**DRAFT**

# Fedders Automotive Components Site

**ERIE, NEW YORK**

# Site Management Plan

**NYSDEC Site Number: 915024**

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**Revisions to Final Approved Site Management Plan:**

| Revision # | Submitted Date | Summary of Revision | DEC Approval Date |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
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**NOVEMBER 2013**

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# SITE MANAGEMENT PLAN

## 1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

### 1.1 INTRODUCTION

This document serves as an element of the remedial program at Fedders Auto Components site (the Site). The New York State Department of Environmental Conservation (NYSDEC) included the site on the Registry of Inactive Hazardous Waste Disposal Sites (the Registry). This listing was based in part on results of a hazardous waste survey conducted in 1978 by NYSDEC that documented the disposal of hazardous waste (F001 – mixture of waste oil and solvent still bottoms). Environmental investigations conducted between 1985 and 1990 found elevated concentrations of volatile organic compounds (VOCs) in groundwater and polychlorinated biphenyls (PCBs) in surface soil. The Fedders Automotive Components site was assigned a Classification 3, which means that consequential amounts of hazardous waste were disposed at the site but was not considered to represent a significant threat at that time and that action could be deferred. During the 1989 investigation subsurface soils were found to be contaminated with chlorinated V)Cs, BTEX and metals.

Upon review of the historical data associated with this site, the NYSDEC has decided that additional environmental work is necessary before they could consider delisting the site from the Registry. The additional work requested by the NYSDEC includes the preparation of this SMP. The SMP has been developed to include a requirement to periodically inspect and maintain the existing asphalt-covered parking area (see attached Figure 2) to prevent exposure to potentially contaminated soils. This is based in part on the fact that the parking area is underlain by soil that in the past received applications of waste oil and solvents generated on site. In addition, the SMP also includes a prohibition against using groundwater underlying the property without

necessary treatment as determined by the NYSDOH. The SMP also includes a requirement to evaluate the potential for exposures via vapor intrusion in any currently occupied buildings or any future buildings to be constructed on the site prior to their occupation, including a requirement to mitigate potential exposures through the use of engineering controls (e.g., radon mitigation systems) or other means.

### 1.1.1 General

Presently the site is not being actively remediated under any NYSDEC remedial program and no formal remedial action is warranted at this time. Nevertheless, the NYSDEC recognizes that the asphalt-covered parking area is an effective barrier that minimizes exposure to potentially impacted soil beneath and its long-term maintenance is beneficial.

This Site Management Plan (SMP) was prepared to manage contamination at the site until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by Panamerican Environmental, Inc., on behalf of Mr. Edward Hogle, in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, dated May 2010, and the guidelines provided by NYSDEC. This SMP addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) that are required by the Environmental Easement for the site.

### 1.1.2 Purpose

The site contains contamination as noted in section 1.1 Introduction. Engineering Controls have been incorporated to control exposure to remaining contamination during the use of the site to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Erie County Clerk, will require compliance with this SMP and all ECs and ICs placed on the site. The ICs place restrictions on site use, and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. This SMP specifies the methods necessary

ensure compliance with all ECs and ICs required by the Environmental Easement for contamination that remains at the site. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

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

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

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

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the environmental easement;
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and thereby subject to applicable penalties.

### 1.1.3 Revisions

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

## 1.2 SITE BACKGROUND

### 1.2.1 Site Location and Description

The site is located 57 Tonawanda Street in the City of Buffalo, County of Erie, New York and is identified as Block 88.50-1 and Lot 8.21 on the City of Buffalo Tax

Map. The site is an approximately 2-acre area bounded by private property to the north, West Street to the south, bike path/State highway 198 to the east, and Tonawanda Street to the west (see Figure 1 - Site Location Map).

### 1.2.2 Site History

The following description is from a Phase 1 Environmental Site Assessment completed on the site in May 2011 for the Buffalo Niagara RIVERKEEPERS by PEI.

Located on the northeast corner of West and Tonawanda Streets, the subject property contains a 2-story building fronting along West Street at Tonawanda which is approximately 10,230 square feet. A large parking lot area extends from the eastern end of the building to the east and is bounded by Creek/bike path and the Scajaquada Expressway (State Highway 198). The building and property abut Tonawanda Street to the west and West Street to the south. The building is connected to the adjacent former Fedders factory building to the north (71 Tonawanda Street). Historical information and maps suggest that the building functioned as the office area of the Fedders Automotive Corporation factory complex that span across West Street and included the 31 and 71 Tonawanda Street properties. The existing entire building complex was initially constructed in the early 1900's as Fedder Manufacturing Company (building permits indicate that brick factories were constructed from 1907-1916). Based on the historical records, it appears that the subject building was added to the Fedders complex sometime after 1916. Prior to that there were individual residential and small store front properties at the location. The eastern part of the property, now a large asphalt parking lot, was the former location of Hall & Son Fire Brick factory complex that operated from about 1866 to about the early 1940's

The Phase 1 ESA indicated that potential environmental impacts exist at the property from past activities on the property and from the adjacent/nearby properties. Reports suggested that Fedders manufactured automotive components including radiators, heaters, and transmission oil coolers. The report further suggested that processes at the property included metal stamping, soldering, brazing, welding, painting, acid washing and degreasing. Industrial wastes were reported to include solder dross, degreasing still bottoms including trichloroethylene (TCE) and tetrachloroethene,

petroleum-based lubricating fluids and other products and wastes. Phase 2 ESA's conducted for NYSDEC in the late 1980's and early 1990s confirm the above impacts.

### 1.2.3 Geologic Conditions

Bedrock beneath the project area is Onondaga limestone, consisting of Middle Devonian age limestone and chert (Owens et al.). It lies deeply buried beneath glacial deposits and no rock outcroppings are visible on the ground surface. This formation is notable for its chert nodules that were the primary prehistoric lithic resource used in western New York. Relatively flat, the bedrock underlying Erie County tilts to the southwest at approximately 50 ft (15 m) per mile (Owens et al.).

Geologic descriptions of the general soils suggest that the overburden materials is mostly clay with gravel, sand, and other fill materials at the surface and shallow depths. Fill in some areas ranges from 3 feet to 15 or more feet. Reports suggest that C&D debris especially under the parking lot probably exists from the demolition of the Hall & Son brick factory. Groundwater flows towards Scajaquada Creek..

## 1.3 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

No recent investigations have been conducted at the site. Investigations conducted at this site to date include Phase I and Phase II Investigations by the NYSDEC (1985, 1992), a Site Investigation conducted in 1989 on behalf of Fedco Automotive, and a UST site assessment completed in 2002 by Stearns & Wheeler (2002).

Below is a summary of findings from the various investigations:

<u>Groundwater</u>

In 1989, as part of the site investigation conducted by Fedco, two groundwater monitoring wells (MW1-89 and MW2-89) were installed and sampled for volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), and petroleum products. No PCBs were detected in the groundwater. Eight VOCs were detected in the groundwater, including vinyl chloride at 350 ug/L and TCE detected at 310 ug/L.

During the 1992 Phase II investigation groundwater samples were collected from each of three new monitoring wells. VOCs detected in groundwater above Class GA standards in well GW-2 included 1,1-DCA (53 ug/L), total-1,2-DCE (340 ug/L), 1,1,1-TCA (370 ug/L) and TCE (640 ug/L). Phenol was the only semi-volatile organic compound (SVOC) detected above Class GA standards at 16 ug/L in GW-3. Inorganic analysis showed five analytes (iron, magnesium, sodium, zinc, and cyanide) exceeding Class GA groundwater standards, however the highest concentrations of these inorganics were detected primarily in the background well (GW-1) and determined not attributable to the site.

Soil

During the 1989 site investigation conducted by Fedco, eight surface soil samples were collected and analyzed for TCL volatiles and PCBs. PCBs were detected in three of the eight samples collected, the highest concentration from the sample directly beneath two electrical transformers at 34.2 mg/kg. The other two samples showed concentrations of 4.4 and 0.17 mg/kg. Seven VOC compounds were detected in the soil samples, the highest was the presence of TCE at a concentration of 15 mg/kg. This was from the excavation for monitoring well MW1-89.

Fifteen subsurface soils samples were collected and analyzed for the full TCL organic, inorganic and cyanide parameters during the Phase II investigation. VOCs were detected in the soil sample: 1,2-DCA, Chloroethane, 1,1-DCE, 1,1,1-TCA, 1,1-DCA, ethylbenzene, and total xylenes at concentrations ranging from 6 ug/kg (TCE) to a high of 1,100 ug/kg (1,1-DCA). The presence of low levels of toluene, ethylbenzene and xylenes in the samples may be related to the use of the site area as a parking lot and the historic use of oils for dust control. Three metals (cadmium, lead, and manganese) were detected above their common ranges in subsurface soil at the site. The concentrations of PAHs detected at the site are consistent with those of urban industrial areas and fall within the published range of PAHs in soil.

Six soil samples were collected as part of the 2002 UST investigation and analyzed for naphthalene. No naphthalene was detected in any of the soil samples.

Surface Water

During the Phase II investigation, three surface water samples were collected from the site and analyzed for TCL organics, metals, and cyanide. The samples were collected from Scajaquada Creek along the eastern boundary of the site. No organic compounds were detected in the surface water samples. Nine metals were detected, two of which (iron and zinc) were above NYSDEC Class B ambient water standards. Iron concentrations ranged from 582 to 1,130 ug/L and zinc ranged from 35.1 ug/L to 54.6 ug/L. Background levels indicate that these concentrations are not attributable to the site.

Sediment

Three sediment samples were collected from Scajaquada Creek during the Phase II investigation. Nineteen metals were detected in sediment samples from the site but only lead and cadmium were detected at levels above their common ranges. Lead was detected downstream from the site at levels significantly higher than upstream, suggesting a possible release from the site to the stream. The elevated cadmium level was detect upstream, and therefore most likely not attributable to the site. Organic compounds detected in sediment include 1,2-DCE at 13 ug/kg, TCE at 17 ug/kg, and PCE at 85 ug/kg in SED-3, collected downgradient from the site. The total value for PAHs was 360,000 ug/kg in SED-1 (upstream) compared to 6,600 ug/kg in SED-3 (downstream). The Scajaquada Creek sediment was remediated in 1998-1999 as part of the Iroquois Gas/Westwood Pharmaceutical site.

## 1.4 SUMMARY OF REMEDIAL ACTIONS

No formal remedial measures have been implemented. The 1992 Phase II Investigations Report recommended that the site parking lot area be covered with an impervious material to impede the infiltration of precipitation and surface runoff and reduce the potential for off-site migration of contaminants (see Figure 4.2 attached from this report) As a voluntary measure this area was subsequently paved with 4 +/- inches of asphalt and fenced. The exact year the parking area was paved is unknown.

# 2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

## 2.1 INTRODUCTION

### 2.1.1 General

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

### 2.1.2 Purpose

This plan provides:

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

## 2.2 ENGINEERING CONTROLS

### 2.2.1 Engineering Control Systems

Asphalt Pavement Cover System

Exposure to remaining contamination in soil/fill at the site is prevented by an asphalt pavement cover system placed over the site (refer to Figure 2). This cover system is comprised of asphalt pavement. The Excavation Work Plan that appears in Appendix A outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection and maintenance of this cover and the enclosing fence are provided in the Monitoring Plan included in Section 4 of this SMP.

### 2.2.2 Criteria for Completion of Remediation/Termination of Remedial Systems

The framework for determining when remedial processes are complete is provided in Section 6.6 of NYSDEC DER-10.

The cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in perpetuity.

## 2.3 INSTITUTIONAL CONTROLS

A series of Institutional Controls is required to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination. Adherence to these Institutional Controls on the site is required by the Environmental Easement and will be implemented under this Site Management Plan. These Institutional Controls are:

- Compliance with the Environmental Easement and this SMP by the Grantor and the Grantor's successors and assigns;
- All Engineering Controls must be operated and maintained as specified in this SMP;

- All Engineering Controls on the Controlled Property must be inspected at a frequency and in a manner defined in the SMP.
- Other environmental or public health monitoring must be performed as defined in this SMP;
- Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in this SMP;

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

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

- All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with this SMP;
- The use of the groundwater underlying the property is prohibited without treatment rendering it safe for intended use as determined by the NYSDOH;
- The potential for vapor intrusion must be evaluated for any currently unoccupied buildings or any future buildings to be constructed on the site prior to their occupation. Any potential impacts/exposure must be mitigated through the use of Engineering Controls (e.g. radon mitigation systems) or other approved means.
- Vegetable gardens and farming on the property are prohibited;
- The site owner or remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that

NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

### 2.3.1 Excavation Work Plan

Any future intrusive work that will penetrate the cover cap, or encounter or disturb the remaining contamination, including any modifications or repairs to the existing cover system will be performed in compliance with the Excavation Work Plan (EWP) that is attached as Appendix A to this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) that would be prepared for the site under the work plan. A sample HASP/CAMP is attached as Appendix B to this SMP that is in current compliance with DER-10, and 29 CFR 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be updated and re-submitted with the notification provided in Section A-1 of the EWP. Any intrusive construction work will be performed in compliance with the EWP, HASP and CAMP, and will be included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan (See Section 5).

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

### 2.3.2 Soil Vapor Intrusion Evaluation

Prior to the construction of any enclosed structures located over areas that contain remaining contamination and the potential for soil vapor intrusion (SVI) has been

identified, an SVI evaluation will be performed to determine whether any mitigation measures are necessary to eliminate potential exposure to vapors in the proposed structure. Alternatively, an SVI mitigation system may be installed as an element of the building foundation without first conducting an investigation. This mitigation system will include a vapor barrier and passive sub-slab depressurization system that is capable of being converted to an active system.

Prior to conducting an SVI investigation or installing a mitigation system, a work plan will be developed and submitted to the NYSDEC and NYSDOH for approval. This work plan will be developed in accordance with the most recent NYSDOH "Guidance for Evaluating Vapor Intrusion in the State of New York". Measures to be employed to mitigate potential vapor intrusion will be evaluated, selected, designed, installed, and maintained based on the SVI evaluation, the NYSDOH guidance, and construction details of the proposed structure.

Preliminary (unvalidated) SVI sampling data will be forwarded to the NYSDEC and NYSDOH for initial review and interpretation. Upon validation, the final data will be transmitted to the agencies, along with a recommendation for follow-up action, such as mitigation.

SVI sampling results, evaluations, and follow-up actions will also be summarized in the next Periodic Review Report.

## 2.4 INSPECTIONS AND NOTIFICATIONS

### 2.4.1 Inspections

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

- Whether Engineering Controls continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;

- Sampling and analysis of appropriate media during monitoring events;
- If site records are complete and up to date; and
- Changes, or needed changes, to the remedial or monitoring system;

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3). The reporting requirements are outlined in the Periodic Review Reporting section of this plan (Section 5).

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

### 2.4.2 Notifications

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

- 60-day advance notice of any proposed changes in site use that are required under the terms of 6NYCRR Part 375, and/or Environmental Conservation Law.
- 15-day advance notice of any proposed ground-intrusive activities pursuant to the Excavation Work Plan.
- Notice within 48-hours of any damage or defect to the foundation, structures or engineering control that reduces or has the potential to reduce the effectiveness of an Engineering Control and likewise any action to be taken to mitigate the damage or defect.
- Verbal notice by noon of the following day of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

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

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of all approved work plans and reports, including this SMP
- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing.

