualified medical doctor.

11.0 WORK ZONES AND SITE CONTROL

Work zones around the areas designated for construction activities will be established on a daily basis and communicated to all employees and other Site users by the SSHO. It shall be each Contractor's Site Safety and Health Officer's responsibility to ensure that all Site workers are aware of the work zone boundaries and to enforce proper procedures in each area. The zones will include:

- Exclusion Zone ("Hot Zone") - The area where contaminated materials may be exposed, excavated or handled and all areas where contaminated equipment or personnel may travel. The zone will be delineated by flagging tape. All personnel entering the Exclusion Zone must wear the prescribed level of personal protective equipment identified in Section 7.
- Contamination Reduction Zone - The zone where decontamination of personnel and equipment takes place. Any potentially contaminated clothing, equipment and samples must remain in the Contamination Reduction Zone until decontaminated.
- Support Zone - The part of the site that is considered non-contaminated or "clean." Support equipment will be located in this zone, and personnel may wear normal work clothes within this zone.

In the absence of other task-specific work zone boundaries established by the SSHO, the following boundaries will apply to all investigation and construction activities involving disruption or handling of Site soils or groundwater:

- Exclusion Zone: 50 foot radius from the outer limit of the sampling/construction activity.
- Contaminant Reduction Zone: 100 foot radius from the outer limit of the sampling/construction activity.
- Support Zone: Areas outside the Contaminant Reduction Zone.

Access of non-essential personnel to the Exclusion and Contamination Reduction Zones will be strictly controlled by the SSHO. Only personnel who are essential to the completion of the task will be allowed access to these areas if they are wearing the prescribed level of protection. Entrance of all personnel must be approved by the SSHO.

The SSHO will maintain a Health and Safety Logbook containing the names of TurnKey-Benchmark workers and their level of protection. The zone boundaries may be

changed by the SSHO as environmental conditions warrant, and to respond to the necessary changes in work locations on-site.

12.0 DECONTAMINATION

12.1 Decontamination for TurnKey-Benchmark Employees

The degree of decontamination required is a function of a particular task and the environment within which it occurs. The following decontamination procedure will remain flexible, thereby allowing the decontamination crew to respond appropriately to the changing environmental conditions that may arise at the Site. All TurnKey-Benchmark personnel on-site shall follow the procedure below, or the Contractor's procedure (if applicable), whichever is more stringent.

Station 1 - Equipment Drop: Deposit visibly contaminated (if any) re-useable equipment used in the contamination reduction and exclusion zones (tools, containers, monitoring instruments, radios, clipboards, etc.) on plastic sheeting.

Station 2 - Boots and Gloves Wash and Rinse: Scrub outer boots and outer gloves. Deposit tape and gloves in waste disposal container.

Station 3 - Tape, Outer Boot and Glove Removal: Remove tape, outer boots and gloves. Deposit tape and gloves in waste disposal container.

Station 4 - Canister or Mask Change: If worker leaves exclusive zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's canister is exchanged, new outer gloves and boot cover donned, and worker returns to duty.

Station 5 - Outer Garment/Face Piece Removal: Protective suit removed and deposited in separate container provided by Contractor. Face piece or goggles are removed if used. Avoid touching face with fingers. Face piece and/or goggles deposited on plastic sheet. Hard hat removed and placed on plastic sheet.

Station 6 - Inner Glove Removal: Inner gloves are the last personal protective equipment to be removed. Avoid touching the outside of the gloves with bare fingers. Dispose of these gloves in waste disposal container.

Following PPE removal, personnel shall wash hands, face and forearms with absorbent wipes. If field activities proceed for six consecutive months or longer, shower facilities will be provided for worker use in accordance with OSHA 29 CFR 1910.120(n).

12.2 Decontamination for Medical Emergencies

In the event of a minor, non-life threatening injury, personnel should follow the decontamination procedures as defined, and then administer first-aid.

In the event of a major injury or other serious medical concern (e.g., heat stroke), immediate first-aid is to be administered and the victim transported to the hospital in lieu of further decontamination efforts unless exposure to a Site contaminant would be considered “Immediately Dangerous to Life or Health.”

12.3 Decontamination of Field Equipment

Decontamination of heavy equipment will be conducted by the Contractor in accordance with his approved Health and Safety Plan in the Contamination Reduction Zone. As a minimum, this will include manually removing heavy soil contamination, followed by steam cleaning on an impermeable pad.

Decontamination of all tools used for sample collection purposes will be conducted by TurnKey-Benchmark personnel. It is expected that all tools will be constructed of nonporous, nonabsorbent materials (i.e., metal), which will aid in the decontamination effort. Any tool or part of a tool made of porous, absorbent material (i.e., wood) will be placed into suitable containers and prepared for disposal.

Decontamination of bailers, split-spoons, spatula knives, and other tools used for environmental sampling and examination shall be as follows:

- Disassemble the equipment
- Water wash to remove all visible foreign matter.
- Wash with detergent.
- Rinse all parts with distilled-deionized water.
- Allow to air dry.
- Wrap all parts in aluminum foil or polyethylene.

13.0 CONFINED SPACE ENTRY

OSHA 29 CFR 1910.146 identifies a confined space as a space that is large enough and so configured that an employee can physically enter and do assigned work, has limited or restricted means for entry and exit, and is not intended for continuous employee occupancy. Confined spaces include, but are not limited to, trenches, storage tanks, process vessels, pits, sewers, tunnels, underground utility vaults, pipelines, sumps, wells, and excavations.

Confined space entry by TurnKey-Benchmark employees is not anticipated to be necessary to complete the RA activities identified in Section 2.0. In the event that the scope of work changes or confined space entry appears necessary, the Project Manager will be consulted to determine if feasible engineering alternatives to confined space entry can be implemented. If confined space entry by TurnKey-Benchmark employees cannot be avoided through reasonable engineering measures, task-specific confined space entry procedures will be developed and a confined-space entry permit will be issued through TurnKey-Benchmark's corporate Health and Safety Director. TurnKey-Benchmark employees shall not enter a confined space without these procedures and permits in place.

14.0 FIRE PREVENTION AND PROTECTION

14.1 General Approach

Recommended practices and standards of the National Fire Protection Association (NFPA) and other applicable regulations will be followed in the development and application of Project Fire Protection Programs. When required by regulatory authorities, the project management will prepare and submit a Fire Protection Plan for the approval of the contracting officers, authorized representative or other designated official. Essential considerations for the Fire Protection Plan will include:

- Proper Site preparation and safe storage of combustible and flammable materials.
- Availability of coordination with private and public fire authorities.
- Adequate job-site fire protection and inspections for fire prevention.
- Adequate indoctrination and training of employees.

14.2 Equipment and Requirements

Fire extinguishers will be provided by each Contractor and are required on all heavy equipment and in each field trailer. Fire extinguishers will be inspected, serviced, and maintained in accordance with the manufacturer's instructions. As a minimum, all extinguishers shall be checked monthly and weighed semi-annually, and recharged if necessary. Recharge or replacement shall be mandatory immediately after each use.

14.3 Flammable and Combustible Substances

All storage, handling or use of flammable and combustible substances will be under the supervision of qualified persons. All tanks, containers and pumping equipment, whether portable or stationary, used for the storage and handling of flammable and combustible liquids, will meet the recommendations of the National Fire Protection Association.

14.4 Hot Work

If the scope of work necessitates welding or blowtorch operation, the hot work permit presented in Appendix C-2 will be completed by the SSHO and reviewed/issued by the Project Manager.

15.0 EMERGENCY INFORMATION

In accordance with OSHA 29 CFR Part 1910, an Emergency Response Plan is attached to this HASP as Appendix A-1. The hospital route map is presented within Appendix A-1.

16.0 REFERENCES

1. Benchmark Environmental Engineering and Science, PLLC. *Phase I Environmental Site Assessment (ESA) for 1501 College Ave, Niagara Falls, New York*. August 2007.
2. Benchmark Environmental Engineering and Science, PLLC. *Limited Preliminary Environmental Investigation for 1501 College Ave, Niagara Falls, New York*. August 2007
3. TurnKey Environmental Restoration, LLC. *Remedial Investigation/ Alternatives Analysis Report Work Plan, 1501 College Ave, Niagara Falls, New York*. January 2008.
4. TurnKey Environmental Restoration, LLC. *Interim Remedial Measures Work Plan, 1501 College Ave, Niagara Falls, New York*. March 2008.
5. TurnKey Environmental Restoration, LLC. *Interim Remedial Measures Work Plan Letter, 1501 College Ave, Niagara Falls, New York*. November 2010.
6. New York State Department of Health. *Generic Community Air Monitoring Plan, Appendix 1A, Draft DER-10 Technical Guidance for Site Investigation and Remediation*. December 2002.
7. New York State Department of Environmental Conservation. *Draft DER-10; Technical Guidance for Site Investigation and Remediation*. December 2002.

TABLES



TABLE 1

TOXICITY DATA FOR CONSTITUENTS OF POTENTIAL CONCERN

1501 College Avenue Site
Niagara Falls, New York

Parameter	Synonyms	CAS No.	Code	Concentration Limits ¹		
				PEL	TLV	IDLH
Semi-volatile Organic Compounds (SVOCs) ²: ppm						
Acenaphthene	none	83-32-9	none	--	--	--
Acenaphthylene	none	208-96-8	none	--	--	--
Anthracene	none	120-12-7	none	--	--	--
Benzo(a)anthracene	none	56-55-3	none	--	--	--
Benzo(a)pyrene	none	50-32-8	none	--	--	--
Benzo(b)fluoranthene	none	205-99-2	none	--	--	--
Benzo(ghi)perylene	none	191-24-2	none	--	--	--
Benzo(k)fluoranthene	none	207-08-9	none	--	--	--
Chrysene	none	218-01-9	none	--	--	--
Dibenzo(a,h)anthracene	none	53-70-3	none	--	--	--
Fluoranthene	none	206-44-0	none	--	--	--
Fluorene	none	86-73-7	none	--	--	--
Indeno(1,2,3-cd)pyrene	none	193-39-5	none	--	--	--
Naphthalene	Naphthalin, Tar camphor, White tar	91-20-3	none	10	10	250
Phenanthrene	none	85-01-8	none	--	--	--
Pyrene	none	129-00-0	none	--	--	--
Coal Dust (mg/m ³)	Anthracite, Bituminous, or Lignite coal	NA	none	2.4	--	ND
Polychlorinated Biphenyls (PCBs) ²: ppm						
Aroclor 1254	chlorodiphenol (54% Chlorine)	11097-69-1	Ca	1	0.5	5
Aroclor 1260	chlorodiphenol (60% Chlorine)	11096-82-5	Ca	1	0.5	5
Inorganic Compounds: mg/m ²						
Arsenic	none	7440-38-2	Ca	0.01	0.01	5
Barium	none	7440-39-3	none	--	0.5	--
Cadmium	none	7440-43-9	Ca	0.005	0.01	9
Chromium	none	7440-47-3	none	1	0.5	250
Lead	none	7439-92-1	none	0.05	0.15	100

Notes:

1. Concentration limits as reported by NIOSH Pocket Guide to Chemical Hazards, February 2004 (NIOSH Publication No. 97-140, fourth printing with changes and updates).
2. "--" = concentration limit not available; exposure should be minimized to the extent feasible through appropriate engineering controls & PPE.

