INVENTUM ENGINEERING, PC

Excavation Work Plan

Northwest Berm Area

Tonawanda Coke Corporation, Operable Unit 02
Site No. 915055

3875 River Road
Tonawanda, New York 14150

Prepared for
Honeywell International Inc.

February 6, 2025

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441 CARLISLE DRIVE
SUITE C
HERNDON, VA 20170
WWW.INVENTUMENG.COM

TABLE OF CONTENTS

LIST OF FIGURE

LIST OF ACRONYMS

CAMP	Community Air Monitoring Plan
DER	Division of Environmental Remediation
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
EWP	Excavation Work Plan
HASP	Health and Safety Plan
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules and Regulations
OSHA	Occupational Safety and Health Administration OU Operable Unit
PID	Photoionization Detector
PAHs	Polycyclic Aromatic Hydrocarbons
RI/FS	Remedial Investigation/Feasibility Study
RP	Remedial Party
SCG	Standards, Criteria and Guidelines
SCO	Soil Cleanup Objective
SOP	Standard Operating Procedures
SOW	Statement of Work
SPDES	State Pollutant Discharge Elimination System
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	United States Environmental Protection Agency

Engineering Certification

I, John P. Black certify that I am currently a NYS registered professional engineer as defined in 6 NYCRR Part 375 and that this Remedial Action Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the NYSDEC Technical Guidance for Site Investigation and Remediation (DER-10), Green Remediation (DER-31) and that all activities producing the data were performed in full accordance with NYSDEC-approved work plans and any NYSDEC-approved modifications.

Respectfully Submitted,

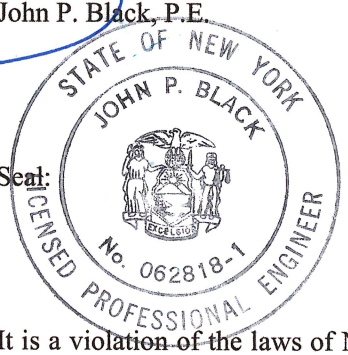
Inventum Engineering, P.C.

Date: February 6, 2025

John P. Black, P.E.

License No: 062818-1

Seal:



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1 Introduction

This Excavation Work Plan (EWP) has been prepared for the relocation of the northwest berm on Site #915055, Operable Unit 2, (aka Site 109) for the purposes of installation of utility poles and transmission lines for the 3875 River Road property in the Town of Tonawanda. The Site is currently in the New York State (NYS) Inactive Hazardous Waste Site Program (aka State Superfund) as Operable Unit 2 of Site No. C915055 which is administered by New York State Department of Environmental Conservation (NYSDEC).

Honeywell International Inc. (Honeywell) entered into an Order on Consent and Settlement Agreement (2022 Order) with the NYSDEC to investigate the Site. Following release of a Decision Document and Amended Record of Decision (AROD) Honeywell agreed to implement a Remedial Action Work Plan (RAWP) and remediate the site. The RAWP is in preparation, but due to deterioration of the electrical transmission system to the 3875 River Road property, a new electrical supply is required. The location of the new electrical service will cross an earthen mound, hereafter called the Northwest Berm, and create dangerous conditions due to the lack of clearance between the transmission line and the ground surface at the top of the berm. As a result, the berm shall be removed and the fill shall be placed in areas that are consistent with the draft grading plans for the RAWP.

The electrical infrastructure for the 3875 River Road property is deteriorated beyond conditions that can be relied on to service the groundwater collection and treatment system. National Grid identified the location and alignment of a new electrical transmission service to the site that crosses the Northwest Berm (Figure 1). The Berm must be removed to avoid dangerous conditions associated with low clearance between the transmission line and the berm surface. This EWP was prepared to provide the framework to manage the removal actions associated with the Northwest Berm. No other earthmoving activities are proposed at this time.

This EWP was prepared by Inventum Engineering, P.C., on behalf of Honeywell, in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 2010, Green Remediation Initiative DER-31 and the guidelines provided by the NYSDEC and New York State Department of Health. This EWP addresses the means for the relocation of the Northwest berm materials on the property. It does not address the means of implementing the remedial actions for the Site.

1.1 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. Revisions will be necessary upon, but not limited to, the following occurring: any removal of contaminated sediment or soil, or other significant change to the Site conditions.

1.2 Notifications

Notifications will be submitted by the Site owner to the NYSDEC, as needed, in accordance with NYSDEC's DER–10:

- 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan.
- 15-day advance notice of any proposed movement of potentially contaminated materials.

- Notice within 48-hours of any damage or defect to the foundation, structures that has the potential to affect the environment, and likewise, any action to be taken to mitigate the damage or defect.
- Verbal notice by noon of the following day of any emergency, such as a fire; flood; or earthquake that has the potential to reduce the effectiveness of surface water controls in place at the site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

  Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action submitted to the NYSDEC within 45 days describing and documenting actions taken.
- Notifications of all spills and releases of petroleum products in accordance with the SWPPP. Review SWPP for completed details, but the following is provided for reference:
- All petroleum spills that occur within New York State (NYS) must be reported to the NYS Spill Hotline (1-800-457-7362) within 2 hours of discovery, except spills which meet all of the following criteria:

  - The quantity is known to be less than 5 gallons; and
  - The spill is contained and under the control of the spiller; and
  - The spill has not and will not reach the State's water or any land; and
  - The spill is cleaned up within 2 hours of discovery.

- A spill is considered to have not impacted land if it occurs on a paved surface such as asphalt or concrete. A spill in the coal yard, coke yard, any soil surfaces or any gravel parking lot is considered to have impacted land and is reportable. Any spills or releases that do not require reporting to the NYS Spill Hotline will be reported, in writing, to the DEC BCP Project Manager within 48-hours of discovery.
- In the event of a potential or actual release from the property beyond Outfall 004, the following shall be called in the order given after calling the NYS Spill Hotline (1-800-457-7362):

  - National Response Center - 800.424.8802
  - U.S. Coast Guard - 716.846.4168
  - U.S. EPA - 732.548.8730
  - NYSDEC (Region 9) - 716.851.7220
  - NYSDEC (Albany) - 800.457.7362

- In the event of a spill that generates material from on-Site cleanup efforts (e.g., sorbent material, impacted soil, etc.), the Project Manager will confer with Inventum and the DEC regarding the nature of the waste in order to determine the proper reuse, recycling and/or disposal method. Table 1 includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information.

Table 1 includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information.

Table 1: Notifications*

Name	Contact Information
Ben McPherson, NYSDEC Project Manager	(716) 851-7220 benjamin.mcpherson@dec.ny.gov
Angela Martin, NYSDOH Project Manager	angela.martin@health.ny.gov
Paul Morrow, Pre-treatment Coordinator, Town of Tonawanda **	(716) 693-4900 ext. 4550 pmorrow@tonawanda.ny.us

* Note: Notifications are subject to change and will be updated, as necessary.

** **Paul Morrow to be notified of any release with the potential to reach a Town of Tonawanda sanitary or storm sewer.**

Each notification of a variation from this EWP will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for site re-grading, intrusive elements or utilities to be installed below ground surface, estimated volumes of potentially contaminated materials (defined in Section 2) to be excavated, and any work that may impact an engineering control;
- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media (defined in Section 2) 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 (if applicable).
- A copy of the health and safety plan (HASP), in electronic format (if applicable).
- Identification of disposal facilities for potential waste streams (if applicable); and
- Identification of sources of any anticipated backfill, along with all required chemical testing results

1.3 SOIL SCREENING AND RELOCATION METHODS

The relocation of the berm is expected to involve topsoil and materials of the same properties as the site-wide fill on Site 109. Visual and olfactory screening of the materials being managed will be performed by the equipment operator and the Inventum onsite representatives. Material producing a noticeable liquid like behavior, or an odor detectable more than 4 feet away shall be reported to the onsite staff:

a. Matt Reardon - 716.570.0717
b. Peter Zaffram - 716.553.5129
c. Corey Bryerton - - 716.720.3256
d. John Black - 571.217.6761 (If Matt, Peter, or Corey are not available)

Topsoil and underlying fill will be segregated. Topsoil shall be stockpiled, both from the berm and from the placement area (if any). The topsoil from the berm and placement areas will be separate stockpiles and the stockpiles shall be labeled to guide the reuse of the materials in the respective areas.

The Northwest Berm materials shall be removed to nominal elevation 574 feet above mean sea level to be consistent with the proposed grading for the RAWP. The materials management will include:

- Utilization of erosion control methods to prevent runoff into southern drainage ditch. Straw, silt fence, silt boom, woodchips/mulch, or any other suitable E&S controls will be deployed if deemed necessary.
- Soils will be inspected for grossly contaminated materials[1] or that exhibit nuisance conditions, and shall be scanned with a Photoionization Detector (PiD). Potentially grossly contaminated materials will be placed in the grossly contaminated materials stockpile. Materials considered to exhibit nuisance conditions shall be stockpiled in a seperate nusiance soil stockpile;
- Potentially grossly contaminated and nuisance material stockpiles will be on two layers of 6 mil poly sheeting placed over silt socks to form a containment for any free liquids, and each will be covered with polyethylene nightly. The joining ends of the silt socks will be overlapped a minimum of 12-inches to ensure the cotainment integrity will remain during filling;
- Each stockpile will be sampled and the samples shall be analyzed for disposal characterization if 20- or more tons have been segregated or at the completion of the project if a small amout of material is identified;
- Large pieces of fill not stuiable for grading in proposed construction areas, such as concrete blocks, rail road ties, or piping, if encountered, will be removed, segregated and placed in the western most area of proposed fill.
- Soil shall be transported to the prepared placement area (Figure 1) and spread in loose lifts of 12-inches or less;
- Each lift shall be compacted using three passes (minimum) of a 20 Ton (minimum) smooth drum roller; and
- The finished surface of the placed materials shall not exceed the elevations for the proposed subgrade shown on Figure 1.
- Following placement of the soils, the areas disturbed during the implementation of this work plan shall be seeded with winter rye. Mulch produced onsite may be used in areas requiring stabiliization

[1] Grossly contaminated and nuisance materials were not observed during the Focused Feasibility Study (FFS) and are not anticipated on Site 109, however, it is considered appropriate to include provisions should any materials requiring characterization or special management be observed.

while the seed germinates. All erosion controls shall be maintained until the seeding has germinated over the majority of the disturbed areas.

Following removal of the Northwest Berm, the topsoil from the berm shall be uniformly laced over the area and seeded with winter rye. Following completion of the placement area, any recovered topsoil shall be spread on the surface and the entire area shall be seeded with winter rye.

Consistency with Green Remediation includes:

1. Reuse of onsite materials, rather than generating green house gasses by transporting the materials to a landfill;
2. Onsite reuse rather than occupying landfill space that required green house gas generation to construct, complete, and maintain;
3. Placement in a location that does not require stockpiling, or re-excavation and additional placement, minimizing the green house gas generation associated with multiple handing of materials; and
4. Utilizing available equipment and staff limiting over the road transportation of equipment and commuting emissions.

No potentially grossly contaminated materials were identified during the test pit excavations (Appendix A) in the Northwest Berm. The potentially grossly contaminated soils shall be placed (Figure 1) on two layers of 6 mil (minimum) polyethylene sheeting and shall not be placed in an area where the materials could erode to a storm drain or the settling ponds.

Off-site disposal of site materials is not contemplated under this EWP. In the case of encountering potentially grossly contaminated materials, the materials will be managed, as a contingency, in a stockpile while laboratory analysis is being conducted. The grossly contaminated materials will be managed in accordance with the analytical data as solid or hazardous waste.. In accordance with the AROD, the materials with nuisance properties will be disposed offsite if the concentration of PAHs exceed 500 mg/Kg or treated with 1.5 percent fertilizer and placed in the fill area. The location of the nuisance materials will be documented with GPS and the conditions will be monitored prior to placement of the cover systems. Final management of the nuisance materials with less than 500 mg/Kg will be addressed in the site-wide RAWP. Trash and potential spill cleanup materials will be disposed offsite in accordance with all applicable requirements in facilities permitted for those materials.

All onsite EWP activities shall be conducted in accordance with the OSC Health and Safety Plan (Appendix B).

1.4 STORMWATER POLLUTION PREVENTION

Although the excavation, due to the limited area involved, does not require an Erosion and Sediment Control Plan (E&SCP) silt fence shall be installed along River Road to protect the berm and stormwater system (Figure 1). Access to the placement area from the north shall be limited during any period of precipitation that results in flow in the depression along that perimeter.

1.5 EXCAVATION CONTINGENCY PLAN

If underground tanks, tar, underground pipes or utilities, or other previously unidentified contaminant sources are found during berm removal, activities will be suspended until appropriate equipment is mobilized to address the condition.

Identification of unknown or unexpected contaminated media identified by screening during berm removal site work will be promptly communicated by phone to Riverview's Project Superintendent, Project Manager and Engineering Manager:

Name	**Contact Information**
Matt Reardon, Project Superintendent	(716) 570-0717 mreardon@oscinc.com
Al Trpevski, Project Manager	(716) 818-3390 atrpevski@oscinc.com
John Black, Engineering Manager	(571) 217-6761 john.black@inventumeng.com

OSC or Inventum will inspect the suspect material and if it is unexpected contaminated media, will make a determination of the contingency plan. OSC or Inventum will notify the NYSDEC before taking non-emergency actions to address the suspect material.

In the event of a release from equipment or containers, reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline.

1.6 COMMUNITY AIR MONITORING PLAN

During the excavation activities, a CAMP station shall be (Appendix C) operated downwind of the excavation area. The upwind CAMP station for the BCP Site will provide a downwind monitoring point for the placement activities.

1.7 ODOR CONTROL PLAN

The odor control plan is to control emissions of nuisance odors to the site, no nuisance odors shall migrate off-site. Specific odor control methods to be used on a routine basis will include covering odor producing materials with polyethylene sheeting. 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 off-site odor events and of any other complaints about the project. Implementation of all odor controls, including halting work, is the responsibility of the owners on-site representative.

All necessary means will be employed to prevent off-site nuisances. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (a) direct load-out of

nuisance materials to trucks for off-site transportation; (b) use of chemical odorants in spray or misting systems; and, (c) 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, the excavation and handling of berm soils will be suspended.

1.8 DUST CONTROL PLAN

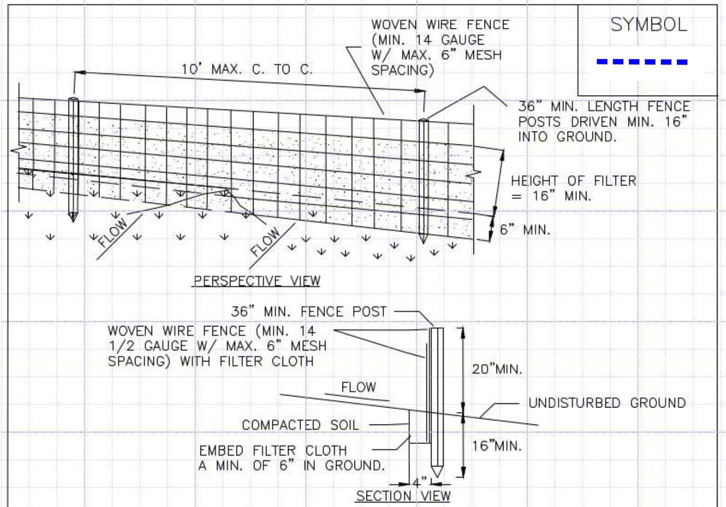
A dust suppression plan that addresses dust management during intrusive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of the on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.

References

1. Inventum, 2020a, Storm Water Pollution Prevention Plan (SWPPP), Prepared for Riverview Innovation & Technology Campus, Inc., Approved June 1.
2. New York State Department of Environmental Conservation, 2024, Amended Record of Decision, Tonawanda Coke, Operable Unit 02, Tonawanda, Erie Couty, New York, Site Number 915055, June.