## 2.5 CONTINGENCY PLAN

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions.

### 2.5.1 Emergency Telephone Numbers

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

**Emergency Contact Numbers**

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

## Contact Numbers

| | |
|---|---|
| [qualified environmental professional (to be named)] | [phone] |
| | |
| | |
| | |
| | |

* Note: Contact numbers subject to change and should be updated as necessary

### 2.5.2 Map and Directions to Nearest Health Facility

Site Location: 57 Tonawanda Street, Buffalo, New York 14207

Nearest Hospital Name: Sisters of Charity Hospital

Hospital Location: 2157 Main St, Buffalo NY 14214

Hospital Telephone: 716-862-1000

Directions to the Hospital:

1. Head south on Tonawanda St toward West Ave.
2. Continue on to Niagara
3. Turn left on to NY 198 Ramp
4. Merge onto NY-198 E & take the exit toward NY 5/Main St
5. Merge onto Humbolt Pkwy
6. Turn left onto Main St, & Hospital on Left.

Total Distance: 3.2 miles

Total Estimated Time: 7 minutes

## Map Showing Route from the site to the Hospital:

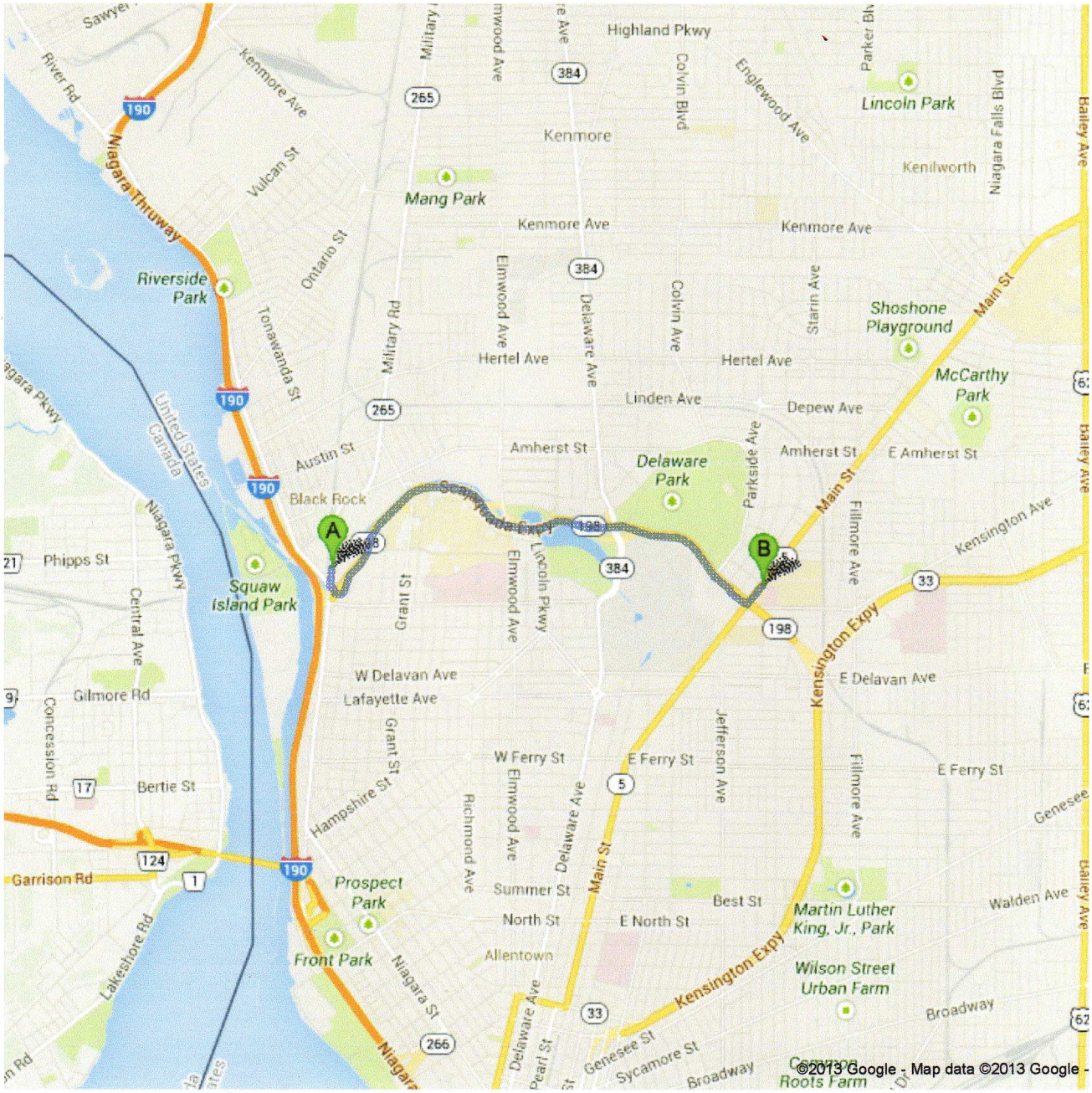
See next page

Google

# Directions to Sisters of Charity Hospital

2157 Main St, Buffalo, NY 14214

**3.2 mi** – about **7 mins**



## A 57 Tonawanda St, Buffalo, NY 14207

| | | |
|---|---|---|
| | 1. Head **south** on **Tonawanda St** toward **West Ave** | go 0.1 mi<br>total 0.1 mi |
| | 2. Continue onto **Niagara St** | go 59 ft<br>total 0.1 mi |
| ↰ | 3. Turn left onto the **New York 198** ramp<br>About 57 secs | go 0.2 mi<br>total 0.3 mi |
| 198 | 4. Merge onto **NY-198 E**<br>About 3 mins | go 2.6 mi<br>total 2.9 mi |
| ↗ | 5. Take the exit toward **NY 5/Main St** | go 144 ft<br>total 2.9 mi |
| | 6. Merge onto **Humboldt Pkwy** | go 0.1 mi<br>total 3.0 mi |
| ↰ | 7. Turn left onto **Main St**<br>Destination will be on the right<br>About 2 mins | go 0.1 mi<br>total 3.2 mi |

## B Sisters of Charity Hospital
2157 Main St, Buffalo, NY 14214

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.



Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

### 2.5.3 Response Procedures

As appropriate, the fire department and other emergency response group will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of this Contingency Plan. The list will also be posted prominently at the site and made readily available to all personnel at all times.

# 3.0 SITE MONITORING PLAN

## 3.1 INTRODUCTION

### 3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the asphalt Pavement cover system and all affected site media identified below. Monitoring of other Engineering Controls is described in Chapter 4, Operation, Monitoring and Maintenance Plan. This Monitoring Plan may only be revised with the approval of NYSDEC.

### 3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- Preparing the necessary reports for the various monitoring activities.

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

- Reporting requirements;
- Annual inspection and periodic certification.

Monitoring programs are summarized in Table 1 and outlined in detail in Sections 3.2 and 3.3 below.

**Table 1: Monitoring/Inspection Schedule**

| Monitoring Program | Frequency* | Matrix | Analysis |
|---|---|---|---|
| Cover system & Fencing | Annually | Asphalt Pavement & enclosure fence | none |
| | | | |
| | | | |
| | | | |

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

## 3.2 COVER SYSTEM MONITORING

The asphalt pavement cover system will be inspected during the annual Site Wide Inspection (refer to Section 3.4). A walk over inspection will be conducted to assure that the soil cover system is intact and has not been disturbed. The walkover inspection would include:

- Condition of surface sealing
- Noting of cracks, potholes and or settled areas in the pavement

## 3.3 MEDIA MONITORING PROGRAM

Not applicable

## 3.4 SITE-WIDE INSPECTION

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect Engineering Controls or monitoring devices. During these inspections, an inspection form will be completed (Appendix D). The form will compile sufficient information to assess the following:

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

### 3.5 MONITORING QUALITY ASSURANCE/QUALITY CONTROL

Not Applicable

### 3.6 MONITORING REPORTING REQUIREMENTS

Monitoring will be reported in the period Review Report covered in Section 5.3.

## 4.0 OPERATION AND MAINTENANCE PLAN

### 4.1 INTRODUCTION

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

### 4.2 ENGINEERING CONTROL SYSTEM OPERATION AND MAINTENANCE

The maintenance of the parking area will require periodic surface sealing. The frequency of surface sealing will be based on the condition of the existing pavement noted during the annual periodic inspection (cracks developed, loose surface aggregate, etc.). The seal coat to be used would be Masterseal asphalt pavement sealer by SealMaster or an approved equivalent.

The fence surrounding the parking area will also be maintained and repaired if damaged for any reason.

### 4.3 ENGINEERING CONTROL SYSTEM PERFORMANCE MONITORING

Not Applicable

## 4.4 MAINTENANCE AND PERFORMANCE MONITORING REPORTING REQUIREMENTS

Maintenance reports and any other information generated during regular operations at the site will be kept on-file on-site. All reports, forms, and other relevant information generated will be available upon request to the NYSDEC and submitted as part of the Periodic Review Report, as specified in the Section 5 of this SMP.

### 4.4.1 Routine Maintenance Reports

Checklists or forms (see Appendix D) will be completed during each routine maintenance event. Checklists/forms will include, but not be limited to the following information:

- Date;
- Name, company, and position of person(s) conducting maintenance activities;
- Maintenance activities conducted;
- Any modifications to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and,
- Other documentation such as copies of invoices for maintenance work (attached to the checklist/form).

### 4.4.2 Non-Routine Maintenance Reports

During each non-routine maintenance event, the form noted in 4.4.1 will be completed which will include, but not be limited to, the following information:

- Date;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Other repairs or adjustments made to the system;

- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and,
- Other documentation such as copies of invoices for repair work (attached to the checklist/form).

# 5. INSPECTIONS, REPORTING AND CERTIFICATIONS

## 5.1 SITE INSPECTIONS

The object of all site inspections will be the asphalt cover system and the fencing surrounding the asphalt covered parking lot to make sure that the cover system and fencing are being maintained per this SMP.

### 5.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 Monitoring Plan and Section 4 Operation and Maintenance Plan of this SMP. At a minimum, a site-wide inspection will be conducted annually. Inspections will also be conducted whenever a severe condition has taken place, such as an erosion or flooding event that may affect the ECs.

### 5.1.2 Inspection Forms, Sampling Data, and Maintenance Reports

All inspections and monitoring events will be recorded on the appropriate forms for their respective system which are contained in Appendices D. Additionally, a general site-wide inspection form will be completed during the site-wide inspection (see Appendix D). These forms are subject to NYSDEC revision.

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

### 5.1.3 Evaluation of Records and Reporting

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

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items,

## 5.2 CERTIFICATION OF ENGINEERING INSTITUTIONAL CONTROLS

After the last inspection of the reporting period, a [qualified environmental professional or Professional Engineer licensed to practice in New York State] will prepare the following certification:

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

- The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;
- The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;
- Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;

- Use of the site is compliant with the environmental easement;
- The engineering control systems are performing as designed and are effective;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program; and
- The information presented in this report is accurate and complete.
- I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner or Owner's Designated Site Representative] (and if the site consists of multiple properties): [I have been authorized and designated by all site owners to sign this certification] for the site.

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

### 5.3 PERIODIC REVIEW REPORT

A Periodic Review Report will be submitted to the Department every year, beginning fifteen months after the SMP is issued. In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the changed site conditions. The report will be prepared in accordance with NYSDEC DER-10 and submitted within 30 days of the end of each certification period. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site;
- Results of the required annual site inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated for the site during the reporting period in electronic format;
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;

- A site evaluation, which includes the following:
    - The compliance with the SMP;
    - The effectiveness the cover system, including identification of any needed repairs or modifications;
    - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
    - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
    - The overall performance and effectiveness of the cover system.
    - A figure (Figure 2) showing items needing repair for maintenance of the cover system and fencing)

The Periodic Review Report will be submitted in electronic format to NYSDEC Central Office, Regional Office and the NYSDOH Bureau of Environmental Exposure Investigation.

## 5.4 CORRECTIVE MEASURES PLAN

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

# APPENDIX A – EXCAVATION WORK PLAN

## A-1 NOTIFICATION

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

Mr. Martin Doster

Regional Hazardous Waste Remediation Engineer

Division of Environmental Remediation, Region 9
270 Michigan Avenue
Buffalo, NY 14203-2915

This notification will include:

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

- Identification of sources of any anticipated backfill, along with all required chemical testing results.

## A-2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based soil screening will be performed by a qualified environmental professional during all remedial and development excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work.

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

## A-3 STOCKPILE METHODS

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

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

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

## A-4 MATERIALS EXCAVATION AND LOAD OUT

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

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

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

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

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

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

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

## A-5 MATERIALS TRANSPORT OFF-SITE

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

Material transported by trucks exiting the site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

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

Truck transport routes are as follows: (to be determined). All trucks loaded with site materials will exit the vicinity of the site using only approved truck routes. This is the most appropriate route and takes into account: (a) limiting transport through

residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport; [(g) community input [where necessary]]

Trucks will be prohibited from stopping and idling in the neighborhood outside the project site.

Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development.

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

## A-6 MATERIALS DISPOSAL OFF-SITE

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

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

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

## A-7 MATERIALS REUSE ON-SITE

Excavated material may be reused at the same location from which it was removed unless it exhibits signs of gross contamination. Assuming no signs of gross contamination, no laboratory analyses are required provided the material is placed back into the bottom of the excavation and a six-inch paving system is placed atop it. Excavated material which is not reused at the same location shall be disposed off-site in accordance with the procedures described in Section A-6 of the EWP. The qualified environmental professional will be responsible for ensuring that procedures defined for material reuse in this SMP are followed and that unacceptable material will not remain on-site.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site.

## A-8 FLUIDS MANAGEMENT

All liquids to be removed from the site, including excavation dewatering and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the site, but will be managed off-site.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a SPDES permit.

## A-9 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with what was in place prior to the excavation work and as approved by the NYSDEC. A demarcation layer, consisting of orange snow fencing material or equivalent material will be placed to provide a visual

reference to the top of the 'Remaining Contamination Zone', the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this Site Management Plan. If the type of cover system changes from that which exists prior to the excavation (i.e., asphalt cover is replaced by other system), this will constitute a modification of the cover element and the upper surface of the 'Remaining Contamination. A proposed revised cover system must be approved by NYSDEC before implementation. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in any updates to the Site Management Plan.

## A-10 BACKFILL FROM OFF-SITE SOURCES

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

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

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC. Solid waste will not be imported onto the site.

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

## A-11 STORMWATER POLLUTION PREVENTION

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC. All necessary repairs shall be made immediately.

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

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

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

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

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

## A-12 CONTINGENCY PLAN

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

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

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

## A-13 COMMUNITY AIR MONITORING PLAN

Prior to any excavation work a Community Air Monitoring Plan will be prepared and approved by NYSDEC that meets the Guidance plan provided in Appendix 1A of DER-10, Generic Community Air Monitoring Plan (CAMP) at a minimum. A sample CAMP is provided at the end of the HASP in Appendix B.

A figure showing the location of air sampling stations based on generally prevailing wind conditions will be provided on a figure in the final CAMP. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations.

