INTERIM REMEDIAL MEASURES WORK PLAN

DEMOLITION AND DECONTAMINATION ACTIVITIES
TRACT I SITE
3123 HIGHLAND AVENUE
NIAGARA FALLS, NIAGARA COUNTY, NEW YORK
SITE NO. C932157

SUBMITTED TO:

THE NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION

Prepared for:

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Project 3410110832
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Robert E. Crowley
Senior Principal Scientist

I certify that I am currently a New York State registered professional engineer and that this Interim Remedial Measure Work Plan, where applicable, was prepared in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

STATE OF NEW YORK
STUART C. PEARSON
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LICENSED PROFESSIONAL ENGINEER

Stuart C. Pearson, P.E.
Principal Engineer (MACTEC Engineering and Consulting, P.C.)
June12, 2012

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ACRONYMS

ACM	Asbestos Containing Material
Amec	Amec Environment & Infrastructure, Inc.
BCP	Brownfield Cleanup Program
bgs	below ground surface
Brightfields	Brightfields, Inc.
CAMP	Community Air Monitoring Plan
CY	cubic yards
EA	EA Engineering, P.C.
E&E	Ecology & Environment, Inc.
ERP	Environmental Restoration Program
FER	Final Engineering Report
Ft-bgs	Feet below ground surface
HASP	Health and Safety Plan
IRM	Interim Remedial Measure
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
NYSDEC	New York State Department of Environmental Conservation
OSC	Ontario Specialty Contracting
OSHA	Occupational Safety and Health Administration
PAHs	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PID	Photo Ionization Detector
PPE	Personal Protective Equipment
SCGs	Standards, Criteria and Guidance
SCOs	Soil Cleanup Objectives
SI	Site Investigation
Site	Tract I Site
SMP	Site Management Plan
SVOCs	Semivolatile Organic Compounds
TAL	Target Analyte List
TCLP	Toxicity Characteristic Leaching Procedure
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VOCs	Volatile Organic Compounds
WP	Work Plan
XRF	X-ray fluorescence

EXECUTIVE SUMMARY

This Interim Remedial Measure (IRM) Work Plan (WP) presents a plan to design and execute a Demolition IRM at the Tract I Site (Site) located at 3123 Highland Avenue in the city of Niagara Falls (City), Niagara County, New York. The New York State Department of Environmental Conservation (NYSDEC) has been involved with the Site since 1998, initially working with the City under the Environmental Restoration Program (ERP). The remedial investigation of the Site was completed in three efforts in 1999, 2007 - 2008, and 2011. A Consolidated Remedial Investigation Report dated May 2012 was submitted to the NYSDEC summarizing these previous Site investigations along with a Removal Action conducted by the United States Environmental Protection Agency (USEPA) in 2009-2010. To close specific data gaps identified in the Consolidated Remedial Investigation Report, a Supplemental Remedial Investigation WP dated May 2012 was also submitted to the NYSDEC.

Site Layout on Aerial Photograph

This IRM WP addresses the demolition of portions of the Site buildings and the cleanup of the remaining debris located inside of the buildings. Following implementation of the Supplemental Remedial Investigation WP, an IRM WP Addendum will be issued, which will outline the remedial approach for the soil at the Site. An Alternatives Analysis Report (AAR) will also be prepared subsequent to implementation of the IRM WP Addendum to evaluate the final remedy for the Site.

The Site consists of approximately 5.9 acres of industrial property and has been vacant since the 1980s. Immediately to the north of the Site is the Tulip Corporation property, which consists of approximately 5.7 acres located at 3125 Highland Avenue. To the south and east of the Site is the Tract II property (also

owned by the City), which is approximately 18.5 acres in size. The western border of the Site is Highland Avenue. It is anticipated that the Site will be remediated and redeveloped in conjunction with similar work on the adjacent Tract II site.

The Highland Avenue community has a long history of activity to encourage and foster redevelopment of Tract II since the 1970s. New housing, called the Hope VI Project, has been constructed on the southern side of Beech Avenue. The Hope VI housing eliminated a park on Beech Avenue but only with the commitment of the City, that it would provide replacement park space on the Tract II Site. In order to support a viable redevelopment on the Tract II property, Brightfields has elected to enter the Site into the BCP, and remediate and redevelop it concurrent with the Tract II site. The potential future use of the Site is as an educational incubator for training the local work force and commercial facilities. Building on past planning efforts and the City's Draft Master Plan for the Highland Avenue area, this IRM WP outlines a remedial approach that has been engineered to support a proposed redevelopment plan. The conceptual redevelopment plan has been discussed with the City, and the project team is in the process of gathering input from other stakeholders, particularly the community.

The combination of a remediation plan coupled with a viable redevelopment concept presents a unique opportunity to address legacy environmental issues with the Site and return an underutilized property back to productive use. This IRM WP includes input and analysis from a team of scientists, engineers, and urban planners who have built upon past work, including the extensive planning efforts for the area.

The Demolition IRM for the Site includes razing a portion of the Power City Warehouse Building and disposing of debris that is located inside of the building. The floor slab from the demolished portion of the building will be removed along with any associated frost walls or piping as part of subsequent soil cleanup activities. The portion of the Power City Warehouse Building that remains standing will be reused.

1.0 INTRODUCTION

Amec Environment & Infrastructure, Inc. (Amec) has prepared this Interim Remedial Measures (IRM) Work Plan (WP) on behalf of Brightfields, Inc. (Brightfields) for the Tract I Site (Site) located at 3123 Highland Avenue, in the City of Niagara Falls (City), Niagara County, New York. Figure 1 shows the location of the Site on a United States Geological Survey (USGS) topographic map and Figure 2 shows the existing layout of the Site in plan view.

The Site is a former lead/acid battery manufacturing plant and has been the subject of three characterization efforts by the New York State Department of Environmental Conservation (NYSDEC), and a Removal Action by the United States Environmental Protection Agency (USEPA) between 1999 and 2011. Adjacent to the Site, to the south and east, is the Tract II property, which is being addressed under the State of New York Inactive Hazardous Waste Sites program.

The City has endeavored to redevelop both the Tract I and Tract II sites since closure of the industrial facilities in the early 1970's. In order to support a viable redevelopment on the Tract II property, Brightfields has elected to also remediate and redevelop the Site under the New York State Brownfield Cleanup Program (BCP). Brightfields submitted the BCP application for the Site in December of 2011, in its capacity as a potential purchaser of the Site from the City.

Site characterization work has occurred in three efforts under NYSDEC oversight in 1999, 2007 - 2008, and 2011. A Consolidated Remedial Investigation Report (Amec, May 2012) was submitted to the NYSDEC to summarize these previous Site investigations along with the Removal Action performed by USEPA in 2009-2010. To address specific data gaps identified in the Consolidated Remedial Investigation Report, a Supplemental Remedial Investigation WP (Amec, May 2012) was also submitted to the NYSDEC.

The purpose of this IRM WP is to addresses the demolition of portions of the Site buildings and the cleanup of the remaining debris and other hazardous materials located inside of the buildings.

1.1 SITE REDEVELOPMENT PLAN

A conceptual redevelopment plan is in the process of being prepared for the Site, and requires input from stakeholders, particularly the community. The conceptual redevelopment plan is consistent with the City's Master Plan for the Highland Avenue area and incorporates commercial use of the Site. The combination of a remediation plan that supports a viable redevelopment concept presents a unique opportunity to address legacy environmental issues with the Site and return an underutilized property back to productive use.

1.2 SITE LOCATION AND HISTORY

The Site is located in an multi-use area of the City comprised of industrial, commercial, and residential properties and consists of approximately 5.9 acres, located east of Highland Avenue, north and west of the Tract II site, and south of the active Tulip Corporation property (shown in insert). The Site was first developed in approximately 1910 as the Power City Warehouse, a battery manufacturing facility for U.S. Light and Heat Co., and later Autolite Co. The facility was acquired by Prestolite Co. in the 1960s for the manufacture of hard rubber battery cases along with battery charging and filling. Battery manufacturing activities ceased in the 1970s and the Site was used as a warehouse and automotive body shop until the 1980s. By the late 1980s, the Site had been abandoned and various portions were in disrepair. At that time, the City acquired the property via tax foreclosure.

Site Layout on Aerial Photograph

1.3 SITE INVESTIGATION/REMEDIATION HISTORY

In May 1999, a remedial investigation was conducted on the Site by Ecology and Environment Engineering, P.C. (E&E) for the City under a grant from the NYSDEC. Results from this investigation were presented in a May 2000 site investigation report (E&E, 2000). In late 2007, the NYSDEC contracted EA Engineering, P.C. and its affiliate EA Science and Technology (EA) to perform an additional site characterization. Results of that investigation were presented in a May 2009 site characterization report (EA, 2009).

In late 2009 and in 2010, the USEPA conducted a Removal Action at the Site. These activities included fencing the Site, removal/cleanup and disposal of lead-contaminated debris including sediments and sludge from within the warehouse building, removal and disposal of water in the building basement and removal and disposal of some asbestos containing building materials from the Site. Additionally, paint-related materials, PCB light ballasts, batteries, mercury switches, piping and other miscellaneous debris located on the Site were removed and disposed of by the USEPA.

In July 2011, Amec implemented a NYSDEC-approved pre-design study work plan (Mactec, 2011) on the Site. This study was performed to refine the extent of lead identified in surface soil and to obtain additional data to support anticipated Site remediation. Results of this and the above mentioned investigations and Removal Action are documented in the Consolidated Remedial Investigation Report (Amec, May 2012).

1.4 IDENTIFICATION OF APPLICABLE STANDARDS, CRITERIA, AND GUIDELINES

To select the applicable Soil Cleanup Objectives (SCOs) for the Site, the end use of the Site needs to be considered. Potential redevelopment concepts for the Site include an education incubator and commercial facilities. Based on a conceptual redevelopment scenario that is consistent with the City's Master Plan, the western portion of the Site could be designated as commercial space and the central and eastern portion of the Site could be designated as an adult education incubator, which would also be consistent with a commercial use scenario. In accordance with DER-10, the commercial lead SCO is 1,000 milligrams per kilogram (mg/kg). Note

that if the Site were limited to only industrial uses, the lead SCO would be 3,900 mg/kg. Additionally, some of the lead concentrations exceed the Toxicity Characteristic Leaching Procedure (TCLP) standard of 5 milligrams per liter (mg/L) lead in the TCLP extract. Therefore, the 5 mg/L TCLP standard for lead will also be considered an SCO for the Site.

Summary of Lead SCOs

	Units	Commercial/ Industrial
TCLP Lead	mg/L	5
Total Lead	mg/kg	1,000

The objectives of the remedial measures at the Site will include reducing the lead concentration in the surface soil, and controlling potentially complete exposure pathways to soil containing lead exceeding the appropriate SCOs. Additionally, any lead impacted building debris or other hazardous building materials along with the physical hazards associated with the dilapidated buildings will also be addressed. No SCOs are proposed for groundwater because no groundwater cleanup is anticipated as part of this IRM.

1.5 SUMMARY OF PROPOSED DEMOLITION IRM

Portions of the interior of the Power City Warehouse building on the Site have been addressed by the USEPA Removal Action. The demolition and redevelopment plan will leave the existing concrete slab intact where portions of the building are to remain in place. As such, it is not likely that there is a potential for contact with lead present beneath the concrete floor and further remediation is not necessary beneath the footprint of the remaining building. In portions of the building which are demolished, the concrete floor, along with any associated footers and piping, will be left in place and removed along with soil under an addendum to this WP following the completion of the supplemental Site characterization. Brick and brick bedding material (sand) will also be addressed under WP addendum.

Asbestos and other debris that can be safely cleaned and removed will be characterized and managed prior to demolition of the building. Debris remaining inside areas of the structure deemed unsafe for entry will be sampled after the

building has been stabilized or razed. Portions of the building thought to contain asbestos will be sampled and segregated as necessary after the building has been stabilized.

1.6 PROJECT ORGANIZATION

Amec will prepare the design documents and oversee any field aspects of this IRM on behalf of Brightfields, Inc. The Amec Professional Engineer will oversee the design and stamp any required design figures and the design documents. Amec personnel will collect any samples, provide technical oversight, and direct any subcontractor(s) to complete work that has been deemed appropriate to achieve the project objectives.

Listed below are the key project personnel and their office/primary telephone numbers.

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1.7 WORK PLAN ORGANIZATION

The following sections of this Demolition IRM WP provide the information necessary to identify and evaluate the IRM for the Site. Those sections include: Background (Section 2.0), Demolition Interim Remedial Measures (Section 3.0), Permits and Other Authorizations (Section 4.0), Schedule (Section 5.0), Post-Construction Plans (Section 6.0), and References (Section 7.0).

1.8 LIMITATIONS

This WP presents a summary of information known to Amec concerning the Site that Amec considered pertinent to the scope of work and stated project objectives. Amec has performed this work with the care and skill ordinarily used by members of the profession practicing under similar conditions. The conclusions presented herein are those that are deemed pertinent by Amec based upon the assumed accuracy of the available information. No other warranty, expressed or implied, is made as to the professional advice included in this report. The information present in this report is not intended for any use other than the stated objectives of the project. This document was prepared for the sole use of Brightfields, Inc. and the NYSDEC, who are the only intended beneficiaries of our work.

2.0 BACKGROUND

This section provides a summary of the characterization of the Site and incorporates all of the available data collected in the various phases of the Site investigation. A discussion of the Site investigations and the results are provided.

2.1 SITE DESCRIPTION

The Site consists of approximately 5.9 acres of property located at 3123 Highland Ave. in Niagara Falls, Niagara County, New York. The Site is mostly covered by the former Power City Warehouse Building in various levels of disrepair. The western portion of the Site consists of a grassy area and a gravel drive to the loading dock area. Along the southern boundary of the Site are some trees and undergrowth with a segment of a retaining wall. The eastern portion of the Site has some grassy areas intermixed with broken asphalt and sections of concrete pavement.

The Power City Warehouse Building covers approximately 3.3 acres of the Site and is a three-story masonry building. The building has had numerous additions to the original structure. Portions of the building roof have collapsed, making several areas of the warehouse building unsafe. Previous investigations of the Power City Warehouse Building have reported that concrete floors up to six inches thick cover the majority of the structure. The concrete floors were noted to be good condition with no major cracking or deterioration. Several areas of the warehouse have brick flooring underlain by a layer of soil/sand on top of the concrete floor as well (EA, 2009). Drains and sumps were located throughout the building and a basement access containing several feet of water was also discovered.

A second, considerably smaller, one-story building (approximately 462 square feet) is located in the northeast corner of the Site. The smaller building is constructed of brick with a concrete floor. Past investigations have concluded that this building may have been used for chemical storage (E&E, 2000).

The Site consists of roughly 30 percent grass and concrete surface, 15 percent is wooded with undergrowth, and approximately 55 percent contains building structures.

2.2 SITE GEOLOGY AND HYDROGEOLOGY

The Geologic Map of New York, Niagara Sheet published by the University of the State of New York indicates that the Site lies within the Silurian-aged Lockport Group. The Lockport Group consists of Geulph, Oak Orchard, Eramosa, and Goat Island Dolostones and the Gasport Limestone. The Tract II Site investigation revealed that bedrock is between 12.5 and 24.5 feet below ground surface (ft-bgs) in the vicinity of the Site. The unconsolidated material at the Site consists of various fill materials at the surface, underlain by silty clay. Dolostone bedrock is present below the silty clay.

Although no direct groundwater investigations have been performed on the Site, previous investigations conducted for the NYSDEC on the adjacent Tract II site indicate that there is no significant groundwater aquifer within the overburden soils or fill materials (EA, 2009). The groundwater flow at the Site appears to be generally toward the southwest, toward the Niagara River, on top of the Dolostone bedrock formation.

The NYSDEC concluded, in the Tract II E&E site characterization report, (E&E, 2000) and in the 2003 Tract II Record of Decision (ROD) that groundwater in the vicinity of the Site was not likely to be used as drinking water source. The report cited the small amount of water available, a local ordinance prohibiting water supply wells in the City, and the fact that public drinking water is available throughout the area as justification for this conclusion.

2.3 SUMMARY OF PREVIOUS REMEDIAL INVESTIGATIONS

The Site was previously investigated in three efforts between 1999 and 2011. These included the 1999 E&E site investigation, the 2007 - 2008 EA site characterization, and the July 2011 predesign study implemented by Amec. Field activities and results from these three investigations are detailed in the Consolidated Remedial Investigation Report (Amec, May 2012) and are briefly summarized in the following subsections.

2.3.1 1999 E&E Site Investigation

In May 1999, E&E conducted the initial investigation of the Site. According to the E&E report (E&E, 2000), the 1999 site investigation was conducted to characterize the nature and extent of potential Site-related constituents and consisted of a

building inspection and multimedia sampling. Samples were collected from the locations shown in Figure 3 and included the following:

- 13 (10 composite and three grab) samples (SS-PCW-01 through SS-PCW-13) that were classified by E&E as surface soil samples (although classified as surface soil samples, several of the samples or sub-samples consisted of building debris collected from within sumps and drains within the building);
- Three background grab surface soil samples (SS-PCW-BK01 through SS-PWC-BK03) from areas near the Site;
- One composite sediment/sludge sample and a sample duplicate (SD-PCW-01 and SD-PCW-01/D), consisting of three sub-samples obtained from the central floor drain in the Power City Warehouse building;
- One composite lead paint chip sample (PT-PCW-01); and
- Three potential asbestos containing material samples (AS-PCW-01 through AS-PCW-03).

Results from the E&E site investigation indicated that lead, polychlorinated biphenyls (PCBs), and some polycyclic aromatic hydrocarbons (PAHs) exceeded the Site SCOs in surface soil and in building debris/sediment. Lead levels exceeded the SCOs in all samples analyzed for lead, with concentrations ranging from 2,350 to 270,000 mg/kg. PCBs were found to exceed the SCOs in eight of the 12 sample locations analyzed at concentrations ranging from an estimated (J) 1.2 J mg/kg to 21 mg/kg. PAHs exceeded the SCOs in eight of the ten sample locations analyzed for semivolatile organic compounds (SVOCs). The PAHs detected, and their range of concentrations above the SCOs include: benzo(a)anthracene (6.5 mg/kg to 29 mg/kg), benzo(b)fluoranthene (6.3 mg/kg to 35 J mg/kg), benzo(a)pyrene (2 J mg/kg to 31 J mg/kg), indeno(1,2,3-cd)pyrene (7.5 J mg/kg to 9.8 J mg/kg) and dibenz(a,h)anthracene (0.82 J mg/kg to 3.6 J mg/kg).

Lastly, the paint chip sample was found to exceed the lead TCLP regulatory action level (standard) of 5 milligrams per liter (mg/L) at a concentration of 42.3 mg/L and all three building material samples (two pipe insulation samples and one roofing sample) were found to contain chrysotile asbestos ranging from 30% to 68%.

2.3.2 2007-2008 EA Site Characterization

EA conducted additional characterization activities at the Site for NYSDEC from September 2007 to October 2008. The EA site characterization included a historical

data and records review, a sample location identification and warehouse flooring inspection, debris sampling and debris volume estimation, flooded basement water discharge and basement inspection, and subsurface soil boring sampling. Samples were collected from the locations shown in Figure 3 and included the following:

- 19 debris samples collected throughout the building footprint area. Grab samples (DS-01, DS-04 through DS-15, DS-17, DS-18, and DS-21) were collected from individual sumps and composite samples (DS-16, DS-19 and DS-20) were collected from continuous floor drains and trenches. The samples were analyzed for SVOCs and Target Analyte List (TAL) and TCLP metals. Selected samples were also analyzed for Volatile Organic Compounds (VOCs) based upon field screening;
- One composite sample (BSMT COMPOSITE) from the debris located in the basement, which was analyzed for TAL metals; and
- 31 subsurface soil samples from 23 soil boring locations (SB-01 through SB-23) advanced at the Site. Subsurface soil samples were collected at13 locations inside the footprint of the former Power City Warehouse and 10 soil samples were collected surrounding the structure consisting of the following:
    - 22 shallow subsurface soil samples were collected from 0 to 2 ft-bgs and analyzed for TAL metals; and
    - Nine deeper subsurface soil samples collected from depth intervals ranging from three to eight ft-bgs and analyzed for VOCs and SVOCs.

2.3.2.1 EA Supplemental Investigation Results

The former Power City Warehouse floor inspection determined that a large portion of the warehouse structure is constructed on a poured concrete foundation, including locations with a brick or asphalt floor. EA cored the concrete building foundation for subsurface soil sampling and determined that floor thicknesses were, on average, 6-inches thick. Subsurface soil samples were collected from 13 locations beneath the building sub-slab. Lead exceeded the Commercial SCOs in two locations (SB-08S and SB-12S) and chromium exceeded at SB-11S. There were no exceedances of VOCs or SVOCs beneath the building slab.

EA collected 19 debris samples from throughout the interior of the former Power City Warehouse. Metals results from the samples indicated exceedances of the Commercial SCOs for arsenic, barium, cadmium, copper, lead, mercury, and zinc. SVOCs that exceeded the Commercial SCOs were acenaphthene, acenaphthylene,

anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, 2-methylphenol, 4-methylphenol, naphthalene, phenanthrene, phenol, pyrene, and 1,2,4-tricholorbenzene. There were no VOCs that exceeded the Commercial SCOs. All of the debris samples were collected above the concrete slab in the buildings. The debris was collected and disposed of off-Site by the USEPA, and is, with the exception of inaccessible areas, no longer in the former Power City Warehouse building.

An inspection was performed on the basement walls and floor, which determined that the basement was constructed of poured concrete and was observed to be in good condition. Basement sampling results indicated arsenic, cadmium, and lead exceed the NYSDEC Commercial SCOs.

Subsurface soil samples from outside the building footprint were collected and analyzed for VOCs, SVOCs, and TAL metals at nine locations. Several of the metal results exceeded the NYSDEC Commercial SCOs; they include arsenic, lead, and copper.

2.3.3 Amec Predesign Study

In July of 2011, Amec implemented a NYSDEC-approved predesign study on the Site. The predesign study was performed on soils outside of the structure on the Tract I Site. Samples were collected from 11 soil borings (B-10 through B-20) as shown on Figure 3. Additionally, a hand-held X-ray fluorescence (XRF) meter was used to measure real-time lead concentrations for later correlation to laboratory results. A building evaluation was also performed to determine if the buildings could be used during the remediation.

The samples collected in the predesign study were analyzed for lead, tin, antimony, TCLP lead, and pH. The results of the predesign samples showed all of the lead concentrations exceeded the commercial SCOs and ranged between 1,210 to 16,900 mg/kg. TCLP lead results exceeded TCLP lead levels of 5 mg/L at four locations. Two of the locations B-10 and B-11 (18.4 and 46.5 mg/L respectively) are located in the northeast corner of the Site; the other two, B-17 and B-18 (21 and 69.7 mg/L respectively), are located along the southern boundary of the property. The pH levels in all of the samples ranged from 7.16 to 8.25.

2.4 REMOVAL ACTION

During the summer of 2010, the USEPA began a Removal Action within the Power City Warehouse. Prior to the start of work, actions the USEPA fenced the former Power City Warehouse in order to secure the Site. The cleanup involved the removal of asbestos, SVOC and lead contaminated sediment and debris within the building, and removal of any containers of hazardous material on the property. The USEPA removed or stabilized sections of the building to facilitate work activities. Debris removal was completed only in portions of the warehouse building that were considered safe for entry. Areas that were not addressed during the Removal Action are shown in Figure 4.

3.0 DEMOLITION INTERIM REMEDIAL MEASURES

3.1 REMEDIAL ACTION OBJECTIVES

The goals of the NYSDEC remedial program are to meet the Standards, Criteria and Guidance (SCGs), and to be protective of human health and the environment. At a minimum, "the remedy must eliminate or mitigate all significant threats to the public health and to the environment presented by the hazardous substance and hazardous waste disposed at the Site through the proper application of scientific and engineering principles."

The proposed future use of the Site includes educational and commercial facilities, both of which are consistent with the commercial SCGs. Commercial uses are defined in the NYSDEC Technical Guidance DER-10, and are among the most restrictive site uses described in the land-use hierarchy.

Based on existing zoning, the proposed land uses, and land-use controls, the following are remedial objectives that will be protective of human health and the environment, meet the SCGs, and encourage redevelopment of the Site:

- Control the potential for human exposure to the constituents in debris exceeding the applicable SCOs; and
- Control the physical hazards associated with the buildings and other appurtenances on the Site.

3.2 SUMMARY OF AREAS REQUIRING REMEDIAL ACTION

The area which will be remediated is the Power City Warehouse Building. A portion of the building was cleaned in a Removal Action by the USEPA in 2010. The cleanup activities were completed primarily on the western portion of the building. The remaining portion of the building requiring cleaning is shown in Figure 4. Asbestos containing material (ACM) and miscellaneous debris, which is located on or in the building will be removed, where safe to do so. ACM and debris that cannot be removed due to the dilapidated condition of the structure, will be removed after sections of the building or the entire structure has been demolished.

Soil remediation activities will be detailed in a forthcoming addendum to this IRM WP. Groundwater remediation activities are not anticipated based on current information but may be evaluated pending completion of the Supplemental Site Investigation.

3.3 REMEDIAL APPROACH

A controlled demolition will be completed on areas of the building where sections of the building can be removed to allow for access into the structure. This process will be completed until the entire structure is down.

A portion of the structure will be left as part of the future Site development as shown in Figure 5. The demolition work will be completed in accordance with applicable laws and regulations and/or approved variances.

Demolition of the existing facility will include the following:

- Preparation and implementation of a demolition health and safety plan (HASP; discussed in Section 4.3; Appendix A), to include requirements for employee training and medical monitoring, list of designated personnel, respiratory protection program, personal protective equipment (PPE), fire protection, site and community air monitoring programs, and emergency procedures;
- Preparation and implementation of a community air monitoring plan (CAMP; discussed in Section 4.3; Appendix B);
- Implementation of a decontamination program;
- Implementation of a hazard communication program;
- Obtaining all required licenses, demolition permits and other permits, and approvals;
- Mobilization of equipment and site preparation;
- Removal of the existing chain link fence as necessary to facilitate the work and demolition activities. The fence will be replaced along an alignment determined by Brightfields once the Site remediation activities are completed.
- Capping/plugging of drains and sewer lines exposed during demolition;
- Cleaning (power washing, scouring, scabbling, where accessible and appropriate);

- Demolition/removal of buildings, tanks, piping, and ancillary structures, as required;
- Backfilling to grade (after cleaning) of pits and sumps where accessible;
- Implementation of dust control measures;
- Implementation of erosion and sediment control measures;
- Site restoration; and
- Preparation of reports and submittals, as necessary, to document the completion of demolition activities.

Additional details on some of these activities follows.

3.3.1 Hazardous Substance and Debris Removal

Prior to demolition activities, Brightfields will complete additional hazardous substance removal, including asbestos abatement and fluorescent light ballasts removal in areas of the building deemed safe for work activities.

Debris located inside of the building will be removed when the area is considered safe to do so. Debris located in the dilapidated section of the building will be sampled for waste characterization purposes prior to disposal off-Site or after a controlled demolition allows for the safe entrance into those areas for sampling.

Sumps or pits that contain fluids or sediments that are located in areas safe for sampling will be sampled prior to demolition activities. Sumps or pits that may present safety hazards will be sampled following the controlled demolition activities.

3.3.2 Asbestos Abatement

Asbestos abatement was completed on the western portion of the building by USEPA during the Removal Action; however, an asbestos evaluation will be completed on the remaining structure to identify where there are additional locations that will require abatement. Asbestos abatement will include:

- Preparation of an asbestos abatement health and safety plan, to include requirements for employee training and medical monitoring, list of designated personnel, respiratory protection program, PPE, site and community air monitoring, and emergency procedures;
- Implementation of a decontamination program;

- Implementation of a hazard communication program;
- Obtaining all required licenses, permits and approvals;
- Designation of regulated areas, including use of warning signs that can be removed as appropriate;
- Provisions for adequate exhaust ventilation;
- Removal of friable asbestos, including pipe insulation and other insulating materials;
- Removal of non-friable asbestos, including floor tile, roofing materials, and transit;
- Implementation of a final cleaning and visual inspection program;
- Off-site disposal of ACM at licensed disposal facilities; and
- Preparation of submittals and reports, as necessary, to document the asbestos abatement program.

Areas that cannot be accessed due to safety concerns will be partially demolished to allow safe access for asbestos abatement in those areas.

3.3.3 Concrete Slab Management

Concrete slabs that will remain following building demolition will be left in-place for removal along with soil during additional remediation actions. After the structure walls and debris are removed from the building footprint, the following actions will be taken until the concrete floor and its associated sub-grade footers and piping are removed:

- Floor drains will be sealed with concrete at the surface;
- Basements, sumps, and pits will be inspected and cleaned. Basements, sumps, and pits will then be filled with either clean fill or clean recycled hardfill material (shown through sampling/testing to meet on-Site reuse criteria as specified in Section 3.3.4);
- Low spots will be leveled by placing a layer of stone or recycled hard fill to eliminate trip hazards.

Because of the concern for potential contamination beneath the concrete slabs of the building foundation (pending further investigative activities), the concrete floors and building footers will be left in place after the building demolition. Figure 5 shows

that location of the building that will remain to be used for future redevelopment. All other concrete slabs where the building has been demolished will be removed as part of the future soil remediation activities.

3.3.4 Post Demolition Sampling

Building material that is demolished from areas that are clear of ACM may be reused on-Site if hard fill sampling analysis indicates that the concentrations of hazardous constituents (if any) are less than the commercial SCOs. Areas were the building is demolished prior to the full removal of ACM or debris will not be reused onsite as a backfill and will be disposed of off-Site.

Hard fill material that will be reused on-Site will be sampled to meet the requirements of Section 5.4(e) of DER-10. Sampling frequencies have been modified from the DER-10 per section 5.4(e)8 which states "For all remedial programs except those developed pursuant to the BCP, DEC may issue a site-specific exemption for one or more of the requirements set forth in this section, based upon site-specific conditions". A site-specific sampling protocol is requested for a number of the exemptions listed in DER-10 which include: volume of backfill material, depth of the placement of the backfill material relative to groundwater, and use and redevelopment of the Site. Because of the large amount of hard fill, the sampling frequency will be reduced, assuming that a trend of compliance is established. Samples will be collected from the first 100 cubic yards (CY), then from the next 500 CY, then one sample for every subsequent 1,000 CY of demolished building material. Building material re-use samples will be analyzed for TCL VOCs, TCL SVOCs, TAL metals, PCBs, and pesticides and compared to the Restricted Commercial Use Allowable Constituent Level for Imported Fill or Soil in Appendix 5 of DER-10.

4.0 PERMITS AND OTHER AUTHORIZATIONS

4.1 SOIL EROSION AND SEDIMENTATION PLAN

A soil erosion and sedimentation plan will be included in the Demolition IRM Design. The soil erosion and sedimentation plan will be submitted to the NYSDEC prior to the disturbance of soils.

4.2 LOCAL PERMITS

Any local permits, including but not limited to, demolition, asbestos, or utilities will be obtained prior to the start of work by Brightfields or its subcontractor. Permits necessary for the start of work, including demolition, will be listed in the RD document.

4.3 HEALTH AND SAFETY

Amec has prepared a Site-specific HASP for the IRM WP, a copy of which is provided in Appendix A. The HASP will be used by Amec employees and will address the potential hazards associated with the proposed work. The HASP has been prepared in accordance with Occupational Safety and Health Administration (OSHA) standards and includes an identification of the anticipated Site hazards, requirements for PPE and air monitoring, action levels for upgrading PPE levels, and emergency procedures. Brightfields will require that visitors to the Site, including client and regulatory agency personnel, comply with the Site HASP or provide their own HASP.

A CAMP is included in Appendix B. The CAMP describes measures to be taken during construction activities to monitor the Site perimeter for fugitive dust. The purpose of the CAMP is to provide a measure of protection for the downwind community (i.e., off-Site receptors and on-Site workers not directly involved with the subject work activities) from potential airborne contaminant releases resulting from remedial work activities to be conducted at the Site. Additionally, the CAMP provides data to confirm that remedial work activities have not spread contamination offsite via airborne emissions.

5.0 SCHEDULE

The anticipated schedule for the Tract I Site Demolition IRM includes the Demolition IRM Design, CAMP Submittal, and demolition activities as detailed below. The schedule below also shows other Tract I Site activities including Supplemental Site Investigation, Soil Remediation IRM, and Completion of an Alternatives Analysis Report (AAR). Depending on the findings of the Supplemental Site Investigation and the AAR, a final remedy may be implemented in 2011 that adds environmental easements and a Site Management Plan (SMP) to the activities detailed in the demolition and soil remediation IRMs. The schedule below shows execution of easements and submission of the SMP prior to completing a Final Engineering Report (FER) that covers both IRMs and the final remedy. This schedule could change if the AAR recommends additional remediation activities. The schedule indicates approximately eight months will elapse between the beginning of Site mobilization to submittal of the FER. The anticipated schedule for submission of documents and field activities is listed below. Final "as-built" drawings will be submitted with the Final Remedial Design following the completion of construction activities. The actual schedule may vary and will depend on, among other things, subcontractor availability, weather conditions, and regulatory agency review time.

Ontario Specialty Contracting (OSC) has been selected to perform many of the phases of the work at the Site.

Demolition and Decontamination IRM WP Submittal	6/6/2012
Supplemental Remedial Investigation Work Plan Submittal	5/29/2012
CAMP Submittal	6/6/2012
Start Demolition IRM Activities	8/1/2012
Soil Remediation IRM WP Submittal	8/29/2012
Start Soil Remediation IRM (Excavation and Disposal/Consolidation)	10/1/2012
Start Soil Remediation IRM (Cover System Installation)	11/5/2012
Alternative Analysis Report Submittal	12/31/2012
Execution of Easements	3/1/2013
Site Management Plan Submittal	3/1/2013
Final Engineering Report	3/29/2013

6.0 POST-CONSTRUCTION PLANS

Although the demolition work is being conducted as an IRM, it is anticipated that the work will, in combination with a Soil Remediation IRM, contribute to a final remedy for the Site. The demolition IRM does not require post construction activities specifically related to the demolition activities other than to maintain security of the Site through fencing. Anticipated post-construction activities following the Soil Remediation IRM and possibly made part of a final remedy include engineering controls (a soil cover), environmental easements, and post-remedial monitoring. These elements will be detailed in the Soil Remediation IRM WP and subsequent documents.

7.0 REFERENCES

Amec Environment & Infrastructure, Inc., May 2012, "Consolidated Remedial Investigation Report, Tract I Site, 3123 Highland Avenue, Niagara Falls, Niagara County, New York, Site No. 932131".

Amec Environment & Infrastructure, Inc., May 2012, "Supplemental Remedial Investigation Work Plan, Tract I Site, 3123 Highland Avenue, Niagara Falls, Niagara County, New York, Site No. C932157"

Ecology and Environment Engineering, P.C., May 31, 2000, "Site Investigation Report for the Power City Warehouse, Niagara Falls, New York".

Ecology and Environment Engineering, P.C., August 2000, "Site Investigation and Remedial Alternatives Report, Tract II Site, Niagara Falls, New York".

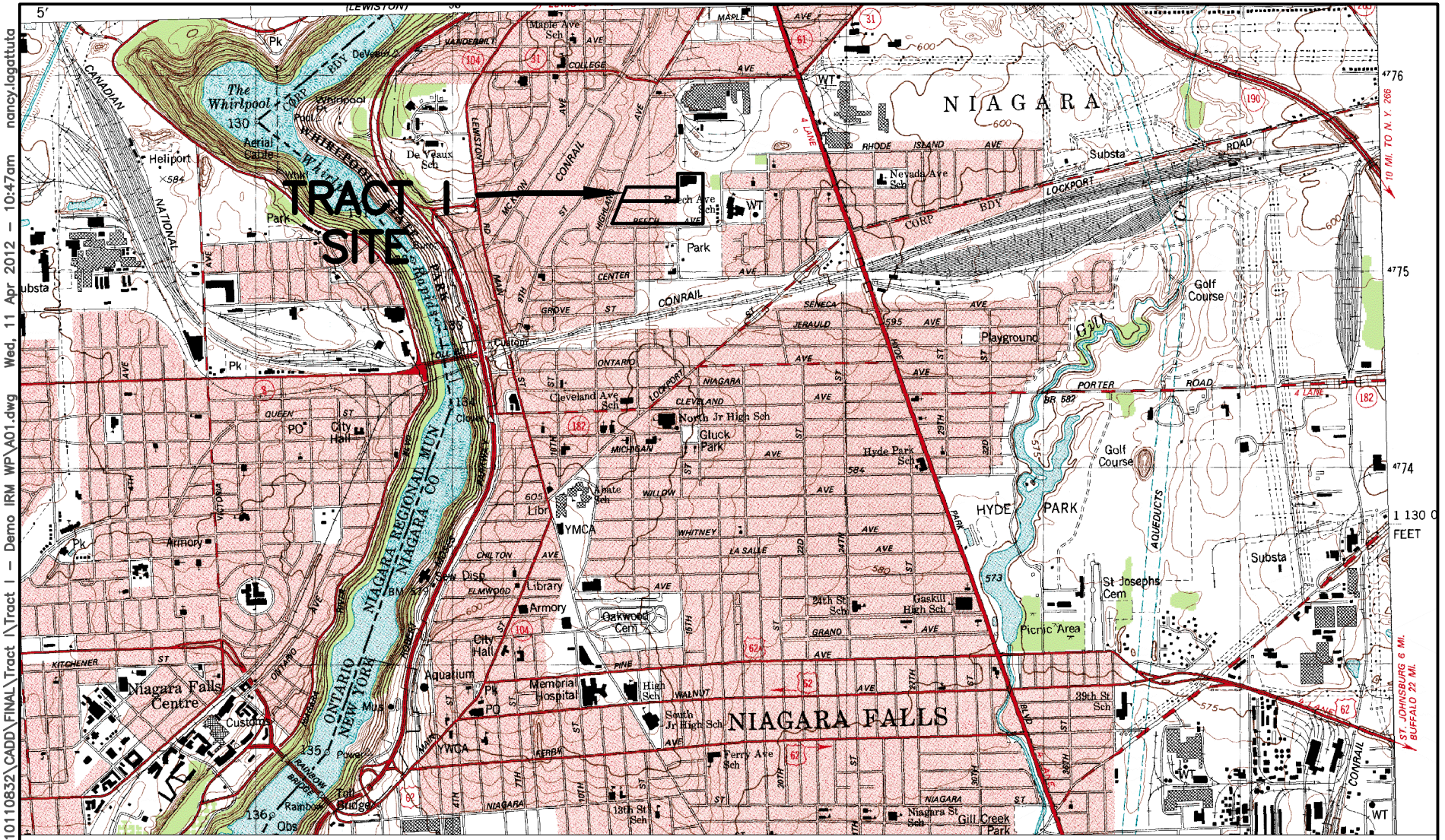
EA Engineering, P.C. and its affiliate EA Science and Technology, May 2009, "Final Site Characterization Report, Power City Warehouse Site (9-32-131), Niagara Falls, Niagara County, New York".

NYSDEC, 2010, *DER-10 Technical Guidance for Site Investigation and Remediation*, DEC Program Policy

Mactec Engineering and Consulting, Inc., June 20, 2011, "Predesign Study Work Plan Tract I and Tract II Sites, Niagara Falls, New York".

FIGURES

DRAWN BY: NEL 2-6-2012 APPROVED BY: ESW 4-11-2012



SCALE 1:24000

1 0.5 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0.5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET

NIAGARA FALLS QUADRANGLE

HONEYWELL INTERNATIONAL INC.
NIAGARA FALLS, NEW YORK

Project No.: 3410110832

amec MACTEC Engineering & Consulting Inc.

Environment & Infrastructure
800 North Bell Avenue, Suite 200
Pittsburgh, Pennsylvania 15106

SITE LOCATION MAP

Figure: 1

1

P:\PROJECTS\Honeywell\Niagara Falls\3410110832\CADD\FINAL\Tract 1\Tract 1 - Demo IRM WP\A01.dwg Wed, 11 Apr 2012 - 10:47am nancy.lagattuta

DRAWN BY: NEL 12-15-2011 APPROVED BY: ESW 4-11-2012

HIGHLAND AVENUE
(70' WIDE)

TENNESSEE AVENUE
(66' WIDE)

LEGEND

- PROPERTY BOUNDARY
- EXISTING STRUCTURE
- FENCE

80 0 80
SCALE: 1"= 80'

HONEYWELL INTERNATIONAL, INC.
NIAGARA FALLS, NEW YORK

Project No.: 3410110832

amec MACTEC Engineering & Consulting Inc.

Environment & Infrastructure
800 North Bell Avenue, Suite 200
Pittsburgh, Pennsylvania 15106

PLAN VIEW MAP OF SITE

Figure: 2

2

P:\PROJECTS\Honeywell\Niagara Falls\3410110832\CADD\FINAL\Tract 1\Tract 1 - Demo IRM WP\PCW-Lead w Tract 1 Base.dwg Wed, 11 Apr 2012 - 2:29pm nancy.lagattuta

DRAWN BY: NEL 12-14-2011 APPROVED BY: ESW 4-11-2012

HIGHLAND AVENUE (70' WIDE)

TENNESSEE AVENUE (66' WIDE)

B-20 B-19 B-18 B-17 B-16 B-15 B-14 B-13 B-12 B-11 B-10

SB-14 SB-15 SB-16 SB-22 SB-23 SB-04 SB-05 SB-06 SB-03 SB-02 SB-01 SB-09 SB-10 SB-08 SB-07 SB-11 SB-12 SB-13 SB-21 SB-20 SB-19 SB-17 SB-18

DS-01 DS-17 DS-16A DS-16B DS-16C DS-04 DS-19A DS-19B DS-15 DS-18 DS-05 DS-06 DS-07 DS-14 DS-10 DS-09 DS-08 DS-13 DS-11 DS-12 DS-20A DS-20C DS-20D DS-21

AS-PCW-01 AS-PCW-03 AS-PCW-02 SD-PCW-01

1a 1b 1c 2a 2b 2c 3a 3b 3c 4 5a 5b 5c 6a 6b 6c 7a 7b 8 9 10a 10b 10c 11a 11b 12a 12b 12c 12d 12e 13a 13b 13c

LEGEND

- PROPERTY BOUNDARY
- EXISTING STRUCTURE
- FENCE
- B-18 AMEC SOIL BORING
- 10b E&E COMPOSITE SOIL SAMPLE LOCATION
- SD-PCW-01 E&E COMPOSITE SLUDGE SAMPLE LOCATION
- AS-PCW-03 E&E ASBESTOS SAMPLE LOCATION
- SB-02 EA SUBSURFACE SOIL SAMPLE LOCATION
- DS-08 EA DEBRIS SAMPLE LOCATION

80 0 80
SCALE: 1"= 80'

HONEYWELL INTERNATIONAL, INC.
NIAGARA FALLS, NEW YORK

Project No.: 3410110832

amec MACTEC Engineering & Consulting Inc.

Environment & Infrastructure
800 North Bell Avenue, Suite 200
Pittsburgh, Pennsylvania 15106

SAMPLE LOCATION MAP

Figure: 3

3

P:\PROJECTS\Honeywell\Niagara Falls\3410110832\CADD\FINAL\Tract 1\Tract 1 - Demo IRM WP\PCW-Lead w Tract 1 Base.dwg Wed, 11 Apr 2012 - 2:29pm nancy.lagattuta

DRAWN BY: NEL 12-15-2011 APPROVED BY: ESW 4-11-2012

HIGHLAND AVENUE
(70' WIDE)

TENNESSEE AVENUE
(66' WIDE)

AREA NOT ADDRESSED IN
USEPA REMOVAL ACTION

LEGEND

- PROPERTY BOUNDARY
- EXISTING STRUCTURE
- FENCE

80 0 80
SCALE: 1"= 80'

HONEYWELL INTERNATIONAL, INC.
NIAGARA FALLS, NEW YORK

Project No.: 3410110832

amec MACTEC Engineering & Consulting Inc.

Environment & Infrastructure
800 North Bell Avenue, Suite 200
Pittsburgh, Pennsylvania 15106

AREA NOT ADDRESSED IN
USEPA REMOVAL ACTION

Figure: 4

4

P:\PROJECTS\Honeywell\Niagara Falls\3410110832\CADD\FINAL\Tract 1\Tract 1 - Demo IRM WP\PCW-Lead w Tract 1 Base.dwg Wed, 11 Apr 2012 - 2:29pm nancy.lagattuta

DRAWN BY: NEL 12-15-2011 APPROVED BY: ESW 4-11-2012

HIGHLAND AVENUE
(70' WIDE)

TENNESSEE AVENUE
(66' WIDE)

AREA NOT ADDRESSED IN USEPA REMOVAL ACTION

LEGEND

- PROPERTY BOUNDARY
- EXISTING STRUCTURE
- FENCE
- STRUCTURE TO REMAIN FOLLOWING DEMOLITION
- CONCRETE TO BE REMOVED WITH SOIL COVER

80 0 80
SCALE: 1"= 80'

HONEYWELL INTERNATIONAL, INC.
NIAGARA FALLS, NEW YORK

Project No.: 3410110832

amec MACTEC Engineering & Consulting Inc.

Environment & Infrastructure
800 North Bell Avenue, Suite 200
Pittsburgh, Pennsylvania 15106

STRUCTURE TO REMAIN FOLLOWING DEMOLITION

Figure: 5

5

P:\PROJECTS\Honeywell\Niagara Falls\3410110832\CADD\FINAL\Tract I\Tract I - Demo IRM WP\PCW-Lead w Tract 1 Base.dwg Wed, 13 Jun 2012 - 3:06pm eric.weiler

APPENDIX A

HEALTH AND SAFETY PLAN

Niagara Tract I & Tract II Demolition and Remediation Project

3123 & 3001 Highland Avenue

Site Health, Safety and Environment Plan

Submitted by

Ontario Specialty Contracting

333 Ganson Street

Buffalo, NY 14203

June 12, 2012

(Revision 0)

SITE HEALTH AND SAFETY PLAN REVISIONS

Revision	Date	Description of Change

Authorization Signatures

This Site Health, Safety and Environment Plan (HASP) has been reviewed and approved by the individuals below. By their signatures, the undersigned certify that this HASP meets the requirements of 29 CFR 1910.120 and all other applicable regulations for the protection of all personnel entering the project site.

John Yensan , President ***OSC***	Date
Alen Trpevski, Senior Project Manager ***OSC***	Date
Ryan McCann, Project Manager ***OSC***	Date
William Fleck, Corporate HSE Director ***OSC***	Date
David Sweeney, Site Health and Safety Officer ***OSC***	Date
Justin Romanow, Senior Site Superintendent ***OSC***	Date
	Date
	Date
	Date

<u>Conformance Signatures</u>

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 Health, Safety and Environment Plan and further agree to all requirements contained herein.