Figure

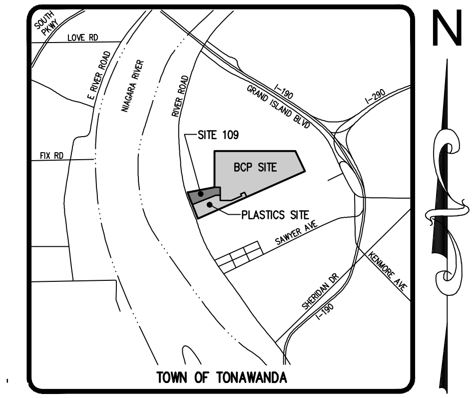


CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

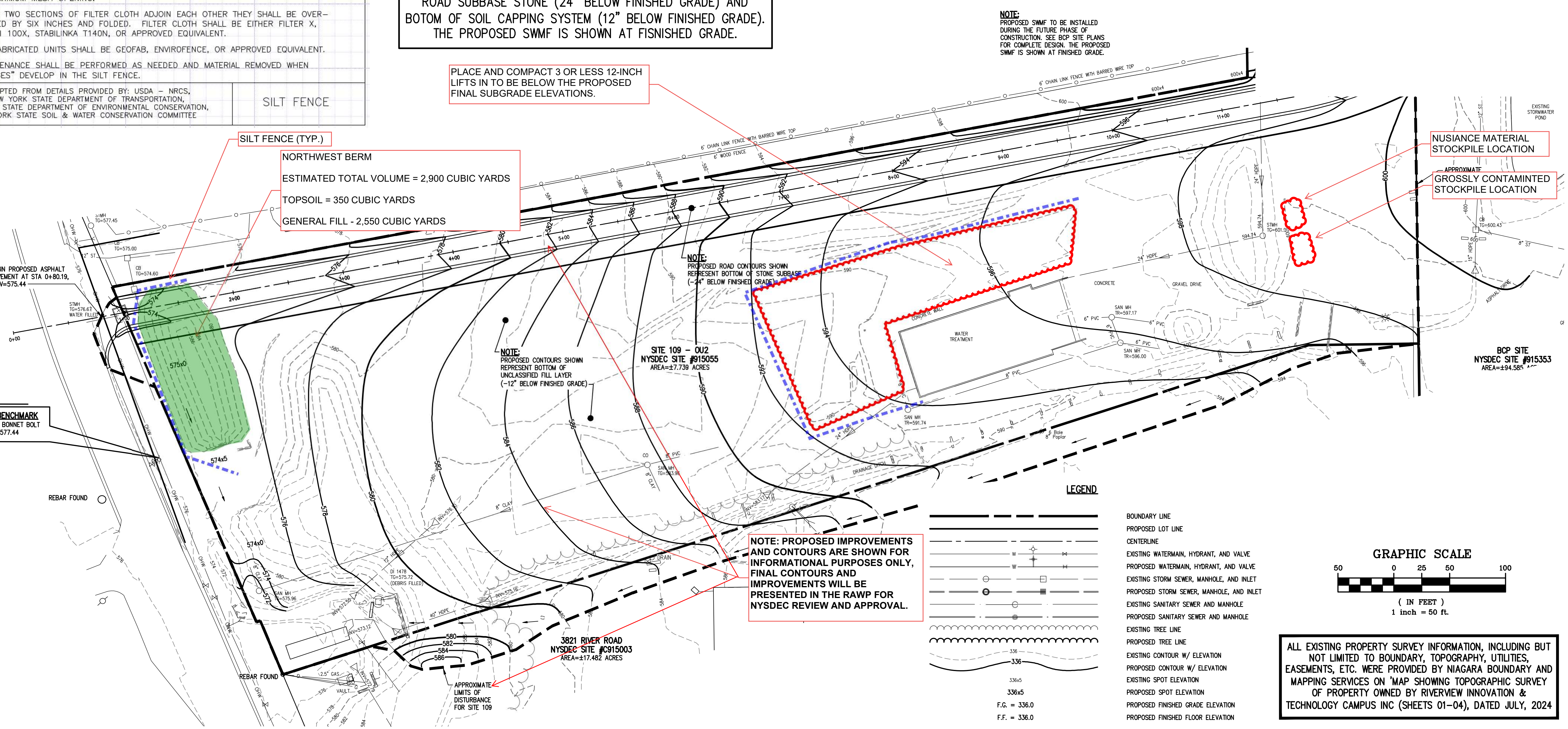
SILT FENCE



LOCATION MAP

NOT TO SCALE

THIS PLAN SHOWS THE PROPOSED GRADING AT THE SUB-GRADE ELEVATION WITHIN SITE 109 INCLUDING BOTTOM OF ROAD SUBBASE STONE (24" BELOW FINISHED GRADE) AND BOTTOM OF SOIL CAPPING SYSTEM (12" BELOW FINISHED GRADE). THE PROPOSED SWMF IS SHOWN AT FISNISHED GRADE.



LEGEND

- BOUNDARY LINE
- PROPOSED LOT LINE
- CENTERLINE
- EXISTING WATERMAIN, HYDRANT, AND VALVE
- PROPOSED WATERMAIN, HYDRANT, AND VALVE
- EXISTING STORM SEWER, MANHOLE, AND INLET
- PROPOSED STORM SEWER, MANHOLE, AND INLET
- EXISTING SANITARY SEWER AND MANHOLE
- PROPOSED SANITARY SEWER AND MANHOLE
- EXISTING TREE LINE
- PROPOSED TREE LINE
- 336 EXISTING CONTOUR W/ ELEVATION
- 336 PROPOSED CONTOUR W/ ELEVATION
- 336x5 EXISTING SPOT ELEVATION
- 336x5 PROPOSED SPOT ELEVATION
- F.G. = 336.0 PROPOSED FINISHED GRADE ELEVATION
- F.F. = 336.0 PROPOSED FINISHED FLOOR ELEVATION

GRAPHIC SCALE

50 0 25 50 100

(IN FEET)
1 inch = 50 ft.

ALL EXISTING PROPERTY SURVEY INFORMATION, INCLUDING BUT NOT LIMITED TO BOUNDARY, TOPOGRAPHY, UTILITIES, EASEMENTS, ETC. WERE PROVIDED BY NIAGARA BOUNDARY AND MAPPING SERVICES ON 'MAP SHOWING TOPOGRAPHIC SURVEY OF PROPERTY OWNED BY RIVERVIEW INNOVATION & TECHNOLOGY CAMPUS INC (SHEETS 01-04), DATED JULY, 2024

D

DRAWING BY: RB
CHECKED
APPROVED

PROPERTY OF INVENTUM ENGINEERING

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RIVERVIEW INNOVATION & TECHNOLOGY CAMPUS
SITE 109 (OU2, NYSDEC #915055)
TONAWANDA, NY 14150

INVENTUM ENGINEERING
441 CARLISLE DRIVE
SUITE C
HERNDON, VIRGINIA 20170
(703) 722-6049
www.InventumEng.com

FIGURE 1

NORTHWEST BERM EXCAVATION WORK PLAN

Appendices

Appendix A – Test Pit Log

Test Pit Log
3875 River Road
Tonawanda, NY
Site 109

Test Pit No.	**TP-109-01**							
Date: 10/08/2024								
Notetaker Name: Peter Zaffram								
Surface conditions:	West to east located on east side of the River Road berm.							
ID	Distance from Start (ft)	Depth (in)	Soil Type	Color	Consistency	Moisture	PiD	Observations
0W to 27E	0 to 27	0-16	Topsoil with trace sand and gravel	Brown	Medium to low density	Low	0.0 ppm	Moving east down slope of berm, topsoil thins out at toe of slope.
		16-96	Sand and gravel with trace red brick, concrete, and wood	Black	Medium dense	Low	0.0 ppm	
		96-120	Clayey silt	Gray	Low plasticity and soft	Medium to low	0.0 ppm	
27 W to 42E	27 to 42	0-4	Topsoil with trace sand and gravel	Black	Medium to low density	Low	0.0 ppm	
		4-36	Sand and gravel with trace red brick and concrete	Black	Medium dense	Low	0.00 ppm	
Comments: Top of clay was noted at 572.3 ft. AMSL on the east side. The top of the berm was noted at 586.86 ft. AMSL. 2 samples were taken of the fill and topsoil.								

N

B

1" = 200'

200' 100' 0' 200'

DRAWING BY: RB
CHECKED
APPROVED

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SITE LAYOUT

SITE 109, BCP SITE #915055, OU2
3875 RIVER ROAD
TONAWANDA, NEW YORK

INVENTUM ENGINEERING
441 CARLISLE DRIVE
SUITE C
HERNDON, VIRGINIA 20170
(703) 722-6049
www.InventumEng.com

FIGURE

DRAWING NUMBER

Appendix B – Health and Safety Plan

Site Specific
Health and Safety Plan V1

TONAWANDA COKE

3875 River Road

NYSDEC Site No. 915055/OU2 (aka Site 109)

Submitted to:

Honeywell International, Inc.

Submitted by:

140 Lee Street

Buffalo, NY 14210

December 2024

Table of Contents

Authorization Signatures

This Site-Specific Health and Safety Plan (HASP) has been reviewed and approved by the individuals below. The undersigned certify that to the best of their knowledge this HASP meets the safety requirements as defined by the project specifications and all known applicable governing regulatory requirements.

John Yensan — 02/05/2025

John Yensan, President — Date

OSC

Alen Trpevski — 02/06/2025

Alen Trpevski, Project Manager — Date

OSC

Matt Reardon — 02/05/2025

Matt Reardon, Site Superintendent — Date

OSC

Paul Mulvey — 12/06/2024

Paul Mulvey, Director HS&E — Date

OSC

Conformance Signatures

All Individuals working on this Project, including subcontractors must read and sign.

The following personnel have read and fully understand the contents of this Site-Specific Health and Safety Plan and further agree to all requirements contained herein.

Name	Affiliation	Date	Signature

Emergency Contact List
Site 109

AGENCY	Contact	Phone Number
Owner's Representative	John Black Project Manager	571-217-6761
OSC	Matt Reardon Site Superintendent	716-570-0717
	Alen Trpevski Project Manager	716-818-3390
	John Yensan President	716-583-4400
	Paul Mulvey Director HS&E	702-677-2967
Kenmore Mercy	Medical emergency	911 (direct) 716-447-6100
Utilities	Water Gas Electric	811/911

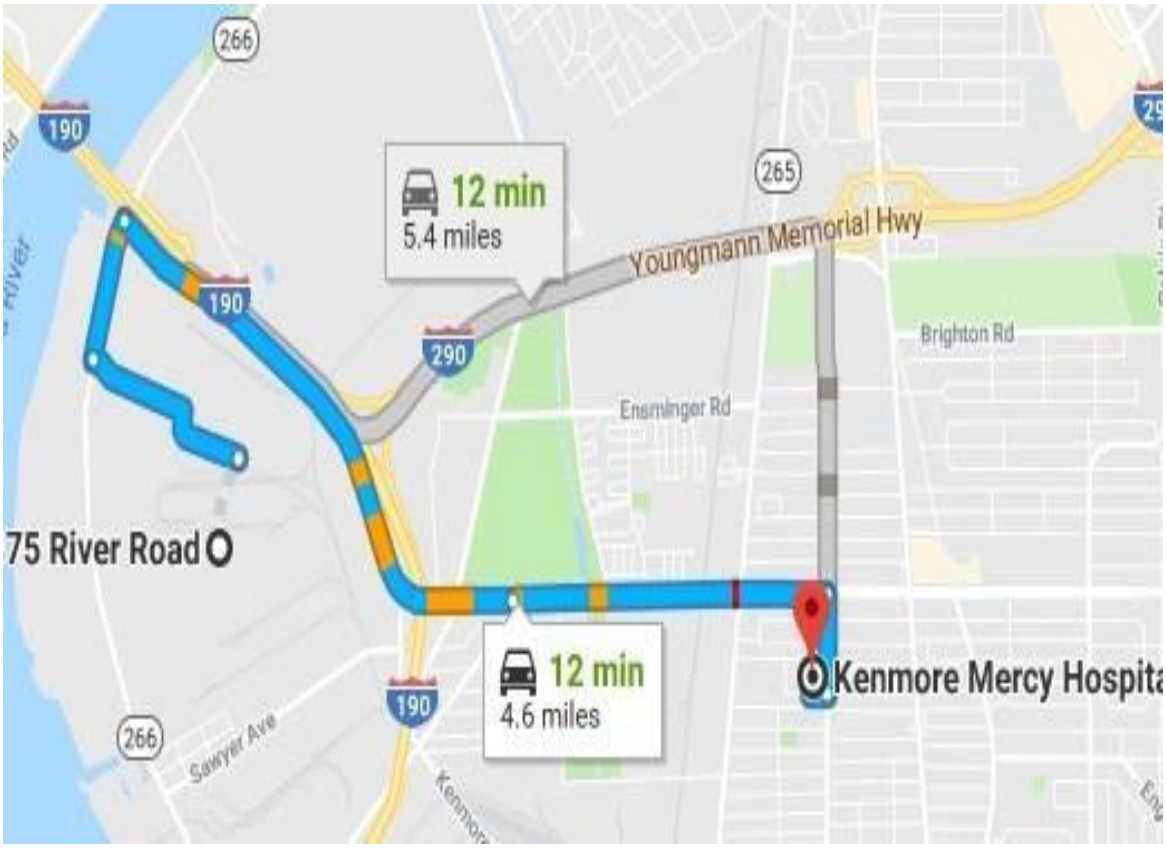
AGENCY	Contact	Phone Number
Site Emergency	Police, Fire Dept., Ambulance	911
Fire Department	River Road Volunteer Fire Dept	911
Police Department & Security	Town of Tonawanda Police Dept	911
Ambulance		911
Poison Control	American Association of Poison Controls	1-800-222-1222
US EPA Release Report Number	National Response Center	1-800-424-8802
HAZARDOUS MATERIALS	CHEMTREC	1-800-424-9300 CCN 1011139

EMERGENCY - LOCAL MEDICAL

KENMORE MERCY HOSPITAL

2950 ELMWOOD AVE, KENMORE, NY 14127

DIAL 911 FOR EMERGENCY / DIRECT (716)- 447-6100



- Turn right onto River Road
- Turn right onto Grand Island Blvd (about 2 miles)
- Merge onto Sheridan Dr.
- Go about 1.5 miles and turn right onto Elmwood Ave.
- Make a sharp right and hospital is on left

OSC Medical Consultant:

Medcor, Inc.
4805 W. Prime Parkway
McHenry, Illinois 60050
800-775-5866

Non-medical Emergency:

Focus Urgent Care
2094 Niagara Falls Blvd
Amherst, NY 14228
(716) 710-8072

SITE/PROJECT BACKGROUND AND SCOPE

Honeywell International, Inc. (Honeywell) has contracted OSC, Inc. for the remediation of a portion of the former Tonawanda Coke Corporation (TCC) property in Tonawanda, NY. Remediation will be per requirements of the New York State Inactive Hazardous Waste Site Program (aka State Superfund). Inventum Engineering, PC is providing technical guidance for the project.

The work includes, but is not limited, to the following:

- Mobilization
- Installation of erosion and sediment controls
- Installation of site temporary features (waste/equipment decontamination pads, temporary access roads, and temporary utilities)
- Cleaning/decontamination of above ground structures deemed to remain on site
- Demolition of buildings and structures not to remain on site
- Treatment/neutralization of surface soils and water as reasonably feasible
- Grading
- Utility Installation with Confined Space Entry to Clear a Blocked 36-inch Storm Sewer
- Soil Cover Placement
- Restoration and seed stabilization
- Demobilization

APPLICABILITY and REFERENCES

OSC has developed the following site Health and Safety Plan (HASP) in accordance with the project contract requirements and Federal, State and Local regulations. It is intended for individuals performing work at the site and not for those considered visitors doing observation only. All operations and equipment used in conjunction with this contract shall, at a minimum, comply with the following:

- New York State Superfund Program
- Project Health and Safety Plan (this HASP)
- Remedial Action Work Plan (RAWP)
- OSHA 29 CFR 1910: Occupational Safety and Health Standards – General Industry
- OSHA 29 CFR 1926: Safety and Health Regulations for Construction
- EPA 9285.1-03: Office of Emergency and Remedial Response – Standard Operating Safety Guides
- OSC Corporate Health, Safety and Environmental Program Manual
- Orientation and Training (Supervision, Laborers, Operators & Visitors)
- Activity Hazard Analysis (AHA)

- Standard Operating Procedures; Emergency Response, Reporting, Incident Investigation, Inspections, Audits, Work Procedures, Hazard Communication, Hot Work, Confined Space, Fire Prevention, Control of Hazardous Energy (Lockout, Tagout, Tryout), Excavations, Controlled Work Zones including decontamination, Ladders, Steps, Stairs, Scaffolding Contractor/Vendor Safety Checklist, Heavy Equipment Operation, Forklift Operation, Powered Aerial Platforms
- Substance Abuse Policy
- Receive site orientation training regarding the project requirements contained in this HASP. Site orientation will be conducted by OSC's Health and Safety Officer (HSO) named in Section 2.0 of this HASP.
- Acknowledgement in writing, on page 4 of this HASP titled Conformance Signatures that they have received the site-specific orientation and therefore, have been trained in and understand the contents of this HASP and the general site safety requirements.

