
Health and Safety Plan

REMOVAL ACTION AT

FORMER W.R. GRACE/ZONOLITE SITE
WEMELCO WAY
EASTHAMPTON, MASSACHUSETTS

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FORMS

- HEALTH AND SAFETY PLAN ACKNOWLEDGEMENT FORM
- DAILY HEALTH AND SAFETY MEETING FORM
- INSTRUMENT CALIBRATION FORM
- AIR MONITORING FORM
- DAILY EXCLUSION ZONE SIGN IN/OUT LOG

1.0 INTRODUCTION

1.1 *Objective*

This Health and Safety Plan (HASP) has been prepared in accordance with the requirements of Title 29, Code of Federal Regulations (CFR) Section 1910.120 to provide a guide for the protection of onsite personnel, visitors, and the public from physical harm and exposure to hazardous materials during remedial actions at the former W.R. Grace/Zonolite site located on Wemelco Way in Easthampton, Massachusetts (the "Site"). These remedial actions are more specifically described in a Site Specific Work Plan submitted to the U.S. Environmental Protection Agency (USEPA). This HASP outlines health and safety procedures and equipment required for activities at the Site.

The Health and Safety Plan procedures and guidelines set forth herein are based upon the best available information at the time of the Plan's preparation. Based upon historical sampling and investigation work at the Site, asbestos fibers have been identified on interior building surfaces, and in exterior soil, primarily at shallow depths.

Prior to initiating field activities, onsite personnel shall be fully briefed on the contents of this Plan, and shall be allowed to review a written copy of the HASP.

This HASP was developed for the Site to include precautions for hazards that may exist during the soil removal action and cleaning of interior building surfaces. Specific requirements of this Plan may be revised if new information is received or Site conditions change. Any changes to this Plan will be written in an amendment to this HASP, communicated to all Site personnel, and approved by the Project Manager and Health and Safety Coordinator.

1.2 *Site Description*

The Former Zonolite facility is an approximately 2.5 acre parcel of land located in a generally rural area of Easthampton, Massachusetts. A Site locus map is provided as Figure 1. The Former Zonolite facility is presently a vacant industrial building. The building is a one-story, concrete slab on grade structure. The area to the north of the building is a paved parking lot. To the east of the building is an undeveloped field that consists of dense grasses and small trees and brush. An easement for the Tennessee Gas Pipeline runs through this portion of the Site. The Site building was previously used to process vermiculite into bagged Zonolite insulation. Raw materials were received via rail on the southeastern side of the building. The railroad tracks have been removed, but wooden ties remain in some locations.

Asbestos fibers were found inside the Site building, and in soil outside the building and along the former railroad alignment. Additionally, soil testing along the railroad tracks identified arsenic at levels that may potentially pose a risk of harm. Although this metal is exempt from reporting under the MCP, and it is therefore not constituents of regulatory concern for abatement purposes, personnel on Site should be aware of its presence and take appropriate measures to avoid exposure to impacted soils.

The Site lies within a mapped Medium Yield Aquifer and lies within a mapped Zone II of a Public Water Supply Source. These groundwater resource areas are not a concern with respect to this Work Plan because the constituent of concern (asbestos) is not water soluble.

The Site building is serviced by public water and sewer, and there are no known private supply wells within 500 feet of the Site.

1.3 Anticipated Work Activities

The objective of removal action at the Site will be to remove asbestos containing soil (ACS) from publicly accessible areas, and to consolidate and cap the impacted soils in a designated area on the northeastern side of the building. Activities will include:

- Mobilize at Site and set up support facilities;
- Perform Baseline Air Survey;
- Setup Work Zones and Decontamination Area;
- Restrict Site access to authorized personnel only;
- Install erosion and sedimentation controls as needed;
- Clear vegetated areas as needed;
- Excavate impacted soil and move it to the designated placement area;
- Place cap materials over the asbestos in soil placement area;
- Collect post-excavation soil samples, if required;
- Decontaminate equipment;
- Clean and clear interior portions of the Site building; and
- Demobilize.

This section of the HASP will be revised and updated as needed as site work activities become more refined.

2.0 ROLES AND RESPONSIBILITIES OF KEY PERSONNEL

Key personnel for the project are identified below. The persons responsible for implementing this Safety Plan are the Project Manager (PM) and the Health and Safety Coordinator. The specific responsibilities and authority of the key personnel are also described.

**OTO Project Manager
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Office Phone (413) 788-6222
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The PM will review and approve work plans and other documents submitted to USEPA and MassDEP. The PM will have direct interface with the USEPA On-Scene Coordinator, and is the official point of contact with the regulatory agencies. The PM is responsible for overall operations and resource management as well as implementing and directing field operations and ensuring that operations are conducted in accordance with the requirements of the Site Plans. The PM will provide direction to field personnel.

The PM is responsible for verifying that project activities are completed in accordance with the requirements of this HASP.

Health and Safety Coordinator (HSC)
Robert Kirchherr, CSP
O'Reilly, Talbot & Okun
Office Phone (413) 788-6222
Cell Phone (413) 244-4188

The Health and Safety Coordinator (HSC), a certified safety professional (CSP), is responsible for reviewing and approving the HASP. The HSC will remain available throughout the project for consultation and technical assistance. Although the HSC will not be present continuously during the project, the HSC may conduct periodic visits to the Site and provide feedback on health and safety issues at the Site.

3.0 SITE HAZARD EVALUATION

3.1 *Biological Hazards*

Portions of the site are wooded, and others are open, unmowed field. There is a risk of injury from biological hazards in natural areas where exposure to toxic plants, noxious insects, ticks, and aggressive animals such as dogs or rabid wildlife is possible. Protective boots, clothing, insect repellents, and other appropriate equipment are recommended.

Appropriate clothing, such as long sleeved shirts, gloves and protective eyewear and face shields, should be worn if poison ivy, oak, or sumac is present. Exposed skin should be washed with a strong soap as soon as possible after suspected exposure. If mosquitoes are present, repellent should be used according to label directions to prevent possible transmission of encephalitis or other transmitted diseases. If aggressive animals are encountered, personnel should back off and immediately notify the PM.

Measures to be taken in response to the presence of biological hazards, including poisonous plants, snakes, ticks, spiders, mosquitoes, and other pests, are described in more detail in the following sections.

3.1.1 POISONOUS PLANTS

Poisonous plants may be present in the work area. Personnel should be alerted to its presence and instructed on methods to prevent exposure.

Control: The main control is to avoid contact with the plant, cover arms and hands, and frequently wash potentially exposed skin. Particular attention must be given to avoiding skin contact with objects or protective clothing that have touched the plants. Treat every surface that may have touched the plant as contaminated, and practice contamination avoidance. If skin contact is made, the area should be washed immediately with soap and water, and observed for signs of reddening.

3.1.2 SNAKES

The possibility of encountering snakes exists, specifically for personnel working in wooded/vegetated areas. The effects produced by venoms include neurotoxic effects with sensory, motor, cardiac, and respiratory difficulties; cytotoxic effects on red blood cells, blood vessels, heart muscle, kidneys, and lungs; defects in coagulation; and effects from local release of substances by enzymatic actions. Other noticeable effects of venomous snakebites include swelling, edema, and pain around the bite, and the development of ecchymosis (the escape of blood into tissues from ruptured blood vessels).

Control: To minimize the threat of snakebites, all personnel walking through vegetated areas must be aware of the potential for encountering snakes, and the need to avoid actions potentiating encounters, such as turning over logs, etc. If snakebite occurs, an attempt should be made to obtain snake markings, size and color for identification. If there is a possibility that the snake is venomous, the victim must be transported to the nearest hospital within 30 minutes; first aid consists of applying a constriction band, and washing the area around the wound to remove any unabsorbed venom. If the snake is known to be non-venomous, then the wound is to be washed immediately and bandaged to keep clean.

3.1.3 TICK BORNE DISEASES

Lyme Disease: The disease commonly occurs in summer and is transmitted by the bite of infected ticks. “Hot spots” in the United States include New York, New Jersey, Pennsylvania, Massachusetts, Connecticut, Rhode Island, Minnesota, and Wisconsin.

Erlchiosis: The disease also commonly occurs in summer and is transmitted by the bite of infected ticks. “Hot spots” in the United States include New York, Massachusetts, Connecticut, Rhode Island, Minnesota, and Wisconsin.

These diseases are transmitted primarily by the deer tick, which is smaller and redder than the common wood tick. The disease may be transmitted by immature ticks, which are small and hard to see. The tick may be as small as a period on this page.

Symptoms of Lyme disease include a rash or a peculiar red spot, like a bull’s eye, which expands outward in a circular manner. The victim may have headache, weakness, fever, a stiff neck, and swelling and pain in the joints, and eventually, arthritis. Symptoms of erlichiosis include muscle and joint aches, flu-like symptoms, but there is typically no skin rash.

Rocky Mountain Spotted Fever (RMSF): This disease is transmitted via the bite of an infected tick. The tick must be attached 4 to 6 hours before the disease-causing organism (*Rickettsia rickettsii*) can infect humans. The primary symptom of RMSF is the sudden appearance of a moderate-to-high fever. The fever may persist for two to three weeks. The victim may also have a

headache, deep muscle pain, and chills. A rash appears on the hands and feet on about the third day and eventually spreads to all parts of the body. For this reason, RMSF may be confused with measles or meningitis. The disease may cause death, if untreated, but if identified and treated promptly, death is uncommon.

Control: Tick repellent containing diethyltoluamide (DEET) should be used when working in tick-infested areas, and pant legs should be tucked into boots. In addition, workers should search the entire body every three or four hours for attached ticks. Ticks should be removed promptly and carefully without crushing, since crushing can squeeze the disease-causing organism into the skin. A gentle and steady pulling action should be used to avoid leaving the head or mouth parts in the skin. Hands should be protected with surgical gloves when removing ticks.

3.1.4 SPIDERS

Personnel may encounter spiders during work activities.

Two spiders are of concern, the black widow and the brown recluse. Both prefer dark sheltered areas such as basements, equipment sheds and enclosures, and around woodpiles or other scattered debris. The black widow is shiny black, approximately one inch long, and found throughout the United States. There is a distinctive red hourglass marking on the underside of the black widow's body. The bite of a black widow is seldom fatal to healthy adults, but effects include respiratory distress, nausea, vomiting, and muscle spasms. The brown recluse is smaller than the black widow and gets its name from its brown coloring and behavior. The brown recluse is more prevalent in the southern United States. The brown recluse has a distinctive violin shape on the top of its body. The bite of the brown recluse is painful and the bite ulcerates and takes many weeks to heal completely.