Name	Affiliation	Date	Signature

Project Contact List

PROJECT EMERGENCY CONTACTS		
Organization	**Contact**	**Phone Number**
AMEC **In Emergency** ***FIRST CALL to 911*** ***Then Site Safety***	Rob Crowley Project Manager	724-747-2866
	Cindy Sundquist Division ESH Manager	724-747-2866
	Greg Oslosky Site Health & Safety Officer	561-214-1396
	Rich Galloway Client Contact	973-455-4640
	Site Emergencies (Police, Fire, Hospital, Ambulance)	**911**
OSC	John Yensan Corporate Vice President	716-583-4400
	William Fleck Corporate HSE Director	716-560-7542
	Alen Trpevski Senior Project Manager.	716-818-3390
	Ryan McCann Project Manager	716-200-9555
	Site Health and Safety Officer Dave Sweeney	716-289-6115
(see pg. 4 Hospital Directions)	**Niagara Falls Medical Center**	**716-278-4000**

Other Agency Contacts

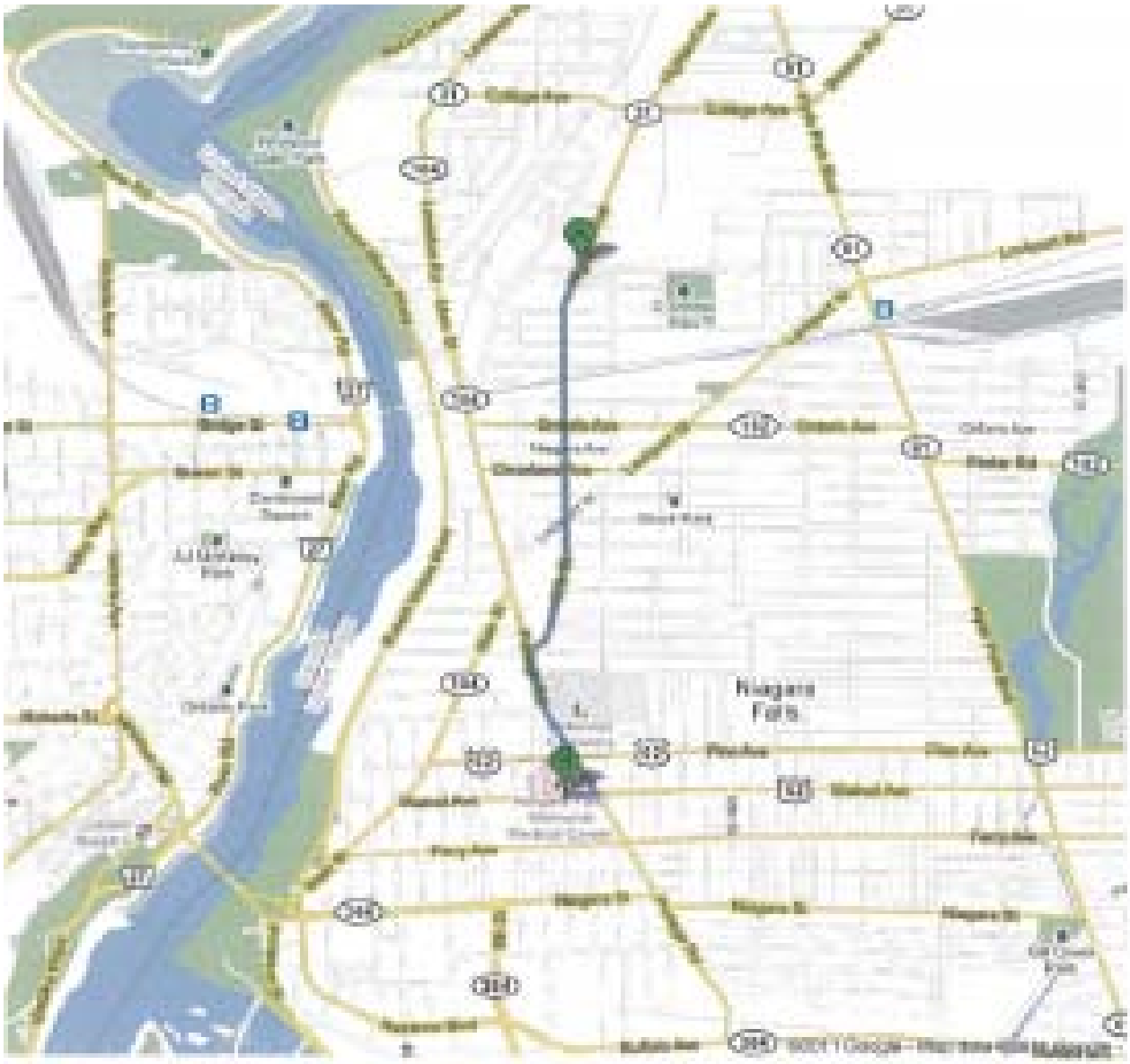
Agency	Contact	Phone Number
All Site Emergencies	**Police, Fire, Hospital, Ambulance**	**911**
Niagara County Soil & Water	Soil & Water	716-434-4949
Niagara County Public Works	Streets, Sidewalks & Lights	716- 439-7242
Poison Control	American Association of Poison Controls	1-800-222-1222
NYS DEC Region 9	DEC Buffalo Office	716-851-7226
US EPA Release Report Number	National Response Center	1-800-424-8802
US Coast Guard Hazardous Materials Spills	National Response Center	1-800-424-8802
Chemical Emergency Center	CHEMTREC	1-800-424-9300

Directions to Niagara Falls Memorial Medical Center (See Map - Hospital is 6 Minutes from site, 1.6 miles)

A From Job Site (Highland Ave & Beach Ave towards Jordan Gardens)

1. Head South on Highland Ave toward Jordan Gardens	0.3 mi
2. Continue on to 11th St	0.8 mi
3. Turn left onto Portage Road	0.5 mi
Destination will be on the right	
4. Take the 3rd right onto Walnut Ave	479 ft

Niagara Falls Memorial Medical Center
B 621 10th Street, Niagara Falls, NY 14301
(716) 278 - 4000



1.0 INTRODUCTION

1.1 APPLICABILE REFERENCES

OSC has developed the following Health, Safety and Environmental Plan (HASP) in accordance with all Federal, State and Local regulations. All operations and equipment used in conjunction with this Contract shall as a minimum comply with the following:

- AMEC Interim Remedial Measures Work Plan Tract I Site
- AMEC Remedial Design Work Plan Tract II Site
- AMEC Site-Specific Health and Safety Plan Tract I
- AMEC Site-Specific Health and Safety Plan Tract II
- OSC Corporate Health, Safety and Environmental Manual
- Site Storm Water Pollution Prevention Plan (SWPPP)
- NYS DEC Approved Site Management Plan
- 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
- New York State Department of Environmental Conservation – Applicable Regulations
- NIOSH 85-115: Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities.
- New York State Applicable Right-to-Know Laws

All personnel involved in this project will:

- Receive site orientation training regarding the Project requirements contained in this HASP. Site orientation will be conducted by the Site Health and Safety Officer (SHSO) named in Section 2.0 of this HASP.
- Acknowledge in writing, on page 8 of this HASP (See "Conformance Signatures") that they have received the site specific orientation and; therefore, have been trained in and understand the contents of this HASP.

The health and safety protocol established in this HASP are based upon the known site conditions and/or conditions anticipated to be present from established site data. This HASP will be updated and/or revised over the term of this contract as provided herein or as necessary to address changes to the contract resulting from actual site conditions encountered and or as required by modifications to scope of work.

A copy of this approved HASP shall be maintained at the Project site for review.

1.2 DEFINITIONS

A. The Owner: BRIGHTFIELDS Inc.
B. The Contractor: *OSC* – The company retained or hired by the Owner to conduct the Project.
C. The Project: Niagara Tract I and Tract II Demolition and Remediation
D. The Project Site: The area designated as the Contractor work area.

E. Contractor Work Area: An area of the Project site which includes the support zone, access road, staging area, contamination reduction zone and exclusion zone.

F. Project Personnel: Project personnel include, but are not limited to, the Owner, Owner's Onsite Representative, the Contractor, Contractor's employees and subcontractors; as well as Federal, State and Local authority that have jurisdictional Representative(s) working or having official business at the Project site.

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

H. 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 authorization to take prompt corrective measures to eliminate them.

I. 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.

J. Stop Work Authority: HSE personnel, qualified and competent persons, Owner's Representatives and all employees **will have the authority to stop work in situations of imminent danger, in any situation deemed unsafe or un-healthful 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.

1.3 SITE VISTIOR REQUIREMENTS

A safe location, where all visitors can observe the site activity of interest, will be established by the SHSO. Anyone visiting the site will receive site-specific instructions from the SHSO. Visitor training will include, at a minimum:

- Hazard identification;
- PPE requirements;
- Decontamination procedures;
- Emergency procedures, and
- Any other site-specific information that the SHSO deems necessary.

Any visitor wishing to enter the contamination reduction zone (CRZ) or exclusion zone will be required to provide the SHSO with documentation of medical monitoring and training equivalent to the requirements of this HASP. Only authorized visitors with written proof that they have been medically certified and trained in accordance with OSHA 29 CFR 1910.120 will be permitted to enter the CRZ and/or exclusion area.

** Emergency personnel 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 SHSO.

2.0 HEALTH and SAFETY ORGANIZATION

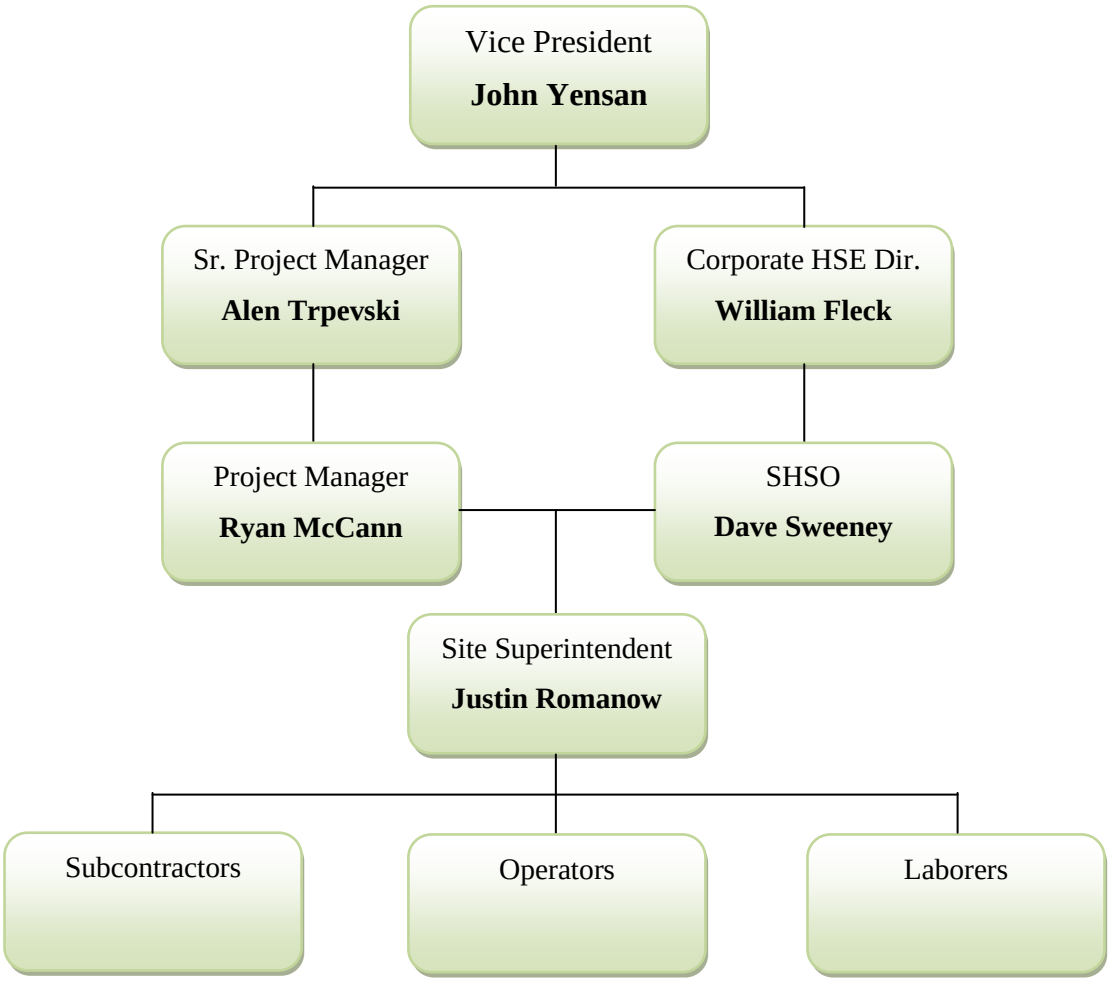
The following ***OSC*** management personnel will be assigned to this Project:

- Corporate Vice President – **John Yensan**
- Corporate HSE Director – **William Fleck**
- Senior Project Manager – **Alen Trpevski**
- Project Manager – **Ryan McCann**
- Site Superintendent – **Justin Romanow**
- Site HSE Officer – **Dave Sweeney**

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.

Any personnel assigned to this project will have been 40 hour HAZWOPER trained and medically monitored in accordance with OSHA 29 CFR 1910.120 as required in Sections 3.0 and 9.0 (Training and Orientation / Medical Surveillance) of this HASP. All documentation regarding personnel training, fit testing and medical monitoring will be maintained onsite site for review by the owner, owner's representative and/or oversight personnel.

2.1 ORGANIZATION CHART



2.2 PERSONNEL RESPONSIBILITIES

2.2.1 PROJECT MANAGERS AND SUPERINTENDENTS

The Project Manager will be responsible for the overall direction and completion of this contract. The Project Manager will report to the Senior Project Manager and will be responsible for managing and coordinating all project related activities; as well as serving as ***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 compliance with the Corporate HSE Manual and this HASP during the proposal and initial stages of this Project.
- Implement the procedures and guidelines outlines in this HASP throughout the duration of the Project.
- Perform accident investigations (***OSC*** employee injuries only). In cases where subcontractors are involved, the Site Superintendent will notify the Corporate HSE Director (CHSED) immediately. The CHSED will collect the appropriate injury and/or accident documentation with help from the Superintendent. If the CHSED is unavailable, the SHSO will conduct the accident investigation.
- Perform and support site safety audits and address all errors.
- Provide incentive and motivation for safe work practices; as well as discipline for unsafe work practices as per the OSC and CLIENT progressive disciplinary policies.
- Ensuring a copy of this HASP; as well as the Corporate HSE Manual is onsite at all times.
- Conduction, along with the SHSO, initial site orientation meetings.

2.2.2 SITE HEALTH AND SAFETY OFFICER (SHSO)

The SHSO will handle health and safety management on the project level and will report to the CHSED. Specific duties of the SHSO 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. Project initial training requirements include potential hazards, personal hygiene principles, PPE, respiratory protection equipment usage, fit testing and emergency procedures dealing with fire and medical situations.
- Conduct daily meetings regarding health and safety.

- Maintain separation of the exclusion zone (dirty) from the support zone (clean) areas.
- Supervising any additional HSE requirements that are required for this Project.
- The SHSO 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. Any HSE violations will be promptly corrected and reported to the Project Manager. All observed violations will be explained to the perpetrator and reviewed at the following HSE meeting. Violations of the site HSE regulations will be grounds for disciplinary action, which could lead to termination of personnel and/or expulsion of vendor/subcontractor personnel from the site.

2.2.3 MEDICAL CONSULTANT

The Medical Consultant will be available to provide the required physicals and to conduct additional medical evaluations of ***OSC*** personnel, when necessary. OSC's Medical Consultant is:

Company Health Medicine, PLLC
1173 Sheridan Drive
Tonawanda, NY 14150
Phone: 716-875-5495
Fax: 716-875-5498

2.3 SUBCONTRACTORS

All subcontractors are required to obtain a copy of this HASP prior to site admittance and to follow its guidelines while on the job. Subcontractors can provide suggestions of changes and/or insertions to this HASP as necessary to adequately address their intended project operations. Subcontractors are responsible for health and safety as it pertains to their operations at the project site and shall provide the required OSC HSE documentation.

Subcontractors will be a part of the project's initial orientation and training based upon this HASP. Proof must be provided of the subcontractor's employees' training pertaining to the work they're contracted to perform. All subcontractors are responsible for providing their employees with the proper PPE required by this HASP; as well as ensuring that all equipment use is properly monitored and maintained. All subcontractors shall be required to develop an Activity Hazard Analysis (AHA) for every definable feature of work. Subcontractors work shall not begin until the AHA is approved by OSC and AMEC Safety. Likewise, AHA's shall be reviewed by all performing and affected workers prior to starting each task or as updated and warranted do to process changes, improvement measures and audit/incident findings. Subcontractors are responsible for ensuring that their employees conform to all applicable site HSE regulations.

3.0 TRAINING and ORIENTATION

3.1 SITE TRAINING

All personnel, including subcontractors, will be provided with the training required to comply with this HASP. All training documentation (training certificates and attendance rosters) will be stored and maintained onsite by the SHSO and will be made available for inspection upon request. Training documentation will be kept in an organized manner that shows that each individual worker has the proper training as required.

3.1.1 HSE TRAINING

Prior to performing field work the site. All personnel working onsite must have successfully completed initial 40 hour hazardous waste site training and if the initial 40 is more than 1 year old then an 8 hour HAZWOPER refresher training prior to performing field work at the Project site. In addition to HAZWOPER training all project core workers shall have successfully completed an OSHA 10 hour in Construction or equivalent within the last 5 years. Likewise, all Project Management personnel shall have successfully completed an OSHA 30 Hour in Construction or equivalent within the last 5 years. Personnel involved in the supervision of SWPPP installations, maintenance or repair shall have successfully completed 4 hours of DEC certified SWPPP training.

3.1.2 SITE SPECIFIC TRAINING

Documented site orientation training will be provided by the SHSO with the following topics being discussed:

- Identified potential job site hazards and protective measures which includes but is not limited to:
  - Review of this HASP
  - AHA & Personal STAC Card (Safety Task Analysis Card) review
  - Safe work procedures, including Decontamination Procedures
  - Dust, Erosion and Noise Control Measures
  - Controlled Work Zones, Material Segregation & Cross Contamination Prevention
  - Trenching, Excavating, Filling and Rolling
  - Loading, Tarping and Transporting
  - Hoisting and Rigging
  - Heavy Equipment & Industrial Forklift Operation
  - General House Keeping, Walking Working Surfaces - slips, trips, falls
  - Potential Respiratory Hazards (Dust, Silica, Lead)
  - Respirator use, maintenance and inspection (when required)
  - Struck by Hazards (Traffic, Heavy Equipment & Flying Debris)
  - Fall Protection (Barricades, Guards, Rails, PFAS and Nets)
  - Confined Space Entry Operations and Procedures (when required)
  - Electrical Safety Related Work Practices, Assured Grounding & GFCI's
  - Fire Protection and Flammable Storage
  - Hazard Communication (MSDS & Proper Container Labeling)

  - Material Handling, Ergonomics (Good Body Mechanics), Back Safety and CTD's.
  - Control of Hazardous Energy (Lockout/Tagout/Tryout)
  - Ladder Safety
  - PPE Use & Care (Eye, Face, Head, Hand, Foot and Hearing Protection as well as protective clothing)
  - Cold Stress/Heat Stress Monitoring
- Site layout/Location of; Controlled Work Zones, Porta-Jons, Washing Stations, Break Areas, Office/First Aid, Parking and Traffic Flow, Equipment/Truck Wash Station
- Site Security Requirements;
- Incident Reporting;
- Emergency Signals;
- Emergency response actions (evacuation, fire, medical, storm procedures)
- Available Emergency Services (Emergency Contact List, First Aid & CPR Trained Site Personnel)

3.2 MEETINGS

Attendance at all HSE meetings will be documented and filed onsite.

3.2.1 "Daily Safety Brief/Tool Box Talk" SAFETY MEETINGS

Prior to the beginning of each day or work task, **all** involved **workers will be required to attend a Daily Safety Brief HSE meeting** to review task-specific health and safety requirements.

3.2.2 WEEKLY HSE MEETINGS

All onsite Supervisory personnel will be required to **attend a weekly HSE meeting,** conducted by the SHSO, to review Project and/or task specific procedures. Topics to be discussed at these weekly meetings include, but are not limited to:

- STAC card (See STAC card Overview) and AHA development and review
- Necessary training requirements and site work rules;
- Changes in work practices and/or work conditions;
- Precautions and work practices related to scheduled site activities;
- New or modified site wide procedures or requirements;
- Incident alerts;
- Discussion of potential hazards or hazardous operations;
- Procedures on restricted areas;
- Equipment rules and requirements;
- Restrictions on the handling of materials;
- PPE requirements, and
- Delegation of responsibility (emergency backup personnel, competent persons, etc.).

4.0 PROJECT OVERVIEW (Site Location and Summary of Work)

The Track I and Track II sites consists of approximately 24.4 acres of property located in the City of Niagara Falls, New York. The Track I site is located Northeast of the intersection of Highland Avenue and Beech Street at 3123 Highland Ave. The Tract I site which is also the location of the former Power City Warehouse and commonly referred to as the Power City site is relatively flat level land and historically used for the manufacture of lead/acid batteries. Adjacent to the Tract I site to the East and South is the Tract II site which is located at 3001 Highland Avenue and includes a dilapidated building South of the Union Carbide building.

Track I Scope of Work – Track I work involves partial demolition of the warehouse and floor slab. The floor slab of the remaining portion of the building that is scheduled to remain will be left in place and the outside of the building removed. . In areas where lead exists in concentrations above the commercial standard, the soil will be covered with a demarcation layer, soil and or rock cover until new buildings are constructed. Likewise, soil exceeding the TCLP of 5 milligrams per liter (Toxicity Characteristics Leaching Procedure mg/L) shall be excavated for off-site disposal and a minimum 6 inch demarcation layer of clean soil shall be placed over the remaining soil with concentrations of lead exceeding the NYSDEC's Soil Objectives (SCO = 1,000 milligrams per kilogram). The remaining portion of the Power City Warehouse that is left standing is scheduled for reuse.

Track II Scope of Work - The scope of work for Track II involves hazardous substance and debris removal prior to demolition activities where safe access is possible. Other areas initially deemed unsafe for access shall be completed utilizing controlled demolition methods to obtain access for removals. After removals are complete Track II involves the demolition of the dilapidated building South of the Union Carbide building. All building floor slabs and footers shall be removed. The existing underground parking structure shall have the roof collapsed and back filled. Soils that exceed the commercial SCO for lead on the western portion of the site or the restricted residential SCOs on the eastern portion of the Site will be excavated and consolidated under a demarcation layer and soil cover. The remedial approach for soil exceeding the TCLP lead standard is to excavate the soil, treat it with Portland cement and consolidate the soil mixture under soil cover. Additional target excavation areas will be excavated and capped with clean soil. The Site will be covered with a demarcation layer and a soil cover will be placed with a minimum thickness of 1 foot of clean soil in the eastern portion and a minimum of 2 feet of soil in the western portion. The reuse of the site shall be restricted to residential and commercial use by environmental easement placed on the site.

4.1 PRE-MOBILIZATION

Pre-Mobilization Activities include all preparatory activities necessary for the execution of work. Preparatory activities may include, but are not limited to, the submittal of the Site Specific Plans, including a detailed execution plan, EH&S plan, permitting, regulatory notifications and UFPO notification (NY DIG Safety).

4.2 PROJECT ENVIRONMENTAL HEALTH and SAFETY PLAN

This Environmental Health and Safety Plan (EH&S Plan) has been developed to advance policy and practices that are designed to provide all project personnel a work place free from

recognized hazards that eliminates and controls exposure to physical and chemical hazards as well as protect the public and property from loss. Additionally, the plan provides for appropriate response to foreseeable site emergencies. The procedures found in this plan include:

- Activity Hazard Analysis;
- Medical Surveillance;
- Protective Equipment;
- Exposure Assessment;
- Decontamination Procedures;
- Training and Emergency Response

These procedures are used in conjunction with the Ontario Specialty Contracting, Inc. Corporate Health and Safety Procedures Manual and are intended to conform to All State and Local requirements. All asbestos abatement shall be performed according to NYS Code Rule 56. The Asbestos Abatement Plan shall be developed and submitted under separate cover.

4.3 Mobilization

Moving "Heavy Equipment" onsite, delineating parking areas for site personnel, setting up porta-jons, wash stations, delineating work areas, designating project access points and traffic flow.

4.3.2 PROJECT SUPPORT AREA[S]

OSC will require a project office for the duration of the project and a lay down area large enough to accommodate the proposed equipment for the project and tool storage. The space required for the storage of materials is anticipated to be relatively minimal. Since sanitary facilities are not available in the project work area, room for portable units will be required.

A site map indicating staging of office and decontamination trailers shall be developed and provided under separate cover.

4.3.3 ACCESS ROUTES and ROADS

A site map will be produced which defines the required truck routes through the site. Speed limit, exit, entry and traffic flow signs, will be posted along the routes. This plan will designate the available gates, times, path of travel to be used for all trucking and security requirements for site access and egress to controlled work areas. Note – the intent is to limit and control access to the site for safety and security as well as clearly define and delineate work areas in order to prevent equipment from accidentally crossing and contaminating other work areas.

4.3.4 UTILITIES

OSC will contact DIG Safety New York a minimum of 3 days prior to commencing any earth work (excavation, hammering and removal) to assure all known utilities are properly identified and marked. Likewise, an approved independent surveyor may need to be secured by OSC to identify any private utilities within the site. Marked utilities shall be maintained with the same color as originally marked until work is completed. The utilities identified and marked will include but not be limited to:

- Electric
- Gas
- Communications
- Water
- Sewer
- Process Lines

4.3.4 SURVEYS

Previous site assessments and sampling reported the presence of asbestos building materials, elevated levels of lead inside the buildings and in areas of exposed soils. In addition to the lead impacted soils "…several small surface target areas are present that exceed the SCO's for either metals or PAHs (polynuclear aromatic hydrocarbons); See AMEC Track I and Track II Work Plan "Ecology and Environmental Site Investigation Reports".

An exposure assessment (initial and routine) shall be conducted to assure negative exposure below PEL for any activities which may have potential hazard exposure above the established PEL (Lead – PEL 50 ug/m3, TWA 8 hrs, Silica – PEL 100/m3, PAH - 0.2 milligram/cubic meter (mg/m^3), PCB's 500 $\mu g/m^3$, Arsenic PEL 10 ug/m3, 1,1,1 TCA – PEL 55 mg/m3); demolition, crushing concrete, excavation, removal, torch cutting and decontamination activities. AHA's and PPE requirements shall be developed and modified based on exposure assessment results (See section 4.4, 6.1 and Attachment 10).

Prior to the demolition, excavation and removal of any concrete, asphaul, soil, underground piping, or structures a competent person will conduct pre-work survey. The survey will include a review of available drawings, a visual inspection of the work area and assessment of the site conditions to assure all hazards are identified and the necessary steps are developed to assure that an unplanned event does not occur. A formal report documenting the survey will be submitted to the client representative prior to the onset of work.

4.3.5 PROTECTION OF EXISTING ADJACENT STRUCTURES OR UTILITIES

It is Ontario Specialty Contracting, Inc., responsibility to ensure that all adjacent, sidewalks, structures, pipe lines, and buried utilities not scheduled for removal or termination (see contract plans and specifications) are adequately protected during the progression of the work.

4.3.6 DUST CONTROL

Dust shall primarily be controlled by wet methods; pre-misting and active spray misting of the immediate work area utilizing a fire hose and spray nozzle or water truck. In some cases an oscillating water canon (mechanical dust buster) shall be used to create a wall of mist to control the dust. In every case when excessive visible emissions occurs or if dust monitoring the activity generating the dust shall be ceased until corrective measures are in place. OSC will make every reasonable effort to ensure that every employee works in a safe and clean environment. All of OSC's employees who notice or generate dust must report it to their Superintendent. OSC's Superintendent will take steps to control excessive amounts of dust by using water, and/or provide dust mask or respirators to workers for their protection.

OSC's objective is to reduce the amount of dust from demolition activities to acceptable levels.

4.3.7 PROCEDURES

The following are standard controls used in typical demolition and redevelopment projects; all options are available to the project manager and project superintendent for implementation to control fugitive dust at the project. They will base their decision to use one or any combination of these controls based on the daily weather conditions, work task being performed, and overall effectiveness of the chosen control.

- Each morning a weather report will be generated to determine the day's weather conditions, the humidity, wind speed and wind direction will be noted. These conditions will be communicated at the daily morning safety meetings prior to work beginning.
- All vehicles and equipment are to maintain a slow speed while driving on site, if there is dust generated from vehicle movement, speed must be reduced to minimum requirements to prevent dust being spread. Periodic wetting of roadways should keep this type of occurrence to a minimum.
- A water hose will be available to trucks to wet down the load prior to leaving the site. Each truck driver will inspect each load prior to leaving the site and can use the water to eliminate dust from the load at their discretion.
- The pre-wetting and misting of material prior to intrusive activities and crushing/processing operations.

4.3.8 LIFT PLANS

Lift Plans shall be prepared for all hoisting activities. Lift Plans shall define responsibilities and include lifting weights, a equipment determination, and a rigging capacity determination. The site supervisor will be the primary lift supervisor for all lifting and rigging activities associated with demolition activities.

4.3.9 SECURITY

OSC will take steps to secure the perimeter of the work area to prevent unauthorized persons from entering the work zone. This will include the erection of 6' chain link safety fencing to the existing site fencing to west to finish complete enclosure of the site. Appropriate signage (Safety Signs) shall be installed on the fencing. Fencing will be installed as per the site plan. ***In an***

4.3.11 INSPECTIONS

The Site Supervisor, H&S Officer, and Client representative will complete a pre-work inspection immediately prior to the start of activities. This inspection will identify any changes to the equipment, concrete, or piping since the completion of the initial survey, which could cause the equipment, concrete, or piping to be susceptible to premature collapse or create an unanticipated hazard. The inspection will also be used to verify that current hazardous materials abatement by others is complete. The Site Supervisor and the H&S Officer will perform an inspection prior to the commencement of work and routinely on a daily basis.

4.4 TASK/RISK ANALYSIS

A general assessment and analysis of the work task hazards associated with this project are provided in Table 1.0 of this section. More specific information relating to the potential chemical, physical, and biological hazards at this Project site shall be provided under separate cover as developed; See Attachment 10 Reserved for Site Initial Exposure Assessments (Lead, Silica, PHA's, PCB's, Asbestos, 1,1,1, TCA and Petroleum Residue Exposure Assessments and Associated AHA / Personal STAC Cards).

TABLE 1.0
WORK TASK HAZARD ANALYSIS

Task	Potential Exposure to Risk
Mobilization/Demobilization	Low
Site Setup	Slight to Moderate
Clearing and Grubbing (If necessary)	Moderate to Moderately High
Asbestos Abatement	High
Hazardous Materials Removal [Ex: Universal Wastes, Liquids, Solids, etc.]	High
Pre-Demolition Work Tasks	Moderate
Demolition/Dismantlement of Structures	High
Demolition Dismantlement – Potential for slips, trips, falls, etc.	Moderately High
Concrete Removal	Moderate
Demolition Material Processing and Handling	Moderate
Grading and Backfill	Moderate
General Site Cleanup/Work Area Restoration	Low

Anticipated Exposure Risk Definitions:
Low: Non-intrusive work – No chance of exposure.
Slight: Non-intrusive work / Possible HSE hazards with tools. – Little to no chance of exposure.
Moderate: Non-intrusive work / Possible HSE hazards with powered tools, heavy equipment and/or working near or in water – Little to no chance of exposure to contaminants.
Moderately High: Intrusive work / Possible HSE hazards with equipment – Exposure to contaminants is possible.
High: Intrusive work / Possible HSE hazards with equipment – Exposure to contaminants is probable.

4.4.1 CHEMICAL HAZARDS

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

Material Safety Data Sheets (MSDS), for all chemicals brought onsite, will be available for review in ***OSC***'s field office at the Project site.
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 SHSO will be notified before any new chemicals (chemicals not listed on the below table) are brought onsite.

HAZARD SUMMARY FOR SITE CHEMICALS 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/mice.	•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.		

4.4.2 HAZARDS and PROTECTIVE MEASURES

The following physical and ergonomic hazards may be associated with this project.

1. Heavy Equipment Hazards and Protective Measures:

Before use, any machinery or mechanized equipment will be tested be tested by a competent person and certified to be in safe operating condition. ***OSC*** will designate a competent person to be responsible for the inspection of all machinery and equipment, daily and during use, to ensure its safe operating condition. Any machinery found to be unsafe will be taken out of service; its use will be prohibited until the unsafe conditions have been corrected. Test 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 condition. All inspections will be documented. Only designated personnel, holding the required licenses, will operate machinery and mechanized equipment. Any observed equipment deficiencies, that will affect their safe operation, will be corrected before continuing operations. Utilize the appropriate warning signs and backup alarms. All site personnel working in the vicinity of heavy machinery will use reflective clothing (i.e. vests) to alert to operator of their whereabouts.

2. Excavation Hazards and Protective Measures:

Per OSHA requirements, provide adequate sloping to both sides of the excavation. Inspect the excavations regularly for changing conditions. Ensure that the material from the excavations is being placed away from the edge, to prevent cave-ins and pit instability. Backfill the excavations as require by the Engineer approved Contract Drawings, to minimize the number of open excavations.

Any excavation exceeding the four foot level will be supervised by a competent person who shall determine when subsidence control measures are required, what those controls will be and how they will be implemented. 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. Compliance with OSHA 29 CFR 1926 Subpart P will be maintained.

3. Utility Hazards and Protective Measures (Control of Hazardous Energy)**:**

Prior to commencing work request a utility mark out, notify DIG SAFETY of New York a minimum of three days prior to performing any excavation activities. Maintain utility mark out until work is completed (remark with same colors). Prior to work beginning, ensure and verify all affected utilities are de-energized (disconnected, air gapped, locked out).

4. Confined Space Hazards (Excavations, Manholes, Crawl Spaces, Vaults, Tanks):

Confined space entries can present many HSE hazards if not performed properly. ***OSC*** will comply with all OSHA requirements concerning confined spaces, including monitoring and supervising spaces. ***OSC***'s confined space entry program is provided in later Sections of this HASP (See OSC Confined Space Procedures).

5. **Noise, Sound/Hearing Hazards and Protective Measures:** Possible exposure to continuous sound pressure levels in excess of 85 dBA of continuous noise or 140 dBA impact or impulse noise (i.e. split-spoon hammer) during heavy equipment operation. Anytime that noise is determined a hazard by the SHSO, wear disposable earplugs or ear muffs with a NRR rating of 20 or greater. Adhere to ***OSC***'s Hearing Protection Standard Operating Procedures provided in section 6.3 of this HASP.

   In the absence of proper instrumentation, the appropriate rule of thumb is that hearing protection is required when normal conversation is difficult at a distance of two to three feet.

6. **Potential Hazard:** Uncontrolled release of hazardous energy (kinetic and/or potential)
   Procedures to Mitigate Hazard: The LOCKOUT/TAGOUT/TRYOUT 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.

7. **Potential Hazard:** Slips, trips and falls
   Procedures to Mitigate Hazard: (1) Practice extreme caution in all work areas. (2) Watch your footing during equipment access/egress and when moving through the work area. (3) avoid stepping or standing on uneven or unsteady surfaces. (4) Clearly label open pits, wells and other fall hazards with caution tape. Securely cover these hazards as appropriate.

8. **Potential Hazard:** Lifting / Carrying
   Procedures to Mitigate Hazard: (1) Personnel will limit lifting to low weight. (2) Lift objects with your legs and not your back. (3) Utilize the forklift, drum cart or other appropriate equipment whenever it is possible. (4) Get assistance if it is needed.

9. **Potential Hazard:** Possible traffic hazards
   Procedures to Mitigate Hazard: Personnel will coordinate all site operations to avoid impeding, interfering with, or in any way restricting normal traffic flow. Flagmen, signs and other measure will be provided if deemed necessary.

10. **Potential Hazard:** Site maintenance
    Procedures to Mitigate Hazard: (1) Personnel will properly store all equipment. (2) Remove all scrap material from the work area.

11. **Potential Hazard:** Hazardous materials storage
    Procedures to Mitigate Hazard: (1) All flammable/combustible liquid will be segregated from the ignition source. (2) Store all hazardous materials in approved containers. (3) Keep all solvent wastes, oily rags and liquids in fire resistant containers.

12. **Potential Hazard:** Operation of hand and/or power tools
    Procedures to Mitigate Hazard: (1) Personnel will verify that guards and safety devices are in place before, during and after operation. (2) Tag and remove all defective tools from service. (3) Maintain and inspect the tools per the manufacturer's recommendations. (4) All personnel will utilize the proper eye protection.
13. **Potential Hazard:** Electrical

Procedures to Mitigate Hazard: (1) All personnel will use approved grounding and bonding procedures. (2) Guard and maintain all electrical lines/cords. (3) Tag and remove all damaged equipment from service.

All temporary electrical power used for this project will conform to NFPA 70 and ANSI C2. When possible, motorized vehicles will be grounded. Air monitoring and sampling equipment will be rated intrinsically safe for Class I, Division 1, Grounds A, B, C and D areas. All portable electrical equipment will be protected by ground fault circuit interrupters (GFCI). Clearances to adjacent overhead transmission and distribution electrical lines will be sufficient for the movement of vehicles and operation of equipment.

14. **Potential Hazard:** Exposure to extremely hot, humid and/or extremely cold, windy weather
Procedures to Mitigate Hazard: All personnel will adhere to the Heat and Cold Stress Monitoring Program provided in Section 16.0 of this HASP.

4.4.3 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, lizards and spider can contain sufficient poison to warrant medical attention (see Section 4.3.4.3 below). 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).

A sensitivity reaction is the biggest hazard and most common cause for fatalities from bites and stings, particularly bees, wasps and spiders. Anaphylactic shock, due to stings, can lead to severe reactions to the circulatory, respiratory and central nervous system; it can also result in death. *Personnel with known allergic reactions to bee stings should carry the appropriate medication and must notify the CHSED and SHSO of his/her condition prior to reporting for work at the Project site.*

Project workers who are bitten by an animal and/or stung by an insect must immediately notify the SHSO or a designated Project representative.

TICKS, CHIGGERS and LYME DISEASE
Ticks and chiggers may be present in vegetated areas during the spring, summer and fall seasons.

Preventative measures for getting bit include protective clothing that covers the entire body, tucking pant legs into boots or socks and tucking a 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. *Do not kill the tick before it has been removed.* Workers should save the tick and monitor their bites, checking for a rash and any other symptoms for up to eight weeks after the bite.

Lyme disease is spread primarily through deer tick bites. This tick can be found near wooded areas, tall grass and brush. Although the disease is rarely fatal, it can cause flu-like symptoms, arthritis, hear arrhythmias, facial palsy, severe headaches and loss of sensation. Some warning signs include a "bulls-eye" sized rash that may appear days to weeks after the bite and swelling and pain in the joints; less common warning signs include heart arrhythmia, weakness in the legs, facial paralysis and numbness. If Site employees feel they may have contracted the disease, they must notify the SHSO immediately.

SNAKES

Venomous snakes are best left alone. None of New York species are particularly aggressive animals, but they will attempt to bite when threatened or handled.

Warning: If project personnel encounter a potentially dangerous snake – stop work, remove yourself and other workers from the immediate area and notify the Project supervisor. The supervisor will notify the appropriate local authority and request that the hazard be removed. Do not re-enter the work area until you have been cleared by the SHSO to do so.

According to the American Red Cross, the below first aid steps should be taken when dealing with a snakebite. The first three are steps that should be taken; the last two are measures cautiously recommended by medical professionals, along with the American Red Cross.

- Wash the bite with soap and water
- Immobilize the bitten area; keep it lower than the heart.
- Get medical help.
- If the victim is unable to reach medical care within 30 minutes, a bandage wrapped two – four inches above the bite may help slow the venom. The bandage should not cut off blood flow from any veins or arteries. Ensure that the bandage is loose enough; a finger should be able to slip under the bandage.
- A suction device may be placed over the bite to help draw venom out of the wound without making any cuts. DO NOT use your mouth to try an extract the venom. Suction instruments are often included in commercial snakebite kits. A commercial snakebite kit will be maintained at the Project site in ***OSC***'s field trailer.

  Though medical professionals may not agree on every aspect of how to treat snakebites, they are nearly unanimous on what not to do.

- Do not place ice, or any other type of coolant, on the bite.
- No tourniquets shall be used. This cuts blood flow completely and may result in the loss of the affected limb.
- Do not make any incisions in the wound. Such measures have not been proven useful and may cause further injury.

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

The following program has been developed in compliance with OSHA regulation 29 CFR 1910.1030 to protect all first aid responders who may come in contact with potentially infectious materials. With any person conducting first aid, there is a chance at exposure to infectious materials. In general all employees should:

- Avoid contact with any blood, if possible;
- Clean-up any/all blood with a disinfectant;
- Wear the proper personal protective equipment while cleaning blood (i.e. gloves),
- Contact the project SHSO to conduct a medical evaluation if personnel have been exposed (i.e. blood contacts eyes, mouth or nose).

In addition to the above requirements, the following guidelines will apply to all Project personnel:

- All Project personnel will wash their hands immediately after potential exposure to infectious materials.
- No eating, drinking, smoking, or applying lip balm will be permitted in the designated work, decontamination and first aid areas.
- All first aid kits will be equipped with the proper PPE (i.e. gloves, CPR shields and respirators).
- If a garment (gloves included) is infiltrate d by blood, or other potentially infectious materials, the garment(s) will be immediately removed, or removed as soon as possible.
- After and exposure incident, a confidential medical evaluation and follow-up will be conducted and immediately available to the Project employee. The SHSO will coordinate all medical arrangements.

5.0 SITE SECURITY AND SITE CONTROL

SITE SECURITY

OSC will provide and maintain site security within the Project site, during all working hours from Project mobilization though substantial completion.

All onsite personnel and visitors will be required to sign-in and sign-out, at the Project support area, before entering or leaving the site. ***OSC*** will maintain, onsite, all records of site access and security incidents. Visitors will be required to read and conform to this HASP, prior to accessing controlled work zones. Vehicular traffic will be permitted in the designated parking areas within the Project support area; however, access to the exclusion and contamination zones is restricted to authorized vehicles only. Use of onsite parking areas will be restricted to the **Owner, Owner's representative**, ***OSC***, subcontractors; service vehicles related to the Project and authorized visitors.

5.1 SITE CONTROL

5.1.1 BUDDY SYSTEM

All field personnel will be assigned a buddy who will watch for hazards or problems his/her buddy might encounter. Communication between buddies must be maintained at all times. Buddies 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 buddies; they must remain in close proximity to each other in order to assist in case of an emergency.

5.1.2 SITE COMMUNICATIONS PLAN

In the event of an emergency situation, and cell phones or two-way radio communication is not available, oral/alarm (runner/intermittent air horn) and visual safety signals have been established to protect Project personnel. These signals will be made available to personnel for all phases of operation before going onsite. 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

5.1.3 SAFE WORK PRACTICES

Project personnel will observe the standard operating HSE procedures that are explained in this HASP. The standard HSE regulation notices are posted within the Project support area and at other locations onsite, as deemed appropriate.

5.2 WORK AREAS & CONTROLLED WORK ZONES

Where applicable as determined by field testing and lab sampling data, the project site will be divided into the following zones during site removal activities.

1. Exclusion Zone: The exclusion zone will encompass identified areas of concern; as well as any areas being utilized for the temporary storage of segregated waste materials. The minimum level of protection in the exclusion zone will be a modified Level D. Level C PPE will be available onsite, in the event an upgrade of protection is needed as determined by the exposure assessment.
2. Contamination Reduction Zone (CRZ): The CRZ will be the transitional area between the identified contaminated and clean areas. The CRZ will be provided for the transfer of equipment and materials to and from the exclusion zone; the decontamination of personnel and equipment existing in the exclusion zone; and the physical segregation of the clean and contaminated work areas. The CRZ will include an equipment decontamination pad and personnel decontamination station which will be located in a preapproved area.

   Personnel and equipment decontamination will be conducted in accordance with this approved HASP. Any disposable, single-use sampling equipment will be collected and properly disposed of in accordance with the transportation plan. Non-disposable sampling equipment (i.e. split-spoon samplers, trowels, augers, etc.) will be decontaminated at the portable decontamination stations that will be adjacent to the exclusion zone, or at the decontamination pad.

   Water for the decontamination operation will be supplied by local approved permitted and back flow protected city hydrant or imported from an approved source stored onsite. Water from the decontamination operations will be collected, filtered per the contract requirements and tested. Handling and deposal shall be dependent on test results.
3. Support Zone: Office and storage trailers that will be located in the Project support area, East end of the site where the current office trailer is located (Corner of East Tioga and Steuben).

   The SHSO will be responsible for establishing, delineating, maintaining and controlling access to the established work areas and support zones in accordance with this HASP.

6.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE will be selected based initial hazard and exposure assessment. PPE shall be used, maintained and stored in accordance with OSHA 29 CFR Subpart I, 29 CFR 1926 Subpart E and the manufacturer's recommendations. Engineering, administrative and/or work practice controls will be implemented where feasible, rather than relying exclusively on PPE.

6.1 MINIMUM LEVELS OF PROTECTION

Minimum personal protective equipment (i.e. general safety attire) that is to be worn at all times by Project personnel at the site includes:

- Safety glasses with permanently mounted side shields (mono-goggles in chemical areas);
- Approved footwear;
- Hardhat, and

High visibility traffic vest. *exceptions will be made on vests based on work activity*

The following table describes the minimum levels of protection that have been established for this project which includes initial exposure assessments.

