REMEDIAL INVESTIGATION WORK PLAN

Former A & A Metals Site
NYSDEC Site #961011

90 Washington Boulevard
Village of Perry, Wyoming County, New York

October 2010

I _____certify that I am currently a NYS registered professional engineer and that this Remedial Investigation Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

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1.0 INTRODUCTION

In July 2010, the WCBC Washington, LLC entered the New York State Department of Environmental Conservation's (NYSDEC) Brownfield Cleanup Program (BCP) for the A&A Metals site on an approximately 12 acre site located at 90 Washington Boulevard, in the Village of Perry, Wyoming County, New York. The Site is a former manufacturing facility situated along the Silver Lake Outlet. The site location topographic map is presented as Figure 1 and a Site Location Plan is shown on Figure 2.

Previous site characterization for the site included a Phase I Environmental Site Assessment and Phase II Environmental Site Assessment. These studies are available from the applicant, NYSDEC and at the Project's Document Repository at the Village of Perry Clerk's Office. Preliminary testing included sampling and laboratory analysis that identified Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs) and metals concentrations in environmental media, including soil, fill materials, ground water and surface water.

2.0 SITE CHARACTERIZATION

A Remedial Investigation is planned for the A&A Metals Site to further characterize the site in accordance with the requirements of the BCP. Based on the historical use of the Site and previous characterization results, this Work Plan has been developed to further investigate and characterize surface and subsurface conditions. This Work Plan details specific tasks that will facilitate complete site characterization and contaminant assessment. Specifically, the findings of the remedial investigation will be used to:

- Delineate the areal and vertical extent of contaminants in all media at, or emanating from, the site;
- Determine the surface and subsurface characteristics of the site, including topography, geology and hydrogeology, including depth to groundwater;
- Identify the sources of contamination, the migration pathways, and actual or potential receptors of contaminants on or through air, soil, bedrock, sediment, groundwater, surface water, utilities, and structures;
- Collect and evaluate all data necessary for a fish and wildlife resource impact analysis (FWRIA), pursuant to section 3.10 of Technical Guidance DER-10, to determine all actual and potential adverse impact to fish and wildlife resources;
- Collect and evaluate all data necessary to evaluate the actual and potential threats to public health and the environment including an evaluation current and future potential public health exposure pathways, as well as potential impacts to biota; and
- Collect the data necessary to evaluate any release to an environmental medium and develop remedial alternative(s) to address the release.

The Remedial Action Objectives (RAO's) for the Site will be developed based on the contaminant characterization results, exposure pathways, and risk evaluation data. Based on our knowledge of potential Site issues, the RAO's for the Site likely involve preventing direct exposure to contaminants identified in impacted soil to minimize potential risks to human health.

3.0 SCOPE OF WORK

Previous site investigations provided documentation of impacts to the subsurface soil/fill, groundwater, stormwater, and sub-slab soil at several areas within the BCP Site. These will be further characterized to determine the nature and extent of contamination. The proposed RI will characterize the areas of concern (AOC's) identified during previous investigations, identified below and shown on Figure 3. The major tasks and elements associated with this Work Plan are described in detail within this section. Proposed drilling, test pit, monitoring well, sub-slab soil sample locations are shown on the attached Figure 4. Actual sample locations may vary based on field conditions/observations and logistics.

AOC #1 Unknown fill on the parking lot area – There appears to be several feet of fill, consisting of unknown material. Drums were observed buried within the fill, along with significant quantities of metal. The drums contained burned residue and sand blast sand residue.

AOC #2 Above ground storage tank facility – Historical (Sanborn Map) records indicate the presence of an above ground storage tank facility on the site. The tanks appear to have been removed; however, no records were available as to whether the tanks and pad were removed appropriately.

AOC #3 Wood Floor Blocks – The flooring of the buildings #2 and #3 have significant quantities of oil-stained wood floor blocks.

AOC #4 Sand Blast Residue – There is significant quantities of sand blast sand containing paint residue dumped behind building #6.

AOC#5 Transformers – Two transformer banks remain on-site. There are no sampling results documenting non-PCB oils in the transformers.

Table 1 below identifies the number and type of sampling locations proposed for each of the

above Areas of Concern. Table 2 presents the number of samples proposed and includes the number of quality assurance / quality control (QA/QC) samples. Sampling methodology is described in the following section.

Table 1
Proposed Sampling Program
A&A Metals Remedial Investigation
Village of Perry, New York

Area of Concern	Test Pit	Soil Boring	Groundwater Well	Surface Water Sample	Sediment	Other Media
AOC #1 Fill Area	3	3	3	2	2	0
AOC #2 AST Area	1	3	3	2	2	0
AOC #3 Wood Blocks	10	0	4	0	0	0
AOC #4 Sand Blast Residue	1	3	1	0	0	0
AOC #5 Transformers	0	0	0	0	0	6
Background / Additional Characterization	0	12	0	0	0	0

Table 2
Analytical Program Summary
A&A Metals Remedial Investigation
Village of Perry, New York

Area of Concern	Soil / Fill Samples	Water Samples	Sample Duplicates	MS/MSD Samples	Trip Blanks (VOCs only)	Analysis
AOC #1 Fill Area	6	6	2	2/2	3	TCL VOCs, SVOCS, TAL Metals
AOC #2 AST Area	4	6	1	1/1	3	TCL VOCs, SVOCS, TAL Metals
AOC #3 Wood Blocks	10	6	2	2/2	3	TCL VOCs, SVOCS, TAL Metals
AOC #4 Sand Blast Residue	4	4	1	1/1	1	TCL VOCs, SVOCS, TAL Metals
AOC #5 Transformers	6	0	1	1/1	1	PCB's
Background / Additional Characterization	12		2	1/1	1	TCL VOCs, SVOCS, TAL Metals

3.1 Subsurface Soil Sampling

Subsurface soil and fill will be characterized through test pitting and soil borings. All soil borings will be advanced using hollow-stem augering drilling methods. Borings will be advanced through the soil/fill to depths reaching the top of bedrock underlying native soils /fills. Based upon on the Phase II test pits within the BCP Site, the depths expected are approximately eight to ten feet below grade. Continuous split spoon samples will be collected from grade through total depth.

Upon retrieval of each soil/fill core, the soil/fill samples will be screened for total organic vapors using a photo-ionization detector (PID). The organic vapor measurements will be recorded and the subsurface soils will be described on boring logs. One sample will be submitted from each boring and selected by the highest PID reading or, in the absence of PID readings, collected at the shallower of the groundwater interface or the bedrock/soil interface.

Subsurface fill samples will be analyzed for VOCs, SVOCs, and TAL metals. It has been assumed that one soil interval at an individual soil boring will warrant sampling for analytical characterization.

All down hole sampling equipment will be decontaminated between soil boring locations in accordance with accepted drilling practices using a high-pressure hot water "steam" cleaner or scrubbed using Alconox™ and a hot water wash followed by clean potable water rinse. After drilling and sampling is complete at each boring location, the boring will be grouted from total depth to grade level with a grout mixture of 95% cement and 5% bentonite.

Drill cuttings and other soil generated on-site during an investigation from the installation of soil borings, test pits and monitoring wells shall be presumed to be contaminated. Such cuttings and spoil must be stored on protective sheeting and covered with protective sheeting if cuttings remain on ground at the end of the day. Cuttings may be disposed at the site within the borehole that generated them to within 24 inches of the surface unless:

- Free product, NAPL or grossly contaminated soil, are present in the cuttings;

- The borehole will be used for the installation of a monitoring well (cuttings may only be used to backfill boreholes installed for soil sampling);
- The borehole has penetrated an aquitard, aquiclude or other confining layer; or extends significantly into bedrock;
- Backfilling the borehole with cuttings will create a significant path for vertical movement of contaminants. Soil additives (bentonite) may be added to the cuttings to reduce permeability;
- The soil cannot fit into the borehole.

Those soil cuttings needing to be managed on-site will be containerized in 55-gallon drums pending analytical results of the RI. Drums will be clearly labeled and stored on wooden pallets in one of the on-Site buildings. Disposal of the drummed cutting shall be on-site according to the approved method of disposal identified for the media's final disposition.

Disposable sampling equipment including, spoons, gloves, bags, paper towels, etc. that came in contact with environmental media will be double bagged and disposed as municipal trash in a facility trash dumpster as non-hazardous trash.

A test pit excavation and sampling program will be implemented to thoroughly characterize the subsurface soil/fill. Test pits will be excavated with a small excavator or rubber tire backhoe to native soils or to the base of bedrock. The excavated soil/fill spoils will be screened for total organic vapors using a photoionization detector (PID). Organic vapor measurements, dimensions of the test pits, and visual descriptions of the fill and soil/fill materials will be recorded on test pit logs. The depth from which samples are collected will be determined based on visual/olfactory observations and PID measurements. All subsurface fill samples will be analyzed for VOCs, SVOCs, and TAL metals.