Control: To minimize the threat of spider bites, all personnel walking through vegetated areas must be aware of the potential for encountering these arachnids. Personnel need to avoid actions that may result in encounters, such as turning over logs, and placing hands in dark places such as behind equipment or in corners of equipment sheds or enclosures. If a spider bite occurs, the victim must be transported to the nearest hospital as soon as possible; first aid consists of applying ice packs and washing the area around the wound to remove any unabsorbed venom.

3.1.5 MOSQUITOES

Personnel may be exposed to mosquitoes during work activities.

Typical exposure to mosquitoes does not present a significant hazard. However, if West Nile virus is prevalent in the area, exposure to this virus is increased. West Nile virus results in flu-like symptoms and can be serious if not treated or in immune-compromised individuals.

Control: To minimize the threat of mosquito bites all personnel working outside must be aware of the potential for encountering mosquitoes and implement the basic precautions listed below:

- . • Avoid working at dawn or dusk when mosquitoes are most active;
- . • Prevent accumulation of standing water at the work-site;
- . • Apply an insect repellent that contains DEET;
- . • Wear light colored clothing, preferably with long sleeves and full-length pants; and
- . • Do not touch any dead birds or animals that you encounter.

If dead birds are observed near the Site, report the sighting to the Easthampton Health Department at (413) 529-1430. If you experience flu-like symptoms, contact your doctor or the HSC for more information.

3.2 Release-Related Hazards

The constituents of concern (COCs) at this Site are asbestos fibers inside the Site building, and asbestos and arsenic in Site soil. Arsenic was identified in surficial soils along the former railroad track alignment at concentrations greater than MCP S-3 soil standards, which were developed to be protective of workers in a short but intense period of work, such as the proposed excavation. Other constituents were not identified in the soils above S-3 standards.

For asbestos fibers, the exposure route of concern is inhalation. For impacted soils, exposure may occur via dust inhalation, inadvertent ingestion, and dermal absorption following direct skin exposure. Additionally, total particulate levels in air are of concern during soil handling and other activities that may generate dust.

The potential for inhalation of Site COCs is low if dust suppression methods are employed, and adequate health and safety measures are observed during interior work. The potential for dermal contact with soil containing Site COCs during sampling operations is moderate to high. Air monitoring for asbestos will be conducted during the removal action in accordance with Section 8.0 to determine the need for respiratory protection and other requirements.

Table 3-1 summarizes selected chemicals of health and safety concern that have been observed at the Site. Protective measures as outlined in this HASP are aimed at preventing exposure to hazardous compounds.

Table 3-1 Health Hazards of Select Site Contaminants				
Contaminant	OSHA Permissible Exposure Limit ¹	OSHA Short Term Exposure Limit ²	ACGIH ³ – TLV/STEL	NIOSH REL ⁴
Total Particulate	15 mg/m ³ (total) 5 mg/m ³ (respirable)	15 mg/m ³ (total) 5 mg/m ³ (respirable)	10 mg/m ³ (total) 3 mg/m ³ (respirable)	-
Asbestos	0.1 fiber/cc	1 fiber/cc ⁵		0.1 fiber/cc
Arsenic	0.5 mg/m ³		0.01 mg/m ³	

Notes:

¹ OSHA PEL – OSHA Permissible Exposure Limit expressed as an 8-hour Time Weighted Average concentration (29 OSHA 1910.1000).

² STEL – Short-term exposure limit expressed as 15 Minute Time Weighted Average concentration that should not be exceeded.

³ ACGIH – American Conference of Governmental Industrial Hygienist

⁴ NIOSH REL – NIOSH Recommended Exposure Limit (non-enforceable)

⁵ The OSHA short term exposure limit for asbestos is a 30-minute exposure sample collected during the period where the greatest exposure is anticipated.

mg/m³ – Milligrams per cubic meter

Source: NIOSH Pocket Guide to Chemical Hazards, Center for Disease Control, June 1997.

American Conference of Governmental Industrial Hygienist (ACGIH)

3.2.1 CONTAMINANT LEVELS

Information reviewed indicates that selected potential chemicals of concern for this project include the following:

- Asbestos fibers; and
- Arsenic.

The highest concentrations of these COC detected at the site are presented in Table 3-2

Table 3-2 Highest Observed Concentration of Select Site Contaminants	
Contaminant	Highest Observed Concentration
Asbestos	2-3%
Arsenic	49 mg/kg

3.2.2 CONTAMINANT PROPERTIES

Asbestos is a naturally occurring mineral that can cause serious lung disease when inhaled, particularly after repeated exposure. The symptoms of asbestos exposure are due to the physical structure, not chemical properties, of the substance. Small asbestos fibers may be respirable, and are needle-shaped. Lung scarring associated with asbestos exposure may take years to appear. There are typically no short term exposure effects observed.

Arsenic is a naturally occurring elements found in the earth's crust. Over-exposure to this metal may cause irritation of the nasal passages, nausea, or vomiting.

Further detail on the contaminants of concern is included in the contaminant fact sheets located in Appendix A of this Plan.

3.2.3 CONTROL OF CHEMICAL HAZARDS

Prevention of exposure to chemical hazards will be accomplished through a variety of methods described in subsequent sections of this HASP. These control measures include:

- Health and safety training;
- Real-time air monitoring;
- Collection and analysis of air samples;
- Use of respirators and protective clothing; if required based on sampling results;
- Use of dust and vapor controls; and
- Hygiene practices and decontamination.

3.3 *Physical Hazards*

Physical hazards at the Site include natural conditions as well as those associated with project-specific activities, such as the use of heavy equipment. The project presents a number of physical hazards associated with the specific activities involved. Table 3-4 presents a summary of anticipated physical hazards and their associated activities along with applicable OSHA standards and specific control measures and work rules to be implemented at the Site.

Additional protective and preventative measures will be taken in response to specific hazards, operations, and conditions. All Site operations will be conducted in accordance with the specific OSHA General Industry or Construction Standards that apply to specific activities.

3.3.1 HEAT STRESS

Heat stress is the combination of both environmental and physical work factors that contribute to the total heat load imposed on the body. Environmental factors that contribute to heat stress include air temperature, radiant heat exchange, air movement and humidity.

The body's response to heat stress is reflected in the degree of symptoms. When the stress is excessive for the exposed individual, a feeling of discomfort or distress may result and a heat-related disorder may ensue. The severity of the response will depend not only on the magnitude of the prevailing stress, but also on the age, physical fitness, and degree of acclimatization and dehydration of the worker. A table summarizing heat stress disorders is provided below.

Heat stress monitoring may be conducted, and work/rest schedules may be implemented if conditions warrant it.

Heat Stress Safety Precautions

Heat stress monitoring and work rest cycle implementation should commence when the ambient adjusted temperature exceeds 72°F. A suggested work rest regiment and procedures for calculating ambient adjusted temperatures are described below.

Adjusted Temperature ^(b)	Work/Rest Regime – Normal Work Ensemble ^(c)	Work/Rest Regime – Impermeable Ensemble
90°F (32.2°C) or above	After each 45 minutes of work	After each 15 minutes of work
87.5° - 90°F (30.8° - 32.2°C)	After each 60 minutes of work	After each 30 minutes of work
82.5° - 87.5°F (29.1° - 30.8°C)	After each 90 minutes of work	After each 60 minutes of work
77.5° - 82.5°F (25.3° - 28.1°C)	After each 120 minutes of work	After each 90 minutes of work
72.5° - 77.5°F (22.5° - 25.3°C)	After each 150 minutes of work	After each 120 minutes of work

- a. For work levels of 250 kilocalories/hour (Light-Moderate Work Type)
- b. Calculate the adjusted air temperature (ta adj) by using this equation: ta adj°F = ta°F + (13 x % sunshine). Measure air temperature (ta) with a standard mercury-in-glass thermometer, with the bulb shielded from radiant heat. Estimate percent sunshine by judging what percent time the sun is not covered by clouds that are thick enough to produce a shadow. (100 % sunshine = no cloud cover and a sharp, distinct shadow, 0% sunshine = no shadow.)
- c. A normal work ensemble consists of cotton coveralls or other cotton clothing with long sleeves and pants.
- d. The information presented above was generated using the information provided in the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV) Handbook.

**Table 3-3
 Recognizing and Treating Heat Stress**

Disorder	Symptoms	Cause	Prevention/First Aid
Heat Rash or Prickly Heat	<ul style="list-style-type: none"> • Rash, itching 	<ul style="list-style-type: none"> • Hot, humid conditions. • Sweat does not evaporate easily • Sweat ducts become clogged 	<ul style="list-style-type: none"> • Ointments • Keep skin dry and clean • Good daily personal hygiene
Heat Cramps	<ul style="list-style-type: none"> • Sudden onset of muscle cramps usually in legs or arms • Hot, moist skin • Normal pulse • Normal or slightly elevated temperature 	<ul style="list-style-type: none"> • Loss of water (sweating) • Loss of electrolytes • Replacing water but not electrolytes 	<ul style="list-style-type: none"> • Move into shade • Loosen clothing • Drink tepid electrolyte drinks or water • See medical assistance if conditions persist
Heat Exhaustion	<ul style="list-style-type: none"> • Pale, clammy skin • Profuse perspiration • Thirst from dehydration • Weakness • Headache • Nausea • Loss of coordination 	<ul style="list-style-type: none"> • Overexertion • Excessive loss of water and electrolytes 	<ul style="list-style-type: none"> • Move into shade • Remove PPE • Loosen street clothing • Cool by applying damp cool compresses or ice packs • Drink tepid electrolyte drinks or water • Summon medical assistance
Heat Stroke	<ul style="list-style-type: none"> • Elevated temperature (>103°F) • Flushed, hot, dry skin • Absence of sweating • Delirious • Rapid pulse • Nausea • Headaches • Dizziness • Unconsciousness 	<ul style="list-style-type: none"> • Failure of body's cooling (sweating) mechanism 	<ul style="list-style-type: none"> • Summon medical assistance immediately • Move to shade • Remove PPE • Loosen street clothing • Cool by fanning or applying damp compresses or ice packs

3.3.2 VEHICLE TRAFFIC AND HEAVY EQUIPMENT

The excavation project presents a number of physical hazards associated with the specific activities involved. Table 3-4 below presents a summary of anticipated physical hazards and their associated activities along with applicable OSHA standards and specific control measures and work rules to be implemented at the Site.

Additional protective and preventative measures will be taken in response to specific hazards, operations, and conditions. All Site operations will be conducted in accordance with the specific OSHA General Industry or Construction Standards that apply to specific activities.