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

## A-14 ODOR CONTROL PLAN

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

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

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

## A-15 DUST CONTROL PLAN

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

- Dust suppression will be achieved though the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

## A-16 OTHER NUISANCES

A plan for rodent control will be developed and utilized by the contractor prior to and during site clearing and site grubbing, and during all remedial work.

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

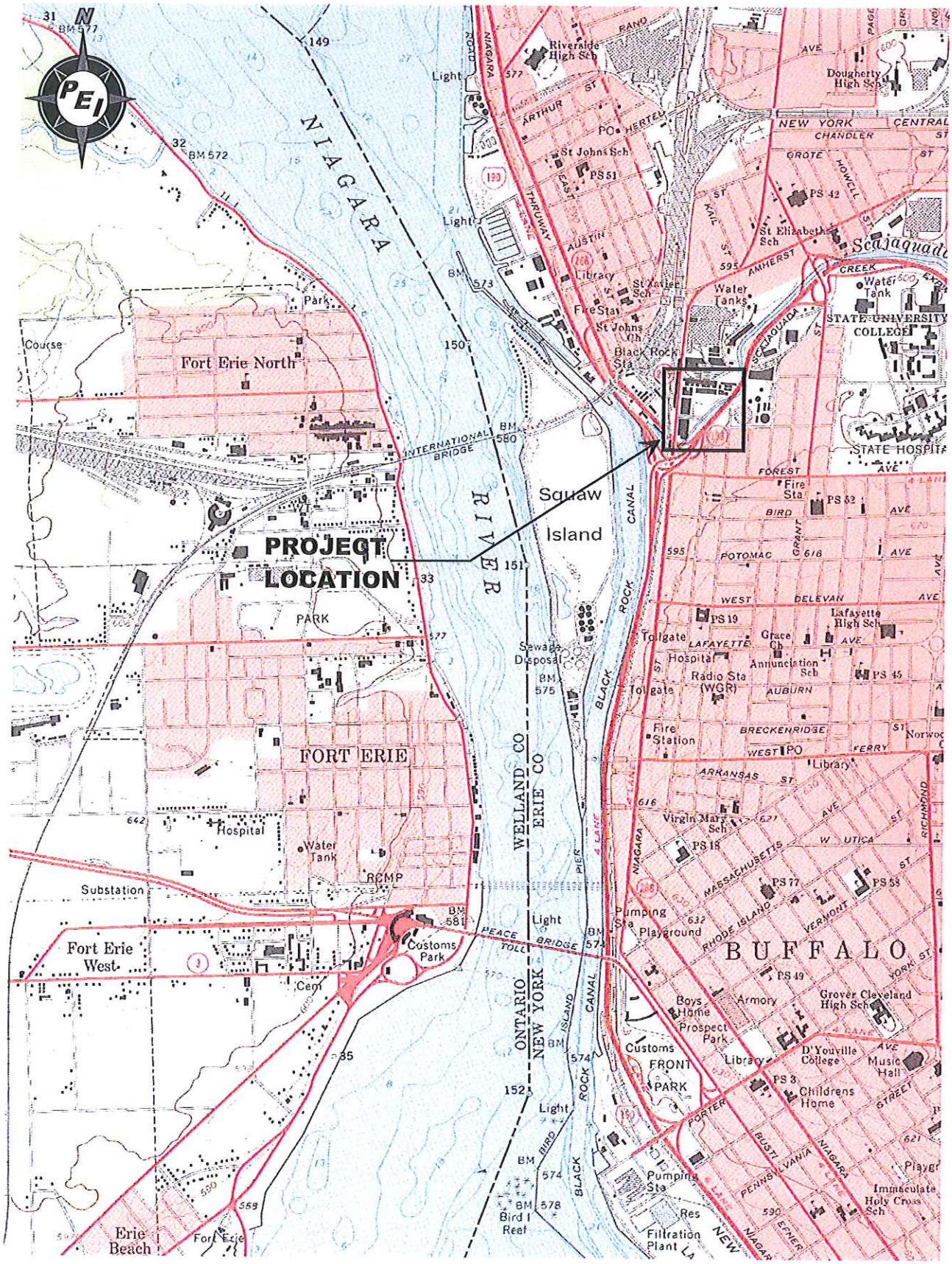
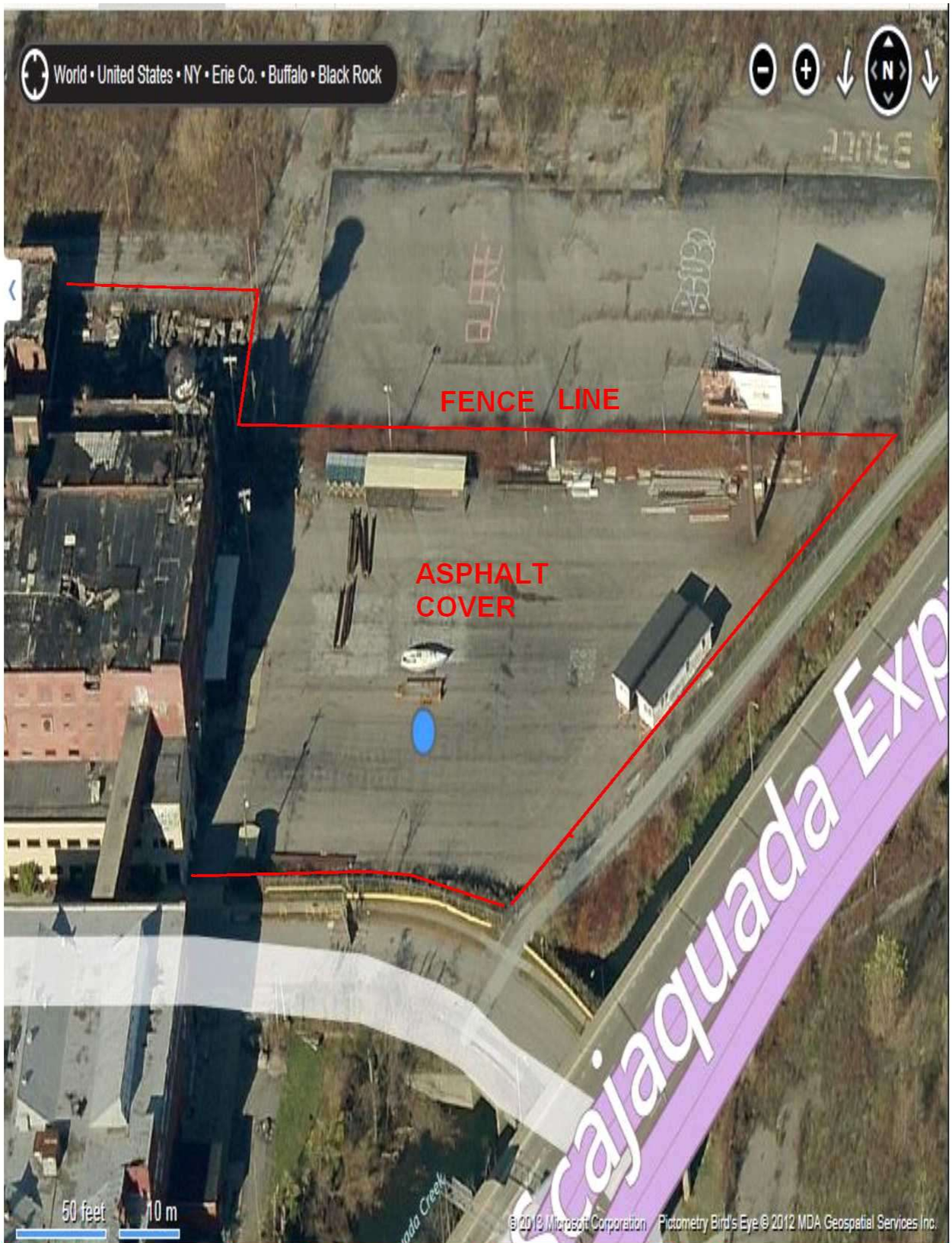



**Figure 1. Project areas location in City of Buffalo, Erie County, New York** *(USGS 7.5' Quadrangle, Buffalo NW, NY 1986 [1965]).*




57-71 Tonawanda Street Back Lot Fenced Area. Source - Bing Maps

**FIGURE 2 - FENCED ASPHALT COVER IMPACTED SOILS PARKING AREA**

# APPENDIX B

# RESPONSIBILITIES of

# OWNER and REMEDIAL PARTY

Not Applicable

# APPENDIX C – ENVIRONMENTAL EASEMENT OR DEED RESTRICTION

Currently being developed

# APPENDIX D – INSPECTION FORMS

# ROUTINE MAINTENANCE FORM

**Date: _____**

**1-Name, company, and position of person(s) conducting maintenance activities:**

**2-Maintenance Activities Conducted:**

**3-Any Modifications to the System Noted:**

**4-Location of Any Problems or Incidents Noted (attached sketches photos as appropriate):**

**5-Other documentation such as copies of invoices for maintenance work (attached to this form)**

**Panamerican Environmental. Inc**
**2390 Clinton Street**
**Buffalo, New York**

## SITE WIDE INSPECTION FORM

**Date:**

**Site Name:**

**Location:**

**General Site Conditions:**

**Weather Conditions:**

**Compliance/Evaluation ICs and ECs :**

**Site management Activities (sampling, H & S Inspection, etc.):**

**Compliance With Maintenance Plan:**

Asphalt Cover System Condition:

-Surface sealing _____

-Cracks _____

-Potholes/Settled Areas _____

Fencing Condition _____

**General Comments:**

**INSPECTOR'S NAME:**

# APPENDIX E – HEALTH AND SAFETY PLAN AND COMMUNITY AIR MONITORING PLAN

# APPENDIX E

## HEALTH AND SAFETY PLAN

## Site Investigations
## And
## Remedial Oversight

# Fedders Automotive Components Site

## SITE # 915024
## 57 Tonawanda Street
## Buffalo, New York 14207

**Prepared for:**

**Mr. Edward Hogle**
**Black Rock Trade Center, Inc**
**120 Tonawanda Street**
**Buffalo, New York 14207**

**Prepared by:**

**Panamerican Environmental, Inc.**
**2390 Clinton Street**
**Buffalo, New York 14227**

**OCTOBER 2013**

Peter J. Gorton, MPH, CHCM
PEI Safety Officer

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Section Page

# HEALTH AND SAFETY PLAN

## 1.0 INTRODUCTION

The following health and safety procedures will be followed by PEI personnel and their immediate subcontractors performing the activities described in the Demolition and Site Remediation Work Plans. Please note, however, contractors are required to develop and follow their own plans meeting these requirements minimally or adopt this plan.

### 1.l Purpose

Directed at protecting the health and safety of the field personnel during field activities, the following site-specific Health and Safety Plan (HASP) was prepared to provide safe procedures and practices for personnel engaged in conducting the field activities associated with this plan. The plan has been developed using the Occupational Safety and Health Administration (OSHA) 1910 and 1926 regulations and NYSDEC Brownfields DER-10 as guidance. The purpose of this HASP is to establish personnel protection standards and mandatory safety practices and procedures for this task specific effort. This plan assigns responsibilities, establishes standard operating procedures, and provides for contingencies that may arise during the field efforts.

### 1.2 Applicability

The provisions of the plan are mandatory for all personnel engaged in field activities. All personnel who engage in these activities must be familiar with this plan and comply with its requirements. The plan is based on available information concerning the project area and planned tasks. If more data concerning the project area becomes available which constitute safety concerns, the plan will be modified accordingly. One crew member of each contractor will be designated Field Safety Officer and will be responsible for in-field safety. Any necessary modifications to the plan will be made by the Field Safety Officer after discussion with the PEI Project Manager and Safety Manager. All modifications will be documented in the HASP plan and field book and provided to the Project Manager and the Health and Safety Manager for approval. A copy of this plan will be available for review by all on- site personnel. In addition, a copy of the plan will be provided to all subcontractors prior to their initial entry onto the site.

Before field activities begin, all personnel will be required to read the plan. All personnel must agree to comply with the minimum requirements of the site-specific plan, be responsible for health and safety, and sign the Statement of Compliance for all on-site employees before site work begins.

### 1.3 Field Activities

The work May include:1) Demolition of the existing structures 2) remediation of site media (soil, groundwater and USTs 3) site remedial investigations. PEI will provide investigation and oversight services for above to verify that the requirements of the remediation as specified in site specific work plans have been met.

#### 1.3.1 Site Remediation Activities

Contractors will be responsible for preparing a company and project specific site remediation plan to be submitted to PEI, Owner and NYSDEC for review. The contractor's HASP, at a minimum, must comply with all Federal and State regulations and the requirements of this HASP including, but not to limited to, the following:

- Occupational Safety Health Administration (OSHA) Regulations 29 CFR 1910 120
- OSHA Regulations 29 CFR 1926
- NYSDEC DER-10 (latest version)
- All applicable laws and regulations regarding the handling and treatment of petroleum containing USTs and excavation/handling of impacted soils.
- The contractor's HASP must also comply with the Community Air Monitoring Plan (CAMP) provided in section 9.0 of this HASP.

The contractors HASP shall, at a minimum address, the following subject areas, as deemed necessary by the Contractor's health and safety personnel in accordance with OSHA Part 29 CFR 1910.120 and applicable New York State regulations:

- On-site health and safety organization.
- Hazard analysis of each site task and operation to be performed.
- Provisions for employee training to ensure compliance with 29 CFR 1910.120(e).
  Personal protective equipment (PPE) to be used by employees for each of the site tasks and operations being conducted to eliminate potential exposures, as required by the PPE programs in 1910.120(g)(5).
- Personnel and equipment decontamination procedures in accordance with 1910.120(k), as applicable.
- Standard Operating Safety Procedures, engineering controls and work practices.
- First aid requirements.
- Confined space entry requirements, if applicable, meeting requirements of 29 CFR1910.146.
- Dust control measures that comply with actions levels of the CAMP (section 9.0)
- A spill containment program meeting the requirements of 1910.120(j)
- Heat/cold stress monitoring.
- Record keeping procedures.

The Contractor's HASP must be submitted to PEI, the Owner and NYSDEC for review prior to beginning any work.

### 1.3.2 Field Investigations

Field investigations would be conducted as necessary be PEI which may include soil borings, monitoring well installation, groundwater sampling and soil sampling. Specific health and safety requirements to be adhered to for these tasks are covered in this HASP.

## 1.4 Personnel Requirements

Key personnel are as follows:

Project Manager and Corporate health and Safety - Peter J. Gorton, MPH, CHCM
Project Engineer - John B. Berry, P.E.
Project Geologists - Justin Ryszkiewicz
Field Inspection/Health and Safety – Russell Lewis
Project QA/QC - Frank Schieppati, Ph.D
Site Remediation Contractor – To be named
Analytical Laboratory - To be named - DEC and ELAP Approved

Site personnel and their duties are outlined below.

The Project Manager will be responsible for all PEI personnel and their subcontractors' on-site duties.