3.2 Groundwater Monitoring Well Installation and Sampling

To adequately characterize the shallow groundwater at the BCP Site, monitoring wells are proposed in upgradient locations (south) as well as downgradient locations along the northern property boundary. Based upon the Phase II testing, it is anticipated that groundwater will only

be encountered at the interface between the native soil/fill and bedrock. Where groundwater is encountered in a soil boring, a monitoring well will be installed using traditional hollow-stem auger techniques using a 2"-ID schedule 40 PVC well screens of 0.01" slot size, with appropriately sized sand pack. Screen length will be 5 feet, designed to straddle the bedrock/soil interface. Once the well screen and riser are placed in the borehole center, the well annulus will be filled with clean silica sand to a minimum of 6-inches above the top of screen. A minimum 6" thick bentonite seal will be placed on top of the sand pack and the well grouted to the surface. All well casings will be enclosed in an above grade protective casing with a lock, cemented in place over the riser.

Should it be determined in the field that the bedrock / overburden interface cannot be adequately characterized, is highly fractured, or that the interface depths are highly variable, groundwater well depths may be extended into the bedrock. The total depth of any bedrock drilling will be field determined and based upon Rock Quality Differential (RQD), blow counts or visual core observations.

The newly installed monitoring wells will be developed by purging of the groundwater and periodically surging the water in the well to loosen and remove suspended fines from the well screen and sand pack. Measurements of the water volume removed and water quality parameters including temperature, pH, conductivity, and turbidity will be recorded at regular intervals throughout the development process. Development will continue until water quality measurements stabilize to within 10% of the previous measurement.

Groundwater will be collected from each well installed using low flow sampling techniques by dedicated plastic flex tubing and a peristaltic pump. If low-flow sampling is not feasible due to insufficient groundwater recharge rate, new and dedicated disposable bailers may be used to collect the groundwater samples. If sufficient groundwater volume is available, each well will be sampled for TCL VOCs, SVOCs, and TAL total metals. If groundwater turbidity is greater than 50 NTUs, a filtered (dissolved) metals sample will be collected along with the unfiltered (total) metals sample.

Groundwater field parameters will be monitored during well purging prior to sampling including pH, specific conductivity, temperature, turbidity, and dissolved oxygen. All groundwater samples will be collected in the pre-cleaned and pre-preserved laboratory sample bottles in accordance with protocols for analyses. Appropriate QA/QC samples will be collected per sampling event including one trip blank (VOC only), one MS, one MSD, and one field duplicate sample. Subsequent to sample collection all groundwater samples will be placed on ice and shipped under chain of custody to the selected analytical laboratory. Two groundwater sampling events (fall and spring) will be conducted to assess relative seasonal fluctuations in groundwater conditions and flow.

3.3 Surface Water / Sediment Sampling

A surface water and sediment sampling program will be conducted along the Silver Creek outlet. Discharge from the seeps and stormwater outfalls may be intermittent and may not contain sufficient quantities of water for sampling. If surface water is not present during the remedial investigation tasks, sediment samples will be collected at the locations described above. If sufficient surface water volume is available, samples will be collected at each location and analyzed for TCL VOCs, SVOCs, and TAL metals (total and dissolved). The downstream surface water samples will be collected first, followed by the sediment samples. Samples will be collected by carefully dipping unpreserved sample bottles into the stream, and removing the lid below the surface of the water to avoid collecting samples at the air-water interface. Samples will then be transferred from the unpreserved bottle to the appropriate sample container in accordance with protocols for analyses. All samples will be placed on ice and shipped under chain of custody to the contracted analytical laboratory. The samples collected for dissolved metals will be filtered in the field using 0.45 micron filters. Appropriate QA/QC samples will be collected per sampling event including one trip blank (VOC's only), one MS, one MSD, and one field duplicate sample. Water quality parameters (pH, conductivity, temperature, dissolved oxygen, and turbidity) will be measured in the stream during sampling.

Sediment samples will be collected at the same locations as the surface water samples, using the grab sample methodology. Sediment samples will be analyzed for TCL VOCs, SVOCs, and TAL metals, and total organic carbon (TOC). The sediment samples will be collected using pre-

cleaned stainless steel scoops, filling the appropriate sample containers in accordance with protocols for analyses. Appropriate QA/QC samples will be collected as part of the sediment sampling event, including one MS, one MSD, and one field duplicate sample.

3.4 Site Survey

A topographic base map of the Site has been prepared. The map includes pertinent Site features including property boundaries, existing buildings, roadways, fences, visible utilities, and site features. The base map was prepared by a New York State licensed surveyor. Horizontal location and vertical elevations were established using the New York State Plane Coordinate System and most recent vertical datum.

Following the remedial investigation tasks, additional survey work will be performed to add the investigation point locations (soil borings, monitoring wells, test pits, surface water, and sediment sampling locations) to the base map. Elevations of the ground surface and top of PVC riser will be measured and recorded for each monitoring well. All work shall be performed by a licensed New York Land Surveyor.

3.5 Qualitative Human Health Risk Assessment

A qualitative human health risk assessment will be conducted to determine if the presence and concentrations of chemicals in the environmental media at the Site pose potential human health concerns. The assessment will encompass both on-Site and off-Site risks with the results of the exposure analysis used as one of the criteria to determine the most appropriate future actions at the Site. These may range from no further action, to additional data collection, to quantitative health risk assessment and the establishment of risk-based action levels. The assessment will begin with the construction of a conceptual Site model, a graphic illustration that outlines chemical source areas, possible chemical release mechanisms, environmental media that currently show or may show in the future the presence of chemicals, possible exposure pathways, possible points of exposure for human receptors, possible exposure routes, and possible human receptors. The conceptual model will be based on current Site conditions and surrounding land use as well as the planned future Site and surrounding land uses. For environmental media that may be of concern, qualitative evaluations will be made for the four components that typically comprise a

health risk assessment: data evaluation; exposure assessment; toxicity assessment; and risk characterization/uncertainty analysis. In the data evaluation, chemical concentrations in the various media will be compared to appropriate NYSDEC risk-based standards and criteria (e.g., NYSDEC Soil Cleanup Objective and Cleanup Levels, Water Quality Standards, etc.). Chemicals detected in concentrations greater than these standards and criteria will be identified as chemicals of potential concern. In the exposure assessment, an evaluation will be made of the likelihood and magnitude of exposure to the chemicals of potential concern in environmental media of concern. This will involve outlining possible exposure routes and plausible exposure times, frequencies, and durations. In the toxicity assessment, the toxicity of the chemicals of concern will be outlined. This will include identifying known or suspected carcinogens and/or the target organ/system of concern for noncarcinogenic effects. In the risk characterization, information from the three components will be integrated, to estimate the likelihood and magnitude of possible health risks.

Fact sheets documenting the goals and progress of the project will be prepared at key milestones of the project and distributed to those on the project mailing list. The distribution list is included in the Citizens Participation Plan prepared for the Project.

3.6 Ecological Risk Assessment

A screening-level ecological risk assessment will be conducted in accordance with NYSDEC guidance for performing Fish and Wildlife Impact Analyses (FWIA) for Inactive Hazardous Waste Sites (NYSDEC, 1994). The purpose of the assessment will be to identify potential wildlife and vegetative receptors that may be exposed to impacted media on the Site and to determine if such exposure poses the potential for adverse ecological health effects. Steps I (Site Description) and IIA (Pathway Analysis) of the FWIA guidance will be conducted based on the results of the Site investigations. The assessment will consist of the following sections:

- Ecological characterization;
- Exposure and effects assessment;
- Identification of constituents of potential ecological concern;
- Ecological risk characterization;

- Assessment of uncertainties and limitations; and
- Summary

4.0 QUALITY ASSURANCE / QUALITY CONTROL PROCEDURES

4.1 Analytical Methods

All samples collected during the BCP Remedial Investigation will be analyzed using EPA-approved analytical methods that follow the most recent edition of the EPA's "Test Methods for Evaluating Solid Waste" (SW-846), Methods for Chemical Analysis of Water and Wastes" (EPA 600/4-79-020), and Standard Methods for Examination of Water and Wastewater" (prepared and published jointly by the American Public Health Association, American Waterworks Association and Water Pollution Control Federation).

For Volatile Organic and Semi-Volatile Compounds, the full target compound list plus the 30 (10 volatile organic compounds and 20 semi-volatile organic compounds) tentatively identified compounds (TICs) will be analyzed. For metals, the full target analyte list (TAL) will be analyzed. PCB samples will be analyzed for all PCB listed.

4.2 Laboratory

All analysis will be conducted by a laboratory that is accredited pursuant to the NYSDOH Environmental Laboratory Accreditation Program (ELAP) for the category of parameters analyzed. Samples collected will be analyzed by an analytical method included in the most current DEC Analytical Services Protocol (ASP).

4.3 Data Submittal

Analytical data will be submitted in complete ASP category B data packs. Procedures for chain of custody, laboratory instrumentation calibration, laboratory analyses, reporting of data, internal quality control, and corrective actions shall be followed as per SW-846 and as per the laboratory's Quality Assurance Plan. Where appropriate, trip blanks, field blanks, field duplicates, and matrix spike, matrix spike duplicate shall be performed at a rate of 5% and will be used to assess the quality of the data. The laboratory's in-house QA/QC limits will be utilized whenever they are more stringent than those suggested by the EPA methods.