Explanation:

Ca = NIOSH considers constituent to be a potential occupational carcinogen.

C-## = Ceiling Level equals the maximum exposure concentration allowable during the work day.

IDLH = Immediately Dangerous to Life or Health.

ND indicates that an IDLH has not as yet been determined.

TLV = Threshold Limit Value, established by American Conference of Industrial Hygienists (ACGIH), equals the maximum exposure concentration allowable for 8 hours/day @ 40 hr

TLVs are the amounts of chemicals in the air that almost all healthy adult workers are predicted to be able to tolerate without adverse effects. There are three types.

TLV-TWA (TLV-Time-Weighted Average) which is averaged over the normal eight-hour day/forty-hour work week. (Most TLVs.)

TLV-STEL or Short Term Exposure Limits are 15 minute exposures that should not be exceeded for even an instant. It is not a stand alone value but is accompanied by the TLV-TWA.

TLV-C or Ceiling limits are the concentration that should not be exceeded during any part of the working exposure.

Unless the initials "STEL" or "C" appear in the Code column, the TLV value should be considered to be the eight-hour TLV-TWA.

PEL = Permissible Exposure Limit, established by OSHA, equals the maximum exposure concentration allowable for 8 hours per day @ 40 hours per week



TABLE 2

POTENTIAL ROUTES OF EXPOSURE TO THE
CONSTITUENTS OF POTENTIAL CONCERN

1501 College Avenue Site
Niagara Falls, New York

Activity ¹	Direct Contact with Soil	Inhalation of Vapors or Dust	Direct Contact with Groundwater
Remedial / Redevelopment Tasks			
1. Excavation, soil borings & soil sampling.	x	x	
2. Surface grading and soil sampling.	x	x	
3. Drum and container sampling.	x	x	

Notes:

1. Activity as described in the Health and Safety Plan.



TABLE 3

**REQUIRED LEVELS OF PROTECTION
FOR BCP ACTIVITIES**

1501 College Avenue Site
Niagara Falls, New York

Activity	Respiratory Protection ¹	Clothing	Gloves ²	Boots ^{2,3}	Other Required PPE/Modifications ^{2,4}
Post Remedial Tasks					
1. Test pit excavation, soil borings & soil sampling.	Level D (upgrade to Level C if necessary)	Work Uniform or Tyvek	L/N	outer: L inner: STSS	HH SGSS
2. Surface soil sampling.	Level D (upgrade to Level C if necessary)	Work Uniform or Tyvek	L/N	outer: L inner: STSS	HH SGSS
3. Drum and container sampling.	Level D (upgrade to Level C if necessary)	Work Uniform or Tyvek	L/N	outer: L inner: STSS	HH SGSS

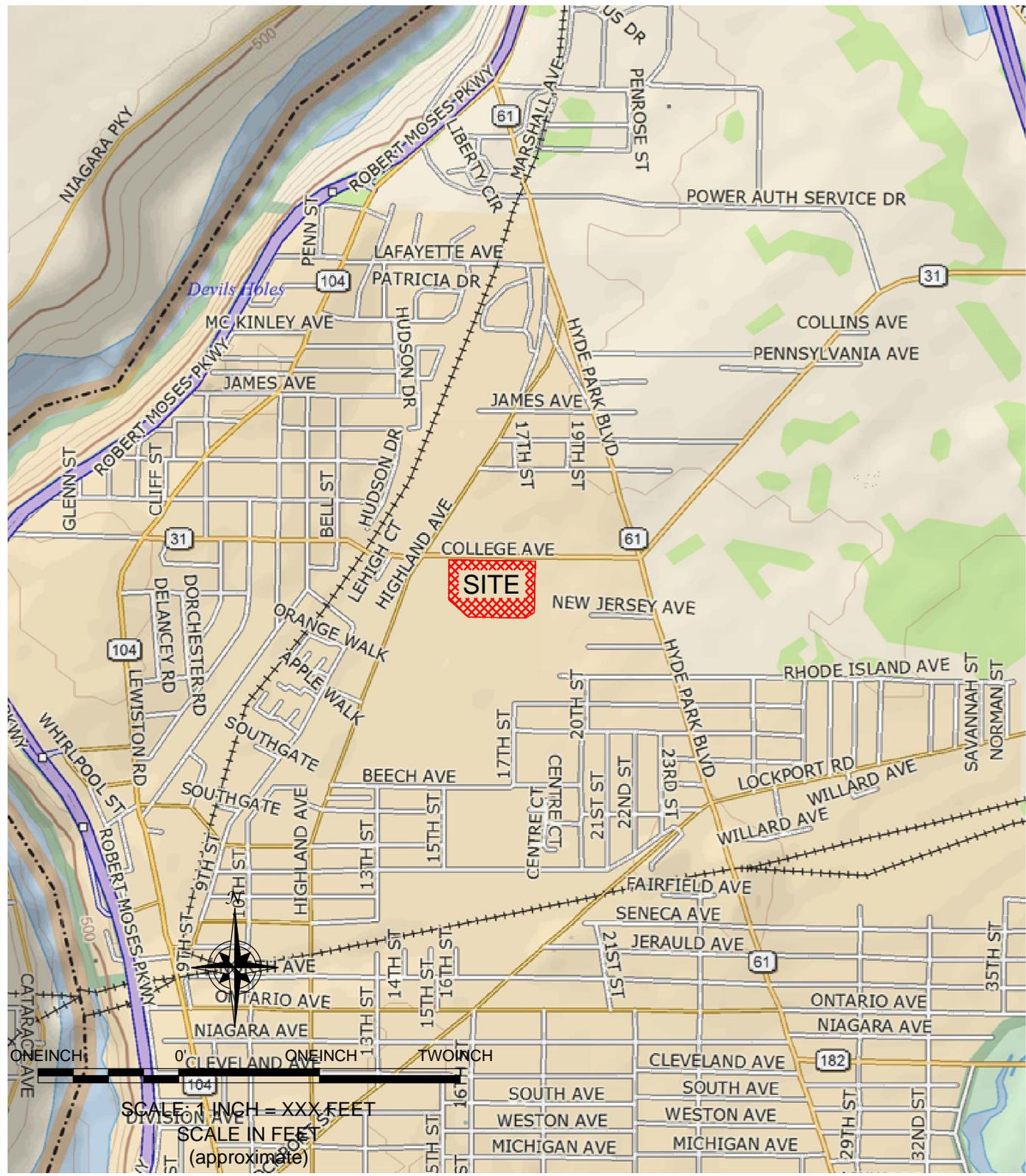
Notes:

1. Respiratory equipment shall conform to guidelines presented in Section 7.0 of this HASP. The Level C requirement is an air-purifying respirator equipped with organic compound/acid gas/dust cartridge.
2. HH = hardhat; L= Latex; L/N = latex inner glove, nitrile outer glove; N = Nitrile; S = Saranex; SG = safety glasses; SGSS = safety glasses with sideshields; STSS = steel toe safety shoes.
3. Latex outer boot (or approved overboot) required whenever contact with contaminated materials may occur. SSHO may downgrade to STSS (steel-toed safety shoes) if contact will be limited to cover/replacement soils.
4. Dust masks shall be donned as directed by the SSHO (site safety and health officer) or site safety technician whenever potentially contaminated airborne particulates (i.e., dust) are present in significant amounts in the breathing zone. Goggles may be substituted with safety glasses w/side-shields whenever contact with contaminated liquids is not anticipated.

FIGURES

FIGURE 1

F:\ACAD\TurnKey\Santorosa Holdings\Site Management Plan\HASP Figs\Figure 1- Site Location and Vicinity Map - JGT.dwg



SCALE: 1 INCH = XXX FEET
 SCALE IN FEET
 (approximate)