The health and safety protocol that is established in this HASP is based upon the known site conditions and or conditions anticipated to be present from established site data. This HASP is a living document that shall be updated and or revised over the term of this contract as warranted by change in site conditions, scope of work, methods and improvement measures. A copy of this HASP shall be maintained at the project site.

DEFINITIONS

The Owner/Client: Honeywell International, Inc.

The Engineer: Inventum

Client Representative: GES

The Contractor: OSC – Company retained to conduct the project.

The Project: Site 109 RAWP

The Project Site: The area designated as the Contractor work location.

Contractor Work Area: An area of the Project site which includes the support zone, access road, staging area.

Active Full Time Project Personnel: All personnel who are permanently assigned to the project and required to perform work. Does not include visitors or vendors visiting the site temporarily who are required to be always escorted by an authorized and trained project employee.

Qualified Person: A person with a recognized degree, or professional certificate, along with extensive knowledge and experience in the subject field who is capable of doing design, analysis, evaluation and specifications.

Competent Person: A person who is capable of identifying existing any predictable hazards in their surroundings/working conditions which are unsanitary, hazardous or dangerous to employees, and who has OSC authorization to take prompt corrective measures to eliminate them.

Authorized Personnel: A person that is approved or assigned by their employer to perform a specific type of duty/duties, or to be at a specific location(s) at the Project site.

Stop Work Authority: HS&E personnel, qualified and competent persons, owner representatives and all project employees shall have the authority to stop work in any situation deemed unsafe to those working on the project site, or in any situation that poses a risk to the environment. Work will remain stopped until the involved parties correct their impact or conditions as per the requirements of this HASP.

WORK AREA VISITOR REQUIREMENTS

A safe location, where visitors can observe site activities of interest will be identified by the Site Superintendent. Anyone visiting the site will receive site-specific instructions from the Site Superintendent. All visitors shall be escorted by site trained personnel after signing in and completing orientation. Visitor orientation will include, as necessary.

- OSC Project Safety Orientation and RIVERVIEW/Honeywell general site orientation
- Project Hazard Communication system
- Activity Hazard Analysis (AHA) / Job Hazard Analysis (JHA) review (as needed)
- Work Permit Process (as needed)
- Safety Meetings and Inspections
- PPE requirements
- Decontamination procedures (if needed)
- Emergency procedures, and
- Any other site-specific information that the Site Superintendent deems necessary.

Any visitor wishing to enter an established contamination reduction zone (CRZ) if applicable, or exclusion zone will be required to provide the Site Superintendent with documentation of medical monitoring and training equivalent to the requirements of this HASP for that area. Only authorized visitors with written proof that they have been medically certified and trained in accordance with project requirements will be permitted to enter the CRZ and/or exclusion area.

The only exception to this rule is for emergency personnel who may enter the work area without fully complying with the requirements of this subsection. Emergency crews will be quickly briefed as to site conditions and hazards by the Site Superintendent.

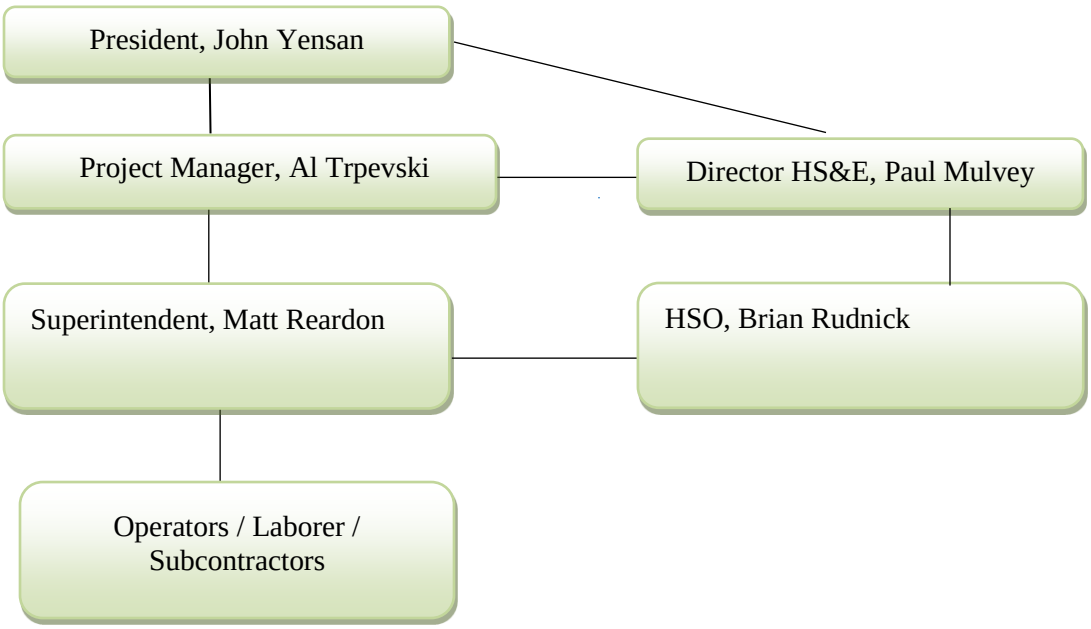
HEALTH and SAFETY ORGANIZATION

The following OSC management personnel will be assigned to this Project:

- President – John Yensan
- Project Manager – Alen Trpevski
- Superintendent – Matt Reardon
- Site Health & Safety Officer – Brian Rudnick
- Corporate Director of HS&E – Paul Mulvey

In addition to the above-listed management, OSC will provide the appropriate number of operators and laborers, as well as the required subcontractors for this project.

OSC ORGANIZATION CHART



PERSONNEL RESPONSIBILITIES

PROJECT MANAGER AND SUPERINTENDENT

The Project Manager will be responsible for the overall direction and completion of this contract. The Project Manager reports to the President and will be responsible for managing and coordinating all project related activities; as well as serving at OSC's primary contact with the Owner and/or Owner's Representative. The Site Superintendent will be responsible for overseeing contractor and subcontractor operations in the field. The Site Superintendent will report directly to the Project Manager.

Project Managers and Superintendents will be responsible for the following:

- Assure daily compliance with the Corporate HS&E Manual and this HASP during the project.
- Implement the procedures and guidelines outlined in this HASP throughout the project.
- Implement incident investigations. The Site Superintendent will notify INVENTUM management and the OSC Director HS&E immediately. Documentation will be maintained on OSC's Incident Report (see attachment I). The Incident Report will be submitted to RIVERVIEW/Honeywell by OSC. The HSO will conduct an incident investigation with support from the Superintendent and Director.
- Perform and support site safety audits and address all deficiencies.
- Provide incentive and motivation for safe work practices, as well as discipline for unsafe work practices.
- Ensuring a copy of this HASP is onsite always.
- Conduct initial site orientation meetings.

HEALTH AND SAFETY OFFICER (HSO)

The HSO will handle health and safety management on the project and will report to the Director HS&E. Specific duties of the HSO include:

- Overall implementation, enforcement and maintenance of this HASP.
- Act as a point of contact for all project site health and safety concerns.
- Conduct initial training of the contents of this HASP; as well periodic training for when rules/regulations change, new equipment or procedures are introduced, additional skills are needed, and new hazards are presented. Report observations in the daily safety meetings and update AHAs and training accordingly.
- Conduct daily meetings regarding health and safety.
- Supervising any additional HS&E requirements that are needed for this project.

The HSO will monitor the jobsite health and safety via inspection at the start and completion of each day's work; as well as monitoring the jobsite for this purpose throughout the day. The initial daily inspection will be recorded on OSC's inspection and audit form (Attachment I). Corrective actions and end-of-the-day inspection results will be recorded in the HSO's project safety logbook. Any deficiencies will be promptly corrected. All corrective and improvement measures will be reviewed with project personnel at the morning daily safety briefing. Intentional violations of the site HS&E regulations will be grounds for disciplinary action, which could include temporary suspension

or termination of personnel and/or expulsion of vendor and/or subcontractor personnel from the site.

HSE TECHNICIANS (not anticipated for this project)
The HSO will assign qualified technicians (air monitoring, material sampling, equipment specific and job design professionals) to each work crew or task in potentially hazardous areas as warranted.

OSC CORPORATE MEDICAL CONSULTANT
A Medical Consultant will be available to provide call-in emergency medical consulting to OSC personnel on an around-the-clock basis.

Medcor Inc.
4805 W. Prime Parkway
McHenry, IL, 60050
800-775-5866

SUBCONTRACTORS
All subcontractors shall be prequalified according to the OSC subcontractor/vendor prequalification requirements including Certificates of Insurance that meet or exceed the project contract requirements (See RIVERVIEW/Honeywell Project Subcontractor Insurance Requirements Under Separate Cover).

All subcontractor employees shall be required to attend a project safety orientation prior to starting work on site (See Training and Orientation Requirements of this HASP). Subcontractors are responsible for health and safety as it pertains to their operations at the project site and shall provide the required OSC HS&E supporting documentation. Documented proof of training shall be provided for all subcontractor employees. All subcontractors are responsible for providing their employees with the proper site-specific PPE required to perform their work as well as ensuring that all tools and equipment are properly inspected and maintained. Subcontractors are responsible for ensuring that their employees conform to all HS&E project requirements and applicable government regulations.

TRAINING and ORIENTATION

Personnel, including subcontractors, shall be provided with the training required to comply with this HASP. Training documentation (training certificates, attendance rosters) will be filed and maintained onsite by the Site Superintendent and will be made available for inspection upon request. Training documentation will be kept in an organized manner for each individual worker.

Full-time active project personnel working onsite must have received the following.

- Required safety training as defined by OSHA CFR 1926.21 for construction.
- OSHA 1926.65, HAZWOPER (employees potentially exposed to hazardous chemicals)
- Medical clearance - fit for work, (includes medical surveillance for specific occupations and probable contaminants) negative drug screen, clearance for respirator use, fit test, and training for the type of respirator required.

Supervisor Training – in addition to the above all designated supervisors shall have as a minimum received training that covers competent person training for the specific operation they are responsible for (i.e. excavation trenching and shoring, confined space, rigging, hot work, etc.), first aid and CPR, record keeping, incident investigation, employee substance abuse i.e., reasonable suspicion), HS&E documentation requirements.

SITE SPECIFIC TRAINING

Documentation of training, provided by a qualified safety professional, will be maintained as necessary for the following topics:

- OSC Site Specific Orientation
- Activity Hazard Analysis & Safe work procedures (AHA Review)
- Project Hazard Awareness training
- PPE requirements & possible decontamination procedures
- Heat/Cold Stress
- Fall Protection
- Heavy Equipment Operation (Authorized, Unauthorized)
- Powered Industrial Fork Truck Operation (Authorized, Unauthorized)
- Control of Hazardous Energy Lockout/Tagout and Air Gapping Requirements (1 ft visible air gap)
- Incident reporting
- Emergency response & available services (medical, fire, inclement weather, tornado, bomb threat, signals and procedures)
- Hoisting and Rigging
- Respirator use, maintenance, inspection, medical clearance and fit test
- Excavation hazards and protective measures
- Confined Space
- Dust, Erosion and sediment control
- Noise control measures

- OSC's STAC program
- Authority to stop work (all employees) and the buddy system "No One Works Alone".

JOB SPECIFIC SPECIALIZED TRAINING & MEDICAL CLEARANCE

OSC employees will participate in the company's annual medical surveillance program which evaluates "fit for duty" condition. These evaluations will be provided by a licensed health care professional.

Employees that may be exposed to elevated levels of contaminants or that wish to use tight-fitting respirators on a voluntary basis will require a current medical evaluation and be respiratory qualified in compliance with OSHA 1910.134.

MEETINGS

Attendance at HS&E meetings will be documented and filed onsite.

- Daily Morning Safety Brief prior to the start of work.
- Sign off on daily JHA
- Prior to the beginning of each work task, all involved workers shall be required to attend a task-specific HS&E meeting to review task-specific health and safety requirements pertinent to the day's tasks (JHA review - job hazards and protective measures).

WEEKLY HS&E MEETINGS

Onsite supervisory personnel shall be required to attend HS&E meetings as scheduled and conducted by the owner representative, to review project and/or task specific procedures. Topics to be discussed at these meetings may include but are not limited to.

- AHA – review for all definable features of work, hazards, and controls
- STAC - employee work observations and recommendations
- Audit/Inspection findings, and recommendations for improvement
- Necessary training requirements and site work rules.
- Change in work practices and/or work conditions, incident reports.
- Precautions and work practices related to scheduled site activities.
- New or modified site wide procedures or requirements.
- Discussion of potential hazards or hazardous operations.
- Equipment rules and requirements.
- Restrictions on the handling of materials.
- PPE requirements.
- Delegation of responsibility (emergency backup personnel, competent persons, etc.).
- Review of emergency response for anticipated situations (medical, fire, inclement weather, snow emergency, bomb threat, environmental release/spill) and communication methods (alarms, radio, voice, and hand signals).

- Dust, Erosion and Sediment Control
- Heavy Equipment Operation
- Hazard Communication.
- Respirator use, maintenance, inspection, medical clearance, and fit test
- Excavation Hazards and Protective Measures

HS&E AUDITS

The OSC HSE Director will make project site visits to assure compliance with this HASP and aid as needed. Site audits will be made minimally on a quarterly basis using the company's audit criteria. An audit finding report will be submitted to the project manager and superintendent within 3 days of the site visit. Highlighted deficiencies must be corrected immediately if not done so during the site visit.

SUBSTANCE ABUSE SCREENING

OSC maintains a drug free workplace. The company prohibits the use, manufacture, sale, possession, or transfer of illegal drugs, alcohol, and controlled substances on project sites.

OSC requires pre-employment, reasonable suspicion, and random substance abuse testing (random testing for project-assigned personnel only as required by contractual agreement). Post injury screening may also be conducted in conjunction with reasonable suspicion. Employees as a minimum will undergo a NIDA 9 panel quick drug screen for illegal drugs before working on the project. Drug and alcohol screens shall be managed by OSC using laboratories certified by HHS under the National Laboratory Certification Program (NLCP).

Reasonable suspicion testing may be triggered by direct observations of employee behavior or drug-related paraphernalia. Site personnel who have been observed using alcohol or controlled substances on site or during breaks at off-site locations after which they return to work will be requested to take an alcohol or drug test. Reasonable suspicion includes possession (on person or in vehicles) of alcohol or controlled substances on site as well as paraphernalia that suggest drug use. Site personnel who exhibit signs, symptoms, or behaviors of drug or alcohol use as interpreted by a reasonable person and verified by another reasonable person will also be requested to take a drug and/or alcohol test.

NOTE - Prescription drugs taken without an authorized prescription for use is considered an illegal drug. Also, in case of any injury, incident, or emergency, employees may be required to undergo a quick screen for illegal drugs, alcohol (breath), or prescribed medication. Submission to substance abuse testing is a condition of employment. Failure or refusal to submit to substance abuse testing is treated the same as a positive result. All reports will be maintained at OSC's main office. Any positive results will be referred to OSC Senior Management for further action.

PROJECT OVERVIEW AND TASK RISK ANALYSIS

TASK/RISK ANALYSIS

An Activity Hazard Analysis (AHA) shall be developed for significant features of work which breaks jobs down into individual tasks, defining the potential hazard of that activity, and the proper protective and control measures that shall be taken to minimize the hazard. AHA's shall be modified as warranted by safe work observations, audit, and incident investigation. Assessment of the work hazards associated with the scope of work for this project is provided in the Table 1.0 below. PPE requirements for most work is anticipated to be primarily in modified level D; ANSI approved hard hat, safety glasses, hearing protection, puncture resistant gloves, steel toed boots or steel toed rubber boots (dependent on soil conditions and chemical exposure), high visibility shirt or traffic vest, and as needed chemical resistant gloves/disposable coveralls/ full face shield.