4.4 Data Usability Summary Report

The data package will be sent to a qualified, independent, data validation specialist for evaluation of the accuracy and precision of the analytical results. A Data Usability Summary Report (DUSR) will be prepared to describe the compliance of the analyses with the analytical method protocols detailed in the NYSDEC Analytical Services Protocol (ASP). The DUSR will provide a determination of whether the data meets the project-specific criteria for data quality and data use. The validation effort will be completed in accordance with NYSDEC Division of Environmental Remediation DUSR guidelines.

5.0 HEALTH & SAFETY PLAN

Field tasks will be performed using industry standard health and safety procedures. A site-specific Health and Safety Plan (HASP) has been prepared for use by the field team during all field activities. This plan details known and potential hazards of the Site and field tasks as well as air monitoring and emergency procedures. In addition, the HASP includes a Community Air Monitoring Plan (CAMP). The HASP is presented in Appendix A.

6.0 REPORTING

Following receipt of the validated analytical results, a Remedial Investigation Report and a Remedial Action Work Plan (RAWP) will be prepared. Preparation of the report will entail a summary of fieldwork performed; data collected, and will include data tables, soil boring and well construction logs, analytical results, photos, and maps. The report will also include recommendations for further characterization of the Site, if necessary. If no additional characterization is required, as anticipated, the RI report will include a Qualitative Human Health Risk Assessment. If additional investigation is required, the Qualitative Human Health Risk Assessment will be completed following the receipt of validated results of the additional characterization.

The Remedial Action Work Plan will include an evaluation of remedial alternatives. Data obtained during previous investigations will be utilized along with the planned end use to identify, select, and evaluate remedial action alternatives for the Site. Potential Site constituents and migration pathways will be categorized as follows:

- Soil/Fill
- Groundwater.
- Surface water
- Sediment.

Once the degree of contamination associated with these media and other site characteristics are quantified, General Response Alternatives for Site remediation will be defined. The General Response Alternatives that are considered will include the “no action” measure as a baseline against which other remedial measures, if necessary, can be compared. The RAWP will also include a Soil/Fill Management Plan, which will describe a plan for characterization and handling of excavated soil/fill based on NYSDEC Soil Cleanup Objectives as specified in 6 NYCRR Subpart 375-6 and/or negotiated site-specific action levels (SSALs).

7.0 PROJECT SCHEDULE

The following schedule is proposed for the Remedial Investigation through submission of the Remedial Investigation Report. November 15, 2010 has been assumed as the Start Date for the Remedial Investigation Phase of the Project.

NYSDEC Approval of the Draft RI	November 15, 2010
30-Day Public Comment Period	November 16, 2010 to Dec. 15, 2010
Finalization and NYSDEC Approval of RI	January 10, 2011
Mobilization for Field Investigation	January 2011
RI Field Work	January 2011 thru February 2011
Chemical Analysis of RI Samples	February 2011 thru March 2011
Third Party Data Validation	March 2011 thru April 2011
Qualitative Human Health Risk Assessment	April 2011 thru May 2011
Prepare RI Report	May 2011 thru July 2011
Submit RI Report for review and public comment	July 2011
45-day comment period on RI	October 2011
NYSDEC and Approval of RI Report	September 2011

