



Eastern Environmental, Inc.

GENERAL HEALTH AND SAFETY PROGRAM

ASBESTOS - LEAD PAINT - MOLD - HAZMAT - DEMOLITION - RESTORATION - CLEANING

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1. Introduction and Policy Statement

Eastern Environmental, Inc. (EEI) recognizes its responsibility for its employees in regard to the prevention of work-related accidents and illnesses.

Management has provided this General Health and Safety Manual for use in all operations where EEI Employees are at work. Through the application of our policy and procedure, we hope to minimize any suffering due to occupational injury. EEI believes all accidents are preventable. Our goal is to eliminate them altogether.

In order to accomplish this, a serious interest by each employee must be taken in regards to safety, safety training, and the contents of this manual. Management intends to provide the leadership and direction necessary to ensure the proper response of supervisory personnel, and their team members, in EEI's commitment to make our work places safe.

It is my request that all concerned devote their efforts in making this General Health and Safety Manual a common feature in our day-to-day business. No job is so urgent or so important that we cannot take the time to do it safely.

A handwritten signature in black ink, appearing to read "Dan Broadhead", with a large, stylized loop at the end.

Daniel F. Broadhead
President
Eastern Environmental, Inc.

2. Organization and Responsibilities

2.1 Safety and Health Manager

Responsible for overall health and safety in the company.

- 2.1.1 Ensures compliance with the health and safety programs at the corporate level
- 2.1.2 Supervises regional managers regarding health and safety
- 2.1.3 Health and Safety Program updates
- 2.1.4 Maintenance of accident and injury records
- 2.1.5 Submits OSHA injury and/or fatality reports
- 2.1.6 Maintenance of training records

2.2 Regional Managers

Report to Safety and Health Manager when acting in their capacity as local Safety and Health Officers

- 2.2.1 Ensure compliance with the requirements of the EEI Health and Safety Program at the local and project level
- 2.2.2 Report accidents and injuries to the Safety and Health Manager
- 2.2.3 Maintain training and accident/injury record at the local level
- 2.2.4 Perform responsibilities of the Safety and Health Manager when necessary and he/she cannot be contacted

2.3 Project Managers

Report to the Regional Manager and acts as his representative on projects in the field.

- 2.3.1 Ensure compliance with the requirements of the EEI Health and Safety Programs at the project level
- 2.3.2 May have supervisory responsibility over more than one project
- 2.3.3 Report accidents and injuries to the Regional Manager or, if not available, to the Safety and Health Manager
- 2.3.4 May be first aid providers

2.4 Project Superintendent

Reports to the Project Manager and acts as his representative on a specific project.

- 2.4.1 Ensures compliance with the requirements of the EEI Health and

Safety Programs on a specific project.

- 2.4.2 Have supervisory responsibilities over a specific project
- 2.4.3 Report accidents and injuries to the Project Manager, Regional Manager or, if not available, to the Safety and Health Manager
- 2.4.4 May be a first aid provider
- 2.4.5 Will act as Site Safety and Health Supervisor

2.5 Non Supervisory EEI Personnel

Reports to the project Superintendent

- 2.5.1 Complies with all safety and health requirements on a project
- 2.5.2 Reports any hazardous condition to the project superintendent
- 2.5.3 Is responsible for personal safety and health and the safety and health of coworkers
- 2.5.4 Ensures that all PPE he uses is of proper type, is clean and is in good repair, reports any PPE discrepancies to the Project Superintendent
- 2.5.5 Performs work safely as directed by the project superintendent, but questions instructions that he does not understand or appear to be unsafe
- 2.5.6 Does not perform work for which he has not been trained

3. OSHA Reporting and Record Keeping

3.1 Injury and Illness Records

3.1.1 An OSHA 200 log will be maintained in each office. Completion of this form and subsequent posting will be the responsibility of the Office Manager. This document is to be posted for employee review every February 1 and is to remain posted for 30 days.

3.2 OSHA Required Notices

3.2.1 EEI shall post and keep posted a notice or notices, furnished by the Occupational Safety and Health Administration, U.S. Department of Labor or the relevant State. Such notice or notices shall be posted in each establishment in a conspicuous place or places where notices to employees are customarily posted. They shall be posted at each job site.

3.3 Monitoring Data

OSHA required air-monitoring data shall be maintained indefinitely by the corporate safety and health manager.

3.4 Medical Surveillance Data

3.4.1 EEI shall maintain an accurate record of all medical surveillance data required by this standard.

3.4.1.1 That information retained by EEI shall be maintained indefinitely by the corporate safety and health manager. It shall consist of at least the following:

3.4.1.1.1 Name and Social Security number of the employee

3.4.1.1.2 Description of job duties

3.4.1.1.3 Copy of physicians written opinions regarding:

3.4.1.1.3.1 Respirator use

3.4.1.1.3.2 Exposure to toxic substances or other hazards (noises, etc.)

3.4.1.1.3.3 Exposure to asbestos

- 3.4.1.1.3.4 Exposure to lead
- 3.4.1.1.3.5 Air monitoring provided to the physician on behalf of the employee.
- 3.4.1.1.3.6 Employee medical complaints related to work exposures.

3.4.1.2 Other information will be maintained at the medical offices. This includes:

- 3.4.1.2.1 Copy of medical exam results, including all histories.
- 3.4.1.2.2 A description of lab procedures and a copy of standards or guidelines used to interpret test results or references to that information.
- 3.4.1.2.3 Verification that lead testing laboratories (or others if required) are accredited to conduct the testing.

4. Accident and Injury Investigations

4.1 Policy

EI will investigate the causes of accidents and institute preventive measures to ensure that they are not repeated. In addition, all employees and subcontractors are expected to abide by all health and safety rules promulgated by EI or applicable regulatory authorities, including those of our clients.

4.2 Procedure

- 4.2.1 In case of an accident, all necessary steps to protect life, health, and property will be taken. Actual investigation of the cause of an accident shall not begin until the situation is stable, no personnel are in danger, and those injured are cared for.
- 4.2.2 EI will cooperate with police, fire departments, and any other appropriate authority.
- 4.2.3 The supervisor on site will notify the Project Manager as soon as feasible but no later than two hours after an incident that involves more than first aid on site or property damage in excess of \$500. The following information will be provided:
 - 4.2.3.1 Nature of the accident
 - 4.2.3.2 Identity and number of injured persons
 - 4.2.3.3 Estimate of the apparent extent of injury
 - 4.2.3.4 Where and how are the injured being cared for
 - 4.2.3.5 Nature and extent of property damage
- 4.2.4 The Project Manager will notify the Corporate Safety and Health Officer of any injuries or damage that may involve lost time or property damage in excess of \$500 immediately.
- 4.2.5 As soon as feasible, but no later than the day of the accident, the supervisor will complete the "Supervisor's First Report of Accident" and forward it to the Project Manager.
- 4.2.6 After reviewing the "Supervisor's First Report of Accident," the report and comments will be forwarded to the Corporate Safety and Health Officer who will recommend remedial action to prevent

future occurrences. He shall also recommend disciplinary action as appropriate.

- 4.2.7 If the incident is OSHA reportable (fatality or more than 2 hospitalizations), OSHA must be notified within 8 hours of the incident. This notification will be made by either the Corporate Safety and Health Officer or, in his absence, Project Manager.

5. General Health and Safety

5.1 Training

5.1.1 New Employee Orientation

5.1.1.1 Each new employee will receive general health and safety training that will include general EEI policies, location of notices, hazard communication, injury reporting procedures, and other miscellaneous health and safety topics.

5.1.1.2 Those employees who will work in environmental field positions will be required to read the General Health and Safety Manual and will be trained in its provisions by the Designated EEI representative.

5.1.1.3 Additional training shall be conducted as required by Federal and State regulations and EEI policy.

5.1.2 Hazard Communication

5.1.2.1 All employees who may be exposed to hazardous substances shall receive training in accordance with the requirements of 29 CFR 1910.1200, 29 CFR 1926.59, and the EEI Hazard Communication Program.

5.1.2.2 Details are to be found in Section 8 of this manual.

5.1.3 Periodic Meetings

5.1.3.1 Job site health and safety meetings will be conducted upon mobilization to the site and daily thereafter until completion of the work.

5.1.3.1.1 At the initial meeting and then at least weekly thereafter, the following topics will be discussed, as applicable:

5.1.3.1.1.1 Nature of the work.

5.1.3.1.1.2 Hazardous materials that may be used or encountered.

- Material Safety Data Sheets

- Hazards associated with the materials.
 - Toxicity
 - Flammability/Combustibility
- 5.1.3.1.1.3 Engineering controls for hazardous exposures
- 5.1.3.1.1.4 Decontamination procedures
- 5.1.3.1.1.5 Required personal protective equipment
- 5.1.3.1.1.6 Other health and safety hazards
 - Electrical hazards
 - Machine guarding hazards
 - Operating system hazards
 - Zero energy issues (lockout/tagout)
 - Fire hazards
 - Fall hazards
 - Entrapment hazards
 - Confined spaces
 - Trenches/Excavations
 - Heat/Cold stress
- 5.1.3.1.1.7 Site Escape Routes
- 5.1.3.1.1.8 First aid and medical assistance availability
- 5.1.3.1.1.9 Accidents that have occurred on this job
 - Nature of the accident
 - Cause
 - Preventive measures
- 5.1.3.2 At all meetings, the following topics shall be discussed:

- 5.1.3.2.1 Accidents that have occurred since the last meeting
- 5.1.3.2.2 Worker safety concerns
- 5.1.3.2.3 Unusual hazardous conditions and/or safety violations noted since the last meeting
- 5.1.3.2.4 Changes to the work that may affect health and safety
- 5.1.3.3 At all meetings, special topics other than those listed may be discussed, as appropriate
- 5.1.3.4 A health and safety meeting documentation form shall be completed during each meeting. A copy follows:

HEALTH AND SAFETY MEETING DOCUMENTATION

Date:	Job Site:		
Supervisor:			
Nature of the Work:			
Hazardous Materials:	*	MSDS On Site?	Comments
	A		
	A		
	A		
	A		
PPE Required:	*	X/NA	Comments
Hard Hat	W		
Safety Glasses	W		
Safety Goggles	W		
Safety Shoes	W		
Disposable Coveralls	W		
Respirators: List Type:	W		
Gloves: List Type:	W		
Safety Harness:	W		
Other:	W		
Other Health and Safety Hazards	*	X/NA	Comments
Electrical	W		
Machine Guarding/Impalement	W		
Operating Systems	W		
Zero Energy Issues (Lock/Tagout)	W		
Fire Hazards	W		
Fall Hazards	W		
Entrapment Hazards:	W		
- Confined Space	W		
- Trenches/Excavations	W		
Heat/Cold Stress	W		
Accidents:	W		
- Nature	W		
- Cause	W		
- Prevention	W		
Site Escape Routes	W		
First Aid and Medical Issues	W		
Worker Safety Concerns	A		
Unusual Hazardous Conditions	A		
Work Changes	A		

* A = All Meetings, W = Initial and Weekly Meetings

List All Attendees on the Back of this Form

Safety Meeting Attendees

Supervisor: _____

Printed Name Signature

The undersigned acted as translator and declares that he/she is fluent in English and _____ Spanish _____ Other: _____ (Mark One)

Translator: _____

Printed Name	Signature
--------------	-----------

Attendees:

[illegible]

5.1.4 Supervisor Training

5.1.4.1 Where OSHA regulations require that a “competent person” be on site, the supervisor or superintendent will perform that function.

5.1.4.2 Before a supervisor may act as a competent person, he shall have completed at least the minimum training in that subject area as follows:

- 5.1.4.2.1 Asbestos - 40 hour AHERA supervisor with 8 hour annual refresher
- 5.1.4.2.2 Lead - 32 hour supervisor with 8 hour annual refresher
- 5.1.4.2.3 Hazardous Waste Operations - 40 hour “HAZWOPER” training including 8 hours of supervisor training and 3 days of field work under a qualified supervisor with 8 hour annual refresher
- 5.1.4.2.4 Trenching - 4 hours of specialized training annually
- 5.1.4.2.5 Scaffolding - 4 hours of specialized training annually
- 5.1.4.2.6 Confined Space Entry - 8 hours of specialized training annually
- 5.1.4.2.7 Other tasks - as required by OSHA regulations

5.2 Housekeeping

5.2.1 The following regulations shall be observed as defined in 29 CFR 1926.25:

5.2.1.1 Containers with covers shall be provided to facilitate the collection and disposal of debris and materials

5.2.1.2 All debris shall be removed from the work site frequently and in a proper and safe manner

5.2.1.3 Debris shall be separated into individual containers
according to type

5.3 Sanitation

The following regulations shall be observed as defined in
29 CFR 1926.27:

5.3.1 Potable water used for drinking, as described in the U.S. Public Health Service Drinking Water Standards, 42 CFR part 72, shall be provided. The following also apply:

5.3.1.1 Containers for the potable water must be tightly closed, be equipped with a tap and be clearly marked as to contents and use

5.3.1.2 Each person must have their own cup or disposable single-use cups shall be provided

5.3.1.3 Unused cups shall remain in a sanitary container

5.3.1.4 A trash receptacle shall be provided for disposal of the used cups

5.3.2 Nonpotable water

5.3.2.1 Containers shall be clearly marked as unsafe for drinking

5.3.2.2 There shall be no connection between potable and nonpotable water

5.3.3 Eating/Drinking Facilities/Areas

Eating and drinking will be allowed only in approved and sanitary areas which are so designated and are away from any contaminants or hazardous material

5.3.4 Toilets

5.3.4.1 Toilets or privies of the required type and number shall be provided as specified in 29 CFR 1926.51

5.3.4.2 Toilets shall be maintained and cleaned as necessary to remain sanitary

5.3.5 Washing facilities/showers shall be provided as necessary and kept in a sanitary condition as required in 29 CFR 1926.51

5.3.6 Changing areas shall be provided as necessary and kept in a sanitary condition as required in 29 CFR 1926.51

5.3.7 Vermin control

5.3.7.1 Enclosed work areas shall be constructed, equipped, and maintained so as to prevent the infestation of rodents, insects, etc.

