SITE SPECIFIC HEALTH AND SAFETY PLAN

LOWER DARBY CREEK AREA SUPERFUND SITE, CLEARVIEW LANDFILL RESIDENTIAL YARD REMOVAL ACTION
DARBY TOWNSHIP, PHILADELPHIA COUNTY PENNSYLVANIA

DOCUMENT CONTROL NO.: W0120.1D.01793

U.S. ENVIRONMENTAL PROTECTION AGENCY REGION III
HAZARDOUS SITE CLEANUP DIVISION
1650 ARCH STREET
PHILADELPHIA, PENNSYLVANIA 19103

SEPTEMBER 2016

SITE HEALTH AND SAFETY PLAN
LOWER DARBY CLEARVIEW LANDFILL AREA
DARBY TOWNSHIP, PHILADELPHIA COUNTY, PENNSYLVANIA

U.S. EPA – On-Scene Coordinator Mike Towle	Date
WESTON – Project Task Lead Charles Rapone	Date
ER, LLC – Response Manager Joe Galioto	Date

TABLE OF CONTENTS

Section **Page**

TABLE OF CONTENTS (CONTINUED)

Section **Page**

TABLE OF CONTENTS (CONTINUED)

Section **Page**

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

Appendix H Environemntal Restoration Injury Management

1.0 INTRODUCTION

The following site-specific health and safety plan (HASP) has been developed to address specific health and safety issues for all on-site personnel, visitors, affected residents and the general public during the work to be conducted at the Lower Darby Clearview Area (Site) in Darby Township, Philadelphia County, Pennsylvania. The HASP is designed to outline the health and safety requirements for all identified hazards (e.g., physical, chemical and biological) associated with all tasks at the Site so that the risks associated with those hazards are reduced to the greatest extent practicable. The procedures and guidelines contained herein were based upon the best available information at the time of the plan's preparation. Specific requirements will be revised when new information is received, or conditions change. A written amendment will document all changes made to the plan. Any amendments to this plan will be included as attachments.

1.1 SITE BACKGROUND

Clearview Landfill was privately owned and operated without a permit from the 1950s to the 1970s by the Clearview Land Development Corporation, and used for the disposal of municipal and industrial waste collected from the City of Philadelphia and portions of Delaware County, Pennsylvania. In August 1973, due to several violations of state regulations related to land disposal and the absence of a landfill permit, the Pennsylvania Department of Environmental Resources (PADER), which is a preceding agency of the Pennsylvania Department of Environmental Protection (PADEP), took court action against the Clearview Land Development Corporation, and ordered it to cease all waste disposal activities at the landfill and follow a prescribed closure plan. However, even after this order, the property continued to be used for other waste disposal operations for many years.

Historical aerial photographs show that when Clearview Landfill was closed in 1973, the landfill had expanded to the east and covered approximately 65 acres rising to an elevation of over 80 feet above mean sea level. The wetland areas formerly located east of the landfill were filled. The aerial photographs also show that new residential properties were constructed east and southeast of the landfill, possibly on top of a formerly filled area.

Currently, the southern end of the landfill is used by several businesses, including a truck/equipment storage and snow plowing business, as well as an auto repair and salvage operation. Local residents

from the Eastwick neighborhood access the landfill area for walking, cycling, all-terrain vehicle riding, deer hunting, and other activities.

2.0 RESPONSIBLE SITE AUTHORITY

The following section of the HASP describes the order of authority, responsibility, and communication that pertains to the health and safety functions at the Site. The section identifies the personnel responsible for the development and implementation of the site HASP and describes their roles and responsibilities. This section also identifies other contractors and subcontractors involved in site operations, and establishes the order of communication among them for health- and safety-related matters. The EPA is responsible for overall project administration and for managing health and safety standards for all individuals on-site at all times. In addition, all contractors and their respective corporate health and safety programs (as an employer under OSHA) are responsible for the health and safety of its employees. Representatives of each program, as well as the EPA, must be in agreement with the provisions outlined in this HASP. If a dispute arises over any items in this HASP, then the specific task in question will be suspended until personnel consult their respective health and safety program representatives for assistance and resolution is agreed upon.

The organizational structure of this section of the site's HASP is consistent with the National Oil and Hazardous Substances Pollution Contingency Plan in 40 Code of Federal Regulations (CFR) 300, and OSHA requirements in 29 CFR 1910.120(b)(2).

All personnel are required to report to the Site Safety Officer (SSO) or their immediate supervisor if they encounter any conditions or practices that they consider to be detrimental to their health or safety, or that they believe are in violation of applicable health and safety requirements, as outlined in this HASP. Such reports may be made orally or in writing. Personnel who believe that an imminent danger threatens human health or the environment are responsible and required to report the matter to the immediate attention of the SSO or their immediate supervisor for resolution.

All site workers are empowered, authorized, and responsible to stop work at any time when an imminent and uncontrolled safety or health hazard is observed. In a "stop work" event (immediately after the involved task has been shut down and the work area has been secured in a safe manner), the employee shall contact the SSO or their immediate supervisor. Through observations and

communication, all parties involved shall then develop, communicate, and implement corrective actions necessary and appropriate to modify the task and to resume work.

2.1 KEY PERSONNEL

The following section describes the key personnel assigned to work on activities at the Site.

2.1.1 ON-SCENE COORDINATOR

The On-Scene Coordinator (OSC), as the representative of the EPA, is responsible for overall project administration and for managing health and safety standards for all individuals on-site at all times. The OSC is the primary SSO for the Site and is responsible for ensuring compliance with this HASP and the overall health and safety of all personnel working at the Site. The OSC is responsible for the health and safety of site visitors.

2.1.2 SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM CONTRACTOR REPRESENTATIVE

Weston Solutions Inc. (WESTON®) is the START contractor at the Site. The lead WESTON representative for this Site is Charles Rapone. START is responsible for providing the OSC with assistance and support in regards to technical, regulatory, and safety aspects of site activity.

2.1.3 EMERGENCY RAPID RESPONSE SERVICE CONTRACTOR REPRESENTATIVE

Environmental Restoration, LLC. (ER) is the Emergency Rapid Response Service (ERRS) contractor at the Site. The lead ER Response Manager (RM) for this Site is Joe Galioto. ERRS is responsible for supplying personnel and equipment for removal operations under OSC oversight. The RM, as the field representative for Construction Contractor, ER and its subcontractors, has the responsibility for implementing the site Health and Safety Plan (HASP). The RM shall manage the project and ensure all health and safety requirements are met.

The ER Site Health and Safety Officer (SHSO) for this Site is Joe Galioto. The SHSO is assigned to the site on a full-time basis with functional responsibility for assisting the Project Manager (PM) with implementation of the HASP.

Specific Duties Include:

- Assist PM in providing a safe and healthful work environment.
- Assist PM in reporting and investigating all incidents.
- Assist PM in documenting and correcting safety issues/concerns.
- Ensure site personnel meet required training and medical clearance.
- Ensure proper decontamination of personnel and equipment is accomplished.
- Ensure that air monitoring equipment is calibrated and operational.
- Conduct personal air monitoring as required.
- Conduct fugitive dust monitoring as required.
- Perform respirator fit tests, as necessary.
- Inventory and inspect PPE prior to personnel entries into exclusion zone.
- Ensure proper personal protective equipment is being utilized.
- Inspect first aid kits and fire extinguishers.
- Supervise confined space entries.

The Project Health and Safety Manager (PHSM) for ER is Nick Michailides. Mr. Michailides provides support and leadership to the project to protect the health and safety of the employees and the public. This includes, but is not limited to, communicating on safety and health issues, providing training, establishing special hazard control programs, assisting or conducting incident investigations, making inspections and surveys, evaluating or developing new protective measures, accumulating and distributing incident statistics, and identifying requirements of safety and health laws and regulations.

2.2 SITE-SPECIFIC HEALTH AND SAFETY PERSONNEL

This section describes key personnel assigned to site-specific health and safety matters.

2.2.1 SITE SAFETY OFFICER

The OSC or his designee fills the role of the SSO at the Site. The following individuals are designated as SSO: Mike Towle, EPA OSC; Josh Barber, EPA RPM; Joe Galioto, ERRS RM; Charles Rapone, EPA START Contractor.

The primary responsibilities for the SSO are shown below:

- Responsible for the daily implementation and compliance of the HASP.
- Ensures that all daily safety briefings are performed and are pertinent to the daily work tasks.

- Ensures that all required safety equipment is consistent with the requirements of this HASP and is properly inspected, utilized when needed, stored, calibrated, and maintained in sufficient quantities.
- Coordinates safety and health program activities with on-site personnel.
- Participates in task-specific, pre-job briefings and ensures that all personnel fully understand the tasks they are to perform and are comfortable performing them, assuring any task-specific health and safety concerns or issues are addressed before work commences.
- Ensures that personnel are monitored for signs of stress, such as cold exposure, heat stress, and fatigue.
- Inspects and documents site hazards and conditions as well as other aspects of the HASP. Communicates any observed issues or hazards to respective contractor representatives.
- Ensures that decontamination lines have been properly established prior to work in restricted areas; that the decontamination is appropriate for the type of chemical contamination; and that all equipment, personnel, and samples are properly decontaminated before exiting a restricted area.
- Ensures that all contaminated personal protective equipment (PPE) or clothing and materials are properly disposed of.
- Is aware of and familiar with emergency phone numbers and procedures, evacuation routes, and routes to local medical facilities.
- Notifies and coordinates with local emergency officials when necessary and advises medical personnel of potential exposures and consequences.
- Ensures that the work area is secure and that no unauthorized personnel are present in the work area.
- Evaluating potential risks to residents and conveying any of these potential risks or hazards to affected community members.

2.2.2 CONTRACTORS/SUBCONTRACTORS

Each employer is responsible for assigning specific work tasks to their employees. Each employer's management team will provide qualified employees and that each team member is suitable for work based on a physician's recommendation. All team members will be allocated sufficient time, materials, and equipment to safely complete their assigned tasks. In particular, each employer is responsible for providing and equipping their personnel with any required PPE.

Contactor/subcontractors will be fully knowledgeable in all aspects of the work operations they are contracted to provide and each contactor/subcontractor is responsible for compliance with all regulatory requirements that pertain to those services. Contactor/subcontractors are expected to

perform their operations in accordance with their own unique company safety policies and procedures in order to ensure that hazards associated with the performance of the work activities are properly controlled. Copies of any required safety documentation governing safety and health requirements for a contactor/subcontractor work activities will be provided to EPA for review prior to the start of on-site activities if requested or required.

Hazards not listed in this HASP (but known to any contactor/subcontractor) or known to be associated with services provided must be presented to the SSO prior to beginning work. The SSO or authorized representative has the authority to halt any contactor/subcontractor operations and to remove any contactor/subcontractor or employee from the Site for failure to comply with established health and safety procedures or for operating in an unsafe manner.

2.2.3 FIELD TEAM MEMBERS

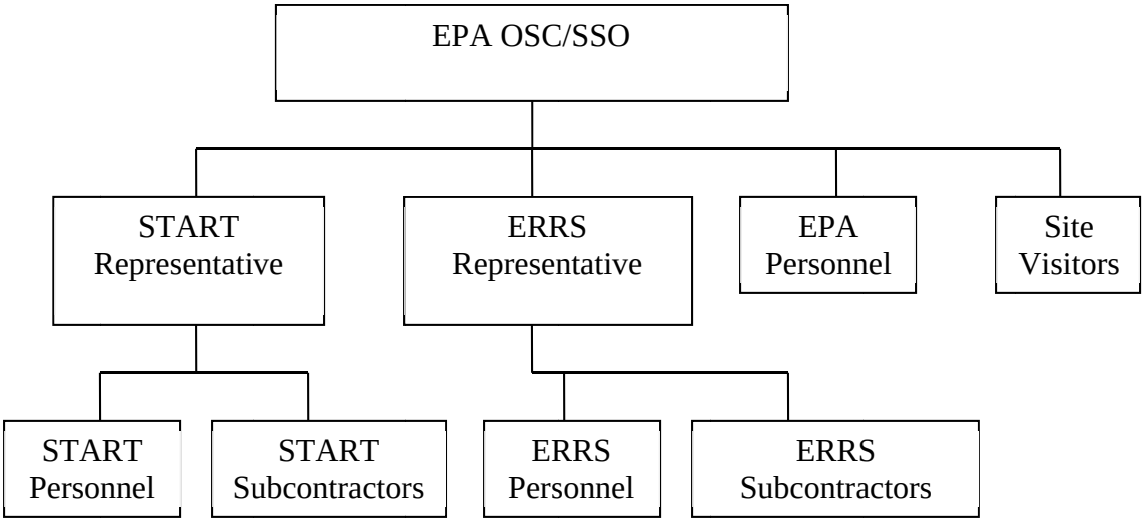
Any field team performing work in the field should consist of at least two people. The field team has the following specific responsibilities:

- Safely completes the on-site tasks required to fulfill the scope of work.
- Complies with the HASP.
- Notifies SSO or immediate supervisor of any unsafe work-place conditions or reportable safety incidents/accidents.

2.3 ORGANIZATIONAL RESPONSIBILITY

The site organizational chart shown in Figure 2-1 depicts safety and health lines of authority and communications among site personnel.

Figure 2-1 Site Organizational Chart



Notes:
EPA = U.S. Environmental Protection Agency
OSC = On-Scene Coordinator
SSO = Site Safety Officer
START = Superfund Technical Assessment and Response Team
ERRS = Emergency and Rapid Response Services

3.0 TRAINING REQUIREMENTS

Each employer maintains written or electronic certification of the successful completion of applicable training requirements for each worker. Training records are kept up-to-date and are immediately available to site personnel. Any person who has not provided documentation of required training is prohibited from engaging in hazardous waste operations on this Site. Training requirements are summarized in Table 3-1 below.

Table 3-1 Training Requirements

Training Requirements	Type of Training	Personnel to be Trained
Site Specific Health and Safety Plan (SSHASP)	Read/Sign	All
Pre-Job Start H&S/SSHASP Briefing	Field	All
H&S Tailgate Meetings	Field	All
40 hr. Hazardous Waste Operations and Emergency Response (HAZWOPER) Class and 24 hours of supervised fieldwork	Classroom	Site workers
8-hour HAZWOPER annual refresher	Classroom	Site workers – 1 year from the previous 40-hour HAZWOPER or 8-hour refresher training
8-Hour HAZWOPER Supervisor	Classroom	On-site managers and supervisors
Fire Extinguisher	Classroom	Both field workers
First Aid/Cardiopulmonary Resuscitation (CPR)	Classroom	At least one field team members
Bloodborne Pathogens	Classroom	First Aid/CPR Trained Personnel
Hazard Communication Program	Read	All

Notes:
H&S = Health and Safety
SSHSP = Site-Specific Health and Safety Plan

Personnel whose sole purpose is to deliver goods and maintain equipment within the support zone shall not be required to meet the training and medical fitness requirements described in this HASP. Personnel entering the other areas of the Site specifically for the purpose of delivery (e.g., dump trucks) or equipment maintenance are subject to the training and medical fitness requirements described in this HASP at the discretion of the SSO.