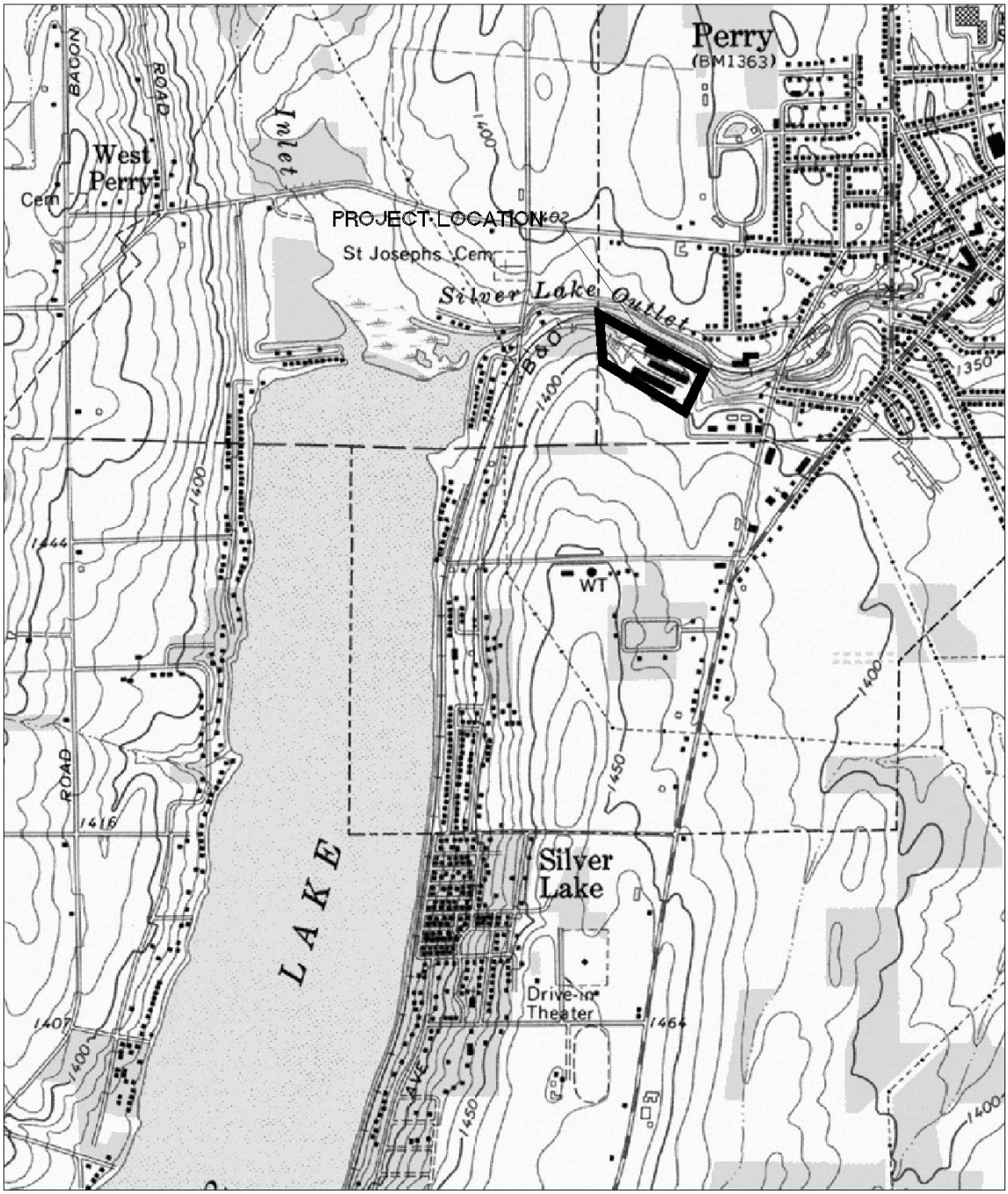
8.0 PROJECT PERSONNEL

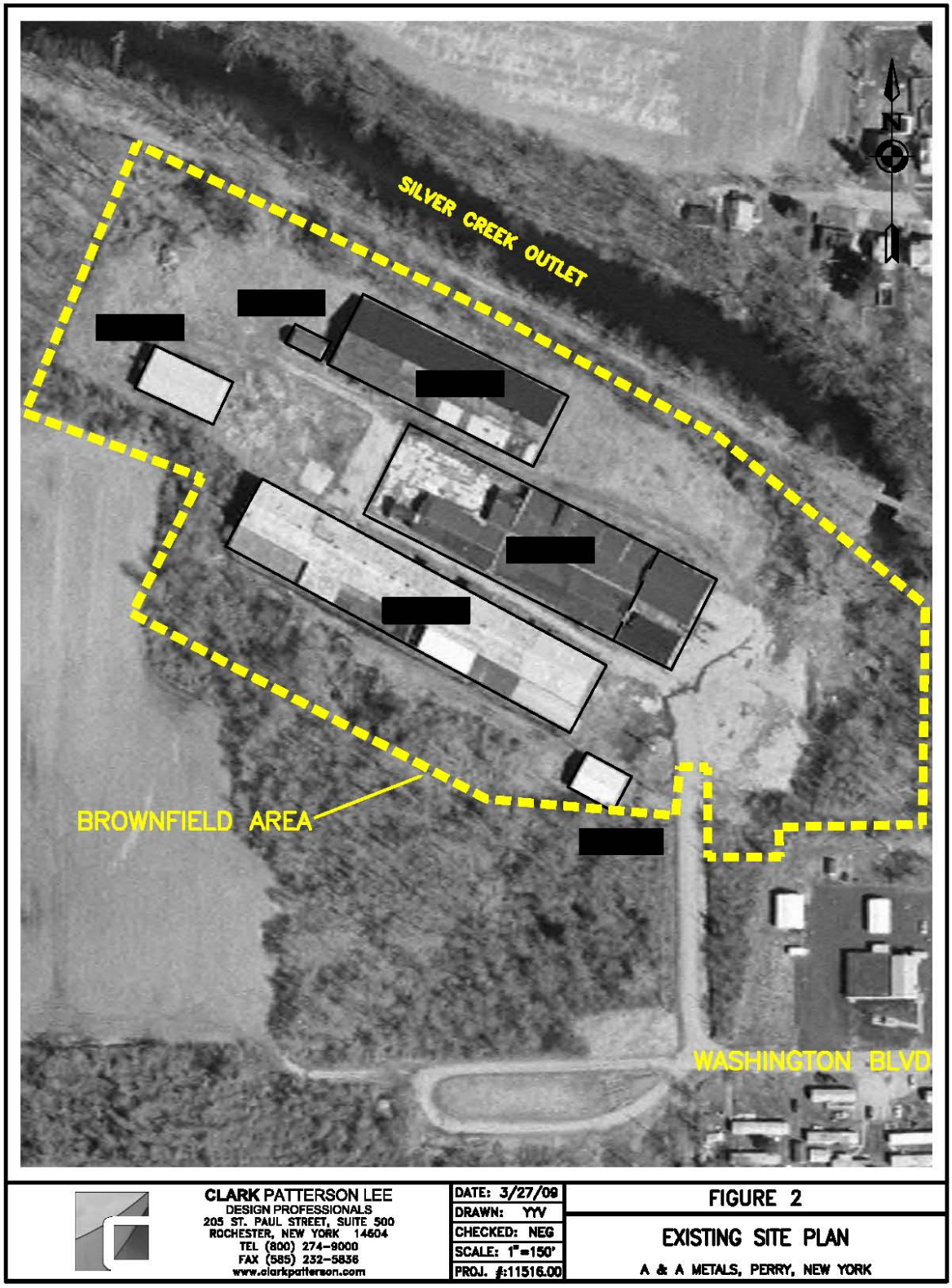
Clark Patterson Lee has established a project team for the A&A Metals Site whose qualifications and experience are strongly suited for successful completion of the project. The proposed responsibilities of the staff are summarized below:

Rick Henry, P.E., will be the Project Manager for the work. In this capacity, Mr. Henry will be responsible for the successful completion of each task including coordination and supervision of engineers and scientists, and adherence to the work plan, schedule and budget.

Norm Gardner, C.P.G. will be the Qualified Environmental Professional, responsible for the development of the work plan, coordination of subcontractors, direction of the field program including maintaining quality assurance policies that pertain to all aspects of sampling, well drilling and development. Mr. Gardner will also be the field geologist responsible for implementing the field efforts directing drilling subcontractors and ensuring the successful completion of all field activities.

Figure 1 – Site Location Map





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DATE:	3/27/09
DRAWN:	YYV
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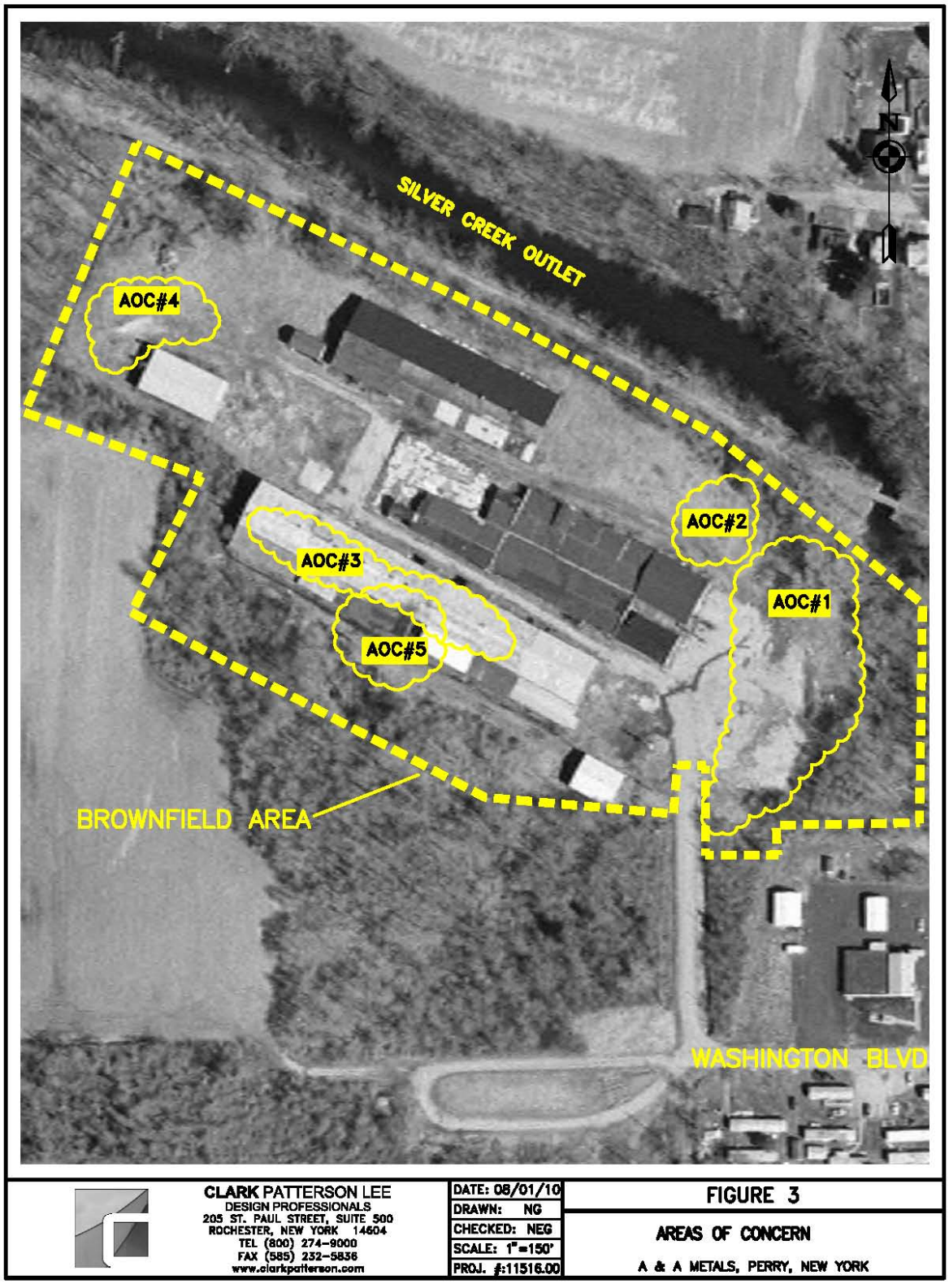
SCALE:	1"=150'
PROJ. #:	11516.00