3.3.3 UNEVEN WALKING SURFACES

Uneven walking surfaces are prevalent throughout the site.

- Employees walking in the remedial excavation, ditches, swales and other drainage structures or across undeveloped land must use caution to prevent slips and falls, which can result in twisted or sprained ankles, knees, and backs.
- Whenever possible observe the conditions from a flat surface and avoid steep inclines.
- If steep terrain must be negotiated, sturdy shoes or boots that provide ankle support should be used. The need for ladders or ropes to provide stability should be evaluated.
- Exercise caution in relying on rocks and trees/tree stumps to support you; many times, they are loose.

3.3.4 EXCAVATION EQUIPMENT

- Only authorized personnel are permitted to operate heavy equipment.
- Stay clear of areas surrounding equipment during every startup.
- Stay clear of the rotating components.
- Stay as clear as possible of all hoisting operations. Loads shall not be hoisted directly overhead of personnel.
- Do not wear loose-fitting clothing or other items such as rings or watches that could be caught in moving parts. Long hair must be restrained.
- If equipment becomes electrically energized, personnel shall be instructed not to touch any part of the equipment or attempt to touch any person who may be in contact with the electrical current. The utility company or appropriate party shall be contacted to have line de-energized before approaching the equipment.

- All personnel supporting heavy equipment operations shall know the location of emergency equipment shut offs.

3.3.5 CONFINED SPACE HAZARDS

Confined space entry is not anticipated to occur during this project. The anticipated depth of excavations will not constitute a confined space. Equipment operators will slope back all sidewalls of excavations greater than 5 feet in depth to maintain a stable excavation. At no time will field personnel be permitted to enter excavations greater than 5 feet in depth.

In the event that a confined space entry is required, it will be required for the field foreman and field technicians to receive authorization from the HSC in the form of a written confined space entry permit. After receipt of the written permit, all personnel entering and monitoring the entrance to the excavation shall be briefed on all Confined Space Entry Procedures set forth in the applicable OSHA regulations.

Table 3-4 Potential Physical Hazards				
Hazard	Description	Activity	Relevant OSHA Standard	Hazard Control
Heavy Equipment Operation	Backhoes, Loaders, Bulldozers, Dump Trucks, and similar equipment	Clearing; Excavation; Earthmoving;	1926.600 – 602 1926.604	Mandatory seat belt use. Back up alarms. Equipment inspection and maintenance
Heat Stress	Personnel working in warm temperature are subject to adverse heat-related effects. Persons wearing impervious protective clothing are especially at risk due to restriction of evaporative cooling via perspiration.	Exclusion zone operations; Heavy physical activity in any work zone	1910.120	Monitor environment and activity level. Adjust work rest cycles. Provide shaded rest areas. Provide drinking water and encourage its consumption. Train employees in signs and symptoms. Monitor personnel for signs of heat stress.
Cold Injury	Personnel working in cold temperature are subject to adverse cold-related effects. Persons wearing impervious protective clothing are especially at risk due to tendency to sweat while suited up, and subsequent heat loss while decontaminating and desuited.	Exclusion zone operations; Heavy physical activity in any work zone	1910.120	Monitor environment and activity level. Adjust work rest cycles. Provide heated change areas. Provide drinking water and encourage its consumption. Train employees in signs and symptoms. Monitor personnel for signs of cold injuries.
Electricity I	Outdoor use of electrically powered tools	Mobilization; Various tasks throughout the project	1926.400-405	Use ground fault interrupters on all outdoor circuits. Assure continuous equipment ground on all three wire cords. Use extension cords rated for the application.
Electricity II	Overhead / Buried Utilities	Heavy equipment operation along road	1926.550 1926.955	Contact local utilities to identify buried lines. Maintain a minimum of 10' clearance from overhead wires for heavy equipment or arrange for their deenergization.
Gas Line	An underground gas line crosses the site.	Excavation	82 CMR section 40	Excavation is not to be performed within 20 feet of the gas line right-of-way without Tennessee Gas personnel present.
Slips Trips Falls	Falls on grade due to uneven terrain, protruding objects, sink holes, washouts and icy conditions.	Moving about Site	1910.22 1926.25	Maintain good housekeeping practices. Wear sturdy, over-the-ankle safety footwear with steel toes. Move about with caution. Storm water drainage will be monitored to minimize standing water and icy conditions.

**Table 3-4
 Potential Physical Hazards**

Hazard	Description	Activity	Relevant OSHA Standard	Hazard Control
Excavation	Vertically walled or steeply sloped excavations in soil are subject to collapse. Excavation in contaminated material may create toxic or flammable atmospheres within the excavation	Soil Excavation	1926.650 – 652	Stage spoils and equipment at least 2 feet from the edge of excavations. Monitor excavations in areas with contaminated material for toxic and combustible vapors. Excavations subject to entry throughout the project shall be sloped, shielded, or shored pursuant to the requirements of 29 CFR §1926.650-652.
Noise	Exposure to excessive noise may result in hearing loss	Heavy equipment operation; use of portable generators and power tools	1910.95 1926.52	Equipment with noise controls (i.e. mufflers, etc) will be selected preferentially. Hearing protection will be required when noise exposures exceed 85 dBA for prolonged periods, or when impact noise is present. The HSO will monitor noise exposure where needed. Audiometric testing will be included in annual medical examination.
Flammable / Combustible Liquids	Improper handling of flammable / combustible liquids may result in fires / explosions	Refueling vehicles and equipment	1926.152 1926.150	All engines will be shut off during refueling. Portable gasoline powered equipment will be allowed to cool before refueling. Fire extinguishers will be mounted on all heavy equipment, Site vehicles, and in fuel storage areas. Fuels will be handled in labeled safety containers.
Flammable / Combustible Gases	Decomposition of buried wastes under anaerobic conditions produces methane, a flammable gas; Leaking vapors from utility lines may be flammable	Soil Excavation	1910.120 1926.651	Work areas will be monitored for the presence of combustible gases with a direct reading explosimeter calibrated to methane or pentane during excavation. Operations will be modified as needed to maintain methane concentrations below 10% of the lower explosive limit (LEL).
Hand / Power Tools	Moving parts and pinch points of common hand and power tools	General Construction Activities	1910.241 – 244	Proper PPE will be used, including, but not limited to, face shields, gloves, and chaps.

4.0 SITE CONTROL

4.1 *Work Zones*

Work zones will be established and delineated prior to initiating any work activities. The primary purpose of work zones is to reduce migration of contaminants into clean areas and to prevent access or exposure to hazardous materials by unauthorized persons. Training and medical surveillance requirements for workers and visitors will be based upon the work zones to be entered.

At the end of each workday, the Site will be secured to prevent unauthorized entry. Site work zones will include the following categories:

- Support / Non-Contaminated Work Zone
- Decontamination Zone
- Exclusion Zone

4.1.1 SUPPORT / NON-CONTAMINATED ZONE

This area is used for staging of equipment and clean materials, office facilities, sanitation facilities, and receipt of deliveries. Personnel entering Support or Non-Contaminated Zones may include such individuals as delivery personnel, visitors, and security guards, who will not necessarily be permitted in other work zones.

This includes all areas not delineated as an Exclusion or Decontamination Zone within the geographic limits of the Site. Work operations to be performed in these areas include placement of clean material and Site restoration activities.

Exclusion Zones that have been remediated will continue to be handled as Exclusion Zones until the following conditions are met:

- Soil sampling results verify achievement of cleanup objectives and/or appropriate cover materials have been installed

Activities performed in the Support and Non-Contaminated Work Zones are not subject to the requirements of the OSHA Hazardous Waste Operations Standard 1910.120, since they do not present a situation where there will be exposure to Site contaminants. Work performed in Non-Contaminated Work Zones shall be conducted in accordance with OSHA Construction Standards.

4.1.2 DECONTAMINATION ZONE

All personnel and equipment that have entered into any portion of an Exclusion Zone must exit by its Decontamination Zone. The Decontamination Zone will provide a location for removal of used personal protective equipment and cleanup of personnel and equipment. Each

Exclusion Zone will have its own Decontamination Zone. Personnel and equipment decontamination procedures are described in Section 9.

4.1.3 EXCLUSION ZONE

The Exclusion Zone is the area in which work activities present a potential for exposure to Site contaminants. Access to Exclusion Zones is limited to persons who meet the HAZWOPER training and specific asbestos training requirements described in Section 5. Exclusion Zone activities are performed in accordance with the OSHA Hazardous Waste Operations and Emergency Response Standard covering personal protective equipment, air monitoring, and related requirements.

The boundaries of the Exclusion Zone will be delineated prior to the start of activities within them. Fencing, caution tape, or other visible barriers will be used to identify the boundaries.

All persons entering the Exclusion Zone must wear the applicable level of protection as set forth in Section 7. Appropriate respiratory protection will be worn based upon work area air monitoring results as outlined in Section 8 of this Plan. All contractors will be required to provide a written respiratory protection program and previous year documentation that requires all workers who will be required to wear respirators to participate in annual physicals, respirator fit tests and training.

Once work in an Exclusion Zone has been completed, the area will remain an Exclusion Zone unless it meets the condition detailed above in Section 4.1.1.

4.2 *Communications*

It is not permissible to work alone during field operations. The buddy system is mandatory for work on this site. All persons working outside the Support Zone shall maintain visual or voice contact with others. Cell phones or two-way radios may serve as an alternative means of contact between individual workers and the Support Zone during work in non-contaminated zones.

Workers will be briefed on examples of emergency signals to be used in the event verbal communication is unavailable. Examples of such communications include:

EMERGENCY – EVACUATE THE AREA:

Continuous blast of vehicle or air horn, upon hearing the evacuation alarm all workers shall stop work and proceed to the assembly location.

ALL CLEAR - Emergency Condition is Over:

Two short blasts on vehicle or air horn.

4.3 *Buddy System*

Onsite personnel must use the buddy system as required by operations. Use of the “buddy system” is required during all operations requiring Level C PPE, and when appropriate, during Level D/Modified Level D operations. Crewmembers must observe each other for signs of chemical exposure, and heat or cold stress. Indications of adverse effects include, but are not limited to:

- . • Changes in complexion and skin coloration;
- . • Changes in coordination;
- . • Changes in demeanor;
- . • Excessive salivation and pupillary response; and
- . • Changes in speech pattern.

Crewmembers must also be aware of the potential exposure to possible safety hazards, unsafe acts, or noncompliance with safety procedures.