3.1 PRE-ASSIGNMENT AND ANNUAL REFRESHER TRAINING

Personnel at this Site must successfully complete 40-hour initial Hazardous Waste Operations and Emergency Response (HAZWOPER) training consistent with the requirements of 29 CFR

1910.120(e)(3)(i) in order to work in contaminated areas. In addition, such personnel must have received 3 days of actual field experience under the direct supervision of a trained experienced supervisor. All personnel at the Site must receive annual HAZWOPER refresher training consistent with the requirements of 29 CFR 1910.120(e)(8).

On-site managers and supervisors who are directly responsible for or who supervise workers engaged in hazardous waste operations must receive 8 hours of specialized supervisory training in addition to the appropriate level of worker HAZWOPER training described above, in compliance with 29 CFR 1910.120(e)(4). Exceptions to these initial and refresher training requirements are limited to site visitors and guests who may visit the Site but will not be exposed to the hazards present at the Site by adhering to the visitor requirements specified in this HASP.

A contractor safety representative will be designated as an excavation competent person and be present for all excavation activities in compliance with 29 CFR 1910.120(b)(l)(s)(iii).

3.2 ON-SITE TRAINING AND BRIEFING TOPICS

All individuals entering areas of the Site other than the support zone are required to review this HASP and sign the Compliance Agreement Form included in Appendix A. By signing the Compliance Agreement Form, individuals agree they have been briefed on and understand this HASP and the hazards present on-site.

3.2.1 INITIAL SITE BRIEFING

Site personnel are provided a site-specific briefing prior to the commencement of work. The following site-specific training and briefing topics will be covered for all site workers:

- Names of primary and alternate personnel responsible for site safety and health
- Site hazards
- Location of the HASP and Safety Data Sheet (SDS) documentation
- Site layout, including work zones, fire extinguishers, and first aid kits
- Emergency alarm system and emergency evacuation procedures
- Training and PPE requirements
- Work practices by which the employee can minimize risks from hazards
- Safe use of engineering controls and equipment on the Site

- Medical surveillance requirements
- Site control measures
- Decontamination
- Spill containment

A site-specific briefing will also be provided to all site visitors. For visitors, the site-specific briefing provides information about names of primary and alternate personnel responsible for site safety and health, site hazards, the site layout including work zones, fire extinguishers, first aid kits, the emergency alarm system and emergency evacuation procedures, location of the HASP and SDS documentation, and other pertinent safety and health requirements as appropriate.

3.2.2 DAILY BRIEFING

A daily briefing will be held at the start of each shift to ensure that all personnel understand site conditions and operating procedures and are aware of tasks scheduled for the day. This briefing will provide a forum to address worker health, safety of the residents and any safety concerns. All new amendments to the HASP will be reviewed at these meetings. Additional briefings are provided as necessary to notify employees of any changes as a result of information gathered during ongoing site activities. Conditions for which additional briefings are scheduled include (but are not limited to) changes in site conditions, changes in the work schedule/plan, newly discovered hazards, and incidents involving a stoppage of work.

4.0 MEDICAL SURVEILLANCE REQUIREMENTS

The medical surveillance section of this HASP describes how worker health is monitored at the Site. Medical surveillance is implemented when there is the potential for exposure to hazardous substances at levels above Occupational Safety and Health Administration (OSHA)-permissible exposure limits (PELs) or other published exposure limits. The purpose of a medical surveillance program is to medically monitor worker health to ensure that personnel are not adversely affected by site hazards. The requirements for medical surveillance at this Site are based on the site characterization and task hazard analyses and activity hazard analysis presented in Appendix B and Appendix E of this HASP.

Based on the potential for worker exposure to hazardous substances or health hazards at this Site, the medical surveillance program outlines the following monitoring requirements, which are further discussed in this section:

- Baseline or pre-assignment monitoring
- Periodic monitoring
- Exposure/injury/medical support
- At the discretion of examination medical professional
- Exit physical

Each employer's medical director or medical consultant will determine the appropriate medical protocol for each worker to comply with 29 CFR 1910.120(f). BASELINE OR PRE-ASSIGNMENT MONITORING

Personnel working on-site will be enrolled in a medical surveillance program managed by their employer and medically examined prior to commencing work at the Site. The purpose of this examination is to assess each worker's baseline health status and the worker's ability to perform anticipated duties wearing the required PPE without adverse health effects. All workers must be medically cleared in accordance with their respective surveillance programs before commencing work at the Site.

4.1 PERIODIC MONITORING

Personnel within the medical surveillance program will receive medical exams at least every 24 months in accordance with 29 CFR 1910.120 to provide ongoing assessment of the status of each worker's health. Personnel must be medically cleared for work in accordance with their respective surveillance programs. If the worker's health status changes, that employee's supervisor may modify his/her assigned tasks appropriately or he/she may be removed from duty at the Site, at the discretion of his/her supervisor or the SSO.

4.2 FIT TESTING REQUIREMENTS

All personnel using a tight fitting respirator must have successfully passed a qualitative or quantitative respirator fit test for the specific model of tight fitting respirator to be used. Fit testing shall be performed in accordance with OSHA 29 CFR 1910.134 within the last 12 months.

Documentation of fit testing is the responsibility of each employer. All personnel shall be medically cleared by a licensed health care professional prior to fit testing and using a respirator.

4.3 EXPOSURE/INJURY/MEDICAL SUPPORT

Any worker who is injured, becomes ill, or develops signs or symptoms of exposure to hazardous substance or health hazards, will receive a medical examination as soon as possible after the occurrence, with follow-up examinations provided as required by the attending physician. Examinations and reporting will be conducted through the employer's respective medical program. Affected workers will not be permitted to return to work until they are medically cleared for duty.

4.4 HEARING CONSERVATION PROGRAM

Any employee who will potentially be exposed to noise levels of 85 decibels or greater for an 8-hour time-weighted average will be enrolled in a hearing conservation program administered by the employer. The hearing conservation program will consist of at a minimum, a baseline audiogram taken from each employee within 6 months of initial exposure to 85 decibels or greater for an 8-hour period, and an annual audiometric evaluation conducted by a qualified third party. Hearing protection equipment and sufficient training on the use of the equipment will be provided by the employer.

4.5 EXIT PHYSICAL

Personnel will be offered the opportunity for a medical examination upon their termination or reassignment. The exit physical will be conducted in accordance with the employee's medical surveillance program.

5.0 SITE CONTROL MEASURES

The site control measures described in this section are designed to establish effective communication at the Site, reduce the spread of hazardous substances from contaminated areas to clean areas, facilitate emergency evacuation and medical care, and prevent unauthorized entry to the Site. Specifically, this section describes site control measures that include the buddy system, the site communications plan, work zone definitions and associated rules, nearest medical assistance, and emergency alarm procedures.

5.1 WORK ZONE DEFINITIONS

The Clearview Landfill is located along the eastern bank of both Darby Creek and Cobbs Creek, near the intersection of 83rd Street and Buist Avenue. The footprint of Clearview Landfill is primarily within Darby Township, Delaware County, PA, but partially within the limits of the City of Philadelphia. The site includes the Clearview Landfill, the Eastwick Regional Park which abuts the eastern limits of the present day landfill footprint, and a portion of the Eastwick neighborhood. The entry roads from South 83rd St. and Buist Avenue, parking area, command post, equipment, connex break trailer, and port-a-johns are considered the Support Zone.

5.1.1 SUPPORT ZONE

Administrative, site management, clerical, site visitors, and other support functions are based in the support zone. Surveys of work areas within the support zone will be conducted as needed to ensure that this zone remains uncontaminated. If contamination is detected, zone boundaries shall be adjusted until corrective action is taken and survey results indicate that this zone is again uncontaminated.

Within the support zone, personnel will adhere to the following:

- Check in and out of the Site at the command post.
- Alert supervisor to signs of changing or unanticipated hazards.
- Abstain from horseplay.
- Use tobacco products in designated areas only.
- Alert supervisors of any trespassers on the Site.

- Greet site visitors and provide instructions to maintain their safety.

5.1.2 CONTAMINATION REDUCTION ZONE

Each restricted area will have associated control point(s), allowing access to the restricted area. These control points are designated as contamination reduction zones to ensure that the rest of the Site remains uncontaminated. Additionally, all instruments, tools, equipment, and other items brought into a restricted area will be decontaminated prior to being released from the control point to ensure that contamination is not spread from restricted areas.

If necessary, decontamination procedures will be conducted as described in Section 9.0 of this HASP.

Legend

- Former Landfill Access Road
- Secondary Dumping Area
- Former Landfill Access Road Area
- Historical Extent of Clearview Landfill
- County Boundary Line

Data Sources
Imagery: ESRI Bing Service

Coordinate System:
State Plane Pennsylvania South FIPS 3702
Linear Unit: Foot US

Datum: D North American 1983 (NAD 83)

N

0 287.5 575
Feet

Lower Darby Creek Area Site
Delaware and Philadelphia Counties, PA

FIGURE 5-1
Clearview Landfill
Site Layout

TDD#: W501-16-06-001
Contract: EP-S3-15-02
Prepared: 7/5/2016

WESTON SOLUTIONS

File: S:\03-Projects\Federal\START Region 3\30250.012.001.0107.00 - Lower Darby Creek\FSP\Figures\Figure, Action Memo.mxd, 7/5/2016 12:06:12 PM, vadim.petrov

5.1.3 EXCLUSION ZONE AREA

All personnel within the exclusion zone will at minimum wear safety toe boots, a high visibility safety vest, safety glasses, and a hard hat. Additional PPE requirements are defined in associated task hazard analyses. All personnel entering the exclusion zone will work under the buddy system. All personnel entering the exclusion zone, or their buddy, will have a site radio to remain in communication with other site personnel.

Personnel in the exclusion zone will adhere to the following procedures:

- Abstain from tobacco use, eating, drinking, or application of cosmetics.
- Abstain from use of matches, lighters, or open flame.
- Monitor self and buddy for signs of heat or cold stress or chemical exposure.
- Alert supervisor to signs of changing or unanticipated hazards.
- Abstain from horseplay.
- Monitor self and buddy for PPE rips, tears, and/or damage.
- Use monitoring equipment and tools that are safe and appropriate for the working environment.
- Use ground-fault circuit interrupters (GFCI) when necessary to prevent electric shock.
- Use three-wire grounded extension cords for portable electric tools and appliances. All extension cords will have appropriate labelling.
- Keep loose-fitting clothing, jewelry, and long hair away from moving machinery.
- Use signals to direct heavy equipment operating in tight quarters.
- Refrain from refueling engines while equipment is running.
- Keep ignition sources at least 50 feet from refueling areas.
- Lower all blades and buckets to the ground and set parking brakes before shutting off vehicles.
- Never exceed the rated capacity of a vehicle.

5.2 BUDDY SYSTEM

While working in the exclusion zone, site workers will use the buddy system. The buddy system refers to the practice of personnel working in pairs and staying in close visual contact with each other to be able to observe one another and summon rapid assistance in case of an emergency.

The responsibilities of workers using the buddy system are as follows:

- Remain in close visual contact with partner.
- Provide partner with assistance as needed or requested.
- Observe partner for signs of cold stress, heat stress or other difficulties.
- Periodically check the integrity of the partner's PPE.
- Notify the site manager or other site personnel if emergency assistance is needed.

5.3 SITE COMMUNICATIONS PLAN

The following communication equipment is used to support on-site communications:

- Motorola HT 1000 radios
- Personal cell phones

All personnel entering the exclusion zone will be assigned a radio or be accompanied by someone who has been assigned a radio.

A current list of emergency contact numbers is posted in the following locations:

- Command post
- Tool trailer
- Control points

Site personnel will be trained to recognize and use hand signals when visual contact is possible, but noise or PPE limit verbal communication. Hand signals include the following:

- 1 HAND ON HEAD – I'm OK/I Agree
- HAND MOVING HORIZONTAL ACROSS CHEST – I Don't Agree
- HANDS ACROSS THROAT – Out of Air/Trouble Breathing
- GRAB HAND/ARM – Come with Me
- 2 HANDS WAVING OVER HEAD – I Need Assistance

5.4 NEAREST MEDICAL ASSISTANCE for Non ER LLC Employees

Information regarding the nearest emergency medical assistance selected to support this Site is listed below:

Organization:	Mercy Fitzgerald Hospital
Address/Location:	1500 Lansdowne Avenue, Darby, PA
Telephone:	610-237-4000

A map to this facility for WESTON employees is located in Section 10.0, EmergenceResponse/Contingency Plan, of this HASP, Figure 10-1. Additional maps to this facility are posted in the command post trailer in the event of an emergency.

A Map for ER LLC employees ONLY is presented in Appendix H

5.5 EMERGENCY ALARM PROCEDURES

In the event of an emergency, on-site workers will be notified by radio providing instructions for specific procedures. In absence of that communication during an emergency, an air horn is available at the command post to notify all site personnel to move to the designated site rally point. Three long blasts on the air horn will be sounded. The primary rally point is the command post. Residents will be informed of the purpose of the air horn and that it pertains to on-site workers. Separate notification and emergency procedures for residents are discussed throughout the HASP, in particular Section 13.0. A list of on-site workers is included on the daily sign-in sheet located in the command post. Section 10.0 of this HASP describes site-specific emergency procedures.

6.0 TASK/OPERATION SAFETY AND HEALTH RISK ANALYSIS

This section of the HASP describes the safety and health hazards associated with site work and the control measures selected to protect workers. The purpose of the safety and health risk analysis is to identify and quantify the health and safety hazards associated with each site task and operation and to evaluate the risks to workers. Using this information, appropriate control methods are selected to eliminate the identified risks, if possible, or to effectively control them. The control methods are documented in each task-specific analysis.

6.1 GENERAL SITE SAFETY RULES

The following are standard safe work practices that apply to all site personnel and visitors and will be discussed in the safety briefing prior to initiating work on the Site:

- All safety incidents, injuries, and near misses must be within 20 minutes of incident reported to the employee's immediate supervisor.
- Eating, drinking, chewing gum or tobacco, smoking and applying makeup (e.g., Chap Stick, sunscreen) are prohibited in work areas.
- Hands must be washed upon exiting any restricted area and before eating, drinking, chewing gum or tobacco, smoking, and applying makeup.
- The buddy system will be implemented for all work activities. Personnel are required to work in tandem within restricted areas. All personnel will be assigned radios to maintain communication.
- Verbal contact must be maintained between "buddies" when performing work tasks.
- Radio and cell phone communication will be used to contact immediate supervisors in the event of an emergency.
- No personnel will be admitted to work at the Site without the proper safety equipment, training, and medical surveillance certification.
- Proper exit and decontamination procedures must be followed before leaving any restricted area.
- All employees and visitors must sign in and out of the Site on the entry/exit log located in the site command post trailer.
- All personnel must comply with established site safety procedures. Any worker who does not comply with safety policy, as established by the SSO, may be removed from the Site.

6.2 TASK HAZARD ANALYSIS

The hazards associated with each work task and the measures taken to reduce the risks associated with each task are outlined in the Task Hazards Analyses (THAs) or Activity Hazard Analysis (AHAs) included in Appendix B and Appendix E, respectively. As additional tasks are defined and THAs/AHAs developed, they will be included in Appendix B and Appendix E. Each task will be evaluated based on the probability and severity of an incident and assigned a risk assessment code of low risk to extremely high risk.