Minimum Site Specific PPE Levels		
Work Activity	**Level of Protection NOTE: PPE Level may change with exposure assessment data (initial & periodic) See Attachment 10**	**Action Level for PPE Upgrade**
Mobilization/Site preparation and general site operations (i.e. CRZ construction, installation of erosion controls, WTP operation, etc.)	Level D	Upgrade to Level C if sustained readings of ≥50% TWA are recorded or if an IDLH condition is probable.
Clearing and Grubbing		
Initial Excavation, Demolition, Material Handling and Decontamination Activities.	Initial Exposure Assessment - Level C PPE to include PAPR respirator Particulate/VOC, Tyvek suit or equivalent disposable suit, disposable gloves, footwear, eye protection and hardhat.	PPE downgrade is not permitted for initial exposure assessments unless similar historical data is available to justify downgrade.
Initial Intrusive Activities (Excavation and Demolition)	Level Dependent on initial exposure assessment	Minimum requirement is Modified Level D as long as exposure levels are known to be below any defined action levels. Level defined by conditions, activity and exposure assessment.
Material Handling - sorting, sizing, loading, placing & stabilizing.	Level Dependent on initial exposure assessment	
Equipment Decontamination	Level Dependent on initial exposure assessment	
Backfill Installation	Level D / Modified Level D	Minimum requirement is Modified Level D as long as exposure levels are known to be below any defined action levels. Level defined by conditions, activity and exposure assessment.
Site Utility Removal	Level D PPE/Modified Level D	Minimum requirement is Modified Level D as long as exposure levels are known to be below any defined action levels. Level defined by
Cover & Stabilization		
Site Restoration		

		conditions, activity and exposure assessment.
Permit Required Confined Space Entry Operations (Not Anticipated)	Level dependent on initial exposure assessment	PPE downgrade is not permitted
Project Support Area Operations/Activities	Non-hazardous, general construction safety attire	Not applicable

NOTES:

A. A sustained reading is defined as a consistent reading, on a real-time monitoring instrument, which does not vary substantially from a peak or a result which is averaged over a period of time (i.e. 5 minutes). This avoids down grading PPE based on a single "hit" or "miss" instead of the average concentration present. Unless a chemical has a ceiling value, the TWA and STEL values are averages for exposure over 8 hours or 15 minutes and not single peaks. The values for the above action levels are based on TWA and STEL values.
B. The levels of PPE identified have been assigned by task, known or anticipated chemical toxicity and potential exposure risks.
C. The SHSO will be responsible for determining the need for PPE upgrade or down grading based on actual conditions encountered in the field.
D. Specific requirements of protection levels (i.e. B, C, D, and Modified) are detailed below.

The minimum levels of protection are to be considered preliminary and may change based upon the physical hazards and air monitoring information collected during Project work. **No changes to the specified level of protection will be made without the approval of the SHSO.

6.2 DESCRIPTION OF PROTECTION LEVELS

PPE will be used when project and support activities involve known, or suspected, atmospheric contamination; when vapors, gases or particulates may be generated by Project site activities; or when direct contact with skin-affecting substances may occur. Full face piece respirators protect the lungs, gastrointestinal tract and eyes against airborne toxicants. Chemical resistant clothing protects skin from contact with skin destructive and absorbable chemicals.

The specific levels of protection and necessary components for each have been divided into four categories according to the degree of protection that is afforded.

A. **Level D**: Protection that will be provided when no airborne contaminant is present and job functions do not require the use of respiratory equipment or chemical resistive clothing. The equipment for this level of protection will include a minimum of the following:
   - Safety Glasses
   - Leather work gloves for general site work
   - Steel-toe work boots
   - Hardhat

B. **Level D Modified**: Protection that will be modified when airborne contaminants have been identified, which do not require the use of air purifying respiratory equipment but require the use of chemical resistive clothing. The PPE for this level of protection will include a minimum of the following:

- Disposable protective clothing, boot covers and gloves
- Safety Glasses
- Chemical resistant gloves with liners
- Steel toe work boots with chemical resistant over-boots (as needed)
- Hardhat

C. **Level C**: Protection that will be provided when airborne contaminants have been identified and which mandate the use of air purifying respiratory equipment and protective clothing. Equipment for this level of protection will include a minimum of the following:

- Half or full-face air purifying respirators with P-100/VOC combination cartridges (PAPR with initial exposure assessments)
- Chemical resistant protective clothing
- Chemical resistant gloves with liners
- Chemical resistant safety shoes or boot covers
- Hardhat or helmet
- Safety glasses

D. **Level B**: ***(not anticipated for this Project based on known hazards).*** Protection that will be provided when the highest level of respiratory equipment is needed with minimal need for body or skin protection. Equipment for this level of protection will include a minimum of the following:

- SCBA or airline respirator with 5 minute escape SCBA
- Chemical resistant protective clothing
- Hardhat or helmet
- Chemical resistant gloves with liners
- Chemical resistant safety shoes or boot covers

E. **Level A (*(not anticipated for this Project based on known hazards)***: Protection that will be provided when the highest level of skin, eye and respiratory protection is needed due to the high levels/potential high levels of vapors, gases or particulates; as well as when skin contact with harmful materials is expected. Equipment for Level A protection includes a minimum of the following:

- SCBA or airline respirator with escape SCBA
- Totally encapsulating chemical protective suit
- Hardhat or helmet
- Chemical resistant gloves with liners
- Chemical resistant safety shoes or boot covers
- Hearing protection

6.3 HEARING PROTECTION

The best method of hearing protection is to eliminate or reduce the potential hazard. Whenever it is not possible to reduce the noise levels or duration of exposure, to those specified below, Project personnel will be supplied with hearing protection.

Duration per day (in hours)	Sound level dBA – Slow Response
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
.5	110
.25 or less	115

Hearing protection will be evaluated for attenuation according to OSHA 29 CFR 1910.95, Appendix B. The protection must attenuate personnel exposure to at least an eight (8) hour time weighted average (TWA) of 85 decibels, A-weighted average of 85 dBA for workers with known permanent hearing threshold shifts.

Numerous hearing protectors will be available, at the Project site, for employees exposed to an eight (8) hour TWA of 85 decibels, A-weighted or greater. Hearing protection may be obtained from the SHSO or any HSE staff. Each employee is responsible for bringing their hearing protector to the jobsite, and wearing it when required. Replacements may be obtained from the SHSO, if necessary. There are four types of hearing protection offered:

1. Formable Plugs should be rolled and compressed into a very thin cylinder. While compressed, insert the plug well into the ear canal. Reach around the head to pull the ear outward and upward during insertion. Keep formable plugs clean and free from material that can irritate the ear canal. To clean, wash them in a mild detergent and warm water. Squeeze the excess water from the plugs and air dry. Discard the plugs if they harden, or do not return to their original size and shape.
2. Pre-molded Plugs should be inserted by reaching around the back of the head, to pull the ear outward and upward, while inserting the plug until it feels like it is sealed. To clean, wash them in a mild detergent and warm water. Squeeze the excess water from the plugs and air dry. Discard the plugs if they harden, or do not return to their original size and shape.
3. Earmuffs must fully enclose the ears to be sealed against the head. Adjust the headband so the cushions exert even pressure around the ears. Pull the hair back and out from beneath the cushions. Keep earmuff cushions clean and free from material that can irritate the ear canal. Earmuff cushions can be cleaned using mild detergent and warm water. Squeeze the excess water from them and let them dry. Earmuff cushions normally need replacing twice a year; as well as whenever they become stiff, cracked or no longer seal.

4. Fit earplugs can be checked for proper fit by pressing firmly cupped hands over your ears, while listening to a steady noise. With properly fitted plugs, the noise levels should be about the same whether or not the ears are covered.

6.4 RESPIRATORY PROTECTION

Project personnel will be required, when necessary, 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 always be made available, at the Project work area, if emergency use is needed.

Personnel must only use respirators that are approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupation Safety and Health (NIOSH), and follow the regulatory requirements set forth by OSHA 29 CFR 1910.134 and OSHA 29 CFR 1926.103.

6.4.1 MEDICAL CLEARANCE / FIT TESTING

All Project personnel, which are assigned to tasks where a respirator is needed, must have prior medical clearance. Medical evaluations and fit testing will be provided by ***OSC***'s Medical Consultant, Company Health (716-875-5495). Fit test records and all Project personnel medical documentation will be filed and maintained onsite, by the SHSO.

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.

6.4.2 TRAINING

All project personnel who are required to wear a respirator will receive training from the SHSO 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 SHSO and will be available for inspection upon request.

6.4.3 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 inspection of their own respirator. The following elements will be inspected:

- Tightness of the connections
- Face piece
- Headbands
- Inhalation valve
- Cartridge or filter fittings
- Pliability of the rubber or elastic parts
- 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.

6.4.4 TYPES OF RESPIRATORS

The type of respirator, and who is required to wear them, will be identified on a task specific level by the SHSO, in consultation with the CHSED, based on the type of work that will be performed and the potential for exposure to airborne contaminants. All Project personnel will be required to follow the strict instructions for their respirator use set forth in this HASP, or they will become ineligible to wear them.

6.4.5 STANDARD PROCEDURES FOR RESPIRATOR USE

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

- Carefully inspect the respirator using the procedures, established in Section 6.4.3, prior to entering potentially contaminated work areas.
- Remove duct tape from cartridge, prior to entering potentially contaminated work areas (if applicable).
- Conduct positive and negative pressure leak tests each time the respirator is to be used. Positive Pressure Leak Test: Close off the exhalation valve with your hand. Breathe into the mask. The face-to-face piece seal is cleared for use if some pressure can be built up inside the mask, and sustained. Negative Pressure Leak Test: Close off the inlet opening of the cartridge with the palm of the hand. Gently inhale causing a vacuum to occur inside the mask. Hold the breath for 10 seconds. If the vacuum is sustained, and no inward leakage is detected, the respirator fits properly.
- Do not remove the respirator in contaminated work areas. In the event of a medical emergency, or if breathing becomes difficult, remove the respirator and immediately leave or remove the injured person from the contaminated work area.
- Wear a respirator with straps while working inside disposable garments. This will maintain respiratory protection during personnel decontamination/contaminated garment removal.

6.4.6 CLEANING and DISINFECTION

Any reusable respirator must be cleaned after each use by the employee assigned to use it. The steps required to clean a respirator after use includes:

- Remove the cartridges and headbands
- Disassemble all respirator parts
- Wash all respiratory parts, with the exception of the cartridges and headband, in a cleaner-disinfectant solution or use soap and hot water (100+ degrees)
- Rinse all parts completely in clean, warm water. This will remove all traces of detergent and disinfectant.

- Air dry in a clean, sanitary area
- Re-assemble the respirator
- Store the cleaned respirator in a sealed bag. This will provide protection against dust, sunlight, extreme temperatures, moisture and abrasives
- Apply the proper maintenance to your respirator.

6.4.7 STORAGE

Respirators will be stored in a sealed bag to protect against dust, sunlight, extreme temperature, moisture and abrasives. Inhalation holes will be covered with duct tape immediately after leaving a contaminated area. The tape will be left on until the respirator is donned for the next entry into a contaminated area. This tape will prevent any contaminants from being dislodged from the cartridge. 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 straps.

7.0 STANDARD OPERATING PROCEDURES (SOPs)

7.1 SOPs

A. Ensure that all safety equipment and protective clothing is kept clean and well maintained.

B. Ensure that all prescription eyeglasses in use on this Project are safety glasses and are compatible with respirators. No contact lenses are allowed at this Project site.

C. Ensure that all disposable or reusable gloves worn on the Project site are approved by the SHSO

D. Change respirator filters during periods of prolonged respirator usage in contaminated areas. Respirator filters will be changed daily.

E. Cover all footwear used onsite with rubber over boots or booties when entering or working in the exclusion zone area or the contamination reduction zone. Boots/booties shall be washed with water and detergent, to remove the dirt and contaminated sediment, before leaving the exclusion zone or contamination reduction zone.

F. At the end of each day, decontaminate or dispose of all PPE used onsite. The SHSO is responsible for ensuring decontamination before PPE reuse.

G. The SHSO will individually assign all respirators. The respirators will not be interchanged between workers without cleaning and sanitation. Any OSC personnel, subcontractor and/or service personnel unable to pass a fit test, as a result of facial hair or facial abnormality, will not enter or work in an area that require respiratory protection.

H. All Project personnel will have vision or corrected vision to at least 20/40 in one eye.

I. Onsite personnel that are found to be disregarding any provision of this HASP, at the request of the SHSO, will be barred from this Project.

J. Do not reuse disposable outerwear such as coveralls, gloves and boots. Used disposable outerwear will be removed upon leaving the exclusion zone and placed inside disposable containers that are provided for this sole purpose. The containers will be stored at the Project site, at the designated staging area, and ***OSC*** will be responsible for the proper disposal of these materials at the completion of the Project.

K. When working, immediately replace protective coveralls that have become torn or badly soiled.

L. There will be NO eating, drinking, smoking, chewing gum or tobacco in the exclusion zone or contamination reduction zone.

M. All Project personnel must thoroughly wash their hands, face and forearms prior to using the facilities, eating, drinking and smoking.

N. Personnel who have worked in the exclusion zone must shower at the end of the work day.

O. NO alcohol, drugs (without prescriptions) or firearms will be allowed onsite at any time.

P. All Project personnel who are on medication will report it to the SHSO, prior to work start-up, who will make the determination whether or not the individual will be allowed to work and in what capacity. The SHSO may require a letter from the individual's personal physician stating what limitations, if any; the medication may impose on the individual.

7.2 EXCAVATION SAFETY

OSC maintains strict procedure for soil excavations. The safety of all employees during these operations depends on the soil structure and stability, weather conditions, buried utilities and structures and superimposed loads. All excavations are treated as type C for the purpose of cave in protection; shoring, benching and sloping. Note – Although possible, occupied excavations greater than 5 feet are not anticipated for this project.

If 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 has 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.

7.2.1 HIDDEN PRECAUTIONS

In order to eliminate the discovery of hidden pipelines or cables, before any excavation begins OSC personnel will notify all utility companies to locate their lines. If such a hazard exists, the lines will be carefully marked prior to the start of the excavation activities.

When deeper than five feet, to prevent collapsing soil the excavation must be sloped, shored or somehow contained before any Project personnel can enter. A ladder will be provided onsite, for employees who are working in depths for more than four feet. The ladder will not be removed from until all employees have exited the excavation site.

All excavation sites will be inspected daily for precautions. All activity will cease if the Site Superintendant, Project Manager and/or the SHSO label the site hazardous. A competent person will make daily inspections of any excavation employee's entrance.

7.2.2 EXTERIOR PRECAUTIONS

For the protection of all Project employees, ***OSC*** requires that all exterior structures (sidewalks, etc.) be protected and clear of excavated materials. Sidewalks will be shored to carry a load of at least 125 pounds/sf. Planks, which are being used for temporary walkways, will be laid parallel to the length of the walkway and will be fastened together. If possible, guard rails or fences will be erected to protect employees and vehicle traffic from the edge of excavation sites.

7.3 LOCKOUT/TAGOUT/TRYOUT POLICY

When excavation activity ceases, either for repairs or at the end of a shift/day, all equipment will be removed from service by being either locked out or tagged out. This procedure ensures the health and safety of all Project personnel by deactivating any movable, electrical or pressurized equipment. This policy applies to all machinery or equipment that can be moved either by the use of electrical power, hydraulic power,

compressed air, steam or energy stored in springs/suspension devices. Danger tags will be placed on all movable equipment and machinery.

Only Project personnel, or his/her supervisor, are authorized to lockout or tag out 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 or his/her supervisor. Any violation of this policy is cause for severe disciplinary action.

7.4 LOCKOUT/TAGOUT/TRYOUT PROCEDURES

Lockout and tag out devices are used to control stored energy prevent the accidental 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.

Application of Locks and Tags: Only authorized Project 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. **LOCKS and TAGS WILL BE PLACED BY AUTHORIZED PERSONNEL ONLY**

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.

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 verified 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 SHSO will conduct a visual inspection of the area to be sure all employees are clear of the circuits and equipment.

7.5 SYSTEM MAITENANCE & REPAIR

Only authorized and trained personnel may perform any repair or maintenance on electrical or pressurized equipment. Any work performed on this type of equipment may not be done until all lockout or tag out procedures has been completed to the satisfaction of the SHSO.

7.6 ELECTRICAL GROUNDING (Assured Grounding & GFCI's)

Only qualified Project personnel may work on or around electrical equipment. ***OSC*** follows the standards, set by OSHA and the National Electrical Code, for the purchase and maintenance of electrical equipment and systems.

The working space around all electrical equipment will be large enough to permit access to all parts of the equipment. The working space will never be used for the storage of other materials so that immediate access can be gained.

- Only authorized electrical tools may be used at the Project Site.

- A ground fault circuit interrupter (GFCI) shall be used with all 120 volt corded tools. GFCI plugged in at the source and tested before use for appropriate operation.
- Portable electrical tools must have grounding protection and be insulated against shock.
- Single phase electrical tools must be plugged into properly grounded receptacles.
- The use of extension cords traffic areas should be avoided. If required cords should be protected or guarded from damage. All extension cords shall be properly 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.

8.0 INCIDENT PREVENTION PROCEDURES

8.1 HSE MEETINGS

Daily tailgate meetings will be conducted as stated in Section 3.2.1 of this HASP

8.2 FIRE PREVENTION and PROTECTION

The following guidelines apply when dealing with fire prevention and protection:

- The Emergency Response and Contingency Plan, provided in this HASP, will be in effect at all times throughout all phases of work. All firefighting equipment will be inspected on a regular basis, maintained in proper working condition and will be located in an accessible place, at the Project site, at all times.
- A fire extinguisher, rated 10 ABC or greater shall be located in the immediate work area. Adequate extinguisher coverage shall be provided for every 3,000 sf of occupied work area.

8.3 WALKING and WORKING SURFACES

The following guidelines apply:

- Concrete and blacktop pad openings will be covered or guarded on all exposed sides by a standard guard rail or appropriate continuous barricade.
- Stairs with 4 or more steps to concrete pads shall either properly railed for use or barricaded from entry
- All open excavations shall be properly barricaded (Soft barricades 6 back from edge, hard barricades 2 feet back from edge)

8.4 SITE HOUSEKEEPING

The following housekeeping guidelines apply at this Project site:

- All excess material and debris will be kept clear from all 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.

8.5 MECHANICAL EQUIPMENT

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

- All vehicles and equipment, used on the Project 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.
- No Project personnel will be permitted to use any vehicle or equipment that has an obstructed view to the rear, unless there is a reverse signal alarm or a signal man is assigned to help.
- Employees will not work or walk under or between any equipment that had parts which are suspended or held aloft unless/until the parts are substantially blocked to prevent falling and/or shifting.

8.6 HIGH PRESSURE WASHERS

OSC requires that only trained and authorized Project personnel operated high pressure washers onsite. This policy is intended to protect both ***OSC*** employees; as well as any property where the equipment will be used. The following guidelines apply at this Project site:

- The lance must always be pointed at the specific work area.
- All Project personnel will remain at least 25 feet away from the washer; as well as the structure being washed.
- Care should be taken to ensure the proper footing of the operator.
- The operator and his assistant will wear the following personal protective equipment: Hard hat with face shield, goggles, safety boots with metal foot and shin guards, hearing protection, PVC rain or acid suit and heavy gloves; as well as any additional equipment to protect against chemicals, as needed.
- ***OSC*** requires that all operators and assistants 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 a job.

8.7 VEHICLE and EQUIPMENT SAFETY

On ***OSC*** jobsites, only completely trained and qualified Project personnel may operated equipment and vehicles. This policy is intended to protect all employees and CLIENT properties. It is effect at all times. The guidelines for this policy are as follows:

- Each unit is to be inspected prior to its use on the Project 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 he/she will be required to clear the way.
- Only authorized Project personnel are permitted to ride in company vehicles and equipment.
- Under no circumstances will an employee be permitted to get on or get off a moving vehicle.
- Operators must wear the following PPE: Sturdy Steel Toed Work Boots/Shoes, ear protection devices when the noise level is in excess of 90dBA, heavy work gloves and a hardhat.
- Any vehicle and equipment, which are not in use, will be parked off roads and major access routes with their wheels blocked. The vehicle will be turned off and the keys will be given to the Site Supervisor.
- The operator and assistant must wear seatbelts at all times, if the unit is equipped.

- To ensure the proper visibility all windshields, side windows, mirrors and lights will be cleaned as often as necessary.

8.7.1 TRUCKS

The following guidelines apply to the operators of ***OSC***'s trucks:

- A current driver's license must be carried at all times.
- The driver will check the loaded material to ensure against material loss or shifting during transit.
- All DOT regulations will be followed.
- When towing trailers, safety chains must be in use.

8.7.2 HEAVY EQUIPMENT

OSC has the following guidelines for the operation of front end loaders, scrapers, dozers and tractors:

- 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 will be used on this Project.

8.8 SANITATION

With the exception of mobile crews having transportation readily available, all 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 facilities will be provided on the Project site 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.

8.9 DAILY INSPECTIONS

The SHSO will monitor jobsite HSE through inspections at the start and completion of each work day. Results of these daily inspections will be recorded on a daily safety Audit form (see Attachment 1).

Any safety violations will be recorded and corrected by the Project Manager. All observed safety violations will be immediately corrected, explained to the person responsible, and reviewed at the next safety meeting. If an employee has excessive violations of the site safety rules, it will be grounds for disciplinary action which could lead to termination if ***OSC*** personnel or expulsion if an onsite subcontractor personnel.

8.10 INCIDENT REPORTING

- ***OSC*** will maintain an OSHA 300 Form of all recordable occupational injuries and illnesses. The annual OSHA 300 and 300A logs will be posted onsite from February 1st until May 1st every year.
- All records and OSHA forms will be maintained by ***OSC*** for at least five years, following the end of the year to which they relate. These Logs will be made available upon request to authorized personnel.
- **All Incidents, accidents, near misses must be reported to the Project Manager or his/her designee immediately.**
  Likewis an immediate call to the OSC Corporate Health, Safety and Environmental Manager shall also be made (Bill Fleck, 716 560 7542).
- Any occupational incident, which results in the death of one or more employees or the hospitalization of five or more employees, will be reported by ***OSC*** to the nearest OSHA Area Director within 8 hours of its occurrence.

9.0 MEDICAL SURVEILLANCE

Medical monitoring is required by OSHA as a means of monitoring worker exposure to certain toxic substances under OSHA 29 CFR 1910.120(f), OSHA's Hazardous Waste Operations and Emergency Response Standard.

9.1 MEDICAL EXAMINATIONS

All ***OSC*** field personnel will be provided with a thorough, initial medical examination to assess fitness for the Project and to provide baseline health data for subsequent reference. Examinations will be repeated every other year, unless abnormal test results, annual "questionnaire" answers or other problems dictate more frequent observation. A Medical Authorization Form is provided in Attachment 1. A copy of the physician's statement certifying each employee's ability to work at task specific operations will be maintained in the Project filed by the SHSO.

During the medical examination employees will be evaluated for their ability to wear respiratory protection, and other protective equipment, such as extensive clothing ensembles. This evaluation will include, 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 will be performed on the basis of an individual's past history, findings of the above below evaluation, and/or the type of equipment the individual may be required to use.

The following protocol is an example of a baseline yearly medical examination:

Medical Monitoring Protocol				
Exam Components	**Baseline[1]**	**Annual[2]**	**Interim**	**Exit**
Blood and Urine Specimen	Yes	Yes	Yes	Yes
Vital Signs	Yes	Yes	Yes	Yes
Vision Screening (Includes Peripheral and Color)	Yes	Yes	Yes	Yes
Dipstick Urine Analysis	Yes	Yes	Yes	Yes
Audiometer	Yes	Yes	No	Yes
Spirometry	Yes	Yes	Yes	Yes
EKG	3	3	No	3
Chest X-Ray	Yes	3	No	3
Review of History	Yes	Yes	Yes	Yes
Physical Exam	Yes	Yes	Yes	Yes
Notes: 1. Only do an X-ray if not done within the last 12 months 2. Only do an X-ray if not done within the last 3 years 3. For medical indications only				

Medical examinations will be performed on each individual who will enter the contaminated reduction zone or exclusion zone or are performing work that requires respiratory protection:

- At least once every 12 months.

- At the termination of employment or reassignment to an area where the individual would not be covered if that individual has not had an examination within the last six months.
- As soon as possible upon notification by an individual having developed signs or symptoms indicating possible overexposure to any hazardous material, health hazards, or that the individual has been injured or extensively exposed above the PEL (published exposure levels) in an emergency situation. NOTE: Any employee who develops a lost time injury or illness, during the period of his contract, as a result of work in the exclusion zone will be evaluated by the Medical Consultant. The Project Supervisor will be provided with a written statement that indicated the employee's fitness and ability to return to work, signed by the Medical Consultant prior to allowing the employee to re-enter the exclusion zone.
- At more frequent intervals if the examining physician determines that an increase frequency of examinations is required.

9.2 NON-CONTRACTOR PERSONNEL MEDICAL MONITORING

Onsite personnel entering the contaminated reduction zone or exclusion zone, and not employed by OSC, will be required to provide documentation that he/she meets the medical surveillance requirements of this HASP; has been certified fit to enter contaminated area; has the require PPE for this project; and has received their 40 hour OSHA training pursuant to OSHA 29 CFR 1926.65. Documentation will be submitted to the SHSO and maintained onsite. Truck drivers for the off-site transportation subcontractors are exempt from this requirement, but will be required to maintain in their cabs at all times when not in support zones.

10.0 AIR MONITORING PROCEDURES

The purpose of this air monitoring program is to:

- Identify and quantify airborne contaminants (lead, silica) and total dust particles in order to determine initial exposure assessment as well as verify that established engineering controls and protective measures are effective.
- Document that the level of worker protection is adequate; and
- Access the migration of contaminants to offsite receptors, as a result of site work.

The air monitoring program incorporates both real-time and documentation air monitoring. Real-time air monitoring will be conducted to determine if an upgrade, or an upgrade, of PPE is required while performing onsite work; as well as to implement engineering controls, protocols or emergency procedures if the established action levels are encountered. Documentation from monitoring will be used to ensure that controls are adequate including PPE used is appropriate; as well as assure there is no migration of contamination off site.

The levels of protection site action levels, for each task and operation, are defined in Section 6.1 (Minimum Levels of Protection) of this HASP. If the minimum action levels, defined in this HASP, are exceeded at half the distance to the work zone perimeter location, work must be suspended and engineering controls will be implemented to bring concentrations back down to acceptable levels.

The SHSO will be responsible for implementing this air monitoring program. He/she will have the authority to determine when and if operations should be shut down.

10.1 SAMPLING EQUIPMENT

OSC will provide all the necessary sampling devices, pumps, collection media and support equipment to perform the sampling program. The sampling devices and pumps used will be approved for use in combustible and/or flammable atmospheres. Air monitoring equipment will be operated only by Project personnel that are trained in the use of the specific equipment provided and will be under the control of the SHSO.

OSC will utilize the following (or similar) air monitoring equipment, in support of this air monitoring program:

- Particulate monitor (PDR 1000 or Equivalent) for total particulates
- Photo ionization detector (PID) for organic vapor levels
- A 4-gas meter (Co, O2, LEL, and H2S) will be used if a confined space entry if required.

10.2 METEROLOGICAL STATION

If necessary a meteorological station will be installed onsite in a location selected by the SHSO and approved by the Owner or Owner's Representative. The meteorological station will be capable of recording, at a minimum, outside air temperatures, wind velocity and wind direction.

10.3 CALIBRATION

The calibration methods to be used will follow the manufacturer's recommendations. All calibration data will be recorded on the Air Monitoring Report Form (see Attachment 1).

Any monitoring equipment that is failing to take the proper calibration, or failing to hold a calibration, will be replaced. Work will not be allowed until the malfunctioning piece of equipment has been replaced.

At a minimum, the portable monitors and PID will be calibrated at the beginning of each workday, in accordance with the manufacturer's recommendations. The units will be programmed to measure levels over a 15 minute average time. The monitor will then be carried to each sampling location, in turn, according to the predetermined schedule. Likewise fixed data recording dust monitors shall be placed around the perimeter of the site (upwind, cross and downwind). At each location the unit will be activated to measure a 15 minute average time. The value obtained from the digital read-out will be recorded on the Air Monitoring Report Form.

10.4 SAMPLING PARAMETERS and ACTION LEVELS

10.4.1 REAL-TIME AIR MONITORING

Sampling at the worksite will be conducted at required. Real-time air monitoring will be conducted during excavation of contaminated soils or sediments, during abatement activities and during other intrusive activities that have the potential to generate dust. Monitor the air, using the same equipment for 10-15 minutes upwind of the work to establish a background level.

Real-time monitoring for airborne dust is deemed appropriate; it will be performed using a PDR 1000 or equivalent meter. Monitoring will be conducted in or near the breathing zones of project personnel, at the perimeter of the work zone and at the perimeter of the property (North South, based on airborne dust concentrations exceeding work zone perimeter action limits. Dust monitoring surveys outside of the work zone will be conducted as necessary during the initial phase of excavation, if visible dust is present and after that, at a frequency based on site conditions.

- During the progress of active remedial work, the air monitoring technician will monitor the quality of the air in and around each active hazardous operation with real-time instrumentation, prior to personnel entering these areas and while work is ongoing.
- Any departures, from the established background level, will be reported to the SHSO prior to entering the area, if initiating work.
- Real-time monitoring will also be conducted at site perimeter locations, including upwind (background level), and three downwind locations. Downwind readings, at the perimeter, will be made when the established action levels have been exceeded at the work zone or at a minimum of twice a day.

The action levels for PPE upgrades are:

- < 1mg/m^3 dust – Level D
- > 1mg/m^3 dust* sustained for one minute – Level C
- > 2mg/m^3 dust sustained for one minute – Stop work, apply water to that materials being handled and/or hauled or haul roads. When the dust levels

drop below the action level, re-start work and continuously monitor for 30 minutes. If the dust levels remain below 2mg/$m^{3,}$ monitoring frequency and dust control methods will return to normal.

The action levels for the work zone perimeter are:

- < 1mg/m^3 dust – Continue routine application of the dust control methods.
- > 2mg/m^3 dust sustained for one minute – **Stop work and apply water to the materials being handled and/or the haul roads**. Move to the project perimeter and make measurements upwind and downwind. Continue monitoring the Project perimeter until the dust levels have fallen below 1mg/m^3 and then return to the work zone perimeter. **When dust levels drop below the action level of 1mg/m^3at the work zone perimeter, re-start work and continuously monitor for 30 minutes.** If the dust levels remain below 1mg/$m^{3,}$ monitoring frequency and dust control methods will return to normal. **If it is discovered that the work zone perimeter action limit does not protect against dust excursions at the Project perimeter, reduce the work zone action limit by 25%.**

NOTE: Construction activities generate dust which could potentially transport contaminants offsite. There may be situations when visible dust is being generated and leaving the Project site and the monitoring equipment does not measure PM_{10} at or above the action level. Therefore, if the dust is observed leaving the Project site, ***OSC*** will employ additional dust suppression techniques as required.

10.4.2 **AIR MONITORING DOCUMENTATION** (see air monitoring program to be submitted under separate cover)

Air monitoring will be conducted as required by OSHA 29 CFR 1910, at the perimeter, at a minimum of four locations (one upwind, cross wind and downwind). Documentation monitoring will be conducted only during intrusive activities; excavation, consolidation, staging, removal, loading, placing and or any activity which could produce visible emissions.

The four locations will be chosen by the SHSO, according to site activities and the expected wind direction. The perimeter locations will be established and marked with high visibility paint or flagging at approximately equidistant points around the Project site. Samples will be collected daily at regularly scheduled intervals and at the initiation of a new phase of onsite work. Samples will be collected during normal working hours when activities are occurring onsite. At the end of the week, meteorological data will be reviewed; one upwind sample and two downwind samples will be chosen an analyzed.

In addition to perimeter monitoring, documentation samples will be collected to assess worker exposure. Samples will be collected by choosing high risk workers to wear appropriate collection media for pesticides, metals and particulates. High risk workers are those workers who are most likely to encounter contamination on

a particular task. At a minimum, two high risk workers will be chosen to wear collection media for a particular day each week. The media will be analyzed with the documentation air monitoring samples.

CONFINED SPACE ENTRY AIR MONITORING

If required, confined space entry air monitoring will be conducted as specified in Section11.0 of this HASP.

REPORTING and RECORD KEEPING

The SHSO will maintain a daily sampling record as part of the air monitoring program (personal, work and perimeter air monitoring). This sample will be recorded on the Air Monitoring Report Form (Attachment 1 of this HASP). Copies of the Air Monitoring Report will be made available upon request.

A written copy of real-time air monitoring results will be submitted at the beginning of the week for the previous week. These results will include an appropriately scaled map of the work area depicting sample location, wind direction and other relevant meteorological data; date, time, analytical results, applicable standards and implemented engineering controls (if necessary).

Documentation samples, chosen for analysis, will be submitted to the laboratory at the end of each work week. Within seven days of shipment, the SHSO will submit a written copy of the documentation air monitoring results for the previous week. These results will include an appropriately scaled map of the work area depicting sample locations, wind direction and any other relevant meteorological data; date, time, and analytical results. The documentation sampling results that are submitted will identify the high risk workers that were chose to wear the appropriate collection media for contaminants, what data media was worn, the task involved, analytical results and any applicable standards.

OSC will retain all Project personnel exposure sampling results in accordance with the requirements set forth in OSHA, Subpart C of 29 CFR 1910.20.

11.0 CONFINED SPACE ENTRY PROCEDURES

The following guidelines outline the minimum acceptable criteria that will be utilized by ***OSC*** Project personnel for all confined space entry operations. Note – project permit required confined space work is not anticipated but is included in this HASP if it is encountered.

Project specific confined space entries will be thoroughly reviewed by the SHSO. Personnel entering and working in confined spaces will be required to adhere to the OSHA Permit-Required Confined Space Standard 29 CFR 1910.146 (Publications 58-FR-4549 and 58-FR-34845); the OSHA Construction Standard 1926.21 (B)(6); and the OSHA General Duty Clause. Project personnel are instructed in these OSHA regulations as part of the employee training program, outline in Section 3.0 of this HASP.
The SHSO will be responsible for reviewing the applicable OSHA Protocol will the field team, prior to confined space entry.

11.1 DEFINITIONS

11.1.1 CONFINED SPACE

OSHA defined a confined space as having the following characteristics:

- The space is large enough that a body can enter it;
- The space has restricted means of entry and exit, and
- The space is not designed for continuous occupancy.

Examples of confined spaces include tanks, underground vaults and excavations that are greater than four feet deep.

There are two types of confined spaces: permit required and non-permit required. The "PRCS Evaluation Procedures and Decision Flow Chart", provided in Figure 2 of this HASP, will be used to evaluate the potential for permit require confined space.

11.1.2 PERMIT REQUIRED CONFINED SPACE (PRCS)

OSHA defines a permit required confined space (PRCS) as having one or more of the following hazards:

- 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.

All PRCS areas will be identified with a sign reading:

DANGER
PERMIT-REQUIRED CONFINED SPACE
DO NOT ENTER

The above sign will be prominently posted onsite by the SHSO in the immediate vicinity of the PRCS, to inform all Project personnel of the existence, location and the danger posed by the PRCS.

Personnel who will enter a PRCS will have specialized training and a confined space entry permit.

11.1.3 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 SHSO using the "PRCS Evaluation Procedure and Decision Flow Chart" (Figure 2) whenever they or their characteristics change in a way that could lead to reclassification as a PRCS.

11.2 PERSONNEL RESPONSIBILITIES

11.2.1 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.

11.2.2 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 authorized persons, and 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, to determine if it is safe for entrants to remain in 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.

11.2.3 AUTHORIZED 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.

11.3 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. These employees must also be familiar with the kinds of hazards that they may face during an entry and understand the modes, signs, symptoms and consequences of exposure.

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 under what conditions evacuation is required;
- Procedures for controlling access to the PRCS and to warn unauthorized people away from the space;
- 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.

The above 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 Project site and in the individual's personnel files in the home office.

11.4 PRCS ENTRY PROCEDURE

11.4.1 ATMOSPHERIC TESTING

Before any 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 Selected 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.

11.4.2 PRCS ENTRY

The SHSO will use the "PRCS Evaluation Procedures and Decision Flow Chart" (Figure 2) to verify the presence of a PRCS. If it is determined that a PRCS does exist, the SHSO 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.

11.4.2.1 HAZARD ELIMINATION and CONTROL

The SHSO will determine if hazards can be controlled with continuous forced mechanical ventilation or eliminated through removing potential sources of air contaminants, using proper shoring or sloping, installing guardrails, locking out electrical systems, etc. If potential hazards can be eliminated, then the PRCS will be reclassified as a non-permit confined space. If potential hazards are controlled with continuous forced mechanical ventilation, the non-PRCS entry procedure provided in Section 11.5 of this HASP will be used.

11.4.2.2 CONFINED SPACE ENTRY PERMIT

The entry supervisor will be responsible for completing the Confined Space Entry Permit (sample provided in Attachment 1). 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.

NOTE: Only one permit at a time can be used for PRCS Entry.

11.4.2.3 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 authorized entrant, prior to entry and whenever new hazards are identified.

11.4.2.4 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.

11.4.2.5 PERMIT EXPIRATION and CANCELLATION

Each Entry Permit will be valid for one shift only. Expired and canceled Permits will be returned to the Site Superintendant 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 if
- A change in the scope of work required new activities which may create previously unanticipated hazards that could cause serious death or injury.

11.5 NON-PRCS ENTRY PROCEDURE

The following procedure may be utilized only if the following conditions have been met:

- The only serious hazard that cannot be eliminated is an actual or potential hazardous atmosphere;
- Continuous forced ventilation is sufficient to prevent a hazardous atmosphere, and
- Monitoring data is available to support the adequacy of ventilation.

If the above conditions of this non-PRCS can be met, then the Entry Permit, attendant and rescue procedures specified in this Section are not required. However, it is still necessary to complete a Confined Space Entry Permit, prior to entry. The Permit will document that the space has been classified as a non-PRCS. **Air monitoring is required during non-PRCS entry**.

All non-PRCS entrants will be required to have completed PRCS training comply with all other applicable HSE regulations and adhere to the procedure below.

- Prior to removing the entrance cover, eliminate the conditions that are making it unsafe to remove an entrance cover (i.e. use non-sparking tools).
- Setup barriers around the opening, to prevent adjacent work activities from endangering the entrants.
- Conduct pre-entry air monitoring, per Section 11.4.1 of this HASP.

- If a hazardous atmosphere is encountered or anticipated, setup force ventilation. Continue the ventilation for as long as the entrants are in the space.
- Evacuate the entrants if a hazardous atmosphere develops and implement corrective actions to prevent reoccurrence.
- Check the non-PRCS box of the Confined Space Entry Permit and document the following data: date of entry, location of the space, description of the work to be conducted within the space and pre-entry monitoring results. The person authorizing the non-PRCS procedure will sign the Permit in the space provided.

11.6 RESCUE/EMERGENCY RESPONSE

11.6.1 ONSITE RESCUE/EMERGENCY RESPONSE TEAMS

Each member of the onsite rescue/emergency response teams will be provided with, and trained in the proper use of, PPE and the equipment necessary for making rescues from PRCSs. Each member of the onsite rescue/emergency response team will receive the same level of training as the authorized entrants and will be trained in basic first aid and CPR. A provision will be made whenever the team is on call; at least two members of the team will have current certification in first aid and CPR.

At least once every 12 months, personnel on the rescue team will practice making PRCS rescues. Practice drills will simulate emergencies and rescue operations; as well as involve the removal of dummies, manikins or people from the simulated PRCSs. The simulated PRCS will mock the configuration and hazards of the PRCS from which the rescue is to be performed.

11.6.2 OFFSITE RESCUE and EMERGENCY SERVICES

Offsite rescue and emergency service personnel will be informed by the SHSO of the hazards they may confront when called to the jobsite to perform services. 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.

11.6.3 NON-ENTRY PROCEDURES

For facility 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.

12.0 DECONTAMINATION PROCEDURES (As required for indentified regulated areas)

As required, decontamination of equipment and personnel will be performed to limit the potential migration of contaminants outside the Project limits (the estimated waste/excavation boundary). 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 Project site are detailed in the following subsections.

12.1 PERSONNEL HYGENE and DECONTAMINATION

All Project personnel will minimize contact with contaminants in order to minimize the need for extensive decontamination. All 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. Any products used for personal consumption are prohibited in any work area. Break areas will be limited to specific areas where eating, drinking, smoking, etc. and the storage of these materials will be allowed.

No PPE will be removed from the designated contaminated work area without proper decontamination or disposal. All personnel leaving the contaminated work area will pass through a contamination reduction zoned where they will remove their PPE and thoroughly wash/rinse any exposed skin with water and biodegradable soap before leaving the Project site. A personnel decontamination trailer will be provided for use by al, Project personnel exiting the exclusion zone.

Personnel decontamination equipment consists of two wash tubs (boot wash), trash cans with liners (for disposable PPE), 5 gallon buckets (glove wash/rinse and respirator wash/sanitize/rinse), brushes, water supply and detergent. Boot, glove and respirator cleaning and rinsing solutions will be changed at least daily.

A standard, 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 tap 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 respiratory cartridges 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.

12.2 EQUIPMENT DECONTAMINATION

The SHSO will be responsible for inspecting decontaminated vehicles, equipment and material contaminated work areas, to ensure proper decontamination. The SHSO will certify in writing that each piece of equipment utilized in the exclusion zone has been properly decontaminated.

Decontamination personnel will be required to use Modified Level D PPE as specified in Section of this HASP. The standard operating procedure for the use of high pressure washers, proved in Section of this HASP, will be strictly followed to prevent injury.

12.2.1 HEAVY EQUIPMENT DECONTAMINATION

As a general practice, equipment, such as excavators, bulldozers, etc. will remain within the Project controlled work zones for the duration of the excavation activities. This ensures the minimization of the potential cross contamination or migration of contaminants outside the Project limits. In addition, the sequence of excavation has been designed to avoid the movement of machinery and personnel over areas within the work zones that have been excavated.

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

- Conduct gross removal of solids at point use.
- Degrease as necessary.
- Move to the equipment decontamination pad for decontamination via pressure washing.
- Collect and handle resultant liquids/solids.

12.2.2 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 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.

12.2.3 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, according to the procedures listed below.

- 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.
- Wrap in clean polyethylene sheet or aluminum foil until needed.

12.3 DISPOSITION of DECONTAMINATION WASTES

All equipment and wash 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. All disposable PPR will be containerized in drums and properly disposed of.

12.4 MANAGEMENT of DECONTAMINATION WATERS

Wash water will be contained, collected, filtered (per contract specifications) and tested. Handling, reuse and disposal of filtered water is dependent on test results. Likewise, mud/sediment/debris from the wash pad and will be collected tested and characterized for handling.

13.0 EMERGENCY EQUIPMENT and FIRST AID REQUIREMENTS

Emergency and first aid equipment to be maintained onsite will include the items listed below.

- The active work area will be provided with approved, portable, emergency eye wash and shower units in accordance with ANSI Standard Z358.1 and a minimum rating of 2A-10 B:C type dry chemical fire extinguishers.
- At least one industrial first aid kit and stretcher will be provided and maintained fully stocked at an easily accessible, uncontaminated location chosen by the SHSO onsite. Additional first aid kits will be provided in the event active work areas are very isolated or separated, therefore making the use of one first aid kit impractical.
- At least one commercial snakebite kit will be provided and maintained in an easily accessible, uncontaminated location onsite, to be determined by the SHSO.
- First aid and CPR kit locations will be specifically marked by the SHSO and stocked with adequate water and other supplies necessary to cleanse and decontaminate burns, wounds or lesions. First aid stations will also be supplied with a buffer solution for testing acid and caustic burns.
- At least two first aid technicians, certified by the American Red Cross or another approved agency, will be onsite at all times.
- 2A-10 B:C type dry chemical fire extinguishers will be provided at all Project site locations where flammable materials present a fire risk.

Agencies and medical facilities that need to be contacted in the event of an onsite emergency, as well as directions to the nearest hospital, are identified in Contact Information portion of this HASP. The tables stating the emergency contact information and hospital location should be posted in a prominent location(s) onsite.

If a site worker becomes injured or ill, Red Cross first aid procedures will 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 washed off as quickly as possible and removed. 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. In the event that 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 at the emergency eyewash station 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 when exposed to concentrated solids or liquids.

- Respiratory Exposure: Immediately move the victim to fresh air and begin CPR. Obtain immediate medical attention.
- Ingestion Exposure: Identify what contaminant was swallowed. Follow the appropriate procedure 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. MSDSs) on the chemical(s) to which he/she has been exposed. MSDSs for chemicals known or suspected to exist onsite will be stored in ***OSC***'s Project field office and maintained by the SHSO.

14.0 EMERGENCY RESPONSE and CONTINGENCY PLAN

The following Emergency Response and Contingency Plan considers and recommends the following:

- Preventative measures;
- Personnel training and regular HSE meetings conducted to reduce the likelihood of incidents;
- The measures mitigated to limit the scope of any incident, and
- Contingency actions to respond to and remedy the effects of incidents.

14.1 TYPES of EMERGENCIES

A. Controllable: Minor fire, mechanical problem or any disturbance from normal operation that affects the immediate area.

B. Minor: A condition that could endanger life and property on the Project site that required outside help for correction or control, but generally can be maintained.

C. Major: Any condition deemed at the time uncontrollable, that could endanger life and property on the Project site; as well as adjacent properties. This emergency requires considerable outside help from any source.

14.2 REPORTING AN EMERGENCY

A. Controllable: No need to report this type of an emergency. Project personnel will notify the SHSO of the incident.

B. Minor: The SHSO will immediately notify the Site Superintendant and state the following:

- Name
- Location of emergency
- Describe problem
- State whether fire department is needed
- State whether emergency personnel are needed.

The Site Superintendant will react as follows:

- Call the fire department if required
- Call personnel from the emergency phone list.

C. Major: The SHSO will immediately notify the Site Superintendant stating the same points that are listed under a minor emergency. However, with a major emergency the SHSO must state that this is a major emergency. The Site Superintendant will react as follows:

- Call fire department
- Call rescue personnel
- Call police
- Call contracted emergency response coordinator
- Call ***OSC***'s Corporate HSE Director

14.1 PRE-PLANNING

All work will be coordinated with the Owner or Owner's representative. 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.

14.3 EMERGENCY CHAIN OF COMMAND

In the event of emergency personnel will immediately notify the SHSO, using available communications (see Section 14.3). The SHSO will make a rapid assessment of the situation and take appropriate action which can include (depending on the circumstances) notifying the Project Manager, Site Supervisor, Corporate HSE Director and Owner/Owner's representative of the situation; initiating engineering controls (i.e. dust suppression, ventilation, etc.); ceasing all work; ordering evacuation of the work zone; implementing emergency altering and response procedures; requesting emergency medical treatment; and/or administering first aid.

14.3.1 EMERGENCY RESPONSE TEAMS

The emergency response team will consist of individuals with the following titles or responsibilities:

- Initial Incident Coordinator
- Project coordinator
- HSE officer

14.2 FUNCTIONS of EMERGENCY REPONSE TEAM MEMBERS

The Initial Incident Commanders' responsibilities are comprised of the below tasks. This position will be occupied by the Site Superintendant.

- Coordinate response activities with the appropriate personnel.
- Responsible for the overall direction of the emergency staff.
- Arrange for notification of the appropriate individuals, in the case of an emergency.
- Act in an advisory capacity on policy matters.
- Inform the appropriate local government officials of the safety aspects of the remedial program, prior to Project startup.
- Act as the liaison with governmental officials, during an emergency.

- Minimize all public contact.
- Depending on the wind conditions, coordinate the notification of neighboring businesses and residents with local authorities.
- Ascertain the extent of air and sewage contamination and notify the proper authorities.

The Project Coordinator position will be occupied by the Project Foreman and will be require the below responsibilities.