Field personnel must inform their partners or fellow crewmembers of non-visible effects of exposure to toxic materials that they may be experiencing. The symptoms of such exposure may include, but are not limited to:

- . • Headaches;
- . • Dizziness;
- . • Nausea;
- . • Blurred vision;
- . • Cramps; and
- . • Irritation of eyes, skin, or respiratory tract.

If PPE or noise levels impair communications, prearranged hand signals must be used for communication. Personnel must stay within line of sight of another team member.

4.4 *Visitors*

Visitors shall be escorted by the PM or designee at all times when outside the Support Zone. A visitor shall not be permitted access to Decontamination or Exclusion Zones unless the visitor complies with the following requirements:

- Meets the medical surveillance requirements of 29 CFR 1910.120(f);
- Has completed Hazardous Waste Operations and Emergency Response training and annual refresher training in accordance with 29 CFR 1910.120(e) and can provide proof thereof;
- Has completed the appropriate level of asbestos training (depending upon work activities) in accordance with 29 CFR 1926.1101 (k)(9) and provide proof thereof;
- Has been briefed on the contents of the HASP by the PM; and
- Is outfitted in the appropriate ensemble of personal protective clothing and equipment.

4.5 Site Rules

- Protective clothing, respirators, and other equipment must be worn as determined by the PM for specific operations in accordance with the guidance of the HASP.
- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand to mouth transfer and ingestion of material in any Exclusion Zone or contamination reduction zone is prohibited.
- Sanitary facilities, including portable toilet, hand wash facilities and drinking water will be provided within the support zone.
- All open excavations will be clearly delineated with high visibility fencing or the equivalent at the conclusion of the work day. Where practical, equipment will be also used to prevent accidental entrance to excavations.
- At least one copy of this HASP must be in a location at the Site that is readily available to personnel, and all project personnel must review the plan prior to starting work.

5.0 TRAINING

The PM will ensure that Contractor personnel working within the exclusion zone meet the following requirements before they are cleared for work on this project:

- Medical clearance certification as required by 29 CFR 1910.120(f), including clearance to wear a respirator;
- HAZWOPER training as required by 29 CFR 1910.120(e);
- Asbestos training in accordance with 29 CFR 1926.1101 (k)(9);
- Fit Test Certificate for respiratory protection.

All personnel participating in field work that involves hazardous materials shall be given basic instructions with regard to the potential biological, physical, and chemical hazards associated with such work, as well as the precautions and procedures that can be used to mitigate the risk. In addition, individuals involved in such work at the Site must satisfy the training requirements outlined below.

5.1 Hazardous Waste Operations Training Requirement

All personnel entering the Exclusion Zone or the contaminant reduction zone (including subcontractors and visitors) must fulfill the training requirements for hazardous waste Site work in accordance with OSHA 29 CFR 1910.120(e) and 29 CFR 1926.1101 (k)(9). Documentation of compliance with the training requirements is the responsibility of each employer. Written documentation verifying compliance with 29 CFR 1910.120(e)(3), (e)(4) (as applicable), (e)(8) (OSHA requirement for 40-hour training, supervisory training, and annual refresher training, respectively), or (e) (9) (equivalent training) must be available if requested by the PM prior to entering any Exclusion Zone or contamination reduction zone.

5.2 *Site Specific Training*

All personnel intending to work in any Non-Contaminated Work Zone, Exclusion Zone, or Decontamination Zone shall attend Site-specific health and safety training presented by the PM. This training will identify the hazards, procedures, and rules in effect at this Site, and provide an overview of the contents of this HASP. Attendance at Site-specific training will be documented.

5.3 *Medical Monitoring Requirements*

Workers directly involved with “hands-on” site remediation work activities will receive a physical exam that meets the requirements of OSHA’s HAZWOPER Standard 29 CFR 1910.120 for Hazardous Waste Site Workers and OSHA’s respiratory protection standard 29 CFR 1910.134.

5.3.1 ADDITIONAL MEDICAL MONITORING

Any person who is injured, becomes ill, or develops signs of, or symptoms due to, possible overexposure to hazardous substances or health hazards from an emergency incident or Site operation shall undergo an examination by a physician.

Additional medical monitoring may also be required if exposure or potential exposure is identified by the PM or HSC for which they deem such monitoring is necessary. The content of such monitoring will be determined by the PM/HSC and a consulting physician.

6.0 HAZARD COMMUNICATIONS

6.1 *General*

The purpose of this program is to ensure that the Site is in compliance with the OSHA Hazard Communication Standards (HCS) set forth at 29 CFR 1910.1200 and 29 CFR 1926.59. The HSC is the coordinator of the Health and Safety program at the Site.

In general, each employee on the Site will be informed of the contents of the HCS, the hazardous properties of chemicals such employee handles, and measures to take to protect him or herself from these chemicals.

The HCS program applies only to materials brought to the Site to support the remedial activities, and does not pertain to chemical contamination currently present at the Site. For example, the Hazard Communication Program covers gasoline, diesel fuel, and hydraulic fluids used to support the operation of heavy equipment.

6.2 *Use of Hazardous Chemicals*

The PM will maintain a list of all hazardous chemicals used at the Site and update the list upon receipt of new chemicals. The list of hazardous chemicals is maintained onsite and is available to all employees and subcontractors for review during working hours.

6.3 *Material Safety Data Sheets (MSDSs)*

The PM will maintain a MSDS for each substance brought onto the site. MSDSs will be available to all employees and subcontractors, and will be kept with the list of chemicals described in Section 6.2.

The purchaser of any hazardous material is responsible for acquiring its MSDSs and providing a copy to the PM. The PM will review each MSDS for accuracy and completeness and will consult the HSC if additional information is necessary. When a choice of materials exists for a particular need, preference is to be given to the least hazardous substance available.

MSDSs that meet HCS requirements must be fully completed and received at the facility either prior to, or at the time of receipt of, the first shipment of any potentially hazardous chemical. It is the responsibility of each subcontractor to provide copies of MSDSs for any hazardous materials they bring to the Site. Procurement will be discontinued from vendors who fail to provide approved MSDSs in a timely manner.

6.4 *Labels and Other Forms of Warning*

The PM will verify that containers of hazardous chemicals are properly labeled. All containers must be labeled with the chemical's identity and appropriate hazard warnings. The product name on the label must match the name used on the MSDS. The PM will refer to the corresponding MSDS to verify label information. Small containers into which materials are placed by an employee for his/her immediate use do not require labeling.

6.5 *Training*

Each employee who works with or is potentially exposed to hazardous chemicals will receive initial training on the HCS and the safe use of those hazardous chemicals. Additional training will be provided for employees whenever a new hazard is introduced into their work areas. Hazardous chemical training is conducted by the PM as part of each employee's Site-specific training and will be updated as new hazardous chemicals are introduced.

The training will include the following elements:

- A summary of the standard and the written program;
- Hazardous chemical properties, including appearance and odor and methods that can be used to detect the presence or release of hazardous chemicals;
- Physical and health hazards associated with potential exposure to workplace chemicals;
- Procedures to protect against hazards, e.g., personal protective equipment, work practices, and emergency procedures;
- Hazardous chemical spill and leak procedures; and
- Identification of where MSDSs are located, how to understand their content, and how employees may obtain and use appropriate hazard information.

6.6 Contractor Employers

The PM will advise outside contractors of any hazards which may be encountered in the normal course of their work at the Site.

6.7 Non-Routine Tasks

Supervisors contemplating a non-routine task, e.g., maintenance or repair, will consult with the PM and will ensure that employees are informed of chemical hazards associated with the performance of such tasks and of the appropriate protective measures to be taken. This will be accomplished by a meeting of supervisors and the PM with affected employees before such work is begun.

6.8 Incident/Accident Reporting

Any incident or accident involving onsite personnel will require that an Incident/Accident Report be filed. Situations covered by this policy include, but are not limited to fires, explosions, illnesses, injuries, and automobile accidents. Incident/Accident Reports must be completed by the PM within 24 hours of the incident/accident.

7.0 PERSONAL PROTECTIVE EQUIPMENT

This section describes the level of personal protective equipment (PPE) required for specific tasks at the Site.

The following is a brief description of the PPE that will be required during various phases of the project. The EPA terminology for equipment used for protection against chemical contamination will be used, e.g., Levels A, B, C, and D. The use of Level A or B is not anticipated.

7.1 Levels of Protection

The usage criteria and the necessary equipment for Levels D is discussed below. Initial levels of protection to be worn during specific activities are presented in Table 7-1. Levels of protection are subject to upgrade and downgrade on the basis of Site conditions, contaminant concentrations, air monitoring results, and the nature of specific activities.

Table 7-1 Initial Levels of Protection	
Activity/Description	EPA Initial Level of Protection
Activities taking place in non-contaminated work zones, including <ul style="list-style-type: none"> • Administrative activities; • Support area setup. 	Level D
Mobilization and other nonintrusive activities, including: <ul style="list-style-type: none"> • Surveying; • Brush clearing. 	Level D
The following activities if there is limited potential for dermal exposure beyond hands and feet: <ul style="list-style-type: none"> • Collection of soil samples from impacted area 	Modified Level D
Activities taking place in the exclusion zone, including <ul style="list-style-type: none"> • Contaminated soil excavation, placement and grading; • Soil transfer and stockpiling; • Decontamination of equipment. 	Level C
Demobilization	Level D
<p>Notes: Initial levels of activities not specified above shall be determined by the PM in consultation with the HSC.</p> <p>Levels of Protection are subject to upgrade or downgrade by the PM in consultation with the HSC on the basis of Site conditions, contaminant concentrations, air monitoring sampling results and the nature of specific activities.</p>	

Level C has been selected as providing appropriate protective clothing and respiratory protection during excavation activities. This would include excavation by hand or using heavy equipment and being in the exclusion zone while excavation is in progress.

7.1.1 LEVEL D PROTECTION

Level D PPE shall be worn during all activities outside of the Support Zone offices, except in the Exclusion and Decontamination Zones where higher protection may be required. This includes:

- Steel toed safety boots;
- Safety glasses with side protection;
- Hard hat;
- High visibility vests and/or clothing; and
- Hearing protection (as required).

7.1.2 MODIFIED LEVEL D PROTECTION

Modified Level D PPE is a level of protection that may be used if the air monitoring indicates the air exposure is well below the OSHA PEL. Modified Level D equipment includes:

- Steel toed safety boots with chemical resistant overboots;
- Chemical resistant gloves;
- Safety glasses with side shields;
- Hard hat;
- High Visibility vest and/or clothing; and
- Hearing protection (as required).

