Plan Title: Charter Health & Safety Plan (CHASP)

Project Title: Former Pratt Oil Works – Acid Area IRM Work
Long Island City, New York

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TABLE OF CONTENTS

APPENDICES

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1. SITE DESCRIPTION AND EVALUATION

1.1 INTRODUCTION

The purpose of this Charter Health and Safety Plan (CHASP) is to establish in detail the procedures and protocols necessary for protecting workers and the general public from the potential hazards associated with remediation activities and site restoration at the Former Pratt Oil Works Site in Long island City, NY. Hazards associated with this work may include slips, trips/fall injury, contact with power lines, excavation collapse, weather exposures, strike by moving equipment, exposure to fugitive dust emissions and chemical exposures above the Permissible Exposure Limit (PEL). The site activities required for the execution of the contract will be performed and managed by Charter Environmental, Inc. (Charter). All work shall be performed at the Former Pratt Oil Works Site located off Review Avenue in Long Island City, New York. The site is abutted by commercial buildings to the north, east and west and Newtown Creek to the south. The site is currently operating as a non-hazardous solid waste transfer station. Prior to the site operating as a transfer station the site was used for various purposes related to petroleum processing. These activities date back to the 1850's. In order to proceed with a renovation/addition of the existing transfer station low ph soils must be treated with hydrated lime to adjust the soil ph. These soils are approximately located from >5' to 15' bgs in the area immediately west of the existing building.

This CHASP shall be implemented at all times during ongoing contract work. This CHASP is intended to address the potential hazards associated with the handling and management of low ph impacted soils excavated from the locations on the property identified by the owner as well as other activities which may be encountered during the execution of the contract. There is always potential for exposure to potentially hazardous conditions which can be loosely defined as those conditions and / chemicals that are capable of causing harm to persons, property, or the environment. For the purposes of developing and implementing this plan, it is not possible to address all the hazards associated with handling all hazardous wastes, hazardous materials, and toxic substances. The intent of this document is to provide general information about potential or suspected hazardous and toxic substances on a site.

Site-specific hazardous materials present at the site will or may potentially include:

- Low ph impacted soils
- Volatile Organics
- Total Petroleum Hydrocarbons (TPH) and Polycyclic Aromatic Hydrocarbons (PAHs)
- Impacted soils/sediments/water
- Dust
- Odor

This CHASP is intended to achieve the following objectives:

- Summarizes the project organization and responsibilities
- Establishes procedures for preventing accidents, injuries and illnesses
- Identifies hazards – Activity Hazard Analysis Tables (**Appendix E**)
- Discusses the personal protective equipment that may be used at the site
- Identifies personnel health and safety training requirements
- Summarizes the monitoring techniques to be used

- Establishes emergency procedures (**Appendix F**)
- Describes the medical surveillance program
- Identifies that appropriate first aid equipment is available
- Provides for accident record keeping
- Establishes a schedule for safety inspections

2. KEY SITE SAFETY PERSONNEL/RESPONSIBILITIES

The following describes the health and safety designations and general responsibilities, which will be implemented for the site activities.

2.1 SITE SAFETY & HEALTH OFFICER

Dave Durham, the SSHO, is responsible for continuous daily implementation and enforcement of the CHASP, in consultation with the Certified Industrial Hygienist (CIH). The SSHO shall be assigned to the site on a full-time basis during operations related to excavation & potential contaminated soil and shall report to the CIH and enforce matters pertaining to the site safety and health. A second SSHO will be assigned in the event multiple shifts are required. The SSHO has stop-work authorization, which he/she will execute upon determination of an imminent safety hazard, emergency situation or other potentially dangerous situations such as detrimental weather conditions. Authorization to proceed with work will be issued by the SSHO in conjunction with the Certified Industrial Hygienist (CIH) and Project Manager (PM). The SSHO will select the proper levels of protection based on the details of this plan and in consultation with the CIH.

The SSHO shall be trained and certified in First Aid, CPR, and Universal Precautions for Blood borne Pathogens Training. The SSHO shall be responsible for preparing and maintaining Job Hazard Analyses (JHA's), daily CHASP site logs and reports. First Aid/CPR assistance by all individuals on site will be on a Good Samaritan basis. The New York City Police, Fire, and Ambulance services will act as First Responders for emergency response actions. In the event of an emergency, the senior responding officer from the New York Fire Department will assume the role of Incident Commander upon arrival on site.

2.2 CERTIFIED INDUSTRIAL HYGIENIST

The CIH for this project will be Ed Kearney of Axiom Partners.

The CIH will be used as needed to maintain compliance with all safety and occupational health necessities regarding clean-up operations. The CIH will also be responsible to remain available in the case of project emergencies, assist in developing CHASP alterations as necessary and assist with assessment of occupational exposure monitoring/air monitoring data as needed. The CIH will be responsible for directing and approving any changes to the ERP with concurrence from Charter.

2.3 FIELD PERSONNEL

Field personnel include all employees, representatives and subcontractors. Field personnel will take direction regarding safety and health issues from the SSHO.

All field personnel who will work directly with hazardous waste or toxic chemicals, or presented with an increased risk of direct contact with media impacted by hazardous waste or toxic chemicals will be required to have completed their 40-hour OSHA certification, including

24-hour "on the job" training and a current 8-hour refresher course in accordance with 1926.65(e) (1-9) and annual medical monitoring by an occupational physician.

Employees performing construction activities will have completed the OSHA Construction 10 Hour class.

The resumes of the key personnel that will be managing the project are located in **Appendix A**.

2.4 CHAIN OF COMMAND/LINE MANAGEMENT RESPONSIBILITIES

The following details the Charter Chain of Command for this project and identifies the roles and responsibilities of each.

Responsibilities of the Project Manager (PM) include:

- Implement the CHASP and enforce the safety program on the construction projects.
- Delegate responsibility to the SSHO and the Project Supervisor as necessary and ensure that they are trained to handle the responsibility capably.
- Promote all safety awareness programs.

Responsibilities of the Project Supervisor include:

- Carry out instructions of the Project Manager (PM) and the SSHO relating to the implementation of various mandatory safety policies and procedures.
- Be familiar with all Federal, State, Local and the contractor's general safety rules and regulations.
- Make inspection tours and continuously check for unsafe conditions or practices.
- Keep in close contact with foreman to advise them about safety problems and review their job inspections and accident investigation reports.
- Show personal interest in safety by setting an example through actions and attitude.
- See that Supervisor/foreman does not permit their workers to take unnecessary chances and give them proper instructions for working safely.
- Recognize that the safety of employees under his supervision is a top priority.
- Ensure that all personnel and subcontractor personnel attend daily "Tool Box" meetings.
- Ensure air monitoring is consistent with Section 8 of this CHASP.

Responsibilities of the SSHO include:

- The SSHO will be responsible for continuous daily implementation and enforcement of the CHASP on-site, in consultation with the CIH as necessary.
- The SSHO shall be responsible for preparing and maintaining daily CHASP site logs and associated reports. Examples of these logs are located in **Appendix B.**
- The SSHO will make decisions on upgrade/downgrade of personal protective equipment.

- The SSHO will make decisions on the need to evacuate the worksite in the event of an emergency situation and will implement the Emergency Response Plan under such circumstances.
- The SSHO will conduct jobsite safety meetings.
- Coordinate and oversee H&S training.
- Maintain H&S training records.
- Communicate any necessary modifications to the CHASP to the Owner's representative.

Responsibilities of the CIH include:

- The CIH shall assist with compliance with all safety and occupational health necessities at cleanup operations as needed.
- Provide executive level oversight of safety policies and activities at the jobsite as needed.
- Provide oversight of the SSHO to ensure the chain of command at the jobsite level is respected and followed as needed.
- Remain available in case of project emergencies.
- Assess the occupational exposure monitoring/air sampling data and modify the CHASP requirements if required.

Additional key personnel and alternates will be added to this list as they become available, or when changes are made on the project. All workers on-site will be made aware of the key personnel, their chain of command, and how to contact them.

3. HAZARD ASSESSMENT

The potential hazards for this project have been categorized into site hazards, activity hazards, physical hazards, and chemical hazards.

Site hazards are defined as hazards associated with the general site conditions. Site hazards include topography, ground conditions, climate and weather conditions, traffic etc.

Activity hazards are associated with the activity and work performed by the Charter personnel and any subcontractors on site. Activity hazards include construction work and earth moving, etc.

Physical hazards are associated with materials, structures, equipment, machinery, etc., that present a physical danger to personnel.

Chemical hazards are associated with chemicals and substances that may present an immediate danger to life and health (IDLH) hazard, acute or chronic effects, or may be listed as hazardous under OSHA, CERCLA, SARA, RCRA, 40 CFR 261.3, 49 CFR 171.8, or DOT 49 CFR 172.101

A material characterization program may be conducted to evaluate potential hazards based on the level of impact. If site conditions suggest the existence of a situation more hazardous than anticipated or if an unplanned release, fire, explosion or other emergency occurs, site personnel shall evacuate the immediate area. The hazard level and level of protection shall be reevaluated with the assistance of the CIH.

3.1 HAZARD COMMUNICATION

Chemicals can pose a wide range of health and physical hazards. OSHA has designed the Hazard Communication Standard (HCS) to ensure that information regarding these hazards is distributed to employees, employers, and subcontractors. This is accomplished by the use of

Material Safety Data Sheets (MSDS), which provide information on health effects and other hazards associated with chemicals, and training. This Standard allows for employers to design and implement effective protective programs to control or mitigate exposure, and for employees to understand what they are potentially exposed to.

To meet this standard, site safety meetings, also known as "toolbox" meetings, will include discussion on potential and known site contaminants. If further contaminants are identified, they will be addressed immediately as well as at the next site safety meeting.

Charter will contact and meet on-site with the local emergency response agencies (e.g., fire department, police department, etc.) prior to the start of construction. The purpose of this meeting will be to inform the local authorities of the nature of the work and the potential risks, to ensure that the emergency responders are equipped to respond to an emergency at the site and to identify and resolve any potential problems, concerns or conflicts.

In addition to this, there will be a list of chemicals used on-site and a copy of Charter's Hazard Communication program.

This Standard also applies to chemicals used and stored on-site. Any chemicals used and stored require appropriate labeling of hazardous substances (drums / vats / bottles / tanks) including the hazard warning, product identity and specific hazards as well as a readily available MSDS.

3.2 SPECIFIC HAZARDS

The following chemical information is presented for the types of materials that may be encountered at the Site. The detailed information on these materials was obtained from:

- American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values and Biological Exposure Indices for 2002-2003.
- Material Safety Data Sheets.
- National Industrial Security Advisory Committee (NIOSH) Pocket Guide to Chemical Hazards - 2002.

The following is a list of chemicals and compounds that may potentially be found on-site. Material Safety Data Sheets for each compound listed below, providing information such as the chemical's characteristics, health hazards, protection, exposure limits (**see Table 3-2**), and first aid procedures, shall be kept on site. These chemicals include:

- Sulfuric Acid/Acetic Acid
- Benzene/Toluene/Ethyl Benzene (gasoline)
- Diesel Fuel
- Polycyclic Aromatic Hydrocarbons (PAH)
- Hydrogen Sulfide
- Total Petroleum Hydrocarbons (TPH)
- Oils / Grease
- Hydrated Lime

The materials in **Table 3-1** can be encountered in the following media:

Table 3-1: Chemical Materials

Physical State	Media
Liquid	Groundwater and free product
Solid	Soil, other solid wastes, dust
Gaseous	Fugitive Vapors and off gases
Sludge / Sediment / Semi solids	Residual wastes, placed solid wastes, soil water free product interfaces

Soils may also have characteristics of ignitability, reactivity or corrosivity. Reference materials will be available at the job site for possible identification and characterization of wastes. The American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) for the work environment are given for airborne exposures. Three TLV standards are presented, if available, for each chemical. The Time Weighted Average (TWA) is the time-weighted average concentration for a normal 8-hour day and a 40-hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect. The Short-term Exposure Limit (STEL) is a 15-minute time-weighted average exposure that should not be exceeded at any time during a workday even if the 8-hour TWA is within the TLV. Exposures above the TLV-TWA up to the STEL should not be longer than 15 minutes and should not occur more than four times per day. There should be at least 60 minutes between successive exposures in this range. The ceiling limit (CEIL) values refer to the maximum exposure concentration for any duration.

Table 3-2: Exposure Limits

Contaminants of Concern					
Contaminant	**TLV TWA**	**TLV STEL**	**PEL TWA**	**PEL STEL**	**IDLH**
Benzene	0.5 ppm	2.5 ppm	1.0 ppm (skin)	5.0 ppm	500ppm (ca)
Ethyl Benzene	100 ppm	125 ppm	100 ppm	---	800ppm
Fuel Oil / Diesel (as Stoddard)	100 ppm	---	500 ppm	---	20000 mg/m^3
Gasoline	300 ppm (skin)	500 ppm (skin)	---	---	500 ppm
Toluene	50 ppm (skin)	---	200 ppm	300 ppm (ceil)	500 ppm
Hydrogen Sulfide	10 ppm	15 ppm	20 ppm		100 ppm
Sulfur Dioxide	2 ppm	5 ppm	5 ppm		5 mg/m3(ca)
Acetic Acid	10 ppm	15 ppm	10 ppm		50 ppm

Contaminants of Concern					
Carbon Monoxide	25 ppm	---	50 ppm	---	1200 ppm
Sulfuric Acid	1 mg/m^3	---	1 mg/m^3	---	15 mg/m^3
Xylene	100 ppm	---	100 ppm	---	900 ppm
	Skin – indicates the potential for dermal absorption.				
	CEIL - indicates the ceiling limit or the upper limit acceptable excursions above the TWA.				
	Ca - indicates that a chemical is considered to be carcinogenic.				
	* - Notice of Intended Change				

Also presented are the OSHA Permissible Exposure Limits (PELs). The PEL values are enforceable standards presented either as an 8-hour TWA, 15-minute STEL, or CEIL. The CEIL indicates the upper limit acceptable excursions above the TWA. The immediately dangerous to life and health (IDLH) value represents a maximum concentration from which one could escape within 30 minutes without any escape-impairing symptoms or any irreversible health effects. Other relevant health-based information that applies to this health and safety plan or to the employee's right to know, in compliance with Right to Know requirements of OSHA, is discussed in the toxicity summaries for each of the chemicals of concern.

3.3 OFF-GAS

Decomposing solid waste produces gas consisting of methane, carbon dioxide, and hydrogen sulfide. Methane may be flammable or explosive when exposed to sparks, static or the air. Carbon dioxide is heavier than air and can displace air in confined spaces, thereby, causing loss of oxygen and potential asphyxiation. Methane and carbon dioxide are both odorless but are usually present with other odorous products created from solid waste decomposition such as hydrogen sulfide. Hydrogen sulfide has a “rotten egg” odor and can be toxic. Other organic vapors associated with the uncontrolled disposal of gasoline, petroleum products, paint products and domestic or industrial solvents are also routinely encountered in off gases. A number of these organic vapors may pose a health hazard even at relatively low concentrations.

The Contractor (SSHO) will monitor the atmosphere at the surface and the perimeter of the individual work areas during excavation, using a portable combination combustible gas/ hydrogen sulfide gas/carbon monoxide and oxygen detector. The excavation areas will be tested with a photoionization detector (PID) to monitor organic vapors as well as a PM10 Dust Monitor to monitor particulate levels. If air quality does not meet each of the following requirements work will stop and Personal Protective Equipment (PPE) will be up-graded to the next appropriate level:

- Oxygen content of 19.5% to 23.5%.
- Hydrogen sulfide content of < 5 ppm
- Combustible gas content of < 10% of the lower explosive limit (LEL)

- Dust levels < 150 ug/m^3
- VOC's <5.0 ppmv
- Exposure level for any toxic substance determined or suspected to be present which is below the PEL-TWA or TLV-TWA for any substance specified by OSHA or ACGIH.

3.4 DEGREE OF HAZARD

On-site hazards include physical and chemical hazards. Many potential chemicals at the site can affect the body if they are inhaled, come in contact with the eyes or skin, or are ingested. These materials may be released during soil excavation. The primary concerns are for skin contact and inhalation exposure to impacted subsurface media and dangerous fugitive vapor/gas emissions. Atmospheric monitoring will be conducted to define the level of respiratory protection needed.

Physical hazards, which may be encountered during contract execution, include incidents associated with heavy equipment operation, overhead/tripping hazards normally associated with excavation operations, and explosive and/or flammable conditions. Excessive noise levels may be generated from air compressors, heavy construction equipment, etc. As a precaution, hearing protection will be available to be worn when working around construction-related equipment or when deemed necessary. In areas where sound levels prohibit normal speech and where personnel will spend extended time (>1 hour) hearing protection will be required.

Depending on seasonal weather conditions, there is some potential for workers on-site to be affected by heat stress. Site activities are scheduled for the warmer months and the use of personal protective equipment will be required. The SSHO will monitor for heat stress in accordance with **Section 11** of this CHASP.

A summary of task-specific hazards and control measures is presented in Table 3-3. Air monitoring and Action Levels are presented in the Air Monitoring Section of this CHASP.

Table 3-3: Physical Hazards

TASK(S)	HAZARD	DESCRIPTION	PREVENTION/MONITORING TECHNIQUES
All tasks	Slips, trips, falls, vehicle traffic	From various debris on ground, cluttered conditions, equipment, slippery footing, Heavy equipment/vehicles	Ensure buddy system awareness and good housekeeping practices. High Viz PPE required onsite
Excavation, sampling, backfilling	Pinch points, sharp corners, restricted movement, explosion/fire	From "tight" spaces and clearances; objects and components	Ensure clear work area, good housekeeping, move unnecessary equipment, utilize buddy system, place guards on machinery, and wear gloves where appropriate.
Excavation, sampling	Explosion, fire	Ignition of fugitive flammable gases or vapors	Mandatory use of ambient air monitoring equipment and implementing proper inspection/characterization techniques, documentation.

TASK(S)	HAZARD	DESCRIPTION	PREVENTION/MONITORING TECHNIQUES
All tasks	Heat Stress	Associated with protective garment use, respiratory protection and exposure	Ensure adequate work/rest schedule; buddy system; dress appropriately for weather. Provide shaded areas for breaks
Excavation, backfilling Equipment maintenance	Struck by Equipment	From accidental contact with heavy equipment during remedial activities	Drill rigs, backhoes, dump trucks, and other equipment equipped with backup alarms. Employees remain clear of swing radius and rotating parts of equipment. Use spotters near live utilities. Utilize Hi-Viz clothing Lock out/Tag out of equipment during maintenance
Excavation, backfilling	Collapse of excavation walls	From improperly shored or sloped excavations	No employees allowed in excavated area unless protection methods in place and authorized by competent person. Samples from the bottom of excavation will be collected from the backhoe bucket. Placement of excavated soil minimum 2' from the edge of the excavation to prevent wall failure.
Operation/ repairing pumps, operating /repairing electrical equipment, Heavy Equipment use	Electrocution	Bad wiring, unsafe work practices, improper placement of wires adjacent to wet areas, Overhead/Underground utilities	Electrical safe work practices, GFCI protection, Identify overhead and underground utilities, Maintain required clearances from utilities
All tasks	Inclement weather	High winds, lightning, hail, etc.	Restrict work in exposed areas, seek shelter, and terminate work activities.

3.5 CONFINED SPACE ENTRY

A confined space is defined as a space, which has any one of the following characteristics: limited opening for entry and exit; is large enough to be bodily entered; ability to inhibit ventilation or air exchange; and is not designed for continuous worker occupancy. A permit-required confined space is a confined space, which contains or has the potential to possess a recognized hazard to personnel (e.g., a hazardous atmosphere, engulfment potential, etc.).