The Project Manager has the primary responsibility for:

1. Assuring that personnel are aware of the provisions of the HASP and are instructed in the work practices necessary to ensure safety for planned procedures and in emergencies;
2. Verifying that the provisions of this plan are implemented;
3. Assuring that appropriate personnel protective equipment (PPE), if necessary, is available for and properly utilized by all personnel;
4. Assuring that personnel are aware of the potential hazards associated with site operations;
5. Supervising the monitoring of safety performances by all personnel to ensure that required work practices are employed; and,
6. Maintaining sign-off forms and safety briefing forms.

Field Health and Safety/oversight Inspector:

1. Monitor safety hazards to determine if potential hazards are present;
2. Determine changes to work efforts or equipment needed to ensure the safety of personnel;
3. Evaluate on-site conditions and recommend to the Project Manager modifications to work plans needed to maintain personnel safety;
4. Determine that appropriate safety equipment is available on-site and monitor its proper use;
5. Monitor field personnel and potential for exposure to physical hazards, such as heat/cold stress, safety rules near heavy equipment and borings;
6. Halt site operations if unsafe conditions occur or if work is not being performed in compliance with this plan:
7. Monitor performance of all personnel to ensure that the required safety procedures are followed. If established safety rules and practices are violated, a report of the incident will be filed and sent to the Project Manager within 48 hours of the incident; and,
8. Conduct safety meetings as necessary.

Field Personnel: The responsibility of each field crew member is to follow the safe work practices of this HASP and be familiar with and comply with the Contractor's HASP and in general to:

1. Be aware of the procedures outlined in this plan;
2. Take reasonable precautions to prevent injury to him/herself and to his/her co-workers;
3. Perform only those tasks that he/she believes can be done safely and
4. Immediately report any accidents or unsafe conditions to the safety personnel and Project Manager;
5. Notify the safety personnel and Project Manager of any special medical problems (i.e., allergies or medical restrictions) and make certain that on-site personnel are aware of any such problems;
6. Think Safety First prior to and while conducting field work; and,
7. Do not eat, drink or smoke in work areas.

Each crew member has the authority to halt work should he deem conditions to be unsafe. Visitors will be required to report to the construction manager or designee and follow the requirements of this plan and the Contractor's HASP.

## 2.0 SITE DESCRIPTION AND HAZARDS/SAFETY CONCERNS

### 2.1 Site Background And Description

Refer to SMP

### 2.2 Hazard Evaluation

Specific health and safety concerns particular to the project tasks include working around asbestos containing materials (ACM) and low levels of petroleum in soils and dry cleaning solvents in groundwater from the northern perimeter. Physical hazards include those associated with working near a building that is being demolished and open excavations, as well as working adjacent manual/mechanical operation of field equipment. The asbestos abatement and demolition IRM Contractor and remediation contractor will have separate detailed health and safety procedures/requirements for the removal and disposal of ACM, the demolition of the building, removal of USTs and impacted soil which will meet or exceed requirements in this plan. Their plans will be attached to this plan.

#### 2.2.1 Chemical Hazards

Chemical hazards detected at the site include waste oil and solvent still bottoms including elevated concentrations of volatile organic compounds (VOCs) in groundwater and polychlorinated biphenyls (PCBs) in surface soil.

Some chemicals that may be found in petroleum products include hexane, jet fuels, mineral oils, benzene, toluene, xylenes, naphthalene, and fluorene, as well as other petroleum compounds and gasoline components.

How might someone be exposed to petroleum hydrocarbons?

- Everyone is exposed to petroleum hydrocarbons from many sources.
- Breathing air at gasoline stations, using chemicals at home or work, or using certain pesticides.
- Drinking water contaminated with petroleum hydrocarbons.
- Working in occupations that use petroleum products.
- Living in an area near a spill or leak of petroleum products.
- Touching soil contaminated with petroleum hydrocarbons.

Potential routes of exposure include:

- Skin contact;
- Inhalation of vapors or particles;
- Ingestion; and,
- Entry of contaminants through cuts, abrasions or punctures.

The anticipated levels of personnel protection will include Level D personal protective equipment:

1. Long sleeve shirt and long pants (recommended),
2. Work boots,
3. Hard hats, if work is conducted around heavy equipment or overhead hazards,
4. Safety Glasses
5. Gloves to include work gloves and chemical resistant gloves when sampling potentially contaminated materials.

Modifications may include chemically resistant gloves, boots/booties, and overalls. If monitoring levels indicate levels requiring respiratory protection (sustained PID readings at or above 5 ppm above a daily established background), work will be halted pending discussions with field and office management. If any readings are recorded above background, work will proceed with caution and breathing zone monitoring will be conducted.

### 2.2.2 Other Physical Hazards

Depending on the time of year, weather conditions or work activity, some of the following potential physical hazards could result from project activities:

1. Noise
2. Heat Stress
3. Cold Stress
4. Slips, trips, and falls
5. Exposure to moving machinery or stored energy, particularly during Lime removal and drilling
6. Physical eye hazards
7. Lacerations and skin punctures
8. Back strain from lifting equipment
9. Electrical storms and high winds

1 0 . Contact with overhead or underground utilities

*Slips, Trips, and Falls.* Field personnel shall become familiar with the general terrain and potential physical hazards which would be associated with accidental risk of slips, trips, and/or falls. Special care shall be taken when working near demolition operations or demolition material stockpiles. Workers will observe all pedestrian and vehicle rules and regulations. Extra caution will be observed while working near roadways and while driving in reverse to ensure safety.

*Noise.* All personnel shall wear hearing protection devices, such as ear muffs or ear plugs, if work conditions warrant. These conditions would include difficulty hearing while speaking to one another at a normal tone within three feet. If normal speech is interfered with due to work noise, the field safety officer will initiate the mandatory use of hearing protection around the backhoe, or other noise-producing equipment or events.

*Heat/Cold Stress.* Heat stress work modification may be necessary during ambient temperatures of greater than 29° C (85° F) while wearing normal clothing or exceeding 21' C (70° F) while wearing personnel protective clothing. Because heat stress is one of the most common and potentially serious illnesses at work sites, regular monitoring and preventive measures will be utilized should conditions warrant. This may include additional rest periods, supplemental fluids, restricted consumption of drinks containing caffeine or alcohol, use of cooling vests, or modification of work practices.

Most of the work to be conducted during the oversight and monitoring operations is expected to consist of light manual labor and visual observation. Given the nature of the work and probable temperatures, heat stress hazards are not anticipated.

If work is to be conducted during winter conditions, cold stress may be a concern to the health and safety of personnel. Wet clothes combined with cold temperatures can lead to hypothermia. If air temperature is less than 40° F (4° C) and an employee perspires, the employee must change to dry clothes. The following summary of the signs and symptoms of cold stress are provided as a guide for field and safety personnel.

Incipient frostbite is a mild form of cold stress characterized by sudden blanching or whitening of the skin.

Chilblain is an inflammation of the hands and feet caused by exposure to cold moisture. It is characterized by a recurrent localized itching, swelling, and painful inflammation of the fingers, toes, or ears. Such a sequence produces severe spasms, accompanied by pain.

Second-degree frostbite is manifested by skin with a white, waxy appearance and the skin is firm to the touch. Individuals with this condition are generally not aware of its seriousness because the underlying nerves are frozen and unable to transmit signals to warn the body. Immediate first aid and medical treatment are required.

Third-degree frostbite will appear as blue blotchy skin. The tissue is cold, pale, and solid. Immediate medical attention is required.

Hypothermia develops when body temperature falls below a critical level. In extreme cases, cardiac failure and death may occur. Immediate medical attention is warranted when the following symptoms are observed:

1. Involuntary shivering
2. Irrational behavior
3. Slurred speech
4. Sluggishness

*Fire and Explosion.* These hazards will be minimal for activities associated with this project. All heavy equipment will be equipped with a fire extinguisher.

*Trenching and Excavations.* There are a variety of potential health and safety hazards associated with excavations. These include:

- Surface encumbrances, such as structures, fencing, stored materials, etc., may interfere with safe excavations;
- Below- and above-ground utilities, such as water and sewer lines, gas lines, power lines, telephones, and optical cable lines, etc.;
- Overhead power lines and other utilities which may be contacted by the excavation equipment;
- Vehicle and heavy equipment traffic around the excavations;
- Falling loads from lifting or digging equipment;
- Water accumulation within excavations;
- Hazardous atmospheres, such as oxygen deficiency, flammable gases or vapors, and toxic gases which may occur in excavations,
- Falling into or driving equipment or vehicles into unprotected or unmarked excavations; and,
- Cave-in of loose rocks and soil/lime at the excavation face.

OSHA requirements for trenching and excavations are contained in 29 CFR, subpart P, 1926:650 thru 1926.652.

Basic minimum excavation requirements should include:

- Personnel entry into excavations should be minimized, whenever possible and no entry will occur in pits below 4 feet in depth.
- Sloping, shoring or some other equivalent means should be utilized, as required. Surface encumbrances such as structures, fencing, piping, stored material etc. which may interfere with safe excavations should be avoided, removed or adequately supported prior to the start of excavations. Support systems should be inspected daily.
- Underground utility locations should be checked and determined and permits as necessary should be in place prior to initiating excavations. Local utility companies will be contacted at least two days in advance, advised of proposed work, and requested to locate underground installations. When excavations approach the estimated location of utilities, the exact location should be determined by careful probing or hand digging and when it is uncovered, proper supports should be provided.
- A minimum safe distance of 15 feet should be maintained when working around overhead high-voltage lines or the line should be de-energized following appropriate lock-out and tag-

out procedures by qualified utility personnel.

- Excavations five feet or more deep if entered will require an adequate means of exit, such as a ladder, ramp, or steps and located so as to require no more than 25 feet of lateral travel. Under no circumstances should personnel be raised using heavy equipment.
- Personnel working around heavy equipment, or who may be exposed to public vehicular traffic should wear a traffic warning vest. At night, fluorescent or other reflective material is recommended to be worn.
- Heavy equipment or other vehicles operating next to or approaching the edge of an excavation will require that the operator have a clear view of the edge of the excavation, or that warning systems such as barricades, hand or mechanical signals, or stop logs be used. If possible the surface grade should slope away from the excavation.
- Personnel should be safely located in and around the trench/excavation face and should not work underneath loads handled by lifting or digging equipment.
- Hazardous atmospheres, such as oxygen deficiency (atmospheres containing less than 19.5% oxygen), flammable gases or vapors (airborne concentrations greater than 20% of the lower explosive limit), and toxic gases or vapors (airborne concentrations above the OSHA Permissible Exposure Limit or other exposure limits) may occur in excavations. Monitoring should be conducted for hazardous atmospheres prior to entry and at regular intervals. Ventilation or respiratory protection may be provided to prevent personnel exposures to oxygen deficient or toxic atmospheres. Periodic retesting (at least each shift) of the excavation will be conducted to verify that the atmosphere is acceptable. A log or field book records should be maintained.
- Personnel should not work in excavations that have accumulated water or where water is accumulating unless adequate precautions have been taken. These precautions can include special support or shield systems, water removal systems such as pumps, or safety harnesses and lifelines. Groundwater entering the excavation should be properly directed away and down gradient from the excavation.
- Safety harnesses and lifelines should be worn by personnel entering excavations that qualify as confined spaces.
- Excavations near structures should include support systems such as shoring, bracing, or underpinning to maintain the stability of adjoining buildings, walls, sidewalks, or other structures endangered by the excavation operations.
- Loose rock, excavated or other material, and spoils should be effectively stored and retained at least two and preferably 5 feet or more from the edge of the excavation. Barriers or other effective retaining devices may be used in order to prevent spoils or other materials from falling into the excavation.
- Walkways or bridges with standard guardrails that meet OSHA specifications will be provided where employees, the public, or equipment are required to cross over excavations.
- Adequate barrier physical protection should be provided and excavations should be barricaded or covered when not in use or left unattended. Excavations should be backfilled as soon as possible when completed.
- Safety personnel should conduct inspections prior to the start of work and as needed throughout the work shift and after occurrence that increases the hazard of collapse (i.e., heavy rain, vibration from heavy equipment, freezing and thawing, etc.).
- Personnel working in excavations should be protected from cave-ins by sloping and/or

benching of excavation walls, a shoring system or some other equivalent means in accordance with OSHA regulations. Soil type is important in the determination of the angle of repose for sloping and benching, and the design of shoring systems.

### 2.2.3 Biological Hazards

Biological hazards can result from encounters with mammals, insects, snakes, spiders, ticks, plants, parasites, and pathogens. Mammals can bite or scratch when cornered or surprised. The bite or scratch can result in local infection with systemic pathogens or parasites. Insect and spider bites can result in severe allergic reactions in sensitive individuals. Exposure to poison ivy, poison oak or poison sumac results in skin rash. Ticks are a vector for a number of serious diseases. Dead animals, organic wastes, and contaminated soil and water can harbor parasites and pathogens. These hazards will be reduced to non-existent if work is conducted during late fall and winter months. The following are highlighted because they represent more likely concerns for the site-specific tasks and location:

*Bees, Ants, Wasps and Hornets.* Sensitization by the victim to the venom from repeated stings can result in anaphylactic reactions. If a stinger remains in the skin, it should be removed by teasing or scraping, rather than pulling. An ice cube placed over the sting will reduce pain. An analgesic corticosteroid lotion is often useful. People with known hypersensitivity to such stings should consult with their doctor about carrying a kit containing an antihistamine and aqueous epinephrine in a pre-filled syringe when in endemic areas. Nests and hives for bees, wasps, hornets and yellow jackets often occur in the ground, trees and brush. Before any nests or hives are disturbed, an alternate sampling location should be selected. If the sample location cannot be relocated, site personnel who may have allergic reactions shall not work in these areas.

*Storm Conditions.* When lightening is within 10 miles of the work site, all personnel should evacuate to a safe area.

*Sun.* When working in the sun, personnel should apply appropriate sun screening lotions (30 sun screen or above), and/or wear long sieve clothing and hats.
Field personnel should refrain from handling any foreign objects such as hypodermic needles, glass, etc.

### 2.2.4 Activity Hazard Analysis

Table 1 presents a completed activity hazard analysis for the performance of IRM and SI

Table 1. Activity Hazard Analysis

| PRINCIPAL STEPS | POTENTIAL SAFETY/ HEALTH HAZARDS | RECOMMENDED CONTROLS |
|---|---|---|

| | | |
|---|---|---|
| 1. IRM-Demolition<br><br>2. IRM Site Remediation &SI soil/groundwater investigation | 1. Exposure Demolition & asbestos operations and physical hazards<br>2. Potential exposure to low levels of solvents and petroleum products | Covers all hazards<br>1. Use of administrative controls (site control and general safety rules), work cloths, dust suppression<br>2. Use of real-time monitoring and action levels<br>3. Use Physical Hazards SOPs |
| EQUIPMENT TO BE USED | INSPECTION REQUIREMENTS | TRAINING REQUIREMENTS |
| Excavation and other heavy equipment, Backhoe and/or Geoprobe | 1. Daily inspection of equipment<br>2. Continuous safety oversight | 1. Safety plan review<br>2. Routine safety briefings |

## 3.0 MONITORING

The purpose of air monitoring is to monitor for potential airborne contaminants and to verify that protection levels are suitable. Monitoring will be performed for dust/particulates and volatile organic compounds during excavation activities. Daily background and calibration readings will be recorded prior to the start of field activities. All monitoring equipment used during this investigation will be maintained and calibrated and records of calibration and maintenance will be kept in accordance with 29 CFR 1910.120(b)4(11)E. The Community Air Monitoring Program (CAMP) is discussed in Section 9.0.