FIGURE 2

EXISTING SITE PLAN

A & A METALS, PERRY, NEW YORK



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DATE:	08/01/10
DRAWN:	NG
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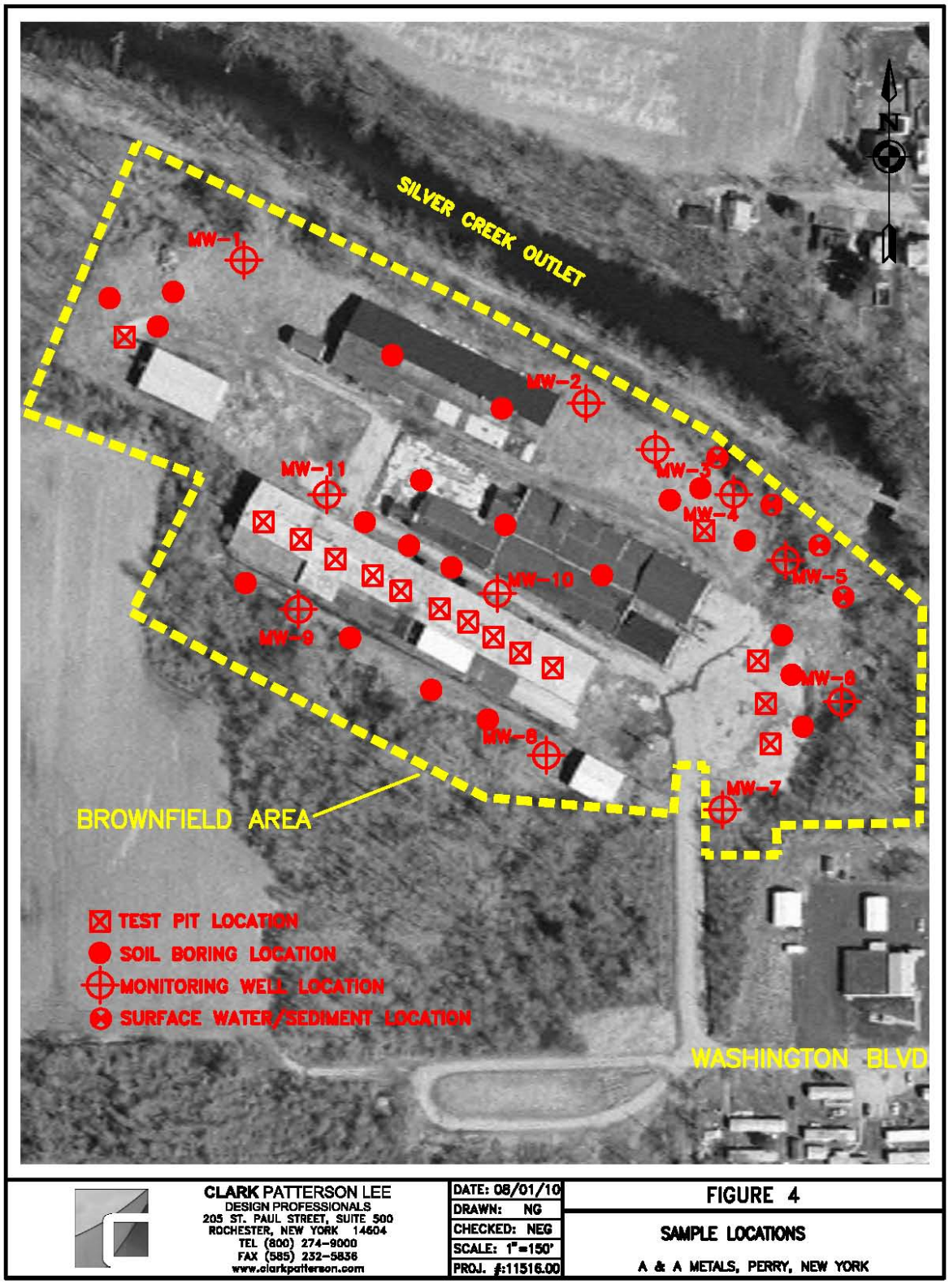
FIGURE 3

AREAS OF CONCERN

A & A METALS, PERRY, NEW YORK



CLARK PATTERSON LEE DESIGN PROFESSIONALS 205 ST. PAUL STREET, SUITE 500 ROCHESTER, NEW YORK 14604 TEL (800) 274-9000 FAX (585) 232-5836 www.clarkpatterson.com	DATE: 08/01/10 DRAWN: NG CHECKED: NEG SCALE: 1"=150' PROJ. #:11516.00	FIGURE 4 SAMPLE LOCATIONS A & A METALS, PERRY, NEW YORK

APPENDIX A

SITE SPECIFIC HEALTH & SAFETY PLAN

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1.0 INTRODUCTION

This Health and Safety Plan (HASP) for environmental work being conducted at the A&A Metals site on an approximately 12 acre site located at 90 Washington Boulevard, in the Village of Perry, Wyoming County, New York (the Site). This HASP acts as a supporting document for field activities, consisting of soil, fill, surface water and ground water sampling at the Site. This plan will apply to all personnel and all subcontractors involved with the above mentioned activities.

The procedures set forth in this HASP are designed to reduce the risk of chemical and physical hazards that may be present at the Site. These procedures follow applicable federal, state, and local regulations, including Occupational Safety and Health Administration (OSHA) requirements governing activities at hazardous waste sites and the requirements in 29 CFR 1910.120. Specific practices and procedures, including the level of personal protective equipment (PPE), are based on review of currently available information for the Site.

This HASP for conformance with the requirements of a Hazardous Communication Program as specified in 29 CFR 1910.120. Every potential safety hazard associated with work at the Site cannot be predicted or anticipated. This HASP does not attempt to establish rules to cover every contingency that may arise, but it does provide a basic framework for the safe completion of field activities and plans for reasonable contingencies.

2.0 FIELD ACTIVITIES

A detailed description of upcoming field activities to be conducted at the Site is included in the Remedial Investigation Work Plan (RIWP). Planned remedial activities include drilling and installation of monitoring wells, test pitting, various media sampling and ambient air monitoring.

3.0 POTENTIAL CHEMICAL AND PHYSICAL HAZARDS

Volatile Organic Compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals are the major groups of chemicals that may be present in potentially hazardous concentrations at the Site. Specific compounds of potential concern that have been identified to date at the Site and may be encountered during site activities are summarized below.

Semi-Volatile Organic Compounds	Volatile Organic Compounds	Metals
Acenaphthene	cis-1,2-Dichlorethene	Arsenic
Anthrecene	trans-1,2-Dichloroethene	Barium
Benzo (a) Anthracene	Trichloroethene	Cadmium
Benzo (a) Pyrene	Benzene	Chromium
Benzo (b) fluoranthene	Ethylbenzene	Lead
Benzo (g,h,i) perylene	Toluene	Mercury
Benzo (k) fluoranthene	m,p-Xylene	Selenium
Chrysene	o-Xylene	Silver
Butylbenzylphthalate	Carbon disulfide	
Di-n-Octylphthalete		
Bis (2-ethylhexyl) phthalate		
2-Methylnaphthalene		
Flouranthene		
Fluorene		
Indeno (1,2,3-cd) pyrene		
Naphthalene		
Phenanthrene		
Pyrene		

These compounds may present hazards for inhalation; however, some may also present a concern through dermal absorption. As field activities normally involve subsurface disturbance for generally short periods of time, these pathways should be considered and planning, development, and implementation of specific procedures should be conducted to mitigate these potential concerns.

A summary of occupational exposure limits for chemicals of potential concern at the Site is presented in Table.

Volatile Organics	ACGIH Threshold Limit Value (TLV)[1]		Permissible Exposure Limits (PEL)[4]		NIOSH Recommended Exposure Limits (REL)[5]	
	8 Hour TWA[2] (PPM)	STEL/C[3] (PPM)	8 Hour TWA[2] (PPM)	STEL/C[3] (PPM)	8 Hour TWA[2] (PPM)	STEL/C[3] (PPM)
Benzene	0.5 (Skin)	2.5	1	5	0.1	1
Carbon Disulfide	10 (Skin)	NE	20	100 (Skin)	1	10 (Skin)
1,2-Dichloroethene (all isomers)	200	NE	200	NE	200	NE
Ethylbenzene	100	125	100	NE	100	125
Toluene	50	NE	200	C 300 STEL 500**	100	C 150
Trichloroethylene	50	C 100	100	C 200 STEL 300*	25 (10-Hr TWA)	25 (10-Hr TWA)
Xylenes (o- m- p- isomers)	100	150	100	NE	100	150
Semi Volatiles						
Acenaphthylene	NE	NE	NE	NE	NE	NE
Anthracene	NE	NE	NE	NE	NE	NE
Benzo (a) anthracene	L	NE	NE	NE	NE	NE
Benzo (b) fluoranthene	L	NE	NE	NE	NE	NE
Benzo (k) fluoranthene	NE	NE	NE	NE	NE	NE
Benzo (a) pyrene	L	NE	0.2 mg/m^3	NE	0.1 mg/m^3***	NE
Chrysene	L	NE	0.2 mg/m^3	NE	0.1 mg/m^3***	NE
Fluoranthene	NE	NE	NE	NE	NE	NE
Naphthalene	10	C 15	10	NE	10	C 15
Phenanthrene	NE	NE	NE	NE	NE	NE
Pyrene	NE	NE	NE	NE	NE	NE
Metals						

Arsenic	0.01		0.002	NE	0.01	NE
Barium	0.5		0.5	NE	0.5	NE
Cadmium	0.01		0.005	NE	LFC	NE
Chromium	0.5		0.5	NE	1.0	NE
Lead	0.15		0.05	NE	0.05	NE
Mercury	0.025		0.05	NE	0.1	NE
Selenium	0.2		0.2	NE	0.2	NE
Silver	0.1		0.01	NE	0.01	NE

NOTES:

Concentrations on table are in parts per million (PPM) for VOCs and SVOC. Metals are reported as mg/M^3

(1) American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value. L = ACGIH recommends exposure by all routes should be carefully controlled to levels as low as possible.

(2) Time Weighted Average (TWA) is the employee's average exposure in any 8-hour work shift of a 40-hour workweek. An employee's exposure to a material listed in this table, in any 8-hour work shift of a 40-hour workweek, shall not exceed the 8-hour TWA PEL given for that material in the table.

(3) Ceiling is a concentration that should not be exceeded at any time.

(4) Permissible Exposure Limit (PEL) is the exposure, inhalation, or dermal permissible exposure limit listed in 29CFR 1910.

(5) National Institute of Occupational Safety and Health (NIOSH) Recommended Exposure Limits.

(6) LFC = Lowest Feasible Concentration

N.E. = not established.

