AMPCO

Contracting, Inc.

CORPORATE SAFETY MANUAL

June 2022

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SAFETY POLICY STATEMENT

SECTION 1 - PURPOSE

The purpose of this Policy Statement is to formally communicate AMPCO's corporate position relative to occupational safety, health and regulatory compliance.

SECTION 2 - SCOPE

The Corporate Safety, Health and Regulatory Compliance Policy Statements apply to all Branch Offices, subsidiaries, joint ventures and companies of AMPCO Contracting, Inc.

SECTION 3 - POLICY

It is the policy of AMPCO Contracting, Inc. to provide a safe and healthy place of employment, free of recognizable hazards, for all of its employees and for the public in each of its operations, and to voluntarily abide by all safety regulations as they pertain to our industry. Safety and health will always take precedence over more expedient unsafe operations. Every attempt will be made to provide equipment and create conditions that will make for a safe and healthy work place. We will provide safety and health education and training to each of our employees, all of whom are expected to read and understand the Rules of Safety that are provided on each job site. Any employee who willfully disregards known safety and health practices will be subjected to strong disciplinary action. In the case of subcontractors, they will be required to abide by the provisions of this policy. **At AMPCO Contracting, we make safety a condition of employment.**

SECTION 4 - COMPANY VALUES

1. SERVICE – AMPCO will provide the best possible specialty contracting services. We will never forget that what we do and how we do it, affects our clients, our employees and the public.

2. HONESTY – AMPCO will conduct its business with honesty and integrity, and communicate openly.

3. CONCERN – AMPCO will show concern for the welfare of its clients, employees, and the public. AMPCO will protect the environment and make the safety of the employees and the public its first priority.

4. COURTESY – AMPCO will be courteous to clients, to inspectors, to ourselves, and to all

those with whom we come in contact.

5. EXCELLENCE – AMPCO strives for excellence in all that we do. We are not satisfied with less than the highest standards of performance.

6. TEAMWORK – AMPCO will work together as a team, combining our best thinking and efforts to make AMPCO the finest specialty contracting company in the nation.

7. QUALITY – AMPCO will only employ the most qualified personnel in the pursuit of providing quality services.

Each member of the management team is expected to be mindful of Company values in order to assure success and bring value to the Company regardless of the size and complexity of the branch or project.

SECTION 5 - CREATING A SAFE WORKPLACE

A message to all AMPCO employees, reminding them of AMPCO's commitment to Safety and Health, will be posted at each job site in a location where it can be easily observed by each employee working at the site.

SECTION 6 - AMPCO MISSION STATEMENT

AMPCO's mission is to meet our clients, safely, reliably, efficiently and in an environmentally sound manner; to provide a workplace that allows our employees to realize their full potential; to improve the quality of life in the communities we serve; to make a fair profit.

SECTION 7 - AUTHORITY

At AMPCO, top management is constantly seeking new and more effective methods to reduce safety losses, and thus provide a safer and healthier workplace for all employees. This Message from the President and Chief Executive Officer of AMPCO, Inc. is evidence of this intent. (See page 4 of 4)

SECTION 8 - LINE OF SIGHT SAFETY

At AMPCO, we require LINE OF SIGHT SAFETY for anyone assigned a task that would be considered at risk of imminent danger. Imminent Danger is defined as any conditions or practices in any place of employment that a danger exists which could reasonably be expected to cause death or serious physical harm. The following conditions must be met before a hazard becomes classified as imminent danger:

- There must be a threat of death or serious physical harm. "Serious physical harm" means that a part of the body is damaged so severely that it cannot be used or cannot be used very well.
- For a health hazard there must be a reasonable expectation that toxic substances or other health hazards are present and exposure to them will shorten life or cause substantial reduction in physical or mental efficiency. The harm caused by the health hazard does not have to happen immediately.

SECTION 9 – ZERO TOLERANCE

At AMPCO, there is Zero Tolerance for violations of the LINE OF SIGHT SAFETY requirement which includes disciplinary action up to and including termination of employment.

AMPCO CONTRACTING, INC.

HEALTH AND SAFETY POLICY

AMPCO Believes that the safety and health of its employees, along with respecting the environment are of highest priority. The objectives of our "Target Zero" program reinforce our commitment by targeting zero workplace injuries and zero occupational illnesses. While high productivity and competitive costs are essential for the well-being of our company, these considerations must never take precedence over safety, employee well-being or the environment. At AMPCO we truly believe that safety is everyone's responsibility, our management, our employees, our contractors, and our customers both on and off the job. AMPCO will invest in our employees by providing the most current education and training. We will provide safe and adequate equipment to perform all work in safe and efficient manner. If required, our resources will be made available to our contractors and customers in an effort to reach "Zero". At AMPCO we consider our employees and their families to be the most important asset and their wellbeing our greatest responsibility.

AMPCO will conduct its business honestly and ethically wherever we operate in the world. We will constantly improve the quality of our programs, services, and operations to create a reputation for honesty, fairness, responsibility, integrity and trust. We will not compromise our principles for short-term advantage. The ethical performance of our company is the sum of the ethics of the men and women who work here.

The cooperation of every employee is necessary to make the company a better and safer place in which to work. Help yourself and others by reporting unsafe acts, conditions, and hazards immediately to your supervisor or to a member of the safety committee. Common sense and personal interest in safety are still the greatest guarantee of your safety at work, on the road, and at home. Begin right by always thinking of safety as you perform your job, or as you learn a new one. Working safely is a condition of employment.

Andrew Pennor

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AMPCO President

Procedure 1-2

HEALTH & SAFETY POLICY

SECTION 1 - PURPOSE

The purpose is to define a minimum health and safety policy for each operation within AMPCO.

SECTION 2 - SCOPE

This policy applies to all AMPCO operations.

SECTION 3 - POLICY

It is the policy of AMPCO to provide a safe and healthy workplace, free of recognized hazards, for each of its employees. At a minimum, AMPCO will comply with all accepted work practices, health and safety regulations, standards and codes, and will provide training to its employees to assist them in performing their jobs safely.

Implementation of this policy is further defined in the health and safety policies, procedures, and guidelines which, collectively, make up AMPCO's Corporate Safety Manual. It is the responsibility of all levels of AMPCO management to be knowledgeable of the contents of these procedures and to implement these procedures, as applicable to their individual operations.

SECTION 4 - GENERAL

All safety procedures and guidelines making up the AMPCO Safety Manual will be developed by Corporate Safety in consultation with Company Presidents, Project Managers, General Superintendents, Superintendents, Corporate Health and Safety Director and Health and Safety Officer. Corporate Safety Manuals will be issued by the Corporate Health and Safety Director and updated by Corporate Health and Safety.

SECTION 5 - SAFETY POLICY STATEMENT

Each Project Manager shall describe their commitment to the AMPCO Health and Safety Policy in writing. This statement shall be posted at all projects and worksites.

SECTION 6 - RESPONSIBILITIES

The providing of safe and healthy working conditions is the direct responsibility of line management. Each manager and supervisor is responsible for the implementation of this program within his sphere of operation. All levels of AMPCO management must know the information contained within this Corporate Safety Manual and implement these procedures, as applicable.

Each Office within AMPCO shall be responsible for compliance with the Corporate Safety Manual. Offices are responsible for supplementing the program developed by Corporate Safety as required by individual operations.

Each AMPCO employee is responsible for observing the AMPCO Safety Rules and Regulations as defined in Section 2-2 of the Corporate Safety Manual and working without injury to themselves or others. Employees are required to promptly report unsafe conditions to supervisory personnel, company safety personnel or members of management. Each employee has stop work authority when an unsafe condition or hazard exists. In the event an employee wishes to report unsafe conditions directly to AMPCO Complaint Hotline, they may do so by calling (949) 955-2255.

SECTION 7 - ORGANIZATION

Each manager is responsible for the implementation of an effective health and safety program within his or her organization.

7.1 To assist management in the implementation of this program, each Office or Major Projects will be staffed with qualified safety, health and regulatory compliance personnel.

7.2 Each project, regardless of size or duration, shall have an adequately trained individual designated as the site safety coordinator for each shift, and to be responsible for the day-to-day administration of the safety program. It shall be the responsibility of the Project Manager, or his designee, to appoint the appropriate individual to this task.

7.3 Corporate Safety shall concur in the application, review and termination process of all Health and Safety Officers and take an active part in the performance evaluation, training, and determination of safety staffing requirements within the branches.

SECTION 8 - SAFETY COMMITTEES

Safety committees shall be organized at each level of operation, Corporate, Region, and Office. Typically, these committees should consist of the senior member of management and his/her staff. In addition to meeting monthly to review the adequacy of the Company's safety program and safety performance, the committees shall be active and function as described in Section 1-5 of the Corporate Safety Manual.

SECTION 9 - SAFETY MEETINGS

Jobsite supervisors shall conduct daily toolbox safety meetings with all employees. Safety meetings shall be documented and presented as outlined in Section 5-2 of the Corporate Safety Manual. Documentation shall include type of meeting, topics discussed, suggestions offered and signatures of employees attending. Documentation shall be retained as required by Section 5-2.

SECTION 10 - ACCIDENT PREVENTION

An active program designed to enhance employee safety awareness and to prevent injury and vehicle accidents shall be maintained at each facility. The activities associated with this program shall be defined in writing, as outlined in Section 3-2 of the Corporate Safety Manual. Each accident and incident shall be investigated to determine cause, contributing factors and remedial action, as defined in Section 3-2 of the Corporate Safety Manual.

SECTION 11 - MEDICAL PROGRAM

A medical program designed to provide selection criteria and medical monitoring is defined in Section 9-1 of the Corporate Safety Manual. This program shall be implemented at all AMPCO facilities and operations.

Candidates for employment in positions for which medical surveillance programs are required, must successfully complete a pre-employment physical examination, since medical fitness is a condition of employment for the intended job. Specific periodic physical examinations shall be provided based upon potential exposures to toxic materials, stress from physical agents, and regulatory compliance.

SECTION 12 - SAFETY TRAINING

All new employees of AMPCO shall be required to complete new employee safety orientation and hazard communication program training, as defined in Sections 5-3 and 7-2 of the Corporate Safety Manual. Employees are required to complete the orientation program the first week of employment. Those employees who will have potential exposure to hazardous substances, or stress from physical agents, shall be provided safety training specific to those potential hazards.

SECTION 13 - EMERGENCY PREPAREDNESS

All AMPCO locations and job sites shall have a written emergency action plan as outlined in Section 4-1 of the Corporate Safety Manual and shall practice this plan.

The emergency plan shall include programs to prevent and control fires and explosions. Each employee shall receive training in the proper use of portable fire extinguishers, during their new employee safety orientation. It is important to stress that our policy is to fight fires only in their incipient stage, and when the size of the fire presents an immediate danger to life or health, evacuation, not firefighting, should be the primary objective.

SECTION 14 - OPERATIONS REVIEW

All new or modified operations, processes, major capital equipment, or construction shall be reviewed and approved by the Presidents, Project Managers, General Superintendents, and Health & Safety in the design or concept stage and upon completion, but before operation, as outlined in Section 8-13 of the Corporate Safety Manual. No new process or equipment shall be operated without written approval of the Health and Safety.

SECTION 15 - SUBCONTRACTORS

All subcontracts with AMPCO shall contain a requirement that subcontractors comply with all applicable federal, state and local codes and regulations, as defined in Section 6-1 of the Corporate Safety Manual. Company management is responsible for assuring compliance with this Subcontractor provision.

SECTION 16 - MANAGEMENT INFORMATION

Senior management of AMPCO is to be apprised of the current status of the health and safety program by Corporate Safety utilizing a monthly statistical sheet known as "Safety Tracks".

SECTION 17 - RECORDKEEPING

Each AMPCO Office is responsible for completing and maintaining all records required by AMPCO corporate policy and all local, state and federal regulatory agencies. Refer to Section 3-4 of the Corporate Safety Manual for those records required under this paragraph.

ENVIRONMENTAL SUSTAINABILITY POLICY

SECTION 1 - PURPOSE

To establish and define AMPCO's commitment in protecting and enhancing the environment.

SECTION 2 - SCOPE

This policy applies to all AMPCO operations.

SECTION 3 - POLICY

AMPCO will demonstrate by its actions on a continuing basis, its furtherance of the environmental principles set forth in paragraph 4.0 of this section. All Offices and Project Sites of AMPCO will be aware of our commitment to environmental sustainability and held accountable for conducting their businesses as responsible stewards of the environment. AMPCO will strive to operate beyond compliance in enhancing the environment and protecting public health. Each AMPCO Office and Project Site will be responsible for implementing programs to fulfill the following Environmental Principles.

SECTION 4 - ENVIRONMENTAL PRINCIPLES

PRINCIPLE 1

AMPCO is committed to improving the environment through the services that we offer and to providing our services in a manner demonstrably protective of human health and the environment, even if not required by law. We will minimize and strive not to allow any releases to the atmosphere, land, or water in amounts that may harm human health and the environment. We will train our supervisors to enhance understanding of environmental policies and to promote excellence in job performance on all environmental matters.

PRINCIPLE 2

AMPCO will work to minimize the volume and toxicity of waste generated by us and others. We will operate internal recycling programs. We will vigorously pursue opportunities to recycle waste before other management practices are applied. AMPCO will use and provide environmentally safe treatment and disposal services for waste that is not eliminated at the source or recycled.

PRINCIPLE 3

AMPCO is committed to the conservation of nature. We will implement a policy of "no net loss" of wetlands or other biological diversity on AMPCO's property.

PRINCIPLE 4

AMPCO will use renewable natural resources, such as water soils and forests, in a sustainable manner and will offer services to make degraded resources once again usable. We will conserve nonrenewable natural resources through efficient use and careful planning.

PRINCIPLE 5

AMPCO will make every reasonable effort to use environmentally safe and sustainable energy sources to meet our needs. We will seek opportunities to improve energy efficiency and conservation in our operations.

PRINCIPLE 6

AMPCO is committed to comply with all legal requirements and to implement programs and procedures to ensure compliance. These efforts will include training and testing of employees, rewarding employees who excel in compliance, and disciplining employees who violate legal requirements.

PRINCIPLE 7

AMPCO will operate in a manner designed to minimize environmental, health, or safety hazards. We will minimize risk and protect our employees and others in the vicinity of our operations by employing safe technologies and operating procedures and by being prepared for emergencies. AMPCO will make available to our employees and to the public information related to any of our operations that we believe cause environmental harm or pose health or safety hazards. AMPCO will encourage employees to stop work and/or report any condition that creates a danger to the environment or poses health or safety hazards and will provide confidential means for them to do so.

PRINCIPLE 8

AMPCO will take responsibility for any harm we cause to the environment and will make every reasonable effort to remedy the damage caused to people or ecosystems.

PRINCIPLE 9

AMPCO will research, develop, and implement technologies for integrated waste management.

PRINCIPLE 10

AMPCO will provide information to and will assist the public in understanding the environmental impacts of our activities. We will conduct public tours of facilities, consistent with safety requirements, and will work with communities near our facilities to encourage dialogue and exchange of information on facility activities.

PRINCIPLE 11

AMPCO will support and participate in development of public policy and in educational initiatives that will protect human health and improve the environment. We will seek cooperation on this work with government, environmental groups, schools, universities, and other public organizations.

PRINCIPLE 12

AMPCO will encourage its employees to participate in and to support the work of environmental organizations, and we will provide support to environmental organizations for the advancement of environmental protection.

PRINCIPLE 13

The Presidents of AMPCO will evaluate and will address the environmental implications of its decisions. The President of AMPCO will be responsible and will monitor and report upon implementation of this policy and other environmental matters. AMPCO will commit the resources needed to implement these principles.

PRINCIPLE 14

Each AMPCO Office will prepare an annual report on their environmental activities. The report will include a self-evaluation of AMPCO's implementation of these principles, including an assessment of AMPCO's performance in complying with all applicable environmental laws and regulations throughout its nationwide operations.

SECTION 5 - DOCUMENTATION

Any supporting documentation describing the implementation of these 14 principles shall be retained at all AMPCO facilities for at least one year after implementation.

SECTION 6 - RESPONSIBILITIES

All AMPCO employees are responsible for helping to identify alternative business practices to reflect these 14 principles. Project Managers and General Superintendents are responsible for developing an environmental program to meet the intent of this section of the Corporate Safety Manual.

The Health and Safety will assist Project Managers and General Superintendents in the development of a plan to meet the intent of this policy.

SECTION 7 - TRAINING

All AMPCO employees and new employees will participate in awareness training in the philosophy of these 14 principles.

INSPECTION POLICY – Regulatory Agencies

SECTION 1 - PURPOSE

To provide appropriate guidelines for use in the event of an inspection by a compliance officer of any regulatory agency caused by an employee complaint, accident, or a scheduled general inspection.

SECTION 2 - SCOPE

This policy applies to all AMPCO operations.

SECTION 3 - POLICY

It is the policy of AMPCO to voluntarily comply with all aspects of the Occupational Safety and Health Act of 1970 (the Act) and all other regulatory agency codes, ordinances or standards for which AMPCO could be held accountable.

It is the policy of AMPCO to admit any lawfully delegated inspector or health compliance officer who, upon presentation of proper credentials from a local, state or federal regulatory agency, requests entry to conduct a site inspection.

This policy, however, is not intended to abridge the constitutional rights of our individual Offices or our subcontractors, who have the right to request a warrant prior to allowing entry for an inspection of their work site.

Each Office, and/or subcontractor, must determine their desire for a warrant prior to an inspection, and if they wish one, the inspector must be so informed upon his arrival at the work site.

AMPCO will not, under any circumstance, discharge or otherwise discriminate against any employee who has exercised any right under the Act or any other regulatory standard, including the right to make safety and health complaints or to request a compliance inspection.

SECTION 4 - NOTIFICATION

Any recipient of a contact by a compliance officer or inspector, representing a regulatory agency must immediately notify a Health &Safety or a member of Corporate Safety and describe the details concerning the contact. Regardless of the type of contact, be it a site visit, a site inspection, a telephone contact or even a letter contact, either Health & Safety must be notified of the contact as quickly as possible and informed of all the particulars concerning the contact.

Upon receiving any information concerning a contact by a compliance officer or inspector representing a regulatory agency, the Health & Safety will immediately notify the Safety Director and apprise him/her of the details concerning the contact.

SECTION 5 - CONDUCT OF THE INSPECTION

The Inspecting Officer will present identification to the supervisor in charge of the project, state the purpose of the visit, and request an opening conference be held with representatives of all subcontractors and workers. In the case of unions, this will be the union stewards.

When the required personnel have been assembled, the Inspecting Officer will then begin the opening conference with the following:

- State the nature of the inspection, that is, general or specific complaint, target industry, scheduled inspection, industrial hygiene, etc.;
- Indicate the approximate length of time the inspection will take;
- If the Inspecting Officer is from OSHA, he may request copies of the OSHA 300 form, safety programs, accident reports, inspection surveys, etc. The Inspecting Officer may not review any contract documents, other than general conditions and similar front-end documents. If contract documents are requested, refer the Inspecting Officer to Health & Safety;
- Approve members of the inspection party. Each employer has the right to representation; however, the Inspecting Officer has the right to choose the representative. Disruptive conduct by the employer/employee representatives may be cause for dismissal from the inspection party;

- If from OSHA, the Inspecting Officer may generally discuss the purpose of the OSHA Act, its sanctions, and the authority vested in the Inspecting Officer by the Act; and

- Indicate that at the conclusion of the inspection, a closing conference will be held to advise of any alleged violations noted, to determine corrective dates, and to answer questions.

SECTION 6 - BEHAVIOR OF THE INSPECTING OFFICER

The function of the Inspecting Officer is to identify conditions and/or acts which he considers unsafe and in violation of the regulatory agency standards promulgated by the regulatory agency he represents. In the case of an OSHA Inspecting Officer, this would mean the OSHA Safety and Health Standards, 29 CFR 1926 and 1910.

In the pursuit of his duties, he may go wherever he wishes on the jobsite. He may take any amount of samples or measurements he feels are of importance, photograph objects or personnel, and conduct interviews with employees. He can request copies of any literature, documents, or those parts of the contract which relate to safety or industrial hygiene.

The Inspecting Officer may not, however, violate any known safety regulations. The Inspecting Officer is responsible for providing and wearing whatever personal protective equipment is required for the jobsite. (In the event the Inspecting Officer does not have this equipment with him, and there is appropriate equipment available on the jobsite, it will be offered to the Inspecting Officer at no expense.)

Should the Inspecting Officer request to view copies of employee medical records, the Inspecting Officer should be advised that these records will be made available for him to review; however, these records are not maintained at the jobsite and will have to be obtained from the location in which they are kept. Should the Inspecting Officer request copies of medical records, the Inspecting Officer should be advised to submit a formal request in writing for the specific documents required.

Failure to comply with the jobsite safety program is cause for not permitting the Inspecting Officer on the jobsite, or stopping an inspection already under way. Should it become necessary to do this, the supervisor of the project should immediately institute the following procedures:

1. Advise the Inspecting Officer that he is in violation of the jobsite safety program and that he cannot conduct the inspection under these conditions. Ask that he comply with the safety program, so that the inspection may begin or continue.

2. Should the Inspecting Officer fail to do so, discontinue participation in the inspection, immediately contact the following persons, advise them of the situation, and request instructions of:

    - The President;
    - The Safety Director;
    - Project Managers/General Superintendents; and
    - The Area Director to whom the Inspecting Officer reports.

The Inspecting Officer may consult with employees regarding matters of safety and health to the extent that it is necessary for the conduct of an effective and thorough inspection. The conduct of the inspection should be such as to preclude unreasonable disruption of the operations at the project.

SECTION 7 - MEDICAL SURVEILLANCE AND FIT-TESTING

AMPCO is not required to verify that a Compliance Officer is actively participating in a medical surveillance program to insure that he or she is medically qualified to enter an asbestos enclosure, nor is AMPCO required to verify that the Compliance Officer has, within the past six months, been correctly fit-tested for the respirator he or she is using.

7.1 Medical Surveillance

OSHA Regional Administrators and Area Directors are responsible for ensuring that all Compliance Officers who visit an asbestos jobsite have been medically cleared via the CSHO Physical Examination Procedure. This medical examination complies with the conditions of OSHA's Medical Surveillance requirements in the new Asbestos Standard, 29 CFR 1926.1101.

7.2 Respirator Fit Test

OSHA Regional Administrators and Area Directors are responsible for ensuring that all Compliance Officers are provided with semi-annual respirator fit-testing in accordance with the requirements of the asbestos standard.

SECTION 8 - LEGAL RIGHTS

Under OSHA law, AMPCO has the legal right to:

- refuse to allow an inspection without a warrant;
- obtain legal counsel for the inspection;
- refuse to answer questions (lying is illegal);
- accompany the inspector;
- request that trade secrets be kept confidential;
- refuse to allow employees to be interviewed on the job, if it will interfere with their duties; and
- know the inspector's name, title and telephone number, as well as that person's supervisor's name.

Additionally, under OSHA laws, AMPCO's employees also have their rights. These include:

- a prior appointment must be made before the employee may be approached for an off-site interview;
- an employee cannot be contacted at home between 9:00 pm and 8:00 am without prior permission;
- interviews are voluntary unless OSHA has a written order;
- the employee may obtain legal counsel for the interview;
- the employee may notify the employer of OSHA's activity, if he or she wishes; and
- the employee may obtain a written record of the interview.

SECTION 9 - SUPERVISOR'S INSPECTION GUIDELINES

During the course of the inspection, the supervisor in charge of the project should accompany the inspection party and adhere to the following guidelines:

- If the inspection is the result of an official complaint, request a copy of the complaint before commencing the inspection;

- Begin a chronological record of the entire inspection. This record should include where the Inspecting Officer goes, which employees he talks to and for how long, whether he returns to a specific location previously inspected, any specific comments he makes regarding the safety program or suspected violations, and in general, a running documentary of the entire inspection. At the conclusion of the inspection, all of the information on this record should be entered into the Supervisor's Daily Journal and the original record forwarded to the Health and Safety Officer,

- Allow the Inspecting Officer to lead. He will generally look only in those areas in which he has a feeling of expertise and will avoid those areas in which he is not too sure of himself;

    - □ Do not permit unneeded personnel to linger near the inspection party;

    - □ Do not harass, threaten, or otherwise intimidate the Inspecting Officer;

    - □ AMPCO has a right to protect trade secrets and may deny inspection where such is in use. If the Inspecting Officer insists on conducting the inspection in the vicinity of the trade secrets, the supervisor will identify the fact that trade secrets are in use and that the Inspecting Officer must take whatever measures necessary to protect them against disclosure;

    - □ When photographs are taken, ask the nature of the suspected violation and record this information. Make every effort to obtain similar photographs for the company, ensuring that your photographs are taken in such a manner so as to duplicate the Inspecting Officer's photographs.

    - □ If air samples or any other type of samples are taken, try to have duplicate samples taken during the same time period and at the same location or on the same individual;

    - □ If the Compliance Officer alludes in any way to a possible violation of EPA's Adequately Wet requirements and takes a sample of either free-standing asbestos or the contents of an asbestos containing waste bag, then it is of paramount importance that the supervisor take a similar sample to have tested for moisture content;

- At no time should the supervisor admit responsibility for any alleged hazards or violations. Although the supervisor should make every effort to "correct" the alleged hazards or violations promptly, he should never offer to do so during the inspection;

- Answers to questions posed by the Inspecting Officer regarding jobsite internal safety policy, should be responded to per AMPCO's Corporate Safety Manual. Ensure that each question posed by the Inspecting Officer is fully understood. If not, do not hesitate to ask that these questions be clarified; and

- Do not hesitate to refer the Inspecting Officer to the Health and Safety Director or Health and Safety Office for clarification of issues or answers to questions that present a problem to the supervisor.

SECTION 10 - HARASSMENT

Local, state and federal compliance officers, inspectors, or similar personnel are not to be harassed, intimidated, or abused. Problems which arise during the inspection, which cannot be resolved, are to be referred to the Health and Safety. Federal and state agencies may impose severe penalties against persons and/or companies who fail to abide with this section. Penalties may include monetary fines and jail terms.

SECTION 11 - CONCLUSION

At the conclusion of the inspection or contact, the project manager must immediately complete the Regulatory Agency Inspection Report form located in the forms section of the computer directory. Each item on the form should be filled out in detail, with additional pages attached if necessary. In the event AMPCO intends to contest any citation or notice of violation, a detailed account of the inspection will be absolutely essential. This report must be completed at the conclusion of the inspection and submitted to the Health & Safety, if the inspector indicated or it is suspected that we will be receiving a citation as a result of this inspection scan a copy of the inspection report to the Safety Director.

SECTION 12 - CITATIONS AND PENALTIES

In the event a Citation, Penalty Action or Notice of Violation is received from a regulatory agency, the site superintendent shall immediately notify by telephone, the Safety Director and the Presidents.

The site superintendent shall make sufficient copies of the Citation, Penalty Action or Notice of Violation to retain one copy at the jobsite and to fax a copy to the Health and Safety Director. The original of the Citation, Penalty Action or Notice of Violation must be forwarded to the Safety Director the same day via , email, fax, scan, etc.

Copies of that portion of the Supervisor's Daily Journal which contains any information pertinent to the inspection, copies of air samples taken during the inspection, photographs taken, or copies of documents requested by the Inspecting Officer, should be forwarded to the Health & Safety.

The site management shall post a copy of the citation at or near the place where each alleged violation occurred. The citation must be posted for three working days or until the violation is corrected, whichever is longer. Failure to comply with posting requirements, even if the citation is contested, is punishable by a fine.

Note: The assessed penalty portion of the fine does not have to be visible while the citation is posted.

Upon completion of the inspection, the submission of a written inspection report and the notification from the regulatory agency of any citations and/or proposed penalties, all further communications and related matters will be handled through the Health & Safety.

Once the Citation, Penalty Action or Notice of Violation has been received by Health & Safety, all further communication with the regulatory agency will be handled through the Health & Safety Office.

SECTION 13 - LETTER CONTACT

In the event a letter is received from a regulatory agency concerning alleged violations of applicable standards, the site superintendent shall immediately notify by telephone the Project Manager and Health & Safety. Copies of the letter shall be forwarded to the Project Manager and the Health & Safety, with the original being forwarded to Safety Director for comment prior to response.

A response letter should then be drafted by the Safety Director after conferring with the site superintendent. A copy of the response letter must be reviewed by Presidents prior to forwarding it to the agency concerned.

SECTION 14 - TELEPHONE CONTACT

All telephone calls from regulatory agency officials must be discussed with the Health & Safety, the Project Managers, and Presidents prior to making any response or commitment.

SECTION 15 - LEGAL REVIEW

Safety Director is responsible for informing the AMPCO President of any regulatory agency contact, inspection, citation, notice of violation, etc., and advising them of any intended action and the outcome.

Safety Director is also responsible for providing the General Counsel with copies of all correspondence from a regulatory agency, reviewing the circumstances involved and discussing future actions to resolve the problems.

SECTION 16 - DISCIPLINARY ACTION

Any supervisor failing to notify a Health & Safety of any contact by a compliance officer or inspector representing a regulatory agency, or failing to forward the original copy of a regulatory agency Citation, Notice of Violation, Letter of Complaint, etc., to the Health & Safety within twenty-four hours of receipt of these documents, will be subject to severe disciplinary action, which may include discharge from employment.

COMPANY CONFIDENTIAL AND PRIVILEGED:
Prepared at the request of Legal Counsel in anticipation of litigation.

INSPECTION REPORT - REGULATORY AGENCY

(To be completed by Senior Project Manager)

1. **DATE:** Date of Inspection: _____

2. **JOB INFORMATION:**

Job Name: _____ Job No.: _____

Job Address: _____

Name of Owner: _____ Name of Consultant: _____

Project Manager: _____ Was Safety Notified: YES ☐ NO ☐

3. **IDENTITY OF INSPECTING OFFICERS**

1. Name:_____ Title: _____

   Regulatory Agency: _____

   Address:_____

   Telephone No.: _____

2. Name:_____ Title: _____

   Regulatory Agency: _____

   Address:_____

   Telephone No.: _____

Affix copy of Compliance Officer(s) business card here:

4. REASON FOR INSPECTION: As Stated By Inspecting Officer (Check one)

____ Employee Complaint *
____ Random or Scheduled Inspection
____ Special Emphasis Inspection
____ Response to a Reported Incident
____ Follow-up Inspection
____ Customer or Other Contractor Inspection **

* If an employee complaint, request and attach a copy of the complaint.

** If customer or other contractor inspection, provide the following:

Company Name: _____

Address: _____

Manager:_____ Phone No.:_____

5. MULTI-EMPLOYER JOB SITE: Is this a multi-employer worksite: ____ YES ____ NO

6. OPENING CONFERENCE:
Attendees, name and title: _____

_____

_____

Significant remarks made at opening conference:
(Identify by name. Attach additional page(s), if necessary.

_____

_____

_____

7. DOCUMENTS REQUESTED BY INSPECTING OFFICER: (Check as appropriate)

____ OSHA 300 Log
____ Accident Reports
____ Audiograms
____ Notification
____ Other (Please list below)

____ Medical Records
____ Exposure Records
____ Posted Requirements
____ Disposal Records

_____

8. **INSPECTION PROCEDURE:** (Use extra page(s) if necessary)
Names and titles of persons participating in the inspection:

_____

_____

Describe the inspection in detail: (Include routes taken, etc.,)

_____

_____

Describe in detail, any significant comments made by anyone during inspection:

_____

_____

Describe in detail, any measurements or samples taken during inspection:

_____

_____

Describe in detail, any photographs taken during inspection:

_____

_____

9. **INTERVIEWS:** Identify persons interviewed and describe remarks: (If known)

_____

_____

10. **CLOSING CONFERENCE:** Describe closing conference: (Identify persons present)

_____

_____

Describe any comments regarding proposed citations, notice of violations, etc.:

_____

11.0 **ATTACHMENTS:** Add additional attachments if appropriate.

SAFETY COMMITTEE POLICY

SECTION 1 - PURPOSE

The purpose is to define the composition, duties and responsibilities of safety committees.

SECTION 2 - SCOPE

This policy applies to all AMPCO operations.

SECTION 3 - POLICY

In order to achieve the requirements of paragraph 8.0 of AMPCO's Health and Safety Policy, Section 1-2 of the Corporate Safety Manual, Safety Committees shall be organized at each level of operation, Management, General Superintendents, Project Managers, Office and Health & Safety. Typically, these committees should consist of the senior member of management and his/her staff. In addition to meeting at least monthly to review the adequacy of the Company's safety and health program, and its safety performance, the committee shall be active and function as described in this Section.

SECTION 4 - REQUIREMENTS

- A committee shall be maintained at each of the three (3) major management levels to provide opportunities for involvement in the program. (Management, Office and Field).
- These committees shall meet on a regularly scheduled basis, as indicated below.
- Meeting activities shall be documented.

SECTION 5 - DUTIES AND RESPONSIBILITIES

5.1 Safety Committee:

- Shall promulgate Safety and Compliance policy.
- Shall define and promulgate Safety and Compliance objectives for the company.

- Shall regularly review the status and direction of the Safety and Compliance program.
- Shall meet at least quarterly.

5.2 Management, Office, Field Safety Committee:

- Shall review AMPCO and Company Safety and Compliance policies and procedures and develop supplemental rules, guides, etc., as required by their operations.
- Shall regularly review the status and direction of Safety and Compliance activities for consistency with AMPCO and Corporate programs and objectives.
- Shall develop and implement programs to promote management and employee participation and involvement in Safety and Compliance activities.
- Shall review companywide accident and incident experience and assure program priorities are addressing causal factors.
- Shall meet at least twice monthly.

SECTION 6 - COMPOSITION

- Safety Committees should be composed of the Health and Safety, General Superintendents, Project Managers and appointees. Employee participation on this committee is optional with the Office.

BEHAVIOR BASED SAFETY

SECTION 1 - PURPOSE

To clarify requirements for behavior based safety; to take a proactive approach to injury prevention that focuses on at-risk behaviors that can lead to an injury and on safe behaviors that can contribute to injury prevention.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - RESPONSIBILITIES

Management, Supervisors, and Safety:
It is the responsibility of management at all levels to ensure a safe working environment for our employees (including subcontractors and their employees). The safety department shall provide management and supervisors with technical expertise and counsel to assist with the responsibility of providing a safe and healthy work environment. The majority of our efforts will focus on proactive measures. Specifically, we will focus on identifying and eliminating, on a real-time basis, acts and conditions that can lead to injuries or incidents.

These responsibilities shall include, but are not limited to:

- Identify and eliminate unsafe working conditions as they occur and train/direct AMPCO workforce to do the same.
- Providing a safe and healthful working environment
- Assuring that all employees are adequately trained to perform their jobs in a safe and productive manner
- Audit employees (SOR) on a regular basis to ensure that company mandated and statutory safety rules and procedures are complied with
- Providing all required tools and Personal Protective Equipment (PPE) to perform the job safely and ensuring that such equipment is in proper working condition
- Assuring that job safety requirements and safe working rules are established, implemented, and enforced

- Conducting incident investigations, follow-up, and taking any corrective action measures that may be required to prevent injuries from re-occurring
- Actively participating in scheduled safety meetings and programs
- Assuring that all injuries are reported immediately and treated promptly
- To be accountable for safety throughout the job site and lead by example
- Zero tolerance for non-compliance - enforcing and applying uniform and consistent discipline for any violations of Company or Client safety rules
- To effectively communicate safety requirements to all employees

Employees:
It shall be the responsibility of all employees to be accountable for maintaining safety at the highest possible level and actively contribute to and participate in all safety programs. These responsibilities shall include, but are not limited to:

- Eliminating unsafe working conditions as they occur and reporting potentially unsafe acts or conditions to the immediate supervisor or the Safety Department
- Attending and actively participating in scheduled safety meetings and programs
- Performing all work in a safe manner
- Being familiar with safety procedures that may be required to perform their job(s) safely
- Intervening whenever they observe another employee violating any health and safety policy, procedure or regulation.
- Immediately reporting any job-related injury to his/her supervisor and/or the Safety Department
- Observing good housekeeping practices at all times
- Using all Personal Protective Equipment (PPE) as required
- Participating in AMPCO or Clients Safety Observation (SOR) Report Programs

SECTION 4 - SAFETY OBSERVATION REPORT (SOR)

Safety Observation Report (SOR) is a behavior modification program based on basic safety principles and observation techniques. The SOR objective is to reduce injuries and incidents by enabling all employees to recognize and eliminate unsafe acts and unsafe conditions in the workplace.

The SOR Program is designed to promote and reward safety awareness, correction of unsafe acts and conditions, and safe work practices. All AMPCO employees have equal authority and responsibility to take appropriate action to correct unsafe acts or conditions

SECTION 5 - BENEFITS OF THE SOR PROGRAM

5.1 Reduces Injuries and Incidents by Increasing Safety Awareness
From the top manager on down, all employees are involved in the SOR program. This program helps to build upon safety awareness by teaching and rewarding employees to recognize and eliminate unsafe act and conditions and think about safety as part of every task.

5.2 Eliminates Unsafe Acts and Conditions
SOR focuses on the unsafe actions of people. These unsafe actions account for 90+% of all injuries and incidents. SOR empowers and rewards employees who actively participate in correcting unsafe acts or conditions.

5.3 Reinforces Safe Work Practices
SOR also focuses on recognizing and rewarding employees for proactive safe work practices.

5.4 Lowers Injury-Related Costs
SOR has a positive, direct impact on our loss control program, and ultimately our bottom line, because it eliminates unsafe act and conditions, and reduces their related cost.

5.5 Increases Observation and Safety Skills
SOR teaches employees throughout the organization how to be skilled safety observers, how to prevent recurrence of unsafe acts before they result in injuries or incidents, and how to reinforce safe work practices.

5.6 Communicates AMPCO's Commitment to Safety
The proactive on the job safety activities rewarded by the SOR program establishes AMPCO's commitment to safety as an equal part importance to cost, productivity, morale, and quality in the minds of all employees.

SECTION 6 - SOR CAR COMPLIANCE

6.1 SOR Observations

SOR observations are documented on SOR cards. The card based system allows us to gather data, and track the effectiveness of the program. SOR participation is mandatory. The minimum participation requirement is one card per employee for every 40 hours worked (4 cards per employee per month).

6.2 SOR Cards

SOR cards are used by management and employees for reporting **Safe** and **Unsafe** jobsite conditions as well as conducting observations of employees' work behavior. There will be **No Consequence** or **Disciplinary** action for any unsafe condition reported. The SOR cards are for conducting Hazard Trend Analysis only.

SECTION 7 - SOR CARD TRAINING

Management, Supervisor/Foreman and General workers will be trained in the proper way to fill out a SOR card.

7.1 Training will include:

- Program objectives
- How to conduct the observation
- How to complete the observation form
- What the behaviors mean

7.2 Upon completion of an Observation the Observer will provide the following feedback:

- Review the observation with observed employee
- Start with a positive comment
- Reinforce safe behaviors observed first
- Describe and discuss what was unsafe
- Solicit from observed employee explanation of his/her unsafe behavior with open-ended questions
- Re-emphasize no consequence to observed employee.

New employees will be trained during New Hire Orientation. Refresher training will be conducted annually.

SECTION 8 - DATA COLLECTION AND TREND ANALYSIS:

8.1 SOR CARD COLLECTION

After completing a SOR card, they are to be turned into your Supervisor/Foreman. All Supervisor/Foreman will be responsible to turn in SOR cards to the Safety Department on a weekly basis. As information is gathered, individual departments as well as the entire company will be able to use the data for measurements and tracking results.

8.2 TREND ANALYSIS

The Safety department will input all SOR information into the trend analysis report. The Trend Analysis Report will be reviewed by management and safety on a weekly basis.

8.3 ACTION PLAN

A) Once trend analysis is complete, appropriate action plans must be developed to address unsafe behaviors. The Action Plan will include:

- Evaluate unsafe behaviors from trend analysis and prioritize
- Develop action plan for unsafe behaviors based on comments and feedback from SOR Cards and Trend Analysis
- Designate responsible parties and timeframes within the action plan
- Define who is responsible for action planning.

B) Unsafe Behaviors

All behaviors rating lower than 89 % will be given the highest priority with lowest percent first. Safety Department will walk job site with Supervisor/Foreman to correct all unsafe observations that can be corrected. Safety department will develop an action plan based on comments, feedback from jobsite employees' and SOR cards.

C) Action Plan Close Out

Action Plans are carried out over the course of a set time period. Follow-up is necessary to ensure the closure of all actions listed within the Action Plan. The follow up process will include:

- Weekly review of action plans unless otherwise stated by plan.
- Safety Manager will ensure action plan is productive and close out plan when rating is achieved.
- All Action Plans will be archived with Trend Analysis Report.

SECTION 9 - SAFE PERFORMANCE SELF-ASSESSMENT (SPSA)

9.1 When to conduct SPSA

- At the beginning of the shift before starting to work
- Before changing tasks during the day
- After a loss or significant near loss
- When conditions change
- Off the job as well as at work

Assess the risk!
What could go wrong?
What is the worst thing that could happen if something does go wrong?

Analyze how to reduce the risk!
Do I have all the necessary training and knowledge to do this job safely?
Do I have all the proper tools and Personal Protective Equipment?

Act to ensure safe operations!
Take necessary action to ensure the job is done safely!
Follow written procedures!

Ask for assistance, if needed!

EMPLOYEE RATING PROGRAM

SECTION 1 - PURPOSE

To provide the criteria to determine the rating of an employee in the workplace; to take a proactive approach to injury prevention that focuses on employee ratings that can lead to an injury and on safe behaviors that can contribute to injury prevention.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - RESPONSIBILITIES

Management, Supervisors, and Safety:
It is the responsibility of management at all levels to ensure a safe working environment for our employees (including subcontractors and their employees). The safety department shall provide management and supervisors with technical expertise and counsel to assist with the responsibility of providing a safe and healthy work environment. The majority of our efforts will focus on at-risk behaviors.

SECTION 4 – GROUPING

Employees will be grouped into two sections, Supervision and Labor. From the two sections, the employees will be rated from 1 to 10 using criteria based on their job titles.

SECTION 5 – GROUPING & RATING CRITERIA

The two groups and rating criteria are as follows:

Supervision (Abatement, Demolition and Earthwork)
Behaves in manner consistent with company's mission, vision and values ~ viewed as a person of integrity ~ complies with company policy & procedure ~ professional & courteous when communicating with others ~ represents company in a positive manner when interacting with client ~ follows thru with tasks and responsibilities in an appropriate and timely manner ~ demonstrates respect for the work and ideas of others ~ considerate of the needs of others ~ willing to accept responsibility for his own actions ~ someone that you feel would make an effective supervisor ~ is someone you feel

comfortable approaching to ask for assistance or advice ~ conveys a customer-focused manner in communication with others ~ demonstrates a willingness to listen to what others have to say ~ understanding of essential job duties and responsibilities ~ quality/volume of work performed ~ ability to follow instructions ~ demonstrates initiative ~ problem solving abilities ~ punctuality and attendance ~ willingness to take and act on constructive feedback ~ demonstration of teamwork ~ ability to meet deadlines and manage time effectively ~ promotes a positive safety attitude on the job ~ equipment inspections completed as required ~ positive/proactive safety attitude ~ job experience ~ injuries on job site ~ experiences accidents/property/general liability damage on job site ~ proactively seeks additional education and company training ~

Laborers, Equipment Operators, Grade Checkers (Abatement, Demolition and Earthwork)
Behaves in manner consistent with company's mission, vision and values ~ viewed as a person of integrity ~ complies with company policy & procedure ~ professional & courteous when communicating with others ~ represents company in a positive manner ~ follows thru with tasks and responsibilities in an appropriate and timely manner ~ demonstrates respect for the work and ideas of others ~ considerate of the needs of others ~ willing to accept responsibility for his own actions ~ demonstrates a willingness to listen to what others have to say ~ understanding of essential job duties and responsibilities ~ quality/volume of work performed ~ ability to follow instructions ~ demonstrates initiative ~ problem solving abilities ~ punctuality and attendance ~ willingness to take and act on constructive feedback ~ demonstration of teamwork ~ ability to meet deadlines and manage time effectively ~ promotes a positive safety attitude on the job ~ positive/proactive safety attitude ~ job experience ~ experiences injury on job site ~ damages equipment, property, or materials and tools ~ proactively seeks additional education and company training ~

Rating from 1 to 10
Based on the criteria provided above the employee rating will be provided based on the percentage of observations chosen.

Employees' new to the company, whom have no experience, new to the industry, claim they have 5 years experience and have not proven themselves in the field, have experienced an injury – will be required to start at 1 and/or start over in the rating program.

GENERAL WASTE MANAGEMENT

SECTION 1 - PURPOSE

The mission of the Health Safety Department is to identify and mitigate risks and hazards in an attempt to achieve the ultimate goal of zero incidents, zero injuries, and zero spills or environmental harm. AMPCO (the Company) is dedicated to the safe handling and management of all non-hazardous and hazardous materials, and the purpose of this policy identify the responsibilities of all employees for the purposes of general waste management.

SECTION 2 – POLICY STATEMENT

The Company is committed to providing a safe and healthy work environment for all employees. In pursuit of this goal, The Company will comply with all applicable legislation and other relevant requirements associated with our environmental aspects and impacts. The Company is committed to the continual improvement of all environmental aspects and impacts associated with our operations.
The Company is committed to the prevention of pollution in all aspects of business activities, and a sustainable approach to the development and provision of our products and services will be adopted where possible. The Company is dedicated to these high environmental standards and expect all employees to be familiar with and comply with the contents of this policy.

SECTION 3 – MANAGEMENT & RESPONSIBILITIES

Health & Safety Director

- Develop the overall environmental strategy, policy, and plans/programs pertaining to the generation and disposal of waste.
- Collaborate with the VP of Operations to ensure that all managers and division understand the following:
- Environmental responsibilities in relation to the environmental strategy, policy, and plans/programs
- Consider environmental impacts when designing and executing job responsibilities and tasks.
- Provide training and necessary resources to support the policy and programs with the appropriate accommodations and variations to reflect the conditions and environment of a specific functions or locations.
- Provide advice and consultation to the operations managers in preparation of environmental budgets.
- Provide guidance on new legislation and changes to existing legislation relating to

the environment and assessing and advising on the implications for the Company.
- Generate progress reports for the Company at quarterly intervals highlighting implementation and progress against agreed environmental plans and programs including data on the Company's key performance indicators for the relevant period.

Operations (VP of Operations)

- Ensure all employees receive environmental training sufficient to execute his/her responsibilities in compliance with environmental and general waste policies.
- Ensure all employees receive, understand and act upon information, instruction, and supervision as is necessary in order that they can undertake their role in an environmentally compliant manner.
- Ensure that environmental issues are given sufficient consideration when planning and making decisions in their areas of responsibility.
- Identifying and managing budgetary requirements in their areas of responsibility to ensure compliance with environmental legal requirements and agreed KPIs.
- Ensuring that workplace and work practice inspections and checks are regularly undertaken in their areas of responsibility.
- Implementing both existing and any new specific arrangements, procedures and environmental working practices to ensure compliance with the Environmental Policy, Plans / Programs and environmental legislative requirements.
- Allocating tasks appropriate to the individuals' capabilities and environmental training.
- Ensuring environmental incidents are appropriately reported and investigated promptly and that any corrective or preventive actions are taken as appropriate.
- Ensuring that environmental performance in their areas of responsibility is assessed, monitored and reviewed in order to continually improve on performance.

Employees

- Carry out their assigned duties and tasks in accordance with the General Waste Management Policy and relevant arrangements, environmental working practices and Company rules and instructions.
- Not interfere with or miss-use anything provided in the interests of the environment or to do anything likely to endanger the environment.
- Co-operate fully with their Manager or any other person on environmental matters so far as is necessary to enable any statutory duty or requirement to be performed or complied with.
- Make full and proper use of all equipment provided to protect the environment.
- Familiarize themselves with the location of emergency spill kits in their areas and relevant emergency arrangements at the sites were they are based.
- Report any known defects in equipment or systems that they believe is or may become the cause an environmental incident.

- Report situations in which they believe there are circumstances at work that pose a serious environmental risk.
- Report environmental incidents or near misses promptly and co-operate with any investigations.

SECTION 4 – WASTE REDUCTION & MINIMIZATION BEST PRACTICES

All employees are expected to be mindful of their own consumption and waste generation habits in an effort to conserve energy, reduce fossil fuel usage, and reduce air pollution through strategies. The following best practices serve as guidelines for facilities and operations to reduce the amount of waste generated and minimize the Company's impact on the environment.

Reducing Energy Consumption

- Installing skylights in the roof or walls to reduce the need for artificial lighting
- Insulating rooms to minimize energy waste
- Fitting self-closing doors to reduce heat (or cold) loss from draughts
- Making sure equipment is the right size for the job.
- Minimizing expenditure on space heating
- Minimizing the use of hot water.
- Turning off lights and equipment when not operating.

Improving Energy Efficiencies

- Using energy efficient office equipment and power saving functions
- Using the most efficient motor vehicles
- Using the most efficient lights – replacing fluorescent lights where possible
- Investigating alternative energy sources such as solar hot water, bio-ethanol and wind energy
- Using a clean fuel such as LPG or methanol
- Purchasing items with reusable, recyclable, or no packaging

Minimizing Waste Generation

- Quantifying the waste produced
- Examining each work process steps to determine where wastes are produced and to devise measures for waste prevention or reduction
- Devising ways of reducing waste with employees so they too can share in the savings (for example rewards for employees who reduce waste)
- Partnering with a waste management contractor to assist with waste minimization.
- Keeping a running tally of waste production to track changes and improvement.

SECTION 5 – METHOD of IMPLEMENTATION

Waste Estimation & Preparation

Before beginning work on a job, the operations manager or job supervisor must take into consideration and estimate all wastes, trash, and/or scrap that will be generated. Furthermore, employees must evaluated the different types of trash generated, number and types of disposal containers, and the method of removal if necessary. These considerations should all be documented in the "Hazard and Risk Assessment Plan" which should be conducted prior to any job and include the following:

- Total number of employees working on the job
- Total volume of projected waste
- Types of waste potentially generated
- Total weight of the projected waste
- Number and types of containers to collect the projected waste

Waste Segregation & Recycling

Segregating waste is an important component of a major practice in reducing the Company's impact on the environment – recycling. The following guidelines should be followed to maintain compliance with the policy:

- Segregating wastes wherever possible to aid recycling and provide an indication of why waste is forming
- Investigating alternative uses for organic waste that cannot be reduced or reused, e.g. composts or convert the waste to energy
- Diverting recyclable wastes from the general waste, identifying recyclers or waste disposal contractors and organizing regular collections
- Joining with neighboring businesses and organizations to get common wastes recycled cost effectively, and discussing waste contractors cost off-sets by efficient serving of the area.
- Placing bins in break rooms (or other designated locations) for recycling of empty glass, steel, aluminum, plastic products
- Arranging for packaging (e.g. pallets, cartons, etc.) to be recycled by relevant contractors

Storage & Handling

Waste materials must be properly stored and handled to minimize the potential for an accident or injury due to excessive clutter, the potential for a spill, or impact to the environment. During outdoor actives, receptacles must be covered to prevent dispersion of waste materials and to control potential runoff. Details of the storage and handling plan should be documented in the Hazard and Risk Assessment for, which is required before beginning work on any job site.

Further considerations should be given in regards to the Duty of Care under the E.P.A. (1990), which requires that waste holders must introduce and maintain housekeeping measures in order to keep any waste safe from such as:

- Corrosion or wear of waste containers
- Accidental spillage or leakage
- Accident or weather, breaking contained waste open, and allowing it to escape
- Waste blowing away or falling while stored, transported or handled
- Scavenging of waste by vandals, thieves, children, trespassers or animals.

Flammable waste must be stored in a secure flammable cabinet and must not contain vessels (empty or full) which are capable of storing more than 50 gallons of highly flammable substances. No more than 500 ml of flammable substance may be held on an open bench, and all highly flammable containers, regardless of volume, must be clearly labeled in accordance with the Company's Hazard Communication policy.

Disposal

The Company acknowledges that different materials require different methods for disposal, particularly where waste may be dangerous and/or hazardous. Before a job, employees must be instructed on the proper disposal method for wastes, including general instruction on disposal of non-hazardous wastes, trash or scrap metals. If wastes generated are classified as hazardous, employees must be trained to ensure proper disposal.

CORPORATE SAFETY PROGRAM

SECTION 1 - PURPOSE

To provide information on the method of preparation, review, approval, distribution, and control of the Corporate Safety Manual.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

To provide a Corporate Safety Manual containing the necessary policies and procedures to successfully comply with regulatory agency requirements and good safety and health practices in our efforts to maintain a safe working environment.

SECTION 4 - RESPONSIBILITY

4.1 Preparation of the Corporate Safety Manual

Corporate Safety shall have responsibility for the preparation and development of the Corporate Safety Manual. This responsibility shall also include all revisions and changes to the manual due to regulatory updates and/or improved industry safety practices.

4.2 Review of the Corporate Safety Manual

The company President and the company Chief Operating Officer (COO) shall have the option of receiving copies of proposed Corporate Safety Manual for their review and comments prior to publishing.

4.3 Approval of the Corporate Safety Manual

Corporate Safety shall approve all sections contained within the Corporate Safety Manual. Additions to the Corporate Safety Manual will not be made without prior approval.

4.4 Preparation of Correction Notices

A Correction Notice will be issued when changing or correcting a standard within the Corporate Safety Manual. If it is limited in scope, minor and does not change the intent of the original section, it need not be submitted for a full review. All Correction Notices shall be filed in front of the applicable section. If a major change is involved, the correction must be reviewed and approved in the same manner as the Corporate Safety Manual, and upon approval, distributed to holders of the Corporate Safety Manual.

4.5 Preparation of a Change

All requests for changes and/or additions to the Corporate Safety Manual should be forwarded to the Safety Office in Anaheim, Calfornia. The Change or Revision will then be reviewed and approved in the same manner as the original Corporate Safety Manual and assigned the next change or revision number in sequence. The Change or Revision will be distributed to holders of the Corporate Safety Manual. Upon receipt of a Change or Revision, the holder will immediately make the necessary corrections to his/her manual. .

4.6 Addition of New Sections

Additional sections to the Corporate Safety Manual shall be prepared, developed, approved and distributed in the same manner as the original. The same numbering sequence shall be used throughout the manual.

4.7 Cancellation Notices

A Cancellation Notice shall be issued when a section within the Corporate Safety Manual becomes obsolete. The Cancellation Notice shall be reviewed and approved in the same manner as the original, and shall be distributed to all numbered holders of the Corporate Safety Manual. A section may also be canceled, as a part of a Change or Revision. Upon receipt of a Cancellation Notice, the holder shall immediately remove the canceled section and destroy both the section and the notice.

4.8 Annual Review of Corporate Safety Manual

Each section within the Corporate Safety Manual shall be reviewed at least annually by Corporate Safety. Reviews of those sections, which result from a change or revision, shall fulfill the annual review requirement.

SECTION 5 - CONTROL AND DISTRIBUTION

5.1 Corporate Safety

Corporate Safety will be responsible for the distribution of a copy of the Corporate Safety Manual to each member of corporate management.

5.2 Health and Safety Office

The Health and Safety Office will be responsible for the distribution of a copy of the Corporate Safety Manual to each member of management and to each line supervisor within the Health and Safety Office's area of responsibility.

5.3 Request by Customers or Outside Agencies

When requested to do so, the Health and Safety may make an unbound, non-controlled copy of the Corporate Safety Manual available to any local, state or federal regulatory agency.

Unbound, non-controlled copies of the Corporate Safety Manual that are required for pre-qualification bid packages, sub-contractors, and customers, will be the responsibility of the Office involved.

SECTION 6 - PROGRAM MAINTENANCE

Each holder of a Corporate Safety Manual shall be responsible for the following:

- Maintaining the assigned Corporate Safety Manual by filing new sections, Correction Notices, Changes or Revisions, and/or Cancellation Notices when received;
- Destroying all canceled sections, superseded Correction Notices, and Changes or Revisions, as directed by this office; and
- Returning the Corporate Safety Manual to the responsible Office, if the document is to be transferred to another individual, is no longer required, or upon termination of employment.

Each Office Manager is responsible for the following:

- Maintaining a sufficient supply of copies of the Corporate Safety Manual; and

- Distributing new manuals and/or changes and corrections to the manuals.

Changes, additions and cancellations to the Manual will be distributed in the same manner as outlined above.

SECTION 7 - ADDITIONAL COPIES

Whenever a completely revised and updated Corporate Safety Manual is issued by Corporate Safety, the printing and binding of the Manual will be the responsibility of the Office involved.

SECTION 8 - LICENSING REQUIRED AMENDMENTS

In the event a specific state or local agency requires an amendment to the Corporate Safety Manual for purposes of licensing, a written request, including all pertinent information, must be forwarded to the Corporate Safety Office by the Office applying for licensure. Corporate Safety will then make the necessary amendments. Copies of these amendments will then be distributed to those specific AMPCO Offices that are within the area governed by this license.

SECTION 9 - JOBSITE SPECIFIC REQUIRED AMENDMENTS

In the event a specific jobsite or customer requires an amendment to the Corporate Safety Manual for purposes of the specific project's regulations and policies, a written request, including all pertinent information, must be forwarded to Corporate Safety by the project superintendent. Corporate Safety will then make the necessary amendments and forward them to the project superintendent with a copy to the appropriate Health and Safety Office.

SAFETY RULES AND REGULATIONS

SECTION 1 - PURPOSE

To provide a code of conduct which will allow for a smooth operation of the jobsite with as little time loss as possible due to violation of safety rules and regulations.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

All personnel working for AMPCO will at all times, while present on the job site or Company property, comply with the following established Safety Rules and Regulations.

A copy of the AMPCO Safety Rules and Regulations must be posted at all jobsites, in such a manner and location, so that it is readily available to all employees of the project.

SECTION 4 - GENERAL REQUIREMENTS

Compliance with the Safety Rules and Regulations is considered a condition of employment, and as such, disciplinary action may be taken for violations of these Safety Rules and Regulations, as warranted. The Safety Rules and Regulations have, therefore, been integrated with the Company's disciplinary system wherein noncompliance with such rules and regulations can and will evoke certain specific disciplinary actions by management. Some clients require the searching of personnel and property while working on their property.

SECTION 5 - SAFETY RULES AND REGULATIONS

The AMPCO Safety Rules and Regulations have been compiled and reviewed by Company management, for their acceptance, and by applicable employee representatives for their information and support. A copy of the Safety Rules and Regulations will be made available to any employee or employee representative and will be posted on each job site.

Procedure 2-2

AMPCO SAFETY RULES AND REGULATIONS

THE FOLLOWING MUST BE STRICTLY ADHERED TO BY ALL PERSONNEL WHILE ON AMPCO JOB SITES AND COMPANY PROPERTY!

- Employees must be in "work" clothes and ready for work at the designated starting time.
- Employees may take lunch breaks only during designated times and must eat in the area assigned for this while on the job site. There will be no smoking, eating, or drinking while in the work area.
- Personnel will not quit work before the time designated for the conclusion of the work shift. There will be sufficient time allocated for the removal of work clothes, decontamination, etc.
- Employees must report to work each regularly scheduled work day. Continued absenteeism is a violation of these rules.
- All personnel are required to comply with AMPCO's Alcohol and Drug Free Workplace Policy as a condition of employment. Violation of any portion of this Policy may be cause for immediate discharge.
- Personnel should not drink alcoholic beverages prior to reporting to work.
- Having reported to work, employees are then prohibited from consuming alcoholic beverages during either lunch or coffee breaks.
- Personnel must comply with both verbal and written instructions from a supervisor or foreman.
- While on the job site, personnel must comply with OSHA Safety and Health Standards for the Construction Industry and with each of the safety procedures required by the AMPCO safety program on this project.
- All personal work injuries must be reported to a supervisor immediately.
- All unsafe conditions or unsafe acts must be reported immediately to a supervisor.
- Unless otherwise notified, hard hats must be worn by all personnel while on the job site.
- Employees must use their personal protective equipment as required by law, including but not limited to, head, hearing, eye, hand, foot, and fall protection devices.
- When required, protective clothing, including hood and booties, will be worn correctly.
- When required, assigned respiratory protection equipment will be worn.
- If respirators are a requirement of the job, they will not be removed while in the work area for any reason.
- During working hours, clothing appropriate to a construction job must be worn when not in a containment area, including shirts, long pants and work shoes.
- If air sampling equipment has been attached to an individual, this equipment must be left alone and unobstructed until instructed to remove it.
- There will be absolutely no smoking in those areas posted "No Smoking".
- Good housekeeping by all personnel is considered mandatory.
- Employees will not engage in malicious horseplay, practical jokes, or mischief while on the job site or Company property.
- Fighting or attempting bodily injury to another employee or Company visitor while on the jobsite or Company property is not permitted.
- Unauthorized use of, or willful or wanton neglect in the care and/or use of Company property is not permitted.
- The carrying of concealed weapons, firearms, ammunition, and explosives on the jobsite or Company / Client property is expressly forbidden.
- Falsifying Company records and/or reports will not be tolerated.
- Only the person who tags-out or locks-out equipment is allowed to remove such a tag or lock from the equipment.

Procedure 2-3

VIOLATION & DISCIPLINARY ACTION

SECTION 1 - PURPOSE

The purpose is to provide support for the enforcement of good safety performance and to eliminate repeated or continuing safety violations by the use of appropriate disciplinary measures.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

Appropriate disciplinary measures will be prepared as a management tool to foster compliance of personnel to the AMPCO safety program and those portions of the safety and health standards of such local, state, and federal regulatory agencies, as applicable.

In those cases involving AMPCO's employment of Union labor, disciplinary actions may be limited to the terms of the current local, national, or specific project agreement.

SECTION 4 - GENERAL

4.1 Each employee who reports for work at an AMPCO operating company will be given a safety orientation, as a part of the general hiring practices. During this orientation, the Company's positive attitude toward safety will be stressed and the employee will be advised that at AMPCO, safety is a condition of employment. The AMPCO safety program will be explained and safety responsibilities will be clearly defined.

4.2 A copy of the AMPCO Corporate Safety Manual and a current issue of OSHA's Safety and Health Standards for the Construction Industry, 29 CFR 1926 and those applicable portions of 29 CFR 1910 will be present on each job site.

Each employee will be advised as to the location of each of these documents and that they are available for use by the employees during normal working hours.

4.3 Each supervisor and foreman will be required to verbally issue appropriate specific safety instructions to all employees prior to assigning them to work.

4.4 Each supervisor will be responsible for coordinating work with all other supervisors in the work area to ensure that all work is accomplished safely.

SECTION 5 - RESPONSIBILITY

5.1 Each member of the AMPCO Safety Department, the project manager, the project superintendents, and/or project foreman is responsible for enforcement of this disciplinary action program.

5.2 Each employee of AMPCO is individually responsible for complying with each of the provisions of the Corporate Safety Manual, in addition to those safety instructions issued by the employee's supervisor, either verbally or in writing.

SECTION 6 - WORK PRACTICES

A site specific Work Practices form may be completed by a project supervisor for each employee hired to work on that specific job site. In addition to designating the specific job site, the Work Practices form outlines the following items:

1. Work Practices required of the employee;
2. Cause For Disciplinary Action and/or Termination;
3. Cause For Immediate Suspension and/or Termination; and
4. Reimbursements to Company.

This Work Practices form should be read and understood by each employee at the time of the safety orientation. Each employee would be required to sign the form signifying his or her understanding of the conditions of employment.

SECTION 7 - SAFETY VIOLATION

The following constitutes a safety violation:

- failure to follow a verbal or written instruction pertaining to the employee’s position within the Company;
- violating one or more of the Safety Rules and Regulations, as specified in section 2-2 of the Corporate Safety Manual;
- violating local, state or federal regulations pertaining to the work being performed on the

project: and

- failure to comply with any of the safety procedures set forth within the AMPCO Corporate Safety Manual.

SECTION 8 - SPECIFIC REQUIREMENTS

The following steps will be administered in a fair and non-discriminatory manner:

8.1 All disciplinary actions will be documented and included in the employee's personnel file.

8.2 Each supervisor is responsible for ensuring that each and every employee reporting to him is given appropriate and specific safety instructions and that these instructions are clearly understood by the employee. Whenever language differences become a problem, it will be the responsibility of the supervisor to obtain the necessary measures (such as an interpreter) to overcome the employee's inability to understand the instructions.

8.3 A violation of the OSHA Standards for the Construction Industry or the AMPCO Corporate Safety Manual will be promptly corrected. The violation should be documented by the supervisor on the Written Warning for Safety Violation form (Exhibit #2) with copies issued to the employee, an appropriate Union representative (where applicable), the safety coordinator, and the employee's personnel file.

8.4 Individual safety rule violations will be assessed on their own merit, with appropriate consideration given to the seriousness of the violation, the effect the results of the violation may have had on other workers, the employee's prior work record, and any previous safety violations. Any disciplinary action to be taken will be coordinated by the Office's senior field management personnel after discussing the situation with Human Resources.

SECTION 9 - SAFETY COMMITMENT

When safety inspections by members of the AMPCO safety department disclose violations which indicate an overall lack of commitment to the Company's safety goals, by either workers or supervisors, responsible members of management will be held to the same level of disciplinary action.

SECTION 10 - IMMEDIATE SUSPENSION

There are some situations where the safety violation is so serious that modifications or total disregard of the steps of progressive discipline is warranted. In these situations, the employee may be suspended, without pay, or terminated at the discretion of the project superintendent. It is suggested however, that in cases of this type, the employee be suspended, without pay, pending the outcome of a full investigation of the incident and the employee's previous safety history.

When this method is followed, the results of the investigation should determine the severity of the discipline to be administered. In the event the investigation should determine the employee is entirely without fault in the matter in question, the employee will be reinstated and his or her pay for the period of the suspension will be reimbursed.

Procedure 2-3

WORK PRACTICES FOR AMPCO EMPLOYEES

Project Name: _____ Job No.:_____

Project Address: _____

1. WORK PRACTICES REQUIRED OF THE EMPLOYEE

- Starting time will be _____ AM ☐ PM ☐. Employee must be in protective clothing and ready to begin work at this time.
- Lunch break will be taken from _____ to _____. Designated eating area for this job is _____
- Quitting time will be _____ AM ☐ PM ☐. This includes time for decontamination.
- All personal protective equipment required by AMPCO for this project must be utilized. This may include such items as protective coveralls, hard hats, gloves, respirator, goggles, safety glasses, boots, etc.
- If you are selected for Personal Air Monitoring, the air sampling equipment will be attached to you. This equipment must be left on and in place until the air monitoring technician instructs you to remove it.

2. CAUSE FOR DISCIPLINARY ACTION AND/OR TERMINATION

- Continued absenteeism.
- Failure to properly use required personal protective equipment.
- Failure to comply with Supervisor's instructions.
- Failure to comply with all safety procedures required by this project.
- Failure to successfully pass a spot check of your respirator during a respirator field test.

3. CAUSE FOR IMMEDIATE SUSPENSION AND/OR TERMINATION

- The use, sale, possession or being under the influence of alcohol or drugs.
- Removing your respirator for any reason while in a regulated work area requiring its use.
- Smoking, eating or drinking while in a regulated work area.
- A 2nd offense of failing to pass a spot check on the fit of your respirator.

4. REIMBURSEMENT TO THE COMPANY

- A payroll deduction will be made to cover the cost of any item of capitol equipment assigned to you which is intentionally damaged or lost.

Employee's Signature:_____ Date Employed Signed: _____

Social Security No.:_____ Supervisor's Signature: _____

Procedure 2-3

WRITTEN WARNING / DISCIPLINARY ACTION

Project:_____ **Job No.**_____

Superintendent:_____**Date:**_____

AMPCO
Branch:_____

WRITTEN WARNING FOR SAFETY VIOLATION(S)

TO:_____ Social Security No.:_____
(Employee's Name)

Date of Violation(s):_____Time of Violation(s):_____

Location of Violation(s) Noted:_____

Type of Violation: **Regulatory Agency** ☐ **Corporate Safety Manual** ☐

This is to advise you that on the above date you were found to have violated either a Regulatory Agency Standard and/or a safety requirement of the AMPCO Corporate Safety Manual. The violation(s) is noted as follows:

_____
_____
_____
_____
_____
_____
_____

You are further advised that repeated violations of prescribed safety rules and regulations will not be tolerated on this project. Violations may result in injury to yourself or your fellow workers, thus we are warning you that should you not correct your actions and conscientiously observe the safety program on this project, you will subject yourself to further disciplinary actions up to and including discharge.

_____ _____
(Employee's Signature) (Supervisor's Signature)

Disciplinary Action Taken: _____
_____
_____
_____
_____
_____
_____
_____

AMPCO Injury and Illness Prevention Program

The personal safety and health of each employee of AMPCO Contracting, Inc. (AMPCO) is of primary importance. Prevention of occupational induced injuries and illnesses is of such consequence that it will be given precedence over operational productivity.

EMPLOYER INFORMATION

Organization:	AMPCO Contracting, Inc.
Address:	17991 Cowan
City, State, Zip:	Irvine, CA 92614
Type of Business:	Contractor
Main Activities:	Heavy Demolition, Interior Demolition, Abatement, Remediation, Power Division, Concrete Recycling, Emergency Response.

I RESPONSIBILITY

The Injury and Illness Prevention Program administrator, Matthew Suiter the authority and responsibility for implementing the provisions of this program for AMPCO.

All managers and supervisors are responsible for implementing and maintaining the IIP Program in their work areas and for answering worker questions about the IIP Program. A copy of this IIP Program is available from each manager and supervisor.

II COMPLIANCE

Management is responsible for ensuring that all safety and health policies and procedures are clearly communicated and understood by all employees. Managers and supervisors are expected to enforce the rules fairly and uniformly.

All employees are responsible for using safe work practices, for following all directives, policies and procedures, and for assisting in maintaining a safe work environment.

Our system of ensuring that all workers comply with the rules and maintain a safe work environment include:

- Informing workers of the provisions of our IIP Program;
- Evaluating the safety performance of all workers;
- Recognizing employees who perform safe and healthful work practices;
- Providing training to workers whose safety performance is deficient;
- Disciplining workers for failure to comply with safe and healthful work practices; and
- The following practices: _____
  _____
  _____

III COMMUNICATION

We recognize that open, two-way communication between management and staff on health and safety issues is essential to an injury-free, productive workplace. The following system of communication is designed to facilitate a continuous flow of safety and health information between management and staff in a form that is readily understandable and consists of one or more of the following checked items:

- New worker orientation including a discussion of safety and health policies and procedures.
- Review of our IIP Program.
- Workplace safety and health training programs.
- Regularly scheduled safety meetings.
- Effective communication of safety and health concerns between workers and supervisors, including translation where appropriate.
- Posted or distributed safety information.
- A system for workers to anonymously inform management about workplace hazards without fear of reprisal.
- Our establishment has greater than ten employees and communicates with and instructs employees orally and written about general safe work practices and with respect to hazards unique to each employee's job assignment.
- A labor/management safety and health committee that meets regularly, prepares written records of the safety and health committees meetings, reviews results of the periodic scheduled inspections, reviews investigations of accidents and exposures and makes suggestions to management for the prevention of future incidents, reviews investigations of alleged hazardous conditions, and submits recommendations to assist in the evaluation of employee safety suggestion.
- Other: _____
  _____
  _____
  _____

IV HAZARD ASSESSMENT

Periodic inspections to identify and evaluate workplace hazards shall be performed by the following competent observer(s) in the following areas of our work place

Competent Observer	Work Area
Pending	Abatement
Site Supervisor	Demolition
Site Supervisor	Earthwork
Site Supervisor	Fall Protection

Periodic inspections are performed according to the following schedule:

- Frequency:
  Daily – Trenches/Excavations/Heavy equipment/Structures/Fall Protection, etc. with use of checklist. Job Hazard Analysis utilized daily to continuously identify hazards, supervisor conducts a job site walk around with crew for each task using the JHA to ensure it is kept up to date.
  Weekly – Job site inspection with use of checklist by Supervisor & Safety Dept.
- When we initially established our IIP Program;
- When new substances, processes, procedures or equipment which present potential new hazards are introduced into our workplace;
- When new, previously unidentified hazards are recognized;
- When occupational injuries and illnesses occur;
- When we hire and/or reassign permanent or intermittent workers to processes, operations, or tasks for which a hazard evaluation has not been previously conducted; and
- Whenever workplace conditions warrant an inspection.

Prior to commencement of work (job walk with Operations Manager, Project Manager, Safety Department and Site Supervisor) identification and evaluation of workplace hazards as well as PPE for tasks utilizing applicable sections of the **AMPCO Hazard Assessment Checklist** (Checklist based on Cal/OSHA Plate A-2, Plate A-2-a, and Plate A-2-b) and any other effective methods to identify and evaluate workplace hazards.

V ACCIDENT/EXPOSURE INVESTIGATIONS

Procedures for investigating workplace accidents and hazardous substance exposures include:

- Visiting the accident scene as soon as possible;
- Interviewing injured workers and witnesses;
- Examining the workplace for factors associated with the accident/exposure;
- Determining the cause of the accident/exposure;
- Taking corrective action to prevent the accident/exposure from reoccurring; and
- Recording the findings and corrective actions taken.

VI HAZARD CORRECTION

Unsafe or unhealthy work conditions, practices or procedures shall be corrected in a timely manner based on the severity of the hazards. Hazards shall be corrected according to the following procedures:

- When observed or discovered;
- When an imminent hazard exists which cannot be immediately abated without endangering employee(s) and/or property, we will remove all exposed workers from the area except those necessary to correct the existing condition. Workers necessary to correct the hazardous condition shall be provided with the necessary protection; and
- All such actions taken and dates they are completed shall be documented on the
- appropriate forms.

VII TRAINING and INSTRUCTION

All workers, including managers and supervisors, shall have training and instruction on general and job-specific safety and health practices. Training and instruction shall be provided as follows:

- When the IIP Program is first established;
- To all new workers, except for construction workers who are provided training through a
- Cal/OSHA approved construction industry occupational safety and health training program;
- To all workers given new job assignments for which training has not been previously provided;
- Whenever new substances, processes, procedures or equipment are introduced to the workplace and represent a new hazard;
- Whenever the employer is made aware of a new or previously unrecognized hazard;
- To supervisors to familiarize them with the safety and health hazards to which workers under their immediate direction and control may be exposed; and
- To all workers with respect to hazards specific to each employee's job assignment.

Workplace safety and health practices for all industries include, but are not limited to, the following:

- Explanation of the employer's IIP Program, emergency action plan and fire prevention plan, and measures for reporting any unsafe conditions, work practices, injuries and when additional instruction is needed.

- Use of appropriate clothing, including gloves, footwear, and personal protective equipment.
- Information about chemical hazards to which employees could be exposed and other hazard communication program information.
- Availability of toilet, hand-washing and drinking water facilities.

- Provisions for medical services and first aid including emergency procedures.

In addition, we provide specific instructions to all workers regarding hazards unique to their job assignment, to the extent that such information was not already covered in other training.

VIII RECORDKEEPING

Category 1. Our establishment is on a designated high hazard industry list. We have taken the following steps to implement and maintain our IIP Program:

Records of hazard assessment inspections, including the person(s) or persons conducting the inspection, the unsafe conditions and work practices that have been identified and the action taken to correct the identified unsafe conditions and work practices, are recorded on a hazard assessment and correction form; and

Documentation of safety and health training for each worker, including the worker's name or other identifier, training dates, type(s) of training, and training providers are recorded on a worker training and instruction form. We also include the records relating to worker training provided by a construction industry occupational safety and health program approved by Cal/OSHA.

Inspection records and training documentation will be maintained according to the following checked schedule:

For one year, except for training records of employees who have worked for less than one year which are provided to the worker upon termination of employment.

LIST OF TRAINING SUBJECTS

We train our workers about the following training subjects:

The employer's Code of Safe Practices.
Confined spaces.
Safe practices for operating any heavy equipment.
Good housekeeping, fire prevention, safe practices for operating any construction equipment.
Safe procedures for cleaning, repairing, servicing and adjusting equipment and machinery.
Safe access to working areas.
Protection from falls.
Electrical hazards, including working around high voltage lines.
Crane operations.
Trenching and excavation work.
Proper use of powered tools.
Guarding of belts and pulleys, gears and sprockets, and conveyor nip points.
Machine, machine parts, and prime movers guarding.
Lock-out/tag-out procedures.
Materials handling.
Chainsaw and other power tool operation.
Tree falling/bucking procedures and precautions, including procedures for recognizing and working with hazard trees, snags, lodged trees, and unsafe weather conditions.
Landing and loading areas, including release of rigging, landing layout, moving vehicles and equipment, and log truck locating, loading and wrapping.
Fall protection from elevated locations.
Use of elevated platforms, including boom and scissor lifts.
Safe use of explosives.

Driver safety.
Slips, falls, and back injuries.
Ergonomic hazards, including proper lifting techniques and working on ladders or in a stooping posture for prolonged periods at one time.
Personal protective equipment.
Respiratory Equipment.
Hazardous chemical exposures.
Hazard communication.
Physical hazards, such as heat/cold stress, noise, and ionizing and non-ionizing radiation.
Blood-borne pathogens and other biological hazards.
Asbestos/Lead/Mold Abatement.
Earthwork operations.
Soil remediation.
Interior demolition.
Emergency response.
Heavy equipment operations.
Industrial truck operation and use.
Other job-specific hazards, such as _____
_____
_____
_____

HAZARD ASSESSMENT CHECKLIST

GENERAL WORK ENVIRONMENT

•Are all worksites clean and orderly?
•Are work surfaces kept dry or appropriate means taken to assure the surfaces are slip-resistant?
•Are all spilled materials or liquids cleaned up immediately?
•Is combustible scrap, debris and waste stored safely and removed from the worksite promptly?
•Are all oil and gas fired devices equipped with flame failure controls that will prevent flow of fuel if pilots or main burners are not working?
•Are the minimum number of toilets and washing facilities provided?
•Are all toilets and washing facilities clean and sanitary?
•Are all work areas adequately illuminated?
•Are pits and floor openings covered or otherwise guarded?

PERSONAL PROTECTIVE EQUIPMENT & CLOTHING

•Are protective goggles or face shields provided and worn where there is any danger of flying particles or corrosive materials?
•Are approved safety glasses required to be worn at all times in areas where there is a risk of eye injuries such as punctures, abrasions, contusions or burns?
•Are employees who need corrective lenses (glasses or contacts lenses) in working environments with harmful exposures, required to wear only approved safety glasses, protective goggles, or use other medically approved precautionary procedures?
•Are protective gloves, aprons, shields, or other means provided against cuts, corrosive liquids and chemicals?
•Are hard hats provided and worn where danger of falling objects exists?
•Are hard hats inspected periodically for damage to the shell and suspension system?
•Is appropriate foot protection required where there is the risk of foot injuries from hot, corrosive, poisonous substances, falling objects, crushing or penetrating actions?
•Are approved respirators provided for regular or emergency use where needed?
•Is all protective equipment maintained in a sanitary condition and ready for use?
•Do you have eye wash facilities and a quick drench shower within the work area where employees are exposed to injurious corrosive materials?
•Where special equipment is needed for electrical workers, is it available?
•When lunches are eaten on the premises, are they eaten in areas where there is no exposure to toxic materials or other health hazards?
•Is protection against the effects of occupational noise exposure provided when sound levels exceed those of the Cal/OSHA noise standard?

WALKWAYS

•Are aisles and passageways kept clear?
•Are aisles and walkways marked as appropriate?
•Are wet surfaces covered with non-slip materials?
•Are holes in the floor, sidewalk or other walking surface repaired properly, covered or otherwise made safe?
•Is there safe clearance for walking in aisles where motorized or mechanical handling equipment is operating.
•Are spilled materials cleaned up immediately?
•Are materials or equipment stored in such a way that sharp projectiles will not interfere with the walkway?
•Are changes of direction or elevations readily identifiable?
•Are aisles or walkways that pass near moving or operating machinery, welding operations or similar operations arranged so employees will not be subjected to potential hazards?
•Is adequate headroom provided for the entire length of any aisle or walkway?
•Are standard guardrails provided wherever aisle or walkway surfaces are elevated more than 30 inches above any adjacent floor or the ground?

FLOOR & WALL OPENINGS

•Are floor openings guarded by a cover, guardrail, or equivalent on all sides (except at entrance to stairways or ladders)?
•Are toe-boards installed around the edges of a permanent floor opening (where persons may pass below the opening)?
•Are skylight screens of such construction and mounting that they will withstand a load of at least 200 pounds?
•Is the glass in windows, doors, glass walls that are subject to human impact, of sufficient thickness and type for the condition of use?
•Are grates or similar type covers over floor openings such as floor drains, of such design that foot traffic or rolling equipment will not be affected by the grate spacing?
•Are unused portions of service pits and pits not actually in use either covered or protected by guardrails or equivalent?
•Are manhole covers, trench covers and similar covers, plus their supports, designed to carry a truck rear axle load of at least 20,000 pounds when located in roadways and subject to vehicle traffic?
•Are floor or wall openings in fire resistive construction provided with doors or covers compatible with the fire rating of the structure and provided with self-closing feature when appropriate?

STAIRS & STAIRWAYS

•Are standard stair rails or handrails on all stairways having four or more risers?
•Are all stairways at least 22 inches wide?
•Do stairs have at least a 6'6" (78”) overhead clearance?
•Do stairs angle no more than 50 and no less than 30 degrees?
•Are stairs of hollow-pan type treads and landings filled to noising level with solid material?
•Are step risers on stairs uniform from top to bottom, with no riser spacing greater than 7-1/2 inches?
•Are steps on stairs and stairways designed or provided with a surface that renders them slip resistant?
•Are stairway handrails located between 30 and 34 inches above the leading edge of stair treads?
•Do stairway handrails have a least 1-1/2 inches of clearance between the handrails and the wall or surface they are mounted on?
•Are stairway handrails capable of withstanding a load of 200 pounds, applied in any direction?
•Where stairs or stairways exit directly into any area where vehicles may be operated, are adequate barriers and warnings provided to prevent employees stepping into the path of traffic?
•Do stairway landings have a dimension measured in the direction of travel, at least equal to width of the stairway?
•Is the vertical distance between stairway landings limited to 12 feet or less?

ELEVATED SURFACES

•Are signs posted, when appropriate, showing the elevated surface load capacity?
•Are surfaces elevated more than 30 inches above the floor or ground provided with standard guardrails?
•Are all elevated surfaces (beneath which people or machinery could be exposed to falling objects) provided with standard 4-inch toe-boards?
•Is a permanent means of access and egress provided to elevated storage and work surfaces?
•Is required headroom provided where necessary?
•Is material on elevated surfaces piled, stacked or racked in a manner to prevent it from tipping, falling, collapsing, rolling or spreading?

EXITING OR EGRESS

•Are all exits marked with an exit sign and illuminated by a reliable light source?
•Are the directions to exits, when not immediately apparent, marked with visible signs?
•Are doors, passageways or stairways, that are neither exits nor access to exits and which could be mistaken for exits, appropriately marked "NOT AN EXIT", "TO BASEMENT", "STOREROOM", and the like?
•Are exit signs provided with the word "EXIT" in lettering at least 5 inches high and the stroke of the lettering at least 1/2 inch wide?
•Are exit doors side-hinged?
•Are all exits kept free of obstructions?
•Are at least two means of egress provided from elevated platforms, pits or rooms where the absence of a second exit would increase the risk of injury from hot, poisonous, corrosive, suffocating, flammable, or explosive substances?
•Are there sufficient exits to permit prompt escape in case of emergency?
•Are special precautions taken to protect employees during construction and repair operations?
•Is the number of exits from each floor of a building, and the number of exits from the building itself, appropriate for the building occupancy load?
•Are exit stairways which are required to be separated from other parts of a building enclosed by at least two hour fire-resistive construction in buildings more than four stories in height, and not less than one-hour fire resistive construction elsewhere?
•When ramps are used as part of required exiting from a building, is the ramp slope limited to 1- foot vertical and 12 feet horizontal?
•Where exiting will be through frameless glass doors, glass exit doors, storm doors, and such are the doors fully tempered and meet the safety requirements for human impact?

EXIT DOORS

•Are doors that are required to serve as exits designed and constructed so that the way of exit travel is obvious and direct?
•Are windows that could be mistaken for exit doors, made inaccessible by means of barriers or railings?
•Are exit doors openable from the direction of exit travel without the use of a key or any special knowledge or effort, when the building is occupied?
•Is a revolving, sliding or overhead door prohibited from serving as a required exit door?
•Where panic hardware is installed on a required exit door, will it allow the door to open by applying a force of 15 pounds or less in the direction of the exit traffic?
•Are doors on cold storage rooms provided with an inside release mechanism that will release the latch and open the door even if it's padlocked or otherwise locked on the outside?
•Where exit doors open directly onto any street, alley or other area where vehicles may be operated, are adequate barriers and warnings provided to prevent employees stepping into the path of traffic?
•Are doors that swing in both directions and are located between rooms where there is frequent traffic, provided with viewing panels in each door?

PORTABLE LADDERS

•Are all ladders maintained in good condition, joints between steps and side rails tight, all hardware and fittings securely attached, and moveable parts operating freely without binding or undue play?
•Are non-slip safety feet provided on each ladder?
•Are non-slip safety feet provided on each metal or rung ladder?
•Are ladder rungs and steps free of grease and oil?
•Is it prohibited to place a ladder in front of doors opening toward the ladder except when the door is blocked open, locked or guarded?
•Is it prohibited to place ladders on boxes, barrels, or other unstable bases to obtain additional height?
•Are employees instructed to face the ladder when ascending or descending?
•Are employees prohibited from using ladders that are broken, missing steps, rungs, or cleats, broken side rails or other faulty equipment?
•Are employees instructed not to use the top 2 steps of ordinary stepladders as a step?
•When portable rung ladders are used to gain access to elevated platforms, roofs, and the like does the ladder always extend at least 3 feet above the elevated surface?
•Is it required that when portable rung or cleat type ladders are used the base is so placed that slipping will not occur, or it is lashed or otherwise held in place?

•Are portable metal ladders legibly marked with signs reading "CAUTION" "Do Not Use Around Electrical Equipment" or equivalent wording?
•Are employees prohibited from using ladders as guys, braces, skids, gin poles, or for other than their intended purposes?
•Are employees instructed to only adjust extension ladders while standing at a base (not while standing on the ladder or from a position above the ladder)?
•Are metal ladders inspected for damage?
•Are the rungs of ladders uniformly spaced at 12 inches, center to center?

HAND TOOLS & EQUIPMENT

•Are all tools and equipment (both, company and employee-owned) used by employees at their workplace in good condition?
•Are hand tools such as chisels, punches, which develop mushroomed heads during use, reconditioned or replaced as necessary?
•Are broken or fractured handles on hammers, axes and similar equipment replaced promptly?
•Are worn or bent wrenches replaced regularly?
•Are appropriate handles used on files and similar tools?
•Are employees made aware of the hazards caused by faulty or improperly used hand tools?
•Are appropriate safety glasses, face shields, and similar equipment used while using hand tools or equipment that might produce flying materials or be subject to breakage?
•Are jacks checked periodically to assure they are in good operating condition?
•Are tool handles wedged tightly in the head of all tools?
•Are tool cutting edges kept sharp so the tool will move smoothly without binding or skipping?
•Are tools stored in dry, secure location where they won't be tampered with?
•Is eye and face protection used when driving hardened or tempered spuds or nails?

PORTABLE (POWER OPERATED) TOOLS & EQUIPMENT

•Are grinders, saws, and similar equipment provided with appropriate safety guards?
•Are power tools used with the correct shield, guard or attachment recommended by the manufacturer?
•Are portable circular saws equipped with guards above and below the base shoe?
•Are circular saw guards checked to assure they are not wedged up, thus leaving the lower portion of the blade unguarded?
•Are rotating or moving parts of equipment guarded to prevent physical contact?
•Are all cord-connected, electrically operated tools and equipment effectively grounded or of the approved double insulated type?
•Are effective guards in place over belts, pulleys, chains, and sprockets, on equipment such as concrete mixers, air compressors, and the like?
•Are portable fans provided with full guards or screens having openings 1/2 inch or less?
•Is hoisting equipment available and used for lifting heavy objects, and are hoist ratings and characteristics appropriate for the task?
•Are ground-fault circuit interrupters provided on all temporary electrical 15 and 20 ampere circuits, used during periods of construction?
•Are pneumatic and hydraulic hoses on power-operated tools checked regularly for deterioration or damage?

ABRASIVE WHEEL EQUIPMENT GRINDERS

•Is the work rest used and kept adjusted to within 1/8 inch of the wheel?
•Is the adjustable tongue on the top side of the grinder used and kept adjusted to within 1/4 inch of the wheel?
•Do side guards cover the spindle, nut, and flange and 75 percent of the wheel diameter?
•Are bench and pedestal grinders permanently mounted?
•Are goggles or face shields always worn when grinding?
•Is the maximum RPM rating of each abrasive wheel compatible with the RPM rating of the grinder motor?
•Are fixed or permanently mounted grinders connected to their electrical supply system with metallic conduit or other permanent wiring method?
•Does each grinder have an individual on and off control switch?
•Is each electrically operated grinder effectively grounded?
•Before new abrasive wheels are mounted, are they visually inspected and ring tested?
•Are dust collectors and powered exhausts provided on grinders used in operations that produce large amounts of dust?
•Is cleanliness maintained around grinder?

POWDER ACTUATED TOOLS

•Are employees who operate powder-actuated tools trained in their use and carry a valid operator's card?
•Do the powder-actuated tools being used have written approval of the Division of Occupational Safety and Health?
•Is each powder-actuated tool stored in its own locked container when not being used?
•Is a sign at least 7" by 10" with bold type reading "POWDER-ACTUATED TOOL IN USE" conspicuously posted when the tool is being used?
•Are powder-actuated tools left unloaded until they are actually ready to be used?
•Are powder-actuated tools inspected for obstructions or defects each day before use?
•Do powder-actuated tools operators have and use appropriate personal protective equipment such as hard hats, safety goggles, face-shields, safety shoes and ear protectors?

MACHINE GUARDING

•Is there a training program to instruct employees on safe methods of machine operation?
•Is there adequate supervision to ensure that employees are following safe machine operating procedures?
•Is there a regular program of safety inspection of machinery and equipment?
•Is all machinery and equipment kept clean and properly maintained?
•Is sufficient clearance provided around and between machines to allow for safe operations, set up and servicing, material handling and waste removal?
•Is equipment and machinery securely placed and anchored, when necessary to prevent tipping or other movement that could result in personal injury?
•Is there a power shut-off switch within reach of the operator's position at each machine?
•Can electric power to each machine be locked out for maintenance, repair, or security?
•Are the noncurrent-carrying metal parts of electrically operated machines bonded and grounded?
•Are foot-operated switches guarded or arranged to prevent accidental actuation by personnel or falling objects?
•Are manually operated valves and switches controlling the operation of equipment and machines clearly identified and readily accessible?
•Are all emergency stop buttons colored red?
•Are all pulleys and belts that are within 7 feet of the floor or working level properly guarded?
•Are all moving chains and gears properly guarded?
•Are splashguards mounted on machines that use coolant, to prevent the coolant from reaching employees?
•Are methods provided to protect the operator and other employees in the machine area from hazards created at the point of operation, ingoing nip points, rotating parts, flying chips, and sparks?
•Are machinery guards secure and so arranged that they do not offer a hazard in their use?
•If special hand tools are used for placing and removing material, do they protect the operator's hands?
•Are revolving drums, barrels, and containers required to be guarded by an enclosure that is interlocked with the drive mechanism, so that revolution cannot occur unless the guard enclosure is in place, so guarded?
•Do arbors and mandrels have firm and secure bearings and are they free from play?
•Are provisions made to prevent machines from automatically starting when power is restored after a power failure or shutdown?
•Are machines constructed so as to be free from excessive vibration when the largest size tool is mounted and run at full speed?
•If machinery is cleaned with compressed air, is air pressure controlled and personal protective equipment or other safeguards used to protect operators and other workers from eye and body injury?
•Are fan blades protected with a guard having openings no larger than 1/2 inch, when operating within 7 feet of the floor?
•Are saws used for ripping, equipped with anti-kick-back devices and spreaders?
•Are radial arm saws so arranged that the cutting head will gently return to the back of the table when released?

LOCKOUT BLOCKOUT PROCEDURES

• Is all machinery or equipment capable of movement, required to be de-energized or disengaged and blocked or locked out during cleaning, servicing, adjusting or setting up operations, whenever required?
•Is the locking-out of control circuits in lieu of locking-out main power disconnects prohibited?
•Are all equipment control valve handles provided with a means for locking-out?
•Does the lockout procedure require that stored energy (i.e. mechanical, hydraulic, air,) be released or blocked before equipment is locked-out for repairs?
•Are appropriate employees provided with individually keyed personal safety locks?
•Are employees required to keep personal control of their key(s) while they have safety locks in use?
•Is it required that employees check the safety of the lock out by attempting a start up after making sure no one is exposed?
•Where the power disconnecting means for equipment does not also disconnect the electrical control circuit:
•Are the appropriate electrical enclosures identified?

•Is means provide to assure the control circuit can also be disconnected and locked out?

WELDING, CUTTING & BRAZING

•Are only authorized and trained personnel permitted to use welding, cutting or brazing equipment?
•Do all operator have a copy of the appropriate operating instructions and are they directed to follow them?
•Are compressed gas cylinders regularly examined for obvious signs of defects, deep rusting, or leakage?
•Is care used in handling and storage of cylinders, safety valves, relief valves, and the like, to prevent damage?
•Are precautions taken to prevent the mixture of air or oxygen with flammable gases, except at a burner or in a standard torch?
•Are only approved apparatus (torches, regulators, pressure-reducing valves, acetylene generators, manifolds) used?
•Are cylinders kept away from sources of heat?
•Is it prohibited to use cylinders as rollers or supports?
•Are empty cylinders appropriately marked their valves closed and valve-protection caps on?
•Are signs reading: DANGER NO-SMOKING, MATCHES, OR OPEN LIGHTS, or the equivalent posted?
•Are cylinders, cylinder valves, couplings, regulators, hoses, and apparatus keep free of oily or greasy substances?
•Is care taken not to drop or strike cylinders?
•Unless secured on special trucks, are regulators removed and valve-protection caps put in place before moving cylinders?
•Do cylinders without fixed hand wheels have keys, handles, or non-adjustable wrenches on stem valves when in service?
•Are liquefied gases stored and shipped valve-end up with valve covers in place?
•Are employees instructed to never crack a fuel-gas cylinder valve near sources of ignition?
•Before a regulator is removed, is the valve closed and gas released from the regulator?
•Is red used to identify the acetylene (and other fuel-gas) hose, green for oxygen hose, and black for inert gas and air hose?
•Are pressure-reducing regulators used only for the gas and pressures for which they are intended?
•Is open circuit (No Load) voltage of arc welding and cutting machines as low as possible and not in excess of the recommended limits?
•Under wet conditions, are automatic controls for reducing no-load voltage used?
•Is grounding of the machine frame and safety ground connections of portable machines checked periodically?
•Are electrodes removed from the holders when not in use?
•Is it required that electric power to the welder be shut off when no one is in attendance?
•Is suitable fire extinguishing equipment available for immediate use?
•Is the welder forbidden to coil or loop welding electrode cable around his body?
•Are wet machines thoroughly dried and tested before being used?
•Are work and electrode lead cables frequently inspected for wear and damage, and replaced when needed?
•Do means for connecting cables' lengths have adequate insulation?
•When the object to be welded cannot be moved and fire hazards cannot be removed, are shields used to confine heat, sparks, and slag?
•Are firewatchers assigned when welding or cutting is performed, in locations where a serious fire might develop?
•Are combustible floors kept wet, covered by damp sand, or protected by fire-resistant shields?
•When floors are wet down, are personnel protected from possible electrical shock?
•When welding is done on metal walls, are precautions taken to protect combustibles on the other side?
•Before hot work is begun, are used drums, barrels, tanks, and other containers so thoroughly cleaned that no substances remain that could explode, ignite, or produce toxic vapors?
•Is it required that eye protection helmets, hand shields and goggles meet appropriate standards?
•Are employees exposed to the hazards created by welding, cutting, or bracing operations protected with personal protective equipment and clothing?
•Is a check made for adequate ventilation in and where welding or cutting is preformed?
•When working in confined places are environmental monitoring tests taken and means provided for quick removal of welders in case of an emergency?

COMPRESSORS & COMPRESSED AIR

•Are compressors equipped with pressure relief valves, and pressure gauges?
•Are compressor air intakes installed and equipped to ensure that only clean uncontaminated air enters the compressor?
•Are air filters installed on the compressor intake?
•Are compressors operated and lubricated in accordance with the manufacturer's recommendations?
•Are safety devices on compressed air systems checked frequently?
•Before any repair work is done on the pressure system of a compressor, is the pressure bled off and the system locked-out?
•Are signs posted to warn of the automatic starting feature of the compressors?

•Is the belt drive system totally enclosed to provide protection for the front, back, top, and sides?
•Is it strictly prohibited to direct compressed air towards a person?
•Are employees prohibited from using highly compressed air for cleaning purposes?
•If compressed air is used for cleaning off clothing, is the pressure reduced to less than 10 psi?
•When using compressed air for cleaning, do employees use personal protective equipment?
•Are safety chains or other suitable locking devices used at couplings of high pressure hose lines where a connection failure would create a hazard?
•Before compressed air is used to empty containers of liquid, is the safe working pressure of the container checked?
•When compressed air is used with abrasive blast cleaning equipment, is the operating valve a type that must be held open manually?
•When compressed air is used to inflate auto tires, is a clip-on chuck and an inline regulator preset to 40 psi required?
•Is it prohibited to use compressed air to clean up or move combustible dust if such action could cause the dust to be suspended in the air and cause a fire or explosion hazard?

COMPRESSED AIR RECEIVERS

•Is every receiver equipped with a pressure gauge and with one or more automatic, spring-loaded safety valves?
•Is the total relieving capacity of the safety valve capable of preventing pressure in the receiver from exceeding the maximum allowable working pressure of the receiver by more than 10 percent?
•Is every air receiver provided with a drainpipe and valve at the lowest point for the removal of accumulated oil and water?
•Are compressed air receivers periodically drained of moisture and oil?
•Are all safety valves tested frequently and at regular intervals to determine whether they are in good operating condition?
•Is there a current operating permit issued by the Division of Occupational Safety and Health?
•Is the inlet of air receivers and piping systems kept free of accumulated oil and carbonaceous materials?

COMPRESSED GAS & CYLINDERS

•Are cylinders with a water weight capacity over 30 pounds equipped with means for connecting a valve protector device, or with a collar or recess to protect the valve?
•Are cylinders legibly marked to clearly identify the gas contained?
•Are compressed gas cylinders stored in areas which are protected from external heat sources such as flame impingement, intense radiant heat, electric arcs, or high temperature lines?
•Are cylinders located or stored in areas where they will not be damaged by passing or falling objects, or subject to tampering by unauthorized persons?
•Are cylinders stored or transported in a manner to prevent them creating a hazard by tipping, falling or rolling?
•Are cylinders containing liquefied fuel gas, stored or transported in a position so that the safety relief device is always in direct contact with the vapor space in the cylinder?
•Are valve protectors always placed on cylinders when the cylinders are not in use or connected for use?
•Are all valves closed off before a cylinder is moved, when the cylinder is empty, and at the completion of each job?
•Are low pressure fuel-gas cylinders checked periodically for corrosion, general distortion, cracks, or any other defect that might indicate a weakness or render it unfit for service?
•Does the periodic check of low pressure fuel-gas cylinders include a close inspection of the cylinders' bottom?

INDUSTRIAL TRUCKS - FORKLIFTS

•Are only trained personnel allowed to operate industrial trucks?
•Is substantial overhead protective equipment provided on high lift rider equipment?
•Are the required lift truck operating rules posted and enforced?
•Is directional lighting provided on each industrial truck that operates in an area with less than 2 foot candles per square foot of general lighting?
•Does each industrial truck have a warning horn, whistle, gong or other device which can be clearly heard above the normal noise in the areas where operated?
•Are the brakes on each industrial truck capable of bringing the vehicle to a complete and safe stop when fully loaded?
•Will the industrial truck's parking brake effectively prevent the vehicle from moving when unattended?
•Are industrial trucks operating in areas where flammable gases or vapors, or combustible dust or ignitable fibers may be present in the atmosphere, approved for such locations?
•Are motorized hand and hand/rider trucks so designed that the brakes are applied, and power to the drive motor shuts off when the operator releases his/her grip on the device that controls the travel?

•Are industrial trucks with internal combustion engine operated in buildings or enclosed areas, carefully checked to ensure such operations do not cause harmful concentration of dangerous gases or fumes?

ENTERING CONFINED SPACES

•Are confined spaces thoroughly emptied of any corrosive or hazardous substances, such as acids or caustics, before entry?
•Before entry, are all lines to a confined space, containing inert, toxic, flammable, or corrosive materials valved off and blanked or disconnected and separated?
•Is it required that all impellers, agitators, or other moving equipment inside confined spaces be locked-out if they present a hazard?
•Is either natural or mechanical ventilation provided prior to confined space entry?
•Before entry, are appropriate atmospheric tests performed to check for oxygen deficiency, toxic substance and explosive concentrations in the confined space before entry?
•Is adequate illumination provided for the work to be performed in the confined space?
•Is the atmosphere inside the confined space frequently tested or continuously monitor during conduct of work?
•Is there an assigned safety standby employee outside of the confined space, whose sole responsibility is to watch the work in progress, sound an alarm if necessary, and render assistance?
•Is the standby employee or other employees prohibited from entering the confined space without lifelines and respiratory equipment if there is any questions as to the cause of an emergency?
•In addition to the standby employee, is there at least one other trained rescuer in the vicinity?
•Are all rescuers appropriately trained and using approved, recently inspected equipment?
•Does all rescue equipment allow for lifting employees vertically from a top opening?
•Are there trained personnel in First Aid and CPR immediately available?
•Is there an effective communication system in place whenever respiratory equipment is used and the employee in the confined space is out of sight of the standby person?
•Is approved respiratory equipment required if the atmosphere inside the confined space cannot be made acceptable?
•Is all portable electrical equipment used inside confined spaces either grounded and insulated, or equipped with ground fault protection?
•Before gas welding or burning is started in a confined space, are hoses checked for leaks, compressed gas bottles forbidden inside of the confined space, torches lighted only outside of the confined area and the confined area tested for an explosive atmosphere each time before a lighted torch is to be taken into the confined space?
•If employees will be using oxygen-consuming equipment such as salamanders, torches, furnaces, in a confined space, is sufficient air provided to assure combustion without reducing the oxygen concentration of the atmosphere below 19.5 percent by volume?
•Whenever combustion-type equipment is used in confined space, are provisions made to ensure the exhaust gases are vented outside of the enclosure?
•Is each confined space checked for decaying vegetation or animal matter, which may produce methane?
•Is the confined space checked for possible industrial waste, which could contain toxic properties?
•If the confined space is below the ground and near areas where motor vehicles will be operating, is it possible for vehicle exhaust or carbon monoxide to enter the space?

ENVIRONMENTAL CONTROLS

•Are all work areas properly illuminated?
•Are employees instructed in proper first aid and other emergency procedures?
•Are hazardous substances identified which may cause harm by inhalation, ingestion, skin absorption or contact?
•Are employees aware of the hazards involved with the various chemicals they may be exposed to in their work environment, such as ammonia, chlorine, epoxies, and caustics?
•Is employee exposure to chemicals in the workplace kept within acceptable levels?
•Can a less harmful method or product be used?
•Is the work area's ventilation system appropriate for the work being performed?
•Are spray painting operations done in spray rooms or booths equipped with an appropriate exhaust system?
•Is employee exposure to welding fumes controlled by ventilation, use of respirators, exposure time, or other means?
•Are welders and other workers nearby provided with flash shields during welding operations?
•If forklifts and other vehicles are used in buildings or other enclosed areas, are the carbon monoxide levels kept below maximum acceptable concentration?
•Has there been a determination that noise levels in the facilities are within acceptable levels?
•Are steps being taken to use engineering controls to reduce excessive noise levels?

•Are proper precautions being taken when handling asbestos and other fibrous materials?
•Are caution labels and signs used to warn of asbestos?
•Are wet methods used, when practicable, to prevent the emission of airborne asbestos fibers, silica dust and similar hazardous materials?
•Is vacuuming with appropriate equipment used whenever possible rather than blowing or sweeping dust?
•Are grinders, saws, and other machines that produce respirable dusts vented to an industrial collector or central exhaust system?
•Are all local exhaust ventilation systems designed and operating properly such as airflow and volume necessary for the application? Are the ducts free of obstructions or the belts slipping?
•Is personal protective equipment provided, used and maintained wherever required?
•Are there written standard operating procedures for the selection and use of respirators where needed?
•Are restrooms and washrooms kept clean and sanitary?
•Is all water provided for drinking, washing, and cooking potable?
•Are all outlets for water not suitable for drinking clearly identified?
•Are employees' physical capacities assessed before being assigned to jobs requiring heavy work?
•Are employees instructed in the proper manner of lifting heavy objects?
•Where heat is a problem, have all fixed work areas been provided with spot cooling or air conditioning?
•Are employees screened before assignment to areas of high heat to determine if their health condition might make them more susceptible to having an adverse reaction?
•Are employees working on streets and roadways where they are exposed to the hazards of traffic, required to wear bright colored (traffic orange) warning vest?
•Are exhaust stacks and air intakes located that contaminated air will not be recirculated within a building or other enclosed area?
•Is equipment producing ultra-violet radiation properly shielded?

FLAMMABLE & COMBUSTIBLE MATERIALS

•Are combustible scrap, debris and waste materials (i.e. oily rags) stored in covered metal receptacles and removed from the worksite promptly?
•Is proper storage practiced to minimize the risk of fire including spontaneous combustion?
•Are approved containers and tanks used for the storage and handling of flammable and combustible liquids?
•Are all connections on drums and combustible liquid piping, vapor and liquid tight?
•Are all flammable liquids kept in closed containers when not in use (e.g. parts cleaning tanks, pans)?
•Are bulk drums of flammable liquids grounded and bonded to containers during dispensing?
•Do storage rooms for flammable and combustible liquids have explosion-proof lights?
•Do storage rooms for flammable and combustible liquids have mechanical or gravity ventilation?
•Is liquefied petroleum gas stored, handled, and used in accordance with safe practices and standards?
•Are liquefied petroleum storage tanks guarded to prevent damage from vehicles?
•Are all solvent wastes and flammable liquids kept in fire-resistant covered containers until they are removed from the worksite?
•Is vacuuming used whenever possible rather than blowing or sweeping combustible dust?
•Are fire separators placed between containers of combustibles or flammables, when stacked one upon another, to assure their support and stability?
•Are fuel gas cylinders and oxygen cylinders separated by distance, fire resistant barriers or other means while in storage?
•Are fire extinguishers selected and provided for the types of materials in areas where they are to be used?
•Class A: Ordinary combustible material fires.
•Class B: Flammable liquid, gas or grease fires.
•Class C: Energized-electrical equipment fires.
•If a Halon 1301 fire extinguisher is used, can employees evacuate within the specified time for that extinguisher?
•Are appropriate fire extinguishers mounted within 75 feet of outside areas containing flammable liquids, and within 10 feet of any inside storage area for such materials?
•Is the transfer/withdrawal of flammable or combustible liquids performed by trained personnel?
•Are fire extinguishers mounted so that employees do not have to travel more than 75 feet for a class "A" fire or 50 feet for a class "B" fire?
•Are employees trained in the use of fire extinguishers?
•Are extinguishers free from obstructions or blockage?
•Are all extinguishers serviced, maintained and tagged at intervals not to exceed one year?
•Are all extinguishers fully charged and in their designated places?

•Is a record maintained of required monthly checks of extinguishers?
•Where sprinkler systems are permanently installed, are the nozzle heads directed or arranged so that water will not be sprayed into operating electrical switchboards and equipment?
•Are "NO SMOKING" signs posted where appropriate in areas where flammable or combustible materials are used or stored?
•Are "NO SMOKING" signs posted on liquefied petroleum gas tanks?
•Are "NO SMOKING" rules enforced in areas involving storage and use of flammable materials?
•Are safety cans used for dispensing flammable or combustible liquids at a point of use?
•Are all spills of flammable or combustible liquids cleaned up promptly?
•Are storage tanks adequately vented to prevent the development of excessive vacuum or pressure as a result of filling, emptying, or atmosphere temperature changes?
•Are storage tanks equipped with emergency venting that will relieve excessive internal pressure caused by fire exposure?
•Are spare portable or butane tanks, which are sued by industrial trucks stored in accord with regulations?

FIRE PROTECTION

•Do you have a fire prevention plan?
•Does your plan describe the type of fire protection equipment and/or systems?
•Have you established practices and procedures to control potential fire hazards and ignition sources?
•Are employees aware of the fire hazards of the material and processes to which they are exposed?
•Is your local fire department well acquainted with your facilities, location and specific hazards?
•If you have a fire alarm system, is it tested at least annually?
•If you have a fire alarm system, is it certified as required?
•If you have interior standpipes and valves, are they inspected regularly?
•If you have outside private fire hydrants, are they flushed at least once a year and on a routine preventive maintenance schedule?
•Are fire doors and shutters in good operating condition?
•Are fire doors and shutters unobstructed and protected against obstructions, including their counterweights?
•Are fire door and shutter fusible links in place?
•Are automatic sprinkler system water control valves, air and water pressures checked weekly/periodically as required?
•Is maintenance of automatic sprinkler system assigned to responsible persons or to a sprinkler contractor?
•Are sprinkler heads protected by metal guards, when exposed to physical damage? •Is proper clearance maintained below sprinkler heads?
•Are portable fire extinguishers provided in adequate number and type?
•Are fire extinguishers mounted in readily accessible locations?
•Are fire extinguishers recharged regularly and noted on the inspection tag?
•Are employees periodically instructed in the use of extinguishers and fire protection procedures?

HAZARDOUS CHEMICAL EXPOSURES

•Are employees trained in the safe handling practices of hazardous chemicals such as acids, caustics, and the like?
•Are employees aware of the potential hazards involving various chemicals stored or used in the workplace--such as acids, bases, caustics, epoxies, and phenols?
•Is employee exposure to chemicals kept within acceptable levels?
•Are eye wash fountains and safety showers provided in areas where corrosive chemicals are handled?
•Are all containers, such as vats and storage tanks labeled as to their contents--e.g. "CAUSTICS"?
•Are all employees required to use personal protective clothing and equipment when handling chemicals (i.e. gloves, eye protection, and respirators)?
•Are flammable or toxic chemicals kept in closed containers when not in use?
•Are chemical piping systems clearly marked as to their content?
•Where corrosive liquids are frequently handled in open containers or drawn from storage vessels or pipelines, is adequate means readily available for neutralizing or disposing of spills or overflows properly and safely?
•Have standard operating procedures been established and are they being followed when cleaning up chemical spills?
•Where needed for emergency use, are respirators stored in a convenient, clean and sanitary location?
•Are respirators intended for emergency use adequate for the various uses for which they may be needed?
•Are employees prohibited from eating in areas where hazardous chemicals are present?
•Is personal protective equipment provided, used and maintained whenever necessary?
•Are there written standard operating procedures for the selection and use of respirators where needed?

•If you have a respirator protection program, are your employees instructed on the correct usage and limitations of the respirators?
•Are the respirators NIOSH approved for this particular application?
•Are they regularly inspected and cleaned sanitized and maintained?
•If hazardous substances are used in your processes, do you have a medical or biological monitoring system in operation?
•Are you familiar with the Threshold Limit Values or Permissible Exposure Limits of airborne contaminants and physical agents used in your workplace?
•Have control procedures been instituted for hazardous materials, where appropriate, such as respirators, ventilation systems, handling practices, and the like?
•Whenever possible, are hazardous substances handled in properly designed and exhausted booths or similar locations?
•Do you use general dilution or local exhaust ventilation systems to control dusts, vapors, gases, fumes, smoke, solvents or mists which may be generated in your workplace?
•Is ventilation equipment provided for removal of contaminants from such operations as production grinding, buffing, spray painting, and/or vapor decreasing, and is it operating properly?
•Do employees complain about dizziness, headaches, nausea, irritation, or other factors of discomfort when they use solvents or other chemicals?
•Is there a dermatitis problem--do employees complain about skin dryness, irritation, or sensitization?
•Have you considered the use of an industrial hygienist or environmental health specialist to evaluate your operation?
•If internal combustion engines are used, is carbon monoxide kept within acceptable levels?
•Is vacuuming used, rather than blowing or sweeping dusts whenever possible for clean up?
•Are materials, which give off toxic asphyxiant, suffocating or anesthetic fumes, stored in remote or isolated locations when not in use?

HAZARDOUS SUBSTANCES COMMUNICATION

•Is there a list of hazardous substances used in your workplace?
•Is there a written hazard communication program dealing with Safety Data Sheets (SDS) labeling, and employee training?
•Who is responsible for SDSs, container labeling, employee training?
•Is each container for a hazardous substance (i.e. vats, bottles, storage tanks,) labeled with product identity and a hazard warning (communication of the specific health hazards and physical hazards)?
•Is there a Safety Data Sheet readily available for each hazardous substance used?
•How will you inform other employers whose employees share the same work area where the hazardous substances are used?
•Is there an employee training program for hazardous substances?
•Does this program include:
•An explanation of what an SDS is and how to use and obtain one?
•SDS contents for each hazardous substance or class of substances?
•Explanation of "Right to Know"?
•Identification of where employees can see the employer's written hazard communication program and where hazardous substances are present in their work area?
•The physical and health hazards of substances in the work area, how to detect their presence, and specific protective measures to be used?
•Details of the hazard communication program, including how to use the labeling system and SDSs?
•How employees will be informed of hazards of non-routine tasks, and hazards of unlabeled pipes?

ELECTRICAL

•Are your workplace electricians familiar with the Cal/OSHA Electrical Safety Orders?
•Do you specify compliance with Cal/OSHA for all contract electrical work?
•Are all employees required to report as soon as practicable any obvious hazard to life or property observed in connection with electrical equipment or lines?
•Are employees instructed to make preliminary inspections and/or appropriate tests to determine what conditions exist before starting work on electrical equipment or lines?
•When electrical equipment or lines are to be serviced, maintained or adjusted, are necessary switches opened, locked-out and tagged whenever possible?
•Are portable electrical tools and equipment grounded or of the double insulated type?
•Are electrical appliances such as vacuum cleaners, polishers, vending machines grounded?
•Do extension cords being used have a grounding conductor?
•Are multiple plug adapters prohibited?

•Are ground-fault circuit interrupters installed on each temporary 15 or 20 ampere, 120 volt AC circuit at locations where construction, demolition, modifications, alterations or excavations are being performed?
•Are all temporary circuits protected by suitable disconnecting switches or plug connectors at the junction with permanent wiring?
•Is exposed wiring and cords with frayed or deteriorated insulation repaired or replaced promptly?
•Are flexible cords and cables free of splices or taps?
•Are clamps or other securing means provided on flexible cords or cables at plugs, receptacles, tools, and equipment and is the cord jacket securely held in place?
•Are all cord, cable and raceway connections intact and secure?
•In wet or damp locations, are electrical tools and equipment appropriate for the use or location or otherwise protected?
•Is the location of electrical power lines and cables (overhead, underground, underfloor, other side of walls) determined before digging, drilling or similar work is begun?
•Are metal measuring tapes, ropes, hand-lines or similar devices with metallic thread woven into the fabric prohibited where they could come in contact with energized parts of equipment or circuit conductors?
•Is the use of metal ladders prohibited in area where the ladder or the person using the ladder could come in contact with energized parts of equipment, fixtures or circuit conductors?
•Are all disconnecting switches and circuit breakers labeled to indicate their use or equipment served?
•Are disconnecting means always opened before fuses are replaced?
•Do all interior wiring systems include provisions for grounding metal parts of electrical raceways, equipment and enclosures?
•Are all electrical raceways and enclosures securely fastened in place?
•Are all energized parts of electrical circuits and equipment guarded against accidental contact by approved cabinets or enclosures?
•Is sufficient access and working space provided and maintained about all electrical equipment to permit ready and safe operations and maintenance?
•Are all unused openings (including conduit knockouts) in electrical enclosures and fittings closed with appropriate covers, plugs or plates?
•Are electrical enclosures such as switches, receptacles, junction boxes, etc., provided with tight-fitting covers or plates?
•Are disconnecting switches for electrical motors in excess of two horsepower, capable of opening the circuit when the motor is in a stalled condition, without exploding? (Switches must be horsepower rated equal to or in excess of the motor hp rating).
•Is low voltage protection provided in the control device of motors driving machines or equipment, which could cause probably injury from inadvertent starting?
•Is each motor disconnecting switch or circuit breaker located within sight of the motor control device?
•Is each motor located within sight of its controller or the controller disconnecting means capable of being locked in the open position or is a separate disconnecting means installed in the circuit within sight of the motor?
•Is the controller for each motor in excess of two horsepower, rated in horsepower equal to or in excess of the rating of the motor is serves?
•Are employees who regularly work on or around energized electrical equipment or lines instructed in the cardiopulmonary resuscitation (CPR) methods?
•Are employees prohibited from working alone on energized lines or equipment over 600 volts?

NOISE

•Are there areas in the workplace where continuous noise levels exceed 85 dBA? (To determine maximum allowable levels for intermittent or impact noise, see Title 8, Section 5097.)
•Are noise levels being measured using a sound level meter or an octave band analyzer and records being kept?
•Have you tried isolating noisy machinery from the rest of your operation?
•Have engineering controls been used to reduce excessive noise levels?
•Where engineering controls are determined not feasible, are administrative controls (i.e. worker rotation) being used to minimize individual employee exposure to noise?
•Is there an ongoing preventive health program to educate employees in safe levels of noise and exposure, effects of noise on their health, and use of personal protection?
•Is the training repeated annually for employees exposed to continuous noise above 85 dBA?
•Have work areas where noise levels make voice communication between employees difficult been identified and posted?
•Is approved hearing protective equipment (noise attenuating devices) available to every employee working in areas where continuous noise levels exceed 85 dBA?
•If you use ear protectors, are employees properly fitted and instructed in their use and care?
•Are employees exposed to continuous noise above 85 dBA given periodic audiometric testing to ensure that you have an effective hearing protection system?

FUELING

•Is it prohibited to fuel an internal combustion engine with a flammable liquid while the engine is running?
•Are fueling operations done in such a manner that likelihood of spillage will be minimal?
•When spillage occurs during fueling operations, is the spilled fuel cleaned up completely, evaporated, or other measures taken to control vapors before restarting the engine?
•Are fuel tank caps replaced and secured before starting the engine?
•In fueling operations is there always metal contact between the container and fuel tank?
•Are fueling hoses of a type designed to handle the specific type of fuel?
•Is it prohibited to handle or transfer gasoline in open containers?
•Are open lights, open flames, or sparking or arcing equipment prohibited near fueling or transfer of fuel operations?
•Is smoking prohibited in the vicinity of fueling operations?
•Are fueling operations prohibited in building or other enclosed areas that are not specifically ventilated for this purpose?
•Where fueling or transfer of fuel is done through a gravity flow system, are the nozzles of the self-closing type?

MATERIAL HANDLING

•Is there safe clearance for equipment through aisles and doorways?
•Are aisle-ways designated, permanently marked, and kept clear to allow unhindered passage?
•Are motorized vehicles and mechanized equipment inspected daily or prior to use?
•Are vehicles shut off and brakes set prior to loading or unloading?
•Are containers or combustibles or flammables, when stacked while being moved, always separated by dunnage sufficient to provide stability?
•Are dock boards (bridge plates) used when loading or unloading operations are taking place between vehicles and docks?
•Are trucks and trailers secured from movement during loading and unloading operations?
•Are dock plates and loading ramps constructed and maintained with sufficient strength to support imposed loading?
•Are hand trucks maintained in safe operating condition?
•Are chutes equipped with sideboards of sufficient height to prevent the materials being handled from falling off?
•Are chutes and gravity roller sections firmly placed or secured to prevent displacement?
•At the delivery end of rollers or chutes, are provisions made to brake the movement of the handled materials.
•Are pallets usually inspected before being loaded or moved?
•Are hooks with safety latches or other arrangements used when hoisting materials so that slings or load attachments won't accidentally slip off the hoist hooks?
•Are securing chains, ropes, chockers or slings adequate for the job to be performed?
•When hoisting material or equipment, are provisions made to assure no one will be passing under the suspended loads?
•Are Safety Data Sheets available to employees handling hazardous substances?

TRANSPORTING EMPLOYEES & MATERIALS

•Do employees who operate vehicles on public thoroughfares have valid operator's licenses?
•When 9 or more employees are regularly transported in a van, bus or truck, is the operator's license appropriate for the class of vehicle being driven?
•Is each van, bus or truck used regularly to transport employees, equipped with an adequate number of seats?
•When employees are transported by truck, are provision provided to prevent their falling from the vehicle?
•Are vehicles used to transport employees, equipped with lamps, brakes, horns, mirrors, windshields and turn signals in good repair?
•Are transport vehicles provided with handrails, steps, stirrups or similar devices, so placed and arranged that employees can safely mount or dismount?
•Are employee transport vehicles equipped at all times with at least two reflective type flares?
•Is a full charged fire extinguisher, in good condition, with at least 4 BC rating maintained in each employee transport vehicle?
•When cutting tools with sharp edges are carried in passenger compartments of employee transport vehicles, are they placed in closed boxes or containers which are secured in place?
•Are employees prohibited from riding on top of any load, which can shift, topple, or otherwise become unstable?

CONTROL OF HARMFUL SUBSTANCES BY VENTILATION

•Is the volume and velocity of air in each exhaust system sufficient to gather the dusts, fumes, mists, vapors or gases to be controlled, and to convey them to a suitable point of disposal?

•Are exhaust inlets, ducts and plenums designed, constructed, and supported to prevent collapse or failure of any part of the system?
•Are clean-out ports or doors provided at intervals not to exceed 12 feet in all horizontal runs of exhaust ducts?
•Where two or more different type of operations are being controlled through the same exhaust system, will the combination of substances being controlled, constitute a fire, explosion or chemical reaction hazard in the duct?
•Is adequate makeup air provided to areas where exhaust systems are operating?
•Is the intake for makeup air located so that only clean, fresh air, which is free of contaminates, will enter the work environment?
•Where two or more ventilation systems are serving a work area, is their operation such that one will not offset the functions of the other?

SANITIZING EQUIPMENT & CLOTHING

•Is personal protective clothing or equipment, that employees are required to wear or use, of a type capable of being easily cleaned and disinfected?
•Are employees prohibited from interchanging personal protective clothing or equipment, unless it has been properly cleaned?
•Are machines and equipment, which processes, handle or apply materials that could be injurious to employees, cleaned and/or decontaminated before being overhauled or placed in storage?
•Are employees prohibited from smoking or eating in any area where contaminates are present that could be injurious if ingested?
•When employees are required to change from street clothing into protective clothing, is a clean changeroom with separate storage facility for street and protective clothing provided?
•Are employees required to shower and wash their hair as soon as possible after a known contact has occurred with a carcinogen?
•When equipment, materials, or other items are taken into or removed from a carcinogen regulated area, is it done in a manner that will not contaminate non-regulated areas or the external environment?

EMERGENCY ACTION PLAN

•Are you required to have an emergency action plan?
•Does the emergency action plan comply with requirements of T8CCR 3220(a)?
•Have emergency escape procedures and routes been developed and communicated to all employers?
•Do employees, who remain to operate critical plant operations before they evacuate, know the proper procedures?
•Is the employee alarm system that provides a warning for emergency action recognizable and perceptible above ambient conditions?
•Are alarm systems properly maintained and tested regularly?
•Is the emergency action plan reviewed and revised periodically?
•Do employees now their responsibilities:
•For reporting emergencies?
•During an emergency?
•For conducting rescue and medical duties?

INFECTION CONTROL

•Are employees potentially exposed to infectious agents in body fluids?
•Have occasions of potential occupational exposure been identified and documented?
•Has a training and information program been provided for employees exposed to or potentially exposed to blood and/or body fluids?
•Have infection control procedures been instituted where appropriate, such as ventilation, universal precautions, workplace practices, and personal protective equipment?
•Are employees aware of specific workplace practices to follow when appropriate? (Hand washing, handling sharp instruments, handling of laundry, disposal of contaminated materials, reusable equipment.)
•Is personal protective equipment provided to employees, and in all appropriate locations?
•Is the necessary equipment (i.e. mouthpieces, resuscitation bags, and other ventilation devices) provided for administering mouth-to-mouth resuscitation on potentially infected patients?
•Are facilities/equipment to comply with workplace practices available, such as hand-washing sinks, biohazard tags and labels, needle containers, detergents/disinfectants to clean up spills?
•Are all equipment and environmental and working surfaces cleaned and disinfected after contact with blood or potentially infectious materials?
•Is infectious waste placed in closable, leak proof containers, bags or puncture-resistant holders with proper labels?

•Has medical surveillance including HBV evaluation, antibody testing and vaccination been made available to potentially exposed employees?
•Training on universal precautions?
•Training on personal protective equipment?
•Training on workplace practices, which should include blood drawing, room cleaning, laundry handling, clean up of blood spills?
•Training on needle stick exposure/management?
•Hepatitis B vaccinations?

ERGONOMICS

•Can the work be performed without eyestrain or glare to the employees?
•Does the task require prolonged raising of the arms?
•Do the neck and shoulders have to be stooped to view the task?
•Are there pressure points on any parts of the body (wrists, forearms, back of thighs)?
•Can the work be done using the larger muscles of the body?
•Can the work be done without twisting or overly bending the lower back?
•Are there sufficient rest breaks, in addition to the regular rest breaks, to relieve stress from repetitive-motion tasks?
•Are tools, instruments and machinery shaped, positioned and handled so that tasks can be performed comfortably?
•Are all pieces of furniture adjusted, positioned and arranged to minimize strain on all parts of the body?