TABLE 1.0 OVERALL JOB HAZARD EXPOSURE	
	Potential Exposure
Mobilization and temporary facilities and controls; establishment of work zones: hazard warning signs, OSC designated work area signage including barricades and area delineation, address safe work surface needs, add lighting, traffic controls, dust, fire and erosion controls.	Low
Installation of erosion and sediment control	Moderate
Installation of site temporary features (waste/equipment decontamination pads, roads)	Moderate
Demolition of buildings and structure not to remain on site	Moderate
Treatment/neutralization of surface soils and water as reasonably feasible per RAWP	Moderate/High
Utility Installation with Confined Space Entry to Clear Blocked 36-inch Storm Sewer	Moderate
Soil Cover Placement	
Restoration and seed stabilization	Low
Demobilization	Low

Low: Non-intrusive work – Minimal hazard/chance of exposure. Slight: Non-intrusive work / Possible HS&E hazards with tools. – Little chance of exposure. Moderate: Non-intrusive work / Possible HS&E hazards with powered tools, heavy equipment and/or working near or in water – Little chance of exposure to contaminants. Moderate/High: Intrusive work / Possible HS&E hazards with equipment – Exposure to contaminants is possible. High: Intrusive work / Possible HS&E hazards with equipment – Exposure to contaminants is probable.

CONTAMINATE/CHEMICAL HAZARDS

EXISTING SITE HAZARDS
Based on information provided in the RAWP there are several possible contaminates ranging from minimal to moderate hazardous exposure potential in the soil, groundwater, and surface water.

Although several coal tar constituent chemicals of concern are volatile, the product has been standing open for an extended period time. Much of the volatile and semi-volatile fraction is expected to have been released to the atmosphere minimizing the air pathway (inhalation).

Of the remaining constituent chemicals of concern, the likely exposures are skin absorption/contact and ingestion. These exposure pathways will be controlled using PPE (barrier) and proper hygiene (decontamination).

The following table lists the chemical constituents that may be of concern:

See next page

Sample Matrix	Sample Date	Parameter	Parameter Concentration		Industrial Standard		Data Source	Table Page Location
Surface Soil	12/21/2005	Benzo(a)pyrene	4,100	ug/kg	1,100	ug/kg		Table 1a, 2 of 70
Suburface Soil	8/24/2015	Benzo(b)fluorantene	2,000 to 4,600	ug/kg	1,100	ug/kg		Table 1b, 6 of 70
Surface Soil	8/17/2005 to 8/18/2005	Benzo(a)anthracene	13,000 to 20,000	ug/kg	11,000	ug/kg	GHD, 2018, Remedial Investigation/Feasibility Study Work Plan, Prepared for Tonawanda Coke Corporation, June.	Table 2, 11 of 70
Surface Soil	8/17/2005 to 8/18/2005	Benzo(a)pyrene	6,000 to 21,000	ug/kg	1,100	ug/kg		Table 2, 11 of 70
Surface Soil	8/17/2005 to 8/18/2005	Benzo(b)fluoranthene	13,000 to 32,000	ug/kg	11,000	ug/kg		Table 2, 11 of 70
Surface Soil	8/17/2005 to 8/18/2005	Chrysene	12,000 to 21,000	ug/kg	11,000	ug/kg		Table 2, 11 of 70
Surface Soil	8/17/2005 to 8/18/2005	Dibenz(a,h)anthracene	1,300 to 1,700	ug/kg	1,110	ug/kg		Table 2, 11 of 70
Surface Soil	8/18/2005	Indeno(1,2,3-cd)pyrene	15,000	ug/kg	11,000	ug/kg		Table 2, 11 of 70
Subsurface Soils	6/19/1989	Benzo(a)pyrene	2,400 to 11,000	ug/kg	1,100	ug/kg		Table 3, 16 of 70
Subsurface Soils	6/19/1989	Benzo(b)fluorantene	17,000	ug/kg	11,000	ug/kg		Table 3, 16 of 70
Subsurface Soils	6/19/1989	Dibenz(a,h)anthracene	2,200 to 11,000	ug/kg	1,100	ug/kg		Table 3, 16 of 70
Groundwater	10/18/1985 to 12/12/1989	Cyanide	0.22 to 2.75	mg/L	0.2	mg/L		Table 4, 37, 41, 45, 53, & 57 of 70
Groundwater	8/1/1986	1,4-Dichlorobenzene	29	ug/L	3	ug/L		Table 4, 38 of 70
Groundwater	11/1/1985 to 12/19/1989	Benzene	2.08 to 84	ug/L	1	ug/L		Table 4, 38, 42, & 54, of 70
Groundwater	8/1/1986	Chlorobenzene	22	ug/L	5	ug/L		Table 4, 38 of 70
Groundwater	11/1/1985	Xylenes	19 to 36	ug/L	5	ug/L		Table 4, 38 of 70
Groundwater	11/1/1985 to 8/1/1986	Toluene	11 to 59	ug/L	5	ug/L		Table 4, 38 of 70
Groundwater	6/26/1989 to 7/16/1991	Iron	2.597 to 160	mg/L	0.3	mg/L		Table 4, 36, 40, 48, 52, & 56 of 70
Groundwater	6/26/1989 to 7/16/1991	Manganese	0.801 to 11.2	mg/L	0.3	mg/L		Table 4, 37, 41, 49, & 57 of 70
Groundwater	11/1/1985	Phenolics	0.050 to 0.06	mg/L	0.001	mg/L		Table 4, 37 & 41 of 70
Groundwater	6/28/1989 to 12/13/1989	1,1,1-Trichloroethane	7 to 12.2	ug/L	5	ug/L		Table 4, 38 & 42 of 70
Groundwater	12/13/1989 to 12/20/1989	Methylene chloride	5.15 to 6.96	ug/L	5	ug/L		Table 4, 42 & 54 of 70
Groundwater	6/26/1989	Selenium	0.0116	mg/L	0.01	mg/L		Table 4, 49 of 70
Groundwater	6/26/1989	Nickel	0.153	mg/L	0.1	mg/L		Table 4, 53 of 70
Groundwater	7/16/1991	Cadmium	0.19	mg/L	0.005	mg/L		Table 4, 56 of 70
Surface Water	11/1/1985 to 8/1/1986	Benzene	23 to 48	ug/L	1	ug/L		Table 5, 62 of 70
Surface Water	11/1/1985	Xylenes	7	ug/L	5	ug/L		Table 5, 62 of 70
Surface Water	10/19/1989 to 7/8/1992	Toluene	12 to 24	ug/L	5	ug/L		Table 5, 62 of 70
Surface Water	3/15/1990 to 7/8/1992	Iron	1.09 to 472	mg/L	0.3	mg/L		Table 5, 62 & 64 of 70
Surface Water	3/15/1990 to 7/8/1992	Manganese	0.47 to 3.91	mg/L	0.3	mg/L		Table 5, 62, 64, & 66 of 70
Surface Water	3/15/1990	Nickel	0.14 to 0.216	mg/L	0.1	mg/L	GHD, 2018, Remedial Investigation/Feasibility Study Work Plan, Prepared for Tonawanda Coke Corporation, June.	Table 5, 62 & 64 of 70
Surface Water	11/1/1985 to 8/1/1986	Phenolics	0.039 to 0.61	mg/L	0.001	mg/L		Table 5, 63 of 70
Surface Water	12/19/1989	Methylene Chloride	52	ug/L	5	ug/L		Table 5, 66 of 70
Surface Water	3/15/1990	Chromium Total	0.086	mg/L	0.05	mg/L		Table 5, 64 of 70
Surface Water	7/8/1992	Lead	0.025	mg/L	0.025	mg/L		Table 5, 66 of 70
Sediment	3/15/1990	Benzo(a)pyrene	4,530	ug/kg	1,100	ug/kg		Table 5, 69 of 70
Sediment	3/15/1990	Dibenz(a,h)anthracene	3,430	ug/kg	1,100	ug/kg		Table 5, 69 of 70

Notes:

1 The compounds and results are representative of the site conditions at the time the samples were collected. This does not represent all samples or compounds detected, but is considered representative of the data set for this and related TCC Sites

2 Abbreviations used:

ug/kg = micrograms per kilogram

ug/L = micrograms per liter

mg/L = milligrams per liter

ug/kg = micrograms per kilogram

CHEMICALS BROUGHT ONSITE

The use of chemical products onsite will follow the requirements set forth in OSHA 29 CFR 1910.1200 (OSHA's Hazard Communication Standard), applicable Federal, State and Local regulations. The potential hazards associated with these products will be mitigated through site specific training, administrative controls (e.g. labeling and storage) and use of the prescribed PPE.

Safety Data Sheets (SDS) for all chemicals brought onsite, will be available for review at the project site upon request. Chemical products shall be labeled which shall include, product name, manufacturers name, hazard warning, identifier, and hazard pictogram.

The following table provides exposure guidelines for common hazardous chemicals that may be brought to the site, if required, for use during this project. The Site Superintendent will be notified before any new chemicals (chemicals not listed on the below table) are brought onsite.

HAZARD SUMMARY FOR CHEMICALS BROUGHT ONSITE					
Substance	**Route of Entry**	**Exposure Symptoms**	**Treatment**	**8 Hour TWA**	**STEL and IDLH**
Diesel Fuel	• Skin contact • Eye contact • Inhalation • Ingestion	• Harmful if comes in contact with or is absorbed throughout the skin. • Contact may cause skin and eyes irritation. • Prolonged or repeated exposure may cause liver or blood forming organ damage. • May cause skin irritation or dermatitis.	• Eyes: Irrigate immediately. • Skin: Flush with soap and water. • Inhalation: Remove victim to fresh air and provide respiratory support if needed. • Ingestion: Seek medical attention.	300 ppm	STEL: 500 ppm
Grease, Oil and Hydraulic Fluids	• Skin contact • Eye contact • Inhalation • Ingestion	• May be slightly irritating to skin and eyes. • Inhalation may cause headaches. • Ingestion could result in nausea and vomiting.	• Eyes: Irrigate immediately. • Skin: Flush with soap and water. • Inhalation: Remove victim to fresh air and provide respiratory support if needed. • Ingestion: Seek medical attention.	N/A	N/A
Gasoline Petroleum Distillates	• Skin contact • Eye contact • Inhalation • Ingestion	• Acute: Central nervous system effects. Chemical pneumonitis if aspirated into the lungs. • Chronic: Benzene is a confirmed carcinogen. Long term exposure caused kidney and liver cancer in rats/Chemical.	• Eyes: Irrigate immediately. • Skin: Flush with soap and water. • Inhalation: Remove victim to fresh air and provide respiratory support if needed. • Ingestion: Seek medical attention.	300ppm	500ppm STEL

GENERAL PHYSICAL HAZARDS AND STANDARD PROTECTIVE MEASURES

(See Attachment I, AHA for more specific details)

Activity: All *general work activities* (manual laboring, accessing work areas, supervising, inspecting).
Potential Hazard: noise, slips, trips and falls, struck by, pinched, falling debris, shock, heat/cold stress
Procedures to Mitigate Hazard: Minimum site required PPE (Level D ANSI rated hard hat, eye protection, safety boots, high visibility traffic vest or equivalent clothing, cut/abrasion resistant gloves. Hearing protection (when "you need to raise your voice to hear yourself talk") is required whenever using powered hand tools, when operating heavy equipment with no enclosed cab or near loud noise sources. Inspect work area for hazards, overhead power lines, obstructions, slip, trip, fall hazards, uneven surfaces, and vermin. Manage work area; flag, mark, delineate and cover, identify with appropriate hazard warning signs. Clearly label open pits, wells, and other fall hazards (soft barricade 15 feet back, hard barricade 2 feet back). Practice extreme caution in all work areas. 3 points of contact will be used during equipment access/egress, Walk with purpose, pick feet up and setup down, keep hands out of pockets, use handrails, stay on designated paths, and don't take short cuts through the site. Avoid stepping or standing on uneven or unsteady surfaces. In high heat situations stay well hydrated. Personnel will adhere to the heat and cold stress precautions provided in this HASP. All employees have stop work responsibility and authority for safety concerns.

Activity: *Manual Material Handling*
Potential Hazard: Strain, pinched, struck by, lacerations,
Procedures to Mitigate Hazard: Hands and feet clear of pinch points, glove use required. Observe the OSC lifting program (50 lbs maximum). Use good body mechanics when lifting, lift objects with your legs and not your back, keep the back straight and object lifted the power zone. Do not twist, pick your feet up and turn. Utilize equipment whenever possible - forklift, drum cart or other appropriate equipment. Seek assistance if it is needed.

Activity: General traffic from operations (heavy equipment, trucks, pedestrian, etc.)
Potential Hazard: Struck by, crush, fire, and burn
Procedures to Mitigate Hazard: Standard site required PPE. Traffic barricades and directional signs provide ground spotters/flagman equipment traffic, with high visibility, traffic vests or equivalent clothing. Minimum 35 ft. clearance from heavy equipment operations, leveling, compacting, separating and loading out. Develop and implement a traffic control program when site activities occur adjacent to non-OSC vehicular traffic.

Activity: *Site maintenance, materials storage and house keeping*
Potential Hazard: Slip, trip, fall, fire, burn, chemical hazards, eye, skin, struck by.
Procedures to Mitigate Hazard: Personnel will properly store all equipment. Remove all scrap material from the work area and place in designated storage/lay down areas for disposal. Delineate work areas and identify with appropriate Hazard Warning Signs. Handling of materials per products SDS and developed proper storage of all flammable and combustible materials; > 20 feet from ignition sources or protected with ½ hour fire barrier (indoors). Likewise, all

flammable/combustible liquid will be segregated from the ignition source >20 ft. Store all hazardous materials in approved containers. Keep all solvent wastes, oily rags and liquids in fire resistant containers. One 20 lb. ABC Extinguisher should be provided in storage areas (within 75 ft. away no closer than 20 ft.).

Activity: *Operation of hand and power tools*
Potential Hazard: Eye, hand, face, foot injuries, electrocution, noise, fire, burn.
Procedures to Mitigate Hazard: Tool use per Mfg.'s guidelines. Inspect tools before use; verify that guards and safety devices are in place before, during and after operation. Use GFCI plugged in at source for all corded tools. Red tag and remove all defective tools from service. Maintain and inspect the tools per the manufacturer's recommendations. All personnel will utilize the proper eye protection and hearing protection.

Activity: *Operating Heavy Equipment* (Excavators, Compactors, Dozers, Skid Steers, Rough Terrain Fork Trucks, Powered Aerial Platforms and Trucks.
Potential Hazard: Struck by, caught between, crushed, rollover, fire, burn
Procedures to Mitigate Hazard: Equipment operation only by competent and authorized operators. Before use, equipment will be inspected by the operator and verified to be in safe operating condition. Inspection of the machine/equipment will be conducted at the beginning of each shift, during which the equipment may be used, to determine that the brakes and operating systems are in proper working. Any machinery found to be unsafe will be tagged out of service until repaired. All inspections will be documented in the equipment log book. Fire Extinguishers will be present on all equipment and inspected during daily inspections and certified yearly. Only designated personnel, with appropriate training and authorization shall operate machinery and mechanized equipment. A controlled work zone shall be established for demolition, sorting, and loading operations. Likewise, a ground spotter shall be provided to assure personnel stay clear when an operator's rear view is obstructed (i.e. backing). Dust control measures (water misting during intrusive activities with water hose or equivalent misting equipment). Utilize the appropriate warning signs and backup alarms. All site personnel working near heavy machinery/equipment will wear reflective clothing (i.e. vests), and use 2-way radio communication to alert operator of their whereabouts.

Activity: Excavating and Working in Excavations:
Potential Hazard: Cave in, collapse, chemical exposure, struck by, entrapment
Procedures to Mitigate Hazard: Per OSHA requirements, provide protective systems of trenches when deeper than 5 feet and entry is necessary. Inspect the excavations/trenches regularly for changing conditions. Ensure that the material from the excavations/trenches is being placed away from the edge, to prevent cave-ins and pit (instability (> 2 feet back). Backfill the excavations as required by the approved contract requirements, to minimize the number of open excavations and control zones.
All excavation work shall be supervised by a competent person who will determine what protective measures are required, what those controls will be and how they will be implemented (testing, monitoring, benching, sloping, shoring, means of egress, dewatering, etc.). The competent person will inspect the excavations and controls to ensure reinforced structures are barricaded or marked, with barricade tape or traffic cones, during active excavations. If an excavation must remain open

prior to backfill, those excavations must be fenced or barricaded (> 6 ft. from edge). Compliance with OSHA 29 CFR 1926 Subpart P will be maintained.
Atmosphere monitoring will be conducted prior to entry and during work activities in excavations/trenches.

Activity: *Working around or near utilities* (Utilities hazards overhead and or underground).
Potential Hazard: Stored energy hazards (electrical, gas, water, sewer, etc.).
Procedures to Mitigate Hazard: Stay a minimum of 10-feet away from energized lines. Spotter required when it is possible for equipment to get within 10-feet of energized lines.