No person is to enter a confined space for this project. All sampling and soil excavation will be achieved through the use of the excavator, or other tools that allows the person to remain outside of the confined space. Excavations will be properly supported to prevent a collapse of the sidewalls. If confined space entry is required Charter's Confined Space Entry Program procedures will be followed including the completion of a confined space entry permit.

3.6 SPILL CONTAINMENT

The SSHO and the contractor supervisory personnel are familiar with the notification requirements for chemical spills. In addition, all contractor and subcontractor personnel can recognize spills, and know the links of communication for notification. The SSHO will modify spill containment procedures, as required, as chemicals are brought to the project for use.

Once a spill has been recognized and appropriate client/site notifications have been made, the SSHO will institute appropriate spill control and countermeasure measures. The following response principals apply:

- Follow contingency and evacuation procedures in this plan. Alert the Engineer and implement the Spill Control and Countermeasures Plan submitted under a separate cover.
- For spills less than 5 gallons, contain the spill to the smallest area possible, through the use of absorbents and site equipment to build berms. Prevent to the extent possible, the migration of spills to nearby sewers, drainage structures, open waters, and other sensitive human and environmental receptors. For small hazards, such as spills of petroleum products less than 5 gallons, the spill will be handled by The Contractor Emergency Response Personnel subject to the Engineer's determination. The Owner's Representative must be notified prior to proceeding with clean – up. Refer to the Emergency Phone List and Project Contact List (**Appendix F**) for the phone numbers emergency response contractors to be notified for cleanup of large spills for which The Contractor Emergency Response Personnel do not have approval to handle.
- Conduct and complete the response in accordance with all applicable local, state and federal regulations. Seek assistance from the Owner's Representative personnel and appropriate authorities (i.e., the NY DEC, EPA, and NRC) in determining the extent and completeness of the spill response.
- For spills 5 gallons or greater, contain the spill to the smallest area possible, as noted above. Subject to the Owner's Representatives determination, notify the appropriate emergency response contractor, where applicable. Coordinate with the Owner's Representative the methods to be employed in collection, storage, and the ultimate disposal of all contaminated materials. All applicable hazardous waste regulations will be adhered to.

4. TRAINING REQUIREMENTS

4.1 BASIC TRAINING REQUIREMENTS

Personnel working in the Exclusion Zone (EZ) or Contamination Reduction Zone (CRZ) (e.g., where the potential exists for contact with hazardous materials) shall complete training and have site experience conforming to the requirements of 29 CFR 1910(e). The required 40-hour course (and 24-hours of "on the job" training) provides training on procedures for working at hazardous waste sites. Personnel are also required to have received 8-hours of refresher training annually thereafter. The Contractor will comply with Right to Know requirements of OSHA and appropriate State laws.

Personnel working in areas where the potential exists for contact with impacted materials shall complete training and site experience conforming to the requirements of 29 CFR 1926.62. The required training provides procedures for working with impacted materials.

Personnel performing construction activities will have successfully completed the OSHA Construction 10 Hour Class.

Contractors/subcontractors shall provide written documentation that these training/experience requirements have been met. All personnel, anticipated to wear a respirator , shall receive medical surveillance and shall also be trained in the contents of Charter's, "Respiratory Protection Program," in accordance with 1926.65 (f).

4.2 SITE-SPECIFIC TRAINING

Site-specific employee training to minimize on-site hazards will be provided to address the activities, procedures, monitoring and equipment for the field operations and will be completed before work starts. This training will include identifying the names of personnel and alternate personnel responsible for site safety.

In addition, this training, at a minimum, will include the following:

- Site description and history
- Project activities, including coordination with other contractors
- Hazard evaluation
- On-site safety responsibilities
- Site Control and work zones
- Personnel training
- Medical monitoring, in accordance with 1926.65 (f) and 1910.120 (f)
- Atmospheric monitoring
- Personal protection, clothing, and equipment
- Decontamination procedures
- Emergency procedures
- Review of site-specific material safety data sheets (MSDS)
- Safe work practices
- Other elements covered in this CHASP

This training will also allow field workers to clarify anything they do not understand and to reinforce their responsibilities regarding safe operations. Training will also include emergency response provisions including emergency preparedness, location of assembly areas, proper entry and exit procedures for the exclusion zone, warning systems, incident management, location of emergency equipment, and driving route to hospital. Site safety meetings will be documented using the Site Safety Meeting Form (**Appendix B**, "Health and Safety Field Forms"). The SSHO will coordinate, implement, oversee and maintain the records for employee H&S training applicable to this project.

4.3 SAFETY BRIEFINGS

Project personnel will be given briefings by the SSHO at a minimum on a daily basis at the beginning of each shift to further assist site personnel in conducting their activities safely. Briefings will be provided for new operations, changes in work practices, or if site or environmental conditions change. Briefings will also be given to facilitate conformance with prescribed safety practices when performance deficiencies are identified during routine daily activities or as a result of safety audits. Some information that should be covered includes: review of this Plan with the Contractor's personnel, check of personnel training certifications, potential hazard discussion, as well as a discussion of what is expected of personnel. Copies of training certifications/cards should be kept on site for reference.

4.4 SAFETY AUDITS

The SSHO will conduct regular safety audits of field operations and subcontractor performance to review for compliance with health and safety policies and procedures and this plan. Daily operations will adhere to the protocols outlined in this CHASP and will be enforced by the SSHO.

4.5 FIRST AID AND CPR

OSHA requires that a minimum of one On-Site person be trained and certified to provide emergency medical response. These requirements must be a minimum of Basic (or Standard) First Aid and CPR under established universal precautions. The SSHO, his alternate and supervisory personnel shall be trained and certified to administer First Aid and CPR. These courses will be consistent with requirements of the American Red Cross, American Heart Association, or American Safety and Health Institute. Individuals who may administer First Aid and CPR will be provided an opportunity to receive blood-borne pathogens training. First Aid/CPR assistance by all individuals on site will be on a Good Samaritan basis. Either the SSHO or the alternate shall be on site at all times when construction activities are occurring.

5. MEDICAL SURVEILLANCE PROGRAM

A Medical surveillance program shall be provided in accordance with 29 CFR 1910.120 (f), 1926.65 (f). All personnel performing field work involving hazardous materials will be required to have passed a periodic medical examination by an occupational physician that is consistent with 29 CFR 1910.120(f) and 1926.65 (f), and if applicable 29 CFR 1926.59 and 1926.62 prior to beginning work at the site.

Additional medical testing may be required in consultation with an occupational physician if an overt exposure or accident occurs, or if other site conditions warrant further medical surveillance (e.g. If lead is present and exposure is greater than the action levels, additional monitoring requirements may have to be implemented).

Charter as well as their subcontractors will maintain the medical records for their own employees, in accordance with OSHA's Access to Records, but shall also provide written documentation certifying that each employee at the Site has met the requirements of the Medical Surveillance Program. The pre-employment physical should have this information. This documentation will be provided before the first day of work for each employee assigned to the Site. The pre-assignment and annual examinations are essentially the same in content and may include:

- An updated medical and occupational history
- A screening physical examination
- Blood and urine laboratory tests (including lead)
- Chest x-ray (where required by physician)
- Electrocardiogram
- Pulmonary function tests
- Audiometry
- Visual acuity test
- Other tests authorized by the occupational physician.

- Respirator fit testing as necessary

5.1 EMERGENCY MEDICAL TREATMENT

Provisions for emergency medical treatment are detailed in the Emergency Response Plan. They will include:

- An individual qualified to render first aid and CPR on a Good Samaritan Basis.
- First aid kits in compliance with OSHA requirements and emergency first aid stations in the immediate work vicinity. Universal precautions shall be used for all first aid operations.
- Conspicuously posted phone numbers and procedures for contacting ambulance services, fire department, police and medical facilities.
- Maps and directions to Elmhurst Hospital Center, 79-01 Broadway in Elmhurst, NY – is the closest facility that provides trauma care. Maps and directions to the hospital are shown in the **Appendix C.**
- Emergency Phone: Hospital (718)334-4000

6. SITE CONTROL PLAN

The purposes of the Site Control Plan discussed in this section are to maintain order at the Site and to minimize chemical and physical hazards to on-site personnel, visitors and the public. Site control work zones will include an exclusion zone, a contamination reduction zone and a support zone. The zones, as well as the entire CHASP, will be coordinated with the Owner's Representative. Site control plans will be completed once areas and locations of contaminants have been identified at the start of field activities.

The extent and relative positions of the control zones will change during progressive stages of the project. The limits of these control zones will be adjusted as site-specific conditions relative to contaminant conditions at the excavation area become well defined. Control zones will be designated for each soil removal area. These changes from the original defined field parameters will be made available to the Owner's Representative. Site fencing, caution tape, barricades, or other appropriate measures will be used to physically separate the work zones defined below.

6.1 SUPPORT ZONE

The support zone, or cold zone, is considered the uncontaminated area and will be identified by the SSHO when field activities begin. The support zone should be located upwind, upstream, and uphill from the exclusion zone and within the limits of the construction boundaries, but away from areas designated for soil stockpile areas awaiting chemical characterization. The support zone for the work at the site will be within the limits of the construction but not near any areas identified for excavation.

The support zone will contain the temporary administrative facilities, which will provide for team communications, emergency response and coordination of daily field operations. Communications equipment will be located in this area. Appropriate sanitary facilities, safety, medical, and support equipment will be identified and kept in this area. Any personnel not fully trained for work with hazardous materials shall be required to remain in the support zone. Boundaries for the support zone will be separated from public access through the use of site fencing and other barricades to physically separate the work zones.

6.2 CONTAMINATION REDUCTION ZONE

A contamination reduction zone, also known as a warm zone or decontamination zone, is a safety buffer that limits access to the exclusion zone. The contamination reduction zone shall be placed at the exclusion zone perimeter and will provide a physical separation of the support zone and exclusion zone.

The contamination reduction zone will provide an entry for personnel, vehicles and equipment into the exclusion zone and an exit area for decontamination of personnel, materials and equipment from the exclusion zone. The contamination reduction zone will be surrounded with a suitable temporary barricade system to physically separate the work zones and to allow for adjustments to the size and location due to changing site conditions.

Operations within the decontamination zone require specialized training and equipment, including portable eyewash, potable water, soap, towels, medical supplies, plastic garbage bags, fire extinguishers, extra PPE and decontamination supplies.

6.3 EXCLUSION ZONE

The Exclusion Zone (EZ) or hot zone is the area containing or suspected of containing contaminated materials. Since work activities will be conducted at different locations within the property, a combination of construction fence with privacy screen and orange safety fence will be used to delineate the EZ. The fence will be moved throughout the project as cells are completed. Presently, (4) treatment cells will be open at one time. Asphalt will remain in place until the cell below it is to be treated. The intent will be to minimize the size of the exclusion zone while keeping a balance between meeting the project objectives and limiting exposure to other workers performing non-remediation activities onsite. Entrance into the EZ will be through an access corridor. The CRZ and decontamination facilities will be located outside the construction fence line immediately adjacent to the entrance to the EZ.

The exclusion zone shall include and encompass all areas that actively being remediated. Areas that have been treated and backfilled will not be part of the active exclusion zone. In all cases, the fence line around the area will serve as the perimeter of the exclusion zone. The EZ will be clearly marked by fencing and signage identifying the exclusion zone.

Access and egress from the exclusion zone will be through the contamination reduction zone following procedures described in the Decontamination Section of this CHASP. Activities within the exclusion zone require specialized training and experience, appropriate PPE, and pre-planning.

6.4 STAGING / STORAGE AREA

This project will require a separate delineated storage area for the temporary storage of clean soils for use as backfill.

6.5 PERSONNEL AND SMALL EQUIPMENT DECONTAMINATION

Personnel and small equipment decontamination areas will be established on-site. Personnel will decontaminate or dispose of soiled protective clothing and equipment (i.e. disposable boots and gloves, etc.) in the contamination reduction zone. Refer to the Decontamination Section (Section 9.0) of this document for further decontamination procedures.

6.6 HEAVY EQUIPMENT DECONTAMINATION

To prevent off-site transport of contamination, contaminated construction equipment and vehicles will be decontaminated at a fixed temporary decontamination area in the contamination reduction zone immediately after exiting the exclusion zone. Decontamination procedures will include that heavy equipment tires will be washed down using high-pressure water if necessary. This location will be selected by the SSHO prior to startup of field activities. Decontamination liquids will be collected for disposal.

Inbound transport vehicles which transport over roadways traversed by local traffic passing in and out of the work areas shall be decontaminated as needed in order to minimize exposure to soils and eliminate tracking onto local roads. All vehicles shall be carefully cleaned to avoid contamination of exterior truck surfaces or ground surfaces of the offloading area. All vehicles will follow the designated route leaving the site passing through the decontamination area.

6.7 SITE VISITORS

Visitors are required to report to the SSHO prior to accessing the Site. The SSHO will determine the purpose of individual visits, and will document decisions regarding their access to the Site. If granted limited access, visitors must sign in and out under the SSHO's direction daily for the duration of their approved visit. Under no circumstances will visitors be allowed to interfere with or participate in operations within the scope of the construction or field activities.

If required, the SSHO will establish a designated Level D area as an observation point for visitors during intrusive activities. This designated area will be located to offer proximate viewing of site operations, and positioned such that visitors in no way may inhibit site access, logistics, or general operations. Further, the SSHO will locate the viewing areas such that visitors present are at minimal risk of exposure to site hazards.

Prior to gaining access to designated viewing areas described above, visitors must provide the SSHO with documented compliance with Section 5 of the CHASP, comply with other applicable sections, and satisfy additional conditions placed on them as deemed appropriate by the SSHO to assure visitor safety. The SSHO or designee will escort site visitors throughout the Site.

6.8 EMPLOYEE ALARM SYSTEM - COMMUNICATIONS PLAN

A communications plan will be implemented in the event that it is necessary to alert the employees of an emergency. In accordance with OSHA 29 CFR 1910.165, the employee alarm system will provide warning for necessary emergency actions or for reaction time for safe escape of employees from the workplace or the immediate work area, or both; be capable of being perceived above ambient noise or light levels by all employees in the affected portions of the workplace; and,be distinctive and recognizable as a signal to evacuate the work area or to perform actions designated under the Emergency Response Plan. The SSHO and Supervisory personnel will carry portable radios and will be in contact with field personnel at all times. Compressed air containers will also be available to signal and alert workers in case of an emergency. A hard-wired telephone and/or cellular phone will remain in the temporary administrative area at all times in the event of an emergency.

In addition, Charter shall communicate to its employees and subcontractors the following:

- Explaining to its employees the preferred means of reporting an emergency.
- Establishing procedures for sounding emergency alarms in the workplace.
- Posting emergency telephone numbers near telephones, or employee notice boards, and other conspicuous locations when telephones serve as a means of reporting emergencies. Where a communications system also serves as the employee alarm system, all emergency messages shall have priority over all non-emergencies.
- Assuring that all devices, components, combinations of devices or systems constructed and installed to comply with this standard is approved.
- Assuring that all employee alarm systems are restored to normal operating condition as promptly as possible after each test or alarm.
- Assuring spare devices and components subject to wear or destruction shall be available in sufficient quantities and locations for prompt restoration of the system.
- All employee alarm systems are restored to normal operating conditions except when undergoing repairs or maintenance.

Additional details regarding the communications plan are provided in Section 2.5.5 of the Emergency Response Plan, provided in **Appendix F.**

6.9 MEDICAL TREATMENT AND FIRST AID

Workers shall be informed of locations and directions to locations where emergency medical attention may be received. A road map and an emergency phone list will be posted at the work site displaying the most direct route to the appropriate medical facilities. Personnel sustaining trauma related injury will be directed to the Elmhurst Hospital Center located at 79-01 Broadway, Elmhurst, NY.

The SSHO will assign individuals with the responsibility of driving the Contractor's vehicle to the hospital. The designated drivers will be familiar with the most direct route and time required to reach the hospital. The Emergency Route directions are presented in **Appendix C**. An Emergency Contact list is presented **in Appendix D**. A copy of these maps will be posted and provided for all Charter and subcontractor vehicles on-site. It is always the final decision of the Ambulance personnel as to the final destination of the patient. Local EMS professionals have in-depth knowledge of local hospitals and current capabilities.

Depending on the seriousness of the injury, treatment may be given at the site by trained response personnel. For more serious injuries, additional assistance may be required at the site, or the victim may be transferred to an appropriate medical facility.

Lifesaving care will be instituted as long as it is safe for the caregiver to do so. If the scene is not safe or presents a hazard to rescuers or other workers, then the New York Fire Department will be notified and emergency services will be activated (911). Decontamination procedures, as applicable, shall be implemented prior to medical treatment.

In the event of minor injury and minimal contamination, medical care may be rendered immediately without considering decontamination. Outer garments can be removed provided this does not cause delays, interfere with treatment, or aggravate the injury. Respiratory protection must always be removed and chemical-resistant clothing can be cut away. If the outer contaminated garments cannot be safely removed, the individual should be wrapped in

plastic or blankets to help prevent contamination of medical personnel and/or the interior of transfer vehicles. Outer garments may then be removed at the medical facility. No attempt will be made to wash or rinse the victim, unless it is suspected that the individual has been contaminated with a highly toxic or corrosive material that could cause serious injury or loss of life. For minor medical material problems or injuries, the normal decontamination procedure should be followed.

Injuries from contaminant inhalation can be treated only by qualified physicians. If eye or skin contamination occurs, immediate measures must be taken to counteract its effects. First aid treatment generally involves flushing the affected areas with water and assessing the need for further medical attention.

When protective clothing is grossly contaminated, contaminants may be transferred to the wearer or to treatment personnel, and cause injuries. Unless severe medical problems could be created by splashing, the protective clothing should be rinsed as rapidly as possible, and carefully removed.

7. PERSONAL PROTECTIVE EQUIPMENT

The purpose of personal protective clothing and equipment (PPE) is to shield or isolate individuals from the chemical, physical, and biological hazards that may be encountered at a hazardous substance site. No single combination of protective equipment and clothing is capable of protecting against all hazards. Thus PPE should be used in conjunction with other protective methods and its effectiveness evaluated periodically per OSHA standard 29 CFR 1910.120(c) (h) (5).

The use of PPE can itself create significant worker hazards. For any given situation, equipment and clothing should be selected that provide an adequate level of protection. However, over-protection, as well as under-protection, can be hazardous and should be avoided where possible. Two basic objectives of any PPE program should be to protect the wearer from safety and health hazards and to prevent injury to the wearer from incorrect use and/or malfunction of the PPE.

Worker Hazards associated with Protective Equipment

- Heat stress
- Physical stress
- Psychological stress
- Impaired vision
- Impaired mobility
- Impaired communication

Personnel are responsible for their own health and safety in regards to job sites. Personnel shall maintain awareness of site conditions and exercise sound judgment when confronted with an unsafe and/or potentially hazardous condition. If presented with an unsafe and/or hazardous situation, personnel shall follow a safe course of action and evacuate the scene. Personnel shall not re-enter a scene until it is deemed safe by the SSHO or other appropriate personnel.

7.1 GENERAL

Personal protective equipment (PPE) for general operations will be consistent with the requirements of 29 CFR 1910 Subpart I, “Personal Protective Equipment.” Basic levels of

protection for hazardous waste operations will be selected in accordance with the provisions of 29 CFR 1926.65(g) (3), "Personal Protective Equipment Selection," and 1926.65, and 40 CFR 311. There are several manuals and guidebooks available for evaluating the performance of PPE.