- Coordinate with the police authorities, with respect to notification of neighbors.
- Arrange and provide for the equipment and materials needed to cope with emergency conditions. This equipment will include showers, eye wash stations, firefighting equipment capable of extinguishing chemical fires, first aid supplies and construction equipment.
- Direct onsite questions from the public to the appropriate individuals.
- Notify the contracting officer of any scheduled meetings with local government officials.

The Site HSE Officer position will be filled by the SHSO and will be comprised of the below responsibilities.

- Responsible for the safety of Project personnel at the emergency scene.
- Recommend the proper PPE and equipment; as well as the proper firefighting techniques.
- Test areas for levels of chemicals.
- Maintain contact with the Project field office.
- Establish and maintain crowd control around the scene, until local authorities arrive.
- Have a current inventory of PPE that is available at the Project site. Manufacturer's specification sheets will be in the Project field office for the various types of protective clothing and equipment available at the Project site, for emergencies.

14.3 SHSO's ROLE IN EMERGENCIES

In the event of a spill or release, the SHSO will determine whether there has been any human exposure to either the Project personnel or others. He will also attempt to determine the levels of exposure, when feasible.

The SHSO will consult with the physician to determine if any health effects are to be expected. If appropriate, medical treatments will be recommended.

14.4 COMMUNICATION METHODS and SIGNALS

For a detailed Site Communication Plan, please see Section 5.2 of this HASP, titles Site Control.

14.5 EVACUATION

Emergency escape routes will be designated by the SHSO for use in situations where rapid egress from the exclusion zone is required. Project personnel will be notified of the specific evacuation routes and re-assembly areas during the daily toolbox HSE meetings.

An emergency evacuation alarm (air or vehicle horn) will be kept onsite at all times. The audible evacuation signal will be short bursts on the horn (one second burst followed by one second interval) and will be repeated until the site is evacuated. After the work area is cleared, Project personnel will meet at an upwind re-assembly facility area that the SHSO will designate. The emergency alarm will be sounded in the event of any serious problems or emergency (fire, medical) that requires the assistance of Project personnel or the evacuation of the construction team. In situations where an onsite emergency results in evacuation, personnel will not be permitted to re-enter until:

- The conditions resulting in the emergency have been corrected;
- The hazards have been reassessed;
- The HASP has been reviewed, and
- Project personnel have been briefed on any changes in the HASP.

14.6 EMERGENCY SERVICES and EMERGENCY VEHICLE ACCESS

The emergency telephone numbers, listed in the Contact Information section of this HASP, will be posted at each project site telephone. Directions to the hospital will also be posted at this location.

In the event that emergency service vehicles need access to a location that is blocked by onsite operations, those operations (equipment, materials, etc.) will be immediately moved to allow vehicle access. The emergency crews will be quickly briefed as to the site conditions and hazards by the SHSO. All vehicles and personnel will be decontaminated prior to leaving the site.

14.7 WEATHER

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

14.8 SPILL CONTAINMENT

A site specific Spill Containment Plan is provided as an attachment to this HASP.

14.9 PERSONNEL INJURIES

In the event of personal injuries the below procedures will be enacted, in the given order.

A. Initial Alarm and First Aid: Once an injury is observed, Project employees will rapidly get the attention of nearby workers; immediately act to protect the injured person, if a life threatening situation; render the appropriate first aid; and warn unsuspecting people of the potential hazard.
B. Notify the SHSO and Corporate HSE Director: Using the available personal radio communications, or other rapid communication methods, the SHSO and Corporate HSE Director will be notified of the situation, the identity of the person, the type of injury and the Project site location where the injury occurred.
C. Emergency Services: The SHSO will immediately assess the situation and, if necessary, contact the designated hospital, and any necessary emergency services, of the situation.
D. Follow-Up: The SHSO will determine why the injury occurred and will take the appropriate steps to prevent a similar occurrence. The events associated with the injury will be recorded in the Project site logbook.

14.9.1 PERSONNEL INJURY IN THE EXCLUSION ZONE

Upon notification of an injury in the exclusion zone, the designated emergency signal will be sounded. All Project personnel will assemble at a pre-arranged location. A rescue team, comprised of the SHSO and other Project personnel who have received the proper training, will enter the exclusion zone (if required) to remove the injured person to the boundary of the zone. The SHSO will evaluate the extent of the injury and the person will be decontaminated to the extent possible, prior to movement to the support zone. The appropriate first aid will be administered and the ambulance and designated medical facility will be contacted, if required. Nobody will re-enter the exclusion zone until the cause of the injury or symptoms of the illness have been determined.

14.9.2 PERSONNEL INJURIES IN THE SUPPORT ZONE

The SHSO, upon notification of the injury, will assess the severity of the situation. Operations will continue if the cause of the injury, or the loss of the injured person, does not affect the performance of Project personnel. The appropriate first aid will be administered, as needed. If the injury increases the risk to other personnel, the designated emergency signals will be used and all Project personnel will move to a pre-designated location for further instructions. Activities onsite will cease until the added risk is removed or minimized.

14.10 PPE FAILURE

While in the exclusion zone, if a site worker experiences a failure or alteration of protective equipment that affects its protection factor, the person and his buddy will immediately leave the exclusion zone and notify the SHSO. Re-entry will not be permitted until the PPE has been replaced or repaired and the affected areas of the person's body have been decontaminated (if applicable).

14.11 FIRE/EXPLOSION

The following contingency plan will be implemented in the event of a fire at the Project site.

A. Initial Alarm: Upon observation of an onsite fire, personnel will immediately notify the SHSO, or his designated alternate. No attempt will be made to extinguish the fire, prior to sounding the alarm.

B. Control and/or Extinguish Small Fires: Most small fires can be easily and promptly suppressed with available onsite equipment. Without risking personal injury, an attempt will be made to control or extinguish small fire(s), utilizing ABC-type fire extinguishers. Do not use water, unless is wood or paper files.

C. Notify Local Fire Company: The SHSO will immediately assess the situation and, if deemed necessary, notify the local fire company (by calling 911) of the location and type of fire/explosion.

D. Follow-Up: The SHSO will determine why the fire or explosion occurred and will take the appropriate steps to prevent a similar reoccurrence. The events associated with the fire/explosion will be recorded in the Project site logbook.

An Incident Report Form (sample provided in Attachment 1 of this HASP) will be completed by the SHSO and submitted to the Project Manager and Corporate HSE Director within 24 hours of the fire/explosion. The Owner will receive a copy of the Incident Report Form within 48 hours of the fire.

14.12 EQUIPMENT FAILURE

The SHSO will be notified if any onsite equipment, other than PPE, fails to operate. The SHSO will determine the effect of this failure on the continuing operations of the site. If the failure affects the Project personnel or prevents the completion of work tasks, then all personnel will leave the exclusion zone until the situation is evaluated and all appropriate actions are taken.

15.0 HEAT and COLD STRESS MONITORING

The SHSO will visually monitor the Project personnel for signs of heat or cold overexposure. The SHSO will be responsible for implementing the following program when the ambient air temperature exceeds 75°F (heat stress monitoring) or drops below 32°F (cold stress monitoring).

15.1 SYMPTOMS OF HEAT and COLD OVEREXPOSURE

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

B. Cold – Shivering, apathy, decreased muscle function, decreased level of consciousness, glassy stare, frostbite and decreased vital signs.

15.2 HEAT STRESS MONITORING

Project personnel who wear PPE allow their body heat to be accumulated with and elevation of the body temperature. Heat cramps, 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 SHSO and all Project personnel will be able to recognize the symptoms of heat emergencies and be capable of controlling them.

When PPE is worn (especially levels A, B and 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

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

A. 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.

B. Double that count.

C. If the recovery rate during the last 30 seconds of the first minute is at 110 beats/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 and increased intake of fluids.

In the instance of cramps or heat exhaustion, Gatorade, or its equivalent, is suggested as part of the treatment regime. The reason for this type of refreshment is such that they replenish the much needed electrolytes to the body. Without these electrolytes, the bodies systems cannot function properly, thereby increasing the hazard.

Liquid refreshments will be stored, in plastic squeeze bottles, in a cooler at the edge of the decontamination zone. Each bottle will be marked with an individual's name. Disposable cups with lids and straws may be used in place of the bottles. Prior to drinking within the decontamination zone, the Project personnel will follow the decontamination procedures outline below.

- Wash and rinse outer gloves and remove them.
- Remove hardhats and respirators and place on a table.
- Remove inner gloves and place on a table.
- Wash and rinse hands and face.
- Carefully remove the properly labeled bottle or cup from the cooler ensuring that outer clothes do not touch any bottles, cups, etc.
- Used bottles or cups will not be returned to the cooler, but will be replaced in a receptacle or container to be cleaned or disposed of.
- Put back on respirators and hardhats and don a new pair of disposable inner gloves prior to re-entering the hazardous zone.

When personnel are working in situations where the ambient temperatures and humidity are high and especially in situations where protection Levels A, B and C are required, the SHSO must assure that all employees drink plenty of fluids (Gatorade or its equivalent); assure that frequent breaks are scheduled, so overheating does not occur; and revise work schedules, when necessary, to take advantage of the cooler parts of the day (i.e. 5:00am – 1:00pm, and 6:00pm – nightfall).

15.3 COLD STRESS MONITORING

Whole body protection will be provided to all Project personnel who will have prolonged exposure to cold air. The appropriate PPE will be provided onsite, and provided to Project personnel, to prevent cold stress. The SHSO 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 dry clothing will be provided, as deemed necessary, by the SHSO.

- Appropriate underclothing (wool or other)
- 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

Project personnel who are working in continuous cold weather are required to warm themselves on a regular basis in the onsite hygiene facility. Warm, sweet drinks will be provided to Project personnel to prevent dehydration. The SHSO 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 use equivalent cold stress prevention methods.

16 LOGS, REPORTS and RECORDKEEPING

The following reports will be prepared and submitted as indicated below. Copies of the field logs, permits and forms required for this Project are provided in Attachment 1.

Type	Frequency
Daily HSE Report	Daily
Employee Meeting Record	As needed; one per Safety meeting
Site Log	Daily
Security Log	Per Work Plan
Confined Space Entry Permit	As needed; one per entry
Air Monitoring Report	Daily for Previous day's monitoring events
Incident Report	As needed; within 24 hours
Spill Report	As needed; within 24 hours

The above logs and reports will be prepared by the SHSO, or his designated representative, at the frequency noted above. Completed logs and reports will be maintained in the Project filed onsite during construction.

17 "WHAT NEXT" PROGRAM and SAFETY TASK ANALYSIS CARD PROCESS

17.1 OVERVIEW

The "What Next" Program and Safety Task Analysis Card (STAC) processes are required components of all ***OSC*** projects.

The "What Next" Program is a proactive program intended to identify the most likely scenarios for incidents; identify corrective actions; and incorporated observations on the STAC.

The STAC is a pre-printed, tri-fold card that must be completed by each employee prior to every work shift. The completed card will be used by the employee as a reference tool throughout their work shift. The STAC card will be updated as needed throughout the Project, to address new work tasks and/or potential hazards.

17.2 "WHAT NEXT" PROGRAM

The "What Next" Program is designed to identify and correct hazards before they become a problem. Before work begins:

- Review the Project requirements and the intended outcome;
- Tour the Project site with the goal of identifying hazards;
- Identify the 3 or 4 most likely areas where incidents could occur;
- Identify corrective actions and/or corrective behaviors;
- Train Project personnel on the use if the STAC cards ;
- Incorporate prioritized hazards and corrective actions/behaviors onto the STAC card;
- Measure progress and report at the HSE tailgate meetings, and
- Report progress and prioritize opportunities monthly.

When observed behaviors become habits or all corrective actions are complete, replace the issue or hazard with the next highest priority issue and update the STAC cards. Repeat this process as necessary.

17.3 SAFETY TASK ANALYSIS CARD (STAC) PROCESS

The STAC will be used by OSC employees and subcontractors at the Project site to identify obvious or potential hazards. STAC's will be 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.

The STAC must be completed by each employee prior to every work shift. This is a zero tolerance issue. Project personnel found to be working on a task without a properly completed STAC will be instructed to leave the site.

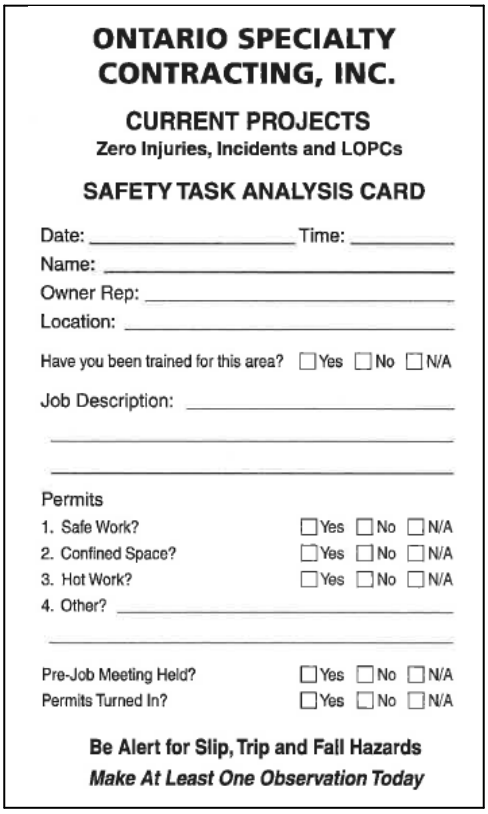
Project supervisors and/or the SHSO will review the scheduled work tasks with employees at the tailgate safety meetings and will assist Project personnel in the preparation of daily STAC's.

17.4 INSTRUCTIONS FOR COMPLETING THE STAC

FRONT of CARD – PANEL 1

Instructions for completing this section of the STAC (front of card – panel 1) are listed below.

- Enter the date and time you complete this card.
- Write your name.
- Write the name of the Owner's site representative.
- Identify the location of where you will be working.
- Have you been trained in this area? Work cannot proceed until the "Yes" box has been checked.
- What are you doing today? List your planned work tasks.
- Check the appropriate boxes if permits are required.
- Was there a pre-job meeting held? Check the appropriate box.
- Did you turn in the require permits? Check the appropriate box.
- LOPC = Loss of Primary Contaminant (spill).



ONTARIO SPECIALTY CONTRACTING, INC.

CURRENT PROJECTS
Zero Injuries, Incidents and LOPCs

SAFETY TASK ANALYSIS CARD

Date: _____ Time: _____
Name: _____
Owner Rep: _____
Location: _____

Have you been trained for this area? ☐Yes ☐No ☐N/A

Job Description: _____
_____
_____

Permits
1. Safe Work? ☐Yes ☐No ☐N/A
2. Confined Space? ☐Yes ☐No ☐N/A
3. Hot Work? ☐Yes ☐No ☐N/A
4. Other? _____
_____

Pre-Job Meeting Held? ☐Yes ☐No ☐N/A
Permits Turned In? ☐Yes ☐No ☐N/A

Be Alert for Slip, Trip and Fall Hazards
Make At Least One Observation Today

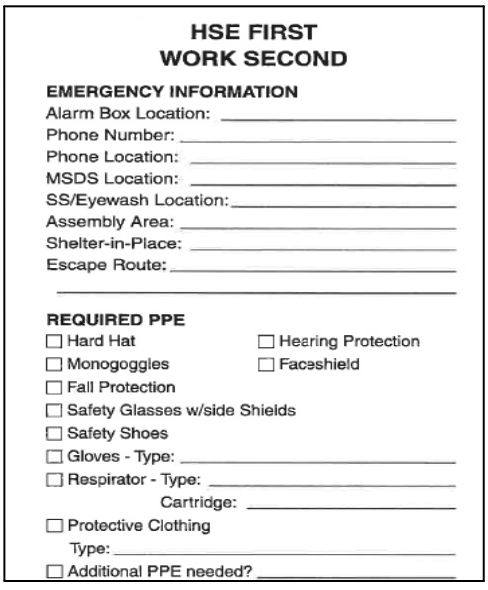
FRONT of CAR – PANEL 2

Instructions for completing this section of the STAC (front of card – panel 2) are listed below.

- Insert all of the required emergency information.
- Check your required PPE. Indicate the type of equipment where it is required, or insert N/A if not applicable.

***DO NOT LEAVE BLANK SPACES ON THE CARD.**

Write "N/A" if something I not applicable for this project.



HSE FIRST
WORK SECOND

EMERGENCY INFORMATION
Alarm Box Location: _____
Phone Number: _____
Phone Location: _____
MSDS Location: _____
SS/Eyewash Location: _____
Assembly Area: _____
Shelter-in-Place: _____
Escape Route: _____
_____

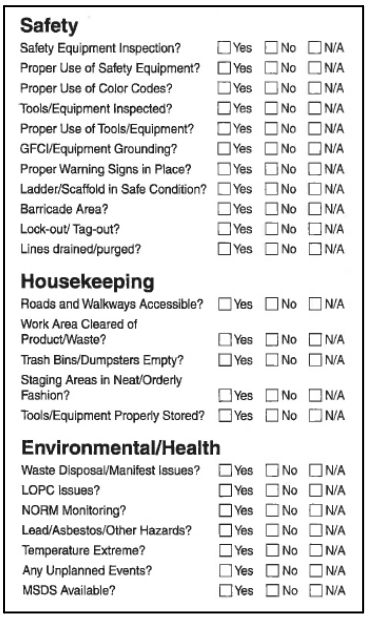
REQUIRED PPE
☐ Hard Hat ☐ Hearing Protection
☐ Monogoggles ☐ Faceshield
☐ Fall Protection
☐ Safety Glasses w/side Shields
☐ Safety Shoes
☐ Gloves - Type: _____
☐ Respirator - Type: _____
Cartridge: _____
☐ Protective Clothing
Type: _____
☐ Additional PPE needed? _____
_____

It's All About You

Front of Card – Panel 3

Instructions for completing this section of the STAC (front of card – panel 3) are listed below.

- Check the box for each line item that is listed. Work activities cannot proceed until all boxes have been checked "Yes" or "N/A".
- GFCI = Ground Fault Circuit Indicator
- LOPC = Loss of Primary Control (spill)
- MSDS = Material Safety Data Sheet
- NORM = Naturally Occurring Radioactive Material



Safety

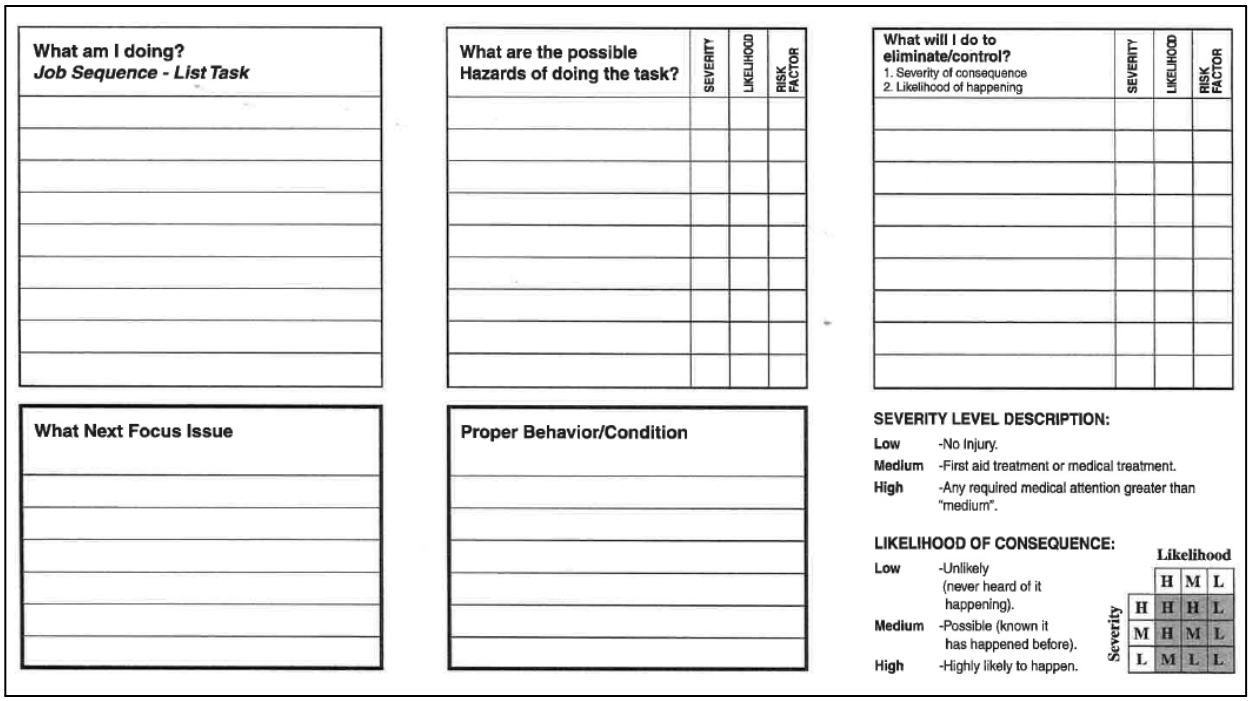
Safety Equipment Inspection?	☐ Yes	☐ No	☐ N/A
Proper Use of Safety Equipment?	☐ Yes	☐ No	☐ N/A
Proper Use of Color Codes?	☐ Yes	☐ No	☐ N/A
Tools/Equipment Inspected?	☐ Yes	☐ No	☐ N/A
Proper Use of Tools/Equipment?	☐ Yes	☐ No	☐ N/A
GFCI/Equipment Grounding?	☐ Yes	☐ No	☐ N/A
Proper Warning Signs in Place?	☐ Yes	☐ No	☐ N/A
Ladder/Scaffold in Safe Condition?	☐ Yes	☐ No	☐ N/A
Barricade Area?	☐ Yes	☐ No	☐ N/A
Lock-out/ Tag-out?	☐ Yes	☐ No	☐ N/A
Lines drained/purged?	☐ Yes	☐ No	☐ N/A

Housekeeping

Roads and Walkways Accessible?	☐ Yes	☐ No	☐ N/A
Work Area Cleared of Product/Waste?	☐ Yes	☐ No	☐ N/A
Trash Bins/Dumpsters Empty?	☐ Yes	☐ No	☐ N/A
Staging Areas in Neat/Orderly Fashion?	☐ Yes	☐ No	☐ N/A
Tools/Equipment Properly Stored?	☐ Yes	☐ No	☐ N/A

Environmental/Health

Waste Disposal/Manifest Issues?	☐ Yes	☐ No	☐ N/A
LOPC Issues?	☐ Yes	☐ No	☐ N/A
NORM Monitoring?	☐ Yes	☐ No	☐ N/A
Lead/Asbestos/Other Hazards?	☐ Yes	☐ No	☐ N/A
Temperature Extreme?	☐ Yes	☐ No	☐ N/A
Any Unplanned Events?	☐ Yes	☐ No	☐ N/A
MSDS Available?	☐ Yes	☐ No	☐ N/A



What am I doing? *Job Sequence - List Task*	What are the possible Hazards of doing the task?	SEVERITY	LIKELIHOOD	RISK FACTOR	What will I do to eliminate/control? 1. Severity of consequence 2. Likelihood of happening	SEVERITY	LIKELIHOOD	RISK FACTOR

What Next Focus Issue	Proper Behavior/Condition

SEVERITY LEVEL DESCRIPTION:

Low -No Injury.
Medium -First aid treatment or medical treatment.
High -Any required medical attention greater than "medium".

LIKELIHOOD OF CONSEQUENCE:

Low -Unlikely (never heard of it happening).
Medium -Possible (known it has happened before).
High -Highly likely to happen.

Severity \ Likelihood	H	M	L
H	H	H	L
M	H	M	L
L	M	L	L

Back of Card – Panels 1 and 2

Instructions for completing these sections of the STAC are listed below.

- *What am I Doing?* List the work tasks that you will perform today.

- *What Next Focus Issue:* At the initial site safety meeting, Project personnel will be asked to identify the three or four most likely areas for incidents to occur (focus issues).
- *Proper Behavior/Condition:* Identify the corrective actions/behaviors that will prevent the focus issues from becoming a problem.
- The focus issues and corrective actions will remain on the STAC until the observed behaviors become habits or all corrective actions that are associated with the focus issues are complete.
- These sections of the STAC (back of card - panels 1 and 2) will be updated, as needed, to incorporate new focus issues. This process will continue until the Project is complete.

Back of Card – Panels 2 and 3

Instructions for completing these sections of the STAC are listed below.

- *What are the possible hazards of doing the task?* Identify the hazards that may be associated with the planned work tasks.
- *What will I do to eliminate/control?* Identify the methods in which the hazards identified in Panel 2 can be mitigated.
- Use the "Severity Level" and "Likelihood of Consequence" descriptions on Panel 3 to determine if response should be "L" (low), "M" (medium) or "H" (high).
- Calculate the risk factor using the "Likelihood of Consequence" key, located at the bottom of Panel 3.

NOTE: You cannot work on a task with a risk factor above "L". Tasks with a risk factor greater than "L" must be mitigate before work on the task can proceed.

OSC STAC Process Training Verification

Project/Location: _____ ***OSC*** Job No. _____

Name of Attendee	Last 4 Digits of SSN	Signature	Date

SHSO Name (Print): _____ Date: _____

SHSO Signature: _____

Attachment 1

HSE Report Forms

Project Name:	Project Location:
Inspected by:	Date of Inspection:

OSC JOB SITE CHECKLIST

CHECK THE APPROPRIATE RESPONSE . IF THE ITEM DOES NOT APPLY WRITE NA

Manual Material Handling	Yes	No
Are mechanical devices being used in place of manual handling of material?		
Are ropes, slings, chains, hook, cables, and chokers in good condition?		
Proper staging of materials to minimize lifting and carrying?		
Rigging equipment inspected regularly and in good condition?		
Is the handling of bagged material limited to 50 lbs?		
Are carrying handles being used when a single worker is carrying sheeted materials?		

Person Responsible for correction of any Noted Hazards:_____

Date corrected:_____

COMMENTS:_____

_____

_____

_____

Housekeeping: Slips, Trips and Falls	Yes	No
Are walking and working surfaces clear and free of debris?		
Are waste and trash containers provided, and used?		
Is there regular removal of waste and trash from the containers?		
Does each trade clean up after themselves?		
Is adequate temporary lighting provided?		
Is temporary storage of materials and supplies done in an organized fashion?		

Person Responsible for correction of any Noted Hazards:_____

Date Corrected:_____

Fire Protection and Prevention	Yes	No
Are all flammable liquid containers clearly identified?		

Are all flammable liquid containers UL of FM listed?		
Have proper storage practices for flammables been observed?		
Are extinguishers readily accessible and serviced regularly?		
Are hydrants clear and accessible for fire department personnel?		
Have gas cylinders been chained upright with valve caps securely fastened?		
Has there been proper segregation between flammable gasses?		
Proper labeling of full and empty cylinders?		
Are temporary heaters located at a safe distance from combustibles?		
Is ventilation adequate for temporary heaters?		

Person Responsible for correction of any Noted Hazards:_____

Date Corrected:_____

COMMENTS:_____

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_____

Electrical	Yes	No
Are all switch gear, panels, and devices that are energized marked and/or guarded?		
Lockout devices available/used on circuits that could become energized while being worked?		
Are all temporary circuits properly guarded and grounded?		
Are extension cords in continuous lengths without splice?		
Are GFCI's and/or Assured Equipment Grounding Conductor Program being used?		
If temporary lighting is provided, are bulbs protected against accidental breakage?		
Are working surfaces clear of cords so as not to create a tripping hazard?		
Are there a sufficient number of temporary outlets on the job site?		
Any visual signs of outlet overloading?		

Person Responsible for correction of any Noted Hazards:_____

Date Corrected:_____

COMMENTS:_____

_____

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_____

Hazard Communication Does the Program include:	Yes	No
A list of hazardous chemicals.		

Container labeling.		
Material Safety Data Sheets (MSDS)		
Employee training.		
Informing other contractors.		
Posting.		

Person Responsible for correction of any Noted Hazards:_____

Date Corrected:_____

COMMENTS:_____

_____

Excavation/Trenching	Yes	No
Have utility companies been notified of proposed excavation work?		
Are all tools, equipment, and shoring materials readily available prior to job startup?		
Are overhead utility lines noted and precautions taken to avoid contact with equipment?		
Is the spoil pile at least two feet from the edge of the excavation?		
Is the excavation inspected daily or more frequently when conditions could affect the soil?		
If needed, are barricades, stop logs, properly placed?		
Has soil classification been made by a competent person?		
Are excavations five feet or deeper correctly sloped, benched, shored or is a trench box used?		
Is a ladder or other means of egress provided in trenches or excavations six feet or deeper?		
When ladders are used, do they extend three feet above the surface and are they secured?		
Are shoring and shielding systems inspected daily by a competent person?		
Is the trench backfilled as soon a work is completed?		

Person Responsible for correction of any Noted Hazards:_____

Date Corrected:_____

COMMENTS:_____

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	Yes	No
Barricading		
Are floor openings planked and secured or barricaded?		

Are direction signs used to inform the public of upcoming construction work?		
Is the sidewalk protection effective?		
Is a flag person provided to direct traffic when needed?		
Has the person been trained on how to direct traffic and the public?		
Are open excavation, road drop offs, manholes, uneven surfaces barricaded?		

Person Responsible for correction of any Noted Hazards:_____

Date Corrected:_____

COMMENTS:_____

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_____

Ladders	Yes	No
Is the proper ladder for the job being used?		
Are ladders in good condition (no missing or broken rungs)?		
Are there safety shoes/cleats on the bottom of ladders? Are they needed?		
Are non-conductive ladders available for use around live wiring?		
Are ladders tied-off at top or otherwise secured?		
Do side rails extend 36 inches above top of landing?		
Rungs or cleats uniformly spaced 10 – 14 inches apart?		
Are step ladders fully open when in use?		

Person Responsible for correction of any Noted Hazards:

_____

Date Corrected:_____

COMMENTS:_____

_____

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_____

Scaffolding	Yes	No
Are scaffold components visibly free of any physical damage? (no bent supports or bracing)		
Is scaffold properly erected with all pins and braces in place and locked?		
Are rolling scaffolds equipped with locking wheels?		
Are wheels locked when scaffold is in use?		
Is scaffold erected on a firm and substantial surface?		
Is planking of a scaffold grade?		

Planking in good condition and properly installed?		
Are toe boards and guardrails in place on scaffolds over 10 feet?		
Are workers on scaffolding protected from falling objects if overhead hazards exist?		
Ladder provided for access to scaffold work platform?		

Person Responsible for correction of any Noted Hazards:_____

Date Corrected:_____

COMMENTS:_____

_____

_____

_____

Personal Protective Equipment	Yes	No
Is hearing protection available for personnel that may be exposed to noisy conditions?		
Is respiratory protection available to personnel and being used when conditions require them?		
Are safety harnesses, lifelines and shock absorbing lanyards available and being used?		
Are personnel using gloves when handling sharp or rough material?		
Where required, rubber gloves with protectors-insulators being used?		
Is life saving equipment available for work over or near water?		

Person Responsible for correction of any Noted Hazards:_____

Date Corrected:_____

COMMENTS:_____

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Medical	Yes	No
Are first-aid kits available and properly stocked?		
Are all emergency phone numbers posted?		
Are employees aware of the address of the site/ capable of giving directions to emergency crew?		
Is anyone trained in first aid and CPR?		

Hoist, Cranes and Derricks	Yes	No
Are cables and sheaves checked?		

Person Responsible for correction of any Noted Hazards:
Date Corrected:_____

COMMENTS:

Tools: Hand and Power	Yes	No
Are tools free of any obvious physical damage?		
Are tools inspected for frayed or damaged cords?		
Are tools and cords properly grounded (ground pins are in good condition?		
Are double insulated tools in use and in good condition?		
Are the handles on all tools in good condition (not bent, splintered or broken)?		
Are all hoses on air or hydraulic tools in good condition?		
Are all shields and guards in place on the tools and in good condition?		
Operator qualified and instructed to use powder actuated tools?		

Person Responsible for correction of any Noted Hazards:
Date Corrected:_____

COMMENTS:

Welding and Cutting	Yes	No
Are non-combustible enclosures, (screens/shields) provided and used when welding?		
Welding goggles, gloves, and clothing being used by welder?		
Inspection for fire hazards after welding stops?		
Are gas cylinder, hoses, regulators, torches, torch tips and welding carts, in good condition?		
Welding and ground cables properly insulated, sized and located to avoid tripping hazards?		
Natural or mechanical ventilation adequate?		
Surrounding areas free of flammables and combustibles?		
Proper storage of gas cylinders?		

COMMENTS:

Are slings, hooks, eyelets, chokes inspected?		
Are load capacities posted in cab?		
Are power lines at a safe distance [10 feet minimum]?		
Do cranes have proper barricades around swing radius?		
Are crane inspection logs/certifications with crane?		

Person Responsible for correction of any Noted Hazards:_____

Date Corrected:_____

COMMENTS:_____

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Floor, Wall Openings, Stairways	Yes	No
Floor and roof openings guarded by guardrails and toe boards or a secured cover?		
Open-sided floors/platforms six feet or higher guarded with railing, toe boards or equivalent?		
Are stairs with four or more risers equipped with standard hand rail protection?		
Runways four feet or more above ground properly guarded?		
Anchor posts and framing capable of withstanding 200lb load in any direction?		

Person Responsible for correction of any Noted Hazards:_____

Date Corrected:_____

COMMENTS:_____

_____

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_____

Powder Activated Tools	Yes	No
. Operators properly trained and authorized?		
Operators use eye, face, hearing and hand protection?		
Tools inspected and tested daily before use to assure safety devices operational?		
Anchors and charges comply with tool manufacturer's specs?		
Anchorage limited to recommended materials?		

Tools loaded immediately prior to use?		
Other employees warned to expect loud noise and possible airborne debris?		
Employees who may be in harm's way relocated?		
Unattended and stored tools always rendered unloaded and secure?		

Person Responsible for correction of any Noted Hazards:

Date Corrected:_____

COMMENTS:_____

_____

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Concrete	Yes	No
. Employees working with concrete properly clothed to protect skin?		
PPE (gloves, boots, hard hats, eye/face protection) used where required?		
Employees trained to avoid hazards of cement burns and inhalation?		
Form work designed, fabricated, erected, supported, braced and maintained to support vertical and lateral loads?		
Shoring inspected prior to, during and after concrete placement?		
Scaffolding or platforms used by employees properly designed and constructed to support load?		
Scaffold platforms equipped with standard guard rails?		
Raising or lowering of concrete buckets over heads of people prohibited?		
Employees forbidden from riding concrete buckets?		
Safe access provided for equipment and vehicles?		
Safe shoring and form removal procedures established?		
Vertical reinforcing steel protected from impalement hazards?		
Lift slab operations designed and planned by a PE with all employees trained?		
Required distances maintained between overhead electrical power lines and concrete placement equipment?		

Person Responsible for correction of any Noted Hazards:_____

Date Corrected:_____

COMMENTS:_____

_____

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_____

Masonry	Yes	No
Limited access zone established on the un-scaffold side of the wall?		
Walls properly supported to prevent overturn or collapse?		

Dust protection used during sawing, mortar mixing, or other dust generating activities?		

Person Responsible for correction of any Noted Hazards:_____

Date Corrected:_____

COMMENTS:_____

_____

_____

_____

Structural Steel	Yes	No
Permanent and/or temporary flooring requirements been met?		
Temporary planking sized and installed correctly?		
Employees using the required fall protection equipment?		
Company approved fall protection program in place?		
Danger zone beneath the steel erection designated to limit unauthorized employee?		
Hoisting equipment and accessories inspected as required?		
Tag lines used to control loads?		
Proper erection bolting and bracing procedures followed?		
Floor, roof and wall openings protected immediately as they appear?		
Ladders, stairways, approved personnel lifts or other safe means or access?		

Person Responsible for correction of any Noted Hazards:_____

Date Corrected:_____

COMMENTS:_____

_____

_____

_____

Heavy Equipment	Yes	No
Operators properly trained and authorized?		
Inspection and maintenance performed on a regular schedule?		
Bi-directional machines have operational signal horns?		
Back-up alarms operational?		
Roll over protection provided as required and with seat belts?		
Equipment clean and free of grease, oil, mud, fluids and other slipping hazards?		

Moving parts protected by guards?		
Engines shut off during refueling?		
Glass free of defects and rated as safety glass or equivalent?		
Lights, reflectors, wipers, defrosters, brakes, tires, etc. in good condition?		
Employees prohibited from riding on heavy equipment without a proper seat?		
Are haul roads properly maintained?		

Person Responsible for correction of any Noted Hazards:

Date Corrected:

COMMENTS:

Aerial Lifts	Yes	No
Employees using aerial lifts are trained and authorized?		
Manufacture's operation and safety rules obeyed?		
Unit safety inspected and all controls tested prior to each days use?		
Unit positioned on solid, level ground?		
Boom and basket load limits within manufacture's specs?		
Everyone in lift basket standing firmly on the floor, wearing fall prevention or protection equipment?		
Brakes set and outriggers positioned as required?		

Person Responsible for correction of any Noted Hazards:

Date Corrected:

COMMENTS:

OVERALL SITE IMPRESSIONS and COMMENTS:

ACTIVITY HAZARD ANALYSIS

Location:	**Contract No.**	**Project:**
Phase (Division):	**Prime Contractor:** ***OSC***	**Subcontractor:**
Task	**Potential Safety Hazard**	**Safe Procedure & Recommended Controls**
Equipment to be Used	Inspection Requirements	Training Requirements

Vehicles and Heavy Equipment Checklist

Date Prepared: _____ By: _____

Project Name/No.: _____Location: _____

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- Check the box if statement is true.

HAZARD IDENTIFICATION AND WORKER TRAINING

- All drivers are properly licensed and have been trained in the proper and safe operation of vehicles and equipment. YES _____ NO ____

INSPECTION AND SAFETY EQUIPMENT

- All vehicles and heavy equipment are visually inspected at the beginning of each workday for any malfunctions that could affect safe operation. All defects are corrected before the equipment is placed in service. Damage equipment is repaired, red tagged, or removed from the site. YES _____ NO _____

- Where required, every vehicle and piece of equipment has a working back-up alarm. YES _____ NO _____

- Seat belts that are in good working order are provided on all vehicles and heavy equipment. YES _____ NO _____

- Where required, roll-over protection structures (ROPS) are provided on vehicles and heavy equipment (including scrapers, tractors, loaders, bulldozers, carryalls, trucks, etc.). YES ____ NO ____

- Every vehicle and piece of heavy equipment with a cab has an intact windshield and powered windshield wipers. YES ____ NO ____

- Equipment and accessories installed on haulage vehicles do not impair the driver's vision to the front or sides. YES ____ NO ____

- Every vehicle and piece of heavy equipment has two operating headlights and two operating taillights if operated at night or where visibility is poor. YES ____ NO ____

- Every vehicle and piece of heavy equipment has working brake lights. YES ____ NO ____

- Dump trucks that tilt to release their load have a visible or audible warning when the elevating mechanism is activated. YES ____ NO ____

- Loads on vehicles are secured against displacement. YES ____ NO ____

- Drivers operating loaders have adequate visibility, and the equipment is stable. YES ____ NO ____

- On "H, Pipe and Sheet" pile drivers, safety chains on compression hose fittings are in place and in working order so as to prevent thrashing if the connection is broken. YES ____ NO ____

- Subcontract equipment operators are aware of inspection, back-up alarm, and seat belt requirements, and are ordered to remove defective equipment from the site. YES ____ NO ____

- All unattended loaders and industrial trucks have the bucket or boxes lowered to the ground. YES ____ NO ____

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- When power equipment is being repaired, moving parts such as blades, beds, or gates are lowered to the ground, or securely blocked in an inoperative position. Controls are kept in a neutral position, with the engines stopped and brakes set (unless the repair work requires otherwise). YES ____ NO _____

- There are signs in plain view of the operator on all cranes, derricks, power shovels, pile drivers, and similar machinery reading: YES ____ NO ____

    ◊ "Unlawful to operate this equipment within 10 feet of high voltage lines of 50,000 volts or less." (in large print)
    ◊ "For minimum clearances of high voltage lines in excess of 50,000 volts, see appropriate regulations at 29 CFR 1910 or 29 CFR 1926. "

TRAFFIC CONTROL

- Workers are warned not to take short cuts across areas where vehicles or heavy equipment are working or moving. YES ____ NO ____

- Flagmen are posted wherever barricades and warning signs cannot control the moving traffic. YES ____ NO ____

PRIVATE ROADWAYS AND OFF-HIGHWAY CONDITIONS

- Private roads are maintained free from holes and ruts that may affect the safe operation of vehicles and equipment. YES ____ NO ____

- Dust levels are minimized to ensure adequate visibility for drivers. Vehicle and equipment operators use adequate respiratory protection in dusty operations. YES ____ NO ____

FUELING

- Fueling of vehicles and heavy equipment is done with the engine off. YES ____ NO ____

- No smoking is permitted at or near the fuel storage or refueling area. A sign is posted stating: NO SMOKING WITHIN 25 FEET. YES ____ NO ____

- No sources of ignition are present at or near fuel storage or refueling area. YES ____ NO ____

- A dry chemical or carbon dioxide fire extinguisher (rated 6: BC or larger) is located accessible to the fueling area. YES ____ NO ____

AIR MONITORING LOG

Date:

Type of Monitor:

Serial Number:

Tested By	Time	PID reading PPM	Type of Activities /Location

ZERO MONITOR AT START OF SHIFT IN CLEAN AIR AND “BUMP CALIBRATE”

BACKGROUND READING:_____PPM LOCATION:_____

TIME:_____

SAFETY INSPECTION FOR MISCELLANEOUS EQUIPMENT	Date of Inspection:
Contractor or Unit	Contract No. Or Activity
Inspected by (Signature)	Witness (Signature)

	CRANE/DERRICK INSPECTION CHECKLIST.	Yes	No	N/A
1	Are the following documents with the crane at all times?			
1a	Operating manual from the manufacturer for the specific crane being inspected.			
	(1) Any operator aids for which the crane is equipped?			
1b	Load rating chart for the crane which shall include:			
	(1) The crane make and model, serial number, and year of manufacturer			
	(2) Load ratings for all crane operating configurations: including optional equipment			
	(3) Wire rope type, size, and reeving; line pull, line speed and drum capacity			
	(4) Operating limits in windy or cold conditions			
1c	Crane log book that shows operating hours, inspections, tests, maintenance & repair. **Note 1:** Has log been updated daily when crane is used and is it signed by operator & supervisor? **Note 2:** Mechanics shall sign after conducting maintenance or repairs.			
2	Does operator have certification that he meets operator qualification and training			
3	Has a hazard analysis been completed for set-up procedures (mobilization, assembly, dismantling, etc.)?			
4	Are adequate clearances provided from electrical sources, fixed objects, and swing radius?			
5	Is communication provided as required?			
6	Has inspection been performed?			
7	Have performance load tests been in accordance with?			
8	Are tag lines used to control loads?			
9	Is critical lift plan required?			

10	Are all environmental considerations being met?			
11	Is crane equipped with boom angle indicator, load-indicating device, means to visually determine levelness, and anti-two block devices?			
12	Are cable-supported booms equipped with boom stops?			
13	Are booms lowered to ground or secured when not in use?			
14	Do all floating cranes and derricks meet the ANSI requirements?			
15	Are all moving parts (gears, drums, shafts, belts, etc.) and all hot surfaces (exhaust lines, pipes, etc.) guarded?			
16	Does the unit have a suitable fire extinguisher? **Note:** Minimum 5 BC			

CRANE/DERRICK INSPECTION CHECKLIST	Yes	No	N/A
17 Is the floating crane secured to the barge and tethered?			
18 Is the crane clear of objects that can slide or roll in the operators cab!			
19 If installed from the factory, are seat belts in working order and being worn by the operator.			
_____			

Note: All printed copies of this document are uncontrolled. It is the responsibility of the user to assure that this is the latest revision by checking the electronic version in the HSE Document Library.

Near Miss, Unsafe Condition/Act Report

Rev. D Revision Date: 8/17/10 Document NoNMUC-08

Purpose

Purpose of this form is to identify near-misses and unsafe conditions/acts in the workplace and to assure corrective action is completed in a timely manner.

Scope

This document applies to all OSC operations and includes OSC employees, contractors, tenants or visitors.

Definitions

A near miss is an event that could have caused a serious injury or illness, property damage or a release to the environment but didn't.

For example:

- Someone spills liquid on the floor and does not clean it up. Someone slips but does not fall.
- A forklift operator takes a turn too quickly and drops the load which almost hits a nearby worker.
- While transporting a 55 gallon drum of petroleum product on the work-site, it tips over but does not spill.

An unsafe condition or act is a condition or act that could cause an incident or, an incident waiting to happen.

For example:

- Water or other material(s) on the floor that could cause a slip or fall.
- A frayed electrical cord on a piece of equipment.
- Lack of fall protection on a leading edge.

