Site Specific Environmental Health & Safety Action Plan

PCB Treatment Building Dismantle Project

Prepared For:
PTI Steering Committee, c/o Hard Hat Services

Prepared By:
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Cleveland Wrecking Company
Site Specific Environmental Health and Safety Action Plan
PCB Treatment Building Dismantle Project

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SITE SPECIFIC ENVIRONMENTAL HEALTH & SAFETY ACTION PLAN

PCB Treatment Building Dismantle Project

Prepared By:
Cleveland Wrecking Company
Covina, California

Prepared For:
PTI Steering Committee, c/o Hard Hat Services

Approved By: Cleveland Wrecking Company

Steve Sheridan
Project Manager/SSO

Date

Print Name Here
Project Superintendent

Date

Andy Varga
Corporate EHS Manager

Date

Drafted By:

Mark Acosta
Corporate Assistant EHS Manager

HEALTH AND SAFETY RESPONSIBILTIES AND AUTHORITIES

Steve Sheridan
CWC Project Manager

Responsibilities:

- Ensures implementation of the of URS Health & Safety Program through Health & Safety Manager (HSM)
- Conducts inspections of the site for compliance of the health and safety program, if necessary
- Participate in accident/incident investigations
- Ensures HASP has approvals before site work proceeds
- Ensures HSM and Health Safety Officer (HSO) informed of project changes which require modifications to HASP
- Responsible for overall project health and safety
- Stop work authority

Super Name Here
CWC Site Project Superintendent

Responsibilities:

- Ensure implementation of health and safety program through HSM, enforce health and safety program
- Lead day to day activities
- Conduct and document the "Daily Tailgate Meeting" before beginning daily activities with site personnel, and subcontractors (complete Safety Task Analysis Card - STAC Program), and conduct weekly safety management and scheduling meetings.
- Schedule work, personnel and equipment to complete project safely (resources)
- Maintain adequate communication between field and project management
- Ensure adequately trained and qualified personnel are assigned to project
- Notifies HSM and investigates accidents/incidents
- Conducts weekly inspections of the project site for compliance
- Stop work authority

Andy Varga
Corporate EHS Manager

Responsibilities:

- Development, approval and implementation of the HASP
- Review all health and safety concerns
- Review and approve deviations and revisions to the HASP
- Review qualifications of individuals assigned to Health and Safety responsibilities
- Coordinate recommendations for down and up grading of PPE
- Assist in accident/incident investigation
- Conduct inspections for compliance, if necessary
- Stop work authority

Mark Acosta
Corporate EHS Assistant Manager

Responsibilities:

- Implementation and oversight of the HASP
- Review all health and safety concerns

- Provide recommendations for deviations and revisions to the HASP
- Coordinate recommendations for down and up grading of PPE
- Notifies HSM and investigates accidents/incidents
- Conducts inspections of the project site, if necessary
- Coordinates monitoring activities
- Ensures activities identified in HASP are conducted and implemented
- Monitors compliance with the HASP
- Summarizes field operations and progress reports to HSM
- Stop work authority

Site Personnel (Operators & Laborers)

Responsibilities:

- Report unsafe or potentially hazardous conditions or unsafe acts to Site Project Manager
- Knowledge, information, instruction and emergency response actions in HASP
- Comply with rules, regulations and procedures set forth by the client and in the HASP
- Prevent admittance by unauthorized personnel
- Inspect tools, equipment and PPE prior to use
- Stop work authority

PCB Treatment Building
Site Information

Facility Location

PCB Treatment Building 45 Ewing St.
Kansas City, Kansas 64108

Facility Description

The 45 Ewing Street building is a 5-story poured-in-place concrete and brick structure dimensioned approximately 140 feet x 120 feet x 65 feet tall to the parapet wall (16,800 square feet). The building was constructed in 1920. It is currently unoccupied and in poor structural condition. Approximately between 1982 and 1987, the building was partially occupied by PTI to receive, process, and store waste electrical equipment and waste materials containing polychlorinated biphenyls (PCBs). Poor material handling practices and housekeeping resulted in PCB spills on floors, walls, ceilings, and the ground surface around the building. The extent of PCB contamination was defined through completion of the Site Characterization Report (SCR-Burns & McDonnell, 1999). Associated health risks such as quantities of asbestos, pigeon droppings and drummed wastes for remediation were determined through a Site Specific risk assessment. Essentially, the interior of the structure will be remediated, the structure dismantled in a controlled fashion, the PCB-impacted soil surrounding the building will be removed, and the site will be restored to a uniformly graded lot.

1.0 SCOPE

This procedure identifies those safety rules that are applicable to all areas of the site and/or all employees subcontractors, sub-tiers, employees, and visitors.

2.0 GENERAL RESPONSIBILITIES

During the course of work, each person who directs the activities of employees will monitor the work activities. The Environmental Health & Safety Plan (EHS) will be incorporated into the planning and execution of work.

2.1 Disciplinary Action

2.1.1 Policy

Cleveland Wrecking Company (CWC) will provide a safe and healthy workplace for its employees and will strive to minimize injuries to people, damage to property and loss to process. A disciplinary action policy will support CWC and PTI Steering Committee & Hard Hat Services (**PTI/HHS**) in realizing a safe and healthy workplace.

2.1.2 Standards

The personal safety and health of each employee of CWC is of primary importance. Prevention of Occupational induced injuries and illnesses is of such consequence that it will be given precedence over operational productivity. All Federal, State & local laws and regulations as well as site specific safety rules and plans will be followed by all employees, subcontractors and vendors of CWC.

Deviations and/or revisions shall be reviewed and approved by CWC and **PTI/HHS**.

A. All Employees:

1. Will comply with the rules of safe conduct.
2. Will immediately report to their supervisor any known violations.

B. Supervisor:

1. Will investigate reported safety violations.
2. Will consult with management on actions needing discipline.
3. Will initiate the disciplinary process when violations are detected.

4. Will administer disciplinary action in conjunction with Personnel Department.

2.2 Emergency Procedures

2.2.1 Scope

This procedure provides the requirements for orderly emergency evacuation in the event of a major emergency, fire, explosion, chemical spill, serious injury or unusual occurrence.

2.2.2 Definitions

CWC Emergency Notification:

A. Emergency - An emergency is an event that causes or may cause widespread personal injury, death, major property loss, or severe disruption of normal site activities.

B. Emergency Alarm - The emergency alert alarm is a series of short foghorn blasts.

C. All Clear - The all clear signal is long foghorn blast, and sounds when the emergency is under control.

D. Emergency Coordinator - The Project Superintendent, Safety Supervisor or Shift Safety Coordinator.

2.2.3 General

A. An emergency is reported by the most expeditious means:

1. Telephone: Dial ***911*** and report the incident as follows:

   a. Type of emergency
   b. Location: area and building
   c. Signify what material and equipment is involved.
   d. Stay on line until instructed to hang up.

B. All employees are to report to designated areas after the Emergency alarm has sounded, for a head count. The head count will be immediately reported to the **PTI/HHS** Supervisor. Those employees that have work in the affected area will not be allowed to return until the all clear signal has sounded. All permits in the affected area will have to be re-authorized prior to starting work.

C. Evacuation of the entire site may be necessary due to the severity of the emergency. CWC supervision will contact **PTI/HHS** personnel to evacuate to the pre-determined assembly areas.

2.3 Fire Protection and Prevention

2.3.1 Protection

A. Prior to commencing operations that may produce arcing, sparking or similar sources of ignition; the following requirements will be satisfied.

1. CWC will place or locate fire extinguishers throughout the site as required by the Corporate Safety Program and **PTI/HHS** requirements.

2. For all operations involving a potential source of ignition, approved fire protection equipment required to protect personnel, property and facilities will be provided.

3. All flammable and combustible materials will be stored, piled and handled with due regard to their fire characteristic. Flammable liquids will be stored in an approved manner and dispensed only in acceptable, safety containers. Welding gases will be stored in isolated areas and segregated by type of gas.

4. Particular care will be taken when flame-producing operations are located in areas where combustibles are exposed. In such cases, combustible materials will be moved or protected with fire resistant blankets and an adequate number of fire extinguishers in the immediate area.

B. Supervisors will maintain a constant awareness of the fire potential in their areas of responsibility. If a fire occurs, the supervisor will immediately sound the alarm and direct the fire department to the fire location. He will take the necessary action to protect life and Client property.

C. Fire extinguishers will be used only for their intended purpose. This equipment must not be blocked.

D. System Components

1. Extinguishers

a. Carbon Dioxide
b. ABC powder
c. Pressurized Water Containers
d. Fire blankets

E. Responsibilities

1. Project Manager

Will have overall fire prevention and fire suppression authority and provide adequate fire fighting, rescue equipment and protective clothing to meet anticipated needs.

2. Supervisor

Will have direct fire prevention and fire suppression responsibilities consistent with his duties.

2.3.2 Fire Prevention

A. The Fire Department has the primary responsibility for fighting fires. However, all personnel are responsible for being alert to possible fire hazards. In the time period between reporting and arrival of the fire equipment, personnel may be required to participate in initial fire-fighting activities. Therefore, the following requirements will be satisfied.

1. For all operations involving a potential source of ignition, approved fire protection equipment required to protect personnel, property and facilities will be provided. A fire watch shall be posted as required for not less than 30 minutes upon completion of the operation and/or during the operation.

2 All flammable and combustible materials will be stored, piled and handled with due regard to their fire characteristic. Flammable liquids will be stored in an approved manner and dispensed only in acceptable safety containers. Welding gases will be stored in isolated areas and segregated by type of gas.

3. Particular care will be taken when flame-producing operations are located in areas where combustibles are exposed. In such cases, combustible materials will be moved or protected with fire resistant blankets and an adequate number of fire extinguishers in the immediate area (within 25' of flame source).

B. When working at a Client's facilities, client's fire protection requirements may supersede CWC requirements.

C. Know where the nearest phones are located, and the number of the fire department.

D. Allow plenty of clearance on all sides of temporary heaters. Never place heaters on combustible floor or materials.

E. Buildings and trailers using heating devices will be well ventilated.

F. Know the location of fire extinguishers and the correct type to use for different types of fires.

G. Keep extinguishers in the clear. Do not tamper with them and know how to use them.

IN CASE OF FIRE

1. TURN IN AN ALARM AT ONCE
2. USE THE RIGHT TYPE OF EXTINGUISHER
3. USE AVAILABLE FIRE FIGHTING EQUIPMENT CORRECTLY. DO NOT DELAY
4. BE SURE FIRE EXTINGUISHERS ARE TURNED IN FOR RECHARGING.

2.4 First Aid

2.4.1 First aid and medical services and arrangements for emergency transportation of CWC employees who sustain occupational injuries or illnesses are the responsibility of CWC. Special medical emergency situations may warrant Client assistance.

2.4.2 First Aid Facilities

A. General

1. CWC employees who sustain a first aid type injury, shall be treated by a trained person on site. In the event of a serious injury or illness, a private ambulance where available and authorized and/or the local Fire Department Paramedics will be utilized.

2. A report of industrial injury or illness will be completed for all personnel who report to the first aid facility for treatment. This report will be completed by the attending medical personnel and will specify the type of treatment given.

3. Medical cases that require treatment beyond the scope of the facility will be referred to an off-site physician or hospital as determined by severity of injury/illness.

B. Transportation of Injured or Ill Employees

1. Non-Emergency

It is the responsibility of CWC to provide suitable transportation from the Project site to the first aid facility.

2. Emergency

a. The proper handling of seriously injured or ill employees at the project and their prompt dispatch to the hospital will, to a great extent, minimize confusion and offset the negative reaction which often occurs after a serious incident has taken place.

b. The method of emergency transportation to the first aid facility or hospital will be by community ambulance, "Life Flight" helicopter, or other suitable transportation (necessity of the "Life Flight" helicopter shall be determined and summoned by the Paramedics on scene).

c. The hospital emergency room will be notified when the emergency transport vehicle is dispatched off site by CWC. All available information regarding the nature and extent of the injury or illness will be given to the hospital medical staff.

2.4.3 After attending to an employee's injury/illness, the following information will be noted in the First Aid log:

A. Date and time of injury

B. Employee's social security number

C. Employee's name

D. Name of employee's supervisor

E. Location of accident

F. Nature and cause of injury/illness and exact location of injury (part of body involved.)

G. Treatment rendered

2.4.4 Injury Management

A. An employee who has sustained an on-the-job injury or illness may return to work provided that the attending physician or physician's assistant has given written approval and provided

that the normally assigned tasks for that employee are still available which meet his or her physical restrictions or limitations.

2.4.5 Reporting Alleged Industrial Injuries

A. The employee is required to immediately notify the Safety Coordinator of any alleged industrial injury. Failure to do so may result in the denial of claim for compensation benefits.

B. This policy will also be stated during the employee new hire orientation and referenced regularly during "Toolbox" safety meeting topics.

2.5 Hazard Communication / Right-To-Know

2.5.1 General

A. The Hazard Communication/Right-to-Know program is necessary to ensure that Client and CWC employees, as well as communities, are informed concerning chemicals in the workplace. The program will meet all requirements of OSHA 29 CFR 1910.1200, SARA Title III, MSHA as well as state and community "Worker Right-To-Know" laws.

B. CWC will provide **PTI/HHS** with information pertaining to chemicals and process materials, which are or may be placed in the site area included in CWC's Scope of Work. Information may include such documents as material safety data sheets (MSDS's), chemical information summary sheet, chemical handling procedures, etc.

C. Each contractor will supply CWC with "copies of MSDS's" and inventory information for each chemical brought onto Client property and will include a written hazard communication program in its site-specific safety manual.

D. An MSDS for all contaminants will be made available on site.

2.5.2 Program Requirements

The specific requirements of the hazard communication/ right-to-know program include the following:

A. Copies of MSDS's for chemicals planned for use during the project.

B. Provisions for assuring that all chemical containers are properly labeled when received from vendors and that containers remain properly labeled.

C. Inventory listing of chemicals brought onto Client property.

D. Copy of employee training program CWC will use for indoctrinating employees.

2.5.3 Definitions

Except where noted otherwise, terms used in this section will be consistent in meaning with definitions found in 29 CFR 1910.1200(c).

A. "Chemical" means any element, chemical compound, or mixture of elements and/or compounds.

B. "Container" means any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical.

C. "Exposure" or "exposed" means that an employee is subjected to a hazardous chemical in the course of employment through any route of entry inhalation, ingestion, skin contact or absorption, etc.), and includes potential (e.g., accidental or possible) exposure.

D. "Hazard warning" means any words, pictures, symbols, or combination thereof appearing on a label, or other appropriate form of warning, which conveys the hazards of the chemical(s) in the container(s).

E. "Hazardous chemical" means any chemical that is a physical hazard or a health hazard.

F. "Health hazard" means a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees.

G. "Label" means any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals.

H. "Laboratory" means any distinct area or room where analytical or research functions are carried out and which are not directly part of product manufacture, formulation, preparation, testing, or shipping. Laboratories are characterized by high variety, but small quantities of chemicals and by limited access and low numbers of employees who may come in contact with these chemicals (Not an OSHA definition).

I. "Material safety data sheet (MSDS)" means written or printed material concerning a hazardous chemical, which is prepared in accordance with 29 CFR 1910.1200(g).

J. "Mixture" means any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.

K. "Physical hazard" means a chemical for which there is scientifically valid evidence that it is combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

2.5.4 Responsibility

A. CWC is responsible for the development and implementation of a Hazard Communication Program that will apply to the scope of work for the project(s) performed for CWC. CWC will maintain a complete chemical hazard information database (MSDS's). Information may be transmitted via labels, MSDS's, and training programs.

B. It is the responsibility of CWC employees to use the information given to them and to protect themselves and their coworkers at all times against chemical hazards. Where CWC employees believe that hazard information is missing or inadequate, they will be instructed by CWC to request additional information from their supervisor. CWC management will make every effort to obtain adequate information and to review the information with affected personnel.

2.5.5 Program Elements

A. Material Safety Data Sheets (MSDS):

1. There will be an MSDS on file at the project site for each hazardous chemical, substance, or mixture present at the site or intended for use at the site.

2. Copies of the MSDS's will be used for indoctrinating and training CWC employees and will be maintained readily available for reference by CWC employees.

3. Copies of the MSDS's will also be provided to the PTI/HHS Safety Coordinator prior to bringing chemicals on site.

4. Copies of the MSDS's will be made readily available to all affected subcontractors and other contractors associated with the project.

B. Labeling

1. It will be the responsibility of CWC to ensure that each container of hazardous chemical, which is delivered to the project work site or other Client facilities, is properly and adequately labeled.

2. While it is recognized that it is the responsibility of the chemical manufacturer to label chemical containers, it will be the responsibility of CWC to determine the adequacy of the labels and to maintain labels on containers so they remain legible.

3. Containers of hazardous chemicals will be labeled with the name of the chemical or substance, appropriate hazard warnings (defined below), and the name and location of the manufacturer. Where a number or code system is used, a key to the code system will be included as part of the container label. Hazard warnings may consist of the NFPA Fire Hazards System (Health, Flammability, and Reactivity code numbers), physical hazard warnings, and a hazard statement.

   The NFPA System consists of the familiar blue, red, yellow, and white "diamond" filled with numerical ratings from 0 to 4 for the categories of health, flammability, and reactivity. The white space on the diamond is available for symbols warning against water contact, oxidizers, and so forth. The source for these ratings is NFPA 325M-1094, "Fire Hazard Properties of Flammable Liquids, Gases and Volatile Solids." This system is chosen because it is in wide use and the information is important for fire fighters and/or emergency response teams.

   The physical hazard warning will consist of one or more words, which describe the major physical hazard(s), posed by the chemical. The physical hazard categories include, but are not limited to, the following:

   Combustible
   Compressed Gas
   Explosive
   Flammable
   Organic Peroxide
   Oxidizer
   Pyrophoric
   Unstable
   Water-Reactive

   The health hazard warning will consist of a word or short phrase, which conveys the major health hazard(s) posed by a hazardous chemical. The health hazard categories include, but are not limited to, the following:

   Corrosive
   Known Carcinogen
   Suspect Carcinogen
   Inhalation Hazard
   Irritant
   Narcotic
   Neurotoxin

Poison
Radioactive
Reproductive Toxin
Sensitizer
Skin Absorption Hazard
Skin Contact Hazard–Acidic
Skin Contact Hazard--Caustic

The hazard statement will consist of a short statement, which conveys hazard information important to the user of the chemical. These statements will be specific to the chemical or family of chemicals in the container. Where appropriate, the target organ, which may be affected by overexposure, will be included.

4. When hazardous chemicals are transferred to other containers, the new container will be fully labeled as described above, except when only one employee will be using the transferred chemical. When only a single employee will use or have access to the chemical, the container need be labeled with only the name of the chemical. It is more common, however, that portable containers of solvents and other chemicals are used by more than one employee, and in these cases, complete hazard labels will be attached to the portable container.

   Transfers will be made only to "approved" containers (e.g., safety cans for flammables); transfers to containers still labeled with previous contents or to food containers (e.g. soft drink cans or bottles) will be strictly prohibited.

C. Chemical List and Inventory

An inventory record for all hazardous chemicals will be developed and maintained. The inventory record will show in addition to the information required in the list maintained above, the date shipments to the inventory were received and where supplies were taken from inventory for use. An authorized representative of CWC will sign both the list and the inventory record.

D. Education and Training

1. It is the responsibility of CWC to assure that all their employees are adequately trained relative to the chemical hazards to which they may be exposed. Training requirements include initial training and specific training for both existing employees and new-hire employees who may be exposed to chemical hazards.

2. Basic "Hazard Communication" training will be given to existing and new-hire employees which covers the general provisions of the regulations governing

chemical hazard communication, employees' rights under the law, how the program works, what an MSDS is and how to read it, and the basic concepts of toxicology (dose-response concepts, routes of entry, hazard categories, etc.).

3. Specific training will be given to employees covering the hazards of specific chemicals that the employees will handle or to which they may otherwise be exposed; safe work procedures to be followed in working with specific chemicals; methods of determining that unacceptable exposures are occurring or are threatening to occur; protective measures to be taken to prevent exposures from occurring (personal protective clothing and devices, etc.), and emergency procedures.

4. CWC will develop a written hazard communication, training program and will submit a copy of the program to the PTI/HHS Safety Coordinator.

5. Training will include as a minimum:

   a. Hazardous substances currently present in the work area.

   b. Where written procedures, Material Safety Data Sheets, hazardous substance lists and the OSHA Hazard Communications Laws.

   c. Measures the employee can use to protect themselves.

   d. Methods of observation, such as appearance or odor, that workers can use to detect the presence of hazardous materials.

   e. Uses maintenance, and care of personal protective equipment.

   f. Performances of non-routine task involving hazardous substances.

2.6 Incident Investigation and Procedures

2.6.1 Purpose and Scope

To establish an effective procedure for the investigation and reporting of all accidents.

2.6.2 Accident Investigation:

A. All accidents or incidents that result in a work related injury or illness will be investigated.

B. All property damage accidents will be investigated.

C. All near miss incidents that had potential for injury or loss.

2.6.3 Reporting

The requirements for accident reporting are as follows:

A. All incidents i.e. property loss, and injuries or illnesses which require medical attention, hospitalization or result in a fatality will be immediately reported. The supervisor will make immediate notification to **PTI/HHS**.

B. Final reports will be completed within five working days of occurrence.

C. All accidents that require hospitalization or that result in a fatality will be reported in the following format:

1. Name of injured
2. Date and time of injury
3. Type of injury
4. Location of accident
5. Brief factual description of the event
6. Sequence (activities prior to and after accident)
7. Investigation (facts determined during the investigation)

E. Photographs

1. Photographs will be taken during the investigation of all incidents and accidents as well as accidents involving serious personal injury, substantial property damage, equipment or material failure, and all accidents that may, even remotely, involve third party action.

2. Photographs will be sufficient in number to adequately reflect the general area as well as pertinent details from a variety of angles. Photographs will be taken as soon as possible following the accident. A concise record will be made of the locations and conditions photographed. If photographs contain proprietary information, mark all photographs **"TRADE SECRET."**

F. Exhibits (all exhibits will be referenced in the body of the report)

1. Death Certificate/Coroner report

2. Autopsy Report

3. Sheriff/Police Report and Photographs

4. Witness Statements - All information within the content of the statement will be based upon factual information that can be documented or substantiated. Recommendations, guesses, fault, or any other supposition will not be included in the report.

5. Miscellaneous (Results of analysis or other activities, such as expert consultants report.)

2.7 Occupational Health

2.7.1 Policy

CWC will provide a safe and healthy workplace for its employees and will strive to minimize injuries to people, damage to property, harm to the environment, and loss to process. We will accomplish this through a complete loss control program, which encompasses a personal hygiene program.

A. Combustible garbage will be disposed of in covered metal cans.

B. Refuse from lunches, etc will be disposed of in covered metal cans.

C. Refrigerators will be cleaned out at the end of each week.

D. Employees will only go to the bathroom in approved and provided toilet facilities.

E. The toilet will be flushed after each use.

F. Used toilet paper will be disposed of only in the toilet.

G. Employees will wash their hands after using the toilet.

I. Changing facilities will be provided for certain areas of the facility as deemed necessary.

J. Employees will not feed animals or encourage them to stay around the facility.

K. Employees will practice any other good personal hygiene practices not listed above.

2.8 Orientation of New Employees

2.8.1 All newly hired CWC employees will be required to attend a safety orientation on the first day of employment. CWC will conduct the orientation prior to assigning employees to begin work. This includes craftsmen, laborers, supervisors, office staff, and subcontractor personnel.

2.8.2 A short-term contractor (one-time visit of eight hours or less) does not require safety training if accompanied by an authorized Client representative but will be given appropriate hazard recognition training.

2.9 Personal Protective Equipment

The harmful effects contaminated substances may have on the human body often necessitate the use of protective clothing. Protection against different types of chemicals and differing concentrations of those substances can be quite different. The work function and the probability of exposure to the substance must also be considered when specifying protective clothing.

Once the specific hazard has been identified, appropriate clothing can be selected. The protection level assigned must match the hazard confronted. Protective clothing ensembles, range from safety glasses, hard hats, and safety shoes to fully encapsulating suits with a supplied source of breathing air.

Protective clothing protects primarily because of the properties of the material from which it is made. In selecting the protective material, chemical resistance, strength, flexibility, thermal limits, and cleaning ability should be considered.

2.9.1 Head Protection

The wearing of head protection (hard hats) on field jobs is mandatory for personnel and project visitors. Hard hats will comply with ANSI specifications.

2.9.2 Eye Protection

At a minimum, eye protection (face shields, as applicable) shall be worn at all times. Project management will make conveniently available to all site personnel and visitors a type of protector suitable for the work to be performed.

Eye protection will be required where machines or operations present danger from, flying objects, direct or reflected brightness (glare), hazardous liquids, or a

combination of these hazards. Eye protection will meet the following minimum ANSI requirements and:

- Provide adequate protection against the particular hazards for which they are designed.
- Be reasonably comfortable when worn under the designated conditions.
- Fit snugly and not unduly interfere with the wearer's movements.
- Be durable.
- Be easily cleaned and disinfected.

Contact lenses do not provide adequate eye protection and will not be worn in hazardous environments. Persons whose vision requires correction and are required to wear eye protection will wear goggles or spectacles of one of the following types:

- Spectacles whose protective lenses provide optical correction (Rx).
- Goggles that can be worn over corrective (Rx) spectacles without disturbing the adjustment of the spectacles.
- Goggles that incorporate corrective (Rx) lenses mounted behind the protective lenses.

The use of both safety glasses and a face shield are advisable as long as they do not impair visibility.

2.9.3 Hearing Protection

According to 29 CFR 1926.52, ear plugs or earmuffs shall be issued when noise levels exceed above the TWA (8 hour day, average) of 85 decibels (dBa), such as around heavy machinery and impact tools.

2.9.4 Respiratory Protection

A. Respiratory protection devices approved by the National Institute of Occupational Safety and Health (NIOSH) or US Bureau of Mines will be worn by employees when exposed to hazardous concentrations of toxic dust, fumes, or mists as required by OSHA.

B. For known exposures that will require repeated respirator usage, a written respiratory protection program will be necessary.

2.9.5 Fall Protection

A. Fall protection and/or arrestors meeting OSHA standards will be worn by all employees when required. Safety harness lanyards will be a minimum of one half inch nylon or equivalent with a maximum length to provide a fall of no greater than six feet.

B. Safety harness lanyards will be secured to a structure capable of supporting the force exerted, if a fall occurs. This securing position will be at waist level or higher.

2.9.6 Foot Protection

Serviceable work shoes or boots with substantial sole and sides that protect the foot are required for all employees (ANSI approved). Athletic type shoes, sandals open toed shoes, etc. are not acceptable.

2.9.7 Suitable Clothing

All employees will wear clothing suitable for their work. Minimum clothing is sturdy work shoes, long pants, and a shirt with sleeves. Shorts, cutoffs, tank tops and/or mesh shirts are not permissible.

2.9.8 Maintenance of Equipment

Personal protective equipment, which has been altered in any manner, so as to reduce its effectiveness, will be repossessed, repaired or destroyed.

2.9.9 Other Personal Protective Equipment

Other equipment may be required for unusual circumstances such as high temperature work, handling corrosive liquid, etc. Requirements not specifically covered in this section will be reviewed with company management.

2.10 Reporting Unsafe Acts and Conditions

2.10.1 CWC supervisors and employees are to report conditions, which present a hazard to themselves, other workers, equipment and/or facilities. CWC will take immediate steps to investigate and if required correct the conditions. If the condition(s) pose imminent danger to workers, work will be stopped and the condition corrected.

2.10.2 Supervisors are required to respond to complaints of unsafe activity or conditions and correct them immediately.

2.11 Safe Work Areas

2.11.1 Purpose

To ensure that a new or modified operation, process, major item of capital equipment or unusual construction activity is safe by confirming that all health and safety concerns have been addressed in advance.

2.11.2 Scope

This procedure is applicable to all operations.

2.11.3 Requirements

A. A Health and Safety Review will be held when:

1. A new or modified operation is to be started.

2. A new process is developed or an existing process has been expanded or significantly revised.

3. A major item of capital equipment is to be purchased or put into service.

4. An unusual or hazardous construction activity is to be started.

5. A chemical or hazardous substance is to be handled for the first time and the hazardous substance's properties are significantly different from materials usually handled.

Note: Review of these requirements shall be conducted by the CWC Site Project Manger and CWC Health & Safety.

B. The pre-start up health and safety review will be held before the start up of the operation and after installation or revision is sufficiently completed for a proper evaluation and/or physical inspection.

C. There will be adequate time provided following the evaluation and/or inspection and before start up for the reviewing personnel to completely address concerns that may develop.

2.11.4 Procedure

A. Team Selection:

1. The Safety Supervisor or Construction Manager has the responsibility for establishing the need for a safety review and initiating the review with a written document.

2. When necessary, the initiating manager will select a health and safety review team from different disciplines depending on the type and scope of the project.

3. The team will be composed of safety personnel, and if warranted, members from engineering, technical products, operations, etc., depending on the requirements of the project. Other individuals from specialized functions, both within and outside of the Company, may be appointed to a team as deemed advisable. The senior safety member of the team will act as team leader. Additional members of the team may be composed of a representative from the original project, operational personnel, and at least one or more members not directly related to the project under review.

B. Preparation and Execution:

1. The representative from the project is responsible for familiarizing the team with the project and for reviewing the final report prior to publication.

2. The team will become familiar with the operating aspects of the project or process being evaluated.

3. The team will be aware of Safety and Health considerations identified in the design review and included in the project design. Team members will look for application of design/operating features to address hazards that have been identified in the company's major loss experience. It is not intended that the inspection includes a review of the unit design criteria or construction specifications.

4. When considered necessary, the team will physically inspect the project location to assure that process installation, personal safety, environmental concerns and health hazards are satisfied.

5. Operating procedures and operator training will be reviewed to verify that they contain adequate provisions for start-up, operation, and shut down as well as component failure and emergency response activities. Operating procedures and training will address all health and safety aspects of the project.

6. In some cases, maintenance procedures, training, inspection criteria and critical spare parts availability will be reviewed.

2.11.5 Reporting and Follow-up:

A. The team leader will prepare a written report to the Corporate EHS Manager. The inspection will be documented, and the more significant deficiencies and/or concerns will be highlighted for attention or corrective action prior to start-up. Other deficiencies noted or concerns developed by the team will also be included in the report.

B. The Project Manager is responsible for correcting the significant deficiencies and/or concerns highlighted by the team prior to approval for start-up and operation of the project.

C. The Project Manager will propose an action plan that addresses the safety deficiencies and concerns noted by the team with accountability assignments and completion dates.

2.12 Safe Work Practices

2.12.1 PCB Treatment Building Dismantle Project

The purpose of the section is to identify and address safety issues pertinent to this project.

A. Demolition for **PTI/HHS** will proceed in the following manner. All work will be performed in accordance with the appropriate **URS Corporation Safety Management Standards** , hereinafter referred to as **"URS SMS".**
All site activities associated with **PTI/HHS** will require compliance with the following SMS.

Project Hazard Analysis
Regulatory Inspections SMS #001
Worker Right to Know (Hazard Communication) SMS #002
Emergency Action Plans SMS #003
California Injury Illness Prevention Program SMS # 005
Aerial Lifts SMS #007
Asbestos SMS #008
Corrosive and Reactive Materials SMS #009
Demolition SMS #011
Electrical Safety SMS #012
Excavation Safety SMS #013
Fire Prevention SMS #014
Flammable, Combustible Liquids and Gases SMS #015
Hand Tools and Portable Equipment SMS #016
Hazardous Waste Operations SMS #017
Heat Stress SMS #018
Heavy Equipment Operations SMS #019
Hot Work SMS #020
Housekeeping SMS #021
Lead in Construction SMS #022
Lockout / Tagout SMS #023
Medical Surveillance SMS #024
New Employee Orientation SMS #025

Noise and Hearing Conservation SMS #026
Portable Ladders SMS #028
Personal Protective Equipment SMS #029
Sanitation SMS #030
Scaffolding SMS #031
Work Zone Traffic Control SMS #032
Utility Clearances and Isolation SMS #034
Cranes SMS #038
Fall Protection SMS #040
Rigging SMS #041
Respiratory Protection SMS #042
Industrial Hygiene Surveys SMS #043
Back Injury Prevention SMS #045
Subcontractor Health & Safety Requirements SMS # 046
Biological Hazards SMS #047
Hazardous Materials/Dangerous Goods Shipping SMS #048
Injury/Illness/Accident/Incident Reporting SMS #049
Specific Chemical Hazards SMS #050
Bloodborne Pathogens SMS #051
Health and Safety Training SMS #055
Vehicle Safety Program SMS #057
Hand Safety SMS #064
Injury Management SMS #065

Note: The URS Health and Safety Program and Management System shall be available in the project construction trailer at all times to all CWC employees, subcontractors, vendors, and PTI/HHS.

B. Protective clothing requirements for heavy wrecking of structures has been identified and is as follows:

1. All equipment operators will wear long pants, a shirt with sleeves (no tank top style shirts), leather type boot, eye protection, hearing protection, respiratory protection in dusty conditions, hard hats and high visibility orange vest.

2. All laborers will wear long pants, shirts with sleeves, hard hat, high visibility orange vest, safety glasses, have hearing protection available, have respiratory protection available for dusty conditions, leather type work gloves, and leather type safety boot.

3. All personnel walking in work areas are to wear high visibility vests, hard hats, safety glasses, and have proper work style boots. They are to ensure the equipment operators know where they are at all times when working

within the swing radius of the excavator or travel path of any equipment.

2.13 Safety Education

2.13.1 Purpose and Scope

To establish training and education guidelines for all employees.

2.13.2 Goals of Education and Training

The primary goal of education and training is to ensure that CWC trained employees are aware of the safety procedures in order to maintain a safe work environment. To this end, the most important knowledge and skill to be acquired by the attendees are:

A. To be able to differentiate hazardous material from non-hazardous. Employees will need to know its nature and characteristics, and why it is a hazardous substance.

B. To protect oneself in the process of moving or handling material. Employees will need to know relevant federal and state regulations on personal safety. They will need to know the protective equipment available (respirators, clothing, etc.) and demonstrate ability to use them properly. They will need to know about other hazards and methods of personal hygiene and decontamination.

C. To protect others from exposure to hazardous materials. They will need to know and demonstrate skill in proper use of equipment.