The PPE selection will be based on hazards specific to work activities, as well as anticipated duration of activity. Procedures for establishment, implementation, and enforcement of maintenance, storage, decontamination, disposal, proper fitting, and training will be implemented by the SSHO, CIH and PM. Further provisions for evaluation of effectiveness, medical concerns, and extreme conditions will also be addressed.

Modification to basic PPE ensembles may be necessary for specific operations. In these cases, further definition will be provided by review of specific hazards, conditions, and proposed operational requirements and by conducting monitoring at the particular operation. Protection may be upgraded or downgraded, as deemed appropriate by the SSHO with notification to the Engineer.

7.2 LEVELS OF PROTECTION

OSHA has established four levels of PPE to be used to reduce exposure of workers to chemical, physical and biological hazards (29 CFR 1910.120 (B)).

The material of the clothing must be compatible to the chemicals of concern and the task being performed. PPE must be able to resist tears, abrasions, punctures, and temperature effects. Chemical suits are tested by the manufacturer to be compatible with certain chemicals. Each manufacturer can provide data on the rated chemical, penetration levels, degradation time, and incompatible chemicals.

Contact lenses shall not be worn onsite by personnel exposed to hazardous chemicals. Contact lenses can interfere with proper eye-wash techniques and may act as a barrier, trapping chemicals between the lens and the eye.

7.2.1 Level A Protection

Level A offers the greatest protection from hazardous materials. It is used at sites where there are extremely hazardous materials or unknown materials. It is also used for sites that present a significant hazard from splashes, vapors, gasses, and particulates. This level consists of:

- Positive pressure self-contained breathing apparatus (SCBA)
- Total encapsulating chemical protective suit
- Chemically resistant inner and outer gloves
- Chemical Resistant Boots with steel toe or shank
- Hardhat
- Disposable outer suit (optional)
- Reflective Vest

No work will be conducted in Level A. In the event that Level C is not adequate for worker protection, all Site operations will be immediately suspended and PPE requirements will be evaluated.

7.2.2 Level B Protection

Level B protective clothing is used in situations where atmospheric quality or contamination is a concern, but there is limited concern regarding skin hazards. Level B protective clothing includes:

- Full one piece chemical resistant suit
- Outer rubber boots with steel toe or shank
- Outer nitrile or neoprene gloves and inner disposable chemical resistant gloves
- Full-face self-contained positive pressure or pressure-demand breathing apparatus (SCBA) or supplied air-line respirator
- Reflective Vest
- Hardhat

7.2.3 Level C Protection

Level C protective clothing consists of an upgrade from Level D (or Modified Level D). Level C will be used in work areas where the chemical or chemical concentrations present an inhalation hazard. Use of respirators will be an appropriate measure against airborne contaminants. Level C may not be used in areas where atmospheric quality is degraded by asphyxiates or poor ventilation, or where conditions are not known. Level C protective equipment includes:

- Full-face or half-face air-purifying respirator (NIOSH approved) fitted with appropriately rated cartridges (acid gas / organic vapor / High Efficiency Particulate Air filter (HEPA) cartridges).
- Hardhat.
- Safety Glasses.
- Safety-toe Boots
- Disposable Tyvek or equivalent coveralls.
- Disposable nitrile inner gloves and nitrile outer gloves.
- Reflective safety vest.
- Disposable or reusable rubber outer boots.

7.2.4 Level D Protection

Level D is assumed to be the initial PPE level. Level D personal protective clothing and equipment includes:

- Work clothes or uniform
- Disposable or reusable (as appropriate), Tyvek coveralls or equivalent - required when splashing by contaminated liquids is a possibility. Thicker coveralls may be selected for heavy spill risk (e.g., Modified Level D).
- Hardhat.
- Face and eye protection from face shield or safety glasses / goggles/faceshield.
- Reflective safety vest.
- Safety – toe Boots
- Disposable latex gloves - required when handling and collecting soil and water samples.
- Outer nitrile gloves - required when splashing by contaminated liquids is expected to be heavy or excessive (e.g., Modified Level D).

- Chemically resistant or disposable outer boots- required when contaminates are present and mixed with soils (e.g., Modified Level D).
- Noise protection - as warranted

7.2.5 Respiratory Protection

Whenever possible, respiratory hazards shall be engineered out of the work environment. Engineering controls may include increased ventilation, dust or vapor suppression, or other mechanisms to eliminate the respiratory hazard.

If engineering controls are not a viable option, or do not adequately control exposure, then a personal respirator plan shall be implemented. Charter employs a Respiratory Protection Program. Respirator plans can vary from simple particulate filtering face masks, to half-face or full-face masks with specialized filter cartridges, to supplied air or self-contained breathing apparatus (SCBA).

Any respirator or facemask used at a site will be appropriately rated for the work performed and site contaminants, and meet NIOSH approval guidelines. Only individuals who have been trained and fit-tested within 12 months, and have received medical approval will be permitted to use a respirator.

Air-purifying respirators and face masks shall not be used in environments where contaminants are present in a form or concentration that may be an immediate danger to life and health (IDLH), or in oxygen deficient atmospheres. These conditions require a SCBA or supplied air system.

7.3 ANTICIPATED PROTECTION FOR SITE OPERATIONS

Most routine daily operations at the site which do not involve the potential for soil contact will require personal protective equipment Level D. These include mobilization/demobilization, setup, truck operation and support activities. Soil handling operations will begin in personal protective equipment Level C. Air monitoring results will be used to determine the need to maintain or downgrade the Level of PPE for the tasks listed below.

Independent of the level of protection used, all workers at the Site will be required to wear proper work clothes (short pants and tank top shirts will not be allowed), safety-toe work boots, safety glasses, hard hat and be clean shaven to allow proper respirator fit (when necessary).

Tasks where contact with soil may occur will require the use of PPE. The following tasks may require higher levels of protection.

- Mobilization/Site Preparation – Level D
- Removal of Asphalt and Non-Acidic Fill – Modified Level D
- Obstruction Removal – Level C
- Acidic Material Treatment – Level C
- Impacted Water Storage – Modified Level D
- Equipment Decontamination – Level C
- Restoration – Modified Level D
- Demobilization – Level D

If critical action levels are exceeded unexpectedly, and based on evaluation of the conditions, if unanticipated respiratory protection is deemed necessary, then the work will be stopped, and the SSHO will evaluate, before upgrading the levels of protection. Action levels used to determine the need to upgrade or downgrade the levels of protection are described in the Air Monitoring section of this CHASP.

8. AIR MONITORING

Air monitoring will be conducted in accordance with the following sections. Prior to soil excavation or other intrusive activities (e.g., asphalt removal) a baseline air quality program will be established to determine the existing site air quality. Perimeter Dust, VOC and Combustible Gas monitoring will be conducted hourly around the active work area. Charter will also perform real-time monitoring for dust/VOC/combustible gas in the worker breathing zone inside the exclusion zone.

8.1 GENERAL

Atmospheric conditions will be monitored during on-site excavation or other intrusive activities to determine the possible need to upgrade the PPE of on-site workers and to identify potential emergency conditions. Ambient air monitoring techniques will be utilized for purposes of this section. Air monitoring will be performed in such a way to maximize detection of site contaminants.

The Contractor will be responsible for OSHA compliance worker exposure air monitoring for dust (in accordance with 29 CFR 1926.65) , as required by site conditions, as part of their work plan. Full-shift breathing zone personal sampling must be performed for each representative task. The Atmosphere in the Exclusion Zone at the worker-breathing zone shall be monitored by the SSHO or their designee.

Instrument readings shall be documented hourly using the Atmospheric Monitoring Log presented in **Appendix B** and submitted to the Owner's Representative. Any departures from the general background will be reported to the Owner's Representative, who in conjunction with the SSHO will determine if additional monitoring is necessary and when operations should be modified, ceased or restarted.

All air monitoring data will be recorded at a minimum frequency of once per hour. All air monitoring equipment shall be maintained and calibrated at the beginning of each workday (or shift), in accordance with the manufacturers' recommendations. Such maintenance and calibration data will be recorded and included in the Atmospheric Monitoring Log.

Charter will install a temporary wind sock at an unobstructed location on the project site that is located at an elevation above the work area.

8.2 EXCLUSION ZONE AND EXCLUSION ZONE PERIMETER

Excavation removal activities in the Exclusion Zone shall be initiated in Level C protection with the contingency to upgrade or downgrade the level of protection based on monitoring results and action levels. The SSHO shall be responsible for establishing air monitoring strategies and protocols to characterize and quantify any airborne release and transport of contaminants during excavation in any of the excavation areas.

Monitoring for VOCs, combustible gas and particulates will be performed continuously in the Exclusion Zone and the Exclusion Zone Perimeter to characterize and quantify any airborne release of contaminants during excavation. A photoionization detector (PID) shall be used to monitor the breathing zone and all geological samples for the presence of VOCs. A Combustible Gas Indicator (CGI) equipped with an oxygen alarm, and lower explosive level, carbon monoxide and hydrogen sulfide sensors will be used to monitor the excavation. Particulate levels shall be measured using a PM-10 Dust Monitor. Vapor suppression activities (i.e., minimize or stop soil disturbance and application of vapor suppression materials) and dust suppression activities (i.e., water trucks, water mist over backfill or RUSMAR) will be utilized as required. Sulfuric Acid, organic acid mist (acetic acid) and sulfur dioxide levels will also be monitored during intrusive activities. The monitoring will be performed using gas detector tubes every 2-hours during intrusive activiites.

8.3 ACTION LEVELS

Instrumentation will include the PID for total VOCs; a PM-10 Dust Monitor for particulates; and a Combustible Gas Indicator equipped with an oxygen, lower explosive level, carbon monoxide and hydrogen sulfide sensors. The Action Levels in this CHASP will apply to all site work during the duration of project with the exception of actions levels established in the Unknown Materials Plan. Action Levels for direct-reading instruments are provided below and are based on a 15-minute average above background. Readings will be recorded in 15 minute average intervals. Readings will be recorded and be available for review by NYSDEC personnel.

This section presents requirements for the use of real-time air monitoring instruments during site activities involving potential for exposure to site contaminants. It establishes the types of instruments to be used, the frequency of which they are to be used, techniques for their use, action levels for upgrading/downgrading levels of protection, and methods for instrument maintenance and calibration.

The following action levels as measured in the breathing zone during work activities will be in effect during the entire project.

PID Monitor – VOC's

0 ppm – 2.5 ppm	Continue monitoring.
2.5 ppm - 5 ppm	Halt work, initiate vapor suppression
Greater than 5 ppm	Stop work

Combustible Gas Monitor

<10% LEL (ambient atmosphere)	Continue monitoring
>10%	Stop work. Evacuate the area. If levels remain elevated implement engineering controls
>20% LEL (ambient atmosphere)	Stop work and evacuate affected areas until levels <10% are measured.

Oxygen Monitor

<19.5% O2	Stop work and evacuate affected area until levels are >19.5% but <23.5% O2 are measured in ambient air, or >19.5% but <23.5% O2 is measured in a confined space.
>19.5% to 23.5% (ambient atmosphere)	Acceptable O2 levels for ambient atmosphere continue monitoring.
>19.5% to 23.5% (confined space)	Acceptable O2 levels for ambient atmosphere continue monitoring.
>25% (ambient atmosphere)	Fire/explosion hazard potential, stop work and evacuate.

Hydrogen Sulfide

0 ppm – 2.5 ppm	Continue monitoring
2.5 ppm – 5 ppm	Halt work, initiate vapor suppression
Greater than 5 ppm	Stop work

Particulate Matter (Worker Zone Readings)

Particulates Level no visible/<150 ug/m^3	Continue work
Particulates Level visible dust/>150 ug/m^3	Implement engineering/dust suppression, temporarily stop work, begin perimeter zone monitoring

Particulate Matter (Work Zone Perimeter Readings)

Particulates Level no visible/<100 ug/m^3	Continue work (above background)
Particulates Level visible dust/>100 ug/m^3	Implement engineering/dust suppression (above background)
Particulate Level visible dust/>150 ug/m^3	Stop work, implement engineering/dust suppression, restart work when levels decrease to below 150 mg/m^3

Gas Detector Tubes

Sulfuric Acid – 0.5 mg/m^3	Implement engineering controls
Acetic Acid – 2.5 ppm	Implement engineering controls
Sulfur Dioxide – 1 ppm	Implement engineering controls

Additionally, Level C (full-face or half-face air purifying respirators with organic vapor/acid gas cartridge/P100 or equivalent), shall be worn when potentially contaminated particulates become airborne.

8.4 AIR MONITORING REPORTING

Air Monitoring results will be reported daily or more frequently if required by the Owner's Representative. The results will be submitted on forms that include the following information:

- Site Location/Date
- Work Process/Operation Name
- Temperature, Wind Speed, and Wind Direction
- Area Sampling Location Diagram
- Instrument Calibration Documentation

In addition, to air monitoring reports field notes will be kept including the following information:

- Description of operations and worker or community complaints/symptoms
- Chemicals/Materials/Equipment in use
- Engineering/Administration controls in effect
- Worker PPE in use
- Sampling Operations/Comments

A hard cover log book will be kept by the SSHO to record the daily air monitoring activities. Any data from electronic data recorders will be downloaded at the end of each work day.

8.5 VAPOR AND DUST CONTROL PLAN

As a contingency, if the action levels are exceeded for either vapor or dust, engineering practices will be implemented to control the problem. This may include the use of vapor suppression activities (i.e., minimize or stop soil disturbance, and application of vapor suppression materials), dust suppression activities (i.e., RUSMAR, water trucks, water mist) and/or mechanical ventilation.

9. DECONTAMINATION PROCEDURES

Decontamination is the procedure to remove hazardous substances from employees and equipment to the extents necessary to preclude foreseeable health effects. It also prevents cross contamination between personnel, eliminates the potential for bringing contaminants home, and improves quality control and assurance with environmental sampling.

It is important to note the time duration of decontamination procedures. Many factors, such as environmental temperature, air supply, contamination and breakthrough potential will affect the time that personnel can remain within the PPE. Factors such as work time, distance from decontamination zone to work zone, work effort, and physical condition will also affect the capability to remain within PPE. The Decontamination Zone will be defined as the area in the Contamination Reduction Zone established for the decontamination of personnel. This will be a corridor established through which personnel can exit the exclusion zone for decontamination and exit the contamination reduction zone into the support zone after decontamination.

Decontamination is handled in several phases: gross or primary, secondary, and tertiary. These phases may be altered based on contamination or other conditions.

- Gross (primary) decontamination is the removal or neutralization of a majority of the contaminant. Gross decontamination is performed either in the exclusion zone or at the start of the decontamination zone. It is always assumed that there is a residual contamination present after gross decontamination.

- Secondary decontamination is the removal or neutralization of most of the residual contamination. This is performed in the middle of the decontamination zone. It is presumed that contamination is present after secondary decontamination.
- Tertiary decontamination and PPE removal is the final phase of decontamination. All remaining contamination is removed, and remaining PPE is discontinued. This is performed at the end of the decontamination zone, prior to the support zone. All contaminated PPE is disposed of within the decontamination zone.

There are several mechanisms of decontamination that can be used to decontaminate personnel and equipment. Each technique has particular positive and negative aspects in regards to personnel, resources, and time constraints. A particular technique for decontamination may work well for one contaminant, but not another. Several techniques of decontamination include: emulsification, chemical reaction and degradation, disinfection, dilution, absorption, and physical removal.

- Emulsification is the production of a suspension of material. The contaminant is emulsified into a form that is immiscible and insoluble in water. Emulsifying agents are typically used for non-polar liquids and insoluble solids. Emulsifying agents can include surfactant, soap, or detergents, check with manufacturer's recommendations for use.
- Chemical reaction is a process that neutralizes, degrades, or chemically alters the contaminant. Chemical neutralization may not assure that all hazards are eliminated, and reactions may be difficult or dangerous to perform. Chemical neutralization may cause exothermic or endothermic reactions and may damage PPE or living tissue.
- Disinfection with chemicals or bleach is used to destroy biological or pathological compounds.
- Absorption of chemicals into another substance.
- Physical removal of contaminants by brush / wipes / vacuum/water.

Decontamination procedures should be tailored to the specific hazards of the site and will vary in complexity and the number of steps, depending on the level of hazard and the employee's exposure to the hazard. Decontamination procedures and PPE decontamination will vary depending on the specific substance, since one procedure or method will not work for all substances. Evaluation of decontamination methods and procedures should be performed, as necessary to assure that employees are not exposed to hazards by reusing PPE (29 CFR 1910.120 (H) (3)).

The SSHO shall determine the level of decontamination necessary based on the evaluation of specific work activities and the potential degree of contamination encountered. Temporary contamination reduction zones shall be established at all sampling locations. Appropriate levels of Support Equipment shall be provided as deemed necessary by the SSHO.

9.1 PERSONNEL AND SMALL EQUIPMENT

Personnel will perform decontamination in the personal decontamination area upon entering the contamination reduction zone. The SSHO shall be responsible for ensuring all personal protective equipment is decontaminated before being reissued. Decontamination of personnel in Modified Level D will consist of removal and disposal of coveralls, disposable boots (when worn), and gloves. Decontamination of personnel using Level C protective equipment will consist of:

- Removal and disposal of boot covers.
- Removal and disposal of coveralls.
- Removal and disposal of outer gloves.

- Washing boots or other non-disposable protective equipment (i.e., hard hat, safety glasses/goggles, etc.) suspected of being contaminated using soap solution followed by potable water rinse. Collected decontamination fluids must be collected for disposal.
- Removal, cleaning, and storage of respiratory equipment.
- Removal and disposal of inner gloves.

Decontamination of personnel using Level B protective equipment will consist of:

- Outer boot and outer glove wash/rinse
- Removal and disposal of outer boot covers and outer gloves.
- Coverall wash/rinse
- Disconnect airline system
- Removal and disposal of coveralls.
- Washing boots or other non-disposable protective equipment (i.e., hard hat, safety glasses/goggles, etc.) suspected of being contaminated using soap solution followed by potable water rinse. Collected decontamination fluids must be collected for disposal.
- Removal, cleaning, and storage of respiratory equipment.
- Wash and rinse inner gloves
- Removal and disposal of inner gloves.

Contaminated wash solutions, contaminated soil or debris and PPE will be disposed of at an appropriate and licensed disposal facility. Hand tools and other small equipment will be decontaminated as needed by washing in decontamination basins. The Contractor will supply washing facilities with an adequate supply of potable water for personal hygiene as well as an appropriate number of pumps, hoses, portable water heaters, showers, water collection systems and pressure washers (cold water & steam) to decontaminate personnel and equipment. A list of this equipment with the appropriate technical data will be submitted to the Owner's Representative prior to the start of project activities.

9.2 CONTAMINATION PREVENTION

One of the most important aspects of decontamination is the prevention of contamination. Good contamination prevention should minimize worker exposure and help ensure valid sample results by precluding cross-contamination. Procedures for contamination avoidance include:

Personnel

- Know the limitations of all PPE being used
- Do not walk through areas of obvious or known contamination
- Do not handle or touch contaminated materials directly
- Do not sit or lean on potentially contaminated surfaces
- Make sure all PPE has no cuts or tears prior to donning
- Fasten all closures on suits, covering with tape, if necessary
- Take particular care to protect any skin injuries
- Stay upwind of airborne contaminants
- Do not carry cigarettes, gum, food, or candy into contaminated areas
- Do not smoke, eat, or drink in contaminated areas

- Shower at the end of the workday

Sampling/Monitoring

- Cover instruments with clear plastic, leaving openings for sampling ports, sensor points.
- Bag sample containers prior to placement of sample material into containers.