Job Name:	Job Number:
Where did the near miss take place or where is/was the unsafe condition?	
Location (building/parking lot/shop/etc.)	
Name of Supervisor/Site HSE Officer:	
Reporting Employee:	
When did the near miss happen or when did you discover the unsafe condition? Date: Time:	
What personnel/equipment/etc. were involved or impacted in the near miss or unsafe condition?	
Was the near miss/unsafe act or condition reported to site supervision/HSE personnel Yes No	
Describe the near miss or unsafe act or condition in detail. Include the potential danger to employees, equipment and/or property. Attach additional information, photos, etc. if necessary:	

Check all that apply:

Unsafe Acts	Unsafe Conditions
Improper use of equipment	Poor housekeeping
Using faulty/defective equipment	Sharps (glass, needles etc)
Removing safety devices or making them inoperative	Insufficient guards/barriers
Under the influence of alcohol and/or drugs	Defective tools, equipment or materials
Failure to wear personal protective equipment (PPE)	Insufficient or improper protective equipment
Horseplay	Insufficient lighting
Incorrect lifting techniques	Insufficient ventilation
Incorrect loading/stacking	Exposure to excessive noise
Operation of equipment without authority	Insufficient warning signs
Failure to warn or to secure	Compliance with standards
Compliance with standards	Animal (bite etc)
Other -	Other -
Human Factors	**Job Factors**
Physical incapacity	Inadequate leadership/supervision
Mental incapacity	Inadequate engineering
Lack of knowledge	Inadequate purchasing
Lack of skill	Inadequate maintenance
Stress	Inadequate tools/equipment
Improper motivation	Inadequate materials
Distraction	Inadequate work standards/procedures
Attitude	Inadequate standards
Motivation	Other -
Compliance with standards (e.g. training)	
Other -	

Estimate risk for potential future incident; Circle One: Low	1	2	3	4	5	High

Explain Why:	
Please note what corrective action you were able to take or what other corrective action you recommend.	
To be completed by HSE Personnel:	
Reviewed by;	Date Received by HSE:
OSC HSE Tracking Number	
Comments	

Attachment #2
AHA's

ACTIVITY HAZARD ANALYSIS

Mobilization

Location:	Contract No.	Project:
Niagara Falls, New York		Track I & II Remediation and Demolition
Phase (Division):	**Prime Contractor:**	**Subcontractor:**
	OSC	

Task	Potential Safety Hazard	Safe Procedure & Recommended Controls
Site access	Vehicle accidents during movement of equipment and trailers onto the site.	Position "flaggers" a suitable, safe distance from site access point[s] to warn and stop traffic.
Stopping/directing traffic during site entries of trailers and equipment	Employees being struck by vehicles driven by the general public	ALL flaggers MUST wear a DOT approved "Lime Green" vest with "reflective striping"
Positioning office and storage trailer[s].	Placing trailers in close proximity to the work area[s] could cause equipment, vehicle or employee injuries.	Position office trailer[s] out of equipment and vehicle access points and/or site roadways.
Trailer setup	Trailer[s] being overturned during high wind events	Depending on the geographic location each trailer should be anchored against overturning.
Utility hookups	Electrocution	Trailers should be grounded. Temporary overhead power lines should be placed to prevent contact by trucks, cranes or heavy equipment
Parking	Vehicle accidents during movement of equipment on the site or at the beginning and end of the day.	Designate an area away from the daily site activities and equipment, truck and service vehicle activities or service roads.
Equipment to be Used	**Inspection Requirements**	**Training Requirements**
High Visibility Yellow, Lime Green or Orange Vests, traffic paddles, radios		

ACTIVITY HAZARD ANALYSIS

Clearing and Grubbing

Location: **Niagara Falls, New York**	**Contract No.**	**Project:** **Track I & II Remediation and Demolition**
Phase (Division):	**Prime Contractor:** ***OSC***	**Subcontractor:**
Task	**Potential Safety Hazard**	**Safe Procedure & Recommended Controls**
Clear and grub vegetation	Environmental exposure. Struck by heavy equipment. Dust production.	Utilize appropriate PPE for handling green waste. Wear high visibility vests when on foot near heavy equipment operations. Use water truck during clearing to eliminate dust production. Ensure vehicles are equipped with properly functioning back up warning devices. Employees avoid uncleared areas to minimize risk of contact with Toxic vegetation [Poison Ivy, Poison Oak].
Removal of Trees, Stumps, Grass, Vines, etc.	Caught in Chipper, cut by blades/chains from saw[s]	**DO NOT PLACE** your hands inside the opening of the chipper. Do not wear loose fitting clothing that could become entangled in moving parts of the equipment. Wear eye protection, preferably a "Face Shield" when Chipping or cutting trees and/or brush. Wear Leather gloves and chaps when operating a Chain Saw.
Pulling small vines, grass and similar vegetation	Contact with "toxic" plants such as Poison Ivy, Poison Oak, Sumac	Wear long sleeve shirts; use a barrier cream if available. Wash thoroughly after exposure.
Stockpile green waste at the site.	Potential scratches and cuts from handling cleared vegetation. Struck by hazard.	When possible use equipment to move vegetation to minimize exposure to cuts and scratches. Employees on foot maintain eye contact with equipment operators to avoid being struck by heavy equipment.
Load, store or remove surplus soil or debris.	Struck by truck traffic to and from site or loaders filling trucks. Overhead load exposure from truck filling operations.	Continued use of PPE and vests. Employees and truck drivers stay clear of loading operations to prevent struck by overhead load spillage.
Equipment to be Used	**Inspection Requirements**	**Training Requirements**
Heavy equipment Bulldozer, loader, skip loader, dump trucks and water trucks.	Check vehicle back up warning devices. Daily equipment checks.	Site specific orientation and AHA review prior to start of work.
Hand tools.	Check hand tools daily for serviceability.	

ACTIVITY HAZARD ANALYSIS

CHAIN SAW USAGE FOR TREE AND BRUSH REMOVAL

Location: Niagara Falls, New York		**Project: Track I & II Remediation and Demolition**
PRINCIPAL STEPS	**POTENTIAL HAZARDS**	**RECOMMENDED CONTROLS**
1. Sharpening chain saw	1. Cuts when sharpening chain	1. Check and make sure the saw is in the off position.
2. Refueling	1. Fire from refueling saw	1. Do not fuel saw while running or hot or near open flame. 2. Do not start saw within 10 feet of a fuel container.
3. Operation of chain saw	1. Cuts from saw while running	1. The operator will hold the saw with both hands during all cutting operations. 2. Operators will wear personal protective equipment as prescribed by the designated authority. Eye, ear, hand, foot (safety shoes), and leg protection are required as a minimum unless specifically waived by the designated authority. 3. The chain saw must never be used to cut above the operator's shoulder height. 4. The idle speed shall be adjusted so that the chain does not move when the engine is idling. 5. Before starting to cut, the operator must be sure of footing and must clear away brush or other materials that might interfere with cutting operations or escape route. 6. The operator will shut off the saw when carrying it over slippery surfaces, through heavy brush, and when adjacent to personnel. The saw may be carried running (idle speed) for short distances (less than 50 feet) as long as it is carried to prevent contact with the chain or muffler.

ACTIVITY HAZARD ANALYSIS

General Jobsite Laborer

Location:	Contract No.	Project:
Niagara Falls, New York		**Track I & II Remediation and Demolition**
Phase (Division):	**Prime Contractor:**	**Subcontractor:**
	OSC	

Principal Steps	Potential Safety Hazard	Safe Procedure & Recommended Controls
1. Train Laborer	Laborers not trained in the safe execution of their tasks	Use this Activity Hazard Analysis, and other formal and informal training to train laborers.
2. Put on your personal protective equipment.	Head, foot, or eye injury and/or hearing loss	You must wear a hard hat and work boots at all times. Have Safety glasses with side shields or goggles, and foam ear plugs and/or ear muffs handy for when the work requires special protection.
	Clothing or jewelry being caught or snagged	Do not wear clothing or jewelry that could easily get snagged or caught by equipment or machinery.
3. Receive material deliveries, shake out material	Crushing or pinching hands or feet	When moving material keep hands and feet clear of pinch points.
		Stay clear of moving machinery, heed backup alarms and get out of the way.
	Excessive material handling	Stage material as close to its final destination as possible.
4. Roll out tools and set up workplace	Slipping, Tripping, or falling, and Delayed Egress	Keep corridors and high traffic areas free of cords, hoses, & other equipment. Completely unroll all cords to avoid tangles.
		Clean up scrap materials and debris before and after working in an area.
	Poor illumination	Set up lighting in a location or in such a manner that provides good illumination but will not fall over, or create a trip hazard.
5. Check electrical cords	Electrocution- faulty electrical cords	Do not use electrical cords with cuts, worn insulation, or visible conductors.
		Use cords rated for hard or extra-hard usage.
		Use factory-assembled cord sets as much as possible. Repairs must preserve the original electrical and mechanical integrity of the cord. Electrical tape fixes are prohibited and replacement plugs must be properly sized and provided with strain relief clamps.
		Check that the ground prong is intact.

6. Inspect tools	Injures from defective or broken tools	Tag Defective tools/equipment as unsafe, and remove them from the jobsite.
		Wooden handles for tools are secured tightly in the tool and free of cracks and splinters.
		All Saw blades have properly functioning manufacture installed guards.
		Hand held power tools (saws, air impact, drills) equipped only with constant pressure switch.
	Electric shock	Use only GFCI protected outlets
7. Use hand and power tools	Sprains, cuts, bruises	Always use the right tool for the job. If you don't have the right tool or don't know what to use ask your supervisor.
		Never disable the built in safety features on a tool.
		Hand tools to coworkers handle first; do not throw them.
8. Use power and pneumatic tools	Puncture wounds	Pneumatic nailers have a functioning safety device on the muzzle to prevent ejection unless muzzle in contact with work surface.
	Impact injuries	Use a wire or other locking device to prevent air hoses from being accidentally disconnected.
	Cuts, abrasions	Take your finger off the switch when carrying a plugged in tool.
		Unplug all tools before making any repairs or adjustments.
	Electric Shock	Do not carry or hoist tools by their power cords.
9. Use power and pneumatic tools	Flying particles- Eye injury	Wear safety goggles or a safety glasses with side shields for the following types of work: hammers, chipping tools, grinders, chemicals, hazardous substances which create dust, mist, and fumes
10. Lift and moving materials and equipment	Pulls and Strains from lifting	Get help when moving heavy materials; use a mechanical lift when possible.
		Convert lifting and lowering tasks to pulling and pushing. (Use ramp or conveyor).
		Use safe lifting techniques: bend knees and lift the bulk of the weight with leg strength. Keep the weight close to your body.
	Striking and injuring co-workers with materials	Be aware of your surroundings while moving materials, watch where you are going.
		Never move materials over or above workers.
11. Working from a ladder	Ladder tipping, shifting, or sliding causing the worker to fall	Extension ladders are set up so that the horizontal distance from the top support to the ladder base is 1/4 the working length of the ladder. The top of the ladder is tied off and the side rails extend 36" above the landing.
		Step ladders used only in full open position.
		Set up ladders on firm level footing
		Don't work from a step ladder leaned against a wall.
		All step and extension ladders are equipped with ladder shoes.

	Falling from ladder	Don't work from the top two steps of a step ladder.
		Choose the correct size of ladder for the job
	Ladder failure- Falling	Ladders must be inspected regularly and tagged “do not use” if defective. Remove defective ladders from the jobsite.
12. Moving ladders	Tools or Materials falling from ladders	Do not move a ladder while you are on it
		Do not move ladder with tools on it
	Electric shock	Nonconductive ladders used when working near energized electrical lines or equipment.
13. Working in noisy areas or using noisy equipment.	Hazardous noise, hearing loss	Wear foam ear plugs when working in an area where sound pressure levels are between 85 dB (A) and 115 dB (A) time-weighted ave. over 8 hrs. When sound levels exceed 115 dB (A) foam ear plugs and ear muffs shall be worn.
14. Administering First-Aid	Exposure to Blood borne Pathogens	Use appropriate PPE when administering first aid such as gloves, masks, eye protection, and/or resuscitation equipment especially when blood is present.
		Wash after contact with blood or other body fluids.
		Dispose of soiled material in a labeled leak proof container.
		Clean up accident area including tools.
15. Responding to an emergency	Delayed emergency response- further injury or loss of life	Respond quickly and decisively in case of an accident. Call 911 immediately.
		Know where the emergency numbers are posted, where the first aid kit is, and who is trained in first aid.
		Only persons trained in first aid should be allowed to administer first aid.
	Failure to abate a hazard	Report all accidents to your supervisor immediately.
16. Confined Spaces	Asphyxiation, incapacitation, or impairment of ability to self rescue.	Never enter a confined space ei. Man-holes, vats, silos, vaults, tunnels, ductwork, ect. Except as direct by your supervisor and in accordance with the requirements of the AHA Working In Confined Spaces
		Always heed warning signs for confined spaces.
17. Working around asbestos-containing materials	Asbestos Inhalation	Never grind, sand, scrape, drill, break, or cut any asbestos-containing material.
		Heed all asbestos warning signs and stay out of areas that are under containment for the purpose of asbestos abatement.
		Familiarize yourself with common asbestos containing materials, so that these can be avoided. Examples: ceiling tiles, insulation, fire proofing, floor tile, and vinyl flooring and mastic installed before 1980.
		Check with your supervisor before working with any material that may contain asbestos.
18. Working around materials that contain lead	Lead poisoning, and/or cumulative damage from long term occupational exposure	Familiarize yourself with common lead-containing materials, so that these can be avoided. Examples: old paints solder, flashing material, joint packing.

		Never grind, sand, scrape, cut, or burn any Lead-containing material.
19. Working with Hazardous Chemicals	Burns, dizziness, nausea, sickness, or cumulative damage due to long term occupational exposure	Read through the MSDS for every chemical/material that you will be using. Don't assume that a material is not hazardous, just because it doesn't produce any immediate effects.
		Wear the personal protective equipment required by the MSDS when handling the chemical.
		Use the appropriate signage and warning labels
20. Working in hot weather	Heat Stroke	Make sure you always have an adequate supply of cold water available. If your water supply is running low talk to your supervisor.
		Take scheduled cool breaks
		Provide ventilation or air cooling equipment for enclosed work areas.
	Sunburn	Use sunscreen
21. Working with combustible materials	Fires and explosions- burns	Ensure that a portable an ABC rated fire extinguisher is always within 100 ft. of your working area.
		Know how to operate the fire extinguisher
		Always heed “No Smoking or Open Flame” warning signs.
		Remove combustible scrap and debris from work areas daily. Store combustibles in approved locations/containers.
		Use approved metal safety cans used for handling and use of flammable liquids.
22. Hot work- welding, cutting, soldering, brazing.	Fires and explosions- burns	Always have an ABC rated fire extinguisher adjacent to where the work is being performed
		Remove all combustibles from your work area prior to beginning and hot work.
23. Working with compressed gases	Fires and explosions	Do not place compressed gas cylinders in traffic lanes or where they can be hit by vehicles or equipment.
		Use cylinders with oldest delivery date first.
		Store cylinders upright and secure to prevent falling.
		Do not disable any safety appliances attached to a gas cylinder such has check valves, indicating devices, or control devices.
24. Using compressed air	Injection of foreign material into the body through the skin	Never use compressed air to blow dirt from hands, face, or clothing
25. Cleaning surfaces with compressed air	Airway irritation, silicosis	Wear a dust mask and goggles in addition to the standard PPE when cleaning with compressed air.
		Stand up wind from the air nozzle.

26. Working from an elevated location	Falling	Whenever you are working on open-sided floor, platform, or other location that is 6’ or more above the lower level you must be protected by either a guardrail system or a personal fall arrest system.
		For guardrail requirements see scaffolding
		The personal fall arrest system, which consists of a body harness and shock absorbing lanyard, must prevent the user from falling more than 6', or from contacting any lower level
		Secure lifelines to a structural member capable of supporting a dead weight of 5400 lbs.
		100% tie off is required when working at or above 25'. This requires the use of 2 lanyards.
27. Inspect fall protection equipment prior to use	Equipment failure- falling	Lanyard, harness, D-rings, and other personal fall arrest equipment is in good condition and suitable for use
		Remove equipment from service that has sustained a fall.
28. Working on or around scaffolding	Falling from the scaffold, or workers below scaffold struck by falling objects	Maintain the top rails, midrails, and toe boards on the scaffold from which you are working. Top rails must be 42" high ± 3" and capable of withstanding a lateral force of 200 lbs., midrails are midway between floor surface and top rail. **All can be made of 2X4’s per OSHA**
		Do not horse play on or around scaffolding.
		Do not drop tools or material from the scaffold
		See AHA on Scaffold Erection and Use
29. Working from a rolling scaffold	Falling due to scaffold racking unexpectedly	All diagonal & horizontal bracing is in place to square the scaffold & prevent racking.
	Falling due to scaffold moving unexpectedly	Wheel brakes are set whenever the scaffold is stationary.
	Scaffold failure- falling	Forklifts, trucks, or other motor vehicles are not used to push the scaffold
	Falling from scaffold, crushed by tipping scaffold.	**Never ride on the scaffold except under the following conditions:**
		The floor across which the scaffold is moved is within 3 degrees of level, and is clean and free of all obstacles, such as cords, debris, holes, depressions ect.
		When pushing scaffold force is applied as close to the base as possible
		Height to width ratio is 2 to 1 or less. (ie. a 10' high scaffold is 5' wide)
		No employee shall ride on any part of the scaffold that extends beyond the wheels.
		Castor stems are pinned/secured to the scaffold legs.
		Before the scaffold is moved all riders are made aware of the move.

30. Getting on and off the scaffold	Falling while getting on or off the scaffold	Always use a ladder to gain access to scaffold work platforms
		Ladders rails extend 3' above the platform and are tied off securely
31. Clean up	Tripping -- waste materials, improperly stored materials	Clean up work area at the end of each shift. Stack materials in designated lay areas.
	Burns- fires due to combustibles	Place combustibles in approved containers.
Equipment to be Used	**Inspection Requirements**	**Training Requirements**
Ladders, scaffolding	Tools & equipment prior to use	Training per equipment MFG & AHA
Drills	Tools & equipment prior to use	Training per equipment MFG & AHA
Chipping hammer/drill	Tools & equipment prior to use	Training per equipment MFG & AHA
reciprocating saw	Tools & equipment prior to use	Training per equipment MFG & AHA
grinders	Tools & equipment prior to use	Training per equipment MFG & AHA
compressors	Tools & equipment prior to use	Training per equipment MFG & AHA

ACTIVITY HAZARD ANALYSIS

Using Small Tools and Equipment

Location:	Contract No.	Project:
Niagara Falls, New York		**Track I & II Remediation and Demolition**
Phase (Division):	**Prime Contractor:**	**Subcontractor:**
	OSC	
Principal Steps	**Potential Safety Hazard**	**Safe Procedure & Recommended Controls**
Train employees in the safe execution of hazardous equipment and tools	Employees-not trained in the safe execution of their tasks	Project Manager or Superintendent will verify that employees are trained AND Qualified to operate hazardous equipment and or tools PRIOR TO the start of work. Maintain hazardous equipment and tool training records in the project file.
1. Train Installer	Installers not trained in the safe execution of their tasks	Use this Activity Hazard Analysis, and other formal and informal training to train Installers.
2. Put on your personal protective equipment.	Head, foot, or eye injury and/or hearing loss	You must wear a hard hat, safety glasses and safety work boots at all times. Have goggles, and foam ear plugs and/or ear muffs handy for when the work requires special protection.
	Clothing or jewelry being caught or snagged	Do not wear clothing or jewelry that could easily get snagged or caught by equipment or machinery.
3. Receive material deliveries, shake out material	Crushing or pinching hands or feet	When moving material keep hands and feet clear of pinch points.
		Stay clear of moving machinery, heed backup alarms and get out of the way.
	Excessive material handling	Stage material as close to its final destination as possible.
4. Roll out tools and set up workplace	Slipping, Tripping, or falling, and Delayed Egress	Keep corridors and high traffic areas free of cords, hoses, & other equipment. Completely unroll all cords to avoid tangles. Route cords and hoses out of traffic areas.
		Clean up scrap materials and debris before, during and after working in an area.
	Poor illumination	Set up lighting in a location or in such a manner that provides good illumination but will not fall over, or create a trip hazard.
5. Check electrical cords	Electrocution- faulty electrical cords	Do not use electrical cords with cuts, worn insulation, or visible conductors. Inspect cords before use.
		Use cords rated for hard or extra-hard usage only.
		Use factory-assembled cord sets as much as possible. Repairs must preserve the original electrical and mechanical integrity of the cord. Electrical tape fixes are prohibited and replacement plugs must be properly sized and provided with strain relief clamps. Repairs should be made by qualified employee's i.e.

		Electricians
		Check to make sure the ground prongs is intact.
6. Inspect tools	Injures from defective or broken tools	Tag Defective tools/equipment as unsafe, and remove them from the jobsite.
		Wooden handles for tools are secured tightly in the tool and free of cracks and splinters.
		All Saw blades have properly functioning manufacture installed guards.
		Hand held power tools (saws, air impact, drills) equipped only with constant pressure switch.
	Electric shock	Use only GFCI protected outlets
7. Drill holes, set anchors and/or brackets	Twists or sprains due to drill bit catching	Hold the tool steady with arms flexed, and drill the hole as straight as possible.
	Cuts, abrasions, impact injuries	Never disable the built in safety features on any tool.
		Hand tools to coworkers handle first; do not throw them. Never carry electric tools by the cord.
	Flying particles- Eye injury	Wear safety goggles or a safety glasses with side shields for the following types of work: hammers, chipping tools, grinders, chemicals, hazardous substances which create dust, mist, and fumes
	Impact injuries	Use a pin and whip check or other locking devices to prevent air hoses from being accidentally disconnected.
8. Assemble components	Cuts, abrasions	Always use the right tool for the job. If you don't have the right tool or don't know what to use ask your supervisor.
		Never carry a plugged in electrical tool.
		Unplug all tools before making any repairs or adjustments. Repairs to electrical tools shall be made by qualified persons i.e. Electrician
	Electric Shock	Do not carry or hoist tools by their power cords.
9. Make modification or adjustments	Hazardous noise, hearing loss	Wear foam ear plugs when using tools or when working in an area where sound pressure levels are greater than 85 dB (A) time-weighted ave. over 8 hrs.
	Cuts	Be careful while handling edges that are sharp or burred. Wear leather gloves.
10. Move equipment into position	Pulls and Strains from lifting	Get help when moving heavy materials; use a mechanical lift when possible.
		Convert lifting and lowering tasks to pulling and pushing. (use ramp or conveyor).
		Use safe lifting techniques: bend knees and lift the bulk of the weight with legs strength. Keep the weight close to your body.

	Striking and injuring co-workers with materials	Be aware of your surroundings while moving materials, watch where you are going. Alert workers in the area.
		Never move materials over, above or near other workers.
	Crushed or pinched body parts	Use a pry bars or other mechanical means to help position the equipment or to prevent it from shifting.
		Keep fingers and hands clear of pinch points
		Communicate clearly with co-workers
11.Fasten equipment in place	Impact injuries, or crushed or pinched injuries	Make sure the equipment is adequately supported until it is permanently fastened into place.
12. Installing equipment from a ladder	Ladder tipping, shifting, or sliding causing the worker to fall	Extension ladders are set up so that the horizontal distance from the top support to the ladder base is 1/4 the working length of the ladder. The top of the ladder is tied off and the side rails extend 36" above the landing. Keep your body weight between the rails of the ladder. Use fall protection above 6 feet
		Step ladders used only in full, locked open position.
		Set up ladders on firm level surfaces
		Don't work from a step ladder leaned against a wall.
		All step and extension ladders are equipped with ladder shoes.
	Falling from ladder	Don't work from the top two steps of a step ladder.
		Choose the correct size of ladder for the job. Do not exceed the manufacturer's weight limits
	Ladder failure- Falling	Ladders must be inspected regularly and tagged "do not use" if defective. Remove defective ladders from the jobsite.
13. Moving ladders	Tools or Materials falling from ladders	Do not move a ladder while you are on it
		Do not move ladder with tools on it
	Electric shock	Use nonconductive ladders when working near energized electrical lines or equipment. Avoid working near energized electrical lines or equipment.
14. Administering First-Aid	Exposure to Bloodborne Pathogens	Use appropriate PPE when administering first aid such as gloves, masks, eye protection, and/or resuscitation equipment especially when blood is present. Only persons trained in first aid should be allowed to administer first aid.
		Wash with plenty of soap and water after contact with blood or other body fluids.
	Exposure to Bloodborne Pathogens	Dispose of soiled material in a labeled leak proof container.
		Clean up accident area including tools.

15. Responding to an emergency	Delayed emergency response- further injury or loss of life	Respond quickly and decisively in case of an accident. Call 911 immediately.
		Know where the emergency numbers are posted, where the first aid kit is, and who is trained in first aid. Know where fire extinguishers are located.
		Only persons trained in first aid should be allowed to administer first aid.
	Failure to abate a hazard	Report all accidents, incidents or near misses to your supervisor immediately.
16. Confined Spaces	Asphyxiation, incapacitation, or impairment of ability to self rescue.	Never enter a confined space. Man-holes, vats, silos, vaults, tunnels, ductwork, ect. except as direct by your supervisor and in accordance with the requirements of the AHA Working In Confined Spaces and the use of H&S 16 form. You must be confined space trained to enter a confined space.
		Always heed warning signs for confined spaces. Never enter a confined space without the proper training.
17. Working with Hazardous Chemicals	Burns, dizziness, nausea, sickness, or cumulative damage due to long term occupational exposure	Read through the MSDS for every chemical/material that you will be using. Don't assume that a material is not hazardous, just because it doesn't produce any immediate effects. Know where to find MSDS sheet at the job site. If you do not know ask your supervisor.
		Wear the personal protective equipment (PPE) required by the MSDS when handling the chemical. You should be trained in the correct use of PPE. If not notify your supervisor.
		Use the appropriate signage and warning labels
18. Working in hot weather	Heat Stroke	Make sure you always have an adequate supply of cool water available. If your water supply is running low talk to your supervisor.
		Take scheduled cool breaks
		Provide ventilation or air cooling equipment for enclosed work areas.
	Sunburn	Use sunscreen, long sleeve shirts and hard hat brims.
19. Hot work- welding, cutting, soldering, brazing.	Fires and explosions- burns	Always have a 20 lb ABC rated fire extinguisher adjacent to where the work is being performed.
		Remove all combustibles materials from your work area prior to beginning hot work.
	See AHA for Welding and Cutting	
20. Clean up	Tripping -- waste materials, improperly stored materials	Clean up work area at the end of each shift. Stack materials in designated lay areas.
	Burns- fires due to combustibles	Place combustibles in approved marked containers.

Equipment to be Used	Inspection Requirements	Training Requirements
Ladders, scaffolding	Tools & equipment prior to use	Training per equipment MFG & AHA
Drills	Tools & equipment prior to use	Training per equipment MFG & AHA
Chipping hammer/drill	Tools & equipment prior to use	Training per equipment MFG & AHA
reciprocating saw	Tools & equipment prior to use	Training per equipment MFG & AHA
grinders	Tools & equipment prior to use	Training per equipment MFG & AHA
compressors	Tools & equipment prior to use	Training per equipment MFG & AHA

ACTIVITY HAZARD ANALYSIS

Earthwork, Excavation, and Grading

Location:	Contract No.	Project:
Niagara Falls, New York		**Track I & II Remediation and Demolition**
Phase (Division):	**Prime Contractor:**	**Subcontractor:**
	OSC	

Principal Steps	Potential Safety Hazard	Safe Procedure & Recommended Controls
1. Train employees in the safe operation of hazardous equipment	employees not trained in the safe execution of their tasks	Project Manager or Superintendent will verify that employees are trained AND Qualified to operate equipment PRIOR TO the start of work. Maintain hazardous equipment training records in the project file.
1. Train employees	Employees not trained in the safe execution of their tasks	Use this Activity Hazard Analysis, and other formal and informal training to train employees.
		Never operate a piece of equipment for which you have not been trained and feel comfortable operating.
		Read through the owner's manual for the equipment before you operate it.
2. Locate utilities	Explosions, burns (gas lines), electrocution or electrical fires (electrical lines) drowning (water & sewer lines)	Call utility companies and/or other responsible authorities (Utility Locate Systems) before you dig. Have them locate and mark all underground utilities. Each state has different time limits to locate utilities. Retain the locate ticket number and renew prior to the expiration date.
		Pot-hole for utilities to locate the exact location before beginning a full excavation. Hand excavate when nearing the utility so that it is not damaged.
		Each operator on the job should be aware of the location of all underground utilities, structures, tanks, ect. Superintendents conduct safety meetings to inform operators of the utility locations
3. Refuel equipment	Fires, explosions- burns	Uses only approved metal safety cans to store and dispense fuel.
		Place oily or fuel soaked rags and other combustibles in approved marked containers.
		Do not smoke near equipment while refueling. Turn equipment off before refueling.
		For gasoline powered equipment, turn off engine and let cool, attach the grounding wire from the fuel tank to the equipment before fueling.
4. Inspect Equipment	Equipment failure- or unsafe operation	Inspect each piece of equipment prior to the start of each shift. Use the checklist for that piece of equipment. Notify supervisor if equipment is not safe to operate.

		Make sure recommended preventive maintenance is being performed and a log maintained.
		Lubrication points should show signs of recent maintenance.
	Fires, explosions- burns	A fire extinguisher is provided at the operator's compartment. Make sure it has been inspected and functional.
	Backing over workers or running into equipment	**Ensure that the backup alarm is fully operational. Use spotters if necessary to move equipment**
5. Put on your personal protective equipment.	Head or foot injuries	You must wear a hard hat and safety work boots at all times. Safety glasses with side shield if you are not in an enclosed cab
	Crushed by moving equipment	Wear a high visibility vest at all times when working in and around equipment. Never approach moving equipment. Use hand eye contact with operator. Make sure hydraulics are disengaged by the operator before approaching equipment.
6. Set up barricades and caution-off area.	Entry of unauthorized personnel	Set up warning barricades or temp. fencing and caution off area where earthwork is ongoing to prevent the entry of unauthorized personnel.
	Knocking power lines	Caution tape off power poles and guy wires and be careful when operating heavy equipment near high voltage lines. Use a spotter if needed.
7. Communication and preparatory instructions	Lack of coordination between Operators and resulting mistakes.	Before beginning each phase of work the supervisor will explain to all operators where they will be working, what they are to do, and how the work will proceed.
		Review hand signals and non-verbal communication.
8. Clear and grub	Environmental hazards - bees	Always keep an eye out for swarms of bees. If there are a lot of bees in an area be careful. If you hit a nest of bees on an open cab track machine never track the opposite direction unless necessary.
9. Getting on an off the machine	Slipping and falling	Use three points of contact when getting on and off the machine.
		Make sure the machine is provided with slip resistant surfaces.
		Be especially careful in the rain, mud or icy conditions.
	Crushed or pinched injuries from moving equipment	Whenever the machine is unattended the bucket/blades are lowered, brakes set, controls neutralized, and if possible the engine shut.
10. Excavate - cuts	Striking and injuring co-workers with equipment or material	Be aware of the location of workers in and around the excavation at all times. A designated competent person must be onsite at all times while work is being done.
		Stand away from equipment that is loading or unloading excavated material.
	Struck by falling material	Never move excavated material over, above or near workers.
		Do not allow workers to stand or walk under the elevated portion of the machine. Never allow workers to walk between the bucket and machine.

	Roll over or equipment failure	Know the limits of your machine. Do not cowboy or push the limits of the machine. Maintain a speed limit of 10 mile per hour onsite. Read the owner's manual
		Sloping or benching of cuts shall be done following instruction of a competent person.
	Falling from an elevated location	Stay away from the face of any cut where you could fall more than 6' to the lower level.
11. Place fill and compaction	Inability to see clearly	Keep the windshield and other glazing clean so that your view is unobstructed. Know the blind spots of the machine you are operating.
		Make sure the windshield wipers work and all mirrors are properly adjusted.
		Look in the direction of travel.
	Falling from the machine	Wear your seat at all times while operating the machine.
		Employees shall not ride in buckets or on any part of the machine other than the seat.
	Hazardous noise, hearing loss	Wear foam ear plugs when working on equipment where sound pressure levels are between 85 dB (A) and 115 dB (A) time-weighted ave. over 8 hrs. When sound levels exceed 115 dB (A) foam ear plugs and ear muffs shall be worn.
12. Grading	Crushed by moving equipment	When on foot never enter the operation area of any piece of equipment without first making hand eye contact with the operator and waiting for him to acknowledgement your presence.
13. Changing attachments or blades or making repairs	Crushed or pinched injuries from moving parts.	Never make repairs or change attachments without first setting the brake, neutralizing the controls, and shutting down the engine. Repairs should be made by trained authorized personnel only.
		Do not place body parts near pinch points on the machine.
	Burns	Do not touch hot pipes/surfaces or electrical contacts.
14. Hand excavation, digging	Pulls and strains from digging	Don't be too aggressive when moving heavy or wet material.
		Make sure that wooden handles for tools are secured tightly in the tool and are free of cracks and splinters.
	Foot or leg injuries	Wear safety work boots and long pants
15. Excavating adjacent to buildings or retaining walls	Collapse of the adjacent structure or retaining wall	Never excavate below the top level of the footing of an adjacent building or retaining wall except under the direction of an approved engineered plan with engineered controls in place.
16. Responding to an emergency	Delayed emergency response-further injury or loss of life	Respond quickly and decisively in case of an accident. Call 911 immediately. Send someone to meet emergency responders to guide them to the accident.
		Know where the emergency numbers are posted, where the first aid kit is, and who is trained in first aid.
		Only persons trained in first aid should be allowed to administer first aid.

		Do not try and unearth a worker buried by a cave-in with power equipment such as a backhoe. Never enter an excavation to rescue a worker if it is still unsafe.
	Failure to abate a hazard	Report all accidents, incidents or near misses to your supervisor immediately.
17. Working in hot weather	Heat Stroke	Make sure you always have an adequate supply of cool water available. If your water supply is running low talk to your supervisor.
		Take scheduled cool breaks
	Sunburn	Use sunscreen, long sleeve shirts, gloves and hardhat brims.

Equipment to be Used	Inspection Requirements	Training Requirements
	Tools & equipment prior to use	Training per equipment MFG & AHA
		MSDS onsite

ACTIVITY HAZARD ANALYSIS

TRAFFIC CONTROL ACTIVITIES

Location: Niagara Falls, New York Project: **Track I & II Remediation and Demolition**

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
1. Traffic control through work areas a. hazards to flag person b. hazards to public and workers	1. Hazards from vehicles	1. Persons exposed to vehicular traffic, such as signal persons, spotters, inspectors, and others shall wear belts or apparel marked with a reflectorized or high visibility material.
	2. Vehicle accident	**1.** Warning signs shall be placed to provide adequate warning of hazards to workers and the public. Signs shall be removed or covered when the hazards no longer exist. **2.** All self-propelled construction equipment shall be equipped with a reverse signal alarm. **3.** No vehicle shall be driven at a speed greater than the posted speed limit, with due regard to weather, traffic, intersections, width and character of the roadway, type of motor vehicle, and any other existing conditions. **4.** The operator must at all times have the vehicle under such control as to be able to bring it to a complete stop within the assured clear distance ahead.
	3. Surrounding hazards of site	1. Guardrails, fences, or barricades and warning lights or other illumination maintained from sunset to sunup, shall be placed at all excavations which are adjacent to paths, walkways, sidewalks, driveways and other pedestrian or vehicle thoroughfares. 2. Adequate physical protection shall be provided at all remotely located excavations.

ACTIVITY HAZARD ANALYSIS

Small Building Demolition- Structural

Location:	Contract No.	Project:
Niagara Falls, New York		**Track I & II Remediation and Demolition**
Phase (Division):	Prime Contractor:	Subcontractor:
	OSC	

Principal Steps	Potential Safety Hazard	Safe Procedure & Recommended Controls
Train employees in the safe operation of hazardous equipment and tools	Employees not trained in the safe execution of their tasks	Project Manager or Superintendent will verify that employees are trained AND Qualified to operate hazardous equipment and or tools PRIOR TO the start of work. Maintain hazardous equipment and tool training records in the project file.
1. Train employees	Employees not trained in the safe execution of their tasks	Use this Activity Hazard Analysis, and other formal and informal training to train employees.
2. Secure a copy of the demolition plan, and engineering survey **IF AVAILABLE**	Collapse of structural elements, release of hazardous energy	The demolition plan provides for the safe removal and dismantling of all building components and debris. All workers should read or be instructed in the demolition plan and should follow the plan.
		Follow the directions of your supervisor. If you do not understand the instructions ask for clarification.
3. Put on your personal protective equipment.	Head, foot, or eye injury and/or hearing loss	You must wear a hard hat, safety glasses with side shields, steel toe safety boots at all times. Have goggles, face shield and foam ear plugs and/or ear muffs handy for when the work requires special protection.
5. Check electrical cords	Electrocution- faulty electrical cords	Do not use electrical cords with cuts, worn insulation, or visible conductors. Inspect electrical cords daily. Do not use electrical cords in wet locations.
		Use cords rated for hard or extra-hard usage.
		Use factory-assembled cord sets as much as possible. Repairs must preserve the original electrical and mechanical integrity of the cord. Electrical tape fixes are prohibited and replacement plugs must be properly sized and provided with strain relief clamps. Repairs to electrical cords and tools shall be made by qualified persons i.e. Electrician
		Check to make sure grounding prongs are intact.
4. Inspect tools	Injures from defective or broken tools	Tag Defective tools/equipment as unsafe, and remove them from the jobsite. Report defective tools/equipment to your supervisor.
		Wooden handles for tools are secured tightly in the tool and free of cracks and splinters.
		All saw blades and grinders must have properly functioning manufacture installed guards.

	Twisted or sprained hands or wrists	Hand held power tools (saws, air impact) equipped only with constant pressure switch.
	Impact or eye injury	Devices are provided on air power tools to prevent tools from becoming accidentally disconnected from hose.
	Electric shock from defective tools.	Use only GFCI protected outlets
Cap, blank, and/or lock out utilities	Release of hazardous energy, explosion	Lockout & tag out all utility lines. Positively verify utilities are locked out of service. Shut off, cap, or otherwise control all electric, gas, water, sewer, and other service lines, before commencing demolition.
	Explosion or fire- burns	Demo gas lines only after bleeding the line and venting the workspace.
5. Entering and exiting the building	Delayed egress, or injuries from falling objects	All designated entries to the building must be protected from falling objects by sidewalk sheds or canopies.
		Use only exits or entrances designated in the demolition plan.
Demolish finish assemblies and surfaces	Struck, or crushed by falling material or debris	Begin demolition on the upper most floors and proceed downward. Never demolish anything with workers at a lower level that may be injured by falling debris.
		Be aware of the location of other workers.
	Sprains, cuts, abrasions, bruises	Never disable the built in safety features on a tool.
		Use tools for their intended use.
		Wear gloves when handling sharp or abrasive objects.
	Flying particles- Eye injury	Wear safety goggles or safety glasses with side shields for work which creates flying particles, dust, mist, or fumes. Check the MSDS before using chemicals, hazardous substances which create dust, mist, and fumes. Always wear the correct PPE. If you are not sure ask your supervisor.
6. Demo structural members.		Install shoring and other protective support in accordance with the demolition plan.
		Make sure that all structural members are adequately supported before cutting for removal.

7. Cut steel with an abrasive saw	Burns, fires	Watch where you are throwing your sparks. Do not cut where sparks will land on other workers or on combustible materials	
	Cuts and abrasions	Keep fingers several inches from all blades	
	Hazardous noise	Wear foam ear plugs.	
7. Cut steel with oxy-propane torch	Fires, explosions- burns	Install noncombustible shielding to protect combustible wall or floor assemblies from flashes, sparks, and molten metal.	
		Clean up combustible trash and debris before cutting.	
		Keep an ABC rated fire extinguisher ready adjacent to the work.	
		Do not place cylinders where they could be reached by sparks, hot slag or flames.	
	Eye injury.	Wear goggles with the proper level of shading (3-4).	
	Burns	Wear long gloves for hand and arm protection.	
	Asphyxiation, airway irritation	Ensure that there is natural or mechanical exhaust to the work area when cutting.	
	Burns	Be careful not to touch or rub against hot work.	
	See AHA on Oxyfuel Gas Cutting for further info.		
8. Inspect building components and assemblies	Collapse of structural elements, or weakened or loosened materials	Never enter a building that has not been deemed safe by a structural engineer or is not listed as safe by the demo plan. During demolition all workers especially the job supervisor should be constantly inspecting building components and assemblies for structural integrity. If a hazardous condition is observed leave the area immediately and tell your supervisor.	
		If it looks or feels unsafe stop, leave the area and notify your supervisor.	
	Falls through holes or openings	Cover holes or openings in floors as soon as it is feasible to do so. The cover must be sufficient to prevent workers or equipment from falling through the opening. Mark the cover, "Danger, Hole"	
10. Remove glazing	Shattered glass- cuts	When possible remove glazing with glass intact.	Before breaking gl duct tape, spray ad membrane to catch glass
		Use a drop cloth to catch loose shards of glass	

		Clean up all broken glass in the work area as soon as possible.
	Eye and hand injury	Wear safety glasses with side shields, a face shield and gloves.
12. Remove debris from the building.	Collapse of structural elements	Remove debris at regular intervals. Do not allow stockpiled debris to exceed the allowable floor loads.
	Pulls and Strains from lifting	Get help when moving heavy materials, use a wheelbarrow, roll able container, or similar when possible.
		Convert lifting and lowering tasks to pulling and pushing. (Use ramp or conveyor).
		Use safe lifting techniques: bend knees and lift the bulk of the weight with leg strength. Keep the weight close to your body.
	Striking and injuring co-workers with material or debris	Be aware of your surroundings while moving materials, watch where you are going. Alert workers in the area.
		Never commence debris removal in lower levels before removal has ceased on the floors above. Alert workers in the area.
14. Load out concrete and masonry debris	See AHA for Bobcat or Backhoe Operation	
15. Working from a ladder	Ladders tipping or shifting while in use causing the worker to fall	Set up ladders on firm level surface

		Choose the correct size of ladder for the job. Do not exceed the manufactures weight limits	
		Extension ladders are set up so that the horizontal distance from the top support to the ladder base is 1/4 the working length of the ladder. The top of the ladder is tied off and the side rails extend 36" above the landing. Keep your body weight between the rails of the ladder. Use fall protection above 6 feet	
	Falling from ladder	Don't work from the top two steps of a step ladder.	
			Don't work from a
		Step ladders used only in full locked open position.	
	Ladder failure- Falling from ladder	Ladders must be inspected regularly and tagged “do not use” and removed from the jobsite when found defective.	
		All step and extension ladders must be equipped with ladder shoes.	
16. Moving ladders	Tools or Materials falling from ladders	Do not move a ladder while you are on it	
		Do not move ladder with tools on it	
	Electric shock	Use nonconductive ladders when working near energized electrical lines or equipment. Avoid working near energized electrical lines or equipment.	
17. Working in noisy areas or using noisy equipment.	Hazardous noise, hearing loss	Wear foam ear plugs when working in an area where sound pressure levels are between 85 dB (A) and 115 dB (A) time-weighted ave. over 8 hrs. When sound levels exceed 115 dB (A) foam ear plugs and ear muffs shall be worn.	
18. Administering First-Aid	Exposure to Bloodborne Pathogens	Use appropriate PPE when administering first aid such as gloves, masks, eye protection, and/or resuscitation equipment especially when blood is present. Only persons trained in first aid should be allowed to administer first aid.	
		Wash after contact with blood or other body fluids.	
		Dispose of soiled material in a labeled leak proof container.	
		Clean up accident area including tools.	
19. Responding to an emergency	Delayed emergency response- further injury or loss of life	Respond quickly and decisively in case of an accident. Call 911 immediately. Send someone to meet emergency responders to guide them to the accident.	

		Know where the emergency numbers are posted, where the first aid kit is, and who is trained in first aid. Know where fire extinguishers are located.
		Only persons trained in first aid should be allowed to administer first aid.
	Failure to abate a hazard	Report all accidents, incidents or near misses to your supervisor immediately.
20. Confined Spaces	Asphyxiation, incapacitation, or impairment of ability to self rescue.	Never enter a confined space i.e. Man-holes, vats, silos, vaults, tunnels, ductwork, ect. except as direct by your supervisor and in accordance with the requirements of the AHA Working In Confined Spaces and the use of H&S 16 form. You must be confined space trained to enter a confined space.
		Always heed warning signs for confined spaces. Never enter a confined space without the proper training.
21. Working around asbestos-containing materials	Asbestos Inhalation	Never grind, sand, scrape, drill, break, or cut any asbestos-containing material, except during asbestos abatement operations in accordance with all applicable laws and the process outlined in the AHA for Asbestos Abatement.
		Heed all asbestos warning signs and stay out of areas that are under containment for the purpose of asbestos abatement.
		Familiarize yourself with common asbestos containing materials, so that these can be avoided. Examples: ceiling tiles, insulation, fire proofing, floor tile, and vinyl flooring and mastic installed before 1980.
		Check with your supervisor before working with any material that may contain asbestos. You must be trained in Asbestos removal.
22. Working around materials that contain lead	Lead poisoning, and/or cumulative damage from long term occupational exposure	Familiarize yourself with common lead-containing materials, so that these can be avoided. Examples: old paints, solder, flashing material, joint packing.
		Never grind, sand, scrape, cut, or burn any Lead-containing material. You must be trained in Lead removal. You must be trained in lead removal.
23. Working with Hazardous Chemicals	Burns, dizziness, nausea, sickness, or cumulative damage due to long term occupational exposure	Read through the MSDS for every chemical/material that you will be using. Don't assume that a material is not hazardous, just because it doesn't produce any immediate effects. Know where to find MSDS sheet at the job site. If you do not know ask your supervisor.

		Wear the personal protective equipment (PPE) required by the MSDS when handling the chemical. You should be trained in the correct use of PPE. If not notify your supervisor.
		Use the appropriate signage and warning labels
24. Working in hot weather	Heat Stroke	Make sure you always have an adequate supply of cool water available. If your water supply is running low talk to your supervisor.
		Take scheduled cool down breaks
		Provide ventilation or air cooling equipment for enclosed work areas.
	Sunburn	Use sunscreen, long sleeve shirts and hard hat brims.
25. Working with combustible materials	Fires and explosions- burns	Ensure that a portable 20 lb ABC rated fire extinguisher is always within 20 ft. of your working area.
		Know how to operate the fire extinguisher. If you are not trained to use a fire extinguisher notify your supervisor.
		Always heed “No Smoking or Open Flame” warning signs.
		Use approved marked containers for handling and storage of flammable liquids.
26. Using compressed air	Injection of foreign material into the body through the skin	Never use compressed air to blow dirt from hands, face, or clothing
27. Cleaning surfaces with compressed air	Airway irritation, silicosis	Wear a dust mask and goggles in addition to the standard PPE when cleaning with compressed air at 30 psi or lower only.
		Stand up wind from the air nozzle.
28. Working on or around scaffolding	See Activity Hazard Analysis for Scaffold Erection & Use	
29. Clean up	Tripping -- waste materials, improperly stored materials	Clean up work area, especially corridors and stairways, at the end of each shift. Barricade all unsafe areas.

Equipment to be Used	Inspection Requirements		Training Requi
Various power hammers	Tools	AHA training of each laborer	
Air compressor and hoses		MSDS onsite	
Ladders			
Hand Tools			
Misc. Power Tools			

ACTIVITY HAZARD ANALYSIS

Installing Chainlink Fences and Gates

Location:	Contract No.	Project:
Niagara Falls, New York		**Track I & II Remediation and Demolition**
Phase (Division):	Prime Contractor:	Subcontractor:
	OSC	

Principal Steps	Potential Safety Hazard	Safe Procedure & Recommended Controls
Train employees in the safe operation of hazardous equipment and tools	Employees-not trained in the safe execution of their tasks	Project Manager or Superintendent will verify that employees are trained AND Qualified to operate hazardous equipment and or tools PRIOR TO the start of work. Maintain hazardous equipment and tool training records in the project file.
1. Train employees	Employees not trained in the safe execution of their tasks	Use this Activity Hazard Analysis, and other formal and informal training to train employees.
2. Put on your personal protective equipment.	Head or foot injury.	You must wear a hard hat, safety glasses with side shields, steel toe safety boots at all times. Have goggles, face shield and foam ear plugs and/or ear muffs handy for when the work requires special protection.
3. Receive material deliveries, shake out material	Crushing, pinching or cutting hands or feet	When moving material keep hands and feet clear of pinch points.
		Stay clear of moving machinery, heed backup alarms and get out of the way. Wear an approved high visibility vest
		Stay clear of material that may move or shift when breaking bands. Dispose of metal bands as soon as possible.
	Excessive material handling	Stage material as close to its final destination as possible.
4. Move lumber with a forklift	See Activity Hazard Analysis on forklift operation	
5. Check electrical cords	Electrocution- faulty electrical cords	Do not use electrical cords with cuts, worn insulation, or visible conductors. Inspect electrical cords daily. Do not use electrical cords in wet locations.
		Use cords rated for hard or extra-hard usage.
		Use factory-assembled cord sets as much as possible. Repairs must preserve the original electrical and mechanical integrity of the cord. Electrical tape fixes are prohibited and replacement plugs must be properly sized and provided with strain relief clamps. Repairs to electrical cords and tools shall be made by qualified persons i.e. Electrician
		Check to make sure the ground prongs are intact.
6. Inspect tools	Defective or broken tools	Tag and remove defective tools from the jobsite.
		All saws and grinders have properly functioning manufacture installed guards.