5.3.7.2 Extermination procedures shall be instituted when the presence of vermin is noted

5.4 Medical Surveillance

5.4.1 There are several different requirements for physical examinations as required by OSHA regulations. Employees who work jobs involving use of respirators or potential exposure to toxic substances shall receive physical examinations prior to job assignment and at least annually thereafter.

5.4.2 Employees shall not work with asbestos, lead, or other toxic substances, nor shall they wear respirators until properly trained, and a licensed physician has determined them to be medically fit as required by law.

5.4.3 The medical facility performing the examinations shall be given a copy of the OSHA Hazardous Waste Operations Standard, Respiratory Protection Standard, Asbestos Standard, and Lead Standard.

5.4.4 When an employee reports symptoms that may be related to lead or asbestos exposure, he shall be medically reevaluated.

5.5 Fire Prevention/Hot Work

5.5.1 Hot work is defined as any flame or spark producing work or work where high temperatures that may cause fires are encountered.

5.5.2 No employee shall engage in hot work without the express permission of the job site supervisor or superintendent.

- 5.5.3 Prior to work with any flammable or combustible liquids, the job site supervisor or superintendent shall verify the following:
 - 5.5.3.1 No flammable materials (flash point less than or equal to 100° F) are in use.
 - 5.5.3.2 Where combustible liquids are in use (flash point less than or equal to 200°F but greater than 100°F) no hot work or flame or spark producing equipment or other source of ignition is in use within 20 feet.
 - 5.5.3.3 The minimum amount of material necessary is in use at a time. Large areas of surface are not covered with combustible liquids.
 - 5.5.3.4 Sufficient fire extinguishers of proper size and type are readily accessible and all employees in the area have been trained in their use. See paragraph 7 below.
 - 5.5.3.5 There are sufficient means of egress to ensure that no employee will be trapped in case of fire.
 - 5.5.3.6 All employees have discussed fire safety specific to this project at a work-site meeting.
- 5.5.4 The supervisor or superintendent will consider the need for fire retardant plastics or other materials when planning the work.
- 5.5.5 No fire suppression or alarm systems shall be compromised as part of the work without the knowledge and approval of the local fire department and then only for the minimum amount of time needed to complete the work.
- 5.5.6 The supervisor or superintendent shall make certain that combustible materials such as plastic, spray chemicals, cardboard, etc., shall not accumulate in the work area. Good housekeeping shall be maintained at all times.

5.5.7 Fire extinguisher types:

5.5.7.1 Class A - Used for ordinary combustibles such as cloth, paper, wood, plastic, etc.;

5.5.7.2 Class B - Used for flammable or combustible liquid fires, such as oil, gasoline, solvents, etc.;

5.5.7.3 Class C - Used for electrical fires while current is still on;

5.5.7.4 Class D - Used for burning metals such as magnesium, etc.;

5.5.8 General Rules:

5.5.8.1 Smoking not permitted in areas where flammables or combustibles are present,

5.5.8.2 Store flammable materials in appropriate flammable storage cabinets when they are not in use,

5.5.8.3 Electrically bond containers of flammables to equipment when pouring them from a container to control static electricity, and

5.5.8.4 Plan work to minimize the quantity of flammable materials in the work area.

5.6 Fall Protection

5.6.1 General

5.6.1.1 When employees are required to work at heights in excess of four feet, the supervisor or superintendent shall be trained and knowledgeable of the requirements of 29 CFR 1926.502, the OSHA fall protection standard.

5.6.1.2 When scaffolding is to be used, the supervisor or superintendent shall meet all requirements for a competent person under 29 CFR 1926.451.

5.6.1.3 Safety belts shall not be used for fall protection, only properly approved safety harnesses are acceptable.

5.6.1.4 When working at an elevation of six feet or more, guardrails, midrails, and toeboards shall be used as required in 29 CFR 1926.502.

5.6.1.5 When working at an elevation of 25 feet or more, in addition to the above, a properly approved and installed safety net shall be used as required in 29 CFR 1926.105 and 29 CFR 1926.502.

5.6.2 Ladders

5.6.2.1 Do not use metal ladders within 20 feet of live electrical parts.

5.6.2.2 Inspect ladders prior to use, remove them from service if there is any indication of damage or missing parts.

5.6.2.3 All ladders are to be manufactured in accordance with the requirements of 29 CFR 1926.450. Do not use homemade ladders.

5.6.2.4 Ladders must be clean and free of oil, grease, etc.

5.6.2.5 When climbing or descending a ladder, always face it and use the 3 point contact rule, always have at least 3 points of contact with the ladder, two hands and one foot or two feet and one hand. Never carry anything up[or down a ladder that requires the use of hands.

5.6.2.6 Ladders must be set on firm ground or floors.

5.6.2.7 Make sure that ladders are visible, do not place them near doors, walkways, etc., unless they can be clearly seen from a distance or barricades or other appropriate warnings are used.

5.6.2.8 A-frame ladders are not to be used as straight ladders.

5.6.2.9 Never use the top two rungs of an A-frame ladder as a step.

5.6.2.10 Never climb past the third rung from the top of a straight/extension ladder.

5.6.2.11 Straight/extension ladders must be positioned so that the height to base ratio is 4:1.

5.6.2.12 Ladders must be equipped with non-skid safety feet.

5.6.2.13 Straight/extension ladders must be propped against a secure surface.

5.6.2.14 Straight/extension ladders must extend 3 feet above the top edge if an employee is expected to dismount the ladder at the top or is to mount a ladder from the top.

5.6.2.15 Where possible, tie off the ladder at the top, otherwise, secure the ladder in some other manner while an employee is on it.

5.6.2.16 Do not overreach when on a ladder. Maintain the trunk of the body between the rungs.

5.6.2.17 When raising or lowering an extension ladder, keep clear of the rungs and rails.

5.6.2.18 When carrying a ladder, ensure that it is properly balanced. Get help when handling a ladder, if necessary.

5.6.3 Safety Belts, Harnesses, Lanyards

5.6.3.1 Do not use a safety belt for fall protection; use a full body harness.

5.6.3.2 A safety harness must not be equipped with a lanyard that is more than six feet long.

5.6.3.3 No homemade harnesses or lanyards will be used. Only such equipment manufactured for the purpose in accordance with applicable standards shall be used.

5.6.3.4 Prior to use, a harness or lanyard must be inspected to ensure that all parts are present, intact, and undamaged.

5.6.3.5 Do not modify the equipment in any way that is not a part of the original manufacturer's intent. Do not add holes to the equipment for fit or make any other such modifications.

5.6.4.2.6 Ladders and other access to scaffolding shall meet the requirements of 29 CFR 1926.451.

5.6.4.2.7 Do not load scaffolds or scaffold components in excess of their maximum intended loads. The competent person shall be aware of the

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- 5.6.5.3.2 Nets shall be drop-tested after installation and prior to the commencement of work as specified in 29 CFR 1926.502.
- 5.6.5.3.3 Mesh openings shall not exceed six inches by six inches.
- 5.6.5.3.4 Defective nets shall not be used.
- 5.6.5.3.5 Any item that has been dropped or has fallen into the net shall be removed as soon as possible.

5.7 Confined Space Entry

5.7.1 Prior to conduct of work at a site, the supervisor or superintendent shall determine if the work involves access to any permit required confined spaces.

5.7.1.1 He shall determine if the owner has designated any spaces as permit required confined spaces. If so, he shall comply with the provisions of their confined space entry program if the program complies with the requirements of 29 CFR 1926.146 and provides adequate protection. In order to make this determination, the supervisor or superintendent must meet the EEI requirements for Confined Space Entry Training before he may make this determination.

5.7.1.2 The superintendent shall identify any permit required confined spaces that affect the work that the owner has not identified.

5.7.2 Where permit required confined spaces are identified by the client or where they are otherwise determined to exist and affect the work and where the clients program is inadequate, then the provisions of the EEI Confined Space Program shall be met.

5.8 Trenching and Excavating

- 5.8.1 Working in trenches is one of the most hazardous types of work in the construction industry.
- 5.8.2 As a rule, where a trench is more than waist deep (about 3 feet) do not enter it. Entry into such trenches shall be accomplished only after evaluation of the potential hazard and a determination by the project supervisor or superintendent who is also a trenching competent person as described in 29 CFR 1926.650-.652 that it is safe to do so.

5.9 Lockout/Tagout

- 5.9.1 Most instances where EEI employees will encounter situations requiring the use of lockout/tagout procedures will be at remote sites. The equipment that represents a potential hazard may be unfamiliar to our personnel.
- 5.9.2 Accordingly, when working on a remote site, it will be necessary to have the cooperation of the facility owner in identifying potentially hazardous sources of energy and securing them in an appropriate manner.
- 5.9.3 The full procedure specified in the Lockout/Tagout Program shall apply.

5.10 Heat/Cold Stress

- 5.10.1 Exposure to potentially hazardous heat or cold is of concern to EEI. The nature of our work often requires that our employees work outdoors in all types of weather extremes. Indoor work may involve hazards of heat stress due to steam systems or other sources of heat.
- 5.10.2 The procedures in the Heat/Cold Stress Program are designed to protect against these hazards and shall apply for any work where heat or cold stress is a concern.

5.11 Material Handling

5.11.1 Storage

- 5.11.1.1 Equipment and Material shall be stored in an orderly manner leaving sufficient clearance in aisles, loading docks, etc., for safe passage.
- 5.11.1.2 When stacking material, ensure that the lower levels can support the weight of the upper levels. Stacks must be stable; take care not to stack too high.

5.11.2 Forklifts

- 5.11.2.1 Do not operate a forklift unless properly trained in accordance with OSHA regulations and have been authorized to do so by the Regional Manager or Corporate Safety and Health Officer.
- 5.11.2.2 Each day, prior to using a forklift for the first time, the driver must thoroughly inspect the vehicle. The check shall include:
 - Lights
 - Horn
 - Backup Alarm
 - Brakes
 - All fluid levels
 - Engine/Motor
 - Transmission
 - Battery

5.11.3 While running:

- 5.11.3.1 Ensure that the load does not obstruct the view
- 5.11.3.2 Do not raise or lower the load while moving
- 5.11.3.3 Drive slowly, even when not loaded

- 5.11.3.4 Sudden braking is dangerous; plan your stops so that you can slow gradually
- 5.11.3.5 Blow horn when approaching corners and blind intersections or going through doorways
- 5.11.3.6 When backing, ensure that the backup alarm is sounding
- 5.11.3.7 When moving, do not carry the load too high: about a 6 inch clearance is usually proper
- 5.11.3.8 When moving onto and off of trucks, ensure that they are secure and will not move; dock locks are preferred
- 5.11.3.9 Wear a seat belt
- 5.11.3.10 When carrying a load on an incline, go down in reverse, up in forward, otherwise the load could shift or fall
- 5.11.3.11 Always verify sufficient overhead clearance
- 5.11.4 Working around heavy equipment
 - 5.11.4.1 Never assume that an operator sees you unless you make eye contact and indicate your intent
 - 5.11.4.2 Cranes and other heavy equipment that swing from side to side should have the area within the radius marked; do not enter the radius of the swing, whether it is marked or not
 - 5.11.4.3 Do not go under a suspended load

5.11.5 Manual Lifting

- 5.11.5.1 Know your limits; do not lift a load that is too heavy or bulky; get help
- 5.11.5.2 Use proper lifting techniques: lift with the legs, not the back

5.11.6 General

- 5.11.6.1 Never defeat safety devices
- 5.11.6.2 Never carry a load using material-handling equipment across a slope, only up or down with the load on the high side
- 5.11.6.3 Do not use material handling equipment in a hazardous zone (flammable, electrical utilities, etc.) if it is not properly certified for the use.
- 5.11.6.4 Keep equipment clean
- 5.11.6.5 Keep work areas clear of hazardous debris or material
- 5.11.6.6 Inspect all equipment daily prior to use
- 5.11.6.7 Do not operate equipment unless properly trained and qualified

5.12 Electrical Safety

- 5.12.1 All equipment used on a remote job site and any equipment used outdoors shall be protected by a ground fault circuit interrupter.
- 5.12.2 Where portable power panels are used on a job, the panels shall be connected to the power source by a licensed electrician in accordance with applicable codes and regulations.
- 5.12.3 Power panels shall be constructed or approved by a licensed electrician. Each panel shall be individually identified with a unique number and documentation as to its construction shall be maintained by the Corporate Safety and Health Officer.

- 5.12.4 Power panels shall have a marked cutoff switch that will shut off power to the entire panel.
- 5.12.5 Any electrical equipment that requires cooling, such as transformers, shall not be covered or blocked in such a manner as to cause inadequate air circulation unless provisions for mechanical circulation of air are made or the equipment is shut down and locked out.
- 5.12.6 No work may be conducted near live electrical parts unless they have been shielded in such a manner as to prevent contact or wetting.
- 5.12.7 Removal of the ground prong from a plug end is not allowed. It shall be grounds for immediate dismissal.
- 5.12.8 Grounded tools or equipment may not be plugged into a two-pronged receptacle even with an adapter.
- 5.12.9 Care shall be taken to prevent overloading of circuits. Be aware that there is an initial increased current draw when starting motors. Therefore, start large motors and HEPA units one at a time.
- 5.12.10 No damaged power cords shall be used. No repairs to power cords may be made in the field.

5.13 Hand and Power Tools

- 5.13.1 All hand and power tools shall be maintained in a safe condition and inspected on a regular basis.
- 5.13.2 Employees shall be trained in the proper and safe use of all tools prior to use.
- 5.13.3 Power tools shall be used in accordance to the manufacturer's recommendations.
- 5.13.4 Safety equipment shall be worn during the use of tools as required.
- 5.13.5 In all instances, hand and power tools shall comply with 29 CFR 1926 Subpart I regulations and requirements.

5.14 Welding and Cutting

5.14.1 General

- 5.14.1.1 Employees shall be trained in the proper use and safety of welders and cutters in compliance with 29 CFR 1926 Subpart J
- 5.14.1.2 Welders and cutters shall be located away from any flammable materials and substances
- 5.14.1.3. All gauges, regulators, hoses, and other equipment involved with welding and cutting shall be kept in proper working condition and clearly marked
- 5.14.1.4 Welders and cutters shall comply with the regulations of 29 CFR1926 Subpart J

5.14.2 Compressed Gas Cylinders

- 5.14.2.1 Valves shall be closed and valve protection caps in place when cylinders are not in use.
- 5.14.2.2 Cylinders shall be moved by tilting and rolling on the bottom edge only.
- 5.14.2.3 Cylinders shall be used and stored in an upright position and away from combustible materials and substances.
- 5.14.2.4 No damaged or defective cylinders shall be used.