Heavy Equipment

- Limit the surface area of equipment that comes into contact with contamination.

General

- If contaminated tools are to be placed on non-contaminated equipment for transport to the decontamination pad, use plastic to keep the non-contaminated equipment clean.
- Place spoils from excavation work so as not to be in the expected paths of individuals.
- Keep excavated soils out of the way of workers.

10. ACCIDENT PREVENTION PLAN

Please refer to **Appendix E** of this plan for an Activity Hazard Analysis of each task for this project. These tables are used to identify the hazards associated with a particular task as well as identify controls to abate them. These tables are meant as a starting point in the hazard evaluation process. The SSHO will review and revise these tables before a task is started taking into account actual site conditions. These tables will then be reviewed with project personnel before the start of each task.

10.1 STANDARD OPERATING PROCEDURES

Charter will be responsible for supplying the equipment to perform the excavation. The operator shall be adequately trained and experienced with the type of machine. All safety precautions will be strictly followed, such as excavation sloping and clear swing radius. The swing zone will be identified with caution signs. Workers in the area of heavy machinery will acquire visual contact with the operator before entering into a zone impacted by the equipment.

10.2 ENGINEERING CONTROLS

The following engineering controls will be implemented during site operations:

- Excavations and trenches will be secured by a combination of the following: fences, caution tape, shielding barriers or barricades.
- All heavy equipment will have a functional back-up or movement alarm.

10.3 SAFETY EQUIPMENT

Basic emergency and first aid equipment will be available at the support zone and/or the contamination reduction zone, as appropriate. This shall include communications equipment, first aid kit, emergency eyewash, fire extinguishers and other safety-related equipment.

10.4 COMMUNICATIONS

10.4.1 Two Way Radios

Hand-held units shall be used as much as possible by field teams for communication between Exclusion Zone operations and the Support Zone.

Communication Equipment will be located in the Support zone for communication with emergency support services/facilities.

10.4.2 Compressed Air

Universal signals will be used to direct employees to evacuate a work area in the event of an emergency.

10.4.3 Hand Signals

Hand signals will be used between spotters and operators. These signals are very important when working with heavy equipment and will be agreed upon between the spotter and operator. Basic hand signals shall be known by all workers and will be addressed at the safety meeting. These hand signals are shown in **Table 10-1**.

Table 10-1: Basic Hand Signals

Signal	Meaning
Closed fist	Stop
Waving hand	Okay to move; Backing up trucks
Thumbs up	OK; I'm all right; I understand
Thumbs down	No; negative

10.5 SAFE WORK PRACTICES

The following safe work practices will be implemented during site operations:

- Prior to the start of work, this CHASP will be reviewed and conspicuously posted, and emergency phone numbers will be posted . Emergency phone numbers will include hospital, ambulance, fire and police.
- Only properly trained and equipped personnel will be allowed to work in potentially contaminated areas.
- The number of personnel and equipment in the excavation areas will be kept to a minimum, consistent with safe site operations.
- Workers shall adhere to the "buddy system" while working in the Exclusion Zone and in designated exclusion areas. Radio contact shall be maintained between pairs on-site in order to assist each other in case of emergencies.
- Workers shall not exit exclusion areas until soiled equipment and clothing have been removed and decontaminated or properly disposed of.
- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer, ingestion, and inhalation of potentially contaminated materials is prohibited.

- As necessary, personnel will thoroughly wash their hands and faces upon leaving the exclusion areas.
- Contact with potentially contaminated materials and surfaces shall be avoided. Personnel shall comply with contamination control measures.
- Personnel with facial hair or other face piece seal obstructions will not be permitted to work where respirators are required.
- Work shall only be conducted if adequate illumination is provided, i.e., visual observation is not impaired due to loss of daylight conditions.
- Sampling personnel shall not work near heavy equipment.
- No application of cosmetics.

10.6 EXCAVATION / TRENCH HAZARD

Collapsing of trench sidewalls may occur during excavation and trenching activities. No personnel will be required to enter unprotected trenches or excavations. The area around the excavations or trenches will demarcated to prevent access by personnel not involved in the work. Actions to minimize the potential for hazards related to these activities include:

- All excavation and trenching activities will be in accordance with OSHA 29 CFR 1926 (p) and 29 CFR 1910.650 – 1910.652.
- Lay back slope to a stable pitch. The construction Contractor's competent person must inspect sloping.
- Equipment and excavated material shall be placed no closer than 2 feet from the edge of the backfill.
- Barriers will be erected around trenches and excavations required to be left open to prevent personnel from falling.
- Install Temporary Excavation Support System around excavation areas that cannot be safely sloped.
- Heavy equipment not required for work activity will be kept away from the excavation.
- Personnel will not be permitted to enter the excavation without shielding or sloping in place.

10.7 MACHINERY AND MECHANIZED EQUIPMENT

Actions to be taken to minimize the potential for hazards related to the operation of machinery and other mechanized equipment include:

- Licensed & experienced operators will operate machinery.
- Heavy Equipment (e.g., Excavators, Dozers, Loaders, Off-Road Dump Trucks, Aerial lifts etc.) will be inspected daily before use by the operators. The inspection reports will be recorded by the SSHO.
- Equipment will be equipped with audible back-up/movement alarms
- Safety features such as belts covers, hose harnesses and warning lights/alarms will be used throughout these activities.
- Tag lines will be used when lifting items.
- All equipment will be locked out and tagged out prior to conducting repairs or maintenance. The person who placed it will only remove Lock/tag.
- Equipment capable of stopping, lowering and holding at least the full test load shall be provided.

- Riding on load, hoods, hammers, buckets, material hoists, etc. not meant for personnel is prohibited.
- The operator of hoisting equipment will not perform any other work or leave his/her position at the controls until the load has been safely landed or returned to ground level.
- Adequate clearance shall be maintained between moving or rotating parts of the equipment and fixed objects to allow for passage of personnel.
- Preventative maintenance will be performed regularly based on Charter's Equipment Maintenance Program based on equipment hours (reported weekly) and equipment inspections by the operators.

10.8 HAZARDOUS MATERIALS

Hazardous Material (Department of Transportation) is defined as any substance or material in a quantity or form that poses an unreasonable risk to health, safety, or property when transported. A hazardous substance (Environmental Protection Agency) is any substance designated under the Clean Water Act and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) that pose a threat waterways and the environment when released. An extremely hazardous substance presents a hazard to the community during an emergency spill or release, as a result of its toxicity, chemical, and physical properties (required reporting under SARA Title III). Hazardous waste (DOT & EPA) is a substance that is ignitable, corrosive, reactive, toxic, or which may pose a substantial or potential hazard to human health and safety or the environment when improperly managed.

Actions to be taken to minimize the potential for hazards (refer to Section 3.0) related to personnel who may come in contact with hazardous materials include:

- Hazardous materials expected to be on-site will be discussed at the morning safety meeting. The CHASP, including MSDS copies, will be kept on-site.
- Workers will use appropriate Personal Protective Equipment for each phase of work, as described in Section 7.0.
- Worker exposure will be monitored by the contractor to ensure an adequate level of protection.
- Standard Operating Procedures will be followed for loading and sealing containers and trucks, which may contain hazardous materials.
- Control zones will be established as described in Section 6.0.
- The directives of the SSHO will be followed for emergency supplies, response and spill cleanup procedures.
- If a spill occurs, the area will be sampled and tested to assure complete cleanup. All Local, State, and Federal requirements will be followed to eliminate the spill and reduce impact to off-site receptors.

10.9 MISCELLANEOUS HAZARDS

Actions to be taken to minimize the potential for hazards associated with on-site activities not previously addressed (e.g., operation of power tools, vehicular traffic control, etc.) include:

- Only trained personnel are to use power tools. Operation of power tools will be as specified by the manufacturer. American National Standards Institute (ANSI) rated safety glasses and protective guards will be employed. Ground fault circuit interrupters will be used on all

electrical connections. All extension cords will be for heavy duty usage, have a ground prong and be free from cuts and abrasions.
- DOT approved containers will be used to store all fuels.
- Shutdown of engines will be performed prior to any fueling/refueling or servicing activities. Power cords will be disconnected when not in use.
- A fire extinguisher will be on hand in each work area. This fire extinguisher shall be rated ABC for all minor fire suppression applications.
- Open flames will not be allowed in the work area.
- Equipment will be inspected and removed from service and locked out and tagged out if not in good working condition.
- Site Housekeeping will be maintained with covered containers for trash. Trash will not be left out where it would be accessible to wildlife.
- Portable restrooms will be supplied and kept in a sanitary state with a sufficient number for the size of the crew. Worker wash stations will be provided at these locations as well.
- The SSHO will warn employees of all potential traffic hazards before starting activities involving exposure to traffic.
- All workers working within traffic exposure areas shall wear fluorescent orange safety vests with orange, white or yellow reflector materials.
- No smoking, eating, or drinking will be allowed in the Exclusion and Contamination Reduction Zones. Employees will be allowed to eat, drink, and rest only in designated areas.
- Construction barricades, warning signs, traffic cones and other devices shall be used appropriately to minimize potential exposures to vehicular traffic.
- Utility notifications and clearances will be performed prior to any intrusive activities. Minimum clearances with overhead utilities will be maintained at all times.

11. ADVERSE WEATHER CONDITIONS

In the event of adverse weather conditions, the SSHO will determine if work can continue without endangering the health and safety of field workers. Some items to be considered before determining if work should continue are:

- Intensity of adverse weather conditions
- Potential for heat stress and heat-related injuries
- Potential for cold stress and cold-related injuries
- Treacherous weather-related working conditions
- Slip and fall conditions from water and precipitation
- Limited visibility
- Potential for electrical storms
- Water reactivity of chemicals
- Offsite migration potential and worsening of site conditions / incident
- Electrical Services in standing water

11.1 HEAT EXPOSURE

Heat exposure is a function of activity, temperature, humidity, solar intensity, work heat (welding, cutting), and PPE (Tyvek). The body will react to heat by attempting to shed excess heat. Signs and symptoms of heat exposure:

- Muscle cramping
- Dizziness and disorientation
- Nausea and vomiting
- Altered levels of consciousness
- Headache
- Loss of consciousness
- Cold clammy skin (dangerous sign of excessive sweating)
- Hot dry skin (extremely dangerous sign of dehydration)

11.1.1 Heat Stress

Heat stress is localized reactions of muscles, typically in the legs and abdomen, to heat. It is caused by activity and operations in heat without appropriate rest breaks or rehydration. It is easily preventable with appropriate breaks and fluids.

11.1.2 Heat Exhaustion

The body attempts to cool itself with sweating. As it reaches the breaking point, a condition known as heat exhaustion develops. Heat exhaustion can rapidly develop into heat stroke. Treatment of heat exhaustion:

- Stop work.
- Decontaminate as appropriate.
- Allow to rest.
- Re-hydrate victim with water only.
- Remove heavy clothing, PPE, or wet clothes.
- Allow victim to cool off, provide dry and wet towels to maintain body temperature.
- If victim condition does not improve in 15 minutes, arrange transport to emergency medical facility.

11.1.3 Heat Stroke

Heat stroke is a life threatening medical condition due to the body's inability to shed excess heat. The exposure to excessive heat causes the body to dehydrate itself due to the continued attempt of sweating. The skin becomes hot and dry and the body starts to go into shock, as there is not enough fluid to function effectively. Heat stroke can lead to cardiac problems, respiratory problems, liver and kidney problems and rapidly lead to death. Heat stroke must be treated by an emergency medical facility. Treatment of heat stroke:

- Stop work
- Decontaminate as appropriate
- Remove heavy clothing, PPE, or wet clothes
- Allow victim to cool off, provide wet towels to reduce body temperature
- Contact 911 for treatment to emergency medical facility

11.1.4 Prevention of Heat Exposure

Prevention of heat exposure is easy and effective. The SSHO shall visually monitor personnel to note for signs of heat stress. In addition, field personnel will be

instructed to observe for symptoms of heat stress and methods on how to control it. One or more of the following control measures can be used to help control heat stress:

- Provision of adequate liquids to replace lost body fluids. Employees must replace water and salt lost from sweating. Employees must be encouraged to drink more than the amount required to satisfy thirst. Thirst satisfaction is not an accurate indicator of adequate salt and fluid replacement.
- Replacement fluids should consist of water and smaller quantities of a commercial mixes such as Gatorade.
- Establishment of a work regime that will provide adequate rest periods for cooling down. This may require additional shifts of workers.
- Cooling devices such as vortex tubes or cooling vests can be worn beneath protective garments.
- All breaks are to be taken in a cool rest area (77o F is best).
- Employees shall remove impermeable protective garments during rest periods.
- Employees shall not be assigned other tasks during rest periods.
- Employees shall be informed of the importance of adequate rest, acclimation, and proper diet in the prevention of heat stress.
- The heat stress of employees on-Site may be monitored by the Wet Bulb Globe Temperature Index (WBGT) technique when workers are not wearing protective coveralls (i.e. Tyvek). This method will require the use of a heat stress-monitoring device. Monitoring of personnel wearing impervious clothing shall commence when the ambient temperature is
- 70^{o} F or above. A person with a current first aid certification and who is trained to recognize symptoms of heat stress will perform this.

11.2 COLD EXPOSURE

Persons working outdoors in temperatures at or below freezing may be subject to injury from cold exposure. Extreme cold for a short time may cause severe injury to the surface of the body (frostbite), or result in profound generalized cooling of the body core (hypothermia), resulting in coma and death. Areas of the body, which have high surface area-to-volume ratio such as fingers, toes, ears, are the most susceptible.

Two factors influence the development of a cold injury: ambient temperature and the wind velocity. Wind chill is used to describe the chilling effect of moving air in combination with low temperature. For instance, 10oF with a wind of 15 miles per hour (mph) is equivalent in chilling effect to still air at -18oF.

As a general rule, the greatest incremental increase in wind chill occurs when a wind of 5 mph increases to 10 mph. additionally, water conducts heat 240 times faster than air. Thus, the body cools suddenly when chemical-protective equipment is removed if the clothing underneath is perspiration-soaked.

11.2.1 Frostbite

Frostbite is a localized injury resulting from cold. It occurs when skin tissue becomes cold enough and freezes. Frostbite of the extremities can range from minor to severe and characterized by:

- Skin has a waxy or white appearance
- Skin is cold and pale
- Tingling or numb

Prevention of frostbite is vital. Keep the extremities warm. Wear insulated clothing as part of one's protective gear during extremely cold conditions. Check for symptoms of frostbite at every break. The onset is painless and gradual--you may never know you have been injured until it is too late.

Treatment:

- Bring the victim indoors.
- Remove any wet clothes and replace with dry/warm blankets.
- If fully conscious, allow the patient to drink warm fluids. Avoid alcoholic, carbonated or caffeinated drinks.
- Submerge the affected body part in warm water (102oF to 105oF). Keep affected part submerged for 30 minutes. Do not use heat lamps or hot water bottles to rewarm the part.
- Do not break blisters.
- Cover affected areas with sterile, soft, dry material.
- Do not rub the frostbitten part.
- Do not apply ice, snow, gasoline, or anything cold on frostbite.
- Do not place the victim near a hot stove.
- Keep victim warm and get immediate medical care. After thawing, the victim should try to move the injured areas, but no more than can be done alone (without medical help).
- If the victim has more than one body part affected, or if a large area are affected, then the victim should be transported to a hospital for medical evaluation.

11.2.2 Hypothermia

Hypothermia is caused by exposure to temperatures less than 80F. It is caused when the body cannot adjust to decreased environmental temperatures. It does not have to be below freezing to cause hypothermia.

Symptoms of hypothermia include:

- Shivering.
- Apathy, listlessness, sleepiness, and (sometimes) rapid cooling of the body to less than 95oF.
- Decreased mental status including unconsciousness.
- Glassy stare.
- Decreased pulse, and respiratory rate.
- Freezing of the extremities.

Hypothermia is life threatening and should be treated immediately. Treatment should include:

- Remove patient from exposure.
- Removal of wet clothes and application of warm/dry blankets.
- Continuous monitoring of patient. Do not leave him/her alone.

- If fully conscious, allow the patient to drink warm fluids. Avoid alcoholic, carbonated or caffeinated drinks.
- If patient is or becomes unconscious, or does not respond to treatment, then immediate transport to medical facility is required.

11.2.3 Prevention of Cold Exposure and Injury

Preventative measures can save time and money in the long run.

Preventative measures include:

- Clothing and PPE that is appropriate to the environment and task being performed
- Modifying work activities to account for wind chill and cold
- Appropriate breaks and fluids to maintain body temperature

Workers exposed to temperatures below -10o F with wind speeds of more than 5 miles per hour should be medically certified by the Physician as suitable for such exposure. The ultimate responsibility for delaying or curtailing work at a site due to inclement weather rests with the SSHO.

12. BLOODBORNE PATHOGENS

Exposure to Blood borne pathogens presents a very real risk to any workers dealing with machinery, construction, or other areas with potential injury. Handling of soils without gloves will not be permitted. With any injury resulting in cuts, lacerations, and bleeding, there is a potential exposure to Blood borne pathogens, including hepatitis B, and human immunodeficiency virus (HIV).

The OSHA standard (29 CFR 1910.1030) applies to all employees that have potential exposure to blood or potentially infectious materials. While the standard is defined for maritime applications rather than construction applications, construction workers (and similar) are covered under the General duty clause (section 5(a) (1)). OSHA defines blood as human blood, human blood components, or products made from human blood. OHSA defines other potentially infectious materials as saliva, semen, vaginal secretions, cerebrospinal fluid, synovial, plural, pericardial, peritoneal, and amniotic fluids

Employees that are trained and designated to render first aid or medical assistance as part of their job duties are required to be made aware of the hazards associated with blood borne pathogens and must be given the opportunity to receive appropriate vaccinations (consult with professional medical personnel in regards to appropriate vaccinations).

12.1 EXPOSURE CONTROL PLAN

Universal precautions (also known as body substance isolation precautions), including medical rated disposal gloves must be worn in all first aid and medical treatment. These precautions will include face shields and splash protection as necessary.

Reporting procedures for medical incidents and Blood borne pathogen exposures shall include names and first aid providers, a description of the incident, including date and time, and if an exposure incident occurred. These reports must be filed with SSHO prior to end of shift.

If there is an exposure to blood borne pathogens, then the SSHO and PM shall be notified and the exposed worker will wash exposed body parts with warm soapy water and seek medical attention within 24-hours of the incident.

12.2 DECONTAMINATION AND DISPOSAL

All equipment that may be contaminated shall be decontaminated prior to servicing and shipping. Washing and scrubbing contaminated equipment with a 10% bleach solution can achieve decontamination of blood borne pathogens. Gloves, face shield, and appropriate splash protection must be used to decontaminate equipment. These items are part of the Blood borne pathogens clean-up kit which will be kept in the office trailer.

Materials that have been contaminated with blood or body fluids that cannot be appropriately decontaminated shall be bagged in a plastic biohazard container (29 CFR 192.25). These biohazard materials must be disposed of at an appropriate facility. Contaminated materials that must be bagged and disposed consist of any materials that contain liquid or semi-liquid blood, or caked blood. Contaminated material should be bagged and given to Ambulance or medical personnel for appropriate disposal.

Needles or "sharps," including items used for IV access, phlebotomy, or injections will not be used at the job site. Sharps containers will not be provided. Any personnel requiring the use of sharps, i.e. diabetics requiring frequent, self-administered injections, will provide appropriate containers and dispose of personal waste.