Each THA/AHA lists the task or operation, the location(s) where that task or operation will be performed, the chemical hazards associated with that task; and presents a discussion of the implications of any data previously collected regarding these contaminants, their known or anticipated concentrations; and any anticipated physical and biological hazards associated with that task. The measures by which the risks associated with all of these hazards will be minimized are outlined on each THA/AHA.

Health hazard information for chemical site contaminants is presented in Appendix C of this report. Safety data sheets regarding other hazardous materials used at the Site, such as sample preservatives, decontamination chemicals, and fuels and lubricants for excavation equipment and office machines that are on-site, are included in the Site hazard communication binder located at the command post. These materials are subject to 29 CFR 1910.1200, the Hazard Communication Standard. Section 13 of this HASP discusses how the hazards associated with these materials and all site contaminants will be communicated to personnel at the Site.

THAs/AHAs and accompanying health hazard information will be revised under the following circumstances:

- The scope of work for a given task is changed by adding, eliminating, or modifying elements of the work.
- New methods of performing work tasks are selected or identified.
- Observations of the performance of work tasks results in a revised characterization of hazards.
- New radiological, chemical, biological, or physical hazards are identified.
- Sampling or monitoring data indicate changes to hazards and/or likelihood of exposure.
- New/different control measures are selected.

6.3 SITE HAZARDS

Hazards expected to be present and indicated in THAs/AHAs are listed below. This list is not expected to be inclusive of all hazards that may be encountered during work activities. As each THA/AHA is developed prior to work activities, it should be evaluated to determine any hazards that may be encountered during that task independent of what may be discussed in this HASP.

6.3.1 CHEMICAL HAZARDS

Nuisance dust may be present at any site where soil piles or areas of bare soil are present, or where excavation activities or numerous other activities are occurring. The American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) for total dust (particulates) is 10 milligrams per cubic meter (mg/m^3) The OSHA PEL is 15 mg/m^3 for total dust and 5 mg/m^3 for respirable dust. The National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL) has not established a level for total dust. The Site accepts the most stringent action level of 5 mg/m^3 as the dust action level to ensure worker and visitor safety. Total dust is normally visible at approximately 2 mg/m^3. Any time visible dust is present at the Site, dust suppression will be implemented via a water truck or hose to wet soil and roadways to remove any airborne dust caused by site operations. Upwind and downwind air monitoring for particulates will occur for the duration of excavation activities and at the discretion of the SSO. Residents will be notified by EPA a minimum of 48 hours prior to commencing work that will generate dust. EPA will recommend to residents in the vicinity of earth disturbance or excavation work to keep doors and windows closed to avoid nuisance dust entering their homes. During residential yard excavation activities, it is recommended that a minimum of the 5 homes on either side of the excavation work follow recommendations for closed doors and windows. Air monitoring methodologies are discussed in Section 8.0.

Sampling conducted by the Environmental Protection Agency (EPA) as part of the Remedial Design Pre-design Investigation (PDI) indicated elevated concentrations of polycyclic aromatic hydrocarbon (PAHs) were detected in the shallow soils within numerous residential properties within the Eastwick neighborhood located in close proximity to the Clearview Landfill. Elevated lead concentrations were also detected in a limited portion of the same area exhibiting elevated PAH concentrations. The maximum concentration of PAHs in the top two feet (0 to 24 inches) of soil of the residential properties were identified after the Action Memorandum was finalized on July 21, 2016. The maximum concentrations in the Eastwick neighborhood yards surface soil (0 to 12 inches) are 201 mg/kg (ppm or parts per million). The maximum concentration of Benzo(a)Pyrene within the surface soils is 14 mg/kg, which is well above the $1x10^{-4}$ excess cancer risk level. Elevated PAH concentrations are also found in subsurface soils well above the $1x10^{-4}$ excess cancer risk level. Based upon on-scene observation, some of the contaminated soils are poorly vegetated or mixed into

garden or play areas allowing an increased chance of unacceptable exposure to elevated PAHs. Elevated lead is found in a limited area of the Eastwick neighborhood. The area of elevated lead contamination is believed to exist within the area of elevated PAHs contamination described above. Lead has been detected in the northern portion of the City Park in surface soil at 1,270 mg/kg in an area immediately adjacent to a residential property. Concentrations of lead as high as 5,840 md/kg are detected in deeper soils. These detections are over 0.5 miles away from the area being initially addressed by the removal action. Consistently lower levels of lead have been detected within the area being addressed initially by the removal action along Buist Avenue and Angelo Place. The maximum concentration of lead within this initial area is 919 mg/kg.

Table 6-1, provides the maximum concentration for each of the PCOCs identified in surface or subsurface soil samples within the area being addressed initially by the removal action during the PDI and associated PCOC-based dust exposure action limits. Table 6-1 also calculates the dust action levels based on maximum measured contaminant concentrations and permissible exposure limits for **workers**. The PCOC-based dust exposure limit listed is the most stringent limit for each chemical in accordance with the OSHA PEL, NIOSH REL, or ACGIH TLV and an additional safety factor of 2.

Based on the listed concentrations and action levels, the strictest dust action level for an individual PCOC would be approximately 27.2 mg/m^3 for lead. Using a sum of fractions approach for the maximum observed concentration for all listed PCOCs and a safety factor of 2, the PCOC-based dust action level for the Site would be 25.793 mg/m^3 as shown in Table 6-1. This concentration of particulates in the air is greater than the site nuisance dust action level listed above; therefore, PCOC-based dust exposure is not a potential threat to site workers during planned activities. The total particulates dust control action level for the site is 2.1 mg/m^3 (see Table 8-1), which is less than the PCOC-based dust action level and therefore protective of site workers. The total particulates dust control action level for the site of 2.1 mg/m^3 will be used for PCOC-based dust exposure worker protection at the site.

Table 6-1 Chemical Dust Exposure Calculation (Worker)

Chemical	Exposure Limit (mg/m^3)	Maximum Soil Concentration (mg/kg)	Exposure Limit Based on Single Compound (EL Mix, mg/m^3)	Dust Quotient for Each Compound (level/limit)
Lead	0.05	919	27.2	1.84E+04
PAHs	0.2	118	497.51	1.01E+03
			Sum	1.94E+04
		Dust Exposure Action Level =	25.793 mg/m^3	

Notes:
EL = Exposure Limit
mg/kg = milligrams per kilogram
mg/m^3 = milligrams per cubic meter
PAH = polynuclear aromatic hydrocarbon

Table 6-2 provides the maximum concentration for each of the PCOCs identified in surface or subsurface soil samples within the area being addressed initially by the removal action during the PDI and associated PCOC-based dust exposure action limits. Table 6-2 also calculates the dust action levels based on maximum measured contaminant concentrations and permissible exposure limits for **residents**.

The dust exposure limit for lead is based on the Integrated Exposure Uptake Biokinetic (IEUBK) Model which predicts the blood lead concentration for children based on the concentrations in media (soil, water, air). EPA's guidance states, a prediction of 5% above the blood lead level of 10 ug/dl should trigger action. Using the IEUBK Model and known site conditions, an exposure limit between 2.0 – 2.5 ug/m3 would be below or at EPA's screening level. EPA selected 2 ug/m3 as the exposure limit to establish a residential dust action level.

The PAHs being addressed by the removal action are considered to carcinogens. Thus, chronic exposure parameters (e.g., a lifetime of exposure) are typically used to evaluate potential risks. However, the duration of the initial removal action and subsequent potential exposure to dust will occur over a much shorter time frame (< 1 year) and as such, consideration of acute exposure to PAHs was considered when calculating dust exposure levels. The dust exposure limit for Benzo(a)pyrene (BaP), which is considered to be the most toxic of the PAHs being addressed by the removal action, is based on an Inhalation Unit Risk (IUR) of 1.1E-03 (California EPA - Office of

environmental health Hazard Assessment (OEHHA). The following formula was used to determine the BaP exposure limit to use in dust action limit calculations for residents.

$$\text{Concentration} = \frac{\text{Target Cancer Risk}}{\text{IUR}} = \frac{\text{1E-04}}{\text{1.1E-03}} = 0.09 \text{ ug/m3}$$

Based on the known site conditions and exposure limits, using a sum of fractions approach for the maximum observed concentration for all lead and BaP and a safety factor of 2, the PCOC-based residential dust action level for the Site would be 0.813 mg/m^3 as shown in Table 6-2. This concentration of particulates in the air is lower than total particulates dust control action level of 2.1 mg/m^3 for site workers listed above. Thus, the total particulates dust control action level for the Site is 0.813 mg/m^3 will be used for resident protection at the site.

Table 6-2 Chemical Dust Exposure Calculation (Resident)

Chemical	Exposure Limit (mg/m^3)	Maximum Soil Concentration (mg/kg)	Exposure Limit Based on Single Compound (EL Mix, mg/m^3)	Dust Quotient for Each Compound (level/limit)
Lead	0.002	919	1.09	4.6E+05
Benzo(a)pyrene	0.00009	14	3.21	1.56E+05
			Sum	6.15E+05
		Dust Exposure Action Level =	0.813 mg/m^3	

Notes:
EL = Exposure Limit
mg/kg = milligrams per kilogram
mg/m^3 = milligrams per cubic meter
PAH = polynuclear aromatic hydrocarbon

Previous evaluations at the Site have provided significant information on the potential hazards that may be expected at the Site. However, all of the specific chemicals of concern may not be known at this time. Exposure to unidentified chemicals by any route shall be maintained at the absolute practicable minimum level to prevent casual contact with chemicals. Control by proper use of PPE, engineering controls, and personal hygiene practices will prevent significant exposure. Monitoring will be conducted at the discretion of the SSO to assess the overall potential for chemical exposure

should any new conditions be encountered. Air monitoring methodologies are discussed in Section 8.0.

6.3.2 PHYSICAL HAZARDS

The following sections list physical hazards expected to be encountered during certain tasks at the Site. Applicable physical hazards will be listed on Weston THAs and ER LLC AHAs.

6.3.2.1 Slips, Trips, & Falls

Good housekeeping will be maintained at all areas of the Site. Trip hazards will be removed, marked, or guarded. Where necessary, temporary fencing will be used to restrict access to areas which otherwise would be open to the public, i.e., the access road crossing the Eastwick City Park.

Extreme caution shall be used when working on or around slippery surfaces. Disposable boot covers with abrasive grip material bottoms for added traction are recommended for work on slick surfaces.

At the end of each day, all equipment left on-site will be stored at the Command Post (CP) parking area to prevent residents from accessing the equipment overnight. The CP parking area will be guarded by a security guard overnight to prevent trespassing, vandalism, and/or injury.

6.3.2.2 Lifting

Mechanical means of lifting is the most preferred method and should be used whenever possible for handling heavy or bulky loads. When a mechanical means of lifting is not available, proper lifting techniques shall be used. Care should be taken when lifting and handling heavy or bulky items to avoid back injuries. The following fundamentals address the proper lifting techniques that are essential in preventing back injuries:

- The size, shape, and weight of the object to be lifted must first be considered.
- Multiple employees or the use of mechanical lifting devices are required for heavy objects $\geq$ 50lbs.
- The anticipated path to be taken by the lifter should be considered for the presence of slip, trip, and fall hazards.
- The feet will be placed far enough apart for good balance and stability (typically shoulder width).

- The worker will get as close to the load as possible. The legs will be bent at the knees.
- The back will be kept as straight as possible and abdominal muscles should be tightened.
- Twisting motions should be avoided when performing manual lifts.
- To lift the object, the legs are straightened from their bending position.
- A worker will never carry a load that cannot be seen over or around.

When placing an object down, the stance and position are identical to that for lifting. The legs are bent at the knees and the object lowered. When two or more workers are required to handle the same object, workers will coordinate the effort so that the load is lifted uniformly and that the weight is equally divided between the individuals carrying the load. When carrying the object, each worker, if possible, will face the direction in which the object is being carried.

In handling bulky or heavy items, the following guidelines will be followed to avoid injury to the hands and fingers:

- A firm grip on the object is essential; leather gloves will be used if necessary.
- The hands and object will be free of oil, grease, and water which might prevent a firm grip. The fingers will be kept away from any points that could cause them to be pinched or crushed, especially when setting the object down.
- The item will be inspected for metal slivers, jagged edges, burrs, and rough or slippery surfaces prior to being lifted.

6.3.2.3 Overhead Hazards

All power lines shall be treated as live wires until assured safe by the local electric company representatives in the area. Be aware of possible back feed from any generators in the area. If an area is without power, do not assume it will stay without power as the line can be energized while you are in the area.

Investigation of a work area must be conducted before any work is to begin. Proper clearances must be maintained at all times. Equipment shall not deviate from established travel ways or work areas where clearances are unknown/insufficient. Booms, track-hoes, and other similar equipment shall not operate closer than 10 feet from an overhead power line.

6.3.2.4 Excavations

Subsurface underground utility clearance must be performed before any aggressive methods of excavation take place. PA One-Call should be notified before starting excavation operations in a specific area. If the utility mark-outs expire, a new call will be placed to the PA One-Call agency for new utility mark-outs.

- PA One-Call: 1(800) 242-1776

PA One-Call only covers right-of-way areas; therefore, a second method of locating underground utilities in residential areas will be used. This method can include, but is not limited to, private underground utility locators, historical site plans, and visual observations. A 3-foot buffer zone, both horizontally and vertically, should be maintained around any identified underground utility. Non aggressive methods should be used in this buffer zone, along with a watchperson.

For any excavations exceeding 4 feet, a competent person must determine the type and need for protection required for entering the excavation. No one may enter an excavation in excess of 4 feet in depth unless a competent person has assessed the soil conditions and determined based on conditions, sloping, depth, and activity, that entry is safe.

Where oxygen deficiency (atmospheres containing less than 19.5 percent [%] oxygen) or a hazardous atmosphere exists or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation shall be tested before employees enter excavations greater than 4 feet in depth.

A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are 4 feet or more in depth so no more than 25 feet of lateral travel is required for employees.

EPA will notify residents 48 hours prior to commencing excavations on their property and convey the potential hazards associated with excavation activities. Wherever practicable, excavations will be backfilled (partially or completely) the same day. When it is necessary to leave excavations partially or completely open overnight, temporary fencing will be used to secure the excavation area to prevent hazards to residents. Prior to leaving an open excavation area for the night, EPA or contractor

personnel will meet with residents/tenants to discuss the current state of the property, potential hazards, and plans for the next day, etc.

6.3.2.5 Heavy Equipment

Only qualified personnel are allowed to operate equipment. Daily inspections of heavy equipment will be conducted to ensure all safety and operating mechanisms are in place and working properly (i.e., backup alarm, fire extinguisher, brakes, controls). This inspection will be documented and kept on file with the employer for review. Ground personnel shall communicate with the operator via radio before entering and upon leaving that operator's work area. The swing radius of any piece of equipment must be established and at no time are ground personnel to enter that area when the equipment is in operation.