### 3.1 Particulate Monitoring

PEI will obtain real-time air monitoring readings from upwind and downwind locations in accordance with DER-10 for community air-monitoring (refer to Section 9.0). and the health and safety plan.

PEI will complete daily field reports that document activities performed equipment and manpower onsite, screening and/or monitoring results, general conditions and weather conditions.

Air Monitoring for Worker Protection

Real time air monitoring may be conducted during building demolitions, UST removal and when site soils are disturbed including during, excavation and grading and other activities. A real time personal aerosol monitor (i.e., TSI SidePak AM5 10 Personal Aerosol monitor or equivalent) may be used. This monitor is a laser photometer which measures data as both real-time aerosol mass-concentration and 8-hour time weighted average (TWA). The monitor can be used to measure real-time concentrations in milligrams per meter cubed ($mg/m^3$). Action levels are based on potential exposure to calcium carbonate and will be as follows:

- 15 mg/m$^3$ total dust
- 5 mg/m$^3$ respirable fraction for nuisance dusts

Dust suppression techniques should be employed prior to exceeding the action levels. However, if these if these levels are exceeded work will be halted and additional dust suppression techniques employed until safe levels are reached. Levels above these limits will necessitate halting work and use of dust suppression techniques.

### 3.2 Total Volatile Organics Monitoring

Monitoring of volatile organic compounds will be conducted using a photo-ionization detector (PID). If a sustained reading of 5 ppm above background occurs, work will be halted and personnel will evacuate the work area. Levels will be allowed to stabilize and another reading will be taken in the breathing zone. If background levels continue to be exceeded, work will not continue at that location and the project manager will be notified of the situation. Action levels will remain the same.

## 4.0 SAFE WORKING PRACTICES

### 4.1 General Practices

The following general safe work practices apply:

- Eating, drinking, chewing gum or tobacco and smoking are prohibited within the work area as part of safe work practices.
- Contact with potentially contaminated substances should be avoided. Puddles, pools, mud, etc. should not be walked through if possible. Kneeling, leaning, or sitting on equipment or on the ground should be avoided whenever possible.
- Upon leaving the work area, hands, face and other exposed skin surfaces should be thoroughly washed.
- Unusual site conditions shall be promptly conveyed to the site manager and safety personnel as well as the project management for resolution.
- A first-aid kit shall be available at the site.
- Field personnel should use all their senses to alert themselves to potentially dangerous situations (i.e., presence of strong, irritating, or nauseating odors).
- Personal hygiene practices such as no eating, drinking or smoking will be followed.
- If severe dusty conditions hazardous to the crew are present, soils will be dampened to mitigate dust. All equipment will be cleaned before leaving the work area.
- Field personnel must attend safety briefings and should be familiar with the physical characteristics of the investigation, including:
  - Accessibility to associates, equipment, and vehicles.
  - Areas of known or suspected contamination.
  - Site access.
  - Routes and procedures to be used during emergencies.
- Personnel will perform all investigation activities with a buddy who is able to:
  - Provide his or her partner with assistance.
  - Notify management / emergency personnel if emergency help is needed.

- Excavation activities shall be terminated immediately in event of thunder and/or electrical storm.
- The use of alcohol or drugs at the site is strictly prohibited.

## 5.0 PERSONAL SAFETY EQUIPMENT AND SITE CONTROL

### 5.1 Personal Safety Equipment

As required by OSHA in 29 CFR 1920.132, this plan constitutes a workplace hazard assessment to select personal protective equipment (PPE) to perform the site investigation.

The PPE to be donned by on-site personnel during this investigation are those associated with the industry standard of level D. Protective clothing and equipment to initiate the project will include:

- Work clothes
- Work boots
- Work gloves as necessary
- Hard hat if work is conducted in areas with overhead danger
- Hearing protection as necessary

Modifications may include chemically resistant gloves, boots/booties, and overalls. If monitoring levels indicate levels requiring respiratory protection (sustained readings at or above action levels above a daily established background), work will be halted pending discussions with field and office management.

### 5.2 Site Control

Site control will be established near each work zone by the Contractor. The purpose is to control access to the immediate work areas from individuals not associated with the project. Site control limits will be established by the Contractor in his HASP. All work zones will be fenced off with controlled access and appropriately designated as an exclusion area.

#### 5.2.1 Work Zones (For excavations/drilling using heavy equipment or deeper than 3 feet)

Each excavation will be set up in work zones to include an exclusion area and support zone. Exact configuration of each zone is dependent upon location, weather conditions, wind direction and topography. The Contractor's safety manager will establish the control areas daily at each excavation.

An area of 10 feet (as practical) around each excavation will be designated as the exclusion area. This is the area where potential physical hazards are most likely to be encountered by field personnel. The size of the exclusion area may be altered to accommodate site conditions and the drilling/excavation location. If levels of protection higher than level D are used, this plan will be modified to include decontamination procedure. The Site excavation contractor will be required to have eye/face wash equipment/means available on-site.

A support area will be defined for each field activity. Support equipment will be located in this clean area. Normal work clothes are appropriate within this area. The location of this area depends on factors such as accessibility, wind direction (upwind of the operation.), and resources (i.e., roads, shelter, utilities). The location of this zone will be established daily.

Excavation areas will be filled and or secured (fencing) to prevent access from the general public.

## 6.0 EMERGENCY INFORMATION

In the event of an emergency, the field team members or the site safety manager will employ emergency procedures. A copy of emergency information will be kept in the field vehicle and will be reviewed during the initial site briefing. Copies of emergency telephone numbers and directions to the nearest hospital will be prominently posted in the field vehicle.

### 6.1 Emergency Medical Treatment and First Aid

A first aid kit large enough to accommodate anticipated emergencies will be kept in the PEI field vehicle. If any injury should require advanced medical assistance, emergency personnel will be notified and the victim will be transported to the hospital. The Contractor will establish his own first aid station and details will be provided in his HASP.

In the event of an injury or illness, work will cease until the field safety and oversight inspector has examined the cause of the incident and taken appropriate corrective action. Any injury or illness, regardless of extent, is to be reported to the project manager.

### 6.2 Emergency Telephone Numbers and Hospital

Emergency telephone numbers for medical and chemical emergencies will be posted in the field vehicle are listed below:

| | |
|---|---|
| Ambulance | 911 |
| Fire | 911 |
| Police - NYS Troopers | 911 |
| Poison Control Center | 1-800-888-7655 |
| NYSDEC Spills Hotline | 1-800-457-7362 |

Other emergency numbers to be established in individual remedial work plans

Hospital – Sisters of Charity Hospital
2157 Main Street
Buffalo, NY 14214

Site Location: 57 Tonawanda Street, Buffalo, New York 14207

Hospital Telephone: 716-862-1000

Directions to the Hospital:

1. Head south on Tonawanda St toward West Ave.
2. Continue on to Niagara
3. Turn left on to NY 198 Ramp
4. Merge onto NY-198 E & take the exit toward NY 5/Main St
5. Merge onto Humbolt Pkwy
6. Turn left onto Main St, & Hospital on Left.

Total Distance: 3.2 miles

Total Estimated Time: 7 minutes

See attached map for route to the Hospital Facility.

Verbal communications between workers or use of a site vehicle horn repeated at intervals of three short beeps shall be used to signal all on-site personnel to immediately evacuate the area and report to the vehicle parking area.

## 6.3 Emergency Standard Operating Procedures

The following standard operating procedures are to be implemented by on-site personnel in the event of an emergency. The Contractor's field safety manager along with PEI oversight Inspector shall manage response actions.

Upon notification of injury to personnel, the designated emergency signal shall be sounded, if necessary. All personnel are to terminate their work activities and assemble in a safe location. The emergency medical service and hospital emergency room shall be notified of the situation. If the injury is minor, but requires medical attention, the field safety manager shall accompany the victim to the hospital and provide assistance in describing the circumstances of the accident to the attending physician.

Upon notification of an equipment failure or accident, the field safety manager shall determine the effect of the failure or accident on site operations. If the failure or accident affects the safety of personnel or prevents completion of the scheduled operations, all personnel are to leave the area until the situation is evaluated and appropriate actions taken.

Upon notification of a natural disaster, such as tornado, high winds, flood, thunderstorm or earthquake, on-site work activities are to be terminated and all personnel are to evacuate the area.

## 6.4 Emergency Response Follow-Up Actions

Following activation an Emergency Response, PEI Oversight inspector shall notify the PEI project

manager regarding any emergency involving PEI personnel. The Contractor's field safety manager shall submit a written report documenting the incident to PEI and Norstar site representatives

### 6.5 Medical Treatment for Site Accidents/Incidents

The Contractor's field safety manager shall be informed of any site-related injury, exposure or medical condition resulting from work activities. All personnel are entitled to medical evaluation and treatment in the event of a site accident or incident.

### 6.6 Site Medical Supplies and Services

The Contractor's field safety manager or a trained first aid crew member shall evaluate all injuries at the site and render emergency first-aid treatment as appropriate. If an injury is minor but requires professional medical evaluation, the field safety manager shall escort the employee to the appropriate emergency room. For major injuries occurring at the site, emergency services shall be requested.

A first-aid kit shall be available, readily accessible and fully stocked. The first-aid kit shall be located within specified vehicles used for on-site operations.

### 6.7 Universal Precautions

Universal precautions shall be followed on-site at all times. This consists of treating all human blood and certain body fluids as being infected with Human Immune Deficiency Virus (HIV), Hepatitis B virus (HBV), and other blood borne pathogens. Clothing and first-aid materials visibly contaminated with blood or other body fluids will be collected and placed into a biohazard bag. Individuals providing first aid or cleanup of blood- or body-fluid contaminated items should wear latex gloves. If providing CPR, a one-way valve CPR device should be used. Biohazard bags, latex gloves, and CPR devices will be included in the site first-aid kits.

Work areas visibly contaminated with blood or body fluids shall be cleaned using a 1:10 dilution of household bleach. If equipment becomes contaminated with blood or body fluids, and can not be sufficiently cleaned, the equipment shall be placed in a plastic bag and sealed.

Any personnel servicing the equipment shall be made aware of the contamination, so that proper precautions can be taken.

## 7.0 RECORD KEEPING

The Contractor's field manager and safety manager are responsible for site record keeping. Prior to the start of work, they will review this Plan along with the Contractor's HASP.

A Site Safety Briefing will be completed prior to the initiation of investigation activities. This shall be recorded in the field log book An Accident Report should be completed by the Field Manager in the event that an accident occurs and forwarded to the office administrative manager.

## 8.0 PERSONNEL TRAINING REQUIREMENTS

### 8.1 Initial Site Entry Briefing

Prior to initial site entry, the Contractor's field safety manager shall provide all personnel (including site visitors) with site-specific health and safety training. A record of this training shall be maintained. This training shall consist of the following:

- Discussion of the elements contained within this plan
- Discussion of responsibilities and duties of key site personnel
- Discussion of physical, biological and chemical hazards present at the site
  Discussion of work assignments and responsibilities
- Discussion of the correct use and limitations of the required PPE
- Discussion of the emergency procedures to be followed at the site
- Safe work practices to minimize risk
- Communication procedures and equipment
- Emergency notification procedures

### 8.2 Daily Safety Briefings

The Contractor's field safety manager will determine if a daily safety briefing with all site personnel is needed. The briefing shall discuss the specific tasks scheduled for that day and the following topics:

- Specific work plans
- Physical, chemical or biological hazards anticipated
- Fire or explosion hazards
- PPE required
- Emergency procedures, including emergency escape routes, emergency medical treatment, and medical evacuation from the site
- Weather forecast for the day
- Buddy system
- Communication requirements
- Site control requirements
- Material handling requirements

## 9.0 COMMUNITY AIR MONITORING PROGRAM (CAMP)

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the upwind and 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 in Attachment 4 from *NYSDEC DER-10* titled *Appendix 1A-New York State Department of Health Generic Community Air Monitoring Plan* will be followed and adhered to for the building demolition, IRMs and similar applicable areas.

A program for suppressing fugitive dust and particulate matter monitoring will also be conducted in accordance *NYSDEC DER-10* titled *Appendix 1B Fugitive Dust and Particulate Monitoring* which is also provided in Attachment 4. The fugitive dust suppression and particulate monitoring program will be employed at the site during building demolition, IRM site remediation and other intrusive activities which warrant its use.

Both the CAMP and the fugitive dust suppression and particulate monitoring program will be carried out be PEI the Owner's consultant. Monitoring results of the CAMP will be reported to the New York State Department of Health on a daily basis for review.

## 10.0 POTENTIAL HAZARDS AND OSHA STANDARDS

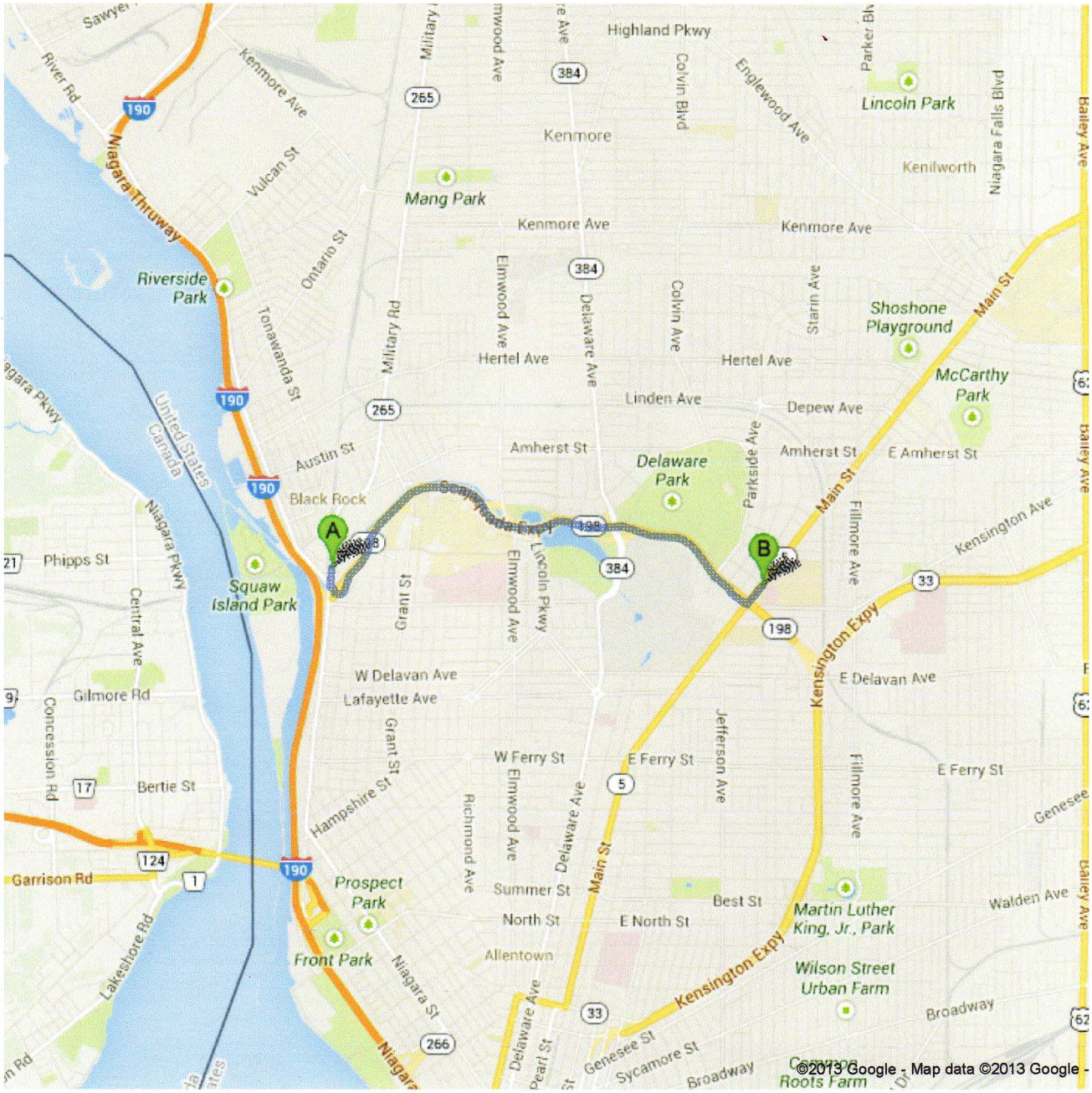
A table of Potential Hazards and OSHA Standards for Consideration during the building demolition and IRMs is provided in Attachment 5.