They will need to know the legal rights and responsibilities of the employee/employer. They will need to know how to safely dispose of hazardous materials and to prevent the contamination of others.

2.13.3 General

A. A proven means for instituting and reinforcing a safety program is through carefully planned and conveyed safety education, training and informational activities. These activities are to be presented logically and systematically to ensure that all employees know their obligations and responsibilities as they apply to the overall safety effort.

B. CWC recommends different means, that these activities relating to work hazards and their controls are conveyed to the employees. These means include, but are not limited to:

1. New hire safety orientation/indoctrination by Safety and Supervisory Representatives.

2. Foreman's safety orientations to employees.

3. Weekly Manager safety meetings.

4. Weekly "Toolbox" safety meetings.

5. Project safety bulletin boards.

2.13.4 New-Hire Safety Orientation

A. All newly hired employees will be required to attend a safety orientation on the first day of employment. The orientation will be conducted prior to assigning employees to begin work. This includes craftsmen, laborers, supervisors, office staff, and subcontractor personnel.

B. In addition to the above referenced presentation, the following will be discussed:

1. CWC Safety Philosophy - The importance that CWC attaches to health and safety matters, including the desire to fully comply with federal and state safety and health act regulations as well as the URS Corporation Health and Safety Manual.

2. Employees' Safety Responsibilities - Employees are to take care to protect the health and safety of themselves and other workers and to cooperate with CWC's safety effort.

3. First Aid - The reporting procedures for occupational injuries and illness will be reviewed. Every injury, no matter how slight, will be reported to the first aid facility and to the employee's foreman. Any employee who has obtained outside medical treatment for an alleged work site injury or illness will report his or her injury or illness and the name of the attending physician to the first aid facility and his/her supervisor no later than the first normal scheduled workday following his or her outside medical treatment. Failure to comply with this policy may result in the denial of workers compensation benefits and may be cause for termination.

4. "Toolbox" Safety Meetings - Every employee will be informed that attendance at scheduled daily contractor Supervisor "Toolbox" safety meetings are mandatory. This daily meeting will allow employees to ask questions, offer suggestions and air complaints regarding safety on the project.

5. Reporting of Unsafe Acts or Conditions - Each employee will be informed that CWC expects them to report all unsafe acts or conditions to supervision, who will either resolve the problem or refer it to a higher project authority. Any unresolved problem will be reported to the Safety Director. In cases of "imminent danger," the first CWC supervisor the employee can find will be informed of the situation.

6. Personal Protective Equipment - Every employee is required to wear an approved hard hat, safety glasses, and have proper work style boots at all times. In addition, each employee will be made aware that other forms of protective equipment (full body harness and lanyards, face shields, hearing protection, respiratory protection, etc.) may be required. This equipment will comply with all government, Client and CWC personal protective equipment requirements and standards. If the use of personal protective equipment is deemed necessary for a specific work task, its proper use is mandatory. Repeated non-use of personal protective equipment when required will be cause for termination

   Employees that are provided with appropriate personal protective equipment are responsible for inspection of this equipment before using. If the employee determines the equipment is in need of repair or replacement, the employee will notify his/her foreman immediately and obtain a replacement.

7. Emergency Procedures - Each employee is to be informed on established project emergency procedures so that he/she may render assistance in case of serious injury, fires, evacuations, etc.

8. Each new employee or transferee will receive a safety, health and hazardous communication orientation. This will provide the employee with basic information regarding the project Safety & Health Action Plan, OSHA Standards and applicable Client rules and procedures. Additional safety and health instruction may be required for the performance of hazardous or unfamiliar tasks.

2.13.5 Employee Safety Meetings

Each supervisor is responsible for conducting daily "Employee Safety Meetings" with his/her employees. Attendance is mandatory for all employees.

2.13.6 Hazard Communication Training

Training will be conducted prior to employees being subjected to an exposure of a known hazardous substance. Training will address the degree of hazard, precautions to be taken and personal protective equipment required. Material Safety Data Sheets (MSDS) will be used in conjunction with

all training. Employees will be instructed to obtain guidance from their supervisor prior to working with any unfamiliar materials.

2.13.7 Documentation

A record will be maintained on site and, as requested, given to the Client.

2.14 Safety Orientation for Supervision

Each supervisor will receive an orientation that outlines his/her duties and responsibilities for safety and health in daily work activities. As a minimum, this orientation will address the following items:

2.14.1 Safe Work Areas

Supervisors will become familiar with the conditions in each area of work to which their employees are assigned. Unsafe conditions that exist in the work area will be corrected prior to commencement of work. If this is not possible, the situation will be brought to the attention of the appropriate person, who will initiate corrective action.

2.14.2 Safe Work Practices

When making work assignments, supervisors will inform employees of the safe work practices, work methods and personal protective equipment required. Supervisors are responsible for ensuring that their employees use the proper personnel protective equipment and proper tools for the task.

2.14.3 Emergency Procedures

Supervisors will become familiar with the emergency procedures developed for their area of responsibility. This will allow them to provide the leadership and guidance required to cope with serious injuries, fires, excavations, etc.

2.14.4 Accident Investigation

Supervisors will participate actively in the investigation of any accident or incident that occurs in their area of responsibility.

A. Personal injury.

B. Equipment or property damage.

C. Near misses that had a potential for serious injury or loss.

2.14.5 Fire Protection and Prevention

Supervisors will maintain a constant awareness of the fire potential in their areas of responsibility. If a fire occurs, the supervisor will immediately sound the alarm and take the necessary action to protect life and property.

A. In areas where fire protection equipment is not present, fire extinguishers or other fire temporary fire protection will be made available.

B. Emergency equipment, such as fire extinguishers and hose reels, will be used only for its intended purpose. This equipment will not be blocked or otherwise tampered and maintained.

C. Flammable liquids will be kept in appropriate safe containers. An ABC Type fire extinguisher will be available within 25' at any flammable liquid storage area.

2.14.6 Enforcement Policy

Supervisors will inform their employees that any person who jeopardizes their safety and health and or the safety and health of others, will be subject to disciplinary action up to and including immediate termination.

2.15 Special Instructions and/or Information

2.15.1 Specialized Training

Training is an ongoing process and will be continued throughout the duration of the project as a new process revised regulatory requirements, or special training needs are identified.

2.16 Supervising for Safety

2.16.1 Policy

CWC will provide a safe and healthful work place for its employees. We will accomplish this through strong management commitment, supervision of the work place and to a total loss control program, which involves controlling injuries to people, damage to property, loss to process, and harm to the environment.

A. Place priority on promoting safety and protecting health in relationship with economic factors.

B. Comply with all applicable laws, regulations and rules pertaining to health, safety and environmental issues.

C. Develop, implement and maintain safe working practices and procedures, and train each employee to perform their jobs in compliance with those practices and procedures.

D. Hold management accountable for ensuring that employees, equipment, facilities and resources, within their area of responsibility, are managed in a manner to minimize all losses.

E. Hold each employee responsible, within the bounds of his/her control, for the maintenance of safe and healthy working conditions; for compliance with safety, health, environmental regulations and practical procedures, and to do their job in a safe and efficient manner.

F. Ensure that safety, health and environmental factors and features are included in new and modified construction, and in the purchase of equipment and materials.

G. Provide a professional Loss Control staff to assist in planning and implementing proactive loss control programs.

2.17 Task Training

2.18.1 Purpose

A key method of successfully instituting and reinforcing any safety and health process is through a carefully planned and executed education and training system.

2.18.2 Scope

The contents of this section apply to all personnel performing work on CWC projects.

2.18.3 Procedures

A. The supervisor is responsible for assuring each member of his/her crew has knowledge of the work being performed and that they are able to train new or transferred employees who are not familiar with the work, equipment or process.

1. Supervisors will, through interview, determine whether the new or transferred employee has knowledge sufficient to perform the tasks assigned.

2. Various project personnel, such as superintendents and first line supervisors, will participate in this process as instructors and advisors.

3. All training will be documented and records will be maintained at the site office.

URS	Health and Safety Program PROJECT HAZARD ANALYSIS FORM	Attachment PHA-1 Revision: October 2002

Completed by: MARK ACOSTA Date: APRIL 10, 2006

Project Name: PCB TREATMENT BLDG. DISMANTLE Project #: 26012

Determine the applicability of these SMSs to your project	See SMS #
Emergency Action Plan	003
Sanitation	030
Regulatory Inspections	001
Incident reporting	049

Will project activities involve any of the following?	Yes	See SMS #
Abrasive blasting or exposure to abrasive blasting media or waste?		006
Accident investigation?	✓	049
Aerial lifts?	✓	007
Air contaminants in hazardous concentrations?	✓	043, 042
Asbestos surveys or abatement oversight?	✓	008
Biological hazards	✓	047
Bloodborne Pathogens	✓	051
Boating		027, 053
California job activities?		005
Cold Stress potential to employees working: • Outdoors in damp and cool (below 50° F or 10°C) conditions • anytime temperatures are below 32°F or 0°C.		059
Computer use / ergonomic concerns?		054
Corrosive materials used or handled?	✓	009
Confined space entries?		010
Cranes or hoists?	✓	038, 041
Demolition activities of any type of structures?	✓	011
Drilling		056, 034
Electrical equipment? • Generators? • Live electrical circuits?	✓	012
Excavations or exposure to excavation hazards?	✓	013
Fall Hazards	✓	040
Flammable or combustible materials used or stored which could constitute a fire hazard?	✓	014, 015
Hand Safety	✓	064

URS	Health and Safety Program PROJECT HAZARD ANALYSIS FORM	Attachment PHA-1 Revision: October 2002

Will project activities involve any of the following?	Yes	See SMS #
Hand tool use: • Portable • Gas powered • Electric • Powder actuated	✓	016
Hazardous materials shipping	✓	048
Hazardous substances – physical, chemical or health hazards?	✓	002
Hazardous waste activities (investigative or remedial)?	✓	017
Heat Stress potential to employees working in: • Hot environments; or • Impermeable Chemical Protective Clothing?	✓	018
Heavy equipment in use at this project site?	✓	019
Hot Work (welding, cutting, grinding)	✓	020
Housekeeping	✓	021
Industrial site access of any kind?		004
Ireland work activities?		061
Lead exposures (lead paint removal, lead in dust, etc)?	✓	022
Lockout/tagout to control exposure to hazardous energy?	✓	023
Manbasket (Crane Suspended Personnel Platforms) for working at heights?		037, 038, 041
Marine Safety and Boat Operations		053
Medical Surveillance requirements? Examples would include exposures to: • Noise • Asbestos • Lead • Hazardous Wastes • High Altitude • Carcinogens • Respirator Use	✓	024
Noise exposures?	✓	026
Nuclear Density Gauge Use		044
Outdoor environments		047
Portable ladder use?	✓	028
Personal protective equipment?	✓	029
Radiation		052
Railroad Systems; railroad train		063
Respiratory protection use – required and/or voluntary?	✓	042
Scaffolding?	✓	031
Sewer Entry		010
Subcontractors?	✓	046

URS	Health and Safety Program PROJECT HAZARD ANALYSIS FORM	Attachment PHA-1 Revision: October 2002

Will project activities involve any of the following?	Yes	See SMS #
Traffic control due to work in streets and/or roadways?	✓	032
Travel to remote locations and/or developing countries?		036
United Kingdom work activities?		060
Utility Clearances – overhead or underground?	✓	034
Unexploded Ordnance/Chemical Warfare agents present or potential?		039
Underground Storage Tank investigation, removal, etc.		033
Water, work over or around?		027
Work at altitudes greater than 7,000 feet (~ 2,100 meters)		035
Working at heights of greater than 6 feet without protective measures such as guard rails?	✓	040

Dust Control Plan

PURPOSE AND SCOPE OF WORK

Cleveland Wrecking Company (CWC) will utilize hand tools, pneumatic and hydraulic tools, heavy equipment for demolition of structures, processing of debris and haulage of said material, as well as movement of vehicles at the work site. "Worker safety and protection of the environment is paramount at all CWC projects. CWC will take all necessary precautions to minimize the exposure of nuisance and fugitive dust to employees and local citizens in the community." Control or evaluation of potential dust hazards shall be accomplished through observance by experienced personnel, inspection of the site conditions and equipment, and coordination of hazard observation with supervisory personnel and the health and safety officer. The purpose of this procedure is to protect those employees and subcontractors performing operations for which exposures can not be controlled by use of conventional engineering or administrative controls and to require that respiratory protective equipment is selected, used, maintained, and stored in accordance with acceptable practices.

WORK AREAS

The following locations are the main areas of work for the project and may or may not generate nuisance and/or fugitive dust:

- Lay-down Area
- Foot print of the work area
- Processing of debris
- Equipment travel path
- High side and/or Low side haulage vehicle loading area
- Mobilization and De-mobilization of equipment

INTERIOR OPERATIONS – AIR QUALITY (if applicable)

Construct mini-containments in footprints of the PCB contaminated areas of the building, to assist in controlling dust. Mini-containments will be similar to as shown in the work plan. Containments will be constructed on the floor below the footprint of the demolition, in order to create a boundary for dust generated from the dropping of pulverized rubble. Mini-containments will be constructed out of panelized plastic sections, using an adjoining column as support, and taped and anchored securely to the floor and ceiling. Containments will be self-supporting and moveable, much like tall fence panels typically seen around construction sites. Water will be applied from behind the panels, through openings in the panels, and from the floor above, during the demolition work.

METHODS OF DUST CONTROL

In the event airborne levels of dust are visually observed in the work area, dust control will be potentially controlled in one or more of the following manner:

- Water misting of the work area with the use of a water truck (ground surface soil work)
- Water misting of the work area with a 1 ½" water hose connected to an on-site water source
- Water misting will cover the work area, equipment and structure/s
- ¾" or 1" garden hose with adjustable pattern misting nozzle
- Tarps may be applied to a structure or perimeter fence to contain or control dust
- Portable mini-containments
- Sealed windows. Windows and sash will be removed during the asbestos abatement phase of the project, due to the asbestos content of the window putty. In order to mitigate the effects of cross-drafts, and more efficiently contain dust inside the building, perimeter windows will be temporarily sealed with plywood, visqueen or similar barrier prior to removal of TSCA Waste floor areas.

PERSONAL PROTECTIVE EQUIPMENT

Inhalation of airborne dust shall be minimized through the use of half-face cartridge respirators, and through the practice of water misting to aid in dust control. Eye injuries due to dust particles shall be minimized through the use of safety glasses with side-shields, goggles, or face shields. The following protective equipment shall be utilized and made available to all project personnel in sufficient quantities at the site at all times;

- Half-face respirators with Organic Vapor/HEPA filter cartridges (known as P-100 cartridge filters)
- Safety glasses
- Goggles (as required)
- Face shields (as required)
- Hearing protection (as required)
- Serviceable and/or disposable Coveralls (Tyvek)
- Serviceable and/or disposable steel toe boots and/or booties
- Nitrile type inner gloves, Leather type outer work glove

Workers will wear Level C type personnel protective equipment to mitigate inhalation hazards and/or skin contact of PCB dust, until such point that PPE can be safely down-graded, based on air sampling results.

Note: Personnel assigned a half-face respirator are enrolled in the medical surveillance program, medically qualified, fit tested and trained in uses and limitations of respirators.

MONITORING

Air monitoring will take three forms. First, personnel will be fitted with personal air monitoring pumps, clipped to an exterior pocket and sampling cassette adjusted to within the breathing zone of employee to measure the 8-hour time weighted average (TWA) of dust during the work shift to ensure workers are not exposed to levels of PCB contamination above allowable thresholds for similar work.
Perimeter air monitoring stations will be set up at strategic locations around the job site, depending upon wind direction and speed. Typically, 2 or 3 continuous stations will be set at the fence lines down wind on the demolition work. Sample results from monitoring will be collected and recorded, and will serve as the project record, in the event that exposure to the public is ever questioned. Copies of sample results will be distributed to Hard Hat Services during removal work, and will be made part of the Final Summary Report, furnished to Hard Hat upon conclusion of the work.

TRAINING

All respirator users must receive the following training:

- Before they are assigned a respirator
- Annually thereafter
- Whenever a new hazard or job is introduced
- Whenever employees fail to demonstrate proper use or knowledge

Training must address, at a minimum, the following:

- Why the respirator is necessary, and what conditions can make the respirator ineffective
- What the limitations and capabilities of the respirator are
- How to use respirators effectively in emergency situations
- How to inspect, put on and remove, and check the seals of the respirator
- What the respirator maintenance and storage procedures are
- How to recognize medical signs and symptoms that may limit or prevent effective use of the respirator

Require respirator users to be fit tested.

Any employee or subcontractor who has been assigned a reusable respirator must be fit tested either on an annual basis (no more than one year may elapse between fit tests), or when an employee is assigned a respirator of a different make, type or size from that previously tested. Quantitative fit testing is conducted and is performed in house.

Fall Protection Plan

Fall prevention and fall protection, are two terms frequently used to explain the means to control fall hazards. However, fall prevention and protection are different and should be considered separately. Proper fall prevention eliminates a hazardous situation and therefore removes the chance of employee exposure to a fall. Fall protection follows recognition that a hazardous condition cannot be fully or adequately eliminated, and therefore fall arrest equipment and procedures are needed.

To be effective, fall prevention must be initiated in the construction/demolition-planning phase with a close study of operations and tools having fall hazard potential. The basic idea is to map out effective ways to get rid of the fall hazards and minimize the need for fall arrest equipment.

Fall protection is using fall arrest equipment to minimize the detrimental effects of a fall should it occur. When fall arrest equipment is utilized, employee training must be provided before starting work to ensure proper use. *Fall arresting systems shall consist of a full body harness, one or two shock-absorbing lanyards, self-locking snap hooks, and adequate anchorage points.* Consult with your Health and Safety Representative for additional details.

This Fall Protection Plan applies to Cleveland Wrecking Company (CWC) projects where personnel and subcontractors could be exposed to fall hazards of 6 feet or more. The plan is designed to enable employers and employees to recognize the fall hazards on the job and to establish the procedures that are to be followed in order to prevent falls to lower levels or through holes and openings in walking/working surfaces. Each employee will be trained in these procedures and strictly adhered to.

The Fall Protection Plan shall be developed by a *Qualified Person* (QP). A *Qualified Person* is a person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work, or the project. The Qualified Person for the project is Mark Acosta, CWC Assistant Manager Environmental Health and Safety.

It is the responsibility of the *Competent Person* to implement the Fall Protection Plan. The *Competent Person* is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to make prompt corrective measures to eliminate them. The foreman also is responsible to correct any unsafe acts or conditions immediately. The *Competent Person* for the project is Randy Cook, CWC Project Superintendent.

It is the responsibility of the employee to understand and adhere to the procedures of this plan and to follow the instructions of the foreman. It is also the responsibility of the employee to bring to management's attention any unsafe or hazardous conditions or acts that may cause injury to either themselves or any other employees.

Any changes and/or updates to this fall protection plan must be reviewed and approved by Mark Acosta.

Site Specific Work Plan

Project: PCB Treatment Building Dismantlement

1. Fall hazards in the work area:

   Specific hazards shall be identified and are as follows:

   - Aerial/Scissor Lifts
   - Aerial Platforms
   - Ladders
   - *Leading Edges*
   - Open Holes
   - Pits
   - Mechanical Equipment Platforms
   - Catwalks

2. Fall restraint equipment shall consist of the following:

   - Full body harness with D-ring attachment on the back
   - Single and double shock-absorbing lanyards with self-locking snap hooks
   - Self Retracting Lanyard (a.k.a. yo-yo)
   - Beam wraps – Wire rope and Nylon
   - 5/8" or greater nylon rope of 50' and 100' lengths
   - Rope grabs
   - Wire rope chokers and/or wire rope with crosby clamps
   - Attachment point within the basket of the equipment
   - Miller concrete anchor
   - Guardrails (where applicable)

   To minimize and/or reduce the potential of a fall in the workplace the following procedure shall be implemented for the specified work areas:

   Personnel while utilizing aerial lifts and platforms shall utilize the anchor point built into the unit itself for the anchor point. If an anchor point is not provided within the basket, a beam wrap or wire rope choker may be utilized to accomplish the anchor point.

   Leading edges may be protected with either wire rope and/or wood guard-rails (stanchions on 8' centers, rails will be at 42" and 19" above the surface.

Authorized Personnel

Personnel are required to receive site specific training for fall protection and the fall protection plan prior to performing the specified work. Upon completion of the aforementioned information personnel will sign this document indicating they understand the requirements of fall protection equipment and the fall protection plan:

_____	_____	_____
_____	_____	_____

3. Assembly, Maintenance, Inspection, and Disassembly Procedures

Assembly and disassembly of all equipment will be performed in accordance to URS policy and procedure (SMS 40) and the manufacturer's guidelines.

A visual inspection of all equipment shall be performed daily prior to use. Any defective equipment will be identified and removed from service and immediately destroyed to prevent further use.

Inspection Guidelines:

To maintain their service and high performance standards, all harnesses, lanyards, ropes and associated hardware shall be frequently inspected. Visual inspection shall be performed before each use and after excessive use. Inspect the equipment daily and replace it if any of the defective conditions explained in the fall protection plan are found.

- Beginning at one end, holding the body side of the straps toward you, grasp the strap with your hands six to eight inches apart. Bend the strap in an inverted "U". The surface tension resulting makes damaged fibers or cuts easier to observe.
- Follow this procedure the entire length of the straps of the harness. Watch for frayed edges, broken fibers, pulled stitches, cuts, chemical damage or slag burns.
- Special attention shall be given to the attachment of buckles and D-rings to webbing. Note any unusual wear, frayed or cut fibers or distortion of the buckles or D-rings.
- Inspect for frayed or broken strands. Broken webbing strands generally appear as tufts on the webbing surface. Any broken, cut or burned stitches will be readily seen.
- Rivets should be tight and immovable with fingers. Body side rivet base and outside rivet base should be flat against the material. Bent rivets will fail under stress.

- Especially note condition of D-ring rivets and D-ring metal wear pads (if any). Discolored, pitted or cracked rivets indicate chemical corrosion and/or heat damage.

- The tongue or billet of the belts receives heavy wear from repeated buckling and unbuckling. Harnesses using punched holes without grommets should be checked for torn or elongated holes causing slippage of the buckle tongue.

- Tongue buckle – buckle tongues should be free of distortion in shape and motion. They should overlap the buckle frame and move freely back and forth in their socket. Rollers should turn freely on frame. Check for distortion or sharp edges.

- Friction buckle – inspect buckle for distortion. The outer bars and center bars must be straight. Pay special attention to corners and attachment to points of the center bar.

- Sliding Bar Buckle – inspect buckle frame and sliding bar for cracks, distortion or sharp edges. Sliding bar should move freely. Curled edge will slip if worn smooth. Pay special attention to corners and ends of sliding bar.

- ***Important Note:*** Upon placing the harness and/or lanyard in service the manufacturer's Formal Inspection Grid Tag shall be marked with an indelible marker or a hole-punch shall be used to create a hole indicating the Month and Year of being placed in service. If the manufacturer's tag is somehow removed and/or damaged and the inspection tag is no longer legible, the harness shall be removed from service and destroyed as per manufacturer's instructions.

Lanyard Inspection:

When inspecting lanyards begin at one end and work to the opposite end. Slowly rotate the lanyard so that the entire circumference is checked. Sliced ends require special attention. Hardware should be examined under procedures also detailed below, (i.e. snaps, D-rings, thimbles):

- Wire rope – while rotating the wire rope lanyard watch for cuts, frayed areas or unusual wearing patterns or kinks in or on the wire. Broken strands will separate from the body of the lanyards.

- Webbing – while bending webbing over a pipe or mandrel, observe each side of the webbed lanyard. This will reveal any cuts or breaks. Swelling, discoloration, cracks, charring are obvious signs of chemical or heat damage. Observe closely for any breaks in the stitching.

- Rope – rotate the rope lanyard while inspecting from end to end will bring to light any fuzzy, worn, broken or cut fibers. Weakened areas from extreme loads will appear as a

noticeable change in original diameter. The rope diameter should be uniform throughout the length, following a short break in period.

4. Overhead Protection

Hard hats are required on all CWC projects at all times. Warnings will be posted to caution of existing hazards whenever they are present. To reduce the potential of a hardhat falling off a persons head due to the wind or being knocked off or bending over to far, chinstraps shall be utilized by CWC and their subcontractors. All personnel working on the ground surface around the building shall utilize hardhats at all times.

5. Injured Worker Treatment and Removal

First aid procedures shall be conducted, as the situation requires. If the area is safe for entry, first aid shall be provided by a certified individual. In the event a person is injured beyond the means of standard first aid, the Fire Department shall be contacted via on site phone number and/or cellular phone for treatment and removal of the person to the appropriate medical facility.

Two-way radios and cellular phones are the means of communication for the project.

The 1st Aid kits for the project, are located in the project office and tool bins. The locations shall be communicated to all personnel by a "Tailgate Meeting".

Rescuer Consideration:
When personal fall arrest systems are used, the employer will ensure employees can be promptly rescued or rescue themselves should a fall occur. The availability of rescue personnel, ladders, aerial lifts, or other rescue equipment should be evaluated. In some situations, equipment which allows employees to rescue themselves after the fall has been arrested may be desirable, such as devices which have descent capability.

LEAD COMPLIANCE PLAN

1.0 Site Location, Description, and Scope of Work

This project is located in Kansas City, Missouri. The contractor for demolition is Cleveland Wrecking Company, (CWC).

CWC shall be responsible for mitigation of potential environmental and construction hazards resultant from the presence of lead dust or fumes. The activities that have a potential to emit lead dust or fumes include torch cutting and burning, and the welding process (if applicable). Specific task related engineering controls and personal protection measures will be implemented to reduce the potential for lead exposure during the construction and demolition activities.

2.0 Job Description / Responsibilities

The activities that have potential to expose the workers to lead concentrations greater than the action level of thirty micrograms per cubic meter of air (30 ug/m3), are as noted, torch cutting and burning, or the welding process.

Exposure assessments have been conducted for similar projects to evaluate the exposure potential resultant from the torch cutting and burning. According to previous air sample results, exposure to airborne lead dust is anticipated with these activities. Objective data previously obtained from similar projects has indicated employee exposure to lead has been below the action level and permissible exposure limits. Periodic inspections and personal sampling will be conducted to ensure reduced and/or negative exposure.

The responsibilities, procedures, and equipment for each job classification are listed below.

Superintendent

The superintendent for CWC is Randy Cook. Mr. Cook will be responsible for identifying the select areas of torch cutting and burning. He will be responsible for scheduling, coordination with subcontractors (if applicable), conducting safety meetings, and supervising CWC personnel.

Competent Person

The competent person for CWC is Jim Norris and will be responsible for the following: As defined by OSHA, a "competent person" is one who is capable of identifying existing and predictable hazards at the work-site, and who has the authority to ensure prompt corrective measures are taken to eliminate them. CWC will utilize a competent person to ensure that this compliance program is effective. In the context of this particular job, the competent person has the knowledge of the lead exposures for each of the activities done by the work crew; is aware of the potential hazards from lead and other substances or physical agents at the work-site; can apply the appropriate engineering controls, work practices, and personal protective equipment for the job; and is familiar with the requirements of OSHA standards.

As a competent person, Mr. Norris will also be responsible for the following:

Prior to the job beginning:

- ensuring that adequate air monitoring data is used to predict employee exposure levels;
- assist in revisiting this compliance document for the job at hand;

- ensure that the engineering controls and protective equipment are ready to be used on the job;
- notify the occupational health clinic that a demolition/lead abatement job is beginning in their area and supply and/or ensure the clinic has the appropriate MSDS's;
- ensure that all employees have been trained, including training in the use and limitations of respirators
- *ensure personnel are enrolled in the URS Corporation Medical Surveillance Program (blood lead level monitoring) as per Federal OSHA Standard 29 CFR 1926.62.*

During the job:

- maintain engineering controls to reduce employee exposure on the job;
- ensure all personnel utilize appropriate personal protective equipment and practice good personal hygiene;
- make changes to engineering controls or personal protective equipment if needed.

Jim Norris will be on-site as required and will act as the competent person for occupational health and safety issues. The competent person will conduct periodic inspections of the work areas and document the findings to ensure that control measures, work practices, personal protective equipment, and hygiene facilities are used as prescribed in this document. As the competent person, he or she has full authority to make any adjustments to work procedures that may reduce the potential exposure to personnel and had received sufficient training to perform his duties as a competent person.

The foreman is also responsible for overall job-site supervision of the work crew. He will ensure a smooth and safe work environment. The foreman reports directly to the superintendent.

3.0 Initial Exposure Assessment

The initial exposure assessment will be performed by CWC personnel during the first week of each work procedure and on an ongoing basis. Samples are to be collected from personnel in each job classification and analyzed using the National Institute for Occupational Safety and Health's (NIOSH) Method 7082.

The results of the initial exposure assessment will be compared to OSHA action level and permissible exposure limit. Should the exposures be in excess of the PEL, adjustments to the personal protective equipment, engineering and/or administrative controls will be made. Also, the use of historical data may be applied to the work at hand to determine the level of personal protective equipment for similar work previously performed.

The initial exposure assessment covers only the tasks indicated in this section. Should additional activities be added to the scope of the work, or if there are any changes in work conditions, additional initial exposure assessments will be done.

All personnel evaluated during the initial exposure assessment and personnel represented by this evaluation will be notified within five days of receipt of the report. Additional air sampling shall be every three months for each job classification until the end of the project.

Record-keeping

All records pertaining to exposure assessments, air monitoring, training, and medical surveillance will be kept on file in the CWC corporate headquarters for a minimum of 5 years. Personnel upon request will have access to these records at any time. As for site records, copies of training and respirator qualification shall be made available and kept with the superintendent as they apply to the specific work.

4.0 Hazard Control

Technology Considered in Meeting the Permissible Exposure Limit (PEL)
The HUD Guidelines for Evaluation and Control of Lead Hazards in Housing, A Guide for Protective Work Practices, 29 CFR 1926.62, and other publications were reviewed to determine the appropriate engineering controls to be used. The research was done to find control measures to maintain exposures below the PEL.

Based on the site inspection, scope of work, and the above reviewed items a description of the specific hazard controls are listed below:

Note: These procedures have been developed through the guidance publication " Code of Federal Regulations 29, Part 1926.62 Lead.

Engineering Controls

The vast majority of potential production of lead fumes or dust below the action level shall be from torch cutting and burning. Generation of airborne dust is not anticipated to be problematic with the use of water misting as a control. A variety of personal protective equipment will be employed, nevertheless, including negative pressure respirators, hard hats, gloves, serviceable coveralls over street clothes, safety glasses and/or goggles, steel toed shoes to control and/or reduce potential exposure. Work will be performed in a regulated area, identified with proper signs and warning tape.

All surfaces will be kept as free as practicable of accumulations of lead. Cleanup of floors and other surfaces where lead accumulates must be, when possible, cleaned by methods that minimize the likelihood of lead becoming airborne (i.e. vacuuming, water hose).

Heavy equipment and/or any and all equipment utilized for removal of lead contaminated materials shall be decontaminated by the use of a water hose while in the demarcated work area.

Respirators

Respirator selection was determined following a review of 29 CFR 1926.62 Table 1- Respiratory Protection for Lead Aerosols and the initial exposure assessment data. Based on this review any individuals expected to be exposed to airborne levels of lead dust in excess of the action level in the above referenced job classifications will be examined by a physician, trained, fit tested, and issued at a minimum, a NIOSH / Mine Safety and Health Administration (MSHA) approved half-mask air purifying respirator equipped with organic vapor / high efficiency particulate (HEPA) filters. The exposure assessment indicates the need for respiratory protection, respirators are nevertheless recommended during all activities with a potential for exposure. If requested, any project personnel will be issued a powered air-purifying respirator (PAR) to wear during their work activities. Respirators will be provided in the context of a complete respiratory protection program.

Additional Personal Protective Equipment

All personal protective equipment (PPE) issued including coveralls must be left on-site. Any PPE that can not be decontaminated (i.e., leather gloves, welding aprons) will be profiled and properly disposed of at the completion of the project.

Hygiene Facilities

Changing, storage, and hand washing facilities will be provided for all workers. The location of these facilities needs to be identified and posted before demolition progresses throughout the project. Soap and towels will be provided. Hands and face will be washed before all breaks and at the end of the day. All hygiene facilities shall be free of surface contamination.

Prohibited Activities

Dry sweeping or cleaning with compressed air, as well as dry sanding, is strictly prohibited. Eating, drinking, use of tobacco products, or applying cosmetics in the work area is strictly prohibited. Any personnel found doing the above activities will be subject to disciplinary action.

Waste Profiling and Disposal (If applicable)

A typical composition of anticipated debris ***may be*** collected and characterized by CWC for waste profile. Results from these tests will indicate where the waste material may be disposed. Testing shall be dependent upon the type of demolition method performed.

Notification

CWC shall post the following warning signs in each regulated area or work area where an employees exposure to lead is above the PEL.

WARNING
LEAD WORK AREA
POISON
NO SMOKING OR EATING

CWC shall ensure that signs that are required by 29 CFR 1926.62 and are illuminated and cleaned as necessary so that the legend is readily visible.

This project site is a multi employer work site, a notification policy shall be established by CWC and all subcontractors regarding the potential exposure and training required for lead awareness.

NEIC

National Environmental Institute & Consulting

Lead Awareness
Training Course

Learning objectives

In this chapter you will learn about

- what lead is
- why lead was used
- where lead is found today
- how you can be exposed to lead
- what jobs and hobbies can expose you to lead
- the lead-based paint problem in the United States

True / False quiz

This is an exercise to see how much you already know about lead. It is *not* a test. Please take a few minutes to read the statements, then circle T for "True" or F for "False." Your instructor will go over the answers when everyone in the class is finished.

1. Lead is dangerous only to children age six or younger. T F

2. We have known for thousands of years that lead is dangerous. T F

3. Experts can identify lead-based paint just by looking at it. T F

4. Lead exposure can affect a person's ability to have children. T F

5. Lead is so dangerous that there is no way you can protect yourself from it. T F

6. The law says that if you find lead-based paint in a building, you must remove it as soon as possible. T F

What is lead?

Lead is a heavy, soft, flexible, blue-gray metal. It generally occurs in nature in the form of ores, and was recovered in early times as a by-product of smelting silver. Once lead is mined, processed and introduced into our environment, it can be a potential problem forever. Nearly all the lead in the environment is due to people's activities.