		Power saws are equipped only with a constant pressure switch.
7. Communication and preparatory instructions	Lack of coordination between workers and resulting misunderstandings.	Before beginning each phase of work the supervisor will explain to the workers what needs to be done and how the work will proceed.
8. Dig post holes	Crushed by, or caught between machine parts	Do not stand or walk under the elevated portion of the machine, and stay clear of the auger.
		Do not place body parts near pinch points on the machine or between the machine and a stationary object.
	Pulls and strains from digging	Don't be too aggressive when moving heavy or wet material.
		Make sure that wooden handles for tools are secured tightly in the tool and are free of cracks and splinters.
	Falling into a hole	When holes must be left open for extended periods, place caution tape around the hole or cover the hole with 3/4" plywood or similar cover.
9. Move steel, fence posts and frame work	Strains from lifting	Know how much you can safely lift. Get help with heavy objects.
		Use safe lifting techniques: bend knees and lift the bulk of the weight with leg strength. Keep the weight close to your body.
	Striking and injuring co-workers with materials	Be aware of your surroundings while moving long or bulky materials, watch where you are going.
10. Set and plumb fence posts, pour footings	Struck or crushed by moving equipment	Wear a high visibility vest at all times when working in and around equipment. Never approach moving equipment. Use hand eye contact with operator. Make sure hydraulics are disengaged by the operator before approaching equipment.
	Eye Injury	Wear safety glasses with side shields and a face shield while placing concrete.
11. Cut posts, rails, truss rods (cut off saw or chopsaw)	Work piece moving unexpectedly	Make sure the piece you are cutting is properly supported and secured.
	Burns, fires	Watch where you are throwing your sparks. Do not cut where sparks will land on other workers or on combustible materials
	Cuts and abrasions	Keep fingers several inches from all blades
	Flying particles- eye damage	Wear safety glasses with side shields and a face shield.
	Hazardous noise- hearing loss	Wear foam ear plugs.
12. Install framework	Cuts and abrasions	Wear gloves when handling site-cut edges that are sharp or that have burrs.
	Crushing or pinching body parts	Keep fingers, hands, and feet clear of all pinch points.
	Dropping materials, scrap, or tools on workers	Do not allow other workers to work below you.
	Impact injuries, cuts and abrasions	Hand tools to coworkers handle first; do not throw them.

13. Move fence fabric into place	Being struck by material or equipment	Use a forklift to move large rolls of woven wire fabric when feasible.
		See AHA for forklift operation
		Ensure that there is good communication between workers on the ground and the lift operator.
	Struck by falling material	Never walk under a raised load.
		Make sure there are sufficient workers to hoist fabric into place without allowing it to fall.
14. Stretch fabric and tie fabric to framework	Struck by pull jack or cables	Ensure that the pull jack is secured properly to a substantial structural anchorage.
	Struck by falling material	Secure fence fabric as soon as possible.
15. Install hardware and/or barbed wire	Smashed fingers	Keep hand several inches away from whatever you are hitting with a hammer
		Keep fingers and hands clear of all pinch points.
	Cuts and scrapes	Wear gloves when installing barbed wire. Wear gloves and gauntlets when installing razor wire.
16. Make adjustments or modify parts	See Activity Hazard Analysis on Welding and Cutting	
17. Working from an elevated location	Falling	Whenever you are working on a roof or other location that is 6' or more above a lower level you must be protected by either a guardrail system or a personal fall arrest system.
18. Working in hot weather	Heat Stroke	Make sure you always have an adequate supply of cool water available. If your water supply is running low talk to your supervisor.
		Take scheduled cool down breaks
		Provide ventilation or air cooling equipment for enclosed work areas.
	Sunburn	Use sunscreen, long sleeve shirts, gloves and hardhat brims.
19. Responding to an emergency	Delayed emergency response- further injury or loss of life	Respond quickly and decisively in case of an accident. Call 911 immediately.
		Know where the emergency numbers are posted, where the first aid kit is, and who is trained in first aid.
		Only persons trained in first aid should be allowed to administer first aid.
	Failure to abate a hazard	Report all accidents, incidents or near misses to your supervisor immediately.
20. Working from a boom lift	See Job Hazard Analysis on operating a boom lift.	
21. Clean up	Tripping, cuts, and scrapes	Clean up work area during and at the end of each shift. Stack materials in designated lay down areas.

Equipment to be Used	Inspection Requirements	Training Requirements
Forklift	Inspect forklift- daily	AHA training of each carpenter

Auger or auger attachment	Inspect tools and equipment	MSDS onsite
Pull Jack		
Cable cutters		
Abrasive cut off saw		

Attachment 3

Posted Mandatory Site Regulations

HSE REGULATIONS

(Post Onsite)

Regulations

1. Eating onsite is PROHIBITED, except in the specifically designated areas.

2. All Project personnel onsite must wear clean, or new, gloves daily.

3. If you get wet to the skin, you must immediately wash the affected area with soap and water. If clothes in touch with the ski are wet, they must be changed.

4. You must wash your hands and face before eating, drinking or smoking.

5. Observe regulations on washing and removing boots before entering the dressing room or a clean area.

6. Shower before going home.

Recommendations

1. Do not smoke with dirty hands.

2. Check for any personal habits that could result in contaminants entering into your body. Examples: food off your fingers, wiping your nose with a dirty hand and running a dirty hand through your hair.

3. Check that and regularly worn clothing is clean. Examples include dirty watchbands, neck chains and a dirty liner on your safety helmet.

4. HSE practices with poisonous chemicals can be summed up in a few words: **Do not breathe in chemical odors and do not touch the hazardous water, soil and sludge.** If you get dirty or wet, clean up as soon as possible.

ATTACHMENT #4

MSDS

PENNZOIL CO -- PREMIUM OUTBOARD AND MULTI-PURPOSE 2-CYCLE OIL -- 9150-01-398-6103

========== Product Identification ==========

Product ID: PREMIUM **OUTBOARD AND MULTI-PURPOSE 2-CYCLE OIL**

MSDS Date: 12/21/1995

MSDS Number: CCMDL

=== Responsible Party ===

Company Name: PENNZOIL CO

Address:700 MILIAM PENNZOIL PL

Box: 2967

City: HOUSTON

State: TX

ZIP: 77252-2967

Country: US

Info Phone Num: 713-546-4000/6227; FAX -4876

Emergency Phone Num: 800-546-6040

=== Contractor Identification ===

Company Name: M G INDUSTRIES INC

Address: COPEWOOD AND DAVIS STS BLDG 7

Box:

City: CAMDEN

State: NJ

ZIP: 08103

Country: US

Phone: 609-966-0087

Company Name: PENNZOIL CO

Address: 700 MILIAM PENNZOIL PL

Box: 2967

City: HOUSTON

State: TX

ZIP: 77252-2967

Country: US

Phone: 800-546-6227

========== Composition/Information on Ingredients ==========

Ingred Name: BASE LUBRICATING OIL
Minimum % Wt:40.
Maximum % Wt:60.
Other REC Limits:NONE RECOMMENDED
OSHA PEL:5 MG/M3 AS OIL MIST
ACGIH TLV:5 MG/M3 AS OIL MIST

Ingred Name: DETERGENT/INHIBITOR SYSTEM
Minimum % Wt:40.
Maximum % Wt:60.
Other REC Limits: NONE RECOMMENDED

Ingred Name: OIL SOLUBLE DYE
< Wt: 1.
Other REC Limits :NONE RECOMMENDED

========== Hazards Identification ==========

LD50 LC50 Mixture: TLV FOR OIL MIST IS 5 MG/M3.
Routes of Entry: Inhalation: YES Skin: NO Ingestion: NO
Reports of Carcinogenicity: NTP: NO IARC: NO OSHA: NO
Health Hazards Acute and Chronic: TARGET ORGANS:EYES, SKIN, RESPIRATORY & GI TRACTS. ACUTE- LUBRICATING OILS ARE GENERALLY CONSIDERED NO MORE THAN MINIMALLY IRRITATING TO EYES & SKIN. INHALATION OF VAPOR (GENERATED AT HIGH TEMPERATURE S ONLY)/OIL MIST MAY CAUSE MILD IRRITATION. RELATIVELY NON-TOXIC BY INGESTION. CHRONIC- LUNG INFLAMMATION, DERMATITIS.
Explanation of Carcinogenicity: WARNING! USED MOTOR OILS WERE SHOWN TO CAUSE SKIN CANCER WHEN REPEATEDLY APPLIED TO MICE WITHOUT CLEANING SKIN.
Effects of Overexposure: IRRITATION, NAUSEA, VOMITING, DIARRHEA, ABDOMINAL CRAMPS, TEARING, HEADACHE
Medical Condition Aggravated by Exposure: PERSONS WITH PRE-EXISTING SKIN

DISORDERS OR IMPAIRED RESPIRATORY FUNCTION MAY BE MORE SUSCEPTIBLE TO THE EFFECTS OF THIS PRODUCT.

========== First Aid Measures ==========

First Aid: GET MEDICAL ATTENTION IF SYMPTOMS PERSIST. SKIN:REMOVE CONTAMINATED CLOTHING. WIPE OFF EXCESS. WASH SKIN WITH SOAP & WATER. EYE:FLUSH WITH WATER FOR 15 MINUTES. HOLD EYELIDS OPEN. INHALED:REMOVE TO FR ESH AIR. PROVIDE OXYGEN/CPR IF NEEDED. ORAL:DO NOT INDUCE VOMITING. GET MEDICAL ATTENTION.

========== Fire Fighting Measures ==========

Flash Point Method: PMCC
Flash Point: =133.9C, 273.F
Extinguishing Media: USE FOAM, DRY CHEMICAL OR CARBON DIOXIDE. WATER MAY BE INEFFECTIVE BUT SHOULD BE USED TO COOL FIRE-EXPOSED CONTAINERS.
Fire Fighting Procedures: DO NOT ENTER ANY ENCLOSED OR CONFINED AREA WITHOUT PROPER PROTECTIVE EQUIPMENT AND NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS.
Unusual Fire/Explosion Hazard: DENSE SMOKE, CARBON MONOXIDE, CARBON DIOXIDE MAY BE FORMED.

========== Accidental Release Measures ==========

Spill Release Procedures: WEAR PROTECTIVE EQUIPMENT. REMOVE SPILL WITH INERT ABORBENT SUCH AS SAND, CLAY, EARTH. TRANSFER TO PROPER CONTAINERS FOR DISPOSAL. PREVENT RUN-OFF TO ENTER SEWERS OR WATERWAYS. WASH AREA WITH TO REMOV E TRACE RESIDUE.
Neutralizing Agent :NOT RELEVANT

========== Handling and Storage ==========

Handling and Storage Precautions: STORE IN COOL PLACE AWAY FROM OPEN FLAMES AND STRONG OXIDIZING AGENTS. KEEP CONTAINER CLOSED.
Other Precautions:"EMPTY" CONTAINERS RETAIN RESIDUE. ALL PRECAUTIONS

SHOULD BE OBSERVED. WASH THOROUGHLY AFTER HANDLING. KEEP OUT OF REACH OF CHILDREN. AVOID BREATHING MISTS/VAPORS. AVOID REPEATED SKIN CONTACT. DO NOT GET IN EYES. DO NOT INGEST.

========== Exposure Controls/Personal Protection ==========

Respiratory Protection: NOT REQUIRED UNDER NORMAL CONDITIONS OF USE. IF HIGH VAPOR OR MIST CONCENTRATIONS EXPECTED, USE NIOSH APPROVED CHEMICAL CARTRIDGE RESPIRATOR FOR ORGANIC VAPORS AND MISTS. REFER TO 29 CFR 1910.134.

Ventilation: USE ADEQUATE VENTILATION TO KEEP OIL MISTS OF THIS MATERIAL BELOW APPLICABLE STANDARD(S).

Protective Gloves: NITRILE IF FREQUENT CONTACT EXPECTED

Eye Protection: SAFETY GOGGLES IF SPLASHING ANTICIPATED

Other Protective Equipment: EYE WASH STATION AND SAFETY SHOWER. INDUSTRIAL-TYPE WORK CLOTHING AND APRON AS REQUIRED.

Work Hygienic Practices: OBSERVE GOOD PERSONAL HYGIENE PRACTICES AND RECOMMENDED PROCEDURES. DO NOT WEAR CONTAMINATED CLOTHING OR FOOTWEAR.

Supplemental Safety and Health

========== Physical/Chemical Properties ==========

HCC: V6

Boiling Pt :>148.9C, 300.F

Vapor Density: 4 - 5

Spec Gravity: 0.85

Appearance and Odor: GREEN/BLUE FLUID - TYPICAL PETROLEUM ODOR

Percent Volatiles by Volume: 35.37

========== Stability and Reactivity Data ==========

Stability Indicator/Materials to Avoid: YES

STRONG OXIDIZING AGENTS

Stability Condition to Avoid: NONE

Hazardous Decomposition Products: DENSE SMOKE, CARBON MONOXIDE, CARBON DIOXIDE MAY BE FORMED.

========== Disposal Considerations ==========

Waste Disposal Methods: DISPOSE OF IN ACCORDANCE WITH LOCAL STATE AND FEDERAL REGULATIONS. PRODUCT IS AN OIL. SPILL TO US SURFACE WATERS OR WATERCOURSE OR SEWER THAT CAUSE A VISIBLE SHEEN MUST BE REPORTED TO THE NATIONAL RE SPONSE CENTER. RCRA PHONE: 800-424-9346.

Part Number/Trade Name: **REGULAR UNLEADED GASOLINE**

==========

General Information

==========

Company's Name: AMERADA HESS CORP

Company's Street: 1 HESS PLAZA

Company's City: WOODBRIDGE

Company's State: NJ

Company's Country: US

Company's Zip Code: 07095

Company's Emergency Ph #: 800-424-9300(CHEMTREC)

Company's Info Ph #: 201-750-6000

Date MSDS Prepared: 13JAN89

Safety Data Review Date: 08JAN92

MSDS Serial Number: BLZXH

Hazard Characteristic Code: F2

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Ingredients/Identity Information

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Proprietary: NO

Ingredient: GASOLINE

Ingredient Sequence Number: 01

Percent: 100

NIOSH (RTECS) Number: LX3300000

CAS Number: 8006-61-9

OSHA PEL: 300 PPM; 500 PPM STEL

ACGIH TLV: 300 PPM; 500 PPM STEL

Proprietary: NO

Ingredient: TERT-AMYL METHYL ETHER (BLEND OF ING 2&3 FOR A TOTAL OF 15% OF PRODUCT)

Ingredient Sequence Number: 02

Percent: MIX

NIOSH (RTECS) Number: 1007422 AM

CAS Number: 994-05-8

OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO

Ingredient: ETHER, TERT-BUTYL METHYL; (METHYL TERT-BUTYL ETHER)

Ingredient Sequence Number: 03

Percent: MIX

NIOSH (RTECS) Number: KNS525000

CAS Number: 1634-04-4

OSHA PEL: NOT APPLICABLE

ACGIH TLV: NOT APPLICABLE

Proprietary: NO

Ingredient: TOLUENE

Ingredient Sequence Number: 04

Percent: 6-<3015

NIOSH (RTECS) Number: XS5250000

CAS Number: 108-88-3

OSHA PEL: 200 PPM/150 STEL

ACGIH TLV: 50 PPM; 9293

Proprietary: NO

Ingredient: XYLENE

Ingredient Sequence Number: 05

Percent: 8.5-<15

NIOSH (RTECS) Number: ZE2100000

CAS Number: 1330-20-7

OSHA PEL: 100 PPM; 150 PPM STEL

ACGIH TLV: 100 PPM; 150 PPM STE

Proprietary: NO

Ingredient: BENZENE

Ingredient Sequence Number: 06

Percent: 0.1-<5

NIOSH (RTECS) Number: CY1400000

CAS Number: 71-43-2

OSHA PEL: 1 PPM; 5 STEL (MFR)

ACGIH TLV: 10 PPM

Proprietary: NO

Ingredient: BENZENE, ETHYL; (ETHYL BENZENE)

Ingredient Sequence Number: 07

Percent: <3

NIOSH (RTECS) Number: DA0700000

CAS Number: 100-41-4

OSHA PEL: 100 PPM; 125 PPM STEL

ACGIH TLV: 100 PPM; 125 PPM STEL

Proprietary: NO

Ingredient: BENZENE, 1, 2, 4-TRIMETHYL-; (1, 2, 4-TRIMETHYLBENZENE)

Ingredient Sequence Number: 08

NIOSH (RTECS) Number: DC3325000

CAS Number: 95-63-6

OSHA PEL: NOT APPLICABLE

ACGIH TLV: NOT APPLICABLE

Proprietary: NO

Ingredient: SUPPORT DATA: IN AIR. HEAVIER/AIR VAPOR CAN FLOW ALONG SURFACES TO DISTANT SOURCES OF IGNITION AND FLASHBACK. FLOW GASOLINE CAN BE (ING 10)

Ingredient Sequence Number: 09

NIOSH (RTECS) Number: 9999999ZZ

OSHA PEL: NOT APPLICABLE

ACGIH TLV: NOT APPLICABLE

Proprietary: NO

Ingredient: ING 9: IGNITED BY SELF-GENERATED STATIC ELECTRICITY RUNOFF TO SEWERS MAY CREATE FIRE &/OR EXPLOSION HAZARD

Ingredient Sequence Number: 10

NIOSH (RTECS) Number: 9999999ZZ

OSHA PEL: NOT APPLICABLE

ACGIH TLV: NOT APPLICABLE

Proprietary: NO

Ingredient: EFFECTS OF OVEREXPOSURE: WILL FATIGUE OLFACTORY SENSES. IMMEDIATELY DANGEROUS TO HEALTH/LIFE IS REPRESENTED BY 2 THOUSANDS (2000)PPM. (ING 12)

Ingredient Sequence Number: 11

NIOSH (RTECS) Number: 9999999ZZ

OSHA PEL: NOT APPLICABLE

ACGIH TLV: NOT APPLICABLE

Proprietary: NO

Ingredient: ING 11: INGESTION/INHALATION OF LIQUID &/OR EXCESS VAPOR CAN HAVE AN ANESTHETIZING EFFECT, CAUSING VERTIGO, BLURRED VISION, VOMIT & (ING 13)

Ingredient Sequence Number: 12

NIOSH (RTECS) Number: 9999999ZZ

OSHA PEL: NOT APPLICABLE

ACGIH TLV: NOT APPLICABLE

Proprietary: NO

Ingredient: ING 12: CYANOSIS. OVEREXPOSURE MAY CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION.

Ingredient Sequence Number: 13

NIOSH (RTECS) Number: 9999999ZZ

OSHA PEL: NOT APPLICABLE

ACGIH TLV: NOT APPLICABLE

Proprietary: NO

Ingredient: SPILL PROCEDURES: ACQUATIC LIFE. CAUTION-EVACUATE ALL NON-ESSENTIAL PERSONNEL SPILLED MATERIAL MAY CAUSE SLIPPERY CONDITION. OPEN (ING 15)

Ingredient Sequence Number: 14

NIOSH (RTECS) Number: 9999999ZZ

OSHA PEL: NOT APPLICABLE

ACGIH TLV: NOT APPLICABLE

Proprietary: NO

Ingredient: ING 14: SPILLS MAY EMIT FLAMMABLE VAPOR APPROACH FROM UPWIND IF POSSIBLE. AVOID BREATHING EMITTED VAPOR WEAR SCBA IF REQUIRED TO PREVENT(ING 16)

Ingredient Sequence Number: 15

NIOSH (RTECS) Number: 9999999ZZ

OSHA PEL: NOT APPLICABLE

ACGIH TLV: NOT APPLICABLE

Proprietary: NO

Ingredient: ING 15: INHAL OF VAPORS.

Ingredient Sequence Number: 16

NIOSH (RTECS) Number: 9999999ZZ

OSHA PEL: NOT APPLICABLE

ACGIH TLV: NOT APPLICABLE

Proprietary: NO

Ingredient: WASTE DISPOSAL METHOD: FLAMMABLE, VAPORS.

Ingredient Sequence Number: 17

NIOSH (RTECS) Number: 9999999ZZ

OSHA PEL: NOT APPLICABLE

ACGIH TLV: NOT APPLICABLE

Proprietary: NO

Ingredient: HANDLING/STORAGE PRECAUTIONS: BONDED/GROUNDED TO PREVENT POTENTIAL ACCUMULATION OF STATIC ELECTRICITY. NO SMOKING IN AREAS OF HANDLING/STORAGE (ING 19)

OSHA PEL: NOT APPLICABLE

ACGIH TLV: NOT APPLICABLE

Proprietary: NO

Ingredient: ING 18: STORAGE SHOULD BE TIGHTLY CLOSED CONTAINER IN COOL/DRY/ISOLATED & WELL VENTED AREA AWAY FROM POTENTIAL SOURCES OF IGNITION.

Ingredient Sequence Number: 19

NIOSH (RTECS) Number: 9999999ZZ

OSHA PEL: NOT APPLICABLE

ACGIH TLV: NOT APPLICABLE

Proprietary: NO

Ingredient: OTHER PRECAUTIONS: REGULAR/FREQUENT BASIS. VENTALATION MUST BE SUFFICIENT TO PREVENT ACCUMULATION OF TOXIC/FLAMMABLE CONCENTRATION OF VAPOR IN AIR. (ING 21)

Ingredient Sequence Number: 20

NIOSH (RTECS) Number: 9999999ZZ

OSHA PEL: NOT APPLICABLE

ACGIH TLV: NOT APPLICABLE

Proprietary: NO

Ingredient: ING 20: EMPTY CONTAINER MAY CONTAIN TOXIC/FLAM/MABLE COMBUSTION RESIDUE/VAPOR. DO NOT CUT/GRIND/DRILL/WELD OR REUSE CONTAINER UNLESS ADEQUATE (ING 22)

Ingredient Sequence Number: 21

NIOSH (RTECS) Number: 9999999ZZ

OSHA PEL: NOT APPLICABLE

ACGIH TLV: NOT APPLICABLE

Proprietary: NO

Ingredient: ING 21: PRECAUTIONS AGAINST THESE HAZARDS ARE TAKEN.

Ingredient Sequence Number: 22

NIOSH (RTECS) Number: 9999999ZZ

OSHA PEL: NOT APPLICABLE

ACGIH TLV: NOT APPLICABLE

Proprietary: NO

Ingredient: HYGIENE PRACTICES: UPPWIND OF VAPOR OR MIST RELEASE, SPILL OR

LEAK.

Ingredient Sequence Number: 23

NIOSH (RTECS) Number: 9999999ZZ

OSHA PEL: NOT APPLICABLE

ACGIH TLV: NOT APPLICABLE

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Physical/Chemical Characteristics

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Appearance and Odor: CLEAR LIQUID W/STRONG AROMATIC HYDROCARBON ODOR. MAY BE DYED CHARACTERISTIC (SUPDAT)

Boiling Point: 85.0F, 29.4C

Vapor Pressure (MM Hg/70 F): SUPP DATA

Vapor Density (Air=1): 3.0-4.0

Specific Gravity: 0.76

Evaporation Rate and Ref: 10-11(BUTYL ACETATE=1)

Solubility in Water: SLIGHT

Percent Volatiles by Volume: 100

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Fire and Explosion Hazard Data

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Flash Point: -40F,-40C

Flash Point Method: TCC

Lower Explosive Limit: 1.4%

Upper Explosive Limit: 7.4%

Extinguishing Media: ANY APPROVED EXTINGUISHING AGENT FOR CLASS B FIRES/DRY CHEM/FOAM/CO*2 OR HALON. H*2O IS NOT ORDINARILY EFFECTIVE HOWEVER, H*2O FOG(SUPP DATA)

Special Fire Fighting Proc: NIOSH/MSHA APPRVD SCBA & FULL PROTECTION EQUIPMENT (FPN). AVOID INHALATION OF VAPOR. H*2O SHOULD BE USED TO KEEP EXPOSURE CONTROL COOL. APPROACH FROM UPWIND IF POSSIBLE.

Unusual Fire and Explosive Hazards: CLASS 1A FLAMMABLE LIQUID. KEEP AWAY FROM HEAT/SOURCES OF IGNITION/OXIDIZERS. BURN MAY CAUSE EMISSION OF TOXIC PRODUCTION OF COMBUSTION.

EMPTY PRODUCT CONTROL/VESSELS MAY CONTAIN (SUPP DATA)

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Reactivity Data

==========

Stability: YES

Conditions to Avoid (Stability): AVOID HANDLING OR STORING NEAR HEAT, SPARKS OR OPEN FLAME.

Materials to Avoid: OXIDIZING AGENTS. COMBUSTION OF NITRIC AND SULFURIC ACIDS.

Hazardous Decomp. Products: CONTACT W/NITRIC & SULFURIC ACIDS WILL FORM NITROCRESOLS THAT CAN DECOMPOSE VIOLENTLY.

Hazardous Poly Occur: NO

Conditions To Avoid (Poly): NOT RELEVANT.

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Health Hazard Data

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LD50-LC50 Mixture: LD50:ORAL (RBT)5 ML/KG

Route of Entry - Inhalation: YES

Route of Entry - Skin: NO

Route of Entry - Ingestion: YES

Health Haz. Acute And Chronic: ACUTE/CHRONIC: HARMFUL/FATAL IF SWALLOW/ ASPIRATED. LONG TERM EXPOS TO VAP HAS CAUSED CANCER IN SOME LAB ANIMALS. INGEST MAY CAUSE GI DISTURB. ASPIR INTO LUNGS MAY CAUSE PNEUMONIA PROLONGED CONTACT W/SKIN MAY RESULT IN DEFAT/RED/ITCH/INFLAM/CRACK & POSS SECONDARY INFECTION.

HAS LOW ORDER OF ACUTE ORAL TOXICITY IF (EFFECTS OF OVEREXPOSURE)

Carcinogenicity - NTP: YES

Carcinogenicity - IARC: YES

Carcinogenicity - OSHA: YES

Explanation Carcinogenicity: GASOLINE - IARC 2B; BENZENE, A CONSTITUENT OF

GASOLINE: OSHA REGULATED, GROUP 1 (IARC, NTP).

Signs/Symptoms of Overexposure: HEALTH HAZARD: INGESTED, BUT MINIMUM AMOUNT ASPIR DURING SUCH INGEST MAY CAUSE DEATH. HIGH PRESS SKIN INJECTIONS ARE SERIOUS MEDICAL EMERGENCY REPEATED/PROLONGED EXPOSURE TO VAPOR CONTAIN HIGH CONCENTRATION OF BENZENE MAY CAUSE ANEMIA &

OTHER BLOOD DISEASES, INCLUDING LEUKEMIA. INHALATION TO 100PPM MAY CAUSE SLIGHT DROWSINESS/HEADACHE. 100-200PPM MAY CAUSE FATIGUE/NAUSEA/ITCH & (ING 11)

Medical Conditions Aggravated By Exposure: OPEN WOUNDS, SKIN DISORDERS, CHRONIC RESPIRATORY DISEASE OR PRE-EXISTING CENTRAL NERVOUS SYSTEM DISEASE.

Emergency/First Aid Proc: INHALATION: REMOVE TO FRESH AIR, PROVIDE O*2 THERAPY &/OR RESUSCITATION AS INDICATED. SKIN: REMOVE CONTAMINATED CLOTHING AND FLUSH WITH SOAP AND WATER. EYE: FLUSH WITH WATER FOR AT LEAST 15 MINUTES. INGEST: RINSE MOUTH WITH WATER. KEEP CALM AND WARM. DO NOT INDUCE VOMIT! ASPIRATION OF MATERIAL INTO LUNGS MAY CAUSE CHEMICAL PNEUMONIA. CALL PHYSICIAN IMMEDIATELY

Precautions for Safe Handling and Use

==========

Steps If Material Released/Spilled: CONTAIN ALL SPILLS. ABSORB ALL FREE LIQUID. REMOVE ALL IGNITION SOURCES/SAFELY STOP FLOW OF SPILL. PREVENT FROM ENTER ALL BODIES OF H*2O. COMPLY WITH ALL APPLICABLE LAWS/REGS. ABSORBENT MATERIAL/PADS/SAND/EARTH MAY BE USED. CONTAMINATED H*2O/SOIL MAY BE HAZARD TO ANIMAL/ (ING 14)

Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.

Waste Disposal Method: DISPOSE OF PRODUCT/CONTAMINATED MATERIAL AS EPA "IGNITABLE HAZARDOUS WASTE". USE ONLY APPROVED TREATMENT TRANSPORTERS & DISPOSAL SITES IN COMPLIANCE W/ALL APPLICABLE FEDERAL/STATE/LOCAL REGULATIONS MAINTAIN SURVEILLANCE OF ABSORBED MATERIAL UNTIL FINAL DISPOSAL TO OBSERVE FOR EMISSION OF VOLATILE, (ING 17)

Precautions-Handling/Storing: KEEP AWAY FROM HEAT/SPARKS/OPEN FLAME. AVOID

BREATHING VAPOR/MIST. AVOID SKIN/EYE CONTACT. KEEP CONTAINER CLOSED & PLAINLY LABELED.

TRANSFER LINES MUST BE (ING 17)

Other Precautions: USE ONLY AS MOTOR FUEL. HANDLE/TRANSPORT/STORE IN ACCORDANCE W/APPLICABLE LAWS/REGULAITONS. ELECTRICAL EQUIPMENT SHOULD BE APPROVED FOR CLASSIFIED AREA. REMOVE SOILED CLTHG/LAUNDER BEFORE RE-USE. DISCARD OIL SOAKED SHOES. WEAR FULL

LENGTH CLOTHING/LAUNDER ON (ING 18)

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Control Measures

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Respiratory Protection: USE NIOSH/MSHA APPROVED SCBA IN CONFINED SPACES OR

WHEN EXPOSED TO HEAVY MIST.

Ventilation: LOCAL EXHAUST: GENERALLY NOT REQUIRED. MECHANICAL (GENERAL): EXPLOSION PROOF(APPROVED FOR CLASSIFIED AREA).

Protective Gloves: IMERVIOUS GLOVES.

Eye Protection: CHEMICAL WORKERS GOGGLES (FP N).

Other Protective Equipment: IMPERVIOUS CLOTHING, EYEWASH/BATH.

Work Hygienic Practices: WASH SKIN THOROUGHLY W/SOAP/H*2O BEFORE EAT/DRINK/SMOKING. VENTILATION MAY BE USED TO CONTROL/REDUCE AIRBORNE CONCENTRATIONS STAND (ING 23)

Suppl. Safety & Health Data: VP: 275-475@68F. APPEAR/ODOR: COLOR FOR

IDENTIFICATION (CLEAR RED/BRONZE/YELLOW ARE TYPICAL). EXTINGUISHING MEDIA: MAY BE USED BY EXPERIENCED FIRE FIGHTER FOR INTENSITY CONTROL/TO COOL EXPOSED AREAS.

EXPLOSION HAZARD: EXPLOSIVE VAPOR DO NOT PRESSURIZE/CUT/HEAT/WELD/EXPOSE SUCH CONTROL OR VESSELS TO SOURCES OF IGNITION. VAPOR CAN READILY FORM EXPLOSIVE MIXTURE(ING 9)

Transportation Data

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Trans Data Review Date: 92072

DOT PSN Code: GTN

DOT Proper Shipping Name: GASOLINE

DOT Class: 3

DOT ID Number: UN1203

DOT Pack Group: II

DOT Label: FLAMMABLE LIQUID

Label Data

==========

Label Required: YES

Label Status: G

Common Name: REGULAR UNLEADED GASOLINE

Special Hazard Precautions: ACUTE/CHRONIC:HARMFUL/FATAL IF SWALLOW/

ASPIRATED, LONG TERM EXPOSURE TO VAPOR HAS CAUSED CANCER IN SOME LAB ANIMALS. INGESTION MAY CAUSE GI DISTURBANCE. ASPIRATE INTO LUNGS MAY CAUSE PNEUMONIA PROLONG CONTACT W/SKIN MAY RESULT IN DEFAT/RED/ITCH/INFLAM/CRACK & POSSIBLY SECONDARY INFECTION.

HAS LOW ORDER OF ACUTE ORAL TOXICITY IF (EFFECTS OF OVEREXPOSURE) HEALTH HAZARD: INGESTED, BUT MINIMUM AMOUNT ASPIRATED DURING SUCH INGEST MAY CAUSE DEATH. HIGH PRESS SKIN INJECTIONS ARE SERIOUS MEDICAL EMERGENCOES REPEATED/PROLONGED EXPOSURE TO VAPOR CONTAINING HIGH CONCENTRATION OF BENZENE MAY CAUSE ANEMIA & OTHER BLOOD DISEASES, INCLUDING LEUKEMIA. INHALATION TO 100PPM MAY CAUSE SLIGHT DROWSINESS/HEADACHE. 100-200PPM MAY CAUSE FATIGUE/NAUSEA/ ITCH & (ING 11)

==========

Item Name: **DIESEL FUEL**

Company's Name: AMOCO INTERNATIONAL OILCO

Company's Street: 200 E RANDOLPH DR

Company's P. O. Box: 5910-A

Company's City: CHICAGO

Company's State: IL

Company's Country: US

Company's Zip Code: 60680

Company's Emergency Ph #: 800-447-8735

Company's Info Ph #: 312-856-3907

Distributor/Vendor # 1: AMOCO INTERNATIONAL OILCO

Status: SE

Date MSDS Prepared: 25JUL89

Safety Data Review Date: 07MAR91

Supply Item Manager: KY

MSDS Preparer's Name: R. G. FARMER

MSDS Serial Number: BGWFD

Specification Number: VV-F-800

Spec Type, Grade, Class: DF-2

Hazard Characteristic Code: F4

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Ingredients/Identity Information

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Proprietary: NO

Ingredient: ALIPHATIC PETROLEUM DISTILLATES

Ingredient Sequence Number: 01

NIOSH (RTECS) Number: 1003049AP

CAS Number: 68476-30-2

OSHA PEL: NOT ESTABLISHED

ACGIH TLV: NOT ESTABLISHED

Other Recommended Limit: NONE SPECIFIED

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Physical/Chemical Characteristics

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Appearance and Odor: CLEAR, BRIGHT LIQUID

Boiling Point: 340F, 171C

Specific Gravity: 0.88

Decomposition Temperature: UNKNOWN

Solubility in Water: NEGLIGIBLE

Viscosity: 1.8 CS @100F

Corrosion Rate (IPY): UNKNOWN

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Fire and Explosion Hazard Data

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Flash Point: 120F, 49C

Flash Point Method: TCC

Lower Explosive Limit: 0.6

Upper Explosive Limit: 7.5

Extinguishing Media: USE WATER FOG, CARBON DIOXIDE, FOAM OR DRY CHEMICAL.

(EXTINGUISHINGING AGENTS APPROVED FOR CLASS B HAZARDS)

Special Fire Fighting Proc: FIRE FIGHTERS SHOULD USE NIOSH APPROVED SCBA &

FULL PROTECTIVE EQUIPMENT WHEN FIGHTING CHEMICAL FIRE. USE WATER SPRAY TO

COOL NEARBY CONTAINERS EXPOSED TO FIRE.

Unusual Fire and Explosive Hazards: FIRE OR EXCESSIVE HEAT MAY CAUSE PRODUCTION

OF HAZARDOUS DECOMPOSITION PRODUCTS.

==========

Reactivity Data

==========

Stability: YES

Conditions to Avoid (Stability): HIGH TEMPERATURES, SPARKS, AND OPEN FLAMES

Materials to Avoid: STRONG OXIDIZING AGENTS

Hazardous Decomp. Products: BY FIRE: CARBON MONOXIDE, CARBON DIOXIDE

Hazardous Poly Occur: NO

Conditions to Avoid (Poly): NOT APPLICABLE

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Health Hazard Data

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LD50-LC50 Mixture: LD50 (ORAL RAT) IS EXPECTED > 5G/KG

Route of Entry - Inhalation: YES

Route of Entry - Skin: YES

Route of Entry - Ingestion: YES

Health Hazards Acute and Chronic: EYE: IRRITATION. SKIN: MILDLY IRRITATING.

RESPIRATORY SYSTEM IRRITATION AND LIGHT HEADEDNESS. MAY CAUSE NAUSEA, HEADACHE, DROWSINESS, VOMITING. INGESTION: SOLVENT ASPIRATION INTO LUNGS AS A RESULT OF VOMITING MAY CAUSE LUNG AND DIGESTIVE SYSTEM DAMAGE

Carcinogenicity - NTP: NO

Carcinogenicity - IARC: NO

Carcinogenicity - OSHA: NO

Explanation Carcinogenicity: NONE OF THE COMPOUNDS IN THIS PRODUCT IS

LISTED BY IARC, NTP, OR OSHA AS A CARCINOGEN. (DIESEL EXHAUST IS POTENTIAL)

Signs/Symptoms of Overexposure: VAPORS IN HIGH CONCENTRATION ARE ANESTHETIC.

OVEREXPOSURE MAY RESULT IN FATIGUE, WEAKNESS, CONFUSION EUPHORIA,

DIZZINESS, HEADACHE, DILATED PUPILS, LACRIMATION, NERVOUSNESS, MUSCLE FATIGUE, INSOMNIA, PARESTHESIA, DERMATITIS, AND PHOTOPHOBIA. CAN CAUSE TEARING, REDNESS OF EYES AND BLURRED VISION. IRRITATION OF SKIN.

Med Cond Aggravated By Exp: PERSONS WITH A HISTORY OF AILMENTS OR WITH A

PRE-EXISTING DISEASE INVOLVING THE EYES, SKIN, RESPIRATORY TRACT OR NERVOUS SYSTEM MAY BE AT INCREASED RISK FROM EXPOSURE. DRYING/CRACKING OF SKIN.

Emergency/First Aid Proc: EYES: FLUSH WITH RUNNING WATER FOR 15 MINUTES

WHILE HOLDING EYELID. GET MEDICAL ATTENTION IMMEDIATELY. SKIN: WASH WITH REMOVE TO FRESH AIR. GIVE MOUTH-TO-MOUTH RESUSCITATION IF NOT BREATHING. GET MEDICAL ATTENTION. INGESTION: DO NOT INDUCE VOMITING. GIVE NOTHING BY MOUTH IF UNCONSCIOUS. GET MEDICAL ATTENTION IMMEDIATELY.

Precautions for Safe Handling and Use

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Steps If Material Released/Spill: REMOVE ALL SOURCES OF IGNITION. VENTILATE AND REMOVE WITH INERT ABSORBENT. USE NON-SPARKING TOOLS.

Neutralizing Agent: NOT APPLICABLE

Waste Disposal Method: WASTE MATERIAL MAY BE A HAZARDOUS WASTE (CODE D001) WHICH MUST BE DISPOSED OF ACCORDINGLY. DO NOT INCINERATE CLOSED CONTAINER. DISPOSE OF IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

Precautions-Handling/Storing: CONTENTS ARE FLAMMABLE. KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME. DURING USE AND UNTIL ALL VAPORS ARE GONE: KEEP AREA VENTILATED-DO NOT SMOKE.

Other Precautions: AVOID BREATHING OF VAPORS. LABORATORY TESTS ON ANIMALS HAVE SHOWN THAT EXPOSURE CAN CAUSE SKIN TUMORS. ALWAYS PROMPTLY WASH OFF ANY EXPOSED SKIN.

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Control Measures

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Respiratory Protection: WEAR A NIOSH/MSHA APPROVED RESPIRATOR IF VENTILATION DOES NOT MAINTAIN INHALATION EXPOSURES BELOW PEL/TLV. WEAR SELF-CONTAINED BREATHING APPARATUS IF REQUIRED FOR HIGH LEVELS OF CONTAMINATES.

Ventilation: LOCAL EXHAUST PREFERABLE. GENERAL EXHAUST ACCEPTABLE IF THE EXPOSURE IS MAINTAINED BELOW APPLICABLE EXPOSURE LIMITS.

Protective Gloves: NEOPRENE OR NATURAL RUBBER GLOVES

Eye Protection: PAINT GOGGLES/SAFETY GLASSES AS REQUIRED

Other Protective Equipment: INDUSTRIAL-TYPE WORK CLOTHING, HAT AND APRON

AS REQUIRED. AN EYE WASH AND DRENCH SHOWER FACILITY SHOULD BE AVAILABLE.

Work Hygienic Practices: USE WITH ADEQUATE VENTILATION. AVOID BREATHING

VAPOR/SPRAY MIST. AVOID CONTACT WITH SKIN/EYES. WASH HANDS/SKIN AFTER USE

Suppl. Safety & Health Data: KEEP CONTAINER CLOSED WHEN NOT IN USE.

TRANSFER ONLY TO APPROVED CONTAINERS WITH COMPLETE AND APPROPRIATE LABELING. DO NOT TAKE INTERNALLY.

Transportation Data

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Trans Data Review Date: 91066

DOT PSN Code: LKZ

DOT Proper Shipping Name: PETROLEUM DISTILLATES, N.O.S. OR PETROLEUM

PRODUCTS, N.O.S.

DOT Class: 3

DOT ID Number: UN1268

DOT Pack Group: III

DOT Label: FLAMMABLE LIQUID

AFI Prop. Shipping Name: PETROLEUM DISTILLATES, N.O.S.

N.O.S. Shipping Name: CONTAINS PETROLEUM DISTILLATE.

Additional Trans Data: MSDS GIVES FLASH POINT RANGE 120F-180F, BOILING

POINT RANGE 340F-675F.

Label Data

==========

Label Required: YES

Technical Review Date: 07MAR91

Label Status: F

Common Name: AMOFUEL NO. 2 DIESEL

Chronic Hazard: NO

Signal Word: WARNING!

Acute Health Hazard-Slight: X

Contact Hazard-Slight: X

Fire Hazard-Moderate: X

Reactivity Hazard-None: X

Special Hazard Precautions: EYE: IRRITATION. SKIN: MILDLY IRRITATING.

RESPIRATORY SYSTEM IRRITATION AND LIGHT HEADEDNESS. MAY CAUSE NAUSEA, HEADACHE, DROWSINESS, VOMITING. INGESTION: SOLVENT ASPIRATION INTO LUNGS AS A RESULT OF VOMITING MAY CAUSE LUNG AND DIGESTIVE SYSTEM DAMAGE REMOVE ALL SOURCES OF IGNITION. VENTILATE AND REMOVE WITH INERT ABSORBENT. USE NON-SPARKING TOOLS. CONTENTS ARE FLAMMABLE. KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME. DURING USE AND UNTIL ALL VAPORS ARE GONE: KEEP AREA VENTILATED-DO NOT SMOKE.

Product ID:MAC'S STARTING FLUID 7200/7216

MSDS Date :01/01/1985

FSC: 6850

NIIN: 00N006263

MSDS Number: BCMJN

=== Responsible Party ===

Company Name: ASHLAND OIL,INC

Address: 1409 WINCHESTER AVE

Box: 391

City: ASHLAND

State: KY

ZIP: 41114

Country: US

CAGE: 81355

=== Contractor Identification ===

Company Name: ASHLAND INC

Address: 1409 WINCHESTER AVE

Box: 391

City: ASHLAND

State: KY

ZIP: 41114

Country: US

Phone: 800-622-6846

CAGE: 81355

========== Composition/Information on Ingredients ==========

Ingred Name: ETHYL ETHER (SARA III)

CAS: 60-29-7

RTECS #:KI5775000

Fraction by Wt: >60%

OSHA PEL: 400 PPM/500 STEL

ACGIH TLV: 400PPM/500STEL; 9192

EPA Rpt Qty: 100 LBS

DOT Rpt Qty: 100 LBS

Ingred Name: ALIPHATIC HYDROCARBON

10-30%

ACGIH TLV: 500 PPM (MFR)

========== Hazards Identification ==========

Effects of Overexposure: EYE/SKIN: IRRITATION/DEFATTING. VAPORS:
DROWSINESS, VOMITING,RESP TRACT IRRIT,HEADACHE

========== First Aid Measures ==========

First Aid: EYE: FLUSH WITH WATER 15 MIN. SKIN: WASH WITH SOAP &
WATER, REMOVE CONTAMINATED CLOTHING. INHALATION: REMOVE TO FRESH
AIR, GIVE ARTIFICAL RESPIRATION, IF NEEDED,CONSULT PHYSICIAN.
INGESTION: GIVE TWO GLA SSES OF WATER, INDUCE VOMITING,GET MEDICAL
ATTN

========== Fire Fighting Measures ==========

Flash Point: <73F/22C

Lower Limits: 1.9

Extinguishing Media: DRY CHEMICAL

Fire Fighting Procedures: SELF-CONTAIN BREATH APP, WATER FOG TO COOL
EXPOSED CONTAINER

Unusual Fire/Explosion Hazard: VAPORS MAY TRAVEL ALONG GROUND TO DISTANT
IGNITION SOURCES AND FLASH BACK TO MATERIAL

========== Accidental Release Measures ==========

Spill Release Procedures: ELIMINATE ALL IGNITION SOURCES. EXCLUD
NON-PROTECTED PERSONS FROM AREA. STOP SPILL AT SOURCE, DIKE TO
PREVENT SPRADING SPILL, PUMP LIQUID TO SALVAGE TANK, ABSORB REMAINING
LIQUID ON ABSORBENT MATERIAL & SHOVEL IN TO CONTAINERS.

========== Handling and Storage ==========

Handling and Storage Precautions: STORE AWAY FROM HEAT & OTHER SOURCES OF IGNITION. DO NOT SMOKE, WELD, FLAME CUT OR BRAZE IN AREA OF USE OR ON EMPTY CONTAINERS

Other Precautions: EMPTY CONTAINERS RETAIN PRODUCT RESIDUES WHICH MAYBE HAZARDOUS, OBSERVE ALL PRECAUTIONS GIVEN ON THIS SHEET.

========== Exposure Controls/Personal Protection ==========

Respiratory Protection: NIOSH/MSHA APPROVED RESP DEVICE IN ACCORD WITH EXPOSURE OF CONCERN.

Ventilation: LOCAL/MECHANICAL TO MAINTAIN BELOW TLV.