Activity: *Servicing equipment*.
Potential Hazard: Uncontrolled release of hazardous energy (electrical, mechanical, kinetic, pressure, heat, chemical, any type of stored or potential energy).
Procedures to Mitigate Hazard: The lock-out/tag-out procedure provided in this HASP will be followed when working on machines and equipment in which the unexpected energizing / start-up of the machines or equipment, or release of stored energy could cause injury to employees.

Activity: Working from elevated heights (> 6 feet) with an open edge to the next lowest.
Potential Hazard: Fall
Procedures to Mitigate Hazard: All work from elevated heights shall be performed as supervised by a competent person. In all cases proper fall protection shall be utilized including a personal fall restraint system or a personal fall arrest system. Maintain 100% tie-off.

BIOLOGICAL HAZARDS

BITES AND STINGS
Animal bites or stings are usually irritants that cause localized swelling, itching and minor pain and can be handled with first aid treatment. The bites of certain snakes and spiders can contain sufficient poison to warrant medical attention. Diseases that may require medical attention can be transmitted from some animal bites. Examples are rabies (mainly from dogs, skunks, raccoons, and foxes), Lyme disease (transmitted from ticks) and encephalitis (transmitted from mosquitoes).

Personnel with known allergic reactions to bee stings should carry the appropriate medication and must notify the Director HS&E and Site Superintendent of his/her condition prior to reporting for work at the site.

TICKS, CHIGGERS AND LYME DISEASE
Ticks and chiggers may be present in vegetated areas during the spring, summer and fall seasons. Preventative measure include protective clothing that covers the entire body, tucking pant legs into boots or socks and tucking long-sleeved shirt into pants; head/hair protection; and the use of insect repellant containing DEET on all exposed areas and coveralls. Project personnel should check their bodies thoroughly for ticks and should bathe soon after returning home. Remove any ticks carefully, using a gentle firm, tugging motion with fine tweezers. If site employees feel they have been bitten they should notify the Site Superintendent immediately.

SNAKES

If project personnel encounter a potentially dangerous snake – stop work, remove yourself and other workers from the immediate area and notify the Superintendent. The supervisor will contact an appropriate site representative to request that the hazard be removed. Do not re-enter the work area until you have been cleared by the HSO to do so.

TOXIC PLANTS
Poison Ivy, poison sumac and poison oak may be present during the spring, summer and fall seasons. Avoid contact with these plants, if possible. If a project worker has come in contact, the affected area should be washed thoroughly with soap and cool water. Care should be taken when handling clothing or any other items that have come in contact with the poisonous plant. If an allergic reaction occurs, a physician's advice should be sought.

BLOODBORNE PATHOGENS

29 CFR 1910.1030 requires that all first aid responders who may come in contact with potentially infectious materials be trained and protected from exposure. Furthermore, there is a risk for any site employee to be exposed from discarded needles and/or contaminated sharps.

All employees on this project will:

- Avoid contact with any blood or potentially contaminated object.
- Use caution when picking up or moving objects (stones, brush, debris, etc.).
- Wear leather gloves and not touch suspect objects; and
- Contact the Site Superintendent who will contact the Engineer to remove suspect objects.

In addition to the above requirements, the following will apply when potential exposure to bloodborne pathogens exists:

- Key personnel will be required to receive bloodborne pathogen awareness training.
- No eating, drinking, smoking, or applying lip balm will be permitted in the designated work, decontamination, and first aid areas.
- First aid kits will be equipped with the proper PPE (i.e. gloves, CPR shields and respirators).
- If a garment (gloves included) is contaminated by blood, or other potentially infectious materials, the garment(s) will be removed as soon as possible.
- After an exposure incident, a confidential medical evaluation and follow-up will be conducted and immediately available to the employee. The Site Superintendent will coordinate all medical arrangements.

RADIOLOGICAL HAZARDS

No radiological hazards are expected during this project.

SITE SECURITY

All onsite personnel and visitors will be required to sign in at the guard station before entering the work site. OSC will maintain, onsite, all records of site access. Visitors will be required to be knowledgeable of and conform to this HASP, prior to accessing work zones. Vehicular traffic will be permitted in the designated parking area as permitted by the owner. Access to the controlled work and traffic zones is restricted to authorized vehicles only. Prior to leaving the site for breaks, lunches, or end of shift, all personnel and visitors will be required to sign-out at the guard station.

SITE LAYOUT

See RAWP

BUDDY SYSTEM

Working alone is prohibited. All field personnel will be assigned a co-worker who will watch for hazards or problems their co-worker might encounter. Communication between employees must always be maintained. Workers will pre-determine hand signals, or other means of emergency signals, for communication when respiratory protection or distance makes communication difficult. Visual contact must remain between the two co-workers; they must remain near each other in order to assist in case of an emergency.

SITE COMMUNICATIONS PLAN

Each work crew, operator and manager will be equipped with a two-way radio or use pre-designated oral and visual safety signals. In the event of an emergency when two-way radio communication is not available, oral and visual safety signals have been established to protect project personnel. These signals will be presented to personnel for all phases of operation before conducting any task. These safety signals will ensure quick communication during adverse or emergency situations. Examples of established signals, and their meanings, are provided below.

Visual Signal	Indication
Hand gripping throat	Out of air, can't breathe
Wave hands over head from side to side	Attention: stand by for next signal
Swing hands from the direction of person receiving the signal to directly overhead and through a circle	Come here
Pointed finger with extended arm	Look in that direction
Grip partner's wrist with one or both hands	Leave the area immediately
Hand on top of head	Need assistance
Thumbs up	Ok, I'm alright, I understand
Thumbs down	No, negative
Audio Signal	**Indication**
Short blast of air or vehicle horn	Caution look here
Three long blasts of air or vehicle horn	Leave the area

PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE will be selected, used, maintained, and stored in accordance with OSHA 29 CFR 1926 Subpart E, and applicable manufacturer recommendations. Engineering, administrative and/or work practice controls to minimize hazards will be implemented where feasible, followed by PPE.

MINIMUM LEVELS OF PROTECTION

Level D personal protective equipment that is to be always worn by project personnel at the site includes.

- ANSI approved safety glasses with side shields
- Leather safety boots (ANSI or ASTM)
- Hardhat (ANSI Rated)
- High visibility vest or equivalent high visibility clothing
- Appropriate clothing (long sleeve shirts and pants) and Tyvek coveralls if required.
- Gloves (leather minimally), nitrile chemical barrier as required
- Hearing protection (around powered equipment, using powered hand tools, torch cutting)
- Tick Protection as needed

Modified D PPE will be used when the possibility of dermal hazardous chemical contact, but not inhalation exposure exists and includes;

- The above minimum PPE
- Mono-goggles with face shield in chemical splash situations
- Impermeable chemical barrier gloves (i.e., nitrile) if handling contaminated material
- Coated disposable coveralls (Tyvek or equivalent) if exposure to hazardous chemicals exits
- Face shield and safety glasses with work where the potential for flying debris hazards is present (i.e., chipping, grinding, steel on steel impact activities)

Level C PPE will be used when there is the possibility of inhalation of hazardous concentrations (or unknown concentrations) of particulates, vapors or fumes at or above OSHA PELs or pre-designated action levels (see section Air Monitoring below). Level C PPE includes.

- Modified level D PPE
- Air purifying respirator (powered full-face (PAPR) or non-powered full face)
- Appropriate filtering media (particulate, mercury, organic, or combination cartridge)

NOTE: OSC employees are given the option of using an air purifying respirator for voluntary use.

Level B is not anticipated for this project but may be made available if necessary.

Level D and Modified Level D are the primary anticipated PPE during this project. These minimum levels of protection are considered preliminary and may change based upon initial exposure assessment and routine assessments as work progresses. No change to the specified level of

protection will be made without the approval of the Site Superintendent and in agreement with the Director HS&E.

SELECTION OF PROTECTION LEVELS

PPE will be used when project and support activities involve known, or suspected, contamination; when vapors, gases or particulates may be generated by site activities; or when direct contact with skin may occur. Respirators protect the lungs against airborne toxicants. Chemical resistant clothing protects skin from contact with harmful and absorbable chemicals.

Level D: Protection will be used when no airborne contaminant exposure is likely and job functions do not require the use of respiratory equipment or chemical resistive clothing. The equipment for this level of protection is described above and is expected to be the minimum for the project.

Level D Modified: Protection will be modified when additional contact hazards have been identified such as splash hazards and contaminated or nuisance dust.

Level C: Protection that will be provided when airborne contaminants have been identified and which requires the use of air purifying respiratory equipment to keep exposures below health-based limits. Examples of respiratory protection for this project are half or full-face air purifying respirators (powered and non-powered) with appropriate cartridges (i.e. P-100 cartridges for particulate, Black Organic Vapor – VOC, Brown/Gold Acid Gas, etc.).

Level B: Protection that will be provided when the highest level of respiratory protection is needed with partial body or skin protection. Equipment for this level of protection will include a minimum of the following:

- SCBA, PAPR or airline respirator depending on contaminate and situation
- Chemical resistant protective clothing for hazards identified.
- Hardhat or helmet for hazards identified.
- Chemical resistant gloves with liners for hazards identified.
- Chemical resistant safety shoes or boot covers for hazards identified.

Level B is not expected for this project.

HEARING PROTECTION

Project personnel will be provided hearing protection and required to use it whenever conducting tasks where exposures may exceed 90 dB as indicated in the following table;

	Sound Level at Operator		
Equipment	Average, dB	Range	TWA, dBA
Earth Moving:			
Front End Loader	88	85-91	
Back Hoe	86.5	79-89	
Bull Dozer	96	89-103	
Roller	90	79-93	
Scraper	96	84-102	
Excavator	86	83-92	89.6*
Truck	96	89-103	
Paver	101	100-102	
Power Units:			
Generators	<85		
Compressors	<85		
Impact:			
Pile Driver (diesel/pneum.)	98	82-105	
Pile Driver (gravity)	82.5	62-91	
Pneumatic Breaker	106	94-111	
Hydraulic Breaker	95.5	90-100	
Pneumatic Chipper	109		
Other Equipment			
Compactor/Vibrator	94.5	85-98	86.1
Compressed Air Blower	104		
Power Saw	88.5	78-95	
Electric Drill	102		

Noise Standards	Noise Level
OSHA (at worker's ear)	90 dB (A) TWA
Day Time Community (at property line)	65 dB (A)

*Open windows

OSC has monitored sound levels for various tasks and operations that may be conducted during the project to both verify that the levels cited above are accurate and to serve as exposure indicators. Sound levels have been measured for each task or operation reasonably expected of having noise levels that could result in exposures above 90 dB as an 8-hr. TWA. Regardless of the results however, OSC employees will be required to use hearing protection under pre-defined conditions.

Hearing protection will be required whenever an employee is either using a powered tool or working near loud noises (excavators or working in heavy equipment with windows open). Hearing protection may be obtained from the Site Superintendent. Each employee is responsible for wearing hearing protection when required. Replacements may be obtained from the Site Superintendent, if necessary. Employees are encouraged to use hearing protection voluntarily if communications are not compromised.

RESPIRATORY PROTECTION

Project personnel may be required to use respiratory protection to reduce their exposure to airborne hazardous substances. The standard requirements that determine the selection and use of respirators depend on the hazards present. Respirators will also be made available in the project work area.

Only respirators that are approved by the National Institute for Occupation Safety and Health (NIOSH) are allowed. Use must follow the regulatory requirements set forth by OSHA 29 CFR 1910.134 and OSHA 29 CFR 1926.103.

OSC employees may voluntarily use a filtering facepiece in conditions when respiratory protection is not mandatory. Employees that are medically cleared to use an APR may wear any type of respirator voluntarily. All voluntary use of respirators require a written medical opinion from a PLHCP allowing their use and Appendix D from the 1910.134 standards will be made available for review to personnel voluntarily wearing a respirator.

Medical Clearance & Fit Testing

All personnel who are assigned to tasks where a respirator is needed must have prior medical clearance. Medical evaluations and fit testing are provided by OSC. Fit test records and all project personnel medical documentation will be filed and maintained onsite, by the Site Superintendent.

Medical limitations and restrictions will be strictly enforced. No employee will be permitted to use a respirator if he/she has any facial abnormality or facial hair that may affect the fit or seal of their respirator.

Training

All personnel who are required to wear a respirator will receive training (in addition to required annual training) from the Site Superintendent on the use, maintenance, proper care, and inspection of their respirators. Attendance at all training will be documented. Attendance records will be maintained onsite by the Site Superintendent and will be available for inspection upon request.

Inspection

All respirators to be used at the jobsite will be inspected for damage by the employee, prior to use. After they are trained, every employee will be responsible for the inspection of their own respirator. The following elements will be inspected.

- Tightness of the connections
- Face piece
- Headbands
- Inhalation valve
- Cartridge or filter fittings
- Signs of deterioration

Any malformation, distortion, missing parts, cracks, etc. in the respirator will cause the equipment to be deemed useless until a qualified technician can properly repair the respirator. If necessary, a new respirator will be issued.

Respirator Type

The type of respirator, and who is required to wear them, will be identified on a task specific level by the Site Superintendent, in consultation with the Director HS&E, based on the type of work that will be performed and the potential for exposure to airborne contaminants.

Standard Procedure for Use

All personnel will adhere to the following standard operating procedure for respirator use.

- Carefully inspect the respirator prior to entering potentially contaminated work areas.
- Conduct positive and negative pressure leak tests each time the respirator is to be used.
- Do not remove the respirator in contaminated work areas.
- Wear a respirator with straps inside disposable garment hood (as applicable)

Cleaning and disinfecting

Any reusable respirator must be cleaned after each use. The steps required to clean a respirator after use are.

- Remove the cartridge and headbands.
- Disassemble all respirator parts.
- Wash all parts, except for the cartridge and headband, in a cleaner-disinfectant solution or use soap and hot water or use an approved respirator cleaning wipe.
- Rinse all parts completely in clean, warm water.
- Air dry in a clean, sanitary area.
- Re-assemble the respirator.
- Store the cleaned respirator in a sealed bag.

Storage

Respirators will be stored in a sealed bag to protect against dust, sunlight, extreme temperature, moisture, and abrasives. Respirators should be stored so that the face piece and exhalation valve will rest in a normal position and function will not be impaired by the elastic setting in an abnormal position. The respirator should not be hung to store or air dried by its strap.

EXCAVATION SAFETY

OSC maintains strict procedure for soil excavations. The safety of all employees during these operations depends on the soil structure and stability, contamination, weather conditions, buried utilities and structures and superimposed loads. Excavations are not to be entered, without approval from SSHO, during this project however minimum entry procedures are provided for background purposes.

Prior to excavating any material onsite, steps will be taken to ensure the work zone is clear from utilities. These steps shall include:

1. Calling 811 to mark public utilities,
2. Open any manholes within the area to determine direction of storm sewers,
3. Utilize Ground Penetrating Radar (GPR) across work zones and mark utilities.
4. OSC will work with the Engineer to get access to any former plant drawings.

When excavating within a wet, sandy area, or if the area has been backfilled at any time, it is likely to be very unstable. All personnel working in these conditions must be cautious and provide extra sloping, if possible. A change in weather conditions, such as heavy rain or snow, can loosen the soil, and increase the risk of a collapse. If the area of excavation is prone to collapse precautions, such as covering the area, should be taken. Heavy equipment or materials should be kept as far away as possible from the excavation area because they can also increase the risk of collapse. All excavated soil should be removed from the rim of the area and contained if possible.

An excavation competent person must be on site anytime entry into an excavation greater than 3-feet deep is necessary. Should entry become necessary, the OSC Director HSE will be consulted and an entry-specific AHA prepared.

When deeper than five feet, to prevent collapsing soil the excavation must be sloped, shored, or somehow contained before any personnel may enter. A secured ladder will be provided for

employees who are working in depths of more than four feet and spacing between will not exceed 25 feet from the work location of in excavation personnel. The ladder will not be removed until all employees have exited the excavation site.

All excavation sites will be inspected daily by an OSC designated competent person. All activity will cease if the competent person and/or the site superintendent find the site hazardous. The competent person will inspect any time there is a change in conditions (i.e., weather, water, heavy equipment operation, etc.).

LOCKOUT/TAGOUT POLICY

For work, repairs or maintenance, equipment will be locked out (deenergized). This procedure ensures the safety of all personnel by deactivating any movable, electrical, or pressurized equipment. This policy applies to all machinery or equipment that can be moved either using electrical power, hydraulic power, compressed air, steam, or energy stored in springs/suspension devices. Damaged tags will be placed on all movable equipment and machinery.