7.1.3 LEVEL C PROTECTION

Level C PPE will be worn during Exclusion Zone or contamination reduction zone operations that require air purifying respiratory protection.

Level C PPE use shall conform to NIOSH/OSHA respiratory selection criteria, and the concentrations of airborne contaminants must be verified via air monitoring as within the limits of protection provided for by the respirator.

Level C PPE consists of the Modified Level D protection plus half-face, dual cartridge air purifying respirator fitted with P-100 particulate cartridges (HEPA). Safety glasses are required while the respirator is in-place.

7.2 *Respiratory Protection*

Respiratory protection equipment, shall be National Institute of Occupational Safety and Health (NIOSH) and Mine Safety and Health Administration approved, and use of such equipment shall conform to OSHA 29 CFR 1910.134. Training for the safe operation and effective use of respiratory protection will be included during Hazardous Waste Operations Training and reviewed during Site-specific training.

Each person is individually responsible for the daily inspection and maintenance activities associated with his or her PPE, which includes respirators. Each individual will be responsible for cleaning/decontaminating his or her respirator after each use, as instructed by the HSC. Respirators will be stored in plastic bags or storage cases away from contaminants, out of the weather, in an area away from direct exposure to sunlight. Cartridges will be changed at the end of the day, or more frequently as directed by the HSC or as dictated by Site conditions.

8.0 AREA/PERSONAL AIR MONITORING AND SAMPLING

Perimeter and work area air monitoring and air sampling will be conducted during excavation, grubbing, and grading activities (exterior abatement) and the removal of vermiculate from the mezzanine ceiling cavity, cleaning/decontamination of the interior building surfaces (interior abatement) to:

- Detect and quantify the presence of contaminants for the protection of onsite personnel and the surrounding public;
- Determine the level of PPE;
- Determine the need for dust controls; and
- Serve as a preliminary warning of potential elevated emissions at the fence line monitoring stations.

8.1 Air Monitoring

Personal Air Monitoring

Personal air monitoring for asbestos will be performed in accordance with 29 CFR 1926.1101. An initial assessment will be conducted during typical work activities that may create an airborne asbestos exposure. Full shift (8-hour TWA) personal air samples will be collected from representative workers performing each task with a potential exposure. In addition, a 30-minute short term exposure sample will also be collected from each representative worker during the period where the greatest potential exposure is anticipated.

An initial exposure assessment will be performed immediately before or at the initiation of the operation to ascertain expected exposures during the work. This assessment will be performed in time to comply with requirements that are triggered by exposure data (i.e. level of respiratory protection) and to provide the necessary data to complete a “negative exposure assessment”.

Battery powered industrial hygiene air sampling pumps will be pre-and post calibrated using a primary standard. The industrial hygiene sampling pump will be attached to the worker’s belt and the sample media attached to the worker’s lapel to simulate their breathing zone. The sampling medium for air samples will be 25-mm diameter mixed cellulose ester fiber filter, 0.8 micron pore size with a 50-mm electrically conductive extension cowl.

The air flow rate will be between 0.5 liters per minute and 2.5 liters per minute. The total volume of air for each sample will be sufficient to yield between 100 and 1,300 fibers per square millimeter. If the air sampling filter begins to darken in appearance during the sampling period or if loose dust is observed, a second sample will be immediately started.

The asbestos air samples will be analyzed onsite in order to determine airborne exposures promptly and ensure personal protective equipment and engineering controls are sufficient. The sample analysis will be performed by Phase Contrast Microscopy (PCM) according to the NIOSH 7400 methodology. Sample analysis will be performed by OTO personnel who participate in the American Industrial Hygiene Association (AIHA) Asbestos Analyst Registry (AAR) quality assurance program. OTO is a Commonwealth of Massachusetts licensed asbestos laboratory for Phase Contrast Microscopy. The sample results will be provided to all workers in

which the results represent their potential exposure to asbestos. The data will be used to determine the adequacy of the level of respiratory protection worn during this project and a “negative exposure assessment”.

Respiratory protection and protective clothing will be worn while the initial assessment is being performed.

A “negative exposure assessment” for the exterior abatement work may be determined by demonstrating that employee exposures will be below the permissible exposure limit (PEL) using air monitoring data. The OSHA regulation allows for using objective data to demonstrate that the material (i.e. soil) and the type of work involved cannot release airborne fibers in concentrations exceeding the PEL and excursion limits under those work conditions having the greatest potential for releasing asbestos fibers. A “negative exposure assessment” may minimize the use of respiratory protection and personal protective equipment during subsequent work phases and operations.

Area Air Monitoring

The following are the procedures that will be used for ambient perimeter air monitoring. This air monitoring is being performed to ensure that proper work procedures and engineering controls are in place to prevent a fiber release.

Ambient air monitoring around the circumference of the work area will be performed on a continuous basis during the soil excavation, transportation and capping operation. Attention will be made to the downwind sector as well as to all adjacent properties and walkways to ensure that circumferential monitoring points coincide with these sensitive receptors. A sufficient number of air monitoring stations will be used to accomplish adequate monitoring. Analyses of the air samples will be performed on the Site so that corrections in the work practices can be made immediately. Air monitoring will be performed by OTO personnel who are properly trained and licensed in the Commonwealth of Massachusetts (“Commonwealth”) as Asbestos Project Monitors. All sample analysis will be performed by OTO personnel who are properly trained, are successful participants in the American Industrial Hygiene Association’s Asbestos Analytical Registry (AIHA’s AAR), or alternatively, who work for a laboratory, which is licensed by the Commonwealth to perform such analysis and is accredited with either the AIHA or National Voluntary Laboratory Accreditation Program (NVLAP).

Perimeter air samples will be collected in the breathing zone, which for the purpose of this work plan, is located at a minimum of forty-eight inches (48”) and a maximum of seventy-two inches (72”) above the ground level. Low flow sample results will be calculated to reflect the eight-hour time-weighted average (“8-hour TWA”). Samples collected utilizing high flow pumps will be collected at a flow rate between eight and twelve (8-12) LPM. All (low and high flow) air filter cassettes shall be changed periodically to

prevent particulate overloading. Each air filter cassette shall have the start and stop time and associated start and stop flow rates recorded in the consultant's Site log for review.

Asbestos Clearance Air Monitoring

The following are the procedures that will be used for asbestos clearance air monitoring inside the Site building. This work will include the removal and disposal of vermiculate insulation in the mezzanine ceiling cavity and the cleaning/decontamination of the remaining interior surfaces throughout the manufacturing facility.

At the conclusion of the asbestos abatement activities the area will be inspected by an Massachusetts Licensed Asbestos Project Monitor. The office ceiling joist cavities shall be clean of visible vermiculite insulation, dust and other debris. The interior building surfaces shall be dry and clean of visible debris and dust. Asbestos clearance air sampling will be performed following the visual inspection.

The clearance air monitoring will be performed using high volume industrial hygiene sampling pumps with 0.8 micron mixed cellulose ester fiber air sampling cassettes. The samples will be analyzed according to the NIOSH 7400 methodology by phase contrast microscopy. The samples may also be analyzed by Transmission Electron Microscopy (TEM) according to the EPA Level II methodology to determine the specific amphibole fiber content. The post abatement clearance sampling procedures will be performed in accordance with the MassDEP and EPA protocol in accordance with 40 CFR Part 763 Subpart 3 (AHERA).

8.2 *Monitoring Equipment Maintenance and Calibration*

All direct-reading instrumentation calibrations should be conducted under the approximate environmental conditions the instrument will be used. Instruments must be calibrated before and after use, noting the reading(s) and any adjustments that are necessary. All air monitoring equipment calibrations, including the standard used for calibration, must be documented on a calibration log or in the field notebook.

All air monitoring equipment will be maintained and calibrated in accordance with the specific manufacturer's procedures. Preventive maintenance and repairs will be conducted in accordance with the respective manufacturer's procedures. When applicable, only manufacturer-trained and/or authorized personnel will be allowed to perform instrument repairs or preventive maintenance.

If an instrument is found to be inoperative or suspected of giving erroneous readings, the PM must be responsible for immediately removing the instrument from service and obtaining a replacement unit. If the instrument

is essential for safe operation during a specific activity, that activity must cease until an appropriate replacement unit is obtained. The PM will be responsible for ensuring a replacement unit is obtained and/or repairs are initiated on the defective equipment.

**Table 8.1
 Initial Air Monitoring & Sampling Details**

Type	Frequency	Instrument	Measurement Location	Initial Action Level	Response
ASBESTOS SAMPLING					
Sampling – Personal (4-8 hours) (NIOSH 7400, OSHA ID 160)	Daily During Excavation for Initial Exposure Assessment and Continuously Thereafter	Industrial Hygiene Air Sampling Pumps	Worker Breathing Zone	Personal Exposures: One-half of OSHA PEL (0.5 f/cc) Ambient Exposures: 0.01 f.cc	Review Excavation and Dust Suppression Measures, Implement additional controls and corrective actions prior to further excavation. Evaluate level of respiratory protection

Table 8-2 Instrument Calibration Protocols		
Instrument	Calibration Procedure	Frequency
Air Sampling Pumps	<ul style="list-style-type: none">• Primary Standard	<ul style="list-style-type: none">• Before and after each use
Rotometer	<ul style="list-style-type: none">• Primary Standard	<ul style="list-style-type: none">• 30-day calibration

9.0 PERSONNEL AND EQUIPMENT DECONTAMINATION

Personnel and equipment that enter an Exclusion Zone must be decontaminated upon exiting the zone. The objectives of decontamination are to:

- Prevent exposure to Site contaminants;
- Prevent migration of contamination outside of the Exclusion Zone.

A Decontamination Zone or station will be established at each Exclusion Zone. All equipment and personnel must exit the Exclusion Zone through this zone, and undergo the specific decontamination procedures described herein.

9.1 *Sequence of Decontamination*

Personnel decontamination shall proceed in the following sequence so that surfaces with the greatest potential for contamination are addressed first. By adhering to the established sequence, the potential for transfer of contaminants from outer garments to under clothing or skin is minimized.

This procedure applies to personnel exiting an Exclusion Zone wearing Modified Level D or Level C Protection.