The following protocols will be followed when heavy equipment (such as excavators, front-end loaders, backhoes, and fork lifts) is used at the Site:

- Inspect, and document heavy equipment before each work shift.
- Report any abnormalities, such as equipment failure, oozing liquids, or unusual odors, to your supervisor or the SSO.
- Allow only qualified and licensed personnel to operate heavy equipment.
- Wear hardhats, safety boots, high visibility vests, and safety glasses or goggles at all times when working near heavy equipment. Other PPE or clothing may be required as specified in the HASP, THA, AHA, or other site-specific health and safety documentation.
- Never walk directly behind or to the side of heavy equipment without the operator's knowledge.
- Maintain visual contact with equipment operators at all times.
- When maneuvering equipment in tight quarters, use a second person to ensure adequate clearance.
- Keep all heavy equipment used at a contaminated work site in the exclusion zone until the work has been completed. Such equipment will then be decontaminated within the designated decontamination area.
- Use radios to communicate with machine operators.
- Establish hand signals for use when verbal communication is difficult.
- Make sure that equipment with an obstructed rear view has an audible alarm that sounds when the equipment is moving in reverse (unless a spotter guides the operator).

- Engage parking brakes when equipment is not in use.
- Keep blades, buckets, dump bodies, and other hydraulic systems fully lowered when equipment is not in use.
- Seat belts must be present in all vehicles having a rollover protective structure (ROPS).
- Do not operate material-handling equipment that lacks a ROPS on a grade unless the grade can safely accommodate the equipment involved.
- Inspect all moving equipment regularly to ensure that parts are secured, are intact, and have no cracks or areas of weakness. The equipment must turn smoothly without wobbling and must operate according to manufacturer specifications.
- Abstain from wearing loose-fitting clothing and ensure long hair is secured around moving equipment or machinery.

6.3.2.6 Confined Space

Confined spaces are not expected to be present on the Site as part of the tasks discussed in this HASP. Some trenches/excavation may qualify as confined spaces. The SSO will determine whether excavations or trenches qualify as a confined space. A confined space is defined as follows:

- Is large enough for a worker to enter fully and perform assigned work.
- Is not designed for continuous occupancy by the worker.
- Has a limited or restricted means of entry or exit.

By definition, a permit-required confined space has one or more of the following characteristics:

- Contains or has the potential to contain a hazardous atmosphere.
- Contains a material with the potential to engulf someone who enters the space.
- Has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section.
- Contains any other recognized serious safety or health hazards.

Site workers are trained in identifying and avoiding and reporting any encountered confined spaces. Workers will not enter permit-required confined spaces without direction from the SSO, modifications to this HASP, proper training and certification, additional PPE, and the presence of a confined space observer.

6.3.2.7 Noise

Personnel exposed to noise levels over 85 A-weighted decibels (dBA) shall wear appropriate hearing protection provided by the employer and be enrolled in the employer hearing conservation program. Areas or equipment emitting noise at or above 85 dBA on a regular basis will be managed using engineering controls, where possible. When engineering controls are not feasible, administrative controls can be developed and appropriate hearing protection will be provided. Within work areas or near equipment with noise levels at or above 85 dBA, hearing protection must be worn. Hearing protection will be maintained in a clean and reliable condition, inspected prior to use, and damaged or deteriorated hearing protection will be repaired or discarded.

Heavy equipment will be used as far from residential property as possible, wherever practicable, to reduce public exposure to loud noise, e.g., wood chipper, decontamination pad, etc. However, it may not be possible to prevent excessive noise levels in near proximity to residential properties. EPA will notify residents when equipment emitting noise at or above 85 dBA will be used and the residents will be advised to close windows and doors, if possible, while this equipment is in operation. For reference, a typical vacuum cleaner emits a noise level of 80 dB a lawn mower emits on average 90 dB.

6.3.2.8 Electrical

Only qualified personnel are authorized to work on electrical circuits or repair any electrical equipment. Lock Out-Tag Out procedures shall be used before any maintenance is performed. Extension cords will be inspected daily. Damaged extension cords will be taken out of service. All extension cords shall be rated for heavy construction use. GFCI will be used on all temporary electrical circuits (i.e., generators, site trailers). Electrical cords not specifically made for water submersion will be kept out of wet areas.

6.3.2.9 Small Quantity Flammable/Combustible Materials

Small quantities of flammable/ combustible materials shall be stored in “safety” cans with appropriate flame arrestors and self-closing lids and labeled according to their contents. Plastic type fuel cans are not acceptable for any reason.

6.3.2.10 Use of Chainsaws

The following precautions will be followed when chainsaws are used at the Site:

- Inspect, and document equipment daily and prior to use. Each chainsaw should be inspected for the following:
  - Handles and guards—To assure that they are sound, tight-fitting, properly shaped, free of splinters and sharp edges, and in place.
  - Controls—To assure proper function.
  - Chainsaw chains—To assure proper adjustment.
  - Chainsaw mufflers—To assure that they are operational and in place.
  - Chain brakes and nose shielding devices—To assure that they are in place and function properly.
  - Cutting edges—To assure that they are sharp and properly shaped.
  - All other safety devices—To assure that they are in place and function properly.
- Report any abnormalities, such as equipment failure, oozing liquids, and unusual odors, to your supervisor or the SSO.
- Allow only qualified personnel to operate equipment.
- Wear hardhats, face shields, safety boots, chainsaw chaps, cut resistant gloves, and hearing protection at all times when working with or near chainsaws. Other PPE, such as high-visibility vests or clothing, may be required as specified in the HASP, THA, or other site-specific health and safety documentation.
- Never walk directly behind or to the side of an operator with a chainsaw without the operator's knowledge.
- Maintain visual contact with chainsaw operators at all times.
- Prohibit all personnel who are not essential to work activities from entering the work area.
- Abstain from wearing loose-fitting clothing.
- Ensure all long hair is properly secured.

6.3.2.11 Use of Chippers

The following precautions will be followed when chippers are used at the Site:

- Inspect and document equipment before each work shift.

- Report any abnormalities, such as equipment failure, oozing liquids, and unusual odors, to your supervisor or the SSO.
- Prohibit all personnel who are not essential to work activities from entering the work area.
- Appropriate gloves without loose cuffs will be worn during operation. Goggles or safety glasses and hearing protection must be worn while the chipper is in operation.
- Remain alert at all times.
- Chipper access covers or doors will not be opened until the drum or disc is at a complete stop.
- Infeed and discharge ports will be guarded to prevent contact with the disc, knives, or blower blades.
- Lockout and tag out procedures shall be implemented during any servicing or maintenance.
- Detached trailer chippers shall be chocked during usage on any slope where rolling or sliding of the chipper is reasonably foreseeable.

6.3.2.12 Vehicular Traffic

All personnel that operate vehicles on-site will have a valid driver's license. All traffic rules, regulations, and control signs will be obeyed at all times. Work areas will be clearly barricaded and the appropriate signs will be displayed to protect workers and residents. Spotters will be used to guide the operator of a vehicle when backing up and in other situations where the driver has limited visibility. Personnel working near roadways or directing traffic will remain aware of their position in relation to traffic and will wear high visibility vests and will safely direct traffic and pedestrians as necessary.

When vehicles are parked alongside the road for any length of time, cones will be used behind the vehicle to alert other drivers of the potential hazard and to protect the workers inside or near the vehicle.

The Eastwick neighborhood is densely populated. A large portion consists of adolescent and retirement age residents. There is both on and off street parking. To minimize potential interference with residential activities and tracking of dirt onto roadways, the most direct route to the Command Post or other areas will be taken by all vehicles. Currently, accessing the Command and access road via Lindbergh Blvd. to S. 83rd St. is considered to be the preferable route. This may be updated as the action continues and/or input is provided by the community. For yards that will be addressed by the

removal action, EPA will notify residents that they should relocate their personal vehicles prior to tree removal and during front-yard excavations to avoid damage to personal property.

6.4 ENVIRONMENTAL HAZARDS

Personnel have the potential to be exposed to both climatic extremes of heat and cold. Because of these conditions, operating procedures were developed to increase recognition of the hazards associated with these temperature extremes on the body and improve workers' ability to avoid them. The type of protective ensemble (permeable and non-permeable) used on the project is also taken in account when dealing with heat/ cold stress conditions.

6.4.1 HEAT STRESS

Site activities involving high air temperatures (>70 degrees Fahrenheit [^{o}F]), radiant heat sources, high humidity, direct physical contact with hot objects, or strenuous physical activities have a high potential for inducing heat stress in employees engaged in such operations. Outdoor operations conducted in hot weather, such as construction, refining, and asbestos removal; and hazardous waste site activities, especially those that require workers to wear semipermeable or impermeable protective clothing, are also likely to cause heat stress among exposed workers. The following guidelines will be implemented during activities where heat stress is a hazard:

- Training in the prevention and recognition of heat stress symptoms
- Encourage proper physical fitness and diet in employees
- Maintain fluid intake (prevent dehydration)
- Modify, as needed, the anticipated work rate
- Use of the buddy system
- Availability of shaded and cooled rest areas

A temperature monitor will be utilized during times of an increased heat index. When permissible heat exposure TLVs are exceeded as indicated in Table 6-2 below, supervisory personnel will be notified of the levels in order to take appropriate action. These TLVs apply to physically fit and acclimatized individuals wearing light summer clothing. If heavier clothing that has a higher

insulation value is required, the permissible heat exposure TLVs should be adjusted. Common clothing value adjustments are included below.

Table 6-2 Permissible Heat Exposure Threshold Limit Value

Work-Rest Regimen	Light	Moderate	Heavy
Continuous Work	30.0°C 86.0°F	26.7°C 80.1°F	25.0°C 77.0°F
75% Work - 25% Rest, each hour	30.6°C 87.1°F	28.0°C 82.4°F	25.9°C 78.6°F
50% Work - 50% Rest, each hour	31.4°C 88.5°F	29.4°C 84.9°F	27.9°C 82.2°F
25% Work - 75% Rest, each hour	32.2°C 90.0°F	31.1°C 88.0°F	30.0°C 86.0°F

Clothing-Adjustment Factors for Some Clothing Ensembles

Clothing Type	Correction to TLV (°C)
Summer lightweight working clothing	+/- 0°C
Tyvek	-1.8 °C
Cotton coveralls	-2 °C

Notes:
°C = degrees Celsius
°F = degrees Fahrenheit
TLV = Threshold Limit Value

6.4.2 COLD STRESS

Three major factors that contribute to cold stress are cold temperatures, dampness, and wind velocity. Persons working outdoors in low temperatures, especially in wet or windy conditions, are subject to cold stress. Exposure to extreme cold for even a short time can cause severe injury to the surface of

the body, or result in cooling of the body core temperature, which, if unchecked, can be fatal. For cold stress, the following precautions are taken:

- Training in the prevention and recognition of cold stress symptoms
- Encourage proper physical fitness and diet in employees
- Dressing in layers to protect exposed skin and provide insulation
- Use of cotton or other absorbent materials to absorb sweat and maintain body warmth when wearing protective ensembles
- Maintain fluid intake (prevent dehydration)
- Modify, as needed, the anticipated work rate
- Use of the buddy system
- Availability of heated rest areas

Work/Warm-up Schedule for a 4-Hour Shift

Air Temperature--Sunny Sky		No Noticeable Wind		5 mph Wind		10 mph Wind		15 mph Wind		20 mph Wind	
°C (approximate)	°F (approximate)	Maximum Work Period	Number of Breaks	Maximum Work Period	Number of Breaks	Maximum Work Period	Number of Breaks	Maximum Work Period	Number of Breaks	Maximum Work Period	Number of Breaks
-26 to -28	-15 to -19	(Normal Breaks) 1		(Normal Breaks) 1		75 min	2	55 min	3	40 min	4
-29 to -31	-20 to -24	(Normal Breaks) 1		75 min	2	55 min	3	40 min	4	30 min	5
-32 to -34	-25 to -29	75 min	2	55 min	3	40 min	4	30 min	5	Non-emergency work should cease	
-35 to -37	-30 to -34	55 min	3	40 min	4	30 min	5	Non-emergency work should cease			
-38 to -39	-35 to -39	40 min	4	30 min	5	Non-emergency work should cease					
-40 to -42	-40 to -44	30 min	5	Non-emergency work should cease							
-43 & below	-45 & below	Non-emergency work should cease									

Schedule applies to any 4-hour work period with moderate to heavy work activity; with warm-up periods of ten (10) minutes in a warm location and with an extended break (e.g. lunch) at the end of the 4-hour work period in a warm location.

Adapted from ACGIH 2012 TLVs

Notes:
°C = degrees Celsius — ACGIH = American Conference of Governmental Industrial Hygienists
mph = miles per hour — TLV = Threshold Limit Value

6.4.3 SEVERE WEATHER

The SSO will monitor weather conditions throughout the work day to ensure all site work is at the appropriate level of completion ahead of any potential storm events that could cause flooding. Weather forecasts will be consulted at the beginning and end of each work day. During severe weather, outdoors operations may be halted at the discretion of the SSO or their designee under these conditions:

- **Lightning –** If you are close enough to hear thunder, you are close enough to be struck by lightning. Storms can move very swiftly and by the time you see lightning in the distance, it could be a lot closer. With this in mind, when lightning is first observed or thunder is first audible by any work personnel, the procedures listed below will be followed:
  - Notification of the work supervisor will be made, and an immediate stop work to all crews will occur. Crews shall discontinue operations, meet at an indoor staging area, and wait for further instructions.
  - The SSO or the designee shall hold work for a minimum of 30 minutes after visible lightning. The 30-minute working hold will be reset after each additional visible lightning strike or audible thunder clap.
  - A lightning detector or notification services may be used in addition to visual/audible cues. If so, the 30-minute working hold should be reset after any lightning strike documented within 5 miles of the Site.
- **Heavy Precipitation** that affects visibility, mobility, or the overall conditions in which equipment and personnel can operate safely. The Site and much of the Eastwick neighborhood is located within the 100 year floodplain. Impacts from small and large storm events are frequent.
  - Storm events can produce wet, slippery and muddy conditions. Mud and wet soil may contain site-related contaminants which can adhere to vehicles. Prior to leaving the CRZ, all vehicles will be decontaminated pursuant to Section 9 of this document.
  - Precipitation events can result in stormwater runoff. This runoff can transport soil particles that are potentially contaminated. Stormwater management controls, e.g., berms, silt fences, filter socks, etc. will be utilized to manage stormwater on Site. This includes while working on residential properties. Open excavation areas will be subject to potential accumulation of stormwater.
  - Large storm events, e.g. tropical storms, hurricanes, etc., have previously impacted the portion of the site. In the event of such a storm, in lead up to the storm arrival, all efforts will be made to complete active excavation and/or restoration activities. Equipment and materials that are within potential flood impact areas will be temporarily relocated.

- **Sustained Wind** in excess of 20 miles per hour may create hazardous conditions when excavating contaminated soil. The wind can cause dust from excavation or other dirt work to become airborne and cause eye and lung irritation as well as spread contamination off-site and result in exposure to workers and residents. Dust suppression methods may not be as effective due to the drying effect of the wind.

After the adverse weather has subsided, the SSO or the designee will determine that operations can continue in a safe manner. The "all clear" signal will be given and personnel will return to work.