Lead is a heavy, soft, flexible, blue-gray metal.

The chemical symbol for lead is Pb. The symbol comes from the Latin word for lead—plumbum. The word plumber also comes from plumbum, because plumbers used large amounts of lead.

People used lead even before history was recorded. Egyptians used lead in solder, cosmetics, and building materials. Greeks and Romans used lead in plumbing. The first methods of transporting water into Rome were through aqueducts made from lead that carried water into the city from seven miles away. The Romans used lead to line food containers. They added lead to wine to sweeten it and to prevent spoiling.

Lead has been used for thousands of years.

Why was lead used?

Lead was put in products for many reasons:

- **Prevents corrosion.** Lead will not crack easily with wear, weather, or temperature change.
- **Kills mold and mildew.** Lead is used in areas with high moisture.
- **Easy to shape.** Lead is a soft metal and melts at a low temperature (620° F).
- **Is strong.** Lead has a lot of mechanical strength.
- **Blocks radiation.** Lead is used in products designed to block radiation, such as the lead aprons used when X-rays are taken.
- **Blocks sound.** Lead was sometimes used for sound-proofing.
- **Helps paint dry.** Lead was added to paint to quicken the drying process.
- **As a pigment.** Different compounds of lead were used to add color, to whiten, or to brighten paint.

Lead is dangerous

Lead is a dangerous poison. You cannot see or feel the lead that can make you sick. Lead is most dangerous when it is in the form of dust or fumes.

Lead dust particles can be very small—so small that they may not be visible. They are easy to breathe if they are in the air and are easy to swallow if they are on anything you put in your mouth—such as food, cigarettes, or fingers. Lead dust tends to settle on flat surfaces. When you touch those surfaces, you get lead on your hands. If you put your hands to your mouth, you will swallow lead dust. Because young children frequently put their hands in their mouths, they are at a high risk for lead poisoning.

Lead is poisonous when you breathe or swallow it.

Lead poisoning was recognized 2,000 years ago.

Lead causes health problems

The health problems associated with lead have been known for a very long time. Ancient Egyptians knew that lead could kill people if they swallowed too much of it. In the Middle Ages, doctors realized that some of the health problems of painters, miners, and artists were caused by exposure to lead on the job. In 1786, Ben Franklin wrote to a friend about work-related lead poisoning cases.

In the early 1900s, doctors found that lead-based paint caused reproductive problems for workers and their families. Doctors from all over the world began to study lead-based paint as a cause of childhood diseases. Many doctors in the United States studied and wrote articles about childhood lead poisoning. In 1913, Dr. Alice Hamilton—an American occupational health doctor—wrote about painters and the hazards of their work. She documented their exposure to lead and their health problems.

Where is lead found?

Lead can be found almost anywhere today. Some of the places where we may find lead include the following:

Paint

"Lead-based paint" is defined in the Residential Lead-Based Paint Hazard Reduction Act (also known as Title X) as "paint, varnish, shellac, or other coating on surfaces that contain 1.0 mg/cm² or more of lead or 0.5 percent or more lead by weight." Chapter 3 will cover ways to identify lead-based paint.

Lead was used in paints for color and durability. When lead was added to paint, the paint was better able to stand up to wear and tear and weather changes. Lead was also added to paints to speed up the drying process.

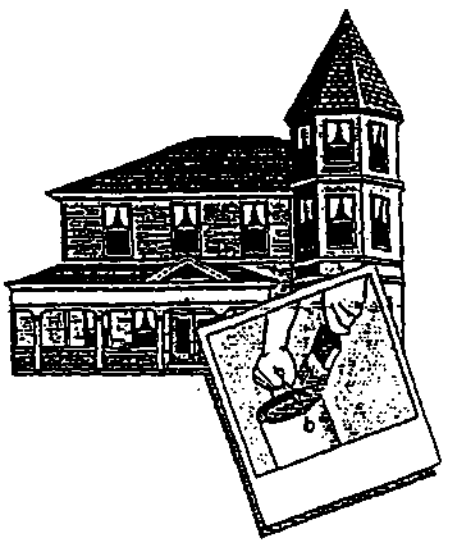
In many ways, lead-based paint was an ideal product. However, as lead-based paint ages or becomes damaged, dust and chips are created.

When lead-based paint gets old or damaged, it creates lead dust and chips.

Lead dust pollutes the air, soil, household dust, and any surface it settles on. It contaminates floors, counter tops, furniture, toys, shelves, books, pets, and people. It can get on children's hands when they play on the floor. When lead-based paint gets old or damaged, it creates lead dust and chips. Lead dust is a health hazard. Most lead-poisoned children are exposed to and poisoned by lead dust. Even when the floor looks clean, there may be harmful amounts of lead dust. Lead dust and lead-contaminated soil can be tracked indoors (e.g., by pets or on shoes) where it becomes another source of exposure for children. It is normal for children to put their hands and toys in their mouths and then swallow lead dust. The action called "hand-to-mouth contact" is the most common way for children to ingest lead.

Lead dust is a health hazard.

Most children are exposed to lead by ingesting lead dust.



House paint

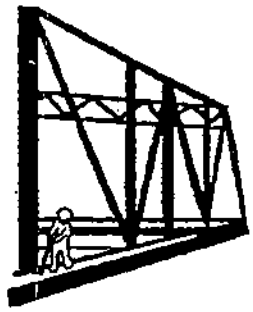
Lead-based paint is believed to be a major source of lead poisoning. Any home built before 1978 may contain lead-based paint. Homes built before 1950 are more likely to contain higher levels of lead because the use of latex paints became more common during the 1950s.

Lead-based paint can be found on any painted surface—inside or outside.

Lead-based paint was used inside homes on woodwork, walls, floors, windows, doors, and stairs because it resisted wear and tear. It was also used on the outside of homes, porches, windows, and doors because it can withstand extreme weather changes.

Lead-based paint kills mold and mildew. Because mold and mildew typically grow in high moisture areas, lead-based paint was often used in places where moisture is found (such as kitchen and bathroom walls and on windows and doors).

Industrial use of lead-based paint

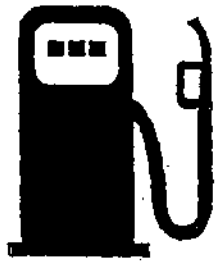


Sand blasting paint off a bridge can pollute the community.

Lead-based paint is still used on bridges and on the inside and outside of steel structures to prevent rust and corrosion. These are "industrial uses" of lead-based paint. There are no restrictions on the use of lead-based paint for industrial purposes.

About 90,000 bridges in the United States are coated with lead-based paint. Blasting or grinding lead-based paint off steel structures and even performing routine repairs creates huge amounts of lead dust. Doing this type of work can be harmful to workers and the surrounding community. The lead dust gets into the air and nearby soil, plants, and water.

Leaded gasoline

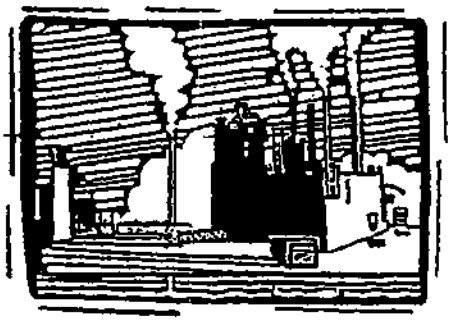


Exhaust from leaded gas polluted the air and soil.

Until the late 1970s, lead was added to gasoline as an antiknock agent. The car exhaust released the lead into the air and because lead is heavy, this lead polluted not only the air but also the soil.

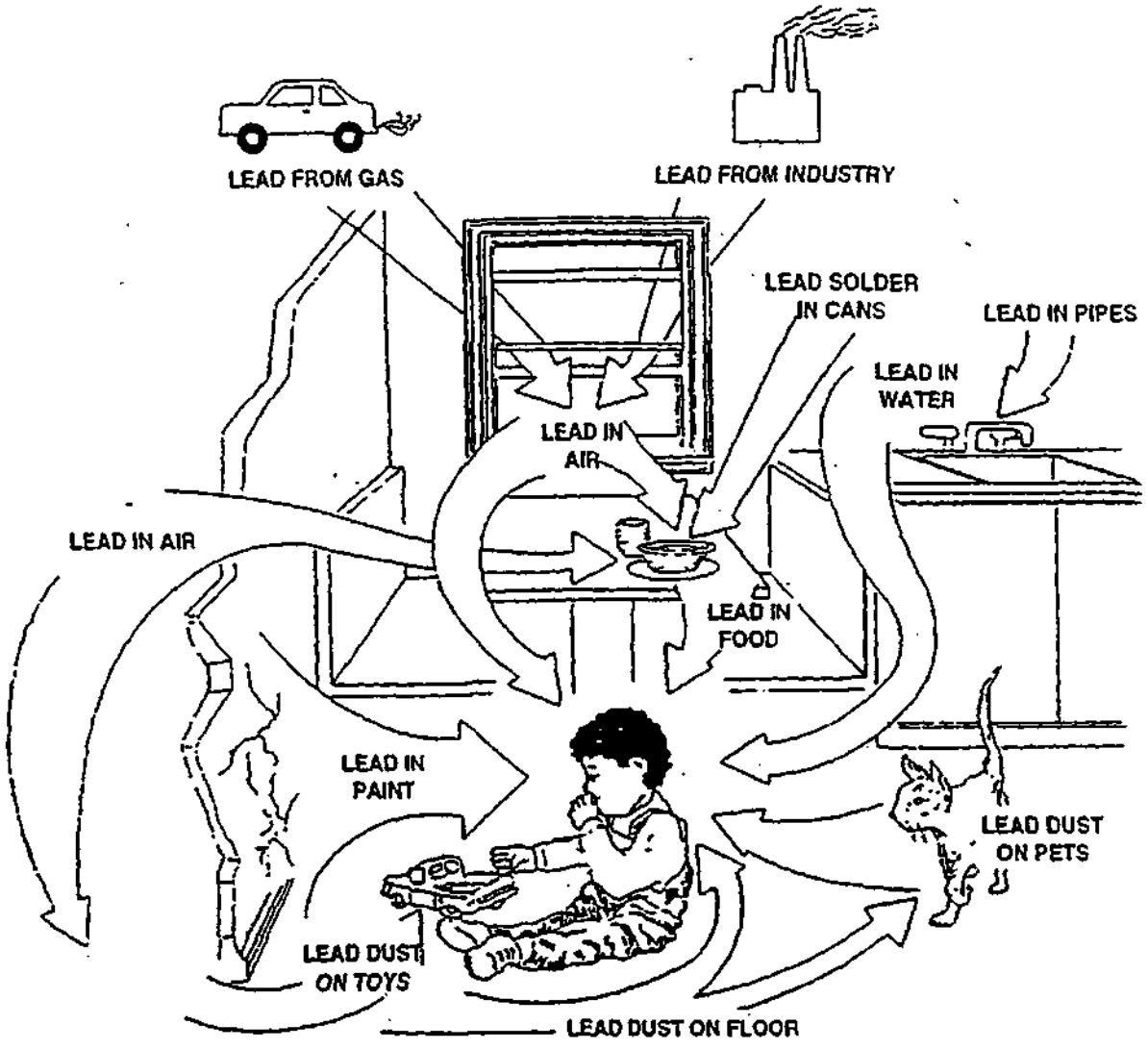
In 1978, the Environmental Protection Agency reduced the amount of lead that could be added to gasoline. By 1982, the U.S. national average level of lead found in the typical person's blood dropped by 37 percent. Today the amount of lead permitted in automobile gasoline is limited to 0.05 grams per gallon of gasoline. A higher amount of lead is still allowed for farm vehicles and equipment. Leaded gas is still used in other countries including Mexico, Korea, and Ireland.

Industrial releases



Many industries use lead in their products. For example, lead is used in batteries, ceramics, lead crystal, and bullets. When these items are produced, lead can be released into the air. The production and use of these materials can pollute soil, water, and air.

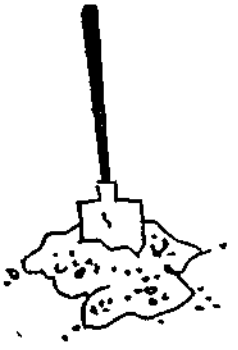
SOURCES OF LEAD EXPOSURE



Adapted from "Preventing Lead Poisoning in Young Children," Centers for Disease Control, January 1985

Soil can have high levels of lead.

Soil



High levels of lead in soil may come from paint dust, leaded gas exhaust, and industrial releases. Naturally-occurring traces of lead are found in most soil.

Some playgrounds may have soil that contains very high levels of lead. Such playgrounds are very dangerous to children who play there because of the risk of ingesting the lead during normal hand-to-mouth contact.

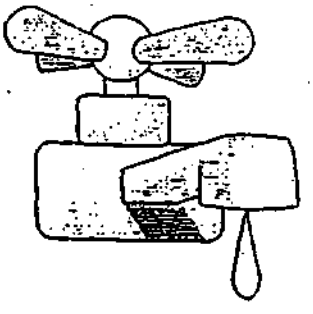
Food and drinking water can be sources of lead.

Food

Food grown in soil that has lead can also contain lead. Ceramic ware, pottery and glassware may contain lead which can leach into foods cooked in or eaten from these items.

Lead-soldered cans are no longer produced in the United States, but lead-soldered cans are permitted in some countries that export food to the United States. Food cans imported from other countries may contain lead in the solder holding the cans together. Any can containing lead must have a label on the can which states the amount of lead used in the solder.

Drinking water



Lead was used in pipes and solder—even in water coolers! Because lead can easily expand without cracking, it was ideal for use in plumbing systems where freezing is possible. The Safe Drinking Water Act (1986 and 1988) made it illegal to use lead in household plumbing. However, old lead pipes and lead soldering can still contaminate drinking water. Lead is rarely a naturally occurring contaminant in water.

Some hobbies can expose you to lead.

Hobbies

Many people can be exposed to lead in their hobbies. Activities that may expose you to lead are

- home remodeling
- glazed pottery making
- target shooting at firing ranges
- electronics
- car and boat repair

- refinishing furniture
- painting—some art paints have lead pigments
- making lead fishing sinkers or lures
- stained-glass window making

Many workers are exposed to lead on the job.

Occupational exposure

Many jobs or occupations can expose people to lead. These workers are in danger of lead poisoning and may also contaminate their cars and homes by bringing lead dust home on their clothes, shoes, hair, or skin.

If workers don't clean up properly before leaving a worksite, they could poison their own families.

Some jobs that have a high risk of lead exposure include

Construction trades

- Lead abatement workers
- Carpenters
- Remodelers
- Renovators
- Demolition workers
- Ironworkers
- Steel welders and cutters
- Sheet metal workers
- Painters
- Plumbers and pipe fitters

Industry

- Lead miners
- Lead smelter workers
- Lead refinery workers
- Lead crystal makers
- Ceramic glaze manufacturers
- Plastic manufacturers
- Wire and cable manufacturers
- Electronics makers

Others

- Firing range employees
- Police officers
- Artists
- Radiator repair workers
- Car mechanics
- Printers
- Scrap yard workers and recyclers

The lead-based paint problem in the United States

In 1978, the U.S. banned the use of lead-based paint in homes.

Lead is a known poison. Other countries limited the use of lead-based paint as early as 1840. The United States did not act until the 1970s. The U.S. Government banned the use of lead-based paint in houses, hospitals, schools, parks, playgrounds, and public buildings in 1978. Although the government banned the use of lead-based paint in 1978, it allowed stores to sell-out their existing stock until 1980. Typically, we do not expect to find lead-based paint in houses built after 1980.

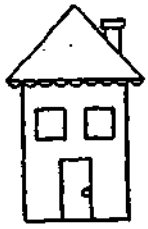
Lead-based paint can still be used on cars, boats, metal furniture, industrial steel, farm equipment, and on roads as traffic paint.

Millions of homes in the U.S. have lead-based paint.

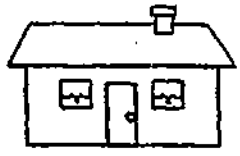
Today about 64 million U.S. homes contain lead-based paint. This number includes houses and apartments in the cities, in suburbs, and in the country. It includes the homes of wealthy people as well as the homes of middle-class and lower-income people. Homes built prior to the 1950s are more likely to contain lead-based paint. After the 1950s, latex paints became more popular, and many people chose them instead of lead-based paints.

Millions of children could be lead poisoned.

There have been some reports of childhood lead poisoning that occurred during or after renovation in homes with lead-based paint. Many homes with lead-based paint are occupied by families with children under age six. Children under six are easily hurt by lead because their nervous systems are still developing. How children get poisoned by lead and what lead does to their bodies is discussed in the next chapter.



88 percent of homes built before 1940 have lead-based paint.



76 percent of homes built between 1960 and 1979 have lead-based paint.

Adapted from

U.S. EPA. April 1995. The National Survey of Lead-based Paint in Housing.

Key facts for Chapter 1

What is lead?

Lead is a heavy metal.

Lead has been used for thousands of years. It prevents corrosion and kills mold and mildew. It is durable and easy to shape.

Lead is a poison. It can make you sick if you breathe or swallow it.

Lead-based paint is "paint, varnish, shellac, or other coating on surfaces that contain 1.0 mg/cm² or more of lead or 0.5 percent or more lead by weight."

Sources of lead exposure

lead-based paint

leaded gasoline

industrial releases

soil, food, and water

pottery, crystal, glassware

some jobs and hobbies

Lead dust

Lead-based paint is a health hazard when it chips or becomes dust or fumes.

Lead dust is created when

- lead-based paint gets old and deteriorates;
- lead-painted surfaces are broken, damaged, or disturbed;
- lead-painted surfaces are sanded or scraped.

Lead dust and particles tend to stick to surfaces.

Lead dust particles can be so small, you can't see them.

Lead-based paint in the home

Lead-based paint in the home is a major cause of childhood lead poisoning.

The United States banned the use of lead-based paint in homes in 1978.

An estimated 64 million American homes still contain lead-based paint.

For more information

These publications have more information on the topics covered in this chapter. Your instructor has a copy of the publications marked with a star (*). You can order your own copy by calling 1-800-424-LEAD.

* EPA, *Protect Your Family From Lead in Your Home* (Pamphlet 747-K-94-001) (May 1995).

* EPA, *Reducing Lead Hazards When Remodeling Your Home* (Pamphlet 747-R-94-002) (April 1994).

* EPA, *Home Water Treatment Units: Filtering Fact from Fiction* (September 1990).

* EPA, *Lead in Your Drinking Water* (April 1993).

* EPA, *Toxics Information Series on Lead* (Pamphlet TS-793).

* Environmental Defense Fund, *The Hour of Lead: A Brief History of Lead Poisoning in the United States over the Past Century and of Efforts by the Lead Industry to Delay Regulation* (June 1992).

National Lead Information Center, *Lead: Some Questions and Answers* (April 1993).

National Lead Information Center Clearinghouse Hotline: 1-800-424-LEAD

CHAPTER 2

Health Effects: How Lead Affects the Body

Learning objectives

In this chapter you will learn

- how lead enters and affects the body
- why lead is especially dangerous to children
- how lead levels in the body are measured
- how lead poisoning can be prevented

Skit: Lunchtime on the job site

Tanja, Al, Joe, and Walt are eating lunch on the back porch of a home they are renovating. They live in the community where the home is located. They have been renovating the houses in this community for nearly a month. Let's listen to them while they eat lunch:

Al: This porch is feeling like home. We've worked on these houses for a month now. We'll be done by next week.

Tanja: It'd feel more like home if we had a table and a few chairs to sit on. I'll be glad when this job is over. I'm tired. My body aches from all this work.

Joe: Women weren't made to work construction—that's why your body aches. I don't want a table or chairs. I want a clean bathroom and some cold water to drink. This porch is dirty. Maybe we could get some of that poly plastic and lay it on the porch . . . man, I'm dizzy.

Al: Tanja, I've seen you do twice as much work as Joe in a day. Are you sick?

Walt: Hey, Joe, too much partying last night? We've worked on these houses for almost a month. I won't miss this porch at all. I used to get real hungry by lunch time. I was eating two or three sandwiches. I'm working just as hard now, but I don't even want to finish one sandwich anymore.

Al: Walt, you usually eat like a horse. Ask your wife to fix your lunches again.

Walt: My wife made my favorite pot roast last night. I couldn't eat it. It tasted so good, but I wasn't hungry. My stomach hurt. All I wanted to do was go to sleep.

Joe: I wish I could get some sleep. The past week I got these headaches and people just bothered me. You know, people are getting on my nerves. The doctor says it's because I'm constipated.

Al: You all sound like you got the flu or some kind of bug. Stay away from me. I'm feeling just fine and I want to stay that way.

Discussion questions

1. What is going on in this conversation?
2. What were the workers' complaints? Circle them in the script. Is everyone feeling sick?
3. Do any of the workers share the same problems?
4. List some things that could be causing these complaints.
5. What suggestions were made to fix the problems? What would you suggest?

Lead poisoning affects you

Lead is poisoning many children and adults around the country. As a lead abatement worker, you can also be poisoned by lead. It can make you very sick and can even kill you. At low levels of exposure, you can feel fine, but lead is still harming you. When you work with lead, you must work carefully. Lead poisoning can be prevented by working with lead-based paint safely. You are in this class to learn how to protect yourself, others, and the environment from lead poisoning.

As a construction worker—especially if you do remodeling, demolition, or lead-based paint abatement work—you may be exposed to lead. Without proper protection, **you can get sick from lead in the workplace.** You should wear a respirator and protective clothing when you work with lead. Clean up, shower, and put on clean street clothes before going home. If you forget to shower before leaving the job site or you wear dirty work clothes home, you could expose your family to lead poisoning.

How much lead is dangerous?

Even a small amount of lead can harm you.

Even a small amount of lead can make you sick. Lead can remain in the body for a long time. It stays in the blood for several months and can be stored in the bones for 30 years or more.

The more lead you are exposed to, the more likely you are to get lead poisoned. Many small doses of lead over a long time can cause lead poisoning. One large dose of lead in less than a day can also make you lead poisoned. A low dose of lead can make you feel tired and irritable. A high dose of lead can cause permanent damage to your brain, nervous system, and kidneys. A very high dose of lead can cause death.

You can breathe or swallow lead.

You may swallow lead if you don't wash before you eat or smoke.

How does lead get into your body?

Lead can get into our bodies in two ways: breathing (or inhalation) and eating (or ingestion).

Breathing lead

When lead is in the air, you can breathe tiny lead particles into your lungs. Once in your lungs, lead is absorbed into your blood stream.

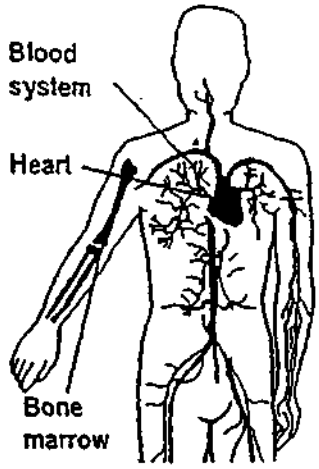
Eating lead

You can swallow lead particles by eating, drinking, smoking, or chewing your fingernails without washing your hands after working with lead. If you swallow lead particles, the lead eventually goes through your digestive system and then slowly gets into your blood.

Up to 50 percent of the lead that children and pregnant women ingest is absorbed into their bodies. About 10 to 15 percent of the lead that nonpregnant adults ingest is absorbed into their bodies. People who do not get enough calcium or iron in their diets will absorb more lead into their bodies.

How can lead harm your body?

Heart and blood system



When lead reaches your blood, it attaches to red blood cells in the area where iron and oxygen are. If your body does not get enough iron, lead will attach to the red blood cells more quickly. Then, the red blood cells cannot carry oxygen, and you cannot get oxygen to the rest of your body. Without enough iron or red blood cells in the blood, a condition called **anemia** can develop. Anemia can make you very tired.

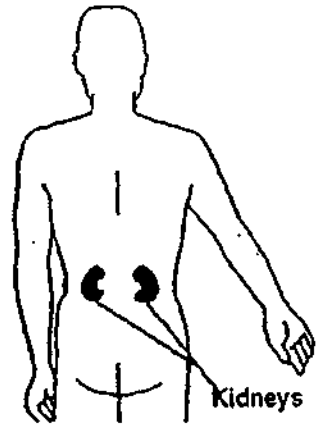
Lead attaches to your red blood cells.

Lead can damage red blood cells by shortening the life of the cells. Lead also reduces your body's ability to make more red blood cells in the bone marrow.

Lead poisoning may cause high blood pressure. When you have high blood pressure your heart muscles cannot relax. This increases your risk of heart attack, stroke, and kidney disease.

Lead can cause high blood pressure.

Kidneys

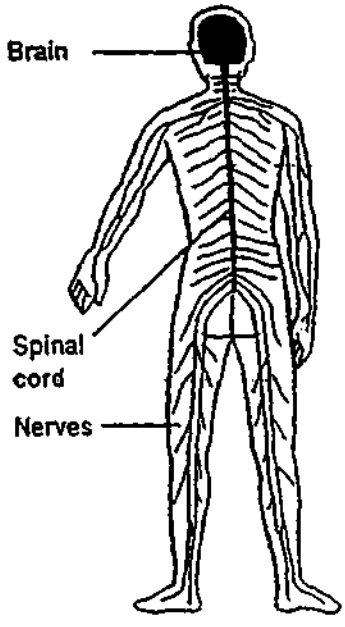


Your blood is cleaned and filtered in your kidneys. Most (65 percent) of the lead that is in the blood gets filtered in the kidneys, where it can cause damage. Kidney damage can be very serious. Often this damage cannot be detected until much of the kidneys' function is lost. This damage requires serious medical treatment to prevent the kidneys from failing. Kidney failure can cause death.

Lead can damage your kidneys.

Nervous system

The nervous system is the system in your body most affected by lead. The nervous system includes your brain, spinal cord, and nerves. The damage lead causes to the nervous system can be permanent.



Lead damages the brain and can even kill brain cells. Lead damage to your brain can make you depressed, irritable, forgetful, clumsy, and affect your ability to learn. At

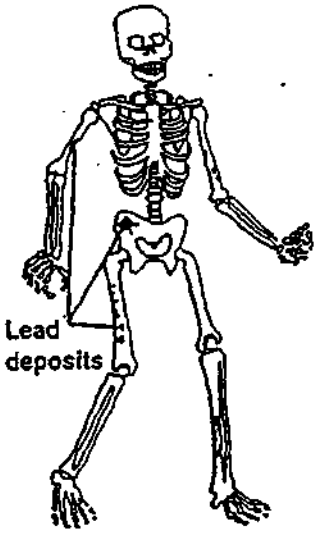
Lead can damage your brain and nerves.

very high doses, lead poisoning can cause hallucinations, swelling of the brain, coma, and even death.

Lead damages the ability of your nerves to give and receive messages. Lead can damage the nerves that go to your hands and feet. This nerve damage can cause your hands to shake; and in severe cases, it can cause your hand or foot to become weak and drop. If wrist drop or foot drop develops, you may never have full use of your hand or foot again.

The nervous system of a fetus, infant, or child is affected by even small amounts of lead. Lead poisoning can decrease the intelligence of children. Lead can cause behavior problems in children. Some studies have linked learning disabilities, such as attention deficit disorder (ADD), and delinquent behavior to childhood lead poisoning.

Bone tissue



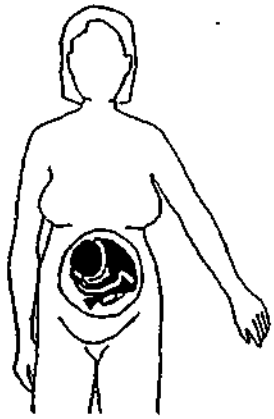
As blood travels through the bones, lead from the blood is deposited into the bone tissue. Lead blocks your body's natural process of making new blood cells.

Lead also competes with calcium in the bone. Calcium is released from bone tissue as our bodies need it. If lead is there instead of calcium, then lead is released into the blood.

The bones and teeth store 95 percent of the lead in the body. **Lead can be stored in bone tissue for more than 30 years.** Lead can be cycled from bone to blood to body organs. When the body is under stress, lead is released from the bone tissue into the blood. A body is under stress during illness, overactivity, pregnancy, or during times of anxiety. **If the lead goes from the bone back into the blood, then other body systems are exposed, and problems can begin all over again.**

Lead that stays in your body is called a **"body burden."** The more lead you are exposed to, the higher your lead body burden is. The lead body burden is not easy to measure because it is mostly found in your bone tissue. Samples of bone tissue are difficult to get. A child's tooth can be tested for lead when it falls out. The tested tooth can tell you how much lead is in the child's bones—that is, the child's lead body burden. A special X-ray machine can measure shin bone lead to tell us body burden, but these machines are used for research only.

Female reproductive health and pregnancy



Even small amounts of lead can make a pregnant woman sick.

Lead poisoning is very dangerous to the female reproductive system. It can make women less fertile and can cause abnormal menstrual cycles and affect menopause.

When a woman is pregnant, her body must take in nutrients for herself and for the developing fetus. Her body works hard to do this. If she is exposed to lead, her body will absorb the lead very quickly. A pregnant woman's body absorbs 50 percent of the lead that she ingests or inhales. (A non-pregnant woman's body absorbs only 10-15 percent.) Hormones and other body signals cause the lead stored in her bones to be released into her blood. **Even if her exposure to lead was 20 years before this pregnancy, that lead could be released from her bones into her blood now.** Very small amounts of lead are dangerous and can make a pregnant woman sick.

Lead can cause miscarriages and birth defects.

The fetus gets blood and calcium to make bone from the mother. If the mother has lead in her blood or bones, it will go to the fetus. Very small amounts of lead can hurt the fetus. The cells of the fetus are developing

Reproductive Health Effects of Lead

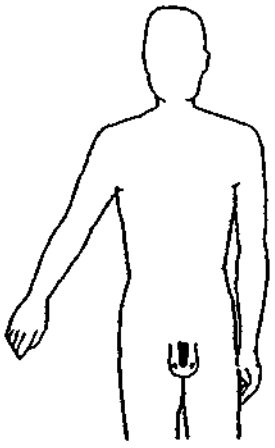
Men
- Decreased sex drive
- Problems having an erection
- Decreased fertility
- Miscarriages in female partner

Women
- Decreased sex drive
- Decreased fertility
- Abnormal menstrual cycles
- Premature births
- Miscarriages

Children
- Birth defects
- Lower birth weight
- Learning problems
- Behavioral problems

rapidly and lead can cause brain damage and even death to the fetus and can also cause miscarriages and premature (early) births.

Lead can cause men to have difficulty having an erection.



Male reproductive system

Lead is very dangerous to the male reproductive system. Lead can make men lose interest in sex, and it can cause men to have problems having an erection.

Lead can cause infertility. It damages sperm. Lead causes the sperm to have an odd shape. It makes sperm move slowly. Wives of lead-poisoned workers have more miscarriages and premature births, and their children have more birth defects.

Fetal protection policies

In the past, many companies developed policies with the stated purpose of protecting the fetus. They were called **fetal protection policies**. Fetal protection policies may really have been developed to protect the companies against lawsuits.

To keep their jobs, women were forced to prove they could not have children. Women who wanted to have children in their lifetime were fired or given lower paying jobs. In some cases, women had to be sterilized to keep their jobs.

In 1991, the Supreme Court decided that fetal protection policies discriminated against women. Fetal protection policies are now illegal.

Lead affects both male and female reproductive systems. Both men and women need to be protected from harmful levels of lead to have healthy babies. The employer must provide a safe workplace for both male and female workers.

Children are at high risk

Children can get lead poisoned very quickly. Even a small dose of lead can poison a young child. A child's rapidly developing brain, central nervous system, and entire body are affected by lead. Toddlers (age one to three) are at a very high risk of lead poisoning, because they typically crawl on floors and put things in their mouths and therefore can swallow a lot of lead dust. Children absorb up to 50 percent of the lead that they take in.

Even low levels of lead can cause permanent damage to a child.

Children's developing bodies and brains are easily damaged by lead.

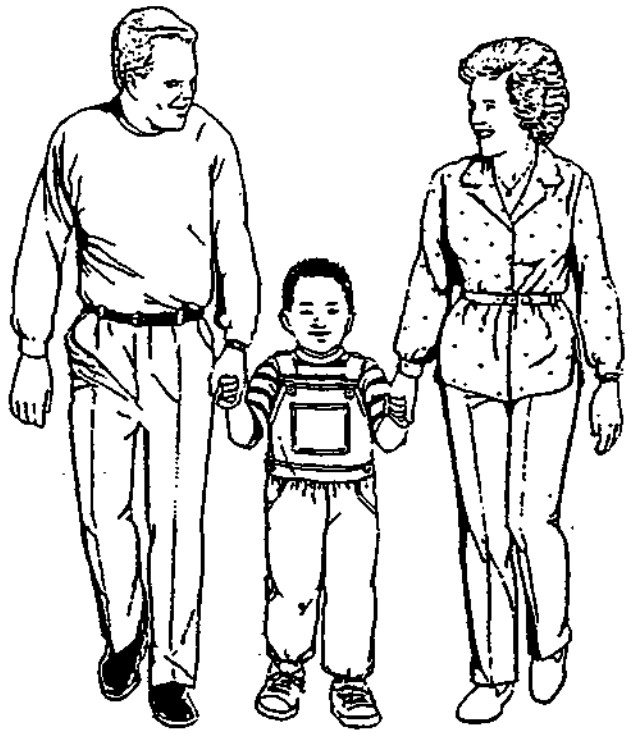
Recent medical research shows that lead may affect a child's intelligence even at blood lead levels as low as 10 to 15 micrograms per deciliter (µg/dL). Lead-poisoned children have a higher high school dropout rate than non-lead-poisoned children. Lead poisoning can reduce a child's ability to learn. It can also cause

- poor muscle and bone growth
- poor hearing
- speech and language problems
- coordination problems

Lead is the most significant environmental health hazard for children in the United States.

Lead is the most significant environmental health hazard for children in the U.S.

Some research has suggested that children exposed to lead may be hyperactive. Other studies have found evidence that lead can make a child react very slowly. Still other research studies indicate that lead can make it hard for a child to pay attention (Attention Deficit Disorder). Lead can make a child very clumsy. Lead kills brain cells and disrupts nerve signals. The effects of childhood lead poisoning can last a lifetime.



Protect yourself and your family from lead poisoning!

Julia's husband Mike is an auto mechanic and machinist. He is exposed to lead on the job. Julia was exposed to lead on the job for three months while she worked in a shipyard as a burner. Two years later, Julia became pregnant with their son. The parents' lead exposure may have affected their son's health.