VENTILATION FOR INDOOR AIR QUALITY

•Does your HVAC system provide at least the quantity of outdoor air required by the State Building Standards Code, Title 24, Part 2 at the time the building was constructed?
•Is the HVAC system inspected at least annually, and problems corrected?
•Are inspection records retained for at least 5 years?

CRANE CHECKLIST

•Are the cranes visually inspected for defective components prior to the beginning of any work shift?
•Are all electrically operated cranes effectively grounded?
•Is a crane preventive maintenance program established?
•Is the load chart clearly visible to the operator?
•Are operating controls clearly identified?
•Is a fire extinguisher provided at the operator's station?
•Is the rated capacity visibly marked on each crane?
•Is an audible warning device mounted on each crane?
•Is sufficient illumination provided for the operator to perform the work safely?
•Are cranes of such design, that the boom could fall over backward, equipped with boom-stops?
•Does each crane have a certificate indicating that required testing and examinations have been performed?
•Are crane inspection and maintenance records maintained and available for inspection?

HAZARD ASSESSMENT AND CORRECTION RECORD

To ensure the assessment and correction have been completed as required the inspection record will contain the following:

- Date of Inspection
- Person conducting the inspection
- Unsafe condition or work practice
- Corrective action taken
- Person completing the corrective action
- Job site location

Code of Safe Practices
All Operations

Cal/OSHA requires that every employer adopt a written Code of Safe Practices that is specific to operations performed. This material was designed to address the hazards common to our industry and communicate safe work practices and company expectations.

Our goal is to provide essential, basic, information to help keep you, your co-workers, and the public, safe while maintaining a secure and healthy workplace. It is not intended to be a detailed accounting of all safety policies and procedures that are applicable to operations performed by AMPCO Contracting, Inc. (AMPCO). If you are assigned a task that presents new or unidentified hazards, advise your supervisor immediately.

A copy of the company Code of Safe Practices will be accessible at all job site locations. This material is not meant to be a substitute for, or legal interpretation of, the Occupational Safety and Health Regulations established by the State of California.

Policies & Procedures
It is the policy of AMPCO that everything possible will be done to protect employees, and the public, and provide a safe and healthy workplace. Safety is a cooperative undertaking requiring participation by every employee. Failure to adhere to safe practices and conditions relating to your safety or that of fellow employees, or failure to safeguard equipment, tools or materials, will result in appropriate disciplinary action. Foreman and Supervisors are required to ensure that their crews observe all applicable safety standards and take the necessary actions to ensure compliance.

Individual Responsibility – If you have a safety problem or have any doubt as to the safety of any work activity – including the use of tools and equipment - STOP and seek instruction from your Foreman immediately. Each person on the job site is expected to work and utilize all tools and equipment in a safe and sane manner.

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 and pick-up 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 fall 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. For all projects where asbestos related work will be self performed, a trained asbestos competent superintendent will be on site to supervise activities.

40. Employees performing torch cutting shall utilize 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
Earthwork Operations

Biological Hazards common to this area include:
Ticks, spiders, snakes and flying insects
Poisonous plants such as poison oak and ivy
Safety precautions include avoiding contact (when possible); appropriate clothing and use of PPE and hand tools (i.e. shovels). Workers bitten by snakes, animals, or ticks will receive prompt medical attention and the company designated occupational clinic.

Bloodborne pathogens may be present in the workplace, which may lead to potential employee contact with used drug paraphernalia during clearing and grubbing, debris removal tasks and injuries to personnel. To eliminate this exposure, workers should wear appropriate clothing and PPE, and use hand tools at all times. Do not touch exposed drug paraphernalia. If discovered, notify your supervisor immediately. In the event of an exposure, the employee will be referred for medical attention.

Cell phone use on the job. Personal cell phone use is prohibited while working. Due to the nature of the work performed by AMPCO, use of cellphones can create distraction, which could result in injury or damage to property. Other types of listening devices are also prohibited for your safety, and the safety of your co-workers. If emergency or work-related phone calls need to be answered, stop what you are doing.

Dust Exposure – Engineering controls are utilized during site activities to minimize the amount of dust generated. Use of PPE is required, as applicable to potential airborne exposures. Control measures may include:
Before dust generating activities begin, water may be applied to the areas to reduce dust generation. If necessary, water will be used to suppress dust during all operations. Water application will be done to prevent ponding and/or generation of runoff. Soil removal, handling and movement; grading or truck loading will not be conducted when wind speeds exceed 25 mph based on 15-minute average or wind gusts are great enough to create visible dust emissions outside the active work zone despite implementation of control measures.

Excavations, Trenches and Earthwork – Hazards associated with excavations are cave-ins, striking of underground utilities, falling tools, materials and equipment, and hazardous contaminants or oxygen deficient environments. Obtain/notify DOSH if workers are required to enter an excavation that is 5 feet or deeper. Minimum safety requirements for these exposures include:
Make sure utilities are marked, use Dig-Alert to locate to locate utilities or pot-hole, exposed utilities must be protected, supported and removed as necessary, barriers and warning devices must be installed and warning devices must be maintained at all times, employees must be protected from cave-ins by protective systems, conduct inspections of the excavation, adjacent areas, and protective systems before start of work and as needed throughout the day.
For additional information on excavations, trenches and earthwork please refer to company policies and procedures.

Flagging – Flaggers must be used at locations on a construction site when barricades and warning signs cannot effectively control moving traffic. Requirement include – Flaggers must be placed to

allow for effective warning, must be trained, traffic control signs must be placed according to the MUTCD, must wear orange or strong yellow-green warning/reflecting garments.

Heavy Equipment Operating – requirements include – to operate equipment must be properly trained and authorized, LOTO must be used when making adjustments or repairs on equipment. Job site vehicles/equipment – must be equipped with operable service, emergency and parking brakes, two operable headlights and taillights, windshield wipers and defoggers, seatbelts if the vehicle has ROPS, fenders or mud flaps. Vehicle and equipment must be inspected daily by each shift and use a checklist. Any damage, defects or safety concerns identified must be reported immediately.
ROPS and seat belts must be installed and used for the following equipment with brake horsepower rating above 20: crawler tractor, bulldozer, front-end loader, rollers and compacters, scraper, tractor, water wagon prime mover, sheep-foot-type roller, compactors, motor grader.

Haulage and Earthmoving equipment safety standards include – vehicle with body capacity of 2.5 cubic yards or more must have automatic back-up alarm that sounds immediately on backing, vehicles operating when rear vision is blocked must be equipped with automatic back-up alarm or its equivalent, vehicles must be equipped with a manually operated warning device, haulage vehicles in operation must be under operator control when in gear when descending grades, brakes on haulage vehicles must meet criteria specified by CSOs, control devices on haulage vehicle must be inspected at beginning of each shift, exposed scissor points on front end loaders must be guarded, vehicles loaded by cranes, shovels, loaders, and similar devices must have an adequate cab or canopy for operator protection, wear your hardhat and seatbelt at all times, always use 3-point contact rule when getting on/off equipment, make sure co-workers are clear before starting equipment or moving, equipment should never be backed up/out unless there is spotter to check blind spots and give appropriate signals, never allow anyone to ride on the running boards, load, etc., maintain eye contact with your spotter, stay aware of your co-workers and surroundings, only one individual should give signals, pre-plan and implement a traffic plan for haulage equipment,

Heavy Equipment Working Around – when equipment is operating stay alert and aware of your surroundings at all times. The only way to avoid a serious accident is if both construction/ground workers and equipment operators stay aware of the activity around them. Safety tips include – never take for granted that equipment operator sees you, don't depend solely on hearing a horn or other audible warning signal that equipment is backing up, stay out of equipment operators blind spot, stay out of the swing radius of equipment, do not walk under loads.

Laser equipment (if applicable) – Only qualified employees may operate laser equipment, employees who may be exposed to laser light greater than 5 milli-watts must wear eye protection, warning signs must be posted in areas where lasers are used, equipment must be turned off or shielded when unattended and not in use, laser beam must never be pointed or directed at persons, lasers must have a label indicating their maximum output.

Overhead Power Lines – Contact with overhead power lines can cause serious injuries and property damage due to arcing between the lines and heavy equipment. Overhead powerlines in the travel path of such equipment, and in the immediate work area of equipment, will be identified before on-site work begins. The utility company, or property owner responsible for overhead lines,

will be contacted before work begins to determine whether such lines can be de-energized and locked out during nearby work activities. For minimum clearance distance when crossing under overhead power lines or working adjacent to is located in the company policy and procedure.

Code of Safe Practices
Demolition Operations

Supervision

(a) Demolition work shall at all times be under the immediate supervision of a qualified person with the authority to secure maximum safety for employees engaged in demolition work.

(b)(1) Prior to permitting employees to start demolition operations, a qualified person shall make a survey of the structure to determine the condition of the framing, floors, and walls, and the possibility of an unplanned collapse of any portion of the structure. Any adjacent structure where employees may be exposed shall also be similarly checked.

(2) The survey shall be in written form, kept on the job-site and made available to the Division upon request. The written survey shall be maintained for the duration of the demolition project.

Demolishing Buildings

(a) Utility companies shall be notified and all utility service shut off, capped, or otherwise controlled, at the building or curb line before starting demolition, unless it is necessary to use electricity or water lines during demolition. If use is necessary, the utility services shall be relocated or rearranged as necessary and protected from physical damage.

(b) It shall also be determined if any type of hazardous chemicals, gases, explosives, flammable materials, or similarly dangerous substances have been used in any pipes, tanks, or other equipment on the property. When the presence of any such substances is apparent or suspected, testing and purging shall be performed and the hazard eliminated before demolition is started.

(c) Pipe-covering insulation, steel beam and column fire protection, and heating, ventilating and air-conditioning duct work shall be surveyed for asbestos. If asbestos is present, the employer shall comply with Section 1529.

(d)(1) Prior to starting demolition operations, all structural or other hazardous deficiencies noted during the survey required by Section 1734(b)(1) shall be shored, braced or otherwise corrected as recommended in the survey.

(2) Walls, which serve as retaining walls to support earth or adjoining structures, shall not be demolished until the hazard from moving ground has been eliminated by sloping, shoring or, where necessary, adjoining structures have been properly underpinned.

(3) Walls, which are to serve as retaining walls against which debris will be piled, shall not be so used unless determined to be capable of safely supporting the imposed load.

(4) During demolition, continuing inspections shall be made as the work progresses to detect hazards resulting from weakened or deteriorated floors or walls, or loosened material.

Employees shall not be permitted to work where such hazards exist until they are corrected by shoring, bracing, or other effective means.

(e) In demolishing any building or structure or alteration involving partial demolition thereof, all material displaced, unless required for reconstruction, shall be transported immediately to the ground. The amount of material stored upon any structure or any portion of such structure shall not exceed its safe carrying capacity.

(f)(1) Except for the cutting of holes in floors for chutes, holes through which to drop materials, preparation of storage space, and similar necessary preparatory work, the demolition of exterior walls and floor construction shall begin at the top of the structure and proceed downward and each story of exterior wall and floor construction shall be removed and dropped into the storage space before commencing the removal of exterior walls and floors in the story next below.

(2) Any openings cut in a floor for the disposal of materials shall be no larger in size than 25 percent of the aggregate of the total floor area, unless the lateral supports of the removed flooring remain in place. Floors weakened or otherwise made unsafe by demolition operations shall be shored to safely support the intended imposed load from demolition operations.

(3) Flooring boards may be removed from not more than one floor above grade to provide storage space for debris, provided falling material is not permitted to endanger structural stability.

(4) When wood floor beams serve to brace interior walls or free-standing exterior walls, such beams shall be left in place until other equivalent support can be installed to replace them.

NOTE: For selective demolition by explosives of buildings and structures, refer to appropriate Articles of Group 18, Explosives and Pyrotechnics of the General Industry Safety Orders and this Article.

(g) Sections of walls shall not be allowed to fall upon floors supported by wood joists or other floors unable to withstand such impact.

(h) Walkways that meet the requirements of Section 1624 shall be provided where necessary for access.

(i) Walking across exposed floor joists, steel beams, or girders is prohibited.

(j) All persons on demolition projects shall be protected from falling material at employee entrances to multi-story structures being demolished, by sidewalk sheds or canopies or both, providing protection extending from the face of the building for a minimum of 8 feet. All such canopies shall be at least two feet wider than the building entrances or openings (one foot wider on each side thereof) and shall be capable of sustaining a load of 150 pounds per square foot.

(k) Exterior wall openings on all floors shall be protected to a height of not less than 42 inches, except on the ground floor and the floor being demolished.

(l) Where a hazard exists from fragmentation of glass, all glazed openings shall be removed at least one floor below the working level.

(m)(1) No wall section, which is more than one story or 12 feet in height, shall be permitted to stand alone without lateral bracing, unless a civil engineer, currently registered in California, has submitted engineering data to the Division substantiating the capability of the wall to stand without lateral support.

(2) All walls shall be left in a stable condition at the end of each work day.

(n) Steel construction shall be dismantled column length by column length, and tier by tier (columns may be two-story lengths.) Any structural unit being dismantled shall not be overstressed.

(o) Planks spanning the distance between adequate beams shall be used where necessary as a substitute for weakened floors, and as access walkways over open or weakened areas.

When demolishing floors and roofs, employees shall be prohibited from working below this activity. Demolition of floor spaces shall continue until all unsupported flooring is removed. When employees are required to remove floor support beams, wall sections, etc., by hand, scaffolding as described in Article 21 of the Construction Safety Orders or elevating work platforms and aerial devices as described in Article 24 of the General Industry Safety Orders shall be provided and used where necessary to insure employee safety.

(p)(1) Stairways designated as means of access shall be maintained clear for use within two floors or twenty-four feet of the demolition work above.

(2) Ladders shall be provided for these remaining two floors and shall be constructed and maintained in accordance with Article 25, Ladders. Other access ways shall be entirely closed off at all times.

(3) Walkways or ladders shall be provided to enable employees to safely reach or leave any scaffold or wall.

(q) In a multi-story building, when a stairwell is being used for access or egress, it shall be properly illuminated by either natural or artificial means, and completely and substantially covered over at a point not less than two floors below the floor on which work is being performed, and access to the floor where the work is in progress shall be through a properly lighted, protected, and separate passageway.

(r)(1) Construction passenger elevators for hoisting employees shall be provided on demolition projects on multi-story buildings seven or more floors or seventy-two feet or more in height.

(2) Landings shall be provided for the passenger elevators on or in buildings at intervals not to exceed four floors or forty-eight feet.

(3) Where there is doubt concerning structural integrity or engineering data indicates attachment of an elevator may jeopardize the strength of the building or structure, the Division may permit alternate methods of installation. Other means of employee access may also be allowed by the Division where the above is clearly impractical.

(s) If the method of demolition leaves the structural steel frame in place, then the tier of beams next below the tier from which beams and columns are being removed shall be planked over, unless safety nets are used or the floor of such tier has not been removed. Necessary openings for material handling are allowed. All loose material shall be removed from the steel frame as demolition progresses downward.

(t) 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.

(u) Mechanical equipment shall not be used on floors or working surfaces unless a qualified person has determined that such floors or surfaces are of sufficient strength to support the imposed load.

(v) Where mechanical equipment is used for demolition work, floor openings shall have curbs or stop-logs to prevent equipment from running over the edge.

(w) No salvage of materials shall be permitted during demolition operations on any building, structure, falsework or scaffold more than three stories high or the equivalent height for which a permit is required.

Disposal of Waste Material

(a) Whenever waste material is dropped to any point lying outside the exterior walls of the building, enclosed chutes shall be used unless the area is effectively protected by barricades, fences or equivalent means. Signs shall be posted to warn employees of the hazards of falling debris.

(b) When chutes are used to load trucks, they shall be fully enclosed. Gates shall be installed in each chute at or near the discharge end. A qualified person shall be assigned to control the operation of the gate, and the backing and loading of trucks.

(c) Enclosed chutes should be designed for free flow of material, but if clogging or stoppages occur, employees shall not remove material from the chutes with their hands. Picks or other suitable implements shall be used for this purpose.

(d) Any chute opening, into which employees dump debris by hand, shall be protected by a guardrail. Any open spaces between the chute and the edge of floor openings through which the chute passes shall be covered over.

(e) When operations are not in progress, the discharge end of the chute shall be securely closed off, or the area barricaded or fenced as provided in Section 1736(a).

(f) When debris is dropped through holes in the floor without the use of chutes, the area onto which the material is dropped shall be completely enclosed with barricades not less than 42 inches high, and not less than six feet back from the projected edge of the opening above. Signs warning of the hazard of falling materials shall be posted at each level. Debris removal shall not be permitted in this lower drop area until debris handling ceases above.

(g) All scrap lumber, waste material, and rubbish shall be removed from the immediate work area as the work progresses.

(h) All solvent waste, oily rags, and flammable liquids shall be kept in fire resistant covered containers until removed from the work site.

(i)(1) Where the material is dumped from mechanical equipment or wheelbarrows, a securely attached toe-board or bumper, not less than six inches thick and six inches high, shall be provided at each chute opening.

(2) Chutes shall be designed and constructed of such strength as to eliminate failure due to impact of materials or debris loaded therein.

(j) All material chutes, or sections thereof, at an angle of more than 45 degrees from the horizontal, shall be entirely enclosed, except for openings equipped with closures at or about floor level for the insertion of materials. The openings shall not exceed 48 inches in height measured along the wall of the chute. At all stories below the top floor, such openings shall be kept closed when not in use.

Procedure 3-1

INCIDENT REPORTING

SECTION 1 - PURPOSE

This policy describes the procedures for incident claims reporting and reporting requirements for notifications to management.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

All incidents having either an immediate or potential effect on the safety and well being of the Company, its employees and visitors, will be reported and recorded within the time frame allocated. Incidents, which are required to be reported, include, but are not necessarily limited to, the following: Accidents, injuries, spills, fires, vehicle accidents and inspections by regulatory agencies.

It is AMPCO's policy to voluntarily comply with all employee and visitor accident, injury and illness reporting requirements established by OSHA, State Workers Compensation Agencies, and AMPCO's Insurance Claims Service.

SECTION 4 – DEFINITIONS
(For this Section)

Incident - an unplanned event resulting in personal injury, occupational illness, property damage, vehicle or equipment accident, loss of assets, fire or explosion, spill or release, or adverse publicity.

Spill - every unplanned escape of material solid or liquid, from its primary container, vessel, tank, etc., regardless of quantity. Routine or intentional leakage to a drip pan or sump is not considered to be a spill.

Release - any unplanned escape of a vapor, aerosol or gas from its primary container.

RQ Spill or Release - a spill or release of sufficient quantity of material to exceed the reportable

quantity amounts noted in the Department of Transportation Regulations.

Inspection - any inspection or contact by a representative of a regulatory agency, a public safety department or agent of the customer.

SECTION 5 - INCIDENT REPORTING REQUIREMENTS

All incidents must be reported immediately upon notice regardless of severity, medical treatment required, quantity of hazardous substance spilled, regulatory inspection and all auto and/or property damage regardless of estimated cost. All incidents must be reported to the Health & Safety Office.

5.1 Reporting Sequence

All incidents are to be reported by our personnel to their Supervisor immediately.

The supervisor will immediately notify the Health and Safety (or if unavailable, the Safety Director). Health & Safety will then immediately notify Safety Director and Presidents by phone. Written notifications (i.e. Supervisor's Incident Report, Incident Investigation and doctor's report) are required within 24 hours of incident or first notice to supervisor.

All incidents to be reported to the Health & Safety and client representative include:

- Accident or injury regardless of medical treatment;
- All motor vehicle or equipment accidents with injuries involved;
- All Fires or explosion with or without injuries and regardless of damage;
- All spills and/or releases of hazardous substances regardless of quantities involved.
- All regulatory agency visits to job site;
- Job shutdown due to emergency or regulatory action; and
- Incidents involving media attention.
- All Motor vehicle, equipment and/or property damage regardless of estimated cost of damages;
- All Spills and/or hazardous release regardless of quantities involved;

In all cases initial notifications are to be made as promptly as is practical within the time frames noted.

5.2 Documentation

The AMPCO Incident Report form must be completed in hard copy for all incidents, and copies forwarded immediately to Health and Safety to the attention of the Claims Manager. The Claims Manager will complete all state required First Reports of Injury and file them with our workers' compensation carrier. The Health & Safety will also copy the Claims Manager on all incident related documentation.

SECTION 6 - SUPERVISOR'S INCIDENT REPORT

A copy of the supervisor's Incident Report form must be completed to report each and every incident, which has been described in Paragraph 3.0 of this procedure.

Provide complete information in all the spaces provided. Do not leave any spaces blank. If not applicable, indicate this with N/A in the space allocated. Do not use nicknames when entering the employee's name. Provide the facts associated with the incident but do not make assumptions. Record what is known or observed. Be complete and concise in your description of the incident and the employee activity. If you have questions, contact the Health and Safety for assistance.

6.1 OSHA Recordkeeping

The section at the bottom of the form, related to OSHA recordkeeping for job-related injuries and illnesses is extremely important and must be completed as accurately as possible by Health and Safety. Check only the appropriate box for each of the four questions asked. Indicate whether the incident is OSHA recordable, injury or illness and then classify the case in accordance with paragraph 9.0 of this procedure.

6.2 Inspection Report

If the incident being reported is the result of a regulatory agency inspection, the supervisor is to complete the Regulatory Agency Inspection Report in lieu of a supervisor's Incident Report. This inspection report is found in Section 1-4 of the Corporate Safety Manual, entitled Inspection Policy - Regulatory Agencies. All regulatory inspections are to be recorded on the branch log of regulatory inspections and included with your Monthly Branch Reviews submission to the Health & Safety.

SECTION 7 - INCIDENT NOTIFICATION SCHEDULE

Designated safety and management personnel are responsible for ensuring the completion of an Incident Notification Schedule for each Office within the Company's. In an effort to assure contact, wherever possible, it is suggested that all telephone numbers be included on the Incident Notification Schedule, including resident numbers, mobile phone numbers and email addresses.

Each jobsite shall post a copy of the completed Incident Notification Schedule form next to each telephone. If there are no telephones on site, the senior person on the job shall keep a copy of the list in his possession. Office and Health & Safety personnel and all personnel named as alternates on the Incident Notification Schedule shall maintain completed notification sheets for the next two levels up the program.

Verbal reports must be given to a person and not to a recording device, voice mail, etc. If the first person on the list cannot be contacted, call the second.

SECTION 8 - EMPLOYER'S FIRST REPORT OF INJURY

Each state within the United States has either developed its own employer's First Report of Injury form or has indicated a willingness to accept a suitable substitute. Generally, where a state does not have its own form, the acceptable substitute is that form used by the employer's Workers Compensation Insurance Claims Service. Responsibility for the completion of these forms is that of the Claims Manager.

SECTION 9 - OSHA 300 LOG

The OSHA 300 Log is required by the Occupational Safety and Health Administration as a method of recording certain occupational injuries and all occupational illnesses. OSHA has established a criterion for what are recordable injuries and illnesses. Only those injuries or illnesses that fall within their definitions must be recorded on the OSHA log.

9.1 Guidelines For Determining OSHA Recordability

The information contained in these guidelines has been taken directly from the U.S. Department of Labor Part 1904 Regulations entitled "Recordkeeping Guidelines for Occupational Injuries and Illnesses" and should assist you in making the appropriate determination, as to what is considered recordable and what is considered first aid. Corporate Safety personnel retain added references, so in the event of questions please contact them for assistance.

Procedure 3-1

The OSHA 300 Log is used to classify work-related injuries and illnesses and to note the extent and severity of each case. When an incident occurs, use the Log to record specific details about what happened and how it happened. Choose one of these categories to classify the case by recording the most serious outcome of the case, with column (J) (Other Recordable Cases) being the least serious and column (G) (Death) being the most serious. When an injury or illness involves one or more days away from work (beyond the date of injury) you must record the injury or illness in column (H) Days away from work Restricted work occurs when, as the result of a work-related injury or illness: (1) keeps the employee from performing one or more of the routine functions of his or her job, or from working the full workday that he or she would otherwise have been scheduled to work; or (2) A physician or other licensed health care professional recommends that the employee not perform one or more of the routine functions of his or her job, or not work the full workday that he or she would otherwise have been scheduled to work. In this case you must record the injury or illness in column (I) (Job transfer or restriction). Both lost and restricted days have a "cap" of 180 calendar days. You are not required to keep track of days beyond the "cap".

The Health & Safety must differentiate between OSHA recordable cases and first aid cases in determining OSHA recordability and should not log first aid cases on the 300 log.

9.2 Completing the OSHA 300 Log

Immediately upon mobilization at the jobsite, the upper portion of the OSHA 300 Log should be filled in with the required information. Completion of this portion of the Log makes the Log immediately current. At the completion of each page of the Log, the totals line at the bottom of the Log should be completed also. These totals should be carried over to the next page of the Log. A recordable injury or illness must be entered on the OSHA 300 Log within seven (7) working days of a supervisor becoming aware of the injury or illness.

The OSHA 300 Log should be maintained on the job site if the job site is fixed and has office facilities. If, however, the jobsite varies from day to day, then the form should be maintained at the office. A master OSHA 300 Log will be maintained for the Office at their office. This however, does not relieve the jobsite from the requirement to have a site specific OSHA 300 Log for the jobsite. The master OSHA 300 Log must be maintained for a period of five (5) years.

9.3 Posting Requirements

The Summary – a separate form – shows the work-related injury and illness totals for the year in each category. At the end of the year, count the number of incidents in each category and transfer the totals from the 300 Log to the Summary. Then post the

Summary in a visible location so that our employees are aware of injuries and illnesses occurring in their workplace. You don't post the 300 Log. You post only the Summary at the end of the year. You must post the Summary by February 1 of the year following the year covered by the form and keep it posted until April 30 of that year. The OSHA 300 Log does not have to be posted during any other period, and should be kept in an appropriate file at the location.

9.4 Forwarding OSHA 300 Logs

At the end of each year, or upon completion of the project, all of the OSHA 300 logs must be completed and forwarded immediately to the Office. Each office is required to maintain their original 300 logs and 300A summaries for a period of five (5) years. Health and Safety will be responsible for forwarding a copy of the signed year end master 300 Log and forward original copies to the Office's within the first week of the New Year.

9.5 OSHA 300 Monthly Reporting

As a part of the monthly reporting of safety statistics to the Safety Director, Health & Safety is required to submit a consolidated OSHA 300 Log for each Office within their jurisdiction.

9.6 Log of First Aid Treatment

All work-related injuries, regardless of severity, must be reported and entered on the Log of First Aid Treatment. If the injury is OSHA recordable, it should also be entered on the OSHA 300 Log.

SECTION 10 - APPROACH FOR HANDLING ACCIDENT OR INJURY

10.1General

Upon the occurrence of an accident or injury, prompt and appropriate attention and assistance must be provided to the party or parties involved. Supervisory personnel will conduct a timely investigation to obtain the details of the accident and take immediate precautions to prevent its recurrence. They are to make notifications as specified in paragraph 5.0 of this section. Appropriate recording and reporting procedures will be initiated and the required forms completed within the time frame allowed.

Procedures for Handling Accidents Resulting In Injury or Illness

Step #1 - Log of First Aid Treatment

All reported injuries and illnesses must be entered on the First Aid Log.

Step #2 - Care Management

When an accident occurs in which there is either an injury or illness or a suspected injury or illness requiring off site medical care, transport will be arranged, the employee will be accompanied by a supervisor, foreman or Health & Safety to the medical care facility and appropriate and timely medical attention secured for the party or parties involved. If the medical care facility is not an established Industrial or Occupational Care Facility, then prior to transport and to the extent practical, the top half of the "Care Request and Referral" form should be completed and accompany the injured person to the medical care facility and completed by the medical provider. The primary purpose of this form is to:

- Authorize the medical provider to provide treatment;
- Provide information from the site to the physician on the accident, injury, and any treatment provided;
- Remind the physician of our commitment and ability to conduct early return to work and modified duty programming; and
- Require the medical provider to furnish answers to specific questions concerning the employee's condition and restrictions affecting ability to return to work.

Distribution of Care Request and Referral after receipt back from the clinic or physician:

- Copy to Health and Safety;
- Copy to Safety Director, to Attention: Claims Manager; and
- Copy to be retained by foreman or supervisor for job records.

Step #3 – Supervisor's Incident Report

The foreman or supervisor of the area in which the accident occurred should immediately determine the factors that led to the incident and take the necessary precautions to prevent its recurrence. He should then complete the supervisor's Incident Report form in detail, answering each question with sufficient information to enable management to make out a comprehensive report of the accident It is required that the Health & Safety sign the Supervisor's Incident Report assuring that it is complete and accurate.

Distribution of Supervisor's Incident Report:

- Copy to Presidents;
- Copy to Safety Director;
- Copy to Health & Safety, Attention: Corporate Claims Manager; and
- Copy to be retained by foreman or supervisor for job records.

Step #4 – Employer's First Report of Injury

The Employer's First Report of Injury will be completed by the Corporate Claims Manager from the information contained in the supervisor's Incident Report, Incident Investigation form and the "Care Request and Referral" or equivalent doctor's report. An Employer's First Report of Injury will be completed on every accident in which an employee has reported and occupational injury or illness. This includes all cases regardless of medical treatment.

SECTION 11 - REPORTING OF FATALITY OR MULTIPLE HOSPITALIZATION ACCIDENTS

Employers must report to the local OSHA area office, every accident that results in one (1) or more deaths or in hospitalization of one (1) or more employees. The report must be made within eight (8) hours after the occurrence of the accident. It can be made either orally (by telephone) or in writing to the OSHA Area Director. In those states with approved safety and health plans, the report must be made to the state agency, which has enforcement responsibilities.

Note: AMPCO policy requires that only the Health & Safety, or his designate, shall have the authority to notify OSHA in the event of a fatality, or the hospitalization of three or more employees.

GUIDELINES FOR DETERMINING OSHA RECORDABILITY

Whenever an injury or illness meets the following criteria, it must be recorded on the OSHA 300 Form.

- Death;
- Days away from work;
- Restricted work or transfer to another job;
- Medical treatment beyond first aid;
- Loss of consciousness; and
- A significant injury or illness diagnosed by a physician or other licensed health care

professional.

Note: In order for an injury or illness to be recordable, it must be work-related. If an event or exposure in the work environment either caused or contributed to the resulting condition or significantly aggravated a pre-existing injury or illness. Work-Relatedness is presumed for injuries and illnesses resulting from events or exposures occurring in the work environment, unless an exception in 1904.5 (b)(2) specificity applies.

OSHA defines the work environment as "the establishment and other locations where one or more employees are working or are present as a condition of their employment. The work environment includes not only physical locations, but also the equipment or materials used by the employee during the course of his or her work.

While most of the above are clear cut and easily understood, item 4 above, "All work-related injuries, requiring medical treatment" forces you to make the decision concerning recordability. In this category, recordable and non-recordable injuries are only distinguishable by the actual treatment provided. That is if the injury actually required medical treatment, as opposed to first aid treatment, it is recordable. If, on the other hand, the injury is such that only first aid treatment is required, regardless of who applies the first aid, it is not a recordable incident.

The following guidelines will assist in determining the difference between medical treatment and first aid treatment.

FIRST AID TREATMENT

For the purposes of Part 1904, "first aid" means the following:

- Using a non-prescription medication at nonprescription strength (for medications available in both prescription and non-prescription form, a recommendation by a physician or other licensed health care professional to use a non-prescription medication at prescription strength is considered medical treatment for recordkeeping purposes);
- Administering tetanus immunizations (other immunizations, such as Hepatitis B vaccine or rabies vaccine, are considered medical treatment);
- Cleaning, flushing or soaking wounds on the surface of the skin;
- Using wound coverings such as bandages, Band-Aids™, gauze pads, etc.; or using butterfly bandages or Steri-Strips™ (other wound closing devices such as sutures, staples, etc., are considered medical treatment);
- Using hot or cold therapy;
- Using any non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc. (devices with rigid stays or other systems designed to immobilize parts of the

body are considered medical treatment for recordkeeping purposes);

- Using temporary immobilization devices while transporting an accident victim (e.g., splints, slings, neck collars, back boards, etc.).
- Drilling of a fingernail or toenail to relieve pressure, or draining fluid from a blister;
- Using eye patches;
- Removing foreign bodies from the eye using only irrigation or a cotton swab;
- Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means;
- Using finger guards;
- Using massages (physical therapy or chiropractic treatment are considered medical treatment for recordkeeping purposes); or
- Drinking fluids for relief of heat stress.

Note: There are no other procedures included in first aid treatment. This is a complete list of all treatments considered first aid for Part 1904 purposes.

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CARE REQUEST and REFERRAL

Revised: 08/01/06

EMPLOYER INFORMATION:

Company Name: _____ Co. Phone: _____

Address: _____

Contact: **Kendra Matte - Claims Adm.** Phone No.: **(409) 886-3959** Fax Number: **(409) 886-0124**

LVI hereby authorizes the treating Hospital, Clinic, and/or Physician(s) to provide medical attention today to this company employee for injuries resulting from the incident detailed below.

Authorizing Signature: _____ Date: _____

EMPLOYEE INFORMATION:

Employee Name: _____ Social Security No: _____

Employee Address: _____

Home Phone: _____ Emergency Contact: _____
Name **Phone Number**

I hereby authorize the treating Hospital, Clinic, and Physician(s) to release to LVI Services or to any insurer of said employer, all information regarding my examination, condition and/or treatment.

Signature of Employee: _____ Date: _____

WORKERS COMPENSATION INSURANCE INFORMATION:

Insurer: _____ Policy Number: _____

Insurer Address: _____

Phone: _____ Fax Number: _____ Policy Period: _____

INJURY INFORMATION:

Date of Injury: _____ Are findings consistent with work related injury/illness? ☐ **Yes** ☐ **No**

Employee's Description of the Injury: _____

NOTICE TO PHYSICIAN

LVI has a transitional return to work program and can accommodate ANY RESTRICTIONS, which you feel are medically necessary, and can also allow for continued medical treatment until a return to regular job duty release can be obtained.

TO BE COMPLETED BY ATTENDING PHYSICIAN:

Name of Medical Provider: _____ Phone No.: _____

Exam Date/Time: _____ Diagnosis: _____

Treatment/Prescription(s)/Care Instructions: _____

EMPLOYEE WORK STATUS:

☐ Return to Full Duty On: _____ ☐ Take _____ days off work ☐ Return to Modified Duty on: _____

WORK RESTRICTIONS: If employee is restricted, please check appropriate box.

☐ Lifting _____ lbs. ☐ Push/Pull _____lbs. ☐ Sitting _____ hrs/day ☐ Climbing Stairs/Ladders

☐ Carry _____ lbs. ☐ Walk/Stand _____ hrs/day ☐ Crawl/Kneel _____ hrs/day ☐ _____

Has Employee reached MMI? Yes / No Date of MMI: _____ **RECHECK** (Date/Time): _____

Physician's Signature: _____

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Branch Name: _____
Branch Location: _____

Occup. Code:
A- Asb. or Remediation
D - Demolition
F - Firesproofing

LOG OF REPORTED INCIDENTS/INJURIES FOR 20___

(A) 1st Aid
(E) Recordable
(X) W/C not OSHA
(XX) Not Work Related

DOI	Time of Injury	Employees Name	Employees Occupation	Supervisor's Name	Project Mngr Name	Nature of injury	Source of injury	Project Name	Project Number	Incident Severity Code	Date of Discharge

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Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

OSHA's Form 300 (Rev. 01/2004)

Log of Work-Related Injuries and Illnesses

Year _____

U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

You must record information about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional. You must also record work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR 1904.8 through 1904.12. Feel free to use two lines for a single case if you need to. You must complete an injury and illness incident report (OSHA Form 301) or equivalent form for for each injury or illness recorded on this form. If you're not sure whether a case is recordable, call your local OSHA office for help.

Establishment name _____

City _____ State _____

Identify the person				Describe the case		Classify the case											
						CHECK ONLY ONE box for each case based on the most serious outcome for that case:				Enter the number of days the injured or ill worker was:		Check the "injury" column or choose one type of illness:					
(A) Case No.	(B) Employee's Name	(C) Job Title (e.g., Welder)	(D) Date of injury or onset of illness	(E) Where the event occurred (e.g. Loading dock north end)	(F) Describe injury or illness, parts of body affected, and object/substance that directly injured or made person ill (e.g. Second degree burns on right forearm from acetylene torch)	Death (G)	Days away from work (H)	Remained at work: Job transfer or restriction (I)	Remained at work: Other record-able cases (J)	Away From Work (days) (K)	On job transfer or restriction (days) (L)	(M) Injury (1)	Skin Disorder (2)	Respiratory Condition (3)	Poisoning (4)	Hearing Loss (5)	All other illnesses (6)
					Page totals	0	0	0	0	0	0	0	0	0	0	0	0

Be sure to transfer these totals to the Summary page (Form 300A) before you post it.

Public reporting burden for this collection of information is estimated to average 14 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Ave, NW, Washington, DC 20210. Do not send the completed forms to this office.

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Procedure 3-1

OSHA's Form 300A (Rev. 01/2004)

Summary of Work-Related Injuries and Illnesses

Year _____

U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

All establishments covered by Part 1904 must complete this Summary page, even if no injuries illnesses occurred during the year. Remember to review the Log to verify that the entries are and accurate before completing this summary.
Using the Log, count the individual entries you made for each category. Then write the totals making sure you've added the entries from every page of the log. If you had no cases write "0."

Employees former employees, and their representatives have the right to review the OSHA Form in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 1904.35, in OSHA's Recordkeeping rule, for further details on the access provisions for these form

Number of

Total number of deaths	Total number of cases with days away	Total number of cases with job transfer or restriction	Total number of other recordable cases
(G)	(H)	(I)	(J)

Number of Days

Total number of days away from work		Total number of days of job transfer or restriction	
(K)		(L)	

Injury and Illness

Total number of… (M)			
(1) Injury		(4) Poisoning	
(2) Skin Disorder		(5) Hearing Loss	
(3) Respiratory Condition		(6) All Other Illnesses	

Establishment information

Your establishment name _____

Street _____

City _____ State _____ Zip _____

Industry description (e.g., Manufacture of motor truck trailers)

_____

Standard Industrial Classification (SIC), if known (e.g., SIC 3715)

____ ____ ____ ____

OR North American Industrial Classification (NAICS), if known (e.g., 336212)

____ ____ ____ ____ ____ ____

Employment information

Annual average number of employees _____

Total hours worked by all employees last year _____

Sign here

Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.

_____ Company executive

_____ Title

_____ Phone

_____ Date

Post this Summary page from February 1 to April 30 of the year following the year covered by the form

Public reporting burden for this collection of information is estimated to average 50 minutes per response, including time to review the instruction, gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Ave, NW, Washington, DC 20210. Do not send the this office.

INCIDENT INVESTIGATION & REVIEW

SECTION 1 - PURPOSE

To provide an outline of the measures necessary to investigate and reconstruct the accident scene, analyze the findings and circumstances involved, and insure the quality of documentation in order to form an accurate understanding of the immediate and basic causes of an accident.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

All employees will be instructed to report any injury, regardless of the apparent severity, to their immediate supervisor as soon after the accident occurs as possible. Each of these accidents will be investigated by management personnel and the results accurately and timely documented.

SECTION 4 - GENERAL

It can be said that the only purpose accidents serve is to provide us with enough information which will enable us to take appropriate action to prevent similar occurrences on a continuing basis. But this is only true if we learn from our experiences. All accidents, regardless of their apparent severity at the time of occurrence, must be investigated by the worker's immediate supervisor and the results detailed on the Supervisor's Incident Report form. When supplemental information is required, the Incident Investigation Report, found in this Section, should be used.

SECTION 5 - SUPERVISOR'S INCIDENT REPORT

When an accident occurs it is the responsibility of the injured employee's immediate supervisor to conduct a preliminary investigation of the accident, complete the Supervisor's Incident Report form and take whatever immediate action is necessary to prevent the recurrence of a similar type accident. The Supervisor's Incident Report form must be completed in its entirety.

SECTION 6 - INCIDENT INVESTIGATION

Each incident should be investigated in order to determine the specific facts as they relate to the incident. The Incident Investigation form should be used to record this factual information. The investigation should commence as soon as possible after the incident is under control, but not later than the first work day after the incident.

6.1 Investigation Procedure Suggestions

1. Interview witnesses and participants as soon as possible after the incident. In a Class III incident, the statement of each should be recorded and signed promptly. No additional interviews should be conducted without advice of Counsel.

2. Obtain a chronological sequence of events. Do not solicit opinions as to the cause of the incident.

3. Note the location, participants, activity of participants, job number, time and date of incident, etc., in order to describe exactly what happened in detail.

4. Obtain weather conditions, unless the incident occurred indoors.

5. Ascertain the location and position of any switches, controls, etc., that may have a connection to the incident.

6. Verify or have verified, the condition of all safeguards used at the time of the incident.

7. Do not allow any equipment involved in the incident to be removed from the premises or scene of the incident without consultation with legal Counsel.

6.2 Identifying Action to be Taken

1. After the initial facts concerning the incident are gathered and analyzed, the action to be taken should be identified. This action is generally based upon the two types of factors typically existing in an incident: Causative and Contributing. Several factors may exist in each of these two categories.

- **Causative Factors**

  Causative factors are those which are self evident or readily deducted from the observed facts as the immediate reason(s) the incident occurred, e.g. a foreign body in the eye, injured party not wearing eye protection. Causative factor is the failure to use proper eye protection. In more complex incidents, further investigation will often be required to establish one or more causative factors.

- **Contributing Factors**

  Contributing factors may either underlie the causative factor(s) or combine with them in an ultimate causation. In the former instance, asking why the apparent causal factor was allowed to exist will be sufficient, e.g. why did the injured party not use eye protection. In more complex incidents, further investigation may be required to

determine what factors could have combined with the causative factors to result in the incident.

6.3 In tentatively identifying the action to be taken, it should be remembered there may be, in addition to those factors causing or contributing to the incident, other facts and circumstances which should be considered during the investigation. The action to be taken is an outcome of the facts of the investigation and not an opinion of conjecture based on incomplete or inconclusive information.

SECTION 7 - THE INCIDENT REVIEW PROCESS

The primary purpose of the Incident Review Process is to:

- insure that key members of management are directly involved in the review of each incident;
- insure that all of the facts contributing to the incident are determined; and
- insure that all of the information developed is utilized in a timely manner to prevent a reoccurrence of the incident.

The Incident Review Process should not be looked upon as a means of determining who is at fault, nor is it intended to be a finger pointing exercise. It is intended to be an extremely useful tool in insuring that key management personnel are involved in the review of each and every incident that occurs.

SECTION 8 - THE INCIDENT REVIEW TEAM

The Incident Review Team should be composed of each member of management in the chain of supervision which leads from the individual involved in the incident up to and including the Presidents. In most cases, this will include at least the following:

The Presidents	The Project Manager
The General Superintendents	The Safety Director
The Supervisor involved	The Health & Safety
The employee involved	Any witnesses to the incident

And any other member of management, who will derive a benefit from being a member of the Incident Review Team, should be included.

SECTION 9 - SCHEDULING THE REVIEW

An effort must be made to convene the Incident Review as quickly as possible following notification of the incident, and only in extreme cases should the time of the review exceed 72 hours from the time of the incident.

All OSHA recordable incidents must undergo an Incident Review Process. Unless otherwise directed by Safety Director, the use of the Incident Review Process on all other incidents will be left to the discretion of the Presidents.

SECTION 10 - INCIDENT REVIEW FORMAT (Discretionary)

An Incident Review Format is attached for your convenience. This is not meant to be a prescribed format, but is only intended to serve as a suggested guideline. Please feel free to either design your own format or use the one furnished.

SECTION 11 - CONCLUSION OF THE REVIEW

At the conclusion of the Incident Review process on all OSHA recordable incidents, the Presidents are required to provide Health & Safety with a brief summary of the results of the review process and a copy of the completed review.

The final disposition of the Incident Review is left to the Presidents and Safety Director.

OSHA RECORDKEEPING

SECTION 1 - PURPOSE

To establish uniform guidelines to insure compliance with the reporting and record keeping requirements of the Occupational Safety and Health Administration (OSHA). To help identify problem areas and track injuries and illnesses so that AMPCO can find ways to prevent them. Good records also enable AMPCO to provide information to our employees that will encourage them to follow safe work practices and report workplace hazards.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

AMPCO will voluntarily comply with the OSHA Standards (29 CFR Part 1904), display the OSHA Poster, report to OSHA all accidents resulting in a fatality within 8 hours or the hospitalization, amputation and/or loss of an eye within 24 hours, and maintain the necessary records of all reportable accidents.

SECTION 4 - OSHA RECORDKEEPING FORMS

OSHA recordkeeping is not complicated. Only three forms must be maintained.

4.1 The Log of Work-Related Injuries and Illness (OSHA 300 Log)

The *Log of Work-Related Injuries and Illnesses* is used to classify work-related injuries and illnesses and to note the extent and severity of each case. When an incident occurs, use the Log to record specific details about what happened and how it happened. You must enter each recordable injury or illness on the OSHA 300 Log within seven (7) calendar days of receiving information that a recordable injury or illness has occurred, but not every injury or illness occurring in the workplace is recordable. A list of first aid treatments can be found in Section 3-1.10. However, if a work-related injury or illness results in medical treatment beyond first aid, you must record it on the OSHA 300 Log (found in Section 3-1.14). Additional assistance to determine which cases are recordable can be found in Section 3-1.10 of the Corporate Safety Program.

4.2 The Injury and Illness Incident Report (OSHA's Form 301)

For every recordable injury or illness entered on the OSHA 300 Log, it is necessary to record additional information on the OSHA Form 301. However, the OSHA 301 is not the only form that can be used to satisfy this requirement. State reporting forms, workers compensation forms, insurance reporting forms, company's supervisor's first report or other reporting forms may be used as supplementary records if they contain all of the items included on the OSHA 301.

Since each state in which AMPCO works requires us to complete a state notification form, generally known as the Employers First Report of Injury or Illness, for every recordable accident AMPCO will use the Supervisor's Incident Report found in Section 3-1.8 together with the State reporting form to satisfy this requirement.

As with the OSHA 300 Log, the supplementary record must be completed and present within the Company within seven (7) calendar days after the employer has received information that the injury or illness has occurred.

4.3 The Summary of Work-Related Injuries and Illness (OSHA's Form 300A)

The *Summary* – a separate form – shows the work-related injury and illness totals for the year in each category. At the end of the year, count the number of incidents in each category and transfer the totals from the Log to the Summary. Then post the Summary in a visible location so that AMPCO employees are aware of injuries and illnesses occurring in their workplace. The OSHA 300A can be found in Section 3-1.15. You don't post the Log. You post only the Summary at the end of the year.

SECTION 5 - LOCATION AND MAINTENANCE OF RECORDS

A separate OSHA 300 Log for each establishment that is expected to be in operation for one year or longer must be maintained. However, you do not have to keep a separate OSHA 300 Log for each short-term establishment. You may include short-term establishments' recordable injuries and illnesses on an OSHA 300 Log that covers short-term establishments for individual company divisions. The records may be kept for an establishment at the branch headquarters or other central location only if you can:

- Transmit information about the injuries and illnesses from the establishment to the central location within seven (7) calendar days of receiving information that a recordable injury or illness has occurred; and

Produce and send the records from the central location to the establishment within the time frames required by 1904.35 and 1904.40 when you are required to provide records to a government representative, employees, former employees or employee representatives.

SECTION 6 - POSTING REQUIREMENTS

From February 1st to April 30th, each establishment must post in areas where notices to employees are customarily posted, a copy of the annual summary - OSHA 300A form.

Establishments having no recordable injuries or illnesses during the year must enter zeros on the total line and post the form 300A as described.

A company executive must certify that he or she has examined the OSHA 300 Log and that he or she reasonable believes, based on his or her knowledge of the process by which the information was recorded, that the annual summary (OSHA 300A) is correct and complete. The company executive who certifies the log must be one of the following persons:

- An owner of the company;
- An officer of the corporation;
- The highest ranking company official working at the establishment; or
- The immediate supervisor of the highest ranking company official working at the establishment.

SECTION 7 - MONTHLY REPORT OF OSHA RECORDABLES

Each month, a report of OSHA Recordable injuries and illnesses (Monthly Branch Review) must be completed for the Presidents by the Safety Director or Designee and forwarded to the Office in sufficient time to allow for its arrival prior to the 7th day of each month. The Safety Director will then generate a monthly summary (Safety Tracks) to the presidents and Management.

SECTION 8 - RECORD MAINTENANCE, RETENTION, AND ACCESS

Recordkeeping forms must be retained for five (5) years following the close of the calendar year to which they relate. Additionally, during the storage period, you must update the stored OSHA 300 Logs to include newly discovered recordable injuries or illnesses and to show any changes that have occurred in the classification of previously recorded injuries and illnesses. If the description or outcome of a case changes, you must remove or line out the original entry and enter the new information. All recordkeeping forms, both current and retained, must be available at the establishment for inspection and copying by the representatives of state or federal OSHA. Note: You are not required to update the annual summary.

Procedure 3-3

The OSHA 300 Log will, upon request, be made available by AMPCO to any employee, former employee, personal representative, or authorized employee representative for examination and copying by the next business day. You must leave the names on the OSHA 300 Log unless a "Privacy Concern Case" exists (see paragraphs 1904.29(b)(6) through 1904.29(b)(9). Access to the OSHA 300 Log and/or OSHA 301 shall be for any establishment in which the employee is or has been employed and covers all logs required to be maintained or retained by the employer. The OSHA 301 (or equivalent reports) will be made available to an employee representative representing employees under a collective bargaining agreement within seven (7) calendar days.

RECORDKEEPING REQUIREMENTS

SECTION 1 - PURPOSE

To maintain all records required by AMPCO and those local, state, and federal regulatory agencies involved, and to assure the retention, availability, and transfer of those records in compliance with the applicable standards.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

It is the policy of AMPCO to voluntarily comply with each of the recordkeeping requirements of all local, state, and federal regulatory agencies having published compliance standards governing the scope of work in which AMPCO is involved.

SECTION 4 - RECORDKEEPING

Asbestos Records: AMPCO has made the decision to maintain all of its pertinent asbestos related records for a minimum of thirty (30) years. For personnel records, this will be thirty (30) years following the employee's last day of employment, and in the case of job records, it will be thirty (30) years following the completion of the project.

These 30 year records will include, but are not necessarily limited to, the records indicated on the List of Mandatory Forms for Personnel Records Retention and the List of Mandatory Forms for Job Records Retention. Although OSHA has now indicated that thirty year retention of certain records are no longer required for short term employees, AMPCO will not differentiate between short and long term employment, but will maintain all personnel, medical and training records for at least 30 years following the employee's last day of employment.

Training Records: AMPCO will maintain all employee training records for a minimum of thirty (30) years beyond the last date of employment.

SECTION 5 - DOCUMENT STORAGE AND RETRIEVAL

Currently AMPCO maintains all records at the individual branch offices for the length of time required by the various regulatory agency standards. At some point in time, the records will be transformed from hard copy to electronic copy. The hard copy is then retained in a secured facility, while both the electronic copies are retained in the system and at a storage location.

SECTION 6 - TRANSFER OF RECORDS

AMPCO Services Inc. will comply with all requirements concerning transfer of records as set forth in 29 CFR 1910.1020.

Whenever a AMPCO subsidiary or affiliate ceases to do business and there is no successor employer to receive and retain the records for the prescribed period, the records will be transferred to AMPCO for retention. In the unlikely event that AMPCO should cease to do business and there is successor employer to receive and retain the records, then AMPCO will notify OSHA and NIOSH at least ninety (90) days prior to disposal and, upon request, transmit the records to OSHA.

SECTION 7 - AVAILABILITY OF RECORDS

AMPCO will, upon written request, make all records required to be maintained by any of the OSHA Standards, available to the Assistant Secretary of Labor (OSHA) for examination and copying.

AMPCO will, upon request, make any exposure records required by any of the Standards, available for examination and copying to affected employees, former employees, designated representatives of those employees, physicians designated by the employee and the Assistant Secretary, in accordance with 29 CFR 1910.1020.

AMPCO will, upon request, make employee medical records required by the Standards, available for examination and copying to the subject employee, anyone having the specific written consent of the subject employee, and the Assistant Secretary, in accordance with 29 CFR 1910.1020.

SECTION 8 - MANDATORY RECORDS

8.1 Personnel Records

A copy of this list should be attached to the inside cover of each employee's personnel file to ensure the use of these forms which are required in the Personnel Records Retention Package by either AMPCO or the federal government for a minimum of thirty (30) years

following the employee's last day of employment.

- New Employee Information
- Alcohol and Drug Free Workplace Acknowledgement
- Alcohol and Drug Testing Results *
- Initial Medical Questionnaire *
- Periodic Medical Questionnaire *
- Additional Medical Information *
- Work Practice for Asbestos Abatement Projects
- Physician's Written Opinion
- Respirator Training Record and Fit-Test Record
- Certificate of Worker's Acknowledgement
- Any Asbestos or Lead licenses
- All Training Records
- Biological Monitoring Results *
- Employee Exposure Records *

*Those records marked with an asterisk are considered to be Medical Records and, therefore, must be maintained in keeping with Section 3-5 of the Corporate Safety Manual.

8.2 Job Records

A copy of this list should be attached to the inside cover of each job file to ensure the use of these forms which are required by either AMPCO or the federal government in the Job Records Retention Package for a minimum of thirty (30) years.

- Company Letter to Physician
- Anticipated Respiratory Protection Requirements
- Initial Exposure Assessment
- Construction Daily Safety Meeting Report
- Daily Sign-in / Sign-out Log form (Containment Log)
- Daily Air Monitoring Report
- Personnel Assigned to Project
- Asbestos Project Notification
- Competent Person's Daily Inspection Checklist
- Supervisor's Daily Logs.
- Applicable Material Safety Data Sheets

Procedure 3-4

- Hazardous Chemical Inventories
- Background Data to Environmental Monitoring

MEDICAL RECORDS

SECTION 1 - PURPOSE

The purpose of this guideline is to specify the method for maintaining and storing medical records. Medical records, including both employee health and exposure records, must have secure storage for confidentiality reasons. Adherence to this guideline meets the requirements of Access to Employee Exposure and Medical Records, OSHA 1910.1020.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

It is the policy of the Company to maintain the confidentiality of all employee health records yet still allow access to employees, their designated representatives, appropriate medical and regulatory offices. In cases where conflict may exist, the Company may request that written consent be obtained from the employee prior to release of medical records.

SECTION 4 - GENERAL

Employee exposure records, medical records and related material will be maintained by the Company for the appropriate period of time required by OSHA. Access to these records will be provided in strict accordance with 29 CFR 1910.1020, OSHA's Assess to Employee Exposure and Medical Records Standard.

Physician Written Opinions are not categorized as medical records.

SECTION 5 - DEFINITIONS

5.1 Employee Exposure Records

Means a record containing any of the following:

- Environmental (within the workplace) monitoring or measuring of a toxic substance or harmful physical agent, which includes personal, area, grab, wipe or other form of sampling as well as related collection and analytical methods,

calculations or other relevant data;

- Biological monitoring results that directly assess the absorption of a toxic substance or harmful agent by the body, but not including results which assess an employee's use of alcohol or drugs;
- Safety Data Sheets, which indicate that the material may pose a hazard to human health; and
- In the absence of the above, the Hazardous Chemical Inventory, which reveals where and when used and the identity of the chemical.

Note: Refer to Section 7-2 Hazard Communication of the Corporate Safety Program in dealing with the SDS and inventory referenced above.

5.2 Employee Medical Records

Means a record concerning the health status of an employee which is generated or maintained by a physician, nurse or other health care personnel or technician including any of the following:

- Medical histories and employment questionnaires (including job description and occupation exposures);
- Results of medical examinations (pre-employment, pre-assignment, periodic or episodic) and laboratory tests (including X-rays and biological monitoring);
- Medical opinions, diagnoses, progress notes and recommendations;
- First aid records (unless they do not include medical treatment and are maintained separately from the medical records program);
- Descriptions of treatments and prescriptions; and
- Employee medical complaints.

SECTION 6 - RECORDS RETENTION

6.1 Employee Medical and Exposure Records

Since most of the specific occupational safety and health standards provide for different periods of time for record retention, AMPCO has determined that all employee medical records and employee exposure record will be preserved and maintained for at least the duration of employment plus thirty (30) years following the employee’s last day of employment.

SECTION 7 - RECORD MAINTENANCE AND STORAGE

7.1 Location of Records

- **Medical Records:** Medical records, including exposure records, will be forwarded immediately from the jobsite or the medical facility to the Branch office where they will be maintained throughout the length of the project. These records will continue to be maintained at the office, as long as the employee is actively employed within the Office. If the employee moves to another Office, the appropriate medical records will be transferred to the new Office. When the employee leaves employment with AMPCO, the records will then be entered into the Company's document storage and retrieval system, where they will be maintained for the appropriate time period.

  In some instances, it may be more practical to have the medical records maintained by the medical facility coordinating each Office's medical program. The medical facility personnel should be well acquainted with the Office typical project activity and related hazards. Medical facility management should be aware of this guideline and provided with a legible copy of 1910.1020 Access to Employee Exposure and Medical Records.

- **Other Records:** Each Office should maintain a copy of all physician's written opinions regarding fitness for duty, exposure monitoring records and employee notifications/acknowledgements and drug testing results.

7.2 Security of Records

Employee medical records should not be maintained as a part of the employee's personnel file. Instead, medical records should be maintained in a separate file, which is adequately secured and which has very limited access. When the medical records are entered into the Company's document storage and retrieval system, they will continue to be maintained in a limited access file.

7.3 Responsibility for Records

An individual must be named as the person responsible for the maintenance of the medical record files and for providing copies, as requested. This individual's name must be provided to each employee in compliance with Paragraph 9.1 of this Section.

SECTION 8 - ACCESS TO RECORDS

8.1 Employee or Designated Representative

- **Exposure Records:** Whenever an employee or designated representative requests access to an exposure record, AMPCO shall assure that access is provided in a reasonable time, place and manner. If AMPCO cannot reasonably provide access to the exposure record within fifteen (15) working days, the employee or designated representative shall be apprised of the reason for the delay and the earliest date when the record can be made available.

- **Medical Records:** Upon request, each employee may have access to their own medical records, however a designated representative may have access to the employees medical records only upon presentation of specific written consent by the employee. Here again, if AMPCO cannot reasonably provide access to the medical records within fifteen (15) working days, the employee or designated representative shall be apprised of the reason for the delay and the earliest date when the record can be made available.

8.2 OSHA Compliance Officer

OSHA Compliance Officers may have access to employee medical and/or exposure records whenever requesting to do so, and may have copies of any and all exposure records. However, requests for copies of specifically identifiable employee medical records must be made in a formal Written Access Order on agency stationery in compliance with 29 CFR 1913.10(d) and must include the specific records to be copied and the specific reason for requesting the copies.

SECTION 9 - EMPLOYEE NOTIFICATION

9.1 Notification

Upon an employee's first entering into employment, and at least annually thereafter, each AMPCO employee covered by this Section shall be informed of the following:

- The existence, location (including address and telephone number), and availability of any records covered by this Section;
- The name of the individual responsible for maintaining and providing access to these records; and each employee's rights of access to these records.

9.2 Copies of 29 CFR 1910.1020

Each AMPCO work site must maintain a copy of the OSHA Standard 29 CFR 1910.1020 Access to Employee and Medical Records, and its appendices, and be prepared to make copies readily available to employees upon request.

EMERGENCY ACTION PLAN

SECTION 1 - PURPOSE

To stress the necessity of developing a site specific Emergency Action Plan for each AMPCO facility and jobsite. Since it would be extremely difficult to provide for all aspects of every type of emergency, the Emergency Action Plan for individual job sites should only attempt to cover a general understanding of what must be done in an emergency.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

Inasmuch as Company management has a moral as well as legal obligation to provide for the safety of its employees, visitors and property, a site specific Emergency Action Plan will be developed for use at all jobsites and facilities.

Since dealing effectively with any type of emergency situation depends upon prompt notification, coordinated mobilization, quick implementation of specific duties and assignments, and the optimum use of the Company's emergency resources, these plans must be coordinated with company-wide emergency planning.

SECTION 4 - EMERGENCY ACTION PLAN

OSHA Standards, 29 CFR 1926.24, entitled Fire Protection and Prevention, and 29 CFR 1926.35, entitled Employee Emergency Action Plans, both require each employer to be responsible for the development and maintenance of an effective Emergency Action Plan at the jobsite. Copies of the Emergency Action Plan must be posted at the jobsite.

4.1 Elements of the Plan

The minimum elements of the Emergency Action Plan, which must be in writing and physically located at the jobsite, must include at least the following:

- The method in which emergency situations are announced.
- Emergency escape procedures and emergency escape route assignments.
- Procedures to be followed by employees who must remain to operate any critical equipment, which has to be shut down before they can evacuate.
- Procedures to account for all employees after the emergency evacuation has been completed.
- Name who will provide rescue and medical duties, as required.
- The method of reporting fires and other emergencies.
- Names and/or job titles, as well as telephone numbers, of persons who can be contacted for additional information about the Emergency Action Plan.

4.2 Training

An Emergency Action Plan, no matter how well written and complete, must be presented to the employees in a language they comprehend. The workers must be trained to know and understand their responsibilities under the plan and that they can carry them out efficiently even under stress conditions. And, the plan must be tested on a continuing basis in order to assure that all personnel are totally familiar with all aspects of the Plan.

Therefore, before implementing the Emergency Action Plan, the project manager must designate and train a sufficient number of workers to assist in the safe and orderly emergency evacuation of all other employees. The Plan must be reviewed with each employee covered by the Plan at the following times: (a) when the Plan is initially developed; (b) whenever responsibilities or designated actions under the Plan change; and (c) whenever the Plan itself is changed.

An aggressive disaster drill is probably the most important feature of any project's Emergency Action Plan, therefore; an attempt should be made to schedule at least one unannounced evacuation drill during each project. When it is not feasible to actually hold a surprise evacuation drill, at least one drill should be scheduled at the beginning of a work shift to be held before the workers change from their street clothes. During this drill, a "walk-through" of the notification alarm and the evacuation routes can be accomplished.

4.3 Basic Concepts

When planning any type of emergency measures to minimize the loss of life and property, the plan must be based upon the five following basic concepts or principles:

- That an accurate assessment has been made as to the vulnerability of the employees and property, and on the basis of this survey, and in addition to any other information, the responsibilities, direction, and procedures to be followed in any such emergency have been determined;

- That the safety of the project is based on relative rather than absolute protection. Since the cost of safety normally increases in proportion to the amount of protection provided, and since absolute protection is virtually unachievable for most job sites, these protective measures represent a compromise of values;

- That the responsibility for the development and implementation of an Emergency Action Plan has been assumed by AMPCO management, company employees, and the officials of those local, state and federal agencies which may also be involved in its operation. This responsibility cannot be delegated or avoided by those in authority;

- That the Emergency Action Plan makes maximum use of existing operating structures, trained public safety fire fighting personnel, safety persons, proven supervisory and technical skills, and material and equipment on hand at the jobsite. The use of these available resources is not only to reduce cost, but also to emphasize the fact that effective emergency measures must involve all endangered personnel; and

- That operational readiness is essential to any emergency plan. When the Emergency Action Plans have been developed, they must be constantly reviewed, tested, and revised, so as to maintain their maximum effectiveness.

SECTION 5 - AREAS OF CONCERN

Emergency planning must develop procedures for dealing with the many types of emergencies which can occur at any time. Each jobsite must, therefore, respond to the four (4) major areas of concern:

- General disaster, such as fires, explosions, etc.;

- Emergency spills or leaks, such as asbestos, hazardous chemicals, etc.;

- Natural disasters, such as flood, tornado, severe storms, etc.; and
- Civil disorders, such as strikes, civil disturbances, etc.

SECTION 6 - FIRE AND EXPLOSION

Because of the particular horror of fire disasters, no aspect of the Emergency Action Plan deserves more attention than what to do in the event of a fire. It has been amply demonstrated that personnel who have been intensively drilled in the proper procedure to follow in a fire emergency, will react swiftly and correctly to minimize the dangers to themselves and their fellow employees, and be better prepared to take fire control measures until local fire authorities arrive on the scene. Information on each of these steps should be included in your emergency action plan.

6.1 Notification

The local fire department must be notified immediately in the event of a fire. This policy must hold true regardless of the size of the fire or the ease with which it may have been extinguished. A second call to the fire department advising them the fire has been extinguished is far better than the possibility of having a fire accidentally get out of control before the fire department has been notified. Employees in the immediate vicinity of the fire, as well as those in surrounding areas which may be threatened by the fire, must also be notified of the existence of the fire at this time.

6.2 Extinguishing Equipment

There must be sufficient numbers of approved fire extinguishing equipment available to facilitate emergency egress from the work area. In order to insure this, there must be at least one 2A type fire extinguisher available in each 3000 square foot of work space. This equipment must be readily accessible, it must be properly maintained at all times, and all personnel must be familiar with its operation and location.

SECTION 7 - BASIC STEPS IN FIRE PROTECTION

The following are the basic steps in any type of fire protection plan, and must be implemented into your site specific Emergency Action Plan.

7.1 Discovering the Fire

Any person discovering a fire, should quickly and carefully remove anyone who is injured

or in immediate danger. This person must be careful not to risk injury to themselves, as it is most important that he remain conscious and able to report the fire.

7.2 Reporting the Fire

When possible, the nearest telephone should be used to report the fire, with the individual reporting the fire providing the following information: That there is a fire; what is on fire; the specific location of the fire; and the name, telephone number, and location of the person reporting the fire. If there is an automatic fire alarm reporting in operation at the fire location, this system should be used in addition to the telephone reporting. Emergency telephone numbers for fire department, hospital, ambulance, doctor, police, and safety office, must be posted throughout the jobsite and at each telephone location.

7.3 Sounding the Alarm

It will also be necessary to establish a system for alerting workers of the emergency and of the need to evacuate the work area. Ideally this would be some type of sound system that could be heard throughout the work area. This sound system can be anything from a loud bell to a hand-held compressed air boat horn of the type used on small boats. The object being to have some type of blaring sound that can be heard by all of the workers and immediately identified as an alarm indicating there is an emergency situation in the work area. When working on a site or in a facility that has its own emergency annunciating system, elements of this existing alarm system should be a part of the Emergency Action Plan, however; the use of the customer's site alarm does not relieve AMPCO of the necessity of having its own alarm system.

7.4 Containing the Fire

Having reported and sounded the alarm, attempts should now be made to contain the fire. This should be done by closing all doors and windows in the immediate vicinity of the fire and trying to remove any flammable materials. If possible, all non-emergency electrical equipment in the immediate vicinity of the fire should be turned off or unplugged.

7.5 Extinguishing the Fire

Extinguishing the fire should be attempted only if there is portable fire fighting equipment available and the fire is in its incipient stage that is, initial or beginning, stage and can be safely controlled or extinguished with this equipment. If the size of the fire presents an immediate danger to life or health, evacuation, not fire fighting, should be the primary objective.

7.6 Evacuation

When evacuation is deemed necessary, there must be no hesitation in requiring personnel to immediately vacate the area. Emergency exits and other means of exit from the area must be noted prior to the start of the job and located on an emergency exit floor plan, which is then made a part of the Emergency Action Plan. Both primary and secondary routes must be selected in case the emergency situation makes it perilous to use one or the other routes. Copies of this emergency exit floor plan must be posted in numerous locations throughout the project. A staging area must be pre-selected and all personnel required to report there immediately for a roll call to assure that all are present and accounted for. Once out of the area, no one should be allowed to re-enter until the emergency is declared over.

NOTE: Wherever possible, develop more than one evacuation route. And remember, emergency evacuation routes for a fire may not necessarily be the same evacuation routes to use during some other type of emergency situation. Be certain to analyze the entire Emergency Action Plan and take into consideration the type of emergency, the possible wind directions, fences, closed off areas, buildings, etc., and then label the escape routes accordingly.

SECTION 8 - EMERGENCY SPILLS OR RELEASE

Even in a well planned and executed program, the possibility exists that an accident will occur and an emergency spill or toxic chemical release will take place. Recognition of this fact requires that suitable emergency procedures must be prepared before hand and must be made known to all persons potentially involved. Each Office must give consideration to the nature of possible accidents resulting in an emergency spill or a toxic chemical release and must design methods for dealing with them, as part of their Emergency Action Response Plan. Refer to Section 4-2 of this Manual.

SECTION 9 - TOXIC CHEMICAL RELEASE

The potential hazard of a toxic chemical release is most likely to occur while working on an industrial site, with operations at petro-chemical plants and refineries having the highest likelihood of occurrence. Most industrial sites of this nature will generally have their own Emergency Action Plan, which we will be required to comply with. This however, does not relieve us of the necessity of having our own Emergency Action Plan to deal with a customer's toxic chemical release.

9.1 Basic Steps

Basically, the same type of procedures used in reporting, sounding the alarm, determining evacuation routes and assembly points, etc., as those discussed in Paragraph 6.0 Fire and Explosion, should be used in developing an Emergency Action Plan for a toxic chemical

release. Additional considerations, such as determining wind direction, use of emergency respirators, type of release, etc., must also be a necessary part of this plan.

SECTION 10 - HAZARDOUS CHEMICAL SPILL

The following procedures must be carried out in the event of a hazardous chemical spill:

10.1 Internal Notification

Immediately notify AMPCO site management, AMPCO Safety Office and safety personnel, the customer's representative, and the industrial hygienist at the work site and follow the Incident Notification Table.

10.2 Clear the Area

Clear the location of all persons except those needed to deal with the spill.

10.3 Determine Extent of Spill

Determine the nature of the spill, its size, and the source of the spill. Use Safety Data Sheets to determine the seriousness of the spill and what types of precautions are necessary in dealing with the spill.

10.4 Outside Notification

There are certain hazardous substances listed in 40 CFR 302.6 by the U.S. Environmental Protection Agency that require immediate notification to either, local, state or federal authorities in the event of a spill. Depending upon the hazardous substance involved and the amount or quantity of the spill, which occurs within any 24-hour period, it may be necessary to notify the federal government, local public safety officials, such as police or fire department, and specific agencies of local or state government. In cases of this type, every effort should be made to contact either the Safety Director or Health & Safety in order to have them make the required notification.

10.5 Contain the Spill

Control or stop the source and contain the spill. In the case of asbestos, this would mean spraying the spill with a fine mist of amended water and covering the spill with 6-mil polyethylene. Depending upon the hazardous material involved, limit access to drains and air inlets of the air conditioning, heating, and ventilation systems to prevent further spread of the material.

10.6 Enclosure

When required, construct an enclosure around the area of the spill, and if necessary, include decontamination facilities. The enclosure should be large enough to enable the workers to utilize whatever mechanical and/or electrical equipment that is required to clean up the spill. If differential pressure is a requirement of the enclosure, Air Filtration Devices should be used. All workers entering the enclosure must be utilizing the required personal protective equipment, such as respirators, protective clothing, decontamination facilities, etc.

10.7 Air Sampling

The industrial hygienist should be collecting air samples of the worker's breathing zone and the surrounding area, and medical surveillance should be initiated;

10.8 Clean-up Procedures

Recognized clean-up procedures, according to the type of material involved, must be initiated and should continue until the area receives a final clearance. Approved waste containers must be used and disposed of in accordance with regulated procedures.

10.9 Removal

Removal of the enclosure and decontamination facilities must be in accordance with prescribed procedures for the material involved.

10.10 Final Notification

Notify all interested parties when the spill has been successfully cleaned up and final clearance samples indicate acceptance.

SECTION 11 - NATURAL DISASTERS

Floods, tornadoes, severe thunderstorms, and blizzards are but a few of the natural disasters that occur each year throughout the country, for which we must be prepared, if we are to provide the type of protection necessary for our employees and our property. Except for flash floods, most of these conditions are usually forecast sufficiently in advance for emergency action to be initiated before the problem becomes serious.

In most cases, merely advising our personnel of the coming danger and seeing to it that they are in a safe location, should the incident occur during normal work hours, will be sufficient. For example, if a Tornado Warning is broadcast while our personnel are working in a location that

does not provide the degree of protection necessary, they should be advised of the warning and moved to a structurally sound interior location that would provide adequate protection from the weather, wind blown objects, and broken glass.

SECTION 12 - CIVIL DISORDERS

Civil disorders, usually in the form of large unruly crowds, can interfere with company operations, and if allowed to get completely out of control, can cause severe damage to property and personnel.

12.1 Civil Disturbances

It is impossible to accurately gauge the mental attitude of a large assembly of people. Crowds have been known to assemble for one reason, then inadvertently, deliberately, out of spite, or in fun, attempt to disrupt normal operations. Since the purpose and mental attitude of individuals within a crowd varies considerably, even friendly demonstrators can trigger disturbances and violence. It is, therefore, necessary to stress to our employees that they must remain distant from the demonstration and alert to the possibility of crowd violence.

12.2 Strikes and Labor Actions

In the event of a strike by employees and/or labor demonstrations in the vicinity of the work site, the following items should be considered: normal work operations should be maintained as much as possible and all employees encouraged to continue in their normal work habits; workers who are not involved in the strike action should not agitate the demonstrators in any way; all workers should be removed from the actual demonstration area and verbal or physical confrontations avoided; no AMPCO employees should be utilized in calming the disturbance, that would place them in a situation where physical harm might occur or that would jeopardize their normal working relationship with the demonstrators at the conclusion of the disturbance.

SECTION 13 - NEWS MEDIA POLICY

The extreme public sensitivity and media awareness of hazardous materials and their safe removal prompts AMPCO to establish specific guidelines how inquiries from the news media should be addressed. Our objective is to maintain a central spokesperson or "voice" for AMPCO, which should ensure that only informed and consistent information is made public about our activities. The Presidents or Safety Director should coordinate all media and public information, including the designation of spokesperson(s).

Potential News-Making Events

Should an incident occur within an Office, which is likely to or could reasonably be expected to result in media interest, management should notify the Company President as soon as possible so that a Company position and response can be formulated. "Potential news-making events" include, but are not limited to, involuntary shutdown of a project due to regulatory agency allegations of safety or administrative noncompliance, serious injury or death of an employee on a jobsite, union or employee unrest or public disturbance due to fear of hazardous materials.

13.1 Media Inquiry Procedure

All inquiries or requests for interview from the news media (radio, television or newspaper) should be referred directly to the respective Branch Manager. Employees receiving calls from reporters, regardless of the nature of their inquiry, should respond with a statement such as:

"I appreciate your interest and would like to get you the information you need. All public information is handled out of our Corporate Office, and I will have someone get back with you, as soon as possible."

Employees receiving media calls should immediately notify the Presidents by telephone and provide background on the inquiry. The Presidents will respond. Employees should not provide a "no comment" about an issue, nor should employees ask a reporter if they can make an "off the record" statement. "No comment" replies normally imply guilt, and all statements a Company employee makes to the media are considered authorized information.

EMERGENCY RESPONSE PROCEDURES

SECTION 1 - PURPOSE

This procedure describes the minimum requirements for an Emergency Response Plan, as required in 29 CFR 1926.65.

SECTION 2 - SCOPE

This Section applies to all AMPCO operations.

SECTION 3 - POLICY

When responding to either an on-site or client emergency situation, AMPCO will operate under the client's Emergency Response Plan or the provisions outlined in this procedure.

SECTION 4 - INTEGRATED APPROACH

By adopting an integrated approach to Emergency Response Action (Spills) planning, AMPCO can maintain a state of readiness for incidents occurring just about anywhere. Environmental, health and safety regulations demand coordinated planning between all interested parties.

SECTION 5 - GENERAL REQUIREMENTS

5.1 Pre-Emergency Planning

Prior to engaging in emergency response activities, AMPCO will endeavor to anticipate possible scenarios and have on stand-by, sufficient inventory and adequately trained manpower to respond.

5.1.1 Inventory - Stand-by inventory will be for emergencies only. This inventory will be replenished after every use.

5.1.2 Certification - Emergency responders will be current in regards to training and medical surveillance programs. Copies of all applicable certificates will be kept on file for personnel required to respond.

5.1.3 Briefing - Prior to leaving the response center, it will be the responsibility of the response supervisor to brief the response team on anticipated hazards at the site. The response supervisor shall also be responsible for anticipating and requesting equipment that will be needed for response activities.

5.2 Personnel Roles, Lines of Authority and Communication

The senior supervisor arriving at the spill shall become the individual in charge of a site-specific response action. All emergency responders and their communications shall be coordinated and controlled through the individual in charge of the response action.

5.2.1 Coordination - Upon arrival at the spill site, the AMPCO response supervisor will coordinate the activities of the response team through the individual that is in charge of the response action.

5.2.2 Authority - The response supervisor will develop the lines of authority for the individuals that make up the response team and also address the interactions with others (employers, client and regulatory agents). These lines of authority will be posted at the site in an area where they are accessible to all personnel.

5.2.3 Communication - Communication will be established prior to commencement of any activities at the response site. Communication will be established so that all responders on site have availability to all pertinent information, to allow them to conduct their activities in a safe and healthful manner.

5.2.4 First Responder Awareness Level - are individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the proper authorities of the release. They will take no further action beyond notifying the authorities of the release.

SECTION 6 - EMERGENCY RECOGNITION AND PREVENTION

6.1 Recognizing the Hazard

Because unrecognized hazards translate into emergencies, it will be the responsibility of the site supervisor and the site safety officer to recognize and identify all hazards that are found at the response site. These may include:

Chemical Hazards

- Materials at the site
- Materials brought to the site

Physical Hazards

- Temperature extremes
- Fire/explosion
- Slip/trip/fall
- Electrocution
- Poisonous plants/animals
- Confined space
- IDLH atmospheres
- Excessive noise

Other Hazards

- Heavy equipment
- Stored energy system
- Pinch points
- Electrical equipment
- Vehicle traffic

6.2 Controlling the Hazard

Once a hazard has been recognized the site supervisor and/or the site safety officer will endeavor to prevent the hazard from becoming an emergency. This may be accomplished by the following:

- Procure SDS for all chemicals involved
- Daily safety meeting
- Task specific training prior to commencement of activity
- Lock-out/tag-out
- PPE selection/use
- Permitting - hot work, confined space
- Trenching/shoring procedure
- Air monitoring
- Following AMPCO's Corporate Safety Program

6.3 Safe Distances and Places of Refuge

Prior to the beginning of any work at an emergency response site, the site supervisor and/or site safety officer will designate and identify both safe distances and places of refuge.

A safe distance will be established for:

- Third parties
- Support staff

- Hazard remediation workers

Each of the above groups of individuals must be made aware of these distances from the work site and these distances must be strictly enforced with site control and local law enforcement or site security staff.

Places of refuge must be established prior to the commencement of activities. These areas must be identified for the following incidents:

- Chemical release
- Fire/explosion
- Power loss
- Medical emergency
- Foul weather
- Rest and breaks

In the event of an emergency, all the employees will gather at the designated place of refuge until a head count established that all are present and accounted for. No one is to leave the site without notifying the project supervisor.

6.4 Site Security and Control

All sites must be controlled before Emergency Response Actions begin.

Security will prevent access to the site by third parties other than the client, other contractors and regulatory agents.

Security and control can be established by local law enforcement, private security firms, AMPCO employees or the client's security force.

When feasible, the site should be fenced, taped or barricaded to clearly outline the hazardous area.

In all emergencies, the buddy system shall be used.

SECTION 7 - EVACUATION ROUTES AND PROCEDURES

7.1 Evacuation Routes

The site supervisor and/or site safety officer will develop and post a diagram of the site evacuation routes. Once established, evacuation routes from the site will be communicated to all personnel. Consideration should be given to marking escape routes, especially in confusing situations.

7.2 When to Use

The site evacuation routes will be used in the event of:

- Uncontrolled reactions
- Fire/explosions
- Foul weather
- Medical emergencies
- Power loss

7.3 Evacuation Procedures

The procedures for evacuation will be covered in a site safety meeting prior to commencement of emergency response activities.

SECTION 8 - DECONTAMINATION

8.1 Decontamination procedures will be established before any emergency response is undertaken.

8.2 All equipment used during a response to emergency situations involving hazardous chemicals will be decontaminated prior to leaving the site.

8.3 No equipment shall return to the warehouse until it has been properly decontaminated.

8.4 Personnel will avoid becoming grossly contaminated during emergency response activities.

8.5 All decontamination procedures outlined in the site health and safety plans will be observed.

SECTION 9 - EMERGENCY MEDICAL TREATMENT AND FIRST-AID

9.1 Responsibility

The site supervisor is responsible for determining the need for and establishing emergency medical treatment requirements for each emergency response. He or she may delegate that responsibility to the site safety officer. As a minimum, a local hospital or emergency care facility shall be contacted and provisions made for transportation of personnel to that location in the event of an emergency at the work site.

9.2 First Aid Kits

AMPCO shall ensure that all sites have an appropriately sized industrial first-aid kit that complies with the requirements of ANSI Z308.1-1998. An eyewash station and safety shower will also be established if corrosive materials are expected to be encountered.

9.3 First Aid Training

AMPCO is required to provide at least one individual that is certified in cardio-pulmonary resuscitation (CPR), first-aid procedures, and Bloodborne Pathogen training at each site.

9.4 First Aid Application

AMPCO employees will apply first-aid techniques to the best of their ability and in accordance with the Company's Bloodborne Pathogen Program, contained in Section 7-6 of this Manual, until emergency medical technicians (EMT) arrive.

9.5 Supervisor's Incident Report

All injuries, no matter how small, will be reported to the site safety officer or the site supervisor. A Supervisor's Incident Report will be completely and properly filled out and submitted to the proper departments.

9.6 Bloodborne Pathogen

AMPCO personnel who may be exposed to blood or other body fluids will don personal protective equipment and follow the procedures outlined in the AMPCO Blood-borne pathogen program, which is contained in Section 7-6 of this Manual.

SECTION 10 - NOTIFICATION

There are certain hazardous substances listed in 40 CFR 302.6 by the U.S. Environmental Protection Agency that require immediate notification to either local, state or federal authorities in the event of a spill. Depending upon the hazardous substance involved and the amount or quantity of the spill, which occurs within any 24-hour period, it may be necessary to notify the federal government, local public safety officials, such as police or fire department, and specific agencies of local or state government.

In all instances where a notification of this type is required, every effort will be made to contact either the Safety Director or Health and Safety, in order to have a member of the Safety Department make the notification.

Note: While a complete list of hazardous substances and their Reporting Quantities are listed in Section 40 Part 302.4 of the Code of Federal Regulations, the following list contains some of the more common reportable substances that we may come into contact with:

Substance	**Reportable Quantity** *(in pounds)*
Asbestos	1
Lead Arsenate	1
Lead	10
PCBs	1
1,1,1, Trichloroethane	1000
Toluene	1000
Arsenic	1

Spills of these substances at or exceeding the Reportable Quantities must be reported immediately to:

The National Response Center: 1-800-424-8802. This is a Hot Line staffed 24-hours a day by the U.S. Coast Guard.

Additional Hot Line numbers, which may be used to report hazardous information, are:

Resource Conservation and Recovery Act (RCRA): 1-800-424-9346

Toxic Substance Control Act (TSCA): 1-202-554-1404

Emergency Planning and Community Right-to-Know Act (EPCRA)(also known as SARA Title 3): contact 911 or call the Operator and request either the police or the fire department.

SECTION 11 - CRITIQUE OF RESPONSE AND FOLLOW-UP

After each emergency response activity, it will be the responsibility of the project manager to develop a critique of the response.

Recommendations for improvement of emergency response activities will be shared to improve our response efforts.

SECTION 12 - PERSONAL PROTECTIVE EQUIPMENT

PPE will be stocked in a Pollution Control Package (PCP) for immediate availability when an emergency call is received.

12.1 Equipment

When responding to an emergency all employees will bring with them:

- Hard hat
- Safety glasses
- Full face piece PAPR respirator with HEPA cartridge
- Steel toed boots
- Training and Medical Certification Documentation

Note: It is the responsibility of each Branch to make sure this equipment and documentation is always available.

12.2 Hazard Level

PPE levels will be established prior to anyone entering the hazardous area. The level of protection required for the response will be established based on the chemical, physical, environmental, or biological hazards present at the incident site. This information should be taken from the product SDS or other reliable source.

Note: Any entry into a hazardous area where the specific product or airborne concentration of the product is unknown MUST be performed in minimum Level B PPE. This should include at least:

- Pressure-demand SCBA or airline respirator
- Tyvek coverall (inner)
- Saranex coverall (outer)
- Sample gloves (inner)
- PVC or neoprene gloves (outer)
- Rubber or Tingly outer boots
- Hard hat
- All seams and joints securely sealed with duct tape

12.3 List

A list of dedicated PPE is included in the PCP inventory.

12.4 Training

All responders will be trained in the use of and proper donning/doffing techniques for all PPE.

12.5 Equipment

Response equipment will vary depending on the situation and the chemical hazard involved. A list of dedicated tools and equipment is included in the PCP inventory.

12.6 Documentation

Documentation and tracking of a project are critical to the overall success of the response effort. A list of paperwork and forms is supplied for domestic and international emergency response. It is the responsibility of the on-scene commander to keep an inventory of this list on hand.

SECTION 13 - ASBESTOS HAZARD

13.1 Determine the Extent of the Hazard

Conduct visual inspection in order to determine the extent of the spill, including quantity and the OSHA Class of hazard.

13.2 Contain the Hazard

Depending upon the class of the hazard, implement the control methods as outlined in Section 10-1, Asbestos Abatement Guidelines.

13.3 Establish a Controlled Environment

Depending on the extent and class of the hazard, establish the necessary controls as specified in Section 10-1, Asbestos Abatement Guidelines, of the AMPCO Corporate Safety Manual.

13.4 Begin Clean-Up Procedures

Clean-up procedures will be in accordance with OSHA's specific class requirements as outlined in Section 10-1, Asbestos Abatement Guidelines.

SECTION 14 - CONDUCT FINAL CLEAN

After the removal of all visible accumulations of asbestos material and debris all surfaces in the work area, and the decontamination units, will be thoroughly cleaned with HEPA filtered vacuums or wet wiped. The decontamination units must also continue to remain in operation.

A second cleaning should now be conducted, again using HEPA filtered vacuums and/or wet wiping all surfaces. When this second cleaning has been completed, AMPCO should conduct a visual inspection of the work area and the decontamination units, to ensure that all areas are free of visible asbestos fibers. With the air filtering units and the decontamination units remaining in operation, all of the remaining poly should be stripped from the work area, leaving only the critical barrier intact.

SECTION 15 - REMOVAL OF TOOLS

At the time of the second cleaning, all remaining tools and equipment remaining in the work area and the decontamination units should be decontaminated by HEPA by vacuuming and/or wet wiping and then removed from the area. Once this is completed, the area is now ready to be visually inspected by the Owner, the Owner's representative, or a representative of the independent air monitoring firm. This individual should be identified in the contract document.

SECTION 16 - ENCAPSULATION

If the results of the inspection are satisfactory, the individual conducting the inspection should release the work area for encapsulation. This involves applying a sealant to the substrate and all of the remaining poly sheeting to "lock down" any tiny invisible fibers which might remain. The mist which occurs during application of the encapsulant helps in settling and sticking down the fibers which are still airborne. An adequate time period should be established to allow the sealant to dry before conducting additional air sampling.

Special attention must be paid to the Safety Data Sheet (SDS) of the encapsulant to be used, since the nature of some encapsulants may effect the requirements for respiratory protection. Vapors that are given off during the application of some encapsulants must be taken into account when selecting respiratory equipment, if other than supplied-air respirators are used.

SECTION 17 - AIR MONITORING

Air monitoring of the work area and the decontamination units should now be conducted to determine the fiber count in these areas. Unless otherwise specified in the contract document, this very important phase of the air sampling will also be conducted by the independent air

monitoring firm retained by AMPCO throughout the project.

If the results of this air sampling show a count of 0.01 or less fibers per cubic centimeter of air, the work area and decontamination units are ready for closeout. If however, there are still sufficient asbestos fibers airborne in the containment area it will require additional cleanings. AMPCO may elect to perform an aggressive cleaning. In any case, AMPCO will continue to perform cleaning operations within the work area and the decontamination units until an acceptable level of decontamination, as specified in the contract document, is obtained.

SECTION 18 - AGGRESSIVE CLEANING

Aggressive cleaning can be performed by blowing all surfaces with a small motorized blower, such as a Leaf Blower, starting at the work area air inlet(s), if any, and proceeding methodically toward the air filtering units(s). Care must be taken to proceed at a pace that is slow enough to allow the general air movement in the room to keep the fiber "cloud" ahead of the blowing activity, so that fibers are not re-deposited on cleaned surfaces. This type of induced air movement will tend to "capture" all of the remaining airborne fibers and trap them in the air filtering units filter media, where they can be permanently removed.

18.1 Conduct Final Clearance Sampling

After visual inspection, have the consultant hygienist begin final clean in accordance with state and federal regulatory requirements.

18.2 Remove Critical Barriers

Upon acceptance of the air monitoring results, AMPCO will now begin dismantling operations of the remaining work area, decontamination units, and critical barriers. Although the area has been tested "clean", all debris from the removal of these areas will be packaged in disposal bags or wrapped and sealed in poly for disposal as contaminated waste.

SECTION 19 - DEMOBILIZE

The air filtering units should be turned off, sealed in poly and transported to the next project. All debris, used cleaning materials, unsalvageable materials used for the enclosures, and any other remaining materials should be disposed of as contaminated waste. All sealed and labeled bags containing contaminated waste will then be removed from the Owner's property, by approved transport methods.

All contaminated waste which has been removed from the project during the demobilization operation will be disposed of at the selected waste disposal site. The transport vehicles will then

be decontaminated and the protective clothing worn by the disposal workers will be included in the disposal process.

FIRE PROTECTION PROGRAM

SECTION 1 - PURPOSE

Define and explain the requirements for an effective fire protection program.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

All personnel employed by AMPCO will at all times, while present on a jobsite or Company property, comply with the requirements of this Fire Protection Program.

The firefighting efforts of AMPCO personnel shall be limited to incipient stage fires only, unless the location has a site fire brigade that complies with the requirements of 29 CFR 1910.156.

SECTION 4 - GENERAL

The firefighting efforts of AMPCO personnel at most locations shall be limited to incipient fire fighting only.

Interior structural fire fighting may be permitted only by site fire brigades that have the equipment and highly trained personnel that fully comply with all of the requirements of 29 CFR 1910.156, Fire Brigades.

SECTION 5 - TRAINING

Where the Company has provided portable fire extinguishers for the use of employees, these employees must receive training in the use of the portable fire extinguishers upon initial employment and at least annually thereafter.

Personnel who work in AMPCO offices and warehouses and who may be required to use fire extinguishers will be provided training periodically to ensure that they are familiar with the correct techniques and procedures.

In addition, if the facility is equipped with small hose rack or reels (1½ inch or less) training shall also be provided with this equipment.

Employees must be trained to recognize various types of fires, how to best fight the fire, and most importantly, when it is time to stop fire fighting efforts and leave the fire scene.

Employees must be trained in all aspects and requirements of the site-specific Emergency Action Plan. This training must be provided to each employee on his or her first day on the job, as part of the new employee's orientation and repeated at least monthly during the course of the project.

SECTION 6 - EMERGENCY ACTION PLAN

(See Section 4-1 of the Corporate Safety Manual)

Each work site must have an Emergency Action Plan. The minimum elements of the Emergency Action Plan, which must be in writing and physically located at the jobsite, must include at least the following:

- The method in which emergency situations are announced.
- Emergency escape procedures and emergency escape route assignments.
- Procedures to be followed by employees who must remain to operate any critical equipment which has to be shut down before they can evacuate.
- Procedures to account for all employees after emergency evacuation have been completed.
- Name who will provide rescue and medical duties, if required.
- The method of reporting fires and other emergencies.
- Names and/or job titles, as well as telephone numbers, of persons who can be contacted for additional information about the Emergency Action Plan.

SECTION 7 - FIRE ALARM SYSTEMS

Emergency alarm systems shall be available in all workplaces where there are ten (10) or more employees. This system and the action required must be explained to each employee, as a part of their first day at work orientation. Fire alarm systems, when used, must meet or exceed the requirements of 29 CFR 1910.165.

SECTION 8 - FIRE DETECTION SYSTEMS

Fire detection systems, when employed, must conform to the requirements of 29 CFR 1910.164.

SECTION 9 - PORTABLE FIRE EXTINGUISHERS

The selection, distribution, inspection, maintenance and testing of portable fire extinguishers shall conform to the requirements of 29 CFR 1910.157.

- All portable fire extinguishers in offices, warehouses and on jobsites must be mounted, located and identified in such a manner that they are readily accessible to the employees without subjecting the employees to possible injury.
- The area immediately adjacent to the mounted fire extinguishers must be kept free of all obstructions.
- Only approved fire extinguishers can be used.
- An inventory of all portable fire extinguishers is to be maintained by each office, warehouse or jobsites.
- All fire extinguishers will be maintained in a fully charged and operable condition and kept in their assigned places, except during use, testing or recharging.
- Any fire extinguisher not meeting the prescribed criteria will be tagged and removed from service until the deficiencies are corrected.

SECTION 10 - MAINTENANCE

Portable fire extinguishers must be maintained in compliance with the requirements of 29 CFR 1910.157.

- All fire extinguishers are to be visually inspected at least monthly.
- An annual inspection must be performed by an approved third party who is trained in fire extinguisher maintenance.
- Records of all inspections must be maintained at the facility or in the project file.
- Dry chemical fire extinguishers must be emptied and inspected by a competent technician every six (6) years.
- Fire extinguishers must be hydrostatically tested in accordance with Table L-1 of 29 CFR 1910.157.

KEY ITEM CHECK LIST – FIRE PROTECTION

Key Item	Yes	No
General Requirements		
• Is there an adequate fire protection program?	☐	☐
• Are required Hot Work Permits obtained and pre-fire plans coordinated?	☐	☐
• Are fire prevention and control systems given priority?	☐	☐
• Has the Emergency Action Plan been posted?	☐	☐
• Are all employees familiar with the contents of the Emergency Action Plan?	☐	☐
• Are personnel aware that fire fighting is limited to incipient fires only?	☐	☐
• Have employees been taught to recognize various types of fires and know what type of extinguisher to use?	☐	☐
• Is there some type of alarm system to announce a fire?	☐	☐
• Are only approved types of heaters used?	☐	☐
Portable Fire Extinguishers		
• Is fire extinguishing equipment available?	☐	☐
• Is this equipment immediately accessible?	☐	☐
• Is this equipment well marked and mounted?	☐	☐
• Are fire extinguishers visually inspected at least monthly?	☐	☐
• Are fire extinguishers physically inspected at least annually?	☐	☐
• Are fire extinguishers which are broken or partially discharged, tagged and removed from service?	☐	☐
• Are all fire exit doors unlocked and clear of debris?	☐	☐
• Have all employees been trained in the correct use of portable fire extinguishers?	☐	☐
• Is this training conducted at least annually?	☐	☐
Material Storage		
• Are materials placed so that access and egress to the work area remain unblocked?	☐	☐
• Are materials located so that they do not increase the risk of fire?	☐	☐
• Are combustible materials stored away from egress routes, heaters and lights?	☐	☐
• Are storage areas free of weeds, cardboard, rubbish, and other combustible debris?	☐	☐
• Is material stored so that it does not impede sprinklers?	☐	☐

FIRST AID PROGRAM

SECTION 1 - PURPOSE

To define the first aid requirements for employees who become sick or injured on the job.

SECTION 2 - SCOPE

This policy applies to all AMPCO operations.

SECTION 3 - POLICY

After evaluating the hazards in the work place, AMPCO will furnish appropriate provisions:

- for the attention of simple medical or health problems that require no further treatment; and
- for emergency help to the severely injured until professional medical personnel can take over.

SECTION 4 - GENERAL

This program does not require the more extensive types of facilities that would be necessary to perform the medical surveillance required by such standards as Air Contamination or Hazardous Waste Operations and Emergency Response. It does, however, ensure that first aid services and provisions for medical care are available for every employee.

SECTION 5 - FIRST AID RESPONSIBILITY

The site supervisor, or his designate, must ensure the availability of medical personnel for advice and consultation on matters of occupational health.

Before beginning a project, the site supervisor, or his designate, must make provisions for prompt medical attention in case of serious injury.

Where no infirmary, clinic, hospital or physician is reasonably accessible in terms of time and distance, the site supervisor must ensure that a person with a valid certificate in first aid training be available at the work site.

The site supervisor must provide proper equipment for prompt transportation of an injured person to a physician or hospital or a communications system for contacting necessary ambulance service.

The site supervisor, or his designate, must conspicuously post emergency telephone numbers, including the numbers of physicians, hospitals and ambulances. The site supervisor is responsible for determining the need for and establishing emergency medical treatment requirements for each emergency response. He or she may delegate that responsibility to the site safety officer. As a minimum, a local hospital or emergency care facility shall be contacted and provisions made for transportation of personnel to that location in the event of an emergency at the work site.

The site supervisor, or his designate, will be responsible for checking the contents of the First Aid Kit before it is sent to the jobsite, upon its arrival at the jobsite, and at least weekly on each job to ensure that the expended items are replaced.

SECTION 6 - FIRST AID TREATMENT

Injuries which fall into the first aid treatment category are generally classified as injuries which:

- Are very minor, requiring only simple treatment within the prescribed protocols of a first aid certified care provider, and not requiring off site medical care;
- Are not required to be recorded on the OSHA 300 Log;
- Do not result in lost time or restricted activity; and
- Do not involve the employee's back, neck or head.

Any time an injured employee begins seeing a physician, or gives any indication that a workers compensation claim may be filed or may be necessary; the injury is no longer a simple first aid case and must be immediately reported to the insurance claims service.

SECTION 7 - FIRST AID TRAINING

Where required to have a person knowledgeable in first aid available at the work site, that individual must have a valid certification in first aid training. While OSHA prefers that employees trained in first aid receive their first aid certification training from either the American Red Cross or the National Safety Council, there are other first aid courses developed and administered by professional medical personnel and official government agencies which may also be acceptable.

SECTION 8 - FIRST AID PROVIDER

It is AMPCO's policy that only employees who have been appropriately trained in first aid and bloodborne pathogens and who have the necessary protective equipment available are authorized to assist in the treatment of first aid injuries.

No other AMPCO employee is to make any effort to assist in the first aid treatment of an injury, including efforts to clean the wound, stop the bleeding, bandage the injury, etc., nor is any other employee authorized to assist in the clean-up after an accident, in which an employee has been injured, including the removal of blood stains, blood splattered equipment, or first aid materials. This policy must be strictly adhered to by all AMPCO personnel.

SECTION 9 - FIRST AID KITS

AMPCO shall ensure that all sites have an appropriately sized industrial first-aid kit that complies with the requirements of ANSI Z308.1-1998. The First Aid Kit must be easily accessible, be approved by a consulting physician, and be large enough to contain sufficient medical supplies for the number of workers on the jobsite.

9.1 Contents

First Aid Kits must consist of a weather-proof container with individual sealed packages for each item. Each kit should contain a sufficient quantity of at least the following:

- Absorbent Compress 32 sq in, with no side smaller than 4 in
- Adhesive Bandages 1X3
- Adhesive Tape 3/8 in X 5yd
- Antiseptic, 9.14 fl oz
- Burn Treatment, 1/32 oz
- Medical Exam Gloves
- Sterile Pad 3X3
- Triangular Bandage 40X40X56 in
- Antibiotic Treatment 1/32 oz
- Analgesic Oral single dose, tamper evident package
- Breathing Barrier (single use disposable medical device for CPR)
- Burn Dressing Gel Soaked, Burn Dressing 12sq in
- Cold Pack 4X5 in
- Eye Covering 2.9 sq in
- Eye Wash Minimum 1 fl oz
- Roller Bandage 2 in

SECTION 10 - CARDIO-PULMONARY RESUSCITATION (CPR)

In addition to providing a first aid responder, AMPCO is also required to provide at least one individual that is certified in Cardio-Pulmonary Resuscitation (CPR) at each site. Refer to Section 7-6 in the Corporate Safety Manual.

SECTION 11 - DRENCHING AND FLUSHING

Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body must be provided within the work area for immediate emergency use. An eyewash station and safety shower will also be established if corrosive materials are expected to be encountered.

SECTION 12 - RECORDKEEPING

All injuries, no matter how small, will be reported to the site safety officer or the site supervisor. A Supervisor's Incident Report will be completely and properly filled out and submitted to the proper departments.

In the exceptional case that a client requires that all injuries, including first aid cases, be listed on the OSHA 300 Log, you must differentiate between OSHA recordable cases and first aid cases by assigning a number only to those entries that are OSHA recordable. Column A on the OSHA 300 Log is designed for this purpose. An excellent method is to use the last two digits of the current calendar year and a number in numerical sequence. For example, 09-1, 09-2, 09-3, etc. Do not number those entries, which are not required to be OSHA recordable.

All work-related injuries, regardless of severity, must be reported and entered on the Log of First Aid Treatment located in Section 3-1. If the injury is OSHA recordable, it should also be entered on the OSHA 300 Log.

However, first aid records (not including medical histories) of one time treatment and subsequent observation, which do not involve medical treatment, if maintained separately from AMPCO's medical program and its records are not required to be maintained for any specific period of time.

SPILL PREVENTION/RESPONSE PLAN

SECTION 1 - PURPOSE

To reduce the potential of a spill in the workplace and in the event of spill you will know how to respond and whom to contact accordingly.

SECTION 2 - SCOPE

This policy applies to all AMPCO operations.

SECTION 3 – THE PLAN

Spill Prevention & Response Plan

for

AMPCO CONTRACTING, INC.

AMPCO facilities and job sites will develop and implement a spill prevention and response plan that includes an employee training component and has the ultimate goal of preventing or reducing pollutant runoff from our facilities and to promote good housekeeping practices within the facility. Even with the best preventative efforts, spills may still occur. When they do, it is up to facility personnel to respond quickly and effectively to clean up the spilled material or notify someone who can. This Spill Prevention and Response Plan is designed as a template for AMPCO facilities and job sites to develop site-specific individual Spill Prevention and Response Plans. The plan should be kept in a central location that is easily accessible for employees and updated as site-specific operations change.

INSTRUCTIONS
Each facility can use this template by filling in the blanks and completing the attached:

_____ Spills that require Special Cleanup
_____ Materials Inventory
_____ Maximum Cleanup Amounts
_____ Facility Map
_____ Spill Kit Inventor and labeling
_____ Employee Training Log

Procedure 4-5

Once completed, this Plan becomes the facility's individual Plan and must be properly implemented and maintained. The finished Plan should be reviewed and updated at least annually.

Plan Implementation Date: _____

Plan Revision Date(s): _____

Facility's Responsible Person(s) in charge of spill response planning, implementation and maintenance of the Plan:

Name Phone #

_____

_____

_____

RESPONSIBILITIES

The **Facility Responsible Person** has primary responsibility for coordinating the response to emergencies, including chemical spills.

Supervisors should ensure that employees are familiar with these procedures and receive necessary training. Employees will be trained on proper spill prevention and response procedures.

All employees should follow these procedures in the event of a chemical spill.

EMERGENCY CONTACT NUMBERS

The following telephone numbers should be posted near telephones and in other conspicuous locations:

- Outside emergency services (police, fire department, ambulance service); 911
- Poison Control Center: 1-800-222-1222
- AMPCO Safety Department: Matthew Suiter 714.719.9451

CLEAN-UP PROCEDURES

Spilled chemicals should be effectively and quickly contained and cleaned up. Employees should clean up spills themselves ***only if properly trained and protected.*** Employees who are not trained in spill cleanup procedures should report the spill to the Responsible Person(s) listed above, warn other employees, and leave the area if necessary.

Procedure 4-5

The Maximum Cleanup Amounts that properly trained employees can cleanup **are listed on page 4.** In the event of spills greater that these amounts, contact the appropriate responders listed in the Emergency Contact Numbers listed above.

The following general guidelines should be followed for evacuation, spill control, notification of proper authorities, and general emergency procedures in the event of a chemical incident in which there is potential for a significant release of hazardous materials.

1. Evacuation

Persons in the immediate vicinity of a spill should *immediately evacuate* the premises (except for employees with training in spill response in circumstances described below) if the material poses an immediate health hazard. If the spill is of “medium” or “large” size, of if the spill seems hazardous, immediately notify emergency response personnel.

2. Spill Control Techniques

Once a spill has occurred, the employee needs to decide whether the spill is small enough to handle without outside assistance. Only employees with training in spill response should attempt to contain or clean up a spill.

NOTE: If you are cleaning up a spill yourself, make sure you are aware of the hazards associated with the material spilled, have adequate ventilation, and proper personal protective equipment. Treat all residual chemical and cleanup materials as hazardous waste.

Spill control equipment should be located wherever significant quantities of hazardous materials are received or stored. SDSs, absorbents, over-pack container, container patch kits, spill dams, shovels, floor dry, acid/base neutralizers, and “caution-keep out” signs are common spill response items.

Proper storage of chemicals may minimize the potential of a spill by storing chemicals in leak-tight containers, placing containers in secondary containment, storing chemicals in specialized manufactured storage buildings and lastly daily inspection of any and all storage areas may reduce the likelihood of a spill.

3. Spill Responses and Cleanup

Chemical spills are divided into three categories: Small, Medium and Large. Response and cleanup procedures vary depending on the size of the spill.

Small Spills: Any spill where the major dimension is less than 18 inches in diameter. Small spills are generally handled by internal personnel and usually do not require an emergency response by police or fire department HAZMAT teams.

Quickly control the spill by stopping or securing the spill source. This could be as simple as up righting a container and using floor-dry or absorbent pads to soak up the spilled material. Wear gloves and protective clothing if necessary.

Put spill material and absorbents in secure containers if any are available.

Consult the Facility Responsible Person and the SDS for the spill and waste disposal procedures.

In some instances, the area of the spill should not be washed with water. Use Dry Cleanup Methods and **never** wash spills down the drain, onto a storm drain or onto the driveway or parking lot.

Both the spilled material and the absorbent may be considered hazardous waste and must be disposed of in compliance with state and federal environmental regulations.

REPORTING SPILLS

All chemical spills, regardless of size, should be reported as soon as possible to the Facility Responsible Person. The Facility Responsible Person will determine whether the spill has the potential to affect the environment outside of the facility and must be reported to 911. The Facility Responsible person will also ensure proper communication measures will be in place and initiated upon a spill or release of materials.

MAXIMUM CLEANUP AMOUNTS

Identify the maximum volume of spill that may be cleaned up by the facility employees or contractors based on material (use 1 quart or 1 pound unless other information is available). Also identify how wastes from a spill of material will be disposed (for example, absorbed and placed in dumpster) and the name and address of the offsite facility to which clean-up wastes will be sent for hazardous waste disposal, if applicable.

MATERIAL	Max. Volume	Disposal Method/Location
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Describe any material used in your facility that requires special materials and procedures for cleanup beyond those listed above. Provide details regarding hazards associated with these.

Material	Hazards

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

MATERIAL INVENTORY

List all materials or waste that may require clean up. List the average and maximum amounts on site and their storage locations. *(Ignore any that do not apply and add other materials of concern that are onsite. Use additional sheets if necessary).*

Material	Amount (average/max)	Location(s)
Antifreeze	_____	_____
Used Oil	_____	_____
Motor Oil	_____	_____
Degreaser	_____	_____
Hydraulic Fluid	_____	_____
Solvents	_____	_____
Brake Cleaner	_____	_____
Other	_____	_____

Spill Kits

- Label each spill kit prominently with the words “SPILL KIT” or “Absorbent”.

- Post the necessary emergency telephone number(s) or pager of the persons to be contacted in case of a spill or leak that is beyond the training and equipment available on or near each spill kit location.
- Ensure spill response materials or spill kits will be adequate for any anticipated spills.
- Good housekeeping and best management practices will be implemented to prevent spills.

Facility Responsible Person/Phone Number:
Spill Response Contractor (if any)/Phone Number:

Spill Kit Inventory
List all response equipment that will be maintained in each spill kit location (refer to SDSs to determine recommended clean-up methods PPE and supplies):

LOCATION	ABSORBENTS (bags or loose absorbent, pigs, neutralizing agent, etc.	TOOLS (shovels,, brooms, waste containers, etc.	PERSONAL PROTECTIVE EQUIPMENT (impervious gloves, goggles, aprons, boots, etc.	OTHER SUPPLIES (Danger tape, labels, markers, SDSs, etc.)

PERSON RESPONSIBLE FOR MAINTAINING THIS INVENTORY:

FACILITY MAP

Attach a map or sketch of the facility showing (a) the locations of each spill response kit, (b) the locations where the material identified on page 5 are normally stored or used, and (c) the location of each storm drain or drainage ditch.

HEALTH AND SAFETY TRAINING

SECTION 1 - PURPOSE

Define minimum Company requirements and responsibilities for conducting health and safety training for AMPCO employees.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

To ensure that each employee of AMPCO receives and understands the required health and safety training necessary to confirm that employee's ability to safely carry out his or her work assignments.

SECTION 4 - REQUIREMENTS AND RESPONSIBILITIES

4.1 Orientation Training

Each new AMPCO employee will receive a safety orientation, as outlined in Section 5-2 of the Corporate Safety Manual. This orientation will include, in addition to specific training, a discussion of the employee's right to refuse to perform any task which they believe is unsafe or for which they have not been adequately trained. The new employee orientation will include, at a minimum the following:

- job specific health and safety training including supervised on-the-job training;
- hazard communication in compliance with 29 CFR 1926.59;
- hazardous waste operations and emergency response (if required) in compliance with 29 CFR 1910.120;
- the job specific Emergency Action Plan; and
- specialized health and safety training such as:

Lock Out / Tag Out Procedures	Electrical Safety
Ladder Safety	Scaffold Safety
Confined Space / Vessel Entry	Welding and Cutting

Rope, Cable and Sling Inspection	Self-Inspection Program
Personal Protective Equipment	General Office Safety
Material Storage and Handling	Fall Protection Program
Powered Aerial Work Platforms	Powered Industrial Trucks
Equipment Decontamination	Process Safety Review
Housekeeping and Sanitation	Excavation and Trenching
Pre-Start-up Health and Safety Review	Power Operated Hand Tools

4.2 Hazardous Materials Training

Each AMPCO employee will receive the Hazard Communication Training and, if required, OSHA's Hazardous Waste Operations and Emergency Response, training before they are permitted to engage in hazardous waste operations or handle hazardous substances. Refresher hazardous substance training will be conducted, as required by regulations and to maintain proficiency.

4.3 Training by Office Location

Each Office will develop an overall safety training plan that contains the items listed in Paragraph 4.1 of this section in accordance with all applicable regulatory and AMPCO requirements. In general, health and safety training will include, but is not limited to the required initial or annual refresher training course for asbestos and/or lead, as required by federal OSHA and federal EPA.

SECTION 5 - TRAINING DOCUMENTATION

All safety training must be documented and should include, at a minimum, the subject title, subject description and learning objectives, person's name who provided the training, including name, title and location, the date conducted, and the signature of the trainee(s) and instructors. All employees who have received and successfully completed certain portions of this training will receive a written certificate, a copy of which will remain within their personnel file.

SECTION 6 - TRAINING INSTRUCTORS

Personnel who instruct employees must be qualified by either academic credentials or instructional experience and subject knowledge to teach the subject matter that is being presented. Records should be kept to document their qualifications as instructors.

SECTION 7 - TRAINING PROGRAM REVIEW

Health and Safety will review the health and safety training program of his/her Office, and/or the entire organization, at least annually to determine the needs for the next year. Refresher training specified by OSHA standards will be included in the needs assessment.

SECTION 8 - SUBCONTRACTOR PERSONNEL

AMPCO personnel will not provide health and safety training directly to subcontractor's employees or visitors except to provide site safety orientation and other notifications required by OSHA regulations, for example Hazard Communications, Process Safety, Lock Out/Tag Out, etc.

AMPCO training personnel will not provide health and safety or emergency response training to other non-company personnel unless approval is issued in writing by either the Presidents or the Safety Director. This training may be in the form of either a certified or non-certified training course.

SECTION 9 - SITE SAFETY

Personnel acting in the capacity of site safety officers must receive initial training from a course approved by the Safety Director, as well as an annual refreshed training to maintain proficiency.

EMPLOYEE SAFETY ORIENTATION

SECTION 1 - PURPOSE

To provide guidelines for the proper safety training of all AMPCO personnel, including supervisors and workers, newly hired employees, and those employees transferring from other jobsites.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

Within each Office and at each AMPCO jobsite, project management, assisted by the AMPCO Health and Safety Department, will provide a safety training program for all supervisors and employees, during which they will fully describe AMPCO's commitments for meeting its obligations to provide safe and healthful working conditions for its employees and to enhance safety in the workplace.

SECTION 4 - SAFETY ORIENTATION

Project management will provide a safety orientation program that will include all AMPCO employees working on the jobsite. The safety orientation will include all supervisors, newly hired employees, and those employees who have transferred in from other jobs. The safety orientation will include at a minimum, the topics outlined below.

4.1 Supervisor's Safety Orientation

Project management will familiarize each of its supervisory personnel with all aspects of the AMPCO health and safety program and each supervisor will be issued a copy of the AMPCO Corporate Safety Manual. This Manual is to be maintained by the supervisor, updated as necessary, and turned back into the Company prior to termination.

Supervisory personnel will be made aware of their safety responsibilities during this orientation, which will cover at a minimum, each of the following subjects.

Procedure 5-2

- **AMPCO'S Corporate Safety Program**

The AMPCO Corporate Safety Program will be reviewed in detail with each supervisor.

- **Safe Work Areas**

Project management will require that each of its supervisors be familiar with the safety conditions in each area of the job site to which the employees of each supervisor's crew or group are assigned. Supervisors will be directed to correct, when possible, unsafe conditions that exist in the work area prior to commencement of work.

- **Safe Work Practices**

Each supervisor will be required, when making work assignments, to inform the crew or group involved, of the safety practices, work methods, and personnel protective equipment required. Each supervisor will be responsible for determining that each worker has the proper protective equipment and suitable tools for the work assignment.

- **Supervising For Safety**

In following the progress of the work assigned, each supervisor will constantly review the safe practices and procedures used by the crew, and initiate corrective action, when necessary.

- **Tool Box Safety Meetings**

AMPCO requires each supervisor to conduct daily Tool Box Safety Meetings with the entire crew or group using up-to-date material relative to the health and safety of each employee on the project. Refer to the sample Tool Box Safety Meeting form in Section 5-3 of this Manual.

- **Supervisor's Safety Meetings**

Supervisor's safety meetings will be scheduled on a monthly basis. Topics discussed at these meetings will be chosen to assist each supervisor in supervising for safety. Attendance at these meetings will be mandatory and attendance records should be kept.

- **Emergency Procedures**

Project management will familiarize all supervisors with the emergency procedures developed for the project, so that they may provide the leadership required to cope with serious injuries, fire, evacuations and similar situations.

- **Accident Investigations**

Each supervisor will be required to take an active role in the investigation of any accident which results in:

- personal injury to a member of that supervisor's crew or group;
- equipment or property damage in that supervisor's area of responsibility; or
- near misses that had a potential for serious injury or death, or significant property damage.

4.2 Employee Safety Orientation

AMPCO supervisors will provide a safety orientation for all new hires on their initial day of employment, which will include at a minimum, the topics outlined below. Supervisors will use existing materials and handouts to supplement their presentation of the new employee orientation.

- Review AMPCO's Corporate Policy Statement to identify AMPCO's attitude towards safety on the job.
- Review portions of AMPCO's Health and Safety Policy pertaining to jobsite safety.
- Review AMPCO's Safety Philosophy and the necessity of having safety and production work together on even terms.
- Review AMPCO's method of encouraging employees to report unsafe situations to their immediate supervisor. Also advising them that in those cases where the employee may feel uncomfortable in addressing these situations to his supervisor, AMPCO maintains a special Issues and Answers Hotline where an employee can report problems and remain anonymous 1-000-000-0000
- Review the value of portable fire extinguishers, when they should be used, how they should be used to be the most effective, and who to report an emptied extinguisher to.
- Review AMPCO's Safety Rules and Regulations, as they apply to the project.
- Review AMPCO's Employee Safety Handbook with each employee, indicating those areas with specific application to the project.
- Review the Jobsite Safety Practices and the Emergency Action Plan, which will be specific to the project.
- Review and explain each of the Jobsite Safety Postings.
- Explain the additional safety training each employee will be receiving during the first week of employment.

4.3 Employee Handbook

At the time of his or her safety orientation, each employee will be given a copy of the AMPCO Employee Handbook, entitled "Construction Safety Employee Handbook". Supervisor's will go over this handbook with the employee, while instructing the employee to ask as many questions as he or she may have. The supervisor will also make a concerned effort to ascertain if the employee is understanding the orientation and will offer to explain any item that is not completely understood by the employee.

Employees will then be asked to acknowledge receipt of the handbook and their understanding of its contents, by signing an acknowledgement form at the back of the handbook. This signed acknowledgement form will then be removed from the handbook and will become a permanent part of the employee's personnel file.

SECTION 5 - EMERGENCY ACTION PLAN

An Emergency Action Plan, no matter how well written and complete, must be presented to the supervisors and employees in a language they comprehend. The workers will be trained to know and understand their responsibilities under the Plan and that they can carry them out efficiently even under stress conditions. And, the Plan will be tested on a continuing basis in order to ensure that all personnel are totally familiar with all aspects of the Plan.

5.1 Emergency Action

Supervisors will be required to familiarize themselves with the customer's Emergency Action Plan on each jobsite on which they are working and be prepared to draft a site-specific Emergency Action Plan for use by AMPCO personnel at that location. Supervisors will refer to Sections 4-1 and 4-2 of the Corporate Safety Manual for additional information concerning a site-specific Emergency Action Plan.

5.2 Fire Protection and Prevention

Each supervisor and employee will maintain a constant awareness of the fire potential in their area of responsibility. If a potential fire hazard is noted, the individual will immediately alert his or her supervisor who will then initiate corrective action and notify the appropriate persons and public safety agencies. The information contained in Section 4-1 of the Corporate Safety Manual, entitled Emergency Action Plans, will assist supervisors and employees in handling situations of this type.

SECTION 6 - ACCIDENT REPORTING AND MEDICAL TREATMENT

Each employee of AMPCO will be trained in his or her obligation to immediately report all injuries and illnesses, however minor, to their immediate supervisor. Medical treatment will be in accordance with medical procedures established by OSHA and in the AMPCO Corporate Safety Manual. Injured employees will be directed to the industrial medical clinic retained by the Company in the vicinity of the jobsite.

Supervisors will be trained in the methods of reporting accidents and their responsibilities for managing the injured employee's medical contact and return to work activities.

SECTION 7 - DAILY TOOLBOX SAFETY MEETINGS

A safety training meeting for all employees will be held at least daily at every AMPCO jobsite or project. These meetings should generally be held at the beginning of the work shift and attendance is mandatory. From time to time, various members of management should also attend these meetings to reinstate management's position on safety and the importance of these toolbox safety meetings. The meetings can either be broken down into crews and presided over by their individual supervisor, or they can be instructed as one large crew by several of the supervisors. Although from time to time, it may be necessary to utilize these meetings to discuss other areas of concern to the project, the primary function of these meetings must remain a safety awareness and training session. Refer to Section 5-4 Conducting Safety Meetings, in the Corporate Safety Manual.

SECTION 8 - SUPERVISOR'S MONTHLY SAFETY MEETINGS

A supervisor's meeting will be held at least once each month, during which attendance by all supervisory staff will be considered mandatory. From time to time, various members of middle management should plan to attend these meetings to reinstate their positive attitude toward acceptance of AMPCO's Safety Program and their reliance on the role of the supervisor in promoting this program. The meetings can be short in duration and the primary function should be directed towards the administration of the project; however; at least one-third of each meeting must be directed towards safety training and its related items, such as training, accident investigation, jobsite inspections, etc., including the selection of topics and scheduling of weekly toolbox safety talks.

SECTION 9 - ANNUAL SAFETY TRAINING SESSIONS

The AMPCO Health and Safety Department is charged with the development and implementation of at least one annual safety training session each year. Health and Safety Department has been certified as a safety trainer and attendance by AMPCO supervisory

personnel at these annual training sessions is considered mandatory. The training topics are generally determined by either the Company's safety program, the need to train competent persons, a recognizable trend in occupational incidents, or relating to regulatory changes issued by OSHA. These annual training sessions usually consist of a home study portion followed by six to eight hours of comprehensive classroom training. Supervisors are provided with training manuals at these sessions and are then required to furnish this training to their support personnel in the form of daily toolbox talks.

SECTION 10 - HAZARD COMMUNICATION TRAINING

As an employer engaged in a business where chemicals are either used or produced for use or distribution or where its workers have the potential for contact with chemicals in their workplace, AMPCO will ensure that the hazards of all chemicals found in the workplace will be evaluated, and that information concerning these hazards will be transmitted to all affected employees.

Correspondingly, the purpose of AMPCO's Hazard Communication Training is to inform our employees, by means of labels, Safety Data Sheets and Training, of the physical and health hazards to which they may be exposed. The Hazard Communication Training that will be provided to all AMPCO personnel is outlined in Section 7-2 of the Corporate Safety Manual. This training meets or exceeds the requirements of OSHA's Hazard Communication Standard for the Construction Industry, 29 CFR 1926.59.

SECTION 11 - PROCESS SAFETY TRAINING

All AMPCO employees who will be assigned to industrial jobsites operating under OSHA's Process Safety Management Standard, 29 CFR 1910.119, will be required to undergo additional training to show evidence of their understanding of this training. This evidence will, for the most part, be in the form of a written examination covering the contents of the information.

Procedure 5-3

SUPERVISOR'S ROLE IN TRAINING

SECTION 1 - PURPOSE

The purpose is to provide guidelines for establishing the supervisor's role in the safety awareness and training of employees on the jobsite.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

As an extremely important part of AMPCO's Corporate Safety Program, the AMPCO supervisor is required to take a very active role in the day-to-day safety training and awareness of employees.

SECTION 4 - SUPERVISOR'S ROLE IN TRAINING

Supervisor's are the key to accident prevention within the construction industry. They are the individuals between top management and the workers who translate management's policy into action. Therefore, the role of safety training must be an on-going part of each supervisor's job. Without it, there is a total breakdown of the safety chain.

Supervisor's must be made to believe that efforts on the part of safety play just as important a role in the completion of the project, as does their efforts at production, and that one cannot be sacrificed in lieu of the other. For example, a project that was completed ahead of schedule with a net earned profit of $350,000 must be considered a total loss if, the project has a workers compensation claim in excess of $500,000.

Supervisors must realize they will be held accountable for the safety performance of their crew or group.

SECTION 5 - DAILY TOOLBOX SAFETY MEETINGS

Supervisory personnel will be required to conduct daily toolbox safety meetings to provide their employees with up-to-date safety information and to discuss the various aspects of job health and safety. Employee attendance will be required and AMPCO Toolbox Safety Meeting form must

be completed by the supervisor and signed by each employee attending the meeting. These records will then be maintained, as a part of the job file retention package.

Daily Toolbox Safety Meeting forms, which are printed with a brief safety meeting topic, are in a format which allows the supervisor to read directly from the form and then have the workers sign the form indicating they have received the daily safety training and understood it. Blank topic forms will also be available for those supervisors who wish to draft their own message or provide information on a specific topic. When this blank form is used, the supervisor must write out the message on the top portion of the form before beginning the safety meeting.

A sample of a Toolbox Safety Meeting form is included with this section.

Daily tool box safety meetings are an extremely important part of the AMPCO Safety Program, because it is only through face-to-face contact that effective communication on the subject of safety can take place. The open, informal atmosphere of a toolbox talk, which in effect is a small group meeting, encourages the kind of questions and discussion that "personalize" the issue of safety by focusing on day-to-day applications.

In addition, the supervisor's daily toolbox safety meeting serves the following purpose:

5.1 Encourage Safety Awareness

Other means of getting the safety message across are often too easily ignored. But when a small group of workers get together to discuss the hazards they have encountered and the steps they can take to eliminate them, it increases each worker's safety consciousness.

5.2 Get Employees Actively Involved

In a sense, toolbox safety meetings can put employees "on the spot"; that is, they demand feedback. They get employees thinking about safety and encourage them to come up with ideas and suggestions for preventing accidents and minimizing the hazards, with which they are most familiar.

5.3 Motivate Employees To Follow Proper Safety Practices

Small group meetings are the best place to demonstrate the uses of protective equipment, proper lifting techniques, and other specific safety procedures.

5.4 Nip Safety Hazards In The Bud

A daily toolbox safety meeting is the perfect time to pinpoint minor hazards before they result in real problems. It also presents an excellent opportunity to discuss safety hazards that are inherent in the construction environment in general and the asbestos abatement environment in particular, that the experienced employees are likely to take for granted.

5.5 Introduce Workers To New Safety Rules, Equipment, and Practices

In addition to introducing new items, a daily toolbox safety meeting is a good time to reinforce the importance of long standing safety procedures and to remind employees of the reasons behind them.

5.6 Provide Vital Information On Accident Causes and Types

Regular meetings are the best way of keeping employees up-to-date on the hazards in their environment and what the Company is doing about them. They also make it easier for the Company to maintain accurate accident statistics, an important tool in tracing the progress of accident prevention efforts.

CONDUCTING SAFETY MEETINGS

SECTION 1 - PURPOSE

To provide guidelines enabling supervisory personnel to conduct well-planned safety meetings, which are necessary in order to improve the overall safety record at a jobsite.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

Meetings of any type represent time lost from production. However, safety meetings that are well conducted, interesting and informative more than justify an interruption to production and are an absolute necessity in order to provide a continuing enhancement of safety awareness.

SECTION 4 - PLANNING THE SAFETY MEETING

Planning is essential in order to have a successful training session. The meeting location, time of day, the subject, the method of delivery, the number of disruptions, the distraction around you, all have a role in making the safety meeting a success or a failure.

4.1 When To Hold Safety Meetings

Safety awareness meetings, or toolbox safety meetings, as they are more commonly referred to in the construction industry, should be held at the jobsite on each work day, at least once during each shift for the duration of the project.

An effort should be made to hold the daily meeting at the beginning of the work shift, when the worker is fresh and is more likely to pay close attention and absorb the content of the meeting. Safety meetings that are held after the worker has just completed a hard 8-hour work shift, is almost useless since the worker's mind is more on leaving the jobsite than on the contents of the meeting.