Protective Gloves: CHEM RESISTANT

Eye Protection: CHEM SPLASH GOGGLES

Other Protective Equipment: TO PREVENT SKIN CONTACT

Supplemental Safety and Health

========== Physical/Chemical Properties ==========

Vapor Pres: 439

Vapor Density: >1

Spec Gravity: <1

Evaporation Rate & Reference: <1 (ETHER)

========== Stability and Reactivity Data ==========

Stability Indicator/Materials to Avoid: YES

STRONG OXIDIZING AGENTS

Hazardous Decomposition Products: CO, CO*2,VARIOUS HYDROCARBONS

========== Disposal Considerations ==========

Waste Disposal Methods: COMPLY WITH LOCAL,STATE AND FEDERAL REGULATIONS.

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EXC0 SUPER PLUS MOTOR OIL 10W-30

TELEPHONE NUMBER:

24 HOUR EMERGENCY ASSISTANCE GENERAL MSDS ASSISTANCE

EQUIVA SERVICES: 877-276-7283 877-276-7285

CHEMTREC: 800-424-9300

NAME AND ADDRESS

EQUILON ENTERPRISES LLC

PRODUCT STEWARDSHIP

P.O. BOX 674414

HOUSTON, TX 77267-4414

SECTION I NAME

PRODUCT: EXC0 SUPER PLUS MOTOR OIL 10W-30

CHEM NAME: MIXTURE (SEE SECTION II-A)

CHEM FAMILY: PETROLEUM HYDROCARBON; MOTOR OIL

EXC0 CODE: 50100

HEALTH HAZARD: 1 FIRE HAZARD: 1 REACTIVITY: 0

SECTION II-A PRODUCT/INGREDIENT

NO.	COMPOSITION	CAS NO.	PERCENT
P	EXC0 SUPER PLUS MOTOR OIL 10W-30		
1	HYDROTREATED HEAVY PARAFFINIC DISTILLATE	64742-54-7	0-90
2	SOLVENT DEWAXED HEAVY PARAFFINIC DISTILLATE	64742-65-0	0-90
3	ADDITIVES CONTAINING:	MIXTURE	10-25
4A	ZINC COMPOUND		
4B	CALCIUM ALKYL DITHIOPHOSPHATE		
4C	MAGNESIUM LONG-CHAIN ALKARYL SULFONATE		
4D	COPPER COMPOUND		

NFPA HAZARD RATING: HEALTH 0 FIRE 1 REACTIVITY 0

SECTION II-B ACUTE TOXICITY DATA

NO. ACUTE ORAL LD50 ACUTE DERMAL LD50 ACUTE INHALATION LC50

--- ---------- ---------- ----------

P NOT AVAILABLE

1 >5.0 G/KG, RAT* >5.0 G/KG, RABBIT*

2 >5.0 G/KG, RAT* >5.0 G/KG, RABBIT*

* BASED ON API STUDIES

SECTION III HEALTH INFORMATION

THE HEALTH EFFECTS NOTED BELOW ARE CONSISTENT WITH REQUIREMENTS UNDER THE OSHA

HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200).

EYE CONTACT: LUBRICATING OILS ARE GENERALLY CONSIDERED NO MORE THAN MINIMALLY IRRITATING TO THE EYES, HOWEVER THIS PRODUCT CONTAINS A COMPONENT IDENTIFIED AS AN EYE IRRITANT.

SKIN CONTACT: LUBRICATING OILS ARE GENERALLY CONSIDERED NO MORE THAN MILDLY IRRITATING TO THE SKIN. PROLONGED AND REPEATED CONTACT MAY RESULT IN VARIOUS SKIN DISORDERS SUCH AS DERMATITIS, FOLLICULITIS OR OIL ACNE.

INHALATION: INHALATION OF VAPOR (GENERATED AT HIGH TEMPERATURES ONLY) OR OIL MIST FROM THIS PRODUCT MAY RESULT IN MILD IRRITATION OF THE UPPER RESPIRATORY TRACT.

INGESTION: LUBRICATING OILS ARE GENERALLY CONSIDERED NO MORE THAN SLIGHTLY TOXIC IF SWALLOWED.

SIGNS AND SYMPTOMS: IRRITATION AS NOTED ABOVE.

AGGRAVATED MEDICAL CONDITIONS: PREEXISTING SKIN AND RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO

THIS PRODUCT.

OTHER HEALTH EFFECTS: THIS PRODUCT AND ITS COMPONENTS ARE NOT CLASSIFIED AS CARCINOGENS BY INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC), NATIONAL TOXOCOLOGY PROGRAM (NTP) OR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA). THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER HAS DETERMINED THERE IS SUFFICIENT EVIDENCE FOR THE CARCINOGENICITY IN EXPERIMENTAL ANIMALS OF USED MOTOR OILS. HANDLING PROCEDURES AND SAFETY PRECAUTIONS IN THE MSDS SHOULD BE FOLLOWED TO MINIMIZE EMPLOYEE'S EXPOSURE TO THE USED PRODUCT.

SECTION IV OCCUPATIONAL EXPOSURE LIMITS

COMP OSHA ACGIH

NO. PEL/TWA PEL/CEILING TLV/TWA TLV/STEL OTHER

--- ------- ----------- ------- -------- -----

P 5 MG/M3* NONE 5 MG/M3* 10 MG/M3*

*OIL MIST, MINERAL

SECTION V EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: FLUSH EYES WITH PLENTY OF WATER FOR 15 MINUTES WHILE HOLDING EYELIDS OPEN. GET MEDICAL ATTENTION.

SKIN CONTACT: REMOVE CONTAMINATED CLOTHING/SHOES AND WIPE EXCESS FROM SKIN. FLUSH SKIN WITH WATER. FOLLOW BY WASHING WITH SOAP AND WATER. IF IRRITATION OCCURS, GET MEDICAL ATTENTION. DO NOT REUSE

CLOTHING UNTIL CLEANED.

INHALATION: REMOVE VICTIM TO FRESH AIR AND PROVIDE OXYGEN IF BREATHING IS DIFFICULT. GET MEDICAL ATTENTION.

INGESTION: DO NOT INDUCE VOMITING. IF VOMITING OCCURS SPONTANEOUSLY, KEEP HEAD BELOW HIPS TO PREVENT ASPIRATION OF LIQUID INTO THE LUNGS. GET MEDICAL ATTENTION.*

NOTE TO PHYSICIAN: *IF MORE THAN 2.0 ML PER KG HAS BEEN INGESTED AND VOMITING HAS NOT OCCURRED, EMESIS SHOULD BE INDUCED WITH SUPERVISION. KEEP VICTIM'S HEAD BELOW HIPS TO PREVENT ASPIRATION. IF SYMPTOMS SUCH AS LOSS OF GAG REFLEX, CONVULSIONS OR UNCONSCIOUSNESS OCCUR BEFORE EMESIS, GASTRIC, LAVAGE USING A CUFFED ENDOTRACHEAL TUBE SHOULD BE CONSIDERED.

SECTION VI SUPPLEMENTAL HEALTH INFORMATION

NONE IDENTIFIED.

SECTION VII PHYSICAL DATA

BOILING POINT (DEG F): SPECFIC GRAVITY (H2O = 1): VAPOR PRESSURE (MM HG):

NOT AVAILABLE 0.8927 <0.1

MELTING POINT (DEG F): SOLUBILITY IN WATER: VAPOR DENSITY (AIR = 1):

-22 (POUR POINT) NEGLIGIBLE NOT AVAILABLE

VISCOSITY: 9.6-11

(CST @ 212 DEG. F)

EVAPORATION RATE (NORMAL BUTYL ACETATE = 1):NOT AVAILABLE

APPEARANCE AND ODOR:DARK RED LIQUID. SLIGHT HYDROCARBON ODOR.

PHYS/CHEM PROPERTIES: SEE ABOVE FOR DETAILS

SECTION VIII FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD: 401 DEG F (COC)

FLAMMABLE LIMITS/PERCENT VOLUME IN AIR: LOWER: N/AV HIGHER: N/AV

EXTINGUISHING MEDIA: USE WATER FOG, FOAM, DRY CHEMICAL OR CO2. DO NOT USE A DIRECT STREAM OF

WATER. PRODUCT WILL FLOAT AND CAN BE REIGNITED ON SURFACE OF WATER. SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS: MATERIAL WILL NOT BURN UNLESS PREHEATED. DO NOT ENTER CONFINED FIRE-SPACE

WITHOUT FULL BUNKER GEAR (HELMET WITH FACE SHIELD, BUNKER COATS, GLOVES AND RUBBER BOOTS), INCLUDING A POSITIVE-PRESSURE NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS. COOL FIRE EXPOSED CONTAINERS WITH WATER.

UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE IDENTIFIED

SECTION IX REACTIVITY

STABLITY: STABLE HAZARDOUS POLYMERIZATION WILL NOT OCCUR

CONDITIONS AND MATERIALS TO AVOID: AVOID HEAT, OPEN FLAMES AND OXIDIZING MATERIALS.

HAZARDOUS DECOMPOSITION PRODUCTS: THERMAL DECOMPOSITION PRODUCTS ARE HIGHLY DEPENDENT ON THE COMBUSTION

CONDITIONS. A COMPLEX MIXTURE OF AIRBORNE SOLID, LIQUID, PARTICULATES AND GASES WILL EVOLVE WHEN THIS MATERIAL UNDERGOES PYROLYSIS OR COMBUSTION. CARBON MONOXIDE AND OTHER UNIDENTIFIED ORGANIC COMPOUNDS MAY BE FORMED UPON COMBUSTION.

SECTION X EMPLOYEE PROTECTION

RESPIRATORY PROTECTION: IF EXPOSURE MAY OR DOES EXCEED OCCUPATIONAL EXPOSURE LIMITS (SECTION IV) USE A NIOSH-APPROVED RESPIRATOR TO PREVENT OVEREXPOSURE. IN ACCORD WITH 29 CFR 1910.134 USE EITHER AN ATMOSPHERE-SUPPLYING RESPIRATOR OR AN AIR-PURIFYING RESPIRATOR FOR ORGANIC VAPORS AND PARTICULATES.

PROTECTIVE CLOTHING WEAR CHEMICAL RESISTANT GLOVES AND OTHER PROTECTIVE CLOTHING AS REQUIRED TO MINIMIZE SKIN

CONTACT. WEAR SAFETY GOGGLES TO AVOID EYE CONTACT. TEST DATA FROM PUBLISHED LITERATURE AND/OR GLOVE AND CLOTHING MANUFACTURERS INDICATE THE BEST PROTECTION IS PROVIDED BY NITRILE GLOVES.

ADDITIONAL PROTECTIVE MEASURES: NONE IDENTIFIED

SECTION XI ENVIRONMENTAL PROTECTION

SPILL OR LEAK PROCEDURES:

MAY BURN ALTHOUGH NO READILY IGNITABLE. USE CAUTIOUS JUDGMENT WHEN CLEANING

UP LARGE SPILLS. *** LARGE SPILLS *** WEAR RESPIRATOR AND PROTECTIVE

CLOTHING AS APPROPRIATE. SHUT OFF SOURCE OF LEAK IF SAFE TO DO SO. DIKE AND CONTAIN. REMOVE WITH VACUUM TRUCKS OR PUMP TO STORAGE SALVAGE VESSELS. SOAK UP RESIDUE WITH AN ABSORBENT SUCH AS CLAY, SAND, OR OTHER SUITABLE MATERIALS; DISPOSE OF PROPERLY. FLUSH AREA WITH WATER TO REMOVE TRACE RESIDUE. *** SMALL SPILLS *** TAKE UP WITH AN ABSORBENT MATERIAL AND DISPOSE OF PROPERLY.

SECTION XII SPECIAL PRECAUTIONS

MINIMIZE SKIN CONTACT. WASH WITH SOAP AND WATER BEFORE EATING, DRINKING, SMOKING OR USING TOILET FACILITIES. LAUNDER CONTAMINATED CLOTHING BEFORE REUSE. PROPERLY DISPOSE OF CONTAMINATED LEATHER ARTICLES, INCLUDING SHOES, THAT CANNOT BE DECONTAMINATED.

STORE IN A COOL, DRY PLACE WITH ADEQUATE VENTILATION. KEEP AWAY FROM OPEN FLAMES AND HIGH TEMPERATURES.

SECTION XIII TRANSPORTATION REQUIREMENTS

DEPARTMENT OF TRANSPORTATION CLASSIFICATION:

NOT HAZARDOUS BY D.O.T. REGULATIONS

DOT PROPER SHIPPING NAME: NOT APPLICABLE

OTHER REQUIREMENTS: NOT APPLICABLE

SECTION XIV OTHER REGULATORY CONTROLS

THE COMPONENTS OF THIS PRODUCT ARE LISTED ON THE EPA/TSCA INVENTORY OF CHEMICAL SUBSTANCES.

PROTECTION OF STRATOSPHERIC OZONE (PURSUANT TO SECTION 611 OF THE CLEAN AIR ACT AMENDMENTS OF 1990): PER 40 CFR PART 82, THIS PRODUCT DOES NOT CONTAIN NOR WAS IT DIRECTLY MANUFACTURED WITH ANY CLASS I OR CLASS II OZONE DEPLETING SUBSTANCES.

IN ACCORDANCE WITH SARA TITLE III, SECTION 313, THE ATTACHED ENVIRONMENTAL DATA SHEET (EDS) SHOULD ALWAYS BE COPIED AND SENT WITH THE MSDS.

SECTION XV STATE REGULATORY INFORMATION

THE FOLLOWING CHEMICALS ARE SPECIFICALLY LISTED BY INDIVIDUAL STATES; OTHER PROD UCT SPECIFIC HEALTH AND SAFETY DATA IN OTHER SECTIONS OF THE MSDS MAY ALSO BE AP PLICABLE FOR STATE REQUIREMENTS. FOR DETAILS ON YOUR REGULATORY REQUIREMENTS YO U SHOULD CONTACT THE APPROPRIATE AGENCY IN YOUR STATE.

STATE LISTED COMPONENT	CAS NO	PERCENT	STATE CODE
ZINC COMPOUNDS	NONE	2-3	MA, NJ
COPPER COMPOUNDS	NONE	1-2	MA, NJ

CA = CALIFORNIA HAZ. SUBST. LIST; CA65C, CA65R, CA65C/R = CALIFORNIA SAFE DRINKING WATER AND TOXICS ENFORCEMENT ACT OF 1986 OR PROPOSITION 65 LIST; CT = CONNECTICUT TOXIC. SUBST. LIST; FL = FLORIDA SUBST. LIST; IL = ILLINOIS TOX. SUBST. LIST; LA = LOUISIANA HAZ. SUBST. LIST; MA = MASSACHUSETTS SUBST. LIST; ME = MAINE HAZ. SUBST. LIST; MN = MINNESOTA HAZ. SUBST. LIST; NJ =

SECTION XVI SPECIAL NOTES

THIS MSDS HAS BEEN REVISED IN SECTIONS II-A, II-B, V, VI, VII, IX, XV AND EDS SECTIONS I AND II.

THE INFORMATION CONTAINED IN THIS DATA SHEET IS BASED ON THE DATA AVAILABLE TO US AT THIS TIME, AND IS BELIEVED TO BE ACCURATE BASED UPON THAT DATA. IT IS PROVIDED INDEPENDENTLY OF ANY SALE OF THE PRODUCT, FOR PURPOSE OF HAZARD COMMUNICATION. IT IS NOT INTENDED TO CONSTITUTE PRODUCT PERFORMANCE INFORMATION, AND NO EXPRESS OR IMPLIED WARRANTY OF ANY KIND IS MADE WITH RESPECT TO THE PRODUCT, UNDERLYING DATA OR THE INFORMATION CONTAINED HEREIN. YOU ARE URGED TO OBTAIN DATA SHEETS FOR ALL PRODUCTS YOU BUY, PROCESS, USE OR DISTRIBUTE, AND ARE ENCOURAGED TO ADVISE THOSE WHO MAY COME IN CONTACT WITH SUCH PRODUCTS OF THE INFORMATION CONTAINED HEREIN.

TO DETERMINE THE APPLICABILITY OR EFFECT OF ANY LAW OR REGULATION WITH RESPECT TO THE PRODUCT, YOU SHOULD CONSULT WITH YOUR LEGAL ADVISOR OR THE APPROPRIATE GOVERNMENT AGENCY. WE WILL NOT PROVIDE ADVICE ON SUCH MATTERS, OR BE RESPONSIBLE FOR ANY INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN. THE UNDERLYING DATA, AND THE INFORMATION PROVIDED HEREIN AS A RESULT OF THAT DATA, IS THE PROPERTY OF EQUIVA SERVICES, LLC AND IS NOT TO

BE THE SUBJECT OF SALE OR EXCHANGE WITHOUT THE EXPRESS WRITTEN CONSENT OF EQUIVA SERVICES, LLC.

EQUILON EDS: 71073E

EXC0 SUPER PLUS MOTOR OIL 10W-30

TELEPHONE NUMBER:

24 HOUR EMERGENCY ASSISTANCE GENERAL MSDS ASSISTANCE

EQUIVA SERVICES: 877-276-7283 877-276-7285

CHEMTREC: 800-424-9300

NAME AND ADDRESS

EQUILON ENTERPRISES

P.O. BOX 674414

HOUSTON, TX 77267-4414

PRODUCT CODE: 50100

SECTION I PRODUCT COMPOSITION

NO.	COMPOSITION	CAS	PERCENT
P	EXC0 SUPER PLUS MOTOR OIL 10W-30	MIXTURE	100
1	HYDROTREATED HEAVY PARAFFINIC DISTILLATE	64742-54-7	0-90
2	SOLVENT DEWAXED HEAVY PARAFFINIC DISTILLATE	64742-65-0	0-90
3	ADDITIVES CONTAINING	MIXTURE	10-25
3A	ZINC COMPOUND		
3B	CALCIUM ALKYL DITHIOPHOSPHATE		
3C	MAGNESIUM LONG-CHAIN ALKARYL SULFONATE		
3D	COPPER COMPOUND		

SECTION II SARA TITLE III INFORMATION

NO.	EHS RQ (*1)	EHS TPQ (*2)	SEC-313 (*3)	313 CATEGORY (*4)	311/312 CATEGORY (*5)
3A			YES	ZINC COMPOUNDS	
3D			YES	COPPER COMPOUNDS	

*1 = REPORTABLE QUANTITY OF EXTREMELY HAZARDOUS SUBSTANCE, SEC 302

*2 = THRESHOLD PLANNING QUANTITY, EXTREMELY HAZARDOUS SUBSTANCE, SEC 302

*3 = TOXIC CHEMICAL, SEC 313

*4 = CATEGORY AS REQUIRED BY SEC 313 (40 CFR 372.65 C), MUST BE USED ON TOXIC RELEASE INVENTORY FORM

*5 = CATEGORY (FOR AGGREGATE REPORTING REQUIREMENTS UNDER SARA 311, 312)

HEALTH: H-1 = IMMEDIATE (ACUTE) HEALTH HAZARD

H-2 = DELAYED (CHRONIC) HEALTH HAZARD

PHYSICAL: P-3 = FIRE HAZARD

P-4 = SUDDEN RELEASE OF PRESSURE HAZARD

P-5 = REACTIVE HAZARD

SECTION III ENVIRONMENTAL RELEASE INFORMATION

THIS PRODUCT IS COVERED BY EPA'S COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA) PETROLEUM EXCLUSION. THEREFORE RELEASES TO AIR, LAND, OR WATER ARE NOT REPORTABLE UNDER CERCLA ("SUPERFUND"). HOWEVER UNDER SECTION 311 OF EPA'S CLEAN WATER ACT (CWA), THIS PRODUCT IS CONSIDERED AN OIL. AS SUCH , SPILLS INTO OR LEADING TO SURFACE WATERS THAT CAUSE A SHEEN MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER, 800-424-8802.

THIS PRODUCT IS AN OIL UNDER 49 CFR (DOT) PART 130. IF SHIPPED BY RAIL OR HIGHWAY IN A TANK WITH A CAPACITY OF 3,500 GALLONS OR MORE, IT IS SUBJECT TO THE REQUIREMENTS OF PART 130. MIXTURE SOLUTIONS IN WHICH THIS PRODUCT IS PRESENT AT 10% OR MORE MAY ALSO BE SUBJECT TO THIS RULE.

SECTION IV RCRA INFORMATION

IF THIS PRODUCT BECOMES A WASTE, IT WOULD NOT BE A HAZARDOUS WASTE BY RCRA CRITERIA (40 CFR 261). PLACE IN AN APPROPRIATE DISPOSAL FACILITY IN COMPLIANCE WITH LOCAL REGULATIONS.

THE INFORMATION CONTAINED IN THIS DATA SHEET IS BASED ON THE DATA AVAILABLE TO US AT THIS TIME, AND IS BELIEVED TO BE ACCURATE BASED UPON THAT DATA. IT IS PROVIDED INDEPENDENTLY OF ANY SALE OF THE PRODUCT, FOR PURPOSE OF HAZARD COMMUNICATION. IT IS NOT INTENDED TO CONSTITUTE PRODUCT PERFORMANCE

INFORMATION, AND NO EXPRESS OR IMPLIED WARRANTY OF ANY KIND IS MADE WITH RESPECT TO THE PRODUCT, UNDERLYING DATA OR THE INFORMATION CONTAINED HEREIN. YOU ARE URGED TO OBTAIN DATA SHEETS FOR ALL PRODUCTS YOU BUY, PROCESS, USE OR DISTRIBUTE, AND ARE ENCOURAGED TO ADVISE THOSE WHO MAY COME IN CONTACT WITH SUCH PRODUCTS OF THE INFORMATION CONTAINED HEREIN.

MOBIL OIL CORP -- MOBILE DTE 26

MSDS Safety Information

FSC: 9150
NIIN: 01-112-9410
MSDS Date: 12/16/1998
MSDS Num: CCHZF

Product ID: MOBILE HYDRAULIC DTE 26

MFN: 02
Responsible Party
Cage: 3U728
Name: MOBIL OIL CORP
Address: 3225 GALLONS ROAD
City: FAIRFAX VA 22037-0001
Info Phone Number: 800-662-4525/800-227-0707 X3265
Emergency Phone Number: 609-737-4411/CHEMTREC 800-424-9300
Preparer's Name: MOBIL OIL CORP
Published: Y

Preparer Co. when other than Responsible Party Co.

Cage: 3U728
Name: MOBIL OIL CORP, NORTH AMERICAS MARKETING AND REFINING
Address: 3225 GALLOWS ROAD
City: FAIRFAX VA 22037

Contractor Summary

Cage: 77988
Name: MOBIL CHEMICAL CO., CHEMICAL COATINGS DIV.
Address: RT 27 AND VINEYARD RD.
Box: 250
City: EDISON NJ 08818-0250
Phone: 609-737-4411 OR 800-424-9300
Cage: 3U728
Name: MOBIL OIL CORP, NORTH AMERICAS MARKETING AND REFINING
Address: 3225 GALLOWS ROAD
City: FAIRFAX VA 22037
Phone: 800-662-4525/ 856-224-4644

Name: SALATHE OIL CO INC
Address: 2226 PETERS RD
City: HARVEY LA 70058
Phone: 504-366-4542

Item Description Information

Item Name: LUBRICATING OIL,HYDRAULIC

Ingredients

Cas: 7440-66-6
RTECS #: ZG8600000
Name: ZINC (SARA 313) (CERCLA) (ELEMENTAL ANALYSIS
% Wt: 0.10
Other REC Limits: NONE RECOMMENDED
OSHA PEL: NOT ESTABLISHED
ACGIH TLV: NOT ESTABLISHED
EPA Rpt Qty: 1000 LBS
DOT Rpt Qty: 1000 LBS

Cas: 68649-42-3
Name: PHOSPHORODITHOIC ACID, O-O-D1 C1-14-ALKYL ESTERS, ZINC SALTS (2:1) (ZDDP)
% Wt: 0.67
Other REC Limits: NONE RECOMMENDED
OSHA PEL: NOT ESTABLISHED
ACGIH TLV: NOT ESTABLISHED

Name: PER MSDS: PRODUCTS ASSESSED IAW OSHA 29 CFR 1910.1200 AND DETERMINED NOT TO BE HAZARDOUS.
% Wt: 100
Other REC Limits: NONE RECOMMENDED
OSHA PEL: NOT ESTABLISHED
ACGIH TLV: NOT ESTABLISHED

Health Hazards Data

LD50 LC50 Mixture: LD50 >2000MG/KG PRACTICALLY NON-TOXIC
Route Of Entry Inds - Inhalation: YES
Skin: YES
Ingestion: NO
Carcinogenicity Inds - NTP: NO
IARC: NO
OSHA: NO
Effects of Exposure: BASED ON TESTING OF SIMILAR PRODUCTS &/OR COMPONENTS:PRACTICALLY NON-TOXIC BY ORAL,BY DERMAL.INHAL:NOT APPLICABLE.HARMFUL CONC OF MISTS &/OR VAP UNLIKELY TO BE ENCOUNTERED THRU ANY CUSTOMARY PATH.SKIN :PRACTICALLY NON-IRRIT.
Explanation Of Carcinogenicity: THIS ITEM DOES NOT CONTAIN ANY INGREDIENT AT 0.1% OR GREATER WHICH IS A CARCINOGEN.
Signs And Symptions Of Overexposure: PRACTICALLY NON-TOXIC & NON-IRRITATING.
Medical Cond Aggravated By Exposure: NONE SPECIFIED BY MANUFACTURER.
First Aid: EYE:FLUSH WELL W/WATER.IRRIT OCCURS CALLDR.SKIN:WASH W/SOAP/WATER.HIGH PRESSURE ACCIDENTAL INJECTION THRU SKIN REQUIRES IMMED MED ATTN FOR POSSIBLE INCISION,IRRIG &/OR DEBRIDEMENT.INHAL/INGEST:NOT EXP

ECTED TO BE PROBLEM.INGEST >1/2L(PINT) IMMED GIVE 1-2GLASSES OF WATER.CALL DR/HOSP EMERG RM/POIS CNTRL CNTNR FOR ASSIST.DONT INDUCE VOMIT OR GIVE ANYTHING BY MOUTH IF UNCONSC.

Handling and Disposal

Spill Release Procedures: REPORT AS REQUIRE TO APPRP AUTHORITIES.IMMED REPORT OF SPILLS THAT COULD REACH WATERWAY INCLUDE IMERMITTENT DRY CREEKS TO COAST GUARD 800-424-8802.ACCIDENT/RD SPILL CALL CHEMTREC.ABSORB ON FIRE RETARD ANT TREAT SWADUST,DIATOMACEOUS EARTH,ETC(SUPPLE)
Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.
Waste Disposal Methods: SUITABLE FOR BURNING IN ENCLSD CNTRL BURNER FOR FUEL VALUE/DISPO BY SUPERVISED INCINERATION.SUCH BURN MAY BE LIMITED PER RCRA.ALSO PROCESS BY APPROV RECYCLING FAC/DISPO @GOVT APPROV WASTE DISPO FAC.ME THODS SUBJ TO USER COMPLIANCE W/APPLIC(OTHER PREC)
Handling And Storage Precautions: HIGH PRESSURE INJECTION UNDER SKIN MAY OCCUR DUE TO RUPTURE OF PRESSURIZED LINES.ALWAYS SEEK MED ATTN.DONT STORE IN OPN/UNLABEL CNTNR.
Other Precautions: STORE AWAY FRM STRONG OXIDIZING AGENTS/COMBUST MATL. DISPO:LAWS/REGS/CHARACTERISTIC @DISPO TIME.UNUSED PROD NOT HAZ WASTE NOR FORMULATED TO CONTAIN HAZ WASTE MATLS.DOESNT EXHIBIT HAZ CHARACTER DETERMI NED BY TCLP.USED PROD MAY BE REG.NO SARA

Fire and Explosion Hazard Information

Flash Point Method: COC
Flash Point Text: >204F,>96C
Autoignition Temp Text: NE
Lower Limits: NA
Upper Limits: NA
Extinguishing Media: CARBON DIOXIDE, FOAM, DRY CHEMICAL, WATER FOG.
Fire Fighting Procedures: WATER/FOAM MAY CAUSE FROTHING.USE WATER TO KEEP FIRE-EXPO CNTNR COOL.WATERSPRAY MAY BE USED TO FLUSH SPILLS AWAY FRM EXPO.PREVENT RUNOFF FRM FIRE CNTRL/(SUPPLE)
Unusual Fire/Explosion Hazard: PRESSURIZED MISTS MAY FORM FLAMM MIXTURE.

Control Measures

Respiratory Protection: NO SPECIAL REQMTS UNDER ORDINARY CONDITIONS OF USE & W/ADEQUATE VENTI.
Ventilation: NO SPECIAL REQMTS UNDER ORDINARY CONDITIONS OF USE & W/ADEQUATE VENTIALTION
Protective Gloves: NO SPEC EQPMT REQUIRED-FOLLOW GOOD(SUPP)
Eye Protection: EMPLOY NORMAL INDUST PROT PRACTICES
Other Protective Equipment: NONE SPECIFIED BY MANUFACTURER.
Work Hygienic Practices: NONE SPECIFIED BY MANUFACTURER.
Supplemental Safety and Health: FIREFIGHT:DIL FRM ENTER STREAMS/SEWERS/DRINK WATER SUPPLY.FOR FIRES IN ENCLSD AREA MUST USE SCBA. SPILL:SHOVELUP/DISPO @APPROP WASTE DISPO FAC IAW CURRENT APPLIC LAWS/REGS/PROD CHARACTERISTIC @DISPO T IME.PREVENT FRM ENTER STORM SEWERS/DRAIN/CONTACT W/SOIL. GLOVES:PERSONAL HYG PRACT.

Physical/Chemical Properties

HCC: V6
B.P. Text: >316F,>158C
M.P/F.P Text: NA
Vapor Pres: <0.1
Vapor Density: >2.0
Spec Gravity: 0.89
PH: NA
Viscosity: >63.2CST @40C
Evaporation Rate & Reference: NA
Solubility in Water: NEGLIGIBLE
Appearance and Odor: LIQUID, AMBER COLOR, MILD ODOR

Reactivity Data

Stability Indicator: YES
Stability Condition To Avoid: EXTREME HEAT
Materials To Avoid: STRONG OXIDIZERS
Hazardous Decomposition Products: CO,METAL OXIDES,ELEMENTAL OXIDES.
Hazardous Polymerization Indicator: NO

Transportation Information

Responsible Party Cage: 3U728
Trans ID NO: 108276
Product ID: MOBILE DTE 26
MSDS Prepared Date: 12/16/1998
Review Date: 04/17/1998
MFN: 2
Net Unit Weight: 37.1 LBS
Type Of Container: PPPP704,1,3
Additional Data: PER TIR:UNIT CNTNR SHALL CONFORM TO PPP-P-704 TYPE 1,CLASS 3.
PER MSDS:NOT REGULATED BY USA DOT/RID/ ADR.

Detail DOT Information

DOT PSN Code: ZZZ
DOT Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
==========
Detail IMO Information

IMO PSN Code: ZZZ
IMO Proper Shipping Name: NOT REGULATED FOR THIS MODE OF TRANSPORTATION

Detail IATA Information

IATA PSN Code: ZZZ
IATA Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION

Detail AFI Information

AFI PSN Code: ZZZ
AFI Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION

HAZCOM Label

Product ID: MOBILE DTE 26
Cage: 3U728
Company Name: MOBIL OIL CORP, NORTH AMERICAS MARKETING AND REFINING
Street: 3225 GALLOWS ROAD
City: FAIRFAX VA
Zipcode: 22037
Health Emergency Phone: 609-737-4411/CHEMTREC 800-424-9300
Label Required IND: Y
Date Of Label Review: 04/17/1998
Status Code: C
MFG Label NO: UNKNOWN
Label Date: 04/17/1998
Year Procured: 1998
Origination Code: F
Eye Protection IND: YES
Skin Protection IND: YES
Signal Word: CAUTION
Respiratory Protection IND: YES
Health Hazard: None
Contact Hazard: Slight
Fire Hazard: None
Reactivity Hazard: None
Hazard And Precautions: BASED ON TEST OF SIMILAR PRODS &/OR COMPO:PRACT NON-TOXIC BY ORAL/DERMAL.INHAL:NA.HARMFUL MIST &/OR VAP CONC UNLIKELY TO BE ENCOUNTER THRU ANY CUSTOMARY PATH.SKIN:PRACT NON-IRRIT.HI PRESS INJECT UNDER SKIN MAY OCCUR DUE TO RUPTURE OF PRESSURIZED LINES.ALWAYS GET MED ATTN.1STAID:EYE:FLUSH WELL W/H2O.IRRIT OCCURS CALL DR.SKIN:WASH W/SOAP/H2O.HIGH PRESSURE ACCIDENTAL INJECT THRU SKIN REQUIRES IMMED M ED ATTN FOR POSSIBLE INCISION,IRRIG &/OR DEBRIDEMENT.INHAL/INGEST:NOT EXPECT TOBE PROBLEM.INGEST >1/2L(PT) IMMED GIVE 1-2GLASSES OF H2O.CALL DR/HOSP EMERG RM/POIS CNTRL CNTNR FOR ASSIST.DONT INDUCE VO MIT/GIVE ANYTHING BY MOUTH IF UNCONSC.

United States of America should seek competent professional advice to verify and assume responsibility for the suitability of this information to their particular situation regardless of similarity to a corresponding Department of Defense or other government situation.

ATTACHMENT #5

REQUIRED SUBCONTRACTOR PROTOCOLS

OSC, Inc.
Health and Safety Protocol for Subcontractors

The Project Health and Safety Program is designed to coordinate the overall Health and Safety effort during construction. The Project Health and Safety Program does not relieve a contractor of his contract responsibilities for health and safety, or any applicable governmental regulations.

Contractors shall be responsible for the health and safety of all persons and property affected by their performance of the work, including work performed by their subcontractors. This requirement shall apply continuously during the entire contract period and shall not be limited just to normal working hours.

Contractors shall be responsible for the implementation of a written Health and Safety Program (Subcontractors' Safety Program) to prevent their employees from working under conditions that are unsanitary or dangerous to their health and safety. Contractors' conformance with the requirement to initiate and maintain such a program is mandatory under the provisions of their construction contract.

Contractors shall designate a qualified safety representative to be responsible for the administration of the Contractors' Safety Programs and the Project Health and Safety Program. Contractors shall also be responsible for the administration of the Contractors' Safety Programs and the Project Health and Safety Program for their subcontractors.

1.0 Program Requirements

The Contractors' Safety Program shall meet the minimum applicable requirements of the Occupational Health and Safety Act of 1970 as amended. The following additional requirements are a mandatory part of each contractor's Safety Program to meet the minimum requirements of the Project Health and Safety Program:

- Deliver one copy of the contractor's Safety Program to OSC, INC. for review.
- Submit to OSC, INC., as part of the Safety Program, a Designation of Competent Person form that designates a competent person for each area listed that is applicable to their work. OSHA defines a competent person as, "One who, through training and experience, is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them." Contractors' competent persons shall be the competent person for each subcontractor unless otherwise indicated.
- Participation in the weekly Toolbox Safety Meetings.
- Cooperation with OSC, INC., federal, state, and local agencies concerning health and safety and property damage matters as they concern.
- Participation in the implementation of fire control measures as may be appropriate for the protection of individuals and property.

- Provide training and education, and the documentation thereof, to the con-tractor's employees in the recognition, avoidance, and prevention of unsafe working conditions and unsafe work practices and emergency procedures.

- Maintain accurate health and safety records and statistics, as required, and making available such records to OSC, INC. upon request, for their periodic review.

- A system to ensure that reports required by the Project Health and Safety Program are submitted to OSC, INC. in a timely manner.

- Conduct daily work area health and safety inspections with written reports submitted weekly to OSC, INC.. Included in the reports shall be deficiencies detected and corrective action taken.

- A system for immediately reporting all injuries, accidents, illnesses, fires, hazardous material spills, and unsafe conditions and procedures to the contractor's safety representative or designee.

- Systems of weekly Toolbox Safety Meetings are to be held and documented for all contractors' employees. A copy of the Weekly Safety Meeting Report must be submitted to OSC, Inc. Weekly toolbox report forms can be obtained from OSC, Inc.

- Provide a system to prevent the use of unsafe or defective equipment, tools, materials, or machinery, which includes procedures for tagging and/or lockout to render such unsafe items inoperable.

- Provide a system to ensure that only employees who are qualified by training or experience are allowed to operate equipment, tools, and machinery.

- Provide appropriate first aid/medical coverage for all of its employees and provide OSC, INC. with weekly first aid logs.

- Develop, document, and implement evacuation/emergency plans.

- Adhere to OSC, INC. Activity Hazard Analysis (AHA) Policy.

- Designate a qualified representative to be responsible for rigging and heavy lifting. A report must be submitted to, and approved by, OSC, INC. prior to any lifts over 20 tons. The following items shall be included in the report:

    1. Make and model number of cranes or hoist

    2. Lift radius, boom angle, and boom length, if applicable

    3. Lifting capacity of crane or hoist for the particular configuration

    4. Size and capacity of all rigging

5. Weight of object being lifted and associated rigging

6. Diagram of lift layout

Documented programs related to health and safety that are required by contractors include:

- Hazard Communication Program for the protection of employees who are required to handle or use flammable liquids, gases, toxic materials, poisons, caustics, and other harmful substances. The objectives of the program will be to create an employee awareness of potential hazards of such substances, the recommended personal hygiene for those exposed to those hazards, the personal protective measures and devices required, and the emergency notification procedures to be used in the event of an accident.

- Confined Space Entry Program for employees who are required to enter confined or enclosed spaces. Instructions shall include the nature of the hazards involved, the necessary precautions to be taken, and the proper use of required protective and emergency equipment.

- Personnel Protective Equipment Program for employees who require the use of personal protective equipment because of the hazards of the work being performed.

- Equipment Inspection Guidelines. A program that provides for periodic documented inspections of all equipment in accordance with applicable federal, state, and local regulations.

- LOCKOUT/TAGOUT/TRYOUT Procedures. A copy of the project tagging procedures provided to each employee, and training of all employees to reasonably assure their understanding of these procedures.

- Written Orientation Program that includes the following: job hazard analysis, emergency communication procedures, and disciplinary procedures; Project Health and Safety Program requirements; and OSHA requirements. Records of such training shall be maintained onsite by the contractor and made available upon request for inspection by OSC, INC..

2.0 Surveillance Policy and Procedures

Contractors are responsible for the enforcement of their respective Safety Programs and the Project Health and Safety Program. OSC, INC. will provide surveillance of contractors' activities to observe whether such activities are in compliance with the Project Health and Safety Program and contractors' Safety Programs.

2.1 Violation Notification Procedures

In the event of an apparent violation of a safety or health standard, OSC, INC. will advise the contractor of the violation and direct that the violation be corrected. If there is a conflict between Project Health and Safety Rules, contractors' Safety Program rules, and governmental regulations, the most restrictive rules shall apply.

2.1.1 Occupational Health and Safety Violation Notice

The contractor will be informed of identified violations of health and safety standards by means of Risk Control Survey. This survey will be delivered by the most expeditious method to the contractor's onsite construction office. The contractor will receive an original plus one copy of each violation notice.

The contractor shall take corrective action within the abatement period shown on the violation notice or propose an alternate solution within the abatement period given. If corrective action is not taken within the abatement period, work shall stop in the respective location, and/or the affected equipment shall not be used until the cited violation is corrected.

When corrective action has been completed, the contractor shall state in writing the corrective action taken, date and sign the original notice, and return it to OSC, INC..

There are four types of violations:

- **Serious.** Any condition or practice which is causing or likely to cause death or serious physical harm to any person.
- **Non-serious.** Any condition or practice which is not likely to cause death or serious physical harm to any person.
- **Stop Work/Imminent Danger.** The existence of any condition or practice, which would reasonably be expected to cause death or serious physical harm before such condition, or practice can be corrected. This is a stop work situation. All persons shall be withdrawn from the affected area, and no one shall be allowed in such area except those people deemed necessary to correct the condition or practice.
- **Stop Work Noncompliance.** A violation (serious or non-serious) described in a notice, which has not been totally corrected within the noted abatement time, and the abatement time should not be extended. This is a stop work situation. All persons shall be withdrawn from the affected area, and no one shall be allowed in such area except those people deemed necessary to correct the condition or practice.

2.1.2 Imminent Danger Notification

If OSC, INC. considers a violation to be immediately dangerous to life, limb, or property, the contractor's representative at that location will be directed to immediately cease work in that area. The imminent danger condition shall be corrected to the satisfaction of OSC, INC. before work is allowed to continue.

2.1.3 Repeated Violations

In addition to the above notification procedures, OSC, INC. will notify the contractor's corporate office if a particular violation is repeated or the contractor's field supervisor is not cooperative. Such notification to the contractor's corporate office may be either by telephone or in writing; however, telephone notifications will be followed up with written notification.

Repeated nonconformance with the Project Health and Safety Program and repeated failure to comply with correction directives may result in removal of contractor management from the project site or termination of the contract.

2.2 Abatement

In the event that the safety or health hazards noted on the Occupational Safety/Health Violation Notice is not abated within the time period specified and no alternate solution has been proposed by the contractor, OSC, INC. will initiate steps to correct the violation and back-charge such expenses to the contractor.

2.3 Notices to Employee of Health and Safety Violation

For contractor employees who knowingly violate the Project Health and Safety Program, a Health and Safety Personal Notice of Violation will be issued. If any one employee should receive three personal notices of violation, disciplinary action will result which may include termination of employment. Employees who knowingly or willfully violate Project Health and Safety Program rules shall be subject to discharge without prior warning.

When a Personal Notice of Violation is issued to an employee, a copy will be forwarded to their employer. Personal Notice of Violation may be issued to contractor supervisor for not enforcing the Project Health and Safety Program rules with the employees under their supervision. Employees terminated for violation of Project Health and Safety Rules shall not be eligible for rehire for the duration of the project.

3.0 Tagging Equipment Out of Service

The tagging and clearance procedures for placing defective equipment, tools, or cords out of service at the construction project shall be strictly adhered to. In the event that a health and safety hazard is recognized by OSC, INC., the affected equipment will be tagged with a ***Danger*** tag, immediately taken out of service, and will remain out of service until the defect is corrected.

The contractor representative shall remove the ***Danger*** tag from the equipment after corrective action has been completed. The contractor shall state in writing on the tag the corrective action taken, date and sign the tag, and return it to OSC, INC.. Anyone removing this tag before corrective action has been completed shall be subject to immediate termination of employment.

4.0 Project Health and Safety Program Operation

OSC, INC. will distribute to all contractors copies of the Project Health and Safety Plan [HASP]. The contractors will ensure that all of their employees and subcontractors are familiar with and abide by the contents of this manual, including any changes promulgated and distributed by OSC, INC..

OSC, INC. will schedule project safety meetings as needed. The purpose of the meetings will be to discuss health and safety concerns as they relate to all construction projects, provide for two-way communication between the contractor's safety representatives and OSC, INC., and, in general, further the Project Health and Safety Plan. All contractors are required to have their safety representative in attendance.

4.1 Accident/Incident Reporting

All injuries, occupational illnesses, accidents, and unsafe conditions are to be investigated by the contractor's safety representative. The safety representative shall complete an Injury/Illness Investigation Report form. The safety representative shall submit the completed report to the OSC, INC. Site Health and Safety Officer along with any supportive information such as photographs, witness statements, etc., within two working days after the accident happens. Reports shall be dated and signed by the contractor's safety representative.

In the event of a serious injury, fatality, property damage accident, or any damaging fire, OSC, INC. shall be immediately notified regardless of the day or hour. This reporting requirement is in addition to the requirements outlined in the above paragraph.

5.0 OSHA Inspection Procedures

A representative from OSC, INC. shall accompany OSHA during inspections of the construction site. Also, as required by OSHA, each contractor will require his employees to select a representative(s) to accompany the OSHA compliance officer during site inspections.

The OSC, INC. Site Health and Safety Officer shall examine the compliance officer's credentials prior to the start of any onsite inspection. At all times while onsite, the OSHA representative shall be treated courteously and given full cooperation.

6.0 Fire Protection

Each contractor shall be responsible for fire protection throughout all phases of construction as required by the National Fire Protection Code and OSHA Standard 29 CFR 1926 Subpart F.

Only work procedures which minimize fire hazards to the extent practical shall be used. Fuels, solvents, and other volatile or flammable materials shall be stored in the project's fuel storage area as defined by OSC, INC.. Good housekeeping is essential to fire prevention and shall be practiced by all site contractors.

Unless otherwise specified, untreated canvas, paper, plastic, and other flammable flexible materials shall not be used on the project site for any purpose. If such materials are on equipment or materials, which arrive at the project site, they shall be removed and replaced with an acceptable covering before storing or moving into the construction area.

All fires, regardless of size, shall be reported immediately to OSC, INC..

7.0 Safety Policy Memoranda

From time to time, as the need is identified, OSC, INC. will issue safety policy memoranda that affect the entire project. Safety policy memoranda will be identified by a number and a specific safety subject, such as *Safety Policy Memorandum 1* (Scaffolding). Safety policy memoranda will be issued to all persons who have received a Project Health and Safety Manual. They are to be inserted at the end of this manual.

The person responsible for the receipt and maintenance of the manual shall also be responsible for informing his firm's employees and subcontractors of the contents of the safety policy memoranda.

Safety policy memoranda will have an effective date and an expiration date. Prior to the expiration date, the Site Health and Safety Officer will review the memorandum and either re-issue or direct that the memorandum be removed from the manual.

8.0 Housekeeping

Contractors shall, at all times, maintain the premises free from accumulations of waste material, trash, and debris caused by their work. Each work area shall be cleaned and swept each day, if applicable, by the contractor or as often as necessary to remove fire and safety hazards discovered through regularly scheduled inspections. All tools, scaffolding, and materials shall be removed from the work area at the completion of the work. All scrap, waste material, and rubbish shall be removed from the work area daily.

Pre-job planning shall include consideration of housekeeping plans and will include methods and equipment or tools necessary. The contractor's supervisors shall be instructed by the contractor to maintain good housekeeping.

All recommendations for improved housekeeping from OSC, INC. shall be acted upon immediately. Refusal or negligence in maintaining good housekeeping can result in the following:

- Back charges to the contractor for removal of trash, rubbish, and waste materials from the work area. Also, back charges for clearing aisles, walk-ways, and work areas of tools, material, and equipment
- Reports to OSC, INC. of inadequate contractor performance
- Suspension of the work until a proper level of housekeeping is achieved

9.0 Ground Fault Protection

Ground fault circuit interrupters **shall be** used with all power tools and cords. These shall be used regardless of the power source, including portable and wheel mounted generators. The ground fault circuit interrupter shall be tested before each use.

10.0 Crane Inspections

All cranes in use on the project shall be inspected on a monthly basis by a competent person. Inspection results shall be recorded on a Crane Inspection Report form, which must be submitted to the OSC, INC. Site Health and Safety Officer by the fifth working day of each month.

Additionally, the contractor shall submit a current annual crane inspection report to the OSC, INC. Site Health and Safety Officer for each crane used on the project. Annual crane inspection reports **shall be** submitted **prior to placing the crane in service**. The annual inspection shall be performed by a competent person or by a government or private agency recognized by the U.S. Department of Labor. The contractor shall maintain a record of the dates and the results of inspections for each hoisting machine and piece of equipment.