Clothing can be cleaned at an appropriate dry cleaner. The dry cleaner organization shall be notified of the contaminated material and be advised to the potential hazards. Contaminated laundry shall be bagged or containerized as to eliminate potential of soak through or leakage of fluids. Employees should not be permitted to take contaminated clothing home and launder it.

13. NATURAL HAZARDS

13.1 BEES / HORNETS / WASPS

Bees, hornets, and wasps can present a hazard. They can become a distraction or nuisance, or may present a greater hazard due to stings.

Some personnel may be highly allergic to the venom present in stings. This is a serious condition and can result in death. These personnel typically carry special devices known as "epi-pens," to counteract the body's response to the venom. If a person is stung and requires and "epi-pen," then assist the patient with the use of the device. These pens are a temporary measure and require further evaluation at a medical facility. Contact an ambulance for emergency transport to hospital. Do not transport patient by car.

Remove any implanted stingers by scraping the area with a credit card. Do not pinch the stinger with finders or tweezers; this will force the stinger to inject more venom, increasing the pain.

If any nests of bees, hornets, or wasps are discovered, notify the SSHO. The SSHO shall take appropriate steps to reduce or eliminate the hazard.

13.2 POISON IVY / POISON OAK / POISON SUMAC

If someone should come in contact with poison ivy, poison sumac, or poison oak, the individual should immediately wash the affected area with Ivy Cleaner provided in the first aid kit. If a rash develops, it should be treated at a medical facility as soon as possible. Some

individuals are highly allergic to poison ivy, poison sumac, or poison oak, if exposed, seek immediate medical help.

13.3 ANIMALS: RATS / RODENTS / RACCOONS

Care should be taken with respect to rodents. If rodents are noticed then the Engineer and SSHO should be notified so the appropriate pest control personnel can be contacted.

There are a wide variety of bacteria, viruses, and diseases associated with rodents and similar animals. While there is the potential for bites and attacks, it is rare, due to the activity level on a job site. Most animals will steer clear of human activity and only approach the site at night.

Any incident regarding bites and animal attacks need to be reported to local authorities (Police). Have patient transported by ambulance to Emergency medical facility for evaluation of the bite/attack. The SSHO will initiate a stop work order pending the investigation by Police or Animal Control.

13.4 AVIANS: PIGEONS / SEAGULLS

Birds can present a nuisance at a job site, in terms of noise, excrement, and activity around eating areas. Bird excrement is considered a hazardous substance. There are a wide variety of fungal and viral organisms that reside in bird droppings. These organisms can be spread by direct contact or inhalation. It is important to note that nesting at air intake ports, such as ventilation shafts, have been known to spread fungal spores into buildings, where they are easily inhaled.

Histoplasma capsulatum is a fungus that is found in pigeon excrement. This fungus can cultivate in piles of droppings and emit spores. These spores can be inhaled and cause the respiratory infection “histoplasmosis.” Histoplasmosis exhibits symptoms similar to the flu, and can persist for several weeks. Any suspected exposure or flu-like symptoms should be evaluated by a Doctor.

Other concerns regarding birds are associated with fleas, ticks, and other parasites. These various insects can be spread when birds clean themselves in water sources, where they can attach to personnel walking by.

Care should also be exercised when pigeon or sea gull droppings are encountered. Appropriate PPE, including gloves and facemasks, should be used when dealing with these types of material in order to avoid direct contact or inhalation. It is important to report any bird colonies or infestations to a supervisor or SSHO. Bird infestations should be handled by a pest control professional with experience in bird control.

13.5 TICKS

Ticks are extremely prevalent in the warmer months at the project site. Particular care should be taken to protect personnel. Deer tick nymphs and adults may carry germs that cause Lyme Disease, babesiosis or human granulocytic anaplasmosis (ehrlichiosis). American dog ticks can carry germs that cause Rocky Mountain spotted fever and tularemia.

Ticks are generally found in wooded or grassy habitats, near the ground. Deer Ticks may be active year-round, but spring, summer and fall are seasons of high risk. Dog ticks are most active in spring and summer.

Personnel should use appropriate insect repellants as well as wear light colored clothing. Personnel should perform regular tick checks.

If ticks are found and are attached to the skin they should be removed at once using a tick removal kit. Wash hands thoroughly after handling a tick. The SSHO should be notified.

14. RECORDKEEPING

The following records and reports will be established and retained by the contractor.

- Accident/Incident/Exposure Reports
- Daily Safety Logs
- Air Monitoring Records
- Employee Training Certificates
- Health and Safety Audit Reports
- Instrumentation Calibration Logs
- Material Safety Data Sheets/Chemical Data Sheets

All logs and reports shall be provided to the Engineer by the Contractor on a daily basis.

15. PLAN ACKNOWLEDGEMENT

By their signature, the following undersigned certify that this Plan has been read, or otherwise communicated to them. They further certify that they completely understand this plan and will follow its procedures for the protection of the health and safety of persons entering upon this Site.

Name	Company	Date

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APPENDIX A

Personnel Resumes

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CHARTER

EDWARD (ED) PRICE

Health & Safety Director | Charter

PROFESSIONAL HIGHLIGHTS

Ed has 12 years experience as Charter's Health and Safety (H&S) Director. His experience, discipline, and attention to detail has led to the quality recognition of Charter's safety program. Under Ed's leadership, Charter has achieved no lost time since 2008 and zero reportable incidents since 2009, while executing remediation of former MGP and coal tar sites, complex mass excavations, high hazard demolition, dredging, and heavy civil construction projects. Ed has a unique understanding of construction safety from both the compliance and job-site perspective. His careful pre-planning and analysis of project specifications and work plans, results in site-specific Health & Safety Plans (HASP) that identify job safety analyses for definable features of work, proper PPE, equipment, training and ultimately a safe project work environment. Ed conducts unannounced HASP audits at Charter's sites and works closely with Charter's on-site HASP officer to ensure that the site specific HASP is being properly implemented.

EXPERIENCE

Professional Background

- Health & Safety Director, Charter Environmental, 2002 - Present
- Operations Manager, Clean Venture, Framingham, MA, 1995 - 2002
- Technical Services Manager, Northland Environmental, Providence, RI, 1994 - 1995
- Operations Manager, Triumvirate Environmental Boston, MA, 1988 - 1993

Years of Experience

- 26 years of experience

Education

- BS, Resource Economics, University of New Hampshire

Licenses/Certifications

- OSHA #3095 Electrical Standards Training
- National Grid ISNetworld Safety Compliance Reporting Training
- OSHA 40 Hr Hazardous Waste Operations & Emergency Response Training and 8 Hr Refresher
- OSHA 8 Hr HAZWOPER Supervisor Training
- OSHA #510 Occupational Safety and Health Standards for the Construction Industry Training
- OSHA #3010 Trenching, Excavation and Soil Mechanics
- OSHA #3110 Fall Arrests System Training
- OSHA #7405 Fall Hazard Awareness for the Construction Industry
- OSHA #7505 Intro to Accident Investigation
- OSHA #7845 Record Keeping Rule Training
- Safety & Health Specialist Certificate in Construction – OSHA Training Institute
- NCS #201 Rigging Techniques/ Inspection Course
- First Aid/CPR Training
- North Respirator Training Certification
- DOT HM 215A Haz Materials Transportation Training
- DOT 8 Hr Hazardous Waste Training
- Incident Command Emergency Response Training
- OSHA 30 Hr Construction Safety Training
- OSHA 10 Hr Construction Safety Training
- Asbestos Supervisor License: MA, RI, ME
- Exxon Mobil LPS 8 Hr Training
- MA Deleading Supervisor License
- OSHA Hazard Communication Training
- Confined Space Entry Training
- USACE Construction Quality Management for Contractors Training

CHARTER

RICHARD (RICH) BADIS

Operations Manager | *Charter*

PROFESSIONAL HIGHLIGHTS

Rich is a results-oriented environmental professional with over 25 years of expertise completing complex remediation projects. He has a successful track record for the completion of over 40 environmental remediation projects by developing productive relationships with project owners, engineers, subcontractors, vendors and project staff to deliver on-time, within budget and technically superior work. Rich has excellent skills in project estimating, proposal development, constructability reviews, work plan development and implementation. He is experienced with both government and commercial work programs and contracting mechanisms. As an Analytical problem solver, Rich collaborates with clients to implement cost-effective and timely solutions. He is skilled in developing and maintaining excellent client relationships and in project team-building.

EXPERIENCE

Professional Background

- Operations Manager, Charter Environmental, Inc., Boston, MA, 2014 - Present
- Operations Manager, Sevenson Environmental Services, Inc., 2009-2014
- Project Manager, Sevenson Environmental Services, Inc., 1992-2009
- Project Engineer, Canonie Environmental, 1991-1992
- Project Superintendent, VFL Technology, 1988-1991

Selected Project Experience

- Shpack Landfill Site, Norton, MA
  Excavation of low level rad impacted soils, and other non-hazardous soils from a former FUSRAP site. Over 19,000 tons of low level rad soil was sent to Utah for disposal. Project also required the construction of 5.2 acres of wetlands.
- Former Bridgeton MGP Site, Bridgeton NJ
  Project involved the excavation and removal of over 60,000 tons of MGP impacted soil, installation of a 27,000 SF sheet pile bulkhead along the Cohansey River, a 17,000 SF retaining wall up to 65 feet deep, bypass pumping operations, installation of a 750 GPM groundwater treatment plant and dewatering operation. The project also required demolition of the former gas holders, pole barn, and numerous utilities.
- Cecil County Landfill Expansion, Elkton, MD
  Project required the relocation of over 800,000 CY of MSW wastes, construction of a new landfill cell in stages to accommodate the waste relocation, extensive site grading work, installation of multilayer geosynthetics, installation of Leachate collection system, and installation of temporary and permanent erosion control features. Project was awarded the 2012 Project of the Year Award in the Large Project Category from the County Engineers Associates of Maryland.
- Kim-Stan Landfill Superfund Site, Covington, VA
- Former Glassboro MGP Site, Off-site Stream Measures, Glassboro NJ
- Newport Landfill Superfund Site, Newport, DE
- Austin Avenue Superfund Site, Lansdowne, PA

Years of Experience

- Over 25 years of construction management experience

Education

- B.S., Environmental Engineering Technology, Temple University
- B.S., Forest Resource Management, West Virginia University

Licenses/Certifications

- Hazardous waste site training per 29 CFR 1910.120
- MCACES Estimate Training
- USACE Construction Quality Management for Contractors Training
- Primavera and Suretrak Training
- H. Silver and Associates Proposal Writing Workshop
- Red Cross CPR and First Aid

CHARTER

BRENT PECKIS

Site Superintendent | Charter

PROFESSIONAL HIGHLIGHTS

Brent has 29 years of experience in managing complex environmental remediation projects. As a skilled and knowledgeable site superintendent, Brent has successfully and safely completed challenging projects that included multi-story building demolition, contaminated sediment and soil excavation, dewatering and water treatment, waterway dredging and marine work, and site restoration. Brent is responsible for ensuring that company resources are being efficiently utilized to meet daily production requirements in accordance with the established project schedule.

EXPERIENCE

Professional Background

- Site Superintendent, Charter Environmental, Inc., 2014
- Site Superintendent, WRS Compass, 2012 - 2014
- Site Superintendent/ Project Manager, Panther Technologies, Inc., 2005 - 2012
- Remedial Operations Manager, AWT Environmental Services, Inc., 1993 – 2004
- Operations Manager, Geo-Con, Inc. 1985 – 1992

Selected Project Experience

- Former, Paulsboro MGP Remediation Project, PSE&G, Paulsboro, NJ
- Former Somerville MGP Remediation Project, PSE&G, Medford, NJ
- Medford Lakes Sediment Removal Dredging Project, OWNER, Medford Lakes, NJ
- Bass River Remediation and Restoration Project, Evergreen Environmental, Inc. Bass River, NJ
- Imperial Oil Superfund Soil and Sediment Remediation Project, NJDEP, Marlboro, NJ
- Chemical Manufacturing PCB Creek Sediment Remediation, Confidential Client, NJ
- Old York Remedial Action Project, Ashland Hercules, Inc. Burlington, NJ

Years of Experience

- Over 29 years of construction experience

Education

- B.S., Biology, Fairleigh Dickinson University, Madison, New Jersey
- M.S. Ocean Engineering, University of Bridgeport, Bridegeport, CT

Licenses/Certifications

- OSHA 40 Hr HAZWOPER Training and 8 Hr Refresher
- OSHA 8 Hr HAZWOPER Supervisor Training
- OSHA Competent Person Training

CHARTER

DAVID DURHAM

Project Foreman | *Charter*

PROFESSIONAL HIGHLIGHTS

David is responsible for the safe execution of work activities to be performed on the Project assigned. Direct field work performed by site contracts and as directed by Management. Provide communication and required documentation of field work to Project Manager/General Superintendent. Supervise coordination of individual subcontractors and staff during work activities. Inspect material deliveries and complete work for compliance with contract documents. Perform field measurements and calculations for contract payments. Maintain daily and weekly reports and photo-documentation of work by contractors and staff. Ensure compliance with Charter Health & Safety Program.

EXPERIENCE

Professional Background

- Project Foreman, Charter Environmental, Inc., 2005 - Present
- Manager - Automotive Maintenance Department, Worcester County Sheriff's Department, 1998 - 2004

Selected Project Experience

- USACE Tobyhanna Army Depot Building 22, Tobyhanna, PA
- Watch Factory, Waltham, MA
- Melville Housing, Balfour Beatty Construction US, Portsmouth, RI
- Release Abatement Measure, Excavation of Tar-Impacted Soil, Former Benzol and Byproducts Plant, Everett, MA
- USACE Atlas Tack Corporation Superfund Site
- USACE Devens Phase II Pesticide Remediation, Devens, MA
- USACE Devens Urban Assault Course, Devens, MA
- US Navy Building 95 Officers Club Demolition and Abatement, Newport Naval Station, RI
- US Navy Demolition of Fleet Cold Storage Building 42, Newport, RI
- US Naval Submarine Base Building 1, 2, 3, 138, 154 & CT-380 Abatement & Demolition, New London, CT
- USAF SABER, New Boston Air Force Station, NH
- Asbestos Abatement and Demolition of Army Family Housing, Picatinny Arsenal, NJ
- USACE Asbestos Abatement and Demolition of Army Family Housing, Picatinny Arsenal, NJ

Years of Experience

- 16 years of experience

Education

- AS, Quinsigamond Community College

Licenses/Certifications

- OSHA 30-Hour and 10-Hour Construction Safety Training
- OSHA 40-Hour
- OSHA 8-Hour Refresher
- USACE Construction Quality Control Management for Contractors
- CDL Drivers License
- 2A Hoisting Engineers License
- Trenching and Shoring Safety Training
- Lead and Asbestos Awareness Training
- Asbestos Abatement Supervisor License
- First Aid & CPR
- HAZWOPER Site Supervisor Training
- Excavation & Trenching Training
- Fire Extinguisher Training
- MA Hydraulic License

APPENDIX B

Health & Safety Forms

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Daily Safety Briefing Sign-in Sheet (Attach Additional Sheets if Necessary)			Date:	
Contract No.:	Project Title:	Former Pratt Oil Works Site	Report No.:	
	Location:	38 Review Ave, Long Island City, NY	Weather:	
Prime Contractor: **Charter Environmental, Inc.**		Briefing Presenter:		
Briefing Topic(s)				
Task(s) Today:				
Potential Hazards:				

Site Personnel Information

Name – Print Clearly / Company	Signature	Time In	Time Out

Remarks/Discussions:

Safety is each employee's responsibility. Review your work place, tools and equipment daily. Report damage to your supervisor, remove unsafe equipment from use. Report unsafe work practices to your supervisor or the Site Safety & Health Officer. If you have questions or comments, contact Edward Price, Health & Safety Director, Charter Environmental, Inc. at 617-593-0997 or eprice@charterenvironmental.com

Site Safety & Health Officer Signature:		Date:

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APPENDIX C

Emergency Route Map

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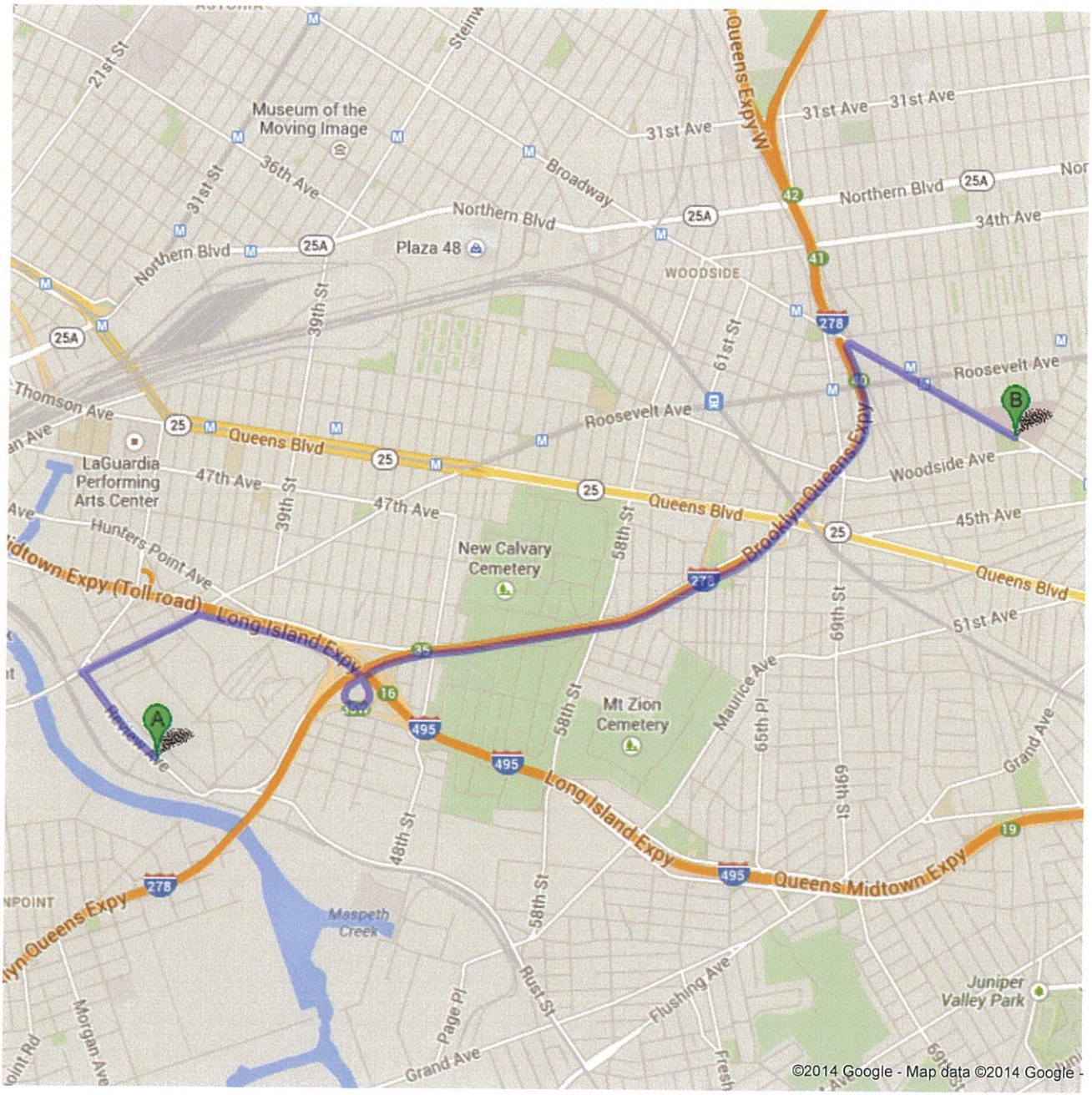
Google