4.2 Length Of Time For The Meetings

Ten minutes will probably be sufficient if the supervisor is giving a routine run-down of safety regulations plus a short pep talk on the importance of working safely. In contrast, fifteen minutes should be used if the supervisor talks about a specific topic of safety, such as the care and use of a new item of equipment. Anything over fifteen minutes may well be an unjustified interruption of production.

4.3 Planning The Meetings

Divide the meeting into two phases: the presentation and a question and answer session. Say that the meeting runs fifteen minutes, allocate at least ten minutes for the presentation and use the rest of the time for both questions and answers or a discussion.

The last few minutes are very important. By the questions and comments, the supervisor can determine how clearly he has gotten his information across to the workers. At the same time, he can gauge the worker's reaction to changes and proposals that were passed down. This period of the meeting also allows the workers to feel that they are participating.

SECTION 5 - CONDUCTING THE SAFETY MEETING

There is a method to conducting a "good" safety meeting. If the supervisor is well prepared and knows his topic, the right message will be gotten across to the workers. If the supervisor fumbles for words, does not appear to know the topic well, then this is the way the worker is going to view the training.

5.1 Rehearse

Rehearse your presentation. Look over your information and know what you are going to say and how you are going to say it before you stand up in front of your workers. When you feel like you know what you are talking about, your workers will believe you know what you are talking about.

5.2 The Presentation

Be business like, but not dictatorial. Be serious enough to convince the workers that the information is worth their attention. This does not mean that the supervisor cannot smile or inject a little humor into the meeting. In fact, a light touch at the beginning will help everyone to relax. The presentation must be held in a language which can be understood by the majority of the work force.

5.3 Be Brief and To The Point

The supervisor should organize and mentally go over the meeting prior to its beginning. Any irrelevant ideas should be chopped away. Excess verbiage is not necessary and often adds confusion to the topic being discussed. Keep the message clear and concise.

5.4 Use Training Aids

Training aids of any kind can be of great assistance to you in making your presentation. For example, holding up a battered and broken hard hat that took the impact of a falling object while pressing a point about the wearing of personal protective equipment, will tend to make quite an impression.

5.5 Hold A Question and Answer Period

The supervisor must listen attentively, even though he may think he knows exactly what the speaker will say. The worker may fool him, and even if he doesn't, he could feel slighted if the supervisor does not give him his full attention. Also, remember the tried-and-true rule: Praise in public, criticize in private. Resist the temptation to take the wind out of some hothead's sails by blasting him in front of his co-workers. Along the same line, do not argue a point with any of your workers while in front of others. First, because it wastes meeting time and second, your chances of getting a worker to admit he's wrong in front of his co-workers are pretty slim. Discuss the matter later in private. And if you were wrong and made a wrong statement in front of your workers, make certain that you correct yourself the next time you hold a meeting.

5.6 Never Brush Off A Complaint

Answer a complaint on the spot if you can. Otherwise promise to look into it and to get back to the complainant, as quickly as possible. Do not try to bluff your way out of a hot corner or you will be labeled a supervisor who does not know what he is talking about. Safety Meetings, like driving, often bring out the worse in some people. These are the ones who either will not talk or will not shut up, and who disagree with everything, or bring up a completely unconnected or unrelated subject just to complain. How the supervisor handles these individuals will determine the success or failure of the safety meeting.

The supervisor is the key figure in determining whether a meeting is useful and informative or useless and time consuming. That is why the supervisor must prepare himself fully for a safety meeting, as he does for deciding project schedules, manpower requirements and other major questions.

Procedure 5-4

SECTION 6 - TOOLBOX SAFETY MEETING FORM

While the daily Toolbox Safety Meetings are used as a means of applying persistence to our safety awareness program, the Toolbox Safety Meeting form are the records of these meetings. These meeting forms must be filled out completely before beginning the meeting. In other words, the message that is going to be given to the workers, must be written or printed on the form prior to giving the talk.

This is necessary, because we must not request a worker to sign for a training program he or she has not received. Many of these forms will be pre-printed and available for your use, however, if you need to provide a specific message, or need more space, blank Toolbox Safety Meeting forms will be available. If you need to use more than one form, you can staple two or more forms together.

The rule of thumb is the more information on the form, the better. If necessary, use a blank form and write up a detailed review of the information being provided to the workers during the tool box talk directly onto the form.

The form must be signed by each individual attending the talks. If there is a large crew, two or more report forms can be circulated and then stapled together, as long as both forms have the same topic information on them. Having a completed Toolbox Safety Meeting form on the jobsite for each daily safety toolbox talk that has been held, is proof to any regulatory agency compliance officer that safety is a daily part of each day's program on your project.

On many occasions, experience has shown us the value of being able to present OSHA with copy of a Toolbox Safety Meeting form that has a complete safety message printed on it and has been signed by each of the workers on the job, as proof that we are providing an on-going, daily program of safety awareness on a wide variety of topics.

Refer to Section 5-3 of this Corporate Safety Manual for a sample copy of a daily Toolbox Safety Meeting form.

JOB SAFETY ANALYSIS

SECTION 1 - PURPOSE

To define minimum requirements and responsibilities to identify, analyze and control potential hazards or risks associated with specific job tasks and equipment operation with the goal of preventing occupational injuries and illnesses.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

To conduct a careful study of jobs within our organization in a further effort to define the specific content of training necessary to successfully reduce accidents, injuries, and illnesses.

SECTION 4 - RESPONSIBILITIES

4.1 Office

Each Office is responsible for implementing a Job Safety Analysis (JSA) program consistent with this procedure and completing a Job Safety Analysis for each job task which has potential hazards which could cause injury or illness.

4.2 Health and Safety

Health and Safety is responsible for assigning a risk factor to the potential hazards identified, based on incident probability of occurrence and severity of consequence. This risk factor will be used in establishing priorities for completion of the recommended control measures. Health and Safety is responsible for tracking JSA recommendations and responses until completed.

SECTION 5 - REQUIREMENTS

Each Office must have a written JSA procedure which follows these general guidelines:

5.1 Identify Tasks

Prioritize tasks for analysis beginning with tasks with a high incident frequency and severity potential, or new previously unanalyzed jobs. At a minimum, the job tasks and/or equipment listed in Paragraph 6.0 of this section, must be analyzed and reviewed with each employee prior to his participation in the job activity.

5.2 Break-down Tasks

Break the job task down to its principal component parts and list in sequential order on the JSA form, a copy of which is included within this section. Identify and record all potential hazards and risks, such as:

- exposure hazards;
- material handling hazards;
- slip or fall hazards;
- strike against or struck by hazards; and
- caught in or caught between object hazards.

5.3 Observe Tasks

Select an employee to observe who is performing the job task. View the task being performed, as many times as necessary to ensure all potential hazards have been identified.

5.4 Review the Tasks

When the observations of the tasks have been completed, review all of the recorded observations with the employee to ensure that all steps were included and note any deviations from normal practice.

5.5 Reducing the Hazards

List all of the effective methods by which the potential hazards that have been identified can be reduced. This includes:

- eliminating the specific hazard by installing guarding, ventilation, interlocks, enclosures, etc.;
- providing or modifying the equipment, which will reduce exposure to or contact with the hazard. For example, using mechanical handling or lifting equipment instead of physical handling or lifting;
- changing the physical conditions or layout of the job requirements;
- reducing the frequency of the job activity;
- substituting a less hazardous material or substance; and
- increasing the personal protective equipment.

5.6 Incident Review

The JSA must be reviewed following any accident or incident, generally during the following investigation. The Office must also review annually, job classifications and the job tasks associated with it, and prioritize job tasks to be analyzed based upon accident experience or perceived risk.

SECTION 6 - HAZARDOUS TASKS

The following job tasks and/or equipment are recognized, as being hazardous through Company experience and must be analyzed through the JSA process and reviewed daily with each employee assigned to the job:

- high pressure washing systems;
- crane operations;
- transferring flammable or corrosive chemicals to or from containers;
- trenching or excavation;
- forklift truck operation;
- use of utility knives;
- operation of vacuum trucks;
- working with electrical equipment in a wet environment;
- working off elevated work platforms or Manlifts;
- climbing or descending ladders or scaffolds while wearing protective clothing and respirators; and
- picking up and laying down bags of adequately wet waste.

ASBESTOS TRAINING

1.0 PURPOSE

To define minimum training requirements for asbestos abatement personnel.

2.0 SCOPE

This section applies to all operations.

3.0 POLICY

To ensure that each employee working as an Asbestos Handler or an Asbestos Supervisor receives the required asbestos training necessary to enable that employee to safely carry out his or her work assignments and meet all regulatory training requirements.

4.0 REQUIREMENTS AND RESPONSIBILITIES

4.1 Training Program

All personnel employed as asbestos abatement professionals will participate in the "Asbestos Training Program". Courses offered as part of this training program will be USEPA accredited and approved by the local agency having jurisdiction in the area the course is given or meant to be used for certification. Training courses are taught by outside contractors, so that ATI can utilize the services of quality training professionals.

4.2 Worker Training

All personnel employed as asbestos abatement workers will complete at least a 4-day training course as outlined below. The worker training course will include lectures, demonstrations, at least 14 hours of hands-on training, individual respirator fit testing, course review, and an examination.

The training course will adequately address the following topics:

(1) Physical characteristics of asbestos. Identification of asbestos, aerodynamic characteristics, typical uses, and physical appearance, and a summary of abatement control options.

(2) Potential health effects related to asbestos exposure. The nature of asbestos-related diseases; routes of exposure; dose-response relationships and the lack of a safe exposure level; the synergistic effect between cigarette smoking and asbestos exposure; the latency periods for asbestos-related diseases; a discussion of the relationship of asbestos exposure to asbestosis, lung cancer, mesothelioma, and cancers of other organs.

(3) Employee personal protective equipment. Classes and characteristics of respirator types; limitations of respirators; proper selection, inspection; donning, use, maintenance, and storage procedures for respirators; methods for field testing of the facepiece-to-face seal (positive and negative-pressure fit checks); qualitative and quantitative fit testing procedures; variability between field and laboratory protection factors that alter respiratory fit (e.g., facial hair); the components of a proper respiratory protection program; selection and use of personal protective clothing; use, storage, and handling of non-disposable clothing; and regulations covering personal protective equipment.

(4) State-of-the-art work practices. Proper work practices for asbestos abatement activities, including descriptions of proper construction; maintenance of barriers and decontamination enclosure systems; positioning of warning signs; lock-out of electrical and ventilation systems; proper working techniques for minimizing fiber release; use of wet methods; use of negative pressure exhaust ventilation equipment; use of high-efficiency particulate air (HEPA) vacuums; proper clean-up and disposal procedures; work practices for removal, encapsulation, enclosure, and repair of ACM; emergency procedures for sudden releases; potential exposure situations; transport and disposal procedures; and recommended and prohibited work practices.

(5) Personal hygiene. Entry and exit procedures for the work area, use of showers, avoidance of eating, drinking, smoking, and chewing (gum or tobacco) in the work area, and potential exposure, such as family exposure.

(6) Additional safety hazards. Hazards encountered during abatement activities and how to deal with them, including electrical hazards, heat stress, air contaminants other than asbestos, fire and explosion hazards, scaffold and ladder hazards, slips, trips, and falls, and confined spaces.

(7) Medical monitoring. OSHA and EPA Worker Protection Rule requirements for physical examinations, including a pulmonary function test, chest X-rays, and a medical history for each employee.

(8) Air monitoring. Procedures to determine airborne concentrations of asbestos fibers, focusing on how personal air sampling is performed and the reasons for it.

(9) Relevant Federal, State, and local regulatory requirement, procedures, and standards. With particular attention directed at relevant EPA, OSHA, and State regulations concerning asbestos abatement workers.

(10) Establishment of respiratory protection programs.

(11) Course review. A review of key aspects of the training course.

4.3 Supervisor Training

All personnel employed as asbestos abatement supervisors will complete at least a 5-day training course as outlined below. The training course will include lectures, demonstrations, at least 14 hours of hands-on training, individual respirator fit testing, course review, and a written examination.

The contractor/supervisor training course will adequately address the following topics:

(1) Physical characteristics of asbestos and asbestos-containing materials. Identification of asbestos, aerodynamic characteristics, typical uses, physical appearance, a review of hazard assessment considerations, and a summary of abatement control options.

(2) Potential health effects related to asbestos exposure. The nature of asbestos-related diseases; routes of exposure; dose-response relationships and the lack of a safe exposure level; synergism between cigarette smoking and asbestos exposure; and latency period for diseases.

(3) Employee personal protective equipment. Classes and characteristics of respirator types; limitations of respirators; proper selection, inspection; donning, use, maintenance, and storage procedures for respirators; methods for field testing of the facepiece-to-face seal (positive and negative-pressure fit checks); qualitative and quantitative fit testing procedures; variability between field and laboratory protection factors that alter respiratory fit (e.g., facial hair); the components of a proper respiratory protection program; selection and use of personal protective clothing; use, storage, and regulations covering personal protective equipment.

(4) State-of-the-art work practices. Proper work practices for asbestos abatement activities, including descriptions of proper construction and maintenance of barriers and decontamination enclosure systems; positioning of warning signs; lock-out of electrical and ventilation systems; proper working techniques for minimizing fiber release; use of wet methods; use of negative pressure exhaust ventilation equipment; use of HEPA vacuums; and proper clean-up and disposal procedures. Work practices for removal, encapsulation, enclosure, and repair of ACM; emergency procedures for unplanned releases; potential exposure situations; transport and disposal procedures; and recommended and prohibited work practices. New abatement-related techniques and methodologies may be discussed.

(5) Personal hygiene. Entry and exit procedures for the work area; use of showers; and avoidance of eating, drinking, smoking, and chewing (gum or tobacco) in the work area. Potential exposures, such as family exposure, shall be included.

(6) Additional safety hazards. Hazards encountered during abatement activities and how to deal with them, including electrical hazards, heat stress, air contaminants other than asbestos, fire and explosion hazards, scaffold and ladder hazards, slips, trips, and falls, and confined spaces.

(7) Medical monitoring. OSHA and EPA Worker Protection Rule requirements for physical examinations, including a pulmonary function test, chest X-rays, and a medical history for each employee.

(8) Air monitoring. Procedures to determine airborne concentrations of asbestos fibers, including descriptions of aggressive air sampling, sampling equipment and methods, reasons for air monitoring, types of samples and interpretation of results.

EPA recommends that transmission electron microscopy (TEM) be used for analysis of final air clearance samples, and that sample analyses be performed by laboratories accredited by the National Institute of Standards and Technology's (NIST) National Voluntary Laboratory Accreditation Program (NVLAP).

(9) Relevant Federal, State, and local regulatory requirement, procedures, and standards including:

a. Requirements of TSCA Title II.
b. National Emission Standards for Hazardous Air Pollutants (40 CFR part 61), Subparts A (General Provisions) and M (National Emission Standard for Asbestos).
c. OSHA standard for respiratory protection (29 CRF 1910.134).
d. OSHA Asbestos Construction Standard for Asbestos (29 CRF 1926.1101).
e. EPA Worker Protection Rule, (40 CFR part 763, Subpart G).

(10) Respiratory Protection Programs and Medical Monitoring Programs.

(11) Insurance and liability issues. Contractor issues; worker's compensation coverage and exclusions; third party liabilities and defenses; insurance coverage and exclusions.

(12) Recordkeeping for asbestos abatement projects. Records required by Federal, State, and local regulations; records recommended for legal and insurance purposes.

(13) Supervisory techniques for asbestos abatement activities. Supervisory practices to enforce and reinforce the required work practices and discourage unsafe work practices.

(14) Contract specifications. Discussions of key elements that are included in contract specifications.

(15) Course review. A review of key aspects of the training course.

SHORT SERVICE EMPLOYEE

1.0 PURPOSE

To ensure all newly hired employees have proven themselves through demonstration of safe work behavior and to fully understand AMPCO's safety policies and procedures.

2.0 SCOPE

This section applies to all AMPCO operations and projects. Subcontractors to AMPCO will be held to the same standards.

3.0 POLICY

Personnel with less than six (6) months of current continuous service with AMPCO are considered a "Short Service Employee".

Before work shall commence on any AMPCO project, the AMPCO on-site supervisor will make the AMPCO representative or project manager aware of the crew makeup with reference to the number of SSE personnel and their assigned mentor(s). The AMPCO representative will determine approval status. A single person crew cannot be an SSE and crew sizes of less than five shall have no more than one SSE. A mentor can only be assigned one SSE per crew and the mentor must be onsite with the SSE to be able to monitor the SSE.

All Short Service Employees will be required to wear a safety hat distinguished by a sticker (SSE) signifying he or she is a Short Service Employee until such time as his Short Service term (six (6) months) has lapsed and successfully completed. During this time, the Site Supervisor or designated Foreman, serves as a mentor and has reviews with the Short Service Employee regarding any additional hazards associated with any specific task as well as any emergency equipment of procedures under his job responsibilities. In order to remove an employee from Short Service Employee status, the Short Service Employee must have a good working knowledge of our Company's as well as the Client's safety policies and has demonstrated safe work behavior for six (6) months.

AMPCO's new employee orientation includes a review of our safety policy regarding SSE, as well as the safety policies of the operator for whom we are working at the time. The topics discussed include but are not limited to: proper clothing, personal protective equipment, proper lifting techniques, correct tool usage, hand signals, and JSA planning.

SUBCONTRACTOR POLICY

SECTION 1 - PURPOSE

To familiarize all AMPCO Subcontractors with the Company's safety rules, procedures, and guidelines for controlling jobsite accidents and injuries.

SECTION 2 - SCOPE

This section applies to all Offices, all contractors working on a subcontract to AMPCO, and all Offices utilizing subcontract labor.

SECTION 3 - POLICY

Each subcontractor will be expected to be aware of and comply with all local, state, and federal safety standards and regulations.

Each subcontractor will be furnished a non-controlled copy of AMPCO Corporate Safety Manual and will be required to comply with those portions of the manual which deal with jobsite safety and health.

Each subcontractor will be required to pre-qualify with AMPCO by reviewing their safety programs, safety training documents, and safety statistics. The subcontractors safety metrics, such as TRIR, DART, EMR and fatality rate will be used as a criteria for selecting subcontractors. Lastly, a post-job safety performance review after each and every project.

SECTION 4 - GENERAL

In many states, and under federal OSHA, AMPCO is responsible for the safety violations of its subcontractors. In addition, an injury to a subcontractor's employee could potentially expose AMPCO to a possible civil lawsuit. Therefore, coordination between the accident prevention activities of the subcontractor and those of AMPCO is a must, if the objective of accident frequency reduction and lowered costs are to be achieved.

Prior to the commencement of any work on a AMPCO project, the subcontractor will ensure that all his personnel, both supervisory and hourly, receive a safety and health orientation from either the AMPCO superintendent or another AMPCO supervisor on the project.

SECTION 5 - SUBCONTRACTOR RESPONSIBILITIES

The subcontractor will provide to the AMPCO superintendent on the project, his job supervisor's home address and telephone number, so that he may be contacted after hours in case of an emergency involving the subcontractor's work or his equipment.

The subcontractor will ensure that his safety program is in compliance with all of the existing safety and health requirements of local, state and federal regulatory agencies. Where applicable, this may include, but not be limited to, hazard communication training, personal protective equipment training, respiratory protection training (including respirator fit testing), required medical examination and clearance, etc.

In addition to compliance with the safety requirements of all applicable regulatory agencies, the subcontractor is also responsible for explaining the AMPCO Safety Program to his employees and for securing compliance with them.

The subcontractor is responsible for all employees working for him and for all other persons calling on him or doing business with him while on an AMPCO jobsite.

SECTION 6 - SUMMARY OF SUBCONTRACTOR SAFETY RULES

The following summary of some important accident prevention rules and work procedures apply to all AMPCO subcontractors while working on AMPCO projects:

6.1 Medical Facilities

Subcontractors must furnish their own first aid supplies, which are to be located in a place where they are immediately available to his personnel. When requested, AMPCO will furnish the subcontractor with Emergency Telephone Number posters which must be filled out and posted throughout the jobsite.

6.2 Accident Reporting

All subcontractor accidents are to be reported immediately to the AMPCO jobsite superintendent. In addition, a copy of each accident report prepared is to be provided to the AMPCO superintendent within 24 hours of the incident's occurrence

6.3 Clothing

The subcontractor will be expected to comply with AMPCO's requirement for the wearing of appropriate construction-type clothing by all of his personnel. The minimum work clothing that is acceptable for all AMPCO or AMPCO subcontractor employees working on a AMPCO construction site, is long pants, good work shoes or boots, and a shirt, that completely covers the worker's shoulders and provides adequate protection against such hazards as concrete splash, abrasions to the skin, oil or grease spills, and slag from welding or cutting.

6.4 Personal Protective Equipment

Approved hard hats must be worn at all times, when on the jobsite. Hearing protection must be worn in all areas of high noise levels. Safety goggles, safety glasses, face shields, etc., must be worn whenever the potential for eye injury exists. Appropriate respiratory protective equipment must be used when conditions warrant. Suitable protective clothing must be worn when required. Approved safety harness and properly attached safety lines must be worn by all subcontractor employees working at unprotected heights.

6.5 Inspections

Subcontractors are required to conduct a daily safety check of each of the areas where their men are working and to report any unsatisfactory conditions to the AMPCO superintendent. Daily safety inspections are required on all AMPCO jobsites. The daily inspections will be conducted either by the AMPCO superintendent or an individual whom the AMPCO superintendent has assigned to this responsibility. Subcontractors will be required to correct any unsatisfactory safety conditions created as a result of their operations within a reasonable period of time. If not done, violation procedures will apply.

6.6 Violation Procedures

When unsafe conditions or practices are observed by the AMPCO superintendent, the AMPCO safety coordinator, or a representative of the AMPCO Safety Office, the subcontractor supervisor will be requested to correct them. If no action is taken within a reasonable length of time, a letter outlining the violation will be issued and submitted to the management offices of the subcontractor and AMPCO for appropriate action.

6.7 Safety Meetings

All AMPCO craft personnel are required to participate in daily tool box talk safety meetings. These are short training sessions held by the AMPCO supervisory staff or the company safety coordinator to comment on one or more job hazards and safe practices to follow for avoiding accidents.

Subcontractors are required to either participate in these meetings or to conduct similar meetings for their personnel. If separate meetings are held, they should be documented in a brief report filed with the AMPCO superintendent.

6.8 Electrical Equipment

Subcontractors are responsible for maintenance of their extension cords. Defective extension cords must be removed from service immediately. Subcontractors are expected to use ground fault circuit interrupters (GFCI), whenever possible, and will furnish a copy of their Assured Equipment Grounding Conductor Program to the AMPCO superintendent. Prior to working on electrical equipment, the subcontractor must make certain that all electrical circuits in the immediate vicinity of his work are appropriately protected or that they are either locked out or tagged out of service to assure that no one will accidentally energize the circuit.

6.9 Fire Protection

Gasoline and other flammable liquids must be kept in approved containers and storage requirements for quantities and types used must comply with local and federal regulations. "NO SMOKING" signs must be posted in areas where flammable liquids are stored. The subcontractor will be expected to enforce all "NO SMOKING" areas located on the jobsite. The subcontractor will be expected to furnish the appropriate number, size, and type of portable fire extinguishers required for the job and to provide the necessary training to his personnel in their use. Fire extinguishers are not to be tampered with or removed from their assigned locations.

6.10 Housekeeping

Good housekeeping practices are extremely important, and subcontractors are responsible for housekeeping conditions in their respective work areas. Refuse and scraps should not be allowed to accumulate, particularly when they interfere with work flow or create additional fire hazards. Combustible materials must be placed in appropriate metal containers and not be permitted to accumulate in the work area.

SECTION 7 - SUBCONTRACTOR EMERGENCY ACTION PLAN

Each subcontractor working on an AMPCO jobsite is required to have a site-specific Emergency Action Plan. The minimum elements of the Emergency Action Plan, which must be in writing and physically located at the jobsite, must include the following:

- The method in which emergency situations are announced.

- Emergency escape procedures and emergency escape route assignments.
- Procedures to be followed by employees who must remain to operate any critical equipment which has to be shut down before they can evacuate.
- Procedures to account for all employees after emergency evacuation have been completed.
- Who will provide rescue and medical duties as required.
- The method of reporting fires and other emergencies.
- Names and/or job titles, as well as telephone numbers, of persons to be contacted for additional information about the Emergency Action Plan.

The subcontractor must ensure that his Emergency Action Plan is written in accordance with the requirements of OSHA Standards, 29 CFR 1926.24, entitled Fire Protection and Prevention, and 29 CFR 1926.35, entitled Employee Emergency Plans, both of which require that each employer be responsible for the development and maintenance of an effective Emergency Action Plan at the jobsite. Copies of the subcontractor's Emergency Action Plan must be provided to the AMPCO jobsite superintendent and also posted where the subcontractor's employees are working at the jobsite.

SECTION 8 - SUBCONTRACTOR SITE SECURITY

The subcontractor should take the required security measures to protect his materials, including those furnished to him by AMPCO, inasmuch as AMPCO will not be responsible for any missing subcontractor materials or tools.

The subcontractor will be responsible for any loss or damage caused by him, his workmen, or his subcontractors to the work or materials, to adjacent property, and to persons.

SECTION 9 - USE OF AMPCO EQUIPMENT BY THE SUBCONTRACTOR

Subcontractors will not be authorized to use any AMPCO Item of Equipment, including scaffolding, ladders, fall protection harnesses, personal protective equipment, respiratory protection, etc., unless the subcontractor completes an Indemnification Agreement with AMPCO prior to the use of such Equipment.

A sample of an Indemnification Agreement is included within this section.

Procedure 6-1

INDEMNIFICATION AGREEMENT FOR THE USE OF AMPCO EQUIPMENT

WHEREAS, AMPCO is using, or will cause to be used, certain items of equipment for its own use and convenience, in connection with work performed at the _____ jobsite, and

WHEREAS, _____, a subcontractor to AMPCO, desires to use such items of equipment, for performing certain work at said location;

NOW, THEREFORE, in consideration of the premises and of the undertakings of the subcontractor hereinafter stated, AMPCO hereby consents to said use by the subcontractor of such items of equipment as are listed below, at the convenience of AMPCO, subject to and on the following terms and conditions:

(a.) That _____, subcontractor, agrees to indemnify and hold harmless AMPCO for any loss, damage and/or expense because of an injury to the person or property of the parties hereto and their employees, and to the person or property of any other person or corporation arising out of the existence, maintenance or use of such items of equipment by the subcontractor.

(b.) That the subcontractor further agrees (1) to insure the liability assumed in paragraph (a) above, in a reliable and acceptable insurance company, and (2) to maintain insurance in such an insurance company, providing the subcontractor with Workers Compensation and Commercial General Liability insurance on the operations of the subcontractor at the premises described above and will furnish to AMPCO certificates of insurance to that effect naming AMPCO, as an additional insured.

(c.) That AMPCO will not and does not guarantee the safety or suitability of any of its items of equipment for the purposes of the subcontractor, nor does it agree to leave in place or to put in place any particular item of equipment at any particular time for another contractor's use. AMPCO makes no warranty or representation, express or implied, as to any matter whatsoever, including, without limitation, the condition of the items of equipment, its merchantability or its fitness for any particular purpose, and as AMPCO, the subcontractor uses the items of equipment "as is" except that AMPCO warrants that AMPCO will have, at the time of use hereunder of each item of equipment, title thereto.

IN WITNESS WHERE OF AMPCO and _____, subcontractor, have executed this instrument this _____ day of _____, 20_____.

For AMPCO (Insert Company Name):	**For Subcontractor (Insert Name)**
_____	_____
(Signature)	(Signature)
_____	_____
(Title)	(Title)

LIST ITEMS OF EQUIPMENT:

_____

_____

_____

VISITOR AND CONTRACTOR SAFETY

SECTION 1 - PURPOSE

The purpose is to define minimum Company requirements and responsibilities for AMPCO operations to assure the safety of employees, subcontractors, and visiting outside personnel.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

A contract must be maintained, which includes requiring all subcontractors and consultants to comply fully with AMPCO's Corporate Safety Manual, all Regulatory Agency Standards, and all local, state, and federal regulations.

SECTION 4 - DEFINITIONS

Active Areas: Any areas in which there is a potential for exposure to hazardous materials or activity. These areas include, but are not limited to, restricted areas, areas where hazardous operations are being conducted, exclusion and decontamination zones, process areas, hazardous waste storage areas, and any area defined as an "Active Area" by either AMPCO or its customer.

Subcontractor/Contractor: Any person or employee, who is not employed by AMPCO Contracting, Inc. or an AMPCO Office, and who is covered by a site-specific contractual agreement to perform specific work activities at an AMPCO facility or AMPCO field operation.

Employer Visitor: An AMPCO employee or contracted employee who is visiting the AMPCO facility or AMPCO field operation on Company business, such as a Health and Safety Representative or a contracted air monitoring technician.

Non-Employee Visitor: Non-company personnel who are not covered by a site-specific contractual agreement to visit or perform specific activities in an active area of the jobsite. This may include vendors, representatives or employees of local, state, or federal regulatory agencies, a representative of the customer, or operators of third party commercial motor vehicles.

Visitor: A general term used to describe a contractor, employee visitor, or non-employee visitor.

SECTION 5 - REQUIREMENTS AND RESPONSIBILITIES

Each AMPCO facility and jobsite should maintain a Visitors Log and require all visitors to sign in and out. Visitors to an AMPCO facility or jobsite should be escorted at all times unless they have been fully oriented and granted permission to be unescorted by the facility or project manager. Exceptions to this will be Health and Safety personnel.

Unescorted visitors should participate in a documented orientation. Content of the training will be dependant on the type of visit and the areas to be entered, and generally the training should consist of:

- general information about the facility or site, processes, operations and history;
- site safety rules and requirements associated with entry to the active areas; and
- emergency action procedures for visitors.

5.1 General

Each Office should develop and implement a standard operating practice which defines the site-specific visitor safety requirements consistent with the requirements of this procedure.

Each Office, AMPCO facility, or project jobsite should maintain a supply of clean hard hats and safety glasses for use by visitors. Unless the visitor is an AMPCO employee with the proper OSHA and State required documentation, this is the only type of protective equipment that should be provided to the visitor.

A means to visibly identify visitors must be developed, such as badges, color coded hard hats, etc.

Each facility or jobsite should anticipate emergency situations which require visitor maintenance personnel to enter an active area, and to develop a plan of action which assures communication of hazards, personnel protection, contractual agreements, and oversight of the activity.

Visitor vehicles must not be allowed in active areas without specific permission of the facility or jobsite superintendent.

5.2 Non-Employee Visitor

All non-employee visitors should be precluded from entering all active areas of the jobsite. Regulatory personnel or authorized representatives of the owner or general contractor should only be permitted into areas requiring personal protective equipment and respiratory protection, if they possess current documentation of training, as required by local, state, and federal regulatory agencies and possess the necessary personal protective equipment to enter the area.

5.2.1 Medical Surveillance

AMPCO is not required to verify that a Compliance Officer is actively participating in a medical surveillance program to ensure that he or she is medically qualified to enter an asbestos enclosure, nor is AMPCO required to verify that the Compliance Officer has, within the past six months, been correctly fit-tested for the respirator he or she is using.

OSHA Regional Administrators and Area Directors are responsible for ensuring that all Compliance Officers who visit an asbestos jobsite have been medically cleared via the CSHO Physical Examination Procedure. This medical examination complies with the conditions of OSHA's Medical Surveillance requirements in any of the applicable standards, (e.g. Asbestos, Lead, etc.).

5.2.2 Respirator Fit Test

OSHA Regional Administrators and Area Directors are responsible for ensuring that all Compliance Officers are provided with semi-annual respirator fit-testing, in accordance with the requirements of the asbestos standard.

5.2.3 Employee Visitors

Employee visitors should not be permitted to enter active areas unless they possess documentation that they are trained, as required by the site and OSHA regulations. AMPCO can only provide limited personal protective equipment to Company employees.

Employee visitors should be escorted in the active areas unless otherwise stated by the project manager. Visitors who are not escorted, must be familiar with and follow site safety rules and regulations, operating procedures, and emergency action plans.

SECTION 6 - FIREARMS AND SUBSTANCE ABUSE

The policy of AMPCO regarding illegal drugs and controlled substances, alcoholic beverages, and firearms is contained within AMPCO's Illegal Drugs, Alcohol & Firearms Policy for Subcontractors, a copy of which is included within this section.

SECTION 7 - SUBCONTRACTORS

Each Office will maintain a written description of the requirements for contractors. The program must contain at least the following:

- A description of the site rules for safety and the personal protection requirements for subcontractors.
- A description of the means used to pre-qualify the contractor prior to signing the contractual agreement. Prior to contracting the services of a subcontractor or consultant to perform work at an AMPCO facility or jobsite, the Safety Director shall review and approve the subcontractor's Pre-qualification form.
- A requirement that the jobsite designate an AMPCO individual responsible for the subcontractor's activities and addressing contractor concerns. All questions, suggestions, and requirements should be conveyed to the subcontractor through this individual. In the case of imminent danger situations, all subcontractor activity must stop immediately and remain stopped until the AMPCO contact is notified and corrective measures implemented.
- A contract must be maintained, which includes requiring contractors to comply with all jobsite safety rules and regulations, as well as Regulatory Agency Standards and a completed Subcontractor's Safety Declaration form, a copy of which is included in the section.
- A requirement that the site-specific orientation be provided to the subcontractor, which includes site/area specific safety rules and regulations, potential hazards, accident/incident reporting procedures, and Emergency Action Plans and procedures.

SECTION 8 - CERTIFICATION

The subcontractor shall provide certification or documentation to AMPCO that all personnel who will work on-site:

- are trained in Hazardous Waste Operations and Emergency Response 29 CFR 1910.120

(if required);

- are medically qualified to perform the work, as intended;
- are trained, as required by OSHA and/or EPA, to perform the intended work safely and without injury to self or others;
- are trained in the Hazard Communication Standard, 29 CFR 1926.59, and aware of the hazards of materials with which they will be working;
- are at least eighteen (18) years of age;
- have been provided with all of the personal protective equipment, including hard hats, safety glasses, respirators, protective clothing, and fall protection harnesses and lanyards, necessary to perform the intended work safely (AMPCO will not provide this equipment);
- if required to wear a respirator, have received the necessary training and have been properly fit-tested; and
- if required to enter a regulated area, will first provide AMPCO with legible copies of their Physician's Written Opinion, their respirator fit-test record, and their asbestos or lead training certificates.

The subcontractor must also certify that regularly scheduled maintenance will be performed on owned or leased vehicles and equipment, as required by state and/or federal regulations. As defects become known, the vehicle or equipment must be removed from service until repairs are completed.

8.1 Reporting

All injuries, accidents, and incidents involving damage to property, spills, fires, theft or loss of equipment incurred by a subcontractor or involving subcontractor employees on AMPCO premises or while performing work for AMPCO, must be reported to the AMPCO contact individual in writing before the end of the next work shift. All OSHA reporting and recordkeeping for the subcontractor's employees will be the sole responsibility of the subcontractor and will not use AMPCO forms in completing incident reports.

8.2 Permits

All hazardous work requiring the completion of permits, such as Hot Work, Line Breaking, and Confined Space Entry, etc., must be performed in accordance with AMPCO procedures and approved by Health and Safety or a AMPCO Safety Director.

8.3 Health and Safety Plans

The AMPCO contact individual will be responsible for obtaining from the subcontractor, a copy of their site/task specific Health and Safety Plan, which meet the requirements of Sections 6-1 and 6-2 of the AMPCO Corporate Safety Manual. This requirement does not apply to transporters of hazardous waste, activities outside of the active areas or other activities limited to monitoring, observation, etc.

Procedure 6-2

CONTRACTOR'S SAFETY DECLARATION

As the duly authorized and designated representative and agent of _____, hereinafter called "Contractor," I hereby certify and agree for myself and for and on behalf of Contractor that:

- ✓ Contractor has received an orientation briefing by AMPCO including, but not limited to, site specific safety rules, accident/injury reporting, emergency procedures and potential hazards in the Contractor's work area during routine site operations;

- ✓ Contractor will instruct all of its agents and employees in the topics covered at the above orientation, before they are allowed to work on-site;

- ✓ Contractor has received a written copy of the site specific safety rules and will ensure that its employees and agents comply with those rules, as well as any applicable federal, state, and local health and safety regulations;

- ✓ Contractor will provide required respirators and personal protective equipment for its employees and agents working on AMPCO property or jobsites;

- ✓ Contractor employees have been examined within the past 12 months and have been medically qualified to perform their work assignments (including the wearing of respirators and personal protective equipment) in accordance with state and federal OSHA regulations;

- ✓ Contractor employees have received training in appropriate health and safety topics (including, but not limited to, respiratory protection, hearing conservation, hazard communication and equipment operation), in accordance with state and federal OSHA and/or state and federal EPA regulations; and

- ✓ Contractor performs regularly scheduled maintenance on owned or leased vehicles and equipment, as per state and federal OSHA regulations (29 CFR 1910 and 1926) and federal DOT regulations. Known defects will be repaired prior to operation and, as defects become apparent during equipment operation, the equipment will be taken out of service until repairs are made.

This declaration is hereby incorporated into the Contractual agreement with _____ _____which is dated_____.

_____ _____

Contractor's Representative: Date

_____ _____

AMPCO Employee Giving Orientation: Date

Procedure 6-2

CONTRACTOR / CONSULTANT PRE-QUALIFICATION FORM

This safety related information must be provided by each contractor/consultant to be considered for bid evaluation and/or contractual agreement with AMPCO. This same information must be submitted on all lower tier (major) subcontractor's performing work on the project site.

BACKGROUND Preparation Date: _____

1. Company Name: _____

   Complete Address: _____

   Phone No.: _____ Fax No.: _____

   Company representative preparing this form:

   Name: _____ Title: _____

INSURANCE

1. Have any claims been made against your insurance in the last 3 years? Yes ☐ No ☐
   If yes, please explain:
   _____

2. Attach a current Certificate of Insurance listing your policy limitations (each occurrence) and expiration date for the following:
   a. Comprehensive General Liability _____ _____
   b. Workers' Compensation (B) _____ _____
   c. Professional Liability _____ _____
   d. Umbrella Coverage _____ _____

3. Can you arrange for AMPCO to be an additional named insured on your general, auto, umbrella liability insurance? Yes ☐ No ☐ If no, explain:
   _____

   _____

4. Will you provide indemnification to AMPCO? Yes ☐ No ☐ If no, explain:
   _____

   _____

BONDING

1. To what limit is your company bonded? _____

2. Have you ever defaulted on a bonded contract? Yes ☐ No ☐ If yes, explain _____

   _____

3. Provide your current and last policy year worker's compensation insurance Loss-Ratio Data (LRD).

   Current year _____ LRD _____ Last year _____ LRD_____
   Loss Ratio Data = Incurred losses x 100 W.C. premium

Procedure 6-2

QUALITY ASSURANCE

1. Do you have a Quality Assurance Program? Yes ☐ No ☐ If no, please explain: explain _____

_____

HEALTH & SAFETY

1. Provide the following Workers Compensation Experience Modification Rate (EMR) information:

   a. List your firm's Interstate Experience Modification Rate for the three (3) most recent years, as evidenced in Workers Compensation Insurance premiums.

      20 _____
      20 _____
      20 _____

   b. Policy anniversary date: _____

   c. For what state(s) is the EMR you are submitting: _____

   d. Is the EMR for the entire company or for a particular department or division? _____

2. Provide the following information from your OSHA 200 Logs for the past 3 years:

		Last year	Second year	Third year
a.	Number of Fatalities (Col. 1 and 8)			
b.	Total number of recordables (Col. 1,2,6,8,9 and 13)			
c.	Number of Lost Workday cases (Col. 3 and 10)			
d.	Number of Medical only cases (Col. 6 and 13)			
e.	Total number of hours worked			

3. How are accident records and summaries kept? How often are they reported? _____

_____ Monthly ☐ Annually ☐

			Yes	No	Monthly	Annually
a.	Accidents totaled for entire company	☐	☐	☐	☐	
b.	Accidents totaled by project		☐	☐	☐	☐
c.	Accidents totaled by superintendent	☐	☐	☐	☐	

Procedure 6-2

4. How are the costs of individual accidents kept? How often are they reported? _____

_____ Monthly ☐ Annually ☐

		Yes	No	Monthly	Annually
a.	Costs totaled for entire company	☐	☐	☐	☐
b.	Costs totaled by project	☐	☐	☐	☐
c.	Costs totaled by superintendent	☐	☐	☐	☐

5. Are accident reports (OSHA 200) and reports sent to following? How often?

		Yes	No	Monthly	Annually
a.	Field Superintendent	☐	☐	☐	☐
b.	Project Manager	☐	☐	☐	☐
c.	Operations Manager	☐	☐	☐	☐
d.	President	☐	☐	☐	☐

6. Do you conduct field safety inspections? Yes ☐ No☐

If yes, who inspections (include title): _____

7. How often are safety inspections conducted?_____

8. Are inspection results documented? Yes ☐ No ☐ If yes, who gets them?_____

9. During management reviews, is safety a criterion for rating purposes? Yes ☐ No ☐

10. Does you company hold Toolbox Safety Meetings? Yes ☐ No ☐ If yes, how often: _____

11 Does your firm have a written Safety Manual? Yes ☐ No ☐ If yes, please furnish a copy.

12. Do you have an orientation program for new hires? Yes ☐ No ☐

13. Has your company ever been inspected by a Regulatory Agency? Yes ☐ No ☐

14. Has your company ever been cited for a violation? Yes ☐ No ☐ If yes, furnish details:

_____

_____

_____

15. Does your company have a written Hazard Communication Program? ☐ Yes No ☐ If yes, please furnish a copy, if no, please explain:

_____

_____

_____

Procedure 6-2

16. Do you currently have a substance abuse and firearms policy in affect? ☐ Yes No ☐

If awarded an AMPCO subcontract, would you implement a policy consistent with AMPCO's **Illegal Drugs, Alcohol & Firearms Policy for Subcontractors**, which is included in this section of the Corporate Safety Manual.
☐ Yes / No ☐. If no, please explain:

_____

_____

_____

Signature: _____

Name: _____

Title: _____

Date: _____

Procedure 6-2

NOTICE TO SUBCONTRACTOR EMPLOYEES

ILLEGAL DRUGS, ALCOHOL & FIREARMS POLICY FOR SUBCONTRACTORS

SECTION 1 - POLICY

The Policy of AMPCO regarding illegal drugs and controlled substances, alcoholic beverages, and firearms is as follows:

1. The use, possession, distribution, purchase or sale of any illegal drugs or other controlled substances by any person while on AMPCO premises or project sites, engaged in AMPCO business or while operating AMPCO equipment is prohibited.

2. The use of any illegal drug or other controlled substances or alcohol, which causes or contributes to unacceptable job performance or unusual job behavior is prohibited.

3. The use, possession, transportation, or sale of explosives, unauthorized flammable materials, firearms, or other weapons by a subcontractor, its subcontractors or their employees while on AMPCO premises or project sites, engaged in AMPCO business or while operating AMPCO equipment is prohibited.

4. The unauthorized use, possession, transportation, or sale of alcoholic beverages by a subcontractor, it subcontractors or their employees while on AMPCO premises or project sites, or while operating AMPCO equipment is prohibited.

Subcontractor employees shall abide by this Policy. Any person violating this Policy shall be removed from AMPCO premises or project sites, and may be denied future access to AMPCO premises or project sites. In addition, AMPCO may suspend work or, in repeated or serious situations, terminate a subcontract, as a result of violation of this Policy. In appropriate cases, local law enforcement agencies may be advised of the violation.

In support of this Policy, AMPCO may conduct or require searches and require screens as set forth in the following:

SECTION 2 - SEARCH

Without prior announcement, and at any time, AMPCO may carry out reasonable searches of individuals and their personal effects when entering AMPCO premises or project sites, while on AMPCO premises or project sites, and when leaving AMPCO premises or project sites. Unless prohibited by applicable law, AMPCO may require subcontractor to search its employees or subcontractors' employees before entering AMPCO premises or project sites, engaging in AMPCO business or operating AMPCO equipment. Entry onto AMPCO premises or project sites constitutes consent to a search of the person and his/her personal effects, including, without

limitation, packages, briefcases, purses, lunch boxes and vehicle, or any office, locker, closet or desk. Refusal to cooperate shall be cause for not allowing that individual on AMPCO premises or project sites.

ILLEGAL DRUGS, ALCOHOL & FIREARMS POLICY FOR SUBCONTRACTORS

SECTION 3 - SCREEN

Unless prohibited by applicable law, AMPCO may require subcontractor personnel to conduct a controlled substance and/or alcohol screen on any of its employees or subcontractors' employees while on AMPCO premises or project sites, engaged in AMPCO business, or operating AMPCO equipment. In addition, AMPCO may require subcontractors to conduct a controlled substance and/or alcohol screen on any of its employees or its subcontractors' employees before entering AMPCO premises or project sites, engaging in AMPCO business or operating AMPCO equipment. Prior written consent shall be obtained from any person who is to be screened. A positive screen on a subcontractor or a subcontractor's employees or failure to give written consent for a screen shall be cause for removal from AMPCO premises or project sites, and shall result in the subcontractor or subcontractor employee being restricted or disqualified from performing services for AMPCO.

SECTION 4 - NOTIFICATION OF SEARCH AND/OR SCREEN BY SUBCONTRACTOR

Prior to conducting a search and/or screen of its subcontractors or its subcontractors' employees on AMPCO premises, subcontractor shall notify general contractor and the local AMPCO facility manager.

SECTION 5 - DEFINITIONS

As used herein, "controlled substance" specifically includes opiates, including heroin, hallucinogens, including marijuana, mescaline or peyote, cocaine, PCP, and prescription drugs, including amphetamines and barbiturates, which are not obtained and used under a prescription lawfully issued to the person possessing them or which are not authorized by AMPCO and any other substance included in the Federal Controlled Substances Act or its regulations, as unlawful under applicable law.

As used herein, controlled substance or alcohol "screen" means any test using blood, urine, breath or other samples to determine the presence of controlled substances or alcohol in the body.

As used herein, "AMPCO premises" is used in the broadest sense, and includes, but is not limited to, all land, property, buildings, structures, installations, vehicles, equipment, aircraft, and water craft owned, leased, or in any other manner being used by AMPCO for any purpose.

As used herein, "AMPCO project site" is used in the broadest sense, and includes all sites or properties on which AMPCO, its affiliates and/or associated firms, and/or subcontractors or other firms, are performing work of any kind.

Procedure 6-2

ILLEGAL DRUGS, ALCOHOL & FIREARMS POLICY FOR SUBCONTRACTORS

SECTION 6 - DRUG AND ALCOHOL RANDOM SECURITY SEARCH POLICY

All subcontractor personnel assigned to AMPCO work shall be mentally and physically capable of performing their assigned duties competently and safely. Therefore, each subcontractor and its subcontractors shall have procedures which allow screening of all employees for controlled substances and alcohol while on AMPCO's premises or project sites, in AMPCO equipment or while engaged in AMPCO business. AMPCO's "Illegal Drugs, Alcohol and Firearms Policy for Subcontractors" (Policy) is stated, and "Controlled Substances," "Screen," and "AMPCO premises" are defined, in the attached Notice to Subcontractor Employees.

AMPCO has occasionally suffered the loss of equipment and confidential data from its work locations. Such losses will not be tolerated. Therefore, AMPCO may conduct searches to ensure compliance with its Policy, as outlined on the attached Notice to Subcontractor Employees.

To insure compliance with AMPCO's Policy, subcontractors should take the following steps:

- Advise all employees and/or subcontractors of AMPCO's Policy of searches without prior notice and that any person found in violation of the Policy shall be denied access to AMPCO premises and project sites.
- Give to each employee and/or subcontractor, the enclosed Notice to Subcontractor Employees for his or her review.
- Screen employees and subcontractors before assigning them to AMPCO premises or project sites, bearing AMPCO's Policy in mind.

The subcontractor shall immediately remove from AMPCO premises any of its or its subcontractors' personnel found to be in violation of the Policy. Such personnel may be denied future access to AMPCO premises or project sites. Any illegal or unauthorized drugs, intoxicating beverages, firearms, weapons, or AMPCO property discovered as a result of AMPCO searches may be confiscated and may be turned over to law enforcement agencies.

If your personnel fail to comply with AMPCO's Policy, it may become necessary to take remedial action, including termination of this Subcontract.

Your cooperation in implementing and enforcing this Policy is appreciated. Please execute and return.

Understood and accepted this _____ day of _____ , 20_____.

Firm Name: _____

By: _____

Date: _____ Title: _____

RESPIRATORY PROTECTION PROGRAM

SECTION 1 - PURPOSE

This program establishes uniform guidelines for complying with the requirements of the Occupational Safety and Health Administration's Respiratory Protection Standard, 29 CFR 1910.134 for the proper selection, use and care of respiratory protection equipment.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

Every consideration will be given to the use of effective engineering controls to eliminate or reduce exposure to respiratory hazards to the point where respirators are not required; however, when feasible engineering controls are not effective in controlling toxic substances, harmful gasses and/or oxygen deficient atmospheres appropriate respiratory protective equipment and necessary medical examinations will be provided by the company at no charge to the employee.

These respiratory protective devices will be of the type approved by the National Institute for Occupational Safety and Health (NIOSH) or acceptable to the U.S. Department of Labor (OSHA) for the specific contaminant to which the employee is exposed.

Where respirators are required by a specific OSHA Standard, AMPCO shall select and provide, at no cost to the employee, the appropriate respirator and required medical examinations specified by the Standard.

Employees required to use respiratory protective devices because of exposure to toxic substances will do so as a condition of employment. Employees who are required to use respirators will be properly fitted, appropriately tested, medically screened, and trained in their use.

SECTION 4 - CODES AND REGULATIONS

Applicability of Codes and Regulations; Except to the extent that more explicit or more stringent requirements are written directly into this procedure, all applicable state and/or local codes and

regulations have the same force and effect as if copied directly into this program. A copy of these codes and regulations must be present at the jobsite.

Federal Regulations: Those standards governing the development of this program include but are not limited to the following:

- **OSHA's Asbestos Standard - Construction Industry** - Title 29, Part 1926, Section 1101 of the Code of Federal Regulations.
- **OSHA's Lead Standard - Construction Industry** - Title 29, Part 1926, Section 62 of the Code of Federal Regulations.
- **OSHA's Respiratory Protection Standard** - Title 29, Part 1910, Section 134 of the Code of Federal Regulations.
- **OSHA's Access to Employee Exposure and Medical Records Standard -** Title 29, Part 1910, Section 1020 of the Code of Federal Regulations.
- **NIOSH Approvals for Respirators** - Title 30, Part II of the Code of Federal Regulations - Title 42, Part 84 of the Code of Federal Regulations
- **American National Standards Institute (ANSI)** American National Standard: Practices for Respiratory Protection, Z88.2-1980

SECTION 5 - DESIGNATION OF A SITE-SPECIFIC PROGRAM ADMINISTRATOR

A site-specific respirator Program Administrator must be designated by name at each jobsite. This will be an individual who is qualified by appropriate training and experience (that is commensurate with the complexity of the program) to administer the respiratory protection program and conduct the required evaluations of the program's effectiveness. Routinely, this is the site superintendent or general foreman. The site specific program administrator will also be the designated competent person.

In order to comply with OSHA's "competent person" requirements, the individual designated must have at least two qualifications. He or she, must have a good working knowledge of the respiratory protective equipment being used at the worksite and must have sufficient authority to promptly prevent and correct hazardous conditions at the site.

5.1 Posting

The name of the designated site-specific Program Administrator must be displayed in a prominent location at the jobsite.

5.2 Respiratory Protection Program

The site-specific Program Administrator will ensure the implementation of a written respiratory protection program with required worksite-specific procedures and elements for required respirator use.

A. At any jobsite where the use respirators are necessary to protect the health of our workers, the Respiratory Protection Program will include, at a minimum, the following elements:

- Procedures for selecting the respirators
- Medical evaluations of employees required to use respirators
- Fit-Testing procedures for tight-fitting respirators
- Procedures for proper use of respirators
- Procedures for inspecting and care of the respirators
- Develop cartridge change out schedule
- Training employees about respiratory hazards
- Training employees on the use and limitations of respirators
- Procedures for evaluating the Program

B. At any jobsite where respiratory use is not required, the following must be included:

- AMPCO will provide an appropriate respirator for any employee requesting the use of one as long as the use of such respirator will not in itself create a hazard.
- Whenever anyone is allowed to use a respirator, all of the provisions of Paragraph A above will be applicable.

5.3 Program Evaluation

The site-specific Program Administrator will periodically assess the effectiveness of the respiratory protection program during all phases of operation in which respirators are being used. Frequent walk-through inspections during these activities will be conducted to monitor and document supervisor and worker compliance with the requirements of the program. In addition, this evaluation will include regularly consulting with employees who wear respirators concerning fit, comfort, and other factors. The general assessment of the overall Respiratory Protection Program will also include specific evaluations of respirator cleaning, inspection, maintenance, repair, storage, and use procedures to ensure that the desired results of these operations are consistently achieved.

5.4 Corporate Program Administrator

In order to assure the timeliness of the Company's written Respiratory Protection Program, it will be evaluated and updated as necessary to reflect any changes in workplace conditions, respiratory equipment, or regulatory standards. In any case, the program will be evaluated at least once each year by a competent person who is a member of the Corporate Safety Department. This individual will be the Corporate Safety Director and he will be designated as the Program Administrator.

- Duties of the Corporate Program Administrator include:
- Identifying work areas, processes or tasks that require workers to wear respirators.
- Assess the effectiveness of the respiratory protection program during all phases of operation that respirators are being used in accordance with their certifications.
- Selection of respiratory options.
- Administering the Medical Surveillance Program.
- Maintaining records required by the program.
- Updating the written program as needed.

SECTION 6 - ANTICIPATED RESPIRATORY PROTECTION REQUIREMENTS

In order to ensure that the correct respirator is specified for each project, AMPCO's Anticipated Respiratory Protection Requirements form must be prepared prior to the start-up of the project. This form should be completed for each phase of the project utilizing objective historical data obtained during work operations conducted under workplace conditions closely resembling the processes, type of material, control methods, work practices, and environmental conditions similar to those of the new project.

When completed for an asbestos project, this form will indicate the specific type of respiratory protection equipment to be used during each phase of the project. In those rare cases where historic data does not provide for a negative exposure assessment and the exposure assessment indicates the exposure level will not exceed 1 F/cc as an 8 hour time weighted average, power air-purifying respirators will be provided equipped with high efficiency filters.

6.1 Initial Exposure Assessment Form

In the case of asbestos related projects, the Anticipated Respiratory Protection Requirements form will be used in combination with the Initial Exposure Assessment form.

SECTION 7 - SPECIFIC REQUIREMENTS FOR ASBESTOS RELATED PROJECTS

When conducting operations involving either known asbestos-containing materials (ACM) or presumed asbestos-containing materials (PACM), appropriate respirators will be used in the following circumstances:

- During all Class I asbestos jobs;
- During all Class II work where ACM is not removed in a substantially intact state;
- During all Class II and III work which is not performed using wet methods;
- During all Class II and III asbestos jobs where AMPCO has not produced a Negative Exposure Assessment;
- During all Class III jobs where thermal system insulation (TSI) or surfacing ACM or PACM is being disturbed;
- During all Class IV work performed within regulated areas where employees performing

other work are required to wear respirators; and

- During all work covered by the Asbestos Standard, 29 CFR 1926.1101, where employees are exposed above the PEL or excursion limit as outlined in Section 9-2 of the Corporate Safety Manual, entitled Air Monitoring Guidelines.

Respirators for asbestos related work must be selected from the appropriate respirators specified in Chart Number 2.

SECTION 8 - SPECIFIC REQUIREMENTS FOR LEAD RELATED PROJECTS

Respiratory protection must be used under the following circumstances:

- Whenever an employee's exposure to lead exceeds the PEL as outlined in Section 9-2 of the Corporate Safety Manual, entitled Air Monitoring Guidelines;
- In work situations in which engineering controls and work practices are not sufficient to reduce exposures to or below the PEL; and
- When they are used as an interim protection for employees performing tasks as specified in Section 10-2 of the Corporate Safety Manual, entitled Lead Abatement Guidelines.

Respirators must be supplied with HEPA filter cartridges and provided according to Respiratory Protection for Lead Aerosols table as shown in Chart Number 3.

SECTION 9 - PURCHASE OF APPROVED EQUIPMENT

In order to comply with the provisions of OSHA's standard on Respiratory Protection, 29 CFR 1910.134, all respiratory protective equipment purchased by the AMPCO Companies will have been tested by the National Institute for Occupational Safety and Health and will carry a NIOSH approval number for that specific respirator assembly.

Respirators which are provided to employees who must use them for protection against gases or vapors are no longer permitted to use odor or irritation as an indicator that the respirator's cartridge needs replacement. AMPCO is now required to provide a cartridge with an "End of Service Life Indicator (ESLI)". If ESLI cartridges are not available, a "Cartridge Change Schedule" must be developed from data provided by the manufacturer. In the event neither an ESLI cartridge nor a Cartridge Change Schedule is feasible, the employees must be provided

with a supplied-air respirator.

9.1 Breathing Air Quality

For those who wear supplied-air respirators, OSHA has adopted a newer breathing air quality requirement. Under the new requirements, breathing air must not contain more than 10 parts per million of carbon monoxide. The old standard permitted up to 20 parts per million. Breathing air quality shall be grade D in accordance with OSHA and ANSI specifications.

SECTION 10 - RESPIRATOR SELECTION

In selecting the correct respirator for a given circumstance, the following factors must be taken into consideration:

- **Nature of the Hazard:** In order to make subsequent decisions, the nature of the hazard must be identified to ensure that an overexposure does not occur. These include oxygen deficiency, physical properties of the hazard, chemical properties of the hazard, physiologic effects on the body, actual concentrations of the toxic substances, the Permissible Exposure Limits (PEL), and the warning properties.
- **Nature of the Operation:** For proper respirator selection, it is necessary to know the details of the operations which require employees to use respiratory devices. These include operation or process characteristics, work area characteristics, materials used or produced during the process, the employee's duties and actions, and any abnormal situation characteristics which may necessitate alternate respirator selection.
- **Location of the Hazardous Area:** This is important in the selection process so that a backup system may be planned if necessary. Respirable air locations must be known prior to entry into a hazardous area so escape or emergency operations may be planned.
- **Time Respiratory Protection is required:** The length of time a respirator will have to be worn by an employee is a factor which must be evaluated. This is most pronounced when using SCBA Equipment, where, by definition, the air supply is finite. However, time is also a factor during routine use of air-purifying respirators when the employee's breathing and comfort become affected by a clogged filter cartridge which needs changing.
- **Employee's Health:** Effective usage of a respirator is dependent on an individual's ability to wear a respirator, as determined by a physician. Most respiratory devices increase physical stress on the body, especially the heart and lungs. Care should be taken to ensure that a medical determination has been made that an individual is capable of wearing a respirator for the duration of the work assignment. (See

Paragraph 14.0 of this procedure).

- **Work Activity:** The type of work activities to be performed while wearing a respirator is vitally important in the respirator selection. The proper respirator will be one which is least disruptive to the task being conducted yet providing the desired protection.
- **Respirator Characteristics, Capabilities and Limitations:** Tables 1 and 2 have been reproduced from ANSI Z88.2-1980. They provide a description of various respirator characteristics, capabilities and limitations.

10.1 Protection Factors: The protection afforded by respirators is dependent upon the seal of the facepiece to the face, leakage around valves, and leakage through or around cartridges or canisters. Depending on these criteria, the degree of protection may be ascertained and a relative safety factor assigned. Protection factors are only applicable if all elements of an effective respirator program are in place and being enforced.

10.2 Facial Hair

OSHA regulations 29 CFR 1910.134(g)(1)(A) prohibits respirators with tight-fitting facepieces from being worn by employees with facial hair that comes between the sealing surface of the facepiece and the face or that interferes with valve functions. It will be the responsibility of the site-specific respirator Program Administrator to ensure that respirator users are clean shaven and that the project has, on-hand, a supply of disposable razors and shaving cream for those workers who must shave more then once per day.

10.3 Respirator Selection Charts

Where respirators are used, AMPCO will select and provide, at no cost to the employee, the appropriate respirator, as specified in the following charts, and will ensure that the employee uses the respirator provided.

Chart 1 - Selection Chart for Routine Use.

Chart 2 - Selection Chart for Asbestos Abatement Use.

Chart 3 - Selection Chart for Lead Abatement Use.

AMPCO will provide a Powered Air-Purifying Respirator (PAPR) in lieu of any negative-pressure respirator specified in either Chart 2 or 3, whenever an employee specifically requests this type of respirator and the respirator's protection factor and cartridges will amply provide the protection required.

In addition to the above selection criterion, AMPCO will provide a half-mask air purifying respirator, other than a disposable respirator, equipped with high efficiency filters whenever the employee performs the following activities: Class II and III asbestos jobs where AMPCO does not produce a negative exposure assessment; and Class III jobs where TSI or surfacing ACM or PACM is being disturbed.

Additionally, AMPCO will provide a tight-fitting powered air purifying respirator equipped with high efficiency filters or a full facepiece supplied air respirator operated in the pressure demand mode equipped with HEPA egress cartridges or an auxiliary positive pressure self-contained breathing apparatus for all employees within the asbestos regulated area where Class I work is being performed for which a negative exposure assessment has not been produced and the exposure assessment indicates the exposure level will not exceed 1 f/cc in an 8 hour TWA.

Comfort

Once AMPCO has selected the type of respirator to be used, and this selection will be based on the respiratory hazards to which the worker will be exposed, as well as workplace and user factors that affect respirator performance and reliability, the selection process should give consideration to the fit and comfort of the respirator.

AMPCO need only provide enough respirator choices to obtain an acceptable fit among the employees who are required to wear a respirator. If just one respirator model and size provides the acceptable fit, then only that one model and size respirator is sufficient.

An assessment of comfort should include the following points:

- Chin properly placed
- Fit across nose bridge
- Positioning of mask on nose
- Strap Tension
- Room for safety glasses
- Room to talk
- Distance from nose to bridge
- Tendency to slip
- Cheeks filled out
- Hindrance to movement

Note: The comfort and proper fit of a respiratory device is of paramount

importance, and the time to determine the proper fit and comfort of the respirator is during the selection process. However, should any employee who has already been assigned a respirator be working in a contaminated area when he/she determines that the mask is no longer comfortable or fitting properly, they will be allowed to leave the contaminated area and enter the Decontamination area where, after showering their head, shoulders and respirator, they may remove the respirator to adjust the fit and comfort.

10.4 Authorized Respiratory Equipment

Respirators specified for use during these phases must be selected from the list of AMPCO Authorized Respiratory Equipment.

SECTION 11 - ISSUANCE OF EQUIPMENT

When practical, respirators will be assigned to individual employee's for their exclusive use and labeled for identification in such a way as not to affect the performance of the respirator.

11.1 Fitting

After the employee has been shown how to assess a respirator, he/she must be shown how to put on the respirator, how it should be positioned on the face, how to set strap tension, and how to determine a proper fit.

> **Note:** This instruction should take the form of a review and should not be considered the employee's formal training. The employee should hold each facepiece up to the face and eliminate those which obviously do not give a comfortable or proper fit. Normally, fitting should start with a half-face mask and if a good fit cannot be found, the employee should then try a full-face mask.

11.2 Familiarization

Once the proper fitting respirator has been selected, the employee should don the device, adjusting the facepiece and applying tension to the straps. He/she should then wear the mask for at least five minutes before taking it off and putting it on several times, adjusting the straps each time to become familiar with the respirator and adept at setting the proper tension on the straps.

11.3 Qualitative Fit-Testing (QLFT) & Quantitative Fit-Testing (QNFT)

Any respirator designed to have a tight seal along the face must be fit-tested, whether it is used in a positive or negative pressure mode, and whether it is disposable. There are currently two methods acceptable for conducting fit-test for respirator use, the Qualitative Fit-Test (QLFT) and the Quantitative Fit-Test (QNFT). The (QLFT) method is a fast, easily conducted test that can be performed almost anywhere, while the (QNFT) method requires the use of bulky test chambers and very expensive electronic equipment.

Acceptable Fit-testing Methods

RESPIRATOR	QLFT	QNFT
Half-Face Negative Pressure, APR (<100 fit factor)	Yes	Yes
Full-Face Negative Pressure, APR (<100 fit factor) used in atmospheres up to 10 times the PEL	Yes	Yes
Half-Face Negative Pressure, APR (>100 fit factor)	No	Yes
PAPR	Yes	Yes
Supplied-Air Respirators (SAR), or SCBA used in Negative Pressure (Pressure Demand Mode)	No	Yes
Supplied-Air Respirators (SAR), or SCBA used in Positive Pressure (Pressure Demand Mode)	Yes	Yes
SCBA – Structural Fire Fighting, Positive Pressure	Yes	Yes
SCBA/SAR – IDLH, Positive Pressure	Yes	Yes
Mouth-bit Respirators	Fit-testing Not Required	
Loose-fitting Respirators (e.g. hoods, helmets)		

11.4 Fit-Testing

OSHA requires that tight-fitting facepiece respirators be fit-tested prior to initial use of the respirator, whenever a different facepiece (size, style, model or make) is used, and at least annually thereafter. AMPCO will conduct an additional fit-test whenever there is a change in the employee's physical condition that could affect respirator fit. This could include (a) a weight loss or gain of 20 pounds or more, (b) significant facial scaring in the area of the facepiece seal, (c) significant dental changes, or (d) reconstructive or cosmetic surgery.

Note: Respirator fit-testing will not be performed on an employee until after a medical evaluation has been conducted and it has been determined the employee is suitable to wear a respirator.

When fit-testing Powered Air Purifying Respirators (PAPR) using the QLFT method, the

respirator's facepiece must first be converted into a negative pressure respirator with appropriate filters, regardless of the mode of operation. When higher levels of respiratory protection are needed, the QNFT method must be used.

Qualitative Fit-Testing (QLFT) is based on the wearer's subjective response to the test agent or chemical, of which the three most popular tests are, the irritant smoke test, the odorous vapor test, and the taste test. Fit-testing will be in accordance with the mandatory Appendix A of the Standard. The following represents a brief summary of how to conduct each of these tests.

- **Irritant Smoke Test:** The irritant smoke test is performed by directing an irritant smoke, stannic chloride, from a smoke tube towards the respirator being worn. If the wearer cannot detect the irritant smoke, a satisfactory fit is assumed to be achieved.

  The respirator wearer will react involuntarily, usually by coughing or sneezing, to a leakage around or through the respirator. Since this type of test provokes an involuntary response from the employee, it is the preferred testing method when available. In this type of qualitative test, the person administering the test should be interested in any response to the smoke and not necessarily to the degree of response.

  When an air-purifying respirator is being tested in this method, it has to be equipped with a high efficiency filter (HEPA) cartridge.

  Note: The test substances are irritants to the eyes, skin and mucous membranes. Therefore, the respirator wearer should keep his/her eyes closed during testing.

- **Odorous Vapor Test:** The odorous vapor test relies on the respirator wearer's ability to detect an odorous material, usually isoamyl acetate (banana oil) inside the respirator. The test is performed by passing an isoamyl acetate saturated material around the outside of the respirator. If the wearer is unable to smell the chemical, then a satisfactory fit is assumed to be achieved.

  When an air-purifying respirator is tested by this method, it should be equipped with an organic cartridge which removes the test vapor from the air.

  Note: This test is solely dependent upon the employee's honest response, since there is no involuntary reaction. For that reason, it is not preferred.

- **Taste Test:** The taste test relies upon the wearer's ability to detect a chemical substance, usually sodium saccharin, by tasting it inside the respirator. If the wearer is unable to taste the chemical, then a satisfactory fit is assumed to be achieved.

When an air-purifying respirator is tested by this method, it should be equipped with organic vapor cartridges or offer protection against organic vapors, which removes the test vapor from the air.

Note: This test is totally dependent on the wearer's honest indication of taste. There is no involuntary response, and therefore is not preferred as a method of testing. When conducting this type of test, the person being tested must not be allowed to eat, drink, or chew gum or tobacco for at least 15 minutes prior to taking the test.

11.5 Respiratory Fit-Test Summary Record

A summary of the test results for each employee on whom a qualitative fit- test was conducted, will be documented on the Respirator Fit-Test Summary. There must be a separate Fit-Test Record generated for each type of respirator the employee will use on that project. At the completion of the project, this record will then become a part of the employee's permanent personnel file and will be retained for a period of thirty years following the employee's last day of employment. Copies of these records must be maintained at the jobsite.

11.6 User Seal Check (Field Tests)

There are two field tests that are used to check the seal of the respirator. These are known as the positive and negative pressure tests. Each of these two tests must be performed every time a respirator is put on and prior to entering a contaminated area.

- **To Perform a Positive Pressure Test:**

(1) This test only applies to those respirators which have an exhalation valve which can be blocked. The exhalation valve cover may have to be removed for the test.

(2) Close or "block off" the exhalation valve.

(3) Exhale gently into the facepiece.

(4) The facepiece should hold the positive pressure for a few seconds. During this time, the worker should not hear or feel the air leaking out of the face-to-facepiece seal.

- **To Perform a Negative Pressure Test:**

(1) Covers the respirators inlet openings, cartridges, canisters, seals or hose of the respirator facepiece with the hand(s), tape, or other means.

(2) Inhale gently so that the facepiece collapses slightly and hold the breath for ten seconds.

(3) If the facepiece remains slightly collapsed and no inward leakage occurs, then the facepiece-to-face seal is probably satisfactory.

Note: Although both the positive and negative pressure tests are considered essential to a good respiratory protection program and should always be used prior to entering an area of exposure, they are recognized solely as a field test and cannot be substituted for the annual qualitative fit-test.

11.7 Airflow Check

Prior to fitting or using a PAPR respirator, an Airflow Meter must be used to check the operation of the battery and the flow of air through the power unit and the filter cartridge. The Airflow Meter is nothing more than a graduated plastic tube with a floating plastic ball that attaches to the input side of the filter cartridge on a 3M PAPR and inserts into the outlet side of the power unit on both a Racal and an MSA PAPR respirator. The flow of air through the Airflow Meter moves the floating ball up and down in tube.

This test must be conducted using the individual worker's PAPR motor and battery assembly. The ball should indicate an air flow of between 4 to 6 cfm. If the flow rate is below 4 cfm, insufficient air flow is being provided and the unit must be checked. Generally, this is a result of a battery with a low charge or an overloaded filter. Do not use the respirator until this situation has been corrected.

SECTION 12 - TRAINING

Respirators will not be issued to individuals (this includes company officials, subcontractors, visitors, customers, etc.) who have not received appropriate respirator training and who do not have a current Physician's Written Opinion on file at the work site.

12.1 Training Program

The extent and frequency of employee training depends primarily on the nature and extent of the hazard. At a minimum, all employees and supervisory personnel will be trained in basic respirator practices. It must be remembered the respirators are effective only when they are acceptable to the employee and worn properly. Because proper use depends

especially upon the wearer's motivation, it is important the need for the respirator be fully explained.

The basic Respirator Training Program must include:

- An explanation of the problems involved in misusing the respirator.
- A discussion of the nature of airborne contaminants against which the employee must be protected, and why engineering controls have not been effective in controlling exposure to the point where respirators are not required.
- A discussion of why the respirator which has been selected for this job is the proper device for this particular purpose.
- Instruction on the respirator's limitations, emphasizing such things as oxygen deficiency, toxic contaminants which are immediately dangerous to life or health (IDLH), particulates, such as asbestos, which are not immediately dangerous to life or health, and the need to change filter cartridges when indicated to do so by testing, or when breathing resistance increases to an uncomfortable level.

- Instructions on how to put on the respirator, how it should be positioned on the face, how to set strap tension, and how to wear the respirator comfortably.
- Instructions on the proper care and maintenance of the respirator.
- Field training to recognize and cope with any type of emergency while using a respirator.
- Instructions on how to inspect the respirator and ensure that it is in proper working condition.
- An explanation of the differences between air-purifying and supplied air respirators and how their use is controlled by the amount of exposure.
- A discussion on the value of medical surveillance and air-sample monitoring.
- Instructions on the method of fit-testing used and the proper way to conduct positive and negative pressure tests each time the respirator is put on. During this instruction, the wearer must be made to understand that the respirator cannot be used when conditions prevent a satisfactory facepiece-to-face seal. If this condition cannot be corrected, the employee cannot be allowed into the area requiring the use of a respirator.

  Instructions that the employee must leave the respirator use area to; wash their faces and respirator facepieces as necessary to prevent eye or skin irritation associated with respirator use or if they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece or to replace the respirator or the filter, cartridge, or canister elements. AMPCO will ensure that the respirator is repaired or replaced before allowing the employee to return to the work area.
- Instructions that it is illegal to alter in any way, or to mix parts from one model or manufacturer's respirator to another, and that doing so voids the NIOSH certification of the respirator.

12.2 Retraining Requirements

Respirator training must be performed initially and then at least annually. Previous training, within a twelve month period, is acceptable instead of initial training. Retraining must be performed annually and whenever any of the following occur:

- Changes in the workplace or the type of respirator render previous training obsolete;
- Inadequacies in the employee's knowledge or use of the respirator indicate that the

employee has not retained the requisite understanding; or

- Any other situation arises in which retraining appears necessary to ensure safe respirator use.

12.3 Respirator Training Records

Upon completion of the basic respirator training program, the employee will be required to read and sign a Respirator Training Record attesting to the fact that he/she has received the basic training program and feels confident in ability to use the respirator properly. The signed and dated Respirator Training Record will then become a part of the employee's permanent personnel record and will be retained for a period of thirty years following the employee's last day of employment.

SECTION 13 - CARE AND MAINTENANCE

The manufacturer's representative must adequately train personnel responsible for the care and maintenance of respirators. Substitution of parts from different brands or types of respirators invalidates approval of the device. Repairs and adjustments should never be made beyond the manufacturer's recommendations. Under no circumstances should a chemical or substance be used to clean or disinfect a respirator unless the manufacturer has approved that chemical or substance.

13.1 Cleaning The Respirator

Respirators must be cleaned after each use and disinfected after each day's use when they are assigned to one individual or after each use if they are assigned to more than one person. The following procedures are recommended for cleaning and disinfecting respirators:

- If required, remove any filters or cartridges.
- Wash facepiece and breathing tube in detergent and warm water (120°) or a cleaning and disinfecting solution. Use a soft brush to facilitate removal of dirt. Cleaning and disinfecting solutions are available from respirator manufacturers or it can be made by using a solution of water and household chemicals, such as two tablespoons of chlorine bleach to one gallon of water, or one teaspoon of tincture of iodine to one gallon of water. A two minute immersion of the respirator into either solution is sufficient for disinfecting the item.

- Rinse completely in clean, warm water.
- Air dry in clean air.
- Clean out other parts as recommended by the manufacturer.
- Inspect the valves, head straps, and other parts and replace with new parts if defective.
- Place facepiece in a plastic bag or container for storage in an assigned area.
- When required, insert new filters or cartridges prior to use making sure the seals are tight.

13.2 Storing The Respirator

When a respirator is assigned to an individual for their specific use, appropriate provisions must be made to provide the user with adequate storage facilities. When not in use, the respirator must be stored in a convenient, clean and sanitary location in order to protect against dust, sunlight, heat, extreme cold, excessive moisture, or damaging chemicals. If the respirator is routinely used, it may be placed and individually sealed plastic bag. The respirator should be stored in such a way, that the facepiece and exhalation valve is not being distorted. The respirator must not be stored in such places as lockers or tool boxes unless it is in a carrying case or carton.

13.3 Inspecting The Respirator

Each individual and the site specific program administrator is responsible for inspecting respirators and assuring that they are in satisfactory working condition. Respirators should be inspected before and after each use and at least monthly if not used often. A general inspection check list should include:

- Tightness of connections.
- Condition of facepiece, straps, connecting tubes, and cartridges.
- Condition of exhalation and inhalation valves. If the sides of the exhalation valve gap even slightly, it must be replaced with a new valve.
- Pliability and flexibility of rubber parts. Deteriorated rubber parts must be replaced. Unused rubber parts should be worked, stretched and manipulated with a massaging action.

- Condition of lenses should be checked. Lenses must be tight and scratched or damaged lenses replaced.
- On self-contained breathing apparatus, the charge of the compressed air cylinders should be checked and fully charged.
- Proper functioning of regulators and warning devices.
- On Type C respirators, the compressor, warning devices, hoses and attachments. A qualified individual should assure that respirators are properly selected, fitted, used, cleaned and maintained, and must conduct frequent random inspections.

Note: For a detailed respirator check list, refer to the Respirator Inspection Chart.

13.4 Filter Change-Out Schedule

Filters or cartridges designed for contaminate removal have limited effective service lives. The site specific program administrator of each worksite utilizing air-purifying respirators must develop a change schedule which specifies when cartridges are to be replaced and what information was relied on to make this judgment. The service life of a cartridge depends upon many factors, including environmental conditions, breathing rate, cartridge filtering capacity and the amount of contaminates in the air. A safety factor should be applied to the services life estimate so that the change schedule is a conservative estimate.

Determination of service life can be accomplished through one of several methods:

Manufacturer's Recommendation: Contact the manufacturer and provide details of the inhalation hazards (material identification and exposure concentrations) and work conditions (humidity and work rate). The manufacturer calculates or provides testing data indicating the expected breakthrough time. A safety factor adjustment would be made to this time to indicate the change-out schedule.

Math Model: Mathematical equations have been used to predict the service lives of organic vapor respirator cartridges when used for protection against a single contaminates. OSHA has developed a service life table based on an equation developed by G. Wood. The table can be viewed on OSHA's website. Service life for contaminates not listed in this table can be determined by using the "Advisor Genius" also located on OSHA's website. NOTE: Math models are usually only applicable to a single contaminate exposure. If you have a multiple contaminate situation, you may need to use other methods to develop a change-out schedule.

End-of-Service-Life-Indicators (ESLI): When a respirator cartridge is equipped with ESLI, the cartridge must be changed immediately when indicated.

Breathing Resistance: Employees wearing air-purifying respirators for protection against particulates only (e.g., asbestos, silica, lead) must change filters if any breathing difficulties (breathing resistance) are experienced while wearing the respirator. Employees wearing tight fitting powered air-purifying respirators for protection against particulates must change filters when airflow rates drop below 4 cubic feet per minute.

13.5 Care and Maintenance Records

A written record should be maintained of the Care and Maintenance of respiratory equipment for each project. Information contained on this record should include inspection reports, replacement parts used, dates of repair, cleaning and type of disinfectant used and the names of persons doing the work. The respirator should be identified by manufacturer, model and approval number. Records should be retained for a period of five (5) years.

SECTION 14 - MEDICAL REQUIREMENTS

Employees of AMPCO will not be assigned to tasks requiring the use or fit-testing of a respirator, unless it has been determined by a physician or other licensed health care professional that they are physically able to perform the work and use the respirator.

The medical questionnaire and examinations shall be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire shall be administered in a manner that ensures that the employee understands its content. And that the employee is given a chance to discuss any questionable results with the physician or other licensed health care professional.

No employee shall be assigned to tasks requiring the use or fit-testing of respirators if, based on his or her most recent medical examination, an examining physician or other licensed health care professional determines that the employee will be unable to function normally wearing a respirator, or that the safety or health of the employee or of other employees will be impaired by the use of a respirator. Such employee shall be assigned to another job or given the opportunity to transfer to a different position the duties of which he or she is able to perform with the same employer, in the same geographical area, and with the same seniority, status, and rate of pay and other job benefits he or she had just prior to such transfer, if such a different position is available.

14.1 Medical Examinations

Using a respirator may place a physiological burden on employee's that varies with the type of respirator worn, the job and workplace conditions in which the respirator is used, and the medical status of the employee. Accordingly, the minimum requirements for frequency of medical evaluations are:

- Prior to fit testing, or
- Prior to task assignment requiring the use of a respirator;
- At least annually thereafter.

Each procedure of the medical examination and evaluation will be performed by or under the supervision of a physician or other licensed health care professional and will include, as a minimum, a medical and work history with special emphasis directed to the pulmonary, cardiovascular and gastrointestinal systems to determine the presence of any possible respiratory diseases and a pulmonary function test which will include both the maximum amount of air that can be expired from the lungs after full inhalation (FVC) and the amount of air forcibly expired in one second after full inhalation (FEV 1.0). A chest x-ray, both posterior and anterior, may be required at the discretion of the physician or other licensed health care professional.

The only exception to this requirement for an initial medical examination is if the employee or Company can provide adequate records to show that he/she has been examined in accordance with the provisions of this program within the past twelve (12) month period.

14.2 Medical Forms

When conducting the initial medical examination, the standardized OSHA Medical Questionnaire must be used. During the annual re-examination, the abbreviated OSHA Medical Questionnaire should be used.

In addition to the standardized questionnaires, the physician or other licensed health care professional must also be furnished with a copy of the latest OSHA Standard governing the type of exposure the employee will be involved in, for example, if the employee is in asbestos abatement work, the physician must be given a copy of the Standard 29 CFR 1926.1101 Asbestos. A description of the employee's duties as they relate to the exposure, the anticipated exposure level, a description of the respiratory protection equipment to be used, and any available information from previous medical examinations of the employee must also be furnished to the physician.

At the conclusion of the examination, the physician will furnish a written opinion to AMPCO. This will contain the results of the examination, any conditions discovered by

the physician that will prohibit the employee from using a respirator and any recommendations from the physician regarding the employee's limitations. It will also contain a statement from the physician that he/she has informed the employee of the results of the examination.

A copy of the physician's opinion must be furnished to the employee, by the Company, within thirty (30) days of its receipt by the Company.

14.3 Corrective Glasses

For those employees who require corrective lenses, the appropriate respirator must be selected to allow for good vision comfort and proper seal. A qualified person should fit the lenses and face piece. Providing respiratory protection for individuals wearing corrective glasses is a serious problem. If corrective glasses are required, they must be worn so as not to affect the fit of the facepiece. Proper selection of equipment will minimize or avoid this problem.

> **Note:** OSHA no longer has a restriction on the wearing of contact lenses while using a full-face respirator in a contaminated atmosphere.

14.4 Recordkeeping

All records pertaining to the employee's medical examination and evaluation must be retained throughout the employee's term of employment plus thirty (30) years. For specific details, refer to Medical Records, Section 3-5 in the Corporate Safety Manual.

SECTION 15 - NON-ROUTINE TASKS

Non-routine tasks are those tasks, which may have to be performed in an area where the potential for exposure to the presence of hazardous chemicals or substances may require protection against more than just one chemical or substance. Examples of these non-routine tasks may include, but are not limited to, working in the vicinity of torch cutting operations, concrete breaking operations, demolition operations creating general nuisance dust, any exposure to animal excrements, working with certain spray adhesives and solvents, etc.

Whenever exposure is not limited only to asbestos fibers, the additional exposure hazards must be taken into consideration. Either Self-Contained Breathing Apparatus (SCBA) or Type-C supplied-air be used or, where the exposure permits, use a powered-air purifying respirator (PAPR) or a negative pressure respirator supplied with a HEPA cartridge combined with one or more of the following additional filter cartridges:

- An organic vapor cartridge when protection is required against not more than 1000 ppm organic vapors.
- An acid gas cartridge when protection is required against not more than 10 ppm chlorine (CL2), 50 ppm Hydrogen Chloride (HCL), 50 ppm Sulfur Dioxide (SO2), or 10 ppm Formaldehyde.
- An ammonia and methylamine cartridge when protection is required against not more than 300 ppm Ammonia (NH3) or 100 ppm Methylamine.

Note: Many of these additional cartridges are also provided in combinations for several types of protection. The site specific program administrator will develop specific respiratory protection requirements for assigned tasks.

15.1 Immediately Dangerous to Life and Health (IDLH)

AMPCO will not perform work in IDLH atmospheres unless specific instructions and permission has been provided by the Director of Health and Safety.

1. One employee or, when needed, more than one employee will be located outside the IDLH atmosphere;

2. Visual, voice, or signal line communication will be maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere;

3. The employee(s) located outside the IDLH atmosphere will be trained and equipped to provide effective emergency rescue;

4. The employer or designee must be notified before the employee(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue;

5. The employer or designee authorized to do so by the employer, once notified, provides necessary assistance appropriate to the situation;

6. Employee(s) located outside the IDLH atmospheres must be equipped with:

    - Pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA; and either,
    - Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres where retrieval equipment would contribute to

the rescue of the employee(s) and would not increase the overall risk resulting from entry; or

- Equivalent means for rescue where retrieval equipment is not required under paragraph (g)(3)(vi)(B).

SECTION 16 - VIOLATION AND DISCIPLINARY ACTION

Due to AMPCO's heavy involvement in the asbestos abatement industry, respiratory protection is a crucial part of the Company's overall safety program. As such, mandatory compliance with all aspects of this program by those employees required to use a respirator, is a condition of continuing employment.

16.1 Disciplinary Action

When it has come to the attention of a supervisor that an employee has deliberately removed his/her respirator, or broken the facepiece-to-face seal, while in the contaminated area, the employee will be immediately suspended from work and instructed to leave the job pending a final disposition. Random spot checks will be conducted to determine the effectiveness of the employee's fit test. Should the check, which will be a positive or negative pressure test, conducted under the direction of a supervisor, indicate that the employee's respirator does not have a satisfactory seal, the employee will be advised accordingly and instructed to leave the contaminated area. A Written Warning for Safety Violation will be issued to the employee, the first time he/she fails a random check. Two such Warnings on the same job will be sufficient cause for dismissal (Refer to Section 2-3 of the Corporate Safety Manual for a copy of this warning form).

Note: Should an employee request permission to leave the contaminated area to remove his/her respirator for the purpose of washing either, the face-piece or their face, this permission must be granted. However, the employee should be reminded that the positive and/or negative pressure test must be conducted before returning to the contaminated area.

SECTION 17 - REPORTING RESPIRATOR PROBLEMS

Occasionally, the workers and/or supervisor may find a defect in the design or performance of a respirator. The best course to follow is to report these findings to the site specific and/or corporate program administrator, who in turn should report these findings to Corporate Safety.

If the respirator carries with it the approval of the National Institute for Occupational Safety and

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Health (NIOSH), the Corporate Director of Health and Safety will report the findings to the respirator's manufacturer and to NIOSH.

Notifying the manufacturer of the defect in a report format, and forwarding a copy of the report to NIOSH will do this. The report will include the following:

- The name, addresses and telephone number of the AMPCO Company.
- The name of the respirator's manufacturer.
- The model number of the respirator.
- The name and part number (if possible) of the defective part.
- The lot number and/or serial number of the respirator and/or defective part.
- A brief description of the respirator's use when the defect was discovered.
- A description of the defect.
- A description of the defect's adverse effect on the respirator's performance.

This report should be addressed to the NIOSH Division of Safety Research, Testing and Certification Branch, 944 Chestnut Ridge Road, Morgantown, West Virginia 26505.

Table - 1

Classification and Description of Respirator by Mode of Operation

Atmosphere-Supplying Respirators

A respirable atmosphere independent of the ambient air is supplied to the wearer.

Self-Contained Breather Apparatus (SCBA). The wearer carries a supply of air, oxygen, or oxygen-generating material. Normally equipped with full facepiece, but may be equipped with a quarter-mask facepiece, half mask facepiece, helmet, hood, or mouthpiece and nose clamp.

1. **Closed-Circuit SCBA** (oxygen only, negative pressure or positive pressure).

   (a) **Compressed or liquid oxygen type.** Equipped with a facepiece or mouthpiece and nose clamp. High-pressure oxygen from a gas cylinder passes through a high-pressure reducing valve and, in some designs, through a low-pressure admission valve to a breathing bag or container. Liquid oxygen is converted to low-pressure gaseous oxygen and delivered to the breathing bag. The wearer inhales from the bag, through a corrugated tube connected to a mouthpiece or facepiece and a one-way valve. Exhaled air passes through another check valve and tube into a container of carbon-dioxide removing chemical and reenters the breathing bag. Make-up oxygen enters the bag continuously or as the bag deflates sufficiently to actuate an admission valve. A pressure-relief system is provided; and a manual bypass system and saliva trap may be provided depending upon the design.

   (b) **Oxygen-generating type.** Equipped with a facepiece or mouth piece and nose clamp. Water vapor in the exhaled breath reacts with chemical in the canister to release oxygen to the breather bag. The wearer inhales from the bag through a corrugated tube and one-way check valve at the facepiece. Exhaled air passes through a second check valve/breathing tube assembly into the canister. The volume of exhaled air governs the oxygen-release rate. The canisters fill removes carbon dioxide in the exhaled breath.

2. **Open-Circuit SCBA** (compressed air, compressed oxygen, liquid air, liquid oxygen). A bypass system is provided in case of regulator failure except on escape-type units.

   (a) **Demand type.** Equipped with a facepiece or mouthpiece and nose clamp. The demand valve permits oxygen or air flow only during inhalation. Exhaled

breath passes to ambient atmosphere through a valve(s) in the facepiece.

(b) **Pressure-demand type.** Equipped with a facepiece only. Positive pressure is maintained in the facepiece. The apparatus may have provision for the wearer to select the demand or pressure-demand mode of operation, in which case the demand mode should be used only when donning or removing the apparatus.

Supplied-Air Respirators

1. **Hose Mask.** Equipped with a facepiece, breathing tube, rugged safety harness, and large-diameter heavy-duty no kinking air supply hose. The breathing tube and air supply hose are securely attached to the harness. The facepiece is equipped with an exhalation valve. The harness has provision for attaching a safety line.

   (a) **Hose mask with blower.** Air is supplied by a motor-driven or hand-operated blower. The wearer can continue to inhale through the hose if the blower fails. Up to 300 feet (91 meters) of hose length is permissible.

   (b) **Hose mask without blower.** The wearer provides motivating force to pull air through the hose. The hose inlet is anchored and fitted with a funnel or like object covered with a fine mesh screen to prevent entrance of coarse particulate matter. Up to 75 feet (23 meters) of hose length is permissible.

2. **Air Line Respirator.** Respirable air is supplied through a small diameter hose from a compressor or compressed-air cylinder(s). The hose is attached to the wearer by a belt or other suitable means and can be detached rapidly in an emergency. A flow-control valve or orifice is provided to govern the rate of air flow to the wearer. Exhaled air passes to the ambient atmosphere through a valve(s) or opening(s) in the enclosure (facepiece, helmet, hood, or suit). Up to 300 feet (91 meters) of hose length is permissible.

   (a) **Continuous-flow class.** Equipped with a facepiece, hood, helmet, or suit. At least 115 liters (four cubic feet) of air per minute to tight-fitting facepieces and 170 liters (six cubic feet) of air per minute to loose-fitting helmets, hoods, and suits is required. Air is supplied to a suit through a system of internal tubes to the head, trunk, and extremities through valves located in appropriate parts of the suit.

   (b) **Demand type.** Equipped with a facepiece only. The demand valve permits flow of air only during inhalation.

   (c) **Pressure-demand type.** Equipped with a facepiece only. A positive pressure is maintained in the facepiece.

Combination Air-Line Respirators with Auxiliary Self-Contained Air Supply.
Include an air-line respirator with an auxiliary self-contained air supply. To escape from a hazardous atmosphere in the event the primary air supply fails to operate, the wearer switches to the auxiliary self-contained air supply. Devices approved for both entry into and escapes from dangerous atmospheres have a low-pressure warning alarm and contain at least a 15 minute self-contained air supply.

Combination of Atmosphere-Supplying and Air Purifying Respirators.
Provides the wearer with the option of using either of two different modes of operation: (1) an atmosphere-supplying respirator with an auxiliary air-purifying attachment which provides protection in the event the air supply fails or (2) an air purifying respirator with an auxiliary self-contained air supply which is used when the atmosphere may exceed safe conditions for use of an air-purifying respirator.

Air-Purifying Respirators
Ambient air, prior to being inhaled is passed through a filter, cartridge, or canister which removes particles, vapors, gases, or a combination of these contaminants. The breathing action of the wearer operates the non-powered type of respirator. The powered type contains a blower-stationary or carried by the wearer-which passes ambient air through an air-purifying component and then supplies purified air to the respirator-inlet covering. The non-powered type is equipped with a facepiece or mouthpiece and nose clamp. The powered type is equipped with a facepiece, helmet, hood, or suit.

Vapor and Gas Removing Respirators.
Equipped with cartridges(s) or canister(s) to remove a single vapor or gas (for example: chlorine gas), a single class of vapors or gases (for example: organic vapors), or a combination of two or more classes of vapors or gases (for example: organic vapors and acidic gases) from air.

Particulate-Removing Respirators.
Equipped with filter(s) to remove a single type of particulate matter (for example: dust) or a combination of two or more types of particulate matter (for example: dust and fume) from air. Filter may be a replaceable part or a permanent part of the respirator. Filter may be of the single-use or the reusable type.

Combination of Particulate-and Vapor - and Gas Removing Respirators:
Equipped with cartridge(s) or canister(s) to remove particulate matter, vapors, and gases from air. The filter may be a permanent part of a cartridge or canister.

Table 2

Capabilities and Limitations of Respirator

Atmospheric-Supplying Respirators

Atmosphere-supplying respirators provide protection against oxygen deficiency and toxic atmospheres. The breathing atmosphere is independent of ambient atmospheric conditions.

General limitations: Except for some air-line suits, no protection is provided against skin irritation by materials such as ammonia and hydrogen chloride, or against sorption of materials such as hydrogen cyanide, tritium, or organic phosphate pesticides through the skin. Facepieces present special problems to individuals required to wear prescription lenses (see 9.1). Use of atmosphere supplying respirators in atmospheres immediately dangerous to life or health is limited to specific devices under specified conditions (see Table 5 and 9.3 and 9.4).

Self-Contained Breathing Apparatus (SCBA). The wearer carries his own breathing atmosphere.

Limitations: The period over which the device will provide protection is limited by the amount of air or oxygen in apparatus, the ambient atmospheric pressure (service life of open-circuit devices is cut in half by a doubling of the atmospheric pressure), and the type of work being performed. Some SCBA devices have a short service life (less than 15 minutes) and are suitable only for escape (self-rescue) from an irrespirable atmosphere.

Chief limitations of SCBA devices are their weight or bulk, or both, limited service life, and the training required for their maintenance and safe use.

1. **Closed-Circuit SCBA.** The closed-circuit operation conserves oxygen and permits longer service life at reduced weight. The negative pressure type produces a negative pressure in the respiratory-inlet covering during inhalation, and this may permit inward leakage of contaminants; whereas the positive-pressure type always maintains a positive pressure in the respiratory inlet covering and is less apt to permit inward leakage of contaminants.

2. **Open-Circuit SCBA.** The demand type produces a negative pressure in the respiratory inlet covering during inhalation, whereas the pressure-demand type maintains a positive pressure in the respiratory-inlet covering during inhalation and is less apt to permit inward leakage of contaminants.

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Supplied-Air Respirators: The respirable air supply is not limited to the quantity the individual can carry, and the devices are lightweight and simple.

Limitations: Limited to use in atmospheres from which the wearer can escape unharmed without the aid of the respirator.

The wearer is restricted in movement by the hose and must return to a respirable atmosphere by retracing his route of entry. The hose is subject to being severed or pinched off.

1. **Hose Mask.** The hose inlet or blower must be located and secured in a respirable atmosphere.

   (a) **Hose mask with blower.** If the blower fails, the unit still provides protection, although a negative pressure exists in the facepiece during inhalation.

   (b) **Hose mask without blower.** Maximum hose length may restrict application of device.

2. **Air-Line Respirator** (Continuous Flow, Demand, and Pressure-Demand Types). The demand type produces a negative pressure in the facepiece on inhalation, whereas continuous-flow and pressure-demand types maintain a positive pressure in respirator-inlet covering and are less apt to permit inward leakage of contaminants.

Air-line suits may protect against atmospheres that irritate the skin or that may be absorbed through the unbroken skin.

Limitations: Air-line respirators provide no protection if the air supply fails. Some contaminants, such as tritium, may penetrate the material of an air-line suit and limit its effectiveness.

Other contaminants, such as fluorine, may react chemically with the material of an air-line suit and damage it.

Combination Airline Respirators with Auxiliary SC Air Supply. The auxiliary self-contained air supply on this type device allows the wearer to escape from a dangerous atmosphere. This device with auxiliary self-contained air supply is approved for escape and may be used for entry when it contains at least a 15-minute self-contained air supply. (See Table 5).

Combination of Atmosphere-Supplying and Air-Purifying Respirators: The advantages and disadvantages, expressed above, of the mode of operation being used will govern. The

mode with the greater limitations (air-purifying model) will mainly determine the overall capabilities and limitations of the respirator, since the wearer may for some reason fail to change the mode of operation even though conditions would require such a change.

Air-Purifying Respirators

General limitations: Air-purifying respirators do not protect against oxygen-deficient atmospheres nor against skin irritations by, or absorption through the skin of airborne contaminants.

The maximum contaminant concentration against which an air-purifying respirator will protect is determined by the design efficiency and capacity of the cartridge, canister, or filter and the facepiece-to-face seal on the user. For gases and vapors, the maximum concentration for which the air-purifying element is designed is specified by the manufacturer or is listed on labels of cartridges canisters and canisters.

Non-powered air-purifying respirators will not provide the maximum design protection specified unless the facepiece or mouthpiece/nose clamp is carefully fitted to the wearer's face to prevent inward leakage (see 7.4). The time period over which protection is provided is dependent on canister, cartridge, or filter type; concentration of contaminant; humidity levels in the ambient atmosphere; and the wearer's respiratory rate.

The proper type of canister, cartridge, or filter must be selected for the particular atmosphere and conditions. Non-powered air-purifying respirators may cause discomfort due to a noticeable resistance to inhalation. This problem is minimized in powered respirators. Respirator facepieces present special problems to individuals required to wear prescription lenses (see 9.1). These devices do have the advantage of being small, light, and simple in operation.

Use of air-purifying respirators in atmospheres immediately dangerous to life or health is limited to specific devices under specified conditions (see Table 5 and 9.3 and 9.4).

Cartridge Change-Out Schedule: Filters or cartridges designed for contaminant removal have limited effective service lives. The supervisor of each job site util

Vapor - and Gas-Removing Respirators

Limitations: No protection is provided against particulate contaminants. A rise in canister or cartridge temperature indicates that a gas or vapor is being removed from the inspired air.

An uncomfortably high temperature indicates a high concentration of gas or vapor and requires an immediate return to fresh air.

Use should be avoided in atmospheres where the contaminants lack sufficient warning properties (that is: odor, taste, or irritation at a concentration in air at or above the permissible exposure limit (Vapor - and gas-removing respirators are not approved for contaminants that lack adequate warning properties).

Not for use in atmospheres immediately dangerous to life or health unless the device is a powered-type respirator with escape provisions.

1. **Full Facepiece Respirator.** Provides protection against eye irritation in addition to respiratory protection.

2. **Quarter-Mask and Half Mask Facepiece Respirator.** A fabric covering (facelet) available from some manufacturers be used.

3. **Mouthpiece Respirator.** Shall be used only for escape applications. Mouth breathing prevents detection of contaminant by odor. Nose clamp must be securely in place to prevent nasal breathing.

Particulate-Removing Respirators

Limitations: Protection against non-volatile particles only. No protection against gases and vapors.

Not for use in atmospheres immediately dangerous to life or health unless the device is a powered-type respirator with escape provisions.

1. **Full Facepiece Respirator.** Provides protection against eye irritation in addition to respiratory protection.

2. **Quarter-Mask and Half-Mask Facepiece Respirator.** A fabric covering (facelet) available from some manufacturers shall not be used unless approved for use with respirator.

3. **Mouthpiece Respirator.** Shall be used only for escape applications. Mouth breathing prevents detection of contaminant by odor. Nose clamp must be securely in place to prevent nasal breathing. A small, lightweight device that can be donned quickly.

4. **Combination Particulate** - and Vapor - and Gas-Removing Respirators. The advantages and disadvantages of the component sections of the combination respirator as described above apply.

CHART 1 - RESPIRATOR SELECTION FOR ROUTINE USE

WHEN THE HAZARD IS: (When chemical cartridges are required, they must be suitable for the hazard involved)	THE RESPIRATOR NEEDED TO PROVIDE THIS PROTECTION IS:
Oxygen Deficiency	Positive pressure self-contained breathing apparatus (SCBA) with emergency escape bottle.
	Full facepiece supplied air respirator operated in pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus.
Toxic Contaminants: Gaseous - IDLH	Positive pressure self-contained breathing apparatus (SCBA) with emergency escape or bottle
Gaseous and Particulate – IDLH	Full facepiece supplied air respirator operated in pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus.
Gaseous - Not IDLH	Chemical cartridge or supplied-air in or either pressure demand or continuous flow.
Gaseous and Particulate – Not IDLH	
Particulate	Dust, Mist or Fume cartridge or supplied-air in either pressure demand or continuous flow in regular facepiece or abrasive blasting helmet.

NOTE: IDLH is immediately dangerous to life and health.

CHART 2 - RESPIRATOR SELECTION FOR ASBESTOS

AIRBORNE CONCENTRATION OF ASBESTOS OR REQUIRED RESPIRATOR CONDITIONS OF USE	
Not in excess of 0.1 f/cc	Half-mask air purifying respirator other than a Disposable respirator, equipped with high efficiency filters.
Not in excess of 0.5 f/cc	Full facepiece air-purifying respirator equipped with high efficiency filters.
Not in excess of 1.0 f/cc	Any Powered Air-Purifying Respirator (PAPR) equipped with high efficiency filters or any supplied air respirator operated in continuous flow mode.
Greater than 1 f/cc	Full facepiece supplied air respirator or unknown operated in pressure demand mode, concentration. equipped with an auxiliary positive pressure self-contained breathing apparatus.

NOTE:

(a) Respirators assigned for high environmental concentrations may be used at lower concentrations, or when required respirator use is independent of concentration.

(b) A high efficiency filter means a filter that is at least 99.97 percent efficient against mono-dispersed particles of 0.3 micrometers in diameter or larger.

CHART 3 - RESPIRATOR SELECTION FOR LEAD

WHEN THE LEAD CONCENTRATION IS:	YOU MUST HAVE A PROTECTION FACTOR OF AT LEAST:	RESPIRATOR NEEDED TO PROVIDE THIS PROTECTION IS:
Not in excess of 500 µg/m3	10 x PEL	Half-mask air purifying respirator with HEPA cartridge. Half-mask supplied-air respirator in demand mode.
Not in excess of 1,250 µg/m3	25 x PEL	Loose fitting hood or helmet 1,250 µg/m3 powered air purifying respirator. Hood or helmet supplied-air respirator in the demand mode.
Not in excess of 2,500 µg/m3	50 x PEL	Full facepiece air purifying respirator with HEPA cartridge. Tight fitting powered air purifying respirator with HEPA filter. Full facepiece supplied-air respirator operated in the demand mode. Half-mask or full facepiece supplied-air respirator operated in a continuous flow mode. Full-facepiece self-contained breathing apparatus operated in demand mode.
Not in excess of 50,000 µg/m3	1000 x PEL	Half mask supplied-air respirator operated in pressure demand or other positive pressure mode.
Not in excess of 100,000 µg/m3	2000 x PEL	Full facepiece supplied-air respirator operated in the positive pressure or pressure demand mode.
Greater than 100,000 µg/m3 and unknown concentrations	>2000 x PEL	Full facepiece SCBA operated in pressure demand mode.

Procedure 7-1

RESPIRATORY PROTECTION EQUIPMENT

The following list represents those respirators which have been approved for use within the AMPCO organization. Any deviation from this list will require a prior written request for approval from the Corporate Program Administrator.

HALF MASK, AIR PURIFYING, NEGATIVE PRESSURE RESPIRATORS

- North 7700 Series; North 5500 series.
- MSA Comfo II.
- Survivair Half-mask.
- 3M 7000 Series

When working on an asbestos abatement project, these respirators may only be used during prep work and containment tear down and are not to be used during gross removal. Under no circumstances may these respirators be used where the asbestos fiber count is expected to or will exceed 0.1 f/cc. The HEPA filter cartridge must be used for anticipated asbestos exposure. When required to be worn on projects other than asbestos, other protective cartridges may be used as required. Refer to Table 2 in Exhibit 2 of this Section.

FULL FACE MASK, AIR PURIFYING, NEGATIVE PRESSURE RESPIRATORS

- North 7600 Series
- Survivair Full-Face
- MSA Altra-Twin.
- 3 M Full-Face, 7800S

When working on an asbestos abatement project, these respirators may only be used during prep work, during containment tear down, or when combined protective cartridges are required for other than gross removal. However, when only a Qualitative fit-test method is utilized, this respirator cannot be used where asbestos fiber counts are expected to exceed 0.1 f/cc. When a Quantitative fit-test method has been used, these respirators can then be employed where asbestos fiber counts are not expected to exceed 0.5 f/cc. The HEPA filter cartridge must be used for anticipated asbestos exposure. When required to be worn on projects other than asbestos, additional protective cartridges may be used as required. Refer to Table 2 in Exhibit 2 of this Section.

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FULL FACE MASK, POWERED AIR PURIFYING RESPIRATORS (PAPR)

- Racal Powerflow.
- Racal Breathe-Easy.
- Racal O.V. Unit with combination filter.
- MSA Optim-Air 6.
- 3M Powered Air Purifying Respirator.

When working on an asbestos abatement project, these respirators can be used during prep work as well as during gross removal, where the asbestos fiber count is not expected to exceed 1.0 f/cc. The HEPA filter cartridge must be used for all anticipated asbestos exposure. When required to be worn on projects other than asbestos, additional protective cartridges may be used as required and/or available. Refer to Table 2 in Exhibit 2 of this Section.

When using PAPR respirators, a flow check must be conducted on each respirator before beginning each work shift to determine that air flows properly through the system. This is accomplished by inserting an Airflow Indicator into the outlet side of the motor/airflow unit, turning the motor on and holding the unit so that the Airflow Indicator is in a vertical position. The Airflow Indicator float must be at or above the CFM mark specified for the type of respirator being tested. If the respirator fails the air flow test, it may mean a poor battery charge, a problem in the assembly of the system, or the cartridge filter needs replacement.

One of these PAPR respirators is the unit that will be provided whenever a worker requests the use of a PAPR in lieu of any negative pressure respirator, as long as it provides adequate protection for the anticipated exposure.

FULL FACE MASK, TYPE-C PRESSURE DEMAND, SUPPLIED-AIR RESPIRATORS

- Racal Dual-Air.
- MSA Full-Face.
- Bullard Lancer Airline.

These are the respirators that must be used at any time that the asbestos fiber count is expected to exceed 1.0 f/cc, at any time that the amount of exposure to a hazardous chemical or substance cannot be adequately projected, or at any time that exposure to hazardous chemicals or substances cannot be suitably protected against by a lesser type of respirator and filter cartridge combination. OSHA requires TYPE C be used during any Class I abatement where fiber counts exceed 1.0 f/cc.

Procedure 7-1

Grade D Breathing Air

When using the Type-C pressure demand supplied-air respirator system, breathing air must be supplied by either cylinders or air compressors which provide only that type of breathing air which meets at least the requirements for Grade D breathing air as described in 29 CFR 1910.134 (d)(1). When using an air compressor to provide the Grade D breathing air, it must have an emergency back-up system to provide breathing air supplied by a sufficient number of cylinders containing Grade D breathing air.

Carbon Monoxide (CO) Poisoning

All oil lubricated compressors and internal combustion engines have the potential for producing carbon monoxide, a colorless, odorless and tasteless gas which can be fatal for an individual who is overexposed. The symptoms of an individual that is overcome with CO poisoning is dizziness, nausea, severe headache, coma and finally death. If these symptoms are noted, the individual must be immediately removed to fresh air and medical attention provided. In order to protect our workers against the possibility of CO poisoning, all air compressors supplying breathing air must have an in-line Carbon Monoxide (CO) monitor and alarm which is set for a maximum allowable concentration of 10 ppm. The CO monitor must be inspected daily and must be calibrated from a test tank each time the unit is set-up and each time the compressor is moved. A written record of the calibrations and the daily inspections must be maintained with the unit.

Compressor System

All compressor systems must meet each of the requirements of 29 CFR 1910.134 (d). The compressed air system must be designed to provide air volumes and pressures to accommodate respirator manufacturer's specifications, and must have either a back-up system, as described above, or a receiver of sufficient capacity to allow escape of all respirator wearers from contaminated areas in the event of a compressor failure. Documentation of the capacity of compressed air system/respiratory protection system must be retained on site and must include a list of compatible components with the maximum number and type of respirators that may be used with the system. All air-line hoses and equipment from the manifold back to the wearer must contain the same NIOSH approval number as the mask itself. The mixing of air-line hoses and other equipment on a compressed air system is prohibited.

The air compressor must be located where contaminated air cannot enter the system, and the system must be tested at least twenty-four hours prior to commencement of work and must be shown to be fully operational and in good working order at that time.

The use of ambient air breathing apparatus will not be allowed in lieu of the compressed air system.

Procedure 7-1

FULL FACE MASK, PRESSURE DEMAND SELF-CONTAINED BREATHING APPARATUS (SCBA)

- Racal 2000 System, NIOSH approval No. # TC13F279.
- Scott Pressure-Pak, NIOSH approval No. # TC13F40.

Self-contained breathing apparatus (SCBA) must be used for entry and escape from all atmospheres Immediately Dangerous to Life or Health (IDLH) or where there may be an oxygen deficiency. SCBA units are ideal for HAZMAT response or for confined space or vessel entry. SCBA equipment must be inspected at least once each month and after each use.

Procedure 7-1

PROCEDURES FOR CONDUCTING A QUALITATIVE FIT-TEST (QLFT) USING IRRITANT SMOKE

These procedures specify the only allowable Qualitative Fit-Test (QLFT) protocols permissible for compliance with OSHA and the AMPCO Respiratory Protection Program.

IRRITANT SMOKE TEST

A. SELECTING THE RESPIRATOR

1. The test subject must be allowed to select the most acceptable respirator from a sufficient number of respirator sizes and models so the respirator is acceptable to, and correctly fits, the user.

2. The selection process must be conducted in an area away from the fit-test area to prevent odor fatigue. Prior to the selection process, the test subject must be shown the correct way to put on a respirator, how it must be positioned on the face, and how to set strap tension.

B. SELECTING THE TEST AGENT

1. Of the three test agents available, sodium saccharin has been selected for the test agent. This is the agent recommended by NIOSH. If irritant smoke is the agent used because it causes an involuntary response from the test subject and therefore provides a better test indicator it must be conducted in a well ventilated area and without a fit test chamber.

C. CONSTRUCTING THE FIT-TEST CHAMBER

1. Construct a temporary fit-test chamber by inverting a large clear poly bag so that the sealed end of the bag is on top, and attaching it to a wall by using duct tape or some other method. The top of the bag should be approximately 7 feet above the floor. This will enable each of the test subjects, regardless of their height, to stand with their head and shoulders inside the bag for the test. During the test, care must be taken to ensure that the bottom of the bag is open to admit as much oxygen as possible. The test subject must be cautioned to stand with his/her head and shoulders inside the test chamber (bag) only during the actual test.

D. CONDUCTING THE FIT-TEST

1. Have the test subject properly don the selected respirator and tighten the tension straps to get a good facepiece-to-face seal.

2. At this point, the test subject must "seat" the mask by rapidly moving the head from side-to-side and up and down while taking a few deep breaths.

3. The test subject must now conduct the positive and/or negative pressure test. If the positive and/or negative pressure test is not satisfactory, the selected respirator must be discarded at this point and an alternate respirator selected and tested.

4. If the positive and/or negative pressure test was satisfactory, the test subject is now ready for the fit-test.

5. Allow the test subject to wear the respirator for approximately 8 to 10 minutes before continuing with the fit-test. Use this time to review the test procedures with the test subject. If using irritant smoke, advise the test subject that the test agent is an irritant to the eyes and that if the test respirator is a half-mask, that he/she should keep their eyes closed during the test.

6. Direct the test agent towards the face-seal areas of the test subject, beginning at least twelve inches from the facepiece and gradually moving to within one inch, moving the smoke around the whole perimeter of the mask.

7. Instruct the test subject to conduct the following exercises while the respirator seal is being challenged by the test agent. Each exercise must be performed for at least one minute. If the test agent is tasted by the subject (sodium saccharin) or produces an involuntary reaction (Irritant Smoke) by the test subject, stop the test, reject the respirator, and select another.

Exercises Required During the Test:

- Breathing normally.
- Breathing deeply. Be certain the breaths are deep and regular.
- Turn the head from side-to-side. Be certain the motions are complete and that the test subject is inhaling when his/her head is at either side.
- Nod the head up and down. Be certain the motions are complete. Have the test subject inhale when his/her head is in the fully up position.
- Have the test subject talk slowly and distinctly, counting backwards from ten to one. .
- Hand him/her the following passage and ask the test subject to read it aloud.

> **Rainbow Passage:** "When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above,

and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow."

- If for some reason, the test subject cannot read the Rainbow Passage, then the passage must be read to the test subject a little bit at a time and the test subject must be asked to repeat it aloud word-for-word.

- Have the test subject jog in place for a few seconds.

8. When the test subject has passed the test without tasting the test agent or evidence of a response, the respirator must be removed and the test subject given a sensitivity check of the test agent from the same source used during the fit-test to determine whether he/she is sensitive. Failure to evoke a response will void the whole fit-test and require that it be conducted over again using a different test media.

E. ANNUAL TESTING

The qualitative fit-test must be repeated at least once every twelve months, if the user is assigned a new respirator, or whenever one or more of the following occur:

- The employee has a weight change of 20 pounds or more;
- Facial scarring occurs in an area of the face-seal;
- The employee has significant dental changes;
- The employee has reconstruction or cosmetic surgery of the face; and
- Any other condition that may interfere with the facepiece seal.

F. RECORDKEEPING

Each individual fit test will be recorded on a Respirator Test Summary.

INITIAL EXPOSURE ASSESSMENT - ASBESTOS

Check this box ☐ if this is a NEGATIVE EXPOSURE ASSESSMENT

Project No.: _____ Project Name: _____
Project Address: _____
Project Competent Person: _____ Phone: _____

Date of AHERA Training: _____ Date Current Training: _____ **Copies of certificates must be on site**
Assessment Completed by: _____ Competent Person: Yes ☐ No ☐

Assessment Completion Date: _____ Project Start Date: _____ Project Finish Date: _____

SCOPE OF WORK:
OSHA Class of Work: ☐ Class I ☐ Class II ☐ Class III ☐ Class IV

Describe Scope of Work: _____

Work Force: ☐ In-House ☐ Contract Project Location: ☐ Indoor ☐ Outdoor ☐ Confined Space

INITIAL EXPOSURE ASSESSMENT IS BASED ON: ☐ **HISTORICAL DATA** ☐ **OBJECTIVE DATA**

HISTORICAL DATA:	**CURRENT PROJECT** Project No. _____ (Anticipated levels)	**HISTORICAL DATA** Project No. _____
Date of Project:		
Type of ACM/PACM:		
Percentage of ACM:		
Material Condition:		
The Processes:		
Control Methods:		
Work Practices:		
Type of Environment:		
Respirator Projection:		

Are exposure levels consistently below PEL? ☐ Yes ☐ No

☐ **OBJECTIVE DATA:** (Describe product and activity) _____

NOTE: ANTICIPATED RESPIRATORY PROTECTION REQUIREMENT FORM MUST BE COMPLETED AND ATTACHED.

Procedure 7-1

EXPOSURE ASSESSMENT GUIDELINES

GENERAL: For all Class I, II, and III asbestos work activities, you must either:

- conduct an Initial Exposure Assessment for each project (generic assessments for types of activities are not allowed) to determine the expected exposure levels; or
- the project must be performed in a complete negative pressure containment, using full facepiece supplied-air respirators, operated in the pressure demand mode.

Exposure Assessments must be completed before the work begins, in time to assure that all control systems and protective measures are available, installed, and working properly.

Exposure Assessments must be performed by a Competent Person, whose duties and requirements have been expanded under Paragraph (o) of the new Standard, to include:

- must have completed a 40 hour EPA accredited contractor/supervisor training;
- must be present during each work shift; and
- must perform regular inspections while work is being conducted.

INITIAL EXPOSURE ASSESSMENT:

- For comparison purposes, when selecting a historical work project to use as a reference, select one that has characteristics that are similar to, or worse than, the work project being assessed.
- Worker training and experience must be similar and under comparable work conditions. If both sets of workers attended equivalent EPA Model Accreditation Plan asbestos courses and have approximately the same amount of experience, you can assume similarity of training and experience.
- Air monitoring data must also be for comparable work conditions and work practices. For example, preparation data cannot be compared to gross removal data.
- If feasible, this should be based on monitoring conducted pursuant to paragraph (f)(1)(iii) of the Standard.
- For Class I work, unless a Negative Exposure Assessment has been made, or air monitoring has been conducted to prove otherwise, it must be presumed that employee exposure will be in excess of the PEL.

NEGATIVE EXPOSURE ASSESSMENT:

- After analyzing both the historical data and the projected data for the project being assessed, you can demonstrate that employee exposures will be below the PELs, you may produce this assessment as a Negative Exposure Assessment and check the box at the top of the form.
- Prepare an Anticipated Respiratory Protection Requirement form.
- Keep a copy of this completed form in the job file, and post a copy at the work site.

HAZARD COMMUNICATION PROGRAM

SECTION 1 - PURPOSE

The purpose of this written Hazard Communication Program is to ensure that our employees are informed, by means of labels, Safety Data Sheets and training, of the physical and health hazards to which they may be exposed. This written program meets the requirements of OSHA's Hazard Communication Standard, 29 CFR 1910.1200 as applicable to Construction.

> **NOTE:** OSHA has modified the Hazard Communication Standard (HCS) to adopt the Globally Harmonized System (GHS) to improve safety and health of workers through more effective communications on chemical hazards. During the phase-in period, employers would be required to be in compliance with either the existing HCS or the revised HCS, or both. OSHA recognizes that hazard communication programs will go through a period of time where labels and Safety Data Sheets (SDS) under both standards will be present in the workplace. This will be considered acceptable, and employers are not required to maintain two sets of labels and SDSs for compliance purposes. The below summarizes the phase-in dates required under the revised Hazard Communication Standard (HCS) that apply to employers:
>
> 12/01/13 Train employees on the new label elements and safety data sheet format.
> 06/01/15 Compliance with all modified provisions of this final rule.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

It is the policy of AMPCO, to provide a safe workplace for its employees based on guidelines established by the Occupational Safety and Health Administration (OSHA) and other available recommendations.

AMPCO, as an employer engaged in a business where chemicals are either used or where its workers have the potential for contact with chemicals in their work-place will ensure that the hazards of all chemicals found in the workplace will be evaluated and that information

concerning their hazard will be transmitted to all affected employees. Accordingly, this program describes how these criteria will be met.

NOTE: AMPCO neither produces nor distributes chemicals.

SECTION 4 - PROGRAM MANAGEMENT

Although not specifically required under the OSHA regulations, AMPCO's program shall have Program Managers with authority to carry out its written requirements.

4.1 Responsible Party - Administrator

Since each Office within AMPCO is required to comply with the provisions of this Section, each Office Representative, or his designee, will be named Administrator of the program and will be charged with the primary responsibility for all aspects of the Hazard Communication Program within the Office.

The Office Representative, or his designate, will have overall responsibility for: establishing the chemical inventory; providing the hazard assessment, based upon the chemicals Safety Data Sheet (SDS); obtaining and providing additional information on the hazardous chemicals; overseeing the Company's labeling program; identifying and providing appropriate emergency procedures, if necessary; and supervising the training program.

4.2 Responsible Party – Health and Safety Department

The AMPCO Health and Safety have been assigned the responsibility for coordinating the written Hazard Communication Program. The Safety Director, in consultation with Health and Safety will maintain the program and institute changes as necessary.

SECTION 5 - PROGRAM CONTENT

This written Hazard Communication Program has been promulgated based upon the OSHA Hazard Communication regulations found in both 29 CFR 1926.59 and 29 CFR 1910.1200, as well as additional requirements instituted by AMPCO. Components of this written Hazard Communication Program are as follows:

- AMPCO's written Hazard Communication Program

- OSHA's Hazard Communication Standard
- OSHA's Hazard Communication Inspection Procedures
- An MSDS Glossary
- Lists of Regulated Hazardous Chemicals
- Hazardous Chemical Inventory
- Safety Data Sheets (SDS)
- Education and Training Program
- HMIS Labeling System
- Program Forms

5.1 Distribution

Copies of this written Hazard Communication Program will be provided to all AMPCO Presidents, Project Managers, and General Superintendents, all participating supervisory personnel and to other people under special circumstances. A copy of this program will be made available for review by all AMPCO personnel at each jobsite during normal working hours.

5.2 Quality Assurance and Updates

If employees have questions, concerns or recommendations about this written program, they are encouraged to submit their questions, concerns or recommendations to their project supervisor, who in turn will forward this information to the Health and Safety. Comments will be evaluated and appropriate action will be taken.

In addition, this written program will be evaluated on an annual basis. This program shall be updated and revised as new data becomes available or as a change in the Company's operations occurs.

SECTION 6 - STATE RIGHT-TO-KNOW

Many states and local communities have adopted employee "Right-to-Know" laws. Most of these local laws contain not only the provisions of the Federal Standard, but often times go far beyond in their compliance requirements. However, the courts have ruled that the Federal OSHA Standard would pre-empt all state and community Right-to-Know laws for all employers, with respect to those requirements that are covered by the federal standard.

This does not mean that AMPCO is exempt from all of the requirements of state Right-to-Know laws. According to OSHA, employers need not comply with the labeling, SDS and training requirements of state laws. However, each state law is different, and in some areas additional requirements must still be met; such as, annual reports, community notification of hazardous chemicals, employee's right of refusal to work, additional hazardous chemical sources, etc. Each state and local community must be checked to determine their local requirements regarding hazardous chemicals.

SECTION 7 - THE WRITTEN HAZARD COMMUNICATION PROGRAM

7.1 Hazard Communication Program

This written Hazard Communication Program is required by 29 CFR 191200; and although the length and complexity of the program may vary from Office to Office within the AMPCO organization, the program must address the issues of the Standard in sufficient detail to ensure that a comprehensive approach to hazard communication has been developed.

7.2 Effective Dates

The effective date of this OSHA Standard now requires that all AMPCO Branches be in complete compliance with the requirements of the OSHA Hazard Communication Standard. New rules go into effect in accordance with the schedule in section 1.0 of this procedure.

7.3 Availability

In accordance with the requirements of Paragraph (e) of the Standard, a copy of this program is available, upon written request, to all employees, their designated representatives, the Assistant Secretary of Labor and the Director of OSHA. In order to facilitate this availability, a copy of the program is contained in the Corporate Safety Manual, SDS Master files and in each Field copy of AMPCO's written Hazard Communication Program Manual, and a copy must be physically located on each jobsite.

Where employees must travel between workplaces during a work shift, i.e., their work is carried out at more than one geographical location, the written Hazard Communication Program may be kept at the primary workplace facility.

7.4 Exemptions

There are two types of exemptions from this program; those items that are exempt from the Standard and those items that are exempt from the labeling requirements of the Standard.

1. The following materials or operations are exempt from the provisions of this Standard:

    a. Any hazardous waste, as such term is defined by the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6901 et seq.), when subject to regulations issued under that Act by the Environmental Protection Agency;

    b. Any hazardous substance, as such term is defined by the Comprehensive Environmental Response, Compensation and Liability ACT (CERCLA) (42 U.S.C. 9601 et seq.). When the hazardous substance is the focus of remedial or removal action being conducted under CERCLA in accordance with the Environmental Protection Agency regulations;

    c. Tobacco or tobacco products;

    d. Wood or wood products, including lumber which will not be processed, where the chemical manufacturer or importer can establish that the only hazard they pose to employees is the potential for flammability or combustibility (wood or wood products which have been treated with a hazardous chemical are covered by this Standard, and wood which may be subsequently sawed or cut, generating dust, are not exempted);

    e. Articles, which means a manufactured item other than a fluid or particle: (i) which are formed to a specific shape or design during manufacture; (ii) which have end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use do not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical and does not pose a physical hazard or health risk to employees;

    f. Food or alcoholic beverages, which are sold, used or prepared in a retail establishment (such as a grocery store, restaurant or drinking place), and

foods intended for personal consumption by employees while in the workplace;

g. Any drug, as that term is defined in the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 301 et seq.), when it is in solid, final form for direct administration to the patient (e.g., tablets or pills); drugs which are packaged by the chemical manufacturer for sale to consumers in a retail establishment (e.g., over-the-counter drugs); and drugs intended for personal consumption by employees while in the workplace (e.g., first aid supplies);

h. Cosmetics which are packaged for sale to consumers in a retail establishment and cosmetics intended for personal consumption by employees while in the workplace;

i. Any consumer product or hazardous substance, as those terms are defined in the Consumer Product Safety Act (15 U.S.C. 2051 et seq.) and Federal Hazardous Substances Act (15 U.S.C. 1261 et seq.) respectively, where the employer can show that it is used in the workplace for the purpose intended by the chemical manufacturer or importer of the product, and the use results in a duration and frequency of exposure which is not greater than the range of exposures that could reasonably be experienced by consumers when used for the purpose intended;

j. Nuisance particulates where the chemical manufacturer or importer can establish that they do not pose any physical or health hazard covered under this section;

k. Ionizing and non-ionizing radiation; and,

l. Biological hazards.