Only project personnel and supervisors are authorized to lockout machinery/equipment. Every employee is responsible for his/her own equipment and nobody else is permitted to remove a lock or tag except the authorized employee. Any violation of this policy is cause for strict disciplinary action.

LOCKOUT PROCEDURES

Lockout devices are used to prevent the accidental re-energizing of equipment.

De-energizing Circuits and Equipment: Disconnect the circuits and equipment, to be worked on, from all electrical sources and release stored energy that could accidentally re-energize equipment. This applies particularly to the overhead crane should it be necessary to dismantle it.

Application of Locks and Tags: Only authorized personnel are allowed to place a lock and tag on each disconnecting – means used to de-energize the circuits or equipment before the work begins. A lock prevents unauthorized personnel from re-energizing the equipment or circuits. A tag prohibits unauthorized operation of the disconnecting device.

Verification of De-energized Condition of Circuits/Equipment: Prior to work on equipment, OSC requires that a "qualified" employee verify that the equipment is de-energized and cannot be restarted. This is typically done by a visible break in the conductors (i.e. air gap) of one foot or more.

Re-energizing Circuits and Equipment: Before circuits or equipment are re-energized, the following steps must be taken in the following order:

- A "qualified" employee conducts tests and verifies that all tools and devices have been removed.
- All exposed employees are warned to stay clear of the circuits and equipment.
- Authorized personnel will remove their own locks and tags.

- The Site Superintendent will conduct a visual inspection of the area to be sure all employees are clear of the circuits and equipment.

ELECTRICAL

Only qualified and authorized personnel may work on or around electrical equipment. OSC personnel are not permitted to work on or within 10-feet of exposed high voltage energized lines or equipment. Live or hot work must be contracted to a qualified third party unless specific authorization is given by the OSC Director HS&E. The following shall be observed.

- Prior to work conducted near live exposed high voltage current carrying lines or equipment, the voltage of the line will be evaluated and a safe working distance for heavy equipment will be set.
- Only NEC certified electrical tools may be used on this portion of the project.
- A ground fault circuit interrupter (GFCI) shall be utilized with all portable electric tools; plugged in at the source and tested prior to use. All electrical equipment shall be properly grounded or guarded (double insulated tools, GFCI).
- Single phase electrical tools must be plugged into properly grounded receptacles.
- The use of extension cords is discouraged. If their use is necessary, extension cords must never be used in traffic areas where they may be a hazard, or where they may become unplugged. Extension cords will always be grounded.
- Any energized electrical equipment, operating at 50 volts or higher, must be protected by a cabinet or other approved enclosure with warning signs that are immediately visible.

FALL PROTECTION

All work from elevated heights > 6 ft. with an open side to the next lowest level shall be performed as supervised by a competent person. In all cases proper fall protection systems shall be utilized as determined by the competent person for fall protection; restraint systems (PFRS, guard rails, and warning lines (restricted for unprotected edge work where traditional systems are not practical).

Fall restraint consisting of a full body harness and a restraint lanyard shall be used at all times when in any scissor lift, aerial lift, boom lift, or other such device commonly referred to as a Mobile Elevated Work Platform (MEWP.) All personnel operating MEWP's shall be certified in their operation prior to use and shall review and follow the OSC Fall Rescue Plan in the event of a fall.

Whenever possible, fall restraint shall be used over fall arrest.

INCIDENT PREVENTION PROCEDURES

SAFETY TASK ANALYSIS CARD

The Safety Task Analysis Card (STAC) process is a required component of all OSC projects. The STAC is a pre-printed, bi-fold card that must be completed by each employee at least once per week. The card is used by the employee as a reference tool throughout their work shift. STAC card observations are used to address new work tasks, changing conditions, and/or potential hazards.

STAC's are used in addition to safe work permits and/or approved work procedures. The STAC is designed to be an ongoing learning tool. By breaking jobs into small parts, workers can identify hazards and eliminate or control them. It is intended as a tool to help employees make observations and correct fellow employee at risk behaviors.

The STAC must be completed by each employee at least once per week. This is the minimum requirement. Project personnel found participating in or observing risky actions without submitting a properly completed STAC will be coached on the need to do so.

Project supervisors and/or the Site Superintendent will review submitted STACs with employees during tailgate safety meetings and identify corrective actions.

FIRE PREVENTION and PROTECTION

Emergency response and contingency procedures provided in this HASP will be in effect throughout all phases of work. Included are firefighting equipment, alarm systems, and procedures for handling fire emergencies. Project specific firefighting equipment will be inspected monthly at a minimum basis and maintained in proper working order. Firefighting equipment will always be in an accessible place at the site.

All mobile equipment will be equipped with a fire extinguisher. Unless such placement would create an alternate or greater hazard.

Fire extinguishers will be immediately available when working with or near combustible or flammable items. In general we will utilize DOT approved ABC fire extinguishers whenever feasible.

SITE HOUSEKEEPING

The following housekeeping guidelines apply at this site:

- Excess material and debris will be kept clear from working areas.
- Combustible materials will be removed at regular intervals and all wastes will be properly disposed of at frequent intervals.
- Containers will be provided for the collection and separation of all discarded materials and refuse. Covers and identification will be provided for all containers used for flammable or harmful substances.

MECHANICAL EQUIPMENT

The following guidelines apply when dealing with the inspection and operation of equipment.

- All vehicles and equipment used on the site must be checked at the beginning of each shift to assure that all parts that affect safe operation are in proper working condition and are free from defects. An inspection form must be completed and filed with the Site Superintendent.

- Personnel will not be permitted to operate equipment when there is an obstructed view to the rear or sides unless there is a spotter.
- Employees will not work or walk under or between any equipment that had suspended parts or held aloft unless/until the parts are substantially blocked to prevent falling and shifting.
- Hydraulic leaks must be addressed immediately by stopping the equipment, preventing further leaking and cleaning any hydraulic fluid spills/leaks. Notify the Site Superintendent immediately for proper corrective actions to be determined.

HIGH PRESSURE WASHERS

OSC requires that only authorized personnel operate high pressure washers. Personnel will follow manufacturers specifications on use. This policy is intended to protect both OSC employees as well as any property where the equipment will be used. The following guidelines apply:

- The lance must always be pointed at the specific work area.
- Personnel will remain at least 25 feet away from the washer and the item being washed.
- Care should be taken to ensure the proper footing of the operator.
- The operator will wear the following personal protective equipment: Hard hat with face shield, goggles, safety boots, and hearing protection, Other PPE required by the equipment manufacturer will also be required. PVC rain or chemical resistant suit and heavy gloves; as well as any additional equipment to protect against chemicals, as needed.
- OSC requires that all operators be trained in the emergency shutdown procedures and general equipment maintenance of high-pressure washers.
- Under no circumstances will an operator be allowed to make modifications to a power washer while on the job.

VEHICLE and EQUIPMENT SAFETY

Only trained and qualified personnel may operate equipment and vehicles. This policy is intended to protect all employees and client properties. The guidelines for this policy are as follows.

- Each unit is to be inspected prior to its use on site and then inspected periodically depending on the equipment involved and the manufacturer's specifications.
- No repair work, or refueling, will be done while the vehicles or equipment are in operation. The engine is to be turned off and all buckets, blades, gates, or booms must be lowered to the ground, or a substantial support.
- Equipment backup alarms must be operational and audible over the surrounding noise levels. If this is not the case, an assistant must be assigned to the operator, and they will be required to clear the way.
- Only authorized personnel are permitted to ride in company vehicles and equipment.
- Under no circumstances will an employee be permitted to get on or off a moving vehicle.
- Operators must wear the following PPE: Boots/sturdy work shoes, ear protection devices when the noise level is excessive (see hearing protection section), heavy work gloves.(as necessary,) hardhats and safety eyewear with side shields are required whenever outside of

an enclosed cab. Safety glasses and hearing protection are required inside if cab windows are open.
- The operator must always wear seatbelts when provided by the manufacturer.
- Cell phone use is prohibited during operation of motorized vehicles and equipment.
    - If a cell phone must be used the operator must make safe the equipment (by lowering all buckets, booms, etc. and turning off the engine prior to using the cell phone.
- To ensure the proper visibility all windshields, side windows, mirrors and lights will be cleaned as often as necessary.

TRUCKS

The following guidelines apply to truck operators:

- A current driver's license must be carried always,
- Drivers will check loaded material to ensure against loss of shifting during transit,
- All DOT regulation will be followed,
- Non-OSC drivers must receive site-specific instructions upon arrival such as remaining in the truck, appropriate/required PPE, where to tarp loads, applicable traffic patterns, proper entry procedures, etc.

EXCAVATING EQUIPMENT

OSC has the following requirements for operating excavators and skid-steers.

- A daily pre-use equipment inspection sheet must be completed and filed with the site superintendent.
- Prior to their use onsite, the equipment's brakes, cables and hoses must be checked and in good working order.
- When the equipment is moving, all blades, buckets and bowls will be carried close to the ground but high enough to avoid any obstacles on the ground. If not in motion, they must be lowered to the ground or to a substantial support.
- No employees are permitted to ride on a boom, bucket, bowl, or any other heavy equipment extension.
- All safety equipment must be properly installed, and in good working condition, before a piece of equipment is used on this project.

SANITATION

Except for mobile crews having transportation readily available, work sites will have toilets provided that adhere to the following requirements: One toilet for 20 or less employees; one toilet seat and one urinal per 40 employees; if there are 200+ employees, on toilet seat and one urinal per 50 workers.

Adequate washing/showering facilities will be provided on sites where there are harmful substances, and they will be in close proximity to the site. An acceptable supply of portable water will be provided onsite, and it will be clearly marked as such. Portable water containers will have tightly sealed tops and a tap.

DAILY INSPECTIONS

The Site Superintendent will monitor jobsite hazard mitigation through inspections at the start and throughout each workday.

Any safety violations will be recorded and corrected. All observed safety violations will be immediately corrected, the person responsible will be coached on the correct procedures, and this violation will be reviewed at the next safety meeting with all employees as a lesson learned. If an employee has excessive violations of the site safety rules, it will be grounds for disciplinary action which could lead to; termination of OSC personnel or expulsion if an onsite subcontractor personnel.

INCIDENT REPORTING

OSC will prepare and maintain incident reports that include corrective actions. These reports will be provided to the Engineer representative within 48 hours of the incident and as needed. Each incident report will be reviewed by the OSC Director of HS&E. Verbal notification to the client will be as soon as possible.

Any occupational incident, which results in the death of one or more employees will be reported to OSHA within 8 hours. The inpatient hospitalization of an employee and all amputations or loss of an eye will be reported within 24 hours. All such incidents will be reported by OSC to the nearest OSHA Area Director during normal business hours or at the National Hotline 800-321-OSHA (6742). Employees are to report all incidents/accidents no matter how slight they are to their immediate supervisor.

Employees are to immediately correct or report any hazards or unsafe conditions found in the workplace and have a questioning attitude when they do not understand something.

In addition to OSC's internal reporting requirements, RIVERVIEW/Honeywell requires all incidents (adverse events) to be investigated and based on severity requires notification of the incident within specified timelines. Adverse events are divided into three tiers: Tier 1 events are the most significant and serious events, followed by Tier 2, which are significant events but not as serious as Tier 1 events, and Tier 3 events are essentially all other events that do not meet the criteria for Tier 1 or Tier 2 events. Tier 1 events are to be reported within 2 hours, Tier 2 events are to be reported within 24 hours, and Tier 3 events are to be reported when possible.
Adverse events include the following:

Tier 1:

- A release to air, water or soil that has an actual or potential off-site adverse environmental impact.
- One or more on-site fatalities.
- Three or more employees, contractors or visitors admitted to a hospital.
- Any off-site fatalities, injuries, or harmful exposures resulting from RIVERVIEW/Honeywell products or operations.

- Any security incident that may be immediately dangerous to life or property including fires, explosions, bomb threats, chemical release, radiation release, and release of a biological or chemical agent (aerosolized or gaseous form).
- Suspicious materials, packages or letters that pose an immediate risk to employees.
- Government representatives alleging or suggesting criminal non-compliance.
- Receipt or notice of any regulatory agency directive or other type of injunctive device designed to curtail or restrict operations; and,
- Community injuries or diagnoses of illnesses allegedly associated with a company-related incident, event or release to air, water or soil.

Tier 2:

- Employee or contractor lost workday injuries/illnesses.
- Employee, contractor or visitor recordable injuries/illnesses (Criteria:
- "RIVERVIEW/Honeywell Global Recordkeeping Requirements").
- An environmental excursion that does not also trigger Tier 1 reporting.
- A release to the air, water or soil that only narrowly avoided an adverse environmental impact or had the potential to be an excursion.
- Discovery of potential or actual evidence of contaminated groundwater from current or former operations that does not otherwise meet the definition of a Tier 1 Event.
- Suspicious activities in or around RIVERVIEW/Honeywell facilities or processes that may present a potential security risk.
- Allegations of previously unknown health/safety/environmental effects caused by products, processes, emissions or discharges (Reference: Risk Management and Reporting (Pstew-3)).
- Written notification from a governmental agency alleging non-compliance of any kind.
- Proposal or imposition of a HSER fine, penalty or corrective action.
- Receipt of a non-routine request for information from a governmental agency.
- A non-routine regulatory agency inspection.
- Audits (Peer review, Self-assessments, SBU, Third party findings and recommendations)
- Significant community activism or adverse media coverage not associated with an episodic event.
- A product recall imposed by a regulatory agency.
- Transportation-related events that result in Tier 2 impacts.
- Notice of an allegation from a third party or regulatory agency of environmental impacts from operations on current or formerly operated RIVERVIEW/Honeywell facilities.
- Demands, including voluntary agreements, to conduct a site investigation or remedial measures to respond to environmental impacts from operations on current or formerly operated RIVERVIEW/Honeywell facilities.

Tier 3:

The following Tier 3 events shall be entered into the event tracking system within seven (7) calendar days:

- On-site or off-site employees, contractor employees or visitor injuries/illnesses where first-aid treatment or evaluation is provided by a Medical or Para-Medical Professional.

- A regulatory agency inspection (which is not a Tier 1 or Tier 2 Event and may still be underway) with no notice of fine, penalty or corrective action.

Adverse events must be reported to the PM, the INVENTUM engineering manager, and the RM, as soon as possible following the event. All Tier 1 and Tier 2 adverse events must be investigated, and a written investigation report must be prepared and submitted to the RIVERVIEW/Honeywell Event Reporting System.

MEDICAL SURVEILLANCE

MEDICAL EXAMINATIONS

OSC field personnel are provided with a thorough medical examination to assess fitness for the project and to provide baseline health data for subsequent reference. Examinations are conducted by a qualified health care provider and repeated annually (unless abnormal test results, annual "questionnaire" answers or other problems dictate more frequent observation). Either a copy of the physician's "fit for duty" statement for each employee or a statement of certification of same prepared by the OSC Director HS&E will be provided.

During the medical examination employees are evaluated for their ability to wear respiratory protection. This evaluation includes, at a minimum, an examination of the cardiopulmonary system; including forced vital capacity (FVC) and forced expiratory volume C 1 second (FEV 1.0). When indicated by the physician, other tests of the respiratory and cardiovascular systems may be performed based on an individual's past history, findings from testing, and/or based upon the type of equipment the individual may be required to use.

Following is an example of a baseline yearly medical examination:

Medical Monitoring Protocol				
Exam Components	**Baseline**	**Annual**	**Interim**	**Exit**
Vital Signs	Yes	Yes	Yes	Yes
Vision Screening (Includes Peripheral and Color)	Yes	Yes	Yes	Yes
Urine Drug Screen	Yes	Yes	As needed	As needed
DOT hearing	Yes	Yes	No	Yes
Spirometry	Yes	3	Yes	Yes
Chest X-Ray (asbestos work only)	Yes	Yes	No	Yes
Review of History	Yes	Yes	Yes	Yes
Physical Exam	Yes	Yes	Yes	Yes
Notes:				

NOTE: Any employee who develops a lost time injury or illness during the period of this contract will be evaluated by a certified health care provider. The project supervisor will be provided with a written statement that indicates the employee's fitness and ability to return to work, signed by the medical consultant prior to allowing the employee to re-enter the work zone.