Directions to Elmhurst Hospital Ambulatory
79-01 Broadway, New York, NY 11373
4.0 mi – about **9 mins**
Elmhurst Hospital Center



38-42 Review Ave, Long Island City, NY 11101

1.	Head **northwest** on **Review Ave** toward **Railroad Ave** About 1 min	go 0.3 mi total 0.3 mi
2.	Turn right onto **Greenpoint Ave** About 1 min	go 0.4 mi total 0.7 mi
3.	Turn right onto the **Interstate 495 E** ramp to **Long Island Expressway/Eastern Long Island** About 52 secs	go 0.3 mi total 1.1 mi
4.	Follow signs for **I-278 E/La Guardia/Airport/Bronx/I-495 Alt/Maurice Ave**	go 0.2 mi total 1.2 mi
5.	Take exit **17E** to merge onto **I-278 E** toward **La Guardia/Airport/Bronx** About 3 mins	go 2.1 mi total 3.3 mi
6.	Take exit **40** for **Broadway** toward **Roosevelt Ave**	go 0.1 mi total 3.5 mi
7.	Sharp right onto **Broadway** Destination will be on the left About 2 mins	go 0.5 mi total 4.0 mi

Elmhurst Hospital Ambulatory
79-01 Broadway, New York, NY 11373

APPENDIX D

Emergency Contacts

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EMERGENCY NUMBERS

Former Pratt Oil Works Site

38-52 Review Avenue, Long Island City, NY

Responder or Contact	*Number*
Hospital – **Elmhurst Hospital Center**	**718-334-4000**
First Aid Responders	**911**
Ambulance/Rescue	**911**
Fire	**911**
Police	**911**
Physician (Concentra)	**978-657-3826**
Poison Control Center	**1-800-222-1222**
HAZMAT Team – **Clean Harbors**	**800-645-8265**
Regional OSHA Office	**718-279-9060**
NY DEC – Spill Reporting	**800-457-7362**
Chemtrec (For Large Chemical Spills)	**1-800-424-0300**
Miscellaneous Emergency Contact	**Ed Price (617) 593-0997**

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APPENDIX E

Activity Hazard Analysis Tables

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1 – Mobilization/Site Preparation		
Principal Steps *Identify the principal steps involved and the sequence of work activities.*	Potential Safety / Health Hazards *Analyze each principle step for potential hazards.*	Recommended Controls *Develop specific controls for each potential hazard.*
▪ Transport personnel, equipment, materials, and supplies to work site. ▪ Layout work zones; install temporary fencing and erosion control around the active work areas; secure water source; Contact NYC One-Call; identify overhead and underground utilities; identify parking and material storage areas; set up support facilities for, storage and worker hygiene/decontamination, ▪ Set-up temporary construction power ▪ Perform existing conditions survey ▪ Construct equipment tracking/decontamination pad ▪ Construct equipment fueling area	Chemical/Toxicological Hazards: ▪ VOCs ▪ Diesel Fuel/Gasoline Biological Hazards: ▪ Insects/Rodents Physical Hazards: ▪ Dust ▪ Energized Utilities ▪ Moving vehicles/equipment ▪ Struck By ▪ Fire	▪ Level D PPE with reflective vests ▪ Modified Level D if asphalt is breached ▪ Employee Wash Stations ▪ Emergency First Aid/Eye Wash Station ▪ Hazwoper Trained Personnel ▪ Review Insect/Rodent exposure hazards ▪ Utilize insect repellants on skin and clothing ▪ Movement Alarms on Heavy Equipment ▪ Equip support Areas with dry chemical fire extinguishers ▪ Utilize qualified electricians for temporary power ▪ Utilize dust suppression equipment as needed
Equipment Expected To Be Used *List equipment to be used in the work activity.*	Inspection Requirements *List inspection requirements for the work activity.*	Training Requirements *List training requirements including hazard communication.*
▪ Pickup trucks ▪ Hand and power tools ▪ Wheeled Loader ▪ Tracked Hydraulic Excavator ▪ Survey equipment and instrumentation ▪ Air Monitoring Equipment ▪ Mobile Office Trailer ▪ Decon Trailer ▪ Ground level storage containers ▪ Grout Pump ▪ Bucket truck ▪ Dust Suppression Equipment	Site Inspection: ▪ Daily inspection by Site Safety Officer. Equipment: ▪ Ensure equipment is tested and inspected by a qualified person before placed into use. ▪ Conduct equipment inspections daily. Air Monitoring Equipment ▪ *Zero* Instruments daily prior to use ▪ Calibrate instruments per instrument manufacturer's instructions	Site-Specific: ▪ Initial HASP/AHA review with Charter personnel and subcontractors ▪ Electrical Safety ▪ Hazard Communication Review Supervisory Personnel ▪ SSHO – OSHA 30 Hr Construction Outreach ▪ Hazwoper 8 Hr – Supervisor Training ▪ First Aid/CPR Training Instrumentation and Equipment General: ▪ Employees shall be qualified and trained to operate or service mechanical equipment. ▪ Daily tailgate with applicable jobsite safety topics

2 – Removal of Asphalt & Non-Acidic Fill		
Principal Steps	Potential Safety / Health Hazards	Recommended Controls
Identify the principal steps involved and the sequence of work activities.	*Analyze each principle step for potential hazards.*	*Develop specific controls for each potential hazard.*
▪ Layout Work Zones ▪ Locate Overhead/Underground Utilities ▪ Set-up dust/odor suppression equipment ▪ Saw-cut asphalt for each treatment cell ▪ Stockpile asphalt material ▪ Excavate 0-5' non acidic fill ▪ Stockpile non acidic fill ▪ Treat fill with odor suppressant and/or cover with tarps/polysheeting	Chemical/Toxicological Hazards: ▪ VOCs ▪ Diesel Fuel/Gasoline Biological Hazards: ▪ Insects/Rodents Physical Hazards: ▪ Dust ▪ Moving vehicles/Heavy equipment ▪ Overhead Hazards ▪ Fire ▪ Struck by ▪ Noise	▪ Modified Level D PPE with reflective vests ▪ Employee wash stations ▪ Emergency First Aid/Eye Wash Station ▪ Hazwoper Trained Personnel ▪ Movement Alarms on Heavy Equipment ▪ Fire Extinguishers in Support Zone ▪ Utilize dust/odor suppression as needed ▪ Hearing protection as needed ▪ Review Insect/Rodent exposure hazards ▪ Limit skin contact with soils ▪ Swing Area Awareness
Equipment Expected To Be Used	Inspection Requirements	Training Requirements
List equipment to be used in the work activity.	*List inspection requirements for the work activity.*	*List training requirements including hazard communication.*
▪ Hydraulic Excavator w/bucket ▪ Skid Steer / Front end Loader ▪ Dump trucks ▪ Odor suppression equipment ▪ Air Monitoring Equipment ▪ Dust Suppression Equipment	Site Inspection: ▪ Daily inspection by Site Safety Officer Equipment: ▪ Before equipment is placed in use, it will be inspected and tested by a competent person. ▪ Conduct equipment inspection daily Air Monitoring Equipment ▪ *Zero* Instruments daily prior to use ▪ Calibrate instruments per instrument manufacturer's instructions ▪	Site-Specific: ▪ Review HASP/AHA with Charter personnel and subcontractors ▪ Daily tailgate with applicable jobsite safety topics(Heavy Equipment Safety) Supervisory Personnel: ▪ SSO - OSHA 30 – Hour Construction Outreach ▪ Hazwoper 8 – Hour Supervisor Training ▪ First Aid/CPR Trained Heavy Equipment: ▪ Trained and qualified operators.

3 –Obstruction Removal		
Principal Steps *Identify the principal steps involved and the sequence of work activities.*	**Potential Safety / Health Hazards** *Analyze each principle step for potential hazards.*	**Recommended Controls** *Develop specific controls for each potential hazard.*
▪ Layout Work Zones ▪ Locate Overhead/Underground Utilities ▪ Set-up dust/odor suppression equipment ▪ Remove obstructions encountered in treatment cells ▪ Remove and stockpile obstructions for processing by others	Chemical/Toxicological Hazards: ▪ Gasoline/Diesel Fuel ▪ VOC's Biological Hazards: ▪ N/A Physical Hazards: ▪ Lifting; slips, trips & falls ▪ Dust (Silica) ▪ Moving vehicles/Heavy equipment ▪ Overhead Hazards ▪ Fire ▪ Struck by ▪ Noise	▪ Level C PPE ▪ First Aid Kit w/ Eye Flush Station ▪ Employee Wash Stations ▪ Dry Chemical ABC Fire Extinguisher will be made available in work areas ▪ Utilize dust/odor suppression as needed ▪ Hearing protection as needed ▪ Swing Area Awareness ▪ Limit skin contact with soils ▪ No personnel in unprotected trench/excavation
Equipment Expected To Be Used *List equipment to be used in the work activity.*	**Inspection Requirements** *List inspection requirements for the work activity.*	**Training Requirements** *List training requirements including hazard communication.*
▪ Hand Tools ▪ Air Monitoring Equipment ▪ Odor suppression equipment ▪ Dust Suppression Equipment ▪ Trench Shield/Box ▪ Hydraulic Excavator w/ attachments	Site Inspection: ▪ Daily Inspection by Site Safety Officer Equipment ▪ Ensure equipment is tested and/or inspected by a qualified person before placed into use ▪ Conduct equipment inspection daily Air Monitoring Equipment ▪ *Zero* Instruments daily prior to use ▪ Calibrate instruments per instrument manufacturer's instructions	Site Specific: ▪ Initial review of APP/HASP and AHA's with personnel and subcontractors new to project ▪ Daily tailgate with applicable jobsite safety topics(Excavation Safety) ▪ Review proper lifting techniques with personnel ▪ Hazard Communication/MSDS review Supervisory Personnel: ▪ SSO – OSHA 30 HR Construction Outreach ▪ First Aid/CPR Training Heavy Equipment: ▪ Trained and Qualified operators

4 – Acidic Material Treatment		
Principal Steps	Potential Safety / Health Hazards	Recommended Controls
Identify the principal steps involved and the sequence of work activities.	*Analyze each principle step for potential hazards.*	*Develop specific controls for each potential hazard.*
▪ Establish Work Zones ▪ Locate Overhead/Underground Utilities ▪ Set – up dust suppression equipment ▪ Set-up odor suppression equipment ▪ Move sacks of Hydrated Lime to exclusion zone ▪ Perform in situ mixing of 5'-15' bgs soils with Hydrated Lime	Chemical/Toxicological Hazards: ▪ VOC's ▪ Acid Mist ▪ Sulfur Dioxide ▪ Hydrogen Sulfide ▪ Diesel Fuel/Gasoline Biological Hazards: ▪ N/A Physical Hazards: ▪ Struck – By Hazards ▪ Dust ▪ Moving vehicles/Heavy equipment ▪ Overhead Hazards ▪ Eq. Roll – overs ▪ Fire ▪ Slips, Trips & Falls	▪ Level C PPE with reflective vests ▪ Employee wash stations ▪ Emergency First Aid/Eye Wash Station ▪ Hazwoper Trained Personnel ▪ Swing area Awareness ▪ Eq. Operator seatbelt use ▪ Equip Heavy Equipment and Decontamination Area with ABC rated Fire Extinguishers ▪ Manage truck traffic entering and exiting site ▪ Fire Extinguishers in Support Zone ▪ Maintain proper clearance from overhead electrical lines with excavator boom ▪ No personnel under suspended loads
Equipment Expected To Be Used	Inspection Requirements	Training Requirements
List equipment to be used in the work activity.	*List inspection requirements for the work activity.*	*List training requirements including hazard communication.*
▪ Wheeled Loader ▪ Hydraulic Excavator w/attachments ▪ Hydraulic Excavator with mixing head ▪ Front end Loader ▪ Air Monitoring Equipment ▪ Odor suppression equipment ▪ Dust suppression equipment ▪ Hydrated Lime ▪ Rigging Equipment	Site Inspection: ▪ Daily inspection by Site Safety Officer Equipment: ▪ Before equipment is placed in use, it will be inspected and tested by a competent person. ▪ Conduct equipment inspection daily Air Monitoring Equipment ▪ *Zero* Instruments daily prior to use ▪ Calibrate instruments per instrument manufacturer's instructions ▪	Site-Specific: ▪ Review HASP & AHA w/Charter personnel & subcontractors ▪ Daily tailgate with applicable jobsite safety topic(Lime Safety) Supervisory Personnel: ▪ OSHA 30 – Hour Construction Outreach ▪ Hazwoper 8 – Hour Supervisor Training ▪ First Aid/CPR Training Heavy Equipment Operators: ▪ Trained and qualified operators.

5 – Impacted Water Storage		
Principal Steps *Identify the principal steps involved and the sequence of work activities.*	**Potential Safety / Health Hazards** *Analyze each principle step for potential hazards.*	**Recommended Controls** *Develop specific controls for each potential hazard.*
▪ Layout Work Zones ▪ Mobilize Impacted Water Storage Tank and Components ▪ Assemble System Components ▪ Pump impacted water to tanks as needed	Chemical/Toxicological Hazards: ▪ Diesel Fuel/Gasoline ▪ Acidic Groundwater/Decon Water ▪ Sulfur Dioxide ▪ Hydrogen Sulfide Biological Hazards: ▪ N/A Physical Hazards: ▪ Moving Vehicles/Heavy Equipment ▪ Overhead Hazards ▪ Fire ▪ Slips, Trips & Falls ▪ Struck –by ▪ Pinch Points	▪ Modified Level D PPE with reflective vests ▪ Level C PPE for Splash Hazard ▪ Emergency First Aid/eye wash station ▪ Employee Decon/wash stations ▪ Hazwoper trained personnel ▪ Fire Extinguishers in Support Area ▪ Movement Alarms on Heavy Equipment ▪ Limit skin contact with soils ▪ Swing Area Awareness ▪ Hoisting Straps/Chains must be tagged by manufacturer with working load limits ▪ Trained rigging personnel ▪
Equipment Expected To Be Used *List equipment to be used in the work activity.*	**Inspection Requirements** *List inspection requirements for the work activity.*	**Training Requirements** *List training requirements including hazard communication.*
▪ Hand Tools ▪ Air monitoring equipment ▪ Hydraulic Excavator w/ attachments ▪ Wheeled Loader ▪ Water Storage System Components ▪ Dust Suppression Equipment ▪ Odor Control Equipment	Site Inspection: ▪ Daily inspection by Site Safety Officer Equipment: ▪ Ensure equipment is tested and inspected by a qualified person before placed into use. ▪ Conduct equipment inspections daily. Air Monitoring Equipment ▪ *Zero* Instruments daily prior to use ▪ Calibrate instruments per instrument manufacturer's instructions ▪	Site-Specific: ▪ Review SSHP/AHA with Charter personnel and subcontractors ▪ Daily tailgate with applicable jobsite safety topics(Rigging Safety) ▪ Hazard Communication Supervisory Personnel: ▪ SSO – OSHA 30-hr Construction Outreach ▪ Hazwoper 8 – Hour Supervisor Training ▪ First Aid/CPR Training Heavy Equipment: ▪ Trained and Qualified operators

6 – Equipment Decontamination		
Principal Steps	Potential Safety / Health Hazards	Recommended Controls
Identify the principal steps involved and the sequence of work activities.	*Analyze each principle step for potential hazards.*	*Develop specific controls for each potential hazard.*
▪ Establish Work Zones ▪ Locate Overhead/Underground Utilities ▪ Dry scrape residual material from equipment ▪ Pressure wash material from equipment ▪ Collect wash water and pump to treatment system ▪	Chemical/Toxicological Hazards: ▪ VOC's ▪ Acid Mist ▪ Diesel Fuel/Gasoline Biological Hazards: ▪ N/A Physical Hazards: ▪ Struck – By Hazards ▪ Dust ▪ Moving vehicles/Heavy equipment ▪ Overhead Hazards ▪ Eq. Roll – overs ▪ Fire ▪ Slips, Trips & falls ▪ Drowning	▪ Level C PPE with reflective vests ▪ Employee wash stations ▪ Emergency First Aid/Eye Wash Station ▪ Hazwoper Trained Personnel ▪ Swing area Awareness ▪ Eq. Operator seatbelt use ▪ Manage truck traffic entering and exiting site ▪ Fire Extinguishers in Support Zone ▪
Equipment Expected To Be Used	Inspection Requirements	Training Requirements
List equipment to be used in the work activity.	*List inspection requirements for the work activity.*	*List training requirements including hazard communication.*
▪ Wheeled Loader ▪ Hydraulic Excavator w/attachments ▪ Hydraulic Excavator w/ mixhead ▪ Front end Loader ▪ Air Monitoring Equipment ▪ Odor suppressant equipment ▪ Pressure Washer system ▪ Hand Tools	Site Inspection: ▪ Daily inspection by Site Safety Officer Equipment: ▪ Before equipment is placed in use, it will be inspected and tested by a competent person. ▪ Conduct equipment inspection daily Air Monitoring Equipment ▪ *Zero* Instruments daily prior to use ▪ Calibrate instruments per instrument manufacturer's instructions ▪	Site-Specific: ▪ Review HASP & AHA w/Charter personnel & subcontractors ▪ Daily tailgate with applicable jobsite safety topic(PPE Safety) Supervisory Personnel: ▪ OSHA 30 – Hour Construction Outreach ▪ Hazwoper 8 – Hour Supervisor Training ▪ First Aid/CPR Training Heavy Equipment Operators: ▪ Trained and qualified operators.

7 – Restoration		
Principal Steps	Potential Safety / Health Hazards	Recommended Controls
Identify the principal steps involved and the sequence of work activities.	*Analyze each principle step for potential hazards.*	*Develop specific controls for each potential hazard.*
▪ Layout Work Zones ▪ Locate Overhead/Underground Utilities ▪ Set-up odor/dust suppression equipment ▪ Import Backfill (DGA) ▪ Compact Treated material ▪ Place and compact Non-acidic fill ▪ Place and compact DGA ▪ Restore excavated areas	Chemical/Toxicological Hazards: ▪ VOCs Biological Hazards: ▪ N/A Physical Hazards: ▪ Dust ▪ Moving vehicles/Heavy equipment ▪ Overhead Hazards ▪ Fire ▪ Slips, Trips & Falls ▪ Struck-by	▪ Modified Level D PPE with reflective vests ▪ Employee wash stations ▪ Emergency First Aid/Eye Wash Station ▪ Hazwoper Trained Personnel ▪ Movement Alarms on Heavy Equipment ▪ Fire Extinguishers in Support Zone ▪ Water spray for Dust Suppression ▪ Limit skin contact with soils ▪ Swing Area Awareness ▪ Manage truck traffic entering and exiting site ▪
Equipment Expected To Be Used	Inspection Requirements	Training Requirements
List equipment to be used in the work activity.	*List inspection requirements for the work activity.*	*List training requirements including hazard communication.*
▪ Hydraulic Excavator ▪ Skid Steer / Front end Loader ▪ Dump trucks ▪ Smooth Drum Roller ▪ Air Monitoring Equipment ▪ Dust Suppression Equipment ▪ Odor Control Equipment	Site Inspection: ▪ Daily inspection by Site Safety Officer Equipment: ▪ Before equipment is placed in use, it will be inspected and tested by a competent person. ▪ Conduct equipment inspection daily Air Monitoring Equipment ▪ *Zero* Instruments daily prior to use ▪ Calibrate instruments per instrument manufacturer's instructions ▪	Site-Specific: ▪ Review HASP/AHA with Charter personnel and subcontractors ▪ Review Unknown Materials Plan ▪ Daily tailgate with applicable jobsite safety topics(Roller Safety) Supervisory Personnel: ▪ SSO - OSHA 30 – Hour Construction Outreach ▪ Hazwoper 8 – Hour Supervisor Training ▪ First Aid/CPR Trained Heavy Equipment: ▪ Trained and qualified operators.