2. When labeled in accordance with federal requirements, the following substances shall be exempt only from the labeling provisions of the Standard:

a. Any pesticide, as such term is defined in the Federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C. 136 et seq.), when subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Environmental Protection Agency;

b. Any chemical substance or mixture, as such terms are defined in the Toxic Substances Control Act (15 U.S.C. 2601 et seq.), when subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Environmental Protection Agency;

c. Any food, food additive, color additive, drug, cosmetic or medical or veterinary device or product, including materials intended for use as ingredients in such products (e.g. flavors and fragrances), as such terms are defined in the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 301 et seq.) or the Virus-Serum-Toxin Act of 1913 (21 U.S.C. 151 et seq.), and regulations issued under those Acts, when they are subject to the labeling requirements under those Acts by either the Food and Drug Administration or the Department of Agriculture;

d. Any distilled spirits (alcoholic beverage), wine or malt beverage intended for non-industrial use, as such terms are defined in the Federal Alcohol Administration Act (27 U.S.C. 201 et seq.) and regulations issued under that Act, when subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Bureau of Alcohol, Tobacco, and Firearms;

e. Any consumer product or hazardous substance, as those terms are defined in the Consumer Product Safety Act (15 U.S.C. 2051 et seq.) and Federal Hazardous Substances Act (15 U.S.C. 1261 et seq.) respectively, when subject to a consumer product safety standard or labeling requirement of those Acts, or regulations issued under those Acts by the Consumer Product Safety Commission; and,

f. Agricultural or vegetable seed treated with pesticides and labeled in accordance with the Federal Seed Act (7 U.S.C. 1551 et seq.) and the labeling regulations issued under that Act by the Department of Agriculture.

SECTION 8 - HAZARD DETERMINATION

8.1 Sources

AMPCO, in evaluating chemicals, shall treat the following sources as establishing that the chemicals listed in them are hazardous:

a. 29 CFR part 1926, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA); or,

b. "Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment," American Conference of Governmental Industrial Hygienists (ACGIH) (latest edition). The chemical manufacturer, importer, or employer is still responsible for evaluating the hazards associated with the chemicals in these source lists in accordance with the requirements of this standard. Chemicals listed by ACGIH in Threshold Limit Values for Chemical Substances in the Work Environment.

These lists provide a base of over 600 regulated substances. AMPCO is responsible for determining the hazards associated with each of these chemicals, when they are used in the work place or shipped by AMPCO to another location. In addition, OSHA has decided what will constitute a carcinogen under the Hazard Communication Standard, and that is, any chemical listed as a confirmed or suspected carcinogen by the following:

a. The National Toxicology Program's "Annual Report on Carcinogens;"

b. International Agency for Research on Cancer's Monographs; and

c. OSHA's 29 CFR 1926, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration.

NOTE: The "Registry of Toxic Effects of Chemical Substances" published by the National Institute for Occupational Safety and Health indicates whether a chemical has been found by NTP or IARC to be a potential carcinogen.

8.2 Hazard Assessment

AMPCO has chosen to rely on the evaluation and determination of the chemical by the chemical manufacturer and importer and the use of the Safety Data Sheet which they have provided, to satisfy the requirements of 29 CFR 1910.1200 Hazard Determination.

1. AMPCO will rely, in good faith, on the SDS received with all hazardous chemical shipments, or soon thereafter in the case of missing or updated SDSs, from the chemical manufacturer, importer or distributor. The Office Representative or his/her designee, is charged with the responsibility for ensuring that the most current SDSs are posted in the Master and Field SDS Binders.

If new and significant information concerning the potential health hazard of a chemical in the work place is uncovered, then the safety manager will ensure that either an updated

SDS is obtained from the supplying source, or in the event such SDS is not available, that the new information is added to the appropriate section of the existing SDS within two (2) months of his being advised of the new information.

2. AMPCO will rely solely on the SDS and will not utilize any in-house alternatives to the SDS for hazard assessment.

3. Since AMPCO does not have access to the written procedures maintained by the chemical manufacturer, importer, or distributor, should a problem arise with the information received that cannot be resolved with the supplier, the matter will be referred to the nearest OSHA office for investigation.

4. In the event AMPCO should become a "chemical manufacturer", due to a chemical being produced during a process of any type, the chemical will be evaluated in accordance with the provisions of the Standard by an appropriate outside chemical laboratory who will also be requested to provide a completed SDS on the basis of their analysis of the chemical.

5. Should a AMPCO Office find it necessary to mix two or more chemicals, and the mixture has already been tested as a whole by any of the suppliers to determine its hazards, the results of this testing will be requested on an SDS for the mixture as a whole. If this mixture has not been tested as a whole, then paragraphs (d)(5)(ii), (iii) and (iv) of the Standard will be used as the procedure for determination of the hazard. Should this become necessary, the procedures used to evaluate this mixture will be described in writing and attached to the completed SDS.

   Note: Ingredients of less than 1% of the mixture must be identified if there is evidence that the ingredients could be released from the mixture in concentrations that would exceed a maximum threshold limit or present a health hazard.

8.3 Hazardous Chemical Inventory

The Hazardous Chemical Inventory must be site specific!

The Hazardous Chemical Inventory is a list of the hazardous chemicals known to be present using an identity that is referenced on the appropriate material safety data sheet (the list may be compiled for the workplace as a whole or for individual work areas).

The designated supervisor will continuously maintain an inventory list of all hazardous/non-hazardous chemicals within the work place. Using the appropriate SDS for each of these chemicals, he will make an accurate assessment as to whether or not

these chemicals contain a hazardous substance. In the event the SDS shows the chemical to contain a hazardous substance, he will then enter this chemical onto the jobsite Hazardous Chemical Inventory sheet, completing the inventory form, as instructed.

He will then take the necessary steps to ensure that each of these hazardous chemicals are appropriately labeled with an HMIS label and that the chemical's SDS is placed in the Hazardous SDS section of the Field SDS Binder which is located at the jobsite.

The supervisor will also determine whether or not there are any missing SDSs and that such, if any, have been requested from the Administrator.

The Hazardous Chemical Inventory form, a copy of which is included with this Section, will be the form used to record the jobsite's Hazardous Chemical Inventory.

SECTION 9 - MATERIAL SAFETY DATA

9.1 Safety Data Sheets (SDS)

Although OSHA revised their Hazard Communication Standard in February of 1994, to allow companies to stop collecting SDSs, as long as their employees have access to the SDS by FAX transmission, AMPCO has elected to continue to require that copies of all currently required SDSs be maintained in Section 7 of the Company's written Hazard Communication Program.

The Safety Data Sheet (SDS) is the primary document in the Hazard Communication Program. The Standard requires manufacturers and importers to provide an SDS with the chemicals they ship and requires employers to have an SDS on each hazardous chemical they use. We cannot overstate the importance of the SDS. This form contains all known hazard and protection information on a hazardous chemical. It is the one place everyone should look before starting any job involving hazardous chemicals and any time there is a question about a particular chemical's risks or means of protection.

1. **Acquiring The Safety Data Sheets (SDS)**

   The Administrator and the Office purchasing agent are responsible for obtaining an SDS on each chemical substance, compound entering the work place and obtained for all hazardous chemicals. The normal procedure for acquiring an SDS will be to place a notice on all purchase orders requiring the supplier to comply

with the SDS requirements of the Standard. Indicate on the purchase order to whom the SDS should be sent.

The supplier has thirty (30) days in which to respond. A follow-up letter should be sent if the SDS is not received within the thirty (30) day period. This second request should be accompanied by a telephone call.

If the SDS is not received within ten (10) working days following this second request, a certified letter requesting the SDS should be sent to the supplier. Continued absence of the SDS within the ten (10) working days following the certified letter should result in the filling of a written complaint with the nearest OSHA regional office or appropriate state agency. One other possibility is to seek an alternate supplier who can guarantee an immediate SDS.

Complete documentation must be maintained on all requests for an SDS, from the initial request on the purchase order through the letter of complaint with the appropriate regulatory agency, including all telephone calls.

Note: One of the most important aspects of state Right-to-Know laws is documentation. Therefore, it is imperative that AMPCO carefully document all communication with both suppliers and customers when dealing with hazardous chemicals and SDSs.

2. Distribution

The Administrator and the individual in charge of shipping are responsible for ensuring that a current SDS accompanies all initial shipments of hazardous chemicals to any customer.

Note: When a customer requests that AMPCO furnish an SDS for a hazardous chemical that is listed as an exemption, a letter from AMPCO indicating this exemption will be sufficient response to this request. However, whenever an SDS is sent to the customer, every effort should be made to send a copy of the original SDS from the manufacturer of the chemical.

The Administrator is responsible for the distribution of all new or updated SDSs to the field for placement in Section 7 of AMPCO's written Hazard Communication Program Manuals.

3. Maintenance of Records

OSHA does not require that either the SDS or the chemical inventory be kept for a specific period of time. They need only be maintained on a current status and to the extent required by OSHA's Employee Access to Exposure and Medical Records, as specified in 29 CFR 1910.20. However, while neither SDSs nor chemical inventories have to be kept for a specified period of time, this is only true provided some other record of identity and where and when the hazardous chemical was used, is kept for a period of thirty (30) years.

Therefore, AMPCO has made the decision to keep both the Hazardous SDSs and the Hazardous Chemical Inventories for the thirty (30) year period specified in the Records Access Rule. Refer to Paragraph 7.2.3 of this section. It is the responsibility of the individual supervising the project to ensure that the Field copies of the AMPCO written Hazard Communication Program Manual are maintained and are up-to-date for immediate employee access.

4. Employee Request for SDS

Any employee or employee representative has the right to request a copy of a Safety Data Sheet. In order to facilitate this request, the employee, or representative, must complete the Employee Request for Material Safety Data Sheet form. One form must be completed for each SDS requested. Every effort will be made to comply with this request as quickly as possible. A copy of the completed form must be placed in the employee's personnel file for thirty years retention.

9.2 SDS Locations

The SDS is one of the mechanisms used by AMPCO to transmit required information on hazardous chemicals to its employees. This is accomplished by placing a copy of the SDS for each hazardous chemical in the work place into Section 7 of AMPCO's written Hazard Communication Program Manual. For field locations, this is known as the Field copy of the AMPCO written Hazard Communication Program Manual. In addition to the field locations, there must also be one central location within the Branch where all master copies of the SDS are maintained. This is known as the master file of SDSs and should be in Section 7 of the Administrator's copy of the AMPCO written Hazard Communication Program Manual.

9.1 Master File of SDSs

The master file of SDSs must be maintained in the office of the Administrator. As a master file, this copy of the AMPCO written Hazard Communication

Program Manual should be complete and up-to-date at all times. The master file should have all written back-up material attached directly to the SDSs. For example, if a worksheet is used for generating the Hazardous Materials Identification System (HMIS) rating for the label identifying the hazards of the chemical, the worksheet should be attached to the SDS of this chemical.

In addition to having a copy of the SDS for all chemicals, this master file of SDSs must also have copies of all Hazardous Chemical Inventory sheets, a copy of the Company's written Hazard Communication Program, and a copy of the OSHA Standard.

9.2 Field Copies of SDSs

The AMPCO Corporate policy mandates there be an SDS in the Field copy of AMPCO's written Hazard Communication Program Manual for each substance listed on the jobsite's Hazardous Chemical Inventory. Refer to the Inventory in Section 6 of the Field copy of the written program manual.

The number of Field copies of the written program manual required for each division will vary; however, there must be at least one Field copy at every jobsite, or large work area within a job site, where hazardous chemicals are used. On some very large jobs, where workers are located on several different floors, it may necessitate having more than one Field copy at the same jobsite. When employees must travel between workplaces during a work shift, i.e., their work is carried out at more than one geographical location, the Field copy may be kept at a central location at the primary workplace facility. In this situation, the SDSs must be immediately available to the employees in an emergency situation. The location of each Field copy on a job site must be posted for employee information.

The Field copy of the AMPCO written Hazard Communication Program Manual will consist of a hard cover three-ring notebook which is to be prominently located at each jobsite and which is to contain the following:

1. A copy of AMPCO's written Hazard Communication Program;
2. A copy of OSHA's Hazard Communication Standard, 29 CFR 1926.59;
3. A copy of OSHA's Inspection procedures;
4. An SDS Glossary;
5. A basic list of those chemicals regulated under the Hazard Communication Standard;

6. The jobsites Hazardous Chemical Inventory list;
7. A complete set of SDS for each chemical listed on the Hazardous Chemical Inventory;
8. The Hazcom Training Program;
9. The HMIS Labeling System; and
10. Copies of the Hazcom Training Forms.

9.3 At Completion of Project

When the project has been completed, a copy of the Hazardous Chemical Inventory and the respective Safety Data Sheets, as well as the Hazard Communication Training Log and the Hazcom Training Identification List, must become a part of the permanent job file and retained for a period of at least thirty (30) years.

9.4 Trade Secrets

Most state Right-to-Know laws, as well as the Federal Standard, provide protection for trade secrets in varying degrees. If trade secret information is withheld on the SDS, all other information must be provided on the substance's properties and effects. The SDS must also indicate the category of information being withheld, and the claim of a trade secret must be able to be supported. The specific chemical identity that may be withheld includes the chemical name, CAS number, or any other information which could reveal the precise chemical designation of the substance. However, should AMPCO utilize the trade secret portion of the Standard, they must issue some type of identity to the chemical which can be tied directly back to a complete SDS which identifies the chemical and its hazards.

Should a treating physician or health care professional determine that a medical emergency exists, AMPCO must immediately disclose any necessary trade secret information that will assist the medical professionals in handling the emergency. AMPCO may, however, require the health care professional who requested the information to sign a confidentiality agreement.

In non-emergency situations, workers, their representatives, occupational health nurses and occupational health professionals may request trade secret information. AMPCO will provide this information if the request is in writing, it adequately explains the need for the information, describes the measures that will be taken to prevent further disclosure of the information, and the individual requesting the information will be willing to sign a

confidentiality agreement. Disagreements on disclosure will, in all probability, be settled by OSHA.

SECTION 10 - LABELING AND OTHER FORMS OF WARNING

10.1 Container Labeling (Hazardous Chemicals Only)

Each container of a hazardous chemical in the workplace will have a warning label, tag or will be marked with the following information:

a. The identity of the hazardous chemical(s) contained therein; and,

b. An appropriate hazard warning, or alternatively, words, pictures, symbols, or combination thereof, which provide at least general information regarding the hazards of the chemicals, and which, in conjunction with the other information immediately available to employees under the Hazard Communication Program, will provide employees with the specific information regarding the physical and health hazards of the hazardous chemical.

The labeling system adopted by AMPCO is not intended to be the sole or the most complete source of information regarding the nature or identity of the hazardous chemicals within the work place. The identity of the chemical, as it is shown on the label, could be any term the Company wishes to use, as long as it also appears on the SDS for that chemical, along with its precise chemical name.

In doing this, it allows the Company to use a common term familiar to the employees of this particular Company, while still providing them with more extensive information including specific chemical identities on the SDS. This is not true of shipped containers of hazardous chemicals.

The Administrator and the individual in charge of the shipping department are responsible for ensuring that containers of hazardous chemicals that are shipped from the work place are marked with the identity of the chemical, the appropriate health hazard warning, and the name and address of the chemical manufacturer, importer, or other responsible party. This label must not conflict with the requirements of the Hazardous Materials Transportation Act (49 U.S.C. 1801 et seq.) and regulations issued under that Act by the Department of Transportation.

If the hazardous chemical is regulated by OSHA in a substance-specific health standard, then AMPCO shall ensure that the labels or other forms of warning used are in accordance with the requirements of that Standard.

AMPCO will ensure that its personnel will not remove or deface existing labels on incoming containers of hazardous chemicals, unless the container is immediately marked with the required information. There is no need to affix new labels to these containers if existing labels already convey the required information.

AMPCO will ensure that labels or other forms of warning are legible, in English, and prominently displayed on the container, or readily available in the work area throughout each work shift. For those locations having employees who speak other languages, they may add the information in other languages to the material presented, as long as the information is presented in English, as well.

AMPCO is not required to label small portable containers into which hazardous chemicals are transferred from labeled containers, as long as these portable containers are intended only for the immediate use of the employee who performs the transfer. For purposes of this section, drugs which are dispensed by a pharmacy to a health care provider for direct administration to a patient are exempted from labeling.

10.2 Hazardous Materials Identification System (HMIS)

The HMIS is a comprehensive color coded labeling system covering both hazard assessment and hazard communication. Hazard assessment involves the collection and evaluation of SDSs and the development of numerical ratings for the acute health, flammability and reactivity hazards of the chemical, the designation of chronic health hazards, and the assignment of a personal protective equipment index.

The hazard communication portion of the HMIS program communicates information on the chemical's identity, its degree of acute health, flammability, and reactivity hazards, its chronic health hazards, and the proper personal protective equipment that must be used when exposed to the hazardous chemical. The chemical's identity is conveyed by a chemical, trade or brand name, by a chemical code number, or by some other descriptive term which clearly identifies the chemical to the work force and for hazard evaluation purposes. The acute health, flammability and reactivity hazards are communicated by numerical ratings, and the chronic health hazard is communicated by an asterisk on the label which is tied to descriptive information on the SDS.

An alphabetical designation is used to denote a single item, or a combination of items, of personnel protective equipment appropriate for use when exposed to the hazardous

chemical. The HMIS label utilizes a four-color rectangle or square, which is affixed to the chemical container, conveyance, or piping system, etc.

1. **Work Place Labels**

   LABELS USED ON CONTAINERS OF HAZARDOUS CHEMICALS WHICH DO NOT LEAVE THE WORK PLACE.

   The use of the standard HMIS label, as identified below, may be used on all containers which remain within the work place. The standard label is described as follows:

   White space - Chemical name
   Blue space - Health hazard
   Red space - Flammability hazard
   Yellow space - Reactivity hazard
   White space - Personal Protective Equipment

2. **Shipping Labels**

   LABELS USED ON CONTAINERS OF HAZARDOUS CHEMICALS, WHICH ARE SHIPPED OUT OF THE WORK PLACE.

   In the case of shipped containers of hazardous chemicals, the label must also include the target organ effects of the hazardous chemical. In addition to the information contained in the standard HMIS label, the shipping HMIS label must also contain the following information:

   Health hazards, Immediate and Delayed Target Organ Effects, Routes of Entry, Physical Hazards, Name and Address of chemical manufacturer, importer, or other responsible party.

10.3 Completing the HMIS Label

The Administrator, or his designate, is responsible for ensuring that the proper hazard assessment and protective equipment ratings appear on all HMIS labels used for identifying hazardous chemicals in the work place.

The Administrator should be assisted by work area supervisors in ensuring that all such containers in the work place are properly labeled, stenciled or tagged. The appropriate information concerning the chemical should be written directly onto the HMIS label with an indelible felt-tip marking or writing pen.

Stockroom or warehouse receiving supervisors are responsible for ensuring that all containers of hazardous chemicals received at the dock or coming into an AMPCO facility are free from damage and/or leaks prior to their acceptance. They are also responsible for ensuring that all such chemicals received are properly identified and that the appropriate HMIS label is displayed on or affixed to the container before it is removed from the receiving area for either storage or delivery to the work area.

The designated supervisor is responsible for determining the hazard assessment of all chemicals in the work place. Whenever an updated SDS is received, it is his responsibility to see that the appropriate SDS in each Master and Field SDS Binder is replaced with the updated SDS, and if a change in the acute health, flammability or reactivity hazard, or the personal protective equipment appropriate for exposure to the hazard, is indicated by the updated SDS, that existing labels on all such chemicals are replaced to reflect the updated hazard evaluation and communication information.

AMPCO does not have a written alternative to the HMIS labeling system and the procedures described herein.

SECTION 11 - CONTRACTOR NOTIFICATION

In accordance with the OSHA Standard, all contractual agreements with on-site contractors will contain a notification advising the contractor of AMPCO's Hazard Communication Program and requiring the contractor to make himself, and those of his employees that will be working at one of AMPCO's facilities or work sites, to become familiar with the provisions of the AMPCO Hazard Communication Program.

In the event the contractor will be performing his work in an area where AMPCO is working with or storing hazardous chemicals, the contractor must be given a verbal orientation on the AMPCO program by the designated supervisor and the location of the nearest Field SDS Binder, including a copy of AMPCO's Hazard Communication Program and the Hazardous Chemical Inventory for that area. In addition, each member of the contractor's work party must be given a copy of the Hazard Communication brochure and one of the wallet size HMIS card which they will be required to carry with them while in the work area.

11.1 Multi-employer Workplaces

In the event that AMPCO would produce, use, or store hazardous chemicals at a workplace in such a way that the employees of other employer(s) may be exposed (for example, employees of another construction contractor who is also working on-site) then AMPCO shall ensure that a copy of this Hazard Communication Program is available to these other employers. To ensure this, AMPCO will do the following:

a. AMPCO will provide the other employer(s) on-site access to material safety data sheets for each hazardous chemical the other employer(s)' employees may be exposed to while working;

b. AMPCO will inform the other employer(s) of any precautionary measures that need to be taken to protect employees during the workplace's normal operating conditions and in foreseeable emergencies; and

c. AMPCO will inform the other employer(s) of the labeling system used in the workplace.

SECTION 12 - EMPLOYEE INFORMATION AND TRAINING (Routine Tasks)

Each AMPCO employee will be informed of the requirements of OSHA's Hazard Communications Standard, of any operations in their work area where hazardous chemicals are present, and the location and availability of AMPCO's written Hazard Communication Program, including the required list(s) of hazardous chemicals, and their respective material safety data sheets.

In order to ensure this, AMPCO has established an initial orientation and on-the-job training program for each employee who may come into contact with, or be exposed to, a hazardous chemical in the work place. AMPCO believes that color coded warning labels, Material Safety Data Sheets, Hazardous Chemical Inventories, and a specific orientation and training program, all play an equally important part in their Hazard Communication Program.

Each AMPCO employee, who is affected by the OSHA Hazard Communication Standard, must be informed of the provisions of the Standard. This will include an explanation of the requirements of the Standard, AMPCO's written Hazard Communication Program, how to use the Safety Data Sheet, the Hazardous Chemical Inventory, and the color coded label system. Training will be provided at the time of initial assignment and whenever a new hazardous

chemical is introduced into the work area. Employees will be informed of operations in the work area where hazardous chemicals are present, and where they can find the Company's written Hazard Communication Program, the Hazardous Chemical Inventory, the hazard determination procedure, and the SDSs.

AMPCO Corporate Safety Office will be responsible for the training of all Administrators who will in turn have the responsibility for training all supervisory personnel. The supervisor will then have primary responsibility for employee training.

12.1 Initial Orientation and Training

New or transferred employees will be assumed to have little or no prior knowledge of the extent of the hazards associated with chemicals. Prior to initiation of work, the supervisor must give the new employee a thorough description of the work area, use and maintenance of personal protective devices, a complete description of the initial work assignment, and the methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring, conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.).

The employee will receive training in the physical and health hazards of the chemicals in the work area and the measures employees can take to protect themselves from these hazards, including specific procedures AMPCO has implemented to protect its employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used.

The training will also include details of the Hazard Communication Program developed by AMPCO, including an explanation of the labeling system and the safety data sheet, and how employees can obtain and use the appropriate hazard information.

The format of the hazard communication portion of the initial orientation and training includes the supervisors' classroom type instruction on the employees right-to-know, how to use a Safety Data Sheet, and where to find the Field SDS Binder which has copies of the SDSs, the Company's Hazard Communication Program, the OSHA Standard, and the Hazardous Chemical Inventory. A printed handout will be used to provide instruction on the OSHA Hazard Communication Standard. A second printed handout, including posters, placards, wallet cards, and signs will be used to provide instruction on the color coded HMIS labeling system.

12.2 On-The-Job Training

For those employees who will be working directly with a hazardous chemical, the functional supervisor in the area in which the work will take place will be responsible for specific on-the-job training in regard to these chemicals. The supervisor will instruct these employees on the methods and observations that may be used to detect the presence or release of the hazardous chemical, including air sampling, personal monitoring, visual appearance, odor, etc., the physical and health hazard of the chemical, and the specific measures the employee can take to protect himself from these hazards. During this on-the-job training and working directly with a hazardous chemical, it should be planned to have the new employee work closely with a more experienced co-worker until such time as it is determined the new employee can work independently.

12.3 Non-Routine Tasks

All management personnel are responsible for contacting the Administrator before any non-routine task is undertaken in their respective department or anywhere else in the work place where personnel may have the potential for exposure to a hazardous chemical. This also applies to non-routine maintenance tasks. This is necessary to allow for a hazard assessment to be made and to communicate these hazards to the affected employees before the non-routine tasks are performed and personnel are subjected to exposure. The administrator should also notify Health and Safety before beginning any non-routine tasks.

12.4 Training Forms

In order to properly document the Hazard Communication Training provided to our employees, the following training forms must be completed and filed in their respective locations as indicated:

- HMIS Employee Quiz - The employee must be required to complete this quiz to insure his/her understanding of the HMIS Labeling System in use by AMPCO. A copy of the completed quiz should be placed in the employee's personnel file for thirty (30) year retention.
- Employee's Evaluation of Hazcom Training - The employee must be required to complete this form in an effort to ensure his/her understanding of the Hazard Communication training he/she has received. A copy of the completed evaluation should be placed in the employee's personnel file for thirty (30) year retention.
- Hazard Communication Training Log - The Hazard Communication Training Log must be signed by each employee receiving Hazard Communication training, attesting to training and the date(s) which it was conducted. A copy of this

training log should be placed in the permanent job file for thirty (30) year retention after the completion of the project.

- Hazcom Training Identification List - The Hazcom Training Identification List must be completed during the course of each project to identify those groups or individual workers who may be exposed to a hazardous chemical and whether or not they received Hazcom training. At the completion of the project, this list should become a part of the permanent job file for thirty (30) year retention.

SECTION 13 - UNLABELED PIPES

13.1 AMPCO Owned or Operated Facilities

The Administrator is responsible for ensuring that all piping systems within the work places of AMPCO owned or operated facilities are identified as to their contents, and recording their location, contents and hazards should they contain hazardous chemicals. This information must be entered on an inventory sheet and become a part of the Master and Field SDS Binders. Following this inventory, all unlabeled pipes which contain hazardous chemicals must be labeled with the appropriately marked HMIS label at intervals of no more than fifteen (15) feet, so as to communicate the necessary hazard warning information to all employees and contractors working in the area where such pipes are located.

13.2 AMPCO Jobsites

The problem of unlabeled pipes on a jobsite presents a specific problem on renovation or demolition projects. In the event any unlabeled pipes are discovered, all work in the immediate vicinity of the pipes must be halted until such time as a determination can be made to identify the contents of the pipes. If such an assessment determines that chemicals constituting a hazard are present, the necessary hazard information must be communicated to all affected workers prior to such work being allowed to continue.

Whenever hazardous chemicals are identified with respect to either unlabeled pipes or non-routine tasks, the location of such potential hazards will be added to all appropriate chemical inventories by the designated supervisor and/or the Administrator.

SECTION 14 - DOCUMENTATION AND FORMS

The passage of the OSHA Hazard Communication Standard has mandated that the employer provide worker training in the area of hazardous chemicals. It has been found that it is not

adequate to just provide this training, but it is necessary to have sufficient written documentation that the employee has received and understood the training. This problem is especially sensitive with unskilled and with non-English speaking workers. Even though all handouts will be printed in both English and Spanish, for those workers who do not speak English, the supervisor must use an interpreter and provide special attention during training to assure that safe work habits are developed.

It will, therefore, be necessary to have the employee complete both the Employee's Evaluation of the Hazcom Training and the HMIS Quiz and to have the employee sign the Hazard Communications Training Log, thus attesting to the fact that he/she has received hazard communication training, has been furnished hazard communication material, has studied the material, and comprehends the information contained in the material. The forms accompanying this program must be used.

HEARING CONSERVATION PROGRAM

SECTION 1 - PURPOSE

To provide OSHA requirements given under 29 CFR Part 1910.95 Occupational Noise Exposure, including all applicable amendments.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

Each applicable AMPCO Office shall administer a continuing effective Hearing Conservation Program, as prescribed in 29 CFR Part 1910.95 Occupational Noise Exposure, whenever employee noise exposures equal or exceed an 8 hour time-weighted average (TWA) sound level of 85 decibels (dB) measured on the A-scale slow response or, equivalently, a noise dose of fifty percent.

SECTION 4 - PROGRAM ELEMENTS

The following elements provide the requirements for complying with AMPCO's policy on Hearing Conservation for its employees.

SECTION 5 - EXPOSURE MONITORING

5.1 Monitoring

Sound level meters will be used to make an initial determination concerning the need for additional monitoring. When reasonable information indicates that any employee's exposure may equal or exceed an 8 hour time-weighted average of 85dBA, we will obtain individual or representative exposure measurements for all employees who may be exposed at or above the level by use of individual noise dosimeters.

For purposes of the Hearing Conservation Program, employee noise exposures shall be computed without regard to any attenuation provided by the use of personal protective equipment.

5.2 Observation

During monitoring operations, we shall provide affected employees or their representatives with an opportunity to observe all measurements of employee noise exposure which are conducted pursuant to this Standard.

5.3 Method Of Noise Measurement

Noise dosimeters which comply, at a minimum, with the provisions of this Standard, or sound level meters which comply, at a minimum, with the provisions of this Standard, shall be used whenever employee exposures are evaluated for the purpose of complying with 29 CFR Part 1910.95 Occupational Noise Exposure.

a. Dosimeters: Dosimeters shall meet the Class 2A-90/85-5 requirements of the American National Standard Specification for Personal Noise Dosimeters, S1.25-1978.

b. Sound level meters: Sound level meters shall meet the Type 2 requirements of the American National Standard Specification for Sound Level Meters, S1.4=1971 (R1976).

All continuous, intermittent, and impulsive sound levels, which have been measured in accordance with this section, shall be integrated into the exposure computation (80 dB to 130dB).

5.4 Calibration

To ensure the calibration of all monitoring equipment, all dosimeters and sound level meters used to monitor employee noise exposure shall be calibrated before and after each day's use. Calibration will be conducted in accordance with prescribed procedures.

5.5 Effective Date

Initial monitoring conducted in accordance with the provisions of this Standard will be completed immediately upon receipt of this Standard.

Monitoring will be conducted in any area where machines, processes, or work practices are changed, regardless of when this occurs.

A periodic monitoring will be conducted with the use of sound level meters to determine the feasibility of additional exposure monitoring.

SECTION 6 - AUDIOMETRIC TESTING

6.1 Policy

Each applicable AMPCO Office shall establish and maintain a mandatory audiometric testing program, as provided for in 29 CFR Part 1910.95, for all employees whose exposures equal or exceed an 8 hour-time-weighted average of 85 dBA.

6.2 Cost

This program shall be provided at no cost to the employee.

6.3 Reliability

Audiometric tests shall be performed by a licensed or certified audiologist, otolaryngologist, or other qualified physician, or by a technician, who is certified by the Council of Accreditation in Occupational Hearing Conservation or who has satisfactorily demonstrated competence in administering audiometric examinations, obtaining valid audiograms, and properly using, maintaining and calibrating audiometers. A technician who performs audiometric tests must be responsible to an audiologist, otolaryngologist, or other qualified physician.

6.4 Requirements

All audiograms obtained pursuant to this OSHA Standard, shall meet all of the requirements of the Standard, as well as each of the appendices applicable to audiometric testing.

6.5 Testing

When audiometric testing is required, it must be offered to the employee at a time and location, which are convenient to the employee. The employee must also be informed as to the purpose of the audiometric testing and given an explanation of the test procedures and the effects of noise on hearing.

a. **Baseline Audiogram:** Prior to or within 180 days after an employee's first exposure to noise at or above a time-weighted average of 85 dBA. AMPCO will establish for each employee so exposed, a valid baseline audiogram against which subsequent audiograms can be compared.

   Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to work place noise.

   NOTE: This may be accomplished by use of adequate hearing protectors; however, the employee should be well supervised and told of the need to avoid

high levels of non-occupational noise exposure during this 14 hour period.

b. **Annual Audiogram:** At least annually after obtaining the baseline audiogram, a new audiogram shall be obtained for each employee exposed at or above a time-weighted average of 85dBA.

c. **Evaluation of Audiogram:** Each employee's annual audiogram shall be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a significant threshold shift (STS) has occurred.

An audiologist, otolaryngologist, or other qualified physician shall review those audiograms, which indicate a significant threshold shift, to determine whether there is need for further evaluation. In order for the person performing the evaluation to make a successful determination, it will be necessary for AMPCO to ensure that they have the following information within their possession:

1. A copy of the Standard, 29 CFR Part 1910.95 Occupational Noise Exposure;
2. The baseline audiogram and most recent audiogram of the employee being evaluated;
3. Measurements of background sound pressure levels in the audiometric test room used to obtain the audiograms; and
4. Records of the audiometer's calibrations, as required by the Standard.

d. **Follow-up Procedure:** If a comparison of the annual audiogram to the baseline audiogram indicates a significant threshold shift, we shall ensure that the following steps are taken:

1. Employees not using hearing protectors shall be refitted and retrained in the use of hearing protectors, and if necessary, provided with new protectors having greater attenuation;
2. Employees already using hearing protectors shall be refitted and retrained in the use of hearing protectors, and if necessary, provided with new protectors having greater attenuation;
3. Inform the employee, in writing, within 21 calendar days of the determination, of the existence of a significant threshold shift;
4. Refer the employee, at no cost to the employee, for a clinical audiological evaluation or an otological examination, as appropriate. If additional testing is necessary or if we, the employer, suspect that a medical pathology of the ear, as defined in the Standard, is caused or aggravated by the wearing of hearing protectors; and
5. Inform the employee of the need for an otological examination, if a medical

pathology of the ear is suspected to be totally unrelated to the use of hearing protectors.

Note: In cases where the professional determines that the audiometric test results are consistent with a medical problem that is not related to wearing hearing protectors, such as respiratory infection, AMPCO is not responsible for the cost of a medical referral. However, in such cases the employee must be told about the problem and advised to see a physician.

e. **Refusal of Examination and Treatment:** When an employee elects not to participate in the audiometric testing program, he/she can be allowed to work in an area where noise exposures exceed a time-weighted average of 85dB and not participate in the program, or participation in the program can be made a condition of employment. However, even if the employee elects not to participate, AMPCO will remain in compliance with the total program and all of the testing must still be offered to the employee.

When an employee refuses the follow-up examination or treatment, he or she does so at their own risk and AMPCO has carried out its responsibility, if it has complied with all aspects of the Standard and has advised the employee of the necessity for examination or treatment even though the employee refuses.

6.6 Environment

Audiometric examinations shall be administered in a room which meets all of the requirements, as set forth in 29 CFR Part 1910.95.

6.7 Equipment

Audiometric tests shall be conducted with equipment that meets the specifications of, and is maintained and used in accordance with, American National Standard Specification for Audiometers.

Audiometric tests shall be pure tone, air conduction, hearing threshold examinations, with test frequencies including at a minimum 500, 1000, 2000, 3000, 4,000, and 6000 Hz. Tests at each frequency shall be taken separately for each ear.

Pulse-tone and self-recording audiometers, if used, shall meet the requirements specified in the Standard.

6.8 Calibration

The functional operation of the audiometer shall be checked before each day's use by testing a person with known, stable hearing thresholds, and by listening to the

audiometer's output to make sure that the output is free from distorted or unwanted sounds. Deviations of 10dB or greater shall require acoustic calibration.

Audiometer calibration shall be checked acoustically at least annually in accordance with the requirements of this Standard. Test frequencies below 500 Hz and above 6000 Hz may be omitted from this check. Deviations of 16 dB or greater necessitate an exhaustive calibration.

An exhaustive calibration shall be performed at least every two years in accordance with the appropriate requirements of this Standard and those applicable sections of the American National Standard Specification for Audiometers. Test frequencies below 500 Hz and above 6000 Hz may be omitted from the calibration.

Note: The use of an outside contractor to perform the required test does not relieve AMPCO from the responsibility of checking the contractor's records to verify that the above calibration requirements are being complied with.

6.9 Effective Date

Baseline audiograms required by 29 CFR Part 1910.95 must be completed by March 4, 1984. When a "grandfathered" audiogram, one obtained before the March 4, 1984 effective date of the amendment to the Standard, is used as a baseline, the annual audiogram must be performed by March 4, 1985.

For those AMPCO employers obtaining new baseline, the annual audiograms must be completed within one year of the baseline date.

Baseline audiograms must be completed for new employees no later than one year from the date of the employees' first exposure to noise levels at or above an 8 hour-time-weighted average of 85 dBA.

SECTION 7 - NOISE REDUCTION

When employees are subjected or exposed to sounds exceeding permissible noise levels, then feasible administrative or engineering controls shall be utilized.

7.1 Administrative Controls

Administrative controls simply mean reducing the amount of time an employee is subjected or exposed to excessive noise. This can be done by several methods, one of which is dividing noisy jobs up among two or more employees, with each spending only a permissible amount of time exposed to the excessive noise. Another alternative is to perform high level noise operations at night so fewer employees may be exposed.

7.2 Engineering Controls

Engineering controls, which are realistically at the heart of the matter, are usually more complex to deal with. The Standard requires that our first approach to a noise problem must be to reduce the sound at its source through engineering designs and equipment innovations. Among the possible steps to accomplish this, are several recommended by OSHA which should be given careful consideration:

a. Make sure machines are in good repair, properly oiled, with all worn or unbalanced parts replaced;
b. Mounting machines on rubber or plastic to reduce vibration and noise;
c. Putting silencers or mufflers on noisy components;
d. When feasible, substituting a quiet process for a noisy one;
e. Confining the sound of a machine within an acoustical enclosure; and
f. Isolating the operator in an acoustical booth.

SECTION 8 - HEARING PROTECTORS

While engineering controls are being developed to reduce excessive noise, employees must, in the meantime, have and use personal protective equipment.

8.1 Requirements For Wearing

Adequate hearing protectors must be made available, at no cost, to all employees exposed to a time-weighted average of 85 dB or greater. All employees who are exposed to a time-weighted average of 85 dB or greater and who have experienced a significant threshold shift must wear adequate hearing protectors.

Hearing protectors must attenuate employee exposure at least to a time-weighted average of 90 dB, as required by this Standard.

For employees who have experienced a significant threshold shift, the hearing protectors must attenuate employee exposure to a time-weighted average of 85 dB or below. The following is a table of suggested TWA ranges for Hearing Conservation Program (HCP) policy implementation:

TWA, DBA	Workers Included in The HCP	HPD Utilization	HPD Selection Options
< 85	No	Voluntary	Free choice
85-89	Yes	Optional	Free choice
90-94	Yes	Required	Free choice
95-99	Yes	Required	Limited choice
> 100	Yes	Required	Very limited choice

8.2 Availability and Selection

Employees shall be given the opportunity to select their hearing protectors from a variety of suitable hearing protectors provided by AMPCO. This does not mean AMPCO will provide an unlimited number of protectors to choose from, but does mean it will make an effort to provide employees with more than one type of device, more than one size device, and preferable three or more devices to choose from.

While insert-type hearing protectors are generally most common around construction projects, AMPCO will discourage the use of those insert protectors that are connected to each other by a cord which allows them to be hung around the neck or tied to a hard hat. Although this type of protector is considered to be re-useable, the conditions under which these protectors are used is far from favorable and the tendency is to use them even if they become dirty. If insert type protectors are used, it is suggested that only one-time use throw away type protectors are issued and that large quantities of these protectors be made available throughout the project.

Once characteristics of the noise environment, such as temperature, humidity, and presence of dust, grease, or metal particles, have been determined, and the majority of the employees within that environment have settled on the types and sizes of protectors that will be worn, there may no longer be a need to keep such a varied selection always available.

It should be noted, however, that each of the hearing protectors which are made available for the employees' selection, must have an appropriate Noise Reduction Rating (NRR) to reduce the noise level to which the employee is exposed, to a permissible level.

8.3 Fitting and Training

Each AMPCO Branch shall ensure that all employees who are required to wear hearing protectors receive proper initial fitting and adequate supervision in the correct use of the hearing protector in accordance with the manufacturer's instructions.

Special emphasis will be made during training to ensure that employees are aware of the potential for ear infection from the insertion of dirty hearing protectors. Employees must be made aware that these protectors are disposable and that the Company urges them to discard them if they become even the least bit dirty. Large quantities of these protectors will always be available and the Company encourages their frequent use.

8.4 Care and Maintenance

Improper care of the hearing protector will reduce its effectiveness in attenuating noise. The manufacturer's instructions for the care and maintenance of the protector must be adequately explained to the employee and sufficient supervision provided to ensure the employee's compliance with these instructions.

Note: While it is AMPCO's responsibility to replace hearing protectors as necessary, this does not mean it will have to pay for an unlimited supply of protectors or continue to replace protectors that have been lost due to employee negligence. It is up to each AMPCO employer to formulate its own reasonable policies, as to how many free replacement protectors to supply. Although worn out protectors must be replaced by AMPCO, it does not have to bear the expense in cases where employees have been irresponsible.

8.5 Attenuation

It is the responsibility of both AMPCO and its employees to evaluate hearing protector attenuation for the specific noise environments in which the protector will be used. Any of the methods listed in Appendix G of the Standard may be used for this purpose.

8.6 Noise Reduction Rating (NRR)

Although the easiest method involves the use of the Noise Reduction Rating (NRR), which is listed by the manufacturer and printed on the hearing protector package, it should be noted that the NRR values may be unrealistically high and extra care should be exercised in the fitting and supervision of use of the hearing protector, when the full amount of the NRR is needed.

A hearing protector which has a higher NRR than another model hearing protector is likely to give the wearer more protection. For example, hearing protector A has an NRR of 25 while hearing protector B has an NRR of 21. Hearing protector A will give most users 4 dB more protection than hearing protector B.

However, NRRs are based upon idealistic rather than actual measurement.

- **Fifty Percent Lower Rating**

Hearing Protection Devices (HPD) have an attenuation value based on idealistic laboratory measurement. The NRR is subtracted from the employee's noise exposure level to indicate the maximum exposure reduction obtained by using the HPD. In general, studies of HPDs in actual use show that even properly trained personnel can count on receiving only about fifty percent of the NRR value in attenuation. AMPCO will use the conservative method of derating labeled NRRs by 50 percent in evaluating the protection of the HPDs. This derating factor is also used by OSHA to evaluate relative performance of HPDs compared to feasible engineering and/or administrative controls.

Calculations using the NRR to estimate exposure and evaluate relative performance of the HPDs are provided in Appendix B of the Standard.

Note: The adequacy of hearing protector attenuation shall be re-evaluated whenever employee noise exposures increase to the extent that the hearing protectors provided may no longer provide adequate attenuation. If it becomes necessary, then we shall have to provide more effective hearing protectors.

8.7 Disciplinary Action

If participation in the Hearing Conservation Program has been indicated as a condition of employment, or if acceptance of AMPCO's Safety Program has been listed as a condition of the employee's employment, then not complying with the hearing conservation program is a violation of the employee's work agreement and appropriate disciplinary action should be taken and a written record of the action entered into the employee's file.

SECTION 9 - TRAINING AND EDUCATION

A training program shall be instituted for all employees who are exposed to noise at or above a TWA of 85 dB, and employee participation shall be ensured in such training program.

9.1 Training and Materials

The training program shall be repeated annually for each employee included in the hearing conservation program. Information which is provided in the training program shall be updated to be consistent with changes in protective equipment and work processes.

The training program shall, at a minimum, include the following:

a. The effects of noise on hearing;

b. The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care of the protectors;

c. The purpose of audiometric testing and an explanation of the test procedures; and

d. The right of the employee to access his records, as stated in the Standard.

Training shall also include the following:

- that HPD utilization in required areas is strictly and consistently enforced;
- that comfort, practicality, and actual field attenuation, not the NRR, are the primary criteria for selecting which HPD will be utilized;
- that each employee shall be individually fitted with HPDs and trained in their proper use and care;
- that it is essential that all types of HPDs, including earmuffs and single-size earplugs are fitted to the individual;
- that HPDs must be replaced on a regular basis and that each individual will receive a minimum of two pairs of earplugs and one earmuff (if applicable); and
- that each employee's HPDs will be rechecked during the audiometric evaluation for condition, fit, and correct placement.

9.2 Access To Information

A copy of 29 CFR part 1910.95 occupational noise exposure, as well as a copy of AMPCO's Hearing Conservation Program will be made available to any and all employees or their representatives who are affected by this Standard. In addition, a copy of the Standard and our program will be posted in the work place.

AMPCO will provide affected employees with any informational materials pertaining to this Standard that are supplied to us by the Occupational Safety and Health Administration, and upon request by the Occupational Safety and Health Administration, we will provide to them all materials relating to our training and education, as required by this Standard.

9.3 Warning Signs

Appropriate warning signs shall be posted at entrances to, or on the periphery of all well defined work areas in which employees may be exposed at or above 90 dBA.

Warning signs shall clearly indicate that the area is a high noise area and that hearing protectors shall be required.

Whenever warning signs are posted indicating that hearing protection is needed, these signs should be construed to indicate a mandatory rather than advisory request for the wearing of hearing protection.

SECTION 10 - RECORDKEEPING

Noise exposure measurement records and audiograms performed prior to the effective date of this Standard must be maintained, as a part of this Standard, while those records existing prior to July 19, 1978, are subject to the medical records access standard of 19 CFR Part 1910.95.

Note: All records required by 29 CFR Part 1910.95 can be stored in a central location, as long as they are available and accessible when necessary.

All noise-induced hearing losses must be reported on the OSHA 200 form. Any employees hearing loss equal to or greater than 20 dB at any test frequency and where that employee's time-weighted average noise exposure is 85 dB or greater, it must be reported on the OSHA 200 form. However, the hearing loss does not have to be reported on the form if the employee was referred to a physician and it was determined that the loss was not work related.

10.1 Exposure Measurements

All employee audiograms obtained pursuant to this Standard shall be retained. These records shall include, but not be limited to, the following:

a. The name and job classification of the employee;
b. The date of the audiogram;
c. The examiner's name;
d. The date of the last acoustic or exhaustive calibration of the audiometer;
e. The employee's most recent noise exposure assessment; and
f. Audiometric test rooms.

10.2 Audiometric Testing Rooms

Accurate records shall be maintained of the measurements of the background sound pressure levels in the audiometric test rooms.

10.3 Retention Period

All records required in this Standard shall be retained. These records shall include, but not be limited to, the following:

a. Noise exposure measurement records shall be retained for two (2) years; and

b. Audiometric test records shall be retained for the duration of the affected employee's employment.

10.4 Access Of Records

All records required by this Standard shall be provided, upon request, to employees, former employees, representatives designated by the individual employee and the Occupational Safety and Health Administration. The provisions of 19 CFR Part 1910.95 also apply to access to records under this Standard.

10.5 Transfer of Records

In the event that AMPCO should cease to do business. We will transfer to the successor employer all records required to be maintained by this Standard, and the successor employer shall retain them for the remainder of the period prescribed by this Standard.

10.6 Fit-Testing Record

See Hearing Protection Fitting Record Form on next page.

HEARING PROTECTOR FITTING RECORD

Employee Name:	Job Number:
Date of Initial Fitting:	Employee TWA:

Date Fitted Mo	DAY	YR	Make / Model	NRR	Size Right	Left	Fitted & Trained By

HPD EVALUATION CRITERIA	YES	NO	COMMENTS
Is HPD adequate(TWA – $\frac{NRR}{2}$ ± 90 dBA)?			
Is employee's HPD the correct size?			
Is employee's HPD in good condition?			
Can employee demonstrate proper Insertion or usage of the HPD?			

ADDITIONAL COMMENTS:

HEAT STRESS PROGRAM

SECTION 1 - PURPOSE

There are a number of steps that can be taken, either alone or in combination with others, to reduce and control the hazards of heat stress in the workplace. These guidelines are designed to aid in that task.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

Occupational heat-related disorders and accidents must be prevented. A Heat Stress Program will be implemented whenever a heat stress environment exists. If preventive work methods are not effective in reducing noise levels, then worker exposure monitoring and engineering control measures will be implemented to reduce the hazard.

SECTION 4 - GENERAL

Although no one questions that there is an association between heat stress and occupational accidents, it is difficult to predict just who will be affected and when. Two people can work at the same job, under the same conditions, and while one will be affected by the heat, the other will not. Age, weight, physical fitness, metabolism, alcohol or drug use, and medical condition are some of the determining factors affecting a person's sensitivity to heat and susceptibility to heat-disorders. Even the type of clothing worn must be considered. In addition, the measurement of a hot environment involves more than just measuring the ambient air temperature: radiant heat, air movement, and relative humidity are all factors that must be determined.

Heat-induced occupational illnesses, injuries and reduced productivity occur in situations in which the total heat load exceeds the capacities of the body to maintain normal body functions without excessive strain. Many of the bodily responses to heat exposure are desirable and beneficial. However, at some level of heat stress, the worker's compensatory mechanisms will no longer be capable of maintaining body temperature at the level required for normal body functions. As a result, the risk of heat-induced illnesses, disorders and accidents substantially increases.

SECTION 5 - HEAT DISORDERS
(Table 1)

Heat stress causes body reactions, and as we have mentioned above, there are four environmental factors that affect the amount of stress a worker faces in a hot work area temperature, humidity, radiant heat (such as from a furnace or live steam pipes), and air movement. The body reacts to high external temperature by circulating blood to the skin which increases skin temperature and allows the body to give off its excess heat through the skin. However, if the muscles are being used for physical labor, less blood is available to flow to the skin and release the heat.

Sweating is another means the body uses to maintain a stable internal body temperature in the face of excessive heat. However, sweating is effective only if the humidity level is low enough to permit evaporation and if the fluids and salts lost are adequately replaced. Of course there are many steps a person might choose to take to reduce the risk of heat stress, such as moving to a cooler place, reducing the work pace or load, or removing or loosening some clothing. But this is not always practicable or possible during the work situation.

If the body cannot dispose of excess heat, it will store it. When this happens, the body's core temperature rises and the heart rate increases. As the body continues to store heat, the individual begins to lose concentration and has difficulty focusing on a task, he may become irritable or sick, and often loses the desire to drink. The next stage is most often fainting and then possible death if the person is not removed from the heat stress environment. The following heat disorders, listed here and in Table 1, can pose special hazards to a worker’s safety and health.

5.1 Heat Stroke

Heat stroke, the most serious health problem for workers in hot environments, is caused by the failure of the body's internal mechanism to regulate its core temperature. Sweating stops and the body can no longer rid itself of excess heat. Signs include: mental confusion, delirium, loss of consciousness, convulsions or coma; a body temperature of 106 degrees or higher; and hot dry skin which may be red, mottled or bluish. Victims of heat stroke will die unless treated promptly and correctly. Even while medical help is being called, the affected worker must be removed immediately to a cool area and his/her clothing soaked with cool water. The worker should be fanned vigorously to increase cooling. Prompt first aid can prevent permanent injury to the brain and other vital organs.

5.2 Heat Exhaustion

Heat exhaustion develops as a result of loss of fluid through sweating when a worker has failed to drink enough fluids or take in enough salt or both. The worker with heat exhaustion still sweats, but experiences extreme weakness, giddiness, nausea or headache. The skin is clammy and moist, the complexion pale or flushed and the body temperature normal or slightly higher. Treatment is usually simple: the worker should rest in a cool place and drink liquids. Severe cases, involving workers who vomit or lose

consciousness, may require longer treatment under medical supervision.

5.3 Heat Cramps

Heat cramps, which are painful spasms of the bone muscles, are caused when workers drink large quantities of water but fail to replace their bodies salt loss. Cool, electrolyte replenishing drinks are readily available and make excellent beverages to prevent heat cramps. These drinks should be available on all job sites and workers encouraged to consume them.

5.4 Heat Fatigue

Heat fatigue or fainting may be a problem for the worker who is not acclimatized to a hot environment, even though that worker may do nothing but stand still in the heat. Victims usually recover quickly after a brief period of lying down and receiving something cool to drink. Moving around, rather than standing still, will usually reduce the possibility of fainting.

5.5 Heat Rash

Heat rash, also known as prickly heat, may occur in hot and humid environments where sweat is not easily removed from the surface of the skin by evaporation. When extensive or complicated by infection, heat rash can be so uncomfortable that it inhibits sleep and impairs a worker's performance or even results in temporary total disability. It can be prevented by resting in a cool place and allowing the skin to dry.

5.6 Medical Conditions Aggravated By Exposure To Heat

Workers who have heart or circulatory diseases, or those who are on "low salt" diets, pose a very severe problem for working in a high heat stress environment, and should consult with their family physicians prior to working in this type of environment.

SECTION 6 - A HEAT STRESS PROGRAM - WHEN TO IMPLEMENT (CA)

The incidence of heat stress is the result of a variety of factors. The following California specific guidelines contain some of the many factors which may require a heat stress program evaluation and/or program implementation:

These procedures describe the minimal steps applicable to most outdoor work settings and are essential to reducing the incidence of heat related illnesses. In working environments with a higher risk for heat illness (e.g., during a heat wave, or other severe working or environmental conditions), it is the employer's duty to exercise greater caution and additional protective measures beyond what is listed in this document, as needed to protect their employees.

Procedure 7-4

Furthermore, to successfully tailor these procedures to your work activities, evaluate and consider the individual conditions present at your site (such as, but not limited to):
(1) Size of the crew
(2) The length of the work-shift
(3) The ambient temperature (which can be taken either with the aid of a simple thermometer or by monitoring the weather)
(4) The presence of personal protective equipment or additional sources of heat
Again, these sample procedures do not include every workplace scenario, so it is crucial that your company evaluate and take into account conditions found in your individual workplace that are likely to cause a heat illness.

Written procedures must also:
1. Identify the designated person(s) that has been assigned the applicable task(s) (e.g. supervisor, foreman, safety coordinator, crew leader).
2. Provide specific details required to carry out the task and ensure that the task is accomplished successfully (e.g. how many water containers/shade structures, of what size, distance to placement, frequency of water-level replenishment/weather-tracking/water breaks/reminders, etc.).
3. Specify how these procedures will be communicated to your employees and in particular to the persons assigned these responsibilities (e.g. via training, meeting), and how it will be ascertained that these company instructions and procedures are followed.

AMPCO Contracting, Inc.
The following designated person or persons (Esteban Perez & Michael Parizo) have the authority and responsibility for implementing the provisions of this program at the worksite.

Name/Title/Phone Number
1.
2.
3.
4.
5.

Note: Any of the following items applicable for the provision of water, shade, high heat, acclimatization methods and emergency procedures must have additional language added to provide specifics on how the company intends on implementing these provisions at the jobsite.

Procedures to Consider for the Provision of Potable Water (include but are not limited to the following):

Drinking water containers (of 16 ounces in a case of 24 containers) will be brought to the site, so that at least two quarts per employee are available at the start of the shift. Supervisor will

ensure sufficient quantities of drinking water is maintained on site at all times. In the event insufficient supplies of drinking water are not on site, supervisor will contact the warehouse manager to deliver the appropriate amount of drinking water on site, as soon as possible. All workers whether working individually or in smaller crews, will have access to drinking water. In the event water coolers are used on site, the supervisor will be responsible for checking the water levels throughout the day to ensure a sufficient supply of cool water is maintained as required. At a minimum a 5 gallon water supply will be maintained on site at all times, besides the drinking water available to the crews at all times.

Water will be fresh, pure, and suitably cool and provided to employees free of charge. Supervisors will visually examine the water and pour some on their skin to insure that the water is suitably cool. During hot weather, the water must be cooler than the ambient temperature but not so cool as to cause discomfort.

Water containers will be located as close as practicable to the areas where employees are working (given the working conditions and layout of the worksite), to encourage the frequent drinking of water. If field terrain prevents the water from being placed as close as possible to the workers, bottled water or personal water containers will be made available, so that workers can have drinking water readily accessible.

Since water containers are smaller than shade structures, they can be placed closer to employees than shade structures. Placing water only in designated shade areas or where toilet facilities are located is not sufficient. When employees are working across large areas, water will be placed in multiple locations. For example, on a multi-story construction site, water should be placed in a safely accessible location on every floor where employees are working.

All water containers will be kept in sanitary condition. Water from non-approved or non-tested water sources (e.g., untested wells) is not acceptable. If hoses or connections are used, they must be governmentally approved for potable drinking water systems, as shown on the manufactures label.

Daily, workers will be reminded of the location of the water bottles (16 ounce) and of the importance of drinking water frequently. When the temperature exceeds or is expected to exceed 80 degrees Fahrenheit, brief ‘tailgate’ meetings will be held each morning to review with employees the importance of drinking water, the number and schedule of water and rest breaks and the signs and symptoms of heat illness.

Audible devices (such as whistles or air horns) will be used to remind employees to drink water.

When the temperature equals or exceeds 95 degrees Fahrenheit or during a heat wave, pre-shift meetings before the commencement of work to encourage employees to drink plenty of water, and remind employees of their right to take a cool-down rest when necessary will be conducted. Additionally, the number of water breaks will be increased. Supervisors/foreman will lead by example and workers will be reminded throughout the work shift to drink water.

Individual water containers or bottled water provided to workers will be adequately identified to

eliminate the possibility of drinking from a co-workers container or bottle.

Procedures for Access to Shade (include but are not limited to the following):

Shade structures will be opened and placed as close as practical to the workers, when the temperature equals or exceeds 80 degrees Fahrenheit. When the temperature is below 80 degrees Fahrenheit, access to shade will be provided promptly, when requested by an employee.

Note: The interior of a vehicle may not be used to provide shade unless the vehicle is air-conditioned and the air conditioner is on.

Enough shade structures will be available at the site, to accommodate all of the employees who are on such a break at any point in time. During meal periods there will be enough shade for all of the employees who choose to remain in the general area of work or in areas designated for recovery and rest periods. (Employers may rotate employees in and out of meal periods, as with recovery and rest periods.)

Daily, workers will be informed of the location of the shade structures and will be encouraged to take a five minute cool-down rest in the shade. An employee who takes a preventative cool-down rest break will be monitored and asked if he/she is experiencing symptoms of heat illness and in no case will the employee be ordered back to work until signs or symptoms of heat illness have abated. (See also the section on Emergency Response for additional information)

Shade structures will be relocated to follow along with the crew and they will be placed as close as practical to the employees, so that access to shade is provided at all times. All employees on a recovery, rest break or meal period will have full access to shade so they can sit in a normal posture without having to be in physical contact with each other.

In situations where trees or other vegetation are used to provide shade (such as in orchards), the thickness and shape of the shaded area will be evaluated, before assuming that sufficient shadow is being cast to protect employees.

In situations where it is not safe or feasible to provide access to shade (e.g., during high winds), a note will be made of these unsafe or unfeasible conditions, and of the steps that will be taken to provide shade upon request.

For non-agricultural employers, in situations where it is not safe or feasible to provide shade (mobile equipment and vehicle hazards, high winds), a note will be made of these unsafe or unfeasible conditions, and of the steps that will be taken to provide alternative cooling measures but with equivalent protection as shade.

Procedures for Monitoring the Weather (include but are not limited to):

The supervisor will be trained and instructed to check in advance the extended weather forecast. Weather forecasts can be checked with the aid of the internet (http://www.nws.noaa.gov/), or by calling the National Weather Service phone numbers (see CA numbers below) or by checking the Weather Channel TV Network. The work schedule will be planned in advance, taking into consideration whether high temperatures or a heat wave is expected. This type of advance planning should take place all summer long.

CALIFORNIA Dial-A-Forecast

Eureka 707.443.7062	Sacramento 916.979.3051
Hanford 559.584.8047	San Diego 619.297.2107 (#1)
Los Angeles 805.988.6610 (#1)	San Francisco 831.656.1725 (#1)

Prior to each workday, the forecasted temperature and humidity for the worksite will be reviewed and will be compared against the National Weather Service Heat Index to evaluate the risk level for heat illness. Determination will be made of whether or not workers will be exposed at a temperature and humidity characterized as either “extreme caution” or “extreme danger” for heat illnesses. It is important to note that the temperature at which these warnings occur must be lowered as much as 15 degrees if the workers under consideration are in direct sunlight.

Prior to each workday, the supervisor will monitor the weather (using http://www.nws.noaa.gov/ or with the aid of a simple thermometer, available at most hardware stores) at the worksite. This critical weather information will be taken into consideration, to determine, when it will be necessary to make modifications to the work schedule (such as stopping work early, rescheduling the job, working at night or during the cooler hours of the day, increasing the number of water and rest breaks).

A thermometer will be used at the jobsite to monitor for sudden increases in temperature, and to ensure that once the temperature exceeds 80 degrees Fahrenheit, shade structures will be opened and made available to the workers. In addition, when the temperature equals or exceeds 95 degrees Fahrenheit, additional preventive measures such as the High Heat Procedures will be implemented.

Procedures for Handling a Heat Wave:

For purposes of this section only, “heat wave” means any day in which the predicted high temperature for the day will be at least 80 degrees Fahrenheit **and** at least ten degrees Fahrenheit higher than the average high daily temperature in the preceding five days. During a heat wave or heat spike, the work day will be cut short or rescheduled (example conducted at night or during cooler hours).

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During a heat wave or heat spike, and before starting work, tailgate meetings will be held, to review the company heat illness prevention procedures, the weather forecast and emergency response. In addition, if schedule modifications are not possible, workers will be provided with an increased number of water and rest breaks and will be observed closely for signs and symptoms of heat illness.

Each employee will be assigned a “buddy” to be on the lookout for signs and symptoms of heat illness and to ensure that emergency procedures are initiated when someone displays possible signs or symptoms of heat illness.

High Heat Procedures (include but are not limited to):

High Heat Procedures are additional preventive measures that this company will use when the temperature equals or exceeds 95 degrees Fahrenheit.

Effective communication by voice, direct observation (applicable for work crews of 20 or fewer), mandatory buddy system, or electronic means will be maintained, so that employees at the worksite can contact a supervisor when necessary. If the supervisor is unable to be near the workers (to observe them or communicate with them), then an electronic device, such as a cell phone or text messaging device, may be used for this purpose if reception in the area is reliable.

Frequent communication will be maintained with employees working by themselves or in smaller groups (keep tabs on them via phone or two-way radio), to be on the lookout for possible symptoms of heat illness. The employee(s) will be contacted regularly and as frequently as possible throughout the day, since an employee in distress may not be able to summon help on his or her own.

Effective communication and direct observation for alertness and/or signs and symptoms of heat illness will be conducted frequently. When the supervisor is not available, a designated alternate responsible person must be assigned, to look for signs and symptoms of heat illness. If a supervisor, designated observer, or any employee reports any signs or symptoms of heat illness in any employee, the supervisor or designated person will take immediate action commensurate with the severity of the illness (see Emergency Response Procedures).

Employees will be reminded constantly throughout the work shift to drink plenty of water and take preventative cool-down rest break when needed.

In addition to the High Heat Procedures listed above, the following High Heat Procedures apply only to agricultural work sites.

When the temperature equals or exceeds 95 degrees, employees will be provided one 10 minute “preventative cool-down rest period” every 2 hours. (During the first 8 hours of a shift,

the cool-down periods may be provided at the same time as the rest periods already required by Industrial Welfare Commission Order No. 14.)

Employees working longer than 8 hours will be provided an additional 10 minute cool-down rest period every 2 hours. (For example, if the shift extends beyond 8 hours, an additional rest period is required at the end of the 8th hour of work. If the shift extends beyond 10 hours, another is required and the end of the 10th hour, and so on.)

All employees will be required to take the cool-down rest periods and merely offering the opportunity for a break is not enough.

Once the temperature equals or exceeds 95 degrees, records will be kept documenting the fact that mandatory cool-down rest periods are provided and taken.

Procedures for Acclimatization (include but are not limited to):

Acclimatization is the temporary and gradual physiological change in the body that occurs when the environmentally induced heat load to which the body is accustomed is significantly and suddenly exceeded by sudden environmental changes. In more common terms, the body needs time to adapt when temperatures rise suddenly, and an employee risks heat illness by not taking it easy when a heat wave strikes or when starting a new job that exposes the employee to heat to which the employee's body hasn't yet adjusted.

Inadequate acclimatization can be significantly more perilous in conditions of high heat and physical stress. Employers are responsible for the working conditions of their employees, and they must act effectively when conditions result in sudden exposure to heat their employees are not used to.

The weather will be monitored daily. The supervisor will be on the lookout for sudden heat wave(s), or increases in temperatures to which employees haven't been exposed to for several weeks or longer.

During a heat wave or heat spike, the work day will be cut short (example 12 p.m.), will be rescheduled (example conducted at night or during cooler hours) or if at all possible cease for the day.

New employees, or those employees who have been newly assigned to a high heat area will be closely observed by the supervisor or designee for the first 14 days. The intensity of the work will be lessened during a two-week break-in period (such as scheduling slower paced, less physically demanding work during the hot parts of the day and the heaviest work activities during the cooler parts of the day (early- morning or evening). Steps taken to lessen the intensity of the workload for new employees will be documented.

The supervisor, or the designee will be extra-vigilant with new employees and stay alert to the presence of heat related symptoms.

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New employees will be assigned a “buddy” or experienced coworker to watch each other closely for discomfort or symptoms of heat illness.

During a heat wave, all employees will be observed closely (or maintain frequent communication via phone or radio), to be on the lookout for possible symptoms of heat illness.

Employees and supervisors will be trained on the importance of acclimatization, how it is developed and how these company procedures address it.

Procedures for Emergency Response (include but are not limited to):

Prior to assigning a crew to a particular worksite, workers and the foreman will be provided a map of the site, along with clear and precise directions (such as streets or road names, distinguishing features and distances to major roads), to avoid a delay of emergency medical services.

Prior to assigning a crew to a particular worksite, efforts will be made to ensure that a qualified and appropriately trained and equipped person is available at the site to render first aid if necessary.

Prior to the start of the shift, a determination will be made of whether or not a language barrier is present at the site and steps will be taken (such as assigning the responsibility to call emergency medical services to the foreman or an English speaking worker) to ensure that emergency medical services can be immediately called in the event of an emergency.

All foremen and supervisors will carry cell phones or other means of communication, to ensure that emergency medical services can be called. Checks will be made to ensure that these electronic devices are functional prior to each shift.

When an employee is showing symptoms of possible heat illness, steps will be taken immediately to keep the stricken employee cool and comfortable once emergency service responders have been called (to reduce the progression to more serious illness). Under no circumstances will the affected employee be left unattended.

At remote locations such as rural farms, lots or undeveloped areas, the supervisor will designate an employee or employees to physically go to the nearest road or highway where emergency responders can see them. If daylight is diminished, the designated employee(s) shall be given reflective vest or flashlights in order to direct emergency personnel to the location of the worksite, which may not be visible form the road or highway.

During a heat wave or hot temperatures, workers will be reminded and encouraged to immediately report to their supervisor any signs or symptoms they are experiencing.

Employees and supervisors training will include every detail of these written emergency procedures.

Procedures for Handling a Sick Employee:

When an employee displays possible signs or symptoms of heat illness, a trained first aid worker or supervisor will check the sick employee and determine whether resting in the shade and drinking cool water will suffice or if emergency service providers will need to be called. A sick worker will not be left alone in the shade, as he or she can take a turn for the worse**!**

When an employee displays possible signs or symptoms of heat illness and no trained first aid worker or supervisor is available at the site, emergency service providers will be called.

Emergency service providers will be called immediately if an employee displays signs or symptoms of heat illness (decreased level of consciousness, staggering, vomiting, dis-orientation, irrational behavior, incoherent speech, convulsions, red and hot face), does not look OK or does not get better after drinking cool water and resting in the shade. While the ambulance is in route, first aid will be initiated (cool the worker: place the worker in the shade, remove excess layers of clothing, place ice pack in the armpits and groin area and fan the victim). Do not let a sick worker leave the site, as they can get lost or die before reaching a hospital!

If an employee does not look OK and displays signs or symptoms of severe heat illness (decreased level of consciousness, staggering, vomiting, disorientation, irrational behavior, incoherent speech, convulsions, red and hot face), and the worksite is located more than 20 minutes away from a hospital, call emergency service providers, communicate the signs and symptoms of the victim and request Air Ambulance.

Procedures for Employee and Supervisory Training (include but are not limited to):

To be effective, training must be understood by employees and given in a language the employees understand. All employers must maintain records of the training showing the date of training, who performed the training, who attended training and subject(s) covered.

Supervisors will be trained prior to being assigned to supervise other workers. Training will include this company's written procedures and the steps supervisors will follow when employees' exhibit symptoms consistent with heat illness.

Supervisors will be trained on their responsibility to provide water, shade, cool-down rests, and access to first aid as well as the employees' right to exercise their rights under this standard without retaliation.

Supervisors will be trained in appropriate first aid and/or emergency responses to different types of heat illness, and in addition, that heat illness may progress quickly from mild symptoms and signs to serious and life threatening illness.

Supervisors will be trained on how to track the weather at the job site (by monitoring predicted temperature highs and periodically using a thermometer). Supervisors will be instructed on, how weather information will be used to modify work schedules, to increase number of water and rest breaks or cease work early if necessary.

All employees and supervisors will be trained prior to working outside. Training will include all aspects of implementing an effective Heat Illness Prevention Plan including but not limited to; providing sufficient water, providing access to shade, high-heat procedures, emergency response procedures and acclimatization contained in the company's written prevention procedures.

Employees will be trained on the steps that will be followed for contacting emergency medical services, including how they are to proceed when there are non-English speaking workers, how clear and precise directions to the site will be provided and the importance of making visual contact with emergency responders at the nearest road or landmark to direct them to their worksite.

When the temperature is expected to exceed 80 degrees Fahrenheit, short 'tailgate' meetings will be held to review the weather report, to reinforce heat illness prevention with all workers, to provide reminders to drink water frequently, to inform them that shade can be made available upon request and to remind them to be on the lookout for signs and symptoms of heat illness.

New employees will be assigned a "buddy" or experienced coworker to ensure that they understand the training and follow company procedures.

SECTION 7 - HEAT STRESS PREVENTIVE MEASURES
(additional Heat Stress management measures outlined by Federal OSHA)

Heat stress is the combination of environmental and physical work factors that constitute the total heat load imposed on the body. One of the best ways to reduce heat stress on workers is to minimize the amount of heat in the workplace. However, there are some work environments where heat production is difficult to control, such as steam lines that cannot be shut down, high temperature or humidity work sites, and radiant heat from the sun or a furnace. However, most heat related health problems can be prevented or the risk of developing them reduced.

When unacceptable levels of heat stress occur, there are generally only six approaches to a solution:

- modify the environment;
- modify the clothing or equipment;
- modify the work practices;
- modify the worker by heat acclimatization;

- modify production with a work/rest regimen; and
- enhance the worker's knowledge of working in a hot environment.

7.1 Engineering Controls

A variety of engineering controls, including ventilation and spot cooling by local exhaust ventilation at points of high heat production, may be helpful. Shielding may be required as protection from radiant heat sources. Evaporative cooling and mechanical refrigeration are other ways to reduce heat by engineering controls. The use of extra Air Filtration Devices (AFD) can be added to increase the turn over rate of interior air and heat. Take-off points at the top of the enclosure will also help in removing heat. Cooling fans can also reduce heat in hot conditions. Shutting down hot steam lines or eliminating steam leaks will also help, as will equipment modifications, such as the use of mechanical equipment to reduce manual labor.

7.2 Administrative Controls

There are many times when engineering and other controls are not practical, and administrative controls must be instituted for worker protection. One administrative control is limiting the work time by prescribing a stay time based on the work, environment, and clothing requirements. Stay times are generally selected to be conservative because they are (1) based on approximations of the heat stress and (2) designed to protect most workers. As a result, most workers can work beyond the stay time, and some workers can go much longer.

7.3 Auxiliary Body Cooling and Protective Clothing

Auxiliary cooling systems can range from such simple approaches as an ice vest, pre-frozen and worn under the clothing, to more complex systems; however, cost of logistics and maintenance are considerations of varying magnitude in all of these systems. Four auxiliary cooling systems are presently available: (1) water-cooled garments, such as water-cooled vest, undergarments, hoods, etc., all of which require a circulating pump, liquid container, and battery; (2) air-cooled garments, such as suits and hoods, generally require a vortex tube, connecting hose and a constant source of compressed air; (3) ice packet vests, which although frozen when put on, do not provide continuous and regulated cooling and require the use of backup frozen units every 2 to 3 hours; and (4) wetted over-garments, which can be as simple as cotton terry cloth coveralls worn over the protective clothing and wetted down with water. The wetted over-garment works best when there is air blowing across the wet garment to increase evaporation.

7.4 Work Practices

Work practices, such as providing a period of acclimatization for new workers and those

returning from two weeks of absence, can help reduce the risks of heat disorders. Making plenty of drinking water available at the workplace and urging workers to drink as much as possible both before going into containment and after leaving containment is another method used to reduce heat stress. In high heat stress environments, an employee can lose as much as one quart of liquid per hour. Wherever possible, some type of product that has been formulated to replace the electrolytes and match the weight of the body fluids lost by the sweating process should be used. This is necessary to enable the body to quickly absorb replacement minerals. Products of this type include Quickick, Sqwincher, and Gatorade.

Training supervisors to recognize and be able to correctly treat heat stress disorders is absolutely essential. Prospective workers physical conditions should also be considered when determining their fitness for working in a hot environment. Older workers, obese workers, and those workers taking some type of medication are usually at a greater risk.

7.5 Acclimatization

Acclimatization to the heat through short exposures followed by longer periods of work in the hot environment can reduce heat stress. New employees and workers returning from an absence of two weeks or more should have a five day period of acclimatization. This period should begin with a less than normal workload and time exposure on the first day and gradually build up to normal workload and exposure on the fifth day.

7.6 Work / Rest Regimen

Alternating work and rest periods with longer rest periods in a cool area can help workers avoid heat strain. Supervisors must be trained to detect early signs of heat strain and should permit workers to interrupt their work if they are extremely uncomfortable. If the interior temperature of the enclosure cannot be reduced to a tolerable work level, it may be necessary to rotate workers. In addition to work and rest, in an extremely hot environment, a daily weigh-in/out program should be initiated to monitor the percent of lost body weight.

7.7 Employee Training

For both employees and supervisory personnel, heat stress training is the key to good work practices. If all employees do not understand the reasons for using appropriate work practices to prevent heat stress, the chances of this program succeeding are greatly reduced. A good heat stress training program for employees should cover at least the following components:

- Knowledge of the hazards of heat stress.
- Recognition of predisposed factors, danger signs, and symptoms.

- Awareness of first-aid procedures for and potential health effects of heat stress.
- Employee responsibilities in avoiding heat stress. Dangers of the use of drugs, including therapeutic ones, and alcohol in a hot work environment.
- Proper use of protective clothing and equipment.
- Purpose and coverage of environmental and medical surveillance programs and the advantages of worker participation in such a program.
- The importance of maintaining body fluids at normal levels.
- The benefits and factors of acclimatization.
- The components of the Heat Stress Program.

SECTION 8 - TECHNICAL ASSISTANCE - CORPORATE SAFETY

From time to time, it may be necessary for AMPCO Corporate to accept work which will require the employment of personnel in extremely hot environments, having a tremendous potential for heat stress and heat disorders. When faced with this type of situation, notification to Health and Safety must be considered mandatory. In addition, Corporate Safety has compiled sufficient technical information to assist divisions having projects of this type.

The technical information includes such material as:

- recommended Permissible Exposure Limits and Threshold Limit Values for heat stress;
- worker monitoring, including weight loss and heart rate monitoring;
- methods of obtaining temperature measurements; and
- specific tables for the measurement of various aspects of a heat stress program. Do not hesitate to notify the Health and Safety Office when it is believed that heat stress will present a strategic factor at the work place.

SECTION 9 - PERMISSIBLE HEAT EXPOSURE THRESHOLD LIMITS VALUES (Table 2)

Threshold Limit Values (TLV) for heat stress conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse effect, have been established. The TLVs shown in Table 2 are based on the assumption that nearly all acclimatized, fully clothed workers with adequate water and salt intake should be able to function effectively in heat stress conditions below these TLVs without increases in deep body temperature to levels above 100.4º Fahrenheit. However, because of the wide variation in individual susceptibility, exposure of an occasional individual at, or even below, the threshold limit may not prevent annoyance or aggravation of a preexisting condition or even physiological damage.

The Threshold Limit Values in Table 2 are the time-weighted average (TWA) exposure for a normal 8 hour workday and a normal 40 hour work week, to which nearly all workers may be repeatedly exposed without adverse effect. Although there are built-in safety factors to guard against adverse effects to moderate deviations from normal environments and work loads, the safety factors are not of such magnitude as to take care of gross deviations. For example, continuous work at temperatures above 86º Fahrenheit, or overtime extending the work week more than 25%, might be considered gross deviations. In such instances, judgment must be exercised in the proper adjustments of the Threshold Limit Values.

Higher heat exposures than shown in Table 2 may be permissible when the work involved is an asbestos abatement project. This is due to the fact that each of these workers are in an undergoing Medical Surveillance Program, they have been properly acclimatized, and due to the type of work involved, it has been established that these workers quickly become more tolerant to working in a hot environment than the average worker. However, workers should not be permitted to continue their work, when their deep body temperature exceeds 100.4º Fahrenheit.

SECTION 10 - WORKER MONITORING

10.1 Weight Loss Monitoring

Measure the employee's weight on an accurate scale at the beginning and end of each work day to determine if adequate fluids are being taken to prevent dehydration. The body water loss should not exceed one and a half percent total body weight loss in a single day. Anything above this should be considered excessive and may require the employee's removal from the hot environment until lost fluids are replaced and the worker's body weight is again within acceptable limits. Overnight rest and proper diet are generally sufficient to bring body weight back to normal.

Note: If the daily starting weight one day is less than the starting weight of the previous day:

a. A re-weigh should be made to verify scale accuracy; and

b. Worker should be moved to a less heat intensive job until weight stabilizes.

10.2 Frequency of Heart Rate Monitoring (Table 3)

Workers wearing normal work clothing should be monitored whenever the dry bulb temperature exceeds 70° F and workers wearing impermeable protective work clothing should be monitored whenever the dry bulb temperature exceeds 60° F. To determine the workers heart rate, count the workers radial pulse for 15 seconds and then multiply the number by four. The frequency of the heart rate measurements should be according to acceptable Tables.

When the heart rate measurement of a worker exceeds 110 beats per minute, it will be necessary to have the worker take immediate action to reduce this high heart rate. This action may take the form of either removal from the hot environment to a cooler location, beginning a work/rest regimen, wetting down of the over garments, a change in the type and location of work, or whatever else it requires to reduce the heart rate.

Worker monitoring should continue until a work/rest cycle is established which controls work weight loss and heart rate measurements to an acceptable level.

SECTION 11 - METHOD OF TEMPERATURE MEASUREMENT

Since measurement of deep body temperature is impractical for monitoring a worker's heat load on a jobsite, the temperature measurement required must be that of the environmental factors that most nearly correlate with deep body temperature and other physiological responses to heat. At the present time, the Wet Bulb Globe Temperature Index (WBGT) is the simplest and most suitable technique to measure these environmental factors. The determination of WBGT requires a series of instruments, including a black globe thermometer, a natural (static) wet-bulb thermometer, and a dry-bulb thermometer, and a specific operating procedure.

There are, however, small portable units that include a microprocessor that will conduct the test and correlate the information for you. A portable WBGT heat stress monitor, utilizing wet bulb, dry bulb and globe temperature sensing elements which are connected to a meter, which has either a dial or digital display for the readings, and is pre-marked to indicate heat stress levels, should be an essential item of equipment on every work site in which excessive heat may be an important factor.

TABLE 1 - HEAT DISORDERS

Disorder	Symptoms	Predisposing Factors	Treatment	Prevention
Heat Cramps (prickly heat)	Tiny red and patchy blisters on skin.	Unrelieved exposure to humid heat and continuously sweaty skin	Clean and dry the skin, apply mild drying lotions, and institute work-rest regimen.	Allow skin to dry in cool place before re-exposure.
Heat Cramps	Painful spasms of arm, leg, and stomach muscles.	Heavy sweating during hard work; loss of body salt.	Drink salted liquids; give intravenous infusion for quicker relief. SALT TABLETS SHOULD NOT BE USED	Ensure adequate salt intake
Heat Fatigue	Impaired performance of skilled sensory motor, mental, or vigilance required jobs.	lack of acclimatization; occurs more frequently among unskilled employees.	No specific recommendations unless accompanied by other heat illness.	Acclimatization and training for work in hot environments.
Heat Exhaustion	Fainting, blurred vision, fatigue, nausea, headache, giddiness; clammy moist skin; pale facial color.	Sustained exertion, lack of acclimatization; dehydration.	Remove to cooler area; have victim rest in a recumbent position with knees raised or in a seated position with head down; have victim drink salted liquid or ingest small quantities of semi-liquid food. EVERY HEAT EXHAUSTION CASE SHOULD BE TREATED AS A POTENTIAL HEAT STROKE CASE.	Acclimatization; intermittent activity; ensure adequate salt intake.
Heat Stroke	Confusion, irrational behavior, loss of consciousness, convulsions, extremely high body temperature (104^{o}F) and rising. CONDITION FATAL IF TREATMENT DELAYED. Other signs: Partial or complete failure of sweating mechanism, hot dry skin (usually red, mottled or cyanotic).	Sustained work in heat by un-acclimatized workers; lack of physical fitness; obesity and recent alcohol intake; dehydration; chronic respiratory disease.	Call for MEDICAL ASSISTANCE IMMEDIATELY. Move patient to cool area; meanwhile, initiate immediate and rapid cooling in chilled water while administering massage or wrap patient in wet sheet and fan vigorously with cool dry air.	Medical screening of all heat-exposed workers, selection based on health and physical fitness; acclimatization for 5-7 days by graded work and heat exposure; monitoring of workers during sustained work in severe heat.

Table 2

PERMISSIBLE HEAT EXPOSURE THRESHOLD LIMIT VALUES
(Values are given in degrees Fahrenheit WBGT)

WORK LOAD

Work-Rest Regimen:	Light	Moderate	Heavy
Continuous work	86.0	80.1	77.0
75% Work, 25% Rest each hour	87.1	82.4	78.6
50% Work, 50% Rest each hour	88.5	85.0	82.2
25% Work, 75% Rest each hour	90.0	88.0	86.0

Table 3

FREQUENCY OF HEART RATE MONITORING
(Values are given in degrees Fahrenheit)

Working in Shade Dry Bulb Temperature	Working in Sun Dry Bulb Temperature	Frequency of Heart Rate Monitoring Impermeable Clothing	Normal Clothing
Greater than 90	Greater than 77	After each 15 minutes of work	After each 45 minutes of work
87.5 - 90	74.5 - 77	After each 30 minutes of work	After each 60 minutes of work
82.5 - 87.5	69.5 - 74.5	After each 60 minutes of work	After each 90 minutes of work
77.5 - 82.5	64.5 - 69.5	After each 90 minutes of work	After each 120 minutes of work
72.5 - 77.5	60 - 64.5	After each 120 minutes of work	After each 150 minutes of work

Procedure 7-5

COLD STRESS PROGRAM

SECTION 1 - PURPOSE

The purpose is to describe the causes, symptoms, treatment and/or prevention of cold-related illness and injuries.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

AMPCO recognizes that work must be performed in various weather conditions, including cold climates. In order to minimize cold related illnesses and injuries, site supervisors will be made aware of the symptoms of cold stress and the environmental conditions that lead to cold-related illnesses and/or injuries, and the steps necessary to prevent their occurrence.

SECTION 4 - GENERAL INFORMATION

When the temperatures of the surrounding air or water are much colder than the worker's body temperature, the body's physical processes must increase to maintain a thermal balance. Shivering is one method in which a body is attempting to generate heat.

Shivering, pain and numbness are not trustworthy indicators of cold exposures, because prolonged cold exposure numbs all of the body's sensations. Wind chill temperature is a better means of evaluation as it takes into account the winds ability to strip heat from the body through convection.

Protective clothing that becomes wet with perspiration or from rain or water, will cause heat loss through conduction. As an example, personnel are at an extreme cold stress hazard if they are performing spill clean-up in boats in cold weather situations. Should they fall into the cold water, their body's heat loss will be extremely fast.

SECTION 5 - COLD INJURY

The following are some of the cold stress problems which may arise whenever an individual is working under adverse weather conditions and does not acknowledge his or her symptoms quickly enough. Each of these conditions can cause severe pain and, if not alleviated quickly, can lead to amputation and even death.

Procedure 7-5

5.1 Trench Foot

Trench Foot occurs as a result of extended exposure of the feet to cold and moisture. The capillary walls of the feet are injured, resulting in tingling, itching and pain. Blisters may form followed by ulceration of the skin.

5.2 Frost Nip

This is when superficial freezing is localized to the extremities, such as ears, nose, toes, and fingers. Initially there is a dark bluish color due to bleeding, which occurs under the skin. This bleeding is extremely dangerous in that it can become gangrenous very easily. Workers experiencing frost nip are susceptible to future injury and should avoid becoming chilled.

5.3 Frostbite

This occurs when the moisture in the skin actually freezes, forming ice crystals, resulting in often permanent damage to the skin cells. The injured area becomes red and then blue/red. A burning pain is noted initially, then the pain decreases and numbness sets in. The skin becomes waxy pale in appearance because of the lack of oxygen. The ears, nose, toes and fingers are most susceptible. Damaged areas can become gangrenous resulting in the loss of tissue, finger tips and toes.

5.4 Hypothermia

Hypothermia occurs when heat production in the body is not sufficient to replace heat lost to the environment. The results are a lowering of the core body temperature, the pulse rate slows down, muscular weakness occurs, mental abilities dull and the worker becomes uncoordinated. Signs of hypothermia are evident at 95º Fahrenheit. Body core temperature and consciousness is lost between 89.6º and 86.0º Fahrenheit. At lower core temperatures, there is an excellent chance of cardiac arrest.

Exposure to cold water decreases the body core temperature rapidly and consciousness is quickly lost. Personnel working on or over water should be acutely aware of the danger of immersion during cold weather.

Hypothermia results in a dulling of the senses and could result in poor decision making. Workers that are exposed to extreme cold should not be given tasks that are critical to their on health but the safety and health of others.

Procedure 7-5

SECTION 6 - PREVENTION

Just as with heat stress (refer to Section 7-4 Heat Stress Program in the Corporate Safety Manual) cold stress must be controlled in order to prevent cold related illnesses and injuries. The following are cold stress prevention guidelines.

6.1 Education

All personnel must receive adequate training on cause, symptoms, and most importantly, methods of prevention of cold stress illnesses and injuries.

6.2 Adequate Clothing

Prevention of hypothermia and other cold injuries is best accomplished by protecting workers from cold and moisture. Adequate clothing is the most important factor in prevention of illness or injury. Personnel working on land should layer clothing with the outer layer being wind and water resistant. The layers should be capable of being vented at wrist, neck and waist to reduce wetting by perspiration. Feet should be kept dry and socks must be changed when they become wet. Gloves which protect the hands from cold but allow freedom of movement are necessary. Never allow bare skin to contact metal surfaces at sub-zero temperatures.

6.3 Acclimatization

A limited degree of acclimatization can occur from exposure and working in a cold environment. Some physiological changes do occur, but people also learn how to more effectively protect themselves from temperature extremes.

6.4 Fluid Replacement

Cold weather does cause significant water loss as a result of dryness in the air. Fluid intake should be increased to prevent dehydration, which directly affects blood volumes and limits blood flow to the extremities. Warm, sweet, caffeine-free, non-alcoholic drinks and hot soups offer the best fluid replacement as well as providing caloric energy.

6.5 Work-Rest Regimens

When temperatures are less than 20º Fahrenheit, either actual or wind-chill, heated warming shelters should be made available. Workers should use these on a regular basis throughout the work shift.

Procedure 7-5

6.6 Diet

As with any work in extreme temperatures, employees should be instructed to eat a well-balanced diet to replace those calories burned off by the extreme temperatures. This diet should also provide the necessary vitamins and nutrients the body needs during these types of weather conditions.

6.7 Environmental Monitoring

Regular monitoring of the environment by recording wind speed and actual thermometer readings for comparison to the wind-chill chart, should occur at regular intervals throughout the work shift depending in conditions.

6.8 Prohibited Activities

Under no circumstance should alcohol be consumed during adverse weather conditions. This is because alcohol increases blood circulation to the skin and interferes with the body's internal thermostatic control. Alcohol also interferes with mental acuity which can lead to a much higher risk taking. Cigarette smoking should be prohibited under extreme weather conditions, because when nicotine enters the body, it restricts the flow of blood to the extremities.

SECTION 7 - COPING WITH THE COLD

Even during that part of the winter when you can have some of the coldest weather of the year, there are some projects in which we must continue to operate. If you are working on one of those, you need to know how to stay warm. When your body temperature drops even a few degrees below normal, which is about 96.8º Fahrenheit, you can begin to shiver uncontrollably, become very weak, drowsy, disoriented, unconscious, and even fatally ill. This loss of body heat is known as “cold stress” or hypothermia.

Persons who work outdoors, such as construction workers, need to learn about how to protect against the loss of body heat. The following guidelines can help you keep your body warm and avoid the dangerous consequences of hypothermia, frostbite, and overexposure to the cold.

Dress in Layers

Outdoors, indoors, in mild weather or in cold, it pays to dress in layers. Layering your clothes allows you to adjust what you’re wearing to suit the temperature conditions. In cold weather, wear cotton polypropylene, or lightweight wool next to the skin, and wool layers over your undergarments. In warm weather, stick to wearing loose-fitting cotton clothing.

Procedure 7-5

For outdoor activities, choose outer garments made of waterproof, wind resistant fabrics, such as nylon. And, since a great deal of body heat is lost through the head, always wear a hat for added protection.

Keep Dry

Water chills your body far more rapidly than air or wind. Even in the heat of summer, falling into a 40 degree lake can be fatal in a matter of minutes. Always take along a dry set of clothing whenever you are working (or playing) outdoors. Wear waterproof boots in damp or snowy weather, and always pack raingear even if the forecast calls for sunny, dry skies.

Co-Workers Should Check on Each Other

The effects of hypothermia can be gradual, and often go unnoticed until it's too late. If you know you'll be working outdoors for an extended period of time, take the precaution of asking one or two of your co-workers to check up on you from time-to-time. Ask your co-workers to check you for overexposure to the cold, and then do the same for your co-workers. Check for shivering, slurred speech, mental confusion, drowsiness, and weakness. If anyone shows any of these symptoms, he or she should get indoors as soon as possible and warm up.

Warmth and Understanding

The key ingredients to preventing loss of body heat are dressing properly to stay warm, and understanding what you can do to protect yourself against conditions that can cause frostbite, overexposure or hypothermia.

Cold weather can be extremely dangerous, but if you work in it properly, you can be safe and productive.

SECTION 8 - USE OF PAPRs IN SUB-FREEZING TEMPERATURE WARNING

Whenever PAPR respirators are used in temperatures below 30° F, the additional air movement from the constant blowing of the PAPR fan motor significantly increases the exposure of the facial tissues to superficial or deep, local tissue-freezing. Extreme care should be practiced by individuals wearing a PAPR respirator during this type of weather condition, and supervisors should perform constant checks of their workers to ensure that this exposure is not causing problems.

BLOODBORNE PATHOGENS PROGRAM

SECTION 1 - PURPOSE

To make certain that our employees are aware of the hazards associated with the exposure to blood, or other potentially infectious materials, and the procedures and equipment required to protect them.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

AMPCO will provide information and training on the nature of Bloodborne diseases and to assist our employees in reducing or eliminating their potential exposure to bloodborne pathogens in their work environments. This procedure will ensure compliance with 29 CFR 1910.1030.

SECTION 4 - REGULATORY COMPLIANCE

A copy of the Bloodborne Pathogen Standard, 29 CFR 1910.1030, will be made available to all employees at each work site. AMPCO employees will be able to review the Standard and obtain a copy at any of the following locations:

- Health and Safety Office
- AMPCO Office's
- Site Safety Office
- Site Superintendent's Office

4.1 Construction Industry

Even though the Bloodborne Pathogen Standard is basically an industrial standard, and the construction industry, as a whole, is exempted from the Standard, there is often an unrecognized employee category to which the Standard does apply even in the construction industry. This is the Company employee who has the potential for occupational exposure, the employee performing basic first aid.

4.2 Exposure Determination

It is AMPCO's policy that only employees who have been appropriately trained in first aid and bloodborne pathogens and who have the necessary protective equipment available are authorized to assist in the treatment of first aid injuries. No other AMPCO employee is to make any effort to assist in the first aid treatment of an injury, including efforts to clean the wound, stop the bleeding, bandage the injury, etc., nor is any other employee authorized to assist in the clean-up after an accident in which an employee has been injured, including the removal of blood stains, blood splattered equipment, or first aid materials. This policy must be strictly adhered to by all AMPCO personnel.

- **Job Classifications**

  AMPCO employees designated, as either supervisory personnel or safety personnel, and who have successfully completed the required training outlined above, are the only employees considered to have occupationally exposure. This exposure determination has been made without regard to the use of personal protective equipment.

SECTION 5 - TRANSMISSION OF BLOODBORNE PATHOGENS

Illness or disease related to bloodborne pathogens are transmitted through blood and other body fluids including semen, vaginal secretions, loose skin, and body tissue. AMPCO personnel must recognize that these fluids are potentially harmful and take precautions against contact and/or exposure.

Occupational exposure to bloodborne disease such as Human Immunodeficiency Virus (HIV), the Hepatitis B Virus (HBV), and other infectious Hepatitis strains are most often transmitted through breaks in the skin or mucous membranes. This usually occurs through needle sticks or other contaminated broken sharp objects, human bites, or having blood or other body fluids enter existing cuts, abrasions, or body cavities.

SECTION 6 - EXPOSURE CONTROL PLAN

As a direct requirement of the Standard, AMPCO has established the following written Exposure Control Plan, which is designed to eliminate or minimize employee exposure. This Exposure Control Plan will be reviewed and updated at least annually and whenever necessary to reflect new or modified tasks and procedures which may affect occupational exposure. Each AMPCO employee will have access to this Plan.

Procedure 7-6

The project superintendent has responsibility for program implementation and compliance at his/her specific jobsite:

- maintaining the list of employees who have specific responsibilities for the Exposure Control Plan at this site;
- ensuring that the Universal Precautions Program is initiated immediately at the beginning of each project and overseeing this program throughout the duration of the job;
- maintaining and updating the lists of job tasks in which occupational exposure may occur;
- ensuring that personal protective equipment is available in all appropriate locations and that adequate work controls are initiated and maintained; and
- Ensuring that all contaminated and potentially contaminated equipment and materials are effectively decontaminated or appropriately disposed of.

The Health and Safety Office will be responsible for the following portions of this program:

- conducting bloodborne pathogen education and training;
- overseeing implementation of work practice controls;
- assisting in setting up and maintaining the Region's Hepatitis B vaccination program;
- assisting in the coordination of biohazard waste disposal; and
- investigating of all "exposure incidents" and overseeing post-exposure evaluation and follow-up processes.

Copies of this program may be reviewed and/or obtained at the following locations:

- Health and Safety Office;
- AMPCO Office’s;
- Site Safety Office; and
- Site Superintendent’s Office at the jobsite.

6.1 Task Hazard Analysis

Generally, most AMPCO personnel are at a very low risk for exposure to bloodborne pathogens. However, there are some situations in which AMPCO personnel (as described in Paragraphs 4.2.1 and 5.0) may come in contact with potentially infectious or

contaminated biohazard material. These task includes:

- providing cardio-pulmonary resuscitation (CPR) to an injured worker;
- providing first aid assistance to an injured employee; and
- conducting clean-up of an accident site in which an employee has been injured.

These tasks are now to be conducted only by authorized personnel.

6.2 Universal Precautions

AMPCO has mandated following the "Universal Precautions". This is a concept in which it is universally accepted that all human blood and most human body fluids will be treated as if they are known to be infectious for HIV, HBV, and other bloodborne pathogens. These precautionary measures will be taken on every jobsite to insure that:

- employees do not contact blood or other infectious materials; and
- all body fluids will be treated as potentially infectious materials.

Precautionary Measures

Since there is always the potential for accidents in the work place and at project sites, when these incidents involve potentially infectious materials, protecting human health and safety is the primary consideration for all employees involved in the incident. Important precautionary steps for all employees to follow in this situation include:

- Avoid all contact with blood or other bodily fluids (i.e., vomit, saliva);
- Wear appropriate PPE when there is a potential to make contact with potentially infectious materials;
- Warn employees in surrounding area of the potential hazards;
- Provide essential first aid only if appropriately trained, approved, and equipped to do so;
- Report all exposure incidents to supervisor's and
- See that all equipment and surfaces contaminated with blood or other body fluids are appropriately decontaminated or suitably disposed of.

6.3 Engineering Controls and Work Practices

Engineering controls utilized at the job site must include:

- the use of tools, such as a dust pan and brush, to sweep-up all materials suspected of being contaminated and placing them into the proper waste bag;
- the use of mechanical implements, such as hand extension apparatus, tongs, or other grasping devices, to pickup suspect materials; and
- provide an approved disinfectant for the immediate decontamination of suspect materials.

The following work practices must also be implemented on each project:

- provide hand washing facilities with potable water which are readily accessible to potentially exposed employees;
- provide soap, antiseptic hand cleanser, and disposable towels or antiseptic towelettes;
- require employees to wash their hands immediately after removing potentially contaminated gloves or other personal protective equipment;
- ensure that employees wash any area of the body, and flush mucous membranes with water, as soon as possible after contact with blood or other potentially infectious materials;
- utilize procedures involving clean-up of blood or other potentially infectious materials to ensure that splashing, spraying, splattering, and generation of droplets are minimized;
- prohibit employees from using mouth pipetting/suctioning of blood or other potentially infectious materials; and
- any item of equipment which may be contaminated as a result of being involved in an accident in which an employee was injured, will be examined prior to taking any additional action. Equipment found to be contaminated will either be decontaminated or it will be appropriately labeled and disposed of.

6.4 Personal Protective Equipment

A kit, containing personal protective equipment (PPE), required by the Bloodborne Pathogen Standard must be readily available at all AMPCO facilities and jobsites. This protective equipment must not allow blood or other potentially infectious materials to pass through to workers' clothing, skin, or mucous membranes. The equipment in this kit will include:

- Latex gloves (minimum)
- Safety glasses (minimum)
- Protective Clothing (minimum)
- Liquid splash goggles (preferred)
- Full-face shield (if potential to splash on face and in mouth)
- CPR mask with one-way exhalation valve (for use only by trained personnel)
- biohazard waste disposal bags
- a copy of the Exposure Incident Investigation Report

In accordance with OSHA requirements, the contents of this kit and our first aid kits should be certified as adequate by a licensed physician. If these kits are purchased commercially, the manufacturer should obtain the certification.

6.5 Hepatitis B Vaccination

AMPCO will make a Hepatitis B vaccination available to those employees listed in Paragraph 4.2.1 of this section, entitled Job Classification. The vaccinations will be made available at no cost to the employee, at a time and place that is reasonable, will be performed under the supervision of a licensed physician, and will be provided based on the current recommendations of the U.S. Public Health Service. Employees eligible for this vaccination will be informed about the efficacy, safety, method of administration and the benefits of the vaccine.

There are three groups of employees who can be exempted from this vaccination program. They are:

- Employees who have previously received the complete series;
- Employees who have had "antibody testing" that has revealed that the employee is immune; and
- Employees for whom the vaccine is not recommended for medical reasons.

It must be noted, that while AMPCO can request and offer this vaccination, the employee is under no legal obligation to accept it. However, in those cases where the employee has declined the vaccination, the employee is mandated by the Company to sign the Vaccination Declination Form, which is included as Exhibit 1 of this section. This form verifies that the vaccination was offered by the Company and declined by the employee.

6.6 Post-Exposure Vaccination

While not a part of the Hepatitis B Vaccination Program, a post exposure vaccination and a medical evaluation will be made available to any employee who has had an accidental exposure incident. Confidential medical evaluations and follow-ups will be made available to all affected employees, following the report of an exposure incident. The medical evaluations will include the following elements:

- Documentation of exposure routes and circumstances of exposure; and
- Identification and documentation of source individual.

The source individual's blood will be tested, as soon as feasible after consent is obtained, in order to obtain the person's HIV/HBV status.

6.7 Housekeeping Practices

Worksites must be maintained in a clean and sanitary condition with efforts made to ensure the following:

- in the event that any equipment, environmental, or working surfaces should come into contact with blood or other potentially infectious materials, they will be immediately cleaned and decontaminated;
- all contaminated work surfaces will be effectively decontaminated, with an appropriate disinfectant, as quickly as possible and certainly before the end of the work shift; and
- all biohazard contaminated waste, which is to be disposed of, will be placed into red biohazard waste containers.

SECTION 7 - EXPOSURE INCIDENT

An exposure incident may involve the eyes, mouth or other mucous membrane, non-intact skin, parental contact with blood or other potentially infectious materials or body fluids that results during the performance of an employee's work.

7.1 Notification

Employees must immediately report exposure incidents to their supervisors to enable timely medical evaluation and follow-up by a health care professional.

Each exposure incident must also be reported to the Regional Safety Manager as quickly

as possible.

7.2 Evaluating Exposure Incidents

Exposure incident evaluations must be made by a health care professional, and it should be remembered that an immediate assessment and confidentiality are critical issues. The supervisor must be prepared to provide the health care professional with a copy of the Bloodborne Pathogen Program, a description of the employee's job duties, as they relate to the incident, a report of the specific exposure, including potential routes of exposure, any relevant employee medical records, and the employee's Hepatitis B vaccination status.

7.3 Post-Exposure Follow-up

Following post exposure evaluation, the health care professional should provide a written opinion to AMPCO. This opinion should be limited to a statement that the employee has been informed of the results of the evaluation and told of the need, if any, for further treatment.

SECTION 8 - BLOODBORNE PATHOGEN HAZARD COMMUNICATION

Communication of the hazards associated with blood, blood products, or other potentially infectious material is extremely important. Biohazard warning labels must be affixed to containers of regulated waste. Labels must also be affixed to containers used to store, transport, or ship blood or other potentially infectious material. Labels must include the universal biohazard symbol and be fluorescent orange or orange-red with lettering or symbols in a contrasting color.

In most situations, AMPCO personnel will discard all potentially infectious material in red biohazard marked bags or containers which may be substituted for labels. After an exposure incident occurs and potentially infectious material has been generated and containerized in red bags or containers, it will be the responsibility of the project supervisor to contact his/her Regional Safety Manager for direction on the proper disposal of infectious or potentially infectious material.

SECTION 9 - DECONTAMINATION

Equipment and other surfaces which have been contaminated with blood or other body fluids must be decontaminated. Equipment and surfaces should be initially washed with a 10 percent bleach/water solution, then rinsed with clear water until all visible blood and body fluids has been cleaned up. The water generated during the decontamination can be disposed in the sanitary sewer or absorbed on paper towels for disposal. All solid waste generated should be added to the "Red Bio-Hazard Bag" waste stream.

SECTION 10 - EXPOSURE INCIDENT INVESTIGATION

In an effort to insure that we can take the proper steps to prevent exposure incidents, it will be the responsibility of the Regional Safety Manager to investigate each exposure incident, as quickly as possible after being made aware of the incident. This investigation should contain the following information:

- the date and time the exposure incident occurred;
- the exact location within the facility or jobsite the incident occurred;
- what potentially infectious materials were involved in the incident;
- what is the source of the potentially infectious material;
- what activity was being performed when the incident occurred;
- details of exactly how the incident was caused;
- the personal protective equipment being used at the time of the incident;
- the actions taken as a result of the incident; and
- documentation of the disposal of waste products.

After this information is gathered and evaluated, a written summary of the incident and its causes should be prepared on the Exposure Incident Investigation Report form, included as Exhibit 2 of this section. This report should include recommendations to ensure that we avoid similar incidents in the future.

SECTION 11 - TRAINING AND EDUCATION

AMPCO employees who are authorized to provide first aid, and whose job classifications are listed in Paragraph 4.2.1 of this section, as well as those other employees who may experience an occupational exposure to blood or other potentially infectious material, must be knowledgeable of the precautions to take against bloodborne pathogens. These employees will receive both initial and annual training in the following areas:

- the epidemiology and symptoms of bloodborne diseases and OSHA's Bloodborne Pathogen Standard (29 CFR 1910.1030);
- how bloodborne diseases are transmitted;
- the Company's Exposure Control Plan for their work site and how to recognize tasks that may involve exposure;
- a review of the engineering controls, work practices, and personal protective equipment required to reduce or eliminate exposure;

- the use of biohazard labels and color-coded waste containers;
- information on HBV and HIV and on the free HBV vaccination program;
- actions to take in case of an exposure incident involving bloodborne pathogens; and
- an explanation of post-exposure evaluations and follow-up that is provided to employees in the case of an exposure incident.

11.1 Exemption

There is one exemption to the Bloodborne Pathogen regulation, that is a "Good Samaritan" act performed by an employee who would not normally be expected to encounter human blood or other potentially infectious materials in his/her job.

SECTION 12 - RECORDKEEPING

There are two types of records required by the Bloodborne Pathogen Standard:

- **Medical Records:** A medical record must be established for each employee with occupational exposure. This record must be maintained as a confidential medical record and separate from other personnel records. This record may be kept on site or retained by the health care professional who provides services to the employee. This medical record must contain the employee's name, social security number, Hepatitis B vaccination status, and a written opinion by the health care professional. Medical records of exposure must be maintained for a period of 30 years following the employee's last date of employment.
- **Training Records:** Training records, which document each training session, must be maintained for a period of at least 3 years. These records must include the date, content, outline, trainer's name and qualifications, and the names and job titles of all persons attending the training sessions.

NOTE: Employee medical and training records shall be provided upon request for examination and copying to the subject employee or to anyone having written consent of the subject employee or to the Director and Assistant Secretary in accordance with 29 CFR 1910.1020.

If AMPCO ceases to do business and there is no successor employer to receive and retain the records for the prescribed period, the employer shall notify the Director, at least three months prior to their disposal and transmit them to the Director, if required by the Director to do so, within the three month period.

VACCINATION DECLINATION FORM

Employee Name:_____

Employee Social Security Number:_____

I understand that due to my specialized training as a first aid provider, my occupational exposure to blood or other potentially infectious materials may place me at risk of acquiring Hepatitis B Virus (HBV) infection. Even though AMPCO has given me the opportunity to be vaccinated with Hepatitis B vaccine at no cost to myself, and at a time and place that would not be inconvenient, I have declined the Hepatitis B vaccination at this time. I further understand, that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If, in the future, I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no cost to me.

_____ _____

Employee Signature **Date**

_____ _____

Safety Manager's Signature **Date**

EXPOSURE INCIDENT INVESTIGATION REPORT

Date of Incident:_____ Time of Incident:_____

Exact Location: _____

Potentially Infectious Materials Involved:

Type: _____ Source:_____

_____ _____

Circumstances:_____

_____

_____

How Incident Was Caused:_____

_____

_____

Personal Protective Equipment Being Used:_____

_____

Actions Taken:_____

_____

_____

Recommendations For Avoiding Repetition:_____

_____

_____

Safety Manager Completing Report:_____

INDUSTRIAL HYGIENE PROGRAM

SECTION 1 - PURPOSE

To define the minimum requirements of a jobsite or Office Industrial Hygiene Program which shall be implemented in all work situations within AMPCO.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - GENERAL

Industrial Hygiene (IH) is the science and art devoted to the anticipation, recognition, evaluation and control of those environmental factors or stresses arising in or from the workplace which may cause sickness, impaired health or well-being, or significant discomfort and inefficiency primarily among workers.

In the course of operations throughout AMPCO, employees may encounter various chemical and physical hazards. An effective industrial hygiene program anticipates such hazards, evaluates their severity and implements controls to reduce or eliminate exposure.

SECTION 4 - HAZARD IDENTIFICATION WORKSHEET

Project Management should utilize the Hazard Identification Worksheet to identify potential health/industrial hygiene hazards which may be present on the project. This information must be conveyed to Health and Safety for assessment before operations can begin.

SECTION 5 - HAZARD ASSESSMENT

Each project must be assessed by Health and Safety for the various health and safety hazards which can be reasonably expected during the course of the project. Assessment must include:

- identifying the existing and ensuing hazards;
- quantifying the hazard where appropriate (all health hazards must be sampled or characterized as similar to previously measured hazard in a like project and so documented);
- planning work schedule, procedures, etc. to avoid the hazard or minimize potential exposure;

- where hazards cannot be eliminated or controlled, identifying personal protective equipment necessary for the degree of hazard quantified; and
- assurance that all personnel be properly trained and medically qualified (where appropriate) to perform the job safely.

SECTION 6 - EVALUATION

Internal IH sampling must be conducted only by trained personnel, and samples sent only to accredited laboratories meeting the appropriate QA requirements (AIHA, AHERA, etc.). A copy of the results with a short narrative describing the project and exposures should be sent to Health and Safety.

Contractual IH sampling must only be conducted by reputable firms with at least one CIH on staff and an extensive familiarity with local and state regulations affecting the sampling under contract. Samples from contractors shall also be analyzed appropriately by accredited laboratories, and final reports shall be issued in a timely manner with a copy to Health and Safety.

Specific hazards may require unique sampling methods or frequency. Refer to the particular program as appropriate for detailed information.

All employees participating in personal monitoring should be informed of the results within 15 days of the receipt of results at their Office. A copy of each employee's personal results should be maintained in the Office's medical files in accordance with Section 3-5 of the Corporate Safety Manual.

SECTION 7 - CONTROL

Refer to the appropriate sections of the Corporate Safety Manual for specific program requirements. In general, the following priority system shall apply unless otherwise stated:

- keep employees out of hazardous areas using remote methods;
- engineer out the hazard where possible, or reduce exposure to acceptable levels through process controls; and/or
- use personal protective equipment appropriate to the hazard when previous methods are in process, inadequate or infeasible.

Under no circumstances shall protective equipment, especially respiratory, be assigned to AMPCO personnel without quantitative measurement of the hazard or careful comparison of exposure to previous measurements at similar sites (preferably same) under similar conditions (same work activity). Consult Health and Safety personnel for input.

SECTION 8 - INDUSTRIAL HYGIENE LABORATORIES

Only laboratories which are accredited by the American Industrial Hygiene Association's (AIHA) quality assurance program, PAT (Proficiency Analytical Testing) for specific analyses should be used. Only those organizations with proficiency in metals, silica and organic solvents should be used. Some laboratories may also qualify as an asbestos lab for PCM, although this is not a AMPCO requirement for inclusion on this section.

When working with any lab, be sure to discuss your needs in depth prior to sampling. They will do as little or as much as you want as long as you give them the proper data. Always request raw data as well as final calculations to ensure accuracy of the report. Please forward copies of all worksheets and lab reports to Safety Director so a broad database can be developed to minimize repetitive sampling.

SECTION 9 - INDUSTRIAL HYGIENE CONSULTANTS

Conducting good industrial hygiene sampling is time-consuming and detailed. Equipment must be monitored carefully for malfunction and proper placement. AMPCO's typical operations are very labor intensive and often occur in adverse environmental conditions which can stress the sampling train and equipment.

In order to obtain a good industrial hygiene sample, the sampler must mount the pump and media correctly, maintain it in proper operating condition, take copious notes regarding facility characteristics and operator activity during sampling, and finally, properly label and seal the samples for shipment to the lab. The sampler cannot perform any other major duties while conducting a survey.

Consulting personnel have various levels of field expertise within their organization but most can be categorized as follows:

Certified Industrial Hygienist (CIH): This is the highest paid, technical member of the team, usually around $100 per hour depending on hidden costs and geography. This person has a degree, a least five years of experience, and has successfully completed the certification exam. Most will overview surveys by reviewing a junior member's plan for sampling, final report and conclusions. Many consultants will not release even the simplest report unless it is reviewed by the staff CIH, but very few CIH's perform the actual field sampling.

Technician with Experience (Non-CIH): For most AMPCO sampling, this individual is sufficient. They have more experience, are knowledgeable about sampling, can correct minor problems while in the field, and make basic conclusions concerning exposure status. They usually have between five and ten years of experience in Industrial Hygiene and related fields and have a science degree. Their rates can range from $42 - $80 per hour depending on geography and hidden costs. Some consultants may still require that a CIH review the final product.

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Technician (entry-level): This individual varies greatly in ability, energy and education. In many cases, another experienced industrial hygienist will instruct them on how and where to place the equipment and what basic maintenance steps are necessary to keep the units functioning properly. They can range from recent college graduates with no experience to high school graduates who have been trained to operate air-sampling pumps. Some take good notes, but most are only concerned about pump operation and not the exposure or characteristics of the job. This level of expertise is only useful in simple repetitive operations, such as asbestos abatement where daily sampling may be required by regulation. Therefore, hiring a consultant can quickly become an expensive proposition. All consultants will perform the job according to the specifications in the contract. At the very minimum, you should expect the following:

1. Full shift sampling of representative (20-25%) number of workers performing certain classes of duties (i.e., gross detail, scaffold building, water blasting, etc.).
2. Individual written exposure records that can be photocopied and handed to each employee (employers should sign file copy as a receipt).
3. Use of an approved laboratory for the particular contaminant of concern; beware of potential co-contaminants (lead and asbestos; metals and volatiles).
4. Final report that categorizes exposures by job class, operation phase, etc. (as you determine); request statistics so you can compare one phase of the job to another, work practices between employees; supervisor procedures, etc.
5. Reasonable turn-around time for all of the above.

State regulations may differ on items (1), (2), (3) and (5) above, so check with a knowledgeable person prior to commitment. Don't compromise on the demand for organized results; this could assist you in using the data effectively rather than gathering useless bits of information haphazardly. Air monitoring can be a useful tool in improving procedures which can eventually cut costs. Without it, overprotection is necessary, and that results in employee stress, slower work schedules and mandatory protective equipment purchase.

HAZARD IDENTIFICATION WORKSHEET

It is important under Right-To-Know to be informed of the hazards our employees might encounter while on the site. It is also essential that AMPCO collect any information available, on airborne levels of hazardous materials in order to properly choose personal protective equipment (if not, protective equipment must be chosen based on "unknown" concentrations, and that increases total job cost). It is unadvisable to accept customers judgment on protective equipment without some verification of air-borne concentrations. Most client contacts will be reluctant to release any specific information to anyone outside their organization; however, if AMPCO safety personnel can contact client safety/health personnel (or convince the client contact to do so), general information, sufficient to estimate the proper protective equipment, will usually be made available (if it exists). This form will assist in gathering the applicable information in order to pre-plan job safety and health requirements.

What are the hazardous chemicals/materials AMPCO employees might encounter while on this job?

_____

_____

_____

What components/ingredients of the above materials are regulated; have an OSHA PEL* or ACGIH TLV**?

_____

_____

_____

Has the client sampled his own personnel for the above chemicals?
YES ☐ NO ☐

Have the samples been taken while his employees performed work similar to our employees? YES ☐ NO ☐

Please describe, in general, what the sampling revealed:

Substance	Above AL*** ?	Above PEL?

Do client personnel wear any protective equipment when encountering these substances in the same manner as our employees might? YES ☐ NO ☐

If so, what?_____

_____

Do client personnel wear protective clothing when encountering these materials in any other operations? YES ☐ NO ☐

If so, what & under what condition?_____

_____

_____

Lastly, are we disposing of any waste from this operation? YES ☐ NO ☐

If yes, consult contact, safety and regulatory compliance department, and local, state and federal regulations while in the planning stages.

* OSHA PEL: Permissible Exposure Limit (enforceable by OSHA; law)

** ACGIH TLV: Threshold Limit Value (suggested guidance level; recommendation)

*** AL: Action Limit (OSHA term; usually 1/2, or closest to it of the PEL)

AMPCO SAFETY AUDIT CHECKLIST

INDUSTRIAL HYGIENE PROGRAM

Does the Branch have an Industrial Hygiene Program in compliance with AMPCO's requirements. At a minimum, the following items must be addressed in the program and related documentation:		YES ☐	NO ☐
A.	Health Hazard awareness survey has been completed prior to job start-up	YES ☐	NO ☐
B.	Hazards have been identified to the extent that preventative programs can be implemented.	YES ☐	NO ☐
C.	Protective equipment has been specified based on reliable data: previous monitoring from prior similar operations or same location sampling conducted during this project.	YES ☐	NO ☐
D.	Where required, documentation is maintained accordingly, training is conducted adequately, and protective equipment altered as necessary.	YES ☐	NO ☐

REMARKS_____

_____

_____

_____

_____

PROCESS SAFETY MANAGEMENT

PURPOSE:

The primary purpose of the PSM Standard is to prevent or minimize the unwanted release of hazardous chemicals, especially into locations that would expose personnel to serious hazards.

POLICY:

It is AMPCO's intent to comply with all applicable regulations and to provide a workforce that is trained to safely perform their jobs with a full knowledge of the hazards and safe work practices associated with the facility or other PSM regulated industry work. In accordance with the law, employees will receive initial and refresher training in the following:

- An overview of the facility process and operating procedures for the process that employees will be working near, including the hazards of the chemicals used in the process. This will include a complete review of the facilities Hazard Communication Program and all SDSs that are provided for each unit where the employees will be working;
- Specific safety and health hazards;
- Procedures and safe work practices applicable to the employee's job tasks, including personal protective equipment, permits (confined space, hot work and general safe permits, job hazard analysis and auditing;
- Incident investigations are required for all incidents. When an incident occurs, an investigation will be immediately implemented, but not longer than 24 hours after the incident. Causal analysis and corrective actions will be documented and tracked for closure. Those records will be kept for a minimum of 5 years.
- The site-specific Emergency Action Plan.

Employees shall comply with established procedures and safe work practices, be on the alert for changing conditions and quickly report any accidental release or potential release of hazardous chemicals to a supervisor.

AMPCO will promptly investigate every incident that results in, or could have resulted in, a dangerous release of a hazardous chemical.

All AMPCO employees will attend the facilities site-specific training during the orientation, including the process overview and Emergency Action Plan. Attached is a summary of applicable information taken from the PSM standard.

Process Safety Management of Acutely Hazardous Materials

These regulations contain requirements for preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable or explosive chemicals. These regulations are intended to eliminate to a substantial degree, the risks to which employees are exposed in petroleum refineries and chemical plants.

1. AMPCO shall develop and implement written procedures that provide clear instructions for safely conducting activities involved in each process.

   A. Steps for Each Operating Phase:
   1. Start-up
   2. Normal operation
   3. Temporary operations
   4. Emergency operations, including emergency shutdowns
   5. Normal shutdown
   6. Start-up following a turnaround, or after an emergency shutdown

   B. Operating Limits:
   1. Consequences of deviation
   2. Steps required to correct and/or avoid deviation
   3. Safety systems and their functions

   C. Safety and Health Considerations:
   1. Properties and hazards of the chemicals used in the process
   2. Precautions necessary to prevent exposure, including PPE
   3. Control measures to be taken if physical contact or airborne exposure occurs
   4. Safety procedures for opening process equipment (such as pipeline breaking)
   5. Verification of raw materials and control of hazardous chemical inventory levels
   6. Any special or unique hazards

   Note: If Hot Work is to be performed, as with any hot work, a “Hot Work” permit shall be obtained from the client before any work commences (refer to Section 8-20 in the AMPCO Corporate Safety Manual).

2. A copy of the operating procedures shall be readily accessible to employees who work in or near the process area or to any other person who works in or near the process area.

3. The operating procedures shall be reviewed as often as necessary to assure that they reflect safe operating practices, including changes that result from changes in process chemicals, technology and equipment and changes to facilities.

4. AMPCO shall develop and implement safe work practices to provide for the control of hazards during operations such as opening process equipment or piping and control over entrance into a facility by maintenance, contractor, laboratory or other support

personnel. These safe work practices shall apply to employees and contractor employees.

Training:

1. **Initial training**. Each employee presently involved in operating or maintaining a process, and each employee before working in a newly assigned area, shall be trained in an overview of the process and in the operating procedures. The training shall include emphasis on the specific safety and health hazards, procedures and safe practices applicable to the employee's job tasks.
2. **Refresher and supplemental training**. At least every three years, and more often if necessary, refresher and supplemental training shall be provided to each maintenance or operating employee and other workers necessary to ensure safe operation of the facility. The employer in consultation with employees involved in operation or maintenance of a process shall determine the appropriate frequency of refresher training.
3. **Training certification**. AMPCO shall ensure that each employee involved in the operation or maintenance of a process has received and successfully completed training. The employer, after the initial or refresher training shall prepare a certification record which contains the identity of the employee, the date of training, and the signatures of the persons administering the training.
4. **Testing procedures** shall be established by AMPCO to ensure competency in job skill levels and safe and healthy work practices.

Contractors:

1. AMPCO shall inform contractors performing work on, or near, a process of the known potential fire, explosion or toxic release hazards related to the contractor's work and the process, and require that contractors have trained their employees to a level adequate to safely perform their jobs. AMPCO shall also inform contractors of any applicable safety rules of the facility, and assure that the contractors have so informed their employees.
2. AMPCO shall explain to contractors the provisions of the emergency action plan.
3. Contractors shall assure that each of their employees have received training to safely perform their job and that the contract employees shall comply with all applicable work practices and safety rules of the facility.

Trade Secrets:

AMPCO will respect and maintain the confidentiality of all “Trade Secret” information received and/or gathered from our clients (Owner Facilities). Any and all proprietary information obtained including but not limited to the following is governed by this policy:

- Development of the process hazard analysis
- Development of operating procedures
- Involvement in incident investigations
- Involvement in emergency response or emergency planning
- Involvement in compliance auditing

Management of Change (MOC)

The OWNER (facility) that is covered by the standard will typically handle all MOC situations, but we need to be aware of the program and be mindful that if we get involved with any changes, the necessary steps will need to take place. AMPCO will establish and implement written procedures to manage changes (except for "replacements in kind") to process chemicals, technology, equipment, and procedures; and, changes to facilities that affect a covered process.

Prior to the change, address the following considerations:

- The technical basis for the proposed change;
- Impact of change on safety and health;
- Modifications to operating procedures;
- Necessary time period for the change; and,
- Authorization requirements for the proposed change.

AMPCO will train affected employees and contract employees in the change prior to start-up of the process or affected part of the process.

AMPCO will up-date Process Safety Information (PSI), Process Hazard Analysis (PHA) and Operating Procedures as applicable.

PROTECTION FROM WILDFIRE SMOKE

SCOPE:

1. This section applies to workplaces where:
    a. The current Air Quality Index (current AQI) for PM2.5 is greater than 150, regardless of the AQI for other pollutants; and
    b. The employer should reasonably anticipate that employees may be exposed to wildfire smoke.
2. The following workplaces and operations are exempt from this section:
    a. Enclosed buildings or structures in which the air is filtered by a mechanical ventilation system and the employer ensures that windows, doors, bays, or other openings are kept closed to minimize contamination by outdoor of unfiltered air.
    b. Enclosed vehicles in which air is filtered by a cabin air filter and the employer ensures that windows, doors, or other openings are kept closed to minimize contamination by outdoor or unfiltered air.
    c. The employer demonstrates that the concentration of PM2.5 in the air does not exceed a concentration that corresponds to a current AQI of 150 by measuring PM2.5 levels at the worksite in accordance with Appendix A.
    d. Employees exposed to a current AQI for PM2.5 exceeding 150 for a total of one hour or less during a shift.

DEFINITIONS:

Current Air Quality Index (current AQI). The method used by the U.S. Environmental Protection Agency (U.S. EPA) to report air quality on a real-time basis. Current AQI is also referred to as “NowCast,” and represents data collected over time period of varying length in order to reflect present conditions as accurately as possible.

The Current AQI is divided into six categories as shown in the table below, adapted from Table 2 of 40 CFR Appendix G to Part 58.

Air Quality Index (AQI) Categories for PM2.5	Levels of Health Concern
0 to 50	Good
51 to 100	Moderate
101 to 150	Unhealthy for Sensitive Groups
151 to 200	Unhealthy
201 to 300	Very Unhealthy
301 to 500	Hazardous

NIOSH. The National Institute for Occupational Safety and Health of the U.S. Centers for Disease Control and Prevention. NIOSH tests and approves respirators for use in the workplace.

PM2.5. Solid particles and liquid droplets suspended in air, known as particulate matter, with an aerodynamic diameter of 2.5 micrometers or smaller.

Wildfire Smoke. Emissions from fires in "wildlands," as defined in Title 8, section 3402, or in adjacent developed areas.

IDENTIFICATION OF HARMFUL EXPOSURES:

AMPCO shall determine employee exposure to PM2.5 before each shift and periodically thereafter, as needed, by any of the following methods:

1. Check AQI forecasts and the current AQI for PM2.5 from any of the following: U.S. EPA AirNow website, U.S. Forest Service Wildland Air Quality Response Program website, California Air Resources Board website. AMPCO will use the monitoring station that is closest to the worksite.
2. Measure PM2.5 levels at the worksite and convert the PM2.5 levels to the corresponding AQI in accordance with Appendix A.
3. Obtain the current AQI for PM2.5 directly from the U.S. EPA, California Air Resources Board, local air pollution control district, or local air quality management district by telephone, email, text, or other effective methods.

EXCEPTION: This subsection does not apply where AMPCO assumes the current AQI for PM2.5 is greater than 500 and uses that assumption to comply with Respiratory Protection Program.

COMMUNICATION:

AMPCO shall communicate wildfire smoke hazards in a form readily understandable by all affected employees. AMPCO encourages employees to inform the company of wildfire smoke hazards at the worksite without fear of reprisal. AMPCO shall:

1. Inform employees of:
    a. The current AQI for PM2.5, and
    b. Protective measures available to employees to reduce their wildfire smoke exposures.
2. Encourage employees to inform the company of:
    a. Worsening of air quality, and
    b. Any adverse symptoms that may be the result of wildfire smoke exposure such as asthma attacks, difficulty breathing, and chest pain.

TRAINING AND INSTRUCTION:

AMPCO shall provide employees with effective training and instruction on the information contained in Appendix B.

CONTROL OF HARMFUL EXPOSURES TO EMPLOYEES:

1. In emergencies, including rescue and evacuation, items #2 and #3 do not apply, and AMPCO will comply with item #4. Emergencies include utilities, communications, and medical operations, when such operations are directly aiding firefighting or emergency response.
2. Engineering Controls. AMPCO shall reduce employee exposure to PM2.5 to less than a current AQI of 151 by engineering controls whenever feasible, for instance by providing enclosed buildings, structures, or vehicles where the air is filtered. If engineering controls are not sufficient to reduce exposure to PM2.5 to below a current AQI of 151, then AMPCO shall reduce employee exposures as much as feasible.
3. Administrative Controls. Whenever engineering controls are not feasible or do not reduce employee exposures to PM2.5 level to a current AQI of 150 or less, AMPCO shall implement administrative controls, if practicable, such as relocating work to a location where the current AQI for PM2.5 is lower, changing work schedules, reducing work intensity, or providing additional rest periods.
4. Control by Respiratory Protective Equipment.
    a. Where the current AQI for PM2.5 exceeds 150 and is less than 501, AMPCO shall provide respirators to all employees for voluntary use and encourage employees to use respirators. Respirators shall be NIOSH-approved devices that effectively protect the wearers from inhalation of PM2.5, such as N95 filtering facepiece respirators. Respirators shall be cleaned, stored, maintained, and replaced so that they do not present a health hazard to users. Refer to Appendix B for training regarding voluntary use of respirators.