Google

# Directions to Sisters of Charity Hospital

2157 Main St, Buffalo, NY 14214

**3.2 mi** – about **7 mins**



## A 57 Tonawanda St, Buffalo, NY 14207

| | | |
|---|---|---|
| | 1. Head **south** on **Tonawanda St** toward **West Ave** | go 0.1 mi<br>total 0.1 mi |
| | 2. Continue onto **Niagara St** | go 59 ft<br>total 0.1 mi |
| ↰ | 3. Turn left onto the **New York 198** ramp<br>About 57 secs | go 0.2 mi<br>total 0.3 mi |
| 198 | 4. Merge onto **NY-198 E**<br>About 3 mins | go 2.6 mi<br>total 2.9 mi |
| ↗ | 5. Take the exit toward **NY 5/Main St** | go 144 ft<br>total 2.9 mi |
| | 6. Merge onto **Humboldt Pkwy** | go 0.1 mi<br>total 3.0 mi |
| ↰ | 7. Turn left onto **Main St**<br>Destination will be on the right<br>About 2 mins | go 0.1 mi<br>total 3.2 mi |

## B Sisters of Charity Hospital
2157 Main St, Buffalo, NY 14214

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.



Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

# ATTACHMENT 1

# Heat Stress management Program & procedures

**Panamerican Environmental, Inc.**
**2390 Clinton Street**
**Buffalo, New York 14227**
**Tel: (716) 821-1650**
**Fax: (716) 821-1607**

# *PANAMERICAN*

## PANAMERICAN HEAT STRESS MANAGEMENT PROGRAM

### INTRODUCTION

Panamerican employees engage in a variety of activities with potential exposure to excessive ambient temperatures and humidity, with the overall result being Aheat stress@. This procedure establishes the Panamerican Heat Stress Management Program. It establishes responsibilities and basic requirements for personnel who may be required to work in situations where the ambient temperature exceeds 21° C (70° F) while wearing protective equipment (e.g., hazardous waste site investigations) or when the ambient temperature exceeds 29° (85° F) while wearing normal clothing. Because heart stress is one of the most common and potentially serious illnesses at job sites and particularly hazardous waste sites, regular monitoring and other preventive measures are warranted.

There are no regulations addressing heat stress. However, it should be noted that OSHA does recognize heat stress as a potentially serious health hazard and can site employers under the Ageneral duty clause@ of the Occupational Safety Health Act if heat-related illness is occurring or likely to occur.

### PROGRAM ADMINISTRATION AND RESPONSIBILITIES

The Heat Stress Management Program is administered by Panamerican Managers and Health and Safety personnel.

These Individuals:

- Oversee the implementation of the Heat Stress Management Program;
- Periodically audit and evaluate program implementation;
- Evaluate this procedure on an ongoing basis to see that it reflects current practice and regulations;
- Assist field crews in their implementation of this procedure.

Project Managers (PM) and Safety Personnel are responsible for:

- Implementing this Procedure in all field operations:
- Providing guidance to staff regarding heat stress management as described in the Procedure; and
- Providing feedback to management regarding program effectiveness.

Staff Members are responsible for:

- Complying with this Procedure as it applies to their activities; and
- Providing feed back to their supervisor regarding program effectiveness.

### HEAT STRESS HAZARDS AND RISK FACTORS

Heat Stress is defined as the total net load on the body with contributions from both exposure to external sources, such as sunshine and hot surfaces, and from internal metabolic heat production. A person=s

exposure to the increased ambient temperatures and humidity produces physiological responses referred to as heat stress which are characterized by an increase in the: a) Acore@ or Adeep body temperature@. b) heart rate, c) blood flow to the skin, and d) water and salt loss due to sweating. Conditions of excessive heat stress may occur either when the physical work is too heavy or the environment is too hot in relation to the work being performed. If work is performed under hot environmental conditions, the work load effort must be reviewed and the heat exposure limit maintained at or below the levels to protect the worker from the risk of acute heat illness.

In general, there are four types of physiological disorders associated with heat stress. They include:

- Heat Rash - a skin reaction occurring as a result of obstructed sweat glands, often associated with impermeable clothing.

- Heat Cramps - painful muscle spasms of extremities and abdomen, resulting from inadequate balance of electrolytes which are lost from sweating.

- Heat Exhaustion - a mild form of heat stroke due to depletion of body fluids and electrolytes. Blood vessels dilate despite decreased volume of blood. Symptoms include weakness, dizziness, nausea, rapid pulse, and a small increase in body temperature.

- Heatstroke - a potentially fatal disorder resulting from failure of the body=s thermoregulatory system. The classical description of heatstroke includes (1) a major disruption of central nervous function (unconsciousness of convulsions), (2) a lack of sweating (3) hot, dry, red or mottled skin, and (4) a core temperature in excess of 41$^{o}$C (105.8$^{o}$ F). Heatstroke is a serious medical condition which calls for emergency medical action.

Seven factors play significant roles in the development of or predisposition to, heat stress disorders. These factors include:

- Acclimatization - Heat acclimatization leads to increased and quicker sweating, cooler skin due to an increase in evaporative cooling and a lower, more stable core body temperature. Maximal sweating rates in unacclimatized persons are lower, but salt concentrations in their perspiration are higher, requiring a higher rate of salt replacement.

- Age - Older individuals are generally more susceptible to heat stress than younger individuals. However, older healthy workers are able to perform well in hot jobs if permitted to proceed at a self-regulated pace.

- Gender - The average woman has a lower aerobic capacity than a similar-sized man. Nevertheless, when working at similar proportions of their maximum aerobic capacity, women perform similarly or only slightly less well than men.

- Body Fat - The lower level of physical fitness, decreased maximum work capacity and decreased cardiovascular capacity frequently associated with obesity predispose individuals to heat disorders.

- Water and Electrolyte Balance - Sustained, effective work performance in heat requires a

replacement of body water and electrolytes lost through sweating. If this water is not replaced by drinking, continued sweating will draw on water reserves from both tissues and body cells leading to dehydration.

- Use of Alcohol and Medication - Not withstanding the potential hazards from impaired coordination and judgment, the ingestion of alcohol before or during work in the heat should not be permitted because it reduces heat tolerance and increases the risk of heat illness, Many drugs, including diuretics and antihypertensives, can interfere with the body=s thermoregulation.

- Physical Fitness - Physical conditioning enhances heat tolerance by increasing the functional capacity of the cardiovasculatory system, and reduces the time required to develop heat acclimatization by about 50% over those not physically fit.

The factors listed above are to be taken into account by all project personnel when planning or executing a project subject to heat stress conditions. The factors should be taken into consideration for:

- the development of the project schedule;
- the ordering of supplies/equipment;
- the support facilities to be made available at the site;
- the execution of work tasks; and
- the after work hours activities.

The following is a summary of signs and symptoms of heat stress:

**Heat Rash** may result from continuous exposure to heat or humid air .

**Heat cramps** are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include:

- Muscle Spasms
- Pain in the hands, feet and abdomen.

**Heat Exhaustion** occurs from increased stress on various body organs, including inadequate blood circulation due to cardiovascular insufficiency or dehydration. Signs and symptoms include:

- Pale, cool and moist skin
- Heavy sweating
- Dizziness, fainting and nausea

**Heat stroke** is the most serious form of heat stress. Temperature regulation fails, and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury or death occurs. Competent medical help must be obtained. Signs and symptoms are:

- Red, hot and unusually dry skin
- Lack of or reduced perspiration
- Dizziness and confusion

- Strong, rapid pulse and coma.

**HEAT AND STRESS PREVENTION**

Preventive measures should be taken to prevent personnel from experiencing heat stress illness. Prevention of heat stress is also important because if an individual has experienced a heat illness incident, he has an increased likelihood of future occurrences. Preventive measures include: favorable work scheduling, acclimatization of workers to hot environments, drinking sufficient quantities of fluids, providing cool, sheltered work and rest areas, and utilizing cooling devices as appropriate of feasible. Heat stress monitoring/work rest regimens are discussed below.

Work Schedules and Activity

If possible, work should be scheduled during the coolest part of the day. Early morning and evening work can be considerably more effective than working midday when the additional time for breaks and heat stress monitoring are taken into account.

Employees should also be encourages to maintain a certain level of activity during the work shift. Prolonged standing in hot environments can lead to heat illness because the blood pools in the lower extremities. Workers should periodically walk about to encourage blood circulation from the feet and legs.

Acclimatization of Workers

A properly designed and applied heat acclimatization program will dramatically increase the ability of workers to work at a hot job and will decrease the risk of heat-related illnesses and unsafe acts. Heat acclimatization can usually be induced in 5 to 7 days of exposure to the hot job. For workers who have had previous experience with the job, the acclimatization regimen should be exposure for 50% on day 1, 60% on day 2, 80% on day 3 and 100% on day 4. For workers new to job the schedule should be 20% on day 1 with a 20% increase in each additional day.
Acclimatization can be induced by sustained elevations of the skin and core body temperatures above levels for the same work in cool environments for an hour or more per day. Acclimatization needs periodic reinforcement such as occurs daily during the work week. Persons may show some loss of acclimatization on the first day of the new shift after being idle for two days or over a weekend. After vacations of two weeks or longer he loss of acclimatization is substantial, several days at work will be needed before heat tolerance is fully restored.

Drinking Sufficient Quantities of Fluids

Under hot conditions where sweat production may reach 6 to 8 liters per day, voluntary replacement of the water lost is usually incomplete. The normal thirst mechanism is not sensitive enough to urge us to drink enough water to prevent dehydration. Individuals are seldom aware of the exact amount of seat they produce of how much water is needed to replace that lost in sweat; 1 liter/hour is not an uncommon rate of water loss. Every effort should be made to encourage individuals to drink water, low-sodium noncarbonated beverages or electrolyte replacement fluids (e.g., Gatorade). Lightly salted water (1 gram/liter of water (0.1%) or one level teaspoon per 15 quarts of water), should be provided to unacclimated workers. The salt should be dissolved completely and the water kept cool. Salt tablets as dietary supplements are not generally recommended.

Workers should drink at least 500 ml (one pint) of water before beginning work. The fluid should be maintained at temperatures of 10° to 15° (50 to 59° F). If possible, small quantities of fluids should be consumed at frequent intervals (e.g., 150 to 250 milliliters (ml), or at least a quarter pint, every 20 minutes) rather than the intake of 750 ml (3 cups) or more once per hour. Individuals vary, but water intake should total 4 to 8 liters (quarts) per day. When heat stress is considered a potential problem, a minimum of 1 liter/hour/person of water are to be maintained onsite. Individual paper or plastic cups will be provided in order to prevent the spread of communicable disease.

Alcohol and diuretics such as caffeine (contained in coffee, tea and soft drinks) can increase dehydration. Therefore employees with potential exposure to heat stress should be discouraged from the consumption of these types of fluids during and after working hours.

Cool, sheltered Work and Rest Areas

Exposure to direct sunlight significantly increases the overall thermal loading of the body, thereby increasing an individuals susceptibility to heat stress illnesses. Whenever possible work should be conducted under suspended tarps, in shady areas or in other sheltered areas in order to reduce thermal loading caused by the sun. Cool sheltered areas should be provided also for rest breaks. A rest area should be situated so that part of it is in the contamination reduction area so that workers can take breaks without being required to undertake a full decontamination procedure. Canopies or tarps and open air tents, are types of cool shelters which can provide shaded rest areas.

Cooling Devices

Auxiliary cooling devices can be successfully used to provide body cooling, especially to workers wearing protective garments at hazardous waste sites. Vortex coolers utilize high velocity air which is directed inside the protective clothing. Vortex coolers have been used successfully in some operations. Cooling vests utilizing Ablue ice@ type packs can provide some cooling to the torso, but add weight for the wearer and can inhibit body movements.

Newer, more sophisticated tube and refrigerant systems woven into undergarments are also available. However, some of these systems ,,may not be effective in situations where the work involves considerable motion, since bending and lifting can crimp the tubes, impending the flow of refrigerant.

Heat Stress Monitoring

Several heat stress monitoring systems have been devised to help manage heat stress in hot work environments. Panamerican performs heat stress monitoring when: 1) employees are wearing normal work clothing in ambient temperatures exceeding 29° C, (85° F) and 2) employees wearing chemical protective clothing (including paper coveralls) working in ambient temperatures exceeding 21° C (70° F). The temperature differential is related to the reduced ability of a person to maintain a core temperature of $\pm$ 37° C (98.6° F) when wearing chemical protective clothing.

It should be noted by personnel that there are no Afast and true@ methods of heat stress monitoring; likewise there are no regulations concerning heat stress monitoring. Individual susceptibility to heat stress is highly variable. Some individuals are highly susceptible to any increase in their internal body temperature while other individuals can work very well with internal body temperatures of 39°C (102.2° F) or higher.

The heat stress monitoring systems should be used by Site Safety Officers as guidelines and not necessarily as hard, fast rules. Individuals working in elevated temperatures should be queried on a regular basis regarding their perceived state of heat stress. If the calculated heat stress index value indicates that work can continue but a person states that they believe they are experiencing heat stress, the work effect should be discontinued and a rest break taken.

Likewise, if the calculated heat stress index value indicates that a rest break should be taken but the workers believe they can work longer, they should be permitted to work longer providing that their heart rates do not exceed 110 beats per minute. If the individual's heart rate rates exceed 110 beats per minute a rest break will be taken. In all cases, individual workers should not be permitted or expected to perform excessive work which could result in heat stress. If a SSO has any concerns that an individual may be pushing himself/herself past the Abreaking point@ the calculated work/rest regimen will be followed.

For strenuous field activities that are part of ongoing site work activities in hot weather, the following procedures shall be used to monitor the body=s physiological response to heat, and to monitor the work cycle of each site worker. There are two phases to this monitoring: the initial work/rest cycle is used to estimate how long the first work shifts of the day should be. Heart rate monitoring of each worker will establish the length of the successive work periods. Both phases are to be used are to be used for heat stress monitoring. Failure to use either one could place workers at risk of heat-related disorders.