8- Demobilization		
Principal Steps	Potential Safety / Health Hazards	Recommended Controls
Identify the principal steps involved and the sequence of work activities.	*Analyze each principle step for potential hazards.*	*Develop specific controls for each potential hazard.*
▪ Remove Temporary Facilities ▪ Remove erosion controls and temporary construction fencing ▪ Remove all trash and debris ▪ Remove all remaining temporary equipment	Chemical/Toxicological Hazards: ▪ N/A Biological Hazards: ▪ N/A Physical Hazards: ▪ Dust ▪ Moving vehicles/Heavy equipment ▪ Overhead Hazards ▪ Slips, Trips & Falls	▪ Level D PPE with reflective vests ▪ Employee wash/Decontamination stations ▪ Emergency First Aid/Eye Wash Station ▪ Hazwoper Trained Personnel ▪ Hoisting Straps/Chains must be tagged by manufacturer with working load limits ▪ Manage traffic entering and exiting site during material load - outs ▪
Equipment Expected To Be Used	Inspection Requirements	Training Requirements
List equipment to be used in the work activity.	*List inspection requirements for the work activity.*	*List training requirements including hazard communication.*
▪ Hydraulic Excavator ▪ Skid Steer / Front end Loader ▪ Dump trucks ▪ Air Monitoring Equipment	Site Inspection: ▪ Daily inspection by Site Safety Officer Equipment: ▪ Before equipment is placed in use, it will be inspected and tested by a competent person. ▪ Conduct equipment inspection daily Air Monitoring Equipment ▪ *Zero* Instruments daily prior to use ▪ Calibrate instruments per instrument manufacturer's instructions ▪	Site-Specific: ▪ Review HASP/AHA with Charter personnel and subcontractors ▪ Daily tailgate with applicable jobsite safety topics(Truck loading Hazards) Supervisory Personnel: ▪ SSO - OSHA 30 – Hour Construction Outreach ▪ Hazwoper 8 – Hour Supervisor Training ▪ First Aid/CPR Trained Heavy Equipment: ▪ Trained and qualified operators.

APPENDIX F

Emergency Response Plan

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Plan Title: Emergency Response Plan

Project Title: Former Pratt Oil Works – Acid Area IRM Work

Prepared For: Glen Schultz
Waste Management of New York, LLC
100 Brandywine Blvd., Suite 300
Newtown, PA 18940-4000

Prepared By: Charter Environmental, Inc.
560 Harrison Avenue, Suite 500
Boston, MA 02118
Phone: 857-246-6800
Fax: 857-246-6885

Contract No.:
Charter No.: 2-1066

Date: July 28, 2014

Revision No.: 00

Richard Badis, Project Manager
Telephone: 610-440-4700

July 28, 2014
Date

Edward D. Price, Health & Safety Director
Telephone: 857-246-6800

July 28, 2014
Date

Date

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TABLE OF CONTENTS

1. SITE DESCRIPTION AND EVALUATION

1.1 INTRODUCTION

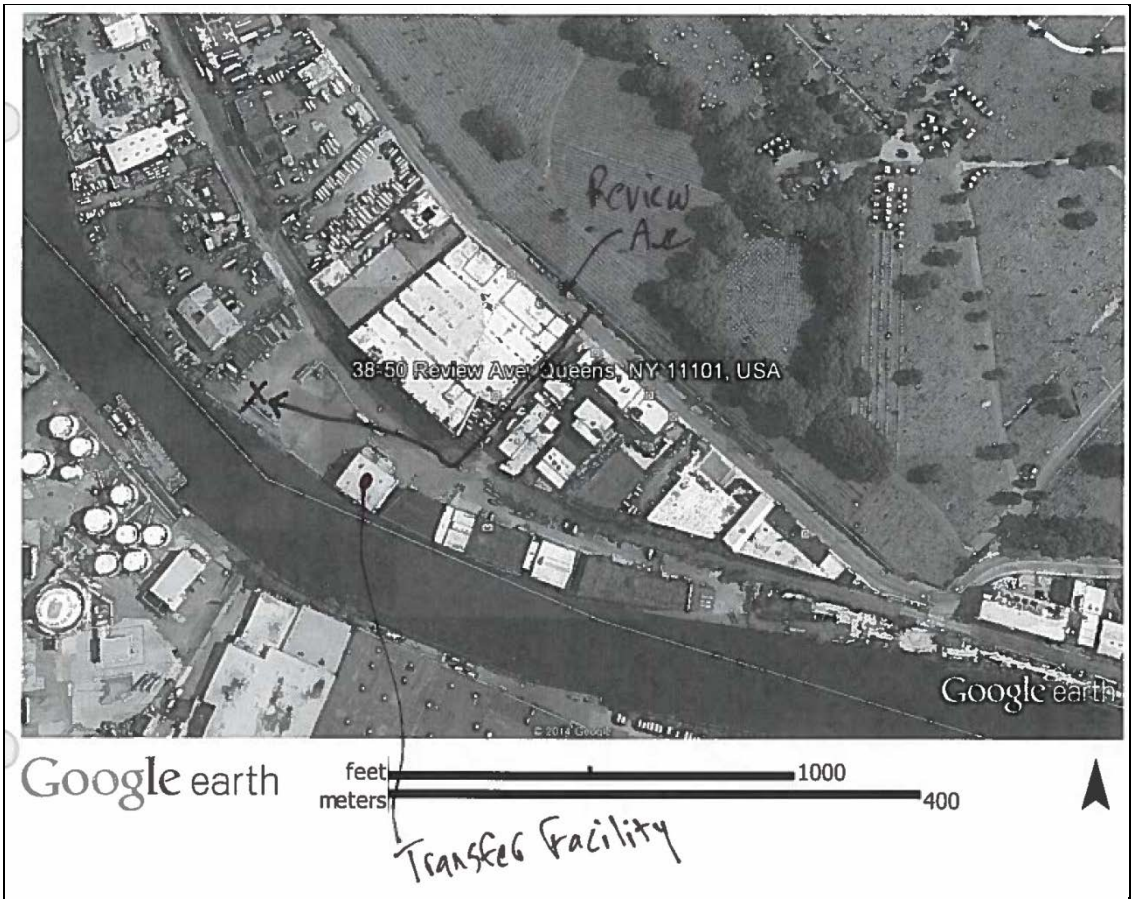
The purpose of this site-specific Emergency Response Plan (ERP) is to establish in detail the procedures and protocols necessary for protecting workers and the general public from unanticipated hazards associated with sampling, excavation, handling and in situ treatment of acidic soils and site restoration. The work includes excavation, sampling and treatment of potentially impacted soils. Hazards associated with this work may include fire, explosion, electrical hazards, trip/fall injury, equipment struck – by incidents and chemical release to the environment (atmosphere, soil or groundwater). The site activities required for the execution of this contract will be performed and managed by Charter Environmental, Inc. (Charter). All work shall be performed at the Former Pratt Oil Works Site. The proposed work is located on a 1.4-acre parcel of land. Access to the site is off of Review Avenue in Long Island City, NY. The location of the site is shown in Figure 1-1.

This ERP is intended to address the activities identified above and those required by contract. The ERP is limited to identification and response to unknown or unplanned conditions associated with the impacted soil handling/treatment, site restoration and the other construction related activities portion of the remediation activities proposed for the property.

This ERP does not address issues associated with other site activities, performed by others, that may be occurring concurrently with this contract. The ERP shall be implemented at all times during ongoing contract work.

The ERP will be implemented in the event of an unplanned accident or injury, spill or release of a chemical in excess of its Reportable Quantity or other environmental incident.

Figure 1-1: Site Map



2. ORGANIZATION AND KEY PERSONNEL

2.1 INTRODUCTION

Implementation of the comprehensive safety and health program is a key management responsibility. This Emergency Response Plan (ERP) will include a listing of health and safety personnel, and a description of their specific responsibilities for implementation of the program. Clear lines of authority, consistent with good operating policies and procedures, have been established for enforcing safety compliance. The qualifications of the site safety and health personnel are included in the appendices.

2.2 SITE SAFETY AND HEALTH OFFICER (SSHO)

The SSHO will be on-site in the event this plan is implemented when oils or hazardous materials are encountered or when Personal Protective Equipment (PPE) above Level D is required based on site conditions or monitoring. (See Contractor Health and Safety Plan (CHSP) for detailed description of PPE requirements). The SSHO identified for this project has considerable experience at sites where hazardous materials were present.

His experience includes work at Level B, C and D sites; specialized training in personal and respiratory protective equipment, program implementation, and use of air monitoring instrumentation and methodology; a working knowledge of Federal and State safety and health regulations; current certification in first aid and cardio-pulmonary resuscitation; and 40-hour Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response Regulations (HAZWOPER) training, current refresher certificates, and medical monitoring approval in addition to supervisory training.

The SSHO will monitor work locations for employee health and safety purposes, as well as document any employee exposures and/or substance releases that may occur through the course of this project. The SSHO is trained and experienced to be proficient in the proper use and limitations of all equipment that he may be utilizing. The SSHO is responsible for operating the equipment, assisting in implementing the ERP and performing any other duties assigned to him.

The SSHO is also to be empowered to deny access to the site or restrict the presence of any persons (under his control), and also has the authority to cease activities on-site if and when conditions present uncontrollable risks to site personnel and off-site receptors. The SSHO shall also be responsible for coordinating, conducting and documenting any required training activities, performing and maintaining recordkeeping duties, and carrying out any other duties specified by site management.

The SSHO will be the main contact for any on-site emergencies. Except in an emergency, the SSHO may modify the approved ERP only after consultation and concurrence of the Certified Industrial Hygienist (CIH) and Charter.

The SSHO will be familiar with all matters pertinent to this project and shall assist and represent the CIH in implementation of the ERP as required. This includes field supervision; maintaining contamination

control zones; enforcing safe work practices and decontamination procedures; ensuring proper use of personal protective equipment; and communicating modified safety requirements to site personnel.

2.3 CERTIFIED INDUSTRIAL HYGIENIST (CIH)

The CIH for this project will be Ed Kearney, of Axiom Partners.

The duties of the CIH will be to oversee the Health and Safety program, and the ERP. This plan includes a description for an on-site air-monitoring program, conducting initial site-specific training, and providing continued support for all health and safety activities as required. The CIH will be responsible for directing and approving any changes to the ERP with concurrence of Charter.

2.4 PRECONSTRUCTION SAFETY CONFERENCE

Prior to the start of construction, Charter shall conduct a safety conference to discuss the hazards anticipated on the site, training on hazard recognition, response to emergencies, explanation of site activities, purchasing safety supplies, identifying safety personnel, decontamination procedures, levels of PPE required, air monitoring activities, and other topics deemed relevant to the safety of the site workers.

2.5 SITE CONTROL

Site control zones will be established in order to contain potential hazards associated with contamination within the smallest area possible. The SSHO will ensure that each employee has the proper PPE for the area or zone in which he or she is to perform work. Only authorized persons will be permitted access to the Exclusion Zone (EZ) and Contamination Reduction Zone (CRZ). All entrance to these areas will be restricted by means of regulated personnel flow. The purpose of this ERP is to establish in detail the procedures and protocols necessary for protecting of workers and the general public from potential hazards encountered during the excavation, sampling, handling, and storage of encountered contaminated waste.

This section shall define the work zone delineations, site communication, and site access control measures to be employed.

2.5.1 Exclusion Zone (EZ)

The Exclusion Zones (contamination work zones) is the area(s) where the contamination is known to exist. These are the areas where exposure to this contamination could cause risk to health of on-site workers in the absence of PPE defined for that area. For this project, the active or open excavations containing impacted soil will be identified as EZ areas. The location of the EZ will be amended based on the actual locations of the encountered impacted material, where the material must be managed or in the event other unanticipated contaminated media is encountered.

Special precautions will be taken to insure that pedestrians and non-authorized personnel are not allowed in or near areas where contract operations are occurring. Construction Fence will be used to delineate the EZ around soil handling/treatment, sampling, and storage areas. A suitable means of

securing the area will be installed around the boundaries of the excavation (i.e. 4' temporary high visibility construction rope). No eating or smoking is allowed anywhere within the area of the EZ.

The required PPE for use by personnel working in or entering the EZ is documented in the CHSP. Access to the EZ is restricted to on-site and contractor personnel who are wearing the proper PPE and whom have received the required site training and medical clearance. All workers will sign the logbook in the Support Zone prior to entering the Exclusion Zone.

2.5.2 Contamination Reduction Zones (CRZ)

The CRZ is a buffer zone between the Exclusion Zone and the Support Zone, and is located at the interface of the two zones. Personnel, equipment and vehicle decontamination stations such as washing stations will be located in this area. The CRZ serves as an area to decontaminate personnel, equipment, and vehicles prior to entering the support zone. If necessary, clothing change facilities for reusable PPE shall be located in the contamination reduction zone. The CRZ will be a zone extending approximately 20-feet beyond the EZ on one or more sides as required for site access. All access to the EZ shall be through the CRZ. Separate points will be marked for entering and exiting the CRZ so that employees entering do not have to pass through the decontamination area.

2.5.3 Support Zone (Non-Contaminated)

This is the area outside of the CRZ, where there is no potential for contact with contaminants. The Support Zone contains the following: work rest area, portable restroom, water service, support operations, radio communications, transportation, and storage facilities. The Support Zone is located outside the limits of the designated exclusion zones, and away from areas designated for contaminated soil handling. Eating and drinking of fluids are permitted only in this area and only after site workers have properly decontaminated themselves.

2.5.4 Access and Egress Patterns

Specific movement patterns of both project personnel and equipment through designated site zones shall be maintained during routine operations at the project site. The following movement pattern will be utilized to assure compliance with this plan. The movement shall be monitored by the SSHO or other project management personnel.

2.5.4.1 Access Procedure

- All site personnel are to log in at the project trailer prior to proceeding on-site.
- Access to the exclusion zone and decontamination reduction zone shall be limited to on-site, contractor personnel and owner's representatives. Visitors shall be restricted to the Support Zone, unless approved by the PM and the SSHO. These personnel shall have proper protective equipment and have proof of training.
- All personnel shall proceed to the exclusion zone through designated entrance locations that are clearly marked.

- Access of routine personnel shall be monitored by the SSHO or other on-site project management personnel.
- All equipment will have access to the EZ through appropriate equipment routes.

2.5.4.2 Exiting Procedure

- All personnel shall exit the exclusion zone through the designated Contamination Reduction Zone.
- Prior to proceeding from the CRZ to the support zone all personnel are required to undergo designated decontamination activity.
- Once decontamination is complete, site personnel may proceed to the support zone prior to leaving the site. Do not reenter the EZ or CRZ.
- All equipment on-site shall proceed from the exclusion zone to the CRZ and undergo appropriate decontamination prior to proceeding to the support zone.
- Adherence to these specific exiting procedures shall be monitored by the SSHO or other appropriate project supervisory personnel.

2.5.5 Site Communication

It is critical to maintain two-way communication on site at all times, to protect the safety of on-site employees, and to expedite the decision making process, in the event contamination is encountered. A cellular telephone shall be located with the SSHO, in the event emergency services are required. All requests for emergency services will take place through the SSHO.

Verbal communication and hand signals may be used to communicate among workers on the site. Compressed air horns will also be used to play an integral part in the communication process. They will be used to signal evacuation of a work site in the event of an emergency situation such as a spill, release, uncontrolled fire, or explosion. In addition, visual, voice or radio communications must be maintained at all times while working on-site.

The following signals will be used to indicate an emergency situation:

- One long blast repeated three times at five second intervals - Man down
- Three short blasts repeated three times at five second intervals - Evacuate site
- Alternating short and long blasts - All clear

In the event of an emergency on site, the Incident Command System will be implemented. The SSHO shall serve as the Incident Commander and will be replaced on the arrival of the senior member of the responding Fire Department or Police Department.

2.5.6 Signs

The Contractor shall post warning signs designed to provide guidance and direction to on-site personnel and visitors. The signs at the job trailer shall be posted in locations approved by the Supervising Contractor, and should be large enough to visibly see from a reasonable distance.

Visitor Signs: Signs shall be posted directing all visitors to the project trailer.

No Smoking: No smoking signs shall be posted in areas of high visibility immediately adjacent to the Exclusion Zones.

2.5.7 Engineering Controls

At this time there is potential for special engineering controls specifically dust control for this project. The need for dust suppression will be established by the use of monitoring equipment. Dust suppression in the form of light water sprays, water truck and dust suppressants will be implemented as required to control dust during construction activities and excavation. The need for odor control will be based on olfactory observation. Alternatively, intrusive activities may be reduced or curtailed under high wind or heavy rain conditions, which in the opinion of the SSHO may pose a safety hazard to the workers, or nearby members of the community. If engineering controls are ineffective work will be stopped. Work will only resume after the Owner's Representative and Charter have met and determined that a modification or change to the controls are sufficient to meet the project requirements or work can be phased so that existing controls are more effective.

2.5.8 Dust/Odor Control

Dust Control will be an important issue on this site. The following precautions will be taken to control the release of dust and vapors both on- and off-site:

- All trucks will be covered before leaving the site.
- Trucks will be carefully loaded to prevent spillage of dirt on the ground or on exterior truck bodies.
- All equipment/trucks will pass through the decontamination area before leaving the Exclusion Zone.
- Odor suppressants will be applied to exposed soils to control odors

Personnel, vehicles and equipment used during the handling of soils and materials shall be decontaminated before leaving the Excavation EZ using work site procedures contained in the HASP.

2.6 TRAINING AND SITE BRIEFING/EDUCATION

Charter will present a safety briefing to inform employees and visitors who will be performing work in or entering the EZ or CRZ during field operations. This briefing will cover the special hazards and procedures to control these hazards. All prime and subcontractor employees, Owner's engineer and visitors shall complete this briefing before working in identified portions of the site. A copy of training records for all workers completing this training shall be kept by Charter and provided with the required submittals.

The SSHO shall keep records of training for all site personnel and site visitors. Copies of the training records for all workers associated with the project will be made available upon request. All workers and visitors shall sign a daily log before entering the CRZ or EZ. The locations of the CRZ and EZ areas are identified by locations on the project plans.

2.6.1 Training Requirements

All site personnel who will be entering any of the EZ or CRZ areas once the ERP is in effect will be required to provide proof of having received training which meets the initial 40-hour and current annual 8-hour refresher training for hazardous waste site workers as described in 29 CFR 1910.120 and 29 CFR 1926.65. This initial training includes the three days of supervised on-site training. All site personnel are required to have Hazard Communication Training (HAZCOM) which meets the OSHA Construction Industry requirements detailed in 29 CFR 1926.59.

This plan will go into effect at any time when employees are exposed or have the potential to be exposed to a chemical at concentrations that exceed an applicable OSHA standard.

2.6.2 Site Safety and Health Briefing

Personnel covered by this ERP will be required to read and understand this document. Prior to any on-site activity involving the proposed work, all on-site personnel and visitors will be required to attend a Site, Safety and Health Briefing from the SSHO or other designated, qualified person. This is applicable to all on-site personnel located within the Exclusion, Contaminant Reduction, and Support Zones who are involved with site work, and all visitors who will enter either the EZ or CRZ. Periodic updates will be undertaken by the SSHO when operational or site conditions change or when designated refreshers are so warranted. The topics to be covered by the training include the entire contents of the ERP with emphasis on emergency procedures, areas of restricted access, methods of decontamination and general safety.