        NOTE: For voluntary use of filtering facepieces, such as N95 respirators, this does not require fit testing or medical evaluations.

    b. Where the current AQI for PM2.5 is 501 or greater, respirator use is required. AMPCO shall provide respirators with an assigned protection factor, such that PM2.5 levels inside a respirator are at a level corresponding to a current AQI of 150 or less.

APPENDIX A – MEASURING PM2.5 LEVELS AT THE WORKSITE

1. AMPCO shall use a direct-reading particulate monitor to determine PM2.5 levels. AMPCO will select a monitor that:
    a. Does not underestimate employee exposures to wildfire smoke; or
    b. May underestimate wildfire smoke exposures, but the employer has obtained information on the possible error of the monitor from the manufacturer or other published literature and has accounted for the error of the monitor when determining exposures to PM2.5 to ensure that employee exposure levels are not underestimated.
2. The monitor shall be designed and manufactured to measure the concentration of airborne particle sizes ranging from an aerodynamic diameter of 0.1 micrometers up to and including 2.5 micrometers. If a monitor is used that measures a particle size range beyond these limits, then AMPCO will treat the results as the PM2.5 levels.
3. AMPCO shall ensure that the monitor it uses is calibrated, maintained, and used, including the use of necessary accessories, in accordance with the manufacturer's instructions for accurately measuring PM2.5 concentrations.
4. AMPCO shall use the following table to convert the PM2.5 concentration to the AQI for PM2.5.

Air Quality Index (AQI) Categories for PM2.5	PM2.5 in micrograms per cubic meter
0 to 50	0 to 12.0
51 to 100	12.1 to 35.4
101 to 150	35.5 to 55.4
151 to 200	55.5 to 150.4
201 to 300	150.5 to 250.4
301 to 500	250.5 to 500.4

5. The person supervising, directing, or evaluating workplace monitoring for PM2.5 shall have the training or experience necessary to apply this section, use the monitor correctly and correctly interpret the monitoring results.

APPENDIX B – EMPLOYEE INFORMATION

1. **The health effects of wildfire smoke.**

   Although there are many hazardous chemicals in wildfire smoke, the main harmful pollutant for people who are not very close to the fire is “particulate matter,” the tiny particles suspended in the air. Particulate matter can irritate the lungs and cause persistent coughing, phlegm, wheezing, or difficulty breathing. Particulate matter can also cause more serious problems, such as reduced lung function, bronchitis, worsening of asthma, heart failure, and early death.

   People over 65 and people who already have heart and lung problems are the most likely to suffer from serious health effects.

   The smallest, and usually the most harmful, particulate matter is called PM2.5 because it has diameter of 2.5 micrometers or smaller.

2. **The right to obtain medical treatment without fear of reprisal.**

   AMPCO has effective provisions made in advance for prompt medical treatment of employees in the event of serious injury or illness caused by wildfire smoke exposure.

3. **How employees can obtain the current AQI for PM2.5.**

   Various government agencies monitor the air at locations throughout California and report the current air quality index (AQI) for those places. The AQI is a measurement of how polluted the air is. An AQI over 100 is unhealthy for sensitive people and an AQI over 150 is unhealthy for everyone.

   Although there are AQIs for several pollutants, Cal/OSHA’s regulation about wildfire smoke only uses the AQI for PM2.5.

   The easiest way to find the current and forecasted AQI for PM2.5 is to go to www.AirNow.gov and enter the zip code of the place where you will be working. The Current AQI is also available from the U.S. Forest Service at https://tools.airfire.org or a local air district, which can be located at www.arb.ca.gov/capcoa/dismap.htm. Employees who do not have access to the internet can contact their employer for the current AQI. The EPA website www.enviroflash.info can transmit daily and forecasted AQIs by text or email for particular cities or zip codes.

4. **The requirements in Cal/OSHA’s regulation about wildfire smoke.**

   If employees may be exposed to wildfire smoke, and the current AQI for PM2.5 at the worksite is 150 or more, Cal/OSHA requires employers to take several actions:

   1) Find out what the current AQI is at the location.
   2) Provide training to employees.
   3) Lower employee exposures.
   4) Provide respirators and encourage their use.

5. **AMPCO's communication system.**

   AMPCO has established a two-way communication system to alert employees when the air quality is harmful and what protective measures are available to employees.

   AMPCO has a system that encourages employees to inform the company if they notice the air quality is getting worse, or if they are suffering from any symptoms due to the air quality, without fear of reprisal.

   AMPCO's communication system is by phone call and/or text messaging.

6. **AMPCO's methods to protect employees from wildfire smoke.**

   AMPCO will take action to protect employees from PM2.5 in wildfire smoke. Examples of protective methods include locating work in enclosed structures or vehicles where the air is filtered; changes in procedures such as moving workers to a place with a lower AQI, reducing work time in areas with unfiltered air, increasing rest time and frequency, providing a rest area with filtered air, and reducing the physical intensity of the work to help lower the breathing rate and heart rate.

7. **The importance, limitations, and benefits of using a respirator when exposed to wildfire smoke.**

   When the current AQI for PM2.5 is over 150, AMPCO will provide its workers with proper respirators for voluntary use. If the AQI is over 500, respirator use is mandatory.

   Respirators can be an effective way to protect employee health by reducing exposure to wildfire smoke when they are properly selected and worn. Respirator use can be beneficial even when the AQI for PM2.5 is less than 150, to provide additional comfort and protection.

   A respirator should be used properly and kept clean.

   The following precautions must be taken:

   1) Choose respirators certified for use to protect against the contaminant of concern. NIOSH certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will list what the respirator is designed for (particulates, for example). Surgical masks or items worn over the nose and mouth such as scarves, t-shirts, bandannas will not provide protection against smoke. An N95 filtering facepiece respirator, shown in the image below, is the minimum level of protection for wildfire smoke.
   2) Read and follow all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.
   3) Do not wear a respirator into atmospheres containing contaminants for which the respirator is not designed. A respirator designed to filter particles will not protect employees against gases or vapors, and it will not supply

oxygen.

4) Employees should keep track of their respirator so that they do not mistakenly use someone else's respirator.
5) Employees who have a heart or lunch problem should ask their doctor before using a respirator.

8. How to properly put on, use and maintain the respirators provided by AMPCO.

To get the most protection from a respirator, there must be a tight seal around the face. A respirator will provide much less protection if facial hair interferes with the seal. Loose-fitting powered air purifying respirators may be worn by people with facial hair since they do not have seals that are affected by facial hair.

The proper way to put on a respirator can depend on the type and model of the respirator.

For those who use an N95 or other "filtering facepiece respirator," a mask that is made of filter material:

1) Place the mask over the nose and under the chin, with one strap placed below the ears and one strap above.
2) Pinch the metal part (if there is one) of the respirator over the top of the nose so it fits securely.



Regardless of the type of respirator, check how well it seals to the face by following the manufacturer's instructions for user seal checks. Adjust the respirator if air leaks between the seal and the face. The more air leaks under the seal, the less protection the user receives.

Replace the respirator filter if it gets damaged, soiled, or difficult to breathe through.

If you have symptoms such as difficulty breathing, dizziness, or nausea, go to an area

with cleaner air, take off the respirator, and get medical help.

Procedure 8-1

CONFINED SPACE-VESSEL ENTRY

SECTION 1 - PURPOSE

These guidelines have been developed to assure the safety and health of our personnel who must enter confined spaces to perform work. Because of the seriousness of the potential for safety or health hazards, these are very stringent guidelines which must be adhered to at all times.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

All persons involved in an operation requiring entry into confined spaces are responsible to see that this procedure is followed. Management will instruct all affected employees in the nature of the hazards involved, the necessary precautions to be taken, and the use of protective and emergency equipment required.

No deviation from the requirements of this section can be made without the written consent of the customer's Safety Department and/or AMPCO Health and Safety.

The confined space program within 1 year will be reviewed for content and revised as necessary. A single annual review covering all entries performed during a 12 month period may be performed. If no entries are performed during a 12 month period, no review is necessary. If revisions are made, the date reflecting the revision will be recorded on this form.

SECTION 4 - GENERAL

Injuries and fatalities may occur if certain essential precautionary measures are not taken when entering a confined space. This instruction is provided to make AMPCO management and all employees aware of Confined Space Entry requirements. The detailed requirements to be met by all personnel involved with confined space entry are contained in this procedure. It covers most Confined Space Entry situations. Those which present unique conditions will be addressed by management and the Safety Department, as required.

Whenever possible, management should investigate the possibility of doing the work outside the confined space to avoid exposing AMPCO employees to the hazards inherent in confined space entry. All AMPCO employees required to enter into confined spaces shall be instructed as to the nature of the hazards involved, the necessary precautions to be taken, and in the use of protective and emergency equipment required.

For AMPCO, confined spaces include, but are not limited to such items as vaults, excavations, dust collectors, manholes, bins, containments, boilers, pits, catch basins, tanks, silos or tunnels. When in doubt, contact your safety office so that a field determination can be made by qualified safety personnel. Each facility in which AMPCO works will likely employ differing methods of identifying confined spaces. AMPCO management must inquire as to the method of identification that is being used at a specific facility.

4.1 Definition of a Confined Space

The definition of a confined space includes an enclosure or compartment that:

- is large enough and so configured that an employee can bodily enter and perform assigned work; and
- has limited or restricted means for entry or exit; and
- is not designed for continuous employee occupancy.

4.2 Definition of a Permit Required Confined Space

A permit required confined space means a confined space that has one or more of the following characteristics:

- contains or has the potential to contain a hazardous atmosphere;
- contains a material that has the potential for engulfing an entrant;
- has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section, or
- contains any other recognized serious safety or health hazard.

4.3 Definition of an Entry Supervisor

Entry Supervisors are individuals selected by the project management to be responsible for determining the class of entry, whether or not acceptable entry conditions are present, directing the steps to be followed for issuance of an entry permit, determining rescue provisions, issuing the Confined Space Entry Permit, overseeing entry, and terminating entry. This individual must be familiar, by training and experience, with the safety, health and rescue requirements necessary for work in confined spaces.

4.4 Definition of an Outside Attendant

Outside Attendant means an individual stationed outside one or more permit required

confined spaces who monitors the authorized entrants and who performs all attendant's duties assigned in the Company's Confined Space Entry Program.

4.5 Definition of an Authorized Entrant

Authorized Entrants are employees who are authorized by the Company to enter a permit required confined space.

4.6 Potential Hazards

Some of the hazards which may be encountered by personnel working in confined spaces include, but are not limited to the following:

- Toxic vapors
- Flammable gases
- Oxygen deficiency
- Electric shock from installed and portable electric equipment
- Injury from mechanical equipment inside of the confined space.
- Physical hazard such as falling and slipping
- Hazards resulting from steam, water, chemical, etc. lines being opened into the confined space.

SECTION 5 - DETERMINATION OF CONFINED SPACE

Before any action is taken to enter a confined space, an Entry Supervisor must make a determination as to whether or not the physical characteristics of the confined space indicates it is merely a confined space or mandates it to be a Permit Required Confined Space. This determination will be made using:

- the characteristics of a permit required confined space as defined in Paragraph 4.2 of this section; or
- the customer's designation that the space is permit required.

In the event the physical characteristics of the permit required confined space change and the definition, as indicated in Paragraph 4.2 no longer prevail, the designation "permit required" may be removed and the space may be treated as a confined space.

5.1 Written Program

When a confined space has been determined to be a permit required confined space and

the Company has decided that its employees will enter this space, then a copy of this written program, which complies with 29 CFR 1910.146 and 1926.21(b)(6) must be present at the work site and must be available for inspection by the employees and their authorized representatives.

5.2 Warning Signs

Immediately upon designating the space as a permit required confined space, the Company must notify exposed employees by posting the following warning sign:



SECTION 6 - TESTING THE ATMOSPHERE

Before an employee enters a space, the internal atmosphere must be tested with a calibrated direct reading instrument for oxygen content, for flammable gases and vapors, and for potential toxic air contaminants, in that order. Tests must be made with the appropriate monitoring equipment. The person authorized to monitor the atmosphere must be trained in the proper use, calibration, and care of the monitoring instruments and must remain at the site until all monitoring is completed.

If tests indicate the atmosphere is initially safe, but the work may produce a hazardous atmosphere from such processes as cutting and welding, disturbing of accumulated sludge, or use of solvents, entry without respiratory protection will only be permitted subject to additional atmosphere testing by authorized personnel.

If tests indicate that the atmosphere is unsafe, the confined space must be ventilated until the hazardous atmosphere is removed, prior to employee entry.

WARNING: There can be no hazardous atmospheres within the confined space whenever any employees are inside the space.

6.1 Employee Observation

Employees, who are Authorized Entrants to enter a permit required confined space, must be given the opportunity to observe the testing of the confined space before entry is made.

SECTION 7 - CONFINED SPACE ENTRY PERMIT

Before any employee is allowed to enter a tank or other permit required confined space, an Entry Supervisor's authorization must be obtained and a Key Item Check List - Confined Space Entry form must be initiated. In the event the customer's provided confined space entry permit is not acceptable, the entry permit will be provided by AMPCO. This Permit will not be completed without the following:

- Prior to issuing the confined space permit, an SDS for each of the chemicals which were recently used in the space or vessel must be obtained.
- The necessary testing as indicated in Paragraph 6.0 of this section.
- If after ventilating the space, tests indicate a non-respirable atmosphere (less than 19.5 percent oxygen) or levels of toxic contaminants hazardous to health, no person will be allowed to enter unless equipped with an approved air-line respirator complete with escape bottle or a self-contained breathing apparatus, safety harness, and lifeline and has been properly trained in the use of that equipment. Project Manager approval must be obtained prior to entry with supplied air.
- The Authorized Entrant entering the space must wear protective clothing if the contaminant can cause dermatitis, chemical burns, or can be absorbed through the skin.

The Confined Space Entry Permit will not be issued unless all of the following provisions have been made for:

- An Entry Supervisor has been designated for overall responsibility of the confined space entry;
- Assigning an Outside Attendant that is in good physical condition and who has received the proper training in the Outside Attendant's procedures and duties;
- An adequate rescue and retrieval procedure has been developed and implemented;
- There is someone readily available who has been trained in cardio-pulmonary resuscitation (CPR);
- The number of Authorized Entrants who will enter the confined space are kept to a minimum;
- All Authorized Entrants who will enter the confined space are physically and mentally capable of working in a confined space. In other words, they have no known physical

restrictions or aversion to working in close confines;

- The Outside Attendant, the Authorized Entrants, and the rescue and retrieval personnel have been made to understand the hazards of the confined space and are instructed as to the necessary precautions to be taken; and
- Health and Safety has been notified prior to issuance of the permit.
- In all cases, AMPCO's Lock Out/Tag Out Procedures (Section 8-1 of this Manual) will be followed. Before entering a confined space, the contents must be drained and clean-out doors opened where provided. Further, all lines/pipes serving the confined space must be isolated by positive means which may include, but is not limited to, blanking, misaligning, and securing valves in a closed position. An AMPCO supervisor must verify all positive means of isolation prior to entry.

The completed permit will be posted in a conspicuous place near the point of entry.

7.1 Employee Participation

AMPCO must consult with and provide all of the necessary permit information to any of its employees who will be affected by the Confined Space Entry Permit.

SECTION 8 - DUTIES OF THE ENTRY SUPERVISOR

This individual must be familiar, by training and experience, with the safety, health and rescue requirements necessary for work in confined spaces.

- Entry Supervisors are responsible for determining the class of entry;
- They determine whether or not acceptable entry conditions are present;
- They direct the steps to be followed for issuance of an entry permit;
- They develop the rescue and retrieval plan;
- They may issue the Confined Space Entry Permit; and
- They oversee the entry and if necessary, terminate the entry.

SECTION 9 - DUTIES OF THE OUTSIDE ATTENDANT

Because of the possibility of having to respond to an emergency in more than one permit space at the same time, a single Outside Attendant cannot be used to monitor more than one confined space.

9.1 General Duties

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- Be aware of the product that was last contained in the confined space, as defined on the Confined Space Entry permit;
- Be aware of the type of material or processes in the surrounding area;

- Make certain that a Confined Space Entry Permit has been issued for the confined space you are assigned to. Also make certain that the entry permit is signed by an authorized person, the precautions noted on the permit have been satisfied, and that it has the current date, time and location on it;
- If the Outside Attendant must leave the area at any time and for any reason, he must have a qualified replacement there before he leaves. If this is not possible and he must leave, the entry must be terminated and all of the Authorized Entrants must vacate the confined space;
- Make certain that all equipment is in good working condition. If not, it must be replaced or repaired before entry;
- Ensure that all equipment in the confined space is the proper equipment specified by the permit precautions. For example, if the precautions require explosion-proof lighting, make certain the lighting is explosion-proof and not regular 12V or 110V;
- It may be necessary for the Outside Attendant to utilize an alarm device, such as an air horn, whistle, etc. If an emergency were to arise, the Outside Attendant can use the alarm device to either alert the persons inside the confined space or to seek help. List on the accompanying Confined Space Emergency Rescue and Retrieval Plan where emergency notification should be made and which rescue / emergency service will be utilized for rescue;
- The Outside Attendant must remain at the opening to the confined space where he can maintain either visual or voice contact with persons inside. If it is necessary for the Outside Attendant to be located where quick access to the emergency system is difficult, a radio or equally effective communication device must be utilized by the Attendant to enable quick communications with the rescue teams;
- When a Confined Space Entry Permit is issued and requires the use of supplied-air equipment, the Outside Attendant will also have supplied-air equipment on site and be trained in its use;
- The Outside Attendant may be required to serve as a fire watch for personnel welding or burning inside the space. Fire watch duties and responsibilities would then apply to the Outside Attendant as described in Paragraph 9.3 of Section 8-9 of the AMPCO Corporate Safety Manual;
- The Outside Attendant should know the number of Authorized Entrants working inside the confined space. When the space is vacated, he should make certain that all personnel that were inside are now accounted for outside the space;

- The Outside Attendant is responsible for maintaining the Confined Space Entry and Exit Log(s);
- When the work is completed inside the confined space or the shift ends, the Outside Attendant should notify the Entry Supervisor that all personnel have vacated the confined space;
- it must be understood by all Authorized Entrants that they must obey evacuation orders or job requirements that are passed on by the Outside Attendant;
- where possible, the assigned Outside Attendant should wear some type of bright and easily identifiable outside garment or vest, such as a fluorescent orange traffic vest, to easily distinguish him as the Outside Attendant.

9.2 Unauthorized Persons

- The Outside Attendant must prohibit anyone from entering the permit required confined space, unless they are an Authorized Entrant or a member of an appropriately equipped and trained rescue team;
- The Outside Attendant must take the following actions when an unauthorized person approaches or tries to enter the confined space while entry is underway:

    a. warn the unauthorized person that they must stay away from the confined space;

    b. advise the unauthorized person that they must exit immediately if they have entered the confined space; and

    c. inform the Authorized Entrants, the Entry Supervisor, and if the unauthorized person is an employee or representative of the client, then the client also of the unauthorized entry into the confined space.

    d. Barriers/barricades may be utilized to prevent unauthorized person/s from entering the confined space.

OSHA requires that AMPCO develop and implement procedures to coordinate entry operations when employees of more than one employer are working simultaneously as authorized entrants in a permit space, so that employees of one employer do not endanger the employees of any other employer.

AMPCO will not enter a confined space where other trades are simultaneously performing work, nor will AMPCO allow other trades to enter the same confined space. If the project deems this necessary, AMPCO H&S must develop and implement these procedures. These procedures must be approved by AMPCO's Director of Safety. Unless the Entry Supervisor has received permission from AMPCO H&S, other trades are to be treated as unauthorized persons.

9.3 Evacuation of the Confined Space

The Outside Attendant must be prepared to have the confined space evacuated immediately under any of the following conditions:

- The Outside Attendant detects a prohibited condition;
- The Outside Attendant detects the behavioral effects of hazard exposure in an Authorized Entrant;
- The Outside Attendant detects a situation outside the confined space that could endanger the Authorized Entrants; or
- The Outside Attendant can no longer effectively and safely perform all of the duties required of him.

The Outside Attendant must summon the emergency/rescue team immediately upon his determination that an Authorized Entrant(s) may require assistance to escape from the confined space.

WARNING: At no time should the Outside Attendant attempt a rescue in an emergency situation prior to sounding an alarm and assuring a response to that alarm. Regardless of the situation, the Outside Attendant will not enter the confined space unless he is appropriately trained, adequately equipped, and has been properly relieved by another trained Outside Attendant.

SECTION 10 – DUTIES OF AUTHORIZED ENTRANTS

10.1 General Duties

- Authorized Entrants must be able to understand the hazards they may be exposed to during their entry into a confined space, including the signs, symptoms and consequences of the exposure;
- They must be trained in and be able to properly use the equipment required by the permit;
- Authorized Entrants must be able to communicate with the Outside Attendant as necessary to enable the Attendant to monitor the Entrants' status and to enable the Attendant to alert the Entrants of the need to evacuate the space if necessary;
- The Entrants must be able to alert the Outside Attendant whenever they recognize any warning sign or symptoms of exposure to a dangerous situation;
- The Entrant must be able to communicate with the Outside Attendant as quickly as

possible, if he detects a prohibited condition;

- The Entrant must be prepared to evacuate the confined space immediately if he:

  a. receives an order to evacuate from the Outside Attendant or the Entry Supervisor;
  b. recognizes any warning sign or symptom of exposure to a dangerous situation;
  c. detects a prohibited condition; or
  d. hears or sees an evacuation alarm that has been activated.

NOTE: The Outside Attendant and the Authorized Entrant may rotate duties provided they are each properly trained in the duties and responsibilities of both positions as listed within this section.

SECTION 11 - KEY ITEM CHECK LIST FOR CONFINED SPACE ENTRY

The preparation of the Key Item Check List for Confined Space Entry may require a joint effort by both the customer and AMPCO, and should include at least the following:

- **Purging and removal of contents**

  Every effort must be made to make the confined space as safe to enter as possible before an entry is made. This may require purging, ventilation, pumping, flushing etc. as required, remote from the confined space.

- **Isolation**

  All lines which may discharge into the confined space shall be physically disconnected upstream and capped or isolated. The use of an in-line shut-off valve, as the sole means of isolating the confined space from any line is prohibited.

- **Lock Out / Tag Out**

  All electrical, hydraulic, pneumatic, etc., apparatus in, or associated with, the confined space (i.e., mixers, conveyors, pumps, motors, etc.) must be tagged and locked in the "OFF" position. This must be done for any entry, even though the work may not be being performed on the apparatus itself. It is the duty of the AMPCO supervisor to ensure that the proper lockout procedures have been performed.

- **Security of Covers**

  All manhole and clean-out covers shall be removed and the openings maintained clear

of any obstructions. All access openings must be barricaded. When hinged doors or covers are provided, they shall be secured so that they cannot be closed while someone is inside of the confined space.

- **Atmospheric Testing**

  Normally the customer will perform the initial testing of the atmosphere using approved and properly calibrated instruments to assure that 10% of the lower explosive limit (LEL) is not exceeded. The confined space shall also be tested to ensure that the oxygen content of the space is at least 19.5% for a normal entry. If toxic vapors are suspected, they shall also be properly tested to ensure that the exposure level does not exceed the level of protective equipment and OSHA specified limits.

- **Hot Work**

  AMPCO is not normally involved in hot work process. In the event that it is necessary, AMPCO will comply with the established Hot Work permit system of the customer.

SECTION 12 - SPECIAL CONSIDERATIONS

12.1 Monitoring

Continuous monitoring of the atmosphere will be required, when the nature of work to be performed introduces, or has the potential to introduce, hazardous conditions to the personnel within the confined space. The instruments used for continuous automatic monitoring are to be provided with an audible and visual alarm to warn when the permissible amounts of flammable or toxic vapors or oxygen deficiency are exceeded.

12.2 Explosive Atmosphere

In potentially explosive or flammable atmosphere, non-sparking tools and portable vapor-proof electric lighting not exceeding 12 volts must be used. Smoking, open flames, and cutting or welding will be prohibited.

12.3 Ventilation

If required, the area is to be thoroughly ventilated. Special care should be taken to ensure that circulated air will reach isolated pockets and prevent recirculating contaminated air. Provisions shall be made to provide for adequate fresh air during the entire time personnel are inside a confined space. Under some conditions, such as a tunnel or large diameter tank, a system of blowing and exhausting air is to be used.

The confined space shall be ventilated to prevent the accumulation of:

- Flammable vapors in the atmosphere above 10% of the LEL.
- Concentrations of combustible dust.
- Toxic and other contaminants.
- Oxygen excess or deficient atmospheres.

12.4 Air Supply

- **Level One:**

  If the integrity of the atmosphere in the confined space cannot be guaranteed, a primary breathing air supply is required. Approved breathing apparatus connected to this primary air supply through a manifold can be used. The use of a canister type mask, which operates on the principle of chemical absorption or mechanical filtration, shall not be used.

  Note: No less than 30 minutes of air will be permitted, and you must have 5 minutes of emergency breathing air. For this we would use either a SCBA with 30 minute tank or an airline type equipment with the 5 minutes of emergency air built in to the system on your side.

- **Level Two:**

  In those instances, in which the level of hazard is known and presents no exposure hazard for the personnel, AMPCO has the ability to use either air purifying or air supplied respiratory protection.

- **Level Three:**

  Supplied air equipment is not required. At such times a determination shall be made by qualified personnel as to the type of respiratory equipment to be utilized, i.e., half face or full face respirator and/or dust mask.

12.5 Special Tools

Special consideration must be given to tools that are to be used within a confined space. Some of these special considerations are as follows:

- Hand tools are to be of the spark-proof type and electrical power tools and equipment explosion proof where a possibility of flammable vapors or gasses exists.
- All portable electrical power tools and extension cords are to be grounded, in

good repair and protected by a ground-fault circuit interrupter. If a flammable atmosphere may be present, electrical equipment taken into the confined space must be explosion proof or be air operated.

- In lieu of ground-fault circuit interrupter protection, battery or transformer equipment operated at 12 volts or less may be used.
- A ladder may be used as a means of entering and exiting, provided it does not obstruct the opening. A hoist or other suitable means may be used with the proper approvals. A ladder is required in all confined spaces deeper than four feet. The ladder shall be secured, and not removed until all employees have exited the space.

12.6 Equipment For Confined Space Entry

Equipment for Confined Space Entry including personal protective equipment, such as coveralls, impervious gloves, boots, face and eye protection, etc., must be used as required by the nature of the operation to be performed.

Each worker inside a confined space with only an overhead means of egress must wear a safety harness with a life line attached. If needed, AMPCO can provide a fall arrester and retrieval system for vertical confined space entry work.

Under certain conditions, a lifeline shall be attached to either a harness or wristlets. The other end of the lifeline is to be securely anchored outside the confined space. In some cases, it is advisable to have a fall arrester on a tripod or fastened by other suitable means above the confined space.

12.7 Emergency Entry

In the event of a sudden life threatening or otherwise potentially dangerous situation requiring immediate action, which involves entry into a confined space as defined in this procedure, and in the absence of time to complete testing and ventilation procedures, the atmosphere will be considered as unsafe to enter without the use of an approved air-supplied breathing device.

SECTION 13 - RESCUE AND RETRIEVAL

13.1 Use of an Outside Service

Before you can choose a rescue service, whether it be a public safety service or the client’s rescue service, you must first evaluate the prospective service’s ability to respond in a timely manner based on the specific hazards associated with each entry.

Trained and fully equipped rescuers are now required to be standing by outside the

confined space for all entries with Immediately Dangerous to Life or Health (IDLH) atmosphere or that can quickly develop into an IDLH atmosphere, or if the rescue plan calls for "stand-by " rescuers. In all other entries, a response time of 10 to 15 minutes might be adequate.

Before choosing an outside service, you must also evaluate the qualifications of the service to function appropriately while rescuing entrants from the types of spaces identified. The appraisal must consider the state of training and the service's rescue equipment.

Another factor which must be taken into consideration before choosing an outside rescue service is whether or not they are capable of immediately responding to a request for service with both the required trained personnel and the proper equipment.

Before choosing an outside service, you must advise them of the type of hazards they may be exposed to during a rescue attempt and ascertain if they have any problems with responding to that type of condition.

13.2 Using "On-Site" AMPCO Personnel

If you plan to use your own workers for the rescue and retrieval process, should the need arise, there are several factors which you must take into consideration. For example, you must make certain that your "rescue team" has the necessary personal protective equipment needed to affect the rescue and that they have been thoroughly trained in the use of this equipment. The Company must provide this equipment and training at no cost to the employees.

In addition to being trained to use the proper personal protective equipment, these workers will also have to be trained (a) in their assigned rescue duties, (b) as Authorized Entrants, (c) in first aid, and (d) in CPR. Here again, all of this additional training can be at no cost to the employees.

Additional costs to the Company will be that of having their rescue teams practice simulated rescue operations either in the actual spaces or in representative type of spaces, and in the case of a stand-by requirement, having their rescue team just standing by at the entry point in the event they would be needed.

13.3 Initial Evaluation

It makes no difference whether or not an off-site rescue service is being considered or a team of Company employees, merely posting the service's telephone number or planning to rely on the 911 emergency telephone number to obtain those services at the time of a permit space emergency, will no longer comply with the OSHA Standards.

At the time the rescue and retrieval plan is put together, the Entry Supervisor must make an evaluation and determine whether or not the rescue service or team is capable of affecting the rescue. Answering the following questions may help in making this evaluation:

- What are the needs of the Company with regard to response time?
- How quickly can the rescue team or service get from its location to the permit space from which rescue may be necessary?
- What is the availability of the rescue service or team? Is it unavailable at certain times of the day or in certain situations? What is the likelihood that key personnel might be unavailable at times? Do they have additional responsibilities? Are they the designated rescue service for other entry teams?
- Does the rescue service or team meet all of the requirements for training, the necessary rescue equipment, and personal protective equipment that are called for in the Standard?
- In the case of an outside rescue service, are they willing to affect a rescue on-site?
- Does the rescue service or the rescue teams have adequate communications to enable them to receive a request for assistance without delay?
- Does the service or team have the necessary technical knowledge and equipment to perform rope work or elevated rescue if needed?
- Does the service or team have the necessary skills in medical evaluation, patient packaging and emergency response?

13.4 Performance Evaluation

In addition to the initial evaluation, the Standard also calls for the Entry Supervisor to make a performance evaluation before choosing a rescue service or team. Rescue services or teams are required, by law, to practice rescues at least once every twelve (12) months unless they have successfully performed a permit required confined space rescue within that time. As part of each practice session, a critique must be performed so that deficiencies in procedures, equipment, training, or number of personnel required can be identified and corrected. These critiques should be a very important part of your performance evaluation.

SECTION 14 - CERTIFICATION AND PERMITS

Prior to issuing the Confined Space Entry Permit, the owner or user of the confined space must furnish either a letter certifying that the vessel or space has been thoroughly cleaned and ventilated, or must furnish a Safety Data Sheet (SDS) for each of the chemicals which were recently used in the space or vessel.

The Confined Space Entry Permit will be valid for a single work shift only. On projects requiring more than a single work shift, a new permit shall be completed at the start of each shift. The permit shall be displayed at the project site. At the conclusion of the project, the confined space permit shall be copied and forwarded to the Health and Safety.

SECTION 15 - TRAINING

Each affected employee must be trained prior to his or her initial assignment, prior to a change in assigned duties, if a new hazard has been created, or if special deviations have occurred.

Affected employees must be trained in all aspects of the purpose and use of the Confined Space Entry Procedures. The employees must be trained in the use and purpose of all personal protective equipment. The training must include simulated emergencies during which respirators will be donned and rescue procedures practiced.

15.1 Documentation

The Company must certify that the required training has been accomplished. This certification shall include the employee's name, the signature of the trainer, and the dates of the training. This certification must be made available to the employees and their authorized representatives.

SECTION 16 - CONFINED SPACE ENTRY AND EXIT LOG

The Authorized Entrants within the permit space must be tracked by means of a roster that will enable the Safety Watch (Attendant) to determine quickly and accurately, for the duration of the Permit, which authorized entrants are inside the permit space. The Confined Space Entry and Exit Log satisfies this requirement.

The requirements for the Confined Space Entry and Exit Log are, that it:

- must be attached to the Confined Space Entry Permit;
- must continue to be a part of that Permit throughout the duration of the Permit;
- must identify the Safety Watch by name, and in the event the Safety Watch is relieved, must also identify the individual relieving the Safety Watch;
- must identify each entrant by name and social security number; and
- must continuously track each entrant by logging the Time In and Time Out.

SECTION 17 - EQUIPMENT FOR CONFINED SPACE ENTRY

A combination combustible gas/oxygen meter which samples for combustible vapors and oxygen deficiency simultaneously, is suggested. However, individual meters to sample for combustible atmospheres and oxygen deficiency may also be used.

Supplied-air breathing apparatus, such as a self-contained respirator with full facepiece operated in pressure demand mode (SCBA), or TYPE-C supplied-air respirator with full facepiece operated in pressure demand mode with an emergency backup SCBA or escape bottle operated in a pressure demand mode must be used in atmospheres immediately dangerous to life.

A supplied-air TYPE-C respirator, in either continuous flow or pressure demand mode may be used in areas which are not immediately hazardous to life and from which the wearer can readily escape.

Harness and Lifelines: Full body harness should be capable of retrieving an inert body in an upright position. A parachute-type harness with a single lifting ring attached to the upper back, or with duel lifting rings attached to the shoulder straps, is recommended for work in open areas. Where egress through narrow openings is necessary, wristlets with attached lifting rings may be required instead of a body harness. Sufficient lifelines of at least one-half inch manila must be provided to ensure constant connection between the worker in the confined space and the attendant outside.

When using an air compressor to supply breathing air to hose line supplied-air units, breathing air must be delivered through a filter board.

Ventilation: A portable blower with a minimum capacity of 600 cfm at 1.5 inches static pressure should be used to supply air and ventilate the enclosed space prior to and during occupancy. If the space is large enough, additional air volume may be required.

17.1 Maintenance of Equipment

A competent person must maintain and issue all self-contained and/or supplied-air breathing apparatus required by this procedure. A competent person must be responsible for issuing all entry permits. A competent person must maintain and ensure calibration of all combustible gas and oxygen analyzers which must be readily available for use as required.

SECTION 18 - PROGRAM EVALUATION

At the completion of each Permit Required Confined Space Entry operation, the entry team, which shall consist of the Entry Supervisor, the Outside Attendant, and a representative number of Authorized Entrants, shall critique the execution and performance of the entry to evaluate the program and its implementation. Review of confined space entries may be accomplished on a quarterly basis to satisfy an annual requirement of confined space entries conducted throughout the year. Items which should also be a part of this critique include:

- was the information on the permit complied with and were there hazards not covered by the permit?
- was the overall performance of the team in keeping with the program?
- was there any unauthorized entry, injuries, near misses or worker complaints?

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CONFINED SPACE ENTRY PERMIT

Job Site:				
Location/Description of Permit Space:			Job Number:	
Shift Supevisor:			Shift:	
Entry Authorized:	From:	To:	Date:	
Printed Name of Authorizing Entry Supervisor:				
Printed Name of Outside Attendant:				

TYPE OF ENTRY: (Permit Valid for One Shift Only)

☐ Entry With Special Precautions ☐ Entry With Restrictions ☐ Entry Without Restrictions

(If Entry With Special Precautions, must use full OSHA Permit Required Confined Space Entry Procedures)

PURPOSE OF ENTRY: _____

_____

_____

INITIAL ATMOSPHERIC TESTING: (Analysis and/or Sampling Equipment Used)

Type	Serial No.	Date Calibrated	By Whom

Known Hazards: _____

Pre-Entry Atmospheric Testing:	Findings		Time	Initials
• Oxygen Content	_____	%	_____	_____
• Flammable Gases and Vapors	_____	%	_____	_____
• Toxic Air Contaminant	_____	%	_____	_____

Is Continuous Atmospheric Testing Required? Yes ☐ No ☐

Is Periodic Atmospheric Testing Required? Yes ☐ No ☐ Intervals: _____

AUTHORIZATION:

☐ **ENTRY:** Entry is permitted on the date and time and for the duration specified above.

Signature of Authorizing Entry Supervisor: _____

☐ **CANCELLATION:** All entrants have excited the space and this Permit is cancelled.

Signature of Authorizing Entry Supervisor: _____

Describe problem(s) encountered during entry: _____

_____

Hot Work can be performed within this permit-required space: ☐ Yes ☐ No

Hot Work Permit Issued: ☐ Yes ☐ No Number: _____ Date: _____

Other Permits Issued: ☐ Yes ☐ No Type: _____

ATTACHMENTS: To be valid, Entry Permit must have following completed attachment(s):

Key Item Check List for Confined Space Entry	☐ Yes	☐ No
Confined Space Emergency Rescue and Retrieval Plan	☐ Yes	☐ No
Confined Space Entry and Exit Log(s)	☐ Yes	☐ No

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CONFINED SPACE ENTRY AND EXIT LOG

Each authorized entrant within the permit space must be tracked by means of this ENTRY AND EXIT LOG. This will enable the Safety Watch (Attendant) to determine quickly and accurately which authorized entrants are inside the permit space.

Job Site:				
Location/Description of Permit Space:			Job Number:	
Shift Supervisor:			Shift:	
Entry Authorized:	From:	To:	Date:	
Printed Name of Authorizing Entry Supervisor:				
Identity of Rescue and Retrieval Team:				

NAME OF ATTENDANT/SAFETY WATCH:

Name:		**Social Security No.:**		
	Time ON:	Time OFF:	Time ON:	Time OFF:
	Time ON:	Time OFF:	Time ON:	Time OFF:

NAME OF RELIEVING ATTENDANT/SAFETY WATCH:

Name:		**Social Security No.:**		
	Time ON:	Time OFF:	Time ON:	Time OFF:
	Time ON:	Time OFF:	Time ON:	Time OFF:

Name:		**Social Security No.:**		
	Time ON:	Time OFF:	Time ON:	Time OFF:
	Time ON:	Time OFF:	Time ON:	Time OFF:

NAME OF AUTHORIZED ENTRANT(S):

Name:		**Social Security No.:**		
	Time ON:	Time OFF:	Time ON:	Time OFF:
	Time ON:	Time OFF:	Time ON:	Time OFF:

Name:		**Social Security No.:**		
	Time ON:	Time OFF:	Time ON:	Time OFF:
	Time ON:	Time OFF:	Time ON:	Time OFF:

Name:		**Social Security No.:**		
	Time ON:	Time OFF:	Time ON:	Time OFF:
	Time ON:	Time OFF:	Time ON:	Time OFF:

Name:		**Social Security No.:**		
	Time ON:	Time OFF:	Time ON:	Time OFF:
	Time ON:	Time OFF:	Time ON:	Time OFF:

Attach as many Confined Space Entry and Exit Logs to the Confined Space Entry Permit as may be necessary to cover the duration of the Permit.

Procedure 8-1

KEY ITEM CHECK LIST FOR CONFINED SPACE ENTRY

Key Item	Yes	No
Confined Space Entry Program		
• Is a confined space entry program in affect?	☐	☐
• Have all procedures been reviewed and understood?	☐	☐
• Is it a permit required confined space, and if so, has a written permit been completed prior to entry?	☐	☐
• Have attendants been fully trained in their duties?	☐	☐
• Have entrants been fully trained in their assignment?	☐	☐
Isolation of Confined Space		
• Have Lock-Out &Tag-Out procedures been followed?	☐	☐
• Are all power sources “OFF” and locked out?	☐	☐
• Has all electrical equipment been bonded and ground?	☐	☐
• Has rotating equipment been locked-out or equivalent?	☐	☐
• Have all supply lines been broken and/or blanked 0ff?	☐	☐
• Have all drain valves been locked-open and tagged?	☐	☐
• Have all contents been removed and space flushed?	☐	☐
• Has area been barricaded and warning signs posted?	☐	☐
Atmosphere of Confined Space		
• Has confined space been purged?	☐	☐
• Have flanges/access doors been removed and/or manholes opened?	☐	☐
• Has continuous ventilation been provided?	☐	☐
• Oxygen level maintained over 19.5% and less than 23.5%?	☐	☐
• Is continuous air monitoring equipment in operation?	☐	☐
PPE and Safe Work Area		
• Have supplied-air, SCBA or other approved respirators been provided?	☐	☐
• Are full body harnesses with appropriate D-rings provided?	☐	☐
• Has all personal protective equipment been provided?	☐	☐
Rescue and Retrieval		
• Has a rescue and retrieval plan been prepared?	☐	☐
• Are trained personnel prepared to respond?	☐	☐
• Has rescue equipment been provided at entry point?	☐	☐
• Have alarms and communication devices been tested?	☐	☐
• Have emergency telephone numbers been posted?	☐	☐
• Is a copy of rescue and retrieval plan attached to permit?	☐	☐
• Are unauthorized personnel prevented from attempting rescue?	☐	☐

DRIVER SAFETY & COMPLIANCE

SECTION 1 - PURPOSE

To assist Branch Management in meeting the standards of the United States Department of Transportation, Federal Motor Carrier Safety Regulations 49 CFR and/or State and Local Regulations and AMPCO's Authorized Drivers program.

SECTION 2 - SCOPE

This section applies to all AMPCO operations and all subcontractors. These rules are applicable to all subsidiaries, employees, all company owned/leased motor vehicles including commercial motor vehicles which transport property or passengers in interstate or intrastate commerce.

Note: The same regulations pertaining to interstate commerce may also be applicable to intrastate transportation. A check of each individual state may be required. Refer to Appendix B.

SECTION 3 - POLICY

It is the policy of the AMPCO Corporation to voluntarily comply with all requirements and regulations of the Department of Transportation's (DOT) Federal Motor Carrier Safety Program.

3.1 No Texting While Driving Policy ("N.T.W.D.")

Due to data that communicating by "texting while driving" has been a significant cause of motor vehicle accidents and that "texting while driving" has become a motor vehicle violation in many states AMPCO has determined that for the safety of its employees and the general public the following AMPCO policy be adopted:

It is prohibited to write, send or read text-based communications on an electronic device such as a cell phone, blackberry, two way pager or other wireless type device while driving an AMPCO owned or leased motor vehicle or while operating motorized equipment.

Employees receiving car allowance for the use of their personal vehicles during company business are included and are expected to comply with AMPCO's N.T.W.D. policy.

AMPCO's "No Texting While Driving" policy applies regardless if the cell phone, blackberry, or two way pager is personal or company provided.

Violations of this policy will result in disciplinary action which can include the termination of employment, driving privileges, and/or car allowance.

3.2 Authorized Drivers (DOT and Non-DOT)

Prior to operating a company owned/leased motor vehicle or a private vehicle used to transport AMPCO employees or company owned/leased equipment the driver must be approved as an authorized driver by AMPCO's Safety Department.

Any employee found to be in violation of AMPCO's Authorized Driver policy or any supervisor allowing an un-authorized driver to operate a company owned/leased vehicle or private vehicle transporting employees and/or AMPCO owned/leased equipment will be subject to disciplinary actions up to and including termination.

In the event of an accident, the driver will be immediately suspended from driving privileges pending investigation and reinstatement by AMPCO's Safety department.

SECTION 4 - WHO MUST COMPLY

These rules are applicable to all AMPCO Branches / Subcontractors and each of their drivers who operate any company owned or leased vehicle, Commercial Motor Vehicle (CMV) and/or any operator of a motor vehicle who is required, by law, to have a Commercial Drivers License.

4.1 Exemptions

Drivers of Company vehicles which are not designated as Commercial Motor Vehicles (CMV) and who are not required to have Commercial Drivers Licenses (CDL) are not covered by the Federal Motor Carrier Safety Regulations. This includes drivers of company pickup trucks.

Review the definitions for a Commercial Motor Vehicle (CMV) and Commercial Drivers License (CDL) as defined in paragraph 5.0 of this section.

SECTION 5 - DEFINITIONS

The following is only a partial listing of definitions applicable to all drivers of commercial motor vehicles that have a gross vehicle weight rating 10,001 pounds or more.

- **Alcohol or Alcoholic Beverage** - means: (a) beer as defined in 26 U.S.C. 5052(a) of the Internal Revenue Code of 1954, (b) wine not less than one-half of one per centum of alcohol by volume, or (c) distilled spirits as defined in section 5002(a)(8) of such code.

- **Alcohol Concentration** - The concentration of alcohol in a person's blood or breath. When expressed as a percentage, it means grams of alcohol per 100 milliliters of blood or 100 milligrams of alcohol per 210 liters of breath.
- **Commercial Driver's License (CDL)** – An operator's license that is required to operate the following classes of commercial motor vehicles in either intrastate or interstate commerce:

  a. With a Gross Combination Weight Rating (GCWR) of 26,001 or more pounds, inclusive of towed unit with a Gross Vehicle Weight Rating (GVWR) of more than 10,000 pounds; or

  b. With a GVWR of 26,001 or more pounds; or

  c. Designed to carry 16 or more passengers, including the driver; or

  d. Any vehicle transporting a quantity of hazardous materials requiring placarding.

- **Commercial Motor Vehicle (CMV)** - Means a self-propelled or towed vehicle used on the highways in interstate commerce to transport passengers or property, if the vehicle:

  a. Has a Gross Vehicle Weight (GVW) of over 10,001 pounds;

  b. Is designed or used to transport more than 8 passengers, including the driver, for compensation;

  c. Is used in transporting material found to be hazardous under the Hazardous Materials Transportation Act and which require the motor vehicle to be placarded under the Hazardous Materials Regulations (49 CFR 172, Subpart F).

- **Company Vehicle** – Any motor vehicle owned, leased or rented by AMPCO or any of its Branches.

- **Controlled Substance** - has the meaning such term has under Section 102(6), of the Controlled Substances Act (21) U.S.C. 802(6) and includes all substances listed on schedules I through V, of 32 CFR 1308, as they may be revised from time to time.

- **Driver** - Any person or employee who operates a motor vehicle. This means any person who operates a commercial motor vehicle which includes, but is not limited to, full time regularly employed drivers, casual, multiple-employer driver or occasional drivers, leased drivers and independent owner-operated contractors who are either directly employed by or under lease to an employer or who operate a commercial motor vehicle the direction of or with the consent of the employer. For the purpose of pre-employment/pre-duty testing only, the term "driver" includes a person applying to AMPCO to drive a commercial motor vehicle.

- **Employee** – May be one or more of the following:

    a. Any driver of a commercial motor vehicle (including an independent contractor while in the course of operating a commercial motor vehicle) or any driver engaged in the operation of a vehicle for the purpose of interstate commerce;

    b. A mechanic;

    c. A freight handler or warehouse person;

    d. Any individual, other than an employee who in the course of his/her employment directly affects commercial motor vehicle safety. Such term does not include an employee of the United States, any State, any political subdivision of a state, or any agency established under a compact between States and approved by the Congress of the United States who is acting within the course of such employment.

- **Motor Carrier** - means a for-hire or private motor carrier. The term includes a motor carrier's agents, officers and representatives, as well as employees responsible for hiring, supervising, training, assigning, or dispatching of drivers and employees concerned with the installation, inspection and maintenance of motor vehicle equipment and/or accessories.

- **On-duty time** - means all time from the time the driver begins work or is required to be in readiness to work until the time he/she is relieved from work and all responsibility for work. "On duty time" shall include:

    a. All driving time;

    b. All time inspecting, servicing, conditioning any commercial motor vehicle at any time;

    c. All time loading or unloading a vehicle, assisting in the loading or unloading, attending a vehicle being loaded or unloaded, or remaining in readiness to operate the vehicle;

    d. All time spent performing the driver requirements relating to accidents;

    e. All time spent repairing, obtaining assistance, or remaining in attendance upon a disabled vehicle; and

    f. All time performing any other job, and being compensated for, such as truck maintenance, part time work, etc.

    Note: This also includes any time working for other employers.

- **Truck** - Any self-propelled vehicle, except a truck tractor, designed and/or used for transportation of property.

SECTION 6 - GENERAL

The purpose of the Federal Motor Carrier Regulations is to promote safety of operations on the nation's highways, not only for the general driving public but also for the carriers and their drivers. The use of qualified drivers to operate motor vehicles engaged in the transportation of property and passengers is one of the most important steps towards this goal.

6.1 Driver Qualifications - The qualifications prescribed for drivers subject to these regulations include those areas which have been found to have primary significance in providing safety conscious drivers for the motor carrier industry. The regulations specify that our drivers, in order to be qualified to drive a motor vehicle, must:

- Be at least 21 years old
- Be able to read and speak English sufficiently to converse with the general public, to understand highway traffic signs and signals that are in the English language, to respond to official inquiries, and to make entries on reports and records;
- Be able to, by reason of experience, training or both, safely operate the type of motor vehicle he or she will drive;
- Be physically qualified to drive a motor vehicle and be able to pass a DOT required physical examination in accordance with government regulation 49 CFR Sec. 391.41;
- Be able to successfully pass a substance abuse test as may be required by federal or state DOT;
- Be in possession of a current valid motor vehicle operator's license issued from a state or jurisdiction, have a satisfactory driving record, and if a CDL is required, be able to certify possession of only one license with the appropriate endorsement;
- Be able to furnish AMPCO with copies of motor vehicle driving records from all states in which the driver has held license(s) in the past three (3) years, to include a list of all motor vehicle violations or the certificate as required by 49 CFR Sec. 391.15. (If a CDL license is required, the driving history must cover ten (10) years); and
- Be able to successfully complete a driver's road test in the type of vehicle to be driven, or be able to present an operator's license or a certificate of road test which AMPCO will accept as equivalent to a road test. (Refer to Paragraph 9.1 of this section). If a driver's qualification certificate from a previous employer is

accepted, AMPCO must contact that employer to verify the validity of the certificate.

Note: There is a DOT requirement that an employer recall a qualification certificate if it learns that the driver is no longer qualified.

While AMPCO is responsible for complying with these requirements, AMPCO may use an agent, such as a leasing company, to perform certain required regulatory procedures. However, the overall responsibility for compliance with the regulations still rests with the Company.

Therefore, AMPCO personnel charged with the responsibility for administering our driver qualification program in each Branch must make certain each driver qualifies under each of the requirements listed above.

SECTION 7 - COMPANY RESPONSIBILITIES (DRIVING POSITION)

AMPCO is required by law to comply with the hiring practices for drivers as established by the Federal Motor Carrier Safety Regulations. These include the following:

- The Company will require all applicants for a driving position to complete a DOT approved Drivers Application for Employment form which contains additional information required by the DOT and not normally found on AMPCO's general application form.
- The Company must make an annual inquiry to the appropriate agency of every state in which the driver held a commercial motor vehicle operator's license or permit during the time period. A copy of the response from each agency must be kept in the driver's qualification file along with a note pertaining to the annual review of the driving record.
- Conduct an investigation into the applicant's past employment record by utilizing personal interviews, telephone interviews, letters, or any other method of obtaining information. Responses to these investigations must be in writing and made a part of the applicant's qualification file. Past three (3) years are necessary for a general driver and past ten (10) years for a commercial driver.
- The Company will conduct inquiries of the applicant's past driving record in every state in which the applicant held a drivers license or permit. Responses to these inquiries must be in writing and made a part of the applicant's qualification file. Past three (3) years are necessary for a general driver and past ten (10) years for a commercial driver.
- The Company will not hire anyone for a driving position who has an unsatisfactory driving record nor will the Company require or permit an employee to operate a company motor vehicle unless that individual is qualified to operate that vehicle.
- The Company is required, in the case of those applicants applying for a commercial driver's license, to ensure that the applicants undergo drug and alcohol testing prior to employment.

- The Company will conduct a six month review of the driving record of each driver it employs to determine whether that driver meets the minimum requirements for safe driving or if the driver should be disqualified from operating a motor vehicle.

7.1 Unsatisfactory Driving Record

The following can be used to determine if a driver has an unsatisfactory motor vehicle driving record (MVR):

- **For New Hires (Driving Positions)**

  The applicant should not be hired for a driving position if his/her driving record contains the following:

  a. Any record of a DUI/DWI/OUI alcohol or drug-related driving offense within the past three (3) years; or
  b. Any three (3) moving violations and/or preventable accidents within a 24-month period.

- **Existing Employees (Driving Positions)**

  Should it come to the attention of AMPCO that an existing employee, whose position requires driving a Company vehicle, is the recipient of any of the following violations, then appropriate disciplinary action must be taken:

  a. Any two (2) moving violations and/or preventable accidents within the past twelve (12) months mandates the disciplinary action of removing the employee from driving any Company vehicle.
  b. Any three (3) moving violations and/or preventable accidents within the past twenty-four (24) months requires disciplinary action to include a written warning, three (3) days probation and driver retraining.
  c. Any Driving While Under the Influence (DUI), Driving While Intoxicated (DWI), or Operating Under the Influence (OUI) of alcohol, or any drug-related driving offense, within the past twelve (12) months requires the immediate disciplinary action of removing the employee from a driving position for a period of at least one (1) year following the conviction, and if the offense is considered serious enough, termination of employment may be warranted.
  d. Any preventable motor vehicle accident within the past twelve (12) months while operating a Company motor vehicle resulting in either personal injury or property damage requires disciplinary action of

removing the employee from a driving position, and if the offense is considered serious enough, termination of employment may be warranted.

e. Gross misconduct as defined in AMPCO disciplinary policy and/or safety rules & regulations requires disciplinary action of removing the employee from a driving position, and if the offense is considered serious enough, termination of employment may be warranted.

SECTION 8 - DRIVER RESPONSIBILITIES

Each employee of AMPCO, whose duties normally include those of a "driver", must comply with the following requirements:

- Drivers who are required to have a Commercial Driver's License (CDL) must use a Notification of Conviction or Violation form to furnish the Company and the state in which their driver's license was issued, a list of all violations of state or local laws relating to motor vehicle traffic control, other than parking, of which the driver has been convicted or has forfeited bond or collateral, regardless of whether the violation occurred in a company or privately owned vehicle, within thirty (30) days of the conviction.

- All drivers must report either a suspension or revocation immediately in writing to their Supervisor.

  a. Immediately is defined, as the day the driver becomes aware of or is notified of the suspension or revocation.

  b. All drivers that have received a court ordered suspension or revocation where the court grants to, from and while at work, will not be allowed to operate a Company vehicle. AMPCO will not assure the liability for a driver with limited driving privileges (e.g., day license).

- All drivers must immediately report to the AMPCO Corporate Safety Office at (000-000-0000), whenever any state or federal Department of Transportation personnel stop them for the purpose of conducting a roadside inspection. Drivers must also make copies of any inspection forms given to them as a result of these roadside inspections and are to immediately forward these copies to Health and Safety.

  a. Be able to, by reason of experience, training or both, determine if the cargo being transported has been properly located, distributed, and secured in or on the motor vehicle being driven;
  b. Be familiar with the methods and procedures for securing cargo in or on the motor vehicle being driven;

SECTION 9 - EXAMINATIONS AND TESTS

9.1 Road Test

No employee will drive a Company vehicle unless he/she has successfully completed a road test on equipment similar to that which he/she has been hired to operate and has been issued a certificate indicating completion of such a test. The test must be given by a person who is competent to evaluate and determine whether the person who takes the test has demonstrated he/she is qualified to operate the vehicle.

The road test must include, at a minimum, at least the following:

- A Pre-Trip Inspection of the vehicle;
- Coupling and uncoupling of combination units, if required;
- Placing the vehicle in operation;
- Use of the vehicle's controls and emergency equipment;
- Operating the vehicle in traffic;
- Turning the vehicle;
- Braking and slowing the vehicle by means other than using the brakes; and
- Backing and parking the vehicle.

Although it is not usually recommended, the road test may not be required, if the Company accepts a valid Commercial Driver's License issued by a state for operation of a similar vehicle, as equivalent to the road test. However, a non-Commercial Driver's License is not considered the equivalent of a road test.

9.2 Written Examination

The Company is no longer required to provide the applicant with a written examination. Applicants for a Commercial Driver's License will be required to complete a written examination provided by the licensing agency.

9.3 Medical Examination

No employee of AMPCO may drive a Company vehicle unless he/she has physically qualified to do so as evidenced by successfully completing a medical examination as prescribed by the Department of Transportation.

Drivers are required to undergo this medical examination every two years unless directed by a physician to do so more frequently. The medical examination must be performed by a licensed health care professional.

Upon the successful completion of the medical examination, the driver must be issued a Medical Examiner's Certificate attesting to this. Department of Transportation regulations require the driver to have either the original of this certificate or a photographic copy of the certificate on his or her person while operating a motor vehicle.

9.4 Alcohol and Drug Test (Refer to Section 12-2 of this Corporate Safety Manual)

All drivers having a Commercial Driver's License (CDL) are required to take a pre-employment alcohol and drug test to determine that the driver does not have a current clinical diagnosis of alcoholism or a dependency on any drugs not prescribed by a licensed medical practitioner. CDL drivers are also required to undergo random drug testing during their period of employment.

SECTION 10 - DRIVER'S DAILY LOG

Normally, drivers operating a Commercial Motor Vehicle (CMV) must record in a Driver's Daily Log Book, their hours of service in order to comply with the requirements set forth in the Federal Motor Carrier Safety Regulations 49 CFR 395;

10.1 Exempt Drivers

General driving personnel employed by AMPCO are exempted from this requirement, as long as they fall within the following categories:

- The driver operates within a 100 mile-radius of his or her normal work reporting location;
- The driver, except a driver salesperson, returns to his/her work reporting location and is released from work within twelve (12) consecutive hours;
- The driver has at least eight (8) consecutive hours off work separating each twelve (12) hours on duty;
- The driver does not exceed ten (10) hours maximum driving time following eight (8) consecutive hours off duty or sixty (60) hours on duty time in any seven (7) day period; and
- The Office that employs the driver must maintain for a period of six (6) months, accurate and true time records showing:

    a. The time the driver reports for duty each day;

b. The total number of hours the driver is on duty each day;

c. The time the driver is released from duty each day; and

d. The total time for the preceding 7 days in accordance with 395.8(j)(2) for drivers used for the first time or intermittently (Exhibit 4).

10.2 Non-Exempt Drivers

Should a driver's day, trip, etc., make him or her ineligible for the above exemption, then the driver will be required to complete the Driver's Daily Log Book and carry the past seven (7) days of his/her hours of service record of duty status.

- AMPCO requires each of its non-exempt drivers to record their duty status for each 24-hour period using the methods prescribed in the Driver's Daily Log by the Department of Transportation.

- Each non-exempt driver who operates a commercial motor vehicle is required to record his/her duty status, in duplicate, for each 24-hour period. The duty status must be recorded on the specified grid of the Driver's Daily Log.

- The duty status shall be recorded as follows:

  - "Off duty" or "OFF"
  - "Driving "or "D"
  - "On-duty not driving" or "ON"

  For each change of duty status, (e.g., the place of reporting for work, starting to drive, on-duty not driving, and where released from work), the name of the city, town, or village, with state abbreviation, shall be recorded.

  The driver's activities and the following information must be included on the form in addition to the grid:

  - Date;
  - Total miles driving today;
  - Truck or tractor and trailer number;
  - Name of Motor Carrier;
  - Driver's signature/certification;
  - 24- hour period starting time;
  - Main office address;
  - Remarks;
  - Total hours (far right edge of grid); and

- Shipping document number(s), or name of shipper and commodity.

Entries must be current and can only be made by the driver. Failure to complete the record of duty activities of his section or failure to preserve a record of such duty activities, or making false reports in connection with such duty activities will make the driver and/or AMPCO liable to prosecution.

SECTION 11 - TRIP INSPECTIONS AND EMERGENCY EQUIPMENT

All drivers must comply with the inspection requirements of the Federal Motor Carrier Safety regulations 49 CFR 396.11 and 396.13. Specifically this means, at a minimum, performing a Pre-Trip and Post-Trip Inspection each day.

11.1 Pre-Trip Inspection

The driver must make a Pre-Trip Inspection of the vehicle in order to be assured that the following items are safe and in good working order:

- Service brakes, including trailer brake connections
- Parking brake
- Steering mechanism
- Lighting devices and reflectors
- Tires
- Horn
- Windshield wipers
- Rear vision mirrors
- Coupling devices

After performing the Pre-Trip Inspection, the driver completes a Driver's Vehicle Inspection Report form. A copy of the last driver vehicle inspection report form is no longer required to be carried in the truck since it is not considered a primary factor in a decision to conduct a roadside inspection.

11.2 Post-Trip Inspection

After completing the trip, the driver is again required to conduct an inspection of the vehicle, entering the Post-Trip Inspection results onto a Driver's Vehicle Inspection Report form. This report must be in writing and must be retained for a minimum of ninety (90) days. A copy of the previous day's Post-Trip Inspection form must be carried in the motor vehicle.

11.3 Emergency Equipment

The driver is responsible for satisfying himself or herself that specified CMV parts, accessories and emergency equipment are in good working order, and that it is his/her responsibility to use this equipment as needed.

SECTION 12 - ANNUAL INSPECTION REQUIREMENTS

The Department of Transportation (DOT) requires AMPCO to inspect each of its commercial motor vehicles, those over 10,000 pounds gross vehicle weight, on at least an annual basis in compliance with 49 CFR 396.

All Company vehicles, which are over 10,000 pounds gross vehicle weight, must meet the requirements of the Federal Motor Carrier Safety Regulations parts 49 CFR 390.21 and 393.

SECTION 13 - MARKING OF COMMERCIAL MOTOR VEHICLES

Every Company owned, leased or rented commercial motor vehicle, which is a self-propelled motor vehicle over 10,000 pounds gross vehicle weight, operated in interstate commerce and subject to the Department of Transportation's Motor Carrier Safety Regulations, must be marked in such a manner as to display the following information:

The name or trade name of AMPCO operating the self-propelled motor vehicle;

The city or community and state (name abbreviated), in which AMPCO maintains its principal place of business or in which the vehicle is customarily based; and

AMPCO's motor carrier identification number, if issued by the FHWA, preceded by the letters "USDOT".

13.1 Size, Shape, Location, and Color of Marking

The size, shape, location and color of the marking must be as follows:

- Appear on both sides of the motor vehicle;
- Be in letters that contrast sharply in color with the background on which the letters appear;
- Be readily legible, during daylight hours, from a distance of 50 feet while the vehicle is stationary; and
- Be kept and maintained in a manner as to remain legible.

Assigned DOT Numbers

The following DOT numbers have been assigned to AMPCO by the U.S. Department of Transportation:

AMPCO - CA	
AMPCO	
AMPCO	
AMPCO	
AMPCO	
AMPCO	
AMPCO	
AMPCO	
AMPCO	
AMPCO	

SECTION 14 - ACCIDENTS

An accident is when there is an occurrence involving a Company motor vehicle which weighs over 10,000 pounds gross vehicle weight that is operating on a public road which results in one or more of the following:

- A fatality;
- Bodily injury to a person who, as a result of the injury, immediately receives medical treatment away from the scene of the accident; or
- One or more motor vehicles incurring disabling damage as a result of the accident, requiring the vehicle to be transported from the scene by a tow truck or other means.

14.1 Accident Reporting and Recordkeeping

Upon being notified of an accident, AMPCO must complete an accident register which shall contain at least the following information:

- Date of accident;
- City or town in which or most near the accident occurred and the state the accident occurred in;
- Driver name;
- Number of injuries;
- Number of fatalities; and
- Whether hazardous materials, other than fuel spilled from the fuel tanks of vehicles involved in the accident, were released.

Copies of these accident reports that are required by the state, other governmental entities or insurers must be filed, as required.

AMPCO is required to maintain copies of these accident reports for a period of at least one year following the date of the accident.

SECTION 15 - RECORDS AND RETENTION

The following records and their respective retention periods are a requirement of the Department of Transportation:

15.1 Record of Duty Status (logbook)

The Driver's Record of Duty Status for each calendar month must be maintained at the driver's Branch and must be retained for a period of two (2) years following the driver's last day of employment. These records must be made available at "the employer's principal place of business" within two (2) business days after a request is made by the Federal Highway Administration. The driver shall retain a copy of each Record of Duty Status for the previous seven consecutive days which shall be in his/her possession and available for inspection while on duty.

15.2 Driver Qualification Files

The driver's qualification files must be maintained at the driver's Branch and must be retained for a period of two (2) years following the driver's last day of employment. These records must be made available at "the employer's principal place of business" within two (2) business days after a request is made by the Federal Highway Administration.

15.3 Driver Daily Inspections

The original of the driver's daily inspection report and the certification of repairs for at least the past three (3) months must be maintained at the location in which the vehicle is garaged.

15.4 Vehicle Maintenance Records

Vehicle maintenance records must be retained for a period of one (1) year. These records must also be retained for the six (6) month period following the termination of the vehicle from AMPCO's control.

SECTION 16 - ADVERSE CONDITIONS

Each Office having drivers that qualify under this section, are required to develop their own safety policies and procedures for operating a commercial motor vehicle when adverse environmental conditions limit visibility or reduce traction.

SECTION 17 - DOT REGULATIONS

The complete text for the DOT regulations can be found in the Federal Motor Carrier Safety Regulations Handbook. Driver qualification files with required forms, driver vehicle inspection reports, daily logbooks, etc. are available from various organizations such as the American Trucking Association at 781-270-6880 or the J.J. Keller & Associates at 800-558-5011.

ELECTRICAL & GROUND FAULT PROTECTION

SECTION 1 - PURPOSE

To clarify requirements for assuring electrical safety and ground fault protection company wide.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

Only qualified personnel will be allowed to perform any type of electrical work.

Any electrical work accomplished by AMPCO will be in accordance with the National Electrical Code (NEC), unless otherwise provided by OSHA regulations.

No employee will be permitted to work in any area, in such proximity to any part of an electric power circuit that he/she may contact same in the course of this work, unless the employee is protected against electric shock by de-energizing the circuit and grounding it or by guarding it effectively by insulation or other means.

SECTION 4 - GENERAL

It takes very little electric current to kill, less than one-tenth of an ampere. With good contact, 115 volts is more than sufficient voltage to cause death. There have been fatal electrical shocks where voltage as low as 60 to 70 volts was involved.

Temporary electrical distribution systems used on AMPCO projects must be designed and installed to provide adequate power for maximum anticipated loads as well as positive electrical protection for the workers. Consideration must be given to provide sufficient lighting and sufficient power to run all electrical equipment required on the project from Ground-Fault Circuit Breaker panels or through systems utilizing Ground-Fault Circuit Interrupters.

SECTION 5 - TRAINING

The training requirements contained in this section apply to employees who face a risk of electrical shock that is not reduced to a safe level. For purposes of this section, employees are divided into two categories, unqualified and qualified.

5.1 Unqualified Employees

Unqualified employees are employees who, because of a lack of sufficient training or experience, are not permitted to work on or near exposed energized parts or equipment. These employees will be trained in and be familiar with all electrically related safety practices.

5.2 Qualified Employees

Qualified employees are employees who, due to either their training or experience, are permitted to work on or near exposed energized parts or equipment. These employees will be trained in safety related work practices that pertain to their respective job assignments, skills and techniques to distinguish live parts and the normal voltage of exposed live parts, and clearance distances.

SECTION 6 - APPROVAL

All electrical equipment used by AMPCO will be UL approved equipment.

SECTION 7 - ELECTRICAL CORD SETS

Electric cord sets passing through work areas will be covered or elevated, whenever feasible, to protect them from damage which could create a hazard to employees.

7.1 Power Cords For AFD'S

Electrical cord sets used with Negative Air Handling Units (AFD's) must not be smaller than 10-3. Pig-tail units are not to be used with AFD's and extension cords. An appropriate 10-3 power cord, with the correct type of plug on each end, must be the only cord used to power these units. Inferior type cords or smaller size cords, when used with the AFD, have the potential to cause a fire and must not be used.

7.2 Extension Cords

Extension cords used with portable tools must be the 3-wire type, no smaller than 12-3. They will be protected from damage and will not be fastened with staples, hung from nails, or suspended from wires. Extension cords must be inspected frequently and all cords found to be worn or frayed, to have cuts in the insulation repaired with tape, to have splices which have not been made with soldered wire connections and insulation equal to the cable, to have insulation pulled back away from the plug or receptacle or which have the grounding lug removed, must be taken out of service immediately and either destroyed or tagged out for repair.

7.3 Temporary Light Strings

Temporary lights must be equipped with heavy duty electric cords with connections and insulation maintained in safe condition. Except where bulbs are deeply recessed in the reflector, all bulbs on temporary light strings must be equipped with appropriate guards. Temporary light strings must not be suspended from their electric cords unless they are designed for this type of suspension. Splices must have insulation equal to that of the cable. Temporary electric lights used in drums, tanks and vessels must be operated at a maximum of 12 volts. Light strings should be elevated to a height where they are not in the way of moving traffic.

7.4 Attachment Plugs

All receptacles and attachment plugs will be of the approved concealed contact type. Where different voltages or types of current are supplied, receptacles and attachment plugs will be of the design that prevents interchanging attachment plugs. Pig-tail units must not be used in lieu of the correct receptacle or attachment plug. "Cheater" plugs are not allowed. Any grounded plug that has had the grounding terminal pulled or ripped off must be taken out of service immediately.

SECTION 8 - INSULATION

A daily inspection of the insulation on electric cords must be conducted in order to determine if the insulation is either worn or frayed. Worn or frayed electric cords or cables must be replaced immediately.

SECTION 9 - GUARDING

All live parts of electrical equipment, operating at 50 volts or more, must be guarded against accidental contact. Entrance to rooms containing exposed live electrical parts must be marked with conspicuous warning signs. Guarding of electrical parts can be accomplished by the following:

- **Enclosure** - place the electrical equipment inside an enclosed area where no one can come in contact with it;
- **Partitioning** - partition off the electrical equipment so that no one can come in contact with it;
- **Location** - locate the electrical equipment in an out-of-the-way location where no one can come in contact with it; or
- **Elevation** - elevate the electrical equipment high enough so that no one can come in contact with it.

SECTION 10 - OVERCURRENT

Make certain the electrical equipment has over-current protection that will protect the worker against shock by interruption of the current and that this over-current protection is easily accessible.

SECTION 11 - GROUNDING

Grounding of equipment is required when connecting by cord or plug. Exposed non-current carrying metal parts of cord and plug connected equipment that may become energized must be grounded in all situations. Portable tools protected by an approved system of double insulation, or its equivalent, need not be grounded.

In lieu of using permanent wiring on a construction job, the use of either Ground Fault Circuit Interrupters (GFCI) or an Assured Equipment Grounding Conductor Program (AEGCP) is required to protect employees working on construction sites and using temporary wiring. These requirements are in addition to any other requirements for equipment grounding conductors.

Note: Remember, once an extension cord is used between the electrical appliance and the building outlet, the appliance is no longer considered to be on the building's permanent wiring and is now judged to be on temporary wiring.

SECTION 12 - PROTECTION OF WORKERS

We must not allow an employee to work near any electric power circuit that the employee could contact in the course of work unless that employee is protected against shock by:

- de-energizing the circuit;
- grounding the circuit;
- identifying where any exposed or concealed energized power circuit is located; and
- notifying the employee of such hazards and of the protective measures being taken.

12.1 Passageways and Open Spaces

We must ensure that our employees do not have to use passageways when energized parts

of electrical equipment are exposed. Walkways and similar working spaces must be kept clear of electric cords.

12.2 Overhead Lines

When working under overhead power lines is necessary, efforts should be made to both

de-energize and ground the overhead lines or to provide other protective measures before work is started.

12.3 Illumination of Work Area

Employees should not be allowed to enter spaces containing exposed energized parts, unless adequate illumination is provided that will enable the employees to work safely.

12.4 Clearance Distances

Employees should be advised of safe approach distances before being allowed to work in the vicinity of live electrical circuits and of safe clearance distances before being allowed to operate vehicles or mechanical equipment in the vicinity of live circuits. The use of a spotter shall ensure vehicular and mechanical equipment shall be operated so that a clearance of 10’ feet is maintained from energized overhead lines.

When an unqualified person is working in an elevated position near overhead lines, the location shall be such that the person and the longest conductive object he or she may contact cannot come closer to any unguarded, energized overhead line than the following distances:

- For voltages to ground 50kV or below - 10 feet (305 cm);
- For voltages to ground over 50kV - 10 feet (305 cm) plus 4 inches (10 cm) for every 10kV over 50kV.

When a qualified person is working in the vicinity of overhead lines, whether in an elevated position or on the ground, the person may not approach or take any conductive object without an approved insulating handle closer to exposed energized parts than shown in the table below:

Voltage range (phase to phase)	Minimum approach distance
300V and less	Avoid Contact
Over 300V, not over 750V	1 ft. 0 in. (30.5 cm).
Over 750V, not over 2kV	1 ft. 6 in. (46 cm).
Over 2kV, not over 15kV	2 ft. 0 in. (61 cm).
Over 15kV, not over 37kV	3 ft. 0 in. (91 cm).
Over 37kV, not over 87.5kV	3 ft. 6 in. (107 cm).
Over 87.5kV, not over 121kV	4 ft. 0 in. (122 cm).
Over 121kV, not over 140kV	4 ft. 6 in. (137 cm).

12.5 Lock-Out and Tag-Out

Equipment or controls that have been de-energized must be rendered inoperative and have locks and/or tags attached at all points where such equipment or circuits can be energized, see Section 8-1 of this Manual.

12.6 Splices

Electric conductors can be spliced or joined only under the following conditions:

- using a splicing device which has been designed solely for this purpose;
- brazing, welding or soldering the conductors with a fusible metal or alloy; and
- covering splices with an insulation equivalent to that of the rest of the conductor.

SECTION 13 – GROUND FAULT CIRCUIT INTERRUPTER (GFCI) PROGRAM

A protection program wherein all 120 volt, single-phase, 15 and 20 ampere receptacle outlets on construction sites, which are not a part of the permanent wiring of the building or structure and which are in use by employees, must have either an approved Ground Fault Circuit Interrupter (GFCI) or an approved Ground Fault Circuit Breaker to provide protection for those employees. Since extension cords are considered temporary wiring, they must only be used with ground fault circuit protection.

13.1 Competent Person

A competent person(s) should be designated to oversee and implement this program.

13.2 Asbestos Work Areas

All receptacle outlets used by employees within an asbestos removal area, where wetness and dampness are a necessary part of the removal process, must be protected by either a portable GFCI or a Ground Fault Circuit Breaker panel, regardless of whether or not these receptacle outlets are a part of the permanent building wiring.

SECTION 14 - ASSURED EQUIPMENT GROUNDING CONDUCTOR PROGRAM

Each unit working on a construction site, where electric cord sets, extension cords or receptacle outlets are not a part of the permanent building or structure wiring, and where GFCI's are not in use, must have an Assured Equipment Grounding Conductor Program (AEGCP). The program

must include each of the above items, as well as any equipment that is connected by cord and plug, which is either available for use or is being used by employees. Required by 29 CFR 1926.400.

The AEGCP must have the following at a minimum requirement of the program:

- A written description of the program;
- A competent person(s) designated to implement the program;
- A daily inspection of all cord sets, attachment caps, plugs and receptacles of cord sets, and any equipment connected by cord and plug, to determine external defects, deformed or missing parts, insulation damage, or indication of internal damage, any of which requires that the damaged or defective equipment not be used until it is appropriately repaired.

14.1 Testing

The following tests must be performed on all cord sets, receptacles which are not a part of the permanent wiring of the building or structure, and cord and plug connected equipment required to be grounded:

a. All equipment grounding conductors must be tested for continuity and must be electrically continuous.

b. Each receptacle and attachment cap or plug must be tested for the correct attachment of the equipment grounding conductor, and the equipment grounding conductor must be connected to its proper terminal.

c. Each of the above tests must be conducted:

- before each use;
- before equipment is returned to service, following repairs;
- if there is reason to believe the equipment may have been damaged (for example, if an extension cord has been run over by a truck); and
- at intervals not to exceed three (3) months.

14.2 Recordkeeping

The test must be recorded. The test record must identify each cord set, receptacle and cord and plug connected equipment that passed the test, and should indicate the interval for which it was tested. This record must be made available on the jobsite for inspection.

14.3 Exemption

Unless required by the contract, the use of an Assured Equipment Grounding Conductor Program is exempted when all temporary wiring and equipment is protected by a properly operating and tested GFCI system.

SECTION 15 - UNKNOWN ELECTRICAL HAZARDS

In order to protect our employees from unknown electrical hazards, and to comply with 29 CFR 1926.416, it will be the responsibility of each supervisor assigned to an AMPCO project to ascertain if there are any live parts of electrical equipment or ungrounded voltage carrying wires which our personnel could accidentally come in contact with. Should this condition be shown to exist, appropriate protective measures must be taken prior to allowing our personnel to begin work. In order to protect our personnel from these hazards, the following actions must be taken:

- Before work is begun, the supervisor must ascertain by inquiry, direct observation, or by electronic instruments, such as the Tick-Tracer, whether any part of an electrical power circuit, exposed or concealed, is so located that the performance of the work may bring any person, tool or machine into physical or electrical contact with the power circuit. The supervisor must post and maintain appropriate warning signs where such a hazard exists. He must advise all personnel of the location and extent of the hazards involved and of the protection measures to be taken.

  Personnel who are required to work in the vicinity of such hazards will be allowed to do so only after adequate protection measures have been taken and while they are under the direct visual observation and control of an experienced supervisor.

- Equipment or circuits that are de-energized must be rendered inoperative and have locks and/or tags at all points where such equipment or circuits can be energized. Controls that are to be deactivated during the course of the work in energized or de-energized equipment or circuits must be locked and/or tagged out. Tags must be placed to clearly identify the equipment or circuits being worked on. (Refer to Section 8-12, Lock Out/Tag Out Procedures).

  Conductors and parts of electric equipment that have been de-energized but have not been locked out or tagged shall be treated as energized parts

- With the possible exception of portable tools and appliances which are protected by an approved system of double insulation, all non-current carrying metal parts of portable and/or plug connected equipment must be adequately grounded.

- All exposed non-current carrying metal parts of fixed electrical equipment, including

motors, generators, frames and tracks of electrically operated cranes, electrically driven machinery, etc., must have effective grounding.

- Every reasonable precaution must be taken to ensure that any necessary open wiring is inaccessible to unauthorized personnel.

- Light bulbs in permanent sockets must have appropriate guards or be covered by a plastic globe. This is to prevent breaking the bulb and exposing an electrical hazard, as well as to prevent breaking a glass globe and presenting the danger of a cutting hazard.

  Portable ladders shall have nonconductive side rails if they are used where the employee or the ladder could contact exposed energized parts.

  Conductive articles of jewelry and clothing (such a watch bands, bracelets, rings, key chains, necklaces, metalized aprons, cloth with conductive thread, or metal headgear) may not be worn if they might contact exposed energized parts. However, such articles may be worn if they are rendered nonconductive by covering, wrapping, or other insulating means.

- Whenever any situation is detected in which the potential for an electrical hazard is either thought or known to be present, it is the responsibility of the individual recognizing this potential hazard to immediately advise a supervisor of the situation. The supervisor, in turn and without delay, must take the necessary steps to ensure that all personnel in the immediate vicinity of the hazard are quickly vacated and that, if warranted, suitable barricades are erected to prevent contact. The supervisor must then contact the first available Health and Safety and advise him/her of the situation.

Arc Welding and Cutting

(a) Where the work permits, the welder shall be enclosed in an individual booth painted with a finish of low reflectivity, such as zinc oxide and lamp black, or shall be enclosed with noncombustible screens having a similar low reflectivity finish. Booths and screens shall permit circulation of air at floor level. Workers or other persons adjacent to the welding areas shall be protected from the rays by noncombustible or flameproof screens or shields or shall be required to wear appropriate goggles.

(b) Welding machines shall be left on the outside of a confined space and heavy portable equipment shall be blocked to prevent accidental movement.

(c) When operations are suspended for any substantial period of time, such as during lunch or overnight, welding machines shall be shut off at some point outside the confined space. Where practicable, the electrodes and electrode holders shall be removed from the confined space. All electrodes shall be removed from the holders and the holders carefully located to prevent

accidental contact. Upon completion or discontinuance of welding operations, the welder shall provide some means of warning other workers of the location of hot metal.

Manual Electrode Holders

(1) The employer shall ensure that only manual electrode holders intended for arc welding and cutting and capable of handling the maximum current required for such welding or cutting shall be used.

(2) Current-carrying parts passing through those portions of the holder gripped by the user and through the outer surfaces of the jaws of the holder shall be insulated against the maximum voltage to ground.

Welding Cables and Connectors

(1) Arc welding and cutting cables shall be insulated, flexible and capable of handling the maximum current required by the operations, taking into account the duty cycles.

(2) Only cable free from repair or splice for 10 feet (3 m) from the electrode holder shall be used unless insulated connectors or splices with insulating quality equal to that of the cable are provided.

(3) When a cable other than the lead mentioned in Subsection (e)(2) wears and exposes bare conductors, the portion exposed shall not be used until it is protected by insulation equivalent in performance capacity to the original.

(4) Insulated connectors of equivalent capacity shall be used for connecting or splicing cable. Cable lugs, where used as connectors, shall provide electrical contact. Exposed metal parts shall be insulated.

Ground Returns and Machine Grounding

(1) Ground return cables shall have current-carrying capacity equal to or exceeding the total maximum output capacities of the welding or cutting units served.

(2) Structures or pipelines, other than those containing gases or flammable liquids or conduits containing electrical circuits, may be used in the ground return circuit if their current-carrying capacity equals or exceeds the total maximum output capacities of the welding or cutting units served.

(3) Structures or pipelines forming a temporary ground return circuit shall have electrical contact at all joints. Arcs, sparks or heat at any point in the circuit shall cause rejection as a ground circuit.

(4) Structures or pipelines acting continuously as ground return circuits shall have joints bonded and maintained to ensure that no electrolysis or fire hazard exists.

(5) Arc welding and cutting machine frames shall be grounded, either through a third wire in the cable containing the circuit conductor or through a separate wire at the source of the current. Grounding circuits shall have resistance low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.

(6) Ground connections shall be mechanically and electrically adequate to carry the current.

(g) When electrode holders are left unattended, electrodes shall be removed and holders placed to prevent employee injury.

(h) Hot electrode holders shall not be dipped in water.

(i) The employer shall ensure that when arc welders or cutters leave or stop work or when machines are moved, the power supply switch shall be kept in the off position.

(j) Arc welding or cutting equipment having a functional defect shall not be used.

(k) The control apparatus of arc welding machines shall be enclosed except for operating wheels, levers, and handles.

(l) Input power terminals, top change devices and live metal parts connected to input circuits shall be enclosed and accessible only by means of insulated tools.

(m) When arc welding is performed in wet or high humidity conditions, employees shall use additional protection, such as rubber pads or boots, against electric shock.

Resistance Welding

(a) All suspended portable welding gun equipment, with the exception of the gun assembly, shall be equipped with a support system capable of supporting the total shock load in the event of failure of any component of the supporting system.

NOTE: The system should be designed to be fail-safe. The use of devices such as secondary cables, chains, clamps, etc., is considered satisfactory.

(b) Where it enters the gun frame, the movable holder mechanism shall be designed so as to present no shear points to the fingers placed on the operating movable holder; otherwise, guarding shall be provided.

(c) One or more safety emergency stop buttons shall be provided on all multi-spot welding machines, with a minimum of one stop button at each operator's position.

(d) Periodic inspection of resistance welding equipment shall be made by qualified personnel and a certification record maintained. The certification record shall include the date of the inspection, the signature of the person who performed the inspection, and the serial number or other identifier of the equipment inspected. The operator shall be instructed to report equipment defects to the supervisor.

Inert-Gas Metal-Arc Welding

Employees shall not engage in and shall not be exposed to the inert-gas metal-arc welding process unless the following precautions are taken:

(a) Chlorinated solvents shall not be used within 200 feet (61 m) of the exposed arc. Surfaces prepared with chlorinated solvents shall be thoroughly dry before welding is performed on them.

(b) Employees in areas not protected from the arc by screening shall be protected by appropriate filter lenses in accordance with the requirements of this policy. When welders are exposed to their own arc or to each other's arc, filter lenses complying with the requirements of this policy shall be worn to protect against flashes and radiant energy.

(c) Employees exposed to radiation shall have their skin covered completely to prevent ultraviolet burns and damage. Helmets and hand shields shall not have leaks, openings or highly reflective surfaces.

(d) Inert-gas metal-arc welding on stainless steel shall not be performed unless exposed employees are protected either by local exhaust ventilation or by wearing supplied air respirators.

Low Voltage

Energized Equipment or Systems

(a) Work shall not be performed on exposed energized parts of equipment or systems until the following conditions are met:

(1) Responsible supervision has determined that the work is to be performed while the equipment or systems are energized.

(2) Involved personnel have received instructions on the work techniques and hazards involved in working on energized equipment.

(3) Suitable personal protective equipment and safeguards (i.e., approved insulated gloves or insulated tools) are provided and used.

Exception: The use of approved insulating gloves or insulated tools or other protective measures are not required when working on exposed parts of equipment or systems energized at less than 50 volts provided a conclusive determination has been made prior to the start of work by a qualified person that there will be no employee exposure to electrical shock, electrical burns, explosion or hazards due to electric arcs.

(A) Rubber insulating gloves shall meet the provisions of the American Society for Testing Materials (ASTM) D 120-02a, Standard Specification for Rubber Insulating Gloves, and be maintained in accordance with ASTM F 496-02a, Standard Specification for In-Service Care of Insulating Gloves and Sleeves, which are hereby incorporated by reference. Note: The ASTM F

496-02a standard contains provisions regarding the care, inspection, testing and use of insulating gloves and sleeves. Among other requirements, this standard provides that electrical retests shall not exceed 6 months for insulating gloves and 12 months for insulating sleeves and that insulating gloves and sleeves that have been electrically tested but not issued for service shall not be placed into service unless they have been electrically tested within the previous twelve months.

(B) Insulated tools shall meet the provisions of the American Society for Testing Materials (ASTM) F 1505-01, Standard Specification for Insulated and Insulating Hand Tools, which is hereby incorporated by reference.

(4) Approved insulated gloves shall be worn for voltages in excess of 250 volts to ground.

(5) Suitable barriers or approved insulating material shall be provided and used to prevent accidental contact with energized parts.

(6) Suitable eye protection has been provided and is used.

(7) Where required for personnel protection, suitable barricades, tags, or signs are in place.

(8) Each employee who is exposed to the hazards of flames or electric arcs wears apparel that, when exposed to flames or electric arcs, does not increase the extent of injury that would be sustained by the employee. This subsection prohibits clothing made from the following types of fabrics, either alone or in blends, unless the employee can demonstrate that the fabric has been treated with flame retardant: acetate, nylon, polyester, and rayon.

(b) After the required work on an energized system or equipment has been completed, an authorized person shall be responsible for:

(1) Removing from the work area any temporary personnel protective equipment, and

(2) Reinstalling all permanent barriers or covers.

Tests

All electrical equipment and systems shall be treated as energized as required by Section 2320.2 until tested or otherwise proven to be de-energized.

De-Energized Equipment or Systems

(a) An authorized person shall be responsible for the following before working on de-energized electrical equipment or systems unless the equipment is physically removed from the wiring system:

(1) Notifying all involved personnel.

(2) Locking the disconnecting means in the “open” position with the use of lockable devices, such as padlocks, combination locks or disconnecting of the conductor(s) or other positive methods or procedures which will effectively prevent unexpected or inadvertent energizing of a designated circuit, equipment or appliance. Note: See also Section 3314 of the General Industry Safety Orders (GISO) for lock-out requirements pertaining to the cleaning, repairing, servicing and adjusting of prime movers, machinery and equipment.

Exception: Locking is not required under the following conditions: (A) Where tagging procedures are used as specified in subsection (a)(3), and (B) Where the disconnecting means is accessible only to personnel instructed in these tagging procedures.

(3) Tagging the disconnecting means with suitable accident prevention tags conforming to the provisions of Section 2320.6 and GISO Section 3314(e).

(4) Effectively blocking the operation or dissipating the energy of all stored energy devices which present a hazard, such as capacitors or pneumatic, spring-loaded and like mechanisms.

Energizing (or Re-Energizing) Equipment or Systems

(a) An authorized person shall be responsible for the following before energizing equipment or systems which have been de-energized:

(1) Determining that all persons are clear from hazards which might result from the equipment or systems being energized.

(2) Removing locking devices and tags.

(A) Locking devices and tags may be removed only by the employee who placed them. Locking devices and tags shall be removed upon completion of the work and after the installation of the protective guards and/or safety interlock systems.

Exception: When the employee has left the premises or is otherwise unavailable, other persons may be authorized by the employer to remove the locking devices and tags in accordance with a procedure determined by the employer.

Accident Prevention Tags

(a) Suitable accident prevention tags shall be used to control a specific hazard. Such tags shall provide the following minimum information:

(1) Reason for placing tag.

(2) Name of person placing the tag and how that person may be contacted.

(3) Date tag was placed.

Safety Precautions

(a) Suitable temporary barriers, or barricades, shall be installed when access to opened enclosures containing exposed energized electrical equipment is not under the control of an authorized person.

(b) Conductive measuring tapes, ropes or similar measuring devices shall not be used when working on or near exposed energized conductors or parts of equipment.

(c) Conductive fish tapes shall not be used in raceways entering enclosures containing exposed energized parts unless such parts are isolated by suitable barriers.

(d) Prior to climbing poles or other elevated structures supporting overhead electrical lines or equipment, an inspection shall be made to assure that such poles or structures are in safe condition for the work to be performed. Where poles or structures are determined to be unsafe for climbing, they shall not be climbed until made safe by guying, bracing or other adequate means.

Back-feeding or Interconnection

No electrical power source, permanent or temporary, shall be connected to a premises wiring system, or parts of such a system, unless positive means are used to prevent the transmission of electricity beyond the premises wiring system, or beyond any intentionally segregated parts of such system.

Exception: When an interconnection has been authorized by the servicing utility.

High Voltage

General Provisions

(a) Safe Access. All work locations shall be safely accessible whenever work is to be performed.

(b) Employer's Responsibility. The employer shall furnish such safety devices and safeguards as may be necessary to make the employment or place of employment as free from danger to the safety and health of employees as the nature of the employment reasonably permits. The employer shall examine or test each safety device at such intervals as may be reasonably necessary to ensure that it is in good condition and adequate to perform the function for which it is intended. Any device furnished by the employer found to be unsafe shall be repaired or replaced.

Employees shall be instructed to inspect each safety device, tool or piece of equipment, each time it is used and to use only those in good condition. The employer shall require the use of safety devices and safeguards where applicable.

(c) Qualified Electrical Workers. Only qualified electrical workers shall work on energized conductors or equipment connected to energized high-voltage systems. Except for replacing fuses, operating switches, or other operations that do not require the employee to contact energized high-voltage conductors or energized parts of equipment, clearing "trouble" or in emergencies involving hazard to life or property, no such employee shall be assigned to work alone. Employees in training, who are qualified by experience and training, shall be permitted to work on energized conductors or equipment connected to high-voltage systems while under the supervision or instruction of a qualified electrical worker.

(d) Observers. During the time work is being done on any exposed conductors or exposed parts of equipment connected to high-voltage systems, a qualified electrical worker, or an employee in training, shall be in close proximity at each work location to:

(1) act primarily as an observer for the purpose of preventing an accident, and

(2) render immediate assistance in the event of an accident. Such observer will not be required in connection with work on overhead trolley distribution circuits not exceeding 1,500 volts D.C. where there is no conductor of opposite polarity less than 4 feet there from, or where such work is performed from suitable tower platforms or other similar structures.

Readily and Safely Accessible

Switches, circuit breakers, contactors, relays, and other control equipment requiring operation, examination, adjustment, maintenance, or repair shall be readily and safely accessible.

Installation and Maintenance

(a) All electrical installations shall be made in a neat and workmanlike manner and shall be so designed, constructed, and installed that the hazard to personnel will be reduced, as far as it is reasonably possible. Installations of new equipment and conductors, and extensions, repairs, and changes in existing installations shall be made only by, or under the supervision or direction of, qualified electrical workers.

(b) All electrical installations shall be maintained in a safe operating condition. If any unsafe condition develops, it shall be promptly corrected.

(c) Unused openings in boxes, raceways, auxiliary gutters, cabinets, equipment cases, or housings shall be effectively closed to afford protection substantially equivalent to the wall of the equipment.

(d) Conductors shall be racked to provide ready and safe access in underground and subsurface enclosures that persons enter for installation and maintenance.

(e) Internal parts of electrical equipment, including bus-bars, wiring terminals, insulators, and other surfaces, shall not be damaged or contaminated by foreign materials such as paint, plaster, cleaners, abrasives, or corrosive residues.

(f) There shall be no damaged parts that may adversely affect safe operation or mechanical strength of the equipment, such as parts that are broken, bent, cut, or deteriorated by corrosion, chemical action, or overheating.

Tools and Protective Equipment

(a) Insulating Equipment.

(1) Insulating equipment designed for the voltage levels to be encountered shall be provided and the employer shall ensure that they are used by employees as required by this section. This equipment shall meet the electrical and physical requirements contained in the standards shown in Appendix C.

(2) Whenever rubber gloves are used, they shall be protected by outer canvas or leather gloves. This equipment shall meet the electrical physical requirements contained in the standards shown in Appendix C.

(3) Insulating equipment fabricated of material other than rubber shall provide electrical and mechanical protection at least equal to that of rubber equipment.

(4) The employer is responsible for the periodic visual and electrical re-testing of all insulating gloves, sleeves and blankets. The following maximum re-testing intervals for the items covered by the listed ASTM standards shall apply:

GLOVES, SLEEVES, BLANKETS,

AND OTHER INSULATING EQUIPMENT

(In-service care)

ELECTRICAL TEST INTERVALS

ASTM STANDARD	MONTHS
Standard Specification for In-Service Care of Insulating Gloves and Sleeves, ASTM F 496-02a	*6 months for gloves *12 months for sleeves
Standard Specification for In-Service Care of Insulating Blankets, ASTM F 479-06	*12 months for blankets
Standard Specification for In-Service Care of Insulating Line Hose and Covers, For line hose and covers	(When found to be damaged or defective)

ASTM F 478-92 (Reapproved 1999)

*Gloves, sleeves, and blankets that have been electrically tested but not issued for service shall not be placed into service unless they have been electrically tested within the previous twelve months.

(5) Gloves, sleeves and blankets shall be marked to indicate compliance with the re-test schedule and shall be marked with either the date tested, or the date the next test is due.

(6) When not being used, insulating gloves and sleeves shall be stored in glove bags or suitable containers. Insulating blankets shall be stored in a canister or other means that offers equivalent protection.

(7) Insulating equipment shall be stored away from direct sunlight, steampipes, radiators and other sources of excessive heat and shall be protected from physical damage. Gloves, sleeves and blankets shall not be folded while in storage; however, blankets shall be permitted to be rolled for storage.

(8) Insulating equipment shall be visually inspected for defects and damage, and shall be cleaned prior to use each day.

(9) Rubber gloves shall be air and water tested at the beginning of each work period and at any other time when the glove's condition is in doubt. The gloves shall:

(A) Be visually examined over their entire inner and outer surface for any defects, i.e., burns, cuts, cracks, punctures and weak spots; and

(B) Have the cuff stretched to detect abrasions and weak spots.

(10) Insulating equipment found to be defective or damaged shall be immediately removed from service.

(b) Fall Protection. When work is performed at elevated locations more than 4 feet (1.2 meters) above the ground on poles, towers or similar structures, the employer shall require the employees to use either fall arrest equipment, work positioning equipment, or travel restricting equipment, if other fall protection methods have not been provided (e.g., guardrails, safety nets, etc.). The use of body belts for fall arrest systems is prohibited.

Exception: Point to point travel by a qualified person, unless conditions such as ice, high winds, design of the structure, or other condition (e.g., chemical contaminants) prevents the employee from gaining a firm hand or foothold while traveling.

(c) Linemen's Body Belts, Safety Straps and Lanyards.

(1) Linemen's body belts and safety straps purchased after January 1, 1993, shall be labeled as meeting the requirements contained in ASTM F 887-91, Standard Specifications for Personal Climbing Equipment.

Exception: Linemen's body belts and safety straps purchased before January 1, 1993 which are labeled/tagged as meeting either the ANSI A10.14 or ASTM F 887 Standard in effect at the time of purchase.

(2) Body belts, safety straps, and lanyards shall be inspected by a qualified person each day before use to determine that they are safe. Those determined to be unsafe shall be immediately removed from service.

(3) Safety straps shall not be used when any portion of the red safety marker strip in the strap is exposed.

(4) Leather shall not be used for safety straps.

(d) Ladders.

(1) Portable conductive ladders shall not be used near energized conductors or exposed energized parts of equipment except as may be necessary in specialized work such as in high voltage substations where non-conductive ladders might present a greater hazard than conductive ladders.

(2) Portable conductive ladders shall be legibly marked with signs reading "Caution -Do Not Use Near Energized Electrical Equipment" or equivalent wording.

(3) Portable ladders used on structures shall be secured to prevent them from being accidentally displaced.

(e) Live Line Tools.

(1) Live line tools shall meet the requirements specified in Appendix "B."

(2) Live line tools shall be visually inspected for defects before use each day. Tools to be used shall be wiped clean and if defects are indicated such tools shall not be used.

(f) Conductive measuring tapes, ropes or similar measuring devices shall not be used when working on or near exposed energized conductors or parts of equipment.

(g) Handtools.

(1) Hydraulic tools which are used on or near exposed energized conductors or equipment shall use non-conductive hoses having adequate strength for normal operating pressures. The provisions of Section 3556, General Industry Safety Orders, Title 8, California Code of Regulations, shall also apply.

(2) Pneumatic tools which are used on or near exposed energized conductors or equipment shall:

(A) have non-conductive hoses having adequate strength for the normal operating pressures and

(B) have an accumulator on the compressor to collect moisture.

Note: For the purposes of subsections (f) and (g) energized conductors on which temporary insulating devices have been installed shall be considered "exposed."

(3) Pressure shall be released before connections are broken, unless quick acting, self-closing connectors are used. Hoses shall not be kinked.

(h) Conductive Objects. Conductive objects of a length capable of contacting energized conductors shall not be carried into the level of such conductors unless suitable means are taken to prevent accidental contact.

(i) Lines used for emergency rescue such as lowering a person to the ground shall have a minimum breaking strength of 2650 pounds and shall be readily available on the job site.

(j) Apparel. The employer shall ensure that each employee who is exposed to the hazards of flames or electric arcs does not wear clothing that, when exposed to flames or electric arcs, could increase the extent of injury that would be sustained by the employee. This subsection prohibits clothing made from the following types of fabrics, either alone or in blends, unless

the employee can demonstrate that the fabric has been treated with flame retardant: acetate, nylon, polyester, and rayon.

Clearances

(a) No employee shall be permitted to approach or take any conductive object without an approved insulating handle closer to exposed energized parts than shown in Table 2940.2-1 through Table 2940.2-3 unless:
(1) The employee is insulated or guarded from the energized part (gloves or gloves with sleeves rated for the voltage involved shall be considered insulation of the employee from the energized part), or
(2) The energized part is insulated or guarded from the employee and any other conductive object at a different potential.
(b) When performing work with live line tools, minimum clear distances in Table 2940.2-1 through Table 2940.2-3 shall be maintained. Conductor support tools, such as link sticks, strain carriers, and insulator cradles, shall be permitted to be used provided that the clear insulation is at least as long as the insulator string or the minimum distance specified in Table 2940.2-1 through

Table 2940.2-3 for the operating voltage.

TABLE 2940.2-1	
ALTERNATING CURRENT - MINIMUM	
APPROACH DISTANCE	
Nominal Voltage in	*Distance*
Kilovolts Phase to Phase	*Phase to Ground Exposure*
	ft-in
0.6 to 15	2-1
15.1 to 36.0	2-4
36.1-46.0	2-7
46.1-72.5	3-0
72.6-121	3-4
121.1-145	3-7
145.1-169	4-0
169.1-242	5-3
242.1-362	8-6

362.1-552	11-3
552.1-765	15-0

NOTE 1: These distances take into consideration the highest switching surge an employee will be exposed to on any system with air as the insulating medium and the maximum voltages shown.
NOTE 2: The clear live-line tool distance shall equal or exceed the values for the indicated voltage ranges.

TABLE 2940.2-2							
AC LIVE-LINE WORK MINIMUM							
APPROACH DISTANCE							
WITH OVERVOLTAGE FACTOR							
PHASE TO GROUND EXPOSURE							
Max							
anticipated							
per-unit	*Distances in feet-inches*						
transient							
over	*Maximum Phase to Phase Voltage in Kilovolts*						
voltage							
	121	145	169	242	362	552	800
1.5						6-0	9-8
1.6						6-6	10-8
1.7						7-0	11-8
1.8						7-7	12-8
1.9						8-1	13-9
2.0	2-5	2-9	3-0	3-10	5-3	8-9	14-11
2.1	2-6	2-10	3-2	4-0	5-5	9-4	
2.2	2-7	2-11	3-3	4-1	5-9	9-11	
2.3	2-8	3-0	3-4	4-3	6-1	10-6	

2.4	2-9	3-1	3-5	4-5	6-4	11-3	
2.5	2-9	3-2	3-6	4-6	6-8		
2.6	2-10	3-3	3-8	4-8	7-1		
2.7	2-11	3-4	3-9	4-10	7-5		
2.8	3-0	3.5	3-10	4-11	7-9		
2.9	3-1	3-6	3-11	5-1	8-2		
3.0	3-2	3-7	4-0	5-3	8-6		

NOTE 1: The distance specified in this table may be applied only where the maximum anticipated per-unit transient overvoltage has been determined by engineering analysis and has been supplied by the employer. Table 2940.2-1 applies otherwise
NOTE 2: The distances specified in this table are the air and live-line tool distances.

TABLE 2940.2-3

DC LIVE-LINE WORK MINIMUM APPROACH DISTANCE

WITH OVERVOLTAGE FACTOR

	Distance in feet-inches				
Maximum anticipated	*Maximum line-to-ground*				
per-unit transient	*voltage in kilovolts*				
overvoltage					
	250	400	500	600	750
1.5 or lower	3-8	5-3	6-9	8-7	11-10
1.6	3-10	5-7	7-4	9-5	13-1
1.7	4-1	6-0	7-11	10-3	14-4
1.8	4-3	6-5	8-7	11-2	15-9

NOTE 1: The distances specified in this table may be applied only where the maximum anticipated per-unit transient overvoltage has been determined by engineering analysis and has

been supplied by the employer. However, if the transient overvoltage factor is not known, a factor of 1.8 shall be assumed.
NOTE 2: The distances specified in this table are the air and live-line tool distances.
(c) Minimum approach distance (Tables 2940.2-1 through 2940.2-3) shall be adjusted to account for work locations above 3,000 feet using altitude correction factors (Table 2940.2-4).

TABLE 2940.2-4	
ALTITUDE CORRECTION FACTOR	
Altitude (ft)	*Correction Factor*
Sea level to 3000	1.00
3,001 to 4,000	1.02
4,001-5,000	1.05
5,001-6,000	1.08
6,001-7,000	1.11
7,001-8,000	1.14
8,001-9,000	1.17
9,001-10,000	1.20
10,001-12,000	1.25
12,001-14,000	1.30
14,001-16,000	1.35
16,001-18,000	1.39
18,001-20,000	1.44

NOTE 1: Minimum approach distances from Table 2940.2-1 through Table 2940.2-3 shall be multiplied to the corresponding correction factor in Table 2940.2-4 to obtain the correct minimum approach distance, adjusted to account for higher altitudes.

NOTE 2: The data used to formulate this was obtained from the test data taken with standard atmospheric condition. Standard atmospheric conditions are defined as temperatures above freezing, wind less than 15mph, unsaturated air, normal barometer (30 inches of mercury at sea level), uncontaminated air, and clean and dry insulators. If standard atmospheric conditions do not exist, extra care must be taken.

ASSURED EQUIPMENT GROUNDING CONDUCTOR PROGRAM

Job Name: _____ **Job Number:** _____

Job Location: _____

LOG OF TEST DATES*

Description of Item Tested	Initial Test Code A	Retest Codes B or C	Quarterly January Code D	Quarterly April Code D	Quarterly July Code D	Quarterly October Code D

*** Enter date the test was actually performed, together with the initials of the individual who performed the test, in the appropriate column based on the reason for the test in accordance with the following:**

Code	When Test Must Be Performed
A	Before first use of the item.
B	Before returning an item to service following repairs.
C	After any incident suspected to have caused damage to the item.
D	Once in each quarter.

CONDUCTOR TEST RECORD - Color Codes

Month	Quarterly	Monthly
January	White	White
February		White & Yellow
March		White & Blue
April	Green	Green
May		Green & Yellow
June		Green & Blue
July	Red	Red
August		Red & Yellow
September		Red & Blue
October	Orange	Orange
November		Orange & Yellow
December		Orange & Blue

KEY ITEM CHECK LIST FOR ELECTRICAL & GROUND FAULT PROTECTION

Key Item	Yes	No
Pre-Work Inspection		
• Has work site been surveyed for electrical hazards?	☐	☐
• Are appropriate warning signs posted?	☐	☐
• Have employees been advised of electrical hazards?	☐	☐
• Are Lock Out / Tag Out procedures for electrical work being carried out?	☐	☐
• Have all workers received their required type and amount of electrical safety training?	☐	☐
• Can required clearances from live power be maintained?	☐	☐
Safety Requirements		
• Are workers near electrical circuits? If so, is equipment grounded or power de-energized and grounded?	☐	☐
• Are electrical tools inspected for hazardous defects?	☐	☐
• Are electrical tools grounded or double-insulated?	☐	☐
• Are double-insulated tools appropriately labeled?	☐	☐
• Are electrical cabinet clearances maintained?	☐	☐
• Are metal ladders prohibited if working around electricity?	☐	☐
• Are areas around electrical circuits adequately illuminated?	☐	☐
• Is there an instrument on the job site suitable for detecting live power circuits?	☐	☐
Extension Cord Sets		
• Are extension cords the correct size and type for the Job?	☐	☐
• Are extension cords protected from damage?	☐	☐
• Do splices have insulation equal to that of the cable?	☐	☐
• Are grounding lugs intact?	☐	☐
• Has insulation pulled back away from the plug or receptacle?	☐	☐
• Are cords of the 3-wire type and not less than 12-3 size?	☐	☐
Temporary Light Strings		
• Are light strings elevated off the floor and out of the way?	☐	☐
• Are there unbroken bulbs in each of the sockets?	☐	☐
• Does every socket and bulb have an appropriate guard?	☐	☐
• Are light strings hanging from nails?	☐	☐
Ground Fault Circuit Interrupters (GFCI)		
• Are GFCIs tested each day before use?	☐	☐
• When GFCIs are not being used, is an Assured Equipment Grounding Conductor Program in effect?	☐	☐
• Are all GFCIs constructed in waterproof housings?	☐	☐

EQUIPMENT DECONTAMINATION

SECTION 1 - PURPOSE

To communicate the Corporate requirements for the thorough decontamination of all equipment which has been contaminated by exposure to a hazardous chemical or toxic substance and to provide for a method to identify contaminated equipment being returned from a controlled (regulated) area.

To provide uniform guidelines for the decontamination of all equipment and to establish a "Hazard Disclosure Notice" which must accompany all equipment being returned to AMPCO from an outside company which has contracted for the use of AMPCO equipment.

To ensure that the transportation of contaminated equipment is in accordance with the applicable requirements of the Corporate Safety Program, Sections 7-2 Hazard Communication.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

It is the policy of AMPCO to ensure that no employee or outside contractor is exposed to a hazardous chemical or toxic substance as a result of using equipment, which has been previously exposed to such chemical or substance.

SECTION 4 - DECONTAMINATION REQUIREMENTS

AMPCO requires that all equipment used on any type of project involving hazardous chemicals or toxic substances be completely decontaminated prior to its removal from the jobsite whenever possible. When jobsite decontamination is not possible, contaminated equipment may be removed to a remote location. However, prior to removal from the controlled area, the contaminated equipment must be appropriately sealed and labeled before being transported from the jobsite to a properly constructed containment holding area and then decontaminated by approved decontamination procedures before restocking or reissuing.

SECTION 5 - IDENTIFYING CONTAMINATED EQUIPMENT

Each item of equipment will be identified as either contaminated or clean prior to its removal from the controlled area. In the case of small items, such as hand tools, personal protective equipment, etc., which are packed into double bags for ease of transport, the bags will be identified as either containing all contaminated or all clean items.

Visual inspection of the suspect equipment is not sufficient to determine if it is indeed contaminated. Since it is not always possible to obtain the results of sampling in sufficient time to allow removal of the equipment at the conclusion of a job, it will be AMPCO policy to assume that any item of equipment, which has been exposed to either a hazardous chemical or a toxic substance is, in fact, contaminated.

To facilitate this identification, two (2) labels have been developed and printed for this purpose. The labels will be a part of each new job's start-up package which is delivered to the jobsite at the beginning of the job. The labels, marked "CONTAMINATED" and "CLEAN", are color coded and must be filled out with the name of the job, the job number, the date the equipment is removed from the jobsite, and the signature of the worker who is identifying the equipment, as either contaminated or clean. In the event that a contaminated label is used, the hazard to which the equipment has been exposed must be identified.

5.1 Contaminated Equipment

Any item of equipment which has been exposed to a hazardous chemical or toxic substance will be labeled as contaminated unless that item of equipment has been properly decontaminated at the job site. In the event that only a portion of a piece of equipment has been exposed and that exposed portion can be removed and properly disposed of, leaving the balance of the equipment uncontaminated, the uncontaminated portion of that piece of equipment does not have to be considered contaminated.

When it is necessary to remove a piece of contaminated equipment from the controlled area, the contaminated equipment must be completely sealed in plastic and one of the orange and black "CONTAMINATED" labels, such as shown in Exhibit 1, must be completed and attached to the equipment. When the contamination is asbestos, the correct asbestos label must also be attached.

1. Safety Data Sheet (SDS)

Whenever an item of equipment has been exposed to a hazardous chemical or toxic substance, it will be necessary to identify that particular hazard and to furnish the facility to which the equipment is being returned, with the appropriate Safety Data Sheet (SDS). This is necessary to inform those workers who will be handling this equipment of the safety precautions needed and the appropriate decontamination procedures necessary for this particular hazard. In the case of Asbestos, the SDS will not be required.

5.2 Clean Equipment

In order for the equipment to be identified as clean, it must have either not been exposed to a hazardous chemical or toxic substance, or if exposed, it will have been appropriately decontaminated by approved methods. When an item of equipment has been properly

decontaminated, it will be identified and handled as clean. Prior to its removal from the jobsite, a "CLEAN" label will be filled out and attached to the equipment. A copy of the white and blue "CLEAN" label is also shown in Exhibit 1.

SECTION 6 - DECONTAMINATION PROCEDURES

The procedures used in the decontamination of exposed equipment will vary depending upon the exposure and the hazard. For equipment exposed to asbestos, the normal procedures required by the OSHA Asbestos Standard, 29 CFR 1926.1101 and detailed in the Corporate Safety Program, Section 10-1 Asbestos Abatement Guidelines, will be used whenever feasible. Items that either cannot or should not be decontaminated, must be handled as contaminated waste and disposed of accordingly.

Decontamination procedures for equipment that has been exposed to hazardous substances other than asbestos, will be outlined in the accompanying SDS.

6.1 Uniform Guidelines

The following guidelines must be adhered to for equipment exposed to asbestos unless the supervisor at the job site deems it necessary to make changes based upon a particular situation. In the event this becomes necessary, the supervisor must immediately notify his/her manager and the manager of the location to which the equipment will be moved and advise them of the changes.

NOTE: The use of duct tape to wrap extension cords, pipes, scaffolding, light cords, power cords, PAPR batteries, etc., is prohibited. When put on an item while in the containment, the sticky side of the tape attracts and holds asbestos fibers. When this tape is moved to a clean area, it has the potential for contaminating that area. Plastic tie wraps, or electrical ties as they are sometimes known, should be used in place of the duct tape. Any items having duct tape on them must be considered as contaminated and handled as such.

6.2 Air Filtering Devices (AFD)

After being used, the primary and secondary filters must be removed and disposed of as contaminated waste. If the HEPA filter is also removed and disposed of as ACM, then the interior of the AFD must be vacuumed with a HEPA filtered vacuum, the unit thoroughly wet wiped, and then the intake opening must be sealed with 6-mil poly. This unit can now be considered as clean and can be marked with a CLEAN label and shipped as non-hazardous.

If the HEPA filter is not removed, and it has been used at least once, then the unit cannot be considered clean and must be handled as contaminated. All openings must be sealed with 6-mil poly and the unit marked with a CONTAMINATED label. This unit must be handled as hazardous. Flex duct must be handled as contaminated and disposed of as

such.

6.3 HEPA Filtered Vacuum Systems

The pre-filter should be removed and disposed of as contaminated waste. If necessary, the HEPA filter must also be removed and handled as ACM. With both filters removed, the canister should be emptied and thoroughly wet wiped, both inside and out. All openings to the canister, including the intake opening and the fan outlet, must be sealed with 6-mil poly. The unit can now be marked with a CLEAN label and shipped accordingly. All vacuum hoses must have each open end sealed with 6-mil poly and handled as contaminated.

6.4 Hand Tools

All hand tools should be completely decontaminated at the jobsite. This should be done by vacuuming and thoroughly washing. When cleaned, the tools should be placed in a plain double bag, labeled CLEAN and shipped.

6.5 Materials Which Are Usually Expendable

Any expendable material, which has been contaminated should be decontaminated by the same method used for hand tools, if it is to be recovered. Otherwise, it should be disposed of as contaminated waste.

6.6 Electric Power Tools

Electric power tools are the exception to the rule. They should be HEPA vacuumed and placed in a double plastic bag. The bag should be labeled as CONTAMINATED and shipped to the warehouse, where it will remain as such until shipped to the next jobsite and opened in the containment area.

6.7 Flexible Duct

Whenever the interior of flexible duct has been contaminated, it must be disposed of as contaminated waste. However, if only the exterior has been contaminated, it can be decontaminated and labeled as CLEAN.

6.8 Scaffolds

All scaffolds, scaffold planks, pics, ladders, etc., should be decontaminated by vacuuming with a HEPA filtered vacuum and then thoroughly wet wiped. All duct tape must be removed from each item and properly disposed of. They should then be labeled CLEAN and shipped.

6.9 Lumber

All contaminated lumber should be disposed of as contaminated waste.

6.10 Water Filtration System

The water filtration system should be thoroughly flushed out and the filters disposed of as contaminated waste. The unit should then be thoroughly wet wiped, labeled CLEAN and shipped.

6.11 Decontamination Trailers (DECON Trailers)

DECON trailers should be decontaminated by thoroughly hosing down the contaminated areas with water. The unit's water filtration system should then be cleaned as stated above. The entire unit should then be vacuumed with a HEPA filtered vacuum and thoroughly wet wiped with clean cloths. The unit can then be disinfected, labeled CLEAN and shipped.

6.12 Personal Protective Equipment

All permanent personal protective equipment must be thoroughly decontaminated, inspected, disinfected, and bagged in accordance with the provisions of OSHA's Respirator Protection Standard, 29 CFR 1910.134 and the Corporate Safety Program, Section 7-1 Respirator Protection. The bags should then be labeled CLEAN and shipped.

6.13 Miscellaneous Items and Other Equipment

Miscellaneous items and other equipment should be appropriately decontaminated depending upon size and shape, using the approved methods of HEPA filtered vacuuming and thorough wet wiping. Once clean, they should be labeled CLEAN and shipped.

SECTION 7 - DECONTAMINATION FACILITIES (Warehouse)

A complete Material Decontamination Unit, similar to that outlined in Section 10-1 of the Corporate Safety Program for use at an asbestos jobsite, should be erected at each of the AMPCO's warehouses, if contaminated material is to be brought into the warehouse for either thorough cleaning or maintenance. Where space permits, this unit should be expanded and made large enough to act as a holding area for contaminated items until they can be decontaminated.

In addition to the Material Decontamination Unit, it will also be necessary to have a complete Personnel Decontamination Unit which must be used by those workers who will be doing the decontamination work. This unit must be constructed according to OSHA regulations and all applicable provisions of Section 10-1 of the Corporate Safety Program, Asbestos Abatement Guidelines, must be adhered to.

When working with contaminated materials in the warehouse, the same guidelines for Asbestos

Abatement (Section 10-1), Medical Surveillance (section 9-1), and Air monitoring (Section 9-2), as noted in the Corporate Safety Program must be followed.

SECTION 8 - OUTSIDE CUSTOMERS

When an outside company has contracted for the use of AMPCO equipment, it shall be a part of the contract agreement to require the outside company to notify AMPCO if the equipment, while under their control, has been exposed to a hazardous chemical or toxic substance. The customer must identify the hazardous chemical or toxic substance and indicate whether or not the equipment has been appropriately decontaminated and the hazard removed prior to its return to AMPCO. This will involve the use of AMPCO's Hazard Disclosure Notice and, if necessary, a Safety Data Sheet (SDS).

8.1 Hazard Disclosure Notice

The Hazard Disclosure Notice must be completed by a supervisor of the company with whom AMPCO has a contractual agreement for the use of the equipment before the equipment can be removed from the customer's jobsite. A copy of the Hazard Disclosure Notice can be found in Exhibit 2.

SECTION 9 - TRANSPORTATION AND LABELING

When transporting items of equipment that have been exposed to hazardous chemicals or toxic substances, which have not been decontaminated, the transporter must comply with those applicable portions of Section 7-2 Hazard Communication of the Corporate Safety Program, concerning the labeling and transporting of hazardous chemicals.

9.1 Shipping

Under no circumstances will contaminated equipment be shipped via commercial transport or common carrier unless that transport or carrier has been notified of the contamination and all applicable Environmental Protection Agency and Department of Transportation regulations governing the shipping of hazardous materials or toxic substances have been complied with.

9.2 Labeling

Labeling of hazardous materials or toxic substances must be in compliance with those applicable portions of the following:

Section 7-2	- AMPCO's Corporate Safety Program
29 CFR 1926.1101	- OSHA's Asbestos Standard
29 CFR 1926.59	- OSHA's Hazard Communication Standard
40 CFR 60, Subpart M	- EPA's NESHAP Standard

HAZARD DISCLOSURE NOTICE

Job Name:_____

Job Address: _____

Job No.:_____ Date:_____

THIS HAZARD DISCLOSURE NOTICE MUST BE COMPLETED BEFORE ANY AMPCO EQUIPMENT IS REMOVED FROM THIS JOBSITE.

1. Has any AMPCO equipment been exposed to a hazardous chemical or toxic substance while on this jobsite? Yes ☐ No ☐

2. If YES, you must identify the hazardous chemical or toxic substance to which the equipment has been exposed. Asbestos ☐

   OTHER:_____

   _____

3. Has the equipment been completely decontaminated in accordance with the requirements of the chemicals Safety Data Sheet? Yes ☐ No ☐

4. If the hazardous chemical or toxic substance is other than Asbestos, the equipment must be accompanied by a current Safety Data Sheet.

I certify the above information is true to the best of my knowledge and belief.

_____
(Authorized Signature)

The following label must be used on CONTAMINATED equipment when it is being shipped off the jobsite:

CONTAMINATED

(HAZARD)

_____ _____
JOB NAME **JOB NUMBER**

_____ _____
SIGNATURE **DATE**

The following label should be used on all equipment that has been thoroughly decontaminated before being shipped off the jobsite. This equipment is considered clean.

CLEAN

(NO HAZARD)

_____ _____
JOB NAME **JOB NUMBER**

_____ _____
SIGNATURE **DATE**

EXCAVATION & TRENCHING

SECTION 1 - PURPOSE

To control the hazards posed by open excavation and/or trenching through strict compliance with this procedure and the provisions of the excavation permit.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

This procedure outlines requirements for all open excavations made in the earth's surface. Excavations are defined to include trenches. This policy is intended to protect personnel from the hazards of collapse.

SECTION 4 - REGULATORY REQUIREMENTS

This procedure will follow the guidelines of 29 CFR 1926, Subpart P - Excavations. In the case of United States Army Corps of Engineers projects, the requirements of EM 385-1-1, Section 23 will be observed. In the event of a conflict between these referenced standards, the more stringent one will prevail.

SECTION 5 - GENERAL REQUIREMENTS

Safety operations while working in and around excavations involve many factors. Factors to be evaluated and discussed before starting work at daily safety meetings include:

5.1 Surface Encumbrances/Excavation Hazards

All surface encumbrances and excavation hazards that are located so as to create a hazard to employees shall be removed or supported, as necessary to safeguard employees.

5.2 Underground Installations/Utility Locations

The estimated location of utility installations, such as sewer, telephone, fuel, electric, water lines, or any other underground installations that reasonably may be expected to be encountered during excavation work, shall be determined prior to opening an excavation.

- Utility companies or the state utility protection service shall be contacted at least two (2) working days prior to excavation activities to be advised of the proposed work, and asked to establish the location of the utility underground installations prior to the start of actual excavation.
- AMPCO personnel and sub-contractors should be careful to protect and preserve the markings of approximate locations of facilities until the markings are no longer required for safe and proper excavations.
- If the markings of utility locations are destroyed or removed before excavation commences or is completed, the AMPCO competent person must notify the utility company or utility protection service to inform them that the markings have been destroyed. Normally, it will take two (2) working days of the notice for the utility protection service to remark the locations.
- AMPCO equipment operators and/or subcontractors shall maintain a reasonable clearance between any underground utility and the cutting edge or point of powered equipment.
- When excavating with powered equipment within 18 inches of the markings of underground facilities, personnel should conduct the excavation in a careful and prudent manner, excavating by hand to determine the precise location of the facility/utility and to prevent damage.
- While the excavation is open, underground installations shall be protected, supported or removed as necessary to safeguard employees.

5.3 Access and Egress

- **Structural Ramps**

  Structural ramps that are used solely by employees as a means of access or egress from excavations shall be designed by a competent person. Structural ramps used for access or egress of equipment shall be designed by a competent person qualified in structural design, and shall be constructed in accordance with the design.

  Ramps and runways constructed of two or more structural members shall have the structural members connected together to prevent displacement.

  Structural members used for ramps and runways shall be of uniform thickness.

  Cleats or other appropriate means used to connect runway structural members shall be attached to the bottom of the runway or shall be attached in a manner to prevent tripping.

  Structural ramps used in lieu of steps shall be provided with cleats or other surface treatments on the top surface to prevent slipping.

- **Means of Egress from Trench Excavations**

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

5.4 Exposure to Vehicular Traffic

Employees exposed to public vehicular traffic shall be provided with and shall wear, warning vests or other suitable garments marked with or made of reflectorized or high-visibility material.

5.5 Exposure to Falling Loads

No employee shall be permitted underneath loads handled by lifting or digging equipment. Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped, in accordance with 29 CFR 1926.601(b)(6), to provide adequate protection for the operator from falling objects during loading and unloading operations.

5.6 Warning System for Mobile Equipment

When mobile equipment is operated adjacent to an excavation or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system shall be utilized such as barricades, hand or mechanical signals or stop logs. If possible, the grade should be away from the excavation.

5.7 Hazardous Atmospheres

- Testing and Controls

  In addition to the requirements set forth, 29 CFR 1926.50 - 1926.107; to prevent exposure to harmful levels of atmospheric contaminants and to assure acceptable atmospheric conditions, the following requirements shall apply:

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

Adequate precautions shall be taken, to prevent employee exposure to atmospheres containing less than 19.5 percent oxygen and other hazardous atmospheres. These precautions include providing proper respiratory protection or ventilation as needed.

Adequate precaution shall be taken such as providing ventilation, to prevent employee exposure to an atmosphere containing a concentration of a flammable gas in excess of 10 percent of the lower explosive limit (LEL) of the gas or vapor.

When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, testing shall be conducted as often as necessary to ensure that the atmosphere remains safe.

- **Emergency Rescue Equipment**

Emergency rescue equipment, such as self contained breathing apparatus (SCBA), a safety harness and line, or a basket stretcher, shall be readily available where hazardous atmospheric conditions exist or may reasonably be expected to develop during work in an excavation. This equipment shall be attended when in use.

Employees entering bell-bottom pier holes or other similar deep and confined excavations shall wear a harness with a life-line securely attached to it. The lifeline shall be separate from any line used to handle materials, and shall be individually attended at all times while the employee wearing the lifeline is in the excavation.

5.8 Protection From Hazards Associated With Water Accumulation

Employees shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation, but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline.

If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations shall be monitored by a competent person to ensure proper operation.

If excavation work interrupts the natural drainage of surface water (such as streams); diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to run-off from heavy rains will require an inspection by a competent person.

5.9 Stability of Adjacent Structures

Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning shall be provided to ensure the stability of such structures for the protection of employees.

Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees shall not be permitted except when:

- A support system, such as underpinning, is provided to ensure the safety of employees and the stability of the structure; or
- The excavation is in stable rock; or
- A registered professional engineer has approved the determination that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity; or
- A registered professional engineer has approved the determination that such excavation work will not pose a hazard to employees.
- Sidewalks, pavements, and other structures shall not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures.

5.10 Protection of Employees From Loose Rock or Soil

Adequate protection shall be provided to protect employees from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection shall consist of scaling to remove loose material; installation of protective barricades at intervals as necessary on the excavation face to stop and contain falling material; or other means that provide equivalent protection.

Employees shall be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. Protection shall be provided by placing and keeping such materials or equipment at least 2 feet from the edge of excavations, or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.

5.11 Inspections

Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. These inspections are required when employee exposure can be reasonably anticipated. An Excavation/Trenching Permit must be completed by the competent person to document the inspections.

Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

5.12 Fall Protection

Where employees or equipment are required or permitted to cross over excavations, walkways, or bridges with standard guardrails shall be provided.

Adequate barrier for physical protection shall be provided at all remotely located excavations. All wells, pits, shafts, etc. shall be barricaded or covered. Upon completion of exploration and similar operations, temporary wells, pits, shafts, etc., shall be covered or back filled.

SECTION 6 - SOIL CLASSIFICATION

OSHA Soil Classification (Appendix A to Subpart P)

6.1 Type A Soils

Cohesive soils are soils with an unconfined compressive strength of 1.5 ton per square foot (tsf) (144 kPa) or greater. Examples of cohesive soils are: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A. However, no soil is Type A if:

- The soil is fissured; or
- The soil is subject to vibration from heavy traffic, pile driving, or similar effects; or
- The soil has been previously disturbed; or
- The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater; or
- The material is subjected to other factors that would require it to be classified as a

less stable material.

6.2 Type B Soils

The following soil classifications make up the soil condition normally referred to as Type B soil:

- Cohesive soil with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa); or
- Granular cohesionless soils including: angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam.
- Previously disturbed soils except those which would otherwise be classed by Type C soil.
- Soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subjected to vibration; or
- Dry rock that is not stable; or
- Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than four horizontal to one vertical (4H:1H), but only if the material would otherwise be classified as Type B.

6.3 Type C Soils

Soils that make up the classification of Type C soil include the following:

- Cohesive soil with an unconfined compressive strength of 0.5 tsf (48 kPa) or less; or
- Granular soils including gravel, sand, and loamy sand; or
- Submerged soil or soil from which water is freely seeping; or
- Submerged rock that is not stable; or
- Material in a sloped, layered system where the layers dip into the excavation or a slope of four horizontal to one vertical (4H:1V) or steeper.

SECTION 7 - TIMBER SHORING, ALUMINUM HYDRAULIC AND ALTERNATIVES TO SHORING

Refer to 29 CFR 1926 Subpart P (Appendices C, D, and E) for details on shoring, shields, and trench boxes.

SECTION 8 - SELECTION OF PROTECTIVE SYSTEMS

Refer to 29 CFR 1926 Subpart P (Appendix F) for the decision logic in selecting protective

systems.

SECTION 9 - PERMITS

An Excavation/Trenching Permit must be completed by the competent person each day that an excavation is open and personnel may be required to enter the excavation. The excavation permit follows this procedure.

SECTION 10 - TRAINING

Ampco shall provide training to each employee whose work is regulated by this standard, at no cost to the employee, and ensure that the employee possesses the understanding, knowledge, and skills necessary for the safe performance of the duties assigned under this standard. This training shall result in an understanding of the hazards in the permit space and the methods used to isolate, control or in other ways protect employees from these hazards, and for those employees not authorized to perform entry rescues, in the dangers of attempting such rescues.

Training required by this section shall be provided to each affected employee:
(1) In both a language and vocabulary that the employee can understand;
(2) Before the employee is first assigned duties under this standard;
(3) Before there is a change in assigned duties;
(4) Whenever there is a change in permit space entry operations that presents a hazard about which an employee has not previously been trained; and
(5) Whenever there is any evidence of a deviation from the permit space entry procedures required by this policy or there are inadequacies in the employee's knowledge or use of these procedures.

The training shall establish employee proficiency in the duties required by this standard and shall introduce new or revised procedures, as necessary, for compliance with this standard.

The employer shall maintain training records to show that the training required by this policy. The training records shall contain each employee's name, the name of the trainers, and the dates of training. The documentation shall be available for inspection by employees and their authorized representatives, for the period of time the employee is employed by that employer.

EXCAVATION/TRENCHING INSPECTION FORM

PROJECT NAME:_____

PROJECT LOCATION:_____

EXCAVATION COMPETENT PERSON:_____

INSPECTORS NAME:_____

DATE: _____

EMPLOYEE TRAINING AND PRE-EXCAVATION BRIEFING

1.	Has safe excavation and rescue training been conducted?	YES___	NO___	N/A_____
2.	Are mandatory pre-excavation briefing conducted?	YES___	NO___	N/A_____
3.	Does this job require special training?	YES___	NO___	N/A_____

ELECTRICAL SAFETY

1	.Is electrical equipment and wiring properly guarded?	YES___	NO___	N/A_____
2.	Are electrical lines, extension cords, and cables guarded and maintained in good condition?	YES___	NO___	NA/_____
3	.Are extension cords kept out of wet area?	YES___	NO___	N/A_____
4.	Is damaged electrical equipment tagged and taken out of service?	YES___	NO___	N/A_____
5.	Has a positive lock-out system been established by the project electrician?	YES___	NO___	N/A_____
6.	Are GFCI's being used as needed?	YES___	NO___	N/A_____
7.	Are extension cords being inspected daily for ground continuity and structural integrity?	YES___	NO___	N/A_____
8	.Is extension cord inspection documented?	YES___	NO___	N/A_____

SURFACE ENCUMBRANCES

1.	Have all surface encumbrances that are located so as to create a hazard to employees been removed or supported, as necessary, to safeguard employees?	YES___	NO___	N/A_____

UNDERGROUND INSTALLATIONS

1.	Have the estimated locations of all underground installations been determined prior to excavation?	YES___	NO___	N/A_____
2.	Have utility companies been contacted and advised of proposed work?	YES___	NO___	N/A_____
3.	Are underground installations protected, supported or removed while excavations are open?	YES___	NO___	N/A_____

ACCESS AND EGRESS

1. Are structural ramps that are used solely by personnel as a means of access or egress from excavations designed by a competent person? YES___ NO___ N/A___
2. Are structural ramps that are used for access and egress of equipment designed by a competent person qualified in structural design and constructed in accordance with the design? YES___ NO___ N/A___
3. Are ramps and runways constructed so structural members are connected to prevent displacement? YES___ NO___ N/A___
4. Are structural members used for ramps and runways of uniform thickness? YES___ NO___ N/A___
5 Are cleats used in connecting runway structural members attached in a manner to prevent tripping? YES___ NO___ N/A___
6. Are structural ramps used in lieu of steps provided with cleats or other surface treatment to prevent slipping? YES___ NO___ N/A___

MEANS OF EGRESS FOR TRENCHES DEEPER THAN 4 FEET

1. Are stairways, ladders, or ramps provided every 25 feet? YES___ NO___ N/A___

EXPOSURE TO VEHICULAR TRAFFIC

1. Are personnel exposed to public vehicular traffic wearing reflectorized or high visibility vests? YES___ NO___ N/A___

EXPOSURE TO FALLING LOADS

1. Are employees prohibited from standing underneath loads handled by lifting or digging equipment? YES___ NO___ N/A___
2. Are employees prohibited from standing next to vehicles being loaded or unloaded? YES___ NO___ N/A___

WARNING SYSTEMS FOR MOBILE EQUIPMENT

1. Are warning systems such as barricades, hand or mechanical signals, or stop logs utilized when mobile equipment is operated adjacent to or at the edge of an excavation? YES___ NO___ N/A___

TESTING FOR HAZARDOUS ATMOSPHERES

1. Are the atmospheric hazards that can be reasonably expected to exist in excavations greater than 4 feet deep tested and controlled? YES___ NO___ N/A___

	READING:	TIME:	INITIAL:	
2.	Test for Oxygen Content:	_____ % 0_2 (19.5% Minimum)	_____	_____
3.	Test for Flammable Concentrations:	_____ % LEL (10% Maximum)	_____	_____
4.	Test for Toxic Concentration:	_____ PPM of _____	_____	_____

5. Is testing conducted as often as necessary to ensure safety or personnel? YES___ NO___ N/A___

EMERGENCY RESCUE EQUIPMENT

1. Is emergency rescue equipment such as SCBA, safety harness and line, or basket stretcher readily available and attended when hazardous atmospheric conditions exist? YES___ NO___ N/A___
2. Are employees who enter bell-bottom pier holes or other similar deep and confining excavations wearing a body harness with a life-line? YES___ NO___ N/A___

ACCUMULATED WATER HAZARDS

1. Are employees prohibited from entering excavations that have accumulated water? YES___ NO___ N/A___
2. Is water being controlled or prevented from accumulating in excavation by the use of water removal equipment? YES___ NO___ N/A___
3. Is water control equipment operation being monitored by a competent person? YES___ NO___ N/A___
4. Are diversion ditches, dikes, or other suitable means used to prevent surface water from entering excavation? YES___ NO___ N/A___
5. Are excavations subjected to run-off from heavy rain immediately re-inspected by a competent person? YES___ NO___ N/A___

STABILITY OF ADJACENT STRUCTURES

1. Are support systems such as shoring, bracing, or underpinning provided to ensure stability of adjoining structures (i.e., buildings, walls) endangered by excavation activities? YES___ NO___ N/A___
2. Has any excavation below the level of the base or footing of foundations or retaining walls been:
   - Provided with a support system such as under pinning to ensure the safety of employees and stability of the structure YES___ NO___ N/A___
   - Performed in stable rock YES___ NO___ N/A___
   - Determined by a registered professional engineer that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity YES___ NO___ N/A___
   - Determined by a registered professional that the excavation work will not pose a hazard to employees YES___ NO___ N/A___
3. Is the undermining of sidewalks and pavement structures prohibited? YES___ NO___ N/A___

PROTECTION OF EMPLOYEES FROM LOOSE ROCK OR SOIL

1. Is adequate protection provided to protect employees from loose rock or soil that could pose a hazard by falling or rolling from an excavation face? YES___ NO___ N/A___
2. Are employees protected from excavated or other material and equipment by placing this material a minimum of two (2) feet from the edge of excavations or by the use of retaining devices? YES___ NO___ N/A___

INSPECTIONS

1. Are daily inspections of excavations where employee exposure can be reasonably anticipated being done by the competent person? YES___ NO___ N/A___
2. Are inspections being performed by a competent person after every rainstorm or other hazard increasing occurrence? YES___ NO___ N/A___
3. Are employees removed from the excavation if the competent person finds evidence at any time of a situation that could result in a YES___ NO___ N/A___

possible cave-in, protective system failure, hazardous atmosphere or other hazardous condition?

FALL PROTECTION

1.	Are standard guardrails provided on walkways and bridges that cross over excavations?	YES___	NO___	N/A___
2.	Are all remotely located excavations adequately barricaded or covered?	YES___	NO___	N/A___
3.	Are temporary wells, pits, shafts and similar exploratory operations back filled upon completion?	YES___	NO___	N/A___

CRANES AND RIGGING

1.	Are cranes inspected daily?	YES___	NO___	N/A___
2.	Are crane swing areas barricaded or demarked?	YES___	NO___	N/A___
3.	Is all rigging equipment tagged with an identification number and rated capacity?	YES___	NO___	N/A___
4.	Is rigging equipment inspection documented?	YES___	NO___	N/A___
5.	Are stings, chains, and rigging inspected before each use?	YES___	NO___	N/A___
6.	Are damaged slings, chains, and rigging tagged and taken out of service?	YES___	NO___	N/A___
7.	Are slings padded or protected from sharp corners?	YES___	NO___	N/A___
8.	Do employees keep clear of suspended loads?	YES___	NO___	N/A___
9.	Are employees in the lift area wearing hard hats?	YES___	NO___	N/A___

CONFINED SPACES

1.	Have employees been trained in the hazards of confined spaces?	YES___	NO___	N/A___
2.	Are confined space permits available on project site?	YES___	NO___	N/A___
3.	Is a company confined space safety procedure on the project?	YES___	NO___	N/A___
4.	Has a rescue plan been established?	YES___	NO___	N/A___

I HAVE REVIEWED THIS INSPECTION CHECKLIST WITH THE SAFETY INSPECTOR AND FULLY UNDERSTAND THE RECOMMENDATIONS AND WILL MAKE EVERY ATTEMPT TO CORRECT THEM IMMEDIATELY.

SITE SUPERVISOR: _____ Date: _____

PROJECT MANAGER: _____ Date: _____

COMPETENT PERSON:_____ Date: _____

FALL PROTECTION PROGRAM

SECTION 1 - PURPOSE

To plan our work ahead of the foreseeable fall hazard occurrence, to provide regular training to our workers on the use, inspection, and limitations of fall equipment capabilities, and to provide for the swift rescue of fallen workers suspended from their equipment.

SECTION 2 - SCOPE

AMPCO's Corporate policy on the use of fall protection systems and safe work practices when exposed to potential fall hazards. This Corporate Policy Statement applies to all Offices, subsidiaries, joint ventures and affiliates of AMPCO.

SECTION 3 - POLICY

AMPCO Corporate policy dictates that when the potential exists for a worker to free fall more than (6) feet, or less if lower obstructions are present, workers must continuously use a fall protection system. Fall Protection Systems include:

Guardrail systems
Personal fall arrest systems
Warning line system
Covers
Safety net system,
Positioning device systems
Safety monitoring systems

It is the policy of AMPCO, even though these procedures exceed applicable legal requirements, that all scaffolding used on AMPCO projects shall be installed with handrails and mid-rails. No AMPCO employee shall work on any scaffold greater than 15 feet in height without the use of a full body harness equipped with a shock absorbing lanyard connected to an appropriate anchorage point. No employee shall access a scaffold greater than 15 feet in height without wearing a full body harness equipped with a shock-absorbing lanyard.

When a task requires the use of a ladder, consideration of alternative means such as the use of scaffolding and lifts will be considered first. All employees required to work from ladders will be trained in proper use in accordance with OSHA guidelines. Further, no AMPCO employee shall work from a ladder greater than 15 feet in height without wearing a full body harness equipped with a shock-absorbing lanyard connected to an appropriate anchorage point.

SECTION 4 - RESPONSIBILITY

It is the responsibility of the fall protection competent person to implement the fall protection plan and to continuously make safety checks of their work operations and to enforce these safety policies and procedures.

It is the responsibility of each employee to inspect their fall protection equipment prior to each use and bring to managements attention any unsafe acts or unsafe conditions that may cause injury to themselves or any other employees.

4.1 Competent Person

A Competent Person is an individual who, through training, experience and certification, is capable of identifying existing and predictable fall protection hazards in the work place and who has authorization to take prompt corrective measures to correct them.

4.2 Qualified Person

A Qualified Person is an individual who possesses a recognized degree, certificate, or has professional standing, or who by extensive knowledge, training and experience has successfully demonstrated his ability to solve or resolve problems relating to fall protection.

SECTION 5 - PERSONAL FALL ARREST SYSTEMS

The following represents the several different parts which comprise the portable lifeline system designed to arrest the fall of one person. This system must be used by each AMPCO employee who is working at an elevated level in which the potential exists for a free fall of more than six (6) feet. All fall protection equipment and materials must meet the requirements of ANSI, ASTM, and OSHA.

5.1 Anchorage Point

The critical requirement in all fall protection is the anchorage point. It is the position on an independent structure to which the fall arrest device or lanyard is securely attached. The current OSHA requirement of an anchorage is a 5000 pound minimum static load strength. A fixture point above head height should always be planned where this is feasible.

5.2 Horizontal Lifeline

A horizontal lifeline is an anchorage cable designed to be rigged between two fixed anchorage points on the same level which are independent of the work surface. The purpose is to provide a continuous anchorage point for the attachment of lanyards and/or retractable lifelines when no supporting steel or existing structural anchorage points are available. When using a "rat line", as it is more commonly referred to in the industry, care must be taken to ensure the following factors: cable-type lifelines must be at least one-half inch in diameter and be capable of supporting a 5000 pound deadweight load per person at the center of the lifeline; anchorage points must also be capable of supporting 5000 pounds per employee attached; a minimum safety factor of 2:1 is required; the cable must have an adequate degree of sag; supports every 20 to 50 feet; and sufficient shock absorption and design strength at least twice the force calculated for the dynamic fall of an anticipated number of workers who may use the line. Extremely careful engineering is required for all horizontal lifelines.

Note: Horizontal lifelines must be designed and engineered by a Qualified Person.

5.3 Vertical Lifeline

A vertical lifeline is a line which extends from an independent anchorage point and to which a lanyard is attached using a grabbing device. This line should be at least 5/8-inch diameter nylon or 5/8-inch diameter or 3/8-inch diameter steel cable, and must have a minimum breaking strength of 5000 pounds.

Note: When vertical lifelines are used, only one (1) employee can be attached to each line.

5.4 Body Harness

A Body Harness, similar to a parachute-type harness is the only safety support authorized to be worn by AMPCO employees with a fall protection system. The body harness should be a nylon or web belt system designed to spread the shock load of an arrested fall over the shoulders, thighs and seat area. The D-ring must be positioned on the upper back straps, where it will also provide a practical means of raising or lowering the wearer in a rescue operation. The use of color-coded harness straps will help workers to put on the harness easily and properly. AMPCO corporate policy requires the Body Harness must be used in all applications where a personal fall arrest system is used.

Note: The Body Belt, which is a device worn around the waist to which a lanyard or lifeline grabbing device is attached, and the Chest Harnesses, which is only used for restraint or positioning, are not authorized for fall protection applications within AMPCO.

5.5 Lanyard

The lanyard is a short, flexible rope, steel cable, or strap webbing, having a minimum strength of 5000 pounds, that is used to connect a worker's safety harness to either an anchorage point or a grabbing device on a lifeline. The lanyard is designed to permit limited freedom of movement on the job and absorb the shock of a free fall up to six (6) feet. As little slack as possible is vital to limit the free fall distance to which the worker is exposed. The deceleration lanyard used by AMPCO is typically a web-tearing system which activates during the fall arrest to absorb the energy developed.

Only professionally manufactured lanyards with deceleration devices that can significantly reduce fall arrest forces on the body and can reduce the potential for compounding injuries will be used in AMPCO's fall protection program.

Note: In order to remove the possibility of "roll-out" or of producing a shear point on the lanyard, the practice of looping a lanyard over a pipe or piece of structural steel and then hooking it back onto itself, is strictly prohibited. Most lanyard manufacturers have available, in varying lengths, items which are made specifically for this purpose. These are the items that should be used. These may be referred to by any number of names, such as Cross Over Straps, Anchorage Connector Straps, Tie-Off Adapters, etc., and basically, they are all the same. Each is made up of a length of 2 to 3 inch wide webbing with a D-ring on each end. The strap is looped one or more times around the pipe or steel and then the lanyard is anchored into both of the D-rings. This is the prescribed method to be used by AMPCO personnel.

5.6 Rope Grab Device

This is a grabbing device which connects the worker's safety harness or lanyard to the lifeline and is designed to arrest a fall mechanically, bringing the worker to a full stop. There are two types of mechanical cable or rope grabbing devices which may be used by AMPCO personnel:

1. **Manually Operated Grab.** The worker moves this device by hand, up and down the lifeline. Preferably, it should be positioned above the work level. This device actuates during a fall by either squeezing the rope, or it tips in such a way as to lock onto the lifeline by friction.

2. **Mobile Grab.** This grab device is designed to travel freely on the lifeline, helping to provide vertical freedom of movement, but locks automatically should a fall occur. Most mobile grabs are activated by the inertial and/or frictional forces generated by a fall.

5.7 Self-Retracting Lifeline Devices

Self-retracting lifelines and lanyards which automatically limit free fall distances to two (2) feet or less must be capable of sustaining a minimum tensile load of 3,000 pounds applied to the device with the lifeline or lanyard in the fully extended position.

Self-retracting lifelines and lanyards which do not limit free fall distances to two (2) feet or less, rip-stitch lanyards, and tearing and deforming lanyards must be capable of sustaining a minimum tensile load of 5,000 pounds applied to the device with the lifeline or lanyard in the fully extended position.

These portable, self-contained devices are fixed to an anchorage point above the work area. The lifeline rope, webbing or cable is attached directly to the worker's safety harness. The rope pays out of the device as distance increases and retracts as the worker moves closer. At the moment a fall occurs, a centrifugal locking mechanism is activated to arrest the movement, thereby reducing the potential shock load. The retracting lifeline should only be used by AMPCO personnel where there is a potential for a free fall of two (2) feet or less. A good application can be found on sloping roofs or other areas where the rope is never slack and it does not interfere with the work surface. Applications of this device include working on a slanting roof or from a JLG bucket.

Note: Since this device is an enclosed, self-retracting mechanism, consideration should be given to the fact that requirements for inspection and maintenance will be much greater and more difficult than with other fall protection systems.

5.8 Hardware Connectors

This consists of bolts, shackles, D-rings, snap hooks, and metal links which connect parts of the lifeline system together. OSHA requires 5000 pound minimum ultimate static tensile strength and a minimum tensile load of 3600 pounds proof testing of each snap hook and D-ring without permanent distortion. Hardware must be drop forged or pressed steel, cadmium plated with surfaces smooth and free of sharp edges. AMPCO corporate policy requires that all snap hooks must be of the new self-locking style device that prevents unintentional disengagement of the snap hook.

Note: One of the major problems with forged safety snap hooks is its susceptibility to "roll-out," or unlatch during shock or static loading by a twisting process. Care must be taken to ensure the use of "as new" safety locking snap hooks or Carabiner type snap hooks with an automatic twist-lock arm. Snap hooks should only be attached to compatible hardware and never to each other.

SECTION 6 - CLIMBING PROTECTION SYSTEMS

OSHA requires climbing protection on all ladders more than twenty (20) feet high or deep.

Climbing protection devices offer a personal fall protection system which is designed to positively limit a worker's fall. Even when climbing a ladder which is protected by caging (metal hoops installed around fixed ladders) some type of climbing protection device must be used. There are two main types of permanently attached climbing safety devices which may be used by AMPCO personnel:

6.1 Rigid Rail Carrier

The rail, or cable, is called a carrier. In the rigid system, the rail runs the entire length of the ladder and is a permanent part of the ladder. The rigid carrier system is the only climbing system which should be used by AMPCO personnel for ascending or descending a tall ladder, since fittings every few feet attaching the ladder to the structure make these systems inherently safer and more maintenance free than the cable-type climbing systems.

6.2 Flexible Cable Carrier

The flexible cable-type climbing safety system should only be used for lower heights. This type of system has to be secured to the ladder at the top and bottom, must be kept taut by tightening devices to prevent damage caused by wind vibration, and should have guides placed every 15 to 40 feet to provide protection from wind whipping and also to control bowing as the climber ascends or descends. Because of the weathering properties of steel cable outdoors, and the reliability on a single upper fixture point, this type of system must be thoroughly inspected and maintenance records reviewed before allowing AMPCO personnel to use this type of climbing protection.

In both types of systems, sliding devices attach the worker's safety harness to the carrier and allow climbing freedom. Should a fall occur, the device must be of the type which is designed to either lock onto the carrier or to limit the decent velocity. Safety harness used with these systems should include a front D-ring if the rail or cable is in the center of the ladder, or side D-rings if the rail or cable is located on the side of the ladder.

SECTION 7 - FALL PROTECTION SYSTEMS

AMPCO will provide and erect a number of various types of fall protection systems in order to reduce the potential hazards incurred by working at elevated levels. These fall protection systems include the following:

7.1 Guardrail Systems

The top edge height of the top rail must be 42 inches plus or minus 3 inches from the walking/working level. If the worker is using stilts, the top rail must be increased an

amount equal to the height of the stilts. Midrails, when used, should be installed at a height midway between the top edge of the top rail and the walking/working level. If balusters are used in place of midrails, they must be not more than 19 inches apart. The ends of all top rails and midrails must not overhang the terminal posts, except where such overhang does not constitute a projection hazard.

7.2 Safety Net Systems

Surface Safety nets shall be installed as close as practicable under the walking/working on which employees are working, but not more than 30' below such level, and must extend outward 8' from the structure. Safety nets must be capable of withstanding a drop test of 400 pounds and shall have a border rope for webbing that has a minimum breaking strength of 5000 pounds. Mesh openings cannot be greater than 6"x 6" (or 36 square inches) and should be on 6" centers.

7.3 Personal Fall Arrest Systems

Fall hazards at heights should be engineered out if possible. A personal fall arrest system should only be used as a backup for those hazards still remaining. Personal fall arrest systems and components, subjected to impact loading, must be removed from service immediately. Personal fall arrest systems must limit the arresting force to 1800 pounds when using a full body harness.

7.4 Positioning Device Systems

Positioning devices cannot be used for fall protection, their primary purpose is to provide stationary support. Positioning devices must be rigged such that an employee cannot free fall more than 2 feet. They can only be secured to an anchorage capable of withstanding an impact load of two times the potential impact of a fall or 3000 pounds. Only double locking snap hooks should be used and safety belts are O.K. for use with positioning devices.

7.5 Warning Line Systems

The Warning Line shall be erected around all open sides of the roof work area and not less than 6 feet from the roof edge. Warning Lines can consist of ropes, wires or chains and their supporting stanchions, and once erected, must be capable of resisting, without tipping over, a horizontal force of 16 pounds. Lines must be flagged at not more than 6 foot intervals with a high-visibility material.

7.6 Controlled Access Zones

When used to control access to areas where leading edge and other operations are taking

place, the controlled access zone shall be defined by a control line or any other means that restrict access. Control lines must be erected parallel to the unprotected edge and along its entire length. The lines can consist of ropes, tapes, wires or equivalent materials and must be flagged at 6' intervals with high-visibility material. Lines should be between 39" and 45 " high and have a minimum breaking strength of 200 pounds. Barricading and fencing may also be used to identify danger areas. Controlled access zones can be used when conventional fall protection is not used.

7.7 Safety Monitoring Systems

The safety monitor must be a competent person who warns workers of fall hazards and takes action to eliminate the hazard. He must be on the same walking/working surface with the employee and be close enough to see and communicate orally with the employee. The safety monitor cannot have any duties other than to watch the employee being monitored. No other employees, except ones covered by a fall protection plan, can be in the area where a safety monitor is working. Employees working with a safety monitor must be directed to comply promptly with warnings. A safety monitoring system can be used where no other alternate methods have been implemented.

7.8 Covers

Covers must be capable of supporting at least twice the weight of employees, equipment, and materials that may be imposed on the cover at any one time. Covers shall be secured when installed so as to prevent displacement, and either color-coded or plainly marked with the word COVER or HOLE to provide warning of the hazard. Covers located in roadways and vehicular aisles shall be capable of supporting, without failure, at least twice the largest maximum load to cross over the cover.

NOTE: California requires covers to be marked, "Hole – Do Not Remove".

7.9 Protection From Falling Objects

Toeboards, when used as falling object protection, must be erected along the edge of the overhead walking/working surface and capable of withstanding a force of at least 50 pounds applied in a downward or outward direction. They must be solid, a minimum of 3 1/2 inches high and not over a 1/4 inch above the working surface. When materials are piled higher than the toeboard, paneling or screening shall be erected from the toeboard to the guardrail. Materials and equipment shall not be stored within 6' of a roof edge unless guardrails have been erected.

SECTION 8 - RESCUE PLAN

Whenever a personal fall arrest system is going to be used, you must first make certain that an affective rescue plan will be in place that will ensure the prompt rescue of the worker in the event

of a fall. The fallen worker must be rescued safely and quickly. No one should be allowed to hang suspended by a full body harness for more than thirty (30) minutes.

8.1 Advance Planning

All good rescue systems require advanced planning. Determine what rescue equipment will be needed to affect a rescue and make certain that equipment is available at the job site. Ascertain the client's rescue capabilities and are they available to respond to your needs. Check with the local fire department and determine if they can assist you in affecting a rescue. Once the plan is developed, conduct training sessions in the use of the plan.

8.2 Type of Rescue

Will the fallen worker be in a position, both physically and mentally, to be able to affect his own rescue by lowering himself to the ground level or will a rescue team be needed to assist him? Are there devices with a decent capability quickly available at the job site and have employees been trained in their use? Will the fallen worker need to be lifted up to a landing level where he can be rescued or will he need to be lowered to the ground?

8.3 Communicate

You must know who to call and the fastest way to call them. Make certain that whoever you call has been previously advised of your elevated work and the potential need for rescue assistance. Post the emergency telephone numbers at the work site where they will be readily accessible. Make certain that some type of communication link is available to you at the work site. Communicate frequently with the fallen worker and monitor him constantly. Do not allow him to panic. Make certain that he is aware that others know of his situation and are working to affect his rescue. Do not allow him to think he is alone in his problem.

SECTION 9 - TRAINING AND RETRAINING

AMPCO must provide a training program for each employee who might be exposed to a fall hazard. This training, which is to be performed by a Competent Person qualified in all areas of fall protection, must enable each employee to recognize the hazards of falling and in the procedures to follow to minimize these hazards. It is highly recommended that the Competent Person use the Fall Protection Equipment Inspection/Training form during user training.

The competent person will be qualified in the following areas:

- The nature of fall hazards in the work area;
- The correct procedures for erecting, maintaining, disassembling, and

- inspecting the fall protection systems to be used;
- The use and operation of guardrail systems, personal fall arrest
- systems, safety net systems, warning line systems, safety monitoring
- systems, controlled access zones, and other protection to be used;
- The role of each employee in the safety monitoring system when this
- system is used;
- The limitations on the use of mechanical equipment during the
- performance of roofing work on low-sloped roofs;
- The correct procedures for the handling and storage of equipment and
- materials and the erection of overhead protection; and
- The role of employees in fall protection plans;
- The standards contained in OSHA subpart-M.

Each user must be taught the type of fall protection system to be used, who is going to erect, identify and designate the anchor tie-off points to be used, how to regularly inspect the fall protection equipment, and to read and understand the manufacturer's instructions.

Users must be made familiar with the equipment's limitations, how specific pieces of equipment are selected and why substitutions may only be authorized by Competent Persons. Users must understand how the system works and what will happen if a fall should occur.

9.1 Certification

AMPCO will verify compliance with the training requirements of Subpart M by preparing a written certification record, which contains the name of the employee trained, the dates of the training, the signature of the Competent Person who performed the training, and the fact that an examination was required.

9.2 Retraining

Retraining must be performed whenever AMPCO has reason to believe that any affected employee, who has already been trained, is still lacking in the understanding required by Subpart M of the OSHA regulations. Retraining will also be performed when any of the following occurs:

- changes in the work place render the previous training obsolete;
- inadequacies in the employee's knowledge of fall protection; or
- changes in the type of fall protection equipment.

SECTION 10 - INSPECTION AND MAINTENANCE

Prior to first-time usage, a Competent Person, together with workers who will be using the equipment, must make a detailed inspection of the fall protection program and its equipment in order to be sure that it meets the requirements of the job and is accepted by the workers. This type of inspection must be repeated at regular intervals as part of a maintenance program.

Users of fall protection equipment must be taught how to conduct a visual inspection of each part of their equipment, including the webbing harness, buckles, D-rings, lanyards, anchor points, etc., what they should be looking for, and who they should immediately notify in the event they believe they have a problem. Users must be informed that they are required to conduct these visual inspections before each time they use the equipment, and that any indication of tearing, rubbing, weather corrosion, dry rot, damage, cuts, pinched, etc., will be sufficient cause to have the equipment immediately removed from service and destroyed. It is highly recommended the user complete the Fall Protection Equipment Inspection/Training form when performing an inspection.

Note: Fall protection equipment that is found to be defective, damaged, or in need of repair, regardless of the extent of the problem, must be immediately marked as unusable and removed from service.

10.1 Formal Inspection

A Competent Person, other than the user, must perform a formal inspection of all fall protection equipment at intervals of no more than six (6) months. A formal inspection should be performed more frequently if the equipment is exposed to severe working conditions. Only the person performing the formal inspection can punch the date on the grid label attached to the equipment. If the grid label is missing, the equipment must be removed from service until a formal inspection can be performed.

10.2 Safety Harness Inspection

Beginning at one end, holding the body side of the harness toward you, grasp the harness with your hands six to eight inches apart. Bend the harness in an inverted "U". The surface tension resulting will make damaged fibers or cuts much easier to see. Do this, a small section at a time, over the entire harness. 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.

Special attention should 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.

Buckle tongues should be free of distortion and should overlap the buckle frame and move freely back and forth in their socket. The tongue or billet of the harness receives heavy wear from repeated buckling and unbuckling. Inspect for loose, distorted or broken grommets. Rivets should be tight and unmovable with the fingers. Body side rivet base and outside rivet burr should be flat against material.

10.3 Lanyard and Hardware 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. Spliced ends require particular attention. It is highly recommended the user complete the Fall Protection Equipment Inspection/Training form when performing an inspection.

1. **Steel Lanyards**

   While rotating the steel lanyard watch for cuts, frayed areas, or unusual wearing patterns on the wire. Broken strands will separate from the body of the lanyard.

2. **Webbing Lanyards**

   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, or charring are obvious signs of chemical or heat damage.

3. **Rope Lanyards**

   Rotation of 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 the original diameter.

4. **Snap Hooks**

   Snap hook latching mechanisms must be inspected carefully for corrosion, dirt, damage, or abuse. Damaged hooks almost always indicate lack of proper use. Snap hooks that become ineffective because of these problems must be destroyed. Only snap hooks that operate in as-new condition can be used.

10.4 Cleaning the Equipment

Wipe off all surface dirt from the harness with a sponge dampened in plain water. Squeeze sponge dry and dip sponge into mild solution of water and commercial soap or detergent. Work up a lather with a vigorous back and forth motion. Wipe the harness dry with a clean cloth and hang freely to dry. Do not place near excessive heat.

Basic care of the harness and lanyards will prolong the life of the unit and will contribute toward the performance of its vital safety function. Proper storage and maintenance after use are as important as cleansing the equipment of dirt, corrosives, or contaminants. Storage areas should be clean, dry and free of exposure to fumes or corrosive elements.

Recordkeeping procedures will help determine the life and history of individual pieces of fall protection equipment.

10.5 Impact Loading

Most manufacturers will not guarantee that a harness or lanyard will provide adequate protection during a second fall. Therefore, AMPCO Corporate policy mandates that equipment which has been subjected to impact loading or an actual fall, must be immediately removed from service and not used again.

SECTION 11 - RESTRICTIONS

Safety harness, lanyards and lifelines are to be used only for employee fall protection and for absolutely no other use. Once used to arrest a free fall, regardless of the distance, the fall protection equipment involved must be immediately removed from service and destroyed to ensure that they can never be reused.

SECTION 12 - FALL PROTECTION AUDIT

Various forms are required for all AMPCO projects in order to perform a Fall Hazard Audit. In addition to these forms a list of active jobs should be sent to the Health and Safety Office each week.

12.1 Fall Hazard Analysis

The Fall Hazard Analysis form, required for every active job, must be submitted to the Corporate Safety Office. Only one Analysis is required per job unless the task or Fall Protection System changes. If a change occurs simply note it on the form and submit it. A Fall Hazard Analysis should be completed by a competent person or safety personnel.

12.2 Fall Hazard Assessment / Written Plan

A Fall Hazard Assessment / Written Plan form is required for all projects with a fall distance greater than 15 feet. The Assessment / Written Plan must be completed by a Safety Officer and/or Designee (where a Safety Officer is not present a Qualified Person is acceptable) and submitted to the Safety Director for approval. The Assessment / Written Plan must be approved by the Safety Director prior to an employee being exposed to a fall distance greater than 15 feet. The fall plan must be location specific, prepared by

a safety person or designee and implemented under the supervision of a competent person. A copy of the written fall protection Assessment / Written Plan must be maintained at the jobsite. Pictures of the Fall Protection System in use should be taken and submitted to the Safety Director for verification purposes.

FALL HAZARD ANALYSIS

Branch Location: _____ Date of Inspection: _____

Project Name: _____ Inspected By: _____

Project Number: _____ Project Manager: _____

Job Start/End Date: _____ / _____ Project Superintendent: _____

(Please Circle the Appropriate Fall Hazard) **NO FALL HAZARD** **GREATER THAN 6' LESS THAN 15'**
LESS THAN 6' **GREATER THAN 15'**

Type of Work*	Guardrail System	Warning Line System	Barricade or Fences	Safety Monitor	Safety Net	Personal Fall Arrest	Covers	Other Please Describe
Unprotected Sides & Edges								
Leading Edge								
Holes								
Excavations Pits/Shafts								
Roofs								
Wall Openings								
Ladders								
Scaffolds								
Motorized Lifts								
Other (Please Describe)								

* Please place an "X" in the box which best describes the Fall Protection System being utilized for each "Type of Work"

1 **Are employees trained in the use of Fall Protection?** _____YES _____NO _____N/A

2 **Are scaffold equipped with Guardrails?** _____YES _____NO _____N/A

3 **Are ladders greater than 6 feet being used?** _____YES _____NO _____N/A

4 **Are employees using ladders or scaffolding greater than 15 feet in height wearing fall protection equipment?** _____YES _____NO _____N/A

5 **Are holes equipped with covers, secured in place and the word "HOLE" written on them?** _____YES _____NO _____N/A

6 **If fall hazards are greater than 15' has a Written Fall Protection Plan and Fall Assessment been completed?** (Please Attach) _____YES _____NO _____N/A

7 **Is there an adequate anchorage point?** _____YES _____NO _____N/A

If no, describe operation: _____

FALL HAZARD ASSESSMENT / WRITTEN PLAN

Branch Location: _____ Date of Assessment: _____
Project Name: _____ Assessed by: _____
Project Number: _____ Project Start/End Dates: _____
Job Address: _____ Approved by: _____
Superintendent: _____ Date Approved: _____

ENFORCEMENT AND DISCIPLINARY ACTION POLICY

Any employee not in compliance with this Fall Protection Plan, LVI Safety Policies (including fall protection), OSHA standards and/or client safety requirements is subject to immediate disciplinary action, including dismissal from the site and/or termination of employment.

IDENTIFY ALL FALL HAZARDS WITH ELEVATION GREATER THAN 15 FEET

Roof & Floor Perimeter Edges		Leading Edges	
Open holes greater than two inches		Elevator Openings	
Window, door & wall openings		Stairway Openings	
Open sided floors		Skylights	
Articulating manlifts (JLG)		Scaffolds	
Ladders			

FALL HAZARD ASSESSMENT CHECKLIST

	YES	NO
1. Can an employee enter the area without restrictions to perform work?		
2. Are fall prevention systems such as cages, guardrails, toeboards, manlifts in place?		
3. Have slipping, tripping hazards been removed or controlled?		
4. Have visual warnings of fall hazards been installed?		
5. Are any permanently installed floor coverings, gratings, hatches, or doors missing?		
6. Are hole covers properly secured and labeled?		
7. Does the location contain any other recognized safety and health hazards?		
(If yes, fill in brief description and have hazards been addressed?) _____		
8. Is the space designated as a Permit Required Confined Space?		
9. Have anchor points been designated and load tested?		

ASSESSMENT INFORMATION: **(Indicate specifics with initials)**

Initials	*Hazard*	*Remarks and/or Recommendations*
	Total Potential Fall Distance:	
	Number of Workers involved:	
	Date Employees Exposed to Fall Hazards:	
	Obtainable Anchor Point Strength:	
	Anchor Point Strength: (not less than 5000 lbs)	

ADDITIONAL REQUIREMENTS:

Potential Environmental Conditions that could impact safety:

Initials	*Conditions*	*Remarks and/or Recommendations*

FALL HAZARD ASSESSMENT - PAGE TWO

PROJECT SCOPE OF WORK:

_____

_____

_____

Sketch of elevated work levels and anchor points, including work levels / platforms

FALL PROTECTION EQUIPMENT REQUIREMENTS

Identify fall prevention and personal fall protection equipment to be used:

Full body harnesses		Guardrails	
Lanyards and sizes		Warning lines	
Vertical and horizontal ropes (synthetic)		Safety monitoring system	
Vertical and horizontal cable (steel)		Hole covers	
Rope grabs		Scaffolds	
Retractable lifelines & sizes		Man-lifts & weight capacities	
Other _____		Other _____	

FALL PROTECTION EQUIPMENT INSPECTION AND SYSTEM(S) ASSEMBLY

Competent Person Inspection completed in the past six months (If answer is No, a competent person Inspection of the equipment required)	**YES**	**NO**

The individuals designated below are responsible for onsite compliance with this Fall Protection Plan and have full authority to stop work and/or discipline individual employees for non-compliance.

Name of Competent Person completing inspection: _____ Date: _____

Name of Project Competent Person for Assembly: _____ Date: _____

FALL HAZARD ASSESSMENT - PAGE THREE

TRAINING REQUIREMENTS (e.g., fall protection equipment, safety monitoring, guardrails, etc.)

All employees assigned to this project shall, at a minimum, have documented training regarding the fall protection being utilized to address the specific fall hazard(s) associated with this project.

List training courses performed:

_____ _____
_____ _____
_____ _____
_____ _____

EMPLOYEE TRAINING AND INSTRUCTIONS OF FALL PROTECTION SYSTEMS

Employee Training Completed as Required ☐ **YES** ☐ **NO**

Employees Trained:

_____ _____
_____ _____
_____ _____
_____ _____
_____ _____
_____ _____

SAFETY MONITORING TRAINING AND INSTRUCTIONS FOR SAFETY MONITORING SYSTEMS

Employee Training Completed as Required ☐ **YES** ☐ **NO**

Safety Monitors:

_____ _____
_____ _____

TRAINING CERTIFICATION

Certification of Training Received for Affected Employees: ☐ **YES** ☐ **NO**

Location of Documents: Jobsite ☐ Office ☐ Other ☐

METHOD(S) OF PROVIDING OVERHEAD PROTECTION

		COMMENTS
Barricades (eliminating access)	☐	_____
Warning signs posted	☐	_____
Hard hats required	☐	_____
Toe-boards installed around openings	☐	_____
Other (explain)	☐	_____

METHOD(S) FOR PROMPT, SAFE RESCUE AND REMOVAL OF A FALLEN / INJURED WORKER

Initiate Emergency Medical System (e.g., 911)	☐	_____
Utilized Man-Lifts with Personnel Platforms	☐	_____
Use Drop Lines or Retraction Rescue Devices	☐	_____
Use Plant Rescue (include contact number)	☐	_____
Other (explain)	☐	_____

Have Rescue Personnel been trained, briefed, rescue equipment available? ☐ **YES** ☐ **NO**

FALL PROTECTION EQUIPMENT INSPECTION/TRAINING
USER CHECKLIST

Tagged Out of Service ☐ Yes ☐ No

USER NAME: _____ **DATE:** _____
PLEASE PRINT

MANUFACTURE: _____ **SERIAL #:** _____
PLEASE PRINT

By signing below I acknowledge that I have been trained in the use and inspection of Fall Protection Equipment:

EMPLOYEE SIGNATURE: _____

Harness Belts and Straps	YES	NO	N/A
1. Any frayed edges?	☐	☐	☐
2. Any broken fibers, pulled stitches?	☐	☐	☐
3. Any cuts?	☐	☐	☐
4. Any mold or mildew?	☐	☐	☐
5. Any chemical or fire damage?	☐	☐	☐

Harness Rings and Buckles	YES	NO	N/A
1. Are they difficult to move?	☐	☐	☐
2. Are rollers difficult to turn?	☐	☐	☐
3. Are rivets loose and movable?	☐	☐	☐
4. Do rivets protrude past material?	☐	☐	☐
5. Cracked, bent, corroded or burnt edges?	☐	☐	☐
6. Any sharp edges?	☐	☐	☐

Harness Tongue Or Billet	YES	NO	N/A
1. Any cuts, cracks or excessive wear?	☐	☐	☐
2. Loose, distorted or broken grommets?	☐	☐	☐
3. Any additional punched holes?	☐	☐	☐

Web Lanyards	YES	NO	N/A
1. Any cuts, cracks or breaks?	☐	☐	☐
2. Any swelling or discoloration?	☐	☐	☐
3. Any heat or chemical damage?	☐	☐	☐
4. Does material seem brittle?	☐	☐	☐
5. Any breaks in the stitching?	☐	☐	☐

Rope Lanyards	YES	NO	N/A
1. Any fuzzy, worn, broken or cut fibers?	☐	☐	☐
2. Any change in rope diameter?	☐	☐	☐
3. Any heat or chemical damage?	☐	☐	☐

Steel Lanyards	YES	NO	N/A
1. Any cuts or frayed areas?	☐	☐	☐
2. Any usual wearing patterns?	☐	☐	☐
3. Any broken strands?	☐	☐	☐
4. Any change in cable diameter?	☐	☐	☐
5. Any heat or chemical damage?	☐	☐	☐

Thimbles	YES	NO	N/A
1. Loosely seated in the eye of the splice?	☐	☐	☐
2. Any loose or cut strands in splice?	☐	☐	☐
3. Is shape distorted?	☐	☐	☐
4. Any sharp edges?	☐	☐	☐
5. Any cracks, corrosion or pitted surfaces?	☐	☐	☐

Deceleration Unit	YES	NO	N/A
1. Any cuts, burnt holes or tears?	☐	☐	☐
2. Any loose strands in stitching?	☐	☐	☐
3. Any rips or deterioration of lanyard?	☐	☐	☐

Snap Hook(s)	YES	NO	N/A
1. Any cracks, corrosion or pitted surfaces?	☐	☐	☐
2. Keep latch has to be forced into nose due to binding, distortion or obstruction?	☐	☐	☐
3. Does keeper open without pressing lock?	☐	☐	☐
4. Is keeper spring worn or weak and unable to remain closed?	☐	☐	☐
5. Is the keeper lock frozen or hard to operate with one hand?	☐	☐	☐

PERSONAL FALL PROTECTION
INSPECTION AND TRAINING

Employees using fall protection equipment are required to perform an inspection of their own equipment before each use. Inspect the equipment labels to verify that they are present and that a formal inspection was conducted within the last six months. Inspect all metallic and /or plastic parts for deformation, fractures, cracks, deep pitting, burrs or missing parts. Inspect each component of the complete system by using the manufacturer's instructions. Visually inspect the fall arresting device for any distortion in the metal parts. Follow the same procedures for wire and rope lanyards when inspecting lifelines. Insure that all parts are compatible and the device operates smoothly.

IMPORTANT: All fall protection equipment must be inspected by a competent person, other than the user, at no more than 6 months intervals. This is what is referred to as a formal inspection. If the equipment is exposed to severe conditions the formal inspection should be performed more frequently. Only the person conducting the formal inspection can punch the date on the grid label attached to the equipment.

Harness Belts and Straps Beginning at one end of the belt or strap, grasp the item with both hands 6 to 8 inches apart. Bend the item into an inverted "U", so that the surface tension resulting makes damaged fibers or cuts easier to see. Follow this procedure throughout the entire length of each strap and belt in the harness. If any part of the harness has frayed edges, broken fibers, pulled stitches, cuts, mold, mildew or chemical or fire damage it shall be tagged "Out of Service" and removed from the work area.	Web Lanyards Begin at one end of the web lanyard and work to the opposite end by bending the webbing over a pipe or mandrel and the moving the ends from side to side. Do this to each side of the lanyard and it will reveal any small cuts or breaks in the fabric of the lanyard. Any web lanyard that has cuts, cracks or breaks, swelling, discoloration, is brittle or shows signs of charring resulting from either chemical or heat damage or has breaks in the stitching, must be tagged "Out of Service" and removed from the work area.	Thimbles All nylon or hemp rope lanyards that have snap hooks at the ends or are permanently attached to a D-ring must utilize a splice to do so. A thimble must be firmly seated in the eye of this splice. If there is not a thimble in the eye of the splice or the splice has loose or cut strands, the lanyard must be tagged "Out of Service" and removed from the work area.
Harness Rings and Buckles Check each ring and buckle to make sure that they move freely. Rollers must turn freely on their frame. Rivets must be tight and unmovable. Rivet base and top must be flat against the material. Any harness with rings or buckles that have been bent, distorted, corroded or have cracks, breaks, sharp edges or burns, must be tagged "Out of Service" and removed from the work area.	Rope Lanyards Start at one end of the rope lanyard; grasp the lanyard with both hands 6 to 8 inches apart. Forcibly rotate the rope first one way and then the other and continue down the length of the rope to the opposite end. During this visual inspection look for any fuzzy, worn, broken or cut fibers. Any change in rope diameter would indicate weakened areas. If any of these conditions exists the rope lanyard must be tagged "Out of Service" and removed from the work area.	Deceleration Units The outside cover of the deceleration pack should be examined for cuts, burn holes or tears. Stitching on areas where the unit is sewn to D-rings, belts, or lanyards must be examined for loose strands, rips or deterioration. If any defects are discovered during the inspection the unit must be tagged "Out of Service" and removed from the work area.
Harness Tongue Or Billet The tongue or billet of a harness receives the heaviest wear from the repeated buckling and unbuckling. Any harness with a tongue or billet, which has loose, distorted or broken grommets or additional punched holes, must be "Tagged Out of Services" and removed from the work area.	Steel Lanyards Inspect a steel lanyard in the same manner that you would a rope lanyard; grasp the lanyard with both hands 6 to 8 inches apart. Forcibly rotate the cable first one way then the other and continue down the length of the cable to the opposite end. During the inspection if any cuts frayed areas, or unusual wearing patterns on the wire, or should any broken strands be found the steel lanyard must be tagged "Out of Service" and removed from the work area.	Snap Hooks Inspect the snap hook closely for cracks, corrosion or pitted surfaces. The keep latch must seat into the nose without binding, being distorted or obstructed. If the following conditions exist, the snap hook and the item it is permanently attached to must be tagged "Out of Service" and removed from the work area. The keeper opens without first depressing the keeper lock. The keeper spring does not have sufficient force to keep it closed. The keeper lock is frozen or hard to operate with one hand. The snap hook is badly corroded or is distorted. There are cracks in the metal.

GENERAL OFFICE SAFETY

SECTION 1 - PURPOSE

To plan our work in such a manner as to prevent the accidents which are a potential within the office.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

Each employee will be instructed in general office safety procedures so as to reduce the number of "office" accidents.

SECTION 4 - GENERAL

Safety in the office, like anywhere else in the AMPCO organization, does not just happen. It is the result of planning and individual effort. Unfortunately, safety in the office is a somewhat neglected area, the assumption being that its accident potential is not as great as other areas of employee activity.

Accidents, however, do occur in offices regularly. Falls from office chairs or the painful bumps against open drawers or sharp edges of file cabinets, etc., do result in painful injuries. The following are suggested procedures for your consideration, in an effort to maintain a safe workplace.

SECTION 5 - LIFTING TECHNIQUES

- Know your strength - when in doubt make it a two-person job. Plan ahead, make certain you have a place to put the object.
- Be sure your footing is secure. Use arm and leg muscles - not your back. (This means keeping your back straight and the load close to your body).
- Grasp the object firmly - hold it so that your fingers will not be pinched if the load should shift, and be sure the load does not block your view while walking, and always remember to lift with your legs.
- Place the object down by using arm and leg muscles - rest one corner first so that hands do not get caught underneath.

SECTION 6 - PROPER DRESS

- Wear a safe work shoe. A closed toe gives protection while a sensible heel provides proper balance. Heels kept in good repair control slipping. And remember, jewelry can look pretty, but it's bad when it gets caught in equipment.
- Clothing, such as loose ties or baggy sweaters, can easily become caught in any kind of moving equipment.

SECTION 7 - FALLING OBJECTS

- Be sure your typewriter or computer is securely in place. Vibrations can cause it to perch at a dangerous angle without you realizing it. Elbow room is important. Think of all the items you can knock off your cluttered desk with your elbow (pens, pencils, staplers, paper clips, papers, thumbtacks - all potential accident hazards).
- Narrow on top of wide/short on top of long. That is the secret of safe piling of telephone directories, papers, boxes, or whatever. And remember, sharp, pointed objects, when they fall, can become weapons as you grab them.

SECTION 8 - TRIPS and FALLS

- Always close file and desk drawers after use.
- Keep the floors free of debris - even a rubber band can cause someone to trip. Use aisles and avoid shortcuts - wastebaskets, phone and extension cords could also be trip hazards.
- Watch your step; in other words "Heads UP!". Reading while you are walking can obstruct your vision.
- Wipe up wet spots - carry beverages in covered containers or on trays to prevent spills. Make your motto "If you spill it, wipe it up!". "If you drop it, pick it up!".
- Do not use rolling chairs as ladders (you want to reach; they want to roll).

SECTION 9 - LADDER ACCIDENTS

- Use a ladder, not a chair or drawer, when reaching for an object, and always face the front of the ladder, going up or coming down.
- Move the ladder rather than reaching out to the side and stay off the top two steps. If the ladder will not reach, get a longer ladder.
- Be sure the ladder is on level ground and allow only one person on the ladder at a time. Always have someone hold the ladder while you are on it.

SECTION 10 - FILING and STORAGE ACCIDENTS

- Avoid overloading the top drawers of filing cabinets. Too much weight near the front of a drawer can cause overbalancing; thus the cabinet can tip forward.
- Always close one drawer before opening another. This could keep the filing cabinet from tipping over or it could keep your head from coming into painful contact with sharp edges.
- Close drawers gently by using the handles. Fingers get pinched if you use top or sides of drawers. Kicking bottom drawers to close them can result in bruised (sometime broken) toes and loss of balance.
- Do not struggle with stuck drawers or doors. That is how you can invite back injury.
- Do not leave chairs or boxes in aisles in front of file cabinets when they are not in use.

SECTION 11 - MACHINE ACCIDENTS

- **Read instructions.** Never use a machine that you do not know how to operate, and be sure mechanical guards are in place.
- **Be alert for electrical hazards.** Current can hurt! If a machine overheats, smokes, or sparks, or you feel a slight shock, pull the plug and report it. Always turn electrically operated machines off whenever you are about to:
    - begin adjusting them;
    - apply any type of liquid solutions;
    - leave the machine for a long period of time or at the end of the work shift; and
    - make any type of minor repairs to the machine.

- **Always watch your clothing.** Loose sleeves, scarves, belts, dangling jewelry, etc., are dangerous near moving parts.
- **Check the position of your machines.** See that typewriters, computers, duplicators, adding machines, etc., are firmly centered on the working surface.

SECTION 12 - CUTS and PUNCTURES IN THE OFFICE

- Keep pointed objects boxed separately in a drawer so they cannot stab you when searching for them.
- Staplers are a common source of injuries. Most occur when someone holds a thumb over the end of a jammed stapler and tries to test it.
- Razor blades are extremely dangerous. Only one-sided safety blades should be used if absolutely necessary. Always try to locate and use a safety-type knife instead.
- Envelopes and papers also cause severe cuts. Always try to use a rubber finger guard when working with stacks of paper. Use a sponge or sealing device to wet stamps and envelopes.

Do not slide envelopes across your tongue to moisten the sealing glue.

- When handling broken glass, there is always a danger of cuts. Always sweep up pieces of broken glass instead of picking them up by hand. Glass splinters can also be picked up with damp facial tissues or paper towels.

SECTION 13 - FIRE HAZARDS

- Cigarettes and matches can also present a danger. If you are in an approved smoking area, have ashtrays handy. Keep butts and matches out of wastebaskets. Be certain cigarettes and matches are completely out before leaving them. Do not place a lit cigarette in the ashtray temporarily; if you must leave it, put it out! An unattended burning cigarette is asking for trouble.
- Flammable liquids can be extremely dangerous. When any flammable liquid is being used (it generally says flammable liquid on the container) no smoking is the rule! Rubber cement is highly flammable.
- Know where the nearest fire extinguishers are located. When fire or smoke is detected, follow standard operational procedures. And take the time to locate and learn your office's Emergency Action Plan. Knowing ahead of time what type of warning signals will be used to announce an emergency, and knowing your escape routes can save your life.

HIGH PRESSURE WATER JETTING

SECTION 1 - PURPOSE

These recommended practices are intended to provide guidance in the proper operation of high pressure water jet cleaning and cutting equipment.

SECTION 2 - SCOPE

This policy applies to all AMPCO operations.

SECTION 3 - POLICY

It is AMPCO's policy to guarantee that High Pressure Water Jetting equipment will be used in accordance with specified safety procedures and common sense to ensure both the maximum amount of production and the maximum amount of safety.

During any water jetting activity the correct application of the water jetting equipment is the responsibility of the operator, who should be familiar with the operation of high pressure pumps, metal fittings, hoses, guns, and accessories. The modification of high pressure water jetting equipment will not be permitted without prior written approval of the manufacturer of the equipment.

SECTION 4 - GENERAL

The use of high pressure water jets for cleaning is a rapidly evolving technology, with new developments consistently occurring. For this reason, these practices are dated and will be reviewed at least annually for any required changes.

These recommended practices cover the personnel requirements, operator training, operating procedures and recommended equipment for the proper operation of all types of high pressure water jetting equipment as normally used by AMPCO in connection with their construction, maintenance, repair, cleaning, and demolition work.

SECTION 5 - DEFINITION OF TERMS

The following basic definitions are associated predominately within the high pressure water jetting industry:

- **High Pressure Water Jet System** – High pressure water jet systems are water delivery systems which have nozzles or other openings whose function is to increase the speed of liquids. For purposes of this Section, the system will include the pumps which produce the pressure, the hoses, lances, nozzles, valves and safety devices, as well as any heating elements or injection systems that may be attached.
- **High Pressure Water Cleaning** - The use of high pressure water, with or without the addition of other liquids or solid particles, to remove unwanted matter from various surfaces where the pressure of the liquid jet exceeds 1,000 psig at the orifice.
- **Pressurizing Pump** – A unit designed to deliver high pressure water or other liquids into a common manifold to which either flexible hoses, or rigid tubing connecting to lances and nozzles are attached.
- **Dump System** – An operator controlled manually-operated device or system that rapidly reduces the pressure to a level that yields a pressure flow at the nozzle that is considerably below the risk threshold.
- **Nozzle** – A device with one or more openings where the fluid discharges from the system. The nozzle restricts the fluids area of flow, accelerating the water to the required velocity and shaping it to the required flow pattern and distribution for a particular application. Combinations of forward and backward nozzles are often used to balance the thrust. Such nozzles are commonly referred to as tips, jets, orifices, etc.
- **Operator** – A person who has been trained in the use of high pressure water jet systems and who has demonstrated his or her understanding and knowledge of the system and is capable of performing the assigned tasks.
- **Hose Assembly** – A hose with couplings attached in accordance with manufacturer's specifications.
- **Lance** – A rigid metal tube used to extend the nozzle from the end of the hose.

SECTION 6 - PERSONAL PROTECTIVE EQUIPMENT

It is essential that each operator wear the appropriate personal protective equipment to accomplish the water jetting job safely. The following is a list of recommended safety equipment:

6.1 Protective Clothing: Water jets can penetrate clothing, most protective suits, and the skin, and cause serious injury. Therefore, all operators must be supplied with suitable

waterproof or liquid resistant clothing that has an outer layer that will repel casual rebounding water and provide adequate protection for the type of work being undertaken. Garments should provide full cover to the operator, including the wearer's head, arms, torso, waist and legs, and should consist of either a one-piece suit or individual items. When there is a reasonable probability of exposure to dangerous chemicals, chemical resistant clothing must be worn.

6.2 Head Protection: All personnel must wear AMPCO issued hard hats at all times when working on a construction site or in a "Hard Hat Area." This includes visitors, subcontractors, engineers, inspectors, and anyone else who has authorization to be on the site. Personnel working with a high pressure water jetting system must wear their hard hats on top of their protective rain suits head cover. Hard hats which have been altered by drilling or cutting will not be permitted, nor will those hats which have been altered by the addition of any items on the outside of the hat other than safety, union or site stickers. When it is necessary to use additional personal protective equipment, which must be attached to the hard hat, only those hard hats designed for this purpose may be used.

6.3 Hand Protection: Adequate hand protection must be supplied to all operators. When working with a high pressure water system, all personnel must wear some type of water and/or chemical resistant work gloves that are in good condition and which are suited to the type of work involved. These include plastic-coated gloves, rubber gloves, or metal-mesh reinforced gloves. Kevlar gloves with water repellent treatment is required for all operators using lances less than 48" in length.

6.4 Eye and Face Protection: If the operator is not wearing a full-face respirator, then some other suitable type of eye and face protective equipment, such as a full face shield, must be provided to all personnel working with high pressure water jetting equipment. Depending on the type and extent of exposure, it may be necessary to issue operators chemical splash goggles.

6.5 Foot/Leg Protection: While safety shoes which meet nationally recognized standards are recommended for use by all personnel, those personnel who are working with high pressure water jetting systems must wear rubber boots with steel toecaps. Metatarsal and shin guards are required to be used by jetting gun operators. Rubber boots must be kept in good repair and those with worn heels or thin or worn soles should not be permitted.

6.6 Hearing Protection: In as much as most high pressure water jetting operations consistently produce noise levels in excess of 80 db, suitable hearing protection must be issued and used correctly. For instructions in the correct use, inspection and maintenance of hearing protection, refer to Section 7-3 of the Corporate Safety Manual.

6.7 Respiratory Protection: A respiratory protection program must be implemented where there is a reasonable probability of exposure to hazardous substances. Refer to Section 7-1 of the Corporate Safety Manual for the AMPCO Respiratory Protection

Program.

6.8 Hazard Exposure: The safety manager or someone thoroughly familiar with the potential hazards to be found at the location where the work is being performed, should be consulted prior to starting work to determine the potential environmental and personal risks peculiar to that specific task. If any hazards are determined to exist, then appropriate action must be taken prior to starting the job.

SECTION 7 - SAFETY APPLICATIONS

For maximum operational safety the following equipment and procedures must be used where applicable.

7.1 Pump - The principal component of a high pressure water cleaning system is usually a positive displacement pump which discharges water into a common manifold to which flexible hoses or lances with nozzles or other cleaning accessories are attached. The pumps are appropriately powered and can be either mobile or permanently mounted. They should never be operated above the manufacturer's recommended operating pressure.

7.2 Automatic Relief Device - The high-pressure water system must be equipped with an automatic relief device on the discharge side of the pump, adjusted so that the maximum allowable working pressure of the system is not exceeded by more than 3 percent.

7.3 Pressure Gauge - The system must be equipped with an accurate pressure gauge to indicate the pressure being developed.

7.4 Filters - The high pressure water system must also be equipped with an adequate filter or strainer in order to prevent particles from entering the pump and damaging the plungers.

7.5 Safety Device - The high pressure system must be equipped with a safety device which will by-pass the flow or dump the discharge pressure to a safe level immediately when activated. The operator must be able to control this safety device dump system with either his hand or foot.

7.6 Hose Assemblies - All hose assemblies used on the discharge side of the high pressure water pump must have a safety factor of at least 3.0 based on the manufacturer's rated minimum burst pressure. Make certain that all high pressure hose connections are protected with whip checks.

7.7 Fittings and Valves - All fittings and valves used on the discharge side of the high pressure water pump must have a safety factor of at least 3.0 based on the tensile

strength of the materials.

7.8 Electrical Controls - All electrical controls that can be handled by personnel must be either fail safe, low voltage or protected with an approved ground fault circuit interrupter.

SECTION 8 - PRE-OPERATIONAL PROCEDURES

Pre-job planning must take place prior to the start of any job. Personnel familiar with the equipment to be cleaned and the environment of the work area should meet with the personnel that will be doing the cleaning and outline potential hazards of the work area, environmental problems, safety practices and emergency procedures. Among these are the following:

8.1 Planning - Every job and work site has its own special conditions that must be reviewed by the project manager and the customer before site specific written procedures can be developed. The site specific written procedures may be based on this Section of the Corporate Safety Manual, but they must also include precautions to be followed on a particular job or a particular work site.

8.2 Barricade the Area - Barricades must be erected around the work pad and to enclose hazardous areas. Barricades may consist of rope, safety tape, barrels, construction tape, etc., as long as it provides an effective warning and highly visible barrier. When the equipment to be cleaned has been contaminated with hazardous substances, appropriately worded warning must be placed around the protective barrier.

8.3 Hoses and Fittings - All hoses and fittings must be inspected for evidence of excessive wear and damages prior to installing them on the system.

8.4 Hoses - Hoses, pipes and fittings should be supported to prevent excessive sway, vibration or stress on end connections. Hoses should be protected to prevent kinking or excessive wear and arranged so as not to present a tripping hazard.

8.5 Nozzles - Before installing the nozzles, the system should be completely flushed with sufficient water to remove any air or foreign particles. All nozzles should be inspected for damage and/or plugged orifices before installing them onto the system. The high pressure water system should be shut off and disconnected before installing or removing any nozzles.

8.6 Fuel – Check to make certain there is sufficient fuel to operate the water blaster unit throughout the period of the work shift. Nothing is worse than having to shut down the job while you get fuel for your equipment.

8.7 Operating Pressure – Both the customer and the project manager should review the pressures and flow rates required to perform the work to be carried out. Within the

limits of any restrictions on flow volume that may arise, the work should be performed at the lowest effective pressure.

8.8 Checklist - A safety and equipment checklist should be used prior to the start of any job. (See Appendix A).

SECTION 9 - OPERATIONAL PROCEDURES

The following procedures must be adhered to when setting up the high pressure water jetting system to be operational:

9.1 Wash Pad - Where practical, items to be cleaned should be removed from the plant area and brought to a high pressure water jetting area (wash pad) that has an appropriate drainage or sewer for runoff water. The wash pad should have a partial enclosure to contain back-spray and splatter as the items are being cleaned and have a catch basin constructed in a manner which allows solids and sludge from the water stream to settle out while allowing the water to overflow the basin and drain into the sewer.

For those projects in which it is necessary to clean an item in place, provisions must be made to erect an enclosure of scaffolding and reinforced poly sheeting around the item to be cleaned and to construct a catch basin under the enclosure to contain back-spray and splatter as the item is being cleaned.

9.2 Barricade the Work Area – Area limits applicable to the cutting or cleaning operation must be defined and barriers erected to warn against access to other personnel. Barricaded area must include the pumping unit, high pressure water hoses, and any other equipment that is being used with high pressure. Barriers should be highly visible and contain notices stating:

DANGER – KEEP CLEAR
HIGH PRESSURE WATER JETTING

9.3 Hazardous Substances – Where there is a potential for encountering corrosive or toxic substances, the operator must obtain a Safety Data Sheet (SDS) for the substance in order to determine the degree of personal protection required, whether these wastes are to be managed as hazardous or non-hazardous waste, the procedures for the collection and disposal of the waste materials, and to post the appropriate warning notices on the barrier.

Note: In most cases, the customer will be the final authority in the management of his waste.

9.4 Work Surface – The wash area should have a good work surface which provides secure footing. The area in which work is to proceed should be swept clean of all loose materials and debris to prevent tripping and slipping hazards and also to reduce the potential for having to dispose of material that might otherwise be clean but which becomes contaminated during the high pressure wash. Any material that did become contaminated during the water jetting operation will have to be disposed of as hazardous waste.

9.5 Access – Access by unauthorized persons or vehicles into the wash pad, where high pressure water jetting is taking place, must be prevented. Perimeter barricades must be outside the effective range of the jet wherever possible. Barricades must be kept up at all times to keep out unnecessary traffic and vehicle traffic must be kept to a minimum. Any area where forklifts, cranes and other utility vehicles are required to go on and off the wash pad must be kept clean at all times so that materials are not tracked off of the pad. If tires become contaminated, they must be decontaminated before the vehicle leaves the pad.

9.6 Approaching the Operator – Personnel having reason to enter the water jetting area must wait outside the area until the jet has stopped and his or her presence known. Personnel wishing to have the jetting operation stopped should approach a team member, other than the operator. The jet operator should not be distracted until the jetting has been stopped.

9.7 Protective Equipment - All personnel working or entering the barricaded area, while cleaning is in progress, must wear the required personal protective equipment in accordance with the job conditions and paragraph 6.0 of this Section.

9.8 Team Operation – In most jetting operations it is an accepted practice to use a minimum of two persons. A supervisor who has been trained in all aspects of the jetting operation should manage the team.

9.9 Number of Operators – According to the nature of the job and the type of equipment being used, there should be at least two or more operators involved in any high pressure water jetting system operation. The operators should work as a team with one member in charge. The operator of the gun or lance should take the lead role while the jetting is in progress.

1) **Gun or Nozzle Operator** – The member of the team who holds the gun, lance, nozzle or delivery hose and controls the motion and direction of the jet will be known as the gun or nozzle operator. The team member in this position will control the jetting operation while water jetting is taking place and ensure that:

    - the group works together as a team;

- the pre-operating procedures have been properly carried out;
- the operational procedures are properly carried out;
- the working area is properly prepared and maintained during water jetting operations; and
- all necessary permits and authorizations have been obtained prior to the start of work.

2) **Pump Operator** – The second member of the team is the pump operator, who monitors and controls the pressurizing pump during the jetting operation. In addition, the pump operator must maintain a close watch on the gun operator for signs of difficulty or fatigue. He or she should also keep watch on the entire work area for any unsafe conditions that could develop or intrusion by unauthorized personnel. In an emergency, he or she will shut off the pressure until it is safe to continue.

3) **Additional Operators** – Additional operators may be required in the following circumstances:

- To assist the gun operator with the handling of the lance if it is too long or heavy for one person; or
- To provide communication if the gun operator is out of sight of the second operator who is attending the pump unit.

4) **Job Rotation** – The team members should rotate their positions during any job to minimize fatigue to the operator holding the lance or gun.

5) **Hand Signals** – Because of the noise that water jetting makes and the nature of the protective equipment, voice communications may be limited. Therefore, before starting a jetting operation, the team members should agree on a basic code using hand signals as a means of passing instructions back and forth during the operation of the equipment.

6) **Fitness** – All members of the team should be physically and mentally capable of performing the required operation.

9.10 Start-up Procedures – The pump operator must not start the unit until told to do so, by word or hand signal, from the gun operator. Before bringing the unit up to pressure, on a second hand signal the pump operator will ensure that the jetting nozzle is either directed at, or positioned within, the work piece; that the gun operator has a secure stance and control of the nozzle; and that each team member is in the proper position to perform his task.

9.11 Pressurizing the System - Pressure on the system must never be increased fast. It must be increased slowly while the system is being inspected for leaks and/or faulty components. All leaks or faulty components must be repaired or replaced before the system can be made operational. The high pressure water system can never be left unattended when it is pressurized.

9.12 Equipment Malfunction – If any dump valve or pressure relief valve does not work properly when tested at the beginning of an operation, or if the valve fails during operation, then the system must be shut down immediately.

9.13 Shutdown Procedures – Care should be taken to release the pressure in the system, especially when a dry shutoff gun is in use; however, when the pressure is reduced at shutdown, the pressure should be lowered slowly to prevent the sudden lack of force from causing the operator to lose his or her balance. It is the duty of the gun operator to ensure that no pressure remains in the line or gun after shutdown.

9.14 Clean-up Procedures – Clean up should be done at the end of each shift or at the end of the cleaning, whichever comes first. Sludge and any poly used to wrap the item or to contain splatter must be placed in appropriately marked drums. Seal and identify any drums containing contaminated materials or sludge and notify customer for removal.

SECTION 10 - ADDITIVES

Any water additives, such a chemicals, detergents, or solid particles, can only be added or used in accordance with the manufacturer's recommendations.

SECTION 11 - ADDITIONAL SAFETY MEASURES

The following additional safety measures must be complied with in order to have the high pressure water jetting system operate to its maximum efficiency without causing injury to its operators.

11.1 Start-up – The pump unit must not be started and brought up to pressure unless each team member is in his designated position, the nozzle is held in or directed at the item to be cleaned, and the lance or gun is securely held.

11.2 Adjustments – Apart from operational procedures, no attempt will be made to adjust any nut, hose connection, fitting, etc., while the system is under pressure. The pump must be stopped and any pressure in the line discharged prior to making any such adjustment. Care must be taken to release the pressure in the dry shut off gun and the line when the unit is switched off.

11.3 Equipment Malfunction – If for any reason the water flow does not shut off when

the trigger or foot pedal is released, work must stop immediately until the item has been serviced, repaired or replaced by a properly trained individual.

11.4 Reaction Force – The operator must be allowed to experience the reaction force of the jet progressively until the required operating pressure is reached. The lowest pressure should be used compatible with the work to be done. The pressure must not be adjusted without the operator's awareness.

11.5 Effect of Line Pulses – Operators should be made aware of the reactive effect of pressure in the line which can transmit a severe jolt to the operator when the dump valve or dry shut off valve is operated. To minimize this effect, total hose lengths should be kept as short as possible. In addition, a damping device can be placed in the system.

11.6 Thermo-Plastic Hoses – Thermo-plastic hoses must never be used for high pressure water jetting unless it can be shown that they are specifically designed for this purpose.

11.7 Operator Positioning – During operation, all team members must be safely positioned.

11.8 Emergency Work Stoppage – All work must come to an emergency stop whenever any of the following occur:

- When leaks or damage becomes apparent;
- If anyone becomes aware of a change in conditions or if a hazard or safety condition is suddenly noted;
- The customer's emergency notification system is activated; or
- Any of the recommended practices in these procedures are noted to be in non-compliance.

11.9 Hose Protection – All hoses must be protected from being run over and crushed by any type of vehicle.

SECTION 12 - BACK THRUST

The back thrust from a linearly directed jet can be calculated from the following equation:

$$\text{Back thrust (lb)} = 0.052 \times Q \times \sqrt{P}$$

Where Q is the flow rate in U.S. gallons per minute (gpm)

P is the jet pressure measured in psi

As an example, an operator working with a jet flowing at 10,000 psi at 10 gpm will experience a force equal to:

$$0.052 \times 10 \times 100 = 52 \text{ lbs}$$

It is not recommended that any one person be required to withstand a back thrust of more than one-third of his body weight for any extended period of time. For the above example, this means that the operator should weigh at least 156 pounds in order to operate the nozzle.

SECTION 13 - TRAINING REQUIREMENTS

Only qualified personnel who have undergone a proper training program will be allowed to operate high pressure water jetting equipment and supervise the training of new operators. An employee training program must be developed by each Branch utilizing high pressure water jetting systems, which will include, at a minimum, the following and be communicated in the language understood by the employee:

13.1 Personal Protective Equipment - Describe the minimum personal protective equipment that is required to be worn while operating a high pressure water jetting system. Instruct the employee on when and how specific limb-guards, special clothing, or other types of devices should be worn for the type of work performed and the location in which it is being performed.

13.2 System Operation – Explain the operation of the high pressure water system, pointing out the potential problems and indicating the proper corrective action to take.

13.3 Safety Devices – Explain the reason for having the safety devices and demonstrate the operation of these safety devices. Stress the importance of not tampering with any safety devices and of maintaining them in good working order.

13.4 Stance – Demonstrate the proper stance for sound footing when using the various devices for jetting.

13.5 Hoses – Explain the proper method of identifying and connecting hoses, including laying out without kinks, protection from excessive wear, and proper tools to use on couplings and fittings. Emphasize the need to use whip checks on all high pressure hose connections.

13.6 Equipment Maintenance – Explain that valves and seating surfaces in pressure regulating devices encounter extremely high wear during high pressure water jetting and as such, require frequent inspections, maintenance, and/or replacement parts in order to provide proper operation.

13.7 When to Depressurize – Emphasize that the system must be depressurized any time that the system is not in actual use. Explain that the system must be depressurized whenever an unauthorized person enters the barricaded area, and that the system must be depressurized before any repairs or replacement of parts are made to the system.

13.8 Control Devices – Explain the operation of all control devices, the importance of not tampering with any of these devices, and the need of keeping them in proper working order.

13.9 Proficiency – All personnel selected to be operators of high pressure water jetting equipment must demonstrate their knowledge and skill in the proper operation of this equipment through practical application before performing indirectly supervised work.

13.10 Refresher Training – Operator training should be on an annual basis or more frequently if needed.

SECTION 14 - ACCIDENTS

14.1 Personal Injury – An employee injured by being hit with a water jet will not necessarily see the full extent of the injury, particularly the internal damage and depth of penetration. Even though the surface wound may be small and may not even bleed, it is quite possible that large quantities of water may have punctured the skin, flesh, and internal organs through a very small hole. The spread of micro-organisms through a wound of this type is a very real concern. For this reason, the injury should be monitored for several days.

14.2 Identification of Injury – In the event of an injury, immediately take the injured employee to a hospital and inform the doctor that the employee has been injured by a high pressure water jetting system at pressures up to 5,000 psi.

14.3 Medical Recommendations – If an accident should occur and high pressure penetrates the skin, contact the U.S. National Poison Center office at (412)-681-6669 and ask for advice.

14.4 Immediate First Aid – In the event it is not possible to have the injury treated immediately by a physician, restrict the first aid treatment to only dressing the wound and observing the patient until a medical examination has been arranged.

14.5 Reporting – If a person is injured in any manner during the course of a project, a Supervisor's Incident Report and Incident Investigation must be completed immediately and forwarded to the Corporate Director of Health and Safety. Please refer to section 3-1 Incident Reporting of your Corporate Safety Manual.

SECTION 15 - RESPONSIBILITIES

The providing of safe and healthful working conditions is the direct responsibility of the project management. Each manager, supervisor and team gun operator is responsible for the implementation of this program within his or her sphere of operation. All levels of AMPCO line management must know the information contained within this Corporate Safety Manual and implement these procedures as applicable.

Each Office within AMPCO shall be responsible for compliance with the Corporate Safety Manual. Offices are responsible for supplementing the program developed by Corporate Safety as required by individual operations.

Appendix A

CHECKLIST FOR HIGH PRESSURE WATER JETTING

Customer: _____ Date: _____

Location of Work: _____

Type of Work: _____ Team Leader: _____

Yes	No	
☐	☐	Have you determined that the area where the unit is being serviced has been cleaned, properly barricaded, and that the appropriate safety signs are posted? ☐ The work area is ready. ☐ Needs following action: _____
☐	☐	Have you checked to determine that adequate precautions have been taken to protect our electrical equipment from water? ☐ Everything is protected ☐ Needs following action: _____
☐	☐	Have you determined if there are any hazards, such as corrosive or toxic chemicals, flammable liquids, reactive materials, or explosive vapors that could pose a harmful threat to our personnel? ☐ There are no hazards ☐ The following hazards may exist: _____
☐	☐	If you answered yes, that there are hazards, have you obtained a Safety Data Sheet on the hazard? ☐ Have obtained SDS ☐ Need to obtain SDS for following: _____
☐	☐	Have you determined if there will be any danger from the waste water or from a reaction of the scale to the water? ☐ There is no danger ☐ The following hazards may exist: _____
☐	☐	Have you instructed all personnel about any additional hazards on this project? ☐ All personnel instructed ☐ Personnel need additional instruction: _____
☐	☐	Have you checked all fittings to ensure they have the correct pressure ratings? ☐ Fittings are all correct ☐ Needs following action: _____
☐	☐	Have you checked all hoses to ensure they have the correct pressure ratings?

☐ Hoses are all correct ☐ Needs following action:
_____

☐ ☐ Have you inspected all hoses to make certain they are in good operating condition?
☐ Hoses are in good condition ☐ Needs following action:
_____

☐ ☐ Have you inspected all fittings to ensure they are in good operating condition?
☐ Fittings are in good condition ☐ Needs following action:
_____

☐ ☐ Have you inspected all nozzles and determined they are free from plugging and in good operating condition?
☐ Nozzles are ready to use ☐ Needs following action:
_____

☐ ☐ Have you checked the filter on the pump suction to see that it is clean and in good operating condition?
☐ Filter is clean and good ☐ Needs following action:
_____

☐ ☐ Have you made certain the pump suction will have an adequate supply of clean water rated at a minimum of 20 psi?
☐ There is adequate water ☐ Needs following action:
_____

☐ ☐ Have you determined the water blaster unit has sufficient fuel to allow the engine to run to the end of the work shift?
☐ There is sufficient fuel ☐ Needs following action:
_____

☐ ☐ Have you checked to ensure that adequate precautions have been taken to protect the equipment against freezing?
☐ Everything is freeze protected ☐ Needs following action:
_____

☐ ☐ Have you inspected all of the personnel on this project to ensure that they have the correct personal protective equipment and are using it properly?
☐ All PPE is correct ☐ Needs following action:
_____

☐ ☐ Have you determined that all of the personnel on this project are adequately qualified for this type of work?
☐ All personnel are qualified ☐ Needs following action:
_____

☐ ☐ Have you checked to see that the complete hookup has been flushed and air removed from the system before installing the nozzle?
☐ Nozzles ready for installation ☐ Needs following action:

_____

☐ ☐ Have you checked to ensure that the hookup, including pipes, hoses and connections have been pressure tested with water at the maximum operating pressure?
☐ Everything tested OK ☐ Needs following action:
_____

☐ ☐ Have you tested the dump system to ensure it is working properly and will dump when released?
☐ Dump system tested OK ☐ Needs following action:
_____

☐ ☐ Have you tested all control system to ensure that they are operational?
☐ All systems operational ☐ Needs following action:
_____

☐ ☐ Have you checked to see that emergency eye wash stations and showers are readily available?
☐ Stations are readily available ☐ Needs following action:
_____

☐ ☐ Have you determined that all safety systems are in place and are operational?
☐ All safety systems operational ☐ Needs following action:
_____

☐ ☐ Have you obtained all work permits, permission slips, procedures and/or written authorizations required by the customer prior to your beginning this work shift?
☐ All permits obtained ☐ Needs following action:
_____

HOUSEKEEPING AND SANITATION

SECTION 1 - PURPOSE

To provide the basic guidelines necessary for a good housekeeping program which will be a part of the daily routine at each job site, with clean-up being a continuous procedure.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

Good housekeeping is an important element of accident prevention and must be a primary concern to all superintendents and foremen. Good housekeeping will be planned at the beginning of a job and will be carefully supervised and followed through to the final clean-up. A clean and orderly work place will not only contribute greatly to the prevention of accidents and injuries, but will also lend itself to the proper utilization of available facility space.

SECTION 4 - HOUSEKEEPING

Responsibilities for good housekeeping should be assigned. If the size of the job and workforce merit, a crew should be specifically detailed to continuously clean up. In any event, regardless of the size of the work force, housekeeping should not be haphazard and left to someone else's discretion. Duties should be assigned to one or more responsible persons.

The following areas should be of prime concern in a good housekeeping program:

4.1 Storage Areas

All materials should be maintained in neat stockpiles for ease of access. Keep aisles and walkways clear of loose materials and tools.

4.2 Work Areas

Clean up loose materials, waste, etc., immediately. This is especially important on scaffolds and in the vicinity of ladders, ramps, stairs, and electrical or mechanical equipment. Tools and loose materials should be removed immediately if a hazard is created.

4.3 Areas Used by Personnel

Empty bottles, containers, papers, and discarded equipment should not be allowed to accumulate where lunches are eaten on the jobsite. Trash disposal cans should be provided and their use enforced.

4.4 Oil and Grease

Spills of oil, grease, or other liquids should be removed immediately or sprinkled with sand.

4.5 Disposal of Waste

An effective means of preventing litter is the provision of suitable receptacles for waste, scrap, etc. Combustible waste, such as oily rags, paper, etc., should be stored in a safe place, such as a covered metal container, and disposed of regularly.

> **Note**: Common trash, which does not contain any hazardous waste, should not be stored or disposed of in bags or containers marked for hazardous waste.

4.6 Protruding Nails

Protruding nails should either be removed or bent over in such a way that they no longer present a risk. This should be done as the hazard develops and not at a later time. Unfortunately, in their haste to get the job done, workers often throw lumber with protruding nails to the side with the intent to remove the nails when they have the opportunity. Cleaned lumber should be stacked in orderly piles. Workmen performing this task should wear heavy gloves and hard soled work shoes.

4.7 Lighting

Adequate lighting should be provided in or around all work area, passageways, stairs, ladders, and other areas used by personnel.

4.8 Unobstructed Access

There must be unobstructed access, at all times, to such items as electrical panels, safety disconnect switches, fire extinguishers, emergency exits, etc.

SECTION 5 - SANITATION

Typhoid fever, dysentery, and other diseases are often caused by contaminated drinking water or lack of proper sanitation at the jobsite. It is essential that the provision of adequate sanitary facilities to accommodate the number of workers involved, be one of the first operations initiated at the jobsite.

Temporary toilets should be maintained in accordance with local, state, or federal ordinances. Toilets should be constructed so as to shield the occupants from view and protect against weather and falling objects. They should be lighted and ventilated, and all windows and vents screened. Adequate tissues should be provided. All toilet facilities should be cleaned daily and emptied when necessary.

SECTION 6 - DRINKING WATER

An adequate supply of fresh, potable water, from a city water line if possible, should be provided at a readily accessible location for drinking purposes. Portable water containers, used to dispense drinking water, must be capable of being tightly closed and equipped with both a tap and a paper cup dispenser. Where paper cups are supplied, a receptacle for disposing of the used cups should be provided. The use of pails and dippers or a common drinking cup for dispensing drinking water is prohibited.

Any container used to distribute drinking water must be clearly marked as to the nature of its contents and not used for any other purpose. If for any reason water, which is unfit for human consumption, is provided at the jobsite, it must be identified and labeled to clearly indicate that the water is unsafe for drinking, washing, or cooking purposes.

HVAC DECONTAMINATION & CLEANING

SECTION 1 - PURPOSE

To define a minimum health and safety work program for each Branch within AMPCO that is engaged in HVAC Decontaminations and Cleaning Operations.

SECTION 2 - SCOPE

This policy applies to all AMPCO operations involving HVAC Decontamination and Cleaning Operations.

SECTION 3 - POLICY

It is the policy of AMPCO to provide a safe and healthful workplace, free of recognized hazards, for each of its employees. At a minimum, AMPCO will comply with all accepted work practices, health and safety regulations, standards and codes, and will provide training to its employees to assist them in performing their jobs safely.

All work will be in accordance with the industry standards as defined by the National Air Duct Cleaners Association (NADCA).

SECTION 4 - GENERAL

The amount of debris which becomes trapped within an HVAC system over a given period of time is dependent upon several factors, such as the type of system, the air velocity within the system, the internal insulation within the system, the efficiency of the system's filtration, the humidity within the system, the housekeeping practices and the preventative maintenance programs in place. Typically, air from within an occupied space, along with fresh air drawn from outdoors, is drawn in through ductwork to an HVAC unit, where it is conditioned. Before the air gets to the unit, it usually passes through a filter designed to protect the mechanical equipment from becoming contaminated by large particles of dust and debris. However, many of the filters commonly used today will not prevent the introduction of small particles of dust and debris from the air stream into the system. It is over time that these small deposits may form sizable accumulations.

4.1 General Contaminants

Indoor Air Quality problems often arise from general dirt, dust and debris as well as harmful contaminants and microbial organisms which accumulate in HVAC systems. Contaminants in ductwork can be anything from common dust and soil, to dead birds and rodents, rotting leaves, bacteria, fungi and mold. The problems resulting from a build-up of these contaminants can range from breathing discomfort to illness for the building's occupants to inefficient performance on the part of the building's ventilation system.

While the most common ingredient found within an HVAC system is ordinary nuisance dust, dust accumulations can become quite sizable over several years, or even less time when the HVAC system's filtration is inefficient. The problem with excessive dust is that it generally leads to the development of biological contamination. The HVAC system is a perfect breeding ground for biological contaminants due to their enclosed space, constant temperature, humidity and dirt as a nutrient source.

4.2 Biological Contaminants

There are a wide variety of substances and elements, which may be classified as "biological contaminants" within an HVAC system. These biological contaminants may be organic or inorganic, and can take the form of bacteria, fungi (mold and mildew), viruses, animal dander, mites, insects, pollen, and the by-products of these elements. Some biological contaminants pose a very significant risk to life and health.

While the detection of biological contaminants in ventilation systems is not unusual, the presence of an active colony growth, referred to as an "amplification", is sufficient cause to take remedial action. Potential amplification sites in an HVAC system include cooling coils, condensate pans, filters, and humidification systems. Amplification can also occur on wet ductwork surfaces, including duct linings. Adverse health effects often associated with biological contaminants found within an HVAC system can range from minor discomfort, causing decreased worker productivity, to respiratory illness, cancer, and in the most extreme cases, death.

4.3 Hazardous Materials

Depending on the usage and history of the building and the materials used to construct it, HVAC systems may become contaminated with hazardous materials. For example, older facilities in which asbestos and/or lead was used in the initial construction may have collected asbestos or lead dust within their HVAC systems.

It is the building owner's responsibility to determine if hazardous materials are present in the HVAC system prior to contracting for cleaning. If hazardous materials are known to be present within the system, then specific specifications must be written to ensure the protection of the workers and the prevention of the spread or release of these materials outside of the system.

Note: Testing for the presence of hazardous materials can only be performed by qualified persons.

SECTION 5 - SURVEY AND INSPECTIONS

In order to determine the extent of contamination existing within the duct work, prior to the initiation of any remedial decontamination and cleaning, it will be necessary to observe the interior of the HVAC ducts at various locations throughout the system.

This can be accomplished as follows:

5.1 Optical Surveys

One method of surveying the interior of the HVAC ductwork is by means of the Fiber-Optic Borescope. This process involves the drilling of one-inch diameter access holes into the HVAC system and inserting the Borescope into the ductwork. By physically manipulating the Borescope, it will enable both building owners and AMPCO personnel to optically view a portion of the interior of the duct.

In addition to the Borescope, optical surveys of larger areas of the interior of the ductwork can be performed by the use of a cable-driven robot utilizing a closed circuit video camera. This will allow television viewing of the interior of the duct, as well as the capability to obtain a permanent record of the interior of the HVAC system.

Where service openings in the ductwork are available, the technician may also utilize a 35-mm camera and flash to obtain interior photographs of the ductwork. Photographs of this type will be helpful in determining not only the magnitude of the problem, but also the quality of the decontamination and cleaning service provided at the completion of the project.

5.2 Physical Inspections

There is always a possibility that the vigorous physical activity, generated by ingress and egress through an access opening, will spread any contaminants that may lie just inside the HVAC system. For this reason, it is AMPCO's policy that service personnel do not enter the ductwork during the inspection phase of the project. Inspections of the interior of the ductwork during this phase are therefore limited to optical devices and cameras.

SECTION 6 - SITE PREPARATION

Site preparation is a key element in any successful HVAC system decontamination and cleaning project. Site preparation must include both AMPCO personnel and the client cooperatively to review and evaluate all aspects of the HVAC cleaning process as it relates to the facility and its occupants, and to develop a strategy for safely and effectively managing the project.

6.1 Site Evaluation

Before any work begins, AMPCO personnel, accompanied by a representative of the client, must conduct a walk-through, or site evaluation, to establish a specific, coordinated plan which details how each area of the building will be protected during the various phases of the project.

The site evaluation should address such concerns as:

- Occupant safety and protection from contaminants;
- Building safety and security policies;
- Containment strategies for debris removed from the HVAC system and cross-contamination assessment;
- Protecting furniture, floors, floor coverings, computers, photocopiers, and other office equipment;
- Specific and unique building related issues; and
- Electrical power sources adequate for the cleaning equipment.

A well executed site evaluation, leading to a well planned and coordinated decontamination and cleaning project, will result in the reduction of occupant stress related to the cleaning project. A poorly executed site evaluation can have an adverse psychological impact on building occupants.

6.2 Occupant Safety and Protection

During the decontamination and cleaning of the HVAC system, the most important concern should be for the safety and well being of the building's occupants, the building itself, and the AMPCO workers performing the decontamination and cleaning service.

The following seven basic issues must be resolved prior to beginning work:

- Has special attention been directed towards any building occupants who are either known to have or who may have respiratory problems or other special health concerns or sensitivities. This is especially critical when chemical sprays are being used;
- Have specific work hours been established and have building occupants been informed of the work schedule;
- Has it been determined if any of the HVAC system components will need to be moved during the project, and if so, is there a plan for debris containment procedures while the equipment is being moved;
- Have necessary precautions been taken to guard against situations which could develop as a result of extreme heat or cold conditions;
- Has the down time for the HVAC system been estimated, as well as the amount of time needed to return the building to its normal temperature after heating or cooling has been restored;
- Have precautions been taken to ensure that the movement of building occupants during the cleaning period will not interfere with AMPCO's ability to perform its functions and ensure the safety of the building's occupants; and
- Have any special safeguards relating to the building's security program as affected by the cleaning project been established.

AMPCO's responsibility is to assure occupant safety with respect to the specific procedures and actions involved in the decontamination and cleaning process itself. The issues listed above may impact both the physical and psychological well being of the building's occupants.

6.3 Building Fire Safety and Security

Prior to the start of any HVAC decontamination and cleaning project, both AMPCO personnel and the client must review the building's existing safety and fire evacuation procedures. Many HVAC systems have fire alarms built into the ductwork designed to detect smoke and heat. If these systems are to be disconnected during the cleaning process to prevent false alarms, all concerned parties, including the local fire department and the building's maintenance personnel must be informed of this prior to the disconnection.

In addition to fire safety, the building's security system must also be taken into consideration if there is to be any changes in the system brought about by the cleaning project. All concerned parties, including the alarm system contractor and building security personnel, must be informed of the changes prior to the start of the project.

6.4 Contaminant Strategies

The goal of any containment strategy is to move particulate substances and other debris in a controlled manner from the point of origin to the point of capture without allowing the escape of debris and the contamination of the building's interior.

The type of equipment used by the Company will have a strong influence on the AMPCO technician's ability to select and successfully implement containment strategies. For example, the amount of airflow (CFM), air velocity (FPM) and static pressure a vacuum collection unit generates will have a direct bearing on the length of ductwork which can be cleaned from one hookup point while maintaining control over the debris being removed.

1) Exhaust Location

In order to maintain containment of the debris, it is also necessary to resolve the location of the vacuum collection unit and where it will be allowed to exhaust. Care must be taken to ensure that an outdoor exhaust does not violate any environmental standards, that an indoor exhaust is properly HEPA filtered, and that contaminants are not allowed to re-enter the building.

A cross contamination assessment should also be performed which must take into consideration all activities to be conducted during the cleaning project which have the potential to result in the release of HVAC contaminants into the occupied spaces of the facility.

6.5 Furniture, Computers and Other Equipment

Whenever it is possible, physically remove all furniture, floor coverings, computers, photocopiers and other equipment from the area in close proximity to the work area. This will not only protect these items from contamination, but will also allow easier access to the work site. When it is not feasible to remove these items, care must be taken to adequately cover them with clean protective coverings.

6.6 Specific and Unique Items

Some buildings may pose unique requirements with respect to site preparation. Depending on the activities taking place within the building, the client and AMPCO personnel may be challenged with establishing new protocols for issues such as protecting equipment, preventing cross contamination, or working with occupants. In unique situations, the vast experience of AMPCO personnel will be very important to ensure a successful project.

SECTION 7 - TOOLS AND EQUIPMENT

AMPCO personnel employ a wide variety of power tools, hand tools and specialized vacuum

collection devices on a typical HVAC decontamination and cleaning project. For purposes of this program, we will break them into four categories: Access Tools, Inspection Tools, Hand Cleaning Tools and Vacuum Collection Devices.

7.1 Access Tools

Access tools consist of devices used by AMPCO personnel to create entry points in the HVAC system to facilitate inspection and cleaning. These access points may range from small holes (1inch diameter or less) for optical imaging devices and small pneumatic cleaning equipment, to entry panels large enough to accommodate AMPCO service personnel entry and bulkier equipment.

7.2 Inspection Tools

AMPCO utilizes several types of visual inspection devices to evaluate the build up of debris and contamination within an HVAC system, monitor the cleaning process, and evaluate the success of the cleaning methods employed. Some of the more common tools include:

- Fiber-optic Borescope;
- Closed circuit television camera system;
- 35 mm SLR camera and flash;
- Direct-view “periscope”, which is a mirror device with an eyepiece for right angle viewing, often with a light source attached; and
- Hand-held mirrors, usually on a telescoping handle.

7.3 Hand Cleaning Tools

Hand cleaning tools include simple brushes, scrapers, and a number of pneumatic agitation and cleaning devices, such as:

- Brushes, including poly brushes with flexible extension rods or hand brushes made out of poly, soft bristle or wire heads;
- Rotary brushes, both pneumatic and electric;
- Scrappers, putty knives, blade scrappers, and trowels; and
- Pneumatic tools, such as compressed air guns, compressed air snakes and skippers, and compressed air whips.

WARNING: Many of these tools require the use of an air-compressor. Only electric air-compressors can be located directly inside the building during the cleaning process. Any gasoline or petroleum powered type air-compressors must always be

located outside of the building.

7.4 Vacuum Collection Devices

The vacuum collection device is a piece of equipment, which is used to create a negative pressure within the HVAC system of sufficient velocity to control the spread of contaminants during the cleaning process. In addition, these units are used to entrain airborne particles of debris in the airstream, which are then drawn to the collection device for safe containment prior to disposal.

The vacuum collection systems currently in use by AMPCO personnel in their decontamination and cleaning of HVAC systems is state-of-the-art, with a draw capacity of 4000 cubic feet per minute, sufficient to capture and retain a vast range of interior HVAC system debris. Its multi-stage design will contain large contamination in a series of separate housing units while microscopic particles will be captured in the final pair of dual HEPA filters.

Hand-held HEPA vacuums and wet vacuums are used quite commonly on HVAC cleaning projects for a variety of tasks. HEPA filtration is an absolute must for such vacuum cleaners, especially when wet vacuums are being used to clean microbial contaminants and sludge from the drain pans, evaporator coil, or other areas.

SECTION 8 - ACCESS OPENINGS

Most HVAC systems have few (if any) access openings large enough to accommodate personnel entry to conduct decontamination and cleaning. Although much of this work can be accomplished by gaining access through existing openings, such as vents, grills, ductwork end caps, access doors, removable panels and dismantling ducts, AMPCO service personnel will generally be required to create additional access openings in order to perform their work.

Cutting access openings into the HVAC system is often a concern of the client, who may fear that the structural integrity of the system will be compromised. Therefore, when it is absolutely necessary to cut access openings, it is critical that the openings be constructed in strict accordance with industry standards.

There are generally two types of access openings made to facilitate the decontamination and cleaning process, those which can be reopened and those which cannot. However, regardless of the type of access opening created, all access openings must share the following characteristics:

- The openings created should either be small round holes to accommodate the Borescope, or square openings not larger than 22 inches high by 22 inches wide;
- The openings should be created in such a manner that they can be sealed air tight;
- The closures must not significantly hinder, restrict, or alter the air-flow within the system;

- The closures must be properly insulated to prevent heat loss or gain, and condensation on surfaces within the system;
- If the openings are made on the fibrous glass portions of the system, they must be constructed so that they do not leave any exposed fibrous glass edges within the system;
- The newly created openings must not compromise the structural integrity of the system; and
- Construction techniques used in the creation of access openings should conform to requirements of the industry standards.

Note: Cutting access openings into flex duct is not recommended. Rather, disconnect the flex duct from one end or the other as needed for proper cleaning and inspection.

8.1 Access Closure

When access openings are created to accommodate any portion of the service technician's body, the edges of the access opening must be padded or protected in such a manner that will prevent injury to the technician. Ductwork to be entered by AMPCO personnel must be suitably supported and braced to ensure the integrity of the ductwork and the safety of the employee.

> **NOTE**: Entries by AMPCO personnel into an HVAC ductwork system must be in accordance with the requirements of Section 8-1 of the Corporate Safety Manual, entitled Confined Space/Vessel Entry.

When permanent, removable access openings are not needed or required, various types of closures should be considered. However, regardless of the type of closure used, all openings made to facilitate inspection and/or cleaning must be sealed in accordance with industry standards. Round one-inch diameter access holes drilled for Borescope inspections will be plugged air-tight with specially designed plastic claps. Larger access openings will be closed using an overlapping galvanized sheet metal cover of the same gauge thickness as existing ductwork. Overlapping must be a minimum of 1-inch on all sides. The cover will be fastened with self-tapping sheet metal screws and either a silicone bead sealing gasket or 3M No. 1202-T sealant tape.

> **WARNING**: In many states, codes regulate the creation of a service opening in an operational HVAC system. It is therefore essential that this requirement be investigated thoroughly before commencing work since it maybe necessary to acquire a special license or permit from the state or locality. In some cases, it may be necessary to sub-contract a licensed mechanical contractor to create these openings.

SECTION 9 - CONFINED SPACE ASSESSMENT

In OSHA's Confined Space standard, the term "Confined Space" is defined to mean a space that has the following requirements:

1) is large enough and so configured that an individual can make a full body entry and performed assigned work;
2) has limited or restricted means for entry or exit; and
3) is not designed for continuous employee occupancy.

An HVAC system's ductwork certainly meets these three requirements, since:

1) it is large enough to accommodate a worker;
2) it has a restricted means of entry. (OSHA's interpretation is that a restrictive entry or exit exists any time an employee is required to bend down to avoid striking the top of the opening, step over a raised threshold to enter the opening, or climb through the opening to gain access); and
3) it is definitely not designed for continuous employee occupancy.

Therefore, it is safe to say that all areas within an HVAC system's ductwork must be considered a confined space.

9.1 Permit Required Confined Space

However, the OSHA Standard provides for much more stringent requirements when it is applied to any type of confined space which involves either a hazardous atmospheres, engulfment, trapping configuration, or any other recognized serious health or safety hazard. In this case, the HVAC system's ductwork must be considered a Permit Required Confined Space.

9.2 Responsibility

The client, or owner, of the site in which AMPCO personnel will be required to perform HVAC system ductwork decontamination and cleaning has the responsibility to provide the following:

- an initial inventory of confined spaces on its site;
- an initial determination of whether a confined space is a Permit Required Confined Space; and
- coordinating with AMPCO to assure compliance with the Standard.

However, in the event the client fails to provide AMPCO with this information, then it becomes AMPCO's responsibility to determine this and to share this information with the client accordingly. This paragraph is therefore intended to assist AMPCO personnel to determine if the interior of an HVAC system's ductwork constitutes simply a confined space or, as OSHA interprets it, a Permit Required Confined Space.

In order to determine if the confined space is to be treated as a Permit Required Confined Space, AMPCO personnel must determine an answer to the following four questions:

- Does the confined space contain or have the potential to contain a hazardous atmosphere?
- Does the confined space contain any type of material that could engulf an employee while in the space?
- Does the confined space have an internal configuration that would be likely to trap or asphyxiate an employee while in the space? And
- Does the confined space contain a recognized safety or health hazard?

A "yes" answer to any one or more of the above questions will result in the space being designated a Permit Required Confined Space.

NOTE: While this paragraph does not address the specific requirements that must be met when entering either a confined space or a Permit Required Confined Space, it is intended to draw your attention to Section 8-1 of the Corporate Safety Manual, which contains this information in full.

9.3 Minimum Training Requirements

Minimum training requirements for AMPCO personnel who will be entering a Permit Required Confined Space are:

- The Confined Space entry course as offered by AMPCO's safety department or another suitable training source;
- Respirator Protection training and fit-testing as offered by AMPCO's safety department or another suitable training source; and
- Personal protective equipment training as offered by AMPCO's safety department or another suitable training source.

SECTION 10 - DECONTAMINATION AND CLEANING PROCEDURES

Each immediate work area will be protected by means of a polyethylene drop cloth as needed prior

to the initiation of the decontamination procedures. Any items that can be moved from beneath the work area will be removed . Any remaining items, such as furniture, equipment or other stationary items below the affected ductwork will also be covered with protective sheeting.

All electrical power to those portions of the HVAC system and their corresponding ductwork scheduled to be worked on by AMPCO personnel will be disengaged, locked-out and tagged-out in accordance with Section 8-12 of the Corporate Safety Manual.

Workers will isolate the duct section to be worked on to ensure that loose dirt and debris does not migrate into the clean sections of the duct system.

Poly sheeting will be temporarily fitted over each register, grill and diffuser mounted to the specified ductwork in order to improve the static pressure and also provide a critical barrier to intercept airborne dust and contaminants.

10.1 Decontamination of the Ductwork

Once the portable vacuum collection system has been secured to the HVAC system with flex ducting, AMPCO personnel will enter the ductwork through access panels or by cutting new access openings. Ductwork to be entered by AMPCO personnel will be suitably supported and braced if it is deemed necessary by the on-site supervisor and the building owner's representative. Access openings will be constructed in accordance with paragraph 8-0 of this Section.

AMPCO personnel will then begin the decontamination process by using compressed air guns and a series of patented rotary brushes to clean the affected ducts, always working in the same direction, from the dirty area towards the HEPA filtered vacuum collection system.

The use of a vacuum collection device alone will not get an HVAC system clean. The use of methods and tools designed to agitate debris adhered to surfaces within the system, in conjunction with the use of a vacuum collection device is required to clean the system.

10.2 Brushing

In brushing, the cleaning technician may use any of several types of hard or soft bristle brushes to physically agitate the debris adhered to surfaces within the HVAC system. This also includes mechanically rotating brush systems. Metal ductwork with no internal liner can withstand very aggressive brushing techniques, while fiber glass liners and ductboard should be cleaned with brushes incorporating softer bristles and by using less aggressive techniques.

10.3 Compressed Air Washing

Air washing is a mechanical means to agitate and dislodge particulate from the interior surfaces of an HVAC system. Before using any type of mechanical agitation device, make certain the type of material used in the construction of the surface to be cleaned is hard enough to withstand the aggressive agitation of the mechanical device. More fragile components, specifically those constructed of fibrous glass, may require the use of less abrasive agitation.

10.4 Hand or Contact Vacuuming

Hand or contact vacuuming is a method of cleaning which incorporates agitation and vacuum collection principles into one operation. Basically, it involves the use of a canister type vacuum with an extension hose and brush attachment which the technician uses to physically vacuum debris off surfaces within the system.

10.5 Hand Washing

Sometimes, the most effective way to clean a component or section of an HVAC system is hand washing, which simply consists of washing the location by hand, usually involving the use of brushes, sponges, or damp cloths.

10.6 Use of Mechanical Robotics

In addition to its use as an inspection tool, the new series of mechanical robotics are also used to perform such cleaning tasks as power brushing, using both nylon and silica carbide brushes, air washing with a forward sweeping air nozzle, final clean-up using a three headed air broom, and spraying application.

10.7 High Pressure Water Washing

In limited instances, it may be possible to power wash metallic air ducts. However, these procedures are not acceptable due to the serious possibility of cross-contamination and/or water leaks.

When using power washing procedures, the following concerns must be addressed:

- Regardless of where power washing equipment is used, it is critical to ensure that fibrous glass components do not get exposed to water. This can result in irreparable damage;
- Always make certain there is a proper containment to collect run-off water. Disposal of the wash water is also an important concern and you must be able to determine if it can be disposed of through the public sewer system; and
- Special safety precautions must be met. High pressure water washing can be very dangerous. At a minimum, cleaning technicians must wear eye protection and skin

protection. Refer to the safety precautions as listed in Section 8-23 of the Corporate Safety Manual entitled High Pressure Water Jetting.

10.8 Decontamination of Terminal Reheat Coils

In the event it is necessary to clean the terminal reheat coils, AMPCO personnel will isolate the reheat coil from the duct system by installing temporary protective barriers both upstream and downstream from the coil to prevent possible migration of wash water into the duct system. This will also be necessary to access both sides of the reheat coil before beginning the cleaning process. A water collection pan will then be attached below the coil and duct as a safety measure.

Decontamination of the terminal reheat coils will involve pre-cleaning of the coils and then the use of a high-pressure low volume water system to wash the upstream and downstream faces of each coil using an EPA approved cleansing agent. Following the thorough rinsing of any residual dirt, the water will be vacuumed from all coil surfaces and adjacent ductwork.

10.9 Decontamination of the HVAC Unit

AMPCO personnel will begin decontamination of the air handling unit by isolating all associated motors, bearing assemblies and belt-drive assemblies with polyethylene sheeting. Any electrical outlets or power boxes must be protected by poly.

All filter media should be removed from holding frames and/or spools in an approved manner, and new filters reinstalled following the decontamination process.

A combination of thorough vacuuming and pressure washing will be used to decontaminate each air handling unit. The cleaning will involve all internal surfaces and components, including fans, cooling and heating coils, filter bank support frames and contiguous control damper assemblies.

In the event the contract specifications call for the use of a sanitizing fluid, then once all of the water and dirt have been removed from the air handling unit, all surfaces within the HVAC unit housing will be misted with an EPA approved broad spectrum biocide sanitizing fluid.

10.10 Final Decontamination

At the completion of the decontamination process, all of the registers, grills and diffusers will be removed, vacuumed, washed and remounted. Each of the round access holes used for the Borescope inspections will be plugged air-tight with specially designed plastic caps and all other access openings will be closed in accordance with paragraph 8-1 of this Section.

The final step in the overall decontamination procedure involves the purging of the system to assure that the system is completely cleaned. All terminal air outlets on the specified ductwork will be covered with cheesecloth and taped to eliminate air leakage.

Normally, once the outlets are covered, the HVAC system is turned on and off several times as a quality assurance check. If this check is satisfactory, the cheesecloth will be removed and the outlet frames will be washed with an approved cleaning solution.

10.11 Verification of Cleaning

NADCA's Standard 1992-01 establishes the criteria for verifying the cleanliness of a ductwork system, which has just been cleaned. The verification process within the standard calls for two separate methods of inspection, Visual Inspection and the NADCA Vacuum Test.

1) Visual Inspection

Visual inspection is the primary, and in some cases may be the only, means to verify the cleanliness of the duct system. AMPCO will utilize several methods for the visual inspection, including such specialized tools as the fiber-optic Borescope, ductscopes, mirrors, and robots. The purpose of the visual inspection is simply to look for any visual debris remaining in the ductwork. The term debris is defined to mean any solid materials, including particulate substances, which are observed in the HVAC air duct system and which are not intended to be present.

Since NADCA standard 1992-01 calls for the total removal of all visible debris, if any visible debris are still observed to be present within the ductwork during this visual inspection, it may result in the cleanliness level of the process being considered unacceptable.

2) Vacuum Test

In the event the visual inspection leaves any doubts as to the cleanliness within the HVAC system following the cleaning process, then the NADCA Vacuum Test may be performed to conclusively determine the cleanliness level of a specific area. The vacuum test consists of using a well cleaned hand-held vacuum with a clean bag and vacuuming the area in question. For the area to be considered clean, the debris collected by the vacuum must be equal to or less than 1mg/cm^2.

10.12 Break Down and Clean Up

When the decontamination process has been completed and the actual break down and clean up of the work site is under way, this process must be very tightly controlled to insure that all equipment is removed from the facility in a manner which will not cause cross-

contamination.

Clean up of the facility should be addressed in one of two ways:

a. short term jobs require total break down and clean up directly after completion; while
b. long term jobs require clean up on a shift by shift basis, or as movement progresses through the facility.

SECTION 11 - PERSONNEL SAFETY

HVAC system cleaning technicians face a variety of on-the-job safety concerns. It is only by providing workers with adequate safety and personal protective equipment, and assuring appropriate safety training, that AMPCO can minimize the risk of its workers' exposure to job hazards. The following sections of the AMPCO Corporate Safety Manual must be reviewed in detail in order to assure the proper use of safety procedures and personal protective equipment:

- **Respiratory Protection** – The use of respirators are recommended whenever cleaning-related work is being performed on an HVAC system, as well as being a specific requirement for permit required confined space entry. Refer to Section 7-1 of the Corporate Safety Manual entitled Respiratory Protection Program.
- **Chemical Hazard Communication** – HVAC system cleaning projects may require the use of various chemicals. Exposure to many chemicals at certain levels can cause or contribute to many serious problems. Refer to Section 7-2 of the Corporate Safety Manual entitled Hazard Communication Program.
- **Heat Stress** – Technicians working within an HVAC system's ductwork can sometimes face unusually high temperatures. This is especially true during the hot summer months and where the work is performed in warm humid climates. In order to assure the protection of these workers, refer to Section 7-4 of the Corporate Safety Manual entitled Heat Stress Program.
- **Control of Hazardous Energy** – In order to protect workers from hazardous energy while they are performing decontamination and cleaning on machines or equipment in an HVAC system, that hazardous energy must be locked out. Refer to Section 8-12 of the Corporate Safety Manual entitled Tag Out / Lock Out Program.
- **Personal Protective Equipment** – HVAC system cleaning technicians face a variety of on-the-job safety concerns. By providing workers with adequate safety equipment and training, AMPCO can minimize the risks of its workers exposure to job hazards. Refer to Section 8-14 of the Corporate Safety Manual entitled Personal Protective Equipment.
- **Fall Protection** – Since almost all HVAC system cleaning is performed at elevated heights, exposure to the hazards of falling are always present during a decontamination and cleaning project. To minimize this risk, refer to Section 8-6 of the Corporate Safety Manual entitled

Fall Protection Program.

LADDER SAFETY

SECTION 1 - PURPOSE

To provide appropriate guidelines for the selection, maintenance, inspection, training and proper use of ladders in AMPCO operations.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

No employee of AMPCO will be allowed to use, for any reason, any ladder that has broken, loose, or cracked rungs, side rails or braces. Any ladder found in this condition will be immediately removed from service and destroyed. All requirements of the OSHA Standard for Ladders, will be considered a part of this standard. Since metal ladders are electrical conductors and wood ladders are difficult to decontaminate, neither will be used during asbestos abatement operations. Portable Ladders used 15 feet or greater in height require the use of personal fall protection.

SECTION 4 - GENERAL

Ladders present one of the major hazards in construction work, and their improper use is the cause of many serious accidents. An analysis of accidents involving ladders revealed that the four principal causes of such accidents are: (1) ascending or descending improperly, (2) failure to secure ladder at top and/or bottom, (3) structural failure of the ladder itself, and (4) carrying objects in hands while ascending or descending ladders.

SECTION 5 - LADDER SELECTION

Great care should be taken in the selection of the proper size and design of the ladder for the use intended. Only type 1A (industrial, heavy duty) ladders should be purchased.

5.1 STRAIGHT LADDERS

Ladders must be selected to be of sufficient length to extend not less than thirty-six inches (36") above any platform or landing which they serve.

All portable straight ladders must be equipped with approved safety feet.

All metal ladders are electrical conductors. Their use around electrical circuits of any

type, or places where they may come in contact with such circuits, is not recommended. Metal ladders should be marked with signs reading "CAUTION: DO NOT USE AROUND ELECTRICAL EQUIPMENT."

WARNING: Wood and Metal ladders cannot be used on asbestos abatement projects.

5.2 STEPLADDERS

Stepladders, sometimes referred to as "A" frame ladders, must have positive locking spreaders, which will be fully spread and locked when the ladder is in use.

Stepladders will not be used as straight ladders. They should be of sufficient height to preclude the necessity of employees using the top two steps of the ladder. The rule that workers will not be allowed to work from the top two steps of a stepladder, must be enforced.

Stepladders should be firm and well constructed. Since stepladders are not "tied off", when an employee is working on a stepladder at a point ten feet or more above the ground or floor, the ladder must be held by at least one other worker.

WARNING: Wood and Metal stepladders cannot be used on asbestos abatement projects.

SECTION 6 - LADDER USAGE

6.1 The foot of the straight ladder should be placed one-quarter of its length away from the vertical plane of its top support. Only light, temporary work should be performed from ladders. Workers should be cautioned frequently about the danger of trying to reach too far from a single setting.

6.2 Since, in most ladder applications, the weight of the worker is unevenly distributed over an area of approximately 3 inches long by 3 inches wide, any effort which tends to shift the balance of the worker should be discouraged. This includes using the upper torso for activities such as pulling, pushing, prying, etc., in addition to which, water blasting and vacuum operations must not be conducted from the rungs of a ladder.

6.3 Ladders placed in any location where they can be displaced by workplace activities or traffic, such as in passageways, doorways, or driveways, shall be secured to prevent accidental displacement, or a barricade shall be used to keep the activities or traffic away from the ladder.

6.4 Ladder feet should be placed on a firm level base, and the area in the vicinity of the bottom of the ladder should be kept clear.

6.5 When using straight ladders, both the top and bottom of the ladder should be secured to prevent displacement. Use ladder feet, stakes, or other means of securing the ladder.

6.6 Ladders leading to landings, walkways, platforms, etc., must extend thirty-six inches (36") above this point and must be securely fastened to prevent moving. Long ladders should be braced at intermediate points as necessary to prevent springing. Having a co-worker hold the ladder is not a sufficient means of securing the ladder.

6.7 When ascending or descending ladders, workers should face the ladder and use both hands to hold onto the side rails. If material must be moved from one level to another, a rope, block and tackle, or other means should be used. Materials should not be hand carried on ladders. Ascending and descending ladders should never be done by more than one worker at a time. Make certain that footwear and rungs or steps are clear of mud and debris.

6.8 Ladders must never be used in a horizontal position as runways, platforms or scaffolds.

6.9 The top and top step of a stepladder shall not be used as a step.

6.10 The use of a ladder for performing overhead cutting operations is strictly prohibited.

SECTION 7 - JOB-BUILT LADDERS

Job-built ladders are not recommended. However, when it is deemed necessary to build one, it must meet ANSI Standard 14.4 and conform to the following:

7.1 All materials must be thoroughly seasoned, straight-grained, and free from knots, decay, and other defects. All surfaces must be planed and free of splinters, and edges where handrails are used should be beveled. Improper design, inferior materials, and poor workmanship are often the cause of ladder failure or falls from ladders.

7.2 Rung spacing must be uniform and not over 12 inches or less than 10 inches on centers. The wood for the rungs must be clear, straight-grained and entirely free of knots. The slope of the grain in the cleats should not be less than 1 in 15 and preferably the cleats should be straight-grained. Single cleat ladders must not exceed thirty feet in length.

7.3 Rungs or cleats should be recessed a half-inch into the rails, or filler strips of the same thickness as the cleats should be inserted between the cleats and nailed to the side rails.

7.4 All job-built ladders must comply with the specifications listed in the OSHA standard on job-built ladders, 29 CFR 1926.1053.

SECTION 8 - FIXED LADDERS

Fixed ladders shall be used at a pitch no greater than 90 degrees from the horizontal, as measured to the back side of the ladder. Fixed ladders with structural defects, such as, but not limited to, broken or missing rungs, cleats, or steps, broken or split rails, or corroded components, shall not be used until repaired to a condition meeting its original design criteria, before the ladder is returned to use. Where Fixed Ladders are used to access work areas and the total length of climb equals or exceeds 24 feet they must be equipped with the following devices:

- **Cages or Wells** – Each ladder section shall not exceed 50 feet in length. Ladder sections shall be offset from adjacent sections, and landing platforms shall be provided at maximum intervals of 50 feet.
- **Ladder Safety Devices or Self-Retracting Lifelines** – Ladder Safety Devices, and related support systems, for fixed ladders shall be capable of withstanding without failure a drop test consisting of an 18-inch drop of a 500-pound weight. They should also permit the employee using the device to ascend or descend without continually having to hold, push or pull any part of the device, leaving both hands free for climbing. The device must be activated within 2 feet after a fall occurs, and limit the descending velocity of an employee to 7 feet/second or less.

SECTION 9 - LADDER FALL PROTECTION

Fixed ladders in excess of 24 feet required the use of Fall Protection Equipment. Portable ladders require the use of fall protection equipment when used at heights of 15 feet or greater. The stability of Portable Ladders at heights less than 15 feet is considered fall prevention. All use of Portable Ladders will be in strict adherence to OSHA Ladder Use Requirements (see 1926.105(b) or paragraph 6.0 of this procedure).

Note: Ladder stability is preferred over the use of fall arrest systems due to the fact a typical system includes a 6 foot lanyard, 3 foot of deceleration material mounted to a D-Ring in the center of the back (approximately 4 feet in height) and attached to an anchorage point 1 foot above the head. A fall arrest system in itself is not effective until you reach heights greater than 14 feet.

SECTION 10 - LADDER INSPECTION

10.1 Any ladder with loose, broken or missing rungs or steps, broken or split side rails, or other faulty or defective construction must be immediately removed from service, tagged with "Do Not Use", and repaired or destroyed at the earliest possible time.

10.2 Wood ladders should be inspected frequently for deterioration and damage. Close visual inspection is recommended in preference to load testing. Jumping on a ladder which is supported horizontally subjects the ladder to more severe loads than it is intended to carry and may result in damage that can lead to sudden failure while in use. Wood ladders must not be painted, this practice hides defects.

10.3 Metal ladders require frequent inspection. All parts should be checked for wear, corrosion, and structural failure. All sharp edges and burrs must be removed.

10.4 Fiberglass ladders should be checked for deterioration of glass fibers and sharp edges from broken fibers. Any cracks found on fiberglass ladders will require their immediate removal from service.

SECTION 11 - LADDER MAINTENANCE

Wood ladders should be periodically treated with a clear preservative such as varnish, shellac, or linseed oil. Ladders must not be painted as painting covers up structural defects. All metal fittings on wood ladders should be carefully checked for rusting or corrosion.

Metal ladders should have the rungs cleaned to prevent accumulation of materials that might destroy their non-slipping properties, and all metal fittings should be carefully checked for rust and corrosion.

When not in use, all types of ladders should be stored under suitable cover protected from the weather. Ladders stored horizontally should be supported at both ends and at intermediate points to prevent sagging of the middle section, which tends to loosen the rungs and warp the rails.

SECTION 12 - TRAINING

AMPCO must provide a training program for each employee using ladders. The training program should enable each employee to recognize hazards related to ladders and should train each employee in the procedures to be followed to minimize these hazards.

AMPCO will ensure that each employee has been trained by a competent person in the following areas, as applicable:

- the nature of fall hazards in the workplace;
- the correct procedures for erecting, maintaining, and disassembling the fall protection system to be used;

- the proper construction, use, placement and care in handling all ladders;
- the maximum intended load-carrying capacities of the ladders; and
- the Standards contained in the subpart on ladders.

12.1 Retraining

Retraining must be provided for each employee as necessary so that the employee maintains the understanding and knowledge acquired through compliance with this procedure.

KEY ITEM CHECK LIST FOR LADDERS

Project Name: _____ Inspected by: _____

Project Location: _____ Date Inspected: _____

General Requirements	**Yes**	**No**
• Has an acceptable ladder program been implemented?	☐	☐
• Have personnel been trained in this program?	☐	☐
• Have personnel been retrained when required?	☐	☐
• Is a competent person in charge of the training program?	☐	☐
• Are ladders provided for safe access to elevations when there are no stairways or ramps?	☐	☐
• Are only Type 1A ladders being used?	☐	☐
• Are ladders used for their intended purpose?	☐	☐
• Are non-slip bases attached to the bottom of all side rails?	☐	☐
• Are personnel prohibited from using top two steps of ladder?	☐	☐
• Is Fall Protection implemented when using ladders greater than 15 feet?	☐	☐
General Use		
• Do ladder users face the ladder when climbing up or down?	☐	☐
• Are ladders which are used to climb up to a roof extended at least 36 inches above the point of support?	☐	☐
• Are extension ladders adjusted with the user standing at the base of the ladder and can the locks properly engaged?	☐	☐
• If using a straight ladder, is both top and bottom secured?	☐	☐
• Are ladders guarded if placed where they may be displaced by other activities?	☐	☐
• Is area around the top and bottom of the ladder kept clear?	☐	☐
• Is ladder long enough for the task being performed?	☐	☐
• Are employees using tool bag to allow use of both hands?	☐	☐
• Are heavy/bulky items being hoisted to the work area?	☐	☐
• Is there only one person on the ladder at a time?	☐	☐
• Are ladder users not overextending from ladder?	☐	☐
Care and Maintenance		
• Are ladders maintained in good condition at all times?	☐	☐
• Are the joints between the steps and the side rails tight?	☐	☐
• Are the hardware and fittings securely attached?	☐	☐
• Are rungs/steps kept free of slip hazard?	☐	☐
• Are ladders routinely inspected?	☐	☐
• Are ladders free of coatings that would hide defects?	☐	☐
• Are ladders to be repaired or discarded tagged or otherwise marked and removed from service?	☐	☐

IF ANY ITEMS ABOVE ARE CHECKED "NO" THAN CORRECTIVE ACTION MUST BE TAKEN

LOCK-OUT TAG-OUT PROCEDURES

SECTION 1 - PURPOSE

To establish a procedural guideline which will ensure employee protection against inadvertent operation of mechanical equipment, energizing of electrical circuits, and release of pressurized or chemical fluids, including steam and water, while performing work on, or in the immediate vicinity of, motor driven, electrical, or pressurized equipment.

To prevent injury or death to personnel by requiring that certain precautions be taken before servicing, repairing, removing equipment, insulating or conducting demolition, renovation or maintenance of asbestos containing materials in the immediate vicinity of live voltage.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

Every effort will be made to eliminate potential situations where the unexpected energizing, start-up, or release of stored energy or electrical current, or the release of pressurized or chemical fluids would be likely to endanger personnel.

Unless otherwise noted in the contract, the appropriate representative of the customer and/or facility in which the work area is located, will be requested, prior to the start of work, to de-energize and render inoperative, all mechanical equipment, electrical circuits, and vessels containing chemicals or pressurized fluids in the immediate vicinity of the work area, and have locks or tags attached at all points where such equipment, circuits, or pressurized vessels can be energized.

AMPCO personnel will assume responsibility for this task only in those instances when required to do so by the contract document or the appropriate representative of the customer and/or facility is not available.

SECTION 4 - TRAINING

All affected employees must be instructed in the purpose and trained in the use of energy controlled procedures. Initial and/or annual retraining will be documented, signed and certified. This training must include at least the following:

- recognition of hazardous energy sources;
- the type and magnitude of the energy available;
- the methods and means necessary for energy isolation and control;
- the energy controlling device is not to be removed without authorization from the individual who installed it; and
- the energy controlling device is never to be ignored or defeated in any way.

Retraining is required when there is a change in energy control procedures or when a new hazard is introduced.

SECTION 5 - GENERAL

One of the major causes of amputations and fatalities in the work place today, is the accidental starting of machines and processes while employees are working on them. The need for an effective Total Energy Deactivation Program is often times learned too late, after a serious accident has already occurred. Procedures for deactivation of energy sources are often referred to as locking and tagging, zero energy state, or total energy isolation. A common error in such procedures is the failure to recognize the need to isolate all energy sources. Plant procedures limited to shutting off the power at the main disconnect switch may only de-energize one energy source. Proper employee protection can be ensured only if all energy sources are identified and methods developed to eliminate the potential exposure from every source.

The complexity of modern industrial processes and equipment exposes employees to a variety of energy sources that can be hazardous. Some power sources that employees should be protected against include, but are not limited to:

1) Electrical Circuits
2) Hydraulic Systems
3) Pneumatic Systems
4) Combustible Gas Systems
5) Gravity Systems

An unexpected or sudden release of any of these energy sources can expose employees to moving equipment, electrical shock, burns, gases, fluids or hazardous materials. For proper employee protection, exposure to all power sources and/or hazardous materials must be positively eliminated.