5.14.3 Fire Prevention-All available means of preventing fire during the use of welders and cutters shall be employed as listed in 29 CFR 1926.352.

5.14.4 Ventilation-Proper Ventilation will be installed as listed in 29 CFR 1926.353.

5.15 Machine Guarding

- 5.15.1 Never remove manufacturer-supplied guards from equipment.
- 5.15.2 Rotating or moving machine parts at a job site must be guarded to prevent accidental contact.

- 5.15.3 Handheld grinders must have all manufacturer-supplied guards in place and the guards properly adjusted.
- 5.15.4 Only employees who are trained in the proper use of the equipment shall use the equipment in accordance with the manufacturer's instructions.
- 5.15.5 Avoid loose clothing and restrain long hair to prevent it from being caught in rotating machinery.

5.16 Motor Vehicles

- 5.16.1 All vehicles used shall comply with 29 CFR 1926.601 and the North Carolina Vehicle Code, including the following:
 - 5.16.1.1 Vehicles shall be properly insured
 - 5.16.1.2 Vehicles shall have properly working systems or devices, including:
 - 5.16.1.2.1 Service brake system
 - 5.16.1.2.2 Emergency brake system
 - 5.16.1.2.3 Parking brake system
 - 5.16.1.2.4 Head, tail, and brake lights, and turn signals
 - 5.16.1.2.5 Horn and back-up alarm
 - 5.16.1.2.6 Windshield wipers and defrost system
 - 5.16.1.3 Vehicles shall have properly anchored seats with approved seat belt systems as required in 49 CFR Part 571
 - 5.16.1.4 Any glass windshields and windows that are cracked shall be replaced as soon as feasible
 - 5.16.1.5 All vehicles shall be inspected at the beginning of each shift as specified in 29 CFR 1926.601 and any defective or damaged parts or systems repaired or replaced

5.17 Personal Protective Equipment

5.17.1 Application

5.17.1.1 This section applies to personal protective equipment (PPE) other than respiratory protective equipment. Specifically, it includes the use of:

5.17.1.1.1 Head protection

5.17.1.1.2 Eye and face protection

5.17.1.1.3 Hand protection

5.17.1.1.4 Foot protection

5.17.1.1.5 Coveralls and aprons

5.17.1.1.6 Hearing protection

5.17.1.1.7 Fall protection

5.17.1.2 Provision of PPE

5.17.1.2.1 All required PPE will be provided by EEI.

5.17.1.2.2 No employee-owned equipment is to be used unless approved by the Project Manager.

5.17.1.3 Responsibility

PPE will be assigned to individuals who will be responsible for cleaning and other maintenance of the equipment.

5.17.1.4 The design of PPE shall be such that it is simple to clean and maintain.

5.17.1.5 Before assignment of PPE, employees shall be trained in the following aspects of PPE use:

5.17.1.5.1 When to use the equipment

5.17.1.5.2 How to don and doff the equipment

5.17.1.5.3 Limitations of the equipment

5.17.1.5.4 Proper care and maintenance

5.17.1.5.5 Proper storage

- 5.17.1.6 Upon completion of training, each employee shall complete the following record of PPE training.

RECORD OF PERSONAL PROTECTIVE EQUIPMENT TRAINING

Date of Training: _____ Instructor: _____
Trainee: _____

Initial in appropriate locations to acknowledge training in the subject

PPE	When to use And the Limitations	How to doff, don and adjust	How to maintain, store and inspect
Hard Hat			
Safety Glasses / Side Shields			
Face Shields			
Splash Goggles			
Safety Goggles			
Gloves			
Chemical Resistant Gloves			
Safety Harness			
Coveralls			
Apron			
Hearing Protection			
Other:			

5.18 First Aid

- 5.18.1 The supervisor or superintendent on each job shall be the designated first aid provider.
- 5.18.2 The designated first aid provider will maintain a valid first aid certificate from the Red Cross or equivalent recognized agency.
- 5.18.3 The designated first aid provider shall participate in the Blood borne Pathogens Control Program.
- 5.18.4 A first aid kit, stocked as recommended by EEI's consulting physician, shall be maintained at each job site.
 - 5.18.4.1 The first aid provider shall ensure that the kit is properly stocked and maintained at all times.
 - 5.18.4.2 The kit shall be of sufficient size to meet the needs for the job crew.
- 5.18.5 The names and addresses of the following entities shall be posted at the job site:
 - 5.18.5.1 Local Fire Department
 - 5.18.5.2 Local Ambulance Services
 - 5.18.5.3 Local Police Service
 - 5.18.5.4 Local Hospital Emergency Room

6. Monitoring Programs

6.1 Air Monitoring

6.1.1 As required by various OSHA regulations, the supervisor or superintendent on the job site shall ensure that required OSHA monitoring is conducted.

6.1.1.1 General

6.1.1.1.1 When air monitoring is conducted by EEI, all monitoring equipment shall be calibrated before and after use.

6.1.1.1.2 Samples shall be sent to a qualified laboratory for analysis.

6.1.1.1.3 Sample collection materials and methods shall be those recommended by the analytical laboratory.

6.1.1.1.4 The person conducting monitoring shall be aware of work conditions and shall make notes on the sampling forms.

6.1.1.1.5 Workers will not swap air-monitoring devices, nor shall they be left unattended while sampling.

6.1.1.1.6 All sample results shall be posted at the job site if it is still ongoing.

6.1.1.1.7 All employees will be notified in writing of monitoring results as soon as they are available.

6.1.1.2 Asbestos

6.1.1.2.1. Full shift and excursion monitoring shall be conducted at the beginning of each job and shall continue until exposure results are representative of the work.

6.1.1.2.2 If work conditions change in such a manner as to potentially increase exposures, then additional sampling shall be conducted.

6.1.1.2.3 Where the Corporate Safety and Health Officer determines that there is sufficient air monitoring data available, he may authorize the supervisor or superintendent to dispense with additional monitoring.

6.1.1.3 Lead

6.1.1.3.1 Full shift shall be conducted at the beginning of each job and shall continue until exposure results are representative of the work.

6.1.1.3.2 If work conditions change in such a manner as to potentially increase exposures, then additional sampling shall be conducted.

6.1.1.3.3 Where the Corporate Safety and Health Officer determines that there is sufficient air monitoring data available, he may authorize the supervisor or superintendent to dispense with additional monitoring.

6.1.1.4 Other Air Contaminants with Potential for Hazardous Exposures

6.1.1.4.1 Full shift shall be conducted at the beginning of each job and shall continue until exposure results are representative of the work.

6.1.1.4.2 If work conditions change in such a manner as to potentially increase exposures, then additional sampling shall be conducted.

6.1.1.4.3 Where the Corporate Safety and Health Officer determines that there is sufficient air monitoring data available, he may authorize the supervisor or superintendent to dispense with additional monitoring.

6.2 Noise Monitoring

6.2.1 When the work involves potential exposures to high noise, the Corporate Safety and Health Officer shall be notified.

6.2.2 The Corporate Safety and Health Officer shall perform the following functions:

6.2.2.1 Determine if sufficient data is available to evaluate potential noise exposures.

6.2.2.2 If necessary, contract to have noise exposures evaluated.

6.2.2.3 Review results of monitoring and determine if any employees may be exposed to noise in excess of 85db(A), 8 hour TWA.

6.2.3 Any employees that may be exposed to noise in excess of 85db (A), 8 hour TWA, shall be enrolled in the EEI Hearing Conservation Program.

7. Respiratory Protection Program

7.1 Respirator Selection

7.1.1 Respirators shall be selected based upon the type and magnitude of hazards anticipated on the job, based on the following:

7.1.1.1 Not in excess of 1 f/cc (10 X PEL) shall require half-mask air-purifying respirator equipped with high efficiency filters

7.1.1.2 Not in excess of 5 f/cc (50 X PEL) shall require full face-piece air-purifying respirator equipped with high efficiency filters

7.1.1.3 Not in excess of 10 f/cc (100 X PEL) shall require any powered air-purifying respirator equipped with high efficiency filters or any supplied air respirator operated in continuous flow mode

7.1.1.4 Not in excess of 100 f/cc (1,000 X PEL) shall require full face-piece supplied air respirator operated in pressure demand mode

7.1.1.5 Greater than 100 f/cc (1,000 X PEL) shall require full face-piece supplied air respirator operated in pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus

7.1.2 Only NIOSH approved respiratory protection shall be allowed on the job site

7.1.3 When respirator filters are required for dusts, fume, or mist exposures, only NIOSH approved filters designated as P-100 will be used.

7.2 Medical Evaluation

7.2.1 No employee shall be assigned a respirator until he/she has completed a medical evaluation that meets the requirements of 29 CFR 1910.134 (e) and been determined to be medically fit to wear a respirator by a licensed physician.

- 7.2.2 A copy of 29 CFR 1910.134 including Appendix C shall be provided to the physician by EEI.
- 7.2.3 The physician shall forward a written recommendation to EEI regarding an employee's ability to wear a respirator, any limitations, and any follow-up evaluation that the physician deems appropriate.
- 7.2.4 No employee shall be assigned a respirator, nor be fit tested until EEI receives the written medical opinion advising that it is safe for the employee to wear a respirator.

7.3 Fit Testing

- 7.3.1 No employee shall use a respirator until he/she has been properly fit tested in accordance with the requirement of 29 CFR 1910.134 Appendix A and it is determined that the respirator selected fits properly.
- 7.3.2 If qualitative fit testing procedures are used, either isogamies acetate, saccharine, or irritant smoke may be used.
 - 7.3.2.1 The test subject shall be evaluated as described in Appendix A to verify that he/she can detect the challenge aerosol prior to testing.
 - 7.3.2.2 Any indication that the challenge aerosol is detected within the respirator indicates failure.
 - 7.3.2.3 If an employee passes the quantitative fit test, the respirator used shall be assigned a fit factor of 100 and a protection factor of 10 regardless of the type of respirator.
 - 7.3.2.4 Respirators tested in this manner shall always be tested in the negative pressure mode.
- 7.3.3 If quantitative fit procedures are used, the equipment and procedures specified in Appendix A of 29 CFR 1910.134 shall be followed.

7.3.3.1 Respirators shall be tested in the negative pressure mode using identical face-pieces with P100 filters attached.

7.3.3.2 For tight fitting ½ mask respirators, a fit factor of 100 indicates passing.

7.3.3.3 For tight fitting full-face respirators, a fit factor of 500 indicates passing.

7.4 Respirator Use

7.4.1 Prior to use of a respirator on-site, the supervisor or superintendent shall prepare a site specific respiratory protection plan. The plan shall include:

7.4.1.1 Choice of respirator, based on the criteria listed in 7.1.1

7.4.1.2 Rationale for respirator selection, based on the hazards

7.4.1.3 Backup monitoring data, as indicated by samples performed prior to project commencement

7.4.1.4 Respiration filter cartridge/canister change-out schedule: filters shall be changed whenever an increase in breathing resistance is detected. This shall be done prior to each entry into a contaminated area

7.4.1.5 Anticipated hazards to be encountered, including concentration

7.4.2 No employee shall wear a respirator if facial hair may interfere with the seal

7.4.3 If the supervisor, employee, or physician believes that a respirator may not be fitting for any reason, the employee shall immediately return for a repeat fit test

7.4.4 Prior to entering a potentially hazardous atmosphere, an employee shall perform, and pass, a user seal check as described in 29 CFR 1910.134, Appendix B

7.4.5 If at any time, an employee detects vapor or gas breakthrough, changes in breathing resistance, or any indication of respirator

failure, he/she shall immediately leave the contaminated area and notify the supervisor

- 7.4.6 Employees shall be allowed to wash respirators and their faces, replace filter, cartridges, canisters, etc., repair or replace their respirator as necessary to minimize irritants and ensure proper protection

7.5 Use of Respirators in Emergency or IDLH Conditions

- 7.5.1 No employee shall enter an IDLH atmosphere or any hazardous atmosphere under emergency conditions unless he/she has been specifically trained and authorized to do so
- 7.5.2 Emergency or IDLH conditions shall be handled as permit-required confined space entrance and in accordance with the requirements of Section 16, except as follows:
 - 7.5.2.1 Entry shall be allowed provided that an SCBA operating in pressure demand mode or an airline respirator operating in pressure demand mode with an SCBA escape provision is used
 - 7.5.2.2 The same respiratory protection as described in Paragraph 7.5.2.1 shall be immediately available to the attendants and there shall be at least two attendants
- 7.5.3 EEI employees will not fight structural fires

7.6 Maintenance and Care of Respirators

- 7.6.1 Employees shall not share respirators
- 7.6.2 Respirators shall be cleaned and disinfected as necessary to be maintained in a sanitized condition. This shall be done by using individually-wrapped alcohol pads to wipe all surfaces of the respirator, including valves, prior to every use
- 7.6.3 Respirators used for fit testing shall be cleaned and disinfected before and after each use by any user, as described in 7.6.2

- 7.6.4 SCBA's or other respirators used for emergency IDLH use shall be cleaned and disinfected by the user upon assignment of the respirator and again after the user has finished with the respirator and prior to returning it to storage
- 7.6.5 Respirators shall be stored in the following manner:
 - 7.6.5.1 Respirators shall be stored in a clean and sanitary location.
 - 7.6.5.2 Respirators shall be protected from moisture, dust, sunlight, and extreme temperatures.
 - 7.6.5.3 Respirators shall be protected from deformity that may damage face pieces, valves, or other parts.

7.7 Inspections

- 7.7.1 Respirators used routinely shall be inspected before, during, and after each use and during cleaning.
- 7.7.2 Respirators shall be discussed and inspected during cleaning.
- 7.7.3 SCBA's shall also be inspected at least monthly as specified by the manufacturer.
- 7.7.4 Air cylinders shall be maintained fully charged and shall be recharged when they fall to 90% of capacity.
- 7.7.5 SCBA's and air cylinders shall be tagged with the inspection date, inspector's name, and results of inspection including repairs needed, serial number, or other identification of the unit.
- 7.7.6 Inspections shall include:
 - 7.7.6.1 Check of functions and tightness of connectors.
 - 7.7.6.2 Check of condition of all parts.
 - 7.7.6.3 Check of electrometric parts for deterioration or deformity.