6.5 BIOLOGICAL HAZARDS

Rodents, snakes, stray animals, stinging insects, and poison ivy/sumac/oak are all biological hazards that may be encountered during daily site operations. Guidance will be provided on how to recognize poisonous plants and avoid contact. Safety discussions will be conducted on the avoidance of biological hazards. Site investigations to identify the hazards before beginning work-related activities are essential. The information obtained can then be passed on to site personnel. Site-specific procedures shall be implemented should there be a reasonable potential for these hazards to exist.

Wasps/hornets/bees and other stinging insects may be encountered on-site and may present a serious hazard, particularly to people who are allergic. Appropriate insect repellents containing DEET should be used. Watch for and avoid nests and keep exposed skin to a minimum. Employees whom are allergic should notify co-workers prior to starting operations, make known the degree of allergic reactions experienced in the past, and inform others of the location of medicine/shots that need to be taken in the event of being stung. In the event of a bee/wasp sting, monitor the employee, if a stinger is present, remove it carefully with tweezers. Wash and disinfect the wound, cover it, and apply ice. Continue to monitor the employee watching for allergic reaction; contact a doctor immediately if a reaction develops or 911 if the reaction is severe and the employee is unresponsive to medication.
In areas where poisonous snakes are known to congregate, the use of snake chaps and heavy leather gloves will be required. Discussions on snake habits, aggressiveness, and avoidance will be held during safety briefings.

Conduct tick checks daily, at a minimum. Be sure to report any bite, sting, or any injury to the employee's supervisor.

7.0 PERSONAL PROTECTIVE EQUIPMENT TO BE USED

This section of the HASP presents a description of how PPE is used to protect against employee exposures to hazardous substances and hazardous condition on the Site. This section includes the levels of protection, reassessment of the protection program, work mission duration, chemical resistance and integrity of protective material, inspection and checkout, and inspection procedures for all expected levels of PPE that may be used at the Site.

At a minimum, all personnel within the exclusion zone will wear steel or safety toe boots, a high-visibility safety vest, safety glasses, and a hard hat.

7.1 LEVELS OF PROTECTION

An initial level of PPE is assigned to each task to provide an adequate barrier to exposure hazards. PPE ensembles are selected based on the anticipated route(s) of entry of the hazardous substances on-site and their concentrations. Task-specific levels of PPE will be determined prior to the commencement of the tasks and will be documented on the specific THA included in Appendix B and Appendix E. PPE will be used in accordance with manufacturers' recommendations.

7.1.1 LEVEL A PERSONAL PROTECTIVE EQUIPMENT

Based on previous data and the proposed scope of work, no tasks requiring Level A protection are expected to occur at this Site.

7.1.2 LEVEL B PERSONAL PROTECTIVE EQUIPMENT

Based on previous data and the proposed scope of work, no tasks requiring Level B protection are expected to occur at this Site.

7.1.3 LEVEL C PERSONAL PROTECTIVE EQUIPMENT

Employees will use Level C protection during tasks that have the following characteristics:

- The atmospheric contaminants, liquid splashes, or other direct contact exposure route will not adversely affect personnel or be absorbed through any exposed skin;

- The types of air contaminants have been identified, concentrations measured, concentrations can be continuously monitored, and an air-purifying respirator and associated cartridges that can remove the contaminants is available; and,
- All criteria for the use of air-purifying respirators are met.

7.1.4 LEVEL D PERSONAL PROTECTIVE EQUIPMENT

Employees will use Level D protection during tasks that have the following characteristics:

- The atmosphere contains no known or suspected hazardous substances at concentrations that meet or exceed the published exposure limit.
- Contact with hazardous levels of any chemicals through splashes, immersion, or by other means will not occur.
- Personnel will use modified Level D when in areas of potentially disturbed contamination.
- There is no potential for unexpected inhalation or contact with hazardous levels of any chemical.

7.2 RE-ASSESMENT OF PROTECTION PROGRAM

Routine evaluation of the effectiveness of the PPE program will be conducted throughout site activities. The SSO has the authority to modify initially selected PPE to respond to changing site conditions and to protect employee health and safety. Affected employees will be informed about these modifications and will be provided with additional training if necessary. The THAs and AHAs provided in Appendix B and Appendix E of this HASP will also be updated as needed to reflect current information about job hazards and selected controls.

7.3 WORK DURATION

Task-specific work durations will be based on the following:

- Physiological requirements of the task
- PPE level for the task
- Ambient temperature and humidity
- Acclimation of the work force

Work duration is continuously re-evaluated in response to changes in working conditions at the Site.

7.4 INSPECTION

PPE will be inspected prior to each use. Defective or damaged equipment shall not be used and will be reported to the employee's supervisor so that the equipment can be repaired or discarded. Spent and disposable PPE is discarded in accordance with the guidelines specified in Section 9.0, Decontamination Plan. Reusable PPE should be decontaminated when necessary in accordance with the guidelines specified in Section 9.0, Decontamination Plan. After decontamination, reusable PPE will properly stored according to the manufacturers' recommendations.

8.0 AIR MONITORING/SAMPLING

This section of the HASP describes how worker and resident exposures to airborne hazardous substances are monitored. Potential air particulate hazards requiring PPE levels are addressed in the THA/AHA for each task in Appendix B and Appendix E. Task-specific air monitoring requirements will be defined in the THA, or as directed by the SSO. This section describes the monitoring instruments, sampling, frequency, and action levels for the air monitoring program at the Site.

Residents will be notified by EPA at least 48 hours prior to commencing work that will generate dust. EPA will recommend to residents to keep doors and windows closed to avoid nuisance dust entering their homes. During residential yard excavation activities, it is recommended that a minimum of the 5 homes on either side of the excavation work follow recommendations for closed doors and windows.

As defined in a specific THA, or by the SSO, total particulates may be monitored by DustTRAK DRX Desktop Aerosol Monitor 8533 (DustTRAK) and pDR-1500 dust monitors or equivalent for specific work tasks that are determined to pose a potential for dust exposure or migration off-site. Dust monitors will be placed within the work zone, or along the work zone perimeter/site perimeter as required. Daily wind forecasts and local reported conditions from the Philadelphia Airport will be utilized to place dust monitors in downwind and upwind locations as appropriate. DustTRAK and the pDR-1500s will be monitored intermittently throughout the day. Following the conclusion of each day's work, at a minimum data will be downloaded from each deployed DustTRAK and pDR-1500, and a summary of monitoring data will be emailed to the SSO and work supervisors, in addition to

being posted in a location available for all personnel. Graphs depicting air monitoring data collected throughout each day will be posted www.epaosc.org on a regular basis.

When tasks require air monitoring associated with hot work permits or confined spaces, work areas will be monitored for oxygen, combustible gas, and organic vapors. Air monitoring will be conducted with a MultiRAE Pro or equivalent.

WESTON will be responsible for equipment calibration and maintenance and the handling and management of monitoring data. The contaminant or hazard of concern, monitoring device, action levels, monitoring frequency, and action for the air monitoring are summarized below in Table 8-1. Any readings potentially greater than listed action levels are provided to the SSO or his designee immediately upon discovery.

As discussed in Section 6.3.1, dust suppression activities e.g., watering, will be conducted whenever visible dust is being generated. In addition, the Total Dust Action Level of 0.813 mg/m3 has been established to be protective of workers and residents. Total dust will be monitored and calculated on a rolling 15-minute time-weighted average (TWA). Specific actions will be taken when the total dust 15-minute TWA attains 75% of the Total Dust Action Level of 0.813 mg/m3 which equals 0.610 mg/m3 and when the 15-minute TWA Total Dust Action Level itself is exceeded.

Table 8-1 Task-Specific Air Monitoring Procedures

Contaminant or Hazard	Monitoring Device	Action Level	Monitoring Frequency	Action
Total Dust (Particulates)	DustTRAK DRX Desktop Aerosol Monitor pDR-1500 or equivalent	15-min TWA > 0.610 mg/m3 (75% of Total Dust Action Limit)	Continuous, if required	Evaluate dust source, implement additional dust suppression activities. Use Level D PPE
		15-min TWA > 0.813 mg/m3	Continuous	Stop work and implement dust suppression activities. Ensure resident doors and windows in vicinity are closed. Conduct work in Level C PPE
		< 2.1mg/m^3 (Applies to areas that do not impact residential areas, i.e., top of landfill)	Continuous, if required	Use Level D PPE
		> 2.1mg/m^3 (Applies to areas that do not impact residential areas, i.e., top of landfill)	Continuous	Stop work and implement dust suppression activities, if necessary, conduct work in Level C PPE
Combustible Gas (%LEL)	MultiRAE Pro or equivalent	< 10%	Prior to work, and as needed	Continue work
		> 10%	Continuous	Stop work, ventilate area
Oxygen	MultiRAE Pro or equivalent	< 20.0%	Continuous	Stop work, ventilate area
		20.0 to 22.0%	Prior to work, and as needed	Continue work
		> 22.0%	Continuous	Stop work, ventilate area
Organic Vapors	MultiRAE Pro or equivalent	< 10 ppm	Prior to work, and as needed	Continue work
		> 10 ppm	Continuous	Stop work, ventilate area

Notes:
µg/m^3 = micrograms per cubic mete
%LEL = percent of lower exposure limit
pDR = personal Data RAM

PPE = personal protective equipment
ppm = parts per million

9.0 DECONTAMINATION PLAN

The decontamination section of this HASP describes how personnel and equipment are decontaminated and how residual waste from decontamination processes is disposed. The decontamination procedures described in this section include standard operating procedures, decontamination procedures for contaminated personnel, equipment decontamination, and disposition of decontaminated wastes.

9.1 PERSONNEL DECONTAMINATION

Disposable PPE will be removed, bagged, and disposed. A hand washing station supplied with soap, water, and wipes will be provided for scrubbing minor contamination that has been transferred to personnel. Personnel will self-decontaminate skin surfaces and dispose of wipes properly. In the event of more significant contamination to personnel, a hose, brushes, and water supply is available for significant decontamination activities.

Eyewash stations are available and will be utilized in the event that hazardous materials are deposited on the eye surface of any personnel.

9.2 EQUIPMENT DECONTAMINATION

All tools, equipment, machinery, and vehicles exiting any work areas will be inspected and decontaminated prior to moving to a clean area, if necessary. Equipment decontamination procedures are designed to minimize the potential for hazardous skin or inhalation exposure and to avoid cross-contamination and chemical incompatibilities.

The following are general equipment decontamination procedures established and implemented at this Site:

- Vehicles that travel regularly between the contaminated and clean areas of the Site are inspected for contamination each time they exit restricted areas. Vehicle traffic should be minimized and limited to only essential equipment.

- Inspection and decontamination will be biased to tires, buckets, tracks, and other parts of heavy equipment that may be in direct contact with contaminated surfaces and areas.
- Equipment will be decontaminated using water spray and a scrub brush with detergent after contaminated soil removal activities are completed at each location and prior to equipment leaving the location at the Site. Decontamination will take place at designated areas prior to leaving the contaminated area.
- Potentially contaminated soil on residential streets (e.g., due to vehicular traffic entering/exiting the work areas) will be removed with a shovel and placed into containers to be taken back to the Site. The street surface will then be cleaned with a hose. Storm drains will be blocked with absorbent material to trap and prevent any remaining soil from entering the drains.
- At the completion of restoration activities on residential properties, visible activity related particulates on hardened surfaces, e.g., driveways, sidewalks, etc. will be cleaned.

10.0 EMERGENCY RESPONSE/CONTINGENCY PLAN

The following section addresses the site-specific emergency response plan, providing a description of the pre-emergency planning, personnel roles and lines of authority, emergency recognition and prevention, evacuation routes and procedures, emergency contact/notification system, emergency medical treatment procedures, fire or explosion procedures, spill or leak procedures, and emergency equipment and facilities.

10.1 PRE-EMERGENCY PLANNING

Table 10-1 Potential Site Emergencies

Type of Emergency	Source of Emergency	Location of Source
Injury	Site operations, tool, physical hazards	Entire Site
Chemical exposure	Supplies (i.e., fuel, oil, liquid nitrogen)	Fueling station
Lightning and inclement weather	Ambient weather	Outdoor activities
Spills	Fueling	Heavy equipment/truck operations
Environmental exposures	Heat and cold	Outdoor activities
Fire/Explosion	Fuel/electrical sources, microwave	Fueling station, machines, site support trailers

10.2 PERSONNEL ROLES AND LINES OF AUTHORITY

The OSC and SSO for the Site is Mike Towle. The RPM and SSO for the Site is Josh Barber. Mr. Towle and Mr. Barber or their designee, is responsible for implementing the emergency response plan and for coordinating emergency response activities on this Site. In the event of an emergency, site personnel are evacuated and do not respond in emergency response activities, except as instructed by SSO or, their designee.

10.3 EVACUATION ROUTES/PROCEDURES

In the event of an emergency situation, site personnel will notify their immediate supervisor and/or the SSO or their designee. If a site evacuation order is given, workers will stop work immediately and leave the location at which they are working. In the event evacuation or other on-site emergency that can involve potential impacts to residents, local emergency assistance (911) will also be contacted. The City of Philadelphia Office of Emergency Management (OEM) monitors 911 calls and has the ability to dispatch warning and/or evacuation notices via various multimedia outlets, e.g., text messages, phone calls, emails, etc. for people who sign up at www.phila.gov/ready. EPA will encourage residents to sign-up for this notification service. With their respective buddies, personnel will gather at the primary assembly location, the command post on Buist Avenue on the southwest property line.

10.4 EMERGENCY CONTACT/NOTIFICATION SYSTEM

Following evacuation, all site personnel will check in with the SSO. If any worker cannot be accounted for, notification will be given to the SSO or her designate so that appropriate action can be initiated.

10.5 EMERGENCY MEDICAL TREATMENT PROCEDURES FOR WESTON

At any given time the Site will have, at a minimum, at least two workers with current first aid certification assigned to provide first aid during each shift. In the event of a medical emergency, local emergency assistance (911) will be contacted immediately. If necessary, first aid will be administered by a qualified person until emergency assistance arrives at the Site. If practicable, the affected person may be transported by other Site personnel to the nearest medical facility. The nearest medical care

facility to the Site is Mercy Fitzgerald Hospital. Directions to Mercy Fitzgerald Hospital are included below in Figure 10-1. Additional copies of directions to the hospital are available in the command post. Emergency contact numbers are included below in Table 10-2. Personnel who require medical care and/or are transferred to a medical facility are accompanied by SDS and other applicable hazard data to apprise caregivers of the chemicals and hazards to which the victim has been potentially exposed.

10.6 EMERGENCY MEDICAL RESPONSE PROCEDURES ER LLC

(See Appendix H for One Source Information)

Any person who becomes ill or injured in the exclusion zone must be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination should be completed and first aid administered prior to transport. If the patient's condition is serious, at least partial decontamination should be completed (i.e., complete disrobing of the victim and redressing in clean coveralls or wrapping in a blanket.) First aid should be administered while awaiting an ambulance or paramedics. All injuries and illnesses must immediately be reported to Vice President of Health and Safety.