When repairs or procedures require employees to work inside or around equipment for which

guards may be temporarily removed or other safety devices bypassed, provisions for a positive method of deactivating all energy sources will be used.

An effective total energy deactivation procedure can prevent many serious injuries involving maintenance and service personnel. Procedures are effective only when supervisors and employees alike make a sincere commitment, and management enforces the prescribed procedure.

A Lock Out/Tag Out procedure is provided in Paragraph 8.0 of this section. Where complexity requires a more comprehensive procedure it shall be developed, documented, and then implemented.

SECTION 6 - SUPERVISOR RESPONSIBILITY

The responsibility of all supervisory personnel will be as follows:

6.1 Instruct the appropriate representative of the customer and/or the facility in which the work area is located, prior to the start of work, to de-energize and render inoperative, all mechanical equipment, electrical circuits, or vessels containing chemicals or pressurized fluids which are located in the immediate vicinity of the work area.

6.2 Request the above individual to have appropriate locks or tags attached to all points where such mechanical equipment, electrical circuits, or vessels containing chemicals or pressurized fluids can be energized.

6.3 In those instances when the above activities cannot be carried out by a representative of the customer and/or the facility, it will be the direct responsibility of the supervisor to ensure and coordinate the implementation of these activities by a competent individual. In some cases, this may involve the hiring of an outside electrician or plumber.

6.4 Instruct their employees in the content and application of this standard. This will include the purpose and use of Lock Out/Tag Out Procedures, the recognition and application of adequate methods and means of isolation of all hazardous energy sources, and the proper procedures for safely re-energizing equipment when the work is completed.

6.5 Provide locks and tags specifically identified for the Lock Out/Tag Out program.

6.6 Coordinate the continuation of Lock Out/Tag Out protection through shift or personnel changes.

6.7 Follow-up periodically to assure compliance with this Standard. To assure compliance periodic inspections of the energy control procedure will be conducted and documented at least annually to ensure procedures and requirements are being followed.

SECTION 7 - EMPLOYEE RESPONSIBILITY

Employees will be responsible for knowing and following each of the established safety procedures, applicable to his/her own safe performance while on the job.

All employees have a responsibility to immediately report all unsafe conditions to their supervisor.

SECTION 8 - LOCK OUT/TAG OUT PROCEDURES

The following procedures should be followed in sequence when it is necessary for AMPCO personnel to be directly involved in a Lock Out/Tag Out (energy control) operation:

8.1 Each supervisor on the job should be provided with an individual safety lock and one key, as well as a supply of Tag Out cards. If more than one supervisor is assigned to a task, each supervisor will be responsible for placing his/her own Lock and Tag Out so the controls or electrical system cannot be operated.

8.2 Pre-plan the operation to assure notification of all affected parties. If the controls are so located that only one lock can be accommodated, and more than one lock is required, a multiple lockout device should be used.

8.3 Before allowing work to begin in the immediate vicinity of mechanical equipment, electrical circuits, or vessels or pipes containing chemicals or pressurized fluids, the main switch and/or valve for the given unit, circuit, or pipe, must be de-energized and locked out in a safe position and tagged accordingly. The purpose of the tag is to identify the individual who must authorize the removal of the safety precautions.

8.4 If a machine or equipment has to be shutdown, then the procedures established by the manufacturer for the shutdown of the machine or equipment must be followed. An orderly shutdown must be utilized to avoid any additional or increased hazards to employees as a result of the equipment stoppage.

8.5 All energy isolating devices that are needed to control the energy to the item to be shutdown must be physically located and operated in such a manner so as to isolate the item from its energy source.

8.6 It may be advisable to have an electrician pull the fuses from the main disconnect switch for the mechanical equipment or the electrical circuit to provide an additional safety factor for employee protection.

8.7 The person making the Lock Out should make every effort to verify that the equipment or circuits have been de-energized.

8.8 All other personnel who have a need to use the Lock Out should add their lock and tag and should verify the equipment or circuits have been de-energized.

8.9 When work extends beyond the shift on which the Lock Outs were put on, they should be removed by the outgoing supervisors and replaced by the incoming supervisors prior to commencing work. Each incoming supervisor should then verify the equipment or circuits are in fact de-energized.

8.10 Supervisors who finish their work assignment before the job is completed should remove their own lock and tag. When the entire job is finished, the last lock and tag should have been removed. Locks and tags should only be removed by the individuals placing them.

SECTION 9 - TEMPORARY REMOVAL

When it is necessary to temporarily remove the energy controls in order to test the item that has been shutdown, the procedure must be as follows:

- clear away tools and other obstructions;
- verify that employees have been moved away from the danger;
- remove the energy controls (Lock Out /Tag Out device);
- energize the item and proceed with the testing; and
- when the test is completed, de-energize and re-apply the control measures.

KEY ITEM CHECK LIST FOR LOCK OUT / TAG OUT

Key Item	Yes	No
Lock Out / Tag Out		
• Is a Lock Out / Tag Out procedure in place?	☐	☐
• Has the primary responsibility for Lock Out / Tag Out been placed with the facility owner?	☐	☐
• Have all affected employees received adequate training in the Lock Out / Tag Out procedures?	☐	☐
• Has an individual been made responsible for the Lock Out / Tag Out procedures?	☐	☐
Energy Sources		
• Have employees been protected against live electrical circuits?	☐	☐
• Have employees been protected against operating hydraulic systems?	☐	☐
• Have employees been protected against operating pneumatic systems?	☐	☐
• Have employees been protected against combustible gas systems?	☐	☐
• Have employees been protected against gravity systems?	☐	☐
Energy Control Procedures		
• Has a safety lock, key and lockout device been provided to the job site supervisor?	☐	☐
• Has a Lock Out / Tag Out tag been filled out and attached to the control device?	☐	☐
• If a machine or piece of equipment is involved, has it been isolated from its energy source?	☐	☐
• Are the manufacturer's recommendations being followed for the shut down of equipment?	☐	☐
Temporary Removal		
• If it is necessary to temporarily remove energy controls, have all tools and other obstructions been cleared away?	☐	☐
• Have you verified that all employees have been moved away from the danger area before removing the energy controls?	☐	☐
• Is only the individual who tagged out or locked out the energy controls, or another authorized person, the only person allowed to remove the controls?	☐	☐

MATERIAL STORAGE AND HANDLING

SECTION 1 - PURPOSE

To provide guidelines which will enable individual supervisors to develop and implement procedures for the safe handling and storage of materials.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

To provide information and assistance in the implementation of basic precautionary measures to be taken in completing assigned material handling and storage tasks in a safe manner.

SECTION 4 - MATERIAL STORAGE

Both temporary and permanent storage should be neat and orderly. When planning material storage, a minimum of 24 inches of clearance must be allowed under sprinkler heads. Automatic sprinkler controls and electrical panel boxes must be kept free and unobstructed.

There must be unobstructed access to fire hoses and extinguishers, and access to emergency exits and aisles should always be maintained. Areas immediately outside of emergency exits should also be left clear for egress.

Materials should be segregated as to kind, size, and length, and placed in neat, orderly piles that are safe from falling. If the piles are high, they should be stepped back as the height increases, and should be secured by cross-piling or cross-tying. Piles of materials should be arranged so as to allow for passageways.

Storage of materials will be facilitated and hazards reduced, with the use of storage bins and racks which are in good condition. Storage racks should be secured to the wall and/or floor as well as to each other. Damaged racks should not be used for storage and employees should not be allowed to climb racks.

Depending on the value of the materials in storage, it may be considered advisable to provide some type of security to ensure the preservation of the materials.

4.1 LUMBER STORAGE

Lumber should be stacked on solid, level sills. Cross-strips of cross-pilings should be used where the pile is more than four feet high. The top of each pile should be kept as level as possible when lumber is being removed. Used lumber should have nails removed before it is piled. Two workers should carry long boards, and care should be exercised at corners and crosswalks.

4.2 STEEL STORAGE

Reinforcing steel should be stored in separate piles according to size and length. Corrugated and sheet steel must be stacked in flat piles. Spacing strips should be placed between each bundle.

4.3 PIPE STORAGE

Pipe should be stored on specially designed sills or racks, and should be safely blocked to prevent rolling. When removing pipe, workers should work from the end of the pile as much as possible. Pipe larger than two (2) feet in diameter should be handled by using a hardwood pipe stick, dolly, or crane. Two workers should carry long lengths of pipe, and care should be maintained at corners. Stored sewer pipe should be blocked.

4.4 PETROLEUM PRODUCT STORAGE

Petroleum products delivered to the job site and stored there in drums should be protected during handling to prevent loss of identification through damage to drum markings, tags, etc. Unidentified petroleum products may result in improper use, with possible fire hazard, damage to equipment, or operating failure.

Bulk delivery and storage of petroleum products requires care in identification and particular attention to fire hazards during handling. Appropriate fire extinguishers must be easily accessible in the immediate storage location.

4.5 FLAMMABLE LIQUID AND GAS STORAGE

All gases and liquids should be considered as flammable unless their label clearly indicates that no such exposure exists. Conditions on construction sites change so rapidly, that extreme care is necessary whenever flammable liquids or gases are being used. Flammable liquids and gases can be ignited by open flames, sparks, or excessive heat, so it is necessary that each of these factors be considered when setting up safe storage facilities for these items.

No other equipment or materials should be contained in the area where flammable or combustible liquids or gases are stored. This is especially true for compressed gases and petroleum products.

All areas that are to be used for the storage of flammable liquids and gases should be conspicuously designated as such, and "No Smoking" signs posted. The "No Smoking" must be vigorously enforced. These areas should always be located so that local fire protection will always have access to the material. In addition, all local and state codes must be followed.

Only approved containers can be used for the storage of flammable liquids, and each container must have an emergency-venting device. All containers, from which flammable liquids are to be dispensed, should be grounded, and when transferring flammable liquids, the dispensing container should be bonded to the receiving container. Containers, which have previously been used for the storage of flammable liquids, must be thoroughly purged before being used to store another.

4.6 FUEL STORAGE AND DISPENSING

Only approved containers and portable storage tanks shall be used for the storage and dispensing of flammable and/or combustible liquid fuels. Quantities of these flammable and/or combustible fuels will not exceed 660 gallons in any single portable storage tank.

Only approved 5 gallon containers or less of flammable and/or combustible liquid fuels may be temporarily stored inside of a building. Portable storage tanks holding from 1 to 660 gallons of flammable and/or combustible liquid fuels must be located outside of buildings and, in addition to the following, each of the requirements of OSHA's 29 CFR 1926.152 must be followed. Any requirement to use a flammable and/or combustible liquid fuel storage tank which exceed 660 gallons, must first be approved in writing from the Health and Safety. In addition, all local and state codes must be followed.

1. Storage Containers

For quantities of 1 gallon or less: Only the original container or an approved metal safety can shall be used for storage, use or handling of flammable and/or combustible liquid fuels.

For quantities of 1 to 5 gallons: Only approved metal safety cans having a flash retarding screen, a spring loaded cap, and an emergency venting device will be used for the storage of flammable and/or combustible liquid fuels.

For quantities not exceeding 660 gallons: Portable fuel storage tanks, not exceeding 660 gallons of flammable and/or combustible liquid fuels, will have an emergency venting device, a spring loaded release valve, a flash retarding screen in the opening to the fill pipe, and either an automatic grounding fuel dispensing hose or a grounding connector strap to attach to the item being fueled.

2. Storage Tank Containment Dikes

The area immediately around the portable storage tank shall be graded in such a manner as to divert possible spills away from buildings and other exposures, or will be surrounded with a curb or dike sufficient to contain any possible spill.

3. Storage Tank Access

There must be a minimum of a 12-foot wide access way to permit the approach of fire control apparatus.

4. Fire Extinguishing Equipment

At least one portable fire extinguisher having a rating of not less than 20-B units shall be located not less than 25 feet, nor more than 75 feet from any portable fuel storage tank.

5. Storage Tank Grounding

All portable storage tanks for flammable and/or combustible liquid fuels will be adequately grounded in accordance with OSHA Standards.

6. Propane

Propane should be stored and handled the same as other flammable gases. It must be labeled as a flammable gas. At high concentrations, propane will affect the central nervous system. It is a highly dangerous fire hazard when exposed to heat or flame, and will react vigorously with oxidizers. It is explosive in the form of vapor when exposed to heat or flame. Propane will react violently when exposed to ClO2 or barium peroxide plus heat.

Propane fuel storage tanks must be stored outside of buildings and should be secured with a good pad lock. Refer to CFR 1926.153 for additional information and requirements pertaining to LPG/Propane.

SECTION 5 - MATERIALS HANDLING

Supervisors should give advance consideration to the size, shape and weight of materials to be handled and plan the most efficient and safest method to accomplish the task. Proper tools should be provided for the job and alternate methods should be considered.

Employee selection should be considered so that work assignments will match the worker to the job in terms of knowledge and physical abilities. Whenever unusual or hazardous operations are to be performed, prior to commencing the work, employees should be warned about all possible hazards and given specific safety instructions. Proper personal protective equipment must be worn as prescribed in Section 8-14 of this Manual.

Special efforts should be taken to prevent hernias and back injuries. Employees naturally tend to bend at the waist and attempt to lift loads with their hands and arms. This is improper and causes injuries. Instead, employees should be cautioned to bend the knees and lift with their legs. Avoidance of these injuries begins with instructing the employee in the correct way to do the work and changing any bad lifting habits. The employee's first efforts following safety instruction should be closely monitored to ensure that proper lifting methods are used.

SECTION 6 - RESPONSIBILITIES

Recognizing that proper storage and material handling procedures and methods will provide for conservation of materials and equipment, increase productivity by providing a smooth flow of materials to the job site as needed, and reduce the number of accidents and injuries usually associated with this function, the following responsibilities are necessary.

These responsibilities will include the following:

- Proper storage methods and designated areas for flammable and combustible liquids.
- Proper stacking of materials as regard to size, type, and length in piles, shelves, racks, or bins as necessary.
- Maintenance of good housekeeping procedures throughout the jobsite at all times.
- The proper disposal of scrap and waste materials.
- The segregation of non-compatible materials.
- The material handling methods and procedures which will provide safe and orderly storage in accordance with recognized practices.
- The posting of warning signs, tags, or bulletins as may be required.
- Providing the necessary grounding and bonding required for specific materials.
- Proper receiving and dispensing of incoming and outgoing materials which will include chocking and blocking of trucks during loading and unloading operations.
- Providing proper personal protective equipment that may be necessary for certain

products.

- Assuring that only properly trained personnel are used in the handling of hazardous materials and to assure that proper material handling methods are used.
- The prompt reporting of any unsafe condition or practice which may not be corrected within the scope of his authority.

PERSONAL PROTECTIVE EQUIPMENT

SECTION 1 - PURPOSE

To ensure the use of appropriate company approved personal protective equipment by all AMPCO personnel, visitors and subcontractors who either are, or may be, engaged in or exposed to hazardous working conditions.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

AMPCO corporate policy mandates the correct use of appropriate company approved personal protective equipment wherever and whenever there is a potential for exposure, either real or assumed, to hazardous working conditions, or where a hazardous condition exists and a need is indicated for using such equipment to adequately reduce the hazard to its personnel, visitors and/or subcontractors.

SECTION 4 - TRAINING

AMPCO will provide the appropriate training to each employee who is required to wear or use personal protective equipment in the performance of his or her job. Each such employee will be trained prior to performing work where PPE is required to know at least the following:

- when the use of PPE is necessary;
- what type of PPE is required;
- how to properly don, duff, adjust and wear PPE;
- the limitations of the PPE; and
- the proper care, maintenance, useful life and disposal of the PPE.

AMPCO shall verify that each affected employee has received and understood the required training through a written certification that contains the name of each employee trained, the date(s) of training, and that identifies the subject of the certification.

Retraining will be conducted when the workplace changes, making the earlier training obsolete; the type of PPE changes; or when the employee demonstrates lack of use, improper use, or insufficient skill or understanding.

SECTION 5 - HAZARD ASSESSMENT

Assessment and selection. It is absolutely essential, that before assigning an item of personal protective equipment, each potential hazard to the worker's head, eyes, feet, hands, face, skin and lungs be accurately assessed in order to correctly and precisely match the protective equipment to the degree of protection required by the potential hazard.

The assessment and selection will be documented. The document will include a written certification that identifies the workplace evaluated; the person certifying that the evaluation has been performed; the date(s) of the hazard assessment; and, which identifies the document as a certification of hazard assessment.

5.1 Assessment Guidelines

In assessing the need for personal protective equipment, the following steps must be taken.

1. **Survey** - Conduct a walk-through survey of the work site to identify each and every source of a potential hazard to the worker. The following basic categories should be given major attention:

    - Impact
    - Penetration
    - Compression (roll over)
    - Chemical
    - Heat or Cold
    - Harmful Dust
    - Light Radiation

2. **Selection Guidelines** - After completing the walk-through survey and analyzing the data collected, the following must be performed:

    - determine the type of protective equipment that is currently available;
    - ascertain its capabilities and limitations;
    - select those items of protective equipment that offers protection greater than the minimum required to protect the employee; and
    - assure a proper fit of the selected equipment to the user and provide the necessary education and training in its correct usage.

3. Size and Fit

When selecting the personal protective equipment, make certain that item the selected properly fits the employee.

5.2 Reassessment of Hazards

Workplace hazards should be reassessed on each project or on an as needed basis resulting from the following:

- a change in working conditions, equipment, process or work practices;
- a post accident or injury investigation; and
- a re-evaluation of the suitability of previously selected personal protective equipment.

5.3 Controlling the Hazards

It must be remembered that personal protective equipment alone cannot provide total protection against hazards, but should only be used in conjunction with guards, engineering controls, and sound work practices.

SECTION 6 - PERSONAL PROTECTIVE EQUIPMENT

AMPCO reserves the right to select and/or approve all personal protective equipment used by its employees, visitors and/or subcontractors, and only such equipment issued or approved by AMPCO will be allowed on its job sites.

6.1 Hard Hats

All personnel must wear AMPCO issued hard hats at all times when working on construction sites or in a "Hard Hat Area." This includes visitors, subcontractors, engineers, inspectors, and anyone else who has authorization to be on the site. Personnel working on asbestos abatement projects must wear hard hats while in the containment area, and depending upon the location and activities of adjacent areas, to and from the containment.

Hard hats which have been altered by drilling or cutting will not be permitted, nor will those hats which have been altered by the addition of any items on the outside of the hat other than safety, union or site stickers. When it is necessary to use additional personal protective equipment which must be attached to the hard hat, only those hard hats designed for this purpose may be used.

1. **Headband Assemblies** - Headband assemblies must be in good repair and should be exchanged whenever they become broken or weakened. The area between the top of the headband and the top of the hard hat should never be used for storage.

The changing around of the headband assembly to enable the hard hat to be worn with the front bill of the hat facing to the rear is in violation of the manner in which the manufacturer initially stated the MSA V-Guard hard hat was designed to be worn.

Exceptions: This method of wearing the hard hat, i.e. the brim facing the rear, will only be authorized by AMPCO under the following conditions:

- the hard hat in question is an MSA V-Guard hard hat;
- the user has disassembled and then reassembled the suspension system correctly reversing its orientation from front to back;
- the nape strap of the hard hat's headband now rests on the back of the users head; and
- the user is actively engaged in an activity that would preclude the wearing of the hard hat with the brim facing forward. Examples of such activities would include cutting, brazing or welding while the worker is actually wearing a welders face shield that attaches to the hard hat.

6.2 Gloves / Cut Resistant Sleeves

Where needed, all personnel should wear work gloves in good condition which are suited to the type of work involved. However, employees who are required to operate or work around drill presses, power saws, and similar rotating machinery should not wear gloves.

Cut resistant sleeves must be used whenever performing tasks with potential cut hazards. Handling sharp debris is a contributing factor in most cuts/lacerations incidents.

6.3 Shoes and Boots

Safety shoes are recommended for use by all personnel. All safety shoes should meet nationally recognized standards. When working with wet concrete, workers must wear rubber boots. Shoes and boots must be kept in good repair, and those with worn heels or thin or worn soles should not be permitted. In addition, the wearing of sneakers, sandals, or shoes that have been slit or have holes cut in them, or low-quarter shoes, will not be permitted.

5.4 Eye and Face Protection

Approved eye and face protection must be worn whenever warranted by the exposure.

Minimum eye protection required is Safety glasses. Where there is a potential exposure to flying particles or chemical splashing full face shields must also be used. Examples of tasks requiring full face shields include, but not limited to, grinding, chipping, cutting, sawing, working with chemicals or dusty environments.

Welders must wear a welder's hood with lenses which have the correct color density for the type of welding involved. Welder's helpers must wear the same, or at the minimum, must wear burning goggles with the correct color density lenses.

SECTION 7 - PROTECTIVE EQUIPMENT FOR SPECIFIC USE

Failure to comply with company policy requiring the use or wearing of personal protective equipment in connection with specific tasks will result in disciplinary action which could include termination of employment.

7.1 Respirators

Company authorized respiratory protective devices, appropriate for the hazard, must be used where airborne contaminates, such as fibers, dust, smoke, vapors, mist, etc., exist. Respiratory protective devices must be used in accordance with the provisions of Section 7-1, Respiratory Protection Program, of the Corporate Safety Program.

7.2 Safety Harness and Lifelines

Safety body harnesses with shock-absorbing lanyards must be worn and used by all employees who are working at elevated levels which are not protected by handrails, or when working from suspended scaffolds. Refer to Section 8-6 of the Corporate Safety Program, entitled Fall Protection Program.

AMPCO employees are required to wear and use safety harness to protect them from falling whenever they are exposed to falls from heights of 6 feet or more, when working over machinery, moving equipment or objects posing an impalement hazard, or in the case of entering a confined space, with an attended lifeline.

7.3 Flotation Vests

U. S. Coast Guard approved flotation vests must be worn by all employees who are working on barges or floating pipelines or plants, or on structures extending over water, that are not protected by adequate handrails. In addition, any employee who is working over the side of a vessel or structure which is extended over water, or in any area where a drowning hazard exists, must wear an approved flotation vest.

7.4 High Visibility Vests / Garments

Whenever employees are required to work in the immediate vicinity of fast moving traffic, it is required that they wear a reflective traffic safety vest. If the hazard exposure is

moving equipment and/or slow moving vehicle traffic the use of high visibility traffic vests or high visibility upper body garments are permissible. The material must be orange, yellow, green or fluorescent version of these colors. For nighttime work or areas with poor lighting the garment used must have reflective material visible from a minimum distance of 1000 feet. When the company requires the use of high visibility vests or other garments they must be provided at no cost to the employee.

SECTION 8 - PERSONAL WORK CLOTHING

The minimum work clothing that is acceptable for all AMPCO employees working on a construction site, is long pants, good work shoes or boots, and a shirt that completely covers the worker's shoulders and provides adequate protection against such hazards as concrete splash, abrasions to the skin, oil or grease spills, and slag from welding or cutting.

Welders should be cautioned against wearing any type of highly flammable clothing, such as polyesters, double-knits, etc. Clothing that has become torn, ragged, or frayed is not be acceptable, since it presents a hazard of catching on rough corners or machine parts which could cause the wearer to trip or fall.

For the most part, construction workers should wear clothing that is reasonable snug, particularly about the neck, wrists, and ankles. Workers should be cautioned against wearing loose clothing, rings, watches, necklaces or having long hair, all of which may catch in power driven equipment.

SECTION 9 - PROTECTIVE CLOTHING
(Asbestos Abatement Operations)

Personnel working in asbestos abatement operations are required to wear the personal protective clothing issued to them by the company. This clothing must be worn while working in the containment area to prevent body contamination which could later be inhaled or ingested and to prevent the worker from carrying asbestos fibers outside the containment area. While going to and from the decontamination center, the worker should dress the same as he/she would when working in any other construction site. Refer to Standard 10-1 Asbestos Abatement Guidelines for additional information concerning protective clothing.

SECTION 10 - MAINTENANCE

Whenever it is necessary, by reason of the potential for hazards or the environment, that employees wear and use appropriate personal protective equipment, this equipment must be maintained in a sanitary and reliable condition.

10.1 Employee-Owned Equipment

Where employees choose to provide their own protective equipment, AMPCO shall be responsible to assure its adequacy, including proper maintenance, and sanitation of such

equipment.

10.2 Defective Equipment

Defective or damaged personal protective equipment cannot be used and must be replaced before the worker can continue with the work he or she was doing.

KEY ITEM CHECK LIST FOR PERSONAL PROTECTIVE EQUIPMENT

Key Item	Yes	No
Head Protection		
• Is an appropriate hard-hat policy enforced?	☐	☐
• Are hard-hats maintained in sanitary, reliable condition?	☐	☐
• Are defective or damaged hard-hats replaced?	☐	☐
• Are hard-hats worn properly?	☐	☐
• Are head-bands replaced as required?	☐	☐
Eye and Face Protection		
• Is an appropriate policy for safety glasses enforced with regard to type and application?	☐	☐
• Are safety glasses worn where required?	☐	☐
• Are side shields worn where required?	☐	☐
• Are full-face shields worn where required?	☐	☐
• Are goggles provided when the work requires their use?	☐	☐
Hand Protection		
• Is an appropriate hand-wear policy established?	☐	☐
• Is hand-wear that may cause increased risk of injury prohibited?	☐	☐
• Are appropriate types and weight gloves provided as needed?	☐	☐
• Are appropriate sizes issued when gloves are provided?	☐	☐
Foot Protection		
• Is an appropriate foot protection policy established?	☐	☐
• Is safety-type foot wear worn where required?	☐	☐
• Are construction-style boots worn on construction sites?	☐	☐
• Are rubber boots worn when working in wet areas?	☐	☐
• Has the wearing of sneakers, sandals, or shoes that have been slit or have holes cut in them been prohibited?	☐	☐
• Has the wearing of low-quarter shoes been prohibited?	☐	☐
Special PPE		
• Are welding suits provided where circumstances require them?	☐	☐
• Are DOT orange vests required for workers near road traffic?	☐	☐
• Is there a policy that requires wearing clothing suitable for a construction site?	☐	☐
• Is damaged or torn protective clothing replaced immediately?	☐	☐

POWER OPERATED HAND TOOLS

SECTION 1 - PURPOSE

To provide for the proper education and training of workers using power operated hand tools in an effort to reduce the number of accidents generally involved with the use of these types of tools.

SECTION 2 - SCOPE

This Section applies to all AMPCO operations.

SECTION 3 - POLICY

Only properly trained and experienced workers, having proof of their qualifications, will be allowed to set-up, adjust and operate powder operated hand tools.

Wherever the application for a powder actuated tool can be accomplished, with complete satisfaction, by the use of a low velocity piston tool, either trigger or hammer actuated, the low velocity piston tool will be used in the interest of safety.

SECTION 4 - TRAINING

The use of portable power operated hand tools has increased greatly in recent years. The majority of power operated hand tool accidents are caused by either inadequate or no training resulting in improper handling and poor maintenance of equipment. These accidents can be corrected by proper training of personnel.

4.1 Manufacturer's Instructions

A number of hand tools utilizing explosive charges to drive fastenings and perform similar functions are widely used throughout the construction industry. The manufacturers of these devices provide detailed instructions regarding their use. These manufacturers' representatives should be called upon to provide the education and training necessary to operate these tools in a safe and productive manner.

4.2 Training Requirements

In addition to the basic education and training of exactly how to safely operate the various power operated hand tools, training requirements should also include the following:

- that maintenance of equipment must be systematic;

- that all worn or damaged equipment must be replaced, repaired, or removed from service immediately;
- that all power operated hand tools must be cleaned, tested and inspected regularly;
- that all protective shields, guards and other safety devices, must be left in place;
- that gloves, safety shoes, and safety glasses or face shields must be worn where needed; and
- only authorized personnel should be allowed to operate power tools.

4.3 Proof of Qualification (Powder Activated)

Proof of operator qualifications (Qualified Operator's Card) must be in possession of the operator of a powder operated hand tool at all times. Qualified Operator's Cards are customarily issued, after thorough training, by the manufacturer's authorized dealer or distributor or other competent source. Proof of qualification must be reviewed by the project superintendent prior to this equipment being handled by the intended operator.

SECTION 5 – ELECTRIC POWER-OPERATED TOOLS

5.1 Electric power-operated tools will either be of the approved double-insulated type or grounded in accordance with Section 8-7 of this Manual.

5.2 The use of electric cords for hoisting or lowering tools is not permitted.

SECTION 6 – PNEUMATIC POWER TOOLS

6.1 Pneumatic power tools must be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected.

6.2 Safety clips or retainers must be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.

6.3 All pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, which operate at more than 100 psi. pressure at the tool must have a safety device on the muzzle to prevent the tool from ejecting fasteners, unless the muzzle is in contact with the work surface.

6.4 Compressed air will not be used for cleaning purposes except where reduced to less than 30 psi. and then only with effective chip guarding and personal protective equipment which meets OSHA requirements. The 30 psi. requirement does not apply for concrete form, mill scale and similar cleaning purposes.

6.5 The manufacturer's safe operating pressure for hoses, pipes, valves, filters, and other fittings must not be exceeded.

6.6 The use of hoses for hoisting or lowering tools will not be permitted.

6.7 All hoses exceeding ½ inch inside diameter must have a safety device at the source of supply or branch line to reduce pressure in case of hose failure.

6.8 Airless spray guns, of the type which atomize paints and fluids at high pressures (1,000 pounds or more per square inch), must be equipped with automatic or visible manual safety devices which will prevent pulling of the trigger to prevent release of the paint or fluid until the safety device is manually released.

6.9 In lieu of the above, a diffuser nut which will prevent high pressure, high velocity release, while the nozzle tip is removed, plus a nozzle tip guard which will prevent the tip from coming into contact with the operator, or other equivalent protection, must be provided.

SECTION 7 – ABRASIVE BLAST CLEANING NOZZLES

All blast cleaning nozzles must be equipped with an operating valve which must be held open manually. A support must be provided on which the nozzle may be mounted when it is not in use.

SECTION 8 – FUEL POWERED TOOLS

8.1 All fuel powered tools must be stopped while being refueled, serviced, or maintained. Fuel for these tools must only be transported, handled, and stored in accordance with OSHA requirements.

8.2 When fuel powered tools are used in enclosed spaces, the applicable requirements for concentrations of toxic gases and use of respiratory protective equipment, as outlined in Section 7-1 of this Manual, will apply.

SECTION 9 – HYDRAULIC POWER TOOLS

9.1 The fluid used in hydraulic powered tools must be fire-resistant fluids approved under Schedule 30 of the U.S. Bureau of Mines, Department of the Interior, and must retain its operating characteristics at the most extreme temperatures to which it will be exposed.

9.2 The manufacturer's safe operating pressures for hoses, valves, pipes, filters, and other fittings cannot be exceeded.

SECTION 10 – POWDER ACTUATED TOOLS

10.1 Only employees who have been adequately trained in the operation of the

particular tool in use will be allowed to operate a powder actuated tool.

10.2 The tool must be tested each day before loading to see that safety devices are in proper working condition. The method of testing must be in accordance with the manufacturer's recommended procedure.

10.3 Any tool found not to be in proper working order, or that develops a defect during use, must be immediately removed from service and not used until properly repaired.

10.4 Personal protective equipment must be used in accordance with Section 8-5 of this Manual.

10.5 Tools will not be loaded until just prior to their intended firing time. Neither loaded nor empty tools are to be pointed at any employees. Hands must be kept clear of the open barrel end of the tool.

10.6 Loaded tools must not be left unattended.

10.7 Fasteners should never be driven into very hard or brittle materials including, but not limited to, cast iron, glazed tile, surface hardened steel, glass block, live rock, face brick, or hollow tile.

10.8 Driving into materials easily penetrated must also be avoided unless such materials are backed by a substance that will prevent the pin or fastener from passing completely through and creating a flying missile hazard on the other side.

10.9 No fastener should be driven into a spalled area caused by an unsatisfactory fastening.

10.10 Tools must not be used in an explosive or flammable atmosphere.

10.11 All tools must only be used with the correct shield, guard, or attachment recommended by the manufacturer.

10.12 Powder actuated tools used by employees must meet all other applicable requirements of American National Standards Institute, A10.3-1970, Safety Requirements for Explosive Actuated Fastening Tools.

SECTION 11 - MAINTENANCE

Do not hesitate to call for assistance and services of the tool manufacturer or authorized distributor whenever there is any doubt concerning the proper use, service or maintenance of the equipment, or if additional operator training is required.

POWERED AERIAL WORK PLATFORMS

SECTION 1 - PURPOSE

To provide guidelines for the protection of personnel engaged in operating and using aerial lifts, vehicle mounted work platforms, or powered platforms.

SECTION 2 - SCOPE

This Section applies to all AMPCO operations.

SECTION 3 - POLICY

It is the policy of this organization that no individual will operate or attempt to operate any type of aerial lifts, vehicle mounted work platforms, or powered platforms without first receiving adequate training and then passing both manipulative and observation testing by a competent person.

SECTION 4 - REFERENCES

This Section references the following OSHA Standards:

29 CFR 1926.556
29 CFR 1926.952
29 CFR 1926.955

SECTION 5 - RESPONSIBILITY

5.1 Project Superintendent

The project superintendent has overall responsibility for the enforcement of all of the provisions within this Section.

5.2 Project Supervisors

Each member of project supervision is responsible for assuring the day-to-day administration of this Section of the Corporate Safety Manual. All foremen, general foremen, and project supervisors are responsible for implementing and enforcing the provisions outlined within this Section.

5.3 Project Workers

Each employee has a responsibility not to operate or attempt to operate any aerial lift equipment until such time as he or she has been properly trained in the safe use and operation of such equipment by a competent person. It is only after the employee has been properly certified that he/she can operate such equipment.

SECTION 6 - PROCEDURES

All employees who work with aerial lifts, vehicle mounted work platforms or powered platforms are responsible for following the safe procedures established within this Section as well as those procedures established by the manufacturer of the equipment being used.

6.1 Inspection

Inspection of aerial lifts, vehicle mounted elevating and rotating work platforms, and powered platforms will not only be made in accordance with the manufacturer's recommendations, but will also be made to comply with all AMPCO, local, state and federal inspection regulation requirements. Visual Inspections shall be made and lift controls shall be tested each day prior to use to determine that the equipment and such controls are in safe working condition.

NOTE: aerial lifts acquired for use on or after January 22, 1973 shall be designed and constructed in conformance with the applicable requirements of the American National Standards for "Vehicle Mounted Elevating and Rotating Work Platforms," ANSI A92.2-1969, including appendix. Aerial lifts acquired before January 22, 1973 which do not meet the requirements of ANSI A92.2-1969, may not be used after January 1, 1976, unless they shall have been modified so as to conform with the applicable design and construction requirements of ANSI A92.2-1969.
AMPCO will ensure modifications to the equipment shall not be made without the written approval from the manufacturer.

6.2 Operating Instructions

No employee will be permitted to use or operate lifts or platforms unless he or she has been instructed, trained, and certified by a competent person in the use and operation of such equipment.

Operating instructions must include, as a minimum, all of the following:

- powered aerial work platforms being utilized near electrical distribution or transmission lines must comply with the Standards set forth in OSHA's 29 CFR 1926.556. The minimum clearance between electrical lines and any part of the equipment is at least 10 feet.

- employees shall always stand firmly on the floor of the basket, and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position.
- equipment must not be moved while the boom is elevated in a working position with workers in the basket or on the platform unless the equipment was specifically designed to permit these functions;
- all of the manufacturer's specifications and limitations must be rigorously observed;
- a safety harness must be worn by each employee working from a basket or on a work platform, with a self retracting lanyard (SRL) being attached directly to the basket or the platform. Under no circumstances will the lanyard be attached to a pole, the structure, or any other item of equipment;
- Any employee who tampers with the controls or attempts to bypass safety devices, such as the dead-man switch, etc., is subject to immediate termination of employment;
- the use of mobile and/or self-propelled lifts and platforms in outside work activities where exposure to severe wind conditions exist should be avoided;
- extended boom aerial work platforms must not be exposed to "wind loading" while elevated and fully extended;
- work activities from aerial lifts or work platforms in outside areas are prohibited during electrical storms; and
- whenever outriggers are a part of the equipment, they must be fully extended and used before workers will be allowed into the basket or onto the work platform.
- equipment operating outside of a controlled area must have a working alarm that is audible above the surrounding noise level and will only be moved with a spotter in place. Equipment spotters must wear high visibility vests. Communication must be maintained between the operator and the spotter through either eye contact/hand signals or two way radios.

SECTION 7 - OPERATOR TRAINING

The operator's knowledge of safety and operating procedures, as well as the limitations of this equipment, must be verified by (a) means of a manipulative test and (b) by observation of his/her performance during the first week of operation.

A competent person must be designated by the project superintendent, at each project requiring the use of aerial lifts, vehicle-mounted work platforms or powered platforms, to conduct the manipulative test to determine an applicant's operating ability. A manipulative test must be used to determine an applicant's operating ability on each type and model of equipment to be operated.

Training must be provided for each operator in compliance with the operating instructions and operator training procedures outlined in this Section.

SECTION 8 - RECORDS

Training and testing records for each employee designated as an operator of equipment specified in this Section, must be maintained in the employee's personnel file.

POWERED INDUSTRIAL TRUCKS

SECTION 1 - PURPOSE

The purpose of this procedure is to describe the requirements for the inspection use and maintenance of forklifts (and other powered industrial trucks). This procedure is based upon the requirements of 29 CFR 1910.178 and standard safe operating practices.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - OBJECTIVE

AMPCO personnel who operate forklifts and other powered industrial trucks must be specifically qualified and trained in their inspection, maintenance, and safe operation.

SECTION 4 - GENERAL REQUIREMENTS

4.1 All forklifts used at AMPCO facilities and project sites must meet the design and construction requirements of the American National Standards Institute (ANSI) standard B-56.1 - 1969 "Standard for Powered Industrial Trucks, Part II" and bear a plate indicating compliance with this standard. No modifications shall be made to the forklift except by the manufacturer.

4.2 Forklifts used in hazardous locations should be appropriate for that hazardous location. The OSHA regulations in 29 CFR 1910.178 and 1926.602 outlines the requirements for forklifts used in potentially flammable or combustible atmospheres, confined spaces, or in general use. For general use in non-hazardous areas, industrial trucks designated by the manufacturer as Type D, E, G, or LP may be used (as approved for intended use by a nationally recognized testing laboratory). In Class I, Division I locations, only "EX" designated trucks will be used. In Class I, Division II locations, only "EX", "EE" or "DS" trucks may be used.

4.3 Fuel handling and storage shall be in accordance with the National Fire Protection Association (NFPA) standard 58 - 1969 for liquefied petroleum gas and 29 CFR 1910.178 (f). If batteries are used as power, battery changing and storage shall be as required in 29 CFR 1910.178 (g).

4.4 The rated lifting capacity of the forklift must appear in a prominent location.

4.5 Forklift trucks shall be fitted with overhead guards.

4.6 Spinner knobs on steering wheels are prohibited.

SECTION 5 - OPERATING REQUIREMENTS

5.1 Lighting in operating areas shall be adequate (at least 2 lumens per square foot). If lighting is not adequate the forklift must be provided with auxiliary directional lighting.

5.2 Care shall be exercised inside buildings to ensure internal combustion forklifts do not create a hazard from carbon monoxide.

5.3 Only trained and authorized operators shall be allowed to operate forklifts. A forklift training program has been devised by the corporate health and safety training coordinator for operators in each region. This program can only be taught by trainers that are knowledgeable in the operation of powered industrial trucks and have the ability to teach and evaluate operators. Contractor personnel must also be trained and qualified and must present AMPCO with appropriate written documentation prior to truck operation.

1. Refresher training, including an evaluation of the effectiveness of that training, shall be conducted as to ensure that the operator has the knowledge and skills needed to operate the powered industrial truck safely.
2. Refresher training in relevant topics shall be provided to the operator when:
    - The operator has been observed to operate the vehicle in an unsafe manner;
    - The operator has been involved in an accident or near-miss incident;
    - The operator has received an evaluation that reveals that the operator is not operating the truck safely;
    - The operator is assigned to drive a different type of truck; or
    - A condition in the workplace changes in a manner that could affect safe operation of the truck.
3. An evaluation of each powered industrial truck operator's performance shall be conducted at least once every three years.
4. AMPCO shall certify that each operator has been trained and evaluated as required. The certification shall include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation.

5.4 Operators shall perform daily or “pre-use” inspections of the forklift to be operated. Records of inspections results must be maintained on the daily inspection form. All inspection discrepancies must be corrected prior to operation of the forklift. If the

discrepancy cannot be corrected immediately, the forklift must be tagged out of service. The inspection form is included at the end of this section.

SECTION 6 - FORKLIFT OPERATION

6.1 When a forklift is left unattended, the load shall be fully lowered, controls neutralized, power shut off, and brake set. The wheels must be chocked if parked on an incline. A forklift is unattended when the operator is more that 25 feet away, or out of view of the forklift. Forklifts shall not be parked where they obstruct aisles, stairways, or fire protection equipment.

6.2 If loading or unloading by forklift from trucks, freight cars, or other wheeled vehicles, the wheels on the vehicle being unloaded must be chocked to prevent movement.

6.3 If a forklift is used to lift personnel, the following is required:

1. An approved safety platform with guard rails and toe boards, shall be firmly affixed to the forks.

2. Personnel in the lift shall have means to shut off power to the forklift.

3. Protection from falling objects shall be considered for the personnel under work area and protection provided, if necessary.

6.4 Face the direction of travel at all times when you operate the forklift; do not go over the speed limit; and travel with the forks carried as low as possible.

6.5 Give pedestrians the right-of-way. Warn them with your horn well ahead of time. Be alert at intersections. Sound the horn and move ahead cautiously at blind corners. Come to a full stop before you go through a doorway.

6.6 Stay a safe distance behind other vehicles. Under normal conditions, three truck lengths is safe.

6.7 Always drive with the load upgrade on an incline. Drive slowly and cautiously when proceeding down ramps to allow yourself enough room to stop.

6.8 Watch out for storage racks, stock and other obstacles when you raise or lower a load.

6.9 Look behind you before you back up.

6.10 Check the load capacity of floors, elevators, trucks and trailers. Be sure they can

handle the weight of your forklift and the load.

6.11 Keep your arms, legs and other body parts inside the operator's compartment at all times. Do not reach between the mast arms to turn off the key or to move the forks. Do not remove guards on your forklift.

6.12 Do not exceed the load capacity of your forklift. If the load is too heavy, it may damage the vehicle, make it hard to steer, or cause the forklift to tip forward or overturn.

6.13 When you carry a load, make sure it rests against the carriage. Keep the mast of the forklift tilted backward to hold the load in place. Lift and lower loads slowly and avoid sudden movements.

6.14 For proper balance and stability, position forks all the way into the load. Also, adjust forks to the width of the load.

6.15 Do not lift loads with only one fork.

6.16 Do not push heavy loads with a forklift.

6.17 Do not carry passengers on your forklift or lift anyone on the forks except in an approved safety platform.

6.18 Wear the proper personal protective equipment.

6.19 Do not take part in stunt driving or horseplay.

6.20 Never stand or pass under elevated forks.

6.21 Inspect your forklift before each start to make sure it is in safe operating condition. Check the oil, water, steering, brakes, tires, light, horn and all moving parts each day. A checklist has been developed so you don't overlook anything. Report any defects to your supervisor right away.

6.22 Refuel forklifts at locations specifically designed for that purpose and pay attention to posted instructions. Refueling locations should be well ventilated and at least 10 feet from all sources of ignition. Forklifts must have at least a 2½ lb. ABC dry chemical fire extinguisher attached.

6.23 Never elevate the forks when you travel, turn or move the truck into position.

6.24 Operate at safe distances from the edges of all ramps and platforms.

DAILY INSPECTION: FORKLIFTS AND TOW MOTORS

FORKLIFT ID NO._____ WEEK OF:_____

ITEMS TO BE INSPECTED	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY		SUNDAY	
	OK	*NR	OK	*NR	OK	*NR	OK	*NR	OK	*NR	OK	*NR	OK	*NR
Wheels & Tires														
Steering														
Foot Brake (Pedal Holds)														
Hydraulic System (Level/Leaks)														
Engine Oil Level														
Horn														
Chains (Condition)														
Mast														
Carriage														
Fork Adjusting Slides														
Data Plate w/Lifting Capacity														
Parking Brake														
Fire Extinguisher														
Fuel Connection														
Clear of Extraneous Materials														
Lights														
Neutral Safety Switch														
Inspector's Name														

ANY DISCREPANCIES MUST BE REPORTED TO MAINTENANCE!! KEEP ALL BODY PARTS INSIDE THE CAGE -- DRIVE CAREFULLY!!
***NR - Needs Repair**

REPAIRS NEEDED: _____

_____

Maintenance Certification of Repairs Completed: Date Repairs Completed: _____

Print Name: _____ Signature: _____

ROPE, CABLE & SLING INSPECTION

SECTION 1 - PURPOSE

To provide general guidelines for the inspection of all ropes and cables used for personnel and material handling prior to use and as deemed necessary during their use, in order to ensure the safety of our workers.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

Although OSHA Standard 29 CFR 1926.251 pertains primarily to rigging equipment for material handling, the rope, cable and sling portions of this section will be applied to all hoisting equipment, winches, pullers, and safety lines in use by AMPCO. The OSHA guidelines and/or manufacturers' recommendations regarding visual and detailed inspections, disposition of damaged items, lubrication procedures, as well as use and maintenance will be the policy of this organization.

> **Note:** OSHA guidelines for materials handling, storage, use, and disposal, are also covered within section 29 CFR 1910.184.

SECTION 4 - COMPETENT PERSON

The use of ropes, cables and slings, regardless of whether they are made of natural or synthetic fibers, steel wire, or metal mesh, are subject to certain hazards that cannot be met by mechanical means, but only by the exercise of intelligence, care, and common sense. It is therefore essential to have personnel involved in the proper care, use and inspection of this equipment who are competent, careful and well trained.
The competent person will also enforce the following:

- Rigging equipment shall not be loaded in excess of its recommended safe working load;
- Rigging equipment when not is use shall be removed from the immediate work area;
- Tag lines shall be attached and used on all loads;
- Latches will be in place on all hooks, eliminating the hook throat opening;
- Employees' will not be allowed under suspended loads.

SECTION 5 - VISUAL INSPECTION

Since safety depends on the proper operation of all types of ropes, cables and slings, a visual inspection of these items must be performed daily by an appointed person. Items to look for while conducting the visual inspection should include the following:

- Kinks or severe twists;
- Nicks, breaks, frayed or unraveled edges;
- Deformed, worn or flattened surfaces;
- Corroded or pitted surfaces; or
- Shortened or lengthened rope lays.

SECTION 6 - DETAILED INSPECTION

The following, more detailed inspection, must be performed by the appropriate person at least monthly, or at more frequent intervals, depending on operating conditions and use:

- Run out rope completely and note conditions, such as number of broken strands, broken wires in one lay, reduction in rope diameter, corrosion, shorting of the lay, or fraying;
- Run a soft cloth, preferably cotton, over the entire length of wire rope and examine any rope lays which pick up threads of the cloth;
- Determine the extent of damage due to broken wires, nicks, cuts, frayed, or unraveled edges;
- Ensure that wire rope is properly lubricated; and
- When any of the above conditions exist and show evidence of abnormal deterioration, the item must be watched and re-inspected daily. If this condition continues to worsen, the item must be condemned and replaced.

SECTION 7 - DISPOSITION OF DAMAGED ROPE

Note: Any rope or cable removed from service due to a damaged condition must be removed from service and destroyed immediately.

The length and type of service, as well as the severity of operation, must be taken into consideration before determining the disposition of ropes or cables which show signs of damage. Where failure of the rope or cable might endanger life or equipment, the rope or cable must be condemned and replaced immediately. In all cases, the rope or cable must be condemned and replaced if any of the following conditions are found to exist.

7.1 Broken Wires:

Six or more wires broken in any one wire lay, or three or more wires broken in any one strand of one rope lay.

7.2 Worn Outside Wires:

Wearing of one-third or more of the original diameter of any of the outside individual wires.

7.3 Broken Strand:

One or more broken strands.

7.4 Kinking, Crushing, Unstranding, or Other damage:

Rope severely kinked, crushed, cut, frayed, birdcage, unstranded, or unraveled, or any other damage resulting in distortion of the rope structure;

7.5 Heat or Weld Damage:

Any evidence of heat damage or weld splatter.

7.6 Corrosion:

Considerable corrosion in the valleys between strands or corroded or broken wires at end connections.

7.7 Reduction in Diameter:

Noticeable reduction from normal rope diameter.

SECTION 8 - ROPE CLIPS

Fixtures are usually attached to wire rope by means of wire rope clips, commonly referred to as either "U" clips or "U" bolts. These wire rope clips are also used when making a loop at the end of a wire rope. There is a right way and a wrong way to use a wire rope clip. The correct method for installing a wire rope clip is to attach the clip with the base or saddle of the clip against the live, or long end of the rope, and the rounded "U" portion of the bolt over the short or dead end of the wire rope. This will allow the clip to develop 80 to 90 percent efficiency and is the only correct method of attaching wire rope clips. The saying, "Never Saddle a Dead Horse" will help prevent incorrect mounting of wire rope clips.

SECTION 9 - SLINGS

Note: Any sling removed from service due to a damaged condition, must be destroyed immediately.

Slings are generally used in conjunction with other material handling equipment for the movement of material by hoisting. Slings are made of alloy steel chain, wire rope, metal mesh, natural or synthetic fiber, or fibers woven into a web. Many manufacturers of slings will produce their slings with a safety mark already on them. An example of this would be a sling with a red colored strand woven right into the material. If the sling has been cut or nicked to the point

where the red colored strand is visible, the sling should be replaced immediately. During use slings will not be shortened for any reason.

However, since not all manufacturers make this safety mark, it will be up to the inspector to determine when the sling should be replaced.

9.1 SLING INSPECTION

Each day, before being used, the sling and all fastenings and attachments must be inspected for damage or defects by a competent person designated by the Company. Additional inspections should be performed during sling use, and where service conditions warrant. Damaged or defective slings must be immediately removed from service and destroyed.

In the case of alloy steel chain slings, the inspection shall include a thorough check for wear, defective welds, deformation of the links, and increase in length. Where such defects or deterioration are present, the chain sling must be immediately removed from use.

Rigging Equipment for Material Handling

The company must ensure that rigging equipment:

- Has permanently affixed and legible identification markings as prescribed by the manufacturer that indicate the recommended safe working load;
- Not be loaded in excess of its recommended safe working load as prescribed on the identification markings by the manufacturer; and
- Not be used without affixed, legible identification markings as required by the manufacturer.
- Employers must not use improved plow-steel wire rope and wire-rope slings with loads in excess of the rated capacities (i.e., working load limits) indicated on the sling by permanently affixed and legible identification markings prescribed by the manufacturer.
- Wire rope slings shall have permanently affixed, legible identification markings stating size, rated capacity for the type(s) of hitch(es) used and the angle upon which it is based, and the number of legs if more than one.
- Employers shall not use shackles with loads in excess of the rated capacities (i.e., working load limits) indicated on the shackle by permanently affixed and legible identification markings prescribed by the manufacturer.
- Dependent upon type of use and/or requirements of client and/or manufacturer proof testing of rigging may be conducted as required.

Safe Operating Practices

Whenever any sling is used, the following practices shall be enforced:

- Slings that are damaged or defective shall not be used.
- Chain or wire rope slings shall not be shortened with knots or bolts or other makeshift devices.
- Slings shall not be kinked, or knotted.
- Slings shall not be loaded in excess of their rated capacities as prescribed by the sling manufacturer on the identification markings permanently affixed to the sling.
- Slings used in a basket hitch shall have the loads balanced to prevent slippage.
- Slings shall be set to avoid slippage.
- Slings shall be padded or protected from the sharp edges of their loads.
- Suspended loads shall be kept clear of all obstructions.
- All employees shall be kept clear of loads about to be lifted and of suspended loads. Loads shall not be passed over employees.
- Hands or fingers shall not be placed between the sling and its load while the sling is being tightened around the load.
- Shock loading is prohibited.
- A sling shall not be pulled from under a load when the load is resting on the sling and damage to the sling may result.
- Cal/OSHA Tables S-1 and S-2 shall be used to determine the maximum safe working loads of various sizes of wrought iron and alloy steel chains and chain slings, except that higher safe working loads are permissible when recommended by the manufacturer for specific, identifiable products. Proof coil steel chain, also known as common or hardware chain, or other chain not recommended for slinging or hoisting by the manufacturer, shall not be used for hoisting purposes.
- Wrought iron chains in constant use shall be annealed or normalized at intervals not exceeding 6 months when recommended by the manufacturer. The chain manufacturer shall be consulted for recommended procedures for annealing or normalizing. Alloy chains shall not be annealed.
- Employers shall not use slings without affixed and legible identification markings.

SCAFFOLD SAFETY

SECTION 1 - PURPOSE

This standard is designed to provide reasonable safety for those employees engaged in work requiring the use of scaffolding. It also establishes the safety requirements for the erection, use, dismantling and maintenance of scaffolds as used by AMPCO in its construction operations.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

It is the intent of AMPCO to provide to every extent possible, safe working conditions for those employees engaged in the erection, use and dismantling of scaffolds, to encourage and direct safe work practices, and to comply in all respects with all applicable laws, regulations and standards governing the use and safety of scaffolds.

SECTION 4 - RESPONSIBILITY

It will be the responsibility of each employee to read and comply with the following common sense program which has been designed to promote safety in the erection, use and dismantling of scaffolds. This program does not propose to be all inclusive for each type of scaffold used in the construction industry, nor to supplant or replace other additional safety and precautionary measures deemed necessary when working with scaffolds. It should be noted that in 95 percent of all scaffold accidents, falling from an elevation was the cause of either death or injury, and in almost every case, the death or injury resulted from either failure to use or failure to properly use, personal protective equipment and scaffold guarding.

SECTION 5 - COMPETENT PERSON

The OSHA Standard states that "No scaffold shall be erected, moved, dismantled, or altered except under the supervision of a “Competent Persons". AMPCO policy requires that this Competent Person be an individual who has received sufficient formal training in the erection, moving, dismantling and alteration of scaffolding to receive a certificate attesting to this training, and that a copy of be certificate be on file in the Office.

SECTION 6 - SCAFFOLD TAGGING PROGRAM

The primary purpose of the Scaffold Tagging Program is to provide reasonable safety for those AMPCO employees engaged in occupations requiring the use of scaffolding. It also establishes the safety requirements for the erection, alteration, movement, use, dismantling and maintenance of scaffolds as used by AMPCO in its construction operations.

In addition to being inspected before and after each use, scaffolds must be inspected on a continuing basis. The following Scaffold Tagging Program must be utilized on all AMPCO scaffolds and will be adhered to by all personnel. Anyone violating this program will be subject to disciplinary action.

The AMPCO Scaffold Tagging Program consists of the following:

6.1 Red Tag

A Red Tag indicates extreme danger, that the scaffold is either incomplete or is considered unsafe for use in its current condition. The reason may be that the scaffold is in the process of either being erected or dismantled, or it may mean the scaffold has been erected improperly and is too dangerous to use in its present condition.

Only those persons having an approved Scaffold Training Certificate authorizing them to erect, alter, move or dismantle scaffolds are allowed to work on a scaffold having a Red Tag.

6.2 Yellow Tag

A Yellow Tag signifies that special cautionary measures must be used while working with this scaffold. An example of special caution would be the wearing and use of a safety harness and lanyard for fall protection while working with the scaffold. Only those AMPCO employees specifically authorized by their supervisor to work on a Yellow Tagged scaffold are allowed to do so.

6.3 Green Tag

A Green Tag indicates the scaffold is complete and is safe to work from, and that all guardrails, midrails, toeboards (where required) access ladders, cross bracing, planking, and all other required items are in place and are properly secured. A Green Tagged scaffold is safe for assess by any AMPCO employee allowed to work on scaffolding. In most cases, this scaffold may be utilized with the use of a safety harness and lanyard.

> **Note:** Each tag within the Scaffold Tagging Program has an area on the tag for use by the individual applying the tag to write specific comments regarding the type of tag being used. All personnel preparing to use the scaffold must first read the comments section of the tag.

SECTION 7 - OSHA SCAFFOLD REQUIREMENTS

Both the General Industry standard (29 CFR 1910.28) and the Construction standard (29 CFR 1926.451) include lengthy requirements for scaffolding. However, since we are primarily concerned only with the construction standard, the general requirements of this standard have been summarized as follows:

All scaffolds must be erected in accordance with the requirements of the construction standard 29 CFR 1926.451.

Correct scaffold footing or anchorage that is sound, rigid, and capable of carrying the maximum intended load without settling or displacement must be provided. Do not use barrels, boxes, loose bricks, concrete blocks, or other unstable objects to support scaffolds or planks.

A screen between the toe-board and guardrail is necessary where persons must work or pass under the scaffold.

Each scaffold must be able to support without failure a load four times the maximum intended load.

Any scaffold or scaffold accessories which have become damaged or weakened must be repaired or replaced immediately.

All load-carrying timber members of a scaffold framing must be a minimum of 1,500 fiber construction grade lumber.

All planking must be scaffold grade lumber. The maximum permissible spans are listed on charts located in the OSHA standard.

All planking or platforms must be overlapped at least 12 inches or secured from movement.

Either an access ladder or an equivalent safe access must be provided.

Scaffold planks must extend over end supports at least 6 inches but not more than 12 inches.

Scaffold poles, legs or uprights must be plumb and braced securely to prevent swaying or displacement.

Overhead protection must be provided to workers on a scaffold that is exposed to overhead hazards.

Any slippery condition on a scaffold or ladder must be eliminated immediately.

Open flame work, such as welding or burning, must not be done from staging suspended by fiber

or synthetic ropes.

Only treated or protected fiber or synthetic ropes can be used near any corrosive substance or chemicals.

Wire, synthetic or fiber rope used to suspend scaffolds must be able to support at least 6 times the rated load.

Shore or lean-to scaffolds are prohibited.
All lumber sizes given in the OSHA standard mean normal size except where otherwise stated.

SECTION 8 - GUARDRAIL, MIDRAIL AND TOEBOARD REQUIREMENTS

The OSHA standard states that guardrails, midrails and toeboards must be installed on all open sides and ends of platforms more than 10 feet above the ground or floor and that scaffolds with platform heights between 4 to 10 feet high, having a minimum horizontal dimension in either direction of less than 45 inches, also require guardrails.

However, in our continuing efforts to provide a safe workplace, AMPCO has adopted a corporate policy which requires all scaffolds to have guardrails and midrails, regardless of their height or workplace activity.

> **Note:** The reason for this, is that a Bureau of Labor Statistics Survey of Scaffold Accidents reported that the highest causes of accidents from scaffolds were attributable to an absence of Guardrails, and of those, 51 percent occurred on scaffolds that were less than 10 feet in height.

All guardrails must be constructed with 2 x 4 inch lumber, or the equivalent, and they must be located approximately 42 inches above the deck of the platform. Guardrails which are constructed between 36 and 42 inches in height, will satisfy the intent of the OSHA standard. Supports must be at intervals not to exceed 8 feet.

Toe boards must be at least 4 inches high and must be used on all scaffolds which are located in areas where it is expected that personnel may walk or work in the area directly beneath the scaffold.

Mid rails and toe boards, constructed of not less than 1 x 6 inch lumber, or other materials providing equivalent protection, must be installed on all System Scaffolds, Tube and Coupler Scaffolds, Fabricated Tubular Frame Manually Propelled Mobile Scaffolds, and Prefabricated Mobile Tower Scaffolds. Midrails should be located midway between the guardrails and the deck of the platform.

In lieu of guardrails made of not less than 2 x 4 lumber, scaffold tubing, chain and synthetic, fiber, or wire rope can be used as the top and/or intermediate guardrails of a scaffold when used in compliance with the following guidelines:

- ✓ If scaffold tubing is used, it must be of the same material and outside dimension as the tubing used for runners, bearers or cross bracing;
- ✓ The rope or chain will be secured to each support and taut at all times. It may be necessary to use a positive tensioning device to reduce the sag to a minimum;
- ✓ The rope or chain will be free of sharp edges, burrs, or projections which may be a hazard; and
- ✓ The maximum deflection allowed for the top rail when a load of 200 pounds is applied in any direction at any point on the top rail, cannot exceed 3 inches in one direction which includes the free hanging sag in the rope or chain.

SECTION 9 - TYPES OF SCAFFOLD

There are only four basic types of fixed scaffolds presently in use by AMPCO. These are the System Scaffolds, Tube and Coupler Scaffolds, Fabricated Tubular Frame Manually Propelled Mobile Scaffolds, and Prefabricated Mobile Tower Scaffolds. Use of any other type scaffolds must be approved by company management prior to use.

SECTION 10 - GENERAL SAFETY RULES

Scaffolds are invaluable pieces of equipment to the construction industry. They can be used both safely and effectively if the proper guidelines are observed. Manufacturer's specifications and OSHA requirements must be observed at all times to further ensure scaffold worker safety.

Safety rules for scaffold workers should be posted and enforced. Scaffold workers must be instructed in the safe use of the equipment.

Scaffold must be erected, moved, or dismantled only under the supervision of a competent person.

All scaffolds must be inspected on a regular basis, and they should be checked both before and after each use.

Scaffolds must be erected, used, and dismantled according to the manufacturer's specifications.

All frames must be fully cross-braced, the towers level and plumb at all times, and the scaffold capable of carrying the intended loading.

Ladders or other proper access to scaffold platforms must be provided.

Overhead protection should be provided platform workers, and protection under the scaffold should be provided for workers on the ground.

Fall protection rules and regulations must be adhered to at all times. The use of guardrails will be considered mandatory. It is the policy of AMPCO that all scaffolding used on AMPCO projects shall be installed with handrails and mid-rails. No AMPCO employee shall work on any scaffold greater than 15 feet in height without the use of a full body harness equipped with a shock absorbing lanyard connected to an appropriate anchorage point. No employee shall access a scaffold greater than 15 feet in height without wearing a full body harness equipped with a shock-absorbing lanyard.

Unstable objects such as ladders or boxes must not be placed on top of the scaffold platform to extend the working height.

Outdoor workers should not be on scaffolds during storms, high winds or other weather hazards.

Workers must use both hands when climbing up or down a scaffold. Workers must not try to carry materials while climbing.

Workers should not be on a moving scaffold unless they are properly secured and the tower has been stabilized.

Workers must not ride on manually propelled rolling scaffolds while they are being moved.

Wheels on moving scaffolds must be locked at all times except when actually moving the scaffold.

Workers who are on the scaffolds must not attempt to move the scaffolds manually. These towers must be moved by pushing from the base level only and not by pulling from the top.

Workers should work only within the platform area. They must not try to extend overhead work by reaching out over the guardrails.

Bridging must not be extended between two movable scaffolds with planks or stages.

Equipment should not be thrown from a scaffold or left on the scaffold platform where it may be kicked off. Scaffold safety must be practiced at all times.

SECTION 11 - TRAINING

11.1 Initial Training

Scaffold User - All employees who perform work while on a scaffold will be trained by a person qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards. The training will include the following areas, as applicable:

- The nature of any electrical hazards, fall hazards and falling object hazards in the work area;
- The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used;
- The proper use of the scaffold, and the proper handling of materials on the scaffold;
- The maximum intended load and the load-carrying capacities of the scaffolds used; and
- Any other pertinent requirements of the subpart.

Scaffold Erectors - Each employee who is involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold will be trained by a competent person to recognize any hazards associated with the work in question. The training will include the following topics, as applicable:

- The nature of scaffold hazards;
- The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold in question;
- The design criteria, maximum intended load-carrying capacity and intended use of the scaffold;
- Any other pertinent requirements of the subpart.

11.2 Retraining

When the employee lacks the skill or understanding needed for safe work involving the erection, use or dismantling of scaffolds, the employer shall retrain each such employee so that the requisite proficiency is regained. Retraining is required in at least the following situations:

- Where changes at the worksite present a hazard about which an employee has not

been previously trained; or

- Where changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained; or
- Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the requisite proficiency.

SCAFFOLDS – CA OSHA

General Requirements

Scaffolds shall be provided for all work that cannot be done safely by employees standing on permanent or solid construction at least 20 inches wide, except where such work can be safely done from ladders.

Exceptions:

1. Work of a limited nature and of short duration when the permanent or solid construction is less than 20 inches in width and the fall distance does not exceed 15 feet in height and provided adequate risk control is recognized and maintained under competent supervision.

2. Work of a short duration from joists or similar members at 2 feet or closer centers, planks resting on these members forming a plank platform 12 inches wide or equivalent protection.

Scaffold Design and Construction.

(1) Scaffolds shall be constructed of wood or other suitable materials such as steel or aluminum members of known strength characteristics. Where materials other than wood are used, or where scaffold designs differ from those specified in these Orders, the scaffold and its parts must provide a degree of strength, rigidity and safety equivalent to that provided by the described scaffold it replaces.

(2) Each scaffold shall be designed and constructed using a dead load safety factor that will ensure the scaffold supports, without failure, its own weight and 4 times the maximum intended working (live) load applied or transmitted to it. Maximum intended working loads shall be as follows:

(A) Light-duty scaffolds: 25 pounds per square foot of work platform.

Exception: Light-duty interior scaffolds shall adhere to the loading requirements contained in the manufacturers' requirements.

(B) Medium-duty scaffolds: 50 pounds per square foot of work platform.

(C) Heavy-duty scaffolds: 75 pounds per square foot of work platform.

(D) Special-duty scaffolds: exceeding 75 pounds per square foot of work platform as determined by a qualified person or a Civil Engineer currently registered in the State of California and experienced in scaffold design.

(E) Engineered scaffolds: as determined by a Civil Engineer currently registered in the State of California and experienced in scaffold design.

(3) A scaffold shall not be subjected to loads greater than its maximum intended working load.

(4) Manufactured scaffolds shall be used in accordance with the manufacturer's recommendations.

Exception: Where specific requirements that address riding on a rolling scaffold in company policy may conflict with the manufacturer's recommendations, the provisions in the manufacturer’s requirements take precedence.

(5) A qualified person shall determine the maximum intended working loads for scaffolds that are neither manufactured nor engineered.

(6) The maximum intended working load for each scaffold shall be posted at a conspicuous location at each jobsite or be provided to each supervisory employee who shall have it readily available at the jobsite.

(c) Anchorage and bracing shall be such that scaffolds and falsework will be prevented from swaying, tipping, or collapsing.

(d) Scaffold lumber, except for planks, used on suspended or ladder-jack scaffolds, shall be the equivalent of “selected lumber,” free from damage that affects its strength. (See definitions for lumber specifications.)

(e)(1) Extension planking of the finger type shall be made with at least 5 fingers on each side. These fingers shall be at least 1-inch by 2 1/8-inch selected straight-grained Douglas fir or material of equal strength. All metal fittings shall be adequate to maintain the structural qualities of the device.

(2) The length of the extended planking shall not exceed 12 feet 6 inches, and the actual mechanical overlap between the 2 halves shall be not less than 1/8 of the length of the extended planking. A substantial stop shall be provided to maintain this overlap.

(3) Not more than one employee shall be permitted at one time on any extension planking that is more than 3 feet in height.

(4) Extension planking shall not be used as a platform on ladder-jack, suspended, or other unstable scaffolds.

(f) This subsection provides minimum labeling, design and construction requirements for scaffold planking, such as solid sawn planks, manufactured platforms of wood (including laminated planks), metal planking, and planking manufactured from other materials.

(1) Except as specified in other Orders, all solid sawn planking shall be at least equivalent to 2-inch x 10-inch (nominal) lumber selected for scaffold grade plank as defined in Section 1504, Lumber - “Structural Plank.”

(2)(A) The maximum permissible spans for Douglas Fir and Southern Pine planking for 2 x 10-inch (nominal) or 2 x 9-inch (rough) planks shall be as shown in the following Table:

Working (Live) Load (psf).	25	50	75
Permissible Span (ft.).	10	8	7

(B) The maximum permissible spans allowed for other wood species of scaffold planking shall not exceed 10 feet and shall be determined by a licensed professional engineer.

(3)(A) All manufactured scaffold planking including, but not limited to, engineered wood products, laminated veneer lumber, metal, composite, plastic, or any other manufactured planks shall be capable of supporting, without failure, its own weight and 4 times the maximum intended working (live) load.

(B) Manufactured planks with spans in excess of 10 feet shall be labeled to indicate the maximum intended working (live) load.

(C) Manufactured scaffold planks shall be used in accordance with the manufacturer's specifications.

(4) Prior to being placed in service, all laminated veneer lumber scaffold planks, manufactured after December 2, 2010 shall be labeled with the seal of an independent, nationally recognized, inspection agency approved by the International Accreditation Services (IAS) certifying compliance with ASTM D 5456-09a and ANSI/ASSE A10.8-2001, Section 5.2.10.

Note: ASTM D 5456-09a is the standard for the evaluation of structural composite lumber products. ANSI/ASSE A10.8-2001, Section 5.2.10. requires the inspection agency to certify that laminated veneer lumber scaffold planks are compliant with the design criteria in the ANSI/ASSE A10.8 standard.

(5) Prior to being placed into service, all solid sawn wood scaffold planks shall be certified by, or bear the grade stamp of, a grading agency approved by the American Lumber Standards Committee.

(6) All scaffold planks shall be visually inspected for defects before use each day.

(7) Defective or damaged scaffold planks shall not be used and shall be removed from service.

(g) Except as specified in other Orders, a scaffold plank shall not overhang its support by more than 18 inches, unless access to this overhanging portion is prevented by a guardrail, or other barrier, or unless the other plank end is securely anchored.

(h) Inspection of Lumber. All scaffold lumber shall be visually inspected for defects before and during use. Defective lumber shall not be used.

(i)(1) Nailing. All nailed joints in scaffolds and wooden falsework must contain enough properly placed nails of ample size to carry the loads they are intended to support.

(2) Nailed joints or connections shall not be used to support concrete hoppers with a capacity in excess of 1/2 cubic yard.

(3) Double-headed nails shall not be used for attaching railings or in other service where the projections might catch on the clothing of workers or create similar hazards.

(4) No nail smaller than 8-penny shall be used in the construction of scaffolding.

(5) All nails shall be driven full length or to the first head when double-headed nails are used.

(6) The minimum number of nails per connection shall be in accordance with the following table:

	1" x 6" Material	*1" x 8" Material*	*2" Material*
Ledgers	4-8d	5-8d	2-16d
Ribbons	3-8d	3-8d	
Braces	3-8d	3-8d	2-16d
Guardrails	2-8d	2-8d	2-16d

(7) Lubricated or wax-coated nails shall not be used in the construction of scaffolds, falsework, or other temporary installations.

(j) Prohibited Types of Scaffolds. Lean-to or jack scaffolds, shore scaffolds, nailed brackets, loose tile, loose brick, loose blocks, stilts, or other similar unstable objects shall not be used as working platforms, or for the support of such platforms.

Exception: Bricklayer's “jump boards” no higher than 20 inches above the regular scaffold platform are acceptable for such service when supported by piers of carefully piled bricks or concrete blocks.

(k) Erection and Dismantling.

(1) The erection and dismantling of scaffolds or falsework shall be performed under the supervision and direction of a qualified person.

Note: In addition to persons meeting the requirements of “qualified persons” as defined in Cal/OSHA, person(s) possessing a certification of competence in scaffold erection, dismantling and use issued by trade associations, State-approved apprenticeship or training programs or other similar training programs shall be considered a “qualified person(s).”

(2) Erection and dismantling of scaffolds shall be performed in accordance with good engineering practice. Where engineering design is required by these orders, the engineering drawings shall be made available at the job site during erection or upon request by the Cal/OSHA.

(3) All required ties to the structure shall be installed as soon as the scaffold has been completed to the tie-in area during erection.

(4) Ties shall only be removed during dismantling as the work progresses downward unless other methods are used to prevent the scaffold from falling over.

(5) No structural members shall be removed from scaffolds during dismantling operations below the level being dismantled.

(6) Where work platforms are proposed, guardrails shall be installed before other work not directly related to scaffold erection is permitted to begin.

(l) Removal of Braces. Scaffolds or falsework installations shall not be altered by removing uprights, braces, or supports unless other members providing equivalent strength are substituted.

(m) Loading. Scaffolds shall not be overloaded. Material shall not be allowed to accumulate to the extent that a scaffold is subjected to loading it is not designed to support.

(n) Access.

(1) A safe and unobstructed means of access, such as a walkway, stair, or ladder shall be provided to all scaffold platforms.

(2) Climbing ladders or stairways on scaffolds used for access and egress shall be affixed or built into the scaffold by proper design and engineering, and shall be so located that their use will not disturb the stability of the scaffold.

(A) Manufactured hook-on and attachable ladders shall be securely attached to the scaffold and:

1. Shall be specifically designed for the type of scaffold used;

2. Shall have a minimum rung length of 11-1/2 inches (29 cm); and

3. Shall have uniform spaced rungs with a maximum spacing between rungs of 16-3/4 inches.

(B) If a ladder is used as a means of access to the scaffold, it shall be securely attached and shall comply with Article 25 of the Construction Safety Orders.

(C) Permanent stairways shall comply with the applicable provisions of the General Industry Safety Orders. Prefabricated scaffold steps or stairs, manufactured on or before May 28, 2005, shall comply with the design, manufacture and installation requirements of either the American National Standard ANSI A10.8-1988, Scaffolding-Safety Requirements, or the ANSI/ASSE A10.8-2001, Safety Requirements for Scaffolding, which are hereby incorporated by reference. Prefabricated scaffold steps or stairs, manufactured after May 28, 2005, shall comply with the design, manufacture and installation requirements of ANSI/ASSE A10.8-2001, Safety Requirements for Scaffolding.

(D) Horizontal members of end frames may be designed and used as a climbing device provided that the steps are:

1. Reasonably parallel and level.

2. Arranged to form a continuous ladder as required per manufacturer’s requirements.

3. Provided with sufficient clearance to provide a good handhold and foot space.

(o) Sloped Platforms. Platforms shall not be sloped more than 2 feet vertically to 10 feet horizontally and shall be positively secured against slipping from supports.

(p) Slippery Conditions. No worker shall be permitted to work on a scaffold platform where slippery conditions exist unless such conditions are a necessary part of the work.

(q) Overhead Protection. Workers on scaffolds who are exposed to overhead hazards shall be provided with overhead protection or other means that will effectively eliminate the hazard.

(r) Bolted Connections. Bolts used in the construction of scaffolds shall be of a size and in sufficient numbers at each connection to develop the designed strength of the scaffold.

(s) Hoisting of Materials. Where materials are line-hoisted onto a scaffold, a tag line shall be used where necessary to control the load.

(t) Platform Planks at Corners. When a scaffold materially changes its direction, the platform planks shall be laid to prevent tipping. The planks that meet the corner ledger at an angle shall be laid first, extending over the diagonally placed ledger far enough to have a good safe bearing, but not far enough to involve any danger from tipping. The planking running in the opposite direction at an angle shall be laid so as to extend over and rest on the first layer of planking.

(u) Work on or from scaffolds is prohibited during storms or high winds unless a qualified person has determined that it is safe for employees to be on the scaffold and those employees are protected by a personal fall arrest system, as defined in the Cal/OSHA requirements, or wind screens. Wind screens shall not be used unless the scaffold is secured against the anticipated wind forces imposed.

(v) Wood platforms shall not be covered with opaque finishes, except that platform edges may be covered or marked for identification. Platforms may be coated periodically with wood preservatives, fire-retardant finishes, and slip-resistant finishes; however, the coating may not obscure the top or bottom wood surfaces.

(w) Platforms, including, but not limited to, those consisting of solid sawn wood planks, engineered wood products, laminated veneer lumber, metal, composite, plastic, or any other manufactured planks, shall not deflect more than 1/60 of the span when loaded to the manufacturer's recommended maximum load.

Metal Scaffolds

General.

(1) Metal scaffolds shall be designed to support all dead, live, and wind loads to which they will be subjected.

(2) No metal scaffold equipment that is broken or deteriorated to the extent that its section is structurally weakened shall be used.

(3) All stationary scaffold legs, including those of outriggers, shall rest upon base plates available from the manufacturer for this service. Each base plate shall have support adequate to sustain the load and prevent horizontal movement. When the scaffold or outrigger is resting on earth or soft material, the base plate shall rest on and be secured to the equivalent of a 2-inch by 10-inch by 10-inch wooden base.

Note: A 1 1/8-inch by 10-inch by 10-inch piece of exterior grade plywood may be used in lieu of the wooden base mentioned above.

(4) Platform planks shall not be placed on guardrails to obtain greater height.

(5) Metal scaffolds shall be securely tied to the building or structure by means of a double looped No. 12 iron wire, or single looped No. 10 iron wire or equivalent at intervals not to exceed 30 feet horizontally and subject to the following:

(A) Ties shall be required at the free ends of the scaffold when the height of the scaffold platform exceeds 3 times the least base dimension. The remaining ties of the first row shall be required when the height of the scaffold platform is four times the least base dimensions.

(B) Ties for subsequent levels shall be installed at 26-foot intervals vertically, with the last tie no further from the top than four times the least base dimension.

(C) As an alternate means, scaffolds shall be guyed or outriggers shall be used to prevent tipping or upsetting.

(D) Wind Loading. When scaffolds are partially or fully enclosed, specific precautions shall be taken to assure the frequency and adequacy of ties attaching the scaffolding to the building.

(6) Securely attached railings as provided by the scaffold manufacturer, or other material equivalent in strength to the standard 2- by 4-inch wood railing made from "selected lumber" (see definition), shall be installed on open sides and ends of work platforms 7 1/2 feet or more above grade. The top rail shall be located at a height of not less than 42 inches nor more than 45 inches measured from the upper surface of the top rail to the platform level. A mid-rail shall be provided approximately halfway between the top rail and the platform.

Note: Toe-boards or side screens may also be required.

(A) "X" bracing is acceptable as a top-rail if the intersection of the "X" occurs at 45 inches (plus or minus 3 inches) above the work platform, provided a horizontal rail is installed as a mid-rail between 19 and 25 inches above the work platform. The maximum vertical distance between the "X" brace members at the uprights shall not exceed 48 inches.

(B) "X" bracing is acceptable as a mid-rail if the intersection of the "X" falls between 20 inches and 30 inches above the work platform.

Exceptions:

(1) Railings are not required on that side of bricklayers' and masons' scaffold adjacent to the work under construction provided the wall is higher than the adjacent work platform.

(2) For end rail openings less than 3 feet, double wrapped iron wire at least No. 12 gauge in thickness, or wire rope at least 1/4 inch minimum diameter is permitted, provided the wire or wire rope is securely fastened.

(7) Platform planks shall be of 2-inch by 10-inch or wider material and of such length that they overlap the ledgers at each end by at least 6 inches.

A plank shall not overlap an unsupported end of another plank.

The working platform shall cover the entire space between scaffold uprights, except for the open area under the back railing. Such open area shall not exceed 10 inches in width.

The inboard edge of the work platform shall be no more than 16 inches from the building or structure wall except for those scaffolds used by bricklayers and stonemasons the platforms of

which shall extend to within 7 inches of the finish face of the building or structure on which the work is being performed.

(8) All ladders used for access shall conform to ladders, Cal/OSHA requirements. When only a part of the width of the metal scaffold frame conforms to ladder spacing, then these frames must be erected in a manner that makes a continuous ladder bottom to top, with ladder sides of the frames in a vertical line.

(b) Tube and Coupler Scaffolds.

(1) A light duty tube and coupler scaffold shall have all posts, ledgers, ribbons and bracing of nominal 2-inch O. D. steel tubing. The posts shall be spaced no more than 6 feet apart by 10 feet along the length of the scaffold. Other structural metals when used must be designed to carry an equivalent load. No dissimilar metals shall be used together.

(2) A medium duty tube and coupler scaffold shall have all posts, ribbons and bracing of nominal 2-inch O. D. steel tubing. Posts spaced not more than 6 feet apart by 8 feet along the length of the scaffold shall have ledgers of nominal 2 1/2-inch O. D. steel tubing. Posts spaced not more than 5 feet apart by 8 feet along the length of the scaffold shall have ledgers of nominal 2-inch O. D. steel tubing. Other structural metals, when used, must be designed to carry an equivalent load. No dissimilar metals shall be used together.

(3) A heavy duty tube and coupler scaffold shall have posts, ribbons, and bracing of nominal 2-inch O. D. steel tubing, with the posts spaced not more than 6 feet by 6 feet 6 inches. Other structural metals, when used, must be designed to carry an equivalent load. No dissimilar metals shall be used together.

(4) Tube and coupler scaffolds shall be limited in heights and working levels to those permitted in Tables 1, 2, and 3. Drawings and specifications of all tube and coupler scaffolds above the limitations in Tables 1, 2, and 3 shall be designed by a Civil Engineer currently registered in the State of California.

(5) All tube and coupler scaffolds shall be constructed and erected to support 4 times the maximum intended loads as set forth in Tables 1, 2, and 3, or as set forth in the specifications by a Civil Engineer currently registered in California.

Table 1

Light Duty Tube and Coupler Scaffolds

Uniformly distributed load ..... Not to exceed 25 p.s.f.
Post spacing (longitudinal) ..... 10'0"
Post spacing (transverse) ..... 6'0"

Working Levels	*Additional Planked Levels*	*Maximum Height*
1	8	125'
2	4	125'
3	0	91'0"

Table 2

Medium Duty Tube and Coupler Scaffolds

Uniformly distributed load	Not to exceed 50 p.s.f.
Post spacing (longitudinal)	8'0"
Post spacing (transverse)	6'0"

Working Levels	*Additional Planked Levels*	*Maximum Height*
1	6	125'
2	0	78'0"

Table 3

Heavy Duty Tube and Coupler Scaffolds

Uniformly distributed load	Not to exceed 75 p.s.f.
Post spacing (longitudinal)	6'6"
Post spacing (transverse)	6'0"

Working Levels	*Additional Planked Levels*	*Maximum Height*
1	6	125'

(6) Posts shall be accurately spaced, erected on suitable bases, and maintained plumb.

(7) Ribbons shall be erected along the length of the scaffold, located on both the inside and the outside posts at even height. Ribbons shall be interlocked to the inside and the outside posts at even heights. Ribbons shall be interlocked to form continuous lengths and coupled to each post. The bottom ribbons shall be located as close to the base as possible. Ribbons shall be placed not more than 6 feet 6 inches on centers.

(8) Ledgers shall be installed transversely between posts and shall be securely coupled to the posts bearing on the ribbon coupler. When coupled directly to the ribbons, the coupler must be kept as close to the posts as possible.

(9) Ledgers shall be at least 4 inches but not more than 12 inches longer than the post spacing or ribbon spacing.

(10) Cross bracing shall be installed across the width of the scaffold at least every third set of posts horizontally and every fourth ribbon vertically. Such bracing shall extend diagonally from the inner and outer ribbons upward to the next outer and inner ribbons.

(11) Longitudinal diagonal bracing on the inner and outer rows of poles shall be installed at approximately a 45 degree angle from near the base of the first outer post upward to the extreme top of the scaffold. Where the longitudinal length of the scaffold permits, such bracing shall be duplicated beginning at every fifth post. In a similar manner, longitudinal diagonal bracing shall also be installed from the last post extending back and upward toward the first post. Where conditions preclude the attachment of this bracing to the posts, it may be attached to the ribbons.

(c) Tubular Welded Frame Scaffolds.

(1) Metal tubular frame scaffolds, including accessories such as braces, brackets, trusses, screw legs, ladders, etc., shall be designed, constructed, and erected to safely support four times the maximum rated load. The scaffold manufacturer's erection instructions shall be followed on all installations.

(2) Spacing of panels or frames shall be consistent with the loads imposed.

(3) Panels or frames shall be braced by horizontal bracing, cross bracing, diagonal bracing or any combination thereof for securing vertical members together laterally, and the cross braces shall be of such length as will automatically square and align vertical members so that the erected scaffold is always plumb, square, and rigid. All brace connections shall be made secure.

(4) Panel or frame legs shall be set on adjustable bases or plain bases placed on mud sills or other foundations adequate to support the maximum anticipated load.

(5) Panels or frames shall be placed one on top of the other with coupling or stacking pins to provide proper vertical alignment of the legs.

Note: Where an intervening ledge prevents the vertical stacking of legs, the ledge may be used as a base provided that an equally safe installation is obtained.

(6) Where uplift may occur, panels shall be locked together vertically by pins or other equivalent suitable means.

(7) Drawings and specifications for all frame scaffolds over 125 feet in height above the base plates shall be designed by a Civil Engineer currently registered in California.

Tower Scaffolds and Rolling Scaffolds, Wood or Metal

(a) The minimum dimension of the base of any free-standing tower or rolling scaffold shall not be less than 1/3 the height of the scaffold unless such scaffold is securely guyed or tied. For restrictions when worker rides scaffold see paragraph (f) following.

(b) Construction and Erection.

(1) The uprights, ledgers, ribbons, braces, and splices shall be equivalent to the standards specified in other applicable Sections of these Orders. Railings are required if the platform is 7 1/2 feet or more above grade. Railings shall be installed in accordance with the provisions of the manufacturer’s and/or Cal/OSHA requirements.

NOTE: Toe-boards or side screens may also be required.

(2) The screw jack shall extend into its leg tube at least 1/3 its length, but in no case shall the exposed thread exceed 12 inches.

(3) The uprights (legs of rolling scaffolds) shall not exceed 24 inches without being braced according to the manufacturer's specifications.

(c) Wheels or casters of rolling scaffolds shall be provided with an effective locking device, and kept locked when workers are climbing or working on the scaffold. At least 2 of the 4 casters or wheels shall be a swivel type. All wheels or casters shall be properly designed for strength and dimension to support at least 4 times the maximum intended load.

(d) Joints of metal scaffolds shall be locked together with lock pins, bolts or equivalent fastening, including caster joints. Lock pins used must be of a locking type.

EXCEPTION: Screw jacks and guardrail posts.

(e) Platform planks on rolling or tower scaffolds shall not project farther than 18 inches past supports at the edges of the scaffold. An effective method of preventing platform planks on rolling scaffolds from slipping off must be provided. The nailing of cleats of 1-inch material on the underside of each projecting end, or other equivalent means, will be acceptable. Platforms shall be tightly planked for the full width of the scaffold except for any necessary entrance openings.

NOTE: Refer to Cal/OSHA regulations on required plank and platform sizes.

(f) Ladders. Ladders or other unstable objects shall not be placed on top of rolling scaffolds to gain greater height.

(g) Scaffolds on Vehicles. When scaffolds are built on motor trucks or vehicles, they must be rigidly attached to the truck or vehicle. The attachment must be made in a manner that will develop the full strength of the scaffold in resisting an overturning force.

(h) Trucks or vehicles that have scaffolds attached to them shall have a device in use whenever employees are on the scaffold that prevents swaying or listing of the platforms.

(i) Riding. Employees may ride on rolling scaffold moved by others below if the following conditions exist:

(1) The floor or surface is within 3 degrees of level, and free from pits, holes, or obstructions;

(2) The minimum dimension of the scaffold base, when ready for rolling, is at least 1/2 of the height. Outriggers, if used, shall be installed on both sides of staging;

(3) The wheels are equipped with rubber or similar resilient tires. For towers 50 feet or over, metal wheels may be used;

(4) The manual force used to move the scaffold shall be applied as close to the base as practicable, but not more than 5 feet (1.5 meters) above the supporting surface of the scaffold;

(5) Before a scaffold is moved, each employee on the scaffold shall be made aware of the move; and,

(6) No employee shall be on any part of the scaffold which extends outward beyond the wheels, casters, or other supports.

(j) Riding on a Self-Propelled Scaffold. One employee may ride on and move a rolling scaffold while on the platform without assistance from others below provided the following conditions are met:

(1) All of the provisions of this Section shall be met, except that the scaffold need not be moved by others below;

(2) The scaffold platform shall not be more than 4 feet above the floor level;

(3) The working platform shall be no less than 20 inches in width with a maximum 1 inch space between platform planks;

(4) Wheels or casters of rolling scaffolds shall be provided with an effective locking device that is used in accordance with subsection (c) of this section; or rolling scaffolds shall be provided with an effective device that is used to prevent movement of the scaffold when workers are climbing or working on the scaffold; and,

(5) The use of power systems such as motor vehicles, add-on motors, or battery powered equipment to propel a rolling scaffold is prohibited.

(k) Training. Employees who ride on rolling scaffolds and employees that assist in moving employees riding on a rolling scaffold shall be trained in accordance with the requirements of this company policy and with the requirements of the Cal/OSHA Construction Safety Orders, Section 1509 to recognize the hazards associated with riding on a rolling scaffold.

WELDING AND CUTTING

SECTION 1 - PURPOSE

To provide guidelines for the safe operation of welding and cutting equipment, and to itemize some of the fundamental hazards inherent with the use of this equipment.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

All operators of welding and/or cutting equipment must be trained and certified to operate the equipment they will use. Appropriate safety procedures must be reviewed and understood prior to use of this equipment.

SECTION 4 - RESTRICTIONS

If each of the requirements stated in this section cannot be followed then the welding and cutting will not be performed.

4.1 Guarding

If the object to be welded or cut cannot be moved and if the fire hazards cannot be removed, then the fire hazards must be protected by the use of guards to confine the heat, sparks and slag generated by the welding and cutting operation.

4.2 Inspections

Before the welding or cutting can be permitted, the area must be inspected by a person who has either the experience and training to authorize the welding and cutting or who has the authority to issue a Hot Work Permit or a Welding and Cutting Permit.

4.3 First Aid Equipment

First Aid equipment must be available at all times when workers are performing welding and cutting operations. Refer to Section 4-4 of the Corporate Safety Manual.

SECTION 5 - TRAINING

Prior to performing any welding or cutting operation, welders, cutters and their supervisors must be suitably trained in the safety procedures recommended by the manufacturer for the use of their equipment.

When working with oxygen-fuel welding and cutting, those workers in charge of the oxygen or fuel-gas supply equipment, including distribution piping systems and generators if applicable, must be instructed and judged competent for such work. A supervisor experienced in oxygen-fuel welding and cutting may make this judgment.

Workers who are assigned to use arc welding equipment must be properly instructed and judged qualified to operate such equipment. A supervisor experienced in arc welding may make this judgement. If gas shielded arc welding is performed, the worker must not only be familiar with the OSHA Standards for welding and cutting, but also with the American Welding Society Standard A6-1-1966.

SECTION 6 - OXYGEN-FUEL WELDING AND CUTTING

6.1 BASIC EQUIPMENT

A. Industrial Gases

1. Oxygen - Oxygen itself is not flammable, but the presence of pure oxygen accelerates the combustion reaction. Oil and grease, in the presence of oxygen, become highly explosive. Oxygen must not be allowed to contact petroleum based substances.

B. Fuel Gases

1. Acetylene - Acetylene is an unstable gas when compressed above 15 psig. Acetylene cylinders are filled with a porous material and saturated with liquid acetone. Acetylene, when pumped into the cylinder, dissolves in the acetone and is held in a stable condition. If the acetylene cylinder is stored or used in the horizontal position, the acetone may leak out, leaving an explosive mixture of acetylene. It is for this reason, that all acetylene cylinders must be stored and used in the upright or vertical position.

2. MAPP Gas - MAPP is a stabilized mixture of methyl acetylene, and has considerably less tendency to backfire than acetylene. Maximum allowable use pressure is 94 psig for MAPP versus 15 psig for acetylene.

C. Safety Equipment

Cutting goggles with a minimum of No. 4 tint in the lenses, approved welding helmet, clear face shield, leather welding gloves, long sleeve shirts, leather apron and/or capes when conditions warrant them.

Fire extinguishers shall be provided and placed within 20' of the task.

6.2 SETTING UP EQUIPMENT

Remove safety caps from the tops of the cylinders. "Crack" open the cylinder to remove any potential accumulated dirt or debris prior to attaching the regulator. Clean all threaded connections to be sure they are free of dirt, dust, oil, or grease. Carefully attach the regulator to the cylinder valves. Release tension on the regulator and adjust the screws before opening the cylinder valves. Slowly open the fuel gas cylinder valve. Acetylene cylinder valves should be opened a maximum of one full turn. MAPP cylinder valves can be opened completely. Watch the regulator gauges for the psig.

Reverse flow check valves must be used at the regular end on both fuel and oxygen hoses. It is strongly recommended that they also be used at the torch end of these lines. These valves are inexpensive and provide a great degree of insurance against the possibility of mixing gases in the hoses and regulator, and of flashback, either of which could result in an explosion.

Remember that you never stand directly in front or in back of a regulator when opening the cylinder valve, and always check for leaks on all threaded connections. If valve handles are missing and it is necessary to use a wrench to open the valves, the wrench must remain in place on the valve while the unit is in use.

6.3 LIGHTING THE TORCH

Open the oxygen valve on the torch handle and adjust the oxygen regulator to the desired pressure. Allow the gas to flow a minimum of ten (10) seconds for every fifty (50) feet of hose. Now close the oxygen valve on the torch.

With the regulator valve backed out, open the fuel valve on the cylinder. Remember, for acetylene the valve is only opened a maximum of one full turn. Open the fuel gas valve on the torch and adjust the fuel gas regulator to the desired setting. Purge the lines the same way as described above for oxygen. Now close the fuel valve on the torch.

Hold the torch in one hand and the spark lighter in the other. Open the torch fuel valve approximately one-half turn and ignite the gas. Keep opening the fuel valve until the flame stops smoking and leaves the end of the tip about 1/8". Then slightly reduce the fuel supply to bring the flame back to the tip.

Open the oxygen fuel valve on the torch until a bright neutral flame is reached. If you experience a backfire or flashback, immediately turn off the oxygen valve and then the fuel

valve. Begin again by holding the torch in one hand and the spark lighter in the other and proceed from there.

6.4 SHUTTING OFF THE TORCH

First shut off the torch oxygen valve and then shut off the torch fuel valve. If this procedure is reversed, a "pop" may occur which will cause carbon to form in the torch. Now close both cylinder valves. Open the torch oxygen valve to release the pressure in the system. Now close the torch oxygen valve and release the adjusting screws on the oxygen regulator.

6.5 SAFETY CONSIDERATIONS

The following safety procedures need to be thoroughly re-emphasized:

- Never use oil or grease on any fittings or apparatus in contact with oxygen. Blow out the cylinder valves before attaching the regulators to the cylinders. Release the adjusting screw prior to opening the cylinder valves, and never stand directly in front or in back of a regulator when opening the cylinder valve. Stand so that the cylinder valve is between you and the regulator.

- Always open the cylinder valves slowly. If a wrench is used, keep it on the valve. An acetylene cylinder should never be opened more that one full turn. Always purge the oxygen and fuel passages individually before lighting the torch. Light the fuel gas first before opening the oxygen valve on the torch. And follow the procedures as outlined. Do not take short cuts or use defective equipment.

- Never begin any welding or cutting without the proper permits if they are required by the job site, and always check to see that you have appropriate fire protection equipment immediately available before doing any welding or cutting. Welders must not wear flammable or disposable-type clothing, such as those used in asbestos abatement operations.

- Never place a gas cylinder within a confined space, only the hoses of the torch cutting wand may be allowed within the confined space.

- Always “Red Tag” a gas cylinder that is found defective. Ensure work crew is notified of the defective cylinder and designate a specific storage area for defective gas cylinder.

SECTION 7 - TRANSPORTING, MOVING AND STORING GAS CYLINDERS

Valve protection caps must be in place and secured; however, valve protection caps cannot be utilized for lifting cylinders from one vertical position to another.

When cylinders are hoisted, they must be secured on a cradle, sling board, or pallet. They cannot be

hoisted or transported by means of a choker sling.

Cylinders can be moved by tilting them and rolling them on their bottom edge, but they should not be intentionally dropped, struck, or permitted to strike each other violently. When transported by a powered vehicle, the cylinders must be secured in the vertical position.

Unless secured to a special carrier intended for this purpose, regulators shall not be on the cylinders when they are moved.

Cylinders must always be stored and used in the upright (vertical) position, with the valve end up, and secured in such a way as to prevent their falling over. When cylinders are empty, and work is completed, or whenever cylinders are moved, the valve must be tightly closed.

Cylinders must be kept far enough away from the actual operations that sparks, hot slag, or flames cannot reach them. They should not be placed where they can become subject to open flame, hot metal, or sources of artificial heat and should not be placed where they can become part of an electrical circuit.

Cylinders cannot be used for any purpose other than for what they are intended, nor can any employee of AMPCO attempt to mix gases in a cylinder.

Oxygen cylinders in storage must be separated from fuel-gas cylinders or combustible materials (especially oil or grease), a minimum distance of twenty (20) feet or by a noncombustible barrier at least five (5) feet high having a fire-resistance rating of at least one-half hour.

Inside of buildings, cylinders must be stored in a well-protected, well-ventilated, dry location, at least twenty (20) feet from highly combustible materials such as oil or excelsior. Cylinders should be stored in definitely assigned places away from elevators, stairs, or gangways. Assigned storage places must be located where cylinders will not be knocked over or damaged by passing or falling objects, or subject to tampering by unauthorized persons. Cylinders must not be kept in unventilated enclosures such as lockers and cupboards.

SECTION 8 - ARC WELDING AND CUTTING

8.1 PROTECTIVE CLOTHING

Welders must wear head and eye protection that is required in the area in which they are working. They must wear appropriate welding helmets, long sleeve shirts, leather capes and/or aprons when conditions warrant them, and welder's gloves. If grinding, chipping or buffing is done, a face shield must be worn. If respirators are required, these also must be used and/or ventilation must be provided to reduce potential hazardous atmosphere. Personnel utilizing respirators are enrolled in the AMPCO Medical Surveillance program as required.

As a minimum, fitters who are working with welders, should wear long sleeve shirts, leather cape and aprons when conditions warrant them, welders gloves, and appropriately tinted eye goggles or glasses with side shields.

Heli-arc and MIG welding operations emit intense ultraviolet radiation which can result in third degree burns to exposed skin areas as well as painful flash burns to the eyes. Welding hoods must be checked periodically to ensure they are light tight. Arc gouging generally produces a great deal of slag and hot metal sparks. Additional personal protective equipment, such as boots, Nomex suits and mini goggles may be appropriate.

Here again, welders and fitters must not wear flammable or disposable suits appropriate to asbestos abatement operations.

8.2 EQUIPMENT AND INSPECTION

Equipment must be industrial rated, in good condition, and conforming to the OSHA requirements governing application, installation, and operation of arc welding and cutting equipment. Some, but not all, of the OSHA requirements are repeated in this standard for emphasis. A complete preventative maintenance inspection should be made at least annually by trained and qualified people. The last inspection date should be stenciled on the equipment. Open circuit voltage measurements should also be made annually and stenciled and dated on the equipment. Operators of equipment should report any equipment defect or safety hazards and discontinue use of equipment until its safety has been assured. Repairs shall be made only by qualified personnel.

Before each use, the following items must be inspected:

- All leads for broken or cut insulation;
- Electrode holders for broken insulators or worn holders;
- Oil and fuel levels on gas or diesel powered units; and
- Both power and return leads to ensure they are the same length so that the return lead can be attached as close as possible to the work.

8.3 ELECTRIC SHOCK HAZARD

Almost all electric currents present some degree of potential shock hazard. Under optimum conditions, even welding voltages as low as 30 volts can be serious. Operating voltages listed on the ID nameplates are usually much lower than open circuit voltages. Open circuit voltages should not exceed 100 volts D.C. or 80 volts A.C.

A.C. or D.C. current can be used for welding, and although both present serious shock hazard, A.C. is potentially more hazardous. Be certain not to use any equipment that is either wet now or has been drenched recently. Welding units that are powered by A.C. must

be adequately grounded, and in order to change polarity, the unit must be shut down.

Electrodes should never be changed with bare hands or wet gloves, or when standing on a wet floor or grounded surface. Whenever possible, welding receptacles should be interlocked so that the power is shut off before the plug can be withdrawn. Cables that become worn enough to present a hazard must be replace immediately. Keep welding cables away from power supply cables and high voltage wires, and do not dip hot electrode holders in water to quick cool them. G.F.C.I.'s cannot be used on welding machines with D.C. current.

8.4 INERT AND TOXIC GAS EXPOSURE

Many welding procedures require an inert gas, such as argon and/or helium. These gases present an asphyxiation hazard and welders and fitters need to keep these points in mind:

- Large diameter pipe will contain larger volumes of inert gas and greater potential problems;
- Temporary enclosures over field installations should be checked for oxygen level before use, and monitored continuously when in use; and
- Argon will register "hot" when checked using an explosion meter, but will measure correctly when using an oxygen meter.

Welders should be familiar with special hazards related to rod coatings containing such items as cadmium, beryllium, and fluorides. Proper ventilation with these rods is very important. Lead, mercury and cadmium require special written procedures. Ventilation in work areas must be checked and should conform to good safety practices. In enclosed areas, such as tanks, vessels, and columns, the safety coordinator should be contacted for appropriate ventilation rates.

SECTION 9 - WELDING/CUTTING IN A CONTAINMENT

When welding or cutting operations are located within a contained area, such as inside an asbestos abatement containment, there are several areas of concern which must be given special consideration in order to anticipate problems and take the proper precautions.

9.1 SPRINKLER HEADS

When welding or cutting is done in close proximity to a sprinkler head, a wet rag must be laid over the head and then removed at the conclusion of the welding or cutting operation. Special precautions must be taken to avoid accidental operation of automatic fire detection or suppression systems.

9.2 COMBUSTION

Combustible materials can be easily ignited from the sparks and extremely hot pieces of metal which are usually present during either a welding or cutting operation. This can be very dangerous when employees are working within an area that is enclosed by plastic material. To avoid this, the following areas must be given special consideration:

- Combustible material in building construction or contents that are located closer than 35 feet to the point of operation.
- Combustibles which are located more than 35 feet away from the point of operation, but which are very easily ignited by sparks.
- Wall or floor openings that are within a 35 foot radius of the point of operation which expose combustible material in adjacent areas, including concealed spaces in walls or floors.
- Combustible materials which are located adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation.

9.3 FIRE WATCH

Fire watchers will be required whenever welding or cutting operations are performed in locations where other than a minor fire might develop or any of the above conditions exist. The following requirements for a fire watch are mandatory.

- Each individual selected to perform a fire watch will be trained in how to conduct a fire watch, how to properly use extinguishing agents, how to sound an alarm, and how to evacuate the area when necessary.
- The fire watch cannot perform any other tasks that are not specifically related to the fire safety of the work area while he or she is on duty as a fire watch.
- Fire watchers must have full and recently inspected fire extinguishing equipment readily available.
- Fire watchers must be familiar with the facilities and procedures for sounding an alarm in the event of a fire.
- Fire watchers must watch for fires in all exposed areas. They should try to extinguish only those fires that are obviously within the capacity of the available equipment. Otherwise, they must sound the fire alarm immediately.
- A fire watch must be maintained for at least one-half hour after completion of the welding or cutting operations to detect and extinguish smoldering fires.
- A fire safety log must be maintained by the designated fire watch. The log must

be maintained from the beginning of the operation requiring a fire watch until the operation has ceased to exist. The log should be used solely for the recording of fire and life safety information and must be maintained at the work site where it can be available for review by the local fire department.

The log must contain the following information:

- The date.
- The name and title of the assigned fire watch.
- The time and duration of the fire watch.
- The area assigned to the fire watch.
- An entry describing any fire or life safety problem that was found during the fire watch shift and how it was corrected.
- A statement at the conclusion of each work shift, signed by a supervisor, confirming that a survey of the work site has been made and that any unsafe fire conditions have been rectified. The statement can be very short and to the point. For example: "A visual survey of the work site was conducted and any unsafe fire conditions have been corrected."

SECTION 10 - PERMITS

Burning permits, Hot Work Permits and Welding and Cutting Permits are normally issued by a representative of the property or facility owner. Welding and cutting could be included in either or all of these three permits, depending on the wording of the permit and how it is used by the owner. A permit of this type is generally issued for specific areas prior to the start of any welding, burning, cutting, grinding or other hot work. The permit is usually issued to the fire watch and will cover one shift period only.

KEY ITEM CHECK LIST FOR WELDING AND CUTTING

Key Item	Yes	No
Gas Welding and Cutting		
• Are cylinders stored, handled and moved properly?	☐	☐
• Are cylinders chained and capped as required?	☐	☐
• Are employees who handle compressed-gas instructed in the safe use of the cylinders?	☐	☐
• Are fuel-gas and oxygen cylinders protected from electric current, heat, sparks, arc contact, hazardous materials, and hazardous weather conditions?	☐	☐
• Are manifolds appropriately identified and stored according to the type of gas?	☐	☐
• Are hoses and manifolds inspected for damage?	☐	☐
• Are torches inspected daily?	☐	☐
• Are reverse-flow check flow valves installed?	☐	☐
• Are oxygen cylinders, fittings, connectors, manifolds, etc., free of oil and grease?	☐	☐
• Are oxygen or fuel-gas cylinders stored in nonrestrictive spaces when not in use?	☐	☐
Arc Welding and Cutting		
• Are damaged rod holders repaired?	☐	☐
• Are worn or damaged cables repaired or replaced?	☐	☐
• Are grounds adequate?	☐	☐
• Are the welders adequately trained in welding procedures and safety precautions?	☐	☐
• Are adequate disconnects provided?	☐	☐
Welding and Cutting on Preservative Coatings		
• Are flammable and toxic coatings removed prior to welding or cutting operations?	☐	☐
Ventilation for Welding and Cutting		
• Are ventilation systems adequate to reduce welding air contaminants to acceptable limits for the materials used?	☐	☐
• Is arc welding prohibited near chlorinated solvents?	☐	☐
• Are arc welding operations properly shielded?	☐	☐
Fire Protection		
• Is a fire watch maintained for at least half an hour after welding ends?	☐	☐
• Are sufficient fire extinguishers provided?	☐	☐

CRANE OPERATION PROGRAM

SECTION 1 - PURPOSE

These procedures establish uniform guidelines for providing a program to protect construction employees and the public while operating a crane on a construction site.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - OBJECTIVE

The objective of this program is to ensure that all crane operations use within the work place be in compliance with the proposed regulation 29 CFR Subpart CC

SECTION 4 - SAFE OPERATION REQUIREMENTS

- **Manufacturer's Specs and Limits**
  AMPCO will comply with the manufacturer's specifications and limitations applicable to the operation of any and all cranes and derricks. Where manufacturer's specifications are not available, the limitations assigned to the equipment shall be based on the determinations of a qualified engineer competent in this field and such determinations will be appropriately documented and recorded. Attachments used with cranes shall not exceed the capacity, rating, or scope recommended by the manufacturer.

- **Postings**
  Rated load capacities, and recommended operating speeds, special hazard warnings, or instruction, shall be conspicuously posted on all equipment. Instructions or warnings shall be visible to the operator while he is at his control station. Additionally, personnel will identify hazard areas by marking the boundaries of the crane swing radius with warning lines, railings or similar barriers. In the event employees' are exposed to being struck by the equipment, oiler will act as the spotter to ensure area is kept clear during equipment operation.

- **Hand Signals**
  Hand signals to crane and derrick operators shall be those prescribed by the applicable ANSI standard for the type of crane in use. An illustration of the signals shall be posted at the job site. A signal person must be provided if the operator's view is obstructed, if site specific concerns require it, or if operator determines that it is necessary.

- **Competent/Qualified Person Inspection**
  The employer shall designate a competent person who shall inspect all machinery and equipment prior to each use, and during use, to make sure it is in safe operating condition. Any deficiencies shall be repaired, or defective parts replaced, before continued use. The competent/qualified person/s will direct the assembly and disassembly of equipment.

- **Annual Inspection**
  A thorough, annual inspection of the hoisting machinery shall be made by a competent person, or by a government or private agency recognized by the U.S. Department of Labor. AMPCO shall maintain a record of the dates and results of inspections for each hoisting machine and piece of equipment at the branch office location.

- **Wind Speed Limitations**
  No crane or derrick operator shall start an operation when the wind speed exceeds 25 MPH.

- **Ground Conditions**
  "Ground conditions" means the ability of the ground to support the equipment.
  The equipment shall not be assembled or used unless ground conditions are firm, drained, and graded to a sufficient extent so that, in conjunction with the use of supporting materials, the equipment manufacturer's specifications for adequate support and degree of level of the equipment are met.

- **Lift Plan**
  Prior to any activity a lift plan shall be completed. The lift plan shall include the following information:

  - Subsurface and Foundation Issues
  - Crane Issues
  - Load Weight
  - Rigging Procedures
  - Roles and Responsibility Issues
  - Pre-Operation Assessment – an assessment will be performed to identify the work zone and determine if any part of the equipment could reach closer than 20' feet to a power line.

- **Emergency Procedures**
  All critical lift plans shall be reviewed by the Director of Health and Safety. A critical lift is any lift with a load greater than 50 tons, the load exceeds 75% of the rated capacity, a lift requiring more than one crane, and a lift in which a significant risk of personnel injury or equipment damage is possible.

- **Electrical Line Clearance**
  Except where electrical distribution and transmission lines have been de-energized and visibly grounded at point of work or where insulating barriers, not a part of or an attachment to the equipment or machinery, have been erected to prevent physical contact with the lines,

equipment or machines shall be operated proximate to power lines only in accordance with the following:

For lines rated 50 kV or below, minimum clearance between the lines and any part of the crane or load shall be 10 feet;

For lines rated over 50 kV minimum clearance between the lines and any part of the crane or load shall be 10 feet plus 0.4 inch for each 1 kV over 50 kV, or twice the length of the line insulator, but never less than 10 feet;

In transit with no load and boom lowered, the equipment clearance shall be a minimum of 4 feet for voltages less than 50 kV, and 10 feet for voltages over 50 kV., up to and including 345 kV, and 16 feet for voltages up to and including 750 kV.

A person shall be designated to observe clearance of the equipment and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means.

- **Combustion Gases in Enclosed Spaces**
  Whenever internal combustion engine powered equipment exhausts in enclosed spaces, tests shall be made and recorded to see that employees are not exposed to unsafe concentrations of toxic gases or oxygen deficient atmospheres.

- **Fire Protection**
  An accessible fire extinguisher of 5BC rating, or higher, shall be available at all operator stations or cabs of equipment.

- **Crane Modifications**
  No modifications or additions which affect the capacity or safe operation of the equipment shall be made by the employer without the manufacturer's written approval. If such modifications or changes are made, the capacity, operation, and maintenance instruction plates, tags, or decals, shall be changed accordingly. In no case shall the original safety factor of the equipment be reduced.

- **Crawler, Truck, Tower, Derrick, or Locomotive Cranes**
  All crawler, truck, tower, derrick, or locomotive cranes in use shall meet the applicable requirements for design, inspection, construction, testing, maintenance and operation as prescribed in the ANSI B30.5-1968, Safety Code for Crawler, Locomotive, Tower, Derrick, and Truck Cranes. However, the written, dated, and signed inspection reports and records of the monthly inspection of critical items prescribed in section 5-2.1.5 of the ANSI B30.5-1968 standard are not required. Instead, the employer shall prepare a certification record which includes the date the crane items were inspected; the signature of the person who inspected the crane items; and a serial number, or other identifier, for the crane inspected. The most recent certification record shall be maintained on file until a new one is prepared.

- **Operator Qualifications**
  The employer shall only permit operators who have a valid certificate of competency (certificate) issued in accordance with this section by an Accredited Certifying Entity for the type of crane to be used to operate a crane covered by this section. Certificates shall be issued to operators who:

  1. Pass a physical examination conducted by a physician which at a minimum shall include the examination criteria specified in the American Society of Mechanical Engineers (ASME) B30.5-2000 standard, Chapter 5-3.1.2(a)(1-5, 7, 8) or the U.S. Department of Transportation (US DOT) physical examination requirements contained in 49 CFR Sections 391.41 through 391.49.
  2. Pass a substance abuse test. The level of testing shall be consistent with the standard practice for the industry where the crane is in use and this test shall be conducted by a recognized laboratory service;
  3. Pass a written examination developed, validated, and administered in accordance with the Standards for Educational and Psychological Testing (Copyright 1999) published jointly by the Joint Committee of the American Educational Research Association, the American Psychological Association, and the National Council in Measurement in Education. The exam shall test knowledge and skills identified as necessary for safe crane operations
  4. Or meet the Federal, State, or City requirements for crane operators.
  5. The operator has the authority to stop and refuse to handle loads whenever there is a safety concern.

DEMOLITION

SECTION 1 - PURPOSE

This standard applies to AMPCO operations where demolition is performed. All other activities performed prior to demolition or in order to complete the project scope of work must be performed according to their individual AMPCO Safety Management Standards.

SECTION 2 - SCOPE

The purpose of this standard is to ensure appropriate assessment of hazards involved in demolition, and safe practices for manual and mechanical methods during demolition to prevent unintended collapse. Implementation of this program is the responsibility of AMPCO's Superintendent or Supervisor.

SECTION 3 - PROCEDURES

A. Preparatory Operations

1. Before starting any structural demolition, a Competent Person must perform a job walkthrough to assess the condition of structures to be demolished, surrounding areas, presence of utilities, hazardous or regulated materials and identify major safety and health hazards associated with the demolition.
2. The Competent Person must document a Pre-Demolition Engineering Survey (Pre-Demolition Survey Template) to assess the stability and condition of framing, floors, walls, and the possibility of unplanned collapse. If the structure is sound and the project is an interior "gut" only, a documented engineering survey is not required.
3. Determine if any asbestos, lead, or other hazardous materials are present within the structure by reviewing provided surveys, drawings, and specifications. If present, remove in accordance with applicable regulations and AMPCO Safety Policy and Procedures..
4. Electric, gas, water, steam, sewer or other utility or service lines must be air gapped, capped, and otherwise controlled.
    a. Require utility disconnection notices **in writing** from the utility provider.
    b. The Competent Person must visually confirm that utilities have been disconnected.
5. Subcontract appropriate personnel to relocate or reroute utility lines that are to remain active during and after the demolition. Once relocated, protect in place the

rerouted utilities or utilities to remain active with protective covers and/or visible markings to highlight their location.

6. Determine if any type of hazardous chemicals, gases, explosives, flammable materials, or other dangerous substances have been used in tanks, pipe, or other process equipment. If so, perform testing, line breaking, draining, and/or purging prior to start of demolition.
7. Remove all universal wastes including non-alkaline batteries, fluorescent light tubes, PCB light ballasts, etc.
8. Brace or shore any walls and floors of structures that have been damaged or may be structurally unsound.
9. Conduct daily inspections of the jobsite, materials, and equipment prior to the start of work to identify and correct any unsafe conditions. Ensure walls, floors, and other portions of the structure stable, and braced or shored against collapse as needed, before leaving at the end of each day.
10. The Branch location is responsible for submitting the Notification of Demolition to the relevant federal or state agency and is responsible for obtaining any required city, county, or state demolition permits and licenses. Note: Some locales require additional Competent Person licensure or certifications or specific notifications for demolition projects. Contact local agencies for assistance in determining these requirements.

B. Dust Control

1. Wet structures undergoing demolition with fire hoses, water trucks, or garden hoses to prevent visible dust emissions.

C. Stairs, Ladders, and Passageways

1. Maintain stairways, passageways, and ladders that are to be used for access to and from the demolition area in a clean, safe condition in accordance with Housekeeping SMS.
2. Any stairways or passageways used for moving debris should be kept closed off at all times. Maintain at least 2 routes of access / exit from the work area.
3. Stairways, passageways, and ladders used for access to and from the demolition area must be lit using natural or artificial lighting to a level of 5 foot-candles.

D. Chutes and Dropping Material

1. "Chutes" include exterior trash or debris chutes, the use of existing ventilation or elevator shafts as trash chutes, and stacks or chimney when debris is dropped inside.
2. Do not permit dropping of debris until work in the "drop zone" below ceases. Demarcate drop zones with red "DANGER" tape and appropriate signage.
3. Do not drop material outside exterior walls of the structure unless the area is effectively protected. Where materials or debris may fall near employee entrances to the building, erect a canopy above the entrance, extending at least 8 feet from the face of the building, and 1 foot to each side of the entrance.

4. Barricade and provide warning signs for areas into which material is dropped through holes in floors without the use of chutes. Barricades must be at least 42 inches high and 6 feet back from the edge of the opening above.
5. When using chutes, require that:
6. All material chutes at an angle of more than 45 degrees from the horizontal are totally enclosed.
7. Chute openings may not exceed 48 inches in height measured along the wall of the chute.
8. Chute openings are allowed on the same floor as the debris is being dropped. Chute openings on lower floors must be closed.
9. A substantial gate is installed at or near the discharge end of the chute. A competent employee must be assigned to control the gate, access into the area and the backing and loading of trucks.
10. The discharge end of the chute is securely closed off when operations are not in progress.
11. Chute openings are protected by a substantial guardrail approximately 42 inches in height when employees manually dump material. When material is dumped using skid-steer or other machine, install a removable guardrail and use personal fall arrest when installing or removing the guardrail.
12. A stop-log, toe-board or bumper measuring at least 4" wide x 6" tall is installed at the edge of the chute where the material is dumped from mechanical equipment or wheelbarrows.

E. Removal of Materials Through Floor Openings

1. Existing floor openings such as abandoned elevator and ventilation shafts should be used before cutting holes into floors.
2. Do not cut an opening in a floor for material disposal larger than 25% of the total floor area unless lateral supports and support beams of the removed floor remain in place.
3. If the floors are weakened or otherwise unsafe, they must be shored to safely carry the maximum intended imposed load, which includes weight of debris, equipment, and personnel.

F. Removal of Walls, Masonry, and Chimneys

1. Wall sections more than one story in height must have lateral bracing or shoring, unless the wall was originally designed and constructed to stand alone, and is in a condition safe enough to be self-supporting.
2. Leave all walls in stable condition at the end of each shift.
3. Do not cut or remove any structural or load-supporting members on any floor until all stories above have been demolished and removed.
4. Floor openings must be fully covered or planked.
5. Do not allow masonry walls to fall on floors in quantities that exceed the safe carrying capacities of the floor.

6. In buildings of "skeleton-steel" construction, the steel framing may be left in place during demolition of the masonry. If this is done, clear all steel beams, girders, and other supports of loose material as the demolition progresses downward.
7. Dismantle steel construction column length by column length, and tier by tier.
8. Do not demolish retaining walls that support earth or adjoining structures until the earth has been properly braced or structures have been properly underpinned.
9. Walls used as retaining walls for piling debris must be capable of supporting the imposed load.
10. No employee may work on top of a wall when weather conditions constitute a hazard.

G. Manual Removal of Floors (Hand Demolition)

1. Move all debris and materials at least 20 feet from the section of floor being removed manually.
2. Barricade areas directly underneath floors that are being demolished, and do not allow employees in the area.
3. When cutting floor openings, remove flooring to the nearest support. Avoid leaving unsupported sections of flooring.
4. Provide a stable working platform for employees to stand on when manually removing floors:
5. Install OSHA planking or pick boards, not less than 2" x 10" for employees to stand on.
6. Set the plank ends on support beams, in case the floor collapses.
7. Allow no more than 16 inches of open space between the planks.
8. When floors have been removed and employees need to access the area, provide walkways when necessary to enable workers to reach areas without walking on exposed beams:
9. Walkways must be at least 18" wide, made of planks at least 2" thick.
10. Install guardrails on the walkways.
11. Lay planks over solid bearings with ends overlapping at least 1 foot.
12. Install stringers of adequate strength to support the walkway planks.
13. The ends of stringers must be supported by girders or beams.

H. Removal of Walls, Floors, and Material with Equipment

1. Equipment must be inspected daily and operators must be appropriately trained and qualified to operate equipment.
2. Do not use mechanical equipment on floors or working surfaces unless they are of sufficient strength to support the imposed load. Consult a structural engineer to ensure floors can support the weight of the equipment.
3. Install 4" wide by 6" tall curbs or stop-logs at floor openings to prevent equipment from running over the edge.

I. Storage of Debris

1. Do not exceed the allowable loads when storing materials on floors.

2. Wooden floor construction (e.g. plywood or wooden boards) – Only the first story and second story floors may be removed to make space for debris. Higher floors may not be removed. Ensure dropping material does not damage lower floors and endanger the stability of the structure.
3. When wood floor beams are supporting interior walls or free-standing exterior walls, leave those beams in place.
4. Concrete floor construction - Do not remove flooring more than 25 feet above grade to provide a storage area for debris, and ensure flooring removal does not endanger the stability of the structure.
5. Block off storage space into which material is dumped, except for openings necessary for removal of the material. Keep openings closed at all times when material is not being removed.

J. Mechanical Demolition

1. The Competent Person must perform continuing inspections as the work progresses to detect hazards resulting from weakened or deteriorating floors or walls, or loosened material.
2. Do not permit employees to work in areas where such hazards exist until they are corrected by shoring, bracing, or other means.
3. Do not permit anyone in any area where potential hazards exist when bailing, clamming, or grappling is being performed. Allow only those workers necessary for the performance of operations in those areas at any other time.
4. Remove all roof cornices or other ornamental stonework before pulling walls over.
5. Cut all affected steel members free prior to pulling walls over.
6. When pulling over stacks or towers, clear a space extending 45° to either side of the intended fall direction to a distance 1.5 times the height of structure.

K. Wrecking Balls

1. During the use of the ball, only the crane operator and one spotter/signalperson are allowed inside the working radius. All other personnel must be kept away from this area.
2. The site should be fenced off to forbid public access, with security present after hours.
3. Ball each section of the structure, from top to bottom. Maintain the stability of the structure to prevent unintended collapses or falls.

4. Methodology for use of a wrecking ball:
    a. Vertical Drop - The wrecking ball is raised above the section of the structure to be demolished and then is dropped straight down onto the structure.
        - A sufficient length of load line must be provided to allow the ball to drop to the lowest working level plus an additional 10% of that distance.

b. Swing in Line - The ball is swung in-line with the boom. A secondary horizontal drag line may be connected to control the ball motion, or it may be controlled through booming up/down and cabling up/down. The ball must strike the top of the structure being demolished to push the concrete and steel inside the building.
   - When a horizontal drag line is used, there must be sufficient length of the dragline to allow the ball to fall in the event the ball is tangled in falling debris.

5. Clear space is needed for the balling operation on all sides of the structure, at least 50% of the height of the structure.
6. The weight of a wrecking ball may not exceed 50% of the crane's rated capacity, based on maximum boom length and angle at which the ball will be used, or 25% of the nominal breaking strength of the supporting cable, whichever is less.
7. Keep the crane boom and load line as short as possible. Jibs are not typically used when balling.
8. Attach the ball to the load line using a swivel-type connection with a safety catch to prevent the ball from becoming accidentally disconnected and prevent the cable from tangling.
9. The strength of the load line should be at least twice the tensile strength of the nominal steel reinforcement of the floor slab and beams. The strength of the line will allow the ball to be pulled out of potential traps without breaking the cable.
10. Inspect the load line, ball, and connections for damage twice per shift.
11. The crane operator and spotter must have experience and skill in wrecking ball use.
12. Wet the structure before beginning the wrecking ball demolition and maintain continuous dust control.

L. Pre-Tensioned or Post-Tensioned Concrete

1. Post-tensioned concrete structures contain steel cable "tendons" which have been tightened and store energy. If those cables are not de-tensioned, they may snap or whip creating a serious safety and health hazard during demolition.
2. Before de-tensioning the tendons, shoring must be installed to support the slabs and beams. Once shoring is installed, the tendons may be de-tensioned in the reverse order in which they were originally tensioned. Refer to original construction drawings or as-built drawings to determine the de-tensioning sequence.
3. The steel tendons may have been grouted to form a "bonded tendon". If so, the grout will need to be broken out of the anchorage pocket with chipping hammers to expose the tendon end.
4. De-tension the tendons with a hydraulic tensioning device and allow the concrete member to rest on the shoring.
5. The concrete may then be broken using standard methods, hammers, breakers, cut, etc.

M. Implosions and Blasting

1. Only individuals qualified through training, knowledge, or experience in the transportation, storing, handling and use of explosives with working knowledge of relevant regulations and competent in each type of blasting method used may handle explosives.
2. Smoking, sparks, and open fires are prohibited in or near explosive storage areas or while explosives are being handled, transported, or used. All hot work preparatory work must be completed before explosives are loaded.
3. Explosives must be accounted for at all times, and be stored in a locked magazine. The implosion subcontractor should keep an inventory and use record for all explosives.
4. Third party security services may be required when the blasting subcontractor or AMPCO is not on site.
5. No fires may be fought where the fire is in imminent danger of contact with explosives, immediately evacuate to a safe distance and prevent re-entry into the area.
6. AMPCO employees will abide by all requirements set forth by the implosion subcontractor for activities involving the storage, transportation, and loading of explosives.
7. Blasting must be performed in accordance with OSHA Standard 1926 Subpart U – Blasting and the Use of Explosives.

ABRASIVE BLASTING

SECTION 1 - PURPOSE

The purpose of the standard is to protect personnel from the hazards associated with abrasive blasting activities.

SECTION 2 SCOPE

This section applies to all AMPCO operations.

SECTION 3 POLICY

Only trained personnel will be allowed to perform any type of abrasive blasting.

It is AMPCO's policy to guarantee that Abrasive Blasting equipment will be used in accordance with specified safety procedures and common sense to ensure both the maximum amount of production and the maximum amount of safety.

During any abrasive blasting activity the correct application of the abrasive blasting equipment is the responsibility of the operator, who should be familiar with the operation of high pressure pumps, metal fittings, hoses, dead-man nozzles, and accessories. The modification of abrasive blasting equipment will not be permitted without prior written approval of the manufacturer of the equipment and AMPCO Corporate Safety.

SECTION 4 GENERAL

The following general requirements must be considered when performing blasting operations.