7.8 Repairs

- 7.8.1 Damaged parts shall be replaced.
- 7.8.2 Damaged parts shall be repaired only by the manufacturer.
- 7.8.3 Regulators, reducing, and admission valves and alarms shall only be repaired or adjusted by the manufacturer.

7.9 Breathing Air Quality

- 7.9.1 Breathing air shall be Grade D or better.
- 7.9.2 Moisture content shall be low enough such that separated water does not occur and dew point is <-50°F at 1 atm.
- 7.9.3 Compressed air shall be passed through a sorbent bed and filter assembly manufactured for the purpose.
 - 7.9.3.1 The filter system shall be maintained according to manufacturer's instructions.
 - 7.9.3.2 Filter beds shall be tagged showing date of last filter/sorbent change and signature of the person who changed them.
- 7.9.4 Oil lubricated compressors shall be equipped with a high temperature alarm and with a CO alarm at the compressor or at the sorbent/filter system.

7.10 Training

- 7.10.1 Employees shall be trained in the following as a minimum:
 - 7.10.1.1 Why the respirator is necessary,
 - 7.10.1.2 The effect of improper fit, usage, and maintenance,
 - 7.10.1.3 Capabilities and limitations of the respirator,
 - 7.10.1.4 Use of respirator in emergencies,
 - 7.10.1.5 Inspections and fit checks,
 - 7.10.1.6 How to don and doff,
 - 7.10.1.7 Maintenance and storage,
 - 7.10.1.8 Medical signs and symptoms that contraindicate respirator use
 - 7.10.1.9 The contents of the Standard
- 7.10.2 A copy of Appendix D shall be given to each employee.
- 7.10.3 Training shall be repeated annually and whenever conditions warrant retraining.

7.11 Program Evaluation

The respirator program administrator shall evaluate the program's effectiveness at least annually by interviewing employees and soliciting their opinions, verifying fit tests and medical records, evaluating air monitoring results, and verifying proper storage and maintenance.

7.12 Record Keeping

Records shall be maintained at each office and at the corporate office.

8. Hazard Communication Program

8.1 Introduction

As stated in the Hazard Communication Standard (HCS), the HCS is based on a simple concept - that employees have both a need and a right to know the hazards and identities of the chemicals they are exposed to when working. They also need to know what protective measures are available to prevent adverse effects from occurring. The HCS is designed to provide employees with the information they need.

8.2 Chemical Inventory

A list of potentially hazardous chemicals that EEI personnel may be exposed to and that EEI is aware of, is included in the chemical inventory located at the end of this section. Each project Manager shall ensure that this list and a copy of all MSDS's, or an abridged list of all chemicals that may be present on a particular job site and the MSDS's for them, are present at the job site. All EEI personnel will be informed of the presence of this information and its location.

8.3 Training

8.3.1 Initial Training

8.3.1.1 EEI personnel shall be trained in the contents of this program before they are assigned to any work where they may encounter hazardous chemicals.

8.3.1.2 Training shall include the following:

8.3.1.2.1 Contents of the HCS

8.3.1.2.2 Contents of the EEI Hazard Communication Program (HCP)

8.3.1.2.3 Explanation of the MSDS and how to understand it

8.3.1.2.4 Location of MSDS's, HCP, and chemical inventories

8.3.1.2.5 A description of operations personnel may be involved with and the hazardous chemicals that may be present.

8.3.1.2.6 How to detect the release of chemicals (odor, visual clues, etc.)

8.3.1.2.7 The hazards of the chemicals.

8.3.1.2.8 How to protect themselves from exposure to the chemicals, including any emergency procedures that may be in place.

8.3.2 Annual Training

EEI personnel shall be retrained as described above at least annually.

8.3.3 Periodic Training

8.3.3.1 At the site safety meetings, each employee shall be informed of the specific chemicals, hazards, and protective measures applicable to the job site before any work is begun. He shall also be informed of the location on the site of the chemical inventory and the MSDS's that apply to this work.

8.3.3.2 Where non-routine tasks are to be performed, specific information as to the hazards and appropriate protective measures for that task are to be discussed with EEI personnel before the work is accomplished.

8.3.4 Record Keeping

The Corporate Health and Safety Manager shall maintain records of employee training. A copy of these records shall be maintained at each regional office.

8.4 Procurement

8.4.1 No potentially hazardous material may be received and used unless an MSDS either accompanies the delivery or is on file.

8.4.2 In order to obtain an MSDS, the following procedures shall be followed:

8.4.2.1 When ordering material via purchase order, include the request for an MSDS on the purchase order.

8.4.2.2 When picking up a potentially hazardous material (for example, paint thinner at the hardware store) request an MSDS. If it is not delivered with the material, then the material may not be used until the MSDS is received.

8.4.3 If an MSDS is not delivered with the material, contact the manufacturer and request a fax of the MSDS.

8.4.4 If no MSDS can be obtained, return the material to the supplier. The manufacturer and supplier are required, by law, to provide the MSDS.

8.5 Labels and Other Forms of Warning

8.5.1 Labels

8.5.1.1 All material received from the supplier or manufacturer shall be labeled by the manufacturer. Such label shall include at least the following information:

8.5.1.1.1 Name of the material as it appears on the MSDS

8.5.1.1.2 Chemical identity

8.5.1.1.3 Hazard Warnings

8.5.1.1.4 Name and address of the manufacturer, importer, or other responsible party

8.5.1.2 All material transferred to another container for the exclusive use of the employee who performed the transfer and in an amount of no more than that which will be used on that shift, shall be labeled with the name of the material as it appears on the original label.

8.5.1.3 If a material is transferred to another container and will not be used as described in 8.5.1.2, the container shall be labeled with all information described in 8.5.1.1

8.5.1.4 All labels must contain information in English. The project manager shall ensure that those employees who do not speak English are informed of the label information verbally or an additional label in the appropriate language shall be added.

8.5.1.5 Unlabeled containers will not be permitted.

8.5.1.6 Illegible or defaced labels will be replaced by the project superintendent.

8.5.2 Warnings

8.5.2.1 The project manager shall ensure that all employers on a work site are aware of the work being conducted by EEI and of the exclusionary areas that will be set up.

8.5.2.2 The project manager shall also ensure that the other employers are aware of the chemicals to be used by EEI, the location of the inventory, and the location of MSDS's.

8.5.2.3 If employees of other employers are to be in an area where they may be exposed to chemicals used by EEI, then the EEI project manager shall ensure that they are trained in the hazards, appropriate safeguards, means to recognize a release, and other matters as required by the HCS.

8.6 Evaluation of the Effectiveness of the Program

8.6.1 The Corporate Safety and Health Manager will review the program annually as follows:

8.6.1.1 The HCS will be reviewed for changed requirements; any changes will be incorporated into the HCP.

8.6.1.2 Each Regional Office will be audited for compliance annually. The audit will consist of at least the following:

8.6.1.2.1 Spot check of chemicals to verify that they are listed on the chemical inventory and that a MSDS is available

- 8.6.1.2.2 Interview employees to verify training and understanding.
- 8.6.1.2.3 Spot check of MSDS's to verify adequacy
- 8.6.1.2.4 Spot check of containers to verify labeling
- 8.6.1.3 At least one field site audit will be conducted for each Regional audit.
- 8.6.1.4 A report of audit results will be forwarded to the CEO and to each Regional Manager. All discrepancies must be corrected in a timely manner.

CHEMICAL INVENTORY

Asbestos, all forms

Diesel Fuel

Gasoline

Heating Oil

Lead, elemental

9. Blood borne Pathogens Exposure Control Program

9.1 Introduction

In order to protect EEI Personnel from the hazards of blood borne pathogen exposure in the workplace and to comply with the OSHA regulations concerning blood borne pathogens, this Blood Borne Pathogens Exposure Control Program (BPP) has been developed. The BPP contains provisions to

- Help control employee occupational exposure to blood or certain other body fluids
- Comply with the OSHA Blood Borne Pathogens Standard, 29 CFR 1910.1030
- Identify areas in EEI work where there exists a potential for exposure according to the Standard

9.2 Exposure Determination

9.2.1 Employee Classifications in which all employees have occupational exposure to blood borne pathogens:

9.2.1.1 Project Manager

9.2.1.3 Project Superintendent

9.2.1.3 Response Technicians

9.2.2 Tasks and procedures in which exposure to blood borne pathogens may occur:

9.2.2.1 First Aid Response

9.2.2.2 Permit Required Confined Space Rescue

9.3 Method of Implementation of Controls

9.3.1 Since exposures to blood borne pathogens are not expected except for first aid applications primarily at field sites, most engineering controls are not feasible.

9.3.2 First aid kits will be equipped with the following personal protective equipment for use by the first aid provider:

- 9.3.2.1 An airway with bypass valve or resuscitation bag
- 9.3.2.2 At least 3 pairs of surgical gloves
- 9.3.2.3 A face shield for use in the event of arterial bleeding or other situations where eye, face, or mouth contact with body fluids is possible
- 9.3.2.4 A disposable lab coat or gown
- 9.3.2.5 Antiseptic towelettes and an antiseptic hand cleaner
- 9.3.2.6 Note:
 - 9.3.2.6.1 There are BBP kits commercially available that will meet the PPE requirements.
 - 9.3.2.6.2 PPE that may permit blood or other potentially infectious material to contaminate skin or clothing is not adequate
- 9.3.3 Universal precautions shall be observed at all times; all body fluids shall be considered potentially infectious materials.
- 9.3.4 After potential contact with body fluids, and after removal of PPE:
 - 9.3.4.1 Proceed to a hand washing facility
 - 9.3.4.2 Wash hands and any other potentially affected skin surfaces with antiseptic towelettes or antiseptic hand cleaner, or soap and warm water.
 - 9.3.4.3 If eyes or mucous membranes were in contact with bodily fluid, flush with water as soon as possible and seek medical attention.
- 9.3.5 Do not use sharp instruments other than scissors that may be necessary to remove clothing.
- 9.3.6 All equipment used in a first aid emergency that has contacted the patient is to be considered a biohazard and disposed of accordingly.
- 9.3.7 Any clothing that has been contaminated with body fluids shall be disposed of as biohazardous waste.

- 9.3.8 All personnel who are not first aid providers are to be kept away from the area of potential contagion.

9.4 Nonuse of PPE

- 9.4.1 In the event that the first aid provider determines that use of specific PPE will prevent him from providing health care, or that it increases the hazard to personnel, and does not use it, an after incident investigation of the circumstances shall be accomplished. The investigation shall document events and any changes that will prevent such an occurrence in the future.
- 9.4.2 The investigation will be conducted by the Corporate Safety and Health Manager.

9.5 Post Incident Cleanup

- 9.5.1 Any broken glassware that may be contaminated will not be picked up directly with the hands. Dustpans and hand brooms or forceps/tongs are available for use.
- 9.5.2 Decontamination of any surface exposed to blood or other potentially infectious materials will be accomplished by utilizing a bleach solution or any EPA regulated hospital disinfectant.
- 9.5.3 All contaminated work surfaces will be decontaminated after the completion of procedures and immediately or as soon as feasible after any spill of blood or other potentially infectious materials.
- 9.5.4 Waste shall be stored in appropriate biohazardous waste containers and so marked. These are available commercially. At least one such container shall be available at each job site.
- 9.5.5 All waste shall be disposed in accordance with local regulations. In North Carolina, the controlling agency is NCDEHNR.

9.6 Hepatitis B Vaccine

- 9.6.1 EEI shall make the Hepatitis B Vaccine and vaccination series available to all employees who have occupational exposure and post-exposure follow-up to employees who have had an exposure

incident. The Corporate Safety and Health Manager shall ensure that all medical evaluations and procedures including the Hepatitis B Vaccine and vaccination series and post-exposure follow-up, including prophylaxis are:

9.6.1.1 Made available at no cost to the employee

9.6.1.2 Made available to the employee at a reasonable time and place

9.6.1.3 Performed by or under the supervision of a licensed physician or other licensed health care professional

9.6.1.4 Provided according to the recommendations of the U.S. Public Health Services

9.6.2 All laboratory tests shall be conducted by an accredited laboratory at no cost to the employee. Doctor's Urgent Care at 420 Owen Drive in Fayetteville has been contracted to provide this service.

9.6.3 The Safety Manager is in charge of the Hepatitis B Vaccination Program. EEI has contracted with Doctor's Urgent Care to provide this service.

9.6.4 Hepatitis B Vaccinations shall be made available after the employee has received the training in occupational exposure and within ten (10) working days of initial assignment to all employees who have occupational exposure and unless the employee has previously received complete Hepatitis B Vaccination Series, antibody testing has revealed that the employee is immune or the vaccine is contraindicated for medical reasons.

9.6.4.1 Participation in a pre-screening program shall not be a prerequisite for receiving a Hepatitis B vaccination.

9.6.4.2 If the employee initially declines the Hepatitis B vaccination, but at a later date while still covered under the Standard decides to accept the vaccination, the vaccination shall be made available.

9.6.4.3 All employees who decline the Hepatitis B vaccine offered shall sign the OSHA required waiver indicating their refusal. The form is located at the end of this section.

9.6.4.4 If a routine booster dose of Hepatitis B vaccine is recommended by the U. S. Public Health Service at a future date, such booster shots shall be made available.

9.7 Post-Exposure Evaluation and Follow-Up

9.7.1 All exposure incidents shall be reported, investigated, and documented. When the employee incurs an exposure incident, it shall be reported according to EEI accident reporting procedures.

9.7.2 Following a report of an exposure incident, the exposed employee shall immediately receive a confidential medical evaluation and follow-up, including at least the following elements:

9.7.2.1 Documentation of the route of exposure and the circumstances under which the exposure incident occurred.

9.7.2.2 Identification and documentation of the source individual, unless it can be established that identification is infeasible or prohibited by state or local law.

9.7.2.3 The source individual's blood shall be tested as soon as feasible and after consent is obtained in order to determine HBV and HIV infectivity. If consent is not obtained, the Safety Manager shall establish that legally required consent cannot be obtained. When the source individual's consent is not required by law, the source individual's blood, if available, shall be tested and the results documented.