"As my son grew up," says Julia, "he developed learning disabilities. He had a lot of trouble paying attention and following directions. He has really poor organization skills. We had to send him to a special education program for several years. My son is 14 years old now. He's doing better, but he still needs help organizing. He still needs special care."

From interview with a worker. (The names have been changed.)

Health effects of lead poisoning

Lead poisoning can affect you in many different ways. A large amount of lead can make you sick right away. A small amount of lead day after day can make you sick over a long period of time.

The health effects of lead poisoning are often difficult to recognize. There are many different signs and symptoms of lead poisoning that can also be caused by a number of other things, like the flu or a cold. Because the symptoms are so similar, lead poisoning can easily be mistaken for a cold or the flu.

Sometimes the signs of lead poisoning *come and go*. You have them one day and then they disappear. Then the signs come back again. This can happen for several months.

Lead can cause damage without symptoms. Lead poisoning often goes unnoticed, and you may not know you have lead poisoning. Children with lead poisoning may seem healthy while damage is being done to their bodies. Signs and symptoms of the damage usually do not develop until the condition is serious.

You may not know that you have lead poisoning.

Lead can cause damage without signs or symptoms.

Signs and symptoms of lead poisoning

- Tiredness (fatigue)
- Sleep problems
- Dizziness
- Irritability
- Nervousness
- Headaches
- Difficulty concentrating
- Depression
- Forgetfulness
- Hyperactivity (children)
- Numbness
- Wrist or foot drop
- Weakness
- Clumsiness
- Joint and muscle pain
- Vomiting
- Loss of appetite
- Stomach aches
- Constipation
- Metal taste in the mouth
- Problems having healthy children

Lead poisoning is sometimes mistaken for the flu.

Some health effects of lead poisoning

- Anemia
- High blood pressure
- Damage to blood cell formation
- Kidney disease
- Brain damage
- Nerve damage
- Decreased fertility
- Premature births
- Miscarriages

The health effects of lead poisoning are often difficult to recognize.

Short-term or long-term effects

Sometimes the effects of lead poisoning are short term. This means they do not last a long time—maybe a few weeks or months. Sometimes the symptoms of lead poisoning are long term. This means the symptoms stay with you a long time—sometimes for years or even permanently. Long-term effects can be caused by repeated small doses of lead or by a very high dose at one time.

Reversible or permanent damage

Some effects of lead poisoning can be reversed. This means the effects may go away. High blood pressure is an effect of lead poisoning that is reversible. High blood pressure can return to normal when the lead in your body decreases.

Lead can cause permanent damage.

Lead poisoning can cause permanent damage. This means that the damage is always there. An example of permanent damage caused by lead is wrist drop. Wrist drop is when your wrist hangs limp at the end of your arm. You may never be able to use that hand again. Wrist drop is caused when lead damages your nervous system. When lead damages the development of the electrical connections in a child's brain, the effect is permanent.

Lead can cause permanent damage to your

- brain
- learning ability
- coordination
- hearing
- nerves
- digestive system
- heart
- blood cell formation
- kidneys
- reproductive system

DHS reportable blood levels

1-at 50µg/dl or above Temporary removal
2-at 40 µg/dl or below Return to work

Medical treatment/use of a chelation

Chelation is the use of certain drugs (administered in pill form or injected into the body) to reduce the amount of blood absorbed into body tissues. 1532./ Appendix B page A10 is a supplemental manual

Testing for lead in your body

Blood tests find out how much lead is in your blood.

The only way to determine the amount of lead in your body is to get a blood test. When lead enters your body, it gets into your blood. The amount of lead in your blood is called your **blood lead level.**

There are two kinds of tests to monitor blood lead levels—the blood lead level test and the ZPP test (zinc protoporphyrin). Both tests can be done from blood taken from either your arm or your finger. Both can be done from the same sample of blood.

Blood lead level test

This test measures the amount of lead in your blood. Blood lead levels are only a snapshot of lead exposure. The test shows how much lead you have been exposed to in the last 2 to 3 weeks. The blood lead test is the more accurate test. Your blood lead level is measured in micrograms of lead per deciliter of blood (µg/dL).

ZPP test (Zinc Protoporphyrin)

ZPP is produced when lead stops one of the body's building blocks from making blood. Your ZPP level becomes abnormal when a lot of lead has entered your body over the last few months. It tells how much lead your body has absorbed by looking at some of your body's building blocks. It does not measure the amount of lead in your blood. Results are measured in micrograms per deciliter (µg/dL). Normal results for the ZPP test are 35-50 µg/dl. The ZPP test is not as accurate as the blood lead level test for early or low-level lead exposures. ZPP results can vary because of diet, anemia, and other factors.

Understanding Units

A microgram is a measure of weight. There are 1 million micrograms in a gram. The abbreviation for microgram is µg.

A penny weighs about two grams. Imagine cutting a penny into 2 million pieces. A microgram would weigh the same as one of those 2 million pieces.

A deciliter is a measure of volume. It is equal to a little less than half a cup. A person weighing 165 pounds has about 60 deciliters of blood. The abbreviation for deciliter is dL.

Blood lead levels

You may not know that lead is harming you.

Recent studies claim that lead can be harmful at blood levels as low as 10 to 15 µg/dL. Imagine that penny broken up into 2 million pieces again. Now picture 15 of those pieces dissolved in a half cup of liquid. That tiny amount of lead in your blood can cause health problems!

Lead is dangerous because it builds up in your body. It can stay there for years. It is difficult to say exactly what happens to your body with specific lead levels because each person is different. Different people have different reactions to lead in their bodies. You may not know that lead is harming your body. Some people do not even know that they are having problems with lead poisoning when their blood levels are 60 µg/dL. Other people suffer obvious signs of lead poisoning at 30 µg/dL.

People have different reactions to the same blood lead level.

ADULT REACTIONS TO LEAD

Blood Lead Level	Possible Health Effects
15 µg/dL	Increase in blood pressure; harmful effects on fetus; joint and muscle aches
25 µg/dL	Reproductive problems
40 µg/dL	Kidney damage; damage to blood formation
60 µg/dL	Anemia; nerve damage; constipation; stomach pains; irritability and fatigue; memory and concentration problems; clumsiness; drowsiness and sleep problems
80 µg/dL and above	Blue line on gums; uncontrollable shaking of hands; wrist and foot drop; hallucinations; brain damage; coma; death

ATSDR 1989; California Health Department 1993

Every child is also different in his or her reaction to lead. A lead poisoned child may not look or act sick but his or her body is being damaged. Researchers have known for a long time that children are especially sensitive to lead exposures. Scientists have discovered that even very low exposures to lead can cause serious health effects in children.

The effects of lead can be different for each child.

In 1991, the Centers for Disease Control and Prevention (CDC) lowered the level of concern for children's blood lead levels from 25 µg/dL to 10 µg/dL. About 5 percent of all children aged 1 to 5 years (about 1 million children) are estimated to have blood lead levels at or above 10 µg/dL. Lead dust from deteriorating lead-based paint is the major source of lead exposure for children.

CHILD REACTIONS TO LEAD

Blood Lead Level	Possible Health Effects
10 µg/dL	Slight loss in IQ; hearing and growth problems
20 µg/dL	Moderate loss in IQ; hyperactivity; poor attention span; difficulty learning; language and speech problems; slower reflexes
40 µg/dL	Poor bone and muscle development; clumsiness; lack of coordination; early anemia; fewer red blood cells to carry oxygen and iron; tiredness; drowsiness
50 µg/dL	Stomach aches and cramps; anemia; destruction of red blood cells; brain damage
100 µg/dL and above	Swelling of the brain; seizures; coma; death

A child who has lead poisoning may not look or act sick.

Lead poisoning can be prevented.

Preventing lead poisoning

One way of reducing the chance of lead poisoning is to properly abate lead-based paint hazards in the homes of lead-poisoned children. Lead-based paint **abatement** removes the lead hazard permanently. Abatement can be expensive and often cannot happen right away. In that case **interim controls** may be used to control the lead hazard. "Interim" means temporary. Interim controls reduce the amount of lead dust without permanently removing the source. When lead dust is reduced, the source of lead poisoning is reduced. Depending on the extent of the lead hazard, interim controls may not take the place of abatement. **By doing lead abatement and using interim controls, you are helping prevent lead poisoning.** (Chapter 6 will cover abatement and interim controls.)

Making sure that you do not get sick

When you work with lead, you have a higher risk of getting lead poisoned. As much as possible should be done to reduce that risk. Some things that you can do are

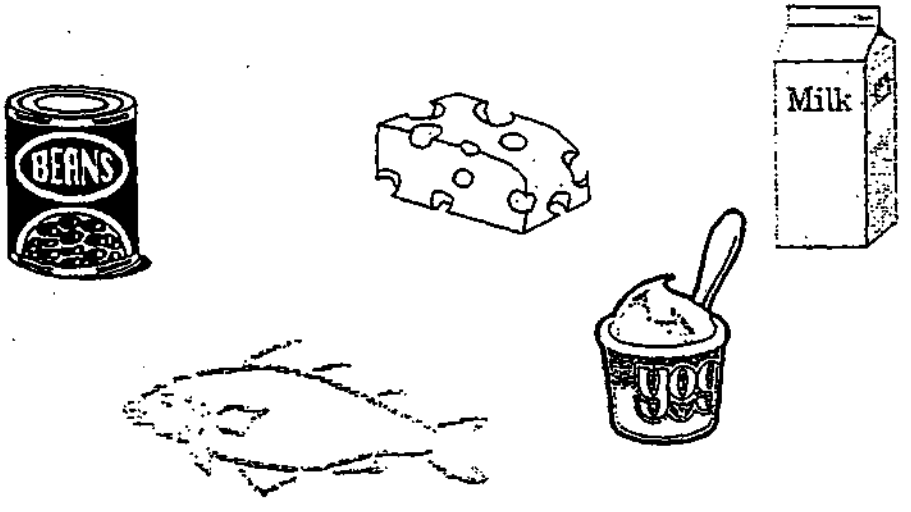
- make sure your employer provides a safe workplace;
- know your rights as a worker;
- wear protective gear;
- use safe work practices;
- make sure you don't create a lead hazard while you work;
- use good personal hygiene;
- do not take lead home on your clothes or in your car;
- get the medical exams that your employer provides;
- inform your employer if you develop any signs of lead poisoning;
- avoid lead-related work if your blood lead level is too high;
- eat a balanced diet.

Good nutrition

Good nutrition is important for anyone exposed to lead. A diet with enough iron and calcium prevents worse lead poisoning. When you eat a diet high in iron and calcium you can reduce lead absorption. People with low amounts of iron and calcium absorb more lead than those with normal amounts of iron and calcium. If you have enough iron and calcium in your body, lead will be absorbed less quickly. Research shows that vitamin C, zinc, and protein—found in a well-balanced diet—appear to decrease lead absorption. Foods with a lot of fat, such as fried foods, appear to increase lead absorption. When choosing dairy products, try to eat low-, non-, or reduced-fat varieties.

Eat foods high in iron—cheese, fish, seafood, meat (especially liver), eggs, spinach, beans, raisins, apricots, seeds (pumpkin, squash, sunflower), black walnuts, almonds, barley, wheat germ.

Eat foods high in calcium—milk, cheese, ice cream, yogurt, bread, fish, seafood, meat, beans, broccoli, leafy green vegetables (spinach, etc.), cherries, blackberries, raisins, fruit juice (orange, prune, grapefruit, pineapple), peaches, apricots, dates, sunflower seeds, almonds, hazelnuts, pecans.



Eat a balanced diet with foods high in iron and calcium.

Key facts for Chapter 2

Lead can poison you and make you very sick.

Even a small amount of lead can make you sick.

Lead is dangerous when you breathe or swallow it.

Lead can cause permanent damage.

Children's developing brains and bodies are easily damaged by lead.

Even low levels of lead can cause permanent damage to a child.

Pregnant women and children are most easily lead poisoned.

Lead in your body

Lead can damage your body without your feeling any symptoms.

Lead poisoning can easily be mistaken for the flu.

Lead attaches to your red blood cells and travels through your body.

Lead can be stored in your body for more than 30 years.

Body burden is the amount of lead stored in your body.

Lead can be released from your bones and poison you.

Lead can harm many parts of your body—blood cells, heart, kidneys, nervous system, bone tissue, and reproductive organs.

Lead can cause men to have **problems having an erection.**

Lead can cause women to have **stillbirths** or **miscarriages.**

Blood tests

Blood tests find out how much lead is in your blood.

The tests used are: blood lead level test and zinc protoporphyrin (ZPP) test. The blood lead level test is the more accurate test.

Blood lead levels are measured in micrograms of lead per deciliter (µg/dL) of blood.

People can have different reactions to the same blood lead level.

Lead poisoning can be prevented.

Your work as a lead abatement worker will prevent future lead poisoning.

You can protect yourself against lead poisoning.

Make sure your employer provides a safe workplace.

Wash your hands and face carefully when you leave the work area.

Use safe work practices that you will learn in this class.

Eat a balanced diet that has enough iron and calcium.

For more information

These publications have more information on the topics covered in this chapter. Your instructor may have a copy of the publications marked with a star (*). You can order your own copy by calling 1-800-424-LEAD.

* Centers for Disease Control, *Preventing Lead Poisoning in Young Children* (October 1991).

* Environmental Defense Fund, *Legacy of Lead: America's Continuing Epidemic of Childhood Lead Poisoning* (March 1990).

Murphy, J. "Fetal Protection v. Women's Jobs: Case Is Before the Supreme Court," *The Nation's Health: Official Newspaper of the American Public Health Association* (November 1990).

National Lead Information Center, "Lead Poisoning and Your Children."

* EPA and U.S. Consumer Product Safety Commission, *Protect Your Family from Lead in Your Home* (May 1995).

Levels of PPE

LEVELS of PERSONAL PROTECTIVE EQUIPMENT

1. Levels of PPE shall vary depending upon Work activities and Work area air monitoring results.
   The protection levels to be used by Cleveland Wrecking Company (CWC) personnel are:

   - Level D
   - Level C
   - Level B
   - Level A

   Required equipment for each of these levels is summarized as follows: Additional PPE requirements for specific activities may be varied by the Project Manager/Site Safety Officer (PM/SSO) based on task specific exposure hazards.

2. All supplied air equipment shall be NIOSH-approved and operated in the pressure demand mode only. Such equipment affords the highest level of respiratory protection. All air supplies shall be obtained offsite and verification of air quality shall be obtained from the supplier and maintained on file by the PM/SSO.

3. All respiratory protective equipment shall be inspected by the user prior to each use. Supplied air equipment shall also be inspected monthly by the PM/SSO. Records of the monthly inspections shall be maintained by the PM/SSO.

4. Two-way radios and/or Nextels shall be used for all onsite communications.

5. The PM/SSO may require personnel to carry or have immediate access to an emergency escape unit in addition to the equipment required for each PPE level.

6. Training in personal protective equipment is conducted as part of the initial hazardous waste 40-hour training. This training provides personnel with an understanding of the inspection, use (including donning, doffing, adjusting, and wearing), limitations, care, and maintenance of PPE. Site-specific orientations shall be used to communicate selection decisions to site personnel to meet the requirements of 29 CFR 1910.132 (d)(l)(ii). The site-specific orientation shall ensure that each site person:

   - Understands when PPE is necessary, what PPE is necessary, the limitations of the PPE, and the proper disposal of used PPE equipment.
   - Understands how to use the specific PPE required for the project.

7. The remainder of this section is organized as follows:

   - Level D

- Level C
- Level B
- Level A
- Emergency Escape Units (if applicable)
- Heat Stress Provisions
- Decontamination Procedures
- Equipment Decontamination
- Personnel Decontamination
- Emergency Decontamination

Level D

1. All CWC personnel present while performing normal work activities in the demolition area, shall utilize Level D protection, as a minimum. This required equipment includes:

   - Flame resistant or regular coveralls, street clothes (long sleeve shirt & long pants) appropriate for the tasks being conducted.
   - Safety glasses or chemical splash goggles.
   - Hard hat.
   - Ear Plugs and/or Ear Muffs
   - Reflective orange safety vest.
   - Steel toe work shoes or boots with a substantial sole and sides that protect the foot.

2. Additional equipment that may be required for level D, at the discretion of the SSO includes:

   - Leather Gloves
   - Face shield
   - Half-face respirator

3. Level D equipment provides:

   - No respiratory protection, unless required by the PM/SSO.
   - Minimal and/or limited skin protection

4. Use of Level D requires that:

   The atmosphere contains no known hazard.
   Work functions preclude splashes, immersion, or the potential for unexpected inhalation of or contact with hazardous levels of any chemicals.

The atmosphere must contain at least 19.5% (percent) oxygen.

5. Visitors who wish to access the work area shall wear closed toed shoes, long pants and a shirt with sleeves length of at least six inches, a hard hat, and safety glasses. The hard hat and safety glasses will be available from the PM/SSO. Visitors are not required to comply with the Level D requirement for serviceable shoes unless specified on a case-by-case basis by the PM/SSO and/or PTI/HHS. Visitors will also sign the daily register and be briefed on the operations for the day and made aware of the potential hazards.

Level C

1. Level C protection is required for work areas which may present respiratory hazards and may or may not present skin hazards. This level includes:

   - Full or Half face air purifying respirators
   - Chemical resistant clothing (e.g., overalls and long sleeved jacket; hooded one or two piece chemical splash suit; disposable chemical resistant one piece suit).
   - Inner and outer chemical resistant gloves
   - Chemical resistant boots with steel toe
   - Safety glasses or chemical splash goggles
   - Hard hat
   - Ear Plugs and/or Ear Muffs
   - Two-way radio

2. Additional equipment that may be required for Level C, at the discretion of the PM/SSO, includes:

   - Flame resistant coveralls
   - Disposable boot covers
   - Long cotton underwear
   - Flame resistant Nomex or PBI hood
   - Face shield

3. Level C provides the same level of skin protection as Level B, but a lower level of respiratory protection.

4. Level C equipment shall be used under the following conditions:

   - The atmospheric contaminants, liquid splashes or other direct contact will not adversely affect any exposed skin.
   - The type of air contaminants have been identified, the concentrations have been measured and are less than Immediately Dangerous to Life or Health (IDLH) levels, and a canister is available that can remove the contaminant.

- All criteria for the use of APRs are met.
- The atmosphere must contain at least 19.5 % oxygen.

5. The air purifying respirators generally designated for onsite use are North respirators. Other brands may be used in order to accomplish adequate fit and comfort for the employees. All respiratory protection shall be NIOSH/Mine Safety and Health Administration (MSHA) approved equipment as required under 29 CFR 1910.134.

6. All respirators shall be inspected prior to each use. The PM/SSO shall also conduct spot checks of cartridge respirators to ensure appropriate cartridge is utilized for the task at hand, proper fit, fit testing and care.

Level B

1. Level B protection is required for conditions, which present the potential for significant respiratory hazards or oxygen deficiency. These conditions may or may not require skin protection. Level B includes:

   - Pressure demand full face SCBA or pressure demand supplied air respirator with escape SCBA.
   - Chemical resistant clothing (e.g., overalls and long sleeved jacket; hooded, one and two piece chemical splash suit; disposable chemical resistant one piece suit).
   - Hard hat
   - Ear Plugs and/or Ear Muffs, as required
   - Inner and outer chemical resistant gloves
   - Two-way radio
   - Chemical resistant boots with steel toe

2. Additional equipment that may be required for Level B, at the discretion of the PM/SSO, includes:

   - Flame resistant coveralls
   - Disposable boot covers
   - Long cotton underwear
   - Flame resistant Nomex or PBI hood

3. Level B provides the maximum level of skin and respiratory protection expected to be required at the work site.

4. Level B equipment shall be used when:

   - Criteria allowing the use of air-purifying respirators, is not met.

- The atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect any exposed skin.
- The type and atmospheric concentration of substances have been identified and require a high level of respiratory protection. Concentrations of specific substances above the IDLH may be present provided that such substances do not represent a severe skin hazard.
- The atmosphere contains less than 19.5% oxygen.
- The presence of incompletely identified vapors or gases is indicated by a direct reading instrument, but vapors and gases are not suspected of containing high levels of chemicals harmful to skin or capable of being absorbed through the intact skin.

LEVEL A

1. Level A protection is required for conditions which present the potential for significant respiratory and dermal hazards and/or oxygen deficiency. These conditions require maximum respiratory and dermal protection. Level A includes:

   - Pressure-demand full-face SCBA or pressure-demand supplied air respirator with escape SCBA.
   - Chemical resistant clothing (e.g., disposable chemical resistant one-piece suit and/or reusable chemical resistant one-piece suit).
   - Hard Hat
   - Ear Plugs and/or Ear Muffs, as required
   - Inner and outer chemical resistant gloves
   - Two-way radio
   - Chemical resistant boots with steel toe

2. Additional equipment that may be required for Level A, at the discretion of the PM/SSO, includes:

   - Flame resistant coveralls
   - Disposable boot covers
   - Long Cotton underwear
   - Flame resistant Nomex or PBI hood

3. Level A provides the maximum level of respiratory and dermal protection expected to be required at the work site.

4. Level A equipment shall be used when:

   - Criteria allowing the use of air-purifying respirators, is not met.
   - The atmospheric contaminants, liquid splashes or other direct contact will adversely affect any exposed skin.

- The type and atmospheric concentration of substances have been identified and require a maximum level of respiratory and dermal protection. Concentrations of specific substances above the IDLH are present and represent a severe dermal hazard.
- The atmosphere contains less than 19.5 % (percent) oxygen.
- The presence of incompletely identified vapors or gases is indicated by a direct-reading instrument, the vapors and gases are suspected of containing high levels of chemicals harmful to skin or capable of being absorbed through the intact skin.

EMERGENCY ESCAPE UNITS

1. Emergency escape, 5-minute SCBA units may be stored onsite. An escape unit will be provided for each potentially affected employee. These emergency escape units shall be available for all Level B & C work when using an airline, and when otherwise required by the PM/SSO. This equipment may also be utilized for escape purposes during actual site emergency conditions such as the rupture of a high pressure gas line.

2. Emergency escape units shall be inspected monthly by the PM/SSO or his designee, and records of these inspections shall be maintained by the PM/SSO. These inspections shall consist of a visual evaluation to determine that each unit is complete, operable, clean, and ready for immediate use if required.

HEAT STRESS PROVISIONS

1. Temperature extremes may be encountered, which can result in heat stress. This can be amplified with the use of PPE. Workers shall be protected against heat stress during site activities. In addition to work/rest regimens, monitoring, and other provisions such as, ice vests or fans may be utilized as a means of providing comfort and protection from heat stress.

DECONTAMINATION PROCEDURES

1. Decontamination procedures are implemented to control potential inadvertent transport of hazardous constituents to other areas of the work site, and to prevent personnel exposure to chemicals from contaminated equipment, clothing or PPE. These procedures have been developed through the technical guidance publication "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities" (NIOSH 85-115).
2. As personnel complete their assigned work they are to

and remove all disposable PPE.. The coveralls shall be removed first, then the booties and finally the gloves. All items will be placed into the approved drum that is also located in the decon area. PPE is to be placed in the drum at break, lunch and at the end of the workday.

3. CWC shall procure and utilize serviceable/disposable PPE. Disposable PPE shall consist of the following:
   - Disposable gloves of the nitrile or neoprene material
   - Coveralls either disposable or serviceable
   - Chemical resistant Boots with steel toe/Disposable over-booties

4. CWC will cordon off or suitably barricade dismantlement areas to protect pedestrian and vehicular traffic from operating equipment and potential falling debris.

5. Entrance to dismantlement areas will be marked, CWC will control access.

   a. Foot traffic access will be marked and controlled. A decontamination station will be set up to prevent tracking of hazardous materials outside of the dismantlement areas (e.g., Foot decon station may consist of three plastic tubs capable of holding several gallons of water placed on visqueen, as personnel exit work area, they step from one tub into the next to remove potential contaminants).

EQUIPMENT DECONTAMINATION

Vehicles and Heavy Equipment

1. Vehicles and heavy equipment that have been operated within the work area shall be decontaminated, on a case-by-case basis. The extent of decontamination is determined by the removal method of contaminated materials (e.g., excavator attachment has contacted contaminated slab, therefore the attachment shall be decontaminated). Vehicles and heavy equipment shall be decontaminated on a more frequent basis if required to prevent unnecessary contamination of personnel or to keep equipment in good working order (e.g., by removing excessive soiling).

2. Heavy equipment and vehicles shall be decontaminated as follows:

   Gross decontamination will be performed and accumulations of material removed using hand brushes (heavy-duty rat tail type), brooms and shovels as minimum. Heavy equipment requiring decontamination may be steam cleaned and/or hydro-blasted. Steam cleaning and/or hydro-blasting (hi-pressure reduces contaminated water generation – water generated would be drummed and characterized for ultimate disposal). Plastic or visqueen may be applied to the ground surface depending on the size of equipment. Following gross decontamination, vehicles may be moved to an adjacent area for routine clean up.

TOOLS AND INSTRUMENTS

1. Tool and instrument decontamination procedures will be specified by the PM/SSO depending upon the tool or instrument, the area in which it was used, and the type of use.

PERSONAL PROTECTIVE EQUIPMENT

1. Decontamination of PPE shall vary depending upon the type of equipment and degree of contamination. Disposable PPE shall be deposited into a DOT-approved drum. The drum shall be appropriately sealed, and stored on site in accordance with requirements of State and Federal regulations. The PPE will be labeled and manifested for offsite transport in accordance with applicable requirements.

PERSONNEL DECONTAMINATION

1. Personnel who have entered the Work Area shall at a minimum, enter the decontamination trailer, shower and change before leaving the site. Supervisors are responsible for knowing where their personnel are working and seeing that they comply with these requirements.
2. Appropriate decontamination trailer area will be designated.
3. Any other special decontamination procedures shall be designated by the PM/SSO as necessary.

TEMPORARY PORTABLE DECONTAMINATION STATIONS

1. Temporary decontamination stations will be utilized at the work site when deemed necessary by the PM/SSO. These stations shall include the following equipment, as appropriate, for the conditions found:

    - Sheets of plastic or other suitable materials on which heavily contaminated equipment and outer protective clothing may be deposited.
    - Collection containers, such as drums or suitably lined trash cans, for storing disposable clothing and heavily contaminated personal protective clothing or equipment that must be discarded.
    - Absorbent materials (e.g., rags) for washing or wiping equipment.
    - Rinse solutions, selected to remove contaminants and wash solutions.
    - Long handled, soft bristled brushes to help wash and rinse off contaminants.
    - Paper or cloth towels for drying of protective equipment.
    - Soap or wash solution, wash cloths and towels for personnel.

DECONTAMINATION WASTE DISPOSAL

1. Wastewater generated at the work site will be placed into 55-gallon metal drums or other containers (e.g., 35-gallon plastic drums) as specified by PTI/HHS, and only with PTI/HHS permission.

    a. CWC will label containers with an OSHA communication label and a Waste Characterization Label when material is placed in the container. CWC will involve PTI/HHS in prior planning when waste generation is likely, or as soon as possible when waste is encountered.
    b. CWC will externally clean full drums and place them on pallets for disposal by PTI/HHS.
    c. Waste drums will be accumulated and stored according to instructions from PTI/SSO and in accordance with RCRA regulations.
    d. Oil will be segrated from water or other chemicals to the extent possible, for separate disposal. No oil shall be allowed to enter the sewer or waterways.

2. Water from decontamination operations shall be accumulated and sampled for proper disposal after approval by PTI/HHS.
3. CWC will provide suitable containment to prevent spills to the ground or to a non-contained area of residues from any pipe or equipment being dismantled.
4. Spills (including drips and leaks) of oil or chemicals will be promptly reported to PTI/SSO and will be cleaned up by CWC at no additional cost to PTI/SSO.

    a. This includes oil, fuel, antifreeze or hydraulic fluid leaks from equipment being operated in the dismantlement area and on plant roads.
    b. Spills will be prevented from entering sewers or waterways.
    c. CWC will investigate all spills, which result from dismantlement activities. CWC will determine the key factors, develop corrective action to prevent future spills and provide this information to PTI/SSO Job Representative who will complete a report for each spill.

EMERGENCY DECONTAMINATION

1. In an emergency, the primary concern is to prevent the loss of life or severe injury to site personnel. If immediate medical treatment is required to save life, decontamination should be delayed until the victim is stabilized. If decontamination can be performed without interfering with essential life-saving measures or first aid, or if a worker has been contaminated with extremely toxic or corrosive material that could cause severe injury or loss of life, decontamination shall be performed in coordination with or prior to initial medical treatment at the scene. If an emergency due to heat related illness develops, PPE should be removed from the victim as soon as possible to reduce the heat stress. During an emergency, provisions must be also be made for protecting responding public agency personnel and disposing of contaminated clothing and equipment.

Noise Control Plan

PURPOSE AND SCOPE OF WORK

Cleveland Wrecking Company (CWC) will utilize equipment throughout the course of this project for the demolition of structures, processing of demolition debris for removal off site and movement of demolition materials. Project personnel may be exposed to noise levels in excess of the OSHA specified Permissible Exposure Limit during some site activities including heavy equipment operations, and loading out of demolition debris. The purpose of this procedure is to identify and protect employees and subcontractors, site employees and the general public from hazardous and nuisance noise exposures and to prevent hearing loss.

Hearing protection is available for all employees at all times. During demolition hearing protection will be required in the work area at all times.

WORK AREAS

The following locations are the main areas of work for the project and may or may not generate excessive levels of noise:

- Lay down area
- Foot print of the work area
- High or Low side haulage vehicle loading area
- Mobilization and De-mobilization of equipment

METHODS OF NOISE CONTROL

Minimize noise sources to the extent possible. Examples of controls that must be considered are as follows:

- Addition or replacement of mufflers on motorized equipment
- Addition of mufflers to air exhausts on pneumatic equipment
- Following equipment maintenance procedures to lubricate dry bearings
- Isolation of loud equipment such as compressors and generators from employee work areas, site employee work areas, and adjacent neighborhoods
- Replacement of older noisy equipment with newer and quieter models
- Shielding of equipment, machinery, compressors, generators, etc...

PERSONAL PROTECTIVE EQUIPMENT

Require the use of hearing protectors in any location where powered or motorized equipment or any other noise source could reasonably be expected to exceed 85 dBA. Use of hearing

protectors may only be discontinued when noise levels are verified to be less than 85 dBA through a properly conducted noise survey. Previous noise surveys conducted by CWC require the use of hearing protection around heavy equipment at all times.

Hearing protection shall consist of the following:

Require that at least two (2) types of hearing protectors be available to employees and subcontractors, preferably an ear plug and earmuff type.
Minimum Noise Reduction Ratings (NRR), hearing protectors issued to project personnel must meet the minimum NRR – Ear plugs 29 dB, Earmuffs 27 dB
Ear plugs and Earmuffs may be used in conjunction to meet compliance requirements.

MONITORING

Noise surveys may be conducted in a manner that reasonably reflects the exposure of the affected employees. The following devices may be used to determine employee exposure to noise sources. Sound level meters and audio dosimeters must be Type II (accurate to within +/- 2dB), operated in "slow" response, on the "A" scale, and calibrated to factory guidelines (including periodic factory re-calibration).

TRAINING

Verify that each employee and subcontractor who must work in a noisy environment is current on the required Hearing Conservation Training. Training must include the following topics:

- The effects of noise on hearing
- The purpose of hearing protectors
- The advantages and disadvantages of various types of hearing protectors
- The attenuation of various types of hearing protection
- The selection, fitting, care and use of hearing protection
- The purpose of audio-metric testing
- An explanation of the audio-metric testing procedure

Light Fixtures

Disconnection of the lights will proceed utilizing all safety and standard removal procedures, including disconnection of the electrical feed system and removal of breakers for lighting systems. After the electrical system has been de-energized, the cover over the light fixture will be removed, at which time the exposed fluorescent light tubes will be removed by hand and placed in containers for temporary storage.

As temporary storage containers become full, they will be transferred to a central location within the building. The tubes will then be placed directly into approved cardboard storage boxes provided by the licensed fluorescent light recycling facility. The box will be sealed and palletized. The palletized boxes will be marked with a non-hazardous waste manifest, including the facility name and address.

In the event light tubes are broken during removal, personnel will gather the broken items and containerize them in 5-gallon plastic containers. At the end of the shift the accumulated broken bulbs will be placed in a DOT 17H 55-gallon steel drum labeled "Broken Fluorescent Tubes" located in the temporary waste storage area. This drum will be sealed and labeled for eventual characterization.

For other HID and incandescent lamps, items will be separated and palletized for eventual off site disposal using similar procedures as outlined above.

Handling of Non-PCB and PCB Ballasts

After removal of fluorescent light tubes, the interior fixture cover will be removed to access the light ballast for inspection. The inspection will be completed with the fixture in place. Inspection of the light ballast will include a careful review of the ballast label to determine if the ballast contains PCBs. If the ballast is not marked No PCB's or the label is unreadable, it shall be assumed that the ballast contains PCBs. If the ballast does not contain PCBs as determined by this definitive visual inspection, the non-PCB ballast will be left to the light fixture for disposal in a designated wheelbarrow or equivalent (stenciled "Non-PCB") and relocated to a central location within each floor level. During removal of the ballast if any portion of the light fixture is impacted with suspected PCB oil, the portion of the impacted fixture will be wiped clean of oil. Any general residue or wiping cloths will be considered PCB impacted and incorporated into the drummed ballast waste stream.

Once staged in a central location, the PCB impacted ballasts will be stacked on wood pallets with a sheet of 6 mil plastic between the pallet and ballast, thus reducing the potential for a leaking ballast to release during staging or relocation. Ballasts that are palletized will be relocated to the temporary waste storage area and properly containerized at the end of each workday. Packaging will consist of placement of the ballast into DOT approved 17H, 55 gallons drums. Absorbent will be placed in the bottom of the drum, and ballast and absorbent incorporated until the drum is completely full.

All drums containing PCB ballasts will be labeled with a hazardous waste label with the description "R.Q." Waste Polychlorinated Biphenyl, 9, UN2315, P.G.III.

Ballasts that are identified as "No PCB" containing and have been left in place in the light fixture will be released as general building debris and handled as non-hazardous demolition waste.