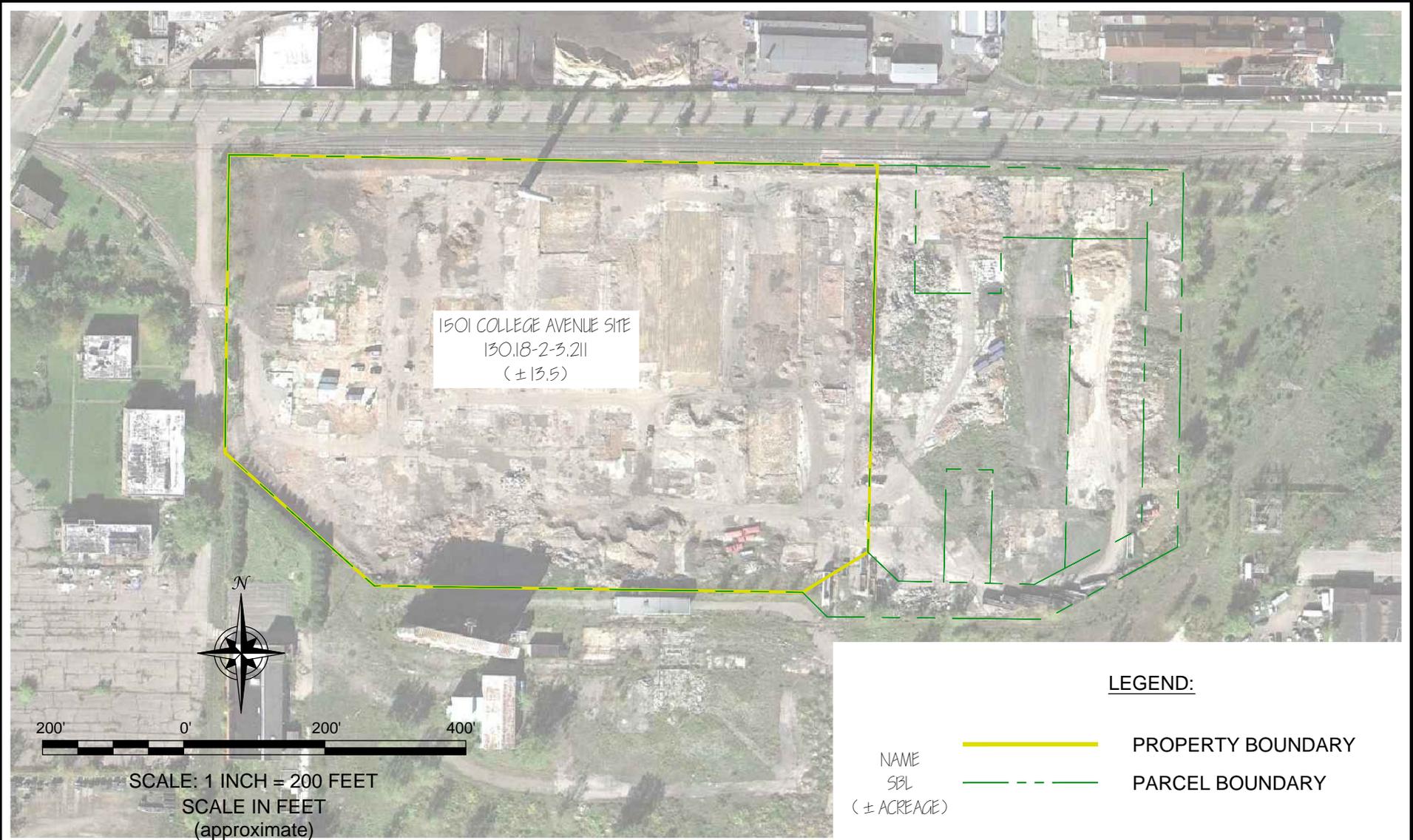


2558 HAMBURG TURNPIKE
 SUITE 300
 BUFFALO, NY 14218
 (716) 856-0635

SITE LOCATION AND VICINITY MAP

HEALTH AND SAFETY PLAN
 1501 COLLEGE AVENUE SITE
 NIAGARA FALLS, NEW YORK
 PREPARED FOR
 SANTOROSA HOLDINGS, INC

PROJECT NO.: 0140-001-105
 DATE: OCTOBER 2012
 DRAFTED BY: JGT



2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0835

SITE PLAN (AERIAL)

HEALTH AND SAFETY PLAN
1501 COLLEGE AVENUE SITE
NIAGARA FALLS, NEW YORK
PREPARED FOR
SANTOROSA HOLDINGS, INC

PROJECT NO.: 0140-001-105

DATE: OCTOBER 2012

DRAFTED BY: JGT

FIGURE 2

APPENDIX A

EMERGENCY RESPONSE PLAN

EMERGENCY RESPONSE PLAN
for
BCP ACTIVITIES

at the
1501 COLLEGE AVENUE SITE

NIAGARA FALLS, NEW YORK

October 2012

0140-001-106

Prepared for:

Santarosa Holdings, Inc.

1501 COLLEGE AVENUE SITE
EXAMPLE HEALTH AND SAFETY PLAN FOR BCP ACTIVITIES
APPENDIX A: EMERGENCY RESPONSE PLAN

TABLE OF CONTENTS

1.0 GENERAL 1

2.0 PRE-EMERGENCY PLANNING 2

3.0 ON-SITE EMERGENCY RESPONSE EQUIPMENT 3

4.0 EMERGENCY PLANNING MAPS 4

5.0 EMERGENCY CONTACTS 5

6.0 EMERGENCY ALERTING & EVACUATION 6

7.0 EXTREME WEATHER CONDITIONS..... 8

8.0 EMERGENCY MEDICAL TREATMENT & FIRST AID 9

9.0 EMERGENCY RESPONSE CRITIQUE & RECORD KEEPING..... 10

10.0 EMERGENCY RESPONSE TRAINING 11

LIST OF FIGURES

Figure 1 Hospital Route Map



1.0 GENERAL

This report presents the site-specific Emergency Response Plan (ERP) referenced in the Site Health and Safety Plan (HASP) prepared for BCP activities at the 1501 College Avenue Site in Niagara Falls, New York. This appendix of the HASP describes potential emergencies that may occur at the Site; procedures for responding to those emergencies; roles and responsibilities during emergency response; and training all workers must receive in order to follow emergency procedures. This ERP also describes the provisions this Site has made to coordinate its emergency response planning with other contractors on-site and with off-site emergency response organizations.

This ERP is consistent with the requirements of 29 CFR 1910.120(l) and provides the following site-specific information:

- Pre-emergency planning.
- Personnel roles, lines of authority, and communication.
- Emergency recognition and prevention.
- Safe distances and places of refuge.
- Evacuation routes and procedures.
- Decontamination procedures.
- Emergency medical treatment and first aid.
- Emergency alerting and response procedures.
- Critique of response and follow-up.
- Emergency personal protective equipment (PPE) and equipment.

2.0 PRE-EMERGENCY PLANNING

This Site has been evaluated for potential emergency occurrences, based on site hazards, the required work tasks, the site topography, and prevailing weather conditions. The results of that evaluation indicate the potential for the following site emergencies to occur at the locations indicated.

Type of Emergency:

1. Medical, due to physical injury
2. Fire, due to flammability of Kensol 61 product in subsurface

Source of Emergency:

1. Slip/trip/fall
2. Fire

Location of Source:

1. Non-specific

3.0 ON-SITE EMERGENCY RESPONSE EQUIPMENT

Emergency procedures may require specialized equipment to facilitate worker rescue, contamination control and reduction, or post-emergency clean up. Emergency response equipment available on the Site is listed below. The equipment inventory and storage locations are based on the potential emergencies described above. This equipment inventory is designed to meet on-site emergency response needs and any specialized equipment needs that off-site responders might require because of the hazards at this Site but not ordinarily stocked.

Any additional personal protective equipment (PPE) required and stocked for emergency response is also listed in below. During an emergency, the Emergency Response Coordinator (ERC) is responsible for specifying the level of PPE required for emergency response. At a minimum, PPE used by emergency responders will comply with Section 7.0, Personal Protective Equipment, of this HASP. Emergency response equipment is inspected at regular intervals and maintained in good working order. The equipment inventory is replenished as necessary to maintain response capabilities.

Emergency Equipment	Quantity	Location
First Aid Kit	1	Site Vehicle
Chemical Fire Extinguisher	2 (minimum)	All heavy equipment and Site Vehicle

Emergency PPE	Quantity	Location
Full-face respirator	1 for each worker	Site Vehicle
Chemical-resistant suits	4 (minimum)	Site Vehicle

4.0 EMERGENCY PLANNING MAPS

An area-specific map of the Site will be developed on a daily basis during performance of field activities. The map will be marked to identify critical on-site emergency planning information, including: emergency evacuation routes, a place of refuge, an assembly point, and the locations of key site emergency equipment. Site zone boundaries will be shown to alert responders to known areas of contamination. There are no major topographical features, however the direction of prevailing winds/weather conditions that could affect emergency response planning are also marked on the map. The map will be posted at site-designated place of refuge and inside the TurnKey personnel field vehicle.

5.0 EMERGENCY CONTACTS

The following identifies the emergency contacts for this ERP.

Emergency Telephone Numbers:

Project Manager: *Michael Lesakowski*
Work: (716) 856-0599
Mobile: (716) 818-3954

Corporate Health and Safety Director: *Thomas H. Forbes*
Work: (716) 856-0599
Mobile: (716) 864-1730

Site Safety and Health Officer (SSHO): *Bryan C. Hann*
Work: (716) 856-0635
Mobile: (716) 870-1165

Alternate SSHO: *Nathan Munley*
Work: (716) 856-0635
Mobile: (716) 289-1072

NIAGARA FALLS MEMORIAL MEDICAL CENTER (ER):	(716) 278-4000
FIRE:	911
AMBULANCE:	911
NIAGARA FALLS POLICE:	911
STATE EMERGENCY RESPONSE HOTLINE:	(800) 457-7362
NATIONAL RESPONSE HOTLINE:	(800) 424-8802
NYSDOH:	(716) 847-4385
NYSDEC:	(716) 851-7220
NYSDEC 24-HOUR SPILL HOTLINE:	(800) 457-7252

The Site location is:

1501 College Avenue
Niagara Falls, New York 14305
Site Phone Number: (Insert Cell Phone or Field Trailer): _____

6.0 EMERGENCY ALERTING & EVACUATION

Internal emergency communication systems are used to alert workers to danger, convey safety information, and maintain site control. Any effective system can be employed. Two-way radio headsets or field telephones are often used when work teams are far from the command post. Hand signals and air-horn blasts are also commonly used. Every system must have a backup. It shall be the responsibility of each contractor's Site Health and Safety Officer to ensure an adequate method of internal communication is understood by all personnel entering the site. Unless all personnel are otherwise informed, the following signals shall be used.

- 1) Emergency signals by portable air horn, siren, or whistle: two short blasts, personal injury; continuous blast, emergency requiring site excavation.
- 2) Visual signals: hand gripping throat, out of air/cannot breathe; hands on top of head, need assistance; thumbs up, affirmative/ everything is OK; thumbs down, no/negative; grip partner's wrist or waist, leave area immediately.

If evacuation notice is given, site workers leave the worksite with their respective buddies, if possible, by way of the nearest exit. Emergency decontamination procedures detailed in Section 12.0 of the HASP are followed to the extent practical without compromising the safety and health of site personnel. The evacuation routes and assembly area will be determined by conditions at the time of the evacuation based on wind direction, the location of the hazard source, and other factors as determined by rehearsals and inputs from emergency response organizations. Wind direction indicators are located so that workers can determine a safe up wind or cross wind evacuation route and assembly area if not informed by the emergency response coordinator at the time the evacuation alarm sounds. Since work conditions and work zones within the site may be changing on daily basis, it shall be the responsibility of the construction Site Health and Safety Officer to review evacuation routes and procedures as necessary and to inform all TurnKey-Benchmark workers of any changes.