9.7.2.4 When the source individual is already known to be infected with HBV or HIV, testing of the source individual's known HBV or HIV status need not be repeated.

- 9.7.2.5 Results of the source individual's testing shall be made available to the exposed employee and the employee shall be informed of applicable laws and regulations concerning disclosure of the identity and infectious status of the source individual.
- 9.7.3 Collecting and testing of blood for HBV and HIV serological status will comply with the following:
 - 9.7.3.1 The exposed employee's blood shall be collected as soon as feasible and tested after consent is obtained.
 - 9.7.3.2 The employee will be offered the option of having their blood collected for testing of the employee's HIV/HBV serological status. The blood sample will be preserved for up to 90 days to allow the employee to decide if the blood should be tested for HIV serological status.
- 9.7.4 All employees who incur an exposure incident will be offered post-exposure evaluation and follow-up in accordance with the OSHA Standard. All post-exposure follow-ups will be performed by Doctor's Urgent Care.
- 9.7.5 The Safety Manager will ensure that the health care professional responsible for the employee's Hepatitis B vaccination is provided the following:
 - 9.7.5.1 A copy of 29 CFR 1910.1030 (Occupational Exposure to Blood Borne Pathogens).
 - 9.7.5.2 A written description of the exposed employee's duties as they relate to the exposure incident.
 - 9.7.5.3 Written documentation of the route of exposure and circumstances under which exposure occurred.
 - 9.7.5.4 Results of the source individual's blood testing, if available.

- 9.10.1.2.1 The name and social security number of the employee.
- 9.10.1.2.2 A copy of the employee's HBV vaccination status, including the dates of vaccination.
- 9.10.1.2.3 A copy of all results of examinations, medical testing, and follow-up procedures.
- 9.10.1.2.4 A copy of the information provided to the health care professional including a description of the employee's duties as they relate to the exposure incident and documentation of the routes of exposure and circumstances of the exposure.

9.10.2 Note: For OSHA 200 Record Keeping purposes, an occupational blood borne pathogens exposure incident shall be classified as an injury since it is usually the result of an instantaneous event or exposure. It shall be recorded if it meets the record ability requirements.

9.10.3 Training Records

- 9.10.3.1 The Corporate Safety and Health Manager is responsible for maintaining the following training records. These records will be kept within EEI's Operations Department
- 9.10.3.2 Training records shall be maintained for a minimum of three (3) years from the date of training. The following information shall be documented:
 - 9.10.3.2.1 The dates of the training sessions.
 - 9.10.3.2.2 An outline describing the material presented.
 - 9.10.3.2.3 The names and qualifications of persons conducting the training.

9.10.3.2.4 The names and job titles of all persons attending the training sessions.

9.10.3.3 Availability

9.10.3.3.1 All employee records shall be made available to the employee in accordance with 29 CFR 1910.20.

9.10.3.3.2 All employee records shall be made available to the Assistant Secretary of Labor for the Occupational Safety and Health Administration and the Director of the National Institute for Occupational Safety and Health upon request.

9.10.3.4 Transfer of Records

If the company is closed or there is no successor employer to receive and retain the records for the prescribed period, the Director of the NIOSH shall be contacted for final disposition.

9.10.3.5 Evaluation and Review

The Corporate Safety and Health Manager, in conjunction with the supervisors concerned, are responsible for annually reviewing this program for its effectiveness and for updating this program as needed.

9.11 Subcontractors

Subcontractors are required to comply with the Blood Borne Pathogens Standard. They must show that their personnel have been trained in accordance with a program that is at least as effective as EEI's program.

**HEPATITIS B VACCINE DECLINATION
(MANDATORY)**

I understand that due to my occupational exposure to blood or other potentially infectious materials, I may be at risk of acquiring Hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B vaccine, at no charge to myself. However, I decline Hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If, in the future, I continue to have occupational exposure to blood or other potentially infectious materials and want to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Employee Signature

SSN

Date

Company Representative

Date

10. Lockout/Tagout Program

10.1 Introduction

This procedure establishes the minimum requirements for the lockout or tagout of energy isolating devices. It shall be used to ensure that the machines or equipment are isolated from all potentially hazardous energy, and locked out or tagged out before employees perform any servicing or maintenance activities where the unexpected energization, start-up, or release of stored energy could cause injury.

10.2 Types and Magnitude of Energy and Hazards

10.2.1 Hazardous Energy Sources

All employees must recognize the hazardous energy sources which require lockout/tagout, so they can protect themselves. These energy sources include:

- 10.2.1.1 Electrical
- 10.2.1.2 Hydraulic
- 10.2.1.3 Chemical
- 10.2.1.4 Thermal
- 10.2.1.5 Other

10.2.2 Office Hazards

Some of the specific types of hazards present at EEI include:

<u>Type</u>	<u>Locations</u>
Electrical	Various electrical equipment
Hydraulic	Fork lift cylinders
Other	Fan belts on various machines

10.2.3 Job Site Hazards

- 10.2.3.3 Many of the situations that call for lockout/tagout procedures will be at facilities not owned by EEI. In these situations it will be the responsibility of the project manager to obtain a copy of our clients lockout/tagout procedures and follow them.

10.5 Lockout/Tagout System Procedure

When preparing for lockout/tagout make a survey to locate and identify all isolating devices to be certain which switch(s), valve(s), or other energy isolating devices apply to the equipment to be locked or tagged out. More than one energy source (electrical, mechanical, or other) may be involved. See the LOCKOUT/TAGOUT PROCEDURES FOR MULTIPLE ENERGY SOURCES form at the end of this section.

10.5.1 Basic Rules for Using Lockout or Tagout System Procedure

10.5.1.1 All equipment shall be locked out or tagged out to protect against accidental or inadvertent operation when such operation could cause injury to personnel.

10.5.1.2 Do not attempt to operate any switch, valve, or other energy-isolating device where it is locked or tagged out.

10.5.2 Lockout/Tagout Sequence

10.5.2.1 Notify all affected employees that a lockout or tagout system is going to be utilized and the reason therefore. The authorized employee shall know the type and magnitude of energy that the machine or equipment utilizes and shall understand the hazards thereof.

10.5.2.2 If the machine or equipment is operating, shut it down by the normal stopping procedure (depress stop button, open toggle switch, etc.)

10.5.2.3 Operate the switch, valve, or other energy isolating device(s) so that the equipment is isolated from its energy source(s). Stored energy (such as that in springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or

water pressure, etc.) must be dissipated or restrained by methods such as repositioning, blocking, bleeding down, etc. (Describe type(s) of Stored Energy-methods to dissipate or restrain).

10.5.2.4 Lockout and/or tagout the energy isolating devices with assigned individual lock(s) or tag(s). (Describe method(s) selected; i.e., locks, tags, additional safety measure, etc.)

10.5.2.5 After ensuring that no personnel are exposed, and as a check on having disconnected the energy sources, operate the normal operating controls to make certain the equipment will not operate (Describe type(s) of equipment checked to ensure disconnection). **Caution: Return operating control to “neutral” or “off” position after test.**

10.5.2.6 The equipment is now locked out or tagged out.

10.5.3 Testing or Positioning of Machines, Equipment, or Components

In some cases it may be necessary for authorized employees to briefly remove their lockout/tagout devices for testing or positioning machines, equipment, or components thereof. All such cases must be approved by supervision and before removing the lockout/tagout devices, the authorized employee clears the machine/equipment and removes potentially exposed employees. Once the machine/equipment is clear, remove the lockout/tagout devices just long enough to perform the controlled testing or positioning. Ensure that employees are not and will not be exposed to injury. Energize the machine/equipment and proceed with the testing/positioning. Immediately following the testing/positioning de-energize the machine/equipment and reapply the lockout/tagout device(s).

10.5.4 Restoring Machines or Equipment to Normal Production Operations

- 10.5.4.1 After the servicing and/or maintenance is complete and equipment is ready for normal production operations, Check the area around the machines or equipment to ensure that no one is exposed.
- 10.5.4.2 After all tools have been removed from the machine or equipment, guards have been reinstalled and employees are in the clear, remove all lockout or tagout devices. Operate the energy isolating devices to restore energy to the machine or equipment.

10.5.5 Procedure Involving More Than One Person

- 10.5.5.1 In the preceding steps, if more than one individual is required to lockout or tagout equipment, each shall place his/her own personal lockout device or tagout device on the energy isolating device(s).
- 10.5.5.2 When an energy-isolating device cannot accept multiple locks or tags, a multiple lockout or tagout device (hasp) may be used.
- 10.5.5.3 If lockout is used, a single lock may be used to lockout the machine or equipment which allows the use of multiple locks to secure it.
- 10.5.5.4 Each employee will then use his/her own lock to secure the box or cabinet.
- 10.5.5.5 As each person no longer needs to maintain his/her lockout protection, that person will remove his/her lock from the box or cabinet.
- 10.5.5.6 List name(s)/job title(s) of employees authorized for group lockout or tagout.

10.5.6 Tagout Only - When tagout is the only method used to secure an energy source, the Tagout System Justification form in the back of this section must be used.

10.6 Group Lockout/Tagout Procedure

- 10.6.1 Some servicing and maintenance jobs involve numerous energy sources and multiple lockout/tagout devices, such as boiler shutdowns/overhauls and chemical process shutdowns. This group lockout/tagout procedure provides a method for complying with the procedure and eliminates the need for authorized employees to use more than one lockout/tagout device.
- 10.6.2 Servicing and maintenance jobs involving the case of multiple lockout/tagout devices and numerous authorized employees may be designated as group lockout/tagout jobs by supervision of the authorized employee involved.
- 10.6.3 Once the decision has been made by supervision to use the group lockout/tagout procedure, an authorized employee must be designated as the person having the primary responsibility for coordinating the group lockout/tagout. This individual is responsible for ensuring that all steps of the lockout/tagout procedure are complied with including all other steps involved with the group lockout/tagout.
- 10.6.4 To assist the authorized group lockout/tagout coordinator, the Group Lockout/Tagout form in the back of this section should be completed. This form will remind the coordinator of the requirements and will serve as a written record that the necessary steps were taken. Each job is different, and special procedures and instructions will apply. Thus, the authorized group lockout/tagout coordinator must thoroughly analyze each job and include all the necessary precautions regardless of what is recorded on the form.

10.6.5 Steps for Group Lockout/Tagout

- 10.6.5.1 Thoroughly review the job machinery, equipment, and process with the operating and servicing/maintenance groups to ensure that all potential sources of hazardous energy, including residual energy, are known and understood. Discussions may be held with other groups, such as maintenance, electrical, and utility groups, to ensure proper identification and control of energy sources. The information obtained must be recorded on the Group Lockout/Tagout in the back of this section.
- 10.6.5.2 Shutdown - The equipment, machinery, process-operating group should shut down the operation and designate it ready for servicing/maintenance. In most cases the operating group would clean, flush, or in some way render the equipment, machinery, or process safe to perform the servicing/maintenance. When this is not down, the operating group should specify how the equipment, machinery, or process should be rendered safe.
- 10.6.5.3 Energy Source Isolation - The authorized group lockout/tagout coordinator and an operating group authorized employee designated by supervision must identify, locate, and isolate all energy sources associated with the job. They must also identify, locate, and prepare relief devices for ensuring that residual or accumulated energy creates no employee hazard. All energy isolation devices/relief's are recorded on the Group Lockout/Tagout Device Locations form in the back of this section.

- 10.6.5.4 Lockout/Tagout Device Application Tests - The authorized group lockout/tagout coordinator applies the lockout/tagout devices to the identified energy isolation devices and performs the required tests to ensure the energy has been isolated and will not re-accumulate. In some cases the designated operating group's authorized employee may also apply lockout/tagout devices as instructed by supervision. A notation will be made on the form that the device was applied.
- 10.6.5.5 Keys/Lockout Box - All keys to lockout devices must be placed in a lockout box (a similar securing device) and locked by the authorized group lockout/tagout coordinator. The group Lockout/tagout form and the group lockout/tagout device location form will be kept with the lockout box. A specific, convenient secure location will be designated for the lockout/tagout box so all authorized employees working on the job will know where it is. This location will be recorded on the group lockout/tagout form.
- 10.6.5.6 Employees - All authorized employees working on the group lockout/tagout job must apply their individual lockout/tagout device to the lockout box prior to beginning work on the job. They should review the job description and other pertinent comments described on the forms kept with the lockout box.

- 10.6.5.6.1 Each employee is required to sign in on the Group Lockout/Tagout Employees form in the back of this when they apply their lockout/tagout devices to the lockout box. This form will be kept with the box.
- 10.6.5.6.2 Employees may observe the specific lockout/tagout device locations, if they desire, to ensure that proper lockout/tagout has been achieved. Usually the authorized group lockout/tagout coordinator will take the employees to the specific locations.
- 10.6.5.7 Shift/Crew Changes - The group lockout/tagout box must remain locked at all times until the authorized group lockout/tagout coordinator determines it is safe to remove the keys. Thus, the coordinator's lockout device usually stays on the box until the job is over. Other control procedures approved by the authorized group lockout/tagout coordinator may be used as necessary as long as employees are properly protected.
- 10.6.5.8 Job Completion - After the job is complete, the authorized group lockout/tagout coordinator and the designated operating group authorized employee reviews the complete job to ensure that it is safe to remove the lockout/tagout devices. Special precautions must be taken to ensure all employees are removed from danger and no employee hazard will result from removal of the lockout/tagout devices.

10.6.5.9 Lockout/Tagout Devices Removal - The authorized group lockout/tagout coordinator must review all the forms used during the job to ensure the job is complete and all employees are protected. Once this has been done, the authorized group lockout/tagout coordinator can remove higher lockout/tagout devices from the lockout box and all other energy isolation devices.

10.6.5.10 Records - All group lockout/tagout procedure forms (3) must be completed, signed, and filed in the designated record storage for future reference.

10.6.6 Since each group lockout/tagout is different, special procedures and precautions may be required which are not covered in the above steps. Thus, the authorized group lockout/tagout coordinator has the final authority to do what is required to ensure safety of all employees working on the job.