Removal of Mercury Containing Equipment

Any equipment that is activated by temperature or pressure, such as thermostats or "mercoid" switches will be checked for mercury containing components. These components typically are small glass ampules containing 1-2 tablespoons of elemental mercury. As removal of like items proceed in an individual area, thermostats, thermometers, or switches will be disconnected, the wires clipped and the removed glass ampules placed in sealable 5-gallon spill proof plastic container containing several inches of absorbent material. This material will cushion the ampules during facility transportation. Upon completion of the days activities, the 5-gallon spill proof container will then be taken to the temporary waste storage area for proper packaging. The pails will be placed into the drums, with the remaining void space filled with absorbent. The drum lid will be secured and the drum labeled with the generator information and proper shipping name. Owner's representative will be notified of the quantity of containers currently inventoried in the designated temporary storage area.

Smoke Detector Removal (if applicable)

The smoke detectors will be located and removed. It will be turned over and the label read to see if it contains a RAD symbol. If the label has this symbol, the fixture contains a radioactive source, most likely Americium-241 or Cesium-137. In this event, no attempt will be made to open the sealed canister containing the radioactive component.

The removed smoke detector sensor will be placed into boxes suitable for the shipping of smoke detector devices. The boxes will contain 35 to 40 devices with each device being placed into a sealable plastic bag. Boxes will be labeled "Smoke Detectors" and secured in the temporary waste storage area. Again, CWC will notify Owner's representative as to the quantity of containers. Smoke detectors that are determined not to contain radioactive material will be discarded as general construction debris.

Exit Sign Removal

Electric feed to the exit sign will be disconnected. The bottom of the exit sign will be checked for a RAD symbol. If this symbol is located, methods of removal will follow similar protocol to the removal of smoke detectors.

Some exit signs do contain a PCB ballast. If the ballast is present the unit will be handled as a PCB waste as previously outlined.

removal procedures for the specific connection(s). All related operation lines to the specific item will be traced from origin to destination and disconnected (if applicable). Any freestanding fluids within the work area will be removed (pumped or absorbed) and containerized prior to initiation of dismantling activities. Containerized materials will be relocated for later characterization.

The equipment in question will then be drained of oil or operating fluids. Fluids will be drained or pumped into an approved spill proof container and then relocated to a temporary waste storage area for eventual characterization. All contained fluids will be temporarily labeled by suspected composition until analytical data has been completed. Personnel may utilize mechanical (metal or plastic) hand pumps to facilitate oil removal. If used, hand pumps will pump the oil directly into a spill proof container. Drum(s) will be located adjacent to the work area during oil transfer to reduce spillage. Containers will be sealed prior to being moved or transported. Absorbent and/or spill containment booms will be available on-site during oil removal and transfer as a contingency in case of spillage. Used absorbent will be placed in a drum labeled "Oily Absorbent" or incorporated into an existing oily absorbent waste stream generated from general facility decontamination.

At the end of the workday, the contained oil will be transported to the designated temporary waste storage area. Moving any containerized fluid will require that all spill proof containers be sealed to ensure no fluid leakage. Drums will be handled with a drum grabber or fork attachment during transportation throughout the facility. If encountered, workers will be required to remove building control equipment and/or containerized fluids from roofs or second story locations. Personnel will utilize scaffolding or motorized lifts to assist in the handling of these items. Precautionary procedures will be discussed prior to implementing removal activities. These measures will be outlined by the project superintendent and will include both operational and health and safety issues. The procedures for working on scaffolding and/or motorized lifts will be detailed in the Site-Specific Health and Safety Plan.

Compatible waste streams will be consolidated and those drums will be reused. An inventory sheet will be forwarded to the owner on a bimonthly basis for those wastes stored in the waste storage area. Each piece of equipment shall be tagged indicating "No Fluids" after the fluids have been removed, and released for salvage or resale. *If said equipment can be sold as a package unit, any operating fluids included with the machinery will be removed prior to sale. CWC will utilize purchase agreements with provisions to include these items.*

Handling of PCB Oil Containing Equipment

Prior to the removal of transformer and electrical potheads, CWC personnel will investigate the equipment for the manufacturers' information regarding possible use of PCB Oil. If the insulating oil is PCB containing, the unit will be demarcated for eventual dismantling. The specific PCB containing item to be removed will be disconnected utilizing all safety and standard removal procedures as well as lockout/tagout protocol for once energized equipment. CWC personnel will disconnect all cables and conduits leading into and from the specific unit (as needed).

If the transformer is to be drained, CWC personnel will locate the release valve (or bung) on the transformer and utilize a pump to extract the oil from the unit. PCBs contaminated oil will be pumped out and contained in a DOT approved 17H 55 gallon drums. Drums containing PCB contaminated oil will be labeled as "PCB Oil". Information on the drum label will include the specific

transformer ID, location, and the PCB concentration indicated in parts per million (ppm). If the PCB concentration is unknown, the transformer will be sampled or if drained, the drums will be staged in a designated area and will eventually sampled to determine the PCB concentration. CWC personnel will utilize a "Caution Contains PCBs" label in conjunction with the standard "Hazardous Waste" label for PCB oil and/or debris contaminated with PCBs.

Oil which is shown not to contain PCBs will be removed and labeled as "Non-PCB Waste Oil" and will be located in adjacent but separate sections of the temporary waste storage area. Removal of these fluids will follow the above outlined protocol.

During the pumping of fluids, CWC personnel will utilize polyethylene spill containers or a piece of visqueen sheeting under the drum(s) receiving the oil. In addition, bags of absorbent will be available when oil removal activities are being conducted in case of a spill. Any used absorbent will be placed in drums labeled "Oily Absorbent" or incorporated into an existing oily absorbent waste stream generated from general facility cleaning. Absorbent will be segregated as "Oily Absorbent" and "PCB Debris". Segregation will follow that protocol established for fluids. Contaminated visqueen, absorbent, and personal protective equipment (PPE) will be included in the respective debris waste stream.

Workers handling items and/or containerized fluids from roofs or secondary story locations, locations will utilize scaffolding or motorized lifts to assist in handling these items. Precautionary measures will be outlined by the project superintendent and will include both operational and health and safety issues. Health and safety requirements will be followed for any above ground or below grade activities. While moving containerized fluid down access stairways, the lids on all spill proof containers will be sealed to reduce the potential for fluid leakage. Drums will be handled with a drum grabber or fork attachment during transportation throughout the facility. If containers require transfer via lifts, the container will be chained to the lift basket and secured to prevent container from overturning. CWC's Project Manager will maintain a list of the equipment sold to those parties purchasing the equipment.

Respiratory Protection Plan

PURPOSE AND SCOPE OF WORK

The purpose of this procedure is to protect those employees and subcontractors performing operations for which exposures can not be controlled by use of conventional engineering or administrative controls and prior to establishing, negative air exposure assessment, and to require that respiratory protective equipment is selected, used, maintained, and stored in accordance with acceptable practices. Results of a Lead Analysis and Silica Survey may or may not indicate various levels of lead paint and silica dust. Torch cutting, burning, the welding process, and demolition of structures with heavy equipment may or may not expose personnel to hazardous levels of lead and silica. However, an Initial Exposure Assessment shall be conducted the first week of various job classifications to determine levels of lead and silica in air in the work place. Upon receipt of results the appropriate level of respiratory protection shall be assigned and utilized. However, a survey of the lead containing painted surfaces shall be either conducted and/or obtained to determine if historical data may be utilized to determine levels of respiratory protection.

SELECTING RESPIRATORS FOR USE IN THE WORKPLACE

All full-face, half-face respirators and cartridges to be utilized by CWC and its subcontractors (if applicable) for this project shall be NIOSH approved. The following procedures shall be used for the selection and use of respiratory protection.

Based on the results of the preliminary site evaluation (Identifying When a Respirator Is Needed, Attachment 42-1), the CWC Health and Safety Officer will select respiratory protection which will provide to a level of exposure below the established Permissible Exposure Limits (PEL) for the identified hazardous substances. The Health and Safety Officer shall ensure the superintendent is adequately instructed as to required protection.

During emergency operations, CWC and subcontractor personnel will not enter areas where they will be exposed to hazardous substances or health hazards until the Health and Safety Officer has determined the proper level of protection.

When working in areas where, in the event of a respiratory protection failure, workers could be overcome by a toxic or oxygen deficient atmosphere, personnel will work at a minimum in pairs (buddy system). Communication (visual, voice or signal line) shall be maintained between both or all individuals present.

Contact lenses shall not be worn with a full-face respirator in contaminated atmospheres.

MEDICAL EVALUATIONS FOR RESPIRATOR USE

CWC and subcontractors will not be authorized to perform work while using a respirator unless it has been determined they are physically able to perform the work and use the equipment. A pre-

employment physical determines what physical and health conditions are pertinent. Annual physicals for employees using respirators are scheduled to update their medical status and ability to work while using a respirator. Medical records are maintained by WORKCARE Medical Group in Denver, Colorado. A copy of the medical clearance shall be kept on file in the project files for review.

FIT TESTING FOR TIGHT-FITTING RESPIRATORS

Proper fitting of full-face and half-face respirators is essential if employees are to receive the protection for which this program is designed. In order to ensure a good face seal follow the manufacturer's guidelines and company policies and procedures:

- The respirator and all straps must be in place and worn in the appropriate position. To adjust headbands, pull the free ends taught until a comfortable but effective fit is obtained.
- To adjust the face-piece properly, simply position the chin firmly in the chin cup and manually shift the mask until the most comfortable position is found. Make final adjustments on the headbands and do not break the nose seal.

IMPORTANT: physical modification or alteration of a respirator and its straps in any way is prohibited. This includes the use of duct tape on the respirator.
Prohibit facial hair where the respirator-sealing surface meets the wearer's face. Respirators shall not be worn when projections under the face seal compromise the fit.

Perform the following pressure fit checks every time a respirator is worn:

- Cover inlets (filter cartridges) with the palms of hands
- Gently breathe in so that the face-piece collapses slightly
- Hold breath for about 5 seconds
- If the respirator remains slightly collapsed and no inward leaks are perceived, the face piece probably has an adequate seal
- Cover air outlet (exhalation valve cover)
- Exhale gently
- A small build-up of positive pressure, but no outward leaks, indicates a good fit

An irritant smoke test will be conducted when a full-face or half-face respirator is issued and at least annually thereafter. The Fit Test Worksheet (Attachment 42-5) shall be filled out and filed in the project file. The procedure is as follows:

- Select the appropriate size and have the subject don the respirator and install HEPA cartridges. Adjust straps for a comfortable fit.
- Visually inspect face-piece seal for voids-adjust, or change size if necessary.
- Irritant smoke from a smoke test tube will be blown around the seal of the face piece for 30-60 seconds while the subject breathes normally. Irritant smoke shall be applied in a controlled open-air environment.

- If no leakage is detected, have subject perform various exercises to simulate work motions, e.g. walking, talking, turning the head, bending over while breathing normally. If leakage occurs, end test.
- If no irritation is experienced the test is passed. Be sure to record the size of the respirator on the fit test form.

MAINTENANCE OF RESPIRATORS

Employees and subcontractors are responsible for cleaning and disinfecting of his/her respirator after each and every use. Store respirators in a plastic bag or case and in a clean location. Inspect respirators before use and after each cleaning. CWC also provides respirator wipes for on-the-job cleaning when working. Respirator repairs must be made only by qualified persons using parts specifically designed for the respirator. The manufacturer's instructions will be consulted for any repair, and no attempt will be made to repair or replace components or make adjustments or repairs beyond the manufacturer's recommendations.

AIR SUPPLIED RESPIRATORS

Air used for atmosphere-supplying respirators must meet or exceed the requirements for Type 1 – Grade D breathing air. Never use oxygen. The following shall be obtained for the project file and/or verified:

- A certificate of analysis must accompany bottled air
- Compressors used to supply breathing air must:
    - Prevent entry of contaminated air into the air supply
    - Minimize moisture content
    - Have suitable in-line sorbent beds and filter to provide appropriate air quality
    - Have a high carbon monoxide alarm that sounds at 10ppm
    - Couplings on air hoses must be incompatible with other gas systems
    - Air-line hoses shall not exceed 300' in the length when in use

TRAINING

All respirator users must be trained in the following manner:

- Before they assigned a respirator
- Annually thereafter
- Whenever a new hazard or job is introduced

- Whenever employees fail to demonstrate proper use or knowledge

Training must address, at a minimum, the following:

- Why the respirator is necessary, and what conditions can make the respirator ineffective
- What the limitations and capabilities of the respirator are
- How to use respirators effectively in emergency situations
- How to inspect, put on and remove, and check the seals of the respirator
- What the respirator maintenance and storage procedures are
- How to recognize medical signs and symptoms that may limit or prevent effective use of the respirator

PROGRAM EVALUATION

The respirator protection program will be evaluated annually and when needed by the Safety Manager. The program will be modified as necessary to reflect policy and/or procedure changes and evaluation results.

CRI Injury and Illness Prevention Program

The personal safety and health of each employee of CRI is of primary importance. Prevention of Occupational induced injuries and illnesses is of such consequence that it will be given precedence over operational productivity.

I EMPLOYER INFORMATION

Organization:	Contracting Resources International
Address:	614 East Edna Place
City, State, Zip:	Covina, California 91723-1312
Type of Business:	Contractor
Main Activities:	Demolition, Contractor, Environmental

II PERSONS WITH AUTHORITY AND RESPONSIBILITY FOR IMPLEMENTING THIS EMPLOYER'S INJURY AND ILLNESS PREVENTION PROGRAM

Name/Title: Steve Aman – President Aman Environmental Construction Inc.

Description of Authority and Responsibility: Understands the Injury and Illness Prevention Program, takes appropriate action to implement it and monitors the program's effectiveness.

Name/Title: Jeff McDermott – President Banshee Construction Company

Description of Authority and Responsibility: Understands the Injury and Illness Prevention Program, takes appropriate action to implement it and monitors the program's effectiveness.

Name/Title: Jim Sheridan – President Cleveland Wrecking Company

Description of Authority and Responsibility: Understands the Injury and Illness Prevention Program, takes appropriate action to implement it and monitors the program's effectiveness.

Name/Title: Doug Cool – Operations Manager

Is responsible for ensuring the Injury and Illness Prevention Program is adapted to the field and that all corrections will be made.

Name/Title: Randy Cook - Job Site Superintendent

Is responsible for inspecting the job site with the aid of a checklist once a week as well as to provide training to all employees.

Name/Title: Andy Varga – Health and Safety Manager

Is responsible for ensuring that Health and Safety Department conducts periodic job site inspection with the aid of a checklist.

III **CRI SYSTEM FOR IDENTIFYING, EVALUATING AND PREVENTING OCCUPATIONAL SAFETY AND HEALTH HAZARDS INLCUDES THE FOLLOWING:**

1. Review applicable Construction Safety Orders, General Industry Safety Orders and other Safety Orders that apply to the operation.

2. Review Industrial and General Information (including Material Safety Data Sheets for Chemicals use) on potential occupational safety and health hazards.

3. Investigation of all accidents, injuries, illnesses, near miss accidents and any unusual events that have occurred at a job location (see section IV).

4. Periodic and scheduled inspections of work areas on the project (see section IV).

5. Evaluation of information provided by employees (see section IV).

A. HAZARD EVALUATIONS HAVE BEEN CONDUCTED FOR THE FOLLOWING SPECIFIC JOB CLASSES:

1. General Areas – Construction Site
   Job Class – Laborers, Carpenters, Operating Engineers, Concrete Finishers:

B. THE OCCUPATIONAL SAFETY AND HEALTH HAZARDS IDENTIFIED ARE DOCUMENTED IN THE FOLLOWING MANNER:

1. Hazard evaluation forms for general work areas and specific job classes (Form IIPP-2) which are maintained at the Job Site and the Health and Safety Office.
2. A Safety Task Analysis Card (STAC) program is a process that utilizes employees to identify and resolve environmental health and safety hazards associated with a task prior to its being performed.

C. REQUIREMENTS ARE DOCUMENTED AND COMMUNICATED IN THE FOLLOWING MANNER: SAFE WORKING CONDITIONS, WORK PRACTICES AND PROTECTIVE EQUIPMENT

1. Codes of safety practices have been developed for general and specific job classes (Form IIPP-3) which are maintained at our Covina Office and on the Job Site.

IV **INSPECTIONS ARE CONDUCTED TO VERIFY COMPLIANCE WITH CODES OF SAFETY PRACTICES, CONSTRUCTION SAFETY ORDERS, GENERAL INDUSTRY SAFETY ORDERS, AND OTHER SAFETY REQUIREMENTS TO IDENTIFY ANY ILLNESS CASES AND UNUSUAL OCCURRENCES.**

Frequency and Responsibility for Inspectors:

1. Area – Construction Site

   Frequency of scheduled inspections: Weekly
   Person responsible: Randy Cook - Superintendent and/or Health & Safety Representative.

   Documentation of Inspections:

   A. Periodic scheduled inspections are documented on (Form IIPP-5) Checklist which includes responsible party and area of hazard.

   B. Periodic Inspection Checklist and Correction (Form IIPP-5) includes methods, hierarchy of correction hazards, procedures for imminent hazards and emergencies.

   These forms are maintained at the Job Site.

Accident and Injury/Illness Investigation:

C. (Investigations) are conducted as soon as possible after an accident, occupational injury or illness, of hazardous unusual occurrence is reported. These investigations are documented (Form IIPP-6). These forms are maintained at the job site.

V **EMPLOYEE SAFETY TRAINING IS PROVIDED INITIALLY OR IN THE FOLLOWING CIRCUMSTANCES:**

1. Initial training for all current employees upon establishment of this employer's program July 1, 2000.

2. New employees are provided initial training upon hiring prior to assignment.

3. Employees are provided training when assigned to a new task for which training has not been received.

4. Training includes general safety training for their job class, potential occupational safety and health hazards and the code of safe practices.

5. Documentation of training is maintained (Form IIPP-7) for group training and (Form IIPP-8) for individual training sessions. This documentation is maintained at the job site office.

6. Refresher training is provided at the following frequency: Annually

VI **EFFECTIVE COMMUNICATIONS WITH EMPLOYEES HAVE BEEN ESTABLISHED WHICH INCLUDE THE FOLLOWING METHODS TO MEET THE PROGRAMS REQUIREMENTS:**

1. Communication of safe working conditions, work practices, and required personal protection equipment is included in initial and all subsequent training.

2. Employees have been advised by their supervisors in initial training that safe work conditions, safe work practices, and required personal protective equipment are mandatory and will be enforced by the following:

   A. Discipline for Non-Compliance: Subject to Immediate Dismissal

3. CRI's method to solicit safety-related information from employees include notifying supervisor or anonymous voice mail telephone line (626.967.1548, ext. 3061).

4. Employees have been advised there will be no reprisals or other job discrimination for expressing any concern, comment, suggestion or complaints about safety related matters.

VII RECORD KEEPING REQUIREMENTS OF 8CCR3203 (D) WILL BE ADHERED TO, INCLUDING:

1. Maintenance of all written records for three years.

2. Maintenance of training records for employees who have worked less than one year may be terminated.

VIII REVIEW AND APPROVAL

This Injury and Illness Prevention Program is hereby approved.

_____ _____

Steve M. Aman – President / Aman Environmental Construction, Inc. Date

_____ _____

Jeff McDermott – President / Banshee Construction Company Date

_____ _____

Jim Sheridan – President / Cleveland Wrecking Company Date

Responsible Person(s): Signature indicates that a copy of this program has been provided and responsibility to implement the program is understood.

_____ _____

Doug Cool – Director of Operations Date

_____ _____

Randy Cook - Superintendent Date

Code of Safe Practices
General Operations

1. Anyone known to be under the influence of drugs or intoxicating substances shall not be allowed on the job while in that condition and is subject to immediate termination.

2. Horseplay, scuffling and other acts which tend to have an adverse influence on the safety or well being of the employees shall be prohibited.

3. No one shall knowingly be permitted or required to work while his/her ability or alertness is so impaired by fatigue, illness, or other causes that it might unnecessarily expose him/her or others to injury.

4. Work areas shall be kept clean and clear of debris and unused material.

5. Personnel exposed to a potential fall hazard of 6 feet or more shall be protected by utilizing a personal fall arrest system (i.e., full body harness and lanyard) unless otherwise directed by supervision.

6. Employees shall not enter manholes, underground vaults, chambers, tanks, silos, or other similar places that receive little ventilation, unless it has been determined that it is safe to enter.

7. Compressed gases shall not be used to clean clothing or skin.

8. Employees must ensure that all guards and other protective devices are in proper place and adjusted, and shall report deficiencies promptly to the foreman or superintendent.

9. Workers shall not handle or tamper with any electrical equipment, machinery, or air or water lines in a manner not within the scope of their duties, unless they have received instructions from the foreman or superintendent.

10. All injuries shall be reported promptly to the foreman or superintendent so that arrangements can be made for medical or first aid treatment.

11. When lifting heavy objects, the large muscles of the leg instead of the smaller muscles of the back shall be used.

12. Materials, tools, and other objects shall not be thrown from buildings or structures until proper precautions are taken to protect others from falling objects.

13. Employees shall cleanse thoroughly after handling hazardous materials, and follow special instructions from authorized sources.

14. Do not use ladders when carrying loads. Work shall be so arranged that employees are able to face ladder and use both hands while climbing.

15. Electric cords, hoses and leads shall be protected or elevated to prevent inadvertent damage in the work area.

16. Adequate lighting shall be maintained in the work area. If natural lighting is not sufficient, auxiliary lighting shall be supplied.

17. Compressed gas cylinders shall be used, stored, or transported in an upright position. All cylinders shall be secured by a chain, or equivalent, to prevent them from falling. Additionally, cylinder caps shall be installed during storage and transport.

18. Gasoline shall not used for cleaning purposes.

19. No burning, welding, or other source of ignition shall be applied to any enclosed tank or vessel, even if there are some openings, until it has first been determined that no possibility of explosion exists, and authority for the work is obtained from the foreman or superintendent.

20. Any damage to scaffolds, falsework, or other supporting structures shall be immediately reported to the foreman and repaired before use.

21. Ladders shall be maintained in good condition and secured near the top when in use. In order to maintain the correct climbing angle, the base of the ladder should be located ¼ the length of the ladder away from the structure supporting the top of the ladder.

22. All tools and equipment shall be maintained in good condition.

23. Damaged tools or equipment shall be removed from service and tagged "Defective".

24. Select and use the appropriate tools for the job.

25. Files shall be equipped with handles and not used to punch or pry.

26. A screwdriver shall not be used as a chisel.

27. Portable electric tools shall not be lifted or lowered by the power cord.

28. Electric cords shall not be exposed to damage from vehicles or equipment driving over them.

29. Only authorized persons shall operate machinery and equipment.

30. No riders, other than the operator, are permitted on any piece of equipment, including lift trucks.

31. Loose or frayed clothing, or long hair, dangling ties, finger rings, etc., shall not be worn around moving machinery or other sources of entanglement.

32. Machinery shall not be serviced, repaired or adjusted while in operation nor shall oiling of moving parts be attempted, except on equipment that is designed or fitted with safeguards to protect the person performing the work.

33. Where appropriate, lockout procedures shall be used.

34. Employees shall not work under vehicles supported by jacks or chain hoists, without protective blocks that will prevent injury if jacks or hoists should fail or fail.

35. Air hoses shall not be disconnected at compressors until hose line has been relieved of pressure.

36. Excavation equipment shall not be operated near tops of cuts, banks, and cliffs if employees are working below.

37. Back-up alarms, horns, lights, safety latches, dead-man switches, and other safety devices shall be inspected prior to operating all equipment. Any repairs necessary shall be performed before operating the equipment.

38. Safety belts, when provided, shall be worn when operating all pieces of equipment.

39. Employees shall be aware that anonymous safety suggestions, comments, or criticisms can be made through the Safety Hotline Number at 626.967.1548, extension 3061.

40. For all projects where asbestos related work will be self performed, a trained asbestos competent superintendent will be on site to supervise activities.

41. Employees performing torch cutting shall utilize an the appropriate respirator and respirator cartridges for the task identified. Prior to assignment of the task Health & Safety will ensure employees are enrolled in the medical surveillance program (baseline physical (medically qualified), blood lead & ZPP testing, and fit tested documented).

Code of Safe Practices
Demolition Operations

1. A competent person with proper experience, training and authority shall supervise the demolition work to secure maximum safety for the workers.

2. Prior to the start of work:

   a) The competent person shall perform a Pre-Demolition Engineering Survey of the structure to determine the condition of the framing, floors, walls and the possibility of unplanned collapse of any portion of the structure. Adjacent structure where employees may be exposed shall be similarly checked. The written survey report shall be available for review at the project.
   b) Floor members shall be safe before workmen are sent overhead to work; this must be thoroughly inspected by the competent person.
   c) Utility companies shall be notified to locate all utilities servicing the building and/or traversing the project site. Where possible, utilities will be disconnected from service to the building or at the curb line by the utility company where they are to be located, cut, and capped.
   d) Any utilities that are to remain in service will be clearly marked and brought to the attention of all site personnel.
   e) Designate walkways of not less than 20" in width. Materials used as access shall be of adequate strength. Wheelbarrow ramps shall be 30" in width.
   f) Appropriate tools and equipment, including scaffolds with safe access and guardrails, shall be provided to conduct the work safely.
   g) Proper illumination – natural or artificial shall be provided at the work area and all passageways/walkways.
   h) An elevator hoist shall be provided for the demolition of any building seven or more floors or seventy feet in height.
   i) A permit for the demolition of any building over 36 feet or over 3 stories in height shall be obtained from DOSH prior to the start of the demolition work (applicable only to CA).
   j) Employees shall be protected from falling materials. Sidewalk sheds, canopies or both shall be provided at the face of the building that provide a minimum of 8 feet clearance from the walking/working surface. The canopy shall be 2 feet wider than the building entrance/opening with a capacity rating of at least 150 lbs/ft 2.
   k) All heavy equipment used on the demolition work shall have a canopy acceptable to DOSH for the protection of the operator from falling or rolling objects.
   l) Employees shall be required to wear and use the following as directed by site supervision:
      i) Hard Hat
      ii) Steel Toed Boots
      iii) Safety/Goggles Glasses
      iv) Approved respirator
      v) Gloves
      vi) Coveralls
      vii) Hi-visibility Vest
      viii) Ear Plugs

   m) Appropriate and adequate amount/supply of first aid kit materials shall be provided at all times to the worker.

   n) The following shall be posted in the job area or office trailer:
      i) Written Emergency Medical Plan

ii) OSHA Poster
iii) Code of Safe Practices
iv) Injury/Illness Prevention Program
v) *Pre-Demolition Engineering Survey*
vi) Federal & State Required Job Poster

o) The following shall be readily available at the jobsite:
   i) Emergency Numbers
   ii) Permits for the job and etc.
   iii) Portable toilet
   iv) Drinking water
   v) Hose and water
   vi) Fire extinguisher and ladder shall be free of defect

p) First aid trained person shall be at the job site
q) Site management shall read, understand and comply with the OSHA Construction Safety Orders

3) During Work

a) All material displaced (unless required for reconstruction) shall be transported immediately to the ground. Material stored upon structure shall not exceed their live load.
b) Provisions for dust control shall include the use of water to keep material or debris sufficiently wet or other equivalent steps taken to prevent dust from rising.
c) Holes in floors for chutes or holes through which to drop material may be made as long as adequate measures are taken to protect personnel and equipment from falling through them (i.e., stop logs, guard rails, etc.). However, the demolition of exterior wall and floor construction shall begin at the top of the structure and proceed downward. Each story of exterior wall and floor construction shall be removed and dropped into the storage space before commencing the removal of the exterior wall and floor in the story below. Flooring boards may be removed from not more than 1 floor above grade to provide storage space for debris, provided falling material is not permitted to endanger the stability of the structure.
d) Continuing inspection shall be made as the work progresses to detect hazards resulting from weakened or deteriorated floors, walls or loosened material. No workmen shall be permitted to work where such hazards exist until they are corrected by shoring, bracing or other effective means.
e) The creation of an inspection hole and/or chase shall be applied to areas in question to determine if a hazard exists. After creating the chase and/or inspection hole, heavy equipment will be utilized to open and/or remove the weakened or deteriorated floor, wall, ceiling, or loosened material. Workmen will not be allowed to open weakened or deteriorated areas by manual demolition methods.

YEARLY RE-TRAINING
OR
INITIAL SAFETY TRAINING DOCUMENTATION

Name of Trainer: _____ Date: _____

Subject(s) covered: Safety and Health Hazards, Employee Communications, Injury & Illness Prevention Program.

Training aid's used: Hazard Evaluation Forms, Codes of Safe Practices, summary of the company's safety program.

Job Class(es) included: Carpenters, Laborers, Operators, and Cement Finishers.

ATTENDEES (Please print and sign your name legibly).

PRINT	SIGNATURE

FORM IIPP-7

INDIVIDUAL EMPLOYEE TRAINING DOCUMENTATION
INITIAL TRAINING

Name of Trainer: _____

Training Subject: Safety and Health Hazards / Employee Communications

Training Materials Used: Hazard Evaluation Forms, Codes of Safe Practices

Name of Employee: _____

Date of Hire/Assignment: _____

I, _____ hereby certify that I received training as described above in the following areas:

( ) The potential occupational hazards in general in the work area and associated with my job assignment.

( ) The Codes of Safe Practices which indicate the safe work conditions, safe work practices required for my work.

( ) The hazards of any chemicals to which I may be exposed and my right to information contained on material safety data sheets for those chemicals, and how to understand this information.

( ) My right to ask any questions, or provide any information to the employer on safety directly or anonymously without fear of reprisal.

( ) Disciplinary procedures the employer will use to enforce compliance with Codes of Safe Practices.

I understand this training and agree to comply with the Code of Safe Practices for my area.

_____ _____

Employee Signature Date

_____

Jobsite Location

FORM IIPP-8

HAZARD EVALUATION FOR GENERAL WORK AREAS AND SPECIFIC JOB CLASSES.

General area of Job Site: Field Cement Finishes - Dated Prepared; July 1, 2000		
Description of Job	***Potential Occup. Safety and health Hazard***	***Preventative Safe Work Conditions, Safe Work Practices or PPE***
Rodding of Concrete	Tripping and Falls	Work carefully, Walk, don't run.
	Back Strains	Use proper lifting techniques. Bend with large muscles of legs not the small muscles of back.
Bull Floating	Tripping and Falling	Make sure all safety cables are up and all floor openings are covered and secured.
		When working backwards be aware of what is behind you.
		Tie-off when within 6 feet of the building perimeter if possible.
	Electrocution	Use fiberglass float handles when working close to power lines. Metal handles must remain at lest 10 feet from lines.
Machine Troweling	Cutting fingers and body parts	All moving parts must be guarded.
	Knocking EE' Down	All machines must have an operational cut off switch.
Working with concrete	Concrete burns on skin and eyes.	Boots must be buckled up or taped to prevent concrete burns.
		Eye protection is always available. Ask your foreman or superintendent.

General area of Job Site: Field - Laborers - Dated Prepared; July 1, 2000		
Description of Job	***Potential Occup. Safety and health Hazard***	***Preventative Safe Work Conditions, Safe Work Practices or PPE***
Concrete Work	Concrete burns on skin and eyes.	Boots must be buckled up or taped to prevent concrete burns.
		Laborers should wear eye protection.
	Back Strains and Extremity Sprains	Practice proper lifting techniques when lifting hoses or shoveling concrete.
Trench/Excavation Work	Buried by Collapse	Make sure a competent person inspects the trench or excavation each day prior to work.
		Proper precautions must be taken to protect employee by benching, sloping or shoring.
	Back Strains and Extremity Sprains	Exercise caution in bending, shoveling, digging or lifting.
	Head Injury	Wear hardhat and keep spoils two feet from edge.
	Overcome by chemical fumes	A trench is a confined space, assure the atmosphere is tested prior to entering a trench excavation if there is a suspicion of soil contamination.
Cleanup/Sweeping	Cut, Puncture hands, fingers, feet	Wear gloves when picking up debris, make sure all protruding nails are bent down or removed.
		Wear proper foot wear.
	Back Strains and Extremity Sprains	Exercise caution when bending, lifting, get help with heavy loads.
	Employee over come by noxious fumes, dust or mists	Review MSDS for any product to be used which is available for review at anytime.
		Use the right respirator for the job once fit tested.
		Make sure there is adequate ventilation.
		Wet materials for dust suppression.

General area of Job Site: Field - Laborers Continued - Dated Prepared; July 1, 2000		
Description of Job	***Potential Occup. Safety and health Hazard***	***Preventative Safe Work Conditions, Safe Work Practices or PPE***
Working at heights or around floor/wall openings	Falls that can result in serious injuries	Wear proper fall protection. Body harness.
Working around heavy equipment	Employee could be hit or struck by moving equipment or materials	Be aware of your surroundings. Wear orange vests. Communicate with all employees/operators.
Cutting/Braising with torch	Employee overcome by noxious fumes Eye damage, welders flash Crush extremities	Be aware of material to be cut. Wear proper respirator for the job once fit tested. Wear appropriate eye protection for the job. Be careful of where you stand while torch cutting Think about where cut pieces will roll or fall.
Creating Inspection holes and/or chases	Debris without warning may fall onto personnel while creating hole or chase	Inspection holes and/or chases shall be created only by mechanical means. After creating the chase or hole, mechanical equipment will be utilized to open and/or remove the weakened or deteriorated floor, wall, ceiling, or loosened material. Personnel will not be allowed to open weakened or deteriorated areas by manual demolition methods.

General area of Job Site: Field - Carpenters - Dated Prepared; July 1, 2000		
Description of Job	***Potential Occup. Safety and health Hazard***	***Preventative Safe Work Conditions, Safe Work Practices or PPE***
Form work and miscellaneous carpentry	Saw cuts, brulses to extremities and smashed fingers	Never open or alter saw guard in anyway. Keep hands and legs away from saw blade and avoid binding. Keep focused on work task don't get careless when nailing.
	Trench/excavation collapse, small work areas, pinched fingers	Employee must be trained prior to entering any trench or excavation in the hazards associated with excavation work. Be careful not to pinch or cut fingers between rebar or wire. Make sure power had saw is grounded and cord is not damaged.
	Back strains and extremity sprains	When lifting lumber or other heavy cumbersome materials exercise proper lifting techniques. Get help of too heavy.