Phase 1 - Determination of the Initial Work - Rest Regimen

The determination of the initial work - rest regimen can be performed using either of two methods:

-The Modified Dry Bulb Index; or
-The Wet Bulb Globe Thermometer (WBGT) Index

After the initial work - rest regimen has been determined, environmental conditions must be monitored for changes which would require a modification to the work - rest regimen. This, coupled with the heart rate monitoring, determines the work cycles to be followed on a site.

The Modified Dry Bulb Index accounts for the effects caused by solar, load, air temperature, and chemical protective clothing, under a light work load (walking at approximately 3 mph). A mercury thermometer, shielded from direct sunlight, is used to measure ambient temperature. The percentages of (of time) of sunlight and cloud cover are then estimated to determine a sunshine quality factor (e.g., 100% sunshine - no cloud cover = 1.0; 50% sunshine - 50% cloud cover = 0.5; 0% sunshine - 100% cloud cover = 0.0). When these two sets of values have been obtained, they are inserted into the following equation to calculate the adjusted temperature:

$$T\,(^{o}C, \text{adjusted}) = T\,(^{o}C, \text{actual}) + (7.2 \times \text{sunshine quality factor})$$

-OR-

$$T\,(^{o}F, \text{adjusted}) = T\,(^{o}F, \text{actual}) + (13 \times \text{sunshine quality factor})$$

After the adjusted temperature has been calculated, the length of the first work shift can be determined using the following table:

**Initial Break and Physiological Monitoring Cycles**

| ADJUSTED TEMPERATURE | NORMAL WORK CLOTHES | PROTECTIVE CLOTHING |
|---|---|---|
| $90^0$F ($32.2^0$ C) or above | After each 45 minutes of work | After each 15 minutes of work |
| $87.5^0$-$90^0$ F ($30.8^0$-$32.2^0$ C) | After each 60 minutes of work | After each 30 minutes of work |
| $82.5^0$-$87.5^0$ F ($28.1^0$-$30.8^0$ C) | After each 90 minutes of work | After each 60 minutes of work |
| $77.5^0$-$82.5^0$ F ($25.3^0$-$28.1^0$ C) | After each 120 minutes of work | After each 90 minutes of work |
| $72.5^0$-$77.5^0$ F ($22.5^0$-$25.3^0$ C) | After each 150 minutes of work | After each 120 minutes of work |

NOTE: The standard rest period is 15 minutes

WET BULB GLOBE THERMOMETER INDEX

The Wet Bulb Globe Thermometer (WBGT) Index was developed by the U.S. Army in the 1950s to prevent heat stress in army recruits. The WBGT Index accounts for the effects caused by humidity, air movement, evaporation, air temperature and work rate. It does not, however, account for the effects of chemical protective clothing, non-acclimatized workers, age, or other factors which may affect the likelihood of heat stress. Because of this, it is necessary to make adjustments to the index and conduct Heart Rate Monitoring.

WBGT measurements are usually obtained through the use of are-contained electronic devices. Such devices are easy to set up and can provide the user with the capabilities to store data and download to print out a hard copy.

Heat produced by the body and the environmental heat together determine the total heat load. Therefore, after the WBGT Index has been obtained, the anticipated work load category of each job shall be determined and the initial-rest regimen established using the table below.

The work load category may be determined by ranking each job into light, medium and heavy categories on the basis of type of operation. Examples of each category are:

| | |
|---|---|
| Light work: | sitting or standing to control machines, performing light hand work |
| Moderate work: | walking about with moderate lifting and pushing; and |
| Heavy work: | pick and shovel work. |

| PERMISSIBLE HEAT EXPOSURE | | | |
|---|---|---|---|
| WORK-REST REGIMEN | WORK LOAD | | |
| | LIGHT | MODERATE | HEAVY |
| | $30.0^0$ C/$86^0$ F | $26.7^0$ C/$80.1^0$ F | $25^0$C/$77^0$F |
| 75% Work-25% Rest Each Hour | $30.6^0$ C/$87.1^0$ F | $28^0$ C/$82.4^0$ F | $25.9^0$ C/$78.6^0$ F |
| 50% Work-50% Rest Each Hour | $31.4^0$ C/$88.5^0$ F | $29.4^0$ C/$85.0^0$ F | $27.9^0$ C/$82.2^0$ F |
| 25%Work-75 % Rest Each Hour | $32.2^0$ C/$90.0^0$ F | $31.1^0$ C/$88.0^0$ F | $30.0^0$ C/$86.0^0$ F |

The table reads as follows:

Light, continuous work is possible at any WBGT reading up to $30^0$ C ($86^0$F) but above that limit work breaks

are needed to recover from the heat; light work at temperatures of between 30.0 and 30.6$^0$C (86 to 87$^0$F) can be conducted, but 15 minute breaks must be taken every hour, etc. It is important to note that this table is applicable primarily to healthy, acclimatized personnel; wearing standard work clothing.

NOTE: An additional 6 to 11$^0$C ( 42.8 to 51.8$^0$F) must be added to the calculated WBGT temperature for personnel wearing chemical protective clothing prior to determining the initial work - rest regimen from this table. Because the WBGT Index does not take into account unacclimatized workers, or individual susceptibilities, the addition to the WBGT value does not eliminate the requirement for Heart Rate Monitoring after work has begun.

Phase 2 - Heart Rate Monitoring

An increase in the heart rate is a significant indication of stress, whether induced by exposure to heat or through physical labor. Although baseline heart rates can vary significantly between individuals and during the day for an individual, a heart rate of 110 beats per minute or greater is an indication of physiological stress. To prevent heat stress illnesses, the heart rate (HR) should be measured by radial (wrist) or carotid (neck) pulse for 30 seconds as early as possible in the rest period. The HR at the beginning of the rest period should not exceed 110 beats/minute. If the HR is higher, the next work period should be shortened by 33 percent while the length of the rest period stays the same. If the pulse rate still exceeds 110 beats/minute at the beginning of the next rest period, the following work period should be further shortened by 33 percent while the length of the rest period stays the same.

# ATTACHMENT 2

## Trenching & Excavating H & S Requirements

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# PANAMERICAN

**PANAMERICAN TRENCHING AND EXCAVATION HEALTH AND SAFETY REQUIREMENTS**

**The following will apply to all activities associated with excavations:**

**REGULATORY AUTHORITY**

**Excavations will be performed in accordance with OSHA 29 CFR, subpart P, 1926:650-1926.652 and USACOE EM 385-1-1 section 25 requirements as they apply to project activities.**

**GENERAL**

- **At all times the need for personnel to enter excavations will be minimized. Inspections or sample removal will be done from above the excavation, whenever possible.**
- **Personnel will only enter excavations after the requirements of this plan have been met.**
- **Personnel protective equipment including hard hat, safety glasses and steel-toe work boots may be required.**

**SURFACE ENCUMBRANCES**

**Surface encumbrances such as structures, fencing, piping, stored material etc. which may interfere with safe excavations will be avoided, removed or adequately supported prior to the start of excavations. Support systems will be inspected daily.**

**UNDERGROUND UTILITIES**

**Underground utility locations will be checked and determined and permits as necessary will be in place prior to initiating excavations. Local utility companies will be contacted at least two days in advance, advised of proposed work, and requested to locate underground installations. When excavations approach the estimated location of utilities, the exact location will be determined by careful probing or hand digging and when it is uncovered, proper supports will be provided.**

**OVERHEAD OBSTACLES**

**A minimum safe distance of 20 feet will be maintained when working around overhead high-voltage lines or the line will be de-energized following appropriate lock-out and tag-out procedures by qualified utility personnel.**

**ENTRY/EXIT ROUTES**

**Excavations five feet or more deep will require an adequate means of exit, such as a ladder, ramp, or steps and located so as to require no more than 25 feet of lateral travel. Under no circumstances will**

**personnel be raised.**

**VEHICLE CONTROL/SAFETY**

**Personnel working around heavy equipment, or who may be exposed to public vehicular traffic will wear a traffic warning vest consisting of at least 400 square inches of red or orange material. At night, at least 400 square inches of florescent or other reflective material will be worn.**

**For excavation work on or adjacent to highways or streets, signs, signals, and barricades tat conform to the requirements of the current American National Standards Institute (ANSI) D6.1, Manual on Uniform Traffic Control Devices for Streets and Highways will be used to protect work areas. Signs, signals, and barricades will be adequately lighted at night. Flagmen will be provided when signs, signals and barricades do not provide adequate protection. Flagmen will use signals and procedures contained in the current issue of ANSI D6.1. At night, flagmen will be clearly illuminated so as to be easily seen by approaching traffic.**

**For mobile equipment operating next to or approaching the edge of an excavation, the operator will have a clear view of the edge of the excavation, or a warning system such as barricades, hand or mechanical signals, or stop logs will be used. If possible the surface grade will slope away from the excavation.**

**Personnel will be safely located in and around the trench and will not be permitted to work underneath loads handled by lifting or digging equipment. Personnel are required to stand away from vehicles being loaded and unloaded. Operators can remain in the cabs of vehicles being loaded or unloaded provided the vehicles are equipped to provide adequate protection to the operator.**

**HAZARDOUS ATMOSPHERES**

**Hazardous atmospheres, such as oxygen deficiency (atmospheres containing less than 19.5% oxygen), flammable gases or vapors (airborne concentrations greater than 20% of the lower explosive limit), and toxic gases or vapors (airborne concentrations above the OSHA Permissible Exposure Limit or other exposure limits) may occur in excavations, especially around landfills and hazardous waste sites.**

**In locations where oxygen deficiency or hazardous gaseous conditions are possible, the air in the excavation will be tested before personnel are permitted to enter an excavation deeper than 4 feet. When flammable gases are present, adequate ventilation will be provided and sources of ignition will be eliminated. Ventilation or respiratory protection will be provided to prevent personnel exposures to oxygen deficient or toxic atmospheres. Periodic retesting (at least each shift) of the excavation will be conducted to verify that the atmosphere is acceptable. A log or field book records will be maintained of all test results.**

**WATER ACCUMULATION HAZARDS**

**Personnel will not work in excavations that have accumulated water or where water is accumulating unless adequate precautions have been taken. These precautions can include special support or shield systems, water removal systems such as pumps, or safety harnesses and lifelines. Water removal systems will be operated and monitored by experienced personnel. Diversion ditches or dikes will be used to prevent surface water from entering the excavation and to provide adequate drainage of the area around the excavation. Adequate precautions, as described above, will be taken for excavating**

**subject to heavy rains.**

**STABILITY OF ADJACENT STRUCTURES**

**Support systems such as shoring, bracing, or underpinning will be provided to maintain the stability of adjoining buildings, walls, or other structures endangered by the excavation operations. Excavations below a foundation or retaining wall that could be reasonably expected to pose a hazard to personnel will not be permitted unless:**

- **a support system is provided**
- **The excavation is in stable rock; or**
- **A Registered Professional Engineer has determined that the structure will not be effected by the excavation activity or that the excavation work will pose a hazard to employees. The Professional Engineer is required to demonstrate how the above determination was made on the basis of appropriate calculations.**

**Sidewalks will not be undermined unless shored to protect from possible collapse.**

**PROTECTION FROM LOOSE ROCK, MATERIALS OR SPOILS**

**In excavations and trenches that personnel may be required to enter, loose rock, excavated or other material, and spoils will be effectively stored and retained at least two feet or more from the edge of the excavation.**

**As an alternative to the clearance prescribed above, barriers or other effective retaining devices may be used in order to prevent spoils or other materials from falling into the excavation.**

**Walkways, runways, and sidewalks will be kept clear of excavated material from other obstructions.**

**Scaling operations may be used to remove loose material and will be performed only by experienced crews under the direct supervision of a competent supervisor. The scalers will be provided with scaler=s lifelines, safety belts, boatswain chair, and other safety equipment necessary for their protection.**

**FALL PROTECTION**

**Walkways or bridges with standard guardrails that meet OSHA specifications will be provided where employees, the public, or equipment are required to cross over excavations.**

**Adequate barrier physical protection will be provided at all remotely located excavations. All excavations will be barricaded or covered.**

**EMERGENCY RESCUE**

**In the event of a cave-in, the Emergency Rescue Squad will be immediately notified. The caller should provide his name, location, nature of the accident (an excavation collapse), the dimensions of the excavation, and number of people trapped in the excavation. Personnel are not to enter a collapsed trench to attempt rescue. This may cause a further collapse of the trench. Under no circumstance is heavy equipment to be used to attempt rescue of personnel in a collapsed excavation; injury or decapitation could be the result. All heavy equipment and traffic in the area is to be shut down and**

**stopped to reduce vibration. Pumps should be started if water ensues.**

**INSPECTION PROGRAM**

**Safety personnel will conduct daily inspections of the excavation, the adjacent areas, and protective systems. Inspections will be conducted prior to the start of work and as needed throughout the work shift. Inspections will also be made after every rainstorm or other occurrence that increases the hazard of collapse (i.e., vibration from heavy equipment, freezing and thawing, etc.).**

**The excavation inspection will include a check for the following:**

- **Evidence if situations that could result in possible cave-in (i.e. soil crumbling or sloughing, water saturated soils, freezing and thawing, unusual vibrations such as from heavy equipment, heavy rains, surface run off entering trench, etc.);**
- **Indications of failure of protective systems;**
- **Hazardous atmosphere (oxygen deficiency, flammable and toxic gases and vapors);**
- **Condition and support of exposed underground installations;**
- **Adequate means of egress;**
- **Signs, signals, and barricades for work area protection;**
- **Precautionary measures to control water accumulation;**
- **Stability and support of adjacent structures; and**
- **Adequate protection from loose rock and soil.**

**PROTECTIVE SYSTEMS**

**Personnel working in excavations will be protected from cave-ins by sloping and/or benching of excavation walls, a shoring system or some other equivalent means except when:**

- **The excavation is made entirely in stable rock; or**
- **Excavations are less than five feet deep and safety personnel have determined that there is no indication of potential cave-in. Depending on site and soil conditions protective measures may be taken for the excavations less than five feet in depth.**

**The most important factor influencing the choice of protective systems is the soil type classification. Once the soil type has been classified, selection of the protective system, the determination of the angle of repose for sloping and benching, and the design of shoring systems will be made. Decisions will be based on careful evaluation of pertinent factors such as depth of cut; possible variation in water content of the material while the excavation is open; anticipated changes in materials from exposure to air, sun, water, or freezing; loading imposed structures equipment, overlying material, or stored material; and vibration from equipment, blasting traffic or other sources.**

**Soil Classification**

**Appendix A of the OSHA Excavation Standard describes a methjod to classify soils into four types:**

**1. Stable Rock - Solid mineral matter that can be excavated with vertical sides.**

**2. Type A - cohesive soils with an unconfined compressive strength of 1.5 ton per square foot (tsf) or greater. Examples include: clay; silty clay; sandy clay; clayey loam; and cemented soils such as caliche and hardpan. No soil is considered to be Type A if it is fissured, subject to vibration, previously disturbed, or part of a sloped, layered system.**