Personnel exiting the site will gather at a designated assembly point. To determine that everyone has successfully exited the site, personnel will be accounted for at the assembly

site. If any worker cannot be accounted for, notification is given to the SSHO (*Bryan Hann* or *Nathan Munley*) so that appropriate action can be initiated. Contractors and subcontractors on this site have coordinated their emergency response plans to ensure that these plans are compatible and that source(s) of potential emergencies are recognized, alarm systems are clearly understood, and evacuation routes are accessible to all personnel relying upon them.

7.0 EXTREME WEATHER CONDITIONS

In the event of adverse weather conditions, the Site Safety and Health Officer in conjunction with the Contractor's SSHO will determine if engineering operations can continue without sacrificing the health and safety of site personnel. Items to be considered prior to determining if work should continue include but are not limited to:

- Potential for heat/cold stress.
- Weather-related construction hazards (e.g., flooding or wet conditions producing undermining of structures or sheeting, high wind threats, etc).
- Limited visibility.
- Potential for electrical storms.
- Limited site access/egress (e.g., due to heavy snow)

8.0 EMERGENCY MEDICAL TREATMENT & FIRST AID

Personnel Exposure:

The following general guidelines will be employed in instances where health impacts threaten to occur acute exposure is realized:

- Skin Contact: Use copious amounts of soap and water. Wash/rinse affected area for at least 15 minutes. Decontaminate and provide medical attention. Eyewash stations will be provided on site. If necessary, transport to Mercy Hospital.
- Inhalation: Move to fresh air and, if necessary, transport to Mercy Hospital.
- Ingestion: Decontaminate and transport to Mercy Hospital.

Personal Injury:

Minor first-aid will be applied on-site as deemed necessary. In the event of a life threatening injury, the individual should be transported to Niagara Falls Memorial via ambulance. The Site Health and Safety Officer will supply available chemical specific information to appropriate medical personnel as requested.

First aid kits will conform to Red Cross and other applicable good health standards, and shall consist of a weatherproof container with individually sealed packages for each type of item. First aid kits will be fully equipped before being sent out on each job and will be checked weekly by the SSHO to ensure that the expended items are replaced.

Directions to Niagara Falls Memorial Medical Center (see Figure A-1):

- Turn left onto College Avenue
- Turn left onto Highland Avenue
- Travel south on Highland Avenue, which becomes 11th Street.
- Make a slight left onto Portage Rd.
- Turn right onto Pine Ave. (62-A)
- Turn left onto 10th St.

The Niagara Falls Memorial Medical Center is located at 621 10th St., and is approximately 2 miles south of the Site.

9.0 EMERGENCY RESPONSE CRITIQUE & RECORD KEEPING

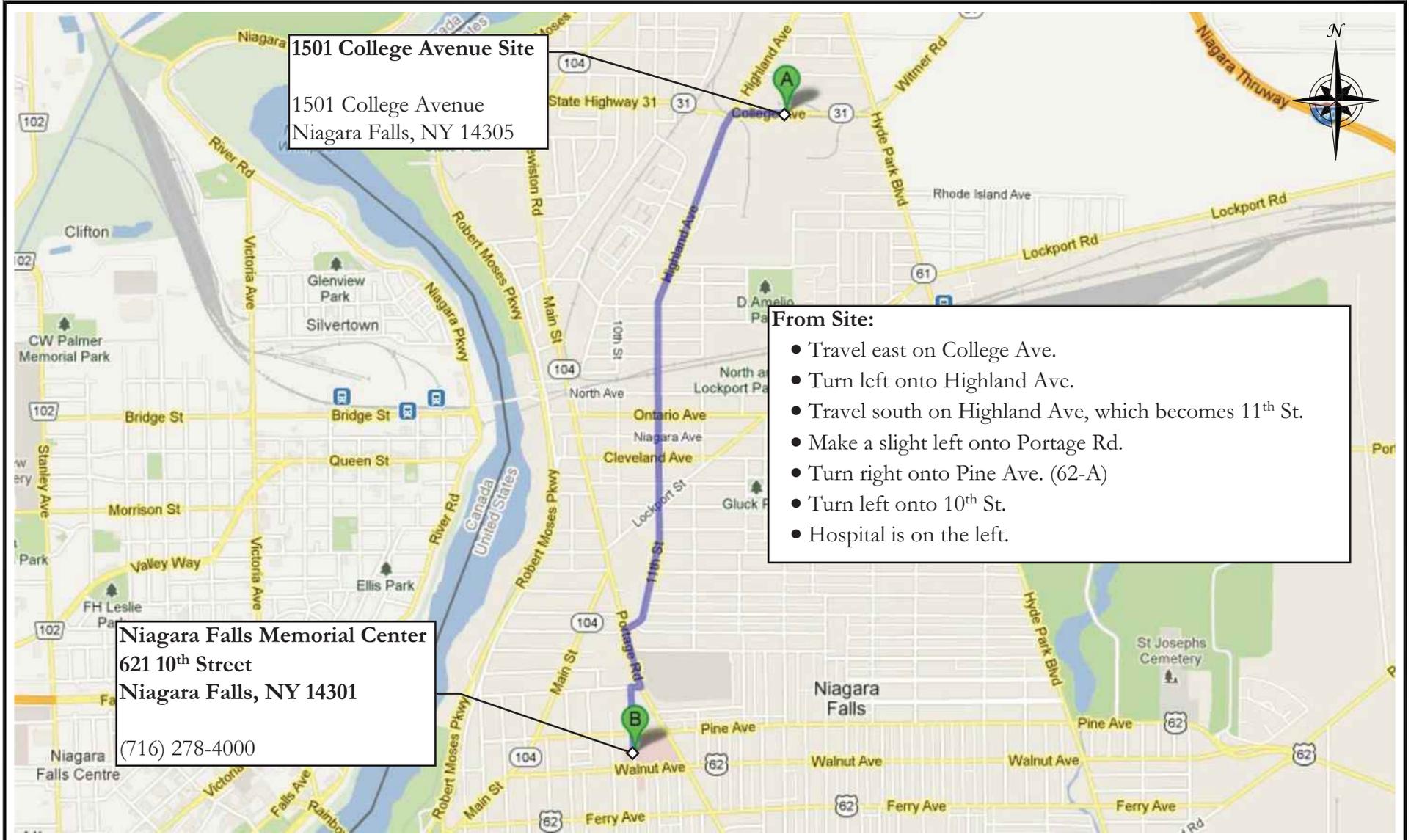
Following an emergency, the SSHO and Project Manager shall review the effectiveness of this Emergency Response Plan (ERP) in addressing notification, control and evacuation requirements. Updates and modifications to this ERP shall be made accordingly. It shall be the responsibility of each contractor to establish and assure adequate records of the following:

- Occupational injuries and illnesses.
- Accident investigations.
- Reports to insurance carrier or State compensation agencies.
- Reports required by the client.
- Records and reports required by local, state, federal and/or international agencies.
- Property or equipment damage.
- Third party injury or damage claims.
- Environmental testing logs.
- Explosive and hazardous substances inventories and records.
- Records of inspections and citations.
- Safety training.

10.0 EMERGENCY RESPONSE TRAINING

All persons who enter the worksite, including visitors, shall receive a site-specific briefing about anticipated emergency situations and the emergency procedures by the SSHO. Where this site relies on off-site organizations for emergency response, the training of personnel in those off-site organizations has been evaluated and is deemed adequate for response to this site.

FIGURES



2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

PROJECT NO.: 0140-001-106

DATE: OCTOBER 2012

DRAFTED BY: JGT

HOSPITAL ROUTE MAP

SITE MANAGEMENT PLAN
1501 COLLEGE AVENUE SITE
NIAGARA FALLS, NEW YORK
PREPARED FOR
SANTAROSA HOLDINGS, INC.

FIGURE A-1

APPENDIX B

HOT WORK PERMIT FORM



HOT WORK PERMIT

PART 1 - INFORMATION

Issue Date:

Date Work to be Performed: Start:

Finish (permit terminated):

Performed By:

Work Area:

Object to be Worked On:

PART 2 - APPROVAL

(for 1, 2 or 3: mark Yes, No or NA)*

Will working be on or in:

Finish (permit terminated):

- | | | |
|--|-----|----|
| 1. Metal partition, wall, ceiling covered by combustible material? | yes | no |
| 2. Pipes, in contact with combustible material? | yes | no |
| 3. Explosive area? | yes | no |

* = If any of these conditions exist (marked "yes"), a permit will not be issued without being reviewed and approved by Thomas H. Forbes (Corporate Health and Safety Director). Required Signature below.

PART 3 - REQUIRED CONDITIONS**

(Check all conditions that must be met)

PROTECTIVE ACTION		PROTECTIVE EQUIPMENT	
<input type="checkbox"/>	Specific Risk Assessment Required	<input type="checkbox"/>	Goggles/visor/welding screen
<input type="checkbox"/>	Fire or spark barrier	<input type="checkbox"/>	Apron/fireproof clothing
<input type="checkbox"/>	Cover hot surfaces	<input type="checkbox"/>	Welding gloves/gauntlets/other:
<input type="checkbox"/>	Move movable fire hazards, specifically	<input type="checkbox"/>	Wellintons/Knee pads
<input type="checkbox"/>	Erect screen on barrier	<input type="checkbox"/>	Ear protection: Ear muffs/Ear plugs
<input type="checkbox"/>	Restrict Access	<input type="checkbox"/>	B.A.: SCBA/Long Breather
<input type="checkbox"/>	Wet the ground	<input type="checkbox"/>	Respirator: Type:
<input type="checkbox"/>	Ensure adequate ventilation	<input type="checkbox"/>	Cartridge:
<input type="checkbox"/>	Provide adequate supports	<input type="checkbox"/>	Local Exhaust Ventilation
<input type="checkbox"/>	Cover exposed drain/floor or wall cracks	<input type="checkbox"/>	Extinguisher/Fire blanket
<input type="checkbox"/>	Fire watch (must remain on duty during duration of permit)	<input type="checkbox"/>	Personal flammable gas monitor
<input type="checkbox"/>	Issue additional permit(s):		

Other precautions:

** Permit will not be issued until these conditions are met.

SIGNATURES

Originating Employee:

Date:

Project Manager:

Date:

Part 2 Approval:

Date:

APPENDIX C

NYSDOH GENERIC COMMUNITY AIR MONITORING PLAN

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical-specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed $150 \text{ mcg}/\text{m}^3$ above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than $150 \text{ mcg}/\text{m}^3$ above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within $150 \text{ mcg}/\text{m}^3$ of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