General area of Job Site: Field - Operators - Dated Prepared; July 1, 2000		
Description of Job	***Potential Occup. Safety and health Hazard***	***Preventative Safe Work Conditions, Safe Work Practices or PPE***
Demo of Structure with utilities	Employee injured from blast, electrocution or overcome by fumes	Pre-demo site survey must be conducted. Utilities must be shut off or protected from damages. Utility location companies must be called (i.e. Dig Alert).
Multi Story Structures Demolition	Falling Debris and Collapsing Structures	Work on floors and exterior walls must proceed from the top to the bottom.
Use of Mechanical Equipment for Demolition	Equipment falling through wall or floor openings Employees being struck/crushed by machinery	All floor or wall openings shall have curbs or stop logs in place. Always be aware of your surroundings keep in communication with others. Assure equipment is inspected daily including back-up alarm devices.

CONTRACTING RESOURCES INTERNATIONAL
JOBSITE SAFETY CHECKLIST

[redacted] ame _____ Date of Inspection _____

[redacted] ect Number _____ Site Supervisor _____

A. Adequate at time of inspection
B. Need immediate attention
C. Item not applicable
N/A No items in section applicable

Check one of the following

	A	B	C
A. Posters & Records N/A			
1. OSHA Poster Displayed?			
2. Site superviros holding weekly meetings-recordings?			
3. Emergency medical numbers posted?			
4. Copy of OSHA regulation on job site?			
5. Have utility contacts been made/recorded?			
6. Are safety "tail-gate" meetings daily			
7. Blank accident report forms available?			
8. Are MSDS's available?			
B. Housekeeping & Sanitation N/A			
9. General housekeeping or job site?			
10. Passageways and walkways clear?			
11. Nails removed from lumber?			
12. Materials of all types properly stockpiled?			
13. an area provided for waste and trash is it removed regularly?			
14. Adequate lighting in passageways, stairways, and work areas?			
15. Toilet facilities adequate and clean?			
16. Sanitary supply of drinking water?			
17. Disposable drinking cups and refuse container available?			
18. Means provided for sanitizing personal protective equipment?			
C. Fire Protection N/A			
19. Are "No Smoking" or "Flammable" signs posted at all storage and fueling locations?			
20. Clear access provided to all fire fighting equipment/are inspections recorded?			
21. Location of all fire fighting equipment prominently marked?			
22. Are flammable liquids stored in approved containers?			
23. Fire extinguishers adequate size?			
24. Large fuel tanks properly diked and separated?			
rst Aid N/A			
an individual size first aid kit available?			
26. First aid kits well stocked?			
27. Trained first-aider on job site?			

Check out of the following

	A	B	C
E. Electrical N/A			
28. Distribution boxes covered or marked?			
29. GFI's in use or positive grounding been tested ?			
30. Temporary lighting electrically protected?			
F. Tools N/A			
31. Damaged or broken tagged out of service?			
32. Proper storage space provided?			
33. Operating guards on all power tools?			
34. Persons using power actuated tools trained?			
35. Are guards provided on grinders/hand saws?			
36. Airhose couplers secured or safety valve in?			
37. Tools being properly used?			
38. Correct personal protection being used?			
39. Extension cords tested for assured ground?			
G. Structure			
40. Floors opening covered or guardrailed?			
41. Standard guardrailing on scaffolds, bridge decks, floors of buildings, work platforms, and walkways?			
42. Work areas clear of debris, snow, ice and grease?			
43. Stairways provided with handrails?			
44. Ladders properly constructed?			
45. Side rails of ladders extend 36" above landing?			
46. Scaffolds properly anchored braced and plumb?			
47. Protection provided over vertical rebars working above?			
48. Safety belts in use when guardrails are?			
49. Employees clear of swinging crane loads?			
50. Tag lines used on suspended crane loads?			
51. Gas cylinders separated, secured upright and capped if not in use?			
52. Safety lines in use on suspended scaffolds?			
53. Heating devices properly ventilated?			
H. Drill Rigs N/A			
54. Rig at least 20 feet from power lines?			
55. Rigs inspected daily?			
56. Rig "kill" switch operational?			
57. PPE worn?			
58. Work area free of debris?			
59. Wire rope inspected and in good condition?			

A. Adequate at time of inspection
B. Need immediate attention
C. Item not applicable
N/A No items in section applicable

Check one of the following

. [redacted]ffic Control N/A A B C
[redacted]nce signing at approaches to work area?
[redacted]ect message on signs?
[redacted]g persons properly dressed and equipped?
3. [redacted]g persons performing properly?

. Welding & Cutting N/A
4 [redacted]sing right type of eye protection?
5 [redacted]auges, valves, torches and lines in good condition and free of oil and grease?
6 [redacted]ylinders not in use capped?
7 [redacted]ylinders in use or storage secured upright?
8. Anti-flashback valve at bottles ?
9. Stored oxygen separated from actylene by [redacted] feet?
10 [redacted]ire extinguisher near welding or cutting operations?
71. Adequate ventilation provided?
72 [redacted]rounding for arc welding machine?
73 [redacted]ll parts of arc welding outfits properly insulated?

K [redacted]eavy Equipment N/A
74 Operators wearing hard hats?
75. Hearing protection being used?
76 Dust control?
7 [redacted]Haul road adequate and maintained?
78. Equipment speeds excessive for: N/A
79. Horns and back-up alarms functioning?
8 [redacted]earing cabs on machines when clearing?
[redacted]ines shut down when refueling or [redacted]ricating?
82. Seat belts on machines with ROPS?
8 Steps and hand holds adequate and safe conditions?
84. Adequate lighting of haul roads at night?
85. Parked or unattended equipment have blade lowered to the ground?
[redacted]No hitchikers riding on equipment?
87. Full fire extinguisher near refueling truck?
88. Dump man prominently located?
[redacted]Overhead guard on forklift truck?
[redacted]Vehicles with restricted rear visibility equipped with operating back-up alarms?

[redacted]Cranes N/A
[redacted]. Power line distance from machines?
92. Annual inspection?
[redacted]. Cables in safe condition?
[redacted]. Rear swing protection and pinch point guarding?
95. Exposed gears, shaft, and belts guarded?
[redacted]. Fire extinguisher, boom angle indicator, load capacity chart and hand signal poster in crane?
97. Signs and/or flags on cranes in transit?
98. Operator making daily inspections and test?

[redacted]. Trenching & Excavations N/A
[redacted]rench side shored, layed back or boxed
[redacted]tilities contacted and located before [redacted]digging?
101. Ladder in trench?
102. Stop logs where necessary along top of trench?
[redacted]103. Excavated material stockpiled at least 2 feet from edge.

Check out of the following

104. Laser warning signs in place?
105. Adequate ventilation in pipe?
104. Laser warning signs in place?
105. Adequate ventilation in pipe?
106. Traffic control adequate?
107. Sides of excavation for building shored or
104. Laser warning signs in place?
105. Adequate ventilation in pipe?
106. Traffic control adequate?
107. Sides of excavation for building shored or protected?
108. Oxygen level tested inmanholes, trenches, confined space greater thank 5 feet deep?
109. Public protected from exposure to open excavation?

N. Miscellaneous N/A
110. Procedures established to handle toxic and carcinogenic materials?
111. Fall protection being used on steel erection?
112. Walls properly braced (concrete and block construction)?
113. Guards in place and used on woodworking machines?
114. Expolosives being used, transported, and stored in compliance with regulations?
115. Belts, pulleys, shafts, gears and chains guarded on all machinery and equipment?
116. Masonry saws grounded and personal protective equipment being used?

O. Confined Spaces N/A
117. Supervisor has inspected site for confined spaces?
118. Confined space entry permit is utilized?
119. Atmosphere is monitored for O2//LEL and toxic gases?
120. Personnel have been trained in confined space entry?
121. Does standby personnal have CPR training?

P. Hazardous Waste Operations N/A
122. SSHP available on-site current?
123. Project staff have 40-hr/8-hr Hazwoper training?
124. Subcontractors provided proof of appropriate training?
125. Respirators worn per Action Level Table Criteria?
126. Is PPE worn as required?
127. Are hardhats being worn?
128. Is instrumentation calibrated prior to use?
129. Is direct reading instrument data recorded on provided for this purpose?
130. Is personnel/equipment decontamination performed?
131. Are MSD's available for hazardous materials?
132. If toxic fumes, vaports, dusts, present, is ventilation adequate?
133. Is hospital route map posted on site?
134. Is first aid kit available on site?

* This checklist does not include hazards on very site but is intended to remind you of the most.

Unsafe acts and/or practices observed.

General Safety Corrected by: _____ Date: _____

Imminent Hazards corrected by: _____ Date: _____

Corrections Approved by: _____ Date: _____

Records are to be kept for the duration of the job and forwarded to the Health and Safety Office at the time of job closeout.

Safety Task Analysis

Project Name _____ Date _____ Supervisor _____

Tasks and Personnel

Tasks	Personnel	

Hazard Identification

Chemical Hazards

☐ yes ☐ no Asbestos	☐ yes ☐ no Lead	☐ yes ☐ no Dust	☐ yes ☐ no Organic Compounds
☐ yes ☐ no Other (specify below)			

Physical Hazards

☐ yes ☐ no Hot Surfaces	☐ yes ☐ no Noise	☐ yes ☐ no Radiation	☐ yes ☐ no Pressurized lines/equipment
☐ yes ☐ no Cutting/Burning/Welding	☐ yes ☐ no Work Over/Near Water	☐ yes ☐ no Overhead Hazards	☐ yes ☐ no Other (specify below)

Biological Hazards

☐ yes ☐ no Poison Plants	☐ yes ☐ no Animals (snakes, rodents, dogs, etc.)	☐ yes ☐ no Insects (Ticks, Wasps, Hornets, etc.)	☐ yes ☐ no Bloodborne Pathogens
☐ yes ☐ no Other (specify below)			

Activity-Specific Hazards

☐ yes ☐ no Fall From Heights	☐ yes ☐ no Floor/Wall Openings	☐ yes ☐ no Confined Space Entry	☐ yes ☐ no Excavation/Trenching
☐ yes ☐ no Flam./Comb. Materials	☐ yes ☐ no Slips/Trips/Falls	☐ yes ☐ no Lifting	☐ yes ☐ no Heat/Cold Stress
☐ yes ☐ no Heavy Equipment Operation	☐ yes ☐ no Roadway/Traffic Work	☐ yes ☐ no Pinch Points	☐ yes ☐ no Sharps (i.e. glass, knives)
☐ yes ☐ no Hand/Power Tools	☐ yes ☐ no Eye hazards (i.e. projectiles, dust, gas)	☐ yes ☐ no Other (specify below)	

Other(s): _____

Hazard Controls

PPE	Protective Systems	Fall Protection	Confined Space	Electrical	Housekeeping
_ head	_ shoring	_ full body harness	_ isolation	_ lockout/tagout	_ work area insp.
_ eye	_ sloping	_ lanyard	_ atm. monitoring	_ GFCI	_ dumpsters
_ dermal	_ trench box	_ rated anchor	_ training	_ grounding	_ break trailer
_ hearing	_ barricades	_ guardrails	_ permit completed	_ equipment insp.	_ shower trailer
_ respiratory	_ competent person	_ warning system	_ rescue equ.	_ safe distance	_ laydown area
_ reflective vest	_ emerg. numbers	_ scaffolding	_ rescue service	_ utility clearance	_ cleaning service
_ life vest		_ debris chute		_ utility de-energized	_ sanitary facilities
_ foot	**Medical**		**Monitoring**		
_ hand	_ first aid kit	**Heat/Cold Stress**	_ PID/FID	**Vehicle/Traffic**	**Misc.**
	_ hospital route map	_ work rest regimen	_ O2/LEL	_ traffic control plan	_ MSDS' available
Fire Protection	_ emer. numbers	_ rest area ID'd	_ other toxic	_ barricades	_ cell phone
_ fire extinguisher	_ F-A/CPR provider	_ liquids provided	_ I.H. sampling	_ flaggers	_ buddy system
_ fire watch	_ surveillance program	_ monitoring	_ colorimetric	_ signs	_ radio
_ grounding/ bonding	_ local clinic ID'd	_ training	_ respirable dust	_ police support	
_ non-sparking tools			_ other		
_ low voltage system					

Worker's Comp. Reporting	WorkCare (Corp. Medical Consultant)	Corporate Offices
1-800-787-2851	1-800-455-6155	626-967-4287

FORM IIPP-4

CRI
INJURY/ILLNESS/INCIDENT REPORT

ADMINISTRATION INFORMATION:
CRI Division/Company: _____

Project/Office: _____

Project Number: _____

Date/Time of Incident: _____

Location: _____

_____

For Injuries/Illnesses:
Name of Injured Employee:

_____

Age: _____ Sex: _____

Describe Injury: _____

See a Doctor? ☐ Yes ☐ No

(if yes – attach Doctors Report)

TYPE OF INCIDENT (Check all applicable items)

☐ Illness
☐ Unexpected Exposure
☐ Vehicular Accident
☐ Injury
☐ Property Damage
☐ Other (describe) _____
☐ Fire, Explosion, Flash

DESCRIPTION OF INCIDENT (Describe the facts contributing to the incident. Identify individuals involved, witness, and their affiliations. Attach additional sheets, drawings, or photographs as needed.)

PREPARED BY: Print Name: _____ Signature: _____

Note: Health & Safety Management shall be notified immediately of the accident, incident, near miss, and/or first aid/medical treatment, this completed report shall be forwarded to H&S within 24 hours.

REVIEWED BY: _____ _____
Supervisor Date

_____ _____
Corporate Health & Safety Manager Date

Distribution: CRI, Construction Services Division Health & Safety Manager and Project File

CORRECTIVE ACTIONS (*For Internal Use Only*)

Cleveland Wrecking Company
Pre-Demolition UTILITY POLICY

All pre-job meetings shall include research to determine if a utility i.e. (gas, electric, water, communications) etc., is either located on the project or has the potential of being located on the project.

Research will include the following:

a. Plan/Drawing review supplied by the owner or general contractor.
b. Owner interview.
c. Dig-Alert/USA Alert must be contacted with documentation of call added to daily logs.

Written documentation must be provided to CWC prior to work inception regarding all utility disconnection. Documentation must identify the utility, it's location(s) and include written, signed authorization to proceed with work and that all utilities within our designated work area have been disconnected.

This documentation must be attached to the Pre-Job Safety Checklist completed prior to work. **Verbal authorization is not valid.**

Subcontractors hired to perform work on utilities **shall not** begin work until CWC authorizes work commencement. In addition, all subcontractors must provide the following documentation to CWC prior to work commencement:

a. Signed Subcontract Agreement
b. Valid Certificate of Insurance
c. Health and Safety Program

HAZARD COMMUNICATION PROGRAM

INTRODUCTION

The Hazard Communication Standard, 29 Code of Federal Regulations (CFR) 1910.1200 has been established requiring employers to provide information to all of their employees concerning hazardous substances to which they may be exposed. The Hazard Communication Standard addresses labeling, and other forms of warning, material safety data sheets and information and training. This program addresses only those employees who may potentially work with hazardous chemicals.

RESPONSIBLE PARTY

It is the responsibility of the Corporate Health & Safety Manager, Mr. Andrew Varga to annually review and update the Corporate Hazard Communication Program. This program has been designed to ensure all employees have received information and training, including labeling procedures and Material Safety Data Sheets regarding the potential hazards related to employee work tasks.

STANDARD OBJECTIVES

OSHA's Hazard Communication Standard focuses on five main areas:

- Hazard Determination
- Written Hazard Communication Program
- Labels and Other Forms of Warning
- Material Safety Data Sheets (MSDS)
- Employee Information and Training

The following information outlines the areas of focus in the Hazard Communication Program. Should any employee have a concern or questions regarding these standards, they should contact the Corporate Health & Safety Manager for clarifications.

HAZARD DETERMINATION

The Hazard Communication Standard requires chemical manufacturers and importers to identify all physical and health hazards of any material they produce or import. This information must be provided to employers using their chemicals by attaching a label to each container and sending a current MSDS to any company to whom the chemical is shipped.

Each employer where hazardous chemicals are used must identify what workplace hazards exist and obtain an up-to-date MSDS for each chemical being used. Each employee should read and follow the instructions on product warning labels and MSDS.

The Hazard Communication Regulations specify how the hazard determination must be done. A hazardous substance includes:

A. Those hazardous substances listed in:

(1) **The Director's List of Hazardous Substances** (Section 339, Title 8, CCR)

(2) **29 CFR Part 1910, Subpart Z, Toxic and Hazardous Substances** (OSHA)

(3) **Threshold Limit Values for Chemical Substances in the Work Environment** American Congress of Government Industrial Hygienists (ACGIH)

(4) **National Toxicology Program (NTP)**, Third Annual Report on Carcinogens, 1983

(5) **International Agency for Research on Cancer (IARC)**, Monographs, Vol. 1-34

B. Any other substance which presents a physical or health hazard(s) as determined by scientific evidence.

CWC has chosen to rely strictly upon the manufacturers hazard determination as indicated in the MSDS. **CWC** shall maintain a MSDS library of every chemical it uses. The MSDS gives employers and employees detailed information about the hazards of specific chemicals and how to control them.

WRITTEN HAZARD COMMUNICATION PROGRAM

In compliance with 29 Code of Federal Regulations (CFR) 1910.1200, **Cleveland Wrecking Company (CWC)** has developed the following Hazard Communication Program to enhance the health and safety of our employees. The written Hazard Communication Program describes how **CWC** will address chemical hazards in the workplace and how employees will be informed about these dangers. The written hazard communication program shall be made available upon request to employees, designated representatives and NIOSH.

This Program includes the following:

- Labeling, MSDS, Employee Information and Training Requirements.
- Hazardous Substances in the Workplace.
- Possible Hazards Performing Non-Routine Tasks.
- Chemicals in Unlabeled Pipes.
- Inform Subcontractors of Hazardous Substances.

Labels and Other Forms of Warning

It is the policy of CWC that no container of hazardous substances will be released for use until the following label information is verified:

1. Containers are clearly labeled as to the contents.
2. Appropriate hazard warnings are noted.
3. The name and address of the manufacturer is listed.
4. Identification of hazardous ingredient(s).
5. A current MSDS is on file at home office and at the job site.

This responsibility has been assigned to the Site Project Manager. To further ensure that employees are aware of the hazards of materials used in their work areas, all in-house containers shall be labeled. The Site Project Manager on each project will ensure that all in-house containers are labeled with either an extra copy of the original manufacturer's label, or with a properly completed label, which has the identity of the substance and the hazard warning.

Warning labels are designed to alert employees of the dangers of that chemical. Each manufacturer, importer or distributor shall ensure that every container of chemical leaving their facility is labeled, tagged, or marked in a manner that does not conflict with the requirements of the Hazardous Materials Transportation Act and regulations issued under that Act by the Department of Transportation.

Labels are required on all containers of chemicals in the workplace and all containers of hazardous materials or waste being shipped off site from the work place. Warning labels indicating what classification of hazard should also be attached on the container near the identification label, i.e. corrosive, flammable, poison, explosive, oxidizer, etc.

Each employee should read the label on the container of every chemical he/she uses; check the MSDS, instructions on the label, whenever more information is needed and if you require additional help see the Site Safety Officer.

As hazardous substances are transferred from the original containers to portable or stationary containers, the employer needs to ensure that these secondary containers are labeled with the identity and the hazard warning label if this is not for immediate use by one employee only.

Alternative posting, signs or placards in the work area may be used in lieu of labels directly affixed on stationary process containers.

Discussions concerning the type of chemicals being used or type of hazardous waste employees are being exposed too, labeling and MSDS for those substances will be done in daily Tool Box Safety Meetings Talks held at the job site or at anytime during the work that the need arises.

Daily safety toolbox meetings are required for CWC and all sub-contractors.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

ACETONE Name of Chemical		
HEALTH (Blue)	1	
FLAMMABILITY (Red)	3	
REACTIVITY (Yellow)	0	
PERSONAL PROTECTION	H	

HAZARD INDEX RATING	
0	MINIMAL HAZARD
1	SLIGHT HAZARD
2	MODERATE HAZARD
3	SERIOUS HAZARD
4	SEVERE HAZARD

PERSONAL PROTECTION

On a scale of A to K & X, each letter standing for a different level of protection, the higher in the alphabet the more protection that is required (i.e. Level H; goggles, rubber gloves, chemical resistant apron and 2 Face Air-Purifying Respirator).

Regulated Building Materials

Material Safety Data Sheet (MSDS)

Each MSDS shall be in English and contain the following information:

- The name, address and phone number of the manufacturer, importer or responsible party that prepared or distributed the MSDS, who can provide additional information on the substance in case of an emergency.
- The identity used on the label, chemical and common names and Chemical Abstract Service (CAS) number.
- Physical and chemical properties of the hazardous substance.
- The physical hazards of the hazardous substance including fire, explosive and reactivity information.
- The health hazards of the hazardous substance including signs and symptoms of exposure.
- The potential route(s) of entry.
- The OSHA Permissible Exposure Limit, ACGIH Threshold Limit Value, and any other exposure limit used or recommended by the manufacturer, importer or preparer of the MSDS.
- Whether the hazardous substance is listed in the National Toxicology Program (NTP) or has been found to be a potential carcinogen.
- Any precautions for safe handling and use which are known to the manufacturer, importer or employer preparing the MSDS including hygienic practices and procedures for cleanup of spills and leaks.
- Any control measures which are known to the manufacturer, importer or employer preparing the MSDS such as engineering controls and proper personal protective equipment.
- Emergency and First Aid procedures.
- The date of preparation of the MSDS or date of most recent revision.

The information contained within a MSDS can protect the employee and help make the workplace safer. Each employee will be instructed where the MSDS =s are located, be familiar with how to read an MSDS and be instructed to check the MSDS whenever more information is needed on that specific chemical.

Employee Information and Training

Prior to starting work on a new job site, employees are to attend a health and safety orientation set up by their Supervisor or Project Manager for site specific information and training.

Employee training is essential for making sure everyone who uses hazardous chemicals is taught how to work with them safely. Effective training focuses on the specific hazards each worker faces in his own individual job. The information and training shall consist of at least the following topics:

- Employees shall be informed of the requirements of 29 CFR 1910.1200.
- Employees shall be informed of any operations in their work areas where hazardous substances are present.

- Employees shall be informed of the location and availability of the written hazard communication program.

- Employees shall be trained in the methods and observations that may be used to detect the presence or release of a hazardous substance in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous substances when being released, etc.)

- Employees shall be trained in the physical and health hazards of the substances in the work area, and the measures they can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous substances, such as appropriate work practices, emergency procedures, and personal protective equipment to be used.

- Employees shall be trained in the details of the written hazard communication program developed by the employer, including an explanation of the labeling system and the MSDS, and how employees can obtain and use the appropriate hazard information.

Employees shall be informed of the right to personally receive information regarding hazardous substances to which they may be exposed, according to the provisions of 29 CFR 1910.1200, for their physician or collective bargaining agent to receive information regarding hazardous substances to which the employee may be exposed and against discharge or other discrimination due to the employee's exercise of the rights afforded pursuant to the provisions of the Hazardous Substances Information and Training Act.

Whenever the employer receives a new or revised MSDS, indicating significantly increased risks to, or measures necessary to protect, employee health as compared to those stated on a MSDS previously provided, such information shall be provided to the employees on a timely basis not to exceed 30 days after receipt.

Hazardous Substances In the Workplace

Each job site will have a site-specific chemical inventory and set of MSDS =s, due to the varying type of work and potential hazards of each site. To examine inventory or MSDS, please advise the Site Project Manager. A complete set of MSDS is available at **CWC 's** corporate office.

Hazardous Non-Routine Tasks

Periodically, employees are required to perform hazardous, non-routine tasks. Prior to starting work on such projects, each employee will be given information by their site safety officer about hazards to which they may be exposed during such an activity. This information will include:

1. Site specific hazards.
2. Protective/Safety measures which shall be utilized.
3. Measures that CWC has taken to lessen the hazards including ventilation, respirators, presence of other employees, and emergency products and procedures.

Hazardous Substances In Unlabeled Pipes

To ensure that our employees who work on unlabeled pipes have been informed as to the hazardous substances contained within, the following policy has been established. Prior to starting work on unlabeled pipes, our employees are to contact their Site Project Manager for the following information:

1. The hazardous substance in the pipe.
2. Potential hazards and symptoms of exposure.
3. Safety precautions which must be followed.
4. Personal protective equipment that shall be worn.

Subcontractors

A. It is the responsibility of **CWC 's** Site Project Manager to provide subcontractors with the following information:

1. Hazardous substances to which they may be exposed while on the job site.

2. Precautions the employees shall take to lessen the possibility of exposure by usage of appropriate control measures.

3. Any other possible physical hazards that may exist.

B. **CWC =s** Site Project Manager shall be provided information and MSDS =s and MSDS on any chemical that the subcontractor is using in their processes to ensure that our employees will not be exposed to a hazardous substance.

Cleveland Wrecking Company
Hazard Communication Standard
General Employee Training Lesson Plan

Title:

Right to Know Program

Purpose:

The purpose of the Right to Know Training Program is to inform employees of the identities, locations, properties, and exposure symptoms of some typical hazardous materials. The program emphasizes the reading and understanding of hazardous material labels, Material Safety Data Sheets, and the employee 's rights under Federal " Right to Know " laws.

Objectives:

Upon successful completion of this lesson, the employee will be able to:

1. Discuss or identify employee rights and manufacturers and employer 's responsibilities with regard to Federal " Right to Know " laws.

2. Identify where Material Safety Data Sheets (MSDS) and hazardous material lists are available onsite and identify how to obtain copies.

3. Locate and identify the data and information contained in an MSDS.

4. Identify labeling system.

5. Be familiar with the major chemical hazards onsite, and the hazards and precautions associated with them.

6. Identify the written Hazard Communication Program document.

References:

1. OSHA 29CFR1926.59

2. NFPA Standard 704, HMIS

3. DOT Emergency Response Guidebook for Hazardous Materials

The Right to Know Program - An Overview

The purpose of our company 's Right to Know Program is to determine the potential hazards of the substances in our workplaces; and to inform you of how you can protect yourself from these hazards.

The program addresses five main topics:

1. **Employee Education and Training**
   A series of training programs has been developed to inform you of the company 's program for communicating chemical hazard information.

2. **The Written Right to Know Program**
   Each work-site has it 's own written document which formally describes the elements of the program. This is available to all employees for review.

3. **Chemical Inventory and Evaluation**
   All hazardous substances present in the workplace are inventoried and evaluated for hazards. This inventory and evaluation is available to you for review.

4. **Container Labeling**
   All containers of hazardous materials in the workplace must be labeled, tagged, or marked with the identity of the contents and the appropriate hazard warnings.

5. **Material Safety Data Sheets (MSDS)**
   MSDS 's are available for your review for each hazardous substance in your workplace. MSDS 's contain detailed safety, health, and hazard information.

I. **Presentation: Your Right to Know**

A. Any chemical can be dangerous if improperly handled. This program is designed to teach us about chemicals and steps we can take to protect ourselves.

B. 25% of the workers in America use over 500,000 chemicals every day. Only about 30 of these are listed as known carcinogens (cancer causing), but several thousands have other hazards associated with them. OSHA has outlined responsibilities all groups must comply with to ensure safe use and handling of chemicals.

C. Responsibilities

1. Seller (Manufacturer/Supplier/Importer)

   a. Provide clear labeling (in English).

   b. Provide Material Safety Data Sheets (MSDS). This is a document prepared by the supplier to specify characteristics and hazards of the material.

2. Buyer/Employer

   a. Complete hazardous substance inventory/evaluation.

   b. Obtain and maintain files of MSDS 's.

   c. Train employees.

   d. Provide reports to state and community agencies.

   e. Detail the company Hazard Communication Program in a written document.

3. The work group superintendent/foreman will advise employees of chemical hazards and new chemicals in the work area.

4. Employees are responsible for their own health through adherence to safe work practices with chemicals. Ask if you have questions about chemicals you have been given to work with. We will have or will get the answers for you.

D. Exceptions to the Regulations

1. Consumer products, when used for their specified consumer use.
2. Foods, drugs, and cosmetics, which are regulated by the FDA.

Cleveland Wrecking Company is committed to safety. We want exposure to hazardous materials eliminated

or reduced, and will accomplish this by means of engineering controls, substitution to less hazardous materials, training, adherence to safe work practices, and mandatory use of personal protective equipment.

II. Principles of Toxicology

Objectives:

This section will focus on the following objectives. Individuals should be able to:

* Understand and explain toxicity

* Understand and define hazard

* Understand what factors affect the degree of hazard

* Relate how chemicals enter and affect the body

A. What Is A Hazardous Chemical:

A hazardous chemical is one, which if mishandled, has the potential to cause harm or injury. Chemicals are used in all facets of our lives - in foods, the maintenance of our homes and gardens, our workplaces, and our hobbies. Many household products contain hazardous chemicals:

* Vinegar is a diluted acetic acid, which in a concentrated form is corrosive.

* Common oven cleaners contain lye or sodium hydroxide, which are both corrosive.

* Drain cleaners, bleach, detergents, etc., all contain potentially hazardous chemicals.

* Paints, varnishes, and thinners, which are mishandled, can be hazardous.

B. Toxic Effect

The property of a chemical that causes harm to the body is called the "toxic effect" and is referred to as the toxicity of a chemical.

C. Degree of Hazard - Toxicity vs. Hazard

Toxicity is associated with the harmful effects of a chemical, and is related to the possibility that these effects will actually occur. Thus, the degree of hazard is related to these factors:

* The chemical 's toxicity

* The amount of chemical that comes into contact with the body

D. Dose

Just because a chemical may be toxic does not mean that it will necessarily cause harm or

damage. The key is the amount entering the body. Medicines, such as antibiotics, are toxic chemicals. Medicine taken in prescribed amounts is beneficial; abuse or overdose could cost you your life. Remember, its' the amount that counts. The amount taken into the body at any one time is called a dose.

E. Dose Response Relationship

Consider this example: most of us have at one time or another consumed one drink of alcohol. However, as the amount of alcohol entering our bodies increases, so does the effect, until we reach that stage known as intoxication. The dose is the amount we drink. The principle that the larger the dose, the greater the effect, is called the Dose Response Relationship.

F. Threshold Limit Value

This is the point at which the body can no longer tolerate the dose amount, and harmful effects begin to occur (with alcohol, intoxication).

G. Time or Duration of Exposure

An individual can drink a pint of whisky two ways; all at once, or a little at a time. If all of the whisky were to be consumed at once, we would expect the individual to be in an intoxicated state. However, if the same amount were ingested one sip at a time over a one year period of time, no adverse effects would be felt. The same can be said about exposure to most hazardous chemicals. The harmful effects are dependent on two factors:

* The amount to which you are exposed, or "dose"

* The length of exposure

H. Susceptibility

Individual susceptibility is another factor, which determines how we react to chemicals. Some people can drink four or five alcoholic beverages and tolerate them well, while others may drink only one and become slightly intoxicated. Likewise with tobacco products. Some people may smoke two packs a day for thirty years and never develop anything more serious than a "smoker 's cough ", while others may smoke only one pack a day for fifteen years and develop lung cancer.

I. Toxicity of the Chemical

The properties of a particular hazardous chemical determine the amount which will cause a harmful effect. For example, it may take several hundred aspirin to represent a "lethal" dose, while only one breath of 1% hydrogen sulfide gas is lethal. This is because hydrogen sulfide is much more toxic than aspirin. Remember, the greater the toxicity, the smaller the dose required to produce a harmful, or "toxic", effect.

J. Summary

In summary, the degree of hazard associated with any chemical is dependent on four factors:

1. Dose
2. Length of Exposure
3. Individual Susceptibility
4. Toxicity of the Material

III. Types of Hazards

A. Health Hazards

Materials which present either short term (acute) or long term (chronic) hazards to your health are known as health hazards. Asbestos is a good example of a health hazard.

B. Physical Hazards

Materials which pose an immediate hazard, such as explosives, are known as physical hazards.

IV. Effects of Hazardous Materials

A. Health Hazard Definitions

Toxic Substance - One which has the ability to injure the body. The severity of the injury varies with the duration of exposure to the material and amount of material that is absorbed by the body.

Highly Toxic Substance - One which causes a relatively large amount of harm from a relatively small amount of exposure.

Corrosive Substance - One which damages the body tissue at the site of contact. These materials may cause severe chemical burns (e.g., sulfuric acid, hydrogen fluoride, sodium hydroxide, and nitric acid).

Irritant - Substance which causes redness and the sensation of burning or pain. The eyes, skin, and the respiratory system are most often subjected to irritation in the industrial environment (e.g., ammonia, nitrogen dioxide, phosgene, sulfur dioxide).

Sensitizer - Substance which may or may not cause a visible effect after the first contact. Additional or repeated contact, however, may cause an "allergic" type reaction which may Become worse with each additional contact (chromates, formaldehyde, nickle, TDE).

Asphyxiants - Substances which deprive the body of oxygen. There are two types: simple asphyxiants and chemical asphyxiants. Simple asphyxiants displace or dilute the oxygen in the air to a level which is inadequate to support life (e.g., nitrogen, argon, helium, hydrogen). Chemical asphyxiants prevent the body from using the oxygen that is available in the air by impairing the oxygen carrying capability of hemoglobin (blood). Carbon monoxide is an example of a chemical asphyxiant.

Carcinogens - Materials capable of causing cancer. The duration and intensity of exposure necessary to cause cancer is not always known. Generally, prolonged exposure is required, but all exposure should be limited (e.g., asbestos, vinyl chloride, coal tar chemicals).

Reproductive Toxins - These substances may cause impaired fertility and sterility, or may damage genetic material so defects can be transmitted to future generations (e.g., radiation).

V. Exposure

A. The toxic effects of materials will manifest themselves only through entry into our bodies. For a toxic effect to occur, there must be some way for the chemicals to enter the body. The way a chemical enters the body is referred to as a "route of entry". There are four main routes of entry:

1. Absorption through the skin (skin contact)
2. Breathing (inhalation)
3. Swallowing (ingestion)
4. Absorption through the eyes

B. Action of Toxic Substances

There are four basic types of action chemicals have on the body. They are:

1. Acute
   * When the effect is felt immediately, or soon after exposure
   * As the result of a large dose
   * After one time exposure or short duration exposure

2. Chronic
   * Appears after long term and/or repeated exposure
   * Usually results from small doses

3. Systemic
   * Chemicals that affect certain organs or systems within the body (e.g., alcohol affects the liver, tobacco affects the respiratory system)

B. Action of Toxic Substances (continued)

4. Local
   * Some chemicals, such as acids and caustics, can burn the skin at the point of contact.

VI. Personal Protection

A. Know the chemicals in your environment, and use the chemicals as intended for use.

B. Personal Protective Equipment (PPE)

1. Workers can protect themselves in a variety of ways, such as gloves, respirators, goggles, face-shields, impervious clothing, etc.. PPE is only acceptable when engineering controls are not sufficient to eliminate or reduce exposures to acceptable levels. When PPE is used, it must be evaluated to ensure proper protection.