- **Step 1: Equipment Drop**
Deposit hand-held equipment (tools, sampling devices, monitoring equipment, radios, clipboards, etc.) on plastic drop cloths. These items must be decontaminated or discarded prior to removal from the Exclusion Zone. The decontamination method used will depend on the nature of the equipment. Emphasis will be placed upon cleaning of exposed surfaces.
- **Step 2: Outer Boot and Glove Wash and Rinse**
Scrub outer boots and gloves with detergent and water and a long handled brush. Rinse using water in a second tub.
- **Step 3: Outer Boot and Glove Removal**
Remove outer boots and gloves. Outer boots are stored on drying racks. Gloves are to be discarded in designated containers.
- **Step 4: Coverall Removal**
Remove the particulate resistant coverall (Tyvek) and deposit in the designated container. The coverall shall be turned inside out as it is removed so as to keep contaminated surfaces away from wearer.
- **Step 5: Respiratory Protection Removal**
Remove hard hat, respiratory face piece, and deposit on a clean surface. Air purifying respirator cartridges will be discarded/replaced as appropriate. Wipe respirator gear clean and store in a clean, dry

location during breaks with a commercial respirator cleaning wipe. At the end of the workday, the respirator shall be returned to the Support Zone, where the wearer shall wash the face piece with soap and water.

- **Step 6: Field Wash/SHOWER**

Wash hands, face and body with soap and water. A pre-moistened commercial hand cleaning wipe may be used until facilities with soap and water are available. This alternate may be used along with double suit provisions and a remote decontamination (shower) station.

- **Step 7: Support Zone Wash**

Prior to eating or exiting for the day, wash hands and face with soap and water using Support Zone facilities.

All of the disposable items shall be placed in labeled containers that will remain in a designated area of the Decontamination Zone at all times.

9.2 Equipment Decontamination

Gross decontamination of each piece of equipment shall be performed at the work area where the equipment has been operating. This shall be accomplished by scraping accumulated mud and dirt from the equipment.

The contaminated portions of the equipment will be thoroughly washed using a low volume pressure washer upon exiting the Exclusion Zone. All persons involved with the decontamination operation will don PPE as required in Section 7 above. Additional protective equipment may be directed by the HSC.

Trucks and other heavy equipment utilized to excavate or grade potentially contaminated soils will be decontaminated before leaving the site. Decontamination will include water wash of tires and other equipment surfaces that came in contact with potentially contaminated soils. Decontamination will be conducted in an area designated for that purpose. Wash water will be allowed to infiltrate the ground surface. Soil from this area will subsequently be excavated and relocated to the placement area with other impacted soils.

10.0 EMERGENCY RESPONSE

It is essential that Site personnel be prepared in the event of an emergency. Emergencies can take many forms: illnesses, injuries, chemical exposure, fires, explosions, spills, leaks, releases of hazardous material, or sudden changes in weather.

The following section outlines the general procedures for emergencies. The following Site-specific emergency information will be posted:

Primary Emergency Contacts:

Site Location: Wemelco Way
 Easthampton, MA

EMERGENCY SERVICES	TELEPHONE NUMBER
Fire Department	911
Police Department	911
Ambulance	911
Hospital (Cooley Dickenson)	413-582-2000

Additional Emergency Contacts:

Entity	Telephone Number
National Response Center	800-424-8802
Poison Control Center	800 764-7661
CHEMTREC	800-424-9300
National Poison Control Center	800-942-5969
MassDEP (spills and Emergency Reporting)	413-784-1100 or 1-888-304-1133
Project Manager Kevin O'Reilly, LSP OTO	Office 413-788-6222 Cell phone 413-427-1681
Health & Safety Coordinator Robert Kirchherr, CSP OTO	Office 413-788-6222 Cell phone 413-531-1122

10.1 *Medical Facility Directions*

Directions to the nearest medical facility are described in Figure 2 of this HASP.

10.2 *Project Personnel Responsibilities During Emergencies*

Prior to the start of Site activities, the PM will review the emergency procedures of this Plan and ensure that all necessary emergency equipment is ready for use. When appropriate, they shall modify or make additions to the emergency procedures to enhance the effectiveness of the procedures.

The PM will also establish emergency evacuation routes and review potential emergencies and how they may occur.

The PM will ensure that all personnel working on or visiting the Site are briefed on emergency procedures, including local alarm signals or other warnings and evacuation routes. Onsite personnel will also be briefed on their roles in emergencies such as fire fighting, spill cleanup, and first aid.

In case of emergency, the PM will implement the Site emergency procedures. The PM is specifically responsible for the following:

- Implementing the Emergency Response measures, as detailed in this Section, including ordering Site evacuations, directing fire-fighting efforts, and spill control and cleanup.
- Contacting local emergency services such as the fire department, ambulance services, and federal, state, and local emergency or environmental authorities. The PM will coordinate with the local emergency services prior to initiation of any evacuation.
- Performing an investigation of any incident and determining how it can be prevented in the future.
- Filing all necessary reports and notifications with federal, state, and local authorities.
- Evaluating emergency conditions and making recommendations regarding risks to Site personnel and the surrounding public, the necessity of upgrading PPE to protect onsite personnel and emergency responders, and making recommendations regarding evacuation of onsite personnel.
- Supervising evacuation and decontamination procedures.
- Arranging first-aid services and medical support or evacuation for injured or exposed personnel.
- Preparing a written Incident Report.

It should be noted that the PM will not order or conduct evacuations of the general public. The PM will make recommendations to the local emergency authority and assist in any way; however, the decision to call an evacuation will be up to the local authorities.

Employees onsite are responsible for reporting emergency situations or conditions immediately to their supervisors, alerting other employees, helping injured personnel, and assisting as directed in the mitigation of an incident.

10.3 *Medical Emergencies*

Any person who becomes ill or injured in the Exclusion Zone will be decontaminated to the extent possible under the circumstances. If the injury or illness is minor, full decontamination should be completed and first aid administered prior to transport. If the person's condition is serious, partial decontamination should be completed to the extent that injuries or conditions permit. If injuries or conditions permit, the injured person will be moved by Site personnel out of the Exclusion Zone, assisted through decontamination, and received by outside responders in a non-contaminated area. First aid should be administered while awaiting an ambulance or outside assistance. All injuries and illnesses must immediately be reported to the PM.

Any person transporting an injured/exposed person to a clinic or hospital for treatment shall take with them directions to the hospital and information on the chemical(s) to which the victim may have been exposed.

10.4 *Fire or Explosion*

In the event of a fire or explosion, the local fire department shall be summoned immediately. Upon their arrival, the PM or designated alternate will advise the fire commander of the location and nature of the event and whether hazardous materials are involved.

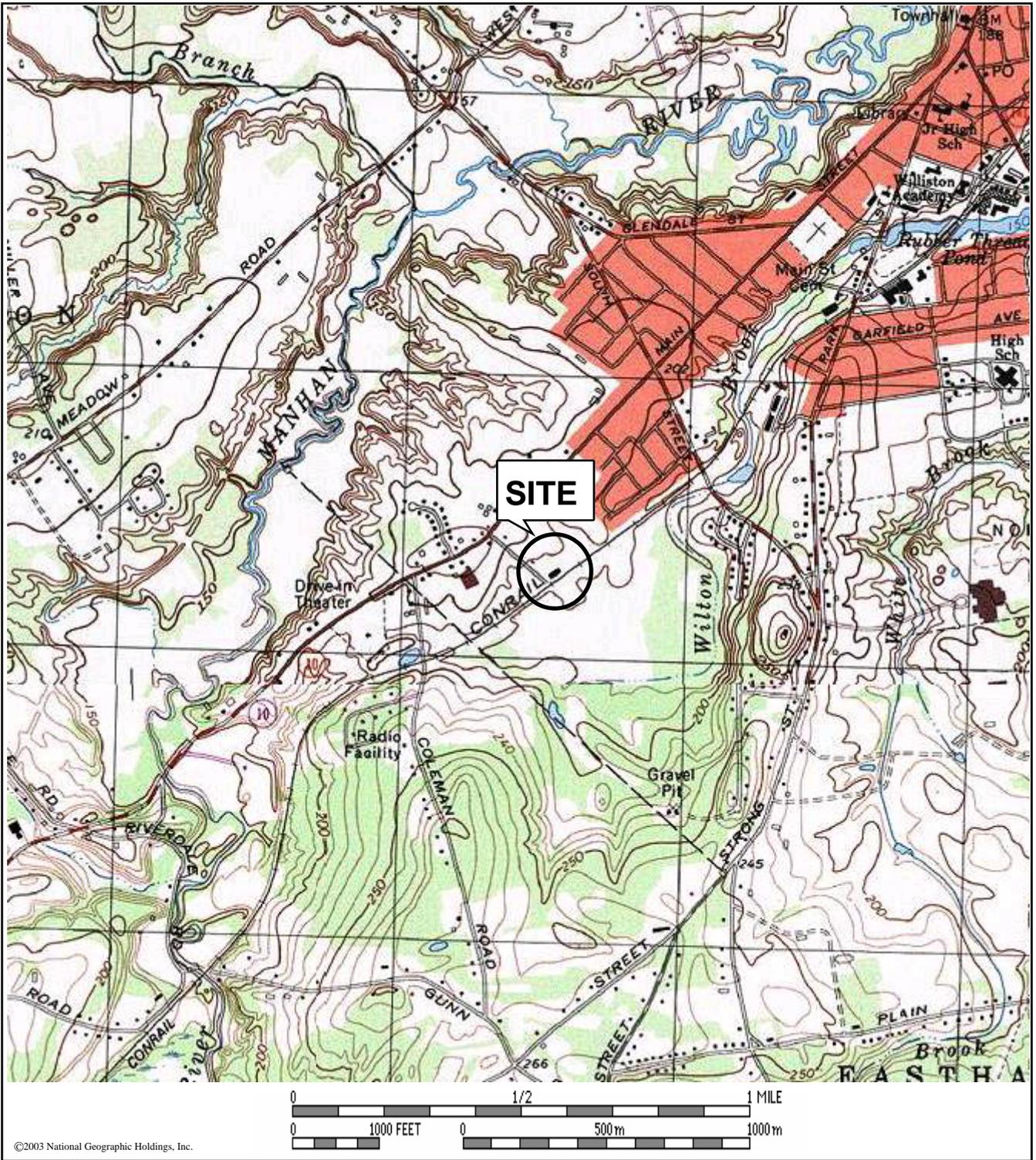
If it is safe to do so, Site personnel may do the following:

1. Use fire-fighting equipment available onsite, within the limits of their training and familiarity;
2. Remove or isolate flammable or other hazardous materials which may contribute to the fire.