Onsite First Aid Support

Onsite medical support during project execution will be available from two or more individuals who are trained in First Aid and Cardiopulmonary Resuscitation (CPR) and blood borne pathogens. First aid kits shall be Type III, 16 unit kits, including one pocket mouthpiece or CPR barrier. Kits shall be checked prior to use, and at least weekly when work is in progress to ensure that contents are replaced as used.

Medical Transport of Employees and Case Management

For non-life threatening injuries, a local clinic will be identified with the assistance of the Corporate Medical Consultant, 1 Source. 1 Source will be contacted prior to transporting any non-life threatening injured worker to the clinic to develop an appropriate medical treatment plan. If medical evaluation is necessary, the 1 Source nurse/physician will contact the clinic ahead of the arrival of the patient to establish oversight of case management. Under no circumstances will an injured employee

drive unescorted to a hospital, clinic, etc. An employee with minor injury may be transported by car after first aid treatment is given. The SHSO or other project management personnel will transport the injured person to the facility. The employee who transports the injured person shall be trained in first aid and CPR whenever possible. When the injury is severe, or when in doubt concerning the severity of injury, the employee will be transported by ambulance.

Injured employees that require medical treatment or are taken to a doctor, hospital, clinic, etc., will not be allowed to resume work without a written return to work statement from the treating physician. This statement shall supply a medical diagnosis of the problem, the date of return to work, and work limitations. Should a return to work statement such as "light duty" be given, the treating physician will be contacted to determine the specific limitation. ER will make an assessment of work the employee routinely performs whether or not the limitation interferes with the employee's routine job assignment.

Whenever there are questions on the appropriateness of the diagnosis or prescribed course of treatment, 1 Source will be contacted to arrange for a second opinion. Copies of all Incident and Investigation Reports will be sent to the ER Vice President of Health and Safety.

10.7 FIRE OR EXPLOSION

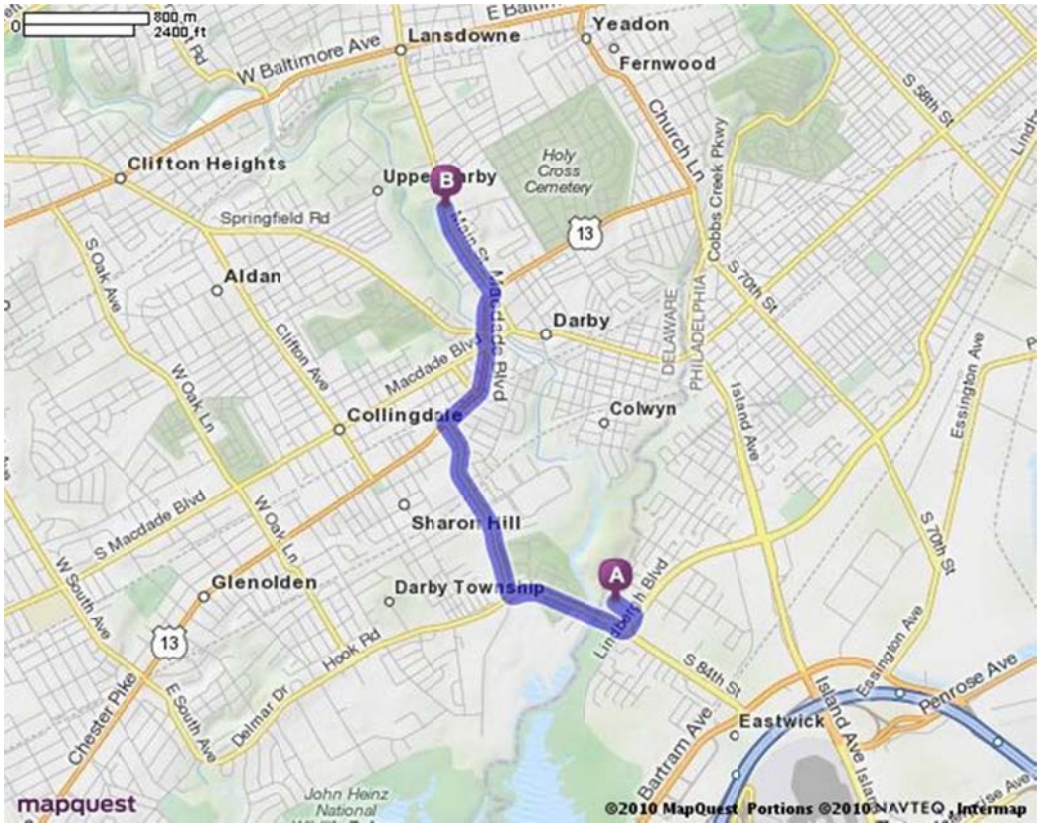
In the event of a fire or explosion, fire extinguishers are available at the command post, dress out trailer, fueling station, and site vehicles. All employees will receive training on the proper use of fire extinguishers. Fire extinguishers will be inspected on a monthly basis. Should a fire or explosion be greater than can be handled safely on-site with fire extinguishers, site workers will evacuate as outlined in Sections 10.4 and 10.5 above, and 911 will be contacted immediately.

10.8 SPILL OR LEAKS

Spill control kits are located at the fueling station and at designated control points. Spills and leaks may occur during refueling operations or hydraulic equipment failure. Only approved containers and portable tanks will be used for the storage and handling of combustible liquids. In the event of a spill

or leak, site workers will notify their immediate supervisor and/or the SSO, and take immediate action to contain the spill. Extra absorbent materials are located in the site storage trailer.

Figure 10-1 Hospital Route Map



A= LDCA site B=Hospital

Mercy Fitzgerald Hospital is located approximately 2.8 miles from the northern part of the site at the intersection of Lindbergh Boulevard and South 84th Street.

1.	Start out going southwest on Buist Ave toward S 82nd St.	<0.1 miles
2.	Turn left onto S 82nd St.	0.1 miles
3.	Turn right onto Lindbergh Blvd.	0.1 miles
4.	Turn slight right onto S 84th St.	0.1 miles
5.	S 84th St becomes Hook Rd.	0.4 miles
6.	Turn slight right onto Calcon Hook Rd.	0.9 miles
7.	Turn right onto US-13/Chester Pike.	0.7 miles
8.	Turn left onto Main St.	0.3 miles
9.	Arrive at Mercy Fitzgerald Hospital Head southwest on Old Berwick Rd for 3.9 miles	

Table 10-2 Emergency Assistance

Agency	Address/Location	Telephone
Hospital	Mercy Fitzgerald Hospital 1500 Lansdowne Avenue Darby, PA 19023	911; 610-237-4000
Police	Darby Township Police 2 Studevan Plaza, Sharon Hill, PA 19079	911; (610) 583-3245
Fire/Ambulance/EMS	Darby Township Fire Co 1351 Hook Rd, Sharon Hill, PA 19079	911
Chemtrec		(800) 424-9300
National Response Center		(800) 424-8802
National Poison Control Center		(800) 222-1222
InfoTrac Chemical Monitoring System		(800) 535-5053
WorkCare (Weston Personnel)		(800) 455-6155
Philadelphia Office of Emergency Management (OEM)	240 Spring Garden Street, Lower Level, Philadelphia, PA, 19123	Direct Private Line kept Onsite at EPA Command Post

Notes:
EMS = Emergency Medical Services

10.9 EMERGENCY PPE AND SUPPLIES

In the event of an emergency, the following PPE and emergency response supplies are stored at the Site locations listed below:

- Chemical suits (dress out trailer)
- Gloves (dress out trailer)
- Eye Protection (dress out trailer)
- First aid kits (command post, dress out trailer)

- Fire extinguisher (command post, dress out trailer, fueling station, field vehicles)
- Telephone (personal cell phones)
- Emergency eye wash (dress out trailer)
- Water (hand wash station, command post)
- Spill containment kit (fueling station)

11.0 SPILL CONTAINMENT PROGRAM

An adequate supply of spill control and containment equipment and supplies (i.e., sorbent materials) are available for response to minor spills of chemicals (i.e., fuel, hydraulic fluid, oil) required for equipment operations. As discussed in Section 10.8, spill containment kits are located at the fueling station and active control points. Extra absorbent material is located in the site storage trailer. Appropriately trained personnel will respond to contain the spill within their capabilities by following the procedures listed below:

- Evacuate the affected area and relocate personnel to an upwind location.
- Inform the SSO immediately.
- Locate the source of the spill or leak, and stop the flow if it is safe to do so.
- Begin containment and recovery of spilled or leaked materials.
- Notify appropriate local, state, and federal agencies.

12.0 HAZARD COMMUNICATION

A Site-Specific Hazard Communication Plan has been developed as part of this HASP and is included in Appendix D. Hazard communications training for the chemicals listed below will be provided for all site personnel who work with the chemicals or work in areas where they are stored. Training will include review of the hazard analysis and chemical-specific SDSs and general interpretation of chemical hazard communications. If additional chemicals are needed for future operations, their SDS will be reviewed by the SSO and filed at the command post. All employers are responsible to provide the SDS for any chemical they have brought to the Site.

The following site-specific chemicals of concern are present at the Site:

- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Dibenzo(a,h)anthracene
- Indeno(1,2,3-cd)pyrene
- Lead

In addition to the chemicals listed above, the following will be used in operations related to the project:

- Diesel fuel—Fueling generators and earth moving equipment
- Gasoline—Fueling generators
- Oil, hydraulic fluid, and grease—Maintenance of earth moving equipment
- Alconox and/or Liquinox cleanser—Cleaning powder for decontamination
- Polyvinyl Chloride (PVC) Cement and Primer, concrete, glues, and paints—Construction materials
- Bleach and soaps—Cleaning supplies
- Hornet and wasp killer and bug sprays—Pesticides
- Deionized water and hexane—Hazard categorization supplies

13.0 COMMUNITY SAFETY PLAN

This section of the HASP has been developed to address specific health and safety issues that affect residents of the Eastwick Neighborhood during the work to be conducted at the Site. This section outlines the health and safety requirements for all identified hazards (e.g., traffic, physical and chemical) associated with tasks at the Site so that the risks associated with those hazards are reduced to the greatest extent practicable. Specific requirements will be revised when new information is received, or conditions change. A written amendment will document all changes made to the plan. Any amendments to this plan will be included as attachments.

13.1 WORK DURATION

Work duration is continuously re-evaluated in response to changes in working conditions at the Site. Generally, work duration will be from the hours of 0830 to 1630, Monday through Friday.

13.2 PHYSICAL HAZARDS

The following sections list physical hazards the residents can expect to be encountered during certain tasks at the Site. A daily briefing will be held at the start of each shift to ensure that all personnel understand site conditions and operating procedures and are aware of tasks scheduled for the day. This briefing will provide a forum to address the safety of the residents, worker health and any safety concerns.

13.2.1 VEHICULAR TRAFFIC

All traffic rules, regulations, and control signs will be obeyed at all times. Work areas will be clearly barricaded and the appropriate signs will be displayed to protect workers and residents. Spotters will be used to guide the operator during excavations, backing up vehicles and in other situations where the driver has limited visibility. Spotters will be aware residents in the area and will stop work when a resident is nearby the work area. Personnel working near roadways or directing traffic will remain aware of their position in relation to traffic and will wear high visibility vests and will safely direct traffic and pedestrians as necessary.

To minimize potential interference with residential activities and tracking of dirt onto roadways, the most direct route to the Command Post or other areas will be taken by all vehicles. Currently, accessing the Command and access road via Lindbergh Blvd. to S. 83rd St. is considered to be the preferable route. This may be updated as the action continues and/or input is provided by the community. For yards that will be addressed by the removal action, EPA will notify residents that they should relocate their personal vehicles prior to tree removal and during front-yard excavations to avoid damage to personal property.

13.3 CHEMICAL HAZARDS

Dust may be present where soil piles or areas of bare soil are present, or where excavation activities or other activities are occurring. EPA will recommend to residents in the vicinity of earth disturbance or excavation work to keep doors and windows closed to avoid nuisance dust entering their homes. During residential yard excavation activities, it is recommended that a minimum of the 5 homes on either side of the excavation work follow recommendations for closed doors and windows. Chemical hazardous are discussed in Section 6.3.1. Air monitoring methodologies are discussed in Section 8.0 and describe how worker and resident exposures to airborne hazardous substances are monitored. This section describes the monitoring instruments, sampling, frequency, and action levels for the air monitoring program at the Site.

13.4 EMERGENCY PROCEDURES

EPA representatives, Mr. Towle and Mr. Barber, are responsible for implementing the emergency response plan and for coordinating emergency response activities on this Site. In the event of an emergency, residents will be directly notified by the above referenced EPA representatives or the designated SSO.

If a site evacuation order is given, workers will stop work immediately and leave the location at which they are working. In the event evacuation or other on-site emergency that can involve potential impacts to residents, local emergency assistance (911) will also be contacted. The City of Philadelphia Office of Emergency Management (OEM) monitors 911 calls and has the ability to dispatch warning and/or evacuation notices via various multimedia outlets, e.g., text messages, phone calls, emails, etc. for people who sign up at www.phila.gov/ready. EPA will encourage residents to

sign-up for this notification service. Additionally, a direct private line to Philadelphia OEM is kept onsite at the EPA Command Post.

14.0 REFERENCES

Occupational Safety and Health Administration (OSHA). 2006. OSHA eHASP software – Version 2.0 ($eHASP_2$). http://www.osha.gov/dep/etools/ehasp/index.html#software. March.

Occupational Safety and Health Administration (OSHA). 2014. Title 29 of the *Code of Federal Regulations* (CFR), Part 1910.120, "Hazardous waste operations and emergency response."

U.S. Environmental Protection Agency (EPA). 1990. EPA Health and Safety Planner: Software and User's Guide, Publications 9285.8-01.

U.S. Environmental Protection Agency (EPA). 1992. Standard Operating Safety Guides.

APPENDIX A

COMPLIANCE AGREEMENT FORM

The signatures below indicate that the individuals have read and understood this Health and Safety Plan.