2. Eye Protection
   Eye and face protection is required whenever hazards exist from:

   * Flying particles
   * Liquid splashes
   * Arcs, radiation, or glare

   Basic safety glasses are not acceptable for grinding and splashes. PPE must be carefully selected to ensure proper protection.

3. Hand Protection
   Gloves are used to provide protection against corrosive liquids, electrical shock, heat, sharp surfaces, etc.. Again, proper selection is essential.

4. Respiratory Protection (See URS Respiratory Protection Program for detailed specifics)
   Respiratory protection must be used when:

   * The air is contaminated with fumes, dusts, mists, fibers, particulates, gases, or other toxic substances, and other controls are not sufficient to eliminate or reduce exposures to acceptable levels (i.e., below the Permissible Exposure Level, or PEL).

B. Personal Protective Equipment (continued)

There are two basic types of respiratory protection devices. They are:

* Air Purifying - These respirators prevent air contaminants from entering the body by using different types of filters. Mechanical filters are used to eliminate particulate air contaminants such as dusts, fumes, mists, and sprays. Chemical cartridge respirators are equipped with special cartridges that " trap " gases and vapors before they are inhaled **Note: Under no circumstances are air-purifying respirators used in oxygen deficient atmosphere (<19.5%).** Supplied air respirators must be used for these situations, as air purifying respirators provide no additional oxygen beyond that of the ambient air content.

* Supplied Air - These respirators are used in oxygen deficient and highly toxic atmospheres and in those situations where the level of contamination is unknown, or is known to be immediately dangerous to life or health (IDLH). Supplied air respirators are provided with a source of uncontaminated breathing air (e.g., SCBA's, airline respirators, etc.).

C. Eye Wash Stations

1. For contact with eyes, flush with large amounts of water for 15 minutes and seek medical attention if necessary.

D. Handle chemicals in proper containers; store properly.

E. Use all required permit systems, such as hot work, confined space, etc.

F. Education and Training

For the various engineering and administrative controls to be effective, the employee must be knowledgeable. An exhaust hood will not be useful unless employees know why and how to use them.

VII. Engineering Controls

A. Source

Engineering control methods can and must, where possible, be employed to reduce or

eliminate hazards at their source. Typical methods include the following:

1. Substitution - Substitution of a less hazardous material is an effective control method. Make sure that if you substitute, you do not introduce a new, perhaps more toxic, hazard.

2. Process Change - Process operations or equipment can be modified to reduce the generation of contaminants.

3. Isolation - Toxic sources can be isolated by enclosing the system, such as spray booths, or total containment of the area, as is used in asbestos abatement.

4. Wet Method - Dusts and some mists can be controlled using water.

5. Local Exhaust - Air contaminants can be removed right at the source by use of flexible or fixed ducts, hoods, or hoses.

6. Path - When source control measures are ineffective or impossible, use a general environmental control such as exhaust or dilution ventilation.

7. Good Housekeeping - Good housekeeping will eliminate many physical hazards.

8. Rotation of Workers - This method reduces exposure by limiting the time an employee is exposed.

9. Personal or Area Monitoring - High levels of contamination can be detected instantly by the use of personal or area air quality monitors.

VIII. Protection Information Availability

How do I find out about hazardous materials?

A. Know the chemicals in your area.

B. Read the MSDS.

* You may request, obtain, and examine an MSDS for any hazardous materials in the workplace and/or a listing of those hazardous materials onsite.

* Hazardous material information may be requested from your supervisor or from the Safety Department.

C. Read warning labels on containers of hazardous materials.

D. Training

IX. Material Safety Data Sheets (MSDS)

Material Safety Data Sheets are documents, which provide the users of hazardous materials with essential safety and health information. Every facility has an MSDS for every hazardous material manufactured, used, or present in the workplace. The information contained in an MSDS is available to all employees at any time.

MSDS's are divided into sections. The number of sections and the order in which they are presented will vary among MSDS's, but all MSDS's contain essentially the same information. Typical sections of an MSDS will include the following:

1. Product Identification
2. Hazardous Ingredients
3. Physical Data
4. Fire and Explosion Hazard Data
5. Health Hazard Data
6. Reactivity Data
7. Spill and Leak Procedures
8. Special Protection Information
9. Special Precautions

Section I. Identification - This section identifies the product according to the label name, the manufacturer, the preparer of the form, and the phone number where additional information may be obtained in the event of an emergency. It also includes information on the general family or class of chemicals to which the product belongs.

Section II. Hazardous Ingredients - If the product as a mixture, or if any of it's ingredients are evaluated as hazardous, the chemical and common names of these ingredients must be listed with their percentages and their Threshold Limit Values (TLV) or Permissible Exposure Limits (PEL). The TLV's or PEL's are the concentrations to which most workers can be exposed day after day without adverse health effects. These levels have been incorporated into many of the OSHA standards. The levels of contaminants in the workplace can be measured and compared with these values to determine if a health hazard exists.

Section III. Physical Data - The physical properties of a material are helpful in evaluating it's hazards. These are discussed below with interpretative comments.

Boiling Point - Refers to the temperature at which a liquid boils. Materials with low boiling points tend to evaporate quickly and may give off appreciable amounts of toxic or flammable gases. Materials with higher boiling points are less apt to do this unless heated. Low boiling point materials in closed containers will build up pressure when exposed to heat and can explode.

Vapor Pressure - Refers to the pressure exerted by the escaping of gas or vapor from the surface of a liquid. The vapor pressure of a liquid varies with temperature. At the boiling point, the vapor pressure equals atmospheric pressure (760mm, or 14.7psi). Materials with low vapor pressures tend to evaporate slowly, while those with high vapor pressures evaporate rapidly and have greater potential to give off toxic or flammable vapors or gases.

Vapor Density - Refers to the weight of a vapor or gas relative to the weight of air. Materials with vapor densities greater than one (1) will tend to accumulate on the floor, while those less than one (1) will rise toward the ceiling.

Percent Volatile Material - Refers to the amount of material which will evaporate from the product, over time, at room temperature.

Evaporation Rate - Refers to the time it takes for a liquid to be converted to vapor at a given temperature relative to ether or butyl acetate. Materials with low rates evaporate quickly, while those with higher rates take more time.

Summary - From a hazardous and toxic properties standpoint, liquids with high vapor pressures, low evaporation rates, and low boiling points are of greatest concern. Unless properly handled, they tend to vaporize rapidly and can produce high concentrations of potentially toxic or flammable gases and vapors.

Section IV. Fire and Explosion Data

Flash Point - Refers to the temperature at which a material will give off enough flammable vapor to produce a flame when a source of ignition is present. Liquids with flash points below 80 degrees Fahrenheit are especially hazardous, since they can give off vapors at room temperature which can be ignited by sparks or static electricity. Smoking, open flames, or high heat sources should never be permitted near flammable or combustible materials.

Extinguishing Media - Describes the type of firefighting media suitable for use on the burning material (e.g., water, CO2, foam, dry chemical, etc.).

Special Firefighting Procedures - Describes any special precautions that are required for fire fighting, such as personal protective equipment, how close to approach the fire, explosion hazards, etc.

Section V. Reactivity Data - Under certain conditions some materials can be unstable, or can be incompatible with other materials. At elevated temperatures, for example, some materials can decompose and give off toxic gases. When two incompatible materials come into contact with each other, they may react and release large amounts of energy, possibly causing a fire or explosion. This section describes the conditions and materials to avoid in order to prevent such an occurrences.

Section VI. Health Hazard Data - Effects of overexposure describes the common health effects a person would experience due to chronic (long term) and acute (short term) over-exposure to the material. Emergency and First Aid Procedures describes the emergency and first aid procedures to follow until professional medical help is available in the event of over-exposure.

Section VII. Spill and Leak Procedures - This section describes the precautionary measures to be taken and the appropriate clean-up and disposal procedures in the event the material is accidentally spilled or released.

Section VIII. Special Protection Information - This section describes the types of personal protective equipment (gloves, goggles, faceshields, clothing, respirators, etc.) and controls needed when working with the material. Since the conditions of use (quantities of materials, application, methods, degree of confinement, etc.) will vary from one task to another, these requirements may also vary.

Section IX. Special Precautions - This section is somewhat a "catch-all" section, used to inform you of all other requirements for handling/using/storing the material that haven't already been specifically addressed in another section. This section may contain DOT requirements for *transporting the material; special handling or storage requirements, etc.*

X. Labeling of Containers

A. Manufacturers Containers

1. All containers must have labels which provide:

   a. Identification of material (in English)
   b. Appropriate hazard warning (DOT, NFPA labels)
   c. Name and address of manufacturer and emergency phone number if available

CLEVELAND WRECKING COMPANY
HEALTH AND SAFETY PLAN
COMPLIANCE AGREEMENT FORM

PROJECT: PCB Treatment Building Dismantle

CLIENT: PTI Steering Committee

LOCATION: 2100 Wyandotte Street
Kansas City, Missouri 64108

PROJECT NO. 24015

I, (print name)_____, received a copy of the Health and Safety Plan for the above-referenced project, I understand it, and agree to comply with all its provisions. I understand that I can be prohibited from working on the project for violating any of the safety requirements specified in the plan.

Signed:

Signature_____ Date_____

Company_____

EMERGENCY RESPONSE PLAN

INTRODUCTION

This Emergency Response Plan (ERP) describes the emergency procedures that must be immediately implemented by Cleveland Wrecking Company (CWC), emergency response team, comprised of PTI/HHS personnel and CWC's subcontractors, in the event an emergency occurs that could endanger human health, the environment or property in and surrounding the facility. This ERP has been developed in compliance with applicable federal, state and local regulations, and industry guidelines. CWC and their subcontractors shall maintain this ERP on-site at all times, and the provisions of this ERP shall be carried out immediately in the event of an emergency or disaster.

The procedures in this ERP are intended to minimize hazards to human health, the environment, or property, resulting from any unplanned sudden or non-sudden release of hazardous waste or constituents into the air, soil or surface water, or other emergencies which might occur. A site emergency is defined as those site conditions which pose a greater than normal threat of exposure or harm to on-site personnel and/or the surrounding community. These conditions include, but are not limited to, fires, malfunction of on-site control equipment systems, release of hazardous waste, major disturbance of the building surface, migration of materials (gas, liquid, or solid), or public disturbances on or off the site.

The determination of whether to implement the ERP depends on whether an imminent or actual incident threatens human health or environment. The objective of this section is to provide PTI/HHS or the local Fire Department Incident Commander guidance in making this decision by providing him/her with criteria for decision making. Specifically, the ERP will be implemented when the following situations occur to such an extent that human health or the environment are threatened.

- *Fires and/or Explosions*
    - Fires causing toxic fumes to be released
    - Fires that could potentially spread off-site and/or on-site (brush fires)
    - Fires that could potentially spread and ignite materials at other sites or cause explosions
    - Fires where the use of water/chemical suppressants result in contaminated run-off
    - Anytime that there is an imminent danger of explosion; or the potential for an explosion that could result in the release of toxic materials; or an explosion could release hazardous waste at the site

- Anytime an explosion occurs

- *Spills/Releases of Materials*

  - A spill of flammable liquids or vapors that may cause a fire or explosive hazard
  - A spill resulting in the release of toxic liquids or vapors
  - A spill that cannot be contained on-site that would result in off-site contamination

- *Earthquake* induced failure of control equipment that result in tank or pipeline releases, slope failure, structure collapse, fires, uncontrolled spill and/or release of hazardous constituents into and/or onto the air, water, ground surface, and surrounding community

- *Demolition Operations*

  - Structural collapse during demolition with or without personnel trapped
  - Accident/Incident involving multiple injuries
  - Planned and/or unplanned disturbance of utilities (gas, water, electrical, on or off site)
  - Vehicular accident/incident

- *Extreme Weather Conditions*

- *Civil Disturbance*

- *Disaster*

ACCIDENT/INCIDENT NOTIFICATION

In the event of an accident/incident, notification to PTI/HHS shall take place as soon as practical. For any accident/incident the following shall be notified:

PTI/HHS Site Project Manager
PTI/HHS Representative

For a complete listing of responsible personnel for any and all emergency contact information, please refer to the Project Contacts section of the Site Specific Environmental Health & Safety Action Plan.

The remainder of this chapter is organized into the following sections:

- Revisions and Distribution of the Emergency Response Plan
- Emergency Equipment Availability
- On-site Emergencies

REVISIONS AND DISTRIBUTION OF EMERGENCY RESPONSE PLAN

CWC and their subcontractors shall review a copy of the ERP prior to work activities at the site. The ERP and subsequent revisions will also be distributed to the appropriate PTI/HHS personnel and local agencies who have regulatory jurisdiction and emergency situation responsibilities. Copies will be distributed to the following:

Site Incident Command personnel
All other emergency response team personnel
Local Fire Department
County Sheriff and/or local police(if applicable)
County Civil Defense (if applicable)
Power & Light (if applicable)
Local utility companies (if applicable)

A current copy of the ERP will be maintained in the CWC construction office trailer for training and reference.

The ERP will be reviewed and revised by CWC, and reviewed and approved by PTI/HHS (as applicable) immediately if any of the following occur:

- The ERP fails in an emergency
- The facility design, configuration, maintenance or other circumstances changes such that there is an increase in the potential for foreseeable emergencies, or a change in appropriate emergency response measures
- The list of emergency equipment changes
- Applicable regulations are revised

EMERGENCY EQUIPMENT AVAILABILITY

Fire fighting equipment, spill control equipment, emergency showers and eyewashes, first-aid equipment is available and maintained on-site. The subsequent subsections provide brief descriptions of this equipment along with the equipment capabilities. The emergency equipment will be inspected and maintained to ensure that it operates properly in time of an emergency event and will be restocked by the CWC Project Manager/Site Safety Officer (PM/SSO) as equipment is used. The PM/SSO will ensure that the equipment is kept up to date. In addition, site vehicles and heavy equipment will be made available for use in emergencies. Local emergency agencies are also available to provide additional emergency equipment, supplies, and services.

FIRE FIGHTING EQUIPMENT (Potential equipment that may be utilized)

- Portable Fire Extinguishers (various sizes and types)
- Fire hose with compatible fittings
- Excavators
- Bobcats
- Track Loaders
- Rubber Tire Loaders

Portable fire extinguishers of various types, sizes and capabilities will be made available throughout the facility, company vehicles and construction office trailer.

The following lists the types of fire extinguishers and the types of fire it is capable of extinguishing:

- 2 ½, 5, 10, 20 pound ABC Portable Fire Extinguishers – utilizes ammonium phosphate dry chemical to extinguish Class A, B and C type fires. *

- 2 ½ gallon A Portable Fire Extinguishers – utilizes water with compressed air to expel the water to extinguish Class A type fires. *

Classification of Fires:

- Class A Fires. Fires involving ordinary combustible materials such as wood, cloth, paper, rubber and many plastics.

- Class B Fire. Fires involving flammable liquids, oils, greases, tars, oil-base paints, lacquers, and flammable gases.

- Class C Fires. Fires that involve energized electrical equipment where the electrical non-energized conductivity of the extinguishing media is of importance.

In addition to the fire extinguishers, Fire hose of the double jacket cotton type with either pyrolite or brass couplings of various size shall be located on site and made available for emergencies.

Other on-site equipment that can be used to fight fires includes excavators, bobcats, track loaders, and rubber tire loaders. The heavy equipment may be utilized to reduce the travel of fire by performing an isolation cut in structures, and/or knocking down structures, pushing and/or clearing debris from a fire, cutting a fire line, burying a fire, creating earthen berms to control a spill, or runoff, or divert runoff.

SPILL CONTROL EQUIPMENT

Spill control equipment is provided to contain released material if spills occur. Absorbents, admixture materials, empty recovery/salvage drums, drum liners, shovels, scoops, and other equipment shall be made available on site for this purpose. Soil from nearby areas or stockpiles can be used for spill stabilization and to build temporary berms with earthmoving equipment (e.g., bulldozers and bobcats) to contain spills, if needed. The spill control equipment shall be stored in the CWC lay-down area.

Over-pack drums may consist of 95 gallon poly over-pack drums. These open top drums are used to pack leaking or damaged containers (55 gallon or less). The over-pack drums provide a safe reliable containment for leaking containers and can be used for shipping purposes. Over-pack drums are made of durable polyethylene construction and can be used to safely store a wide range of hazardous materials including acids, corrosives and contaminated parts.

Absorbents maintained on site consist of multipurpose, self-contained, pigs, pillows, rolls, and booms that are capable of absorbing acids, caustics, water-based chemicals, solvents, and oils. The absorbents are generally placed around spills to prevent further contamination or placed directly on a spill to soak up free liquid. An absorbent can generally absorb up to 8 to 10 times its weight in liquids. The admixtures that are maintained on site (bulk form) are generally stored in lined, covered containers. Bulk admixture is generally used for small leaks or spills by distributing it directly onto the spill by hand or by a scoop.

FIRST AID EQUIPMENT

First aid equipment is available at the CWC Construction office trailer, and all dedicated site vehicles. There are various types and sizes of first aid kits present on site (10, 25, and 75 person (bulk) units. These first aid kits provide the vital first response to minor injuries. Personnel who sustain a first aid type injury, shall be treated by a trained person.

OTHER EQUIPMENT

Communications equipment is available for use. This equipment consists of telephones located at the CWC construction office trailer. Two-way radios with a base station are available at the CWC construction office trailer. Portable radios are also available for use on site and vehicles. The radios are equipped with several channels.

ON-SITE EMERGENCIES

GENERAL

This section describes procedures to follow for certain types of on-site emergencies. The procedures in this section include notification and immediate action requirements. Any accident/incident requires the completion of the Incident Report by the Site Superintendent and PM/SSO.

PERSONAL INJURY

Minor Injury

Injuries resulting from emergency situations requiring first aid shall be treated on-site by qualified personnel provided the area is safe to occupy.

Injured personnel not treated by responding public agency emergency response personnel will be taken to the local clinic for treatment. Transportation may be provided by site personnel at the discretion of the PM/SSO. The clinic phone number and travel route to the clinic are located in the Clinic Information section of the Site Specific Environmental Health & Safety Action Plan. The clinic information will also be posted in the CWC construction office trailer, as a minimum.

Major Injury

Personnel with major injuries, or requiring cardiopulmonary resuscitation (CPR) or basic life support shall be treated by certified emergency response personnel until off-site emergency response agencies arrive. Treatment will be provided at the injury location provided the area is safe to occupy. If the area is unsafe to occupy, injured personnel will be moved by qualified responders prior to receiving treatment if it is possible to do so without exacerbating the victim's condition. The CWC Project Manager/SSO, as well as PTI/HHS Site Project Manager and Representative shall be notified immediately via on site emergency phone number.

Personnel with injuries and potential chemical exposure requiring medical treatment shall be decontaminated, if possible and given appropriate first-aid and basic life support until off-site emergency response agencies arrive.

Personnel responding to the emergency shall attempt to assure that the work area is safe before escorting outside medical or other emergency agency personnel into an active work area. Appropriate measures to limit any potential emissions shall be implemented. Non-essential personnel shall vacate the area.

In the event that emergency agency request the assistance of responding CWC personnel, the following procedures will be followed:

- Assure that rescue personnel are wearing approved PPE, and are adequately trained for the task at hand.

- Remove contaminated clothing from the injured person. If the injured person cannot move, make efforts to cut off any contaminated clothing or PPE.

- If the situation is life threatening, decontamination or removal of PPE will be considered secondary to medical care. Emergency personnel will be notified of the presence and nature of any contaminated clothing, and proceed according to their established operational protocols.

- If the employee can walk or be moved without further injury, all affected skin areas should be washed thoroughly with soapy water.

- Decontamination and disposal of protective equipment shall in accordance with site procedures.

The off-site emergency personnel (paramedics, ambulance personnel, etc.) will determine where injured personnel will be taken for emergency treatment.

CHEMICAL EXPOSURE

Should a hazardous material or waste release result in a personal injury, immediate steps shall be taken to determine the cause and extent of the injury and to apply first aid and/or decontamination procedures, if appropriate. The Superintendent and PM/SSO shall be notified immediately. Other site personnel and agencies will be contacted as appropriate.

CWC may implement rescue procedures, if required. If exposure to a hazardous material or waste is involved, a copy of the waste manifest, appropriate Material Safety Data Sheet (MSDS), chemical information sheet or other pertinent information will be made available to the medical facility or emergency response agency providing care.

FACILITY EVACUATION

In the event that an incident poses an imminent threat to personnel life or safety, the CWC Superintendent and PM/SSO will direct an evacuation of the demolition work area or portions of the work area affected by the incident. Suggested evacuation routes and assembly positions for the site, as well as for separate buildings will be posted in conspicuous places.

The CWC Superintendent and SSO shall supervise all evacuation efforts until PTI/HHS or emergency response agencies assume control. Supervisors shall account for their personnel and direct them to assembly areas. Truck drivers, vehicles from off-site

sources, subcontractors personnel and visitors shall be directed (radio, verbal, etc...) to assembly areas or an alternate point, as designated by the CWC Superintendent and PM/SSO. CWC Supervision will ensure that gates can be opened with keys or other means (e.g., bolt cutters). Note that pre-planned evacuation routes are suggested routes, and may be adjusted at the time of an emergency in order to respond to incident-specific factors. For example, it may be necessary to adjust one or more evacuation routes in order to accommodate large vehicles (e.g., vacuum trucks on a narrow road, and situations in which the vehicle cannot safely reverse direction) that area heading in a direction counter to that indicated on a given evacuation route map. It may also be necessary to adjust evacuation route(s) depending on the nature and location of the incident and wind direction (the latter determined from windsock or other means), in order to avoid any direct and/or downwind hazards.

If evacuation is required, CWC or their designee shall announce over the radio system that an emergency evacuation is necessary. The announcement shall be repeated until all site personnel and visitors are present or evacuating in an orderly fashion to the designated evacuation assembly point. A site inspection shall be performed when all life-threatening conditions are controlled. All personnel except those needed for emergency response activities shall remain at the assembly point until directed by CWC and PTI/HHS supervision to resume work or depart the facility.

To account for personnel at an assembly point, a copy of the Site Daily Sign-In Log will be obtained from the CWC Construction Office trailer. Each supervisor will obtain a copy of the log and account for employees working under their supervision. The supervisor or designee will verify that all personnel listed on the Site Daily Sign-In Log are accounted for.

Situations which would warrant partial or complete evacuation of the facility are as follows:

- Explosions: An actual or imminent explosion would require evacuation due to potential toxic emissions and flying debris. A minimum safe distance radius of 1,000 feet would be established to assure that personnel are protected.

- Release or Toxic Fumes: Chemical reactions could result in a release of toxic fumes. If this occurs, all personnel not trained or equipped with appropriate respiratory protection would be evacuated to a point upwind where they are clear of the fumes.

- Fire: Fire presents a threat because of heat, smoke, and toxic fumes. All personnel would be evacuated to an upwind assembly area within one-half mile of the facility, or as directed by the local Fire Department.

- Other Incidents: Personnel from the facility and vicinity would be evacuated whenever their personal health and safety cannot be adequately protected. Personnel would be evacuated to an upwind assembly area.

FIRE/EXPLOSION

Should a fire or explosion occur at the site, the person discovering the incident shall notify 911 and CWC supervision. PTI/HHS shall be notified, in person or by radio or telephone, and apprised of the incident and its location. CWC supervision shall notify all CWC personnel and their subcontractors that a fire is in progress, and decide whether to evacuate or to take interim measures until emergency agency personnel arrive. Site personnel shall report all fire/explosions or evidence of fires, no matter how minor or insignificant the fire/explosion may appear.

In the event of a fire, explosion, brush fire, or building fire, 911 shall immediately be called by the person discovering the fire. CWC personnel or one of their subcontractors shall be at the front gate or a predetermined safe entry point to escort the fire department to the fire. Notification requirements including phone numbers for fire/explosion incidents are listed in the Project Contacts section of the Site Specific Environmental Health & Safety Action Plan.

Wind direction, as determined from windsocks or other means, is an important factor in defining the nature of a surface fire and in subsequently determining appropriate response actions. Personnel may be directed by CWC supervision to accomplish any of the below as required by the emergency:

- Evacuate all nonessential personnel and equipment from the vicinity of the incident.
- Shut down all processes and operations.
- Provide necessary equipment and supplies for use in responding to the incident.
- Remove all flammable and ignitable materials from the fire area, as practical.
- Extinguish small fires with portable fire extinguishers or cover with dirt, if appropriate.
- The fire department will be called on to handle large fires and keep personnel out of the area.
- Assist the responding agency, if they perform an investigation to determine cause and origin of the fire.
- If required, close down all or part of the demolition work area.
- Once the emergency situation is resolved, collect and properly contain in DOT approved containers for subsequent disposal any hazardous material or solid or hazardous waste that may have been released to the environment during the emergency.

Small fires may be contained with portable extinguishers maintained on site. Personnel shall attempt to extinguish only small localized fires and minimize the potential for spreading.

Earthmoving equipment can assist in extinguishing or preventing the spread of fires.

If a partial or full site evacuation is necessary, CWC shall announce over the radio system that an emergency evacuation is necessary. The announcement by CWC or designees shall be repeated until all site personnel and visitors are present at the designated assembly point(s). Site personnel and visitors shall evacuate the site in an orderly fashion. A site inspection shall be performed when all life threatening conditions are controlled. All personnel (except those needed for emergency response activities) shall remain out of the fire area and at the assembly point until directed by CWC or their designee to resume work or depart the facility.

If a fire is observed off-site in the immediate vicinity of the facility, site personnel shall immediately notify PTI/HHS and/or CWC supervision or they may call 911 to report the fire.

EARTHQUAKE (if applicable)

If an earthquake occurs, CWC may initiate a site evacuation, if necessary. Site evacuation may take place if an immediate danger has been identified, or field inspections performed at the discretion of CWC supervision indicate the earthquake has caused damage to the structure and/or potential structural collapse, which could cause imminent danger.

As practical, the following actions shall be taken during the earthquake:

- Remain calm. Instruct personnel to take cover under a desk, table or doorway. Stay clear of glass and other falling debris. Stay away from bookcases, cabinets, and files.

- If you are outside, get into an open area away from buildings, structures, power lines, etc...
- If you are in a vehicle when the earthquake occurs, pullover to the side of the road and stop; stay away from structures, power lines, fences and other objects. Stay in your vehicle and listen on your two-way radio or vehicle radio information.

RELEASE OF HAZARDOUS MATERIALS

Hazardous material (i.e., hazardous substance an hazardous waste) can be released as a result of a spill (e.g., from a drum or tanker), a rupture of aboveground liquid storage tanks, a rupture of a liquid piping system, a hydraulic line break from an excavator or related equipment. All releases or potential releases of a hazardous material, including

oil, require various response actions including emergency notification to PTI/HHS. The procedures described below will be used for rapid and safe response and control of the situation and shall be followed if such an event occurs:

- Any person discovering a release (during working) shall observe the source and location of the spill, and immediately contact CWC supervision and mitigate the cause of the release, if possible. CWC supervision shall notify PTI/HHS immediately.

- CWC supervision must assess the possible hazards to human health or the environment that may result from the incident or release. The assessment will be performed by visual observation, consultation with on-site personnel, waste characterization information, manifests, operating records, and other resources.

In addition to site notifications, the procedures to control the spill are as follows:

- Isolate the affected area to prevent unnecessary exposure and contamination of personnel or equipment. Appropriate PPE to be worn by field personnel shall be determined by the CWC Superintendent and PM/SSO.

- Evacuate all nonessential personnel and equipment from the vicinity of the release.

- Characterize the material type, and remove any incompatible material from the spill area, if possible.

- Provide equipment and supplies appropriate for use in responding to the incident.

- If flammable waste is involved, remove all ignition sources, and use spark and explosion proof equipment and clothing in subsequent containment and cleanup activities.

- If possible, try to stop the leak.

- Use absorbent pads, booms, or other inert materials to contain, divert, and clean up a spill if it has not been contained within a dike or sump.

- Place all recovered liquid wastes and contaminated soil in drums for storage and ultimate disposal (90-day drum storage rule applicable). Perform cleanup and removal activities to extent possible.

If the spill is off-site and all or a portion of it enters the municipal storm water drainage system, response actions are incident specific and may vary widely based on factors such as: volume and content of the spill; relative volume and type of other liquids in the drainage system; ability to contain and/or control the intermingled spill and storm water liquids; and anticipated receptors of the intermingled spill and storm water liquids. Response actions to this occurrence may involve the public response agencies and will be

determined by them at the time of the event, and are thus not delineated herein. Public response agencies have various resources, which may be utilized to respond to a release. These resources are varied, often change, and may be called in solely at the discretion of the particular agency (or other agency with emergency response jurisdictional oversight). It is the responsibility of the lead agency to identify, obtain, and allocate those resources. In general, the fire department may be the best source of additional sorbent material (if on-site soil is inadequate). The fire department may also be the best source of water and/or foam for knocking down or controlling fumes. The fire department and sanitation district may be the best sources for welding equipment or other equipment needed to alter or repair site systems.

In the event of a rupture of liquid carrying pipes, additional steps outlined below shall be taken:

- Notify CWC supervision and PTI/HHS immediately.
- Shut appropriate pumps down; contain liquids on-site using sandbags, absorbent or earthen dikes.
- Mobilize vacuum trucks, (from subcontractor or leasing company) as necessary, to control the spill. Pump standing liquid into a vacuum truck.
- Determine if soil is contaminated and handle appropriately.

VEHICULAR INCIDENT

A vehicular incident this context refers to a traffic accident and/or transportation related release of a hazardous material. CWC, PTI/HHS shall be notified immediately if a vehicular incident occurs on site or involves a PTI/HHS vehicle or property. CWC shall be apprised of the incident and its location and determine if emergency response personnel are required.

A traffic accident involving injuries shall be communicated to 911 immediately and then to CWC and PTI/HHS. Other agencies may also be contacted, as appropriate. Traffic accidents involving only property damage with no potential to affect off-site parties shall be communicated to the CWC Superintendent and PM/SSO.

The CWC Superintendent and PM/SSO shall investigate the incident and submit an incident report for any traffic accident involving a company vehicle, rental vehicle, or personal vehicle used by personnel, contractors, subcontractors, or visitors.

EXTREME WEATHER CONDITIONS

In general, an emergency response to extreme weather conditions involves identifying the types of hazards certain weather, related phenomena may generate. Examples of extreme weather and potential resulting hazards are the following:

- Heavy rains may cause the local river to over flow and/or cause flooding.
- High-speed winds may result in dust and brush fire hazards.
- Heavy fog or dust storm may cause impaired visibility.
- Lightning may strike structures, heavy equipment booms, and trees.
- Tornado may require evacuation to pre-determined shelters.

Beyond common sense, there are no predetermined guidelines to mitigate these conditions. The CWC Superintendent and PM/SSO (in the morning meeting, when possible) will consider the extreme weather condition and project what site operations and/or systems may be affected if the extreme weather conditions occurs. Preparations can then be made to avoid potential emergency situations.

In an extreme weather situation, evacuation of the demolition work area shall occur if the safety of personnel is questionable.

CIVIL DISTURBANCE

Generally, civil disturbances directed against PTI/HHS would potentially be of two types:

- Organized: e.g., environmental activist or similar protest group.
- Disorganized: e.g., riot or civil insurrection involving adjacent areas, which may affect the site due to their own momentum.

Either type pose potential risk to site personnel, equipment and systems.

In the event of a civil disturbance that either directly targets PTI/HHS or involves neighboring areas, which could affect site personnel or property, CWC and their subcontractors shall receive direction from PTI/HHS.

DISASTER

A variety of disaster possibilities exist for any piece of land. An expansive area such as the PTI/HHS invites the possibility of anything. It is neither possible nor practical to plan scenarios for handling each and every possible disaster that could happen at the site. Rather, it is better to establish a set of priorities to govern site response to disasters in a general way, as follows:

Assure that 911 and other public agencies are immediately notified of the occurrence.

Assure safety of site personnel by evacuation of the affected area using the procedures previously outlined.

Assure safety, continued operation or shutdown of site processes and equipment, as appropriate.

Establish liaison and coordinate any site activities with responding public agencies.

WORK PRACTICES

This section describes the safe work practices CWC will employ to remove and/or decontaminate those areas that have been impacted by hazardous substances and/or containing universal waste items as well as demolition of structures. The Demolition Work Plans describe in detail the means and methods for accomplishing the work identified safely. The work practices in this section identify the required personal protective equipment for the tasks previously identified in the Demolition Work Plans and are as follows:

REMOVAL AND PACKAGING OF BATTERIES

CWC Laborers performing this task shall wear at a minimum long pants, shirts with long sleeves, hard hat with face-shield, safety glasses with side shields, steel toe boots (serviceable or disposable), nitrile type inner gloves, leather type outer work gloves, white Tyvek, and full body harness with double shock absorbing lanyard (100% tie off). Depending upon the location of batteries, the use of aerial lifts/platforms, scissor lifts, rolling scaffolds and ladders use may be required. CWC shall ensure through training and documentation, personnel assigned to these tasks are familiar with fall protection requirements, operation of lifts, working from scaffolds and ladder use. CWC prior to commencement of work shall ensure associated utilities have been disconnected.

REMOVAL OF FLUORESCENT LIGHT TUBES AND HID BULBS

CWC Laborers performing this task shall wear at a minimum long pants, shirts with long sleeves, hard hat with face-shield, safety glasses with side shields, steel toe boots (serviceable or disposable), nitrile type inner gloves, leather type outer work gloves, white Tyvek, and full body harness with double shock absorbing lanyard (100% tie off). Depending upon the location of light tubes and bulbs, the use of aerial lifts/platforms, scissor lifts, rolling scaffolds and ladder use may be required. CWC shall ensure through training and documentation, personnel assigned to these tasks are familiar with fall protection requirements, operation of lifts, working from scaffolds and ladder use. CWC prior to commencement of work shall ensure associated utilities have been disconnected.