10.5 *Evacuation Routes and Signals*

1. Evacuation notification will be a continuous blast on an air horn or vehicle horn or by verbal communication via radio.
2. Keep upwind of smoke, vapors, or spill location, if possible.
3. Exit from Exclusion Zones through the Decontamination Zone, if possible and proceed to the Support Zone Rally Point.
4. If evacuation from Exclusion Zones does not occur via the Decontamination Zone, Site personnel should remove contaminated clothing once they are in a location of safety and leave it near the Exclusion Zone.
5. The PM will conduct a head count to verify that all personnel have been evacuated safely to the staging area.

FIGURE 1
SITE LOCUS MAP



<p>O'Reilly, Talbot & Okun [ASSOCIATES]</p>	<p>W.R. Grace & Co. Former Zonolite Facility 19 Wemelco Way Easthampton, Massachusetts</p>
<p>ENGINEERING</p>	<p>SITE LOCUS July, 2010 Figure 1</p>

FIGURE 2
DIRECTIONS TO HOSPITAL

Trip to Cooley Dickinson Hospital

30 Locust St, Northampton, MA 01060 -
(413) 582-2000

7.34 miles - about 17 minutes



[1-99] Wemelco Way, Easthampton, MA 01027



1. Start out going **NORTHWEST** on **WEMELCO WAY** toward **MAIN ST / MA-10**.

go 0.0 mi



2. Turn **RIGHT** onto **MAIN ST / MA-10 N**.

go 1.6 mi



3. Turn **LEFT** onto **MA-10 N**.

go 4.1 mi



4. Turn **LEFT** onto **MA-9 / MAIN ST**. Continue to follow **MA-9 W**.

go 1.5 mi



5. **30 LOCUST ST** is on the **LEFT**.

go 0.0 mi

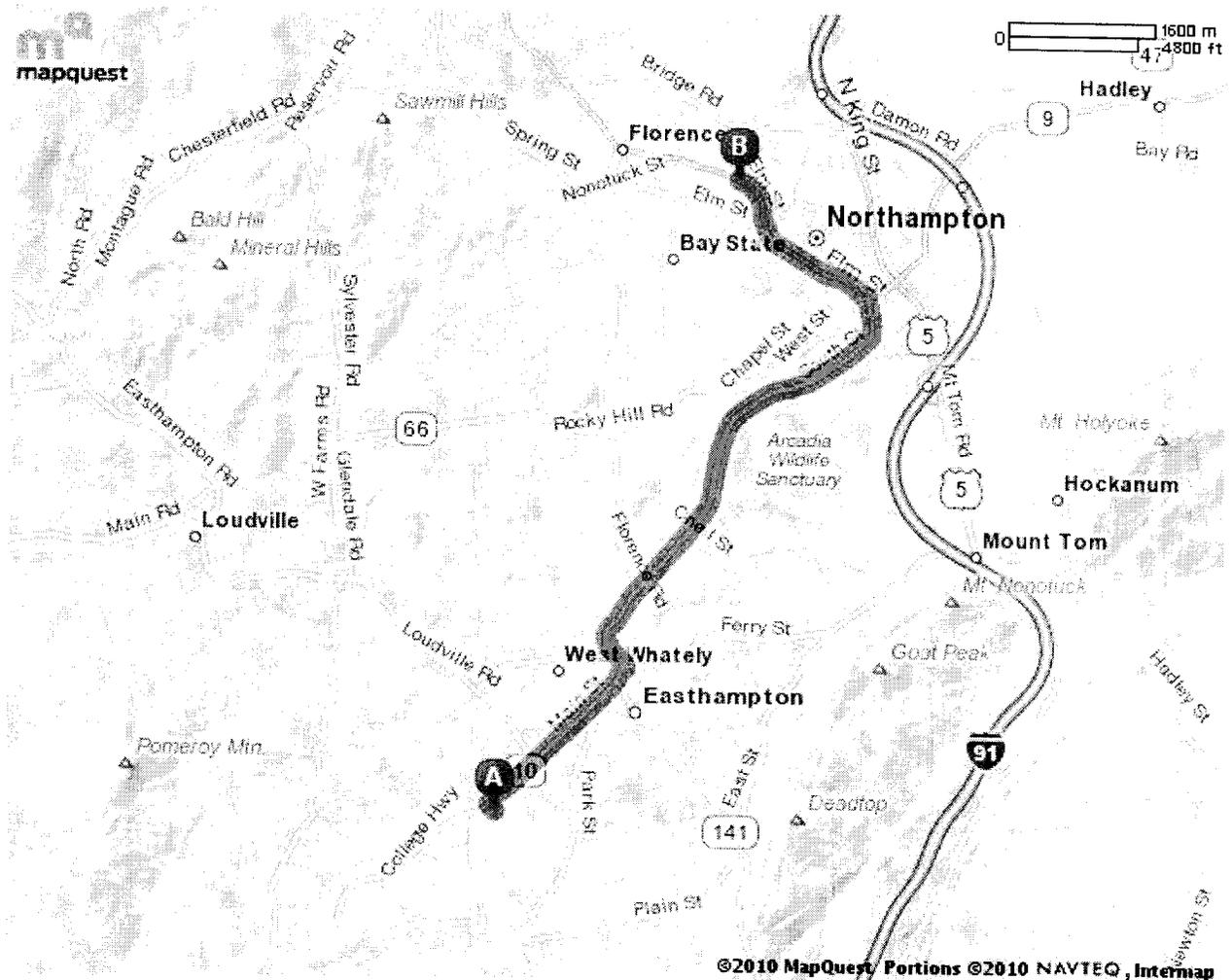


Cooley Dickinson Hospital - (413) 582-2000

30 Locust St, Northampton, MA 01060

Total Travel Estimate : 7.34 miles - about 17 minutes

Route Map [Hide](#)

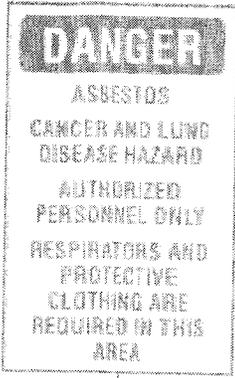


All rights reserved. Use subject to License/Copyright | Map Legend

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APPENDIX A
CONTAMINANT FACT SHEETS

FACT



Asbestos

What is asbestos?

Asbestos is the name given to a group of naturally occurring minerals used in certain products, such as building materials and vehicle brakes, to resist heat and corrosion. Asbestos includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these materials that have been chemically treated and/or altered.

What are the dangers of asbestos exposure to workers?

The inhalation of asbestos fibers by workers can cause serious diseases of the lungs and other organs that may not appear until years after the exposure has occurred. For instance, asbestosis can cause a buildup of scar-like tissue in the lungs and result in loss of lung function that often progresses to disability and death. Asbestos fibers associated with these health risks are too small to be seen with the naked eye, and smokers are at higher risk of developing some asbestos-related diseases.

Are you being exposed to asbestos?

General industry employees may be exposed to asbestos during the manufacture of asbestos-containing products or when performing brake and clutch repairs. In the construction industry, exposure occurs when workers disturb asbestos-containing materials during the renovation or demolition of buildings. Employees in the maritime environment also may be exposed when renovating or demolishing ships constructed with asbestos-containing materials. In addition, custodial workers may be exposed through contact with deteriorating asbestos-containing materials in buildings.

Are there any OSHA standards that cover workers exposed to asbestos?

Yes. The Occupational Safety and Health Administration (OSHA) has the following three standards to protect workers from exposure to asbestos in the workplace:

- 29 CFR 1926.1101 covers construction work, including alteration, repair, renovation, and demolition of structures containing asbestos.
- 29 CFR 1915.1001 covers asbestos exposure during work in shipyards.
- 29 CFR 1910.1001 applies to asbestos exposure in general industry, such as exposure during brake and clutch repair, custodial work, and manufacture of asbestos-containing products.

The standards for the construction and shipyard industries classify the hazards of asbestos work activities and prescribe particular requirements for each classification:

- **Class I** is the most potentially hazardous class of asbestos jobs and involves the removal of thermal system insulation and sprayed-on or troweled-on surfacing asbestos-containing materials or presumed asbestos-containing materials.
- **Class II** includes the removal of other types of asbestos-containing materials that are not thermal system insulation, such as resilient flooring and roofing materials containing asbestos.
- **Class III** focuses on repair and maintenance operations where asbestos-containing or presumed asbestos-containing materials are disturbed.
- **Class IV** pertains to custodial activities where employees clean up asbestos-containing waste and debris.

There are equivalent regulations in states with OSHA-approved state plans.

What are the permissible exposure limits for asbestos?

Employee exposure to asbestos must not exceed 0.1 fiber per cubic centimeter (f/cc) of air, averaged over an 8-hour work shift. Short-term exposure must also be limited to not more than 1 f/cc, averaged over 30 minutes. Rotation of employees to achieve compliance with either permissible exposure limit (PEL) is prohibited.

Are employers required to conduct exposure monitoring?

In construction and shipyard work, unless you are able to demonstrate that employee exposures will be below the PELs (a "negative exposure assessment"), you are generally required to conduct daily monitoring for workers in Class I and II regulated areas. For workers in other operations where exposures are expected to exceed one of the PELs, you must conduct periodic monitoring. In general industry, you must perform initial monitoring for workers who may be exposed above a PEL or above the excursion limit. You must conduct subsequent monitoring at reasonable intervals, and in no case at intervals greater than 6 months for employees exposed above a PEL.

Must employers create regulated areas?

You must create controlled zones known as regulated areas that are designed to protect employees where certain work with asbestos is performed. You must limit access to regulated areas to authorized persons who are wearing appropriate respiratory protection. You must also prohibit eating, smoking, drinking, chewing tobacco or gum, and applying cosmetics in these areas. You must display warning signs at each regulated area. In construction and shipyards, workers must perform Class I, II, and III asbestos work (and all other

operations where asbestos concentrations may exceed a PEL) within regulated areas. In general industry, you must establish regulated areas wherever asbestos concentrations may exceed a PEL.

What compliance methods must employers use to control exposures?

You must control exposures to or below the PELs using engineering controls and work practices to the extent feasible. Where feasible engineering controls and work practices do not ensure worker protection at the exposure limits, you must reduce employee exposures to the lowest levels achievable and then supplement them with respiratory protection to meet the PELs. In construction and shipyards, each work classification has specific control method requirements. In general industry, specific controls are prescribed for brake and clutch repair work. For example, you must prohibit certain practices, such as the use of compressed air, to remove asbestos.

When are employers required to provide respiratory protection for workers?

You must provide and ensure the use of respirators when a PEL is exceeded. In construction and shipyards, you must require workers to use respirators when performing certain work. Generally, the level of exposure determines the type of respirator needed. In addition, the standards specify the type of respirator to be used for certain asbestos work. (See *CFR* 1910.134.) Employees must get respirator training and medical clearance to use respirators.