* = 5 minute peak in any 3 hour period

** = 10 minute peak per 8 hour shift

***= Cyclohexane-extractable fraction

4.0 HAZARDS EVALUATION

4.1 CHEMICAL HAZARDS

Standard safety procedures will be followed to minimize exposure of Site personnel to compounds of concern during field. Potential chemical hazards may include the following:

- exposure by inhalation, ingestion, and/or skin absorption of toxic gases, vapors, or dust contaminated with the chemicals of concern;
- injury by contact with corrosive or irritating chemical contaminants; and
- off-site migration of potentially contaminated airborne chemicals or dusts.

Site Personnel in the work zones must observe each other for signs of chemical exposure. Indications of adverse effects include, but are not limited to:

- changes in complexion and skin color;
- changes in coordination;
- changes in demeanor;
- excessive salivation and preliminary response; and
- changes in speech patterns.

Personnel should also inform their Field Team Leader of non-visible effects of overexposure to chemical materials. These symptoms may include, but are not limited to:

- headaches;
- dizziness;
- nausea;
- blurred vision;
- cramps; and/or
- irritation of eyes, skin or respiratory track.

4.1.1 Site Monitoring for Chemical Hazards

The primary compounds of concern in the work areas are selected VOCs, SVOCs and metals. Work area ambient air monitoring and good work practices will be used during the field activi-

ties to ensure that appropriate personal protection is used to minimize potential exposures. Organic vapors and particulate concentrations will be monitored routinely in the breathing zone with an appropriate direct-reading instrument. A calibrated flame ionization detector (FID) or a calibrated photoionization detector (PID) will be used to screen for VOCs during intrusive Site activities. Particulate concentrations will be measured in real time using a calibrated electronic aerosol monitor. Organic vapor and particulate concentrations, in conjunction with field observations, will be used as action level criteria for upgrading or downgrading personal protective equipment (PPE) and implementing additional precautions or procedures.

The potential risks associated with working in hot or cold weather will also be considered when upgrading levels of personal protective equipment. Work area ambient air and employee personal exposure level monitoring will be conducted by or under the supervision of the Health and Safety Officer (HSO). The HSO will properly maintain and calibrate work area ambient air and employee exposure level monitoring instruments throughout field activities to ensure their accuracy and reliability.

4.1.1.1 Organic Vapor Monitoring

Work area ambient air monitoring for VOCs will be conducted in the worker's breathing zone periodically at intervals recommended by the HSO. Screening for specific organic compounds will not be performed unless specific circumstances arise. Rather, action levels will be based on total VOC concentrations. Background VOC concentrations will be measured and recorded on a daily basis prior to initiation of work activities. Action levels listed below are above background.

Total VOC Concentration above background	Action Level	PPE Level
0 to 1 PPM	None	Level D
1 to 5 PPM	Full-Face Respirator with organic vapor cartridges	Level C
>5 PPM	Suspend Work or Supplied-Air Full-Face Respirator	Level B

In order to prevent unnecessary upgrading or downgrading, when the total VOC concentration in the breathing zone is close to an action level, the breathing zone of employees will be continu-

ously monitored for a period of not less than 15 minutes to evaluate whether or not the exceedance is a temporary fluctuation.

4.1.1.2 Particulates Monitoring

Monitoring for particulates will be conducted in the breathing zone periodically at intervals recommended by the HSO. Screening for specific inorganic compounds will not be performed. Rather, action levels of airborne particulate in work area ambient air will be based on the mercury PEL. The decision to upgrade levels of protection must be made in conjunction with consideration of precipitation, wind conditions, and the anticipated duration of field activity. Background particulate concentrations will be measured and recorded on a daily basis prior to initiation of work activities. The action levels listed below are above background.

Sustained Reading in Breathing Zone	Action Level	PPE Level
5 mcg/m^3	None	Level D
5 mcg to 10 mcg/m^3	Full-Face Respirator with organic vapor cartridges	Level C
>10 mcg/m^3	Suspend Work or Supplied-Air Full-Face Respirator	Level B

In order to prevent unnecessary upgrading or downgrading, when the airborne particulate concentration in the breathing zone is close to an action level, the breathing zone of employees will be continuously monitored for a period of not less than 15 minutes to determine whether or not the exceedance is a temporary fluctuation.

4.1.2 Chemical Hazard Action Levels

Based upon the lowest occupational exposure value for the compounds listed in Table 3-1, action levels have been established for activity cessation and the upgrade or downgrade in the level of PPE. These action levels are guidelines; the HSO will have the ability to adjust PPE requirements as appropriate based on field conditions. Level D protection shall be used at a minimum for Site activities. The PPE requirements for additional protective equipment, if necessary, will be determined by the HSO based on weather and wind conditions, the particular field activity,

the length of time in one location, potential for exposure, and applicable action levels. Descriptions of the various levels of PPE are presented in Section 6.0.

4.2 PHYSICAL HAZARDS

Standard safety procedures will be followed to minimize potential physical hazards. The primary physical safety hazards at the Site include, but are not limited to:

- • common slip, trip, and fall hazards;
- • overhead and buried utility hazards;
- • drill rig operation;
- • excavation equipment operation;
- • vehicular traffic;
- • lifting excessive weights;
- • sampling hazards;
- • excessive noise levels;
- • heat and cold stress; and
- • Other common industrial hazards.

4.2.1 Common Slip, Trip, Fall Hazards

Personnel should be aware of common slip, trip, or fall hazards that are encountered frequently in industrial and commercial environments. Heightened awareness and emphasis on good housekeeping are the most effective ways to prevent accidents.

4.2.2 Overhead and Buried Utility Hazards

Utility lines, both above and below ground, may pose a safety hazard for Site personnel during soil boring or other heavy equipment operations. If overhead utilities have been identified as a hazard, the equipment operator must maintain a safe clearance between the lines and the equipment at all times during work operations. High voltage lines require greater clearance distances. As a safe work practice, equipment operators will maintain a 20-foot clearance between equipment and power lines or other energized sources unless the source is greater than 350 KV, in which case 29CFR 1910.180(j)(ii) must be applied. The location of buried utilities lines must be

determined prior to the start of work activities. A request for subsurface utility clearance will be filed through Dig Safely New York.

4.2.3 Drill Rig Operation

Drill rigs present multiple hazards while in operation. Excessive noise, boom raising, lowering and swing, cable and hook damage and operator error may result in injuries. To minimize potential accidents, the following safety measures should be required for all drilling operations. The drilling subcontractor is responsible for the health and safety of its personnel, equipment, and operations. Operators (drillers) of equipment used on site will be familiar with the requirement for inspection and operation of such equipment;

1. The drilling subcontractor is responsible for ensuring proficiency in safe operation the equipment;
2. Drilling operations shall be performed from a stable ground position. If unable to locate on level ground, the drill rig shall be appropriately checked, blocked, and braced prior to the derrick being raised;
3. A person employed by the drilling subcontractor competent in drilling safety shall make daily inspections of the drilling area;
4. Before drilling, the existence and location of utility lines (electric and gas) will be determined by Dig Safely New York
5. If flammable or combustible materials are encountered, no ignition sources are permitted if the ambient airborne concentration of flammable vapors exceeds 10 percent of the Lower Explosive Limit (LEL) during drilling activities;
6. A combustible gas indicator supplied by the driller will be used as needed to make this determination in conjunction with chemical specific LEL percentages. Operations must be suspended and the area evacuated if the airborne flammable vapor concentration reaches 10 percent of the LEL in an area of an ignition source, such as an internal combustion engine or an exhaust pipe;
7. If drilling equipment is located in the vicinity of overhead power lines, a distance of 20 feet must be maintained between the lines and any point on the drill rig;
8. Daily inspection of the drill rig and associate machinery must be conducted and documented by the driller prior to each day's operation of the rig;

9. In the event that repairs to the drilling rig derrick are required, personnel climbing the derrick to affect such repairs must wear a restraint system, including parachute harness and lifeline, to prevent an accidental fall.

4.2.4 Tools - Hand and Power

Hand and power tools will be utilized during Site activities. Any tools used during field activities will conform to the standards set in both OSHA 29CFR-1926.300 and 1926.305.

To minimize the potential for any safety-related accidents, the following measures will be required:

- all hand and power tools shall be maintained in a safe condition;
- power-operated tools shall be equipped with protective guard when in use;
- all hand-held power tools shall be equipped with a constant pressure switch that will shut off the power when the pressure is released;
- hand tools shall be kept free of splinters or cracks;
- electrical power tools shall have double-insulated type grounding;
- electrical cords are not permitted for hoisting or lowering tools;
- all fuel powered tools shall be stopped while being refueled, serviced or maintained;
- Indoor ambient air will be measured for oxygen and toxic gases when fuel powered tools are used in enclosed spaces.

4.2.5 Vehicular Traffic

Vehicular traffic associated with routine site operations at the Site may pose a significant hazard to project personnel. Precaution should be taken when Site activities make it necessary to work near traveled areas.

4.2.6 Lifting Excessive Weights

Personnel should exercise caution when lifting any object, but particularly objects that weigh greater than 40 pounds. For objects that weigh less than 40 pounds, proper lifting technique is essential to minimize the potential for injury. No excessively bulky objects should be lifted without assistance.