PRINTED NAME	SIGNATURE	AFFILIATION	DATE

PRINTED NAME	SIGNATURE	AFFILIATION	DATE

PRINTED NAME	SIGNATURE	AFFILIATION	DATE

APPENDIX B

TASK HAZARD ANALYSES

Task/Operation	**Location Where Task/Operation Performed**
Mobilization/Demobilization	**Township of Darby, Pennsylvania**

Chemical Hazards

Chemical Name	**Source**	**Maximum Observed Concentration**	**Exposure Limit**
None			

Physical Hazards

Name of Physical Hazard	**Source**	**Control Measures**	**Risk Assessment Potential**
Cold Weather Operations	Seasonal	Workers will be briefed and be cognizant of heat and cold stress symptoms. Electrolyte/fluids replacement will be available to workers as needed. Work/rest periods will be established according to American Conference of Governmental Industrial Hygienists (ACGIH) and National Institute for Occupational Safety and Health (NIOSH) guidelines. Personnel will be monitored.	Moderate Risk
Heat (ambient)	Seasonal		Moderate Risk
Inclement Weather – snow, rain, and other precipitation	Seasonal	Personnel will be dressed according to weather conditions. Local weather will be monitored on a daily basis or more frequently if storms threaten. The SSO will determine through visual observations and weather updates (gathered through the radio or cell phone) when it is necessary to halt work and when to re-start field activities. The SSO will monitor for tornado, lightning, and high wind conditions. In the event of severe weather conditions, the SSHO will advise on appropriate shelter locations.	Low Risk
Electrocution	Electrical	Electrical work will be performed by qualified electricians. Extension cords will be properly rated for intended use. A lock-out/tag-out program will be used for de-energizing/re-energizing equipment. Ground fault circuit interrupters (GFCI) will be used on construction sites for all 110 to 115 volt 15 to 20 amp outlets, in the absence of properly grounded circuitry or when portable tools must be used around wet areas.	High Risk
Slips/Trips/Falls	Uneven terrain, wet or slippery surfaces, stairs	Slip, trip, and fall hazards shall be either removed or marked and barricaded. Materials will be stored to prevent intrusion into the work areas. Work areas will be kept organized; ice, snow, and mud will be cleared from steps to reduce slip hazards. Work will be completed in adequate natural light or sufficient artificial illumination will be maintained.	Moderate Risk
Vehicular Travel and Traffic – On or near site	Roads, driveways, parking lots	All drivers will be licensed. All traffic rules, regulations, and control signs will be obeyed. Work areas will be clearly	Moderate Risk

		barricaded and appropriate signs will be displayed. When operating vehicles in tight areas or reversing a spotter should be used to guide the operator. Persons working near roadways or directing traffic will remain aware of their position in relation to traffic and will wear high visibility vests.	
Drowning	Waterways	Workers will be briefed on working over/near water procedures. If the water is greater than 2 ft in depth workers must wear a Personal Flotation Device within 6 feet of the water. The buddy system should be used whenever working near any water.	Low Risk
Biological Hazards			
Name of Biological Hazard	**Source**		**Exposure Level/Potential**
Bug bites, stings Poison ivy, poison oak, stinging nettles Snake Ticks	Wooded and vegetated areas	Appropriate insect repellents containing DEET will be used. Guidance on how to recognize poisonous plants and to avoid contact will be provided. A poster indicating the various types of hazardous plants and reptiles to avoid will be made available. Safety discussions will be conducted on the avoidance of biological hazards. In areas where poisonous snakes are known to congregate, the use of snake chaps and heavy leather gloves will be required. Discussions on snake habits, aggressiveness, and avoidance will be held during safety briefings. In areas where poisonous plants exist, preventative ointments and washing capabilities will be used. Conduct tick checks at minimum daily.	Moderate Risk
Radiological Hazards			
Name of Radiological Hazard	**Source**		**Exposure Level/Potential**
Non-ionizing radiation	Solar UV exposure	Use sunblock as appropriate. Avoid extended periods of direct exposure to sun. Wear long sleeve shirts.	Moderate Risk
PPE Level	**Level of PPE: D**		
PPE Upgrade: No		Appropriate clothing for seasonal conditions and weather should be worn as needed along with cotton coveralls/work clothes, safety boots, and high-visibility vests.	
PPE Downgrade: No			

Notes:
PPE = Personal protective equipment

Task/Operation	**Location Where Task/Operation Performed**
Air Monitoring	Township of Darby, Pennsylvania

Chemical Hazards

Chemical Name	**Source**	**Maximum Observed Concentration**	**Exposure Limit**
PAHs	Soil	118 ppm	200 $\mu g/m^3$

Physical Hazards

Name of Physical Hazard	**Source**	**Control Measures**	**Exposure Level/Potential**
Cold Weather Operations	Seasonal	Workers will be briefed and be cognizant of heat and cold stress symptoms. Electrolyte/fluids replacement will be available to workers as needed. Work/rest periods will be established according to American Conference of Governmental Industrial Hygienists (ACGIH) and National Institute for Occupational Safety and Health (NIOSH) guidelines. Personnel will be monitored.	Moderate Risk
Heat (ambient)	Seasonal		Moderate Risk
Inclement Weather – snow, rain, and other precipitation	Seasonal	Personnel will be dressed according to weather conditions. Local weather will be monitored on a daily basis or more frequently if storms threaten. The SSO will determine through visual observations and weather updates (gathered through the radio or cell phone) when it is necessary to halt work and when to re-start field activities. The SSO will monitor for tornado, lightning, and high wind conditions. In the event of severe weather conditions, the SSHO will advise on appropriate shelter locations.	Moderate Risk
Slips/Trips/Falls and Rough Terrain	Uneven terrain, wet or slippery surfaces, stairs	Slip, trip, and fall hazards shall be either removed or marked and barricaded. Materials will be stored to prevent intrusion into the work areas. Work areas will be kept organized; ice, snow, and mud will be cleared from steps to reduce slip hazards. Work will be completed in adequate natural light or sufficient artificial illumination will be maintained.	Moderate Risk
Vehicular Travel and Traffic – On or near site	Roads, driveways, parking lots	All drivers will be licensed. All traffic rules, regulations, and control signs will be obeyed. Work areas will be clearly barricaded and appropriate signs will be displayed. When operating vehicles in tight areas or reversing a spotter should be used to guide the operator. Persons working near roadways or directing traffic will remain aware of their position in relation to traffic and will wear high visibility vests.	Moderate Risk
Noise	Excavation operation	High noise activities will be identified. Hearing protection will be provided as appropriate. The latest ACGIH threshold limit values (TLVs) will be used. Personnel working near heavy equipment	Moderate Risk

		will use hearing protection. Hearing control program, which consists of audiometric examination; training; use of hearing protection; and sound level pressure monitoring when and where necessary.	
Drowning	Waterways	Workers will be briefed on working over/near water procedures. If the water is greater than 2 ft in depth workers must wear a Personal Flotation Device within 6 feet of the water. The buddy system should be used whenever working near any water.	Low Risk
Biological Hazards			
Name of Biological Hazard	**Source**		**Exposure Level/Potential**
Bug bites, stings Poison ivy, poison oak, stinging nettles Snake Ticks	Wooded and vegetated areas	Appropriate insect repellents containing DEET will be used. Guidance on how to recognize poisonous plants and to avoid contact will be provided. A poster indicating the various types of hazardous plants and reptiles to avoid will be made available. Safety discussions will be conducted on the avoidance of biological hazards. In areas where poisonous snakes are known to congregate, the use of snake chaps and heavy leather gloves will be required. Discussions on snake habits, aggressiveness, and avoidance will be held during safety briefings. In areas where poisonous plants exist, preventative ointments and washing capabilities will be used. Conduct tick checks at minimum daily.	Moderate Risk
Radiological Hazards			
Name of Radiological Hazard	**Source**		**Exposure Level/Potential**
Non-ionizing radiation	Solar UV exposure	Use sunblock as appropriate. Avoid extended periods of direct exposure to sun. Wear long sleeve shirts.	Moderate Risk
PPE Level:	**Level of PPE: D**		
PPE Upgrade: No		Appropriate clothing for seasonal conditions and weather should be worn as needed along with hard hat, cotton coveralls/work clothes, safety boots, and high-visibility vests.	
PPE Downgrade: No			

Notes:
mg/m^3 = Milligrams per cubic meter
ppb = Parts per billion
PPE = Personal protective equipment

APPENDIX C

HEALTH HAZARD INFORMATION

Health Hazard Information for Lead

CHEMICAL IDENTIFICATION		
Chemical Name: Lead		
CAS No.: 7439-92-1	UN No: 2291	Formula: Pb
Synonyms: Lead metal, Plumbum		

PHYSICAL PROPERTIES			
Physical Description: A heavy, ductile, soft, gray solid.			
BP: 3164°F	MW: 207.2	LEL: NA	NFPA Fire Rating:
FRZ:	VP: 0 mmHg (approx)	UEL: NA	NFPA Health Rating:
Fl.P: NA	VD:		NFPA Reactivity Rating:
Sp. Gr.: 11.34	IP: NA		NFPA Sp. Inst.:

EXPOSURE GUIDELINES			
OSHA	**NIOSH**	**ACGIH**	**Related Information**
PEL-TWA ppm:	REL-TWA ppm:	TLV-TWA ppm:	AIHA Emergency Response Planning Guidelines (ERG) ERPG-1/ERG-2/EPRG-3: MAK-3B, NIOSH-Ca, TLV-A3
PEL-TWA mg/m^3: 0.050	REL-TWA mg/m^3: 0.050	TLV-TWA mg/m^3: 0.15	
PEL-STEL ppm:	REL-STEL ppm:	TLV-STEL ppm:	
PEL-STEL mg/m^3:	REL-STEL mg/m^3:	TLV-STEL mg/m^3:	
PEL-C ppm:	REL-C ppm:	TLV-C ppm :	
PEL-C mg/m^3:	REL-C mg/m^3:	RLV-C mg/m^3:	
Notes:	Notes:	Notes:	Carcinogen Classifications:

IDLH Notes:	
IDLH ppm:	IDLH mg/m^3: 100

HEALTH INFORMATION
Symptom: lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypertension
Health Effects: Highly toxic, may be fatal if inhaled, swallowed or absorbed through skin. Avoid any skin contact. Effects of contact or inhalation may be delayed. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution.
Target Organ: Eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival tissue

EMERGENCY RESPONSE INFORMATION
First Aid:
Reactivity: Strong oxidizers, hydrogen peroxide, acids
Nonfire Spill Response:
Fire Response:

Notes:

* = Inorganic compounds
ACGIH = American Conference of Governmental Industrial Hygienists
AIHA = American Industrial Hygiene Association
BEI = Biological Exposure Index
BP = Boiling point
C = Ceiling
Ca = Carcinogen
CAS = Chemical Abstracts Service
CFR = Code of Federal Regulations
EPA = U.S. Environmental Protection Agency
ERG = Emergency Removal Guideline
MW = Molecular weight
NA = Not applicable
NFPA = National Fire Protection Association
NIOSH = National Institute for Occupational Safety and Health
NTP = National Toxicology Program
OSHA = U.S. Occupational Health and Safety Administration
PEL = Permissible Exposure Limit
ppm = Parts per million
REL = Recommended Exposure Limit
Sp.Gr. = Specific gravity
Sp.Inst. = Special instructions
STEL = Short Term Exposure Limit

Fl.P = Flash point
FRZ = Freezing point
IARC = International Agency for Research Center
IP = Ionization Potential
LEL = Lower explosive limit
mg/m^3 = Milligrams per cubic meter
TLV = Threshold Limit Value
TWA = Time-weighted average
UEL = Upper explosive limit
UN = United Nations
VD = Vapor density
VP = Vapor Pressure

Health Hazard Information for PAHs

CHEMICAL IDENTIFICATION		
Chemical Name: Benzo(a)pyrene		
CAS No.: 50-31-B	UN No:	Formula: C20H12b
Synonyms: Benzo(d,e,f)chrysene, 2,4-benzopyrene; 2,4-benzpyrene		

PHYSICAL PROPERTIES			
Physical Description: PAHs occur in the atmosphere most commonly in the products of incomplete combustion			
BP: 495°F	MW: 252.3	LEL: NA	NFPA Fire Rating:
FRZ:	VP: 0 mmHg (approx)	UEL: NA	NFPA Health Rating:
Fl.P: NA	VD:		NFPA Reactivity Rating:
Sp. Gr.:	IP: NA		NFPA Sp. Inst.:

EXPOSURE GUIDELINES			
OSHA	**NIOSH**	**ACGIH**	**Related Information**
PEL-TWA ppm:	REL-TWA ppm:	TLV-TWA ppm:	AIHA Emergency Response Planning Guidelines (ERG) ERPG-1/ERG-2/EPRG-3: MAK-3B, NIOSH-Ca, TLV-A3
PEL-TWA mg/m^3: 0..2	REL-TWA mg/m^3: 0.1	TLV-TWA mg/m^3:	
PEL-STEL ppm:	REL-STEL ppm:	TLV-STEL ppm:	
PEL-STEL mg/m^3:	REL-STEL mg/m^3:	TLV-STEL mg/m^3:	
PEL-C ppm:	REL-C ppm:	TLV-C ppm :	
PEL-C mg/m^3:	REL-C mg/m^3:	RLV-C mg/m^3:	
Notes:	Notes:	Notes:	Carcinogen Classifications:NTP: Reasonably Anticipated to be a Human Carcinogen

IDLH Notes:	
IDLH ppm:	IDLH mg/m^3: 100

HEALTH INFORMATION
Symptom:
Health Effects: PAHs occur in the atmosphere most commonly in the products of incomplete combustion. carcinogenic in humans and animals. These products include fossil fuels; cigarette smoke; industrial processes (such as coke production and refinement of crude oil); and exhaust emissions from gasoline engines, oil-fired heating, and burnt coals. PAHs are present in groundwater, surface water, drinking water, waste water, and sludge. They are found in foods, particularly charbroiled, broiled, or pickled food items, and refined fats and oils.
Target Organ: Dermal (Skin), Hepatic (Liver), Immunological (Immune System)

EMERGENCY RESPONSE INFORMATION
First Aid:
Reactivity:
Nonfire Spill Response:
Fire Response:

Notes:

* = Inorganic compounds
ACGIH = American Conference of Governmental Industrial Hygienists
AIHA = American Industrial Hygiene Association
BEI = Biological Exposure Index
BP = Boiling point
C = Ceiling
Ca = Carcinogen
CAS = Chemical Abstracts Service
CFR = Code of Federal Regulations
MW = Molecular weight
NA = Not applicable
NFPA = National Fire Protection Association
NIOSH = National Institute for Occupational Safety and Health
NTP = National Toxicology Program
OSHA = U.S. Occupational Health and Safety Administration
PEL = Permissible Exposure Limit
ppm = Parts per million
REL = Recommended Exposure Limit
Sp.Gr. = Specific gravity

EPA = U.S. Environmental Protection Agency
ERG = Emergency Removal Guideline
Fl.P = Flash point
FRZ = Freezing point
IARC = International Agency for Research Center
IP = Ionization Potential
LEL = Lower explosive limit
mg/m^3 = Milligrams per cubic meter
Sp.Inst. = Special instructions
STEL = Short Term Exposure Limit
TLV = Threshold Limit Value
TWA = Time-weighted average
UEL = Upper explosive limit
UN = United Nations
VD = Vapor density
VP = Vapor Pressure

APPENDIX D

HAZARD COMMUNICATION PLAN

Location-Specific Hazard Communication Program/Checklist

To ensure that information about the dangers of all hazardous chemicals used at the Lower Darby Creek Landfill Area are known by all affected employees, the following Hazard Communication Program has been established. All affected personnel will participate in the Hazard Communication Program.

List of Hazardous Chemicals

A list of known hazardous chemicals used by site personnel is available in the binder located at the command post. Further information on each chemical may be obtained by reviewing the appropriate SDS. The list will be arranged to enable cross-reference with the SDS file and the label on the container. The SSO is responsible for ensuring the chemical listing remains up-to-date.

Container Labeling

All containers received from a chemical manufacturer, importer, or distributor for use on-site shall be clearly labeled. The SSO is responsible for ensuring that labels are placed where required and for comparing SDSs and other information with label information to ensure correctness.