Are employers required to provide protective clothing for workers?

Yes. For any employee exposed to airborne concentrations of asbestos that exceed a PEL, you must provide and require the use of protective clothing such as coveralls or similar full-body clothing, head coverings, gloves, and foot coverings. You must provide face shields, vented goggles, or other appropriate protective equipment wherever the possibility of eye irritation exists and require workers to wear them.

Must employers provide hygiene facilities?

Yes. You must establish decontamination areas and hygiene practices for employees exposed above a PEL. In addition, employees may not smoke in work areas that might expose them to asbestos.

Do OSHA standards require employers to provide training?

Yes. In construction and shipyards, you must provide training for employees exposed above a PEL and for employees involved in each identified work classification. The specific training requirements depend upon the particular class of work being performed. In general

industry, you must provide training to all employees exposed above a PEL. You must also provide asbestos awareness training to employees who perform housekeeping operations covered by the standard. You must place warning labels on all asbestos products, containers, and installed construction materials when feasible.

What are employers required to provide concerning medical examinations?

In construction and shipyards, you must provide medical examinations for workers who, for 30 or more days per year, engage in Class I, II, or III work or experience exposure above a PEL. In general industry, you must provide medical examinations for workers who are exposed above a PEL.

What are the recordkeeping requirements for asbestos exposures?

You must keep accurate records of the following:

- All measurements taken to monitor employee exposure to asbestos—30 years;
- Medical records, including physician's written opinions—duration of the employee's employment plus 30 years; and
- Training records—1 year beyond the last date of employment.

How can you get more information on safety and health?

OSHA has various publications, standards, technical assistance, and compliance tools to help you, and offers extensive assistance through workplace consultation, voluntary protection programs, grants, strategic partnerships, state plans, training, and education. OSHA's *Safety and Health Program Management Guidelines* (*Federal Register* 54:3904-3916, January 26, 1989) detail elements critical to the development of a successful safety and health management system. This and other information are available on OSHA's website.

- For one free copy of OSHA publications, send a self-addressed mailing label to OSHA Publications Office, P.O. Box 37535, Washington, DC 20013-7535; or send a request to our fax at (202) 693-2498, or call us at (202) 693-1888.
- To order OSHA publications online at www.osha.gov, go to **Publications** and follow the instructions for ordering.
- To file a complaint by phone, report an emergency, or get OSHA advice, assistance, or products, contact your nearest OSHA office under the "U.S. Department of Labor" listing in your phone book, or call toll-free at **(800) 321-OSHA (6742)**. The teletypewriter (TTY) number is (877) 889-5627.
- To file a complaint online or obtain more information on OSHA federal and state programs, visit OSHA's website.

This is one in a series of informational fact sheets highlighting OSHA programs and standards. It does not impose any new compliance requirements or carry the force of legal opinion. For compliance requirements of OSHA standards or regulations, refer to *Title 29 of the Code of Federal Regulations*. This information will be made available to sensory impaired individuals upon request. Voice phone is (202) 693-1999. See also OSHA's website at www.osha.gov.



This fact sheet answers the most frequently asked health questions (FAQs) about arsenic. For more information, call the ATSDR Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to higher than average levels of arsenic occur mostly in the workplace, near hazardous waste sites, or in areas with high natural levels. At high levels, inorganic arsenic can cause death. Exposure to lower levels for a long time can cause a discoloration of the skin and the appearance of small corns or warts. Arsenic has been found in at least 1,149 of the 1,684 National Priority List sites identified by the Environmental Protection Agency (EPA).

What is arsenic?

Arsenic is a naturally occurring element widely distributed in the earth's crust. In the environment, arsenic is combined with oxygen, chlorine, and sulfur to form inorganic arsenic compounds. Arsenic in animals and plants combines with carbon and hydrogen to form organic arsenic compounds.

Inorganic arsenic compounds are mainly used to preserve wood. Copper chromated arsenate (CCA) is used to make "pressure-treated" lumber. CCA is no longer used in the U.S. for residential uses; it is still used in industrial applications. Organic arsenic compounds are used as pesticides, primarily on cotton fields and orchards.

What happens to arsenic when it enters the environment?

- Arsenic occurs naturally in soil and minerals and may enter the air, water, and land from wind-blown dust and may get into water from runoff and leaching.
- Arsenic cannot be destroyed in the environment. It can only change its form.
- Rain and snow remove arsenic dust particles from the air.
- Many common arsenic compounds can dissolve in water. Most of the arsenic in water will ultimately end up in soil or sediment.
- Fish and shellfish can accumulate arsenic; most of this arsenic is in an organic form called arsenobetaine that is much less harmful.

How might I be exposed to arsenic?

- Ingesting small amounts present in your food and water or breathing air containing arsenic.
- Breathing sawdust or burning smoke from wood treated with arsenic.
- Living in areas with unusually high natural levels of arsenic in rock.
- Working in a job that involves arsenic production or use, such as copper or lead smelting, wood treating, or pesticide application.

How can arsenic affect my health?

Breathing high levels of inorganic arsenic can give you a sore throat or irritated lungs.

Ingesting very high levels of arsenic can result in death. Exposure to lower levels can cause nausea and vomiting, decreased production of red and white blood cells, abnormal heart rhythm, damage to blood vessels, and a sensation of "pins and needles" in hands and feet.

Ingesting or breathing low levels of inorganic arsenic for a long time can cause a darkening of the skin and the appearance of small "corns" or "warts" on the palms, soles, and torso.

Skin contact with inorganic arsenic may cause redness and swelling.

ToxFAQs™ Internet address is <http://www.atsdr.cdc.gov/toxfaq.html>

Almost nothing is known regarding health effects of organic arsenic compounds in humans. Studies in animals show that some simple organic arsenic compounds are less toxic than inorganic forms. Ingestion of methyl and dimethyl compounds can cause diarrhea and damage to the kidneys

How likely is arsenic to cause cancer?

Several studies have shown that ingestion of inorganic arsenic can increase the risk of skin cancer and cancer in the liver, bladder, and lungs. Inhalation of inorganic arsenic can cause increased risk of lung cancer. The Department of Health and Human Services (DHHS) and the EPA have determined that inorganic arsenic is a known human carcinogen. The International Agency for Research on Cancer (IARC) has determined that inorganic arsenic is carcinogenic to humans.

How can arsenic affect children?

There is some evidence that long-term exposure to arsenic in children may result in lower IQ scores. There is also some evidence that exposure to arsenic in the womb and early childhood may increase mortality in young adults.

There is some evidence that inhaled or ingested arsenic can injure pregnant women or their unborn babies, although the studies are not definitive. Studies in animals show that large doses of arsenic that cause illness in pregnant females, can also cause low birth weight, fetal malformations, and even fetal death. Arsenic can cross the placenta and has been found in fetal tissues. Arsenic is found at low levels in breast milk.

How can families reduce the risks of exposure to arsenic?

If you use arsenic-treated wood in home projects, you should wear dust masks, gloves, and protective clothing to decrease exposure to sawdust.

- If you live in an area with high levels of arsenic in water or soil, you should use cleaner sources of water and limit contact with soil.
- If you work in a job that may expose you to arsenic, be aware that you may carry arsenic home on your clothing, skin, hair, or tools. Be sure to shower and change clothes before going home.

Is there a medical test to determine whether I've been exposed to arsenic?

There are tests available to measure arsenic in your blood, urine, hair, and fingernails. The urine test is the most reliable test for arsenic exposure within the last few days. Tests on hair and fingernails can measure exposure to high levels of arsenic over the past 6-12 months. These tests can determine if you have been exposed to above-average levels of arsenic. They cannot predict whether the arsenic levels in your body will affect your health.

Has the federal government made recommendations to protect human health?

The EPA has set limits on the amount of arsenic that industrial sources can release to the environment and has restricted or cancelled many of the uses of arsenic in pesticides. EPA has set a limit of 0.01 parts per million (ppm) for arsenic in drinking water.

The Occupational Safety and Health Administration (OSHA) has set a permissible exposure limit (PEL) of 10 micrograms of arsenic per cubic meter of workplace air ($10 \mu\text{g}/\text{m}^3$) for 8 hour shifts and 40 hour work weeks.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2007. Toxicological Profile for Arsenic (Update). Atlanta, GA: U.S. Department of Public Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Environmental Medicine, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-800-232-4636, FAX: 770-488-4178. ToxFAQs Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaq.html>. ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.



FORMS

**HEALTH AND SAFETY PLAN
ACKNOWLEDGEMENT FORM**

I, _____ (print name), have reviewed a copy of the Health and Safety Plan for the Removal Action at the Former W.R. Grace/Zonolite Facility on Wemelco Way in Easthampton, Massachusetts. I have read the Plan, understand it, and agree to comply with all of its provisions. I understand that I could be prohibited from working on the project for violating any of the safety requirements specified in the Plan.

Signed:

Signature

Date

Firm

**INSTRUMENT
CALIBRATION FORM**

Site: Former W.R. Grace Zonolite Facility; Easthampton, MA

Date: _____

Instrument	Calibration Gas
Manufacturer/Model: _____ Serial Number: _____ Calibration Method: _____ Instrument Calibration Level: _____ Calibration Acceptable (Yes/No): _____	Cal Gas Maker: _____ Cal Gas Lot Number: _____ Cal Gas Type: _____ Cal Gas Concentration: _____

Instrument	Calibration Gas
Manufacturer/Model: _____ Serial Number: _____ Calibration Method: _____ Instrument Calibration Level: _____ Calibration Acceptable (Yes/No): _____	Cal Gas Maker: _____ Cal Gas Lot Number: _____ Cal Gas Type: _____ Cal Gas Concentration: _____

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Manufacturer/Model: _____ Serial Number: _____ Calibration Method: _____ Instrument Calibration Level: _____ Calibration Acceptable (Yes/No): _____	Cal Gas Maker: _____ Cal Gas Lot Number: _____ Cal Gas Type: _____ Cal Gas Concentration: _____

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Manufacturer/Model: _____ Serial Number: _____	Cal Gas Maker: _____ Cal Gas Lot Number: _____
Calibration Method: _____ _____	Cal Gas Type: _____ Cal Gas Concentration: _____
Instrument Calibration Level: _____ Calibration Acceptable (Yes/No): _____	

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Manufacturer/Model: _____ Serial Number: _____	Cal Gas Maker: _____ Cal Gas Lot Number: _____
Calibration Method: _____ _____	Cal Gas Type: _____ Cal Gas Concentration: _____
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