11. Heat Stress

11.1 Introduction

Work performed by EEI in hot weather, such as asbestos abatement, hazardous waste site activities, and other field work, especially those that require wearing semi-permeable or impermeable protective clothing, is likely to cause heat stress. It is difficult to predict who will be affected and when, because individual susceptibility varies. In addition, environmental factors include more than the ambient air temperature. Radiant heat, air movement, conduction, and relative humidity all affect the individual's response to heat.

11.2 Heat Stress Protocol

Site-specific heat stress protocol shall be developed when employees are required to work in conditions that increase the risk of heat stress. These conditions include wearing semi-permeable or impermeable clothing when the work-site adjusted temperature exceeds 70° F, working at extreme metabolic loads (hard, heavy labor, etc.).

11.3 Heat Stress Training

Employees who are required to work in conditions that increase the risk of heat stress shall be trained on:

11.3.1 Hazards of heat stress

11.3.1 Recognition of cause, danger signs and symptoms

11.3.3 First-aid procedures

11.3.4 Employee responsibilities in avoiding heat stress

11.3.5 Use of PPE and other equipment

11.3.6 Dangers of using drugs and alcohol in heat stress conditions

11.4 Factors That Can Cause Heat Stress

11.4.1 Factors that influence the body's tolerance to heat include:

11.4.1.1 Clothing which decreases natural body ventilation

11.4.1.2 Ambient temperatures of 70°F and above combined with the use of protective clothing

- 11.4.1.3 Physical intolerance to heat conditions, (people who have had episodes of advanced heat stress or heat stroke tend to have an intolerance to heat)
- 11.4.1.4 Poor physical conditioning
- 11.4.1.5 Improper heat conditioning or acclimatization
- 11.4.1.6 Excessive humidity conditions
- 11.4.1.7 Some medications, alcohol, and caffeinated drinks can cause the body to lose excess amounts of fluids
- 11.4.1.8 Gender (men usually have a higher tolerance to heat)
- 11.4.1.9 Obesity
- 11.4.1.10 Age (younger people usually have a higher tolerance to heat than those over 40)

11.5 Heat Stress Disorders

11.5.1 Heat Fatigue

- 11.5.1.1 Cause - Lack of acclimatization
- 11.5.1.2 Signs and Symptoms - Impaired performance of skilled sensor motor, mental, or vigilance jobs
- 11.5.1.3 Treatment - None, except to remove the individual from the heat before a more serious heat-related condition develops

11.5.2 Heat Rashes

- 11.5.2.1 Cause - Skin that is persistently wetted by unevaporated sweat
- 11.5.2.2 Signs and Symptoms - Usually appears as red papules (pimples) in areas where the clothing is restrictive
- 11.5.2.3 Treatment - Remove individual from heat, apply medicated powder to affected area

behavior, loss of consciousness, convulsions, a lack of sweating, hot, dry skin, and abnormally high body temperature

- 11.5.6.3 Treatment - This is a medical emergency, obtain professional help immediately. Place individual in cool area, remove outer clothing, wet skin, and create air movement, transport immediately

11.6 Heat Stress Management/Prevention

The effect of heat on the body may be managed or prevented by utilizing appropriate combinations of procedures, such as:

- 11.6.1 Acclimatization - A properly designed and applied acclimatization program decreases the risk of heat-related illnesses. Such a program basically involves exposing employees to work in a hot environment for progressively longer periods. NIOSH (1986) recommends that, for workers who have had previous experience in jobs where heat levels are high enough to produce heat stress, the regimen should be 50% exposure on day 1; 60% on day 2; 80% on day 3, and 100% on day 4. For new workers (new hires, office personnel, etc.), the regimen should be 20% on day 1, with a 20% increase in exposure each day.
- 11.6.2 Fluid Replacement - Cool (50-60°F) water or any cool liquid (except alcohol) should be consumed at the rate of one cup every 20 minutes. Being thirsty is not a good indicator as to when fluids should be replaced.
- 11.6.3 Schedule Activities - Conduct non-emergency response activities in the early morning or evening hours during hot weather. Avoid heat-of-the-day work conditions whenever possible.

11.5.3 Heat Collapse

- 11.5.3.1 Cause - Loss of oxygen to the brain because of blood pooling in the extremities
- 11.5.3.2 Signs and Symptoms - Loss of consciousness
- 11.5.3.3 Treatment - Remove individual from heat, give fluids

11.5.4 Heat Cramps

- 11.5.4.1 Cause - Performing hard physical labor in a hot environment. These cramps are mostly caused by an electrolyte imbalance from sweating
- 11.5.4.2 Signs and Symptoms - Muscular cramps, usually in the stomach and legs
- 11.5.4.3 Treatment - Remove the individual to a cool area and give fluids

11.5.5 Heat Exhaustion

- 11.5.5.1 Cause - Increased stress on the heat regulating process of the body in an effort to meet the body's cooling demands
- 11.5.5.2 Signs and Symptoms - Pale, clammy, moist skin, profuse sweating, headache, nausea, vertigo, weakness, thirst, and giddiness
- 11.5.5.3 Treatment - Remove the individual to a cool area, loosen clothing, place in a head low position, give fluids, consult a physician

11.5.6 Heat Stroke

- 11.5.6.1 Cause - A combination of highly variable factors. Though difficult to predict, generally occurs when the body's system of temperature regulation fails and the body's temperature rises to critical levels
- 11.5.6.2 Signs and Symptoms - Confusion, irrational

- 10.2.3.4 Lockout/tagout shall be coordinated through the clients maintenance department or others as specified by our client.

10.3 Responsibility

The lockout/tagout procedure applies to all affected employees whose job requires servicing and/or maintenance or employees working in areas where servicing and/or maintenance are performed. All employees who use lockout/tagout procedures must be authorized by supervision. The authorization requires special lockout/tagout instructions concerning the scope, purpose, authorization, rules, and techniques including, but not limited to:

- 10.3.1 Intended use of the procedure
- 10.3.2 Steps for shutting down, isolating, blocking, and securing
- 10.3.3 Steps for placement, removal and transfer of lockout/tagout devices and responsibility
- 10.3.4 Requirements for testing to determine and verify effectiveness of lockout/tagout devices and other measures

10.4 Instruction

Employees who will use the lockout/tagout procedure shall be instructed in the complete procedure including the safety significance of the lockout/tagout procedure. The names, job titles, and department of all authorized employees must be maintained in each department and available to supervision and employees at all times during work hours. Each new or transferred affected employee and other employees whose work operations are or may be in the area where lockouts/tagouts are used shall be instructed in the purpose and use of the lockout/tagout procedure. A list of all affected employees receiving instruction shall be maintained in each office and available to supervision and employees at all times during working hours. This list must include the same information as required above. See Training Log form at the end of this section.

- 11.6.4 Increase Air Flow - As long as the air temperature is less than 95°F, increased air flow through the use of fans, etc., will help reduce heat stress. However, increases in air speed have no effect on the body temperatures of workers wearing vapor-barrier clothing.
- 11.6.5 Shields - Radiant heat can be reduced by the use of shields. For example, a tarp could be used to shield employees from the sun or a piece of plywood could be used to shield an employee from hot exhaust from a piece of equipment.
- 11.6.6 Showers - Hose-down or mobile showers can be used to cool protective clothing and reduce body temperature.
- 11.6.7 Cool Vests - Commercially available ice or cool vests may be used to help control body temperature. The cooling offered by ice packets lasts only two to four hours at moderate to heavy heat loads, making frequent replacement necessary. However, ice vests do not encumber the worker and, thus, permit maximum mobility.
- 11.6.8 Work/Rest Schedule Management - The following work/rest schedule should be used when temperatures exceed an adjusted temperature in excess of 70°F and Level B/C protection is required.

Adjusted Ambient <u>Air Temperature °F</u>	Active Work Time (min/hr) <u>Using Level B/C Protection</u>
75 or less	50
80	40
85	30
90	20
95	10
100	0

11.7 Calculations

1.7.1 Adjusted ambient air temperature

$$T(\text{adjusted}) = T(\text{actual}) + 13 \times \text{Fraction of sunshine}$$

1.7.2 Fraction of Sunshine

100% sunshine = no cloud cover = 1.0

50% sunshine = 50% cloud cover = 0.5

0% sunshine = 100% cloud cover = 0.0

Actual temperature is the temperature in the work area measured with a standard thermometer.

11.8 Heat Stress Monitoring

All employees who work in conditions that increase the risk of heat stress have the responsibility of personally monitoring themselves. Personal monitoring can be done by checking the heart rate, recovery heart rate, oral temperature, or extent of body water loss. Heart rate and oral temperature should be monitored at the beginning of each rest period, and body water loss should be measured at the beginning and end of each day.

11.8.1 Heart Rate - Count the radial pulse for 30 seconds at the beginning of the rest period, and multiply by 2 to get the heart rate per minute. The radial pulse can be found by exerting slight pressure on the thumb side of the wrist with the middle and ring fingers.

11.8.1.1 If the heart rate exceeds 110 beats per minute, shorten the next work period by one-third and maintaining the same rest period

11.8.2 Oral Temperature - Use a clinical thermometer (3 minutes under the tongue) or similar device to measure the oral temperature at the end of the work period (before drinking).

11.8.2.1 If the oral temperature exceeds 99.6°F, shorten the next work cycle by one-third.

11.8.2.2 If the oral temperature still exceeds 99.6°F at the beginning of the next rest period, shorten the following work cycle by one-third.

11.8.2.3 In no case shall an employee be allowed to work in semi permeable or impermeable clothing when his/her oral temperature exceeds 100.6°F.

11.8.3 Body Water Loss - Measure weight on a scale at the beginning and end of each work day. Weights should be taken using the same scales while the employee wears the same or similar clothing. If the difference in beginning weight and ending weight is greater than 1/5%, then not enough fluids were taken in during the day to replace the water loss through perspiration. Liquid intake should be increased the next day.

HEAT STRESS MONITORING LOG

Employee: _____

Project: _____

[illegible]

12. Cold Stress

12.1 Introduction

Exposure to cold may cause severe injury to the surface of the body or result in profound generalized cooling, which may lead to death. Cold stress can be divided into two specific conditions, frostbite and hypothermia. The conditions can occur singularly or simultaneously.

12.2 Cold Stress Protocol

Site-specific cold stress protocol shall be developed when EEI employees are required to work in conditions that increase the risk of cold stress.

12.3 Cold Stress Training

Employees who are required to work in conditions that increase the risk of cold stress shall be trained on:

12.3.1 Hazards of cold stress

12.3.2 Recognition of cause, danger signs and symptoms

12.3.3 First-aid procedures

12.3.4 Employee responsibilities in avoiding cold stress

12.3.5 Use of PPE and other equipment

12.3.6 Dangers of using drugs and alcohol in cold stress conditions

12.4 Factors That Can Cause Cold Stress

Factors that can lead to a cold-related injury and those that can increase the harmful effects of cold are:

12.4.1 Ambient temperature

12.4.2 Wind velocity - Wind velocity added to the ambient temperature produces a chilling effect to the skin (wind chill), which can be much lower than the actual ambient temperature. As a general rule, the greatest incremental increase in wind chill occurs when a wind of 5 mph increases to 10 mph.

12.4.3 Age - Very young and very old people normally have a lesser tolerance to cold.

12.4.4 Wet Clothing - Water conducts heat 240 times faster than air; thus, the body can cool very rapidly when clothing is wet.

12.4.5 Alcohol and certain medication

12.4.6 Fatigue

12.5 Cold Stress Disorders

12.5.1 Hypothermia

12.5.1.1 Cause - Exposure of the body to temperatures, which cause the body's temperature to drop. This can be caused by exposure to freezing or rapidly dropping temperatures, being submerged in water, or wearing wet clothing for a sufficient length of time to cause the body's temperature to drop.

12.5.1.2 Signs and Symptoms - Usually exhibited in 5 stages:

12.5.1.2.1 Uncontrollable shivering

12.5.1.2.2 Apathy, listlessness, sleepiness

12.5.1.2.3 Unconsciousness, glassy stare, slow pulse, and slow respiration rate

12.5.1.2.4 Freezing of the extremities

12.5.1.2.5 Death

12.5.1.3 Treatment - Move patient to a warm area, remove wet clothes, wrap in blankets, give warm fluids (only if conscious), apply warm cloths to areas where major blood vessels come close to the body surface (neck, underarms, front of elbow, behind knees, wrist, ankles).

12.5.2 Frostbite

12.5.2.1 Types - Local injury resulting from cold is included in the generic term frostbite. There are three degrees of frostbite, which can be characterized as:

- 12.5.2.1.1 Frost nip or incipient frostbite -
Characterized by sudden blanching or
whitening of the skin.
- 12.5.2.1.2 Superficial frostbite - Characterized by skin
with a waxy or white appearance which is
firm to the touch, however, tissue beneath
the skin surface is resilient.
- 12.5.2.1.3 Deep frostbite - Characterized by tissues that
are cold, pale, and solid.
- 12.5.2.1.4 Cause - Exposure to freezing temperatures
or touching objects whose temperatures are
less than 32°F. Ice crystals form in the
exposed body tissue (usually the nose, ears,
chin, cheeks, fingers, or toes), restricting
blood flow to these areas.
- 12.5.2.2 Signs and Symptoms - The first sign of frostbite
may be tingling and redness, followed by paleness
and numbness of the affected area. Developmental
degrees include:
 - 12.5.2.2.1 The area becomes hot in sensation
 - 12.5.2.2.2 Blisters form
 - 12.5.2.2.3 Due to the lack of circulation, tissue death
occurs and the effected area stats to decay
(gangrene)
- 12.5.2.3 Treatment - Move patient to warm area, place the
injured part in warm (102°F to 105°F) water. After
30 minutes of warming the injured part, elevate the
part if possible. If blisters form, do not allow them
to become broken, wrap loosely in sterile wraps.
Seek professional medical attention.

12.6 Cold Stress Management/Prevention

When field activities must be performed during times when ambient air temperatures are rapidly dropping or cold, with or without the wind chill factor, cold stress prevention procedures should be used. The effects of cold on the body may be managed or prevented by utilizing appropriate procedures and clothing.