AIR MONITORING

Volatile Organic Compound monitoring (breathing zone) shall be performed when odors are detected. Monitoring will be conducted using a MultiRAE Lite with an 11.7 lamp. Work resulting in readings of 0.6 ppm or greater TWA after 15 minutes of measurement shall stop and the OSC Director of HSE will be contacted for further evaluation.

Any time a confined space or enclosed building area is entered initially the air shall be characterized using real-time monitors for oxygen content, LEL, and other potential hazards such as carbon monoxide or hydrogen sulfide exposure.

The need for additional air monitoring or exposure measurements will be determined as specific work tasks are developed. Air monitoring and sampling shall be specified in the relevant AHA as approved by the Director HS&E.

CONFINED SPACE ENTRY PROCEDURES

The following guidelines outline the minimum acceptable criteria that will be utilized by OSC and subcontractor personnel for all confined space entry operations.

All project specific confined space entries will be thoroughly reviewed by the designated HSO. Confined Space Permits shall be issued and approved in conjunction with the INVENTUM Project Manager. Personnel entering and working in confined spaces will be required to adhere to the OSHA Permit-Required Confined Space Standard 29 CFR 1926.1200 and the OSHA General Duty Clause. Affected project personnel are instructed in these OSHA regulations as part of the OSC employee training program.

The HSO will be responsible for reviewing the applicable entry protocol with the field team, prior to confined space entry.

DEFINITIONS

CONFINED SPACE: There are two types of confined spaces: permit required and non-permit required. OSHA's "PRCS Evaluation Procedures and Decision Flow Chart" will be used to evaluate the potential for permit required confined spaces.

PERMIT REQUIRED CONFINED SPACE (PRCS): The space contains, or has the potential to contain:

- A hazardous atmosphere. A hazardous atmosphere is defined as any space where the oxygen is below 19.5% or above 23.5%, combustible vapors are above 10% LEL, or high toxic concentrations are present which may cause death, incapacitation or an impaired ability to self-rescue.
- The space contains a material that may engulf an entrant.

- The space has an internal configuration that may trap or asphyxiate entrants.
- The space contains any other serious heal, safety or environmental hazard.

NON-PERMIT REQUIRED CONFINED SPACES: OSHA defined a non-permit required confined space as a PRCS in which all serious hazards have been eliminated. Non-permit required confined spaces will be re-evaluated by the HSO using the "PRCS Evaluation Procedure and Decision Flow Chart" whenever they or their characteristics change in a way that could lead to reclassification as a PRCS.

PERSONNEL RESPONSIBILITIES

Entry Supervisors

OSC will designate an entry supervisor to oversee the confined space entry and ensure that personnel engaged in PRCS entry operations will comply with this procedure. Entry supervisors will:

- Verify that all tests specified by the permit have been conducted and that all procedure and equipment specified by the permit are in place before endorsing the permit and allowing the entry to begin.
- Terminate the entry and cancel the permit when the entry operations covered by the entry permit have been completed, or whenever a condition that is not allowed under the entry permit arises in or near the PRCS.
- Verify that rescue services are available and that the means for summoning them are operable.
- Remove all unauthorized individuals who enter, or attempt to enter, the PRCS during entry operations.
- Determine that the entry operations are consistent with the terms of the entry permit and that acceptable entry conditions are maintained.

Attendants

The entry supervisor will designate a qualified attendant for each PRCS operation. To be qualified, an attendant must know the hazards that authorized entrants may encounter during an entry (including information on the mode, signs and symptoms, and consequences of exposure) and must be aware of the behavioral symptoms of hazard exposure. Attendants will:

- Remain outside the PRCS during entry operations until relieved by another attendant.
- Warn all unauthorized entrants that they must stay clear of the PRCS, or that they must immediately exit if they have entered the PRCS.
- Inform the entry supervisor, if unauthorized personnel have entered the PRCS.
- Continuously maintain an accurate count of entrants in the PRCS and ensure that the means used to identify authorized entrants accurately identifies the entrants.
- Communicate with authorized entrants, as necessary, to monitor entrant status and to alert entrants of the need to evacuate the PRCS.
- Monitor the activities both inside and outside the PRCS.

- Immediately order evacuation of the PRCS if a prohibited condition is detected, the behavioral effects of hazard exposure in an authorized entrant are observed, or a situation outside the PRCS is found that could endanger the authorized entrants; or if the attendant cannot effectively and safely perform his/her duties and responsibilities.
- Perform non-entry rescues, as specified by the Confined Space Entry Permit; summon rescue and other emergency services as soon as it is determined that authorized entrants may need assistance to escape from PRCS hazards.

Attendants will NOT, under any circumstances.

- Monitor more than one occupied PRCS at any given time;
- Perform any duty that might interfere with their primary duty to monitor and protect the authorized entrant; or
- Enter the PRCS for rescue purposes.

Entrants

Authorized PRCS entrants will be identified on each Confined Space Entry Permit. Authorized entrants will;

- Know the hazards, including information on the mode, signs or symptoms, and consequences of exposure.
- Properly use the PPE provided for the PRCS entry.
- Communicate with the attendant, as necessary, so the attendant can monitor entrant status and alert entrants of any need to evacuate the PRCS.
- Evacuate the PRCS and alert the attendant whenever they recognize any warning signs or symptoms of exposure to a dangerous situation; or they detect a prohibited condition; or whenever the attendant or entry supervisor orders the evacuation; or when an evacuation alarm is activated.

TRAINING

All project personnel will be instructed not to enter PRCSs without the proper permit and without following the procedure and practices outline in this SOP and in the Confined Space Entry Permit. Personnel, who are required to enter a PRCS, or act as an attendant or entry supervisor, will be trained to acquire the understanding, knowledge and skills necessary for the safe performance of their assigned responsibilities and duties.

Entrants will receive training on:

- The means and methods used to communicate with attendants; as well as the means attendants will use to notify them of emergencies.
- The operation of any specialized equipment that is expected to be used, including monitoring and rescue equipment.
- Evacuation signals and procedures; as well as the need for entrants to notify the attendant and evacuate the PRCS if they detect any dangerous conditions.

Attendants will receive training on:

- The procedures for monitoring inside and outside the PRCS and recognizing the conditions that might be hazardous to entrants;
- Procedures for communicating with entrants;
- Procedures for evacuating entrants from the PRCS and when evacuation is required;
- Procedures for controlling access to the PRCS;
- Their responsibility to remain outside the PRCS during entry, unless they are relieved by another attendant, and
- Non-entry rescue procedures. Entry Supervisors will receive training on;
- Verifying that the Confined Space Entry Permit has been completed properly;
- Procedures for verifying that all tests specified by the Permit have been conducted;
- Requirements for verifying that all the procedures and equipment specified by the Permit are in place before allowing entry to begin;
- Procedures for determining if conditions are acceptable for entry;
- Authorizing entry operations; and
- Terminating entry.

All training will be conducted:

- Before the employee is first assigned confined space duties (initial training);
- Before a change in assigned duties;
- Whenever there is a change in permit space operations that presents a hazard about which employee has not previously been trained, and
- Whenever project management, involved regulatory officials, or the project engineer has reason to believe that there are inadequacies in the knowledge or use of these procedures.

When complete, training will be certified by the instructor. The certification will list the names of the personnel presenting and receiving training and the dates of training. Training certification documentation will be maintained as part of the Project file kept at the site and in the individual personnel files in the home office.

PRCS ENTRY PROCEDURE

Atmospheric Testing

Before an employee enters any confined space, the entry supervisor will test the internal atmosphere with a calibrated, direct reading instrument to determine if acceptable entry conditions exist for the following conditions, in the given order:

Condition	Acceptable Parameter(s)	
A.	Oxygen Content	Above 19.5% and Below 23.5%
B.	Flammable Gases and Vapors	Less than 10% LEL
C.	Potential Toxic Air Contaminants	Below Action Levels for PPE

Continuous systems which cannot be isolated (i.e. sewers) or activities which generate significant airborne contaminants (i.e. welding) will be continuously monitored during entry, unless forced mechanical ventilation is used and has been shown to maintain an acceptable atmosphere.

Entry

The HSO will use the "PRCS Evaluation Procedures and Decision Flow Chart" to verify the presence of a PRCS. If it is determined that a PRCS does exist, the HSO will review the confined space entry procedures with entry personnel; post OSHA required danger signs at the entrances to the PRCS and notify Project personnel of the PRCS location(s); notify offsite emergency response services of the PRCS; and prepare a Confined Space Entry Permit.

Confined Space Permit

The entry supervisor will be responsible for completing the Confined Space Entry Permit. All items on the Permit must be completed. The entry supervisor will verify that all entry personnel are aware of the specific hazards that are associated with the PRCS; that all necessary safety equipment and materials are in place; that all emergency response procedures are in place; and that the pre-entry air monitoring results indicate acceptable entry conditions, before signing the permit.

Pre-entry Briefing

The entry supervisor will conduct a pre-entry briefing with the attendants and authorized entrants to discuss the requirements of the Permit and to ensure that all involved personnel understand their responsibilities and the specific hazards associated with the PRCS. A pre-entry briefing will be conducted for each attendant and entrant, prior to entry and whenever new hazards are identified.

Entry Authorization

The entry supervisor will sign the Confined Space Entry Permit after the Permit has been completed, all safety equipment is in place, air monitoring results are acceptable, the pre-entry briefing has been conducted and the rescue procedures have been established. Once the permit has been signed:

- Entrants will wear all necessary safety and rescue equipment;
- The Permit will be posted at, or near, the PRCS entrance, and
- Entry procedures will begin.

Permit Exit and Cancellation

Each Entry Permit will be valid for one shift only. Expired and canceled Permits will be returned to the Site Superintendent who will file them with the Project documents. Permits will be canceled if:

- A new hazard is identified or encountered;
- An entrant is seriously injured and requires evacuation and/or rescue; or

- A change in the scope of work requires new activities which may create previously unanticipated hazards that could cause serious death or injury.

RESCUE/EMERGENCY RESPONSE

Offsite Rescue and Emergency Services

Offsite rescue and emergency service personnel will be informed by the HSO of the hazards they may confront when called to the jobsite to perform services. These services will be identifies and notified prior to any entry. Entry will not be performed if emergency rescue services are not available. The rescue/emergency service personnel will be provided access to all permit spaces from which the rescue may be necessary, so that the emergency responders can develop appropriate rescue plans and conduct rescue operations.
Non-entry Rescue

Non-entry rescues, retrieval systems or methods will be used whenever an authorized entrant enters a PRCS, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant.

Each authorized entrant will use a chest or full body harness, with a retrieval line attached at the center of the entrant's back near shoulder level or above the entrant's head. Retrieval lines will be attached to a mechanical device or a fixed point outside the Permit space, in such a manner that rescues can begin as soon as the rescuer becomes aware of the necessity. The mechanical device will be ready to retrieve personnel from vertical PRCSs more than five feet deep.

DECONTAMINATION PROCEDURES

Decontamination of equipment and personnel will be performed as necessary to limit the potential migration of contaminants outside the project limits. All equipment and personnel will be decontaminated before leaving the property.

Personnel and equipment decontamination procedures to be employed when exiting contaminated work areas at this site are summarized in the following subsections.

PERSONNEL HYGENE and DECONTAMINATION

Personnel will be made aware of any personal habit that may allow contaminants into or onto their body. All personnel will check that regularly worn PPE (i.e. hardhats and liners, eye protection, etc.) is clean and in good condition. Disposable outer PPE (coveralls, gloves, boot covers) will be worn. Any products used for personal consumption are prohibited in exclusionary work areas. Break areas will be limited to specific areas where eating, drinking, smoking, etc. and the storage of these items will be allowed.

A typical personnel decontamination sequence is presented below:

- Step 1: Scrape the gross contamination from boots and outer gloves. Wash them using soap in a water solution and rinse with water into a designated container in the contamination reduction zone.
- Step 2: Remove the tape from and around boots an outer gloves and deposit in a collection drum (if disposable) or store on a rack (if reusable). Remove the over boots and outer gloves and place in a collection drum (if disposable) or wash and place on a rack (if reusable).
- Step 3: Remove respirator cartridge and place in a collection drum.
- Step 4: Remove disposable coveralls and place in a collection drum. Remove boots and store in an appropriate location. Remove disposable inner gloves and dispose of them in a collection drum.
- Step 5: Remove hardhat and safety glasses: Decontaminate as necessary (wash with sanitizing solution [MSA sanitizing solution or equivalent], rinse with potable water and allow to dry at the end of each day).
- Step 6: Remove respirator, if used, and deposit in a plastic liner. Avoid touching face with fingers. Respirators will be washed in a sanitizing solution (MSA sanitizer or equivalent), rinsed with portable water and allowed to air dry at the end of each day.
- Step 7: Thoroughly wash and rinse any exposed skin with water and biodegradable soap using bucket 1. Rinse in bucket 2. Re-rinse in bucket 3. Shower and launder all personal clothing as soon as possible upon completing daily activities.

Personnel hygiene, hand and face washing, following decontamination will take place in the project support area.

EQUIPMENT DECONTAMINATION

The Site Superintendent will be responsible for inspecting decontaminated vehicles, equipment, and material contaminated work areas, to ensure proper decontamination. The Site Superintendent will document in the Safety Inspection Log that each piece of equipment utilized in an exclusion zone has been properly decontaminated.

The standard operating procedure for the use of high-pressure washers will be strictly followed.

HEAVY EQUIPMENT DECONTAMINATION

As a general practice, equipment, such as excavators, will remain within the work zone for the duration of the project. This ensures the minimization of the potential migration of contaminants outside the project limits. In addition, the sequence of work has been designed to avoid the movement of machinery and personnel over areas within the work zones.

Generally heavy equipment, and large materials used in potentially contaminated areas equipment will be decontaminated as outlined below.

- Conduct gross removal of solids at point of use.
- Degrease, as necessary.
- Decontamination will be performed within the limits of the contamination reduction zone.

TOOLS AND SMALL EQUIPMENT DECONTAMINATION

Tools and smaller equipment that may have come in contact with potentially contaminated materials will be decontaminated using the procedures outlined below;

- Flush and wipe components to remove debris and other gross contamination.
- Clean with potable water and non-phosphate detergent (i.e. Alconox) using a brush or high- pressure washer, as necessary, to remove particulate matter and surface films.
- Rinse thoroughly with potable water.
- Allow to air dry for as long as possible.

NON-DISPOSABLE SAMPLING EQUIPMENT

Non-disposable sampling equipment that may have come into contact with potentially contaminated materials will be decontaminated prior to collecting each sample as follows;

- Clean with potable water and non-phosphate detergent using a brush, if necessary, to remove all visible foreign matter.
- Rinse thoroughly with potable water.
- Rinse thoroughly with de-ionized water.
- Visually inspect the openings and treads for solid materials.

Allow to air dry as long as possible on a clean polyethylene sheet or aluminum foil.

DISPOSAL of DECONTAMINATION WASTES

Equipment and solvents used for decontamination will be decontaminated or disposed of properly. All aqueous liquids generated in the personnel and equipment decontamination process will be collected, characterized, and appropriately disposed of or run through an existing water treatment facility. Disposable PPE will be containerized in drums as needed and properly disposed of.

EMERGENCY EQUIPMENT and FIRST AID REQUIREMENTS

Emergency and first aid equipment to be maintained onsite by OSC will include the following.

- Approved, portable, emergency eye wash flush bottles will be available
- At least one industrial first aid kit will be provided and maintained
- First aid and CPR kit locations will be specifically marked by the Site Superintendent and stocked with adequate water and other supplies to cleanse and decontaminate burns, wounds or lesions.
- 10# ABC type dry chemical fire extinguishers will be provided at all project site locations where flammable materials present a fire risk. Mobile equipment will be equipped with a minimum of 2-pound extinguishers when feasible. Extinguishers will be inspected monthly and certified annually.

Medical facilities that need to be contacted due to an onsite emergency, as well as directions to the nearest hospital, are identified at the beginning of this HASP. The tables stating the emergency contact information and hospital location will be posted in a prominent location(s) onsite.

If a site worker becomes injured or ill, Red Cross/American Heart Association recommended first aid procedures shall be followed. First aid, or other appropriate initial reactions, will be provided by the certified first aid technician that is closest to the incident.

NOTE: When protective clothing has been grossly contaminated during an incident, contaminants may be transferred to the treatment personnel or the wearer and cause injuries. Unless severe medical problems have occurred simultaneously with splashes, protective clothing should be removed and disposed of. If the worker can be moved, he/she will be taken to the personnel decontamination station where decontamination procedures, additional first aid or preparation for transport to the hospital will be accomplished. If the victim could not be decontaminated, the rescue service provider must be notified of the situation.