Appendix 1B Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.
2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.
3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:
 - (a) Objects to be measured: Dust, mists or aerosols;
 - (b) Measurement Ranges: 0.001 to 400 mg/m³ (1 to 400,000 :ug/m³);
 - (c) Precision (2-sigma) at constant temperature: +/- 10 :g/m³ for one second averaging; and +/- 1.5 g/m³ for sixty second averaging;
 - (d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
 - (e) Resolution: 0.1% of reading or 1g/m³, whichever is larger;
 - (f) Particle Size Range of Maximum Response: 0.1-10;
 - (g) Total Number of Data Points in Memory: 10,000;
 - (h) Logged Data: Each data point with average concentration, time/date and data point number
 - (i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
 - (j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
 - (k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
 - (l) Operating Temperature: -10 to 50° C (14 to 122° F);
 - (m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.
4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.
5. The action level will be established at 150 ug/m³ (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m³, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m³ above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m³ continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM₁₀ at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

- (a) Applying water on haul roads;
- (b) Wetting equipment and excavation faces;
- (c) Spraying water on buckets during excavation and dumping;
- (d) Hauling materials in properly tarped or watertight containers;
- (e) Restricting vehicle speeds to 10 mph;
- (f) Covering excavated areas and material after excavation activity ceases; and
- (g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m³ action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

APPENDIX D

SITE-WIDE INSPECTION FORMS



Site Inspection Form

Property Name: _____ Project No.: _____

Client: _____

Property Address: _____ City, State: _____ Zip Code: _____

Preparer's Name: _____ Date/Time: _____

Final Surface Cover / Vegetation

In accordance with the Soil/Fill Management Plan, the integrity of the vegetative soil cover or other surface coverage (e.g., asphalt, concrete) over the entire Site must be maintained. The following documents the condition of the above.

- 1. Final Cover is in Place and in good condition? yes no N/A
Cover consists of (mainly): _____
- 2. Evidence of erosion? yes no N/A
- 3. Cracks visible in pavement? yes no N/A
- 4. Evidence of distressed vegetation/turf? yes no N/A
- 5. Evidence of unintended traffic and/or rutting? yes no N/A
- 6. Evidence of uneven settlement and/or ponding? yes no N/A
- 7. Damage to any surface coverage? yes no N/A

If yes to any question above, please provide more information below.

Property Use Changes / Site Development

Has the property usage changed, or site been redeveloped since the last inspection?
 yes no N/A

If so, please list with date: _____

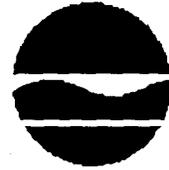
New Information

Has any new information been brought to the owner/inspector's attention regarding any and/or all engineering and institutional controls and their operation and effectiveness?
 yes no N/A

Comments: _____

Notes and Comments

New York State Department of Environmental Conservation
Division of Environmental Remediation, 11th Floor
625 Broadway, Albany, New York 12233-7011
Phone: (518) 402-9553 Fax: (518) 402-9577
Website: www.dec.ny.gov



45-Day Reminder Notice: Site Management Periodic Review

September 29, 2009

Site Name:

Site No.:

Site Address:

, NY

Dear :

This is a reminder that as part of the last phase of a site's remedial program (i.e., "Site Management" (SM)), a progress report for your site is to be submitted by you, the site owner or Remedial Party, to the New York State Department of Environmental Conservation (Department) by . This report, now referred to as the Periodic Review Report (PRR) documents the implementation of and compliance with the Site Management requirements for this site. SM is a concept defined in regulation (6 NYCRR 375-1.2(at)). A suggested outline for the PRR is enclosed. If the site is comprised of multiple properties or parcels, then you as the owner or Remedial Party must arrange to submit one PRR for all parcels that comprise the site.

Depending on the age of the remedial program for your site, the document(s) governing SM for your site will be different. Previously, SM requirements were contained in separate documents with specific titles (e.g., Operation, Maintenance, and Monitoring Plan or Soil Management Plan) and are now being incorporated into one comprehensive "Site Management Plan" (SMP). A SMP may contain one or all of the following elements as applicable to the site; a plan to maintain institutional and/or engineering controls ("IC/EC Plan"), a plan for monitoring the performance and effectiveness of the selected remedy ("Monitoring Plan"), and/or a plan for the operation and maintenance of the selected remedy ("O&M Plan"). Additionally, the requirements for SM are normally stated in the decision document (e.g., Record of Decision) and/or the legal agreement directing the remediation of the site (e.g., order on consent, voluntary agreement, etc.).

When you submit the PRR (by the due date above), please sign and include the enclosed forms documenting that all SM requirements are being met. If there is some reason you cannot certify that all SM requirements are being met, you should indicate this and include a statement of explanation in the PRR with a schedule for addressing the problem(s). The Periodic Review process will not be considered complete until all necessary corrective measures are completed and any required controls are certified. Instructions for completing the certifications are enclosed.

Enclosures

ec: , Project Manager
, Bureau Director
Hazardous Waste Remediation Engineer, Region
Gary Litwin, DOH

cc:

Enclosure
Periodic Review Report (PRR) General Guidance

I. Introduction: (½-page or less)

- A. Provide a brief summary of site, nature and extent of contamination, and remedial history.
- B. Effectiveness of the Remedial Program - Provide overall conclusions regarding;
 - 1. progress made during the reporting period toward meeting the remedial objectives for the site
 - 2. the ultimate ability of the remedial program to achieve the remedial objectives for the site.
- C. Compliance
 - 1. Identify any areas of non-compliance regarding the major elements of the Site Management Plan (SMP, i.e., the Institutional/Engineering Control (IC/EC) Plan, the Monitoring Plan, and the Operation & Maintenance (O&M) Plan).
 - 2. Propose steps to be taken and a schedule to correct any areas of non-compliance.
- D. Recommendations
 - 1. recommend whether any changes to the SMP are needed
 - 2. recommend any changes to the frequency for submittal of PRRs (increase, decrease)
 - 3. recommend whether the requirements for discontinuing site management have been met.

II. Site Overview (one page or less)

- A. Describe the site location, boundaries (figure), significant features, surrounding area, and the nature and extent of contamination prior to site remediation.
- B. Describe the chronology of the main features of the remedial program for the site, the components of the selected remedy, cleanup goals, site closure criteria, and any significant changes to the selected remedy and site that have been made since remedy selection.

III. Evaluate Remedy Performance, Effectiveness, and Protectiveness

- A. Using tables, graphs, charts and bulleted text to the extent practicable, describe the effectiveness of the remedy in achieving the remedial goals for the site. Base findings, recommendations, and conclusions on objective data. Evaluations should be presented simply and concisely.

IV. IC/EC Plan Compliance Report (if applicable)

- A. IC/EC Requirements and Compliance
 - 1. Describe each control, its objective, and how performance of the control is evaluated.
 - 2. Summarize the status of each goal (whether it is fully in place and its effectiveness).
 - 3. Corrective Measures: describe steps proposed to address any deficiencies in ICECs.
 - 4. Conclusions and recommendations for changes.
- B. IC/EC Certification
 - 1. The certification must be complete (even if there are IC/EC deficiencies), and certified by the appropriate party as set forth in a Department-approved certification form(s).

V. Monitoring Plan Compliance Report (if applicable)

- A. Components of the Monitoring Plan (tabular presentations preferred) - Describe the requirements of the monitoring plan by media (i.e., soil, groundwater, sediment, etc.) and by any remedial technologies being used at the site.
- B. Summary of Monitoring Completed During Reporting Period - Describe the monitoring tasks actually completed during this PRR reporting period. Tables and/or figures should be used to show all data.
- C. Comparisons with Remedial Objectives - Compare the results of all monitoring with the remedial objectives for the site. Include trend analyses where possible.
- D. Monitoring Deficiencies - Describe any ways in which monitoring did not fully comply with the monitoring plan.
- E. Conclusions and Recommendations for Changes - Provide overall conclusions regarding the monitoring completed and the resulting evaluations regarding remedial effectiveness.

VI. Operation & Maintenance (O&M) Plan Compliance Report (if applicable)

- A. Components of O&M Plan - Describe the requirements of the O&M plan including required activities, frequencies, recordkeeping, etc.
- B. Summary of O&M Completed During Reporting Period - Describe the O&M tasks actually completed during this PRR reporting period.
- C. Evaluation of Remedial Systems - Based upon the results of the O&M activities completed, evaluate the ability of each component of the remedy subject to O&M requirements to perform as designed/expected.
- D. O&M Deficiencies - Identify any deficiencies in complying with the O&M plan during this PRR reporting period.
- E. Conclusions and Recommendations for Improvements - Provide an overall conclusion regarding O&M for the site and identify problems, their severity, and any suggested improvements requiring changes in the O&M Plan.

VII. Overall PRR Conclusions and Recommendations

- A. Compliance with SMP - For each component of the SMP (i.e., IC/EC, monitoring, O&M), summarize;
 - 1. whether all requirements of each plan were met during the reporting period
 - 2. any requirements not met such as new completed exposure pathways resulting in unacceptable risk
 - 3. proposed plans and a schedule for coming into full compliance.
- B. Performance and Effectiveness of the Remedy - Based upon your evaluation of the components of the SMP, form conclusions about the performance of each component and the ability of the remedy to achieve the remedial objectives for the site.
- C. Future PRR Submittals
 - 1. Recommend, with supporting justification, whether the frequency of the submittal of PRRs should be changed (either increased or decreased).
 - 2. If the requirements for site closure have been achieved, contact the Department's Project Manager for the site to determine what, if any, additional documentation is needed to support a decision to discontinue site management.

VIII. Additional Guidance

- A. Additional guidance regarding the preparation and submittal of an acceptable PRR can be obtained from the Department's Project Manager for the site.

WHERE to mail the signed Certification Form by :

New York State Department of Environmental Conservation

Attn: , Project Manager

Please note that extra postage may be required.