4.2.7 Sampling Hazards

Field activities will consist of collecting soil vapor and ground water samples for analysis and evaluation. The hazards of this operation are primarily associated with the sample collection methods and procedures utilized. Standard methods and procedures that will be utilized for sampling activities are described in the NYSDEC-approved Quality Assurance Project Plan.

4.2.8 Excessive Noise Levels

Noise generated by routine Site operations and heavy equipment such as drilling rigs and excavators may present a hazard during Site operations. Excessive noise can physically damage the ear, hinder communications, and startle or annoy workers. On-site personnel will wear hearing protection when working near heavy equipment and whenever noise levels may exceed 85dBA. The HSO should be consulted if there are any questions regarding the need for hearing protection during a particular activity or a particular work area.

4.2.9 Heat Stress

Heat stress is the aggregate of environmental and physical work factors that make up the total heat load imposed on the body. The environmental factors of heat stress include air temperatures, humidity, radiant heat exchange, wind, and water vapor pressure (related to humidity). Physical work contributes to the total heat stress by producing metabolic heat in the body, proportional to the intensity of work. Heavy physical labor can greatly increase the likelihood of heat fatigue, heat exhaustion, and heat stroke, the latter being a life threatening condition. Heat stress monitoring of personnel shall commence when the ambient temperature is 80°F (70°F if chemical protective clothing is worn) or above. Frequency of monitoring shall increase as the ambient temperature rises. Various control measures shall be employed if heat stress becomes a problem. These include:

- provision of liquids to replace lost body fluids;
- establishment of a work regimen that allows for rest periods to cool down; and,
- training workers in the recognition and prevention of heat stress.

Specific steps to implement should ambient temperatures pose a hazard include:

- Site workers will be encouraged to drink water throughout the day;
- They will be advised to slightly increase their salt intake by lightly salting their food;

- on-site drinking water will be kept cool to encourage personnel to drink frequently;
- a work regimen that will provide adequate rest periods for cooling down will be established as required;
- Site personnel will be advised of the dangers and symptoms of heat stroke, heat exhaustion, and heat cramps;
- employees should be instructed to monitor themselves and co-workers for signs of heat stress and to take additional breaks as necessary;
- a shaded rest area must be provided, breaks should take place in the shaded rest area;
- employees shall not be assigned to other tasks during breaks.

Site employees shall be informed of the importance of adequate rest, acclimation, and proper diet in the prevention of heat stress disorders. Heat cramps are caused by heavy sweating and inadequate electrolyte replacement. Signs and symptoms include muscle spasms and pain in the hands, feet, and abdomen.

Heat exhaustion occurs from increased stress on various body organs. Signs and symptoms include pale, cool, moist skin, heavy sweating; dizziness, nausea, fainting.

Heat stroke is the most serious form of heat stress, and should always be treated as a medical emergency. The body's temperature regulation system fails and the body temperature rapidly rises to critical levels. Immediate action must be taken to cool the body before serious injury or death occurs. Signs and symptoms of heat stroke include;

- red, hot, unusually dry skin;
- lack of, or reduced, perspiration;
- nausea;
- dizziness and confusion;
- strong, rapid pulse and confusion; and,
- coma.

4.2.10 Cold Stress

Cold and/or wet environmental conditions can place workers at risk of cold related illness. Hypothermia can occur whenever temperatures are below 45°F. It is most common during wet

windy conditions, with temperatures between 30° to 40°F. The principal cause of hypothermia in these conditions is loss of insulating properties of clothing due to moisture, coupled with heat loss due to wind and evaporation of moisture on the skin. Frostbite, the other hazard associated with exposure to the cold, is the freezing of body tissue, which ranges from superficial freezing of surface skin layers to deep freezing of underlying tissue. Frostbite will only occur when ambient temperatures are below 32°F. The risk of frostbite increases as the temperature drops and the wind speed increases. Most cold-related worker fatalities have resulted from failure to escape low environmental temperatures, or from immersion in low temperature water. The single most important aspect of life-threatening hypothermia is a rapid decrease in the deep core temperature of the body. Site workers should be protected from exposure to cold so that the deep core temperature does not fall below 97°F. Lower body temperatures will very likely result in reduced mental alertness, reduction in rational decision making, or loss of consciousness with the threat of fatal consequences.

4.2.11 Excavation Activities

Excavation activities shall conform to safe work practices in accordance with OSHA regulations 1926.651 and 1926.652. The excavation subcontractor will excavate soil and evaluate soil type and slope the excavation appropriately in conformance with OSHA and any applicable federal, state, and/or local laws, rules, codes, standards, or regulations. Excavation materials shall be contained in approved containers, tanks or in appropriate lay down areas. Appropriate care shall be taken in the recognition that excavated material from areas at the site may contain hazardous materials.

5.0 PERSONNEL RESPONSIBILITIES

The Field Team Leader (FTL) will act in a supervisory capacity over all employees who participate in the field activities specified in this HASP. As part of these responsibilities, the FTL will distribute the HASP to all field team personnel and discuss the HASP prior to the start of field activities. All field personnel will sign the HASP Review Record verifying that they have read and are familiar with the contents of this HASP.

The HSO will be responsible for oversight, implementation and compliance of applicable health and safety regulations on-Site. The HSO has the following authority and responsibilities:

- responsibility for the field implementation, evaluation, and any necessary field modifications of this HASP;
- responsibility for maintaining adequate supplies of all PPE as well as calibration and maintenance of all relevant monitoring instruments;
- authority to suspend field activities due to imminent danger situations;
- responsibility to initiate emergency response activities;
- presentation and documentation of field safety briefings;
- maintenance of daily log of all on-site safety activities.

All personnel entering the site will have completed training requirements for hazardous waste site operations in accordance with OSHA 29 CFR 1910.120 or be certified by their employers as having equivalent training or experience. All personnel entering the site must have completed appropriate medical surveillance as required by OSHA 29 CFR 1910.120(f). All personnel entering the site wearing a negative pressure air purifying respirator must have successfully passed a quantitative fit test in accordance with OSHA 29 CFR 1910.1025 or 1926.58 within the previous 12 months. Employees will be permitted to wear only those brands and models of respirator for which a fit test have been successfully performed.

6.0 PERSONAL PROTECTIVE EQUIPMENT

6.1 PURPOSE /APPROACH

A critical aspect of worker field crew safety is selection and proper use of appropriate PPE. PPE refers to the types of footwear, headwear, eyewear, hearing protection, coveralls, gloves and respiratory protection each individual will wear while performing a specific task(s) and exposed to a particular chemical(s) at a given concentration(s). The levels of PPE protection that may be applied at the Site are commonly referred to as Level D, Level C, and Level B, with Level D requiring the least amount of PPE and Level B the most protective.

Prior experience at the Site indicates that the majority of Site activities will be conducted in Level D protection. The HSO will decide when it is necessary to upgrade, downgrade or modify the existing level of protection based on field monitoring and action levels described in Section 4.0. The HSO will make entries in the health and safety field book detailing each day's PPE requirements, tasks and if the level of PPE is modified, the reason for each change. Each level's PPE requirements may be modified by the HSO as needed. The different levels of PPE and equipment required at each level are described in the following sections and are based on 29 CFR 1910.120.

6.2 LEVEL D PROTECTION

Level D PPE will generally consist of the following:

- coveralls or long pants and shirt affording protection from dermal exposure;
- steel-toe, steel-shank work boots;
- safety glasses; and
- a hard hat.

6.3 LEVEL C PROTECTION

Level C PPE will generally consist of:

- Full-face air purifying respirator (APR) equipped with appropriate organic vapor canisters and/or other chemical cartridges (all personnel requiring respiratory protection must

be "fit-tested" with the respirator model to be used in the field). HEPA filters will be available and utilized as warranted by Site conditions. Powered air purifying respirators may be utilized if specified by the HSO. Half-mask air purifying respirators can be donned only with the approval of the HSO;

- chemical-resistant clothing such as Tyvek®, poly-coated Tyvek® or Saranex®. Suits will be hooded and one piece with booties and elastic wristbands;
- outer chemical-resistant (recommend nitrile or neoprene) gloves and inner latex surgical gloves;
- steel-toe, steel-shank work boots with rubber overboots; and
- hard hat.

6.4 LEVEL B PROTECTION

Level B PPE will generally consist of:

- a self-contained breathing apparatus (SCBA) in a pressure demand mode, or supplied air with escape SCBA in the pressure demand mode;
- chemical-resistant clothing such as poly-coated Tyvek® or Saranex®. Suits will be hooded and one piece with booties and elastic wrist bands;
- chemical-resistant (recommend nitrile or neoprene) outer gloves and inner latex surgical gloves (both chemical resistant);
- steel-toe, steel-shank work boots with rubber overboots;
- chemical-resistant tape over protective clothing (as necessary); and
- hard hat.

7.0 SITE WORK AREAS AND DECONTAMINATION

Site operation areas will be formally set up for all field activities. Personal decontamination procedures will be adhered to upon entering or leaving all work areas. Section 7.1 describes the three zones used to control Site operation areas, and Section 7.2 describes decontamination procedures.