HANDLING OF NON-PCB AND PCB BALLASTS

CWC Laborers performing this task shall wear at a minimum long pants, shirts with long sleeves, hard hat with face-shield, safety glasses with side shields, steel toe boots (serviceable or disposable), nitrile type inner gloves, leather type outer work gloves, white Tyvek, and full body harness with double shock absorbing lanyard (100% tie off). Depending upon the location of Non-PCB and PCB ballasts, the use of aerial lifts/platforms, scissor lifts, rolling scaffolds and ladders use may be required. CWC shall ensure through training and documentation, personnel assigned these tasks are familiar with fall protection requirements, operation of lifts, working from scaffolds

and ladder use. CWC prior to commencement of work shall ensure associated utilities have been disconnected.

REMOVAL OF MERCURY CONTAINING ITEMS

CWC Laborers performing this task shall wear at a minimum long pants, shirts with sleeves, hard hat, safety glasses with side shields, steel toe boots (serviceable or disposable), nitrile type inner gloves, leather type outer gloves, high visibility orange vest. CWC prior to commencement of work shall ensure associated utilities have been disconnected.

REMOVAL AND PACKAGING OF SMOKE DETECTORS

CWC Laborers performing this task shall wear at a minimum long pants, shirt with sleeves, hard hat, safety glasses with side shields, steel toe boots (serviceable or disposable), leather type work gloves, full body harness with double shock absorbing lanyard (100% tie off). Depending upon the location of the smoke detector, the use of aerial lifts/platforms, scissor lifts, rolling scaffold, and ladder use may be required. CWC shall ensure through training and documentation, personnel assigned to these tasks are familiar with fall protection requirements, operation of lifts, working from scaffolds and ladder use. CWC prior to commencement of work shall ensure associated utilities have been disconnected.

REMOVAL OF CFCs FROM EQUIPMENT

Once a qualified subcontractor has been identified, the certified refrigerant technician shall perform the evacuation process. The technician shall wear at a minimum long pants, shirt with sleeves, hard hat with face-shield, safety glasses with side shields, steel toe boots (serviceable or disposable), nitrile type inner gloves, leather type outer gloves, white Tyvek, full body harness with double shock absorbing lanyard (100% tie off). Depending upon the location of the unit, the use of aerial lifts/platforms, scissor lifts, rolling scaffold, and ladder use may be required. CWC shall ensure through training and documentation, the subcontractor's employee assigned to these tasks are familiar with fall protection requirements, operation of lifts, working from scaffolds and ladder use. CWC prior to commencement of work shall ensure associated utilities have been disconnected.

COMPRESSED AIR LINES

CWC Laborers performing this task shall wear at minimum long pants, shirt with sleeves, hard hat with face-shield, safety glasses with side shields, steel toe boots (serviceable or disposable), nitrile type inner gloves, leather type outer gloves, white tyvek, full body harness with double shock absorbing lanyard (100% tie off). Depending upon the location of the oil/water separators, the use of aerial lifts/platforms, scissor lifts, rolling scaffold, and ladder use may be required. CWC shall ensure through training and documentation, the personnel assigned to these tasks are familiar with

fall protection requirements, operation of lifts, working from scaffolds and ladder use. CWC prior to commencement of work shall ensure associated utilities have been disconnected.

REMOVAL OF HYDRAULIC OILS FROM EQUIPMENT (i.e. elevators, brakes, presses, etc...)

CWC Laborers performing this task shall wear at a minimum long pants, shirt with sleeves, hard hat with face-shield, safety glasses with side shields, steel toe boots (serviceable or disposable), nitrile type inner gloves, leather type outer gloves, white Tyvek, and full body harness with double shock absorbing lanyard (100% tie off). Depending upon the location of the drain plug, if one is found, and/or personnel may have create one, the use of aerial lifts/platforms, scissor lifts, rolling scaffold, and ladder use may be required. CWC shall ensure through training and documentation, personnel assigned to these tasks are familiar with fall protection requirements, operation of lifts, working from scaffolds and ladder use. Hand tools of various types shall be required for this activity. The hand tools shall be the right tool for the right job. CWC prior to commencement of work shall ensure associated utilities have been disconnected.

POLYCHLORINATED BIPHENYL (PCB) CONTAINING EQUIPMENT

CWC Laborers performing this task shall wear at a minimum long pants, shirt with sleeves, hard hat with face –shield (face-shield required when opening the bung for sampling and /or pumping fluids), safety glasses with side-shields, steel toe boots with chemical resistant non-slip sole disposable booties and/or chemical resistant boots with steel toe and non-slip sole, nitrile type inner gloves, heavy duty neoprene gauntlet type outer gloves, white Tyvek, and full body harness with double shock absorbing lanyard (100% tie off). Since the concentrations of PCB are unknown in the transformer the use of ½ face respirators with organic vapor/ P-100 cartridges will be required for sampling and pumping fluids. CWC will also employ engineering controls to reduce potential exposure. Depending upon the location of the transformers, the use of aerial lifts/platforms, scissor lifts, rolling scaffolds and ladder use may be required. CWC shall ensure through training and documentation, personnel assigned to these tasks are familiar with fall protection requirements, operation of lifts, working from scaffolds and ladder use. CWC prior to commencement of work shall ensure associated utilities have been disconnected. Since the potential for removing a transformer with a crane exists, CWC will be required to conduct a pre-acceptance crane inspection, inspect wire rope and rigging, calculate the load with the crane operator (lifts over 15,000 lbs. CWC required to fill out a Critical Lift Plan), survey area for utilities and other hazards (above and below grade), review hand and/or communication signals, conduct a Pre-lift meeting with authorized personnel for the operation.

ASBESTOS/GALBESTOS ABATEMENT

The qualified abatement contractor shall develop a detailed work plan specifying, project coordination, project documentation, containment methods, decontamination procedures, and

worker protection. The plan will be submitted for review and approval prior to the commencement of work.

UTILITY DISCONNECTS

CWC will coordinate the following utility disconnects with the appropriate utility companies prior to abatement, demolition, and regulated waste removal. The items to be disconnected include:

- Electrical
- Water
- Sewer
- Gas
- Telephone
- Fire Mains/Sprinkler Systems (Notify local Fire Marshall prior to disconnect)

DEMOLITION ACTIVITIES

The means and methods for demolition of structures on a case-by-case basis have been identified in the demolition work plan. Once the asbestos abatement and regulated waste has been removed and the structure verified clean by the site management, structural demolition will commence. As with every demolition project, the principle consideration is the safety of the working personnel within the collapse envelope of the structure to be demolished and the physical stability of the structure to be demolished. Regular daily safety meetings will be conducted to discuss means and methods and safety practices. CWC has identified personal protective equipment for heavy wrecking of structures and is as follows:

- All CWC equipment operators will wear long pants, a shirt with sleeves (no tank top style shirts), safety glasses with side shields (worn when either entering or exiting equipment), hearing protection, respiratory protection, as required, hard hat, high visibility orange vest and construction boots (CWC established company policy as to the optional use of steel toe boots for operators. CWC has determined through task analysis, operators do not experience the exposure as would a laborer, foreman, or superintendent), white Tyvek, disposable over booties.

- All CWC laborers will wear long pants, a shirt with sleeves (no tank top style shirts), safety glasses with side shields, hearing protection, respiratory protection available for dusty conditions and torch cutting (1/2 face respirator with organic vapor/P-100 cartridges), hard hat, high visibility orange vest, and steel toe boots (serviceable or disposable), white Tyvek.

MISCELLANEOUS SALVAGE BEFORE DEMOLITION OF STRUCTURES

CWC Laborers performing this task shall wear at a minimum long pants, shirts with long sleeves, hard hat, safety glasses with side-shields, steel toe boots (serviceable or disposable), leather type

work gloves, respiratory protection available for dusty conditions and torch cutting (1/2 face respirator with organic vapor/P-100 cartridges), and full body harness with double shock absorbing lanyard (100% tie off), white Tyvek. Depending upon the location of the salvageable items, the use of aerial lifts/platforms, scissor lifts, rolling scaffolds, ladder use and Bobcats (skid-steer) use may be required. CWC shall ensure through training and documentation, personnel assigned to these tasks are familiar with fall protection requirements, operation of lifts, working from scaffolds and ladders, operation of Bobcats, and the uses and limitations of respirators. CWC prior to commencement of work shall ensure associated utilities have been disconnected.

STOCKPILES (UNPROCESSED AND PROCESSED)

CWC Laborers working in the areas of the stockpiles shall wear at a minimum long pants, shirts with long or short sleeves, hard hat, safety glasses with side-shields, steel toe boots (serviceable or disposable), leather type work gloves, respiratory protection available for dusty conditions and torch cutting (1/2 face respirator with organic vapor/P-100 cartridges), hearing protection, white Tyvek, as required, high visibility orange vest. CWC Equipment Operators will wear long pants, shirt with sleeves, safety glasses with side shields, hearing protection, as required, respiratory protection, as required, hard hat, high visibility orange vest, and construction boots. Track excavators, 973 track loaders and Bobcats may be required to process materials. CWC shall ensure through training and documentation, personnel assigned to these tasks are familiar with operating heavy equipment, working around heavy equipment and the uses and limitations of respirators and torch cutting.

Processed stockpile areas will be cordoned off with delineators and red danger tape due to the potential of an unannounced sloughing of the stockpile slope. Unprocessed stockpiles may have rebar protruding from some concrete, area will be cordoned off with delineators and red danger tape. Personnel assigned to sorting unprocessed concrete will utilize a torch to remove the protruding rebar. Personnel through regular daily tailgate safety meetings shall reduce potential slip, trip and fall hazards in the stockpile area by back dragging with a clean I-beam the equipment path areas and access areas for personnel who are sorting concrete. Processed materials may eventually be utilized for the back filling of excavated foundation areas.

SURFACE MATERIALS AND FOUNDATION

CWC Laborers performing this task shall wear at a minimum long pants, shirt with either long or short sleeves, hard hat, safety glasses with side shields, steel toe boots (serviceable or disposable), leather type work gloves, hearing protection, as required, respiratory protection available for dusty conditions and torch cutting (1/2 face respirator with organic vapor/P-100 cartridges), high visibility orange vest, white Tyvek. CWC Equipment Operators will wear long pants, shirt with sleeves, safety glasses with side shields, hearing protection, as required, respiratory protection, as required, hard hat, high visibility orange vest, white Tyvek, and construction boots (serviceable or disposable). Track excavators, 973 track loaders, Bobcats and mobile stompers will be required to process surface materials and foundation. CWC shall ensure through training and documentation, personnel assigned to these tasks are familiar with operating

heavy equipment, working around heavy equipment, torch cutting, excavation safety and the uses and limitations of respirators.

Areas where the surface and/or foundation have been removed will be cordoned off with delineators and red danger tape due to potential uneven ground surfaces and to identify potential open excavations. To maintain good housekeeping a Bobcat may be utilized to cleanup materials around the working areas and haul routes to maintain good access for equipment and personnel on foot. A travel haul route shall be established within the work area to maintain a practical method for moving demolition debris on site, by establishing a haul route for each work area all site personnel become familiar with the hazards associated with a haul route (slip, trip, fall, noise, movement of heavy equipment). Flagmen may be applied to areas identified where equipment operators may encounter a blind spot and/or heavy traffic on site.

PIT/BASEMENT DEMOLITION

CWC Laborers performing this task shall wear at a minimum long pants, shirt with sleeves, hard hat, safety glasses with side shields, steel toe boots (serviceable or disposable), leather type work gloves, hearing protection, as required, respiratory protection available for dusty conditions and torch cutting (1/2 face respirator with organic vapor/P-100 cartridges), white Tyvek, and high visibility orange vest. CWC Equipment Operators will wear long pants, shirt with sleeves, safety glasses with side-shields, hearing protection, as required, respiratory protection, as required, hard hat, high visibility orange vest, and construction boots. Track excavators, 973 track loaders, and Bobcats will be required to remove pit foundations. Torch cutting will be required for removal of removal from the concrete. CWC shall ensure through training and documentation, personnel assigned to these tasks are familiar with operating heavy equipment, working around heavy equipment, torch cutting, excavation safety and the uses and limitations of respirators.

Areas where the pit foundations have been removed will be cordoned off with delineators and red danger tape due to potential uneven ground surfaces, and to identify open excavations. To the extent possible, as the pit foundations are removed the walls shall either be sloped at the appropriate angle (1 ½ to 1) and/or benched, as required. To maintain good housekeeping a Bobcat may be utilized to cleanup materials around the working areas and haul routes to maintain good access for equipment and personnel on foot. A travel haul route shall be established to maintain a practical method for moving demolition debris on site, by establishing a haul route for each work area all site personnel become familiar with the hazards associated with a haul route. Flagmen may be applied to areas identified where equipment operators may encounter a blind spot and/or heavy traffic on site.

RECYCLING OF CONCRETE AND ASPHALT

The qualified crushing contractor shall develop a detailed work plan specifying, project coordination, project documentation, containment methods and worker protection. The plan will be submitted for review and approval prior to the commencement of work.

EARTHWORK AND BELOW GRADE UTILITY REMOVAL ACTIVITIES

This section involves the following tasks:

Erosion Control
Grading Sequence
Large Footing Excavations and Backfill
Finish Grading

CWC laborers involved with this task shall wear at a minimum long pants, shirt with sleeves, safety glasses with side shields, hearing protection, as required, respiratory protection available for dusty conditions and torch cutting (1/2 face respirator with organic vapor/P-100 cartridges), hard hat, high visibility orange vest, and steel toe boots (serviceable or disposable) and white Tyvek.

CWC equipment operators involved with this task shall wear at a minimum long pants, shirt with sleeves, safety glasses with side shields, hearing protection, as required, respiratory protection, as required, hard hat, high visibility orange vest, and construction boots (serviceable or disposable) and white Tyvek.

Track excavators, 973 loaders and Bobcats will be required for grading sequence, large footing excavations/backfill, and finish grading. CWC shall ensure through training and documentation, personnel assigned to these tasks are familiar with operating heavy equipment, working around heavy equipment, torch cutting, excavation safety and the uses and limitations of respirators.

Emphasis prior to commencement of work will be on utility disconnect and the location and marking of utilities that are to remain, if any. Utilities that remain and/or intersect utilities that are to be removed will be identified through as-builts and then located by pot-holing and exposed to prevent potential damage and/or inadvertent shut down of the particular utility. Excavations will be cordoned off with delineators and red danger tape.

EQUIPMENT

Equipment of various sizes shall be required for this project. CWC operators are required to ensure the following is completed daily and/or additional equipment is located on their equipment:

- Inspected daily and documented
- Fire Extinguisher
- Spill and/or leak equipment
- Operators manual
- Back-up alarm functional

HAZARDS

If the action levels are exceeded, work will cease in that area and measures will be taken to correct and mitigate the hazard to reduce them below guidelines and standards. The hazards associated with the activities discussed are described in the following sections:

CHEMICAL HAZARDS

The chemical hazards associated with the work to be performed are asbestos, lead, polychlorinated biphenyls (PCBs), petroleum hydrocarbons, lubricating oils from operating equipment, hydraulic fluids and mercury. Asbestos is a generic term applied to a group of naturally occurring silicates that have the unique property of being separable into fibers, types include chrysolite, amosite, crocidolite, anthophyllite and tremolite. A friable ACM is any material, which when dry can be easily crumbled, pulverized, or reduced to a powder by hand pressure. This may also include previously non-friable material that becomes broken or damaged by mechanical force.

The effects of asbestos on human health are well documented. The major effects of inhaling asbestos fibers are asbestosis (a thickening of lung tissues), cancer of the lung, and cancer of the petroneal and pleural mesothelia. There is evidence that ingestion of asbestos fibers can cause cancer of the gastrointestinal tract. Dermal exposure to asbestos can cause skin irritation. Asbestosis and cancer usually do not appear until 10 to 30 years post-exposure.

The OSHA Permissible Exposure Limits (PELs) are 0.1 fiber per cubic centimeter (f/cc) of air as an 8-hour time weighted average (TWA) and 1 f/cc as an excursion limit (averaged over a 30 minute period). Safety Management Standard 8, Asbestos Operations, describes procedures for asbestos oversight of subcontractors.

Pure lead (Pb) is a heavy metal and a basic element. It can combine with various other substances to form numerous lead compounds. Lead must be in such a form as to gain entrance into the body or tissue in measurable quantities. The primary mode of entry of concern is inhalation of dust, the secondary mode of entry is ingestion if poor personal hygiene is practiced. Lead is a cumulative poison. It is stored in the body and acts as a cellular poison to all organ systems before symptoms and disability become evident. Lead poisoning creates a red cell anemia and damages organs and tissues of the body such as kidneys, liver, blood vessels, nervous system, and reproductive organs. Chemical and physical properties may vary depending upon the specific compound.

The current OSHA standards aim to reduce the exposure to lead for general industry and construction workers. The most significant way to achieve this is by adhering to the PEL of 0.005 milligrams per cubic meter (mg/m3) of air and the Action Level of 0.03 mg/m3 of air as 8-hour time weighted averages (TWA).

PCBs are a class of nonpolar chlorinated hydrocarbons with a nucleus in which any or all of the hydrogen atoms have been replaced by chlorine. PCBs are potent liver toxins that may be absorbed through the skin and can accumulate in fatty tissue. Generally, toxicity increases with higher chlorine content. Chronic exposure to PCBs may result in chloracne, swelling and burning of

the eyes, neurological symptoms such as headaches, dizziness, numbness of the extremities, chronic bronchitis. Acute exposure to PCB vapors or mists may result in similar symptoms.

The current OSHA PEL Skin for PCB is as follows:

- 8-hour TWA (Chlorodiphenyl, 54% chlorine): 0.5 mg/m3

PCB contaminated floors, walls and ceiling are a darker shade than the non-contaminated concrete. The contaminated ground surface does not have an obvious discoloration to indicate contamination. Routes of entry are inhalation (mists and fumes when significantly heated), skin absorption (penetrating injury), and ingestion. Signs and symptoms of exposure are not available, the product was assessed in accordance with OSHA 1910.1200 and determined not to be hazardous. There are no significant effects to be expected. CWC does not anticipate exposure to the concrete or brick by any of its personnel and/or subcontractors as a result of the removal methods (hammer attachment to the mini-excavator, demolishing floor, walls and ceiling on a floor-by-floor basis). OSHA has set a recommended a Threshold Limit Value (TLV) of 5 mg/m3 for oil mist.

Mercury is a silver-white, heavy liquid metal used in electrical apparatus, measurements and control systems such as thermometers, agricultural and industrial poisons, and anti-fouling paint. Routes of entry are inhalation, skin absorption and ingestion. Inhalation of mercury vapor may produce a metal-fume fever like syndrome, including chills, nausea, general malaise, tightness in the chest, and respiratory symptoms. With chronic exposure, early signs include weakness, fatigue, anorexia, loss of weight, and disturbances of gastrointestinal function. At higher exposures, a characteristic tremor appears. Mercury is present in fluorescent light tubes and other apparatus, which are being removed from within the building. CWC does not anticipate exposure to mercury by any of its personnel and/or subcontractors, and will apply all appropriate safety measures when working with the tubes and mercury swithces. The OSHA standard for mercury is a ceiling concentration of 0.1 mg/m3.

Petroleum hydrocarbons of various types either exist on site and/or will be brought on site for day-to-day operations. The petroleum hydrocarbons that either are on site and/or will be on site are gasoline, diesel, motor oil and lubricating oils.

- Gasoline is a clear (gasoline may be colored with dye), mobile liquid with a characteristic odor recognizable at about 10ppm in air. Routes of entry are inhalation, ingestion and skin contact. Acute inhalation produces intense nose, throat and lung irritation; headaches; blurred vision; conjunctivitis; flushing of the face; mental confusion; staggering gait; slurred speech; and unconsciousness. Ingestion causes inebriation (drunkenness), vomiting, dizziness, fever, drowsiness, confusion, and cyanosis. Repeated skin exposure can cause blistering, drying and lesions. Gasoline poses a dangerous fire and explosion hazard as a result of the low flash point of –45 degrees F (-43 degrees C).
- Diesel is a brown or red, slightly viscous liquid. Routes of entry are inhalation and ingestion. Inhalation of aerosols or mists may result in increased rate of respiration, tachycardia, and cyanosis. Systemic effects from ingestion include gastrointestinal irritation, vomiting, diarrhea,

and in severe cases central nervous system depression, progressing to coma or death. Repeated contact with the skin causes dermatitis. Although diesel fuel's toxicologic effects resemble kerosine's, they are somewhat more pronounced due to additives such as sulfurized esters. Diesel poses a moderate fire hazard due to the higher flash point of 125 degrees F (52 degrees C).

- Lubricating oil and motor oil are dark amber in color and liquid in appearance, used for lubrication of motors, valves, presses and operation of various types of machines, elevators, etc... Routes of entry are inhalation (mists and fumes when significantly heated), skin absorption (penetrating injury), and ingestion. Signs and symptoms of exposure are not available, the product was assessed in accordance with OSHA 1910.1200 and determined not to be hazardous. There are no significant effects to be expected. CWC does not anticipate exposure to the lubricating oil or hydraulic oil by any of its personnel and/or subcontractors as a result of the removal methods (open the access and/or bung and allow gravity to do the rest – hand pumps and/or mechanical pumps do not heat up the oil as it flows). OSHA has set a recommended Threshold Limit Value (TLV) of 5 mg/m3 for oil mist.

Personnel will not open containers of stored chemicals, the handling of broken or leaking containers shall warrant appropriate safety measures to be implemented. Stored liquids and solids may include paints, solvents, varnishes, lubricants, glycols, and pesticides.

PHYSICAL HAZARDS

Site activities may pose a variety of slip, trip, fall, noise, caught-in, caught-in-between, pinch points, dust hazards due to the surface debris, varying elevations on-site, interior/exterior demolition of the structure, overhead and underground utilities (for overhead utilities the use of a spotter and applying minimum safe distances depending upon the amount of estimated voltage will be applied to the work activity/for underground utilities, the use of as-builts and probing before digging will be applied to the work activity, excavations greater than 6' will be shored, layed back or benched), and site grading. Personnel will be aware at all times of their position and work activities, especially if on a ladder or working around an excavator. Appropriate safety standards have been applied to the HASP that address the aforementioned hazards identified.

BIOLOGICAL HAZARDS

Pigeon droppings may be present in the work area. The contaminants of concern are Cryptococcus neoformans and Histoplasma capsulatum, the causative fungi of cryptococcosis and histoplasmosis, respectively. These fungi are natural inhabitants of the soil and become aerosolized when the soil is disturbed, as occurs during construction, demolition, and other earthmoving activities. They have a predilection for growth in soils contaminated with bird droppings and are often found in the vicinity of bird-roosting areas. These fungi may cause occupational mycoses and are transmitted by the respiratory route.

C. Neoformans – Inhalation of fungal spores is the major route of entry. The most common clinical manifestation of cryptococcosis is infections of the cerebral cortex, brain stem, cerebellum or meninges. Symptoms onset may include headache, dizziness, irritability, subtly altered mental status, personality change, and visual symptoms. Pulmonary cryptococcosis has a variety of clinical manifestations and an unpredictable course. Symptoms include dry cough and chest pain, with little or no fever. The disease mainly affects immunocomprised hosts (including patients with AIDS, sarcoidosis, or lymphoma, and those requiring chronic steroids); occupational cases are rare.

H. capsulatum – Acute pneumonia may result from exposures to inhaled particulates containing high concentrations of this fungus. Cleanup, construction, or demolition in urban areas may be associated with inhalation of airborne infectious spores; this is the primary route of exposure.

Acute pulmonary histoplasmosis typically presents with symptoms of cough, pleuritic chest pain, fever, chills, myalgias, nausea, anorexia, and weight loss. Chronic pulmonary histoplasmosis occurs most commonly in middle-aged men with underlying emphysema or chronic bronchitis. Symptoms include cough and sputum production, chest pain, dyspnea, malaise, weakness, fever, weight loss and fatigue. An exposure should be suspected when several individuals develop respiratory illness two weeks following a common outdoor exposure.

The prevention of inhalation exposures is recommended; the use of negative pressure respirators equipped with P-100 filter cartridges reduces the risk when conducting remedial and removal activities that increase the number of airborne spores. Personnel will wear Level C protection when in the vicinity of operations that disturb these areas of droppings. Neutralization on site of droppings will be through the use of a Hudson sprayer with a, water and bleach mixture to be applied directly to the droppings, in a controlled manner. Water run-off will not occur in this manner of application. Neutralized droppings may then be placed in either a 6-mil polyethylene bag or 55-gallon drum.

HAZARD ASSESSMENT

The hazards associated with working around petroleum hydrocarbons, PCB contamination, asbestos containing material removal, lead, and bird droppings is expected to be low. The use of safe work practices and PPE as described in this HASP should minimize personnel exposure.

The exposure hazard assessment with the actual physical removal of PCB ballast and light tubes is low. Electric shock to personnel is eliminated through the actual visual observation of Lock-Out/Tag-Out (LOTO) procedures by certified individuals to the specific utilities to be isolated. Scissor lifts are recommended for the removal of ballasts and light tubes. Use of fiberglass ladders is allowed. Safety glasses shall be worn at all times in the event of breakage of glass covers, light tubes, concrete chips, or the release of debris from inside the fixture. Leather work gloves with nitrile type impervious gloves worn underneath shall be worn while handling ballasts, light tubes, and fixtures with sharp edges.

The exposure hazards associated with the identification of other hazardous materials is expected to be low. Contact will be avoided or minimized through the use of safe work practices and appropriate PPE.

CWC shall ensure through documentation and training that personnel assigned to operate heavy equipment, skid steers, forklifts are familiar with the uses and limitations and operation of said equipment.

ACTION LEVELS EXCEEDED

It is not anticipated the action levels will be exceeded, however in the event they are administrative/engineering controls shall be applied to the specific work activity. Examples are as follows:

Asbestos abatement – if the PEL or excursion limit is exceeded the application of additional negative air machines may be applied to the containment (engineering control), as well as a review of means and methods for removing and reducing ACM within the containment (administrative control).

Lead – if the PEL is exceeded the application of additional hi-volume fans may be applied to the work area, ensuring personnel are working upwind and longer torch cutting wands may be applied (engineering control / baseline blood lead monitoring is performed prior to work assignment – if the PEL is exceeded, additional blood monitoring is taken until the PEL is not exceeded), as well as review of torch cutting procedures (administrative control). Half-face respirators with P-100 filter cartridges provide protection for up to 10 times over the PEL (500 ug/m3). This level is not anticipated.

Mercury – it is not anticipated the ceiling concentration will be exceeded due to the handling methods of the light tubes and the PPE to be utilized by personnel. In the event a light tube is broken during removal, personnel will be directed to remove contaminated PPE (disposed of properly), wash their hands and face, reapply their PPE and return to their assigned task (broken light tube would be disposed properly).

PCBs' – if the PEL is exceeded the application of a water spray may be applied. If this proves insufficient, a surfactant/water mixture may be applied to soil, walls, and equipment to reduce nuisance/fugitive dust generation (engineering control), review of means and methods for reducing nuisance/fugitive dust (administrative control). The use of half-face respirators with organic vapor / P-100 filter cartridges will be required until readings are reduced.

CLEVELAND WRECKING COMPANY
HEALTH & SAFETY PROGRAM AND MANAGEMENT SYSTEM
TASK HAZARD ANALYSIS FORM

ADMINISTRATIVE INFORMATION

JOB/TASK NAME: TORCH CUTTING REBAR AT BLDG. 13 CONCRETE STOCKPILE	
PROJECT NAME: BOEING PACIFICENTER	PROJECT LOCATION: LONG BEACH, CA
PROJECT MANAGER: BRIAN LAURIN	ANALYSIS PERFORMED BY: MARK ACOSTA
DATE JOB/TASK TO BE PERFORMED: 3/17 ONGING/TORCH CUTTING	TYPE OF JOB/TASK: ☐ One time ☐ Routine job/task
RESPONSIBLE ORGANIZATION: CWC	JOB SUPERVISOR: KELLY ARNOLD

JOB/EVENT SEQUENCE
(LIST ONE STEP OF THE JOB FOR EACH LINE. ATTACH ADDITIONAL JOB SEQUENCE FORM(S) AS NECESSARY/PAGE 1 OF 2)

1. Conduct pre-task meeting with personnel	2. Stage and inspect equipment and materials
3. Clear area of flammable and combustible materials	4. Charged water hose standing hose
5. Assign trained fire watch	6. Obtain Boeing Hot Work Permit
7. Locate and secure cylinders to cylinder cart	8. Crack valves on cylinder to clear potential debris
9. Attach gas gauges to cylinder (hand tight)	10. Stand to side and open cylinder valves

PHYSICAL HAZARDS

- ☐ Bees, snakes, or spiders
- ☐ Cold stress
- ☐ Compressed gas
- ☐ Electrical equipment
- ☐ Elevated work areas
- ☐ Eye hazards (impact, light, etc.)
- ☐ Explosions
- ☐ Fire
- ☐ Hand tool use
- ☐ Hazardous noise exposure
- ☐ Heat stress
- ☐ Heavy equipment operations
- ☐ Holes, pits, trenches
- ☐ Impalement
- ☐ Laser radiation
- ☐ Leading edge work
- ☐ Overhead hazards
- ☐ Portable power tool use
- ☐ Powder-actuated tools
- ☐ Self-starting equipment
- ☐ Slippery surfaces
- ☐ Uneven terrain
- ☐ Unguarded moving parts/equip.
- ☐ Vehicle traffic

CHEMICAL HAZARDS

- ☐ Adhesives
- ☐ Asbestos
- ☐ Cleaning solvents
- ☐ Concrete or concrete dust
- ☐ Form oils
- ☐ Gasoline or diesel Fuel
- ☐ Lead
- ☐ Lubricating oils & greases
- ☐ PCBs
- ☐ Sand blasting products
- ☐ Smokes & dusts
- ☐ Solvents
- ☐ Surfacing materials
- ☐ Welding fume
- ☐ None

Other Physical/Chemical Hazards: See #9 utilize wrench to tighten gas gauges slightly

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED

Boots:
- ☐ Leather
- ☐ Rubber
- ☐ Safety-toe

Gloves
- ☐ Chemical-resistant
- ☐ Cut-resistant
- ☐ Leather
- ☐ Welder's

Eye Protection:
- ☐ Faceshield
- ☐ Safety glasses
- ☐ Welder's helmet

General:
- ☐ Coveralls
- ☐ Hearing protection
- ☐ Respirator
- ☐ Safety harness & lanyard

Other: Hard Hat, Safety glasses with No. 2 rating will be utilized for torch cutting

OTHER SAFETY EQUIPMENT/CONSIDERATIONS

- ☐ Fire extinguisher
- ☐ First-aid kit
- ☐ Dust control measures
- ☐ Portable eyewash
- ☐ Fire watch

Other:

APPLICABLE SAFETY PROCEDURES (SEP, HSP OR SSP)

OBTAIN BOEING HOT WORK PERMIT

EXPOSURE CONTROL REQUIREMENTS

☐ Not applicable ☐ Requirements:

APPROVAL SIGNATURES

SITE SUPERINTENDENT: KELLY ARNOLD	SSC/EH&S: MARK ACOSTA

CLEVELAND WRECKING COMPANY
HEALTH & SAFETY PROGRAM AND MANAGEMENT SYSTEM
JOB SEQUENCE FORM

ADMINISTRATIVE INFORMATION	
JOB/TASK NAME: TORCH CUTTING REBAR AT BLDG. 13 CONCRETE STOCKPILE	
PROJECT NAME: BOEING PACIFICENTER	PROJECT LOCATION: LONG BEACH, CA
PROJECT MANAGER: BRIAN LAURIN	ANALYSIS PERFORMED BY: MARK ACOSTA
DATE JOB/TASK TO BE PERFORMED: 3/17 ONGOING/TORCH CUTTING	TYPE OF JOB/TASK: ☐ One time ☐ Routine job/task
RESPONSIBLE ORGANIZATION: CWC	JOB SUPERVISOR KELLY ARNOLD

JOB EVENT SEQUENCE (CONTINUED FROM PREVIOUS SHA PAGE) PAGE 2 OF 2
11. Attach anti-flashback valves to gas gauges
12. Attach torch cutting hoses to anti-flashback valves
13. Attach 3' torch cutting wand to hoses
14. Turn on valves at gas gauges
15. Set oxygen gauge at 15psi, and set propylene gauge at 60psi
16. Utilizing an approved spark lighter (striker), open propylene valve at wand and ignite gas
17. Open oxygen and adjust flame for cutting
18. Don rated safety glasses and proceed to torch cut items
19. 30 minutes prior to lunch and end of day shut down torch cutting, fire watch wets down area and stands by
20. Cylinders will be stored upright to an adequate support while in storage, transit and in use
21. Oxygen and propylene cylinders will be separated 20' at a minimum when in storage
22. Do not use compressed gas to clean clothing
23. Never use oxygen in pneumatic tools or to pressurize containers
24. Handle cylinders with care
25.
26.
27.
28.
29.
30.
31.

APPROVAL SIGNATURES	
SITE SUPERINTENDENT: KELLY ARNOLD	SSC/EH&S: MARK ACOSTA

CLEVELAND WRECKING COMPANY
HEALTH & SAFETY PROGRAM AND MANAGEMENT SYSTEM
TASK HAZARD ANALYSIS SIGN-OFF FORM

ADMINISTRATIVE INFORMATION	
JOB/TASK NAME: TORCH CUTTING REBAR AT BLDG. 13 CONCRETE STOCKPILE	
PROJECT NAME: BOEING PACIFICENTER	PROJECT LOCATION: LONG BEACH, CA
PROJECT MANAGER: BRIAN LAURIN	ANALYSIS PERFORMED BY: MARK AOCSTA
DATE JOB/TASK TO BE PERFORMED: 3/17 ONGOING/TORCH CUTTING	TYPE OF JOB/TASK: ☐ One time ☐ Routine job/task
RESPONSIBLE ORGANIZATION: CWC	JOB SUPERVISOR KELLY ARNOLD

I/WE HAVE READ OR BEEN BRIEFED ON THE HAZARDS AND PROTECTIVE MEASURES IDENTIFIED FOR THE ABOVE LISTED JOB/TASK AND FULLY UNDERSTAND THE JOB/TASK SPECIFIC REQUIREMENTS THAT HAVE BEEN ESTABLISHED FOR IT.

DATE	EMPLOYEE NAME	EMPLOYEE SIGNATURE	EMPLOYER NAME