Enclosure 1
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
 Site Management Periodic Review Report Notice
 Institutional and Engineering Controls Certification Form



Site Details	Box 1
Site No.	
Site Name	
Site Address: Zip Code:	
City/Town:	
County:	
Allowable Use(s) (if applicable, does not address local zoning):	
Site Acreage:	
Owner:	
, , NY	
Reporting Period: to	

Verification of Site Details	Box 2	
	YES	NO
1. Is the information in Box 1 correct?	<input type="checkbox"/>	<input type="checkbox"/>
If NO, are changes handwritten above or included on a separate sheet?	<input type="checkbox"/>	
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?	<input type="checkbox"/>	<input type="checkbox"/>
If YES, is documentation or evidence that documentation has been previously submitted included with this certification?	<input type="checkbox"/>	
3. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?	<input type="checkbox"/>	<input type="checkbox"/>
If YES, is documentation (or evidence that documentation has been previously submitted) included with this certification?	<input type="checkbox"/>	
4. If use of the site is restricted, is the current use of the site consistent with those restrictions?	<input type="checkbox"/>	<input type="checkbox"/>
If NO, is an explanation included with this certification?	<input type="checkbox"/>	
5. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), has any new information revealed that assumptions made in the Qualitative Exposure Assessment regarding offsite contamination are no longer valid?	<input type="checkbox"/>	<input type="checkbox"/>
If YES, is the new information or evidence that new information has been previously submitted included with this Certification?	<input type="checkbox"/>	
6. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), are the assumptions in the Qualitative Exposure Assessment still valid (must be certified every five years)?	<input type="checkbox"/>	<input type="checkbox"/>
If NO, are changes in the assessment included with this certification?	<input type="checkbox"/>	

SITE NO.

Box 3

Description of Institutional Controls

Box 4

Description of Engineering Controls

Periodic Review Report (PRR) Certification Statements

- 1. I certify by checking "YES" below that:
 - a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;
 - b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and complete.

YES NO

- 2. If this site has an IC/EC Plan (or equivalent as required in the Decision Document), for each Institutional or Engineering control listed in Boxes 3 and/or 4, I certify by checking "YES" below that all of the following statements are true:
 - (a) the Institutional Control and/or Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;
 - (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;
 - (c) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control;
 - (d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and
 - (e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

YES NO

- 3. If this site has an Operation and Maintenance (O&M) Plan (or equivalent as required in the Decision Document);

I certify by checking "YES" below that the O&M Plan Requirements (or equivalent as required in the Decision Document) are being met.

YES NO

- 4. If this site has a Monitoring Plan (or equivalent as required in the remedy selection document);

I certify by checking "YES" below that the requirements of the Monitoring Plan (or equivalent as required in the Decision Document) is being met.

YES NO

**IC CERTIFICATIONS
SITE NO.**

Box 6

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 2 and/or 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as _____ (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Signature of Owner or Remedial Party Rendering Certification

Date

IC/EC CERTIFICATIONS

Box 7

QUALIFIED ENVIRONMENTAL PROFESSIONAL (QEP) SIGNATURE

I certify that all information in Boxes 4 and 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as a Qualified Environmental Professional for the _____

(Owner or Remedial Party) for the Site named in the Site Details Section of this form.

Signature of Qualified Environmental Professional, for
the Owner or Remedial Party, Rendering Certification

Stamp (if Required)

Date

Enclosure 2

Certification Instructions

I. Verification of Site Details (Box 1 and Box 2):

Answer the six questions in the Verification of Site Details Section. Questions 5 and 6 only refer to sites in the Brownfield Cleanup Program. The Owner and/or Qualified Environmental Professional (QEP) may include handwritten changes and/or other supporting documentation, as necessary.

II. Certification of Institutional / Engineering Controls (Boxes 3, 4, and 5)

1. Review the listed IC/ECs, confirming that all existing controls are listed, and that all existing controls are still applicable. If there is a control that is no longer applicable the Owner / Remedial Party is to petition the Department requesting approval to remove the control.
2. In Box 5, complete certifications for all Plan components, as applicable, by checking the corresponding checkbox.
3. If you cannot certify "YES" for each Control and/or certify the other SM Plan components that are applicable, continue to complete the remainder of this **Certification** form. Attach supporting documentation that explains why the **Certification** cannot be rendered, as well as a statement of proposed corrective measures, and an associated schedule for completing the corrective measures. Note that this **Certification** form must be submitted even if an IC or EC cannot be certified; however, the certification process will not be considered complete until corrective action is completed.

If the Department concurs with the explanation, the proposed corrective measures, and the proposed schedule, a letter authorizing the implementation of those corrective measures will be issued by the Department's Project Manager. Once the corrective measures are complete, a new Periodic Review Report (with IC/EC Certification) is to be submitted within 45 days to the Department. If the Department has any questions or concerns regarding the PRR and/or completion of the IC/EC Certification, the Project Manager will contact you.

III. IC/EC Certification by Signature (Box 6 and Box 7):

If you certified "YES" for each Control, please complete and sign the IC/EC Certifications page. Where the only control is an Institutional Control on the use of the property the certification statement in Box 6 shall be completed and may be made by the property owner. Where the site has Institutional and Engineering Controls, the certification statement in Box 7 must be completed by a Professional Engineer or Qualified Environmental Professional (see table below).

Table 1. Signature Requirements for Control Certification Page		
Type of Control	Example of IC/EC	Required Signatures
EC which does not include a treatment system or engineered caps.	Fence, Clean Soil Cover, Individual House Water Treatment System, Vapor Mitigation System	A site or property owner or remedial party, and a QEP. (P.E. license not required)
EC that includes treatment system or an engineered cap.	Pump & Treat System providing hydraulic control of a plume, Part 360 Cap.	A site or property owner or remedial party, and a QEP with a P.E. license.

APPENDIX E

EXAMPLE QUALITY ASSURANCE PROJECT PLAN (QAPP)

QUALITY ASSURANCE PROJECT PLAN

For BCP ACTIVITIES

**1501 COLLEGE AVENUE SITE
NIAGARA FALLS, NEW YORK
BCP SITE No. C932134**

October 2012

0140-001-106

Prepared for:

SANTAROSA HOLDINGS, INC.

QUALITY ASSURANCE PROJECT PLAN (QAPP)

150 College Avenue Site

Table of Contents

1.0	INTRODUCTION.....	1
1.1	Site Location and Description.....	1
1.2	Site Environmental History.....	1
1.3	Scope of the QAPP	3
2.0	PROJECT ORGANIZATION AND RESPONSIBILITY.....	5
2.1	NYSDEC and NYSDOH	5
2.2	Property Owner.....	5
2.3	Project Manager	5
2.4	Field Team Leader:.....	6
2.5	Quality Assurance (QA) Officer.....	7
2.6	Laboratory Responsibilities	7
3.0	QUALITY ASSURANCE OBJECTIVES FOR MEASUREMENT DATA	9
3.1	Level of QC Effort for Sample Parameters.....	9
4.0	SAMPLE CUSTODY PROCEDURES.....	11
4.1	Field Custody Procedures	11
4.1.1	<i>Sample Storage</i>	<i>11</i>
4.1.2	<i>Sample Custody</i>	<i>11</i>
4.1.3	<i>Sample Tracking.....</i>	<i>13</i>
5.0	CALIBRATION PROCEDURES AND FREQUENCY	14
5.1	Field Instrument Calibration	14
5.2	Preventative Maintenance	14
6.0	DATA VALIDATION AND REPORTING.....	15
6.1	Data Usability Evaluation.....	15
6.1.1	<i>Procedures Used to Evaluate Field Data Usability</i>	<i>15</i>
6.1.2	<i>Procedures Used to Evaluate Laboratory Data Usability</i>	<i>15</i>
6.2	Data Reporting.....	16
6.2.1	<i>Field Data Reporting.....</i>	<i>16</i>
6.2.2	<i>Laboratory Data Reporting.....</i>	<i>16</i>
7.0	CORRECTIVE ACTION.....	17
7.1	Field Corrective Action.....	17
7.2	Laboratory Corrective Action	18
7.3	Data Validation & Assessment Corrective Action	18

QUALITY ASSURANCE PROJECT PLAN (QAPP)

150 College Avenue Site

Table of Contents

LIST OF TABLES

Table 1	Sample Container, Volume, Preservative, and Holding Time Requirements
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1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) is an appendix to the Site Management Plan (SMP), which is required as an element of the remedial program at the 1501 College Avenue Site (hereinafter referred to as the “Site”) under the New York State (NYS) Brownfield Cleanup Program (BCP), administered by New York State Department of Environmental Conservation (NYSDEC). The site was remediated in accordance with Brownfield Cleanup Agreement (BCA) Index #B9-0757-07-10, Site # C932134, which was executed on December 13, 2007 and last amended on December 17, 2010.

1.1 Site Location and Description

The 1501 College Avenue Site is located in the City of Niagara Falls, Niagara County, New York. The approximate 12.4-acre Site is comprised of two adjoining parcels as identified below.

- 1501 College Avenue - SBL 130-18-2-3.211 (12.25-acre portion of a larger 15.0 acre parcel)
- 1655 College Avenue - SBL 130.18-2-3.212 (0.16-acre parcel)

The Site is bordered by a railroad, College Avenue and industrial property to the north, and commercial/industrial property to the south, east and west. The boundaries of the site are more fully described in the Environmental Easement (see Appendix B of the SMP).

1.2 Site Environmental History

Benchmark conducted a Phase I Environmental Site Assessment (ESA) in August 2007 for the Site. Benchmark identified several areas of concern: evidence of illegal dumping; various debris piles, automobile parts, abandoned automobiles, abandoned tanker trucks, drums of unknown liquid and solid contents, sacks of unknown granular or solid materials, aboveground storage tanks (ASTs), and household debris located throughout the interior and exterior the Site.

Benchmark conducted a limited Preliminary Environmental Investigation at the 1501 College Avenue Site in August 2007. The Limited Preliminary Environmental Investigation

involved collecting four surface soil samples, one galbestos roof-covering sample, two debris pile samples, and one paint chip sample. The samples indicated that polyaromatic hydrocarbons (PAHs), metals, and PCBs were present on-site above the NYSDEC 375 restricted-industrial SCOs.

Santarosa Holdings, Inc. elected to pursue cleanup and redevelopment of the Site under the New York State Brownfield Cleanup Program (BCP), and executed a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) on December 13, 2007, and amended December 17, 2010 (BCP Site No. C932134). Santarosa Holdings submitted a Remedial Investigation/Alternatives Analysis Report (RI/AAR) Work Plan, which was approved on January 4, 2008 and an Interim Remedial Measures Work Plan, which was approved on June 11, 2008. Due to poor economic conditions, the NYSDEC granted Santarosa Holdings an extension to delay the RI and IRM work until summer 2010. TurnKey performed RI activities at the Site during September and October 2010. Upon completion of the RI field activities, Santarosa met with NYSDEC personnel to discuss the scope of the planned IRM and subsequently submitted a letter with additional details of the planned IRM in letter work plan dated November 12, 2010, which was approved by NYSDEC on November 18, 2010. IRM activities were conducted at the Site from December 2010 to June 2011.