- 12.6.1 Layered/loose/dry clothing - Loose layered clothing allows air pockets to form, which are warmed by the body; thus, maintaining body warmth. The most effective mix is cotton or wool underneath, with something waterproof on top. If clothing gets wet, change immediately.
- 12.6.2 Head coverings - A hat is critical because you can lose up to 40% of your body temperature through your head.
- 12.6.3 Breaks - Plan for warming breaks in areas with heaters if possible. At a minimum, breaks should be in areas out of the wind.
- 12.6.4 Fluids - Maintain warm fluids (non-alcoholic), such as soup, cider, hot chocolate, etc., in the break area.

13. Hazardous Waste Operations - Remediation and Emergency Response – Safety and Health Program

29 CFR 1910.120 contains specific elements that are required to be present in a safety and health program that is associated with hazardous waste site remediation. Much of these requirements are covered in various sections of the general health and safety manual. In order to be clear and to reduce redundancy, the required elements will be listed and addressed in this section. Where they are addressed by other sections of this manual, it shall be so noted.

13.1 Organizational Structure - See Section 1 of this manual.

13.2 Work Plan - is included in the site-specific safety and health plan.

13.3 Training - See Section 5.1 of this manual.

13.4 Medical Surveillance Program - See Section 5.4 of this manual.

13.5 Standard Operating Procedures for Safety and Health - See Section 5 of this manual.

13.6 Interface between general program and site specific activities

13.6.1 The health and safety manual is a general program for protection of EEI personnel. It is not intended to be as specific as the site-specific safety and health plan.

13.6.2 A site safety and health plan will follow the procedures and requirements of the general health and safety manual but it will expand on those requirements where necessary. It will be specific to a particular job and job site.

13.7 Site Excavation

Any excavations shall be shored or sloped, as appropriate to prevent collapse. The requirements of 29 CFR 1926 Subpart P shall be met. In addition, the requirements of Section 5.6 of this manual shall be met.

13.8 Subcontractors

Subcontractors performing work on EEI project sites shall be familiar with and comply with the requirements of this manual and the site-specific safety and health plan.

13.9 Program Availability

A copy of this manual shall be available at each EEI office and each job site. Where it is required, a copy of the site-specific safety and health plan shall also be maintained at each job site.

13.10 Site Specific Health and Safety Plan

13.10.1 When conducting hazardous chemical remediation operations, including hydrocarbon remediation operations, a site-specific safety and health plan must be developed and implemented.

13.10.2 The form and content of the plan shall be as indicated in the document entitled "Site Specific Health and Safety Plan."

13.10.2.1 In order to assist in development of the site specific safety and health plan, a copy of this document is available on disk.

13.10.3 Any variations to this form shall be approved by the Corporate Health and Safety Officer and the Regional Manager.

13.10.4 The Project Manager and Project Superintendent shall be aware of site conditions and verify that the form of the plan and its content are appropriate or they shall recommend changes.

14. Asbestos Operations

14.1 General

14.1.1 No employee may work on an asbestos job site unless he/she is accredited or license as worker or supervisor in the appropriate state.

14.1.1.1 Where licensing is not required in that state, he/she shall be accredited or licensed in at least one other state.

14.1.1.2 Licensing or accreditation shall be sufficient evidence that training requirements have been met.

14.1.1.3 Copies of accreditation/licensing and training documentation shall be maintained at the Corporate office and on the job site.

14.1.2 No employee may work on an asbestos job site unless he/she has been medically determined to be fit for the work and to wear a respirator.

14.1.2.1 Physical exams shall be conducted by a licensed physician.

14.1.2.2 EEI shall ensure that the physician has a copy of the OSHA regulations for asbestos.

14.1.2.3 The physical exam shall meet the minimum requirements of the standard.

14.1.2.4 A copy of the physician's determination shall be maintained at the job site and at the Corporate office.

14.1.3 Work shall not begin until all required permits have been obtained and posted at the job site.

14.1.4 If Asbestos Abatement Specifications are a part of the job, the supervisor or superintendent shall read and become familiar with them.

14.1.5 Asbestos Abatement work shall be conducted in accordance with applicable regulations.

14.1.6 The project superintendent shall act as competent person. The competent person shall be on site whenever asbestos removal is being performed.

14.2 Notification of Other Employers

Notification of other employers - When working on a multi-employer work site the project superintendent shall inform all other employers of the nature of EEI's work and shall log this information in a job logbook.

14.3 Regulated Areas

14.3.1 All Class I, II, or III work shall be conducted within a regulated area.

14.3.1.1 Regulated areas shall be demarcated by critical barriers or barrier tape.

14.3.1.2 Critical barriers shall consist of 2 layers of 6-mil polyethylene.

14.3.1.3 Appropriate signage shall be posted.

14.3.1.4 Access to the regulated work area will be limited to those qualified personnel associated with the asbestos work.

14.3.1.5 Anyone who enters a regulated area shall wear appropriate respiratory protection and any other PPE required.

14.3.1.6 Eating, drinking, smoking, chewing snuff, or applying cosmetics shall not be permitted in a regulated area.

14.3.1.7 The project superintendent shall act as the competent person and shall be responsible for safety and health on the job.

14.4 Procedures for Glovebag Use

- 14.4.1 A team (or teams) having a minimum of two persons is required to perform glove bag removal. One person shall perform the removal using the glove bag. The other person shall be present at all times to assist, as required.
- 14.4.2 Glovebags are for single use and will not be reused or repositioned.
- 14.4.3 Prior to hanging the glove bag on badly damaged or deteriorated sections of piping, encapsulate the insulation with at least one coat of bridging encapsulant to prevent the release of fibers during installation of the glovebag.
- 14.4.4 Slit top of the glovebag open (if necessary) and cut down the sides to accommodate the size of the pipe (about 2 inches longer than the pipe diameter).
- 14.4.5 Place necessary tools into pouch located inside glovebag. This will usually include: bone saw, utility knife, rags, non-metallic scrub brush, wire cutters, tin snips, and pre-wetted cloth.
- 14.4.6 Place one strip of duct tape along the edge of the open top slit of glovebag and another along the bottom seam for reinforcement.
- 14.4.7 Place glovebag around section of pipe to be worked on and staple top together through reinforcing duct tape. Next, duct tape the ends of glovebag to pipe itself, where previously covered with plastic or duct tape.
- 14.4.8 Use smoke tube and aspirator bulb to test seal. Place tube into water sleeve (2 inch opening to glovebag) squeezing bulb and filling bag with visible smoke. Remove smoke tube and twist water sleeve closed. While holding the water sleeve tightly, gently squeeze glovebag and look for smoke leaking out, (especially at the top and ends of the glovebag.) If leaks are found, tape closed using duct tape and retest.

- 14.4.9 Insert wand from garden sprayer through water sleeve. Duct tape water sleeve tightly around the wand to prevent leakage.
- 14.4.10 One person places his hands into the long-sleeved gloves while the second person directs garden sprayer at the work.
- 14.4.11 Using a HEPA equipped vacuum cleaner, or equivalent, maintain the glovebag under reduced pressure.
- 14.4.12 Use bone saw, if required, to cut insulation at each end of the section to be removed. A bone saw is a serrated heavy gauge wire with ring-type handles at each end. Throughout this process, spray amended water or removal encapsulant on the cutting area to keep dust to a minimum.
- 14.4.13 Remove insulation using putty knives or other tools. Place pieces in bottom of bag without dropping.
- 14.4.14 Rinse all tools with water inside the bag and place back into pouch.
- 14.4.15 Using scrub brush, rags, and water, scrub and wipe down the exposed pipe(inexpensive horse rubdown mittens work well for this).
- 14.4.16 Remove water wand from water sleeve and collapse the bag using the HEPA filtered vacuum.
- 14.4.17 Remove the vacuum nozzle, twist water sleeve closed and seal with duct tape.
- 14.4.18 Put the tools into a sleeve of the glovebag, turning the sleeve inside out and twist the sleeve tightly. Place duct tape over twisted portion and then cut the tool bag from the glovebag, cutting through the twisted/taped section. Contaminated tools may then be place directly into next glovebag without cleaning.
- 14.4.19 Alternatively, tool pouch with the tools can be placed in a bucket of water, opened under water, and tools cleaned and dried. Discard rags and scrub brush with asbestos water.

- 14.4.20 With removed insulation in the bottom of the bag, twist the bag several times and tape it to keep the material in the bottom during removal of the glovebag from the pipe.
- 14.4.21 Remove glovebag and place into 6-mil disposal bag. Collapse the bag with a HEPA vacuum, twist top of bag, seal with at least three wraps of duct tape, bend over and seal again with at least three wraps of duct tape. Dispose as described in Section 02084.
- 14.4.22 Clean all surfaces in the work area using disposable cloths wetted with water with surfactant or removal encapsulant added. When these surfaces have dried, clean with a HEPA filtered vacuum. Material adhered to a surface with removal encapsulant may require the application of additional removal encapsulant to facilitate cleaning.
- 14.4.23 Any asbestos-containing insulation edges that have been exposed during the removal must be encapsulated with a bridging encapsulant or sealed with 6-mil plastic to ensure that there is no release of fibers from the edges.

14.5 Monitoring

The project manager shall ensure that OSHA monitoring requirements are met for each job.

- 14.5.1 Personal monitoring of representative tasks shall be conducted on each job on each day.
- 14.5.2 Personal monitoring may be stopped when:
 - 14.5.2.1 The project manager has sufficient data to make a negative exposure assessment
 - 14.5.2.2 The project manager has sufficient data to characterize the potential exposures. Do not use data that is more than 6 months old.
- 14.5.3 Personal monitoring will be restated when conditions change or data is considered insufficient to meet OSHA requirements.

14.5.4 All monitoring shall be conducted in accordance with the requirements of 29 CFR 1926.1101.

14.5.5 EEI employees shall be notified of the results of monitoring in writing within 24 hours after receipt of the data.

14.6 Work Practices and Engineering Controls

14.6.1 The following engineering controls are mandatory at all times:

14.6.1.1 HEPA Vacuum Cleaners; do not try to sweep or use compressed air

14.6.1.2 Wet methods

14.6.1.3 Prompt cleanup and disposal of waste; debris shall not be allowed to accumulate

14.6.2 Where airborne fiber concentrations may exceed 0.01 f/cc, HEPA filter equipped exhaust ventilation and complete enclosure is required.

14.6.3 Where Class I work is performed:

14.6.3.1 Critical barriers and HEPA equipped exhaust ventilation shall be used

14.6.3.2 All HVAC openings shall be secured with critical barriers

14.6.3.3 Drop cloths shall be placed beneath all areas of removal activity

14.6.3.4 All equipment and objects in the area shall be covered by critical barriers

14.6.3.5 One of the following methods of control shall be used:

14.6.3.5.1 Negative Pressure Enclosure

14.6.3.5.1.1 Maintain -.02" H₂O, pressure

14.6.3.5.1.2 Maintain 4 air changes p/hour

14.6.3.5.2 Negative Pressure Glovebag or glove box system

14.6.3.5.2.1 Maintain negative pressure
continuously with a HEPA Vac

14.6.3.5.3 Mini enclosure

14.6.3.5.3.1 Maintain negative pressure
continuously with a HEPA
Vac or other small HEPA
equipped exhaust ventilation
device

14.6.3.6 In all cases of containment use, each containment
must be smoke tested for leaks daily before use.

14.6.4 Where friable Class II work is being performed, it shall be treated
as Class I work.

14.6.5 Where non friable Class II work is being performed

14.7 Respiratory Protection - see Section 7 of this manual.

14.8 Personal Protective Equipment - see Section 5.12 of the manual

14.9 Decontamination Units

14.9.1 A three-stage decontamination unit shall be used with all Class I
work.

14.9.2 The Regional Manager may waive this requirement if he
determines that it is not required by law or specification and does
not pose an increased risk to employees.

14.9.3 Whenever a Decon is not used, EEI personnel shall double suit.

14.10 OSHA Regulations

14.10.1 All EEI employees shall be familiar with the OSHA regulations
concerning asbestos and shall comply with them.

14.10.2 OSHA asbestos regulations shall be a topic in the periodic site
safety meetings on asbestos abatement projects.

15. Lead Operations

15.1 Exposure Limits

15.1.1 Permissible Exposure Limit (PEL)

15.1.1.1 The PEL for an 8-hour Time Weighted Average (TWA) exposure is 50 ug/M³.

15.1.1.2 If the work day extends beyond 8 hours, the PEL is reduced according to the following formula:

$\frac{400\text{ug/M}^3}{\text{\# Hours worked}}$
For a 10 hour work day, the PEL is 40ug/M ³

15.1.2 Action Level (AL) - the AL is 30 ug/M³, 8 hour TWA

15.2 Exposure Assessment

15.2.1 Initial Determination - An initial determination of lead exposure shall be made by the project manager for each project.

15.2.1.1 The exposure assessment shall be based upon actual air monitoring data collected from this project or from data collected from a previous, similar project within the past 3 months.

15.2.1.2 The exposure assessment will be documented in writing with a copy maintained on the job site in the logbook and at the regional office.

15.2.2 Initial Determination of less than the AL - If airborne lead exposures are less than the AL, additional testing is not required unless the work changes.

15.2.3 Initial Determination of greater than the AL - If airborne lead exposures are greater than the AL, additional testing is required every three months.

15.2.4 Employees must be notified of the results of testing and any measures used to control exposure that are in place or are to be placed within five days of receipt of results. Notifications shall be in writing.

15.2.5 Test Methods

15.2.5.1 Personal air monitoring will be conducted by a qualified consultant under the direct supervision of a Certified Industrial Hygienist in accordance with generally recognized Industrial Hygiene Practices and procedures or,

15.2.5.2 Personal air monitoring may be conducted under the direct supervision of the Project Manager. If so:

15.2.5.2.1 The Project Manager shall be instructed in the proper sampling methods by a Certified Industrial Hygienist or by a EEI manager who has been so instructed.

15.2.5.2.2 Air monitoring pumps shall be designed for the purpose, capable of maintaining a flow rate of 2 l/m + /-5%.

15.2.5.2.3 35 mm mcef filters in a two piece polystyrene cassette shall be used as collection media.

15.2.5.2.4 Pump flow rates shall be calibrated before and after use and shall be maintained at 2 l/m.

15.2.5.2.5 The Project Manager or Superintendent shall ensure that the unit is properly worn and shall note work performed, conditions, and other pertinent data on the sample form throughout the day.