7.1 SITE OPERATION AREAS

A three-zone control system will be used during all intrusive Site activities. The purpose of these zones is to control the flow of personnel to and from potentially affected work areas. Guidelines for establishing work areas and support zones are as follows.

7.1.1 Exclusion Zone (EZ)

Primary exclusion zones will be established around each intrusive field activity. Appropriate personal protective equipment must be worn in this zone. This zone will be separated from the contaminant reduction zone (see below) by cones or barrier tape to prevent personnel from entering the exclusion zone boundary without appropriate protective equipment or leaving without proper decontamination.

7.1.2 Contaminant Reduction Zone (CRZ)

The CRZ is the transition area between the EZ and the Support Zone (clean area). All personnel and equipment must be decontaminated in the CRZ upon exiting the EZ and before entering the Support Zone. The CRZ will be set up along the perimeter of the EZ at a point upwind of field activities.

7.1.3 Support Zone (SZ)

The support zone is considered to be clean; as such, protective clothing and equipment are not required but should be available for use in emergencies. All equipment and materials are stored and maintained within this zone. Protective clothing is donned in the support zone before entering the contaminant reduction zone.

7.2 DECONTAMINATION GUIDELINES

In the situation where work areas are controlled using the three-zone concept, all personnel must exit the EZ through an established CRZ. All personnel leaving the point of operations should wash outer gloves and boots, if applicable. The outer boots shall be washed and removed and then either stored in an appropriate area or disposed of properly. If PPE is affected, personnel shall then remove and dispose of their chemical resistant coveralls with care so that inner clothing does not come in contact with any affected surfaces. After chemical resistant coverall removal, personnel shall remove and clean gloves, inspect the gloves, and discard if damaged. Personnel shall then remove the respirator, when applicable. Respirators shall be disinfected between uses by utilizing sanitizing methods and stored in a clean plastic container/bag. Potable water, at a minimum, will be present so that Site personnel can thoroughly wash hands and face if desired after leaving the point of operations.

For Site work not using the three-zone concept (e.g., soil or ground water sampling with typical equipment), portable wash stations will be utilized for easy and efficient access. The wash station shall consist of a potable water supply, soap, and clean towels. Portable sprayer units filled with Alconox® solution and potable water will also be available to wash and rinse off boots, gloves, and other equipment if necessary.

Modifications of the decontamination procedure may be necessary as determined by HSO observations. All reusable equipment brought on must be cleaned at the Site prior to use. Site Decontamination of all field equipment will be conducted as follows:

7.2.1 Heavy Equipment

The drill rig and all downhole tools will be steam cleaned between each field activity location. If necessary, equipment will be scrubbed manually to remove heavy soils prior to steam cleaning. Equipment must be steam cleaned prior to leaving the site.

7.2.2. Sampling Equipment (e.g., scoops, hand-auger, bowls, bailers, etc.)

All non-disposable sampling equipment will be cleaned before each use by washing with solutions in the following order:

- phosphate-free detergent wash;
- potable water rinse;
- distilled or analyte-free lab water;
- air dry unless re-use is imminent;
- wrap in aluminum foil until use.

7.2.3. Meters and Probes

All meters and probes that are used in the field will be cleaned between uses by washing with a phosphate-free detergent/potable water solution followed by rinsing with distilled water or analyte-free water supplied by the project laboratory.

7.3 MANAGEMENT OF GENERATED WASTES

All wash and rinse waters, discarded health and safety equipment, discarded sampling equipment, and other investigation- or remediation derived wastes will be handled and managed in accordance with the RIWP and DER-10.

8.0 SITE ACCESS AND SITE CONTROL

Access to Site activities are normally limited by the Site owner and will be limited to authorized personnel. Access into the established contaminant reduction and exclusion zones will be limited to those authorized personnel with required certifications and wearing appropriate PPE. The exclusion zones will be monitored by the HSO to ensure personnel do not enter without proper personal protection equipment. Failure to comply with Site access and Site control provisions is performed at one's own risk and may result in cancellation of authorization to visit the work area.

9.0 EMERGENCY RESPONSE

In the event of an emergency, the HSO will coordinate on-Site emergency response activities. Appropriate authorities will be notified immediately of the nature and extent of the emergency. This Section provides emergency telephone numbers that will be posted within the support zone or any other visible location. Directions to the nearest hospital are also included.

9.1 RESPONSIBILITIES

The HSO will be primarily responsible for initiating response to all emergencies and will:

1. notify appropriate authorities and health care facilities of the hazards of the field activities;
2. ensure that the following safety equipment is available at the site: fire extinguisher, eye-wash station and first aid supplies;
3. have working knowledge of all safety equipment available at the site;
4. ensure that a map that details the most direct route to the nearest hospital is posted with the emergency telephone numbers;
5. for a release incident, determine safe distances and places of refuge.

Others shall initiate emergency response activities if the HSO is not available or if there is a perceived, imminent threat to the health and safety of Site personnel, property, or equipment.

EMERGENCY CONTACTS

Former A&A Metals Site
Village of Perry, Wyoming County
NYSDEC Brownfield Site Number 961011

Project Consultant

Rick Henry, P.E.
Clark Patterson Lee
205 St. Paul Street
Rochester, NY 14604
Phone # 800-274-900

NYSDEC Project Manager

Tim Dieffenbach
NYSDEC Region 9
270 Michigan Avenue
Buffalo, NY 14203-2999
Phone # 716-851-7220

Emergency Numbers

Ambulance 911
Fire Dept. 911
Police 911
NYSDEC Spill Hotline 1-800-457-7362

Hospital

Wyoming County Hospital
400 North Main Street
Warsaw, New York 14569
Phone # 585-786-8940

Driving Route to Hospital:	Distance (miles)
1. Go EAST on WASHINGTON BLVD toward FEDERAL ST.	0.1 mi
2. Turn LEFT onto FEDERAL ST.	0.4 mi
3. Turn LEFT onto LAKE ST / CR-30. Continue to follow CR-30	5.4 mi
4. Turn SLIGHT RIGHT onto MERCHANT RD / CR-30.	2.0 mi
5. Turn LEFT onto US-20A.	1.3 mi
6. Turn RIGHT onto N MAIN ST / RT-19.	0.9 mi
7. 400 N MAIN ST is on the RIGHT	

9.2 ACCIDENTS AND INJURIES

In the event of a safety or health emergency, appropriate emergency measures will be taken immediately to assist those who have been injured or exposed and to protect others from hazards. The HSO will be notified immediately and will respond according to the injury.

9.3 SITE COMMUNICATIONS

Telephones (either landlines or cellular) will be located prior to the startup of field activities and will be used as the primary communication network. Radios may be used to communicate with workers on the Site if deemed necessary by the HSO or Field Team Leader.

10.0 ADDITIONAL SAFETY PRACTICES

The following are important safety precautions and practices that will be enforced during the field activities.

1. Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases that probability of hand-to-mouth transfer and possible ingestion of toxic material is prohibited in any area designated by the HSO.
2. Hands and face should be thoroughly washed upon leaving the work area and before eating, drinking, or any other activity.
3. Whenever decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.
4. No facial hair, which may interfere with the effectiveness of a respirator, will be permitted on personnel required to wear respiratory protection equipment as allowed by law. The respirator must seal against the face so that the wearer receives air only through the air purifying cartridges attached to the respirator. In addition to the OHSA required physician's evaluation, approval to work while wearing respiratory protection, and qualitative fit testing, a negative and positive pressure fit-test shall be performed prior to each respirator use to ensure a proper seal is obtained by the wearer.
5. Even when wearing protective clothing, contact with potentially contaminated surfaces should be avoided whenever possible. One should not walk through puddles, mud, or other discolored surfaces that may be affected; kneel on ground; lean, sit or place equipment on drums, containers, vehicles, or the ground in areas that may be affected.
6. Medicine and alcohol can enhance the effect from exposure to certain compounds. Alcoholic beverages will not be consumed during work hours by personnel involved in the project. Personnel using prescription drugs during the project may be precluded from performing specific tasks (e.g. operating heavy equipment) without authorization from a licensed physician.
7. Personnel and equipment in the work areas will be minimized.

8. Procedures for leaving the work area will be planned and implemented prior to going to the Site. Work areas and decontamination procedures will be established on the basis of prevailing site conditions.
9. Respirators will be issued for the exclusive use of one worker and are required to be cleaned, disinfected, and properly stored after each use.
10. Safety gloves and boots shall be taped to the disposable, chemical protective suits as necessary.
11. Cartridges for air-purifying respirators in use will be changed daily at a minimum.

11.0 COMMUNITY AIR MONITORING PLAN

Real-time air monitoring for VOCs and/or particulate levels shall be monitored at the perimeter of the exclusion zone or work area. Ground intrusive activities such as soil excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells shall require monitoring.

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 shall consist of taking a PID 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.

11.1 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 above. 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 shut down.

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

11.2 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 mcg/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 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppres-

sion measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/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.