A RI was completed to characterize the nature and extent of contamination at the Site. Remedial investigation field activities included: advancement of soil borings and monitoring well installation; excavation of test pits; and surface soil, subsurface soil and groundwater sampling. The IRM fieldwork generally included: excavation and off-Site disposal of impacted soil/fill; backfill/Site restoration; demolition of former buildings; removal and off-site disposal of galbestos roofing material; loading and off-Site disposal of a soil/fill/debris piles; removal of multiple drums and product containers; reutilization of approved building material for backfill and surface grading; and placement of soil cover.

Based on the Alternatives Analysis evaluation, it was concluded that the remedial alternative that included the completed IRM, together with implementation of a Site Management Plan, satisfies the remedial action objectives and is protective of human health and the environment, and that remedy was selected as the final remedial approach for the 1501 College Avenue Site.

1.3 Scope of the QAPP

This QAPP was prepared to provide quality assurance (QA) guidelines to be implemented post-remedial activities. The QAPP will assure the accuracy and precision of data collection during post-remedial Site characterization and data interpretation. The QAPP identifies procedures for sample collection to mitigate the potential for cross-contamination, as well as analytical requirements necessary to allow for independent data validation. The QAPP has been prepared in accordance with USEPA's Requirements for Quality Assurance Project Plans for Environmental Data Operations; the EPA Region II CERCLA Quality Assurance Manual, and NYSDEC's DER-10 Technical Guidance for Site Investigation and Remediation (May 2010). This document may be modified for subsequent phases of investigative work, as necessary.

The QAPP provides:

- A means to communicate to the persons executing the various activities exactly what is to be done, by whom, and when;
- A culmination to the planning process that ensures that the program includes provisions for obtaining quality data (e.g., suitable methods of field operations);
- A document that can be used by the Project Manager's and QA Officer to assess if the activities planned are being implemented and their importance for accomplishing the goal of quality data;
- A plan to document and track project data and results; and,
- Detailed descriptions of the data documentation materials and procedures, project files, and tabular and graphical reports.

The QAPP is primarily concerned with the quality assurance and quality control aspects of the procedures involved in the collection, preservation, packaging, and transportation of samples; field testing; record keeping; data management; chain-of-custody procedures; laboratory analyses; and other necessary matters to assure that the investigation activities, once completed, will yield data whose integrity can be defended.

QA refers to the conduct of all planned and systematic actions necessary to perform satisfactorily all task-specific activities and to provide information and data confidence as a result of such activities. The QA for task-specific activities includes the development of procedures, auditing, monitoring and surveillance of the performance.

QC refers to the activity performed to determine if the work activities conform to the requirements. This includes activities such as inspections of the work activities in the field (e.g., verification that the items and materials installed conform to applicable codes and design specifications). QA is an overview monitoring of the performance of QC activities through audits rather than first time inspections.

2.0 PROJECT ORGANIZATION AND RESPONSIBILITY

The following section provides a generic organization for sampling activities, including roles, responsibilities, and required qualifications of these organizations.

2.1 NYSDEC and NYSDOH

It is the responsibility of the New York State Department of Environmental Conservation (NYSDEC), in conjunction with the New York State Department of Health, to review the project documents for completeness and conformance with the site-specific cleanup objectives and to make a decision to accept or reject these documents based on this review. The NYSDEC also has the responsibility and authority to review and approve all QA documentation collected during brownfield cleanup construction and to confirm that the QA Plan was followed.

2.2 Property Owner

The property owner (Owner), or holder of the certificate of completion (COC) will be responsible for complying with the QA requirements as specified herein and for monitoring and controlling the quality of the Brownfield cleanup activities either directly or through their designated environmental consultant and/or legal counsel. The Owner will also have the authority to select Contractor(s) to assist them in fulfilling these responsibilities. The Owner is responsible for implementing the project, and has the authority to commit the resources necessary to meet project objectives and requirements.

2.3 Project Manager

The Project Manager has the responsibility for ensuring that the project meets the overall project objectives, reports directly to the Owner, coordinates with the NYSDEC/NYSDOH Project Coordinators, and is responsible for technical and project oversight. The PM will:

- o Define project objectives and develop a detailed work plan schedule.
- o Establish project policy and procedures to address the specific needs of the project as a whole, as well as the objectives of each task.

- o Acquire and apply technical and corporate resources as needed to assure performance within budget and schedule constraints.
- o Develop and meet ongoing project and/or task staffing requirements, including mechanisms to review and evaluate each task product.
- o Review the work performed on each task to assure its quality, responsiveness, and timeliness.
- o Review and analyze overall task performance with respect to planned requirements and authorizations.
- o Review and approve all deliverables before their submission to NYSDEC.
- o Develop and meet ongoing project and/or task staffing requirements, including mechanisms to review and evaluate each task product.
- o Ultimately be responsible for the preparation and quality of interim and final reports.
- o Represent the project team at meetings.

2.4 Field Team Leader:

The Field Team Leader (FTL) has the responsibility for implementation of specific project tasks identified at the Site, and is responsible for the supervision of project field personnel, subconsultants, and subcontractors. The FTL reports directly to the Project Manager. The FTL will:

- o Define daily develop work activities.
- o Orient field staff concerning the project's special considerations.
- o Monitor and direct subcontractor personnel.
- o Review the work performed on each task to ensure its quality, responsiveness, and timeliness.
- o Assure that field activities, including sample collection and handling, are carried out in accordance with this QAPP.

2.5 Quality Assurance (QA) Officer

The QA Officer will have direct access to corporate executive staff as necessary, to resolve any QA dispute, and is responsible for auditing the implementation of the QA program in conformance with the demands of specific investigations and policies, and NYSDEC requirements. Specific function and duties include:

- o Performing QA audits on various phases of the field operations.
- o Reviewing and approving QA plans and procedures.
- o Providing QA technical assistance to project staff.
- o Reporting on the adequacy, status, and effectiveness of the QA program on a regular basis to the Project Manager for technical operations.
- o Responsible for assuring third party data review of all sample results from the analytical laboratory.

2.6 Laboratory Responsibilities

Any environmental laboratory utilized for sample analysis for this Site must be an independent, NY State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified facility approved to perform the analyses prescribed herein.

- Laboratory Director:

The Laboratory Director is a technical advisor and is responsible for summarizing and reporting overall unit performance. Responsibilities of the TestAmerica Laboratory Director include:

- o Provide technical, operational, and administrative leadership.
- o Allocation and management of personnel and equipment resources.
- o Quality performance of the facility.
- o Certification and accreditation activities.
- o Blind and reference sample analysis.

- Quality Assurance Manager (QA Manager):

The QA Manager has the overall responsibility for data after it leaves the laboratory. The QA Manager will be independent of the laboratory but will communicate data issues through the Laboratory Director. In addition, the QA Manager will:

- o Oversee laboratory QA.
- o Oversee QA/QC documentation.
- o Conduct detailed data review.
- o Determine whether to implement laboratory corrective actions, if required.
- o Define appropriate laboratory QA procedures.
- o Prepare laboratory SOPs.

3.0 QUALITY ASSURANCE OBJECTIVES FOR MEASUREMENT DATA

The overall objectives and criteria for assuring quality for this effort are discussed below. This QAPP addresses how the acquisition and handling of samples and the review and reporting of data will be documented. The objectives of this QAPP are to address the following:

- The procedures to be used to collect, preserve, package, and transport groundwater samples.
- Field data collection.
- Record keeping.
- Data management.
- Chain-of-custody procedures.
- Precision, accuracy, completeness, representativeness, for sample analysis and data management under EPA analytical methods.

3.1 Level of QC Effort for Sample Parameters

Field blank, method blank, trip blank, field duplicate, laboratory duplicate, laboratory control, standard reference materials (SRM) and matrix spike samples will be analyzed to assess the quality of the data resulting from the field sampling and analytical programs. QC samples are discussed below.

- Field and trip blanks consisting of distilled water will be submitted to the analytical laboratories to provide the means to assess the quality of the data resulting from the field-sampling program. Field (equipment) blank samples are analyzed to check for procedural chemical constituents at the facility that may cause sample contamination. Trip blanks are used to assess the potential for contamination of samples due to contaminant migration during sample shipment and storage.
- Method blank samples are generated within the laboratory and used to assess contamination resulting from laboratory procedures.

- Duplicate samples are analyzed to check for sampling and analytical reproducibility.
- MS/MSD and MS/Duplicate samples provide information about the effect of the sample matrix on the digestion and measurement methodology. Depending on site-specific circumstances, one MS/MSD or MS/Duplicate should be collected for every 20 or fewer investigative samples to be analyzed for organic and inorganic chemicals of a given matrix.

The general level of QC effort will be one field (blind) duplicate and one field blank (when non-dedicated equipment is used) for every 20 or fewer investigative samples of a given matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific MS/MSD or MS/Duplicate for every 20 or fewer investigative samples of a given matrix. One trip blank consisting of distilled, deionized water will be included along with each sample delivery group of aqueous VOC samples.

4.0 SAMPLE CUSTODY PROCEDURES

Sample custody is controlled and maintained through the chain-of-custody procedures. Chain of custody is the means by which the possession and handling of samples will be tracked from the source (field) to their final disposition, the laboratory. A sample is considered to be in a person's custody if it is in the person's possession or it is in the person's view after being in his or her possession or it was in that person's possession and that person has locked it in a vehicle or room. Sample containers will be cleaned and preserved at the laboratory before shipment to the Site.

4.1 Field Custody Procedures

Sample custody is controlled and maintained through the chain-of-custody procedures. Chain of custody is the means by which the possession and handling of samples will be tracked from the source (field) to their final disposition, the laboratory. A sample is considered to be in a person's custody if it is in the person's possession or it is in the person's view after being in his or her possession or it was in that person's possession and that person has locked it in a vehicle or room. Sample containers will be cleaned and preserved at the laboratory before shipment to the Site.