Failure to submit the above inspection report will result in a violation notice, which will stop the use of the crane in violation until the required reports are submitted. Whoever knowingly makes any false statement, representation, or certification either a monthly or an annual crane inspection report shall be subject to immediate discharge and will be barred from the project.

The above policy shall in no way eliminate any requirements for crane inspection set forth in the OSHA Standard 1926.550.

11.0 Hazardous Material Program

It is the contractor's sole responsibility to implement and maintain a written Hazard Communication Program as stated in OSHA Standard 29 CFR 1910.1200. Contractors shall submit a copy of their written Hazard Communication Program to the OSC, INC. Site Health and Safety Officer prior to beginning work onsite.

Contractors shall submit a Material Safety Data Sheet to the OSC, INC. Site Health and Safety Officer for any and all hazardous material they bring onsite or are responsible for. The Material Safety Data Sheet shall be submitted prior to the material arriving onsite.

If a contractor's work with a hazardous material could affect the health and safety of other contractors' employees, the contractor shall coordinate the work with the other contractors to ensure the health and safety of the contractors' employees.

Contractors shall be responsible for the safe storage, use, and disposal of all hazardous material they bring onsite or are responsible for. Contractors shall conspicuously label all containers of hazardous material they are responsible for with their company name.

If the contractor or any of his subcontractors or any of their representatives or employees encounters or has reason to believe contaminated soil or groundwater exists during excavations for project facilities, the contractor shall immediately notify the OSC, INC. Site Health and Safety Officer. The OSC, INC. Site Health and Safety Officer or his representative shall inspect the work area and determine if work can proceed. If after inspection of the work area, the OSC, INC. Site Health and Safety Officer deems there is a hazard to continuing work in the area, the OSC, INC. Site Health and Safety Officer will issue a stop work order. Removal of contaminated materials and implementation of the appropriate health and safety plan shall be the responsibility of the contractor, with assistance from local, state, or federal agencies as appropriate.

12.0 Onsite Storage and Dispensing of Flammable and Combustible Liquids

Applicable sections of 29 CM Parts 1926.152 and 1926.153, *Health and Safety Regulations for Construction*, of the Occupational Health and Safety Act shall be strictly adhered to. The location of out-of-doors storage tanks shall be approved by OSC, INC. prior to installation.

13.0 Fall Protection

OSHA Fall Protection Standards 29 CFR 1926 Subpart M shall be strictly adhered to. No person or work operation is exempt from the standard on this project. This includes structural steel erection operations and scaffold erectors. Fall protection is required 100 percent of the time, whether climbing, traveling, or working.

Prior to starting work operations that require fall protection, the contractor shall submit to the OSC, INC. Site Health and Safety Officer a Fall Protection Plan. The fall protection plan shall include, but not be limited to, the following:

- Name of the qualified person in charge of the operation and a description of work operation
- List of fall exposures
- Description of fall protection methods used to eliminate the fall exposures
- Training and enforcement methods used to ensure employee compliance with the plan

13.1 Full Body Harnesses, Lifelines, and Lanyards

Full body harnesses, lanyards, and lifelines shall be used in accordance with OSHA Standard 1926.502 (d), with the following exceptions:

- Full body harnesses shall be used in lieu of safety belts on this project.
- Only lanyards with shock absorbers and locking type snap-hooks shall be used.
- At least two lanyards shall be used to provide 100 percent fall protection when moving around obstructions, connection points, or other similar items.

13.2 Safety Nets and Flooring Requirements

Falling hazards to the interior and exterior of buildings shall be governed by the following principles:

- In the structural steel construction of tiered buildings, full body harnesses shall be used in situations in which employees are exposed to falls of six to 25 feet, in accordance with OSHA Standard 1926.28(a).

- In structural steel construction of tiered buildings, safety nets shall be used when employees are exposed to falls of more than 25 feet above the ground or water surface, or other surfaces where the use of ladders, scaffolds, catch platforms, temporary floors, safety lines, or full body harnesses is impractical, in accordance with OSHA Standard 1926.105(a).

- In the steel construction of tiered buildings, a tightly planked and substantial floor shall be maintained within two stories or 30 feet, whichever is less, below and directly under that portion of each tier of beam on which work is being performed. Where such floors are not practicable, safety nets shall be installed, in accordance with OSHA Standard 1926.750(b)(2)(I).

- In all other types of construction, OSHA Standard 1926.28(a) shall be applicable when employees are exposed to falls of 6 to 25 feet. For fall hazards of more than 25 feet, OSHA Standard 1926.105(a) shall be applicable.

13.3 Guardrail Systems

Guardrail systems and their use shall comply with OSHA Standard 1926.502(b), with the following exception:

- Manila, plastic, or synthetic rope shall not be used as guardrails.

13.4 Training

The contractor shall provide a training program for each employee who might be exposed to fall hazards. The training program shall be taught by a competent person and shall meet the requirements specified in OSHA Standard 1926.503.

14.0 Scaffold Tagging Procedures

The intent of the scaffold tagging procedure is to assure that personnel perform their work from a scaffold that is complete and constructed in accordance with Project Health and Safety Rules and OSHA regulations. If there is a conflict between Project Health and Safety Rules, contractor's Safety Program rules, and governmental regulations, the most restrictive rules shall apply. It is the policy of OSC, INC. that all onsite personnel shall comply with this scaffold tagging procedure. Scaffolds not displaying a signed scaffold tag shall not be used.

In addition to the procedures contained in this scaffold tagging procedure, all employees are subject to the OSHA scaffold requirements contained in 29 CFR 1926.451.

Requirements include:

- Contractors are responsible to ensure their subcontractors tag their scaffolds in accordance with the project scaffolding tagging policy.

- Scaffold tags shall be provided by the contractor and shall conform to the following color codes.
- All scaffolds shall be marked with one of the following tags:
  - **Green Tag**. This scaffold was built to meet federal OSHA scaffold regulations; it is safe to use.
  - **Yellow Tag**. This scaffold does not meet federal OSHA scaffold regulations; safety belts shall be worn.
  - **Red Tag**. Warning: This scaffold is not complete. DO NOT USE.
- The foreman whose crew constructed the scaffold shall inspect the scaffold for compliance with project and OSHA requirement (1926.451), and shall sign his name to the tag.
- All scaffolds that cannot be equipped with standard top rail, midrail, and toeboard because of interferences with structures or equipment shall be marked with a yellow tag stating that "Body Harness Must Be Used."
- Scaffolds being constructed, torn Down or incomplete shall be marked with a red tag.

Responsibilities include:

- The foreman who constructs the scaffold or has the scaffold constructed is responsible to ensure that the scaffold is built to project and OSHA standards.
- Contractor personnel shall periodically monitor all scaffolds. The audit shall ensure that all scaffolds are properly tagged and in compliance with project and OSHA standards.
- In the event that a foreman wishes to use another contractor's or crew's scaffold, the foreman shall obtain permission to use the scaffold and shall inspect and tag the scaffold before use.
- Any employee working from a scaffold that does not have a scaffold tag or any supervisor assigning employees to work on an untagged scaffold shall be subject to disciplinary action.

15.0 Confined Space Entry Procedure

A confined space can be defined as a tank, vessel, silo, vault, pit, open topped space more than 4 feet (1.2 m) deep, pipeline, duct, sewer, or tunnel having limited means of access/egress or not designed for continuous employee occupancy or having one or more of the following characteristics:

- Less than 19.5 percent oxygen
- Flammable/combustible/explosive atmospheres present or able to be generated or enter into an area
- Toxic atmospheres present or able to be generated or enter into an area

- Areas not protected against entry of water, gas, sand, gravel, ore, grain, coal, radiation, corrosive chemicals, or any other substance which could possibly trap, suffocate, or harm a person

- Poor ventilation

- Restricts entry for rescue purposes

The intent of the Confined Space Entry Procedure is to assure that personnel who perform work in a confined space are in compliance with Project Safety and governmental regulations. If there is a conflict between Project Health and Safety Rules, contractor's Safety Program rules, and governmental regulations, the most restrictive rules shall apply.

It is the policy of OSC, INC. that all onsite personnel shall comply with this Confined Space Entry Procedure. All confined spaces shall be authorized for entry by means of a permit. No personnel shall enter a confined space prior to compliance with all permit criteria.

Procedures include:

- Confined Space Entry Permit forms can be obtained from the OSC, INC. Site Health and Safety Officer. The entry permit shall be a three-part form. Contractors shall fill the permit out in full, except the last line, and post the white and blue copies of the forms in a conspicuous location at the entrance to the confined space. Contractors shall retain the copy for their records. If there is more than one entrance to the confined space, all entrances shall be posted with a copy of the permit.

- Prior to entry into the confined space, all persons entering the space shall be given a briefing as to the precautions that must be taken.

- When the work in the confined space is completed, the person authorizing entry into the confined space shall verify that all persons have exited the confined space and that it is safe to remove the permit. The authorizing person shall then sign, date, and write in the time the permit was removed.

- Contractors shall retain the blue copy for their records and shall submit the original copy to the OSC, INC. Site Health and Safety Officer.

16.0 Trenching and Excavation Notice

Before contractors commence work on any trench or excavation, they shall first submit a completed Trenching and Excavation Notice to the OSC, INC. Site Health and Safety Officer. The notice shall be submitted far enough in advance to allow the OSC, INC. Site Health and Safety Officer ample time to verify the contractor's submittal. When the OSC, INC. Site Health and Safety Officer has verified the information, they shall sign the notice and return a copy of it to the contractor. When the contractor receives the signed notice, he may commence work.

The contractor shall appoint a competent person as defined in OSHA Standard 29 CFR 1926 Subpart P to fill out the permit and monitor all trench and excavation work.

The signature by the OSC, INC. Site Health and Safety Officer in no way changes the contractor's responsibility for locating all underground utilities and repair of damaged utilities as required by the contract. T he OSC, INC. Site Health and Safety Officer shall not be held responsible for the safety requirements for the trench or excavation.

The contractor's competent person shall be responsible for all safety requirements as stated in OSHA Standard 29 CFR 1926 Subpart P.

17.0 Barrier Tape Identification System

In order to identify particular hazards on the construction site uniformly, a barrier tape identification system has been developed for use by all the contractors working on the construction. The identification system has been developed so that any employee working on the site, regardless of employer, can recognize and avoid a hazard when properly marked.

The following barrier tape identification system shall be used:

- **General Purpose.** Multicolor triangular flagging. Used for open manholes, trenches, excavations, etc. Use caution when crossing.
- **General.** Red tape (may have black in it). Danger. Do not cross.
- **Electrical**. Yellow (may have black in it). Open wiring, switchgear, etc. Caution do not cross.
- **Radiation**. Yellow and magenta (purple) tape. Possible radiation hazard, X-ray, etc. Do not cross.

The contractor erecting the barrier tape shall hang a tag on the tape that indicates the hazard, name of contractor, and name of person erecting the tape.

The barriers shall be erected far enough back from the hazard to allow for adequate warning and protection from the hazard. The barrier shall be constructed so that it will stand against adverse weather conditions and construction traffic. If the hazard is of a magnitude which requires additional protection, it shall be the contractor's responsibility to provide additional protection as well as the barrier tape. It will be the responsibility of the contractor erecting the barrier tape to maintain it as long as the hazard is present.

18.0 Crane-Suspended Work Platform

The use of a crane or derrick to hoist employees on a personnel platform is prohibited, except when the erection, use, and dismantling of conventional means of reaching the worksite, such as a personnel hoist, ladder, stairway, aerial lift, elevated work platform or scaffold, would be more hazardous or is not possible because of structural design or worksite conditions.

The suspended personnel platform design criteria, platform specifications, platform loading, rigging trial lift, inspection and proof testing, work practices, traveling, and pre-lift meeting shall comply with OSHA Standard 29 CFR 1926.550(g).

19.0 Welding and Cutting

Contractors shall obtain a Hot Work Permit from OSC, INC. prior to welding, cutting, grinding, or performing any other hot work.

The contractor requesting the permit shall address each item listed on the permit and resolve any problems prior to starting the work. OSC, INC. shall issue the permit to the contractor upon satisfactory completion of all items.

The contractor shall maintain a copy of the permit in the work area until the work is completed. Upon completion of the work, and once it is determined that no fire hazards exist, the contractor shall return the permit to OSC, INC. for filing.

20.0 LOCKOUT/TAGOUT/TRYOUT Clearance Procedures

Whenever service, maintenance, or inspection is performed on machines, equipment, or electrical circuits, it must be done with the machine, equipment, or electrical circuit stopped and isolated from all sources of energy. The energy isolation device(s) for that machine, equipment, or electrical circuits must be locked out and tagged out in accordance with a documented procedure. OSC, INC. LOCKOUT/TAGOUT/TRYOUT procedure shall be followed when required. Employees involved in the energy control program must be given training. When contractor employees are performing work within a plant or facility, they must coordinate with OSC, INC. and any other employer to ensure that no employees are endangered. When a group of employees is performing a service, maintenance, or inspection activity, each employee must be afforded protection equivalent to the utilization of individual LOCKOUT/TAGOUT/TRYOUT.

20.1 Control of Hazardous Energy Procedure (LOCKOUT/TAGOUT/TRYOUT)

This procedure establishes the minimum requirements for the LOCKOUT/TAGOUT/TRYOUT of energy isolating devices whenever maintenance, servicing, or inspection is done on machines, equipment, or electrical circuits. It shall be used to ensure that the machine, equipment, or electrical circuit is stopped, isolated from all potentially hazardous energy sources, and locked out before employees perform any servicing, maintenance, or inspection where the unexpected energization or startup of the machine, equipment, or electrical circuit or release of stored energy could cause injury.

All contractors are required to comply with the restrictions and limitations imposed upon them during the use of LOCKOUT/TAGOUT/TRYOUT. The authorized employees are required to perform the lockout in accordance with this procedure. All employees, upon observing a machine or piece of equipment, which is locked out to perform servicing, maintenance, or inspection, shall not attempt to start, energize, or use that machine or equipment. Failure to follow the control of hazardous energy procedure will result in disciplinary action.

20.2 Sequence of Lockout

- First, notify all affected employees that servicing, maintenance, or inspection is required on a machine, equipment or electrical circuit and that the machine, equipment, or electrical circuit must be shut down and locked out to perform the servicing, maintenance, or inspection.

- Second, the authorized employee shall refer to any and all sources to identify the type and magnitude of the energy that the machine, equipment, or electrical circuit utilizes, shall understand the hazards of the energy, and shall know the methods to control energy.

- Third, if the machine, equipment, or electrical circuit is operating, shut it Down by normal stopping procedure (depress stop button, open switch, close valve, etc.).

- Fourth, deactivate the energy isolation device(s) so that the machine, equipment, or electrical circuit is isolated from all energy sources

- Fifth, lock out the energy isolation device(s) with assigned individual lock(s).

- Sixth, stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding Down, etc.

- Seventh, ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verifying the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate**. CAUTION: Return operating control(s) to neutral or off position after verifying the isolation of the equipment.**

- **Eighth,** the machine, equipment, or electrical circuit is now locked out. The employee(s) that installed the lock shall apply tag(s) identifying who locked the piece out, the date, and the time.

20.3 Restoring Equipment to Service

When the servicing, maintenance, or inspection is complete and the machine, equipment, or electrical circuit is ready to return to normal operating condition, the following steps shall be taken, in the following order:

- Check the machine, equipment, or electrical circuit and the immediate area around the machine, equipment, or electrical circuit to ensure that nonessential items have been removed and the machine, equipment, or electrical circuit components are operationally intact.

- Check the work area to ensure that all employees have been safely positioned or removed from the area.

- Verify that the controls are in neutral.

- Remove the LOCKOUT/TAGOUT/TRYOUT devices and re-energize the machine, equipment, or electrical circuit. **NOTE: The removal of some forms of blocking may require re-energization of the machine before safe removal.**

- Notify affected employees that the servicing, maintenance, or inspection is complete and the machine, equipment or electrical circuit is ready to use.

21.0 Site Security

The following steps should be taken to assure site security:

- Company vehicles shall be the only vehicle brought on the construction site.
- Employees and subcontractors employees will be provided designated parking.
- Employees are subject to search at any time while leaving the construction site.
- An entrance will be available for all subcontractor and employees to use.
- A security fence will be place around the construction site for security reasons.
- OSC, Inc. is not liable for lost or stolen material and equipment.
- The use of illegal drug or alcohol is prohibited on all OSC, Inc. projects.

22.0 Monthly Reporting

Each month, each subcontractor is required to submit a Monthly Man-hour Summary Report to the OSC, INC. project manager. In turn, the Project Manager will report the Summary Report to the OSC, INC. Corporate Health & Safety Director. This report contains statistical data on all first aid cases, recordable incidents, and lost time accidents. The report in general will provide frequency rates and incident rate as well as severity.

OSC, Inc.

SUBCONTRACTOR'S ACKNOWLEDGMENT OF SAFETY PLAN

I have read and understand the foregoing OSC, Inc. Inc. Safety Plan. By signing I agree to abide by the required Safety Plan. *

Company Name:

Sub-Contractor Company Representative Signature: Date:

OSC, INC. Inc. Date:

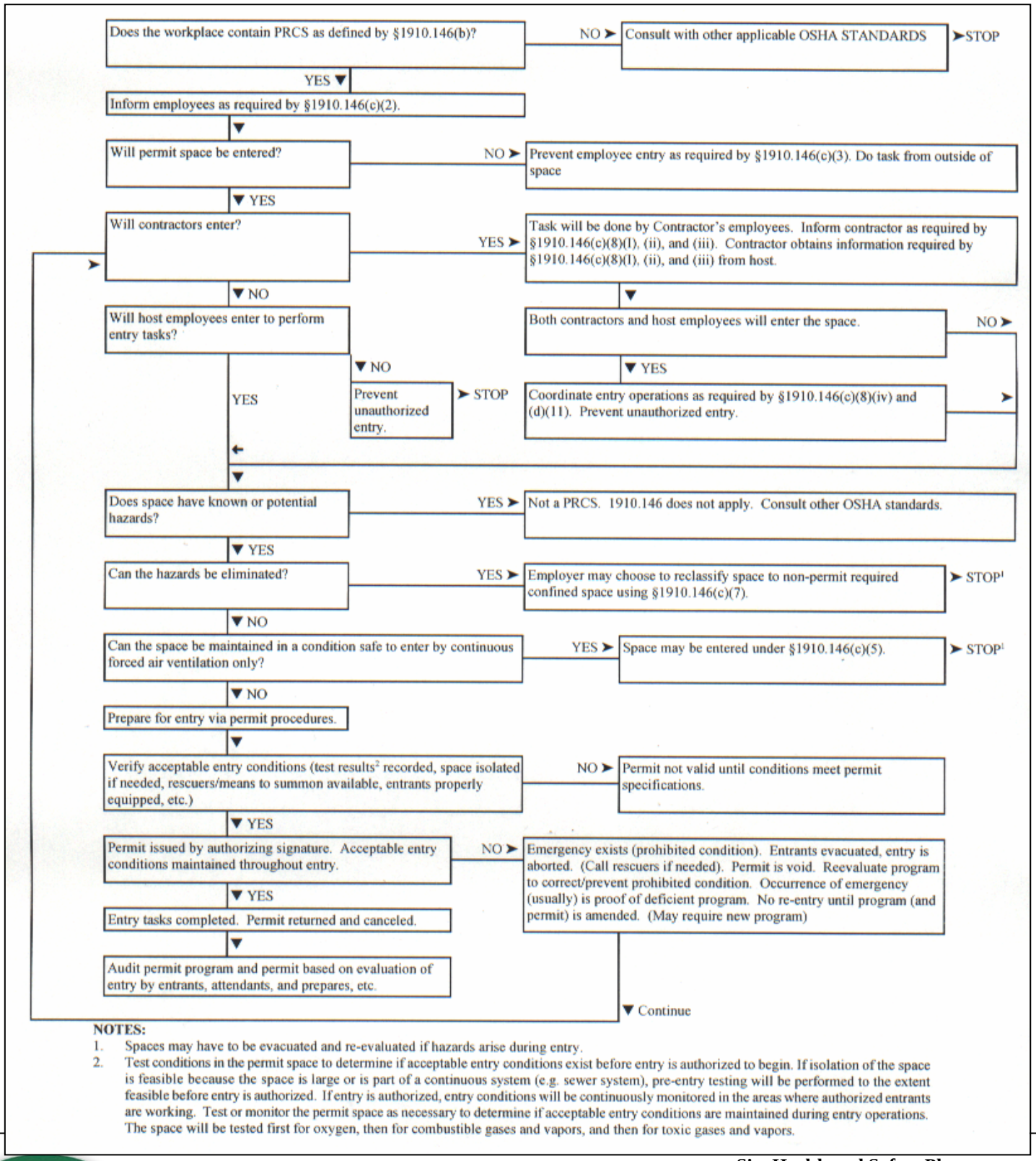
Representative Signature:

* Note: If Company wishes to abide by its own Company Safety Plan, it must be submitted to the Health & Safety Director of OSC, INC. Inc. for approval.

THIS IS TO BE FILED IN THE MAIN OFFICE JOB FOLDER AND MAIN OFFICE FOLDER.

ATTACHMENT #6
PRCS Decision Flow Chart

PRCS Decision Flow Chart



NOTES:

1. Spaces may have to be evacuated and re-evaluated if hazards arise during entry.
2. Test conditions in the permit space to determine if acceptable entry conditions exist before entry is authorized to begin. If isolation of the space is feasible because the space is large or is part of a continuous system (e.g. sewer system), pre-entry testing will be performed to the extent feasible before entry is authorized. If entry is authorized, entry conditions will be continuously monitored in the areas where authorized entrants are working. Test or monitor the permit space as necessary to determine if acceptable entry conditions are maintained during entry operations. The space will be tested first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors.

ATTACHMENT #7

SPILL RESPONSE

Spills & Site Contingencies

The purpose of this Emergency Response and Contingency Plan is to provide an organized group to take fast, efficient action in any emergency situation. The objectives are as follows:

1. Safeguard project personnel and property;
2. Protect general public and neighboring areas; and
3. Resume normal operations as soon as possible.

In the event of a fire or sudden release of contaminants, OSC personnel will quickly evacuate the work area. In the event of an injury or if OSC observes an emergency unrelated to the field work the procedures identified in this Emergency Response and Contingency Plan will be followed.

The SHSEO will identify and arrange for emergency services. The location, telephone number, and transportation capabilities of the nearest emergency medical facilities will be posted by in the project job trailer and employee break area project. For particularly hazardous operations, on-site medical assistance should be considered or the nearest medical facility alerted.

In the event of any emergency associated with the project, OSC will, without delay, alert the client representative and institute whatever measures that might be necessary to prevent any repetition of the conditions or actions leading to, or resulting in, the emergency.

In the event of an accident resulting in a spill on public roadways or travel ways, First Call shall be made to SHSE to request emergency services cleanup. OSC will be liable for all costs associated with the cleanup of spills. OSC will coordinate and assist response cleanup as necessary.

In the event of an injury or illness among the site personnel, the on-site, certified first aid practitioner (SHSEO) will take control. The injured or ill person will be transferred to the nearest medical facility.

When an evacuation is necessary, all field team members will go to the reassembly point for the project. Reassembly points for contractor personnel will be identified by the SHSEO in tool-box safety meetings and reviewed with workers daily as part of the STAC process.

For emergency situations, oral or hand safety signals must be established by the SHSEO. The signals will be developed, reviewed, and made available to personnel for all phases of operation before going on-site. This will ensure quick communications for use during adverse or emergency situations. Safety signals to be used in support of this project are defined in Section 11.10.

If an emergency develops at the site, the discoverer will take the following course of action:

1. Call 911for proper emergency service response (fire, police, ambulance, etc).
2. Notify other affected personnel at the site.
3. Contact the client representative to inform them of the incident as soon as possible.
4. Prepare a summary report of the incident for the CLIENT representative.

Emergency Equipment Required On-Site

OSC will provide appropriate emergency equipment, including; environmental field spill response kit (see attached Spill Response Guidance Summary Site Available Equipment) industrial-type first aid kit that is approved by its consulting physician for injuries and illnesses which may occur on site. A 20-pound ABC-rated fire extinguisher shall be maintained in each work area of the site. Emergency retrieval equipment will be provided for any confined space entry.

SPILL RESPONSE SUMMARY

(Confining and Containing Releases)

Spill Response Summary:

1. *Do not* place yourself in a hazardous situation in order to confine or contain a release.

2. Although considered as the initial cleanup phase of an incident, confining and containing releases are often dangerous operations and should be performed cautiously, as if they were emergency response actions.

3. Unless the identity of the substance is known, treat any substance as a hazardous material until the identity of the substance becomes known.

4. Wear appropriate body and respiratory protection when working near released petroleum or hazardous materials; Respirators, Poly Coated Tyvek Disposable Suits, Rubber Boots, Gloves and appropriate eye/face protection (goggles, glasses, face shield) is onsite and located in the storage trailer.

5. All initial response activities shall be coordinated through site safety (Fire Dept, Haz Team, Ambulance and Private Contractors) as necessary.

6. **Your first priority is to confine free product in order to minimize the area of impact utilizing site available absorbent boom socks, pads and poly berms. Your second priority is to contain the leak, if applicable, at its source as well as stop the leak …"turn it off or plug it up." Confinement and containment actions, however, will often take place simultaneously.**

7. Keep in mind that during confinement/containment operations, site conditions may deteriorate -- thus creating new hazards or causing the recurrence of hazards (e.g., fire, intensified leak, etc.) that had been under control -- which, in turn, would trigger the need for emergency response actions.

8. Although quick actions are often needed in order to limit the spread of contaminants, always attempt to evaluate response options and to choose the one(s) that will likely be the most effective, safe, and feasible.

On Site Spill Response Equipment:

2 – 95 gallon DOT over pack spill kit drums

Contents per drum: (110) - 15" x 19" Pads (12) - 3" x 4' SOCs (8) - 3" x 12' SOCs (8) - 17" x 19" Pillows (1) - Pair Nitrile Gloves (10) - Disposal Bags, 10 Goggles, 10 Disposable coveralls and boots.

ATTACHMENT #8

AMEC TRAC I & TRAC II WORK PLANS

ATTACHMENT #9

Reserved DEC Approved Site Management & SWPPP Plans

ATTACHMENT #10
RESERVED
Initial Exposure Assessments and Associated AHA's

APPENDIX B

COMMUNITY AIR MONITORING PLAN

COMMUNITY AIR MONITORING PLAN

TRACT I AND II SITES
NIAGARA FALLS, NIAGARA COUNTY, NEW YORK
NYSDEC SITE ID NUMBERS: C932157 AND 932136

SUBMITTED TO:

THE NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION

Prepared for:

BRIGHTFIELDS, Inc.
333 Ganson Street
Buffalo, New York 14203

Prepared by

AMEC Environment & Infrastructure, Inc.
800 North Bell Avenue, Suite 200
Carnegie, PA 15106

AMEC Project 3410110832

June 12, 2012

COMMUNITY AIR MONITORING PLAN

TRACT I AND II SITES
NIAGARA FALLS, NIAGARA COUNTY, NEW YORK
NYSDEC SITE ID NUMBERS: C932157 AND 932136

Prepared for:
BRIGHTFIELDS, Inc.
333 Ganson Street
Buffalo, New York 14203

Prepared by:

Robert E. Crowley
Senior Principal Scientist
(AMEC Environment and Infrastructure Inc.)

Thomas Hudrlik
Project Scientist
(AMEC Environment and Infrastructure Inc.)

AMEC Project No. 3410110832

JUNE 12, 2012

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APPENDICIES

LIST OF ACRONYMS

Amec	AMEC Environment and Infrastructure
Brightfields	Brightfields, Inc.
CAMP	Community Air Monitoring Plan
COPCs	Constituents of Potential Concern
HASP	Health and Safety Plan
JHAs	Job Hazard Analyses
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PM-10	particulate matter smaller than 10 microns
PAHs	Polynuclear Aromatic Hydrocarbons
Site	Tract I and Tract II Sites, Niagara Falls, NY
$\mu g/m^3$	micrograms per cubic meter
VOCs	Volatile Organic Compounds

1.0 INTRODUCTION

AMEC Environment and Infrastructure (Amec) has prepared this Community Air Monitoring Plan (CAMP) on behalf of Brightfields, Inc. (Brightfields) for the Tract I and Tract II Sites located east of Highland Avenue and north of Beech Street in the City of Niagara Falls, New York (collectively referred to as the "Site"). The New York State Department of Environmental Conservation (NYSDEC) registry number for Tract I is C932157 and that for Tract II is 932136. Figure 1 shows the location of the Site on a United States Geological Survey 7.5-minute topographic map and Figure 2 shows a plan view of the Site layout.

This CAMP outlines the air quality monitoring procedures that will be implemented during remediation work activities to be conducted at the Site. This CAMP fulfills the general requirements set forth by the New York State Department of Health (NYSDOH) "Generic Community Air Monitoring Plan" and the "Fugitive Dust and Particulate Monitoring" procedures contained in the NYSDEC document "DER-10, Technical Guidance for Site Investigation and Remediation", dated May 2010. For reference, these two guidance documents are included in Appendix A.

1.1 Purpose

The purpose of this CAMP is to provide a measure of protection for the downwind community (i.e., off-Site receptors and on-Site workers not directly involved with the subject work activities) from potential airborne contaminant releases resulting from remedial work activities to be conducted at the Site. Additionally, the CAMP provides data to confirm that remedial work activities have not spread contamination offsite via airborne emissions.

According to the NYSDOH guidance document, the CAMP requires real-time air monitoring for volatile organic compounds (VOCs), if present, and airborne particulates (i.e., dust) at the downwind perimeter of each designated work area during certain activities at contaminated Sites, and establishes action levels that trigger emission control actions. The action levels specified herein require increased monitoring, corrective measures to abate emissions, and/or shutdown of work activities. This CAMP is not intended for use in establishing action levels for worker protection; for such information, refer to the project specific Health and Safety Plan (HASP).

1.2 Hazard Analysis

As identified in previous investigations, the primary constituents of potential concern (COPCs) at the Site include metals (mainly lead) and polynuclear aromatic hydrocarbons (PAHs).

During remedial activities that disturb Site media impacted with the above mentioned COPCs, the primary transport mechanism for these COPCs is dispersion of particulates (dust) in air. As such, this CAMP will address real-time monitoring for these COPCs via downwind perimeter particulate monitoring and through visual observations.

Since VOCs have not been identified at the Site at levels of concern, air monitoring for VOCs will not be conducted and are not included as part of this CAMP.

2.0 REMEDIATION SCOPE OF WORK

In general, the remediation scope of work for the Site includes:

- The removal, characterization, and offsite disposal of debris and other hazardous materials from within the Site buildings in conjunction with building demolition,
- Excavation and offsite disposal of soils at selected areas of the Site,
- Excavation, on-Site stabilization, and consolidation of stabilized soils at the Site,
- Backfilling of the excavated areas as needed, and
- Installation of a Site cover.

Details of the remediation work activities for both the Tract I and Tract II portions of the Site are contained in the Tract I Interim Remedial Measures Work Plan dated June 1, 2012 and the Tract II Remedial Design Work Plan.

During execution of the above mentioned scope of work, reliance on this CAMP will not preclude reasonable fugitive dust suppression measures to maintain dust at a minimum in and around the work areas. The following dust suppression techniques should be considered during remedial activities:

- Applying water to roads and areas of the Site used by vehicles,
- Restricting vehicle speeds to 10 mph or less,
- Wetting building debris/materials to be removed,
- Spraying water on buildings during demolition,
- Wetting equipment and excavation faces,
- Spraying water on buckets during excavation and dumping,
- Hauling materials in properly covered containers,
- Covering excavated areas and material after excavation activities cease, and
- Reducing the excavation size and/or number of excavations.

During the use of water to suppress dust, care must be taken not to use excess water, which can create unacceptably wet conditions. The use of atomizing sprays will prevent overly wet conditions, will conserve water, and will offer and effective means of suppressing fugitive dust. Additional details regarding the specific dust suppression measures to be employed during Site remediation activities are

identified in the above mentioned Interim Remedial Measures Work Plan and Remedial Design Work Plan.

A Site-Specific HASP has been developed for the use during this project. The HASP identifies the anticipated hazards, action levels for known compounds, required monitoring equipment, appropriate personal protective equipment, and includes Job Hazard Analyses (JHAs) for the proposed project activities at the Site. Subcontractors for this project will also have HASPs which are equal to or more stringent than Amec's HASP. The HASPs and this CAMP will be reviewed by all personnel participating in Site activities prior to beginning work, and copies of these documents will be available onsite during remedial activities.

3.0 AIR QUALITY MONITORING

Protection of air quality for the downwind community is the objective of the air quality monitoring program. This will be confirmed by continuously monitoring the airborne particulate concentrations at various locations at the perimeter of the Site during demolition and remediation activities. The particulate concentration information obtained will be used by project personnel to ensure that dust levels are maintained below acceptable threshold levels, as defined below. Air quality monitoring will not be required during the grading or placement of clean fill and will likely not be conducted during precipitation events.

Based upon the primary COPCs identified at the Site, air quality monitoring will consist of real-time air monitoring for particulates. All air monitoring will be conducted from four to five feet above the ground surface in the breathing zone. A description of the air monitoring activities to be performed is presented below.

Real-Time Particulate Air Quality Monitoring

Real-time air monitoring for particulates (i.e., dust) will be performed continuously during building demolition, excavation of soils, and other remediation activities using both air monitoring equipment and through visual observations. Real-time particulate monitoring equipment shall be capable of measuring particulate matter smaller than 10 microns (PM-10), capable of averaging over periods of 15 minutes or less for evaluation against the action level, and include an alarm system to signify an exceedance of the action level. For this project, particulate monitoring will be accomplished using DustTrak™ II model 8530, or an equivalent monitor, and will be reported in units of micrograms per cubic meter (µg/m3).

Monitoring will be conducted at one upwind location to establish background concentrations and at select downwind locations around the perimeter of the Site. The locations of the downwind particulate monitoring stations will be immediately inside the perimeter fence line on all sides of the Site.. In all, up to five or six remote particulate monitoring stations will be utilized, each periodically transmitting data via wireless telemetry to the system's base-station server.

To ensure that Site personnel are alerted in real time in the event of an alert/action level exceedance at any of the perimeter monitoring stations, the wireless telemetry system will generate an automated alert/alarm that will be sent to selected e-mail accounts and cell phones via a text message. In

addition, each monitoring station is equipped with an audible and visual alarm that will be activated in the event of an alert/action level exceedance.

During demolition and remediation activities, the following alert/action levels will be used for the perimeter dust monitoring:

- If the average downwind PM-10 particulate level is 100 µg/m^3 greater than background (upwind level) over a 15-minute period, or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques as long as the downwind PM-10 particulate levels do not exceed 150 µg/m^3 above the background level and provided that no visible dust is migrating from the work area. (Note that dust suppression techniques will also be applied in other circumstances as described in the HASP and/or the remedial design plans).
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 µg/m^3 above the background level, work activities will be halted in the area of concern until corrective measures are identified and implemented to reduce levels to less than 150 µg/m^3 above the background level and to prevent visible dust migration.
- If the action level of 150 µg/m^3 continues to be exceeded, work activities must be halted and the NYSDEC must be notified. The notification must include a description of the measures implemented to prevent further exceedances of the action level.

All real-time particulate readings will be recorded and will be available for review by NYSDEC, NYSDOH and County Heath personnel. In addition, at the end of each work day, Amec will retrieve the particulate and weather data (discussed below) recorded by the monitoring system from the system's server. This data will be posted and reviewable by the public daily at the jobsite and possibly by other public means (to be determined).

Weather Monitoring Station

In addition to particulate monitoring, one weather station will be located onsite during all demolition and remediation activities. The weather station will measure and transmit meteorological data via wireless telemetry to the server along with the particulate data. Wind direction and speed will be reviewed throughout each workday to ensure that the particulate monitoring equipment is

appropriately located and adjusted as needed. Periodic measurements of wind direction at the Site will also be conducted to distinguish which particulate monitoring stations are downwind.

4.0 PRE-REMEDIATION BASELINE PARTICULATE MONITORING

Prior to demolition/remediation activities, a period of baseline monitoring will be conducted to document ambient particulate concentrations in the vicinity of the jobsite. This will occur over a period of approximately two weeks, with a goal of obtaining up to five days of particulate data for eight hours each day during fair weather. During this baseline monitoring period, it will not be necessary to provide or monitor for real-time alert/action levels. At the end of all baseline monitoring, a results summary will be prepared and will be available for review at the jobsite.

5.0 DATA QUALITY ASSURANCE

5.1 Calibration

Instrumentation and equipment used to generate air quality data will be calibrated and zeroed per the manufacture's recommendations. If an instrument does not properly zero, it will be removed from service and will be replaced with a working one.

5.2 Operation

All instruments shall be operated in accordance with the manufacture's specifications by individuals trained in the proper use of the equipment. If an instrument malfunctions during operation, it will be removed from service and exchanged for a properly working one. Manufacture's literature, including the operations manual for each piece of monitoring equipment, will be maintained onsite for reference. All instruments and equipment used in air quality monitoring will be maintained in proper working order and properly stored when not in use.

5.3 Record Keeping

All air monitoring data, monitoring results, wind speed and direction, as well as the locations of monitoring equipment will be recorded electronically or in the daily field log and will be available for review by NYSDEC, NYSDOH, and applicable local agencies. In addition, as discussed previously, daily particulate and weather data will be reviewable by the public at the jobsite and possibly by other public means (to be determined).

FIGURES

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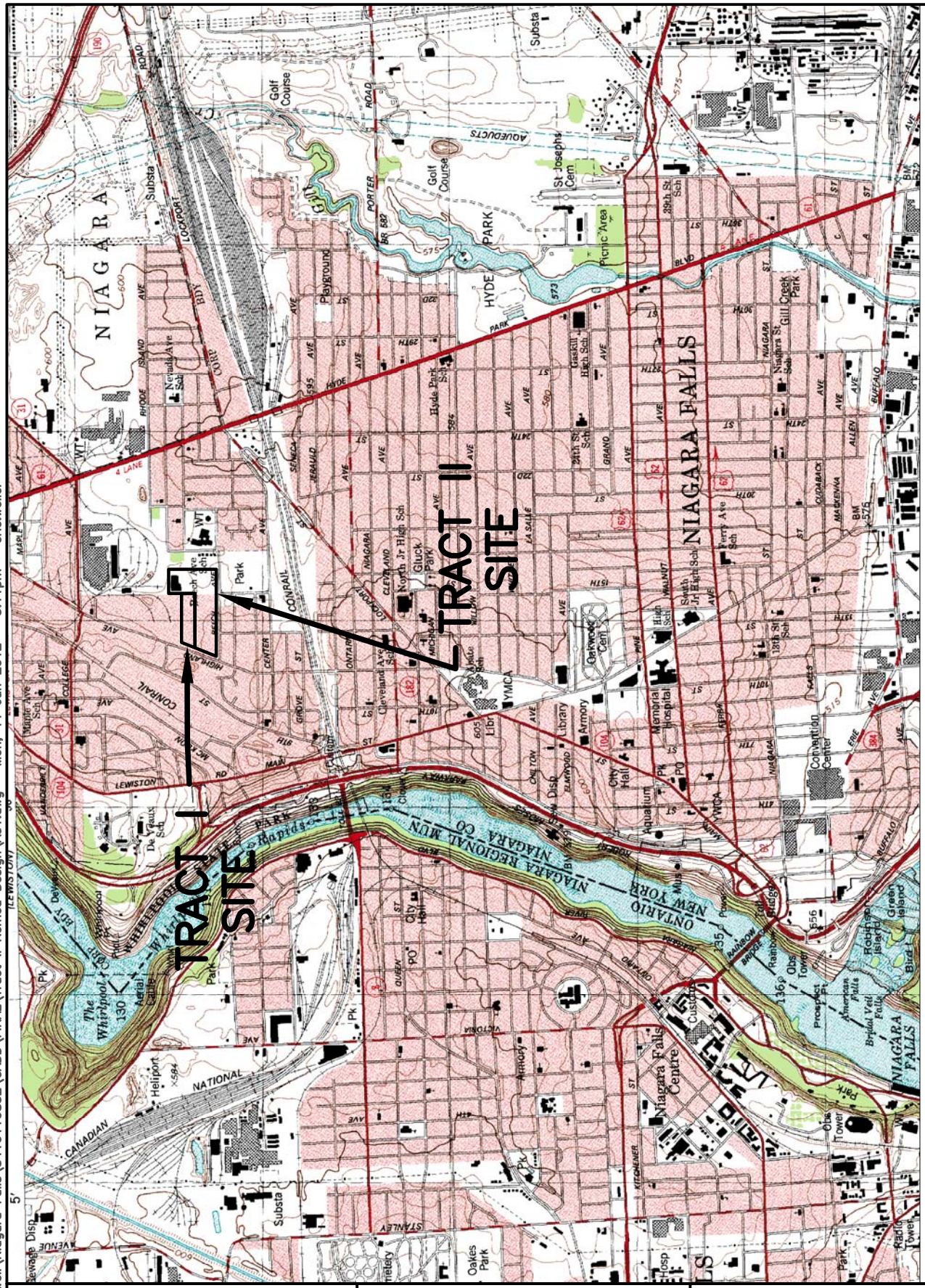

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HONEYWELL INTERNATIONAL INC.
NIAGARA FALLS, NEW YORK

Project No.: 3410110832

amec

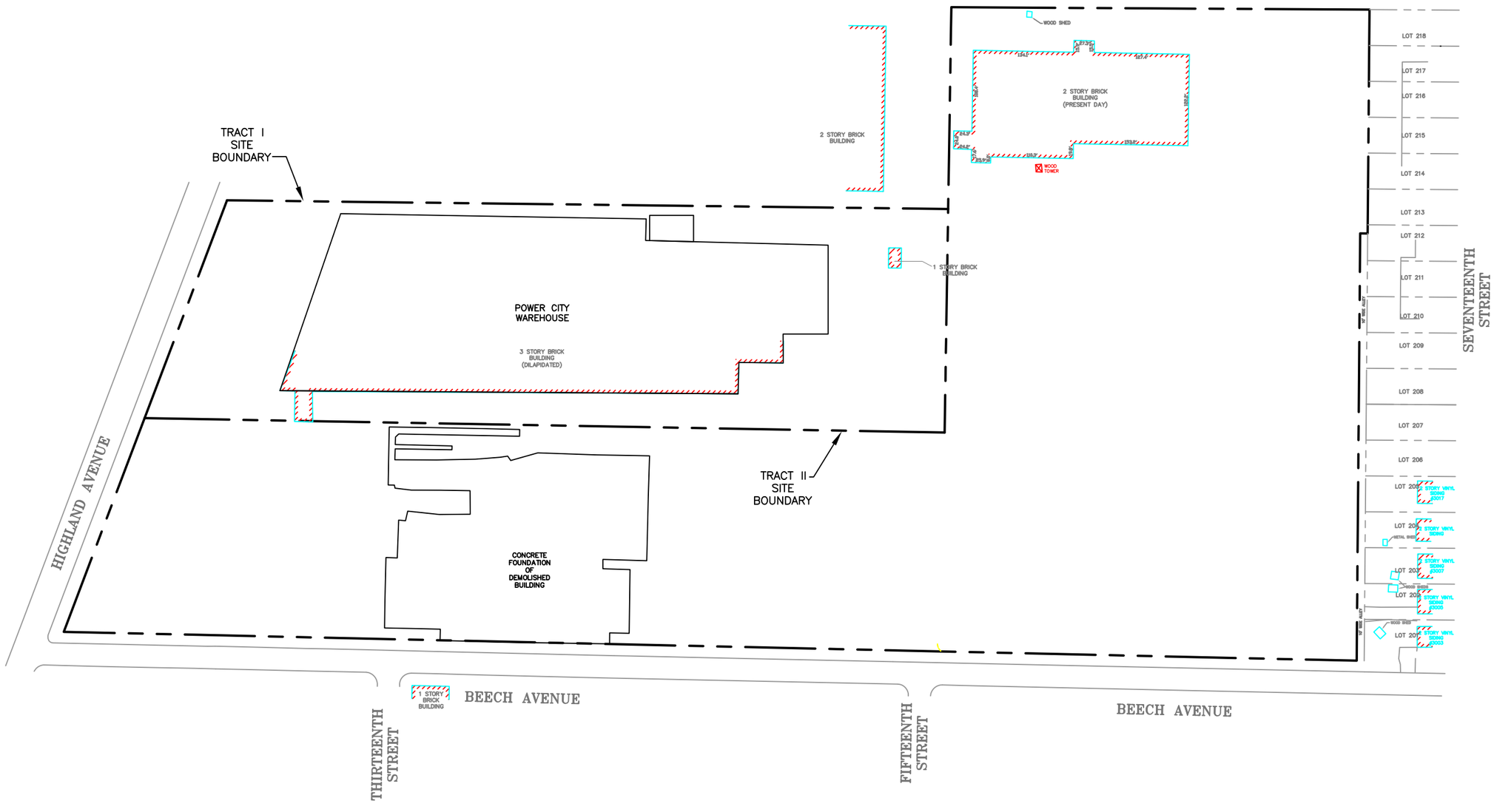
Environment & Infrastructure
800 North Bell Avenue, Suite 200
Pittsburgh, Pennsylvania 15106

Site Location Map

Figure: 1

1

DRAWN BY: NEL 1-4-2011 APPROVED BY: ESW 5-19-2011



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HONEYWELL INTERNATIONAL, INC.
NIAGARA FALLS, NEW YORK

Project No.: 3410100775

MACTEC
Engineering & Consulting Inc.
800 North Bell Avenue, Suite 200
Pittsburgh, PA 15106

TRACT I AND TRACT II
SITE PLAN

FIGURE: 2

2

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APPENDIX A

"New York State Department of Health, Generic Community Air Monitoring Plan" and the "Fugitive Dust and Particulate Monitoring" guidance documents

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

Overview

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

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

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

Community Air Monitoring Plan

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

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

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

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

VOC Monitoring, Response Levels, and Actions

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

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

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

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

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

Particulate Monitoring, Response Levels, and Actions

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

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

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

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

December 2009

Appendix 1B
Fugitive Dust and Particulate Monitoring

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

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;
(b) Measurement Ranges: 0.001 to 400 mg/m3 (1 to 400,000 :ug/m3);
(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m3 for one second averaging; and +/- 1.5 g/m3 for sixty second averaging;
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
(e) Resolution: 0.1% of reading or 1g/m3, whichever is larger;
(f) Particle Size Range of Maximum Response: 0.1-10;
(g) Total Number of Data Points in Memory: 10,000;
(h) Logged Data: Each data point with average concentration, time/date and data point number
(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
(l) Operating Temperature: -10 to 50^{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/m3 (15 minutes average). While conservative,

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

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

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

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

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

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