**3. Type B - cohesive soils with an unconfined compressive strength of greater than 0.5 tsf but less than 1.5 tsf. Examples include: angular gravel similar to crushed rock; silt; silty loam; and sandy loam; Type B soils also include : previously disturbed soils that are not type C; Type A soils that are fissured or subject to vibration; and dry rock that is not stable.**

**4. Type C - cohesive soils with an unconfined compressive strength of 0.5 tsf or less. Examples include: gravel; sand; loamy sand; submerged soil or soil from which water is seeping; submerged rock that is not stable.**

**The engineer, geologist, or safety personnel will conduct at least one visual and at least one manual test as described in the OSHA excavation standard in order to classify soils. Visual tests include looking for : particle size and soil cohesiveness (clumping); cracking in the excavation sides which suggests fissured material; underground installations ans previously disturbed soils; layered soil systems that slope toward the excavation; evidence of surface water and water seeping from the sides of the excavation; and sources of vibration that may affect the excavation stability. Manual tests include: plascticity; dry strength; tumb penetration; drying test; and strength tests using a pocket penetrometer or hand-operated shearvane.**

**<u>Sloping and Benching</u>**

**One of the following options for sloping and benching systems described in section 1926.652(b) of the OSHA Excavation Standard will be used in excavations of .5 foot or deeper or at the discretion of the safety personnel:**

- **The walls of excavation will be sloped at an angle not steeper than 0ne-and one-half horizontal to one vertical. Sloping configurations will follow the slopes shown for Type C soils in Appendix B of the OSHA Excavation Standard.**

- **Maximum allowable slopes and sloping and benching configurations will be determined according to soil type as described in Appendices A and B of the OSHA Excavation Standard.**

- **Use of other written tabulated data and designs, such as tables and charts, to design sloping and benching systems. A copy of the tabulated data must be approved by a registered Professional Engineer. A copy of the tabulated data must be kept at the job site.**

**Personnel are not allowed to work on the faces of sloped or benched excavations above other workers unless the workers at the lower levels are protected from falling material or equipment. Similar protection will be provided for personnel working in excavations below other workers.**

**<u>Support Systems, Shield Systems, and Other Protective Devices</u>**

**One of the following options described in OSHA (1926.652 (c)) will be followed.**

- **Timber shoring, designed according to the conditions and requirements of Appendix C of the OSHA Excavation Standard or aluminum hydraulic shoring designed according to manufacturers tabulated data or Appendix D of the OSHA Excavation Standard. In order to use the information in Appendices C or D, the soil type must first be determined using the classification system in Appendix A. For each soil type the size and spacing of the cross braces, uprights, and walls that comprise the shoring system are then selected based on the depth and width of the trench.**

- **Use of the manufacturer=s written tabulated to design support systems, shielded systems, and other protective devices. Any deviation from this tabulated data must be approved by the manufacturer. A copy of the tabulated data as well as any approvals to deviate from the tabulated data must be kept at the job site.**

- **Use of other written tabulated data to design support systems, shield systems, and other protective devices. The tabulated data must be approved by a Registered Professional Engineer. A copy of the tabulated data must be kept at the job site.**

- **Use of a written support system, shield system, and other protective device design that has been approved by a Registered Professional Engineer. A copy of the written design must be kept at the job site.**

**<u>Installation and Removal of Support</u>**

**Cross braces or trench jacks, uprights, and walls will be secured together to prevent sliding, falling or kickouts.**

**Additional precautions by way of shoring and bracing will be taken to prevent slides or cave-ins when excavations or trenches are made in locations adjacent to backfilled excavations, or where excavations are subjected to vibrations from railroad or highway traffic, the operation of machinery, or any other source.**

**If it is necessary to place or operate power shovels, derricks, trucks, materials, or other heavy objects on a level above or near any excavation, the side of the excavation will be sheetpiled, shored, and braced as necessary to resist the extra pressure due to such superimposed loads.**

**Backfilling and removal of trench supports will progress together from the bottom of the trench. Jacks or braces will be released slowly and , in unstable soil, ropes will be used to pull out the jacks or braces from above after employees have cleared the trench.**

**<u>Shield Systems</u>**

**Portable trench boxes or sliding trench shields may be used for protection of personnel in lieu of a shoring system or sloping. Where such trench boxes or shields are used, they will be designed, constructed and maintained in a manner which will provide protection equal to or greater than the sheeting or shoring required for the trench. Shields will be installed so as to restrict lateral or other hazardous movement. Personnel are not allowed inside shields when shields are being moved.**

## EXCAVATION SAFETY LIST

**To be completed prior to each work shift, or prior to personnel entering a new trench for the first time, by the Site Safety Officer/Competent Person:**

**Project_____Location_____**

**Job Number_____**

**Competent Person(CP)*_____Date_____**

| | | Yes | No | N/A |
|---|---|---|---|---|
| **1.** | **Has the site been cleared for utilities and other underground obstructions?** | ____ | ____ | ____ |
| **2.** | **If on public property, has the regional utility locating service been notified?** | ____ | ____ | ____ |
| **3.** | **Has the excavation equipment been safety checked by the operator?** | ____ | ____ | ____ |
| **4.** | **Are copies of relevant OSHA excavation regulations available on site?** | ____ | ____ | ____ |
| **5.** | **Will the excavation be 5 feet or more in depth?** | ____ | ____ | ____ |
| **6.** | **If 4 is yes, will personnel enter the excavation at any time?** | ____ | ____ | ____ |
| **7.** | **If 4a is yes, have provisions been made for shoring, sloping, or benching the excavation? Describe:** _____ _____ _____ | ____ | ____ | ____ |
| **8.** | **Has an inspection of the site and excavation been conducted by the SSO?** | ____ | ____ | ____ |
| **9.** | **Has the Competent Person conducted visual and manual tests to classify the soil?** | ____ | ____ | ____ |

*** According to Federal OSHA, A Competent Person is a person who 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 the authority to take prompt corrective measures to eliminate them.**

| | | | | | |
|---|---|---|---|---|---|
| **10.** | **G** | **Visual Test _____(type)** | | | |
| | **G** | **Manual Test_____(type)** | | | |
| | **G** | **Soil Classification_____(type)** | | | |
| **11.** | | **Are there any conditions that might expose employees to injury from possible moving ground?** | ____ | _____ | ____ |
| **12.** | | **Is excavated material being placed at least 2 feet from the edge of the excavation?** | ____ | ____ | ____ |
| **13.** | | **Is work in the excavation at all times under the immediate supervision of the SSO or other competent person?** | ____ | ____ | ____ |
| **14.** | | **Is there a stairway, ladder, or ramp securely fastened in place to provide ingress and egress from the excavation?** | ____ | ____ | ____ |
| **15.** | | **If the excavation is 4 feet or more in depth, are safe means of access (see 8) provided so as to require no more than 25 feet of lateral travel to reach them?** | ____ | ____ | ____ |
| **16.** | | **If structural ramps are installed that are used for access/egress: were they designed by a qualified engineer?** | ____ | ____ | ____ |
| **17.** | | **Do the structural ramps have appropriate means to prevent slipping and are the ramps uniform in thickness?** | ____ | ____ | ____ |
| **18.** | | **Are walkways or bridges provided across the excavation to safe crossing?** | ____ | ____ | ____ |
| **19.** | | **If excavations are 71/2 or more feet in depth, do the walkways have guardrails and toeboards?** | ____ | ____ | ____ |
| **20.** | | **Are undermined structures adequately supported to safely carry all anticipated loads and protect workers?** | ____ | ____ | ____ |
| **21.** | | **Are there adequate means provided to prevent mobile equipment from inadvertently entering the excavation?** | ____ | ____ | ____ |
| **22.** | | **Is the excavation well marked and barricaded to prevent personnel from falling IN?** | ____ | ____ | ____ |
| **23.** | | **Are means available to prevent surface water from entering the excavation and to provide** | ____ | ____ | ____ |

| | | | | |
|---|---|---|---|---|
| | **adequate drainage of the area adjacent to the trench?** | | | |
| **24.** | **Where it is reasonable to expect hazardous atmospheres, including oxygen deficiency, to exist in the excavation, is appropriate atmosphere testing equipment available.** | ____ | ____ | ____ |
| **25.** | **Has the testing equipment been calibrated, and the calibrations recorded, today?** | ____ | ____ | ____ |
| **26.** | **Are employees trained in proper use of this equipment?** | ____ | ____ | ____ |
| **27.** | **Has a harness and lifeline been provided whenever an employee is required to enter a confined footing excavation?** | ____ | ____ | ____ |
| **28.** | **Is appropriate personal protective equipment (hardhat, safety boots, eye protection, etc.) available and in use?** | ____ | ____ | ____ |

**Notes:**_____

_____

_____

_____

_____ _____

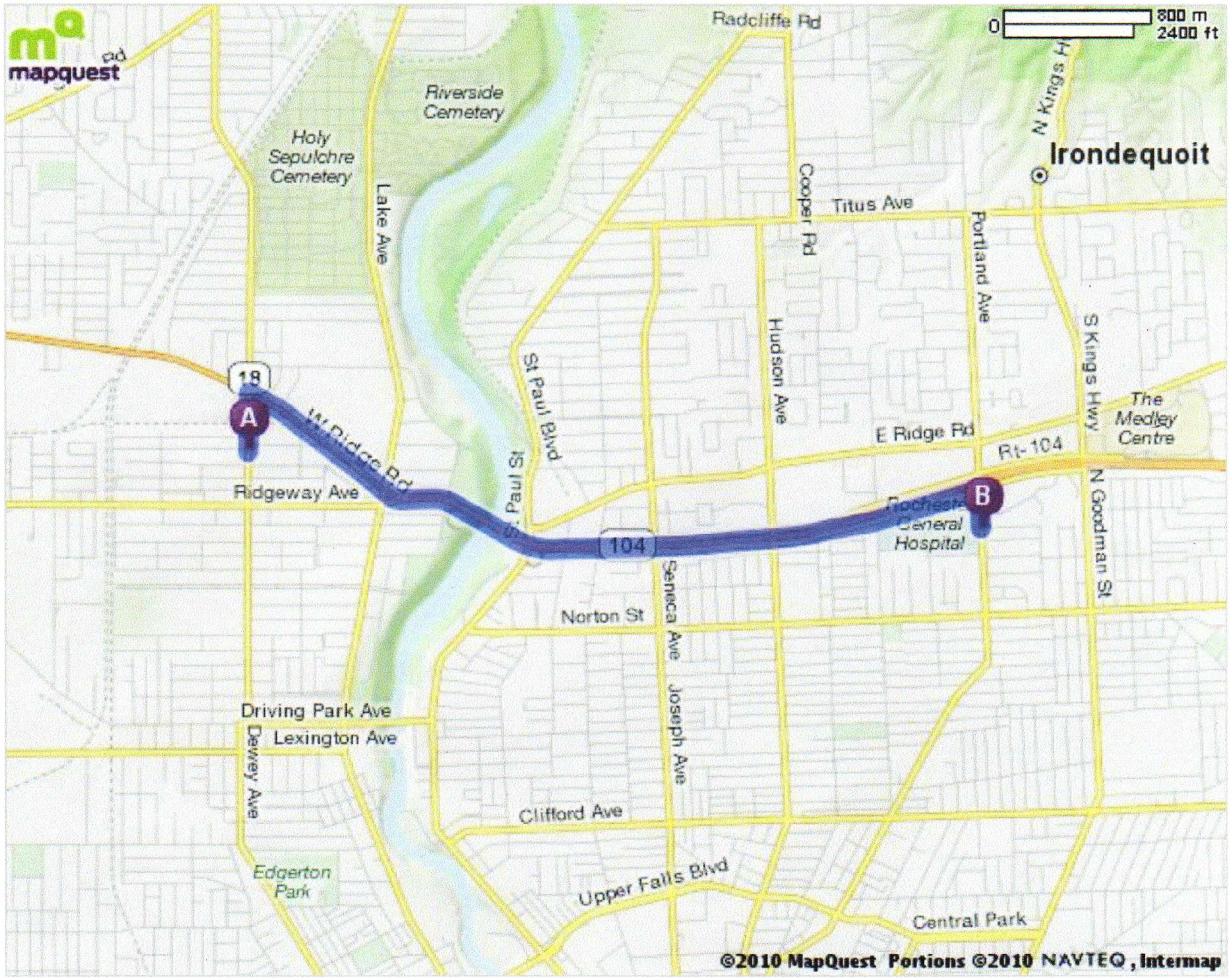
**CPs Name (Print)** **Signature**

# ATTA CHMENT 3

## Map to Hospital

**Total Travel Estimate : 3.37 miles - about 6 minutes**

## Route Map Hide



# ATTACHMENT 4

## NYSDEC DER-10
## Appendix 1A & Appendix 1B

## 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° C (14 to 122° F);
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m3 (15 minutes average). While conservative,

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

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

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

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

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

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

# ATTACHMENT 5

## Table of Potential Hazards & OSHA Standards

# Potential Hazards and OSHA Standards for Consideration during IRMs

| Site Exposure/Control | Potentially Applicable OSHA Standard* | |
|---|---|---|
| | 1910 General Industry | 1926 Construction |
| Hazard Assessmen & Employee Training | 29 CFR 1910.132(d) | 29 CFR 1926.21(b) |
| Chemical Exposure | 29 CFR 1910.1000 | 29 CFR 1926.55 |
| Noise Exposure | 29 CFR 1910.95 | 29 CFR 1926.52 |
| Sanitation | 29 CFR 1910.141 | 29 CFR 1926.51 |
| Wiring Methods (temporary wiring ) | 29 CFR 1910.305(a)(2)<br>29 CFR 1910.333 | 29 CFR 1926.405(a)(2) |
| Electrical Hazards | | 29 CFR 1926.416 |
| Emergency Action Planning | 29 CFR 1910.38 | 29 CFR 1926.35 |
| Excavation | covered by 1926 | 29 CFR 1926 Subpart P |
| Confined Space Entry | 29 CFR 1910.146 | 29 CFR 1926.21(b)(6)29 CFR 1926.353(b) |
| Material Handling | 29 CFR Subpart N | 29 CFR Subpart N29 CFR 1926.600-60229 CFR 1926.604 |
| Building Demolition | covered by 1926 | 29 CFR 1926 Subpart T |
| Site ContaminantAbatement | 29 CFR 1910.1000-1029<br>29 CFR 1910.1043-1052 | 29 CFR 1926.5529 CFR 1926.6229 CFR 1926.1101-1152 |
| Elevated Work Surfaces | 29 CFR 1910 Subpart D<br>29 CFR 1910 Subpart F | 29 CFR 1926 Subpart L29 CFR 1926 Subpart M29 CFR 1926.552 |
| Chemical Storage | 29 CFR 1910 Subpart H29 CFR 1910.1200 | 29 CFR 1926.5929 CFR 1926 Subpart F |
| Personal Protective Equipment | 29 CFR 1910 Subpart I | 29 CFR 1926 Subpart E |
| Heavy Equipment Operation | 29 CFR 1910.9529 CFR 1910 Subpart N | 29 CFR 1926.5229 CFR 1926 Subpart O |
| Tasks-Long Duration | 29 CFR 1910.141-142 | 29 CFR 1926.51 |

The Federal General Industry and Construction citations are provided above