15.2.5.3 All laboratory analysis shall be conducted by an AIHA accredited laboratory.

15.2.6 Initial Assumptions during exposure determination

15.2.6.1 The following tasks shall be considered to cause lead exposures up to 10 X PEL until the initial exposure assessment is complete and shows otherwise. These tasks shall be designated “IX” tasks for purposes of this manual

15.2.6.1.1 Manual Demolition of Structures

15.2.6.1.2 Manual Paint Scraping

15.2.6.1.3 Manual Sanding

15.2.6.1.4 Heat Gun Applications

15.2.6.1.5 Power tool cleaning with attached HEPA dust collection system

15.2.6.1.6 Any other task that EEI has reason to believe may cause similar exposures to lead

15.2.6.2 The following tasks shall be considered to cause lead exposures greater than 10 X PEL until the initial exposure assessment is complete and shows otherwise. These tasks shall be designated “10X” tasks for purposes of this manual.

15.2.6.2.1 Use of lead containing mortar

15.2.6.2.2 Lead burning

15.2.6.2.3 Rivet busting with lead coatings present

15.2.6.2.4 Power toll cleaning without attached HEPA dust collection system

15.2.6.2.5 Cleanup of dry abrasives with lead coatings present

15.2.6.2.6 Removal and/or movement of abrasive blasting enclosures that involved lead work

15.2.6.2.7 Any other task that EEI has reason to believe may cause similar exposures to lead

15.2.6.3 The following tasks involving lead shall be considered to cause lead exposures greater than 50 X PEL until the initial exposure assessment is complete and shows otherwise: These tasks shall be designated “50X” tasks for purposes of this manual

15.2.6.3.1 Abrasive Blasting

15.2.6.3.2 Welding

15.2.6.3.3 Cutting

15.2.6.3.4 Torch Burning

15.2.6.3.5 Any other task that EEI has reason to believe may cause similar exposures to lead

15.3 Training

15.3.1 All supervisory personnel who may work on a lead project shall be trained in accordance with the requirements of HUD/EPA regulations and OSHA regulations by a training provider accredited to give such training by a state.

15.3.2 All personnel who may work on a HUD/EPA regulated lead project and other lead projects, shall be trained in accordance with the requirements of HUD/EPA regulations and OSHA regulations by a training provider accredited to give such training by a state.

15.3.3 All personnel who may work on lead projects other than HUD/EPA regulated lead projects may be trained in accordance with the requirements of OSHA regulations only. Such training shall include, as a minimum:

15.3.3.1 The content of the Lead Standard

15.3.3.2 The specific nature of the lead work that may be required

- 15.3.3.3 Respiratory protection
- 15.3.3.4 The medical surveillance program
- 15.3.3.5 Engineering controls and work practices associated with lead work
- 15.3.3.6 Contents of compliance plans in effect
- 15.3.3.7 Instructions regarding non use of chelating agents except under direction of a physician
- 15.3.3.8 The right to access to all records

15.4 Engineering and Work Practice Controls

15.4.1 Regulated areas shall be demarcated whenever airborne lead concentrations may exceed the AL.

15.4.1.1 They may be demarcated with critical barriers or barrier tape as appropriate

15.4.1.2 They shall be marked with appropriate signage as required by the OSHA regulation. Signs shall be in English and in any other language necessary to accommodate non-English speaking personnel who may come in or near the area.

15.4.2 When the exposure assessment indicates exposures are likely to exceed the PEL, or for any 1X, 10X, or 50X task that is being assessed, the following minimum protective measures are mandatory:

15.4.2.1 Proper respiratory protection

15.4.2.2 Protective clothing as appropriate. Note that some organic lead compounds may be absorbed through the skin. Specific protective clothing must be chosen that will protect against the hazards encountered.

15.4.2.2.1 Coveralls, or full body protective clothing

15.4.2.2.2 Gloves

- 15.4.2.2.3 Hats
- 15.4.2.2.4 Shoes or disposable shoe covers
- 15.4.2.2.5 Face shields, vented goggles, or other face protection
- 15.4.2.3 Three-stage decon with shower and change area
- 15.4.2.4 Had washing facilities and separate change area if the Regional Manager determines, in writing, that a decon is not feasible. This determination must include an explanation. A copy must be kept in the logbook.
- 15.4.2.5 Biological Monitoring for Blood Lead and Zinc Protoporphyrin
- 15.4.2.6 Lead Training
- 15.4.3 In addition, measures to contain dust or fume that may be generated shall be installed. These measures may include:
 - 15.4.3.1 Critical barriers, primary barriers, and drop cloths
 - 15.4.3.2 HEPA equipped ventilation
 - 15.4.3.3 HEPA equipped Vacuum Cleaners
 - 15.4.3.4 Water
 - 15.4.3.5 Other methods determined to be applicable by the Project Manager
- 15.4.4 Compliance Programs - Each individual project shall have a lead compliance program developed that is specific to that project. The compliance program shall be developed by the Project Manager and shall include the following:
 - 15.4.4.1 A description of the activity and the source of lead exposure which will include:
 - 15.4.4.1.1 Equipment used
 - 15.4.4.1.2 Material involved
 - 15.4.4.1.3 Controls in place

- 15.4.4.1.4 Crew size
- 15.4.4.1.5 Employee job responsibilities
- 15.4.4.1.6 Procedures and maintenance practices
- 15.4.4.2 Description of the methods used to comply with OSHA exposure requirements which will include:
 - 15.4.4.2.1 Engineering controls to be used
 - 15.4.4.2.2 Rationale for selection of engineering controls
 - 15.4.4.2.3 A list of control measures considered and reasons for any rejected methods
 - 15.4.4.2.4 Air monitoring data
 - 15.4.4.2.5 Sequence of events for implementation of controls, with dates
 - 15.4.4.2.6 A work practice program describing:
 - 15.4.4.2.6.1 Respiratory Protection
 - 15.4.4.2.6.2 Protective Clothing
 - 15.4.4.2.6.3 Use of equipment
 - 15.4.4.2.6.4 Housekeeping
 - 15.4.4.2.7 An administrative control schedule for employee rotation, if necessary
 - 15.4.4.2.8 A notification plan and description of arrangements made with other employers on the work site to notify them of the nature of EEI work and provisions to ensure that other employees are not exposed to lead in excess of the AL
 - 15.4.4.2.9 Provisions for frequent and regular work site inspections by the Project Manager

15.4.4.2.10 Means and methods to be used to ensure that any mechanical ventilation is performing properly

15.4.4.3 For longer-term projects the written program shall be revised every 6 months or more often if necessary.

15.4.5 During the inspections to be conducted by the Project Manager, he shall verify that all provisions of the compliance plan are adhered to and that the evaluations of mechanical ventilation are conducted. In addition, he shall verify that control measures used are effective and, if necessary, modify the plan accordingly.

15.4.6 All required inspection data, evaluation data, etc., is to be recorded in the logbook at the job site.

15.5 Housekeeping

15.5.1 All surfaces shall be maintained as free of lead as practical.

15.5.2 Floors shall be HEPA vacuumed or wet wiped with water or TSP solution.

15.5.3 Shoveling and wet sweeping may be used only where HEPA vacuuming and wet wiping are not effective.

15.5.4 Emptying and/or cleaning of HEPA vacuums shall be conducted in full containment only.

15.5.5 Do not use compressed air for cleaning.

15.6 Hygiene Practices and Facilities

15.6.1 For all work where a decon is required, the EEI personnel shall exit through the decon and shower out every time they leave the work area.

15.6.1.1 Exceptions to this rule may be made by the Project Manager; it shall be in writing with an explanation of the reasons and logged in the logbook.

15.6.1.2 EEI employees must always shower out at the end of the shift, if a shower is available.

15.6.2 If a decon is not required, other washing facilities will be available and shall be used whenever exiting the work area.

15.6.3 Eating and drinking in a potentially lead contaminated area is not allowed. The Project Superintendent will designate a clean area for eating. No one shall enter this area unless protective clothing has been removed and they have washed.

15.7 Medical Surveillance

In addition to the requirements described in Section 5.4 of this manual, the following shall apply to lead work:

15.7.1 Any employee who may be exposed to lead in excess of the AL shall be required to submit to biological monitoring for Blood Lead and Zinc Protoporphyrin (ZPP) as follows:

15.7.1.1 At initial and annual physical exams

15.7.1.2 Every two months for six months and then every six months thereafter if they may be exposed to lead in excess of the AL for 30 days in any 12 consecutive months.

15.7.1.3 Every two months if the last blood sample indicated blood lead levels at or above 40 ug/dl and to continue at that rate until two consecutive samples indicate blood lead at less than 40 ug/dl.

15.7.1.4 Every month if an employee is removed from lead exposure to elevated blood lead.

15.7.1.5 If a blood lead exceeds the medical removal criterion, the employee must be retested within two weeks.

15.8 Medical Removal

15.8.1 If an employee is found to have a blood lead concentration of 50 ug/dl or higher, he shall be retested within two weeks.

15.8.2 If the second test verifies the first, then he shall be removed from lead exposure in excess of the AL until two consecutive tests indicate a blood lead level of less than 40 ug/dl.

15.8.3 If a physician determines that an employee has a medical condition that should require elimination of lead exposure in excess of the AL, the employee shall be removed from lead exposure in excess of the AL. When the physician determines that the medical condition no longer exists and notifies EEI in writing, then the employee may return to lead work.

16. Confined Space Entry Program

16.1 General

This confined space entry program is directed, primarily at confined spaces that are not owned by, or under the control of, EEI. This program is intended to provide procedures that follow to help protect personnel and comply with OSHA standards when working at sites remote from EEI offices.

16.1.1 Unless the Project Superintendent and Project Manager are trained and qualified to enter permit-required confined spaces, no work in a permit-required confined space is allowed.

16.1.2 Before EEI employees may enter a confined space, it must be evaluated by the Project Manager provided he has been trained in the EEI Confined Space Entry Program and is competent to do so.

16.1.3 The EEI Project Manager must determine if the space meets the requirements for a permit required confined space. He shall complete the Confined Space Evaluation Form at the end of this section.

16.1.4 If EEI employees must enter a permit required confined space, the Regional Manager shall be notified in advance. He shall be given the following information:

16.1.4.1 Nature of the confined space (from the Confined Space Evaluation Form),

16.1.4.2 A list of employees who may enter the confined space and their tasks and date of confined space training (Include rescue personnel),

16.1.4.3 List of confined space equipment on site and verification that it is in proper working order,

16.1.4.4 Location of the confined space,

16.1.4.5 Purpose for entry.

16.1.4.6 Estimated duration and schedule of entry, and,

16.4.4.7 Whether the client's program or the EEI program is in effect.

16.1.5 In some cases, EEI may be required to work to the requirements of a program other than the EEI program.

16.1.5.1 EEI will use the client's program provided it meets the OSHA requirements (29 CFR 1910.146) and is sufficient to protect employees. The EEI Project Manager will make this determination, if he has been trained and is competent to do so.

16.1.5.2 If the client's program is not sufficient, then the EEI program and the client's program shall both be followed.

16.1.5.3 If the client has no program or is willing to allow the EEI program to be followed, then the EEI program shall apply.

16.2 Entry Permit

16.2.1 The entry permit is used to document the anticipated conditions of the confined space, required safeguards, testing requirements, and other safety and health issues.

16.2.2 The confined space entry permit shall be completed by the Project Superintendent, provided he has completed EEI confined space training and is competent. The Project Superintendent is responsible for ensuring that the permit is properly completed, that the required testing is complete, that entry conditions as stated in the permit are met, and that all personnel who enter the confined space are appropriately qualified.

16.2.3 Confined space entry permit form is at the end of this section.

16.2.3.1 The form must be completely filled out,

16.2.3.2 The confined space evaluation form must be attached, and,

- 16.2.3.3 All instructions on the form must be followed.
- 16.2.3.4 The Project Manager must review the form and sign off before anyone may enter the space.
- 16.2.3.5 The permit must be posted at the confined space.
- 16.2.3.6 The permit must be returned to the Project Superintendent and filed in the project logbook at the end of each shift.
- 16.2.3.7 The permit is only good for a single shift.

16.3 Safeguards

16.3.1 In many cases, it will be necessary to institute certain safeguards to protect the health and safety of workers who may enter a permit-required confined space. On the basis of testing, observation or other means, prior to issuance of the confined space entry permit, determine which safeguards are necessary. Some common measures are:

- 16.3.1.1 Ventilate or pre-clean prior to entry
- 16.3.1.2 Attenuation of electrical hazards
- 16.3.1.3 Outside attendants (always mandatory)
- 16.3.1.4 Continuous mechanical ventilation
- 16.3.1.5 Lockout/Tagout requirements
- 16.3.1.6 Isolation of hazards
- 16.3.1.7 PPE, including respirators and
- 16.3.1.8 Special work practices, including use of explosion proof equipment, wet methods for dust control, etc.

16.3.2 Rescue Procedures

Rescue procedures must be in place prior to entry in a permit-required confined space. Such procedures include:

- 16.3.2.1 Ensure that all necessary confined space rescue equipment, including first aid is immediately available.

- 16.3.2.2 Ensure that all safety lines are securely tied off.
- 16.3.2.3 If safety lines/harnesses are not feasible, alternate methods must be in place and specific permission to continue must be granted by the Regional Manager.
- 16.3.2.4 The rescue team must be immediately available

16.4 Monitoring

- 16.4.1 Monitoring must be conducted prior to each entry into a confined space and then periodically if there is a potential for hazardous conditions to develop.
- 16.4.2 The site supervisor must determine the type and period of monitoring that will be necessary.
- 16.4.3 As a minimum, monitoring will be conducted as follows:
 - 16.4.3.1 When possible, monitor without entering the confined space.
 - 16.4.3.2 Test locations must be sufficient in location and number to adequately characterize the space.
 - 16.4.3.3 Test in the following order:
 - 16.4.3.3.1 Oxygen
 - 16.4.3.3.2 Flammables
 - 16.4.3.3.3 Toxics
 - 16.4.3.4 If any readings are outside the acceptable ranges, no one may enter the space.
- 16.4.4 If a confined space must be evacuated, the Regional Manager shall be notified and a determination made by the Project Superintendent, Project Manager, and Regional Manager if, and under what conditions the space may be reentered.