Workers shall be informed of locations and directions to locations where emergency medical attention may be received. General emergency medical care services are available at Elmhurst Hospital Center, located at 79-01 Broadway, Elmhurst, NY. The hospital is located approximately 4-miles from the project site. Personnel sustaining trauma related injury shall also be directed to Elmhurst Hospital Center.

Ambulance services are available twenty-four hours per day, by contacting the NYFD EMS via the statewide-enhanced emergency telephone number 9-1-1. Any employee who is seriously injured shall be transported to the hospital by certified/trained EMS personnel and properly equipped EMS vehicles.

3. EMERGENCY EQUIPMENT AND FIRST AID SUPPLIES

3.1 EMERGENCY MEDICAL TREATMENT/FIRST AID

First aid will be rendered to any person injured on-site, as appropriate by any individual trained in First Aid/CPR/Universal Precautions. At least one trained person will be on site at all times during contract work. First aid kits will be kept in the project trailer and in each Supervisor or Foremen's vehicle. These kits are intended to treat emergency needs.

Following initial treatment, the injured person will then be transported for further examination and/or treatment. The preferred transport method is a professional emergency transportation service; however, when this is not readily available or would result in excessive delay, other transport is authorized. Under no circumstances will injured persons transport themselves to a medical facility for emergency treatment.

3.2 DECONTAMINATION

If an injury occurs in an EZ area, provisions for decontamination of the victim will be made. Decontamination will be done at a location that is convenient to the area where the Emergency Response actions are occurring, in an upwind location. However, life-threatening conditions may preclude normal decontamination procedures. In such cases, arrangements will be made with the medical facility and transporter.

The decision to decontaminate a victim is based on the type and severity of the illness or injury and the nature of the contaminant. For some emergency victims, immediate decontamination may be an essential part of life-saving first aid. For others, decontamination may aggravate the injury or delay life-saving treatment. If decontamination does not interfere with essential treatment, it will be performed and will include a wash, rinse and/or cut off of protective clothing and equipment.

If decontamination cannot be done, the victim will be wrapped in blankets, plastic or rubber to reduce contamination of other personnel. Emergency and off-site medical personnel will be alerted to potential contamination. A site person familiar with the incident and the chemicals will be sent if available.

3.3 EMERGENCY EYE WASH STATIONS AND FIRST AID KITS

Portable eyewash stations will be maintained in the Decontamination Zone and in the office trailer. The locations will be moved with the location of the work. The eyewash stations will consist of a portable gravity operated unit capable of providing approximately 15 minutes of full pattern flushing. These units will be periodically inspected and tested.

4. EMERGENCY PLAN/CONTINGENCY PROCEDURES

4.1 EMERGENCY/CONTINGENCY PLAN

This section identifies the emergency contingency planning undertaken for operations at the site, and includes further information to be used under emergency conditions such as emergency telephone numbers, routes to emergency medical facilities and emergency signals. The ERP is prepared as a separate stand-alone section.

The ERP applies to unanticipated personal injuries sustained on the site, fires, explosions, other personnel injuries or the discovery of or contact with hazardous materials that could be detrimental to human health or the environment. The ERP may cover events such as but not limited to:

- Levels of Total Volatile Organic Compounds (VOCs) in excess of the critical action levels.
- Spills or leaks of chemicals or petroleum products considered posing imminent and/or substantial hazards. The ERP would be used in conjunction with the Spill Control & Countermeasure Plan.
- Other perceived threats.

4.2 PRE-EMERGENCY PLANNING/CHAIN-OF-COMMAND

In the event of an emergency, the SSHO shall implement the Incident Command System. Supervisors will have assigned duties including waiting for emergency vehicles, counting employees and directing traffic on site. The SSHO shall assume the role of the Interim Incident Commander and shall be replaced by the responding senior member of the Fire Department or Police Department. The local Fire and Police officials shall be informed of the nature type and scope of the work prior to initiating the work. This will be done in an effort to make these officials aware of the work and to notify these officials of the potential need to provide emergency medical services and firefighting capabilities at the site in the event an emergency occurs.

4.3 SITE EVACUATION AUTHORITY

When conditions warrant site evacuation, the work party will proceed upwind of the work site and notify the SSHO and field office of site conditions. The PM, Site Supervisor or SSHO have authority to order an evacuation of the site. The owner's engineer shall be notified, immediately, or as soon as practically possible. Arrangements shall be made to notify designated representatives of Owner's Representative .

4.4 EVACUATION PROCEDURES

Withdrawal Upwind - When conditions that endanger the safety or health of workers warrant moving away from the work site, the crew will relocate upwind at a distance of approximately 150-feet or farther, as indicated by site monitoring instruments. This location will be discussed with employees on a daily basis. The meeting location will be clearly marked. If possible, it is anticipated that this meeting location will be in the support zone adjacent to the project facilities.

A signal to evacuate will be given by the PM, Site Foreman or SSHO using an air horn, radio, telephone or similar means capable of relaying the message. Once workers are at the site, a "head count" will be taken to make certain all workers are accounted for. During safety briefings, the location will be presented. In the event of withdrawal, the SSHO and a member of the crew (via "buddy system") may return to the work site to determine if the condition noted is transient or persistent. If persistent levels of air contaminants remain, an alarm should be sounded to notify personnel of the situation and the need to leave the site. The site management will be notified of conditions. This alarm will be given using both a compressed air horn and portable radios, using a pre-arranged signal or tone, or message.

The following signals will be used to indicate an emergency situation:

- One long blast repeated three times at five second intervals - Man down
- Three short blasts repeated three times at five second intervals - Evacuate site

- Alternating short and long blasts - All clear

When site access is restricted, thus hindering escape, the crew may be instructed to evacuate the site rather than move upwind, especially if withdrawal upwind moves the crew away from escape routes. Charter and our subcontractors will have designated "counters" with the responsibility to account for all employees and visitors in the event of an evacuation.

In the event any workers are not accounted for, the Incident Commander will notify the responding Fire Department, so that a search can be promptly initiated. In no case should any worker go out to initiate a search themselves until the “all clear” signal; has been given.

4.5 CRITIQUE OF RESPONSE

In the event the Incident Command system is implemented, a critique and follow-up will be conducted as soon as practical and no later than one day following the implementation of the program. The critique is to find out the strengths and weaknesses of the system in the event future incidents occur, and to share lessons earned with all supervisory personnel on site. A written report of the incident should be prepared as soon as practical, and no later than two days after the critique meeting.

5. SPILL CONTROL AND COUNTERMEASURES

5.1 OVERVIEW

In the event of a spill or release of an oil or hazardous material on the plant site, the Spill Control and Countermeasure Plan (SCCP) will be implemented. The SCCP will be a stand alone document and will be submitted under a separate cover. The SSHO will assume the role of the Incident Commander for the SCCP until relived by the responding senior member of the Fire or Police Department (if contacted) or the responding environmental contractor.

Trained individuals will respond to the release with the goal of assessing and containing the release. The role of the team is not to clean the spill or release, but rather to prevent injury to employees working in the area and to minimize the environmental impact. Spill responders have been identified and will be contacted in the event of a spill. These individuals have received training to at least the level of First Responder Operations under the Hazardous Waste Operations and Emergency Response standard.

5.2 SPILL SUPPLIES

A supply of containment materials will be stored on site in the event of a spill or release. At a minimum, these supplies shall include the following: absorbent booms and/or pads; non-sparking hand tools, empty approved metal transfer or over pack drums; absorbent mineral materials, barrier tape/fencing and pylons and appropriate PPE/air monitoring equipment. It is anticipated that heavy equipment (excavators, front-end loaders, skid steer loaders or backhoes) will be available on site to manage spill events. Vacuum trucks or Vactor trucks for recovery of large quantities of liquid waste can be secured via one of the emergency response subcontractors identified below.

5.3 SPILL RESPONSE PROCEDURES

On notification of a spill or release, the trained individuals will meet upwind of the site to receive their assignments from the Incident Commander and to don required PPE. The team will first evaluate the spill or release to determine whether it poses an immediate risk of fire or explosion. The nature and quantity of the material will be identified. Once a plan of action has been implemented, the team may at their option, attempt to contain or stabilize the spill but not move forward into cleaning of the spill.

Three spill responders have been identified as having the appropriate training and equipment to quickly clean the spill and decontaminate the site. These responders are:

Clean Harbors, Inc.	(800) 645-8265
Clean Venture, Inc.	(908) 355-5800
Miller Environmental Group	(800)394-8606

5.4 INCIDENT REPORTING

In the event that an accident or some other incident occurs during the course of the project, the Owner's Representative and the NYSDEC (if applicable) shall be notified by telephone immediately and receive a written notification within 24-hours. The report shall include the following items:

1. Name, organization, telephone number and location of the Contractor
2. Name and title of the reporting individual
3. Date and time of accident or incident
4. Location of accident or incident
5. Brief summary of accident or incident
6. Cause of accident or incident
7. Casualties (fatalities, disabling injuries)
8. Medical Treatment administered
9. Witness information
10. Details of any existing chemical hazard or contamination
11. Estimated property damages
12. Nature of damage; Impact on contract schedule
13. Action taken by Contractor to ensure health and safety
14. Other damage or injuries sustained (public or private)

5.5 EMERGENCY INFORMATION

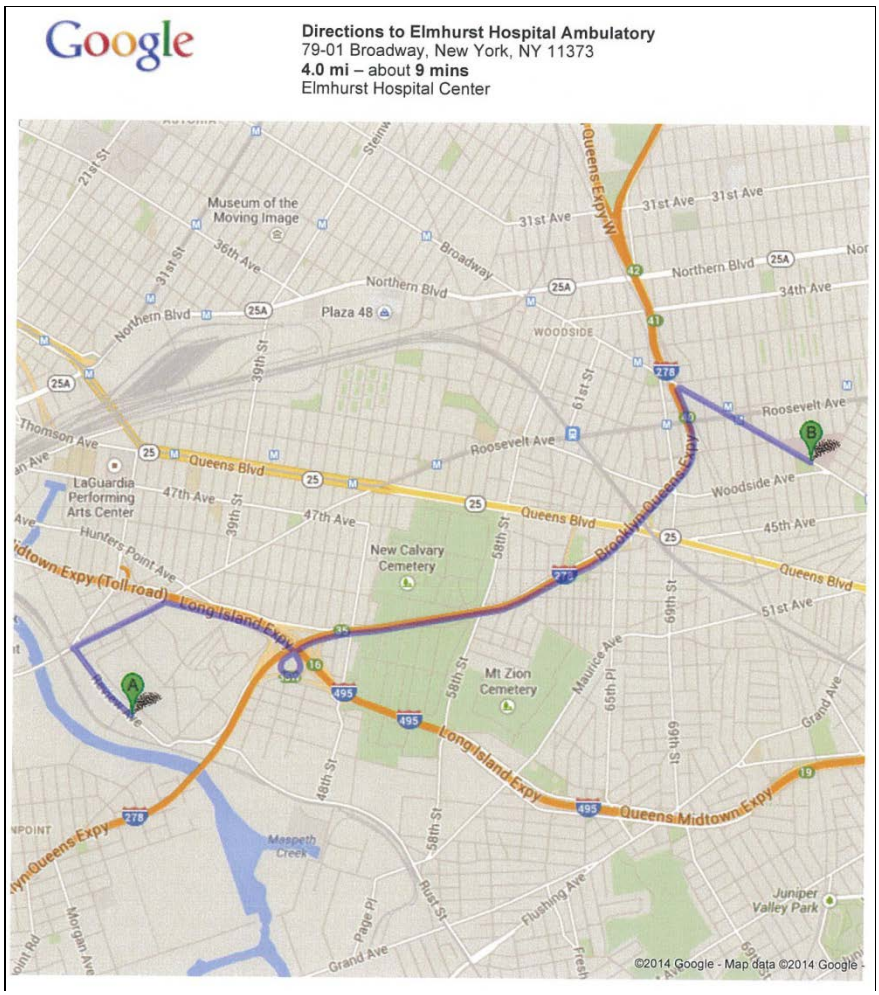
Ambulance:	9 - 1 - 1 (NYC FD/EMS)
Police Department:	9 - 1 - 1 (NYPD)
Fire Department:	9 - 1 - 1 (NYC FD)
NYSDEC – Spill Reporting:	(800) 457-7362
OSHA – Queens District Office	(718)279-9060
National Response Center:	(800) 424-8802
Poison Control Center:	(800) 222-1222
Axiom Partners CIH – Ed Kearney:	(781) 213-9198
NYC/LI One Call:	(800) 272-4480

5.6 MEDICAL SERVICES

5.6.1 General Medical Treatment

The name of the hospital facility for General Medical Treatment is Elmhurst Hospital Center located at 79-01 Broadway, Elmhurst, NY. The phone number is (718)334-4000. The emergency route is described in Figure 5-1 – Elmhurst Hospital Center.

Figure 5-1: Emergency Route for General Medical Treatment



A 38-42 Review Ave, Long Island City, NY 11101

1.	Head **northwest** on **Review Ave** toward **Railroad Ave** About 1 min	go 0.3 mi total 0.3 mi
2.	Turn right onto **Greenpoint Ave** About 1 min	go 0.4 mi total 0.7 mi
3.	Turn right onto the **Interstate 495 E** ramp to **Long Island Expressway/Eastern Long Island** About 52 secs	go 0.3 mi total 1.1 mi
4.	Follow signs for **I-278 E/La Guardia/Airport/Bronx/I-495 Alt/Maurice Ave**	go 0.2 mi total 1.2 mi
5.	Take exit **17E** to merge onto **I-278 E** toward **La Guardia/Airport/Bronx** About 3 mins	go 2.1 mi total 3.3 mi
6.	Take exit **40** for **Broadway** toward **Roosevelt Ave**	go 0.1 mi total 3.5 mi
7.	Sharp right onto **Broadway** Destination will be on the left About 2 mins	go 0.5 mi total 4.0 mi

B **Elmhurst Hospital Ambulatory**
79-01 Broadway, New York, NY 11373

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.

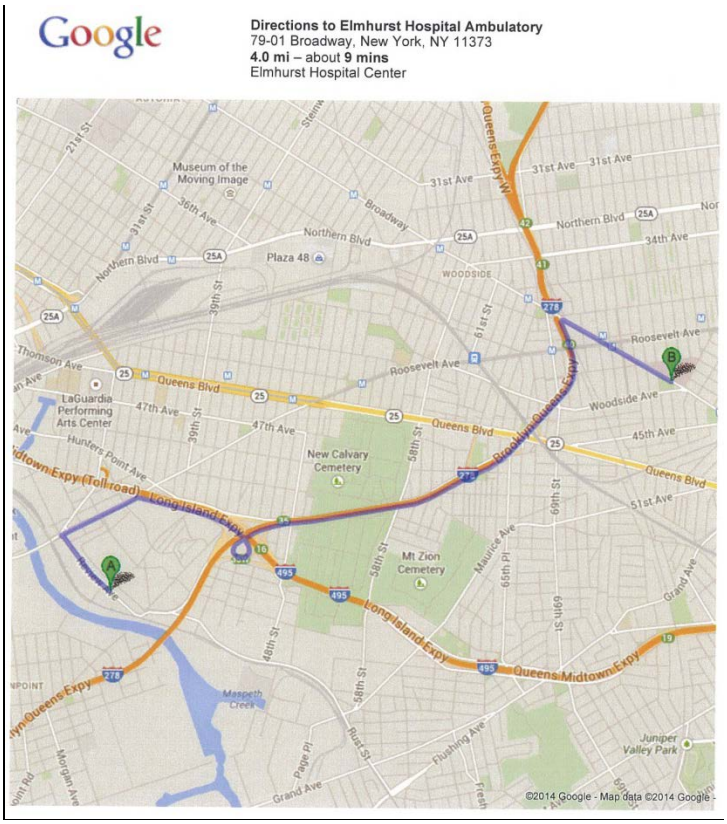
Map data ©2014 Google

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

5.6.2 Trauma Related Treatment

The name of the hospital facility for Trauma Related Treatment is Elmhurst Hospital Center located at 79-01 Broadway, Elmhurst, NY. The phone number is (718) 334-4000. The emergency route is described in Figure 5-2.

Figure 5-2: Emergency Route for Trauma Related Treatment



38-42 Review Ave, Long Island City, NY 11101

1.	Head **northwest** on **Review Ave** toward **Railroad Ave** About 1 min	go 0.3 mi total 0.3 mi
2.	Turn right onto **Greenpoint Ave** About 1 min	go 0.4 mi total 0.7 mi
3.	Turn right onto the **Interstate 495 E** ramp to **Long Island Expressway/Eastern Long Island** About 52 secs	go 0.3 mi total 1.1 mi
4.	Follow signs for **I-278 E/La Guardia/Airport/Bronx/I-495 Alt/Maurice Ave**	go 0.2 mi total 1.2 mi
5.	Take exit **17E** to merge onto **I-278 E** toward **La Guardia/Airport/Bronx** About 3 mins	go 2.1 mi total 3.3 mi
6.	Take exit **40** for **Broadway** toward **Roosevelt Ave**	go 0.1 mi total 3.5 mi
7.	Sharp right onto **Broadway** Destination will be on the left About 2 mins	go 0.5 mi total 4.0 mi

Elmhurst Hospital Ambulatory
79-01 Broadway, New York, NY 11373

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.

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6. CRITICAL ACTION LEVELS FOR VOLATILE ORGANIC COMPOUNDS (VOC'S)

In the event of an Emergency or Spill incident, direct-reading monitoring equipment will be used to assess the hazard of an area and to determine, in part, when it is safe to return to an area.

6.1 MONITORING

The SSHO shall have a photoionization detector (PID) available to measure concentrations of total VOC's. The PID shall be maintained calibrated in accordance with the Hazardous Material Health and Safety Plan (HASP). In the event of a release, the Response Team and the SSHO will carefully advance measuring the level of VOC's. At any time there is a sudden or significant increase in the level of VOC's, the team will drop back to the safe area and evaluate the situation. The SSHO will also have air monitoring equipment available to monitor Hydrogen Sulfide, Combustible Gas - Lower Explosive Limit, Carbon Monoxide and Oxygen.

6.2 CRITICAL ACTION LEVELS

A PID reading below 2.5 parts per million (ppm) (ip units) above background indicates the area is free of VOC's. A PID reading of 2.5 ppm (ip units) above background or above indicates a potential source of exposure. At a PID reading of 5 ppm (ip units) or greater for VOC's the level of worker protection will be upgraded to Level C. At a level of 100 ppm (ip units) on the PID workers in the area will be evacuated and the work area evacuated and the CIH will be contacted. Action Levels for the items listed below are referenced in section 8.3 of the HASP.

6.3 EMERGENCY MEASUREMENTS

Under emergency conditions, the actual concentrations at any given section of the work area may not be known and the potential exists for an over exposure. In this case, a higher available level of protection will be selected when initiating the measurement and then level of PPE will be decreased if concentrations are below the thresholds shown above.

6.4 OPERATION PROCEDURES

The following procedures shall be maintained during routine activity associated with the site control procedures:

- A copy of the HASP shall be maintained on-site.
- All personnel shall be instructed in the contents of the plan.
- Proper delineation of site control zones will be maintained and signs placed in visible locations.
- Copies of access and egress procedures will be posted on the project bulletin board located at the command center.
- Access and exiting routes are contained in this report for both equipment and personnel. They shall also be posted on the project bulletin board located in the support zone.

Any modifications to the plan including delineation of work zone boundaries shall be approved prior to implementation and all personnel shall be briefed in the modification prior to implementation.