4.1.1 Sample Storage

Samples are stored in secure limited-access areas. Walk-in coolers or refrigerators are maintained at 4°C, \pm 2°C, or as required by the applicable regulatory program. The temperatures of all refrigerated storage areas are monitored and recorded a minimum of once per day. Deviations of temperature from the applicable range require corrective action, including moving samples to another storage location if necessary. Sample parameter lists, holding times and sample container requirements are summarized on Table 1.

4.1.2 Sample Custody

Sample custody is defined by this document as when any of the following occur:

- It is in someone's actual possession.
- It is in someone's view after being in his or her physical possession.

- It was in someone's possession and then locked, sealed, or secured in a manner that prevents unsuspected tampering.
- It is placed in a designated and secured area.

Samples are removed from storage areas by the sample custodian or analysts and transported to secure laboratory areas for analysis. Access to the laboratory and sample storage areas is restricted to laboratory personnel and escorted visitors only; all areas of the laboratory are therefore considered secure. If required by the applicable regulatory program, internal chain-of-custody is documented in a log by the person moving the samples between laboratory and storage areas.

Laboratory documentation used to establish COC and sample identification may include the following:

- Field COC forms or other paperwork that arrives with the sample.
- The laboratory COC.
- Sample labels or tags are attached to each sample container.
- Sample custody seals.
- Sample preparation logs (i.e., extraction and digestion information) recorded in hardbound laboratory books that are filled out in legible handwriting, and signed and dated by the chemist.
- Sample analysis logs (e.g., metals, GC/MS, etc.) information recorded in hardbound laboratory books that are filled out in legible handwriting, and signed and dated by the chemist.
- Sample storage log (same as the laboratory COC).
- Sample disposition log, which documents sample disposal by a contracted waste disposal company.

4.1.3 Sample Tracking

All samples are maintained in the appropriate coolers prior to and after analysis. The analysts remove and return their samples as needed. Samples that require internal COC are relinquished to the analysts by the sample custodians. The analyst and sample custodian must sign the original COC relinquishing custody of the samples from the sample custodian to the analyst. When the samples are returned, the analyst will sign the original COC returning sample custody to the sample custodian. Sample extracts are relinquished to the instrumentation analysts by the preparatory analysts. Each preparation department tracks internal COC through their logbooks/spreadsheets.

Any change in the sample during the time of custody will be noted on the COC (e.g., sample breakage or depletion).

5.0 CALIBRATION PROCEDURES AND FREQUENCY

This section describes the calibration procedures and the frequency at which these procedures will be performed for both field and laboratory instruments.

5.1 Field Instrument Calibration

Quantitative field data to be obtained during groundwater sampling include pH, turbidity, specific conductance, temperature, dissolved oxygen and depth to groundwater. Quantitative water level measurements will be obtained with an electronic sounder or steel tape, which require no calibration. Quantitative field data to be obtained during soil sampling include screening for the presence of volatile organic constituents using a photoionization detector (PID).

5.2 Preventative Maintenance

Each piece of field equipment is checked according to its routine maintenance schedule and before field activities begin. Field equipment that may be used at the Site includes:

- Photoionization detector (PID)
- Water quality meters (includes pH, turbidity, temperature, Eh, and specific conductance)
- Electric water level indicator

Field personnel will report all equipment maintenance and/or replacement needs to the Project QA Officer and will record the information on the daily field record.

6.0 DATA VALIDATION AND REPORTING

All data generated through field activities, or by the laboratory operation shall be reduced and validated (as required in the SMP) before reported.

6.1 Data Usability Evaluation

If requested by the NYSDEC, data evaluation will be performed by a third party data validator using the most current methods and quality control criteria from the USEPA's Contract Laboratory Program (CLP) *National Functional Guidelines for Organic Data Review*, and Contract Laboratory Program, *National Functional Guidelines for Inorganic Data Review*.

6.1.1 Procedures Used to Evaluate Field Data Usability

The performance of all field activities, calibration checks on all field instruments at the beginning of each day of use, manual checks of field calculations, checking for transcription errors and review of field log books is the responsibility of the Field Team Leader.

6.1.2 Procedures Used to Evaluate Laboratory Data Usability

Data evaluation will be performed by the third party data validator using the most current methods and quality control criteria from the USEPA's Contract Laboratory Program (CLP) *National Functional Guidelines for Organic Data Review*, and Contract Laboratory Program, *National Functional Guidelines for Inorganic Data Review*. The data review guidance will be used only to the extent that it is applicable to the SW-846 methods; SW-846 methodologies will be followed primarily and given preference over CLP when differences occur. Also, results of blanks, surrogate spikes, MS/MSDs, and laboratory control samples will be reviewed/evaluated by the data validator. All sample analytical data for each sample matrix shall be evaluated. The third party data validation expert will also evaluate the overall completeness of the data package. Completeness checks will be administered on all data to determine whether deliverables specified in this QAPP are present. The reviewer will determine whether all required items are present and request copies of missing deliverables.

6.2 Data Reporting

6.2.1 Field Data Reporting

All field documents will be accounted for when they are completed. Accountable documents include items such as field notebooks, sample logs, field data records, photographs, data packages, computer disks, and reports.

6.2.2 Laboratory Data Reporting

Analytical data will be summarized in tabular format with such information as sample identification, sample matrix description, parameters analyzed and their corresponding detected concentrations, and the detection limit. Analytical results will be incorporated into reports as data tables, maps showing sampling locations and analytical results, and supporting text.

7.0 CORRECTIVE ACTION

Corrective action is the process of identifying, recommending, approving, and implementing measures to counter unacceptable procedures or out of quality control performance that can affect data quality. Corrective action can occur during field activities, laboratory analyses, data validation, and data assessment. All corrective action proposed and implemented should be documented in the regular quality assurance reports to management. Corrective action should be implemented only after approval by the Project Manager, or his/her designee. If immediate corrective action is required, approvals secured by telephone from the Project Manager should be documented in an additional memorandum.

7.1 Field Corrective Action

If errors in field procedures are discovered during the observation or review of field activities by the Project QA Officer or his/her designee, corrective action will be initiated. Nonconformance to the QA/QC requirements of the field operating procedures will be identified by field audits or immediately by project staff who know or suspect that a procedure is not being performed in accordance with the requirements. The Project QA Officer or his designee will be informed immediately upon discovery of all deficiencies. Timely action will be taken if corrective action is necessary.

Corrective action in the field may be needed when the sample network is changed (i.e., more/less samples, sampling locations other than those specified in the Work Plan, etc.) or when sampling procedures and/or field analytical procedures require modification due to unexpected conditions. In general, the Project Manager and QA Officer may identify the need for corrective action. The Project Manager will approve the corrective measure that will be implemented by the field team. It will be the responsibility of the Project Manager to ensure that corrective action has been implemented.

If the corrective action will supplement the existing sampling using existing and approved procedures in the QAPP, corrective action approved by the Project Manager will be documented. If the corrective actions result in less samples (or analytical fractions), alternate locations, etc., which may result in non-achievement of project QA objectives, it will be necessary that all levels of project management, including the NYSDEC Project Coordinator, concur with the proposed action.

Corrective actions will be implemented and documented in the project field record book. No staff member will initiate corrective action without prior communication of findings through the proper channels. If corrective actions are insufficient, work may be stopped by the NYSDEC Project Coordinator.

If at any time a corrective action issue is identified which directly impacts project data quality objectives, the NYSDEC Project Coordinator will be notified immediately.

7.2 Laboratory Corrective Action

Corrective actions may be initiated if the quality assurance goals are not achieved. The initial step in a corrective action is to instruct the analytical laboratory to examine its procedures to assess whether analytical or computational errors caused the anomalous result. If no error in laboratory procedures or sample collection and handling procedures can be identified, then the Project Manager will assess whether reanalysis or resampling is required or whether any protocol should be modified for future sampling events.

7.3 Data Validation & Assessment Corrective Action

The need for corrective action may be identified during the data validation or assessment processes. Potential types of corrective action may include resampling by the field team, or reinjection/reanalysis of samples by the laboratory.

These actions are dependent upon the ability to mobilize the field team, whether the data to be collected is necessary to meet the QA objectives (e.g., the holding time for samples is not exceeded, etc.). If the data validator identifies a corrective action situation, the Project Manager will be responsible for approving the corrective action implementation. All required corrective actions will be documented by the laboratory Quality Assurance Coordinator.

TABLES



TABLE 1

SAMPLE CONTAINER, VOLUME, PRESERVATION & HOLDING TIME REQUIREMENTS

SMP QAPP

Matrix	Parameter ¹	Method ¹	Container Type	Minimum Volume	Preservation (Cool to 2-4 °C for all samples)	Holding Time from Sample Date
Soil/Sediment	TCL + STARS VOCs + MTBE	8260B	WMG	16 oz.	Cool to 2-4 °C, Zero Headspace	14 days
	TCL SVOCs & Tetraethyl Lead	8270C	WMG	16 oz.	Cool to 2-4 °C	14 days extrac./40 days
	TAL Metals & Total Lead	6010B	WMG	4 oz.	Cool to 2-4 °C	6 months/Hg 28 days
	Pesticides	8081	WMG	8oz	Cool to 2-4 °C	14 days extrac./40 days
	Herbicides	8151	WMG	8oz	Cool to 2-4 °C	14 days extrac./40 days
	PCBs	8082	WMG	4 oz.	Cool to 2-4 °C	14 days extrac./40 days
Groundwater	TCL + STARS VOCs + MTBE	8260B	glass vial	3 - 4 oz.	HCl to pH<2, Zero Headspace, Cool to 2-4 °C	14 days
	TCL SVOCs & Tetraethyl Lead	8270C	amber glass	1000 ml	Cool to 2-4 °C	7 days extrac/40 days
	TAL Metals & total Lead	6010B	plastic	600 ml	HNO ₃ to pH<2, Cool to 2-4 °C	6 months/Hg 28 days
	PCBs	8082	amber glass	1000 ml	Cool to 2-4 °C	7 days extrac/40 days

References:

1. Test Methods for Evaluating Solid Wastes, USEPA SW-846, Update III, 1991.

Notes:

1. EPA-approved methods published in Reference 1 above may be used. The list of analytes, laboratory method and the method detection limit for each parameter are included in Tables 1 and 2 of the QAPP.

Acronyms:

- VOCs = Volatile Organic Compounds
- SVOCs = Semi-Volatile Organic Compounds
- TCL = Target Compound List
- TAL = Target Analyte List
- WMG = Wide Mouth Glass

APPENDIX F

ELECTRONIC COPY