APPENDIX E
ENVIRONMENTAL RESTORATION, LLC-ACTIVITY HAZARD ANALYSIS

This appendix is to be addressed in the daily tool box safety meeting as each task is to be attempted. Each Activity Hazard Analysis is designed to develop awareness to chemical and physical hazards specific to each task. It would be impractical to repeat in complete detail each control measure and SOP for each job task. Sources, Hazards and Control Measures will be addressed for each job task.

Activity Hazard Analysis		
Project: Lower Darby Creek		**Project Manager:** Joe Galioto
Job Task: Mobe / Site Setup / Equipment Delivery		**Site Health and Safety Officer:** Joe Galioto
Personal Protective Equipment: Level D		**Analysis Performed by:** Joe Galioto
Hazard	**Sources**	**Control Measures**
Load Shift	Improper Secured Equipment	Proper use of binding equipment Proper location of load on vehicle Obey weight restrictions and specialized loading guidelines of transport vehicle
Heavy Equipment rollover	Improper Loading/Unloading of Equipment	Ensure proper loading and unloading techniques are utilized Ensure equipment trailer is adequate to carry equipment load Ensure loading ramps meet specific equipment loading needs Follow HS-18 Heavy Equipment Operation
Crush/laceration	Binding equipment	Only approved ratchet binding equipment will be utilized Pipes or leverage extension devices will not be permitted with binders Proper weight ratings required for chains, straps, cables Proper PPE required including cut resistant work gloves
Collision	Improper motor vehicle operation	Follow HS-10 Motor Vehicle Operation Only qualified drivers permitted to operate vehicles Obey all traffic laws Wear seat belts while in operation
Noise	Equipment/vehicles	Hearing protection for levels > 85 dBs Hearing protection required when operating open-cab equipment Hearing protection required when working near equipment
Slips/Trips/Falls	Vehicle entry/exit	Identify slippery surfaces. Three points of contact. Use ramps or steps for mounting/dismounting elevated surfaces
Heat Stress / Inclement weather	- Seasonal temperatures Lightning	- Discuss heat stress in daily safety meeting on days when hot temperatures are forecasted. - Refer to section 4.3 of this HASP. - Follow HS-17, Heat Stress. - Schedule proper breaks to cool down as dictated by physiological monitoring results. - Maintain communication with and observation of co-workers. - Provide a cool, shady break area. - Hydrate properly. Practice 30-30 rule at minimum for shutdown/restart of work due to lightning
Struck by/caught between	Vehicle & Equipment Operation/Traffic	Follow HS-10 Motor Vehicle Operation Follow HS-18 Heavy Equipment Operation

		Only qualified drivers permitted to operate vehicles Wear ANSI Type 2 high-visibility safety vest Wear seat belts while in operation Back up alarms functional and loud enough to hear over surroundings

Activity Hazard Analysis		
Project: Lower Darby Creek Area		**Project Manager:** Joe Galioto
Job Task: Excavation		**Site Health and Safety Officer:** Joe Galioto
Personal Protective Equipment: Level D w/ Air Monitoring Justification		**Analysis Performed by:** Joe Galioto
Hazard	**Sources**	**Control Measures**
PAH Polycyclic Aromatic Hydrocarbons (Benzo (a) Pyrene	Soil	Maintain dust suppression with water spray/mist at all times Control work area to authorized personnel only Utilize PPE per Section 6 of this HASP Minimize contact with contaminated soils Follow HS01 and AMP for PEM of ER employees
Cuts/Punctures	Sharp Objects	Beware of sharp objects Wear cut resistant gloves
Bites/Stings	Wildlife (Spiders, Wasps, Bees, Dogs)	Refer to Section 4.4 of this HASP Avoid contact Avoid reaching under rocks, wood, debris, etc. with hands Shake boots prior to donning Employees with a history of severe allergic reactions shall possess epipen prescribed by their doctor
Ergonomics	Lifting and Bending	Follow HS-36 Proper Lifting Techniques Use Buddy system Use mechanical means when feasible
Heat Stress	Summer Temperatures	Follow HS-17 Heat Stress SOP Schedule proper breaks Maintain communication/observation of co-worker Cool break area Proper hydration
Noise	Equipment/vehicles Hand tools	Hearing protection for levels > 85 dBs Hearing protection required when operating open-cab equipment Hearing protection required when working near equipment
Slips/Trips/Falls	Uneven Terrain Debris Excavations	Identify/mark hazards Remove debris from walking / working surfaces Cover/fill in holes Mow tall grass if feasible Mark excavations
Electrocution/explosion/fire	Overhead/underground utilities	Locate and mark existing energized lines – Local locate company 811 Disconnect/de-energize electrical lines if feasible Maintain a minimum distance of 10' from overhead power lines General Field Safety Rules in this HASP further define the

Activity Hazard Analysis		
Project: Lower Darby Creek Area		**Project Manager:** Joe Galioto
Job Task: Excavation		**Site Health and Safety Officer:** Joe Galioto
Personal Protective Equipment: Level D w/ Air Monitoring Justification		**Analysis Performed by:** Joe Galioto
		minimum distances for voltages in excess of 50Kv. Use spotter at all time during operations near overhead lines Boot lines or use hot stick to move line out of reach of equipment Hand dig/probe to locate and uncover underground utilities
Struck by/caught between	Vehicle & Equipment Operation/Traffic	Follow HS-10 Motor Vehicle Operation Follow HS-18 Heavy Equipment Operation Only qualified drivers permitted to operate vehicles Wear ANSI Type 2 high-visibility safety vest Wear seat belts while in operation Back up alarms functional and loud enough to hear over surroundings

Activity Hazard Analysis			
Project:	Lower Darby Creek Area	**Project Manager:**	Joe Galioto
Job Task:	Back Fill / Restoration	**Site Health and Safety Officer:**	Joe Galioto
Personal Protective Equipment:	Level D	**Analysis Performed by:**	Joe Galioto

Hazard	Sources	Control Measures
Cuts/Punctures	Sharp Objects	Beware of sharp objects Wear cut resistant gloves
Ergonomics	Lifting and Bending	Follow HS-36 Proper Lifting Techniques Use Buddy system Use mechanical means when feasible
Bites/Stings	Wildlife (Spiders, Wasps, Bees, Dogs)	Refer to Section 4.4 of this HASP Avoid contact Avoid reaching under rocks, wood, debris, etc. with hands Shake boots prior to donning Employees with a history of severe allergic reactions shall possess epipen prescribed by their doctor
Heat Stress	Summer Temperatures	Follow HS-17 Heat Stress SOP Schedule proper breaks Maintain communication/observation of co-worker Cool break area Proper hydration
Noise	Equipment/vehicles Hand tools	Hearing protection for levels > 85 dBs Hearing protection required when operating open-cab equipment Hearing protection required when working near equipment
Slips/Trips/Falls	Uneven Terrain Debris	Identify/mark hazards Remove debris from walking / working surfaces Cover/fill in holes Mow tall grass if feasible Mark excavations
Electrocution	Overhead utilities	Disconnect/de-energize electrical lines if feasible Maintain a minimum distance of 10' from overhead power lines General Field Safety Rules in this HASP further define the minimum distances for voltages in excess of 50Kv. Use spotter at all time during operations near overhead lines Boot lines or use hot stick to move line out of reach of equipment
Struck by/caught between	Vehicle & Equipment Operation/Traffic	Follow HS-10 Motor Vehicle Operation Follow HS-18 Heavy Equipment Operation Only qualified drivers permitted to operate vehicles Wear ANSI Type 2 high-visibility safety vest Wear seat belts while in operation

Activity Hazard Analysis			
Project:	Lower Darby Creek Area	**Project Manager:**	Joe Galioto
Job Task:	Back Fill / Restoration	**Site Health and Safety Officer:**	Joe Galioto
Personal Protective Equipment:	Level D	**Analysis Performed by:**	Joe Galioto
		Back up alarms functional and loud enough to hear over surroundings	

APPENDIX F

ENVIRONMENTAL RESTORATION STANDARD OPERATING PROCEDURES (SOPS)

Please check all that apply

SOPs	✓	ER SOPs	✓	ER SOPs	✓
HS-01 Air Monitoring and Sampling	☐	HS-27 Scaffolding Safety	☐	HS-51 Incident Reporting and Investigation	☒
HS-02 BBP Exposure Control Program	☐	HS-28 Tank Cleaning and Pressure Washing	☐	HS-52 General Waste management	☒
HS-03 Boating and Water Safety	☐	HS-29 UST / AST Removal	☐	HS-53 Spill Prevention and Response	☐
HS-04 Flammable Liquids Transfer	☒	HS-30 Traffic Control Safety	☒	HS-54 Behavior based Safety Program	☒
HS-05 Cold Stress	☒	HS-31 Wipe Sampling	☐	HS-55 Short Service Employee Program	☒
HS-06 Confined Space Entry	☐	HS-32 Mercury Safety	☐	HS-56 Stop Work Authority Program	☒
HS-07 Boom type Mobile Cranes & Pile Drivers	☐	HS-33 Asbestos Control Plan	☐	HS-57 Hazard Identification and Risk Assessment	☒
HS-08 Decontamination Measures	☒	HS-34 Isolation Chamber	☐	HS-58 Fatigue Management Program	☒
HS-09 Drill Rig Operations	☐	HS-35 Hazardous Categorization & Inventory	☐	HS-59 Injury Illness Recordkeeping Program	☒
HS-10 Motor Vehicle Operation	☒	HS-36 Proper Lifting Techniques	☒	HS-60 CAL OSHA Heat Illness Prevention Program	☐
HS-11 Drum Handling	☐	HS-37 Handling and Use of Compressed Gases	☒	HS-61 CAL OSHA Injury and Illness Prevention	☐
HS-12 Electrical - General	☒	HS-38 Fire Prevention & Protection	☒	HS-62 Emergency Action Plan	☒
HS-13 Excavation and Trenching Operations	☒	HS-39 Benzene Safety	☐	HS-63 Job Competency Program	☒
HS-14 Fall Protection	☐	HS-40 Forklifts	☒	HS-64 Security Best Practices	☒
HS-15 Hazard Communication Program	☒	HS-40a1 / a2 Forklift Training / Inspection	☒	HS-65 Conveyor Operation Safety	☐
HS-16 Hearing Conservation Program	☒	HS-41 Ladder Safety	☐	HS-66 (OPEN)	☐
HS-17 Heat Stress Safety	☒	HS-42 Water Survival	☐	HS-67 (OPEN)	☐
HS-18 Heavy Equipment	☒	HS-43 Compressed Air Use	☐	HS-68 Hydrogen Sulfide Program	☐
HS-19 Hoists and Rigging	☐	HS-44 Plasma Cutting	☐	HS-69 Hot Water Pressure Washer Operation	☐
HS-20 Hot Work	☒	HS-45 Compressed Air Systems	☐	HS-70 Steering Committee OP Charter	☐
HS-21 Lab Packing and Inventory	☐	HS-46 Hexavalent Chromium Safety	☐	HS-71 Steering Committee Reporting	☐
HS-22 Line Breaking	☐	HS-47 Cadmium Safety	☐	HS-72 (OPEN)	☐
HS-23 Lockout Tagout Tryout	☐	HS-48 Lead Hazard Safety Program	☐	HS-73 Assured Grounding Program	☐
HS-24 Personal Protective Equipment	☒	HS-48a Lead Awareness	☒	HS-76 Level A Suit Inspection / Maintenance	☐
HS-25 X-Ray RAD Protection Program	☐	HS-49 Tool Safety and Inspection	☒		☐

HS-26 Respiratory Protection Program	☐	HS-50 First Aid	☒		☐

APPENDIX G

ENVIRONMENTAL RESTORATION SITE SAFETY PLAN AMENDMENT

Site Safety Plan Amendment	
Amendment No.:	
Site Name:	
Date of Issue:	
Type of Amendment:	
Reason for Amendment:	.
Alternate Safeguard Procedures:	
Required Changes in PPE:	.

USEPA OSC R3 (Date)

ER Site Health and Safety Officer (Date)

ER Response Manager (Date)

ER Project Health and Safety Manager (Date)

APPENDIX H

ENVIRONMENTAL RESTORATION INJURY MANAGEMENT

Medical Services Provider
Philadelphia, PA

In the event you have an employee who reports a work related injury and states that they require medical attention follow the below protocol:

1) Question the employee as to the severity of the injury. Whenever possible, if we are dealing with a minor sprain, strain or pull those injuries can be cared for and managed through 1 Source's "Access Care Program" (ACP). The ACP allows 1 Source to manage an injury remotely without the employee requiring a clinic visit. The injured employee will be put in direct contact with either a practitioner or nurse case manager who will go through all facets of the injury, prescribe a plan of care and determine follow up contact times.

   If the employee agrees to participate in the ACP, the designated Safety Contact will contact 1 Source to report the injury.

   - ✓ Michael Pelz 815-370-2940 219-427-5933 855-517-6872
   - ✓ Ovidio Saenz 219-427-5931 855-517-6872

   The following information is required at the time of reporting.

   - ✓ Injured Employee's Name
   - ✓ Employee Contact Number(s)
   - ✓ Date of Injury
   - ✓ Type of Injury
   - ✓ Job Position
   - ✓ Is "Light" Duty available
   - ✓ Any pertinent information related to the event

2) If the injured employee denies participation to the ACP and requires immediate medical attention, the designated Safety Contact will contact 1 Source to report the injury to set-up the authorization for treatment.

   - ✓ Michael Pelz 815-370-2940 219-427-5933 219-977-2090 x111
   - ✓ Ovidio Saenz 219-427-5931 855-517-6872

   The following information is required at the time of reporting.

   - ✓ Injured Employee's Name
   - ✓ Employee Contact Number(s)
   - ✓ Where the injured employee is (closest clinic)
   - ✓ Date of Injury
   - ✓ Type of Injury

- ✓ Job Position
- ✓ Is "Light" Duty available
- ✓ Any pertinent information related to the event
- ✓ Is a Drug Screen / Breath Alcohol Test Required

1 Source will complete the following:

- ✓ Injury Authorization Form CCF-44625
- ✓ Release of Information Form CCF-53625

Note: 1 Source OHS must be informed of the injury prior to the injury being sent to the nearest medical clinic. Case management is critical in controlling your company's exposure. 1 Source will provide the clinic with all critical information including the "Authorization to Treat" form.

Primary Clinic: Work Net Occupational Medicine
1017 4th Avenue, Suite 200
Essington, PA 19029

Main Contact: Scott Polak / 610-357-8756 / spolak@worknetoccmed.com

Phone #: 610-521-6880
Fax #: 610-521-5531

Hours of Operation:
Monday – Thursday: 7:30 am to 8:00 pm
Friday: 7:30 am to 5:00 pm
Saturday: 9:00 am to 2:00 pm

Secondary Clinic: Work Net Occupational Medicine
One Reed Street
Philadelphia, PA 19147

Main Contact: Scott Polak / 610-357-8756 / spolak@worknetoccmed.com

Phone #: 215-467-5800
Fax #: 215-467-2022

Hours of Operation: Monday – Friday: 7:30 am to 5:00 pm

After Hours Clinic: Taylor Hospital
Emergency Room
175 E. Chester Pike
Ridley Park, PA 19078

Main Contact: Administration

Phone #: 610-595-6000

Hours of Operation: 24 / 7 /365