If the injury to the worker is of a chemical nature, the procedures listed below are to be followed.

Eye Exposure: If contaminated solids or liquids get into the eyes, wash eyes immediately using large amounts of water while lifting the lower and upper eyelids occasionally. Wash for at least 15 minutes. Obtain medical attention.
Skin Exposure: If contaminated solids or liquids get on the skin, promptly wash the contaminated skin using soap and water. Immediately obtain medical attention.
Respiratory Exposure: Immediately move the victim to fresh air. Obtain immediate medical attention.
Ingestion Exposure: Identify what contaminant was swallowed. Follow the appropriate procedure described in the SDS and obtain medical attention as soon as possible.

NOTE: Any person who is transported to the hospital for treatment related to an exposure injury will take with them the appropriate information (i.e. SDSs) on the chemical to which he/she has been exposed. SDSs for known or suspected chemicals to exist onsite will be stored in OSC's project field office and maintained by the Site Superintendent.

EMERGENCY RESPONSE and CONTINGENCY PLAN

The following Emergency Response and Contingency Plan includes the following:

- Preventative measures are included in the daily review of tasks that are to be performed that day at the safety briefing.
- Personnel training and regular HS&E meetings are conducted to reduce the likelihood of incidents.
- Mitigation measures to limit the scope of any incident are implemented.
- Contingency actions to respond to and remedy the effects of incidents.

REPORTING AN EMERGENCY

Minor: Workers will immediately notify the Site Superintendent and state the following:

- Name of injured person
- Exact location of emergency
- Describe the emergency.
- State whether fire department is needed.
- State whether emergency personnel are needed.

The Site Superintendent will:

- Call emergency services if required.
- Prepare investigation report with Site HSO

Major: Workers will immediately notify the Site Superintendent stating the same points that are listed under a minor emergency. However, with a major emergency the worker must state that this is a major emergency. The Site Superintendent will:

- Call emergency services
- Coordinate emergency service access to the incident
- Call OSC's Corporate Director HS&E
- Prepare an initial incident report
- Cooperate with OSC Corporate Director of HS&E for Incident Incestigation

PRE-PLANNING

Arrangements for emergency services will be made prior to initiating onsite operations. Emergency response procedures will be covered as part of the project personnel's training. This training will include, but not be limited to;

- Emergency chain of command.
- Communication methods and signals.
- Location of phones and emergency numbers.
- Use of emergency equipment.
- Evacuation and emergency procedures.
- Offsite support.

- Site-specific hazards.
- Decontamination procedures.
- Standard operating procedures, and
- Location and use of the first aid equipment

Emergency numbers listed earlier along with maps to medical services will be printed and located in site office trailer or Superintendent's truck.

WEATHER

In the event of severe weather (lightning, high winds, etc.), the Site Superintendent will notify project personnel. As the storm approaches, all work will stop, loose objects will be secured, and site personnel will take shelter at a location pre-arranged by the Site Superintendent. After the severe weather has passed, and prior to work startup, the Site Superintendent will inspect the site for hazards.

Lightning – Any visual sighting of lightning will result in stopping outside work activities. Work will not commence until 30 minutes after the last observed strike within 10 miles (can be verified using a weather app on your phone)

High Winds – Winds higher than 30 mph will cause all exterior hoisting and lifting to cease. Crane operators have the authority to stop lifts at lower wind speeds based on their discretion.

SPILL CONTAINMENT PROCEDURES

The purpose of this section is to prevent and control accidental discharge of contaminating materials to surface soils and waterways (or groundwater); and to minimize and abate the hazards to human health and the environment. These procedures will be reviewed with project personnel prior to startup and thereafter as necessary during regular weekly HS&E meetings and daily briefings. Please see spill response procedures listed below.

EMERGENCY NUMBERS

The names and phone numbers of emergency services and offices to be contacted in the event of a spill, or any other onsite emergency, is provided in the Contact Information portion located at the beginning of this HASP. These phone numbers will be posted by the Site Superintendent in prominent positions throughout the Project site.

DEFINITIONS

For the purposes of this plan, spoils are defined as any material that is accidentally or intentionally leaked, pumped, poured, dumped, or emitted onto the ground, surface water, groundwater or air. All spilled material will be considered hazardous, cleaned up following the established spill response procedures; and reported as required.

Spills will be categorized as: Priority 1 or Priority 2.

Priority 1 Spills: Result in a significant release of contamination into the air, or onto the ground, outside the exclusion zone.

Priority 2 Spills: Result in minor spill, less than five (5) gallons and not reportable, which can be easily cleaned up.

POTENTIAL SOURCES and PREVENTATIVE MEASURES

The contracted work has potential spill sources. These include, but are not limited to:

Potential Spill Source	Preventative Measure(S)
Transporting waste material to selected offsite disposal facilities	In general the Site Superintendent will be require to verify that all transportation vehicles used in support of this contract are equipped with the appropriate spill response equipment, and that the drivers have received the proper spill response training and maintain all their require federal and state licenses and certifications. Loads will be secured, tied down and covered, and transport vehicles will be checked by the Site Superintendent prior to release from the site.
Re-fueling onsite equipment	OSC will prohibit the long term storing of diesel fuel. OSC will limit the amount of fuel kept onsite to only that required for weekly equipment usage.
General spill prevention requirements	Easily accessible spill response stations will be set up containing absorbent pillows, floor dry, shovels and brushes to be used in the event of a spill. The location will be known to all project personnel.

SPILL RESPONSE PROCEDURES

INITIAL CONTAINMENT AND RESPONSE

In the event of a spill, the following initial containment and response procedure must be implemented immediately.

- **Administer first aid to injured person(s).** Any employee that observes a spill will act immediately to remove and /or protect the injured person from a life-threatening situation. First aid and/or decontamination procedure will be implemented as appropriate.
- **Warn other people and/or vehicles of the hazard.** Personnel will act to prevent any unsuspecting persons from encountering the spilled materials by alerting nearby people and by obtaining assistance of other personnel who are familiar with spill control and clean up training.
- **Stop the spill at the source, if possible.** Without taking unnecessary risks, personnel will attempt to stop the spill at the source. This may involve activities such as up righting a drum, closing a valve, or temporarily sealing a hole with a plug. OSC personnel will not make more than a brief effort, prior to notifying the Site Superintendent.
- **Notify the Site Superintendent.** Using available onsite communication systems, or other rapid communication procedures, the Site Superintendent will be notified of the spill, including information on the material spilled, quality, personnel injuries and immediate life-threatening hazards. The Site Superintendent will notify the the Engineer representative and emergency contacts immediately (See Emergency Contact List).

NOTE: If a flammable liquid is involved in the spill, remove all ignition sources, and monitor for explosive conditions with an LEL meter during cleanup. Also, remove any surrounding materials that might chemically react with the spilled materials.

SPILL CONTAINMENT

The Site Superintendent and HSO will make a rapid assessment of any spill at the site; apply the appropriate HS&E considerations to the use of PPE in the spill release zone; and direct primary containment measures. Depending on the nature of the spill, primary containment measures may include, but are not limited to.

- Constructing a temporary containment berm to control the horizontal flow of the spill using absorbent pads, booms, sandbags, sand and/or other inert materials.
- Placing drums under the leak to collect the spilling material before it flows onto the ground.
- Digging a sump, installing a polyethylene liner, and diverting the spilled material to the sump
- Transferring the material from its original container to another container

Spills that occur between the project site and the offsite disposal facility will be initially contained by the driver using on-board spill response equipment.

SPILL CLEANUP

The Site Superintendent, HSO, and Project Manager will develop an incident-specific spill clean-up plan for Priority 1 spills that will take into consideration the associated hazards, quantity of spilled material, disposal methods and costs. The incident specific spill clean-up plan will be reviewed for acceptance by the Wood representative and/or other Federal, State or Local oversight personnel. Once approved, the spill clean-up plan will be implemented under the direct supervision of the Site Superintendent.

Generally, all visually detectable spills, leaks or releases of fuel oil will be collected and cleaned up using absorbent pads, booms, sandbags, sand and/or other inert materials as practicable using the response procedures outlined below. Emergency spill kits will be kept in each vehicle.

Spill Type	Response
Waste oil on the ground	Contain the spill and excavate the visually contaminated soils. Containerize, sample for classification purposes, and dispose offsite.
Building/paved surfaces	Contain the spill. Power wash the contaminated are(s). Collect and containerize the resultant wastewater for onsite treatment.
Vehicle	Power wash the vehicle. Collect, contain, and treat the resultant decontamination fluids.
Heavy Equipment hydraulic fluid leak	Stop the equipment immediately. Clean up spill and/or leaking fluid. Contact Site Superintendent for repair approach.
Waste from truck spilled on roadway	Contain the spilled material. Collect, containerize, and remove the spilled material. Sample for waste classification purposes. Dispose of material offsite.

POST-SPILL INSPECTION
The Site Superintendent, HSO, Project Manager and the Owner representative will jointly inspect the spill site to determine that the spill has been cleaned up to the satisfaction of all involved parties.

Reporting
In the event of a spill incident, the Site Superintendent or HSO will immediately contact the Project Manager and the Owner representative; initiate the emergency procedure steps that are provided in this HASP and Complete a Spill Report Form for submittal to the Project Manager and the the Owner project representative.

OSC will be responsible for reporting any Priority 1 spills immediately following the incident. A written report will be submitted within seven days after the telephone call reporting the incident. The written report will include the item spilled, quantity, identification, and manifest numbers, whether the amount spilled is EPA/State/District reportable, exact location of occurrence, containment procedures used, anticipated clean-up and disposal procedures and disposal of spill residue.

HEAT/COLD STRESS

HEAT

The Site Superintendent will visually monitor the project personnel for signs of heat overexposure. The Site Superintendent will be responsible for implementing the following program when the ambient air temperature exceeds 85°F (heat stress monitoring).

SYMPTOMS
Weakness, dizziness, fainting, nausea, headaches, cool and clammy skin, profuse sweating, slurred speech, weak pulse and dilated pupils.

PROCEDURE
Personnel who wear PPE allow their body heat to accumulate and may experience an elevation of their body temperature. Heat, heat exhaustion and heat stroke can be experienced which, if not remedied, can threaten health and life. A current edition of the American Red Cross Standard First Aid book or equivalent will be maintained onsite at all times so that the Site Superintendent and all personnel will be able to recognize the symptoms of heat emergency and be capable of controlling them.

When PPE is worn (especially level C) the suggested guidelines for ambient temperature and maximum wear time per excursion are as follows:

Ambient Temperature (°F)	Maximum Wear Time Per Excursion (Minutes)
Above 90	15
85 – 90	30
80 – 85	60

70 – 80	90
60 – 70	120
50 – 60	180

One method for measuring the effectiveness of employees' rest-recovery regime is by monitoring their heart as follows:

- During a 3-minute period, count the pulse rate for the last 30 seconds of the first minute, the last 30 seconds of the second minute and the last 30 seconds of the third minute.
- Double that count.
- If the recovery rate during the last 30 seconds of the first minute is at 110 beats per minute or less and the deceleration between the first, second and third minute is at least 10 beats/minute, the work recovery regime is acceptable. If the employee's rate is above the specified, a longer rest period is required, and accompanied by an increased intake of fluids.

COLD

Whole body protection will be provided to all Project personnel who will have prolonged exposure to cold air. The Site Superintendent will use the equivalent chill temperature when determining the combined cooling effect of wind and low temperatures on exposed skin or when determining the proper clothing insulation requirements. The following clothing will help in cold weather.

- Appropriate underclothing (wool or other cloth)
- Outer coats that repel wind and moisture
- Face, head and ear coverings
- Extra pairs of socks
- Insulated safety boots
- Wool glove liners or wind and water repellant gloves

Personnel who are working in continuous cold weather are required to warm themselves on a regular basis in the onsite trailer. Drinks will be provided to personnel to prevent dehydration. The Site Superintendent will follow the work practices and recommendations for cold stress threshold limit values as stated by the current edition of the Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices by the American Conference of Governmental Industrial Hygienists, or equivalent cold stress prevention methods.

LOGS, REPORTS and RECORDKEEPING

The following reports will be prepared and be available as indicated below. Copies of permits and forms required for this project are provided in Attachment 1.

Type	Frequency
AHA	Prior to start of work
Employee Daily Safety Brief	Daily
Air Monitoring Reports	As needed
Incident Report	As required, within 48 hours

The above logs and reports will be prepared by the Site Superintendent, the HSO, or the designated representative, at the frequency noted above. Completed logs and reports will be maintained stored on site in the project field office. Copies shall be provided to the Owner representative as requested.

HOT WORK PERMIT PROCEDURES

OSC will follow specific procedures to ensure all hot work activities, welding, burning, cutting, sparking and other ignition source work is completed safely without incident (no fires, injuries, or property damage). All hot work shall require an approved hot work permit issued by the OSC Site Superintendent prior to commencing work. The hot work permit shall define the minimum acceptable procedures and precautions that shall be taken for all phases of the hot work; prior to start of work, as well as during and after hot work is completed. A permit shall be issued daily for each specific location, type of hot work, protective measures, date, time duration and completion time. Hot work permits will be available for review by the Owner Representative. Completed and signed permits shall be returned to the Site HSO at the end of the workday. Copies of completed permits shall be maintained in the OSC field office for review.

AUTHORIZATION OF EQUIPMENT OPERATORS

All heavy equipment operators working on the site will be approved as competent either through OSC's in-house program or through local labor union process. Training requirements for approval are as follows.

Heavy Equipment Operators

- Determination of competency by a certified operator
- On-the-job mentoring under a competent person

The mentoring may be adjusted based on an operator's previous experience. In addition, operators may need to obtain state-specific crane licenses/permits.

Crane Operators

- Formal classroom with written qualification
- Determination of proficiency by a certified operator
- On-the-job mentoring for under a competent person
- Have CCO license for the crane being operated.

The formal classroom and mentoring may be adjusted based on an operator's previous experience. In addition to the certification, operators may need to obtain state-specific licenses/permits.

Appendix C – Community Air Monitoring Plan

Community Air Monitoring Plan

Excavation Work Plan

Tonawanda Coke Corporation

Superfund Site Operable Unit 2

NYSDEC Site #915055/OU2

3875 River Road

Tonawanda, NY 14150

February 6, 2025

Table of Contents

1 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.

- *The Tonawanda Coke Superfund Site, Operable Unit 2. (3875 River Road) Site will have an air monitoring program before and during the Remedial Actions (RAWP). If there are detections at the downwind station at or above the action levels, additional monitoring requirements will be considered*[1].
- *Two (2) air monitoring station units one that will be mobile and moved as the work area(s) change at the Site, the second on or near the eastern berm (that also serves as an upwind station of the BCP Site, #C915353).*

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.

- *There are no sensitive receptors on the property. The closest residence is more than 0.25 miles away from the property boundary.*

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

2 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.

- *VOC and particulate monitoring will be incorporated into the RAWP activities.*

[1] The text in *italic font* are comments inserted by Inventum in addition to the standard CAMP Template.

Continuous monitoring will be required for all ground intrusive activities during the demolition of contaminated or potentially contaminated structures, installing utility trenches, and during all earthmoving, including placement of the cover materials. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, 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 confirmation soil sample collection, import sample collection, 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.

- *During sampling (confirmation sampling) periodic monitoring will be implemented with hand-held instruments.*

3 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) 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, 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 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 work 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 or 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.

5. The NYSDEC and NYSDOH project managers for the Site will be notified within 24-hours by phone or email if there is an exceedance of the VOC action level of 25 ppm at the perimeter of the work

area as described within Section 3. The notification shall include a description of the control measures implemented to prevent further exceedances.

4 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) 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/m3 nd 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, 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 mcg/m^3 and in preventing visible dust migration.

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

4. Should the action level of 150 mcg/m3 be exceeded after corrective actions are taken, work must stop and NYDEC and NYSDOH project managers for the Site must be notified within 24-hours by phone or email. The notification shall include a description of the control measures implemented to prevent further exceedances.

Appendix A-1
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/m^3 (1 to 400,000 :ug/m^3);

(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m^3 for one second averaging; and +/- 1.5 g/m^3 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/m^3, 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^o C (14 to 122^o 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/m^3 (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 the working site particulate measurement is greater than 100 ug/m^3, 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/m^3 e exceeded after corrective actions are taken, work must stop and DER and DOH must be notified within one hour. 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 and demolitions;

(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/m^3 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.