1. Check for any other immediate hazards that may injure blasters or support personnel during the job, including potential tripping and fall hazards in the work area.
2. Blast cleaning nozzles will be equipped with an operating valve that must be held open manually and will shut off automatically when released by the operator (e.g., dead man switch). A support will be provided to mount the nozzle when not in use.
3. Field abrasive blasting operations will require an isolated work area with warning signs and barricades.
4. In explosive or flammable abrasive blasting conditions, the blasting nozzle will be bonded and grounded to dissipate and prevent the buildup of a static

charge

5. All filters and knockouts on breathing-air compressors will be maintained in accordance with the manufacturer's recommendations.
6. Where air compressors are equipped with a receiver tank, the tank will be in compliance with local pressure vessel requirements.
7. Compressed air will not be used for cleaning purposes except when pressure is reduced to less than 30 pounds per square inch (psi) and there is no potential hazard of re-suspension of hazardous substances containing dust. PPE for eye, face, and hearing will be required when using low pressure air in this manner.
8. An operator will not work alone under the following conditions: when using a bottled air supply, when the operator's ability to detect warning signals or alerts is compromised, when access barricades must be maintained, and in confined space work.
9. Follow guidance in Section 8, 8-1 – Confined Space / Vessel Entry if blasting in a confined space.
10. Determine whether air monitoring is required to confirm respiratory protection protocols per Section 9, 9-2 Air Monitoring Program.

SECTION 5 IDENTIFY ABRASIVE BLASTING ACTIVITIES

Determine specific areas and/or items that require abrasive blasting to reduce potential exposure of personnel in other areas of the work site or work area.

SECTION 6 INVESTIGATE COMPOSITION OF MATERIALS TO BE BLASTED

Identify asbestos, lead, various metals, and other types of toxins in the substrate or coating to be blasted.

Identify appropriate engineering controls required to minimize release of and potential exposure of workers to any toxic materials.

Follow applicable AMPCO Safety Standards (e. g, Section 8, 8-35 Toxic and Hazardous Substances) as appropriate for the task if any of the previously mentioned metals or toxins are found in the substrate to be blasted.

SECTION 7 SELECT ABRASIVE BLASTING MEDIA TO BE USED AND CLEAN-UP

Where possible, use abrasives that do not contain crystalline silica (at concentrations >1%).

Abrasive blasting agents containing organic abrasives that are combustible will be used only in automatic systems or contained blasting cabinets designed for the application. Where flammable or explosive dust concentrations may be present, the equipment, exhaust system, and wiring will meet applicable codes and

requirements for flammable/explosive dust hazards.

Whenever possible, use wet blast injection equipment to reduce airborne dust on the job site. If wet blasting is employed, take precautions to minimize airborne dust after evaporation of the water.

If crystalline silica is a potential airborne hazard, evaluate the use of water sprays, mists, and/or fogs as a method of reducing airborne exposures.

If frozen inert gas pellets are used, ventilation is required to prevent oxygen-deficient atmospheres (<19.5% oxygen.

Clean-up

Select the blasting media recovery method to be used:

Preferred recovery methods include the following:

a. Enclosed blast booth or room where blast media is recycled and cleaned.
b. Vacuuming with a machine equipped with a high efficiency particulate air filter (HEPA).
c. Wet shoveling.
d. Dry sweeping is not to be used.
e. Waste blast material must be containerized and disposed of according to applicable waste rules determined by the concentration of contaminant.

SECTION 8 DETERMINE IF CONTAINMENT OF BLASTING AREA REQUIRED

Determine whether any containment of the blast area is needed. This may include rooms, cabinets, or tarping.

a. Containment may be required in sensitive environmental areas or when working adjacent to or over water.
b. Provide properly engineered ventilation with appropriate filtration to reduce dust levels. Engineered ventilation and dust collection systems will be installed and operated in accordance with the manufacturer's instructions.
c. The operator must be either shielded from dust (using a booth or cabinet) or equipped with appropriate respiratory protection (when blasting in a room or open area).
d. Where enclosures are required, a negative pressure will be maintained within the enclosure throughout the blasting process. At a minimum, the system should maintain an exhaust capacity of one air change per minute.

SECTION 9 ESTABLISH HAZARDOUS BLASTING ZONE

Determine type of personal protective equipment (PPE) needed for personnel within the blasting zone (see Section 8, 8-14 – Personal Protective Equipment).

At a minimum, personal performing abrasive blasting and cleaning activities will use the following:

a. Type CE Abrasive-Blasting Supplied-Air respirator and helmet if working within the blast containment area. Air must be from a clean source such that it will not cause harm or discomfort if inhaled for long periods of time. Air will be free of harmful quantities of dust, mists, and gases (see Section 7, 7-1 Respiratory Protection).

   i. When bottled compressed air is used as a source of breathing air, the air quality will be Compresses Bas Association (CGA) Grade D or better. Certification of air quality will be obtained from the supplier prior to using the air. Cylinders meeting this requirement will be tagged “Accepted” with signature and date of inspection. Non-acceptable air cylinders must be labeled “Do Not Use” and should be removed from the work area.
   ii. Only compressors approved to supply breathing air (CGA Grade D or better) will be used to provide air to supplied air respirators and blasting hoods.
   iii. Facility compressor equipment may be used to provide breathing air only if it is approved for this purpose and if delivered air quality meets or exceeds CGA Grade D. Air compressors must be constructed to prevent entry of contaminants. Sorbent beds and filters must be maintained per manufacturer’s requirements. Oil-lubricated compressors must include high temperature and carbon monoxide alarms.
   iv. Only compressed air will be used. Mixed or blended air is not acceptable.

b. Eye/face protection unless the respiratory protection device meets requirements of American National Standards Institute (ANSI) Z87.1 (a hood not meeting this requirement must include safety glasses with side shields worn under the hood).
c. Disposable or washable coveralls that will not be taken home. Coveralls must be closed at wrists, ankles, and other openings to prevent entry of abrasive dust.
d. Hearing protection suitable for anticipated noise levels.
e. Work gloves that protect the full forearm; heavy canvas or leather gloves and aprons.
f. Work boots with steel toes or toe guards suitable for the hazards of the

task.

PPE will be worn by all who enter the hazardous blasting zone.

SECTION 10 PERSONAL HYGIENE AND HOUSEKEEPING

Follow personal hygiene and housekeeping practices.

a. All food, beverages, tobacco products, nonfood chewing products, and un-applied cosmetics will be prohibited in abrasive blasting work areas.
b. Rest breaks will not be taken in the blasting area.
c. Workers may not wear coveralls containing abrasive dust in lunch or break areas. Clothing must be cleaned before leaving the blasting area.

d. All exposed surfaces, including nearby walkways and aisles, will be maintained free of accumulations of dust or other materials associated with the abrasive blasting process. All work surfaces will be cleaned regularly, preferably with a vacuum cleaner equipped with a high efficiency filter system.

SECTION 11 MEDICAL SURVEILLANCE

Require that personnel performing blasting and cleanup operations are medically qualified. See Section 9, 9-1 Medical Surveillance Program for guidance.

SECTION 12 TRAINING

Require that personnel performing blasting and cleanup operations are trained and qualified.

Operators should:

1. Know how to operate the equipment safely and maintain the equipment.
2. Know how to inspect the equipment.
3. Know how to inspect and test remote controls without turning on abrasive metering valves.
4. Know how to adjust abrasive metering valves, lay out the blast hose, and drain the moisture separator, as well as operate all accessories furnished with the machine.
5. Be informed off the hazards associated with the blast media chosen, as well as the potentially hazardous substances that may be removed by the blasting process.

Inspect blasting job sites using the Abrasive Blasting Checklist – Attachment 008-22.

HAZWOPER

SECTION 1 - PURPOSE

To minimize the risks to AMPCO personnel and subcontractors while conducting hazardous waste field operations.

Investigation techniques discussed in this standard include, but are not limited to, hand augering, soil gas evaluation, groundwater monitoring, test pits, and all types of power drilling, including direct-push. Remediation techniques discussed under this standard include, but are not limited to, excavation, groundwater treatment, soil gas treatment, containment, and land-farming.

The applicability of the hazardous Waste Operations and Emergency Response (HAZWOPER) standard to AMPCO activities is primarily in the areas of site investigation and remediation. AMPCO relies on outside vendors or clients to provide emergency response teams (HazMat Teams) at our project sites and locations. On a project-specific basis, if the need arises for AMPCO to provide an emergency response team, then the HAZWOPER requirements specific to that activity will be developed and incorporated into the project health and safety plan (HASP). This includes specific chemical protective clothing, equipment, and post-emergency response operations.

SECTION 2 SCOPE

This section applies to all AMPCO operations involving the investigation or remediation of sites impacted with hazardous wastes or hazardous materials, including those associated with underground storage tanks.

SECTION 3 POLICY

To establish safe work practices for all operations involving hazardous waste and hazardous materials.

SECTION 4 REQUIREMENTS

The AMPCO Health and Safety Program and Safety Standards were designed to help employees to identify, evaluate, and control safety and health hazards and to provide for emergency response. Site/project hazards and scope of work dictate the specifics, which are covered in Emergency Response Plans and Project HASPs.

An emergency response plan shall be developed and implemented by the company to handle anticipated emergencies prior to the commencement of hazardous waste operations. The plan shall be in writing and available for inspection and copying by employees, their representatives, OSHA personnel and other governmental agencies with relevant responsibilities.

The “senior official” at an emergency response is the most senior official on the site who has the responsibility for controlling the operations at the site. Initially it is the senior officer on the first-due piece of responding emergency apparatus to arrive on the incident scene. As more senior officers/manage, management arrive the position is passed up the line of authority which has been established,

SECTION 5 PROJECT EVALUATION

Assess the technical and field aspects of every hazardous waste site project to evaluate:

1. Risk of exposure to hazardous chemicals, with particular attention to suspected or known human carcinogens.
2. Personal protective equipment requirements.
3. Air monitoring requirements.
4. Emergency services requirements.
5. Hazards addressed by other AMPCO Safety Standards (e.g., Safety Standard 8-1 Confined Space / Vessel Entry).
6. Hazardous materials shipping and disposal responsibilities.
7. Other safety and health hazards associated with site operations.

SECTION 6 CLIENT/CONTRACT EVALUATION

1. Review contract documents to determine whether the client has any special internal or regulatory requirements for hazardous waste site operations.
2. Implement client requirements in addition to those of this standard. Those requirements that are the most protective (e.g., most stringent) will be used.

SECTION 7 SITE-SPECIFIC HEALTH AND SAFETY PLAN

1. Prepare a site-specific HASP for every project under this standard.
   HASPS must be written or approved by the Safety Department, and the Project Manager.
   Evaluate client and agency requirements prior to preparing the HASP, particularly if the client or an agency will approve the HASP prior to implementation.

2. On a site/project specific basis, conduct a hazard assessment and identify appropriate engineering controls, work practices, and personal protective equipment (PPE) requirements. This assessment and the mitigations and controls are documented in site/project specific HASPS that are provided to clients by the project manager for their review and approval prior to the initiation of field activities.
3. On a site/project specific basis, conduct a hazard assessment for potential physical and chemical exposures and identify monitoring equipment, frequency, action levels, and actions. These are incorporated into project/site HASPs, which are reviewed and approved by clients prior to the initiation of field activities. On a site/project specific basis and based on the potential chemical exposures and work activities, develop specific decontamination procedures that include instructions on materials, decontamination steps, and location of decontamination. The purpose of these procedures will be to ensure personnel leaving contaminated areas are appropriately decontaminated, and all equipment is disposed or decontaminated.
4. On a site/project specific basis and based on the potential chemical exposures and work activities, develop specific decontamination procedures that include instructions on materials, decontamination steps, and location of decontamination. The purpose of these will be to ensure personnel leaving contaminated areas are appropriately decontaminated, and all equipment is disposed or decontaminated.
5. PPE selection, use, and maintenance are presented in Section 8, 8-14 Personal Protective Equipment. This information is documented on a site/project specific basis in the site/project HASP. Remove any non-impermeable PPE clothing that becomes contaminated with hazardous substances in accordance with the decontamination procedures noted above.
6. Provide regular showers, change rooms, and sanitation facilities for employees, as necessary.
7. Elements of an emergency response plan. The company shall develop an emergency response plan for emergencies which shall address, as a minimum, the following:

   Pre-emergency planning
   Personnel roles, lines of authority, training and communication
   Emergency recognition and prevention
   Safe distances and places of refuge
   Site security and control
   Evacuation routes and procedures
   Decontamination procedures which are not covered by the site safety and health plan
   Emergency medical treatment and first aid
   Emergency alerting and response procedures
   Critique of response and follow-up

PPE and emergency equipment
Site topography, layout and prevailing weather conditions
Procedures for reporting incidents to local, state and federal governmental agencies
The emergency response plan shall be a separate section of the Site Safety and Health Plan.
Emergency response plan shall be compatible and integrated with the disaster, fire and/or emergency response plans for local, state and federal agencies.
Emergency response plan shall be rehearsed regularly as part of the overall training program for site operations
The site emergency response plan shall be reviewed periodically and, as necessary, be amended to keep it current with new or changing site conditions or information.
An employee alarm system shall be installed in accordance with 29 CFR 1910.165 to notify employees of an emergency situation, to stop work activities if necessary, to lower background noise in order to speed communication, and begin emergency procedures.
Based upon the information available at time of the emergency, the employer shall evaluate the incident and the site response capabilities and proceed with the appropriate steps to implement the site emergency response plan.

SECTION 8 TRAINING – REMEDIATION AND INVESTIGATION ACTIVITIES

Verify that each assigned AMPCO employee has completed the following required training.

1. 40-hour initial training from an approved training provider, (24 hours of initial training for operations outside of North America).
2. 3 days of on-the-job training (1 day is required for operations outside of the United States).
3. 8 hour refresher training completed within 12 months of the initial or subsequent refresher training.
4. 8 hour Site Safety Officer (Supervisor) training for directing the activities of any other AMPCO employee or subcontractor.
5. Additional training for the Site Safety Officer as described below.

SECTION 9 TRAINING – EMERGENCY RESPONSE

The HAZWOPER standard is primarily applicable to AMPCO operations involving remediation and investigations at hazardous waste sites or sampling at Treatment, Storage, and/or Disposal Facilities (TSDFs). AMPCO typically contracts emergency response teams. On an as-needed basis, if a project

requires AMPCO to provide a HAZMAT emergency response team, the following training requirements must be met.

1. Operations Level – a minimum of 8 hours of initial and refresher training for those responsible for acting defensively in the case of a release, attempting to contain the release from a safe distance.
2. HAZMAT Technician – at least 24 hours of initial training and 8 hours of refresher training. They will participate in operations-level training and know how to implement the emergency response plan for the facility/site/project location.
3. HAZMAT Specialist – at least 24 hours of initial training and 8 hours of refresher training. They will be trained in the same content as the HAZMAT Technician, as well as in how to develop a site safety and control plan.
4. Incident Commander – will have at least 40 hours of training covering the Operations Level training and techniques for implementing the emergency response plan and directing the incident. They will be knowledgeable in relevant regulations.
5. First Responder Awareness Level – First responders at the awareness level are individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the proper authorities of the release. They would take no further action beyond notifying the authorities of the release. First responders at the awareness level shall have sufficient training or have had sufficient experience to objectively demonstrate competency.
6. Qualifications for Trainers. Trainers shall be qualified to instruct employees about the subject matter that is being presented in training. Such trainers shall have satisfactorily completed a training program for teaching the subjects they are expected to teach, or they shall have academic credentials and instructional experience necessary for teaching the subjects. Instructors shall demonstrate competent instructional skills and knowledge of the applicable subject matter.
7. Refresher training. Employees specified in this section shall receive 8 hours of refresher training annually on the items in this section, any critique of incidents that have occurred in the past year that can serve as training examples of related work, and other relevant topics.

SECTION 10 SITE SAFETY OFFICER

1. Appoint a Site Safety Officer (SSO) with appropriate qualifications for the specific hazardous waste project.
2. Assure that the SSO for complex projects, such as those with complicated remediation activities, has no duties other than site safety and health.
3. Verify that the SSO has completed basic supervisor training, and has additional required training and experience as applicable:

a. Additional respiratory protection training is required for projects where supplied air respirators may be used.
b. Heavy equipment/construction safety.
c. Personal air monitoring.

4 The SSO will monitor decontamination and other site activities for effectiveness.

SECTION 11 EXPOSURE MONITORING

Require that exposure monitoring is conducted in accordance with the HASP on all hazardous waste projects.

SECTION 12 PROJECT EQUIPMENT

1. Provide all health and safety equipment as described by the project HASP.
2. Provide all personal protective equipment as described by the project HASP.

SECTION 13 MEDICAL SURVEILLANCE

Verify that each AMPCO employee assigned to the project meets the minimum requirements of the AMPCO Medical Surveillance Program (refer to Section 9, 9-1 Medical Surveillance). This typically includes:

1. Baseline examination
2. Annual examination
3. Appropriate clearance for respirator use.

14.0 DOCUMENTATION SUMMARY

The following information will be maintained in the project file:

A. Completed Health and Safety Plan
B. Completed and signed HASP approval form
C. Signed HASP acceptance form
D. Completed Health and Safety (H&S) field forms that are included in each HASP
E. Training and Medical Surveillance Clearance documentation for project personnel

HELICOPTER OPERATIONS

SECTION 1 - PURPOSE

These procedures establish uniform guidelines for providing a program to protect construction employees and the public while operating a helicopter on a construction site.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - OBJECTIVE

The objective of this program is to ensure that all helicopter operations use within the work place be in compliance with the Cal/OSHA, City and State regulations.

SECTION 4 – GENERAL REQUIREMENTS

(a) Prior to the start of any operation involving the use of a helicopter, a thorough survey of the conditions and hazards on the job site shall be made by the employer in conjunction with the pilot or pilot's representative to ensure a safe operation.

(b) A Code of Safe Practices shall be formulated and enforced for operations involving the use of a helicopter. This code shall include, but is not limited to, the safe practices presented in Appendix Plate C-36-a.

(c) A daily briefing shall be conducted prior to starting work to set forth the plan of operation for that day. This briefing shall include planning to minimize possible hazards of the day's operation and all personnel exposed shall be informed and directed as to safeguards and escape procedures.

(d) If the helicopter pilot in command for any reason believes that a lift or operation cannot be performed safely, then that lift or operation shall not be attempted.

(e) Helicopter operations shall not be performed beyond the helicopter's approved external load capacity or pilot's certification. The pilot's employer shall ascertain before operations begin that the pilot is properly certificated by the F.A.A. and qualified to perform the planned operations.

SECTION 5 – LANDING OPERATIONS

(a) Landing and hovering sites shall be chosen with approval of the pilot or pilot's representative.

(b) All such sites shall have at least a 200-foot diameter area clear of all loose materials and objects which could be hazardous if displaced by rotor downwash. The helicopter shall be required to deposit or lift loads in the center of the approved area.

(c) Precautions shall be taken by the employer to eliminate as far as practical reduced visibility.

(d) Access and egress to the helicopter shall be from the front and along the same level or to a level lower than the helicopter. No one shall be permitted to approach or leave the helicopter while the engine is running or the rotor is turning without a permissive signal or instruction from the pilot or pilot's designee.

(e) Built-up landing sites shall be capable of supporting a helicopter on any single square foot of the landing surface and provide good footing.

(f) Prepared landing sites on hillsides shall be no less than 12 feet by 12 feet and shall be large enough to land the helicopter so that the largest rotor clears the hillside by a distance equal to its radius measured horizontally from the tip of the rotor.

SECTION 6 – STATIC ELECTRICITY

An effective method of protecting workers from static electrical discharge shall be provided.

NOTE: See Appendix Plate C-36-a for a recommended method.

SECTION 7 – COMMUNICATIONS

(a) The engines and radio transmitters shall be shut off, and smoking, open flame or other source of ignition shall not be permitted within 50 feet of fueling operations or fuel storage areas.

NOTE: Except for F.A.A. approved alternate fueling methods or closed circuit hot refueling.

(b) The helicopter and fuel supply shall be securely bonded before and during fueling operations for static electrical discharge.

(c) There shall be two 60B:C rated fire extinguishers or equivalent fire-fighting protection at each fueling station attended by ground crews.

SECTION 8 – GROUND CREWS

(a) All ground crewmembers shall be thoroughly instructed by the pilot or pilot's representative in their duties and of the immediate hazards. Escape procedures shall be planned with the pilot or pilot's representative in event of helicopter failure.

(b) Ground crewmembers shall wear dust goggles for eye protection and approved head protection with chin straps in place. Ear protection and dust protection where required shall be in accordance with applicable safety orders.

(c) Only those persons associated with the helicopter operations shall be permitted to approach within 50 feet of the operating helicopter.

SECTION 9 – CARGO LOADING and HANDLING

(a) All cargo shall be loaded and secured under the direction of the pilot or pilot's designee.

(b) No passenger shall be transported in the helicopter with a sling load and no person shall be transported as an external or sling load, except in an emergency.

EXCEPTION: Unless authorized by the F.A.A.

(c) Explosives and other "dangerous materials" shall not be transported except as authorized by F.A.A.

(d) All sling loads, including line stringing devices, shall be attached only to quick-release devices. Steel or metallic sling ends shall be of the pressed sleeve or swedged eye-type, or equivalent. Tag lines shall be of a length or secured in such a manner that will not allow their being drawn up into the rotors.

(e) Automatic release devices are prohibited in all construction operations where ground crews are used. The devices shall be activated only for actual placement of loads. Electrical release devices shall have mechanical back-up, be checked each day of operation, and be designed to prevent inadvertent operation.

(f) When stringing conductive lines or conductors, there shall be radio communication between the helicopter and the ground crew.

(g) When stringing lines or conductors close to or parallel to energized lines, conductive lines or reels, pay-out machines, and conductors shall be grounded as required by the High Voltage Electrical Safety Orders. Hoist wires or other gear shall not be attached to any fixed ground structure.

EXCEPTION: When pulling lines or conductors that are allowed to "pay-out" from a container or roll off a reel.

(h) External sling load operations shall not be performed if electrical storms in the immediate vicinity make the work unsafe.

(i) Load landing operations shall not be performed when the wind conditions are deemed too unsafe by the pilot or ground crew.

(j) There shall be a minimum clearance of at least 25 feet between any energized power line, rated 50 KV or below, and any part of the rotorcraft load combination. This clearance requirement shall increase at the rate of 1/2 inch for each 1 KV.

EXCEPTION: These minimum clearances shall not apply to helicopters or their external loads specifically utilized for power line construction, maintenance, and repair where the work in progress is under the direct supervision of the utility.

SECTION 10 – EXPOSED LOCATIONS

(a) While working at the edge of or on a steep slope, members of ground crews shall be protected from falling by:

(1) A barrier of adequate design to restrain a falling person or;

(2) A safety belt with a quick-release buckle and a life line at least 50 feet long.

(A) Where practicable when using safety belts, the area shall be cleared of objects which might snag the life lines in an escape procedure. (See Plate C-36-b, Appendix.)

(b) Workers receiving materials while on a tower-type structure shall not be positioned in a place of unnecessary exposure and shall be secured to the structure by safety belts or other equivalent protection.

(c) Ground crews on elevated surfaces more than 7 1/2 feet high, shall be protected against being swept off by rotor downwash. (See Plate C-36-b, Appendix.)

MEDICAL SURVEILLANCE PROGRAM

SECTION 1 - PURPOSE

To comply with the requirements of OSHA Standards which necessitate the use of a Medical Surveillance Program.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

AMPCO has instituted a policy which requires that all employees who are assigned to work on jobsites which are regulated by OSHA Standards and who have the potential for exposure to any type of hazardous or toxic substances will be involved in a comprehensive medical surveillance program, the cost of which will be completely borne by the Company.

SECTION 4 - MEDICAL FACILITY

Every effort should be made to identify and contract the services of a medical facility specializing in either occupational medicine or industrial health. Occupational and Industrial Health Clinics are generally more suitable for conducting the type of medical examination specific to the construction industry in general, and for asbestos or lead abatement personnel in particular. In addition, this type of clinic should be utilized not only for the medical examination phase of the surveillance program, but also to provide first aid or medical treatment for any employee injured on the job.

SECTION 5 - MEDICAL EXAMINATION

Each AMPCO Office will make a medical examination and physician's consultation available to its employees covered by this Standard.

5.1 Frequency

Medical examinations, the total cost of which will be borne by AMPCO, will be given according to the following schedule:

- Prior to wearing a negative pressure respirator;
- Prior to being exposed to asbestos or lead at any level;
- At least annually thereafter; and

- At any frequency requested by the examining physician.

5.2 Content

Since AMPCO requires employees to wear respiratory protection prior to being exposed to asbestos or lead at any level, the requirement to have a medical exam before being exposed is in excess of OSHA requirements. Depending on the position the employee has applied for, the medical examination will be in accordance with the requirements of the OSHA Standard which requires a Medical Surveillance Program, and will include, at a minimum, the following:

- A copy of the OSHA Standard for either Asbestos (29 CFR 1926.1101), Lead (29 CFR 1926.62), Cadmium (29 CFR 1926.27), Inorganic Arsenic, (29 CFR 1926.1118), Benzene, (29 CFR 1926.1128), or any other substance for which a Medical Surveillance Program is required;
- A description of the employee's duties, as they relate to the substance for which exposure is possible;
- The employee's anticipated exposure level;
- A description of the personal protection equipment, including respiratory protective devices, to be used by the employee;
- Any additional information from previous medical examinations, if available;
- An appropriate AMPCO Physician's Written Opinion form; and
- A copy of the appropriate AMPCO Company Letter to the Physician. This form not only contains most of the information required, but should also be used to furnish the medical facility with such information as:
    - Where the employee's medical files are to be sent;
    - Where all billing is to be sent; and
    - The names and telephone numbers of supervisory personnel that should be contacted regarding any problems with the employee's medical condition that will bear directly upon his/her work.

SECTION 6 - PHYSICIAN'S WRITTEN OPINION

Each AMPCO Branch engaged in working with a hazardous or toxic substance, that has required an employee to take a medical examination, as a condition of a Medical Surveillance Program, will obtain a satisfactory Physician's Written Opinion from the examining physician before allowing the employee to enter an area with a potential exposure to the hazardous or toxic substance.

The physician must be requested to respond using AMPCO's Physician's Written Opinion and Recommendations. However, should the physician desire to use his/her own format, it must correspond to OSHA's format and contain, at a minimum, the following:

- The name and address of the medical facility and the date of the examination;
- The employee's name and social security number;
- Whether or not the employee can use a respirator while performing his/her duties;
- Whether or not there have been any medical conditions detected that would place the employee at an increased risk of health impairment from exposure to the particular hazardous or toxic substance;
- A statement that the examining physician has informed the employee of the results of the examination and of any medical conditions that may result from exposure to the hazardous or toxic substance;
- A statement that the examining physician has informed the employee of the health risks involved in smoking, of the synergistic relationship between cigarette smoking and exposure in producing lung cancer, and that cessation of smoking will reduce the risk of lung cancer; and
- The signature of the examining physician.

6.1 Unrelated Findings

The physician must be instructed not to reveal in the written opinion, any specific findings or diagnoses that are unrelated to the occupational exposure of the hazardous or toxic substance.

SECTION 7 - PROCEDURE

The following procedures must be adhered to by all employees who are engaged in activities dealing with operations involving hazardous or toxic substances:

7.1 Medical Examination Required

When an initial medical examination is required of a prospective employee, or an annual re-examination is required of an existing employee, the following procedure should be utilized:

- While at the jobsite and before leaving for the medical facility, the employee completes the applicable OSHA Medical Questionnaire for either an initial examination or an annual re-examination and the AMPCO Additional Medical Information form;
- A copy is made of the completed forms and the originals are immediately forwarded to the AMPCO office for insertion in the employee's medical file;
- The prospective employee then carries the copies of the forms he/she has completed to the medical facility. The copies of these forms will then be retained by the medical facility;
- Upon completion of the medical examination, the examining physician will fill out a copy of the appropriate AMPCO Physician's Written Opinion and Recommendations, which was furnished to the medical facility at the time of the contract;
- The physician will retain the original (white) of the completed Physician's Written Opinion form to send to the AMPCO office and will give the balance of the completed copies (yellow and pink) to the prospective employee who will have been instructed to return with the forms to the jobsite;
- When the individual returns to the jobsite, the job superintendent should immediately read his copy (yellow) and then retain that copy at the jobsite for insertion into the employee's file; and then
- The employee's copy (pink) of the completed Physician's Written Opinion form should be immediately given to the employee.

7.2 Medical Examination Not Required

From time to time, the opportunity may arise when we hire workers who have either worked for AMPCO at other Offices involving hazardous or toxic substances or have worked for other contractors. Where applicable under the pertinent OSHA Standard, if these workers can produce a copy of a Physician's Written Opinion which indicates they have successfully passed a required medical examination within the past twelve (12) months, they are not required to take another medical examination until one year from the date of their previous examination, when their annual re-examination is due.

At this point, a decision must be made by the Health and Safety, as to whether he wants the worker to take an initial examination or wait until the year is up for an annual re-examination. If the decision is made to treat the worker the same as a new employee, then the procedures in Section 8.1 should be followed.

However, if the decision is made to have the new employee wait until it is time for his/her annual re-examination, then the following procedures would apply:

- Make a copy of the employee's physician's written opinion for insertion into his/her file;
- Have the employee complete an initial OSHA Medical Questionnaire, and the AMPCO Additional Medical Information. These are to be immediately forwarded to the AMPCO office and placed in the employee's medical file;
- When the twelve month period from the date of the employee's previous examination is reached, have the employee complete the annual OSHA Medical Questionnaire;
- A copy should be made of the completed form and the original immediately forwarded to the AMPCO office and placed in the employee's medical file. The copy is then given to the employee to take to the medical facility for their use; and
- The employee reports to the medical facility for an annual re-examination and the physician completes a new Physician's Written Opinion form which is handled exactly the same, as in the preceding paragraphs.

SECTION 8 - MEDICAL RECORDS

Each AMPCO Office engaged in working with hazardous or toxic substances, for which a Medical Surveillance Program is required, must establish and maintain an accurate Personnel Medical Record Retention Package for each employee subject to the Medical Surveillance Program. The record retention package must be maintained, in compliance with the requirements of the applicable OSHA Standards, for a minimum period of thirty (30) years following the employee's last day of employment (Refer to Section 3-5, Medical Records).

A separate file must be identified for personnel medical records, a file which can be secured and assured of extremely limited access. In addition to only those AMPCO employees who absolutely require access, additional access to these records must only be in accordance with OSHA Standards 29 CFR 1926.1101 and 29 CFR 1910.1020.

As a requirement of the OSHA Standards, AMPCO must be able to furnish for OSHA review, copies of all medical records, including initial and periodic medical questionnaires, pulmonary function test analysis, x-rays, etc., for any employee who is now or has been, active in medical surveillance program. If this information is being retained by medical providers at their facilities, AMPCO will assist OSHA in obtaining these documents.

8.1 Employee Request For Data

Whenever an employee, or an employee's representative, requests access to his/her medical and/or exposure records, the AMPCO Office involved must ensure that access to these records is provided within fifteen (15) working days from the date of the original request, and that upon specific request, a copy of the records will be provided without cost to the employee.

AIR MONITORING PROGRAM

SECTION 1 - PURPOSE

To provide the necessary requirements and guidelines for use in obtaining the required personal air samples, as directed by OSHA.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

AMPCO supervisors who have been adequately trained by AMPCO safety personnel in the collection of air samples, in accordance with the air monitoring requirements of either the OSHA Standard for Asbestos, 29 CFR 1926.1101, or the OSHA Standard for Lead, 29 CFR 1926.62, may be utilized to collect the required air samples wherever local, state and contract provisions allow them to do so. On those occasions when it is a requirement that AMPCO utilize the services of an independent, or third party contractor to perform air monitoring, it will be necessary that each contractor have the required appropriate credentials to ensure proper air sampling procedures and a quality assurance program.

SECTION 4 - EXPOSURE MONITORING

4.1 GENERAL REQUIREMENTS

Each AMPCO Office with a workplace or work operation covered by the OSHA Asbestos Standard, 29 CFR 1926.1101 or the OSHA Lead Standard, 29 CFR 1926.62, will perform daily personal air monitoring to determine the airborne concentrations of asbestos or lead to which an employee may be exposed. Employee exposure means that exposure to asbestos or lead that would have occurred if the employee were not using respiratory protective equipment.

Determinations of employee exposure will be made from breathing zone air samples that are representative of the Time-Weighted-Average (TWA) of each employee.

1. PERMISSIBLE EXPOSURE LIMIT (PEL)

The Permissible Exposure Limit (PEL) for asbestos is now an airborne concentration of 0.1 fibers per cubic centimeter (0.1 f/cc) of air obtained over an 8 hour time-weighted-average (TWA). The PEL for lead is 50 µg/m³ in an 8 hour TWA or 40 µg/m³ in a 10-hour TWA. During monitoring for the Permissible Exposure Limit, representative 8 hour TWA employee exposures will be determined on the basis of

one or more samples representing full-shift exposure for all employees engaged in varied work activities in each work area.

2. ACTION LEVEL (AL)

The Asbestos Standard, 29 CFR 1926.1101, does not specify an Action Level. The two exposure limits required by the Standard which makeup the PEL are the TWA and the Excursion limit.

The Action Level for lead is 30 µg/m³. By maintaining a constant exposure level below this, it may not be necessary to perform daily air monitoring.

3. EXCURSION LIMIT (STEL)

The Excursion Limit, sometimes referred to as the Short-term Excursion Limit or STEL, for asbestos, is an airborne concentration of 1.0 fibers per cubic centimeter (1.0 f/cc) of air obtained over a sampling period of 30 minutes. The excursion limit will be determined on the basis of one or more samples representing 30 minute exposures associated with those abatement operations that are most likely to produce the greatest exposures for each shift and in each job classification in each work area. STEL samples should be taken at least once each day that personal air sampling is being conducted.

SECTION 5 - EXPOSURE ASSESSMENT AND MONITORING

6.1 GENERAL MONITORING CRITERIA:

Whenever AMPCO has a workplace or work operation where exposure monitoring is required, either under OSHA Standards 29 CFR 1926.1101 or 29 CFR 1926.62, AMPCO will perform monitoring to determine accurately the airborne concentrations of either asbestos or lead to which its employees may be exposed.

Determinations of employee exposures shall be made from breathing zone air samples that are representative of the 8 hour TWA and 30 minute short-term exposures of each employee. Representative 8 hour TWA employee exposures shall be determined on the basis of one or more samples representing full-shift exposure for employees in each work area. Representative 30 minute short-term employee exposures shall be determined on the basis of one or more samples representing 30 minute exposures associated with operations that are most likely to produce exposures above the excursion limit for employees in each work area.

6.2 INITIAL EXPOSURE ASSESSMENT:

AMPCO will ensure that a "Competent Person" conducts an Initial Exposure Assessment immediately before or at the initiation of the asbestos operation to ascertain expected exposures during that operation or workplace. The assessment must be completed in time

to comply with the requirements which are triggered by exposure data or the lack of a "Negative Exposure Assessment," and to provide information necessary to assure that all control systems planned are appropriate for that operation and will work properly.

- An **Initial Exposure Assessment for Asbestos Related Work Form** must be completed by a competent person prior to beginning the current project. A copy of this completed form must remain on the project while it is in progress, and as each phase of the project is concluded, that portion of the form must be completed.

6.3 BASIS OF INITIAL EXPOSURE ASSESSMENT:

In the initial exposure or work operation, AMPCO must ensure that an assessment shall be based on data derived from the following sources:

- If feasible, AMPCO shall monitor employees and base the exposure assessment on the results of exposure monitoring which is conducted pursuant to the criteria in Paragraph 5.4 of this section.

- In addition, the assessment shall include consideration of all observations, information or calculations which indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the employer which indicate the levels of airborne asbestos likely to be encountered on the job. However, the assessment may conclude that exposures are likely to be consistently below the PELs only as a conclusion of a "Negative Exposure Assessment" conducted pursuant to Paragraph 5.4 of this section.

- For Class I asbestos work, until AMPCO conducts exposure monitoring and documents that employees on that job will not be exposed in excess of the PELs, or otherwise makes a Negative Exposure Assessment pursuant to Paragraph 5.4 of this section, AMPCO shall presume that employees are exposed in excess of the TWA and the excursion limit.

6.4 NEGATIVE EXPOSURE ASSESSMENT:

For any one specific asbestos project which will be performed by AMPCO employees who have been trained in compliance with the OSHA Asbestos Standard, AMPCO may demonstrate that employee exposures will be below the PELs by data which conform to the following criteria:

- Objective data demonstrating that the product or material containing asbestos minerals or the activity involving such product or material cannot release airborne fibers in concentrations exceeding the TWA and the excursion limit under those work conditions having the greatest potential for releasing asbestos; or

- Where AMPCO has monitored prior asbestos jobs for the TWA and the excursion limit within 12 months of the current or projected job, the monitoring and analysis was performed in compliance with the Asbestos Standard in effect and the data was obtained during work operations conducted under workplace conditions "closely resembling" the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in AMPCO's current operations, the operations were conducted by AMPCO employees whose training and experience are no more extensive than that of the AMPCO employees performing the current job, and this data shows that under the conditions prevailing and which will prevail in the current workplace there is a high degree of certainty that employee exposures will not exceed the TWA and excursion limit; or

- The results of initial exposure monitoring of the current job made from breathing zone air samples that are representative of the 8 hour TWA and 30 minute short-term exposures of each employee covering operations which are most likely during the performance of the entire asbestos job to result in exposures over the PELs.

6.5 PERIODIC OR DAILY MONITORING:

- **For Class I and II operations:** AMPCO shall conduct daily monitoring that is representative of the exposure of each employee who is assigned to work within a regulated area who is performing Class I or II work, unless AMPCO, in compliance with Paragraph 5.4 of this section, has made a Negative Exposure Assessment for the entire operation.

- **For all operations under the standard other than Class I and II operations:** AMPCO will conduct periodic monitoring of all work where exposures are expected to exceed a PEL, at intervals sufficient to document the validity of the exposure prediction.

- **Exception:** When all employees required to be monitored daily are equipped with supplied-air respirators operated in the positive-pressure mode, AMPCO may dispense with the daily monitoring requirements. However, employees performing Class I work using a control method which is not listed in the Methods of Compliance or using a modification of a listed control method, shall continue to be monitored daily even if they are equipped with supplied-air respirators.

When establishing a base-line on a project for the first time, the daily air monitoring should be conducted for at least a one (1) week period during which time the exposure levels cannot reach the TWA or the Excursion Limit. Thereafter, when re-establishing the base-line, the daily air monitoring will require only three (3) consecutive days of exposure levels below the TWA and the Excursion Limit.

6.6 TERMINATION OF MONITORING:

If the periodic monitoring required by Paragraph 5.5 of this section reveals that employee exposures, as indicated by statistically reliable measurement, are below the permissible exposure limit and excursion limit AMPCO may discontinue monitoring for those employees whose exposures are represented by such monitoring.

Whenever periodic or daily air monitoring has been discontinued due to an established base-line which establishes exposures below the TWA or the Excursion Limit, as specified in paragraph 5.6 of this section, it will be necessary to incorporate an air sampling program which will provide for random air sampling of each regulated work area at least once or twice a week on each shift.

- **Additional monitoring:** Notwithstanding the provisions of Paragraphs 5.2, 5.3 and 5.4 of this section, AMPCO shall institute the exposure monitoring required under Paragraph 5.5 of this section whenever there has been a change in process, control equipment, personnel or work practices that may result in new or additional exposures above the permissible exposure limit and/or excursion limit or when AMPCO has any reason to suspect that a change may result in new or additional exposures above the permissible exposure limit and/or excursion limit. Such additional monitoring is required regardless of whether a "Negative Exposure Assessment" was previously produced for a specific job.

6.7 OBSERVATION OF MONITORING:

AMPCO shall provide affected employees and their designated representatives an opportunity to observe any monitoring of employee exposure to asbestos conducted in accordance with this Section. When observation of the monitoring of employee exposure to asbestos requires entry into an area where the use of protective clothing or equipment is required, the observer shall be provided with and be required to use such clothing and equipment and shall comply with all other applicable safety and health procedures.

SECTION 6 - METHOD OF AIR MONITORING

6.1 AIR SAMPLING:

All air sampling must be collected in accordance with the specific procedures identified in Appendix A of OSHA's 29 CFR 1926.1101 and EPA's 40 CFR part 61. Personal monitoring samples will be collected from the breathing zone of a representative selection of employees within the work area.

6.2 CALIBRATION:

All air sampling pumps will be correctly calibrated before and after each collection by use of a Precision Rotameter. This must be done with a representative filter cassette installed on the inlet side of the calibration device. In order to perform this requirement, it will be necessary to have at least one Precision Rotameter present on each jobsite.

> **Note:** Most sampling pumps have a rotameter built into the pump. These pump rotameters are not an accurate measurement of flow rate and therefore cannot be used to calibrate the pump. Precision Rotameters should not be confused with the rotameters that are built into the sampling pump. Calibration notations must be noted on the Daily Air Monitoring Report form.

It is a further requirement that all Precision Rotameters, or secondary calibration devices, as they are sometimes known, must themselves be calibrated by use of a primary calibration standard (Bubble Meter) at regular intervals. The primary standard itself must be annually calibrated by an ISO 17025 accredited laboratory to insure its measurement integrity and to obtain a NIST traceable calibration certificate. If a primary standard (Bubble Mete)r is not readily available, prior arrangements should be made with the laboratory being used to analyze the collected samples to do this required primary calibration.

6.3 ANALYSIS:

In the event the laboratory is contracted to analyze, the air samples at the jobsite, AMPCO will require that ten (10) percent of each week's sampling be selected at random and sent to an outside laboratory for a duplicate analysis. The results of these duplicate analyses will be compared directly with the corresponding field analytical results to verify the consistency of the field analytical efforts. The resultant comparative data will be forwarded directly to the home office of the AMPCO Office involved.

6.4 ANALYTICAL METHOD:

All personal air samples will be analyzed using the Phase Contrast Microscopy procedure and the microscopic techniques which are specified in the NIOSH 7400 method.

SECTION 7 - PROTOCOL FOR PERSONAL AIR SAMPLE COLLECTION

7.1 DAILY AIR MONITORING REPORT

The AMPCO Daily Air Monitoring Report form, which contains both the analytical data and the descriptive information, must be used by each individual engaged in the collection of air samples for personal air monitoring. This form must be used to both record the collection information and to report the results of its air sampling analysis.

When an independent air monitoring contractor is used in lieu of AMPCO personnel, the contractor may use its own report form as long as it has obtained prior approval by a AMPCO Health and Safety and each individual form contains, at a minimum, the same information contained on the AMPCO form.

1. **Containment Record**

   The Containment Record must be completed by every individual entering and leaving the containment. There will be a separate Containment Record for each containment.

   When the Daily Air Monitoring Report is completed, and any of the air monitoring samples were taken from inside of containment, then a copy of that Containment Record must be stapled to the Daily Air Monitoring Report when it is posted.

7.2 COLLECTION EQUIPMENT

Prior to beginning the sample collection process, it is essential that the following items be addressed:

- There should be a sufficient number of pumps in good working order and each of these pumps should have an individual identification number.
- The batteries of each pump should be fully charged and capable of functioning for a full 8 hour shift.
- There must be at least one Precision Rotameter present on site.
- There must be sufficient numbers of 25 mm diameter cassettes with open faced 50 mm electrically conductive extension cowls to cover that day's required collection.
- There must be sufficient tubing, clips, AMPCO Daily Air Monitoring Report forms, and rigid shipping containers to handle that day's air samples.

7.3 PREPARATION PROCEDURES

- **Develop Sampling Strategy:** Before beginning to collect air samples, make an accurate assessment of how many samples are going to be needed, which workers will wear the air sampling pumps, how much running time will be required, whether or not the individual wearing the pump will leave and then return to the work area during the running time, and any other items that may be necessary for an accurate air sample collection. While OSHA does not prescribe the exact number of personal samples to take during the collection period, you must take a sufficient number of samples to be able to show a representative sampling of the number of workers present.

Once the employee to be sampled has been selected, the purpose of the sampling should be discussed with the employee. The employee should be advised not to remove or tamper with the sampling equipment in any way. The employee should be informed when and where the equipment will be removed. The employee must be instructed to notify a supervisor should there become a problem with the sampling equipment.

- **Daily Air Monitoring Report:** Complete the top portion of this form by filling in the date, client's name, job name and job number, and sign the Chain-of-Custody portion of the form as the air sample Collector. Then, after identifying the individual to be sampled, complete all of the information necessary for the first 7 columns of the Descriptive Information portion of the form.

- **Sample I.D.:** Begin the Analytical Data portion of the form by assigning a consecutive identification number to each sample being collected. As a recommendation, utilize the job number in the sample I.D. number and start with several zeros. For example 5606-0001. If it becomes necessary to use additional cassettes for the same individual during that day's sample collection, use the same number as before but add a suffix, for example 5606-0001-A.

- **Pump Number:** Each pump should have an individual identification number assigned to it for verification of collection data. This number should be placed on the form in the Pump No. column. If the pump does not have an I.D. number, use the last four digits of the pump's serial number.

- **Flow Rate:** When collecting personal air samples for asbestos fibers, set the air flow rate of the pump as close to 2.0 liters per minute (lpm) as possible. Record 2.0 in the Flow Rate column.

- **Cassette Type:** The type of cassette typically used to collect asbestos fibers at 2.0 lpm will be a 25-mm cassette. If this is the case, record the number 25 mm in the Cassette Type column of the form.

- **Pump Calibration (Before):** Now is the time to calibrate the pump before sampling. Begin by setting up the pump train. Identify the filter cassette with your Sample I.D. number. Remove the plug from the outlet of the cassette and attach the sample tube to the other opening in the cassette.

  Remove the tape from the filter cassette and move the tape back one slot so that the inlet portion of the filter cassette can be removed. Remove the face of the filter cassette and place it in an airtight, dust free container. Caution: Be careful not to contaminate either the filter or the face of the cassette.

- Connect another tube from the top (inlet) port of the pump to the top port of the Precision Rotameter and then connect the free end of the sampling tube to the bottom port of the Rotameter.

Holding the Precision Rotameter vertically, start the pump and determine where the Rotameter float ball elevation is on the calibration chart. If it is not at 2.0 lpm, then use a screwdriver and turn the slotted flow valve on the pump until the float elevation ball is as close to 2.0 lpm as you can make it. Be sure to read the elevation by looking at the center of the ball and then record this flow rate in the Before column of the Pump Calibration section of the Daily Air Monitoring Report form. Turn off the pump, remove the Rotameter from the sampling train, and connect the sampling tube directly to the pump.

- **Start Running Time:** Place the sampling equipment on the employee so that it does not interfere with work performance. Attach the collection cassette to the employee's clothing within the employee's breathing zone. The inlet orifice should generally be in a downward vertical position to avoid contamination. Position the excess tubing so as not to interfere with the work of the employee. Turn the pump on and observe the pump operation for a short time to check the flow rate. Record the time in the Start column of the form.

7.4 DURING COLLECTION

- **Observation of sample collection:** At a minimum, check the pump flow after approximately the first half hour, and thereafter, every two hours. Ensure that the sampler is still assembled properly and that the tube has not become pinched or detached from the cassette or the pump. In order to determine if the desired flow rate is being maintained during sampling, use one of the following two methods:

  a. Observe and note the pump rotameter reading. On subsequent checks, if the pump rotameter has changed, adjust it back to the initial position with a screwdriver in the slotted flow valve. Note any adjustments on the form.
  b. Attach the Precision Rotameter into the sampling train as before and adjust the pump flow rate to the desired Rotameter setting. Record any adjustments.

  Periodically monitor the employees throughout the work shift to ensure that sample integrity is being maintained. If a filter begins to darken in appearance, it is becoming overloaded and a second sample should be started. If loose dust is seen on the face of the filter, a second sample should be started. Make certain that all information regarding the second sample is recorded on the form.

- **Field (Sample) Blanks:** Blank samples are used to determine if any contamination has occurred during sample handling. Prepare two blanks for the first 1 through 20 samples. For sets containing more than 20 samples, prepare blanks as 10 percent of the samples. Prepare the field blanks during the sample period by taking a new filter cassette and removing the top of the cassette to momentarily reveal the face of the filter. Immediately close, seal and label the field blank. This should be done in the same general location where the air sample pumps are started for the sampling.

7.5 REMOVAL PROCEDURES

- **Pump Calibration (After):** Before removing the pump at the end of the sample period, insert the Precision Rotameter back into the sample train and check the flow rate. Enter this flow rate in the After column of the pump calibration section on the form. Remove the Rotameter from the sample train. Remove the collection cassette from the pump and seal it.

- **Stop Running Time:** Turn off the pump and record the time in the Stop column.

- **Volume:** To calculate the actual sample volume from the pump flow rate and sample time, convert the total running time into minutes. For example:

  Start Time: 0712 before sample calibration flow rate = 1.85 LPM
  Stop Time: 1551 after sample calibration flow rate = 1.77 LPM
  Sample time = 519 minutes Sample flow rate = 1.77 LPM

  Next: Always choose lower flow rate and use the following formula:
  Time x flow rate = volume, or as in the example: 519 x 1.77 = 919 liters

  After making the calculation, record the answer in the Volume column of the form.

- **Prepare Cassette for Laboratory:** Replace the face of the filter cassette (inlet portion) and move the tape back to its original position to hold all three sections of the cassette together. Replace and plug the opening of the cassette. Make certain the cassette is properly labeled and packaged for shipping to the laboratory. When delivering to the laboratory, have them complete the Chain-of-Custody portion at the bottom of the Daily Air Monitoring Report form.

SECTION 8 - PROTOCOL FOR STEL AIR SAMPLE COLLECTION

The same protocol used for collecting a personal air sample is also used to collect the STEL sample, with the only difference being that the sample running time is only 30 minutes and not the complete work shift.

SECTION 9 - SELECTING A LABORATORY

When selecting a laboratory to analyze the air samples collected at the jobsite, it is extremely important that the following be taken into consideration.

9.1 QUALITY CONTROL

Wherever possible, the independent air monitoring contractor will have an American Industrial Hygiene Association (AIHA) accreditation and be a successful participant in the AIHA's Asbestos Analyst Registry. The contractor must furnish AMPCO with a certification indicating they have instituted a quality assurance program that includes each of the specific elements described in the Reference Method as outlined in Appendix A of OSHA's Asbestos Standard, 29 CFR 1926.1101. This mandatory appendix establishes the specific sampling and analytical procedures which must be adhered to by the contractor.

9.2 ACTIVE IN PARTICIPATION PROGRAMS

While AMPCO requires participation in either the AIHA administered Proficiency Analytical Testing (PAT) Program or the National Voluntary Laboratory Accreditation (NVLAP) Program, each of which must involve a minimum of two other laboratories, the air monitoring contractor must also meet the inter-laboratory quality control requirements of Appendix A to OSHA's Asbestos Standard, 29 CFR 1926.1101. Samples for this program must come from the air monitoring contractor's workload and be exchanged as required with other labs.

9.3 LABORATORY TECHNICIANS

Since AMPCO believes that proper training of laboratory technicians is essential to establishing reliable measurements of asbestos exposure, the air monitoring contractor will be required to certify and furnish AMPCO with proof that each laboratory technician performing air sampling and/or analysis has successfully completed a NIOSH 582 course for sampling and evaluating airborne asbestos. In lieu of the NIOSH 582 course, an approved equivalent course that has as a minimum, an equivalent content, will be acceptable as an alternative if the equivalent curriculum is considered satisfactory by the AIHA.

9.4 PROOF OF MEDICAL SURVEILLANCE

If an air monitoring contractor is providing AMPCO with technicians to work at the job site, and these technicians are required to enter containment, then the air monitoring contractor will be required to furnish AMPCO with proof of their medical surveillance program. This will include a copy of the Physician's Written Opinion for each technician who will be required to enter the containment area. Copies of these documents must be on file at the jobsite.

SECTION 10 - EMPLOYEE NOTIFICATION

The Branch will notify each affected employee of the monitoring results that represent that employee's exposure, as soon as possible following receipt of the results. This notification will normally be handled by posting the results in a central location that is easily accessible to all employees. Employees listed on the result sheet will be expected to initial the form.

10.1 OBSERVATION

Each Office will allow affected employees, or their designated representative, an opportunity to observe monitoring of employee exposure. Should this observation require the wearing and use of protective clothing or equipment, the Branch will provide this and require its use, as well as requiring complete compliance with all other aspects of AMPCO's Corporate Safety Program.

SECTION 11 - ADDITIONAL REQUIREMENTS

In the event an air monitoring contractor is hired to provide air monitoring services, then to best utilize the air monitoring firm's technician, it may be necessary to give them the added responsibility of: conducting periodic smoke tests of the containment area to ascertain the effectiveness of the differential pressure; providing the work force with their respirator training; assisting the employee in the selection and fitting of the respirator; and conducting the respirator fit-test for each worker. In addition, they may be required to conduct periodic inspections of respirators, oversee the proper care, cleaning and maintenance of respirators, and prepare the required paper work associated with these very important functions.

11.1 MONITORING THE CLEAN ROOM

In order to assure that each worker is properly decontaminating while in the shower area of the personnel decon unit, an area sample will be collected daily in the clean room of each decon unit in use on the abatement site.

SECTION 12 - AIR MONITORING RECORDS

Retention: A copy of the air monitoring results and the accompanying containment record will be maintained as a part of the permanent job file for a minimum of thirty years following the last day of the job.

Availability: AMPCO will, upon written request, make all air monitoring records, required to be maintained by the OSHA Standard 29 CFR 1926.1101, available for examination and copying to affected employees, former employees, designated representatives, and the Assistant Secretary of Labor (OSHA), in accordance with OSHA Standard 29 CFR 1910.20.

INITIAL EXPOSURE ASSESSMENT - ASBESTOS

Check this box ☐ if this is a NEGATIVE EXPOSURE ASSESSMENT

Project No.: _____ Project Name: _____
Project Address: _____
Project Competent Person: _____ Phone: _____

Date of AHERA Training: _____ Date Current Training: _____ **Copies of certificates must be on site**
Assessment Completed by: _____ Competent Person: Yes ☐ No ☐

Assessment Completion Date: _____ Project Start Date: _____ Project Finish Date: _____

SCOPE OF WORK:
OSHA Class of Work: ☐ Class I ☐ Class II ☐ Class III ☐ Class IV

Describe Scope of Work: _____

Work Force: ☐ In-House ☐ Contract Project Location: ☐ Indoor ☐ Outdoor ☐ Confined Space

INITIAL EXPOSURE ASSESSMENT IS BASED ON: ☐ **HISTORICAL DATA** ☐ **OBJECTIVE DATA**

HISTORICAL DATA:	**CURRENT PROJECT** Project No. _____ (Anticipated levels)	**HISTORICAL DATA** Project No. _____
Date of Project:		
Type of ACM/PACM:		
Percentage of ACM:		
Material Condition:		
The Processes:		
Control Methods:		
Work Practices:		
Type of Environment:		
Respirator Projection:		

Are exposure levels consistently below PEL? ☐ Yes ☐ No

☐ **OBJECTIVE DATA:** (Describe product and activity) _____

NOTE: ANTICIPATED RESPIRATORY PROTECTION REQUIREMENT FORM MUST BE COMPLETED AND ATTACHED.

EXPOSURE ASSESSMENT GUIDELINES

GENERAL: For all Class I, II, and III asbestos work activities, you must either:

- conduct an Initial Exposure Assessment for each project (generic assessments for types of activities are not allowed) to determine the expected exposure levels; or
- the project must be performed in a complete negative pressure containment, using full facepiece supplied-air respirators, operated in the pressure demand mode.

Exposure Assessments must be completed before the work begins, in time to assure that all control systems and protective measures are available, installed, and working properly.

Exposure Assessments must be performed by a Competent Person, whose duties and include:

- must have completed a 40-hour EPA accredited contractor/supervisor training;
- must be present during each work shift; and
- must perform regular inspections while work is being conducted.

INITIAL EXPOSURE ASSESSMENT:

- For comparison purposes, when selecting a historical work project to use as a reference, select one that has characteristics that are similar to, or worse than, the work project being assessed.
- Worker training and experience must be similar and under comparable work conditions. If both sets of workers attended equivalent EPA Model Accreditation Plan asbestos courses and have approximately the same amount of experience, you can assume similarity of training and experience.
- Air monitoring date must also be for comparable work conditions and work practices. For example, preparation data cannot be compared to gross removal data.
- If feasible, this should be based on monitoring conducted pursuant to paragraph (f)(1)(iii) of the Standard.
- For Class I work, unless a Negative Exposure Assessment has been made, or air monitoring has been conducted to prove otherwise, it must be presumed that employee exposure will be in excess of the PEL.

NEGATIVE EXPOSURE ASSESSMENT:

- After analyzing both the historical data and the projected data for the project being assessed, you can demonstrate that employee exposures will be below the PELs, you may produce this assessment as a Negative Exposure Assessment and check the box at the top of the form.
- Prepare an Anticipated Respiratory Protection Form.
- Keep a copy of this completed form in the job file, and post a copy at the work site.

ASBESTOS ABATEMENT GUIDELINES

SECTION 1 - PURPOSE

The Asbestos Abatement Guidelines are intended for use as the basis for specific project specifications used to describe the scope of work to be performed by AMPCO during an asbestos abatement operation in compliance with OSHA's Asbestos Standard, 29 CFR 1926.1101.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

The use of appropriate engineering controls and work practices will be the primary procedures used by AMPCO to reduce worker exposure to airborne asbestos fibers.

These procedures, both general and specific, are intended as guidelines for asbestos abatement operations based upon local, state and federal regulations and a comprehensive review of each project. Each point discussed may not always be applicable to every asbestos abatement project, and in these cases, the procedures outlined in these Guidelines will vary with the project and/or specific regulatory agency requirements.

SECTION 4 - GENERAL AND ADMINISTRATIVE REQUIREMENTS

4.1 Contract Documents

4.1.1 **Site Visits:** AMPCO will make a site visit to verify all dimensions and become familiar with specific site conditions. Where access is not feasible, for safety or other reasons, an understanding of the proposed scope will be indicated.

4.1.2 **Licenses and Permits:** AMPCO will obtain all necessary licenses and permits pertaining to the removal and disposal of asbestos containing materials.

4.1.3 **Contract Changes:** All change orders or the Owner or the Owner's representative must approve variances to the asbestos control procedures in writing.

4.1.4 **Request for Variance:** Any request for variance must be approved in writing prior to beginning any phase of the work covered by the variance.

4.1.5 **Subcontractors:** All subcontractors employed by the AMPCO will be required to comply with each applicable provision of these Guidelines. Refer to Sections 6-1 and 6-2 in the AMPCO Corporate Safety Manual.

4.2 Waste Removal

Unless otherwise specified by the contract document, AMPCO will be responsible for obtaining a waste disposal site in compliance with all applicable EPA, state or local Regulations. Where applicable, AMPCO will contract the services of a licensed waste hauler.

4.3 Services and Equipment

Unless otherwise specified by the contract document, AMPCO will furnish all labor, materials, services and equipment necessary to carry out the abatement operations in accordance with OSHA Standards, EPA Guidelines and all applicable state or local government regulations governing the jobsite.

4.4 Fires and Emergency

AMPCO will develop a fire and emergency action plan for use in connection with the asbestos abatement operation. Emergency procedures will have priority over the abatement operations. Refer to section 4-0, Emergency Action Plans, in the AMPCO Corporate Safety Manual.

4.5 Applicable Codes

Except to the extent that more explicit or more stringent requirements are written directly into these Guidelines, all applicable codes and regulations will have the same force and effect as if copied directly into these Guidelines.

In order to comply with all local, state and federal requirements, copies of all required documents, including appropriate EPA and OSHA Standards, will be maintained at the jobsite. Specific documents required for employee information, will be posted in the Clean Room of the decontamination unit.

4.5.1 **Federal Regulations:** The federal regulations that govern the asbestos abatement industry, including the transportation and disposal of asbestos waste materials include, but are not limited to, the following:

U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), including but not limited to:

- **Asbestos Standards for the Construction Industry** Title 29, Part 1926, Section 1101 of the Code of Federal Regulations

- **Respiratory Protection**
  Title 29, Part 1910, Section 134 of the Code of Federal Regulations

- **Construction Industry Standards**
  Title 29, Part 1926 of the Code of Federal Regulations

- **Access to Employee Exposure & Medical Records**
  Title 29, Part 1910, Section 1020 of the Code of Federal Regulations

- **Hazard Communication**
  Title 29, Part 1926, Section 59 of the Code of Federal Regulations

- **Specifications for Accident Prevention Signs & Tags**
  Title 29, Part 1910, Section 145 and Part 1926, Section 200 of the Code of Federal Regulations

U.S. Department of Transportation (DOT), including but not limited to:

- **Hazardous Substances**
  Title 29, Parts 171 and 172 of the Code of Federal Regulations

U.S. Environmental Protection Agency (EPA), including but not limited to:

- **Worker Protection Rule**
  Title 40, Part 763, Subpart G of the Code of Federal Regulations

- **Asbestos Hazard Emergency Response Act (AHERA)**
  Title 40, Part 763, Subpart E of the Code of Federal Regulations

- **Regulation for Asbestos**
  Title 40, Part 61, Subpart A of the Code of Federal Regulations

- **National Emission Standards For Hazardous Air Pollutants (NESHAP)**
  Title 40, Part 61, Subpart M of the Code of Federal Regulations

4.5.2 **State and Local Regulations:** All applicable state and local regulations which are in effect at the time of bidding the asbestos abatement project, and which have a direct bearing upon the project, are included and incorporated by reference and made a part of this document. In addition to

all applicable regulations pertaining to asbestos, AMPCO will also be required to comply with all applicable hazard communication and right-to-know laws which have not been preempted by the federal Hazard Communication Standard, 29 CFR 1926.59.

4.6 Notification

All notifications will be made by registered mail with a return receipt requested or by hand delivery.

When performing demolition or renovation, all requirements for notification and emissions control apply for RACM in amounts greater than 160 square feet, 260 linear feet, or 35 cubic feet. All demolition projects must be notified to EPA, even if there is no RACM.

4.6.1 Environmental Protection Agency (EPA): AMPCO must notify, in writing, the Regional Office of the Environmental Protection Agency (EPA) or a state delegated agency of the planned asbestos abatement operation and of any significant changes to the plan:

- Notification must be received by the EPA at least 10 working days prior to beginning the project;
- Notification must be received by the EPA at least 10 working days before the end of the calendar year for non-scheduled operations or additive amounts;
- Notification must be received by the EPA as early as possible before, but not later than, the following working day for certain demolition or renovation operations, such as emergencies, unsafe buildings, etc.;
- An update notice must be sent to the EPA, if the amount of asbestos noted in the original notification changes by at least 20 percent; and
- A new notification is required to be sent to the EPA if the start date changes. If the start date is later, the notification must be sent as soon as possible before the original start date. If the start date is earlier, the notification must be received by the EPA at least 10 days prior to the start date.

The required EPA Notification of Demolition and Renovation form must be used to notify the EPA. Any other type of notification must include at least the following:

4.6 The complete name, address and telephone number of the contractor;

4.7 The complete address and description of the location where the asbestos control operation will take place, including the size, age and use of the building and the amount of asbestos material present;

4.8 The complete name, address and telephone number of the actual owner of the building, which may differ from the name of the jobsite;

4.9 The procedures that will be employed to comply with the regulations; and

4.10 The complete name, address and telephone number of the waste disposal site where the asbestos waste will be deposited.

4.6.2 **Other Regulatory Agencies:** U.S. EPA's 40 CFR 61 Subpart M requires that the notification dates pertain to the scheduled starting and completion of demolition and renovation. However, local jurisdictions can, and often do, define these dates in many different ways, for example the start date may be for any one of the following: project mobilization, regulated area establishment, or actual abatement commencement.

It is, therefore, imperative that the local requesting agency be contacted prior to issuance of the Notification in order to assure that the correct dates are furnished and specific local requirements complied with.

4.6.3 **Multi-Employer Worksites:** On multi-employer worksites, where the asbestos abatement operation requires the establishment of a regulated work area, there is a responsibility to inform other employers on the site of the nature of AMPCO's work, the existence of and requirements pertaining to the regulated area, and the measures taken to ensure that employees of other employers are not exposed. The “Notice of Asbestos Abatement” posters will be completed with appropriate information and posted in conspicuous locations for this purpose. Posting will be in English and in Spanish. This may also be accomplished by AMPCO providing the Owner with a letter in which this information is set forth. The Owner then notifies the other employers and tenants whom he deems necessary and who are in the immediate vicinity of the regulated area. It is now the responsibility of these employers to protect their employees.

It should be noted that asbestos hazards at the work site must be abated by the contractor who created or controls the source of asbestos contamination. In addition, on all projects covered by OSHA's Asbestos Standard, in which there is a general contractor, it is the general contractor who exercises general supervisory authority over this work.

Any employer of employees working adjacent to a regulated area must now take steps on a daily basis to ascertain the integrity of the enclosure and/or the control methods in use by the asbestos contractor.

4.7 Work Plan

AMPCO will submit a site specific work plan of the procedures proposed for use in complying with the requirements of the asbestos abatement operation, the magnitude of which will be dependent upon the complexity of the removal project. Included in the plan will be the location and layout of the decontamination areas, the sequencing of the asbestos work, the interface of trades involved in the performance of work, methods to be used to assure the safety of AMPCO's employees, building occupants and visitors to the site, the disposal plan, including the location of the approved disposal site, and a detailed description of the methods to be employed to control contamination.

The work plan may be expanded to include the use of portable HEPA ventilation systems, closing out the building's HVAC system, the method of removal to prohibit visible emissions in the work area, and the packaging of removed asbestos debris.

4.8 Environmental Issues

An effort must be made to address all specific environmental issues that may emerge as a result of starting and completing the asbestos abatement project. In addition, future environmental issues, which may be a consequence of the completed project, must also be anticipated.

Environmental issues management must be planned and conducted as an ongoing, organized activity during the project, mainly limited to immediate or near term regulatory concerns.

4.9 Contingency Plans

AMPCO will prepare a contingency plan for any emergency, which may arise during the course of the project. However, nothing in these procedures will impede safe exiting or providing of adequate medical attention in the event of an emergency.

Many of these procedures are already included in AMPCO's Corporate Safety Program, which along with the other procedures and the telephone numbers and locations of emergency services, including but not limited to, fire, ambulance, doctor, hospital, and police, will be located at the jobsite for employee information. Additional telephone numbers will be provided, as necessary.

4.10 Emergency Procedures

Emergency procedures must be developed prior to the initiation of abatement activities. The emergency procedures must be in written form and prominently posted in the site office and the employees' eating area. Copies must also be posted in the clean change room and the Dirty equipment room of the worker decontamination unit. Prior to entering the containment for the first time, everyone must read and sign these procedures to acknowledge receipt and understanding of the work site layout, location of emergency exits, emergency routes to follow and the emergency procedures.

The emergency procedures must include considerations of fire, explosion, toxic atmospheres, electrical incidents, slips, trips and falls, confined spaces, and heat-related injuries. Procedures must be written, emergency exits noted and marked, emergency evacuation routes mapped out, emergency and evacuation annunciation systems identified, emergency telephone numbers listed, and any other critical information, such as barriers that may affect response capabilities, must be included.

Once these procedures have been posted, employees must be trained in these procedures. Refer to Section 4-1 of the Corporate Safety Manual, entitled Emergency Action Plans.

4.10.1 **For Non-Life Threatening Situations:** Employees injured or otherwise incapacitated must decontaminate following normal procedures, with assistance from fellow workers if necessary, before exiting the work area to obtain proper medical treatment.

4.10.2 **For Life-Threatening Injury or Illness:** Measures to stabilize the injured worker, remove him/her from the work area, and secure proper medical treatment will take priority over worker decontamination. Personal protective equipment should be available for response team members needing to enter the containment.

4.11 Incident Reporting

In accordance with Section 3-1 of AMPCO's Corporate Safety Manual, Incident Reporting, AMPCO will prepare and document reports of significant accidents at the jobsite and anywhere else that work is in progress in connection with the asbestos control operation. For this purpose, a significant accident is defined to include those injuries and illnesses deemed recordable on the OSHA 300 form, or where a property loss of substance is sustained.

4.12 Supplementary Conditions

Where portions of the Guidelines are inappropriate for a specific project, or do not include needed provisions, Supplementary Conditions will be used to make the modifications and additions needed.

4.13 Smoking Cessation Policy

In keeping with AMPCO's No Smoking policy and the smoking cessation requirements imposed by OSHA's Asbestos Standard, there will not be any smoking allowed within the work areas on any of AMPCO's asbestos abatement projects. The work area includes, but is not necessarily limited to, the office or office trailer, all regulated areas, the decontamination unit, employee lunchrooms and storage areas. Each of these areas will be posted with NO SMOKING signs. Smoking bans in these areas will be enforced. Smoking cessation programs will be the topic of frequent Tool Box Safety Talks and smoking cessation program information will be posted at all job sites. When considered necessary, a designation of a smoking area will be located outside of the confines of the work area and in an area where non-smokers cannot be affected by secondary smoke.

SECTION 5 - ADMINISTRATIVE AND SUPERVISORY PERSONNEL

5.1 Training Certificates

All AMPCO field and operations personnel of a supervisory or management level are required to have completed and passed, by written examination, an initial 40 hour training program for Asbestos Supervisors and Contractors as required by EPA's Model Accreditation Plan (AHERA) in 40 CFR 763, Subpart E. In addition to the initial training program, these individuals must also complete an EPA required 8-hour annual update-training program.

All asbestos abatement workers are required to have completed, and passed by written examination, the equivalent in curriculum, training method and length to the EPA Model Accreditation Plan's (AHERA) initial training program for asbestos abatement workers as outlined in 40 CFR Part 763, Subpart E. As with the supervisor, the worker is also required to complete an EPA certified 8-hour annual update training program.

5.1 Displaying the Certificates: A copy of both the initial 40-hour AHERA training certificate and a copy of the current annual certification must be present at the job site for each AMPCO employee assigned to the project on either a full or part-time basis.

Where required by local or state requirements, supervisory personnel will either have or will obtain, prior to the start of work, the necessary certification for the asbestos abatement project. If required to do so by the contract documents, AMPCO will furnish the Owner, or the Owner's representative with proof of this certification.

5.2 Medical Examinations

Each AMPCO Office will offer at no cost to the employee, a physical examination for all AMPCO personnel who are either working in an area in which there is a potential exposure to asbestos, or who are required to use any type of respirator protection equipment. These physical examinations will, as a minimum, meet the requirements of the Medical Surveillance portion of the OSHA Asbestos Standard for the construction industry, 29 CFR 1926.1101. As a part of the examination, the physician will also be asked to make an evaluation of the employee's ability to work in environments capable of producing heat stress in the worker. Refer to section 7-1, Respirator Protection, in the AMPCO Corporate Safety Manual.

In the event the employee will be working in an area in which there is an additional exposure hazard, for example lead or P.C.B's, the medical examinations required by the appropriate OSHA Standard will also be provided. A copy of the physician written opinion will be present at the jobsite.

5.3 Designated Competent Person

On all asbestos worksites, AMPCO will designate a competent person who has the qualifications and authority for ensuring worker safety and health, as required by the Asbestos Standard, 29 CFR 1926.1101 and those portions of Subpart C, General Safety and Health Provisions for Construction 29 CFR 1926.20 through 32, which provide for a competent person, health and safety prevention programs, and frequent and regular inspections of the jobsites, materials, and equipment.

5.3.1 **Required Inspections:** The designated competent person will make frequent and regular inspections of the jobsites, in order to perform the duties set out in Paragraph 5-3 of this section. For Class I jobs, on-site inspections will be made at least once during each work shift, and at any time an employee requests an inspection. For Class II and III jobs, on-site inspections will be made at intervals sufficient to assess whether conditions have changed, and at any reasonable time an employee request.

5.3.2 **On Class I or II projects:** On all worksites where employees are engaged in Class I or II asbestos work, the competent person, designated in accordance with this section, will perform or supervise the following duties, as applicable:

- Set up the regulated area, enclosure, or other containment;
- Ensure (by on-site inspection) the integrity of the enclosure or containment;

- Set up procedures to control entry to or from the enclosure and area;
- Supervise all employee exposure monitoring required by this section and ensure that it is conducted as required by Paragraph 24.0 of this section;
- Ensure that employees working within the enclosure and/or using glove bags, wear protective clothing and respirators as required by Paragraphs 7.0 and 7.1 of this section.;
- Ensure through on-site supervision, that employees set up and remove engineering controls, use work practices and personal protective equipment in compliance with all requirements;
- Ensure that employees use the hygiene facilities and observe the decontamination procedures specified in Paragraph 9.0 of this section;
- Ensure that though on-site inspection engineering controls are functioning properly and employees are using proper work practices; and,
- Ensure that notification requirement in Paragraph 4.6 of this section are met.

5.3.3 **Training for the competent person:** For Class I, and II asbestos work the competent person will be trained in all aspects of asbestos removal and handling, including: abatement, installation, removal and handling; the contents of this Standard; the identification of asbestos; removal procedures, where appropriate; and other practices for reducing the hazard. Such training will be obtained in a comprehensive course for supervisors, such as a course conducted by an EPA or state-approved training provider, certified by the EPA or a State, or an course equivalent in stringency, content and length.

For Class III and IV asbestos work, the competent person will be trained in aspects of asbestos handling appropriate for the nature of the work, to include procedures for setting up glove bags and mini-enclosures, practices for reducing asbestos exposures, use of wet methods, the contents of this standard, and the identification of asbestos. Such training will include successful completion of a course equivalent in curriculum and training method to the 16 hour Operations and Maintenance course developed by EPA for maintenance and custodial workers [See 40 CFR 763.92(a)(2)], or its equivalent in stringency, content and length.

Competent persons for Class III and IV work, should also be trained pursuant to the requirements of Paragraph 5.3.3 of this section.

5.4 On-Site Representative

The U.S. Environmental Protection Agency's NESHAP, 40 CFR 61.145 (c)(8), requires the designation of an on-site representative. Unless otherwise stated, the on-site representative will be the same individual who has been designated the competent person for the project.

In the event AMPCO should need to designate an employee of a subcontractor as its competent person/on site representative on a particular jobsite, that individual will have all of the necessary training, education and written authority to comply with the requirements of the above named Standards.

5.5 Project Manager / Superintendent

AMPCO will employ full-time personnel who will have the designation of either project manager or superintendent, depending upon the organizational structure of the AMPCO Office involved. These individuals will be experienced in administration and supervision of asbestos abatement projects, including work practices, protective measures for building and personnel, disposal procedures, respiratory protection, etc.

5.6 General Foreman (as required)

The general foreman will normally have the same education and training in asbestos control operations as the project manager or the superintendent. Here again, if required to do so by law, the general foreman will obtain all of the necessary certification for the project. The general foreman can also act as the AMPCO's competent person on the jobsite.

5.7 Foreman

The foreman is generally hired for a specific project and is usually obtained from either a local labor pool or an appropriate union hall. Efforts are made to hire individuals for this position who have had either previous experience as a foreman on an asbestos abatement project or specific training in direct supervision.

5.8 Health and Safety

AMPCO has designated an individual at each Office to be responsible for ensuring compliance with all applicable standards of those local, state and federal regulatory agencies having jurisdiction over an asbestos abatement project, as well as the specific health and safety requirements of the Corporate Safety Program. This individual, in addition to having successfully completed all of the required asbestos certification courses, has also received specialized training in OSHA Construction Safety Practices. While not necessarily assigned to each asbestos abatement project on a full-time basis, the Health and Safety does conduct periodic safety audits and worker training at each site.

SECTION 6 - WORKER TRAINING AND EDUCATION

AMPCO will, at no cost to the employee, institute a training program for all employees who perform Class I through IV asbestos operations, and will ensure their participation in the program. Training will be provided prior to or at the time of initial assignment and at least annually thereafter.

6.1 Training for Class I AND II Workers

Training for Class I and II operations will be the equivalent in curriculum, training method and length to the EPA Model Accreditation Plan (MAP) asbestos abatement worker training (40 CFR Part 763, Subpart E).

When AMPCO's Class II work with asbestos-containing material involves only the removal and/or disturbance of one generic category of building material, such as roofing materials, flooring materials, siding materials or transite panels, AMPCO is required to train employees who perform such work by providing a training course which includes as a minimum all the elements included in Paragraph 6.4 of this section and in addition, the specific work practices and engineering controls set forth in Paragraph (g) which specifically relate to that category. Such course will include "hands-on" training and will take at least 8 hours.

6.2 Training for Class III Workers

Training for Class III employees will be the equivalent in curriculum and training method to the 16 hour Operations and Maintenance course developed by EPA for maintenance and custodial workers who conduct activities that will result in the disturbance of ACM. [See 40 CFR 763.92(a)(2)]. Such course will include "hands-on" training in the use of respiratory protection and work practices and will take at least 16 hours.

6.3 Training for Class IV Workers

Training for employees performing Class IV operations, or are working in areas that may contain asbestos, will be trained equivalent in curriculum and training method to the awareness-training course developed by EPA for maintenance and custodial workers who work in buildings containing asbestos-containing material. [See 40 CFR 763.92 (a)(1)]. Such course will include available information concerning the locations of PACM and ACM, and asbestos containing flooring material, or flooring material where the absence of asbestos has not been certified; and instruction in recognition of damage, deterioration, and determination of asbestos containing building materials. Such a course will be documented and take at least two hours.

6.4 Training Content

Specific training requirements for Class I workers and supervisors are outlined in Section 5.6 of the Corporate Safety Manual. The training program will be conducted in a manner that the employee is able to understand. In addition to the content required by provisions in Paragraph 6.1 of this section, AMPCO will ensure that each such employee is informed of the following:

- Methods of recognizing asbestos, including the requirement to presume that certain building materials contain asbestos;
- The health effects associated with asbestos exposure; health effects include lung cancer, asbestosis, mesothelioma and cancer of the stomach and colon.
- The relationship between smoking and asbestos in producing lung cancer;
- The nature of operations that could result in exposure to asbestos, the importance of necessary protective controls to minimize exposure including, as applicable, engineering controls, work practices, respirators, housekeeping procedures, hygiene facilities, protective clothing, decontamination procedures, emergency procedures, and waste disposal procedures, and any necessary instruction in the use of these controls and procedures; including where Class III and IV work is performed, the contents of "Managing Asbestos In Place (EPA 20T-2003, July 1990) or its equivalent in content;
- The purpose, proper use, fitting instructions, and limitations of respirators as required by 29 CFR 1910.134;
- The appropriate work practices for performing the asbestos job;
- Medical surveillance program requirements;
- The content of the Asbestos Standard, 29 CFR 1926.1101, including appendices;
- The names, addresses and telephone numbers of public health organizations, which provide information, materials and/or conduct programs concerning smoking cessation. The employer may distribute the list of such organizations contained in Appendix J to the Asbestos Standard, to comply with this requirement; and
- The requirements for posting signs and affixing labels and the meaning of the required legends for such signs and labels.

6.5 Access to Training Materials

AMPCO will make readily available to all affected employees without cost, written materials relating to the employee training program, including a copy of the OSHA Asbestos regulation, 29 CFR 1926.1101. AMPCO will provide to the Assistant Secretary and the Director, upon request, all information and training materials relating to the employee information and training program.

6.6 Self-Help Programs

AMPCO will inform all employees concerning the availability of self-help smoking cessation program material. Upon employee request, AMPCO will distribute such material, consisting of NIH Publication No, 89-1647, or equivalent self-help material, which is approved or published by a public health organization listed in Appendix J to the new Asbestos Standard.

SECTION 7 - PERSONAL PROTECTIVE EQUIPMENT

AMPCO requires the following protective equipment for the safety of its workers: (Refer to Section 8-14, Personal Protective Equipment, in the AMPCO Corporate Safety Manual).

7.1 Respiratory Protection: Except to the extent that more stringent requirements are written directly into the contract, or required by local ordinance, Section 7-1 of the AMPCO Corporate Safety Manual, Respiratory Protection will be strictly addressed. Where there is a conflict in the requirements set forth in this Program and the standards promulgated in the Applicable Codes listed in Paragraph 4.0 of these Guidelines, the more stringent requirements will be enforced.

The respiratory protection intended for use on each operation of the asbestos abatement project will be identified on the Anticipated Respiratory Protection Requirements form unless otherwise specified by the contract. The information contained on the Anticipated Respiratory Protection Requirements form is based upon airborne asbestos fiber counts encountered on previous projects of a similar type working on materials similar to those found on the projected asbestos abatement operation, or actual readings when they are current and available.

The use of approved respirators shall be provided to the employees' at no cost.

7.2 Coveralls: AMPCO will provide either disposable or reusable full body coveralls and head covers, and require that all persons entering the work area wear them.

AMPCO will provide a sufficient amount of protective clothing for the required number of changes for all workers in the work area. Disposable coveralls, once contaminated, will be disposed of daily as ACM waste. In the event reusable protective clothing is used, these garments must be left in the Equipment Room when taken off. Either a qualified laundry will be used, or a washer and dryer will be installed in the Equipment Room for the purpose of washing and drying the garments. When cleaned, the clothing will continue to remain in the Equipment Room to be put on by the workers when they arrive in the Equipment Room, having first removed all of their clothing in the Clean Room.

Upon completion of the project, the clothing and the washer and dryer will either be completely decontaminated and removed for future use, or they will be properly disposed of as asbestos-contaminated materials. Wastewater from the washer will be either filtered

through the shower water filtering system or collected for use as amended water. The dryer will be vented into the containment area or through a small HEPA filter attached to the vent pipe outlet.

7.3 Foot Covers: AMPCO will provide either disposable or washable foot covers, which must be used over, or in some cases in lieu of, the employee's personal footwear. If unable to adequately decontaminate personal footwear, it must be properly disposed of as asbestos-containing material (ACM) waste at the end of the project.

7.4 Rubber Boots: When rubber boots are used in the work area, they will be required to remain in the work area until the completion of the project, at which time they must be thoroughly cleaned and decontaminated, both inside and out, and put into a plastic bag before removal from the area. When working in areas requiring the use of safety shoes or boots, the rubber boots must be an approved type having a hard toe safety shield inside the boot. If unable to properly decontaminate these items, they must be disposed of as ACM waste at the end of the project.

7.5 Hard Hats: AMPCO will provide hard hats and require that they be worn at all times when working on an asbestos abatement project. Contaminated hard hats must remain in the work area until they can be thoroughly cleaned and decontaminated, and placed into a plastic bag before removal from the work area at the end of the project.

7.6 Safety Glasses and/or Goggles: Where required, AMPCO will provide eye protection in the form of either approved safety glasses or goggles for all employees on the jobsite. If taken into containment, the safety glasses and/or goggles must remain in the work area where they will be appropriately cleaned or disposed of as ACM waste at the completion of the project.

In those cases where additional eye protection is deemed necessary, this will be provided by AMPCO in the form of goggles. The same requirements for contaminated safety glasses also applies to goggles.

7.7 Work Gloves: AMPCO will provide appropriate work gloves to all personnel in the work area. The gloves must remain in the work area until the completion of the project, at which time they will be appropriately cleaned or properly disposed of as ACM waste.

7.8 Hearing Protection: AMPCO will administer an effective Hearing Conservation Program, as prescribed by OSHA in 29 CFR 1910.95, Occupational Noise Exposure, whenever employee noise exposures equal or exceed an 8 hour time weighted average (TWA) sound level of 85 decibels (dB) measured on an appropriate noise dosimeter. Refer to Section 7-3, Hearing Conservation Program, in the AMPCO Corporate Safety Manual. When worn in a contaminated area, this equipment will be disposed of as ACM waste at the end of the project.

SECTION 8 – MATERIALS AND EQUIPMENT

AMPCO will provide either new or used materials and equipment that is undamaged and in serviceable condition, and only that equipment that is recognized as being suitable for the intended use and in compliance with the appropriate standards.

8.1 Scaffolding: AMPCO will provide all scaffolding, ladders and/or staging, etc. as necessary to accomplish the asbestos abatement project. The scaffolding may be of the suspension type or the standing type, such as metal tube and coupler, tubular welded frame, pole or outrigger type or cantilever type. The type, erection and use of all scaffolding will comply with all applicable OSHA Standards. At the conclusion of the abatement work, the scaffolding will be decontaminated before leaving the work area. Refer to Section 8-19, Scaffold Safety, in the AMPCO Corporate Safety Manual.

> **Note:** Only those supervisors or foremen possessing a valid certification of scaffold training will be considered qualified to erect, modify, move or dismantle any type of scaffolding, regardless of the height of the scaffold. Only those workers who have been trained in scaffold use will be permitted to work on top of scaffolds.

8.2 Water Service: Where required by the contract document, all connections to the Owner's water system will include valves that are temperature and pressure rated for operation of the temperatures and pressures encountered. After completion of use, connections and fittings will be removed without damage or alteration to existing water piping and equipment. Only heavy-duty abrasion-resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system will be used to provide water to the work area or the decontamination facilities.

8.3 Hot Water Heater: In the absence of hot water, AMPCO will provide a UL rated hot water heater for the decontamination unit shower. Wiring of the hot water heater will be in compliance with all applicable parts of the National Electric Code.

8.4 Electrical Service: Except to the extent that other conditions are written directly into the contract, the Owner will provide electrical service and Section 8-3, Electrical Safety, in the AMPCO Corporate Safety Manual, will have the same force and effect as if copied directly into the contract.

8.5 Ground Fault Circuit Interrupter: Employee's will not be permitted to work in any asbestos containment area, in proximity to any part of an electric power circuit in which they may come in contact during the course of this work, unless the employee is protected against electric shock by use of a Ground Fault Circuit Interrupter (GFCI). Here again, refer to section 8-3, Electrical Safety, in the AMPCO Corporate Safety Manual.

8.6 Lighting: Unless otherwise noted in the contract, the Owner will provide the necessary lighting required for adequate illumination of the work area. When required to do so, AMPCO will provide sufficient temporary lighting to ensure proper workmanship

throughout the work area. This will include the use of daylight, general lighting, or portable plug-in lighting, or any combination of these.

8.7 Fire Extinguishers: AMPCO will comply with all governing regulations and recognized recommendations within the construction industry for providing portable fire extinguishers at the abatement site. The fire extinguishers will be located where they will be most convenient and effective for their intended purpose, with at least one 4A60BC type fire extinguisher available in each 3000 square foot of work space. Personnel will be cautioned to use fire extinguishers to combat only those fires which are in their incipient or beginning stages, and that if the fire appears to be life threatening, they are to sound the alarm immediately and evacuate the area. Refer to the projects site specific Emergency Action Plan and Section 4-1, Emergency Action Plan, in the AMPCO Corporate Safety Manual. Be certain to check local regulations regarding type, size and quantity of fire extinguishers required on your project.

8.8 Polyethylene Sheeting: All polyethylene sheeting will be "true" gauge and fire retardant.

SECTION 9 - DECONTAMINATION FACILITIES

Unless otherwise directed by the contract document, and space not being a factor, AMPCO will provide separate personnel and equipment decontamination facilities. Under this provision, the Personnel Decontamination Unit will be the only means of worker ingress and egress to the work area. All contaminated material and equipment will exit the work area through the Equipment Decontamination Unit. In some cases, permanent showering facilities may be utilized, and in others AMPCO will either build a decontamination unit or furnish a prefabricated decontamination unit.

While the drawing in Paragraph 9.1.5 depicts the general arrangement of the type of decontamination facility used by AMPCO, there are many specific arrangements, which may vary slightly but function the same as that shown in the drawing. For example, the decontamination facility could be located parallel to the work area or it could be perpendicular to it, it could be located inside the work area or it could be outside the work area. The only important criteria for placement of the decontamination facility, is that it exits to the outside ambient surroundings only at the clean end of the unit and exits into the isolated work area only at the equipment or dirty end of the unit. However, space permitting, every effort should be made to locate the decon unit contiguous and adjacent to the work area.

9.1 Personnel Decontamination Unit (DECON)

The Personnel Decontamination Unit will consist of a serial arrangement of five (5) connected rooms or spaces, designated the Clean Room, the Air Lock, the Shower Room, the Air Lock and the Equipment Room, separated by impermeable walls. Floor to ceiling height should not be less than 6 feet 6 inches. Access to each of these five connected rooms or spaces will be protected by constructing overlapping layers of 6-mil

polyethylene (poly) plastic sheeting to form a double or triple barrier flap to each room or space. Construction materials may include two by fours, plywood, and 6-mil frosted, opaque or black, regular or fire retardant polyethylene sheets, to provide worker privacy, and suitable framing.

9.1.1 **Clean Room:** The Clean Room, or change room as it is sometimes referred to, is physically and visually separated from the rest of the building for the purpose of allowing personnel to change into protective clothing. It is constructed so as to have an airtight seal between it and the rest of the building and designed so that access to the work area from the Clean Room is only through the double or triple barrier flaps, made from several layers of overlapping 6-mil poly, to the Air Lock, the Shower Room, the other Air Lock and the Equipment Room. Asbestos contaminated items are not allowed to enter this room for any reason.

Entrance to the Clean Room from the outside-uncontaminated area will be controlled by either a set of the overlapping poly barrier flaps or a rigid door. In those cases where security is a consideration, the rigid door will be used and outfitted with a hasp and padlock. Access to the Clean Room from inside the decontamination unit will only be through a set of the overlapping poly barrier flaps separating the Clean Room from the Air Lock and the Shower Room. The Clean Room will also act as a storeroom for employees street clothing, uncontaminated equipment, such as respirators, towels, protective clothing, etc., and as an information center for the posting of required documents and emergency information.

The floor of the Clean Room must be kept clean and dry at all times, and all surfaces should be damp wiped with a disinfectant solution after each shift change. An adequate supply of towels and bath mats will be provided on a continuous basis. Ideally, employee storage lockers, or their equivalent, will also be provided.

The air monitoring contractor will be instructed to conduct daily air sampling of the interior of the Clean Room in order to insure that this area is constantly maintained as clean, with a fiber count at or below 0.01 f/cc at all times.

9.1.2 **Air Locks:** The Air Lock is nothing more than a small room, which occupies the space between the Clean Room and the Shower Room and the Shower Room and the Equipment Room. There must be an Air Lock on both sides of the Shower Room. The purpose of these two extra rooms are to provide an additional measure of protection to prevent asbestos fibers from escaping the contaminated areas of the decon and entering the clean areas. The size of the Air Locks are determined solely by the amount of overall space available for the decon unit. Space permitting, the Air Lock between the Shower Room and the Clean Room can be used to

store clean towels and floor mats, soap and shampoo, and the waste disposal bag for asbestos-contaminated filters.

9.1.3 **Shower Room:** AMPCO will provide a completely water tight operational shower to be used for transit by cleanly dressed workers heading for the work area from the Clean Room and/or for showering by workers heading out of the work area after undressing in the Equipment Room. The Shower Room must be constructed in a "pass through" design, a configuration that will require the worker to pass from the contaminated Equipment Room, through the shower, and into the Clean Room without stepping back onto a contaminated area. An adequate number of showers will be provided for the size of the project.

For sanitary reasons, it is advisable to install a free draining floor on the top of the shower pan, and the showerheads should be mounted so as to cause water running down the walls to drip into the pan. Each showerhead will contain both hot and cold water, which can be adjusted by the person taking the shower. The Shower Room must contain at least one shower and AMPCO must ensure that soap and clean towels are always present. The shower room must be cleaned and drained properly at the end of each work shift.

Shower wastewater will either be drained or stored for use in amended water. Drains will be equipped with an approved filtering system, which provides, at a minimum, 5 micron waste water filters in line to appropriately filter the waste water for sewer disposal. Where required, approval will be obtained from the appropriate regulatory agency or commission for disposal of filtered wastewater into the local sewer system. Contaminated water cannot be released to uncontaminated areas.

9.1.4 **Equipment Room:** This is a change and transit room for personnel who have had access to the contaminated work area. All work equipment, footwear and additional contaminated work clothing must be left in this room. The Equipment Room will have two (2) exits, one leading to the contaminated work area and the other to the overlapping poly barrier flaps leading into the Air Lock located between the Shower Room and the Equipment Room. If, for some reason, the airborne asbestos level in the work area is expected to be high, as in dry removal, an intermediate cleaning space will be added between the work area and the Equipment Room.

On those removal projects that have a high amount of debris, it may be helpful to place an additional sheet of poly on the floor in the Equipment Room at the beginning of each day and removed at the end of the work shift. This will help to prevent the path from the work area to the shower

from becoming overburdened with contaminated debris.

9.1.5 Negative Pressure in the DECON

In order to prevent the escape of asbestos fibers from the decon, it will be necessary to maintain a constant inward flow of air from the outside of the Clean Room through the Air Locks and Shower Room and into the Equipment Room. This sole source of airflow must originate from the uncontaminated area outside the asbestos removal, demolition or renovation enclosure. Since a negative pressure system normally exists inside the work area, this lower pressure may already create a sufficient inward flow of air to provide the degree of protection necessary to prevent the escape of fibers.

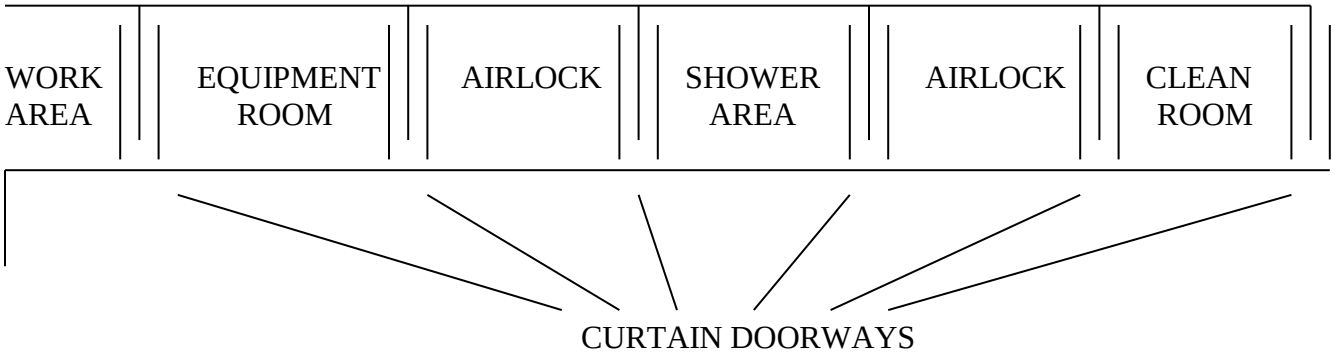
However, if a simple smoke test, performed at the entrance to each room in the decon, does not indicate a satisfactory inward air flow, it will be necessary to install a separate negative air handling unit in the Equipment Room, an adequately sized unit capable of creating a differential pressure which will develop the required inward air flow.

> **Note:** Before beginning work within the Decon, which is in its self a negative pressure enclosure, and at the beginning of each shift, the Decon will be inspected for breaches and smoke-tested for leaks, and any leaks sealed.

If a rigid door is used to control access to the Clean Room from the outside area, it maybe necessary to control the flow of inward air by installing a louvered opening in the rigid door. If the louvered door is used, in place of poly flaps, the opening must be protected with a High Efficiency Particulate Air (HEPA) filter that is certified to be at least 99.97 percent efficient for 0.3 micron particles, to prevent the escape of asbestos fibers in the event the negative pressure system should fail.

EXAMPLE OF A TYPICAL DECONTAMINATION UNIT

DECONTAMINATION AREA



9.2 Material Decontamination Unit

The Material Decontamination Unit, or Bag Out Area, as it is commonly referred to, is generally required only on large asbestos abatement projects or as an emergency exit. If required to do so as a part of the contract document, and where space permits, the material removal area will be constructed by AMPCO according to the following:

9.2.1 **Material Decontamination Area:** Space permitting, the Bag Out Area will be constructed at some location away from the personnel decontamination unit. Whenever possible, this will be located where there is direct access from the work area to the outside of the building. This consists of a clean area, which opens to the outside, a washroom, which opens to the contaminated work area, and an airlock which separates the clean area and the wash room. The openings to each of these areas are controlled by barrier flaps constructed of several sheets of overlapping 6-mil poly. Here again, as in the Personnel Decontamination Unit, an inward flow of air is required to prevent the escape of asbestos fibers to the outside air. However, due to the smaller size of the Bag Out Area, the negative pressure system in the Work Area is usually more than sufficient to produce this inward flow of air.

Some type of water spraying unit should be used in place of a shower head and controls in the wash room, and it should have a pan large enough to catch the amount of water required to wash off bags containing contaminated waste materials. This wastewater should be appropriately filtered and discharged or stored for use as amended water in the work area.

Personnel working in the material removal area will not use this as a means of egress from the work area except in the case of an emergency.

9.3 Material Decontamination Procedures

9.5.1 **Exiting the Work Area:** While still in the work area, the appropriately bagged asbestos-contaminated waste materials will be properly sealed with a "goose neck" seal and then a HEPA vacuum will be used to remove the gross contamination from the bags. The bags will then be moved into the washroom of the Bag Out Area.

There, the seals will be checked and all bags or waste packages will be thoroughly washed and decontaminated before being moved forward into the air lock area. The workers who have just completed washing the waste material will not proceed into the air lock or the clean area, but will return to the work area, leaving the decontaminated bags of waste stored in the air lock area.

9.5.2 **Entering the Clean Holding Area:** Workers, who are dressed in clean, uncontaminated protective clothing, and wearing an appropriate respiratory protection, will enter the clean area of the Bag Out Area from the outside and remove the bags of contaminated waste from the air lock by reaching into the air lock and pulling the bags through the barrier flaps into the clean room. These "clean" workers will not proceed any further inside the Bag Out Area then the clean area, and will not go through the air lock into the dirty area. Once the bags are inside the clean area, they will be placed into a second bag, the appropriate generator label will be placed between the two bags, and the second bag will be "goose neck" sealed. The completely decontaminated bag will then be removed from the clean area to the outside storage area.

9.4 Remote Decontamination Facilities

In unusual situations, alternate methods of providing decontamination facilities may be utilized in accordance with all applicable codes and regulations. Such a case in point may be the requirement to locate the decontamination facility a considerable distance away from the work area, even to the extent of locating it several floors above or below the floor housing the work area. In cases of this type, a small room would be constructed at one point in the work area that would open to the outside of the work area, with both the inner and outer openings controlled by overlapping 6-mil poly barrier flaps. The worker would enter this small room directly from the work area, a HEPA vacuum would be used to remove any gross contamination on the worker, the outside of the respirator would be washed off, and the worker would put on a clean set of protective coveralls over the dirty ones. The worker would then proceed by the shortest route directly to the decontamination facility, and once there, would follow the routine sequence for decontamination.

9.5 Cleaning the Decontamination Units

The debris and residue from inside the decontamination units will be cleaned on a daily basis or as otherwise indicated on the contract documents. The cleaning will consist of damp wiping or hosing down all surfaces after each shift change.

9.5.1 **Contaminated Clean Room:** In the unlikely event that the Clean Room of the personnel decontamination unit should become contaminated with asbestos-containing debris, it will be necessary to close down the entire decontamination unit and erect a temporary new one until such time as the dirty unit can be completely decontaminated. The reason for this being that if the Clean Room becomes contaminated, there is no place for the workers cleaning it to be decontaminated.

9.6 Discharge of Waste Water

Shower wastewater should be filtered through 5-micron wastewater filters and recycled for use as a wetting agent and/or added to the 6-mil bags of asbestos-contaminated waste before sealing the bags for disposal in an approved landfill. If at all possible, this filtered wastewater should be reused and not just disposed of in a sewer system.

However, if it is necessary to dispose of clean, filtered wastewater into city sewer systems, a special permit may be required before this can be done. In some areas, local restrictions will not allow the disposal of this wastewater into a sewer system even if filtered. A thorough effort must be made to determine what the requirements are for disposing of wastewater in each location prior to the start of the project.

SECTION 10 - ENCLOSURE SYSTEM

10.1 General

The work area is the location where the asbestos abatement work occurs. It may be a portion of a room, a single room, or several rooms, or it may, in some cases, be located outdoors, such as an outdoor boiler. The work area is considered contaminated during the abatement work and must be isolated from the balance of the building. The work area must then be decontaminated at the completion of the asbestos abatement work. The enclosure, by which this contaminated area is isolated, is known as the temporary enclosure or the critical barrier. On those abatement projects where the work area is outside of a building, it may not always be necessary to build an enclosure in order to isolate it.

The work area will be completely isolated from the other parts of the building so as to prevent asbestos-containing dust or debris from passing beyond the isolated area. Should the area beyond the work area become contaminated with asbestos-containing dust or

debris as a consequence of an accident or a spill, those areas must be cleaned in accordance with appropriate and approved procedures.

Unless otherwise specified by the contract document, all uncontaminated movable furniture, equipment, etc., will be cleaned with a HEPA filtered vacuum cleaner and removed from the work area before commencing the abatement work. Those items that can not be removed will be cleaned with a HEPA filtered vacuum cleaner or wet wiped and then covered with one or two layers of poly fire-retardant sheeting, properly taped. This covered furniture or equipment will then be considered as "outside" the work area unless the poly covering or seal is broached.

Unless otherwise specified in the contract document, all heating, air conditioning, ventilating or return air system openings within the work area must be completely shut down and sealed off with poly and tape. Caution must be taken to check with the Owner to ensure that this sealing off of the HVAC system will not cause any undue problems.

10.1.1 **Critical Barrier:** AMPCO will construct critical barriers, as necessary, which will ensure the work place is isolated and contained, by erecting impermeable barriers at all exits or openings, including doorways, duct chases, manholes, mechanical shafts, elevator shafts, floor openings, drains, and the like, so that all possible exit or entrance routes are effectively barricaded and sealed.

10.1.2 **Work Area Preparation:** All floor and wall surface will be completely covered with two (2) layers of 6-mil fire retardant polyethylene sheeting, taped in place.

All tools, scaffolding, vacuums, air filtering units, etc. which are necessary for the abatement work, should be placed into the work area before it is completely isolated.

10.2 Access Control

Access to the work area will be permitted only through the personnel decontamination unit. All other means of access will be closed off and sealed, and warning signs will be displayed on the clean side of the closed access. No one will be allowed to enter the work area that does not have a direct need to do so. Persons entering the work area must follow all entry procedures, including the signing in and out on the Project Log, the removal of street clothing, donning protective clothing, using the appropriate respiratory protective device, and complying with all of the requirements of AMPCO's Respiratory Protection Program and Medical Surveillance Program.

Depending on the nature of the abatement project, the respiratory protection being used, and the air monitoring results, persons desiring entry to the work area may be required to show verification of a physician's clearance allowing the individual to use a respirator and enter an asbestos-containing atmosphere.

10.3 Warning Signs

AMPCO will post a sufficient number of appropriately worded warning signs to adequately notify all persons in the vicinity of the work area of the dangers involved. The signs will normally be posted directly onto the clean side of the work area isolation barrier and at each entrance to the work area and the decontamination units. In some states, it may be necessary to post these warning signs at least three (3) days prior to beginning asbestos abatement and to keep them posted until final clean results are received.

The AMPCO warning signs, which are 20 inches high by 14 inches wide, comply with the requirements of the Occupational Safety and Health Administration's standard on warning signs, 29 CFR 1910.145. Each sign has the following legend and is red, white and black in color:



SECTION 11 - NEGATIVE PRESSURE SYSTEM

The Negative Pressure System is a fully operational engineering control system, which exhausts only the minimum amount of air from the work area necessary to create a minimum continuous negative pressure of -0.02 to -0.4 inches of water within the enclosure with respect to the area outside the enclosure.

This is achieved by using an Air Filtering Device (AFD), which is a self-contained filtering machine capable of producing airflow and using a HEPA filter to collect and retain the airborne asbestos fibers.

The methodology used in the Negative Pressure System is to seal all potential air paths into the work area as tightly as possible and provide a filtered exhaust system which removes only enough air from the sealed, isolated work area to establish a lower pressure to offset any air leakage which occurs, and to provide additional engineering controls within the work area to lower airborne asbestos fibers.

Note: Once the asbestos abatement operation has begun, and the negative pressure system has been activated, the negative pressure must be maintained continuously until the air monitoring reports indicate the area is no longer contaminated.

11.1 Establishing Negative Pressure

After construction of the enclosure is completed, a ventilation system(s) should be installed to create a negative pressure within the enclosure. Such ventilation systems must be equipped with HEPA filters to prevent the release of asbestos fibers to the environment outside the enclosure and should be operated 24 hours per day during the entire project until the final cleanup is completed and the results of final air samples are received from the laboratory. EPA requires that a sufficient amount of air be exhausted to create a minimum pressure of -0.02 inches of water within the enclosure with respect to the area outside the enclosure. This should commence at the beginning of any work that could possibly disturb ACM and continue until the passing of final clearance sampling and analysis.

However, that recommendation was offered at a time when most abatement was taking place in schools during summer recess. Removal of ACM in occupied high-rise office buildings, apartments, hotel and hospitals is a more complicated undertaking, requiring a firmer control over the airborne fibers. This additional control of the fibers via increased negative pressure in the workspace is necessary to overcome the existing resident air movement in the facility that could wrest the fibers from the abatement operations and into the occupied spaces. The exact pressure differential required will vary from project to project, depending upon how difficult it may be for the contractor to seal the area and how much existing air movement we may be competing with from other building sources. In other words, exactly how many air changes per hour should be specified for the project, depends on the overall project design.

From a practical standpoint, this pressure differential should not be above the -0.06 inches of water column range, since anything higher begins to "float" the plastic off of the walls and floor.

This ventilation system(s) should exhaust the HEPA-filtered clean air outside the building in which the asbestos removal, demolition or renovation is taking place. If access to the outside is not available, the ventilation system can exhaust the HEPA-filtered asbestos-free air to an area within the building that is as far away as possible from the enclosure. Care must be taken to ensure that the clean air is released either to an asbestos-free area or in such a way as not to disturb any asbestos-containing materials.

11.2 Estimating Number of Air Filtering Devices

A portable ventilation system, identified by AMPCO as an Air Filtering Device (AFD), is necessary to create a Negative Pressure System within the asbestos enclosure. The AFD's are designed to capture and clean the air inside the enclosure before exhausting it to the outside of the enclosure. The AFD's must be equipped with a series of filters which include: the first-stage or pre-filter, which is a low-efficiency type filter for particles 100 µm and larger; the second-stage or intermediate filter, which is a medium efficiency filter effective for particles down to 5 µm; and third-stage or final filter which is a High Efficiency Particulate Filter having an efficiency of not less then 99.97 percent. AFD's are available from several manufacturers and range from 600 CFM to over 2000 CFM and are capable of filtering particles of 0.3 micron in size with an efficiency of 99.99 percent. The number and capacity of AFD's required to ventilate an enclosure depends on the size of the area to be ventilated.

Lacking specific air monitoring data which would indicate the number of Air Filtering Devices (AFD) required in the work area to provide a fully operational Negative Pressure System, AMPCO will estimate the number of AFD's needed in the following manner:

To determine the number of AFD's required, AMPCO will ascertain the volume, in cubic feet, of the work area by multiplying the floor area by the ceiling height. The total air circulation requirement for the work area, in cubic feet per minute (CFM), will then be determined by dividing the above volume by the number fifteen (15), which is 4 changes per hour.

$$\frac{\text{Volume of work area (cu.ft.)}}{15} = \text{Air Circulation Requirement (CFM)}$$

The number of Air Filtering Devices needed to achieve this rate will then be determined by dividing the air circulation requirement (CFM) by the working capacity of the AFD(s) used.

$$\frac{\text{Air Circulation Requirement (CFM)}}{\text{Capacity of AFD with loaded filters (CFM)}} = \text{Number of AFD's needed}$$

Normally, one (1) additional AFD is added as a backup in case of equipment failure or if a machine needs to be shut down for filter changing.

The Negative Pressure System relies on monitoring results to dictate machine usage, and not on a passive, inactive system deployed on the basis of standard calculations, which do not anticipate the peculiarities of each work area. Further, the Negative Pressure System has an active, positive control over the airflow in the work area with an arrangement that can be freely changed to react to the air movement and fiber dynamics of each individual project. The monitoring results and patterns, therefore, can be used to maximize system

effectiveness.

11.3 Positioning the Air Filtering Devices

Locate the AFD's so that makeup air enters the work area primarily through the air entry routes of the decontamination facilities, both personnel and material, and traverses the work area as much as possible. This may be accomplished by positioning the HEPA filtered AFD's at a maximum distance from the worker access opening or other makeup air sources.

Additional AFD machines could be located free standing inside the work area to circulate air within the area in order to filter and trap contamination out of the air. Depending on work methods, other engineering controls, the form or type of asbestos and its material characteristics, and previous treatments, the number of machines may be varied as little or as much as needed to lower the airborne fiber levels in the work area.

> **Note:** Care should be taken to avoid having the exhaust opening of the AFD directed at the plastic walls of the containment area or at any of the sealed openings. Air movement from the AFD's should be directed away from employees performing asbestos work within the enclosure, and toward a HEPA filtration or a collection device.

11.3.1 Exhausting the AFD: AFD's should, whenever possible, be exhausted outside of the building. However, in some areas, a special permit may be required before you are allowed to exhaust an AFD directly into the atmosphere outside of a building or containment. Every effort must be made to determine the local requirements for exhausting AFD air before beginning the project and then complying with these requirements during the completion of the project.

In order to insure protection of the environment, AFD's should have either an electrical or mechanical lockout to prevent the fan from operating without the HEPA filter in place. In addition, periodic air sampling of the AFD exhaust should be obtained to insure the integrity of the HEPA filtering system.

11.4 Other Considerations

Under certain conditions, other hazards must be given consideration. For example, high work area temperatures, gaseous or organic contaminants may dictate a need to increase exhaust air. These hazards must be considered and balanced one against the other. If the other contaminants can not be eliminated or filtered, or if cooling devices are not available to reduce temperatures, then additional air exhausting may be necessary. In these cases, exhaust may be increased or machine positioning may be changed until the other contamination levels, temperature, etc., are reduced to acceptable levels. This must be done with extreme care, however, since each unit of additional exhaust to the outside

increases the risk of contamination release in the event of an accident or component failure. If air inlets are provided to introduce make-up air, they must be monitored, provided with fixed doors, which are closed when not in use, or equipped with HEPA filters to prevent contamination escape.

11.5 Dismantling the System

When the final inspection and results of the final air tests have indicated the work area has been completely decontaminated, the Air Filtering Devices may be turned off and removed from the work area.

Before removal from the work area, the pre-filter of the AFD(s) should be removed and properly disposed of as contaminated waste, and the intake opening of the machine should be sealed with 6 mil poly to prevent environmental contamination from the balance of the machine's filters. Refer to the decontamination requirements, as outlined in Paragraph 7.0 of this Section.

11.6 Pressure Differential Monitoring

11.6.1 Manometer/Pressure Instruments: An inclined manometer or differential pressure gauge, capable of 0-3" for measuring the negative pressure within the enclosure, must be installed at a representative location on the negative pressure enclosure on each AMPCO project and must be monitored frequently throughout all work shifts during which asbestos removal, demolition or renovation takes place.

Although there are several types of manometers and differential pressure gauges available for this purpose, for our type of operation it is recommended that we use a Dwyer Mark II, model 25 molded plastic manometer from Dwyer Instruments, Inc., Michigan City, Indiana.

When required to do so, by either contract specifications or by local regulations, the Dwyer Mark II, model 25 molded plastic manometer may have to be supplemented by either a CRSI Neg-a-Master strip-tape or a wheel chart recording Manometer. Recording type instruments are very delicate require care in calibration, installation, and maintenance.

11.6.2 Documenting Manometer Readings: The OSHA Asbestos Standard requires that continuous documentation be available to insure there is always a minimum of -0.02 column inches of water pressure differential between the inside and outside pressure of the enclosure. It will be the responsibility of the project superintendent to insure that air monitoring personnel take manometer readings at the beginning of, and at least twice during, each shift and that these readings are accurately documented in an appropriate log or the supervisor's daily journal.

If a strip-tape or wheel chart recording manometer is being utilized, a jobsite supervisor will be required to monitor and sign the strip-tape or wheel chart daily, and to notify the project superintendent of any potential problems.

SECTION 12 - WORK AREA ENTRY/EXIT PROCEDURES

12.1 Entry Procedures

All personnel entering the work area, in which there is a potential to exposure to airborne asbestos fibers, or respiratory protection is required, must first meet the following criteria:

They must have received a medical examination in compliance with the medical examination requirements of OSHA Standard 29 CFR 1926.1101 within the past twelve (12) months and have a written certificate, or facsimile, from the physician attesting to his opinion that the individual may enter an atmosphere in which asbestos fibers are present and use a respiratory device; they must be trained in the use of the respiratory device, and when applicable, they must be fit-tested for the respiratory device; and they must receive adequate training for entry to an asbestos containment area.

After they have met the above criteria, all personnel must enter the Clean Room and remove all street clothing, including underwear and socks. The employee will be furnished with and required to use either disposable underwear or furnished with two disposable suits to be worn at the same time. Being nude under a single layer of protective clothing is not acceptable. Wearing a nylon bathing suit under a single layer of disposable clothing is acceptable but acquiring a nylon bathing suit and its associated costs are solely the responsibility of the employee.

With the protective clothing on but the head covering off the individual must then don a respirator approved for the project. A field checks to determine the face piece-to-face seal. The head covering is then secured over the top of the respirator straps. The individual should then leave the Clean Room and proceed through the Shower Area and enter the Equipment Room.

In those cases where the worker has been using any additional clothing or work tools which have been left in the contaminated end of the Equipment Room, these should be put on at this time before leaving the Equipment Room and entering the work area.

All donning of respiratory protective equipment and protective work clothing should be accomplished using the "buddy" system, involving two employees assisting each other. Prior to entering a work area, each worker should be examined by his "buddy" to ensure that all connections in the respirator system are properly made and that the protective clothing, booties, head covers, etc. are properly donned.

12.2 Exit Procedures

Before leaving the work area, all personnel are required to remove gross contamination and debris from their protective clothing and feet by either HEPA vacuum or wet wiping. The worker then proceeds to the Equipment Room and removes all clothing and equipment with the exception of respiratory protection equipment. All tools and extra work clothing, such as cold weather coats and pants, work boots or shoes, etc. which are contaminated, must remain in the containment area and should be stored in the dirty Equipment Room. All disposable protective clothing must be placed in an appropriately marked bag for disposal with other contaminated waste materials. All personnel are then required to use the following decontamination procedures when leaving the work area:

Still wearing the respirator, proceed to the showers. Showering is not only essential for decontamination, but is mandatory under AMPCO Corporate policy. Care must be taken to follow reasonable procedures in removing the respirator to avoid asbestos fibers while showering. The following procedures are required at a minimum:

12.2.1 Supplied-air and PAPR Respirators: If using supplied-air or PAPR respirators, thoroughly wet the body, including the face and hair. If using a PAPR, turn the blower unit down so that the filter opening is towards the chest.

With the respirator still in place, thoroughly wash the body, the hair, the respirator face piece, and all outside parts of the respirator except the blower unit and the battery pack on a PAPR. Pay particular attention to the area around the seal of the face piece and under the straps.

Completely wet the hair, face and respirator. Take a deep breath, and while holding it or exhaling it slowly, stand so that the water is directed at the face and remove the respirator and hold it away from the face before starting to breath normally.

Carefully wash the face piece of the respirator inside and out. If supplied-air, disconnect the airline. If PAPR, shut it down in the following sequence. First cap the inlet opening to the filter cartridge and then turn off the blower unit. (This sequence will help keep debris, which has collected, on the inlet side of the filter from dislodging and contaminating the outside of the unit). Thoroughly wash the blower unit and hoses, and carefully wash the battery pack with a damp rag to avoid getting water into the battery pack.

Shower completely with soap and water, paying special attention to areas containing body hair. Rinse thoroughly, then rinse the walls and floor of the shower stall prior to exiting. Proceed to the Clean Room to dry off and put on street clothing or a new set of protective clothing.

12.2.2 Air Purifying Respirators: For air purifying-negative pressure respirators, thoroughly wet the head, neck and body as much as possible without wetting the respirator filter.

Take a deep breath, and while holding it or exhaling it slowly, seal the filter cartridge inlet opening with either a piece of tape or a cap made for this purpose. Immediately wet the respirator and filter, and while standing with the face directed at the water, remove the respirator from the face and begin breathing normally.

When disposing of the used filter cartridges, thoroughly wet the cartridge and dispose of it as contaminated waste. Then wash the face piece of the respirator, both inside and out.

Shower completely with soap and water, paying special attention to all areas of body hair. Rinse thoroughly and then rinse the walls and floor of the shower stall prior to exiting. Proceed to the Clean Room to dry off and put on street clothing or a new set of protective clothing.

Note: All used filter cartridges which are to be replaced, must be put into an appropriate waste disposal bag which should be located in the air lock between the shower and the clean room. Under no circumstances should the ACM waste disposal bag be located inside the clean room.

12.2.3 Towels and Bath Mats: All disposable towels, bath mats and shower cloths that are contaminated, must be treated as contaminated waste and properly disposed of.

SECTION 13 - NESHAPS ASBESTOS CATEGORIES

13.1 Friable Asbestos-Containing Material (ACM)

Friable asbestos-containing material (ACM) is defined by NESHAPS as any material containing more than 1 percent asbestos as determined using the Polarized Light Microscopy (PLM) method, that, when dry, can be crumbled, pulverized or reduced to powder by hand pressure, fireproofing and thermal system insulation, for example. Local or state regulations may be more stringent.

13.2 Nonfriable Asbestos-Containing Material

Nonfriable ACM is any material containing more than 1 percent asbestos, as determined using the Polarized Light Microscopy (PLM) method that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure. EPA also defines two categories of nonfriable ACM.

13.3 Category I Nonfriable ACM

Category I nonfriable ACM is any asbestos-containing packing, gasket, resilient floor covering or asphalt roofing product which contains more than 1 percent asbestos as determined using the Polarized Light Microscopy (PLM) method, and which is in good condition and not considered to be friable.

13.4 Category II Nonfriable ACM

Category II nonfriable ACM is any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos as determined using the Polarized Light Microscopy (PLM) method, that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure. Category II ACM (cement siding, transite board shingles, mastic, etc.) subjected to intense weather conditions such as thunderstorms, high winds or prolonged exposure to high heat and humidity may become "weathered" to a point where they become friable.

13.5 Regulated Asbestos-Containing Material (RACM)

Regulated asbestos-containing material (RACM) is friable asbestos material, Category I nonfriable ACM that has become friable, Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting or abrading, or Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

SECTION 14 - REMOVAL OF ASBESTOS-CONTAINING MATERIAL (ACM)

After preparation of the decontamination units, enclosure of the work area, and start up of the negative pressure system, the gross removal of asbestos containing materials may begin.

14.1 Access to Asbestos-Containing Materials

Prior to actual removal of asbestos-containing material, it may be necessary to dismantle ceilings, electrical, or mechanical systems in order to gain access to the asbestos-containing material. The dismantled components will either be cleaned, protectively wrapped, and stored for re-use, preferably outside the work area, or the components will be properly decontaminated and disposed of as general construction trash. However, if the decision is made not to decontaminate the components, they must be properly packaged, labeled, and disposed of as asbestos-containing waste.

14.2 Amended Water

Prior to beginning any part of the actual ACM removal, AMPCO must use amended

water to thoroughly soak or wet down the asbestos-containing material sufficiently to retard the release of asbestos fibers during disturbance of the material. The amended water penetrates more effectively than plain water and permits more thorough soaking of the ACM. The amended water is generally prepared by mixing at least one ounce of surfactant (wetting agent) to 5 gallons of water. A coloring agent added to the surfactant will allow the worker to know at a glance, which is the wetted area.

The amended water is applied to the ACM with an airless sprayer, which will allow the amended water to be applied in a fine spray that minimizes the release of asbestos fibers by reducing the impact of the spray on the material to be removed.

14.3 Other Removal Agents

In some cases, AMPCO will find it necessary to use other removal agents. For example, a penetrating type encapsulant designed specifically for removal of asbestos-containing materials. When using such a "removal encapsulant," it may be necessary to remove the ACM from the substrate before the encapsulant hardens or becomes dry.

14.4 Wet Removal Procedures

In order to thoroughly soak or wet down the asbestos-containing material, AMPCO will spray the material with amended water or other removal agents, using spray equipment capable of providing low-pressure application to reduce the release of fibers. The material must be saturated sufficiently to wet it to the substrate without causing excessive dripping. The asbestos-containing material must be sprayed repeatedly before, during, and after the removal process to maintain an adequately wet condition to minimize asbestos fiber release. The saturated asbestos-containing material should be removed in small sections, and if possible, placed directly into the disposal bags as it is removed. The ACM cannot be allowed to fall or be dropped to the floor during the removal process, nor can the asbestos-containing material be allowed to dry out during this procedure. The asbestos-containing debris must not be allowed to accumulate on the floor of the work area and must be bagged at least several times during the work shift and always at the end of the work shift.

Appropriately bagged and adequately wet waste material will be held in the staging area until such time as it is forwarded to the disposal site. Where the asbestos-containing material consists of materials that do not readily absorb water, such as pre-molded or thermal block insulation, total penetration or saturation may not occur, thus resulting in partially wet removal. When working with these types of materials, care must be taken to insure that all exposed surfaces of these materials have been adequately wetted.

14.4.1 **Freezing Temperature:** When the temperature at the point of wetting is below 32° Fahrenheit, the requirements for adequately wetting the ACM can be discontinued. During periods when wetting operations are suspended due to freezing temperatures, AMPCO must record the temperature in the area containing the ACM at the beginning, middle, and

end of each workday and maintain these daily temperature records for a period of two years, making them available to the EPA when requested.

SECTION 15 - METHODS OF COMPLIANCE

AMPCO will use the following engineering controls and work practices in all operations covered by this section, regardless of the levels of exposure. Where the TWA and/or excursion limit is exceeded, the employer shall establish and implement a written program to reduce employee exposure to or below the TWA and to or below the excursion limit.

15.1 Wet Methods

Wet methods to adequately wet the ACM, controlling employee exposures during asbestos handling, mixing, removal, cutting, application, and cleanup, including the use of a misting unit to create a high level of humidity. Some exemptions to wetting include those times when it can be demonstrated that the use of wet methods are not feasible, such as in freezing temperature, when water would create an electrical hazard or equipment malfunction, or when it would create a slipping hazard, such as on roof surfaces.

15.2 HEPA Equipped Vacuums

HEPA filter equipped vacuum cleaners should be used to collect both ACM or PACM dust and small particles of material.

15.3 Prompt Clean Up

Prompt clean up (not allowing accumulation) and disposal of wastes and debris contaminated with asbestos in to leak-tight containers.

15.4 Additional Control Methods

In addition to the above, AMPCO will use the following control methods to achieve compliance with the TWA permissible exposure limit and excursion limit prescribed by Paragraph (c) of this section:

- Local exhaust ventilation equipped with HEPA filter dust collection systems;
- Enclosure or isolation of processes producing asbestos dust;
- Ventilation of the regulated area to move contaminated air away from the breathing zone of employees and toward a filtration or collection device equipped with a HEPA filter;
- Use of other work practices and engineering controls that the Assistant Secretary can show to be feasible;

- Wherever the feasible engineering and work practice controls described above are not sufficient to reduce employee exposure to or below the permissible exposure limit and/or excursion limit AMPCO will use them to reduce employee exposure to the lowest levels attainable by these controls and will supplement them by the use of respiratory protection that complies with the requirements of the Asbestos Standard.

15.5 Prohibitions

The following work practices and engineering controls will not be used for work related to asbestos or for work, which disturbs ACM or PACM, regardless of measured levels of asbestos exposure or the results of initial exposure assessments:

- High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air;
- Compressed air used to remove asbestos, or materials containing asbestos, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air;
- Dry sweeping, shoveling or other dry clean-up of dust and debris containing ACM and PACM; and
- Employee rotation as a means of reducing employee exposure to asbestos.

15.6 Class I Requirements

In addition to the provisions listed above, the following engineering controls and work practices and procedures will be used:

- All Class I work, including the installation and operation of the control system will be supervised by a competent person as defined in Paragraph 5.3 of this section;
- For all Class I jobs involving the removal of more than 25 linear or 10 square feet of thermal system insulation or surfacing material; for all other Class I jobs, where AMPCO cannot produce a Negative Exposure Assessment, or where employees are working in areas adjacent to the regulated area, while the Class I work is being performed, AMPCO will use one of the following methods to ensure that airborne asbestos does not migrate from the regulated area:

    a. Critical barriers will be placed over all openings to the regulated area; or

    b. AMPCO will use another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area, as verified by perimeter area surveillance during each work shift at each boundary of the regulated area, showing no visible asbestos dust; and perimeter

area monitoring showing that clearance levels contained in 40 CFR Part 763, Subpart E, of the EPA Asbestos in Schools Rule are met, or that perimeter area levels, measured by (PCM) are no more than background levels representing the same area before the asbestos work began. The results of such monitoring will be made known to AMPCO no later than 24 hours from the end of the work shift represented by such monitoring.

- For all Class I jobs, HVAC systems will be isolated in the regulated area by sealing with a double layer of 6 mil plastic or the equivalent;
- For all Class I jobs, impermeable drop cloths will be placed on surfaces beneath all removal activity;
- For all Class I jobs, all objects within the regulated area will be covered with impermeable drop-cloths or plastic sheeting which is secured by duct tape or an equivalent; and
- For all Class I jobs where AMPCO cannot produce a Negative Exposure Assessment, or where exposure monitoring shows that a PEL is exceeded, the employer will ventilate the regulated area to move contaminated air away from the breathing zone of employees toward a HEPA, filtration or collection device.

SECTION 16 - SPECIFIC CONTROL METHODS FOR CLASS I WORK

In addition, Class I asbestos work will be performed using one or more of the following control methods pursuant to the limitations stated below:

16.1 Negative Pressure Enclosure (NPE) Systems

NPE systems will be used where the configuration of the work area does not make the erection of the enclosure infeasible, with the following specifications and work practices.

a. Specifications:

- The negative pressure enclosure (NPE) may be of any configuration;
- At least 4 air changes per hour will be maintained in the NPE;
- A minimum of -0.02 column inches of water pressure differential, relative to outside pressure, will be maintained within the NPE as evidenced by manometer measurements;
- The NPE will be kept under negative pressure throughout the period of its use; and
- Air movement will be directed away from employees performing asbestos work within the enclosure, and toward a HEPA filtration or a collection device.

b. Work Practices:

- Before beginning work within the enclosure and at the beginning of each shift, the NPE will be inspected for breaches and smoke-tested for leaks, and any leaks sealed;
- Electrical circuits in the enclosure will be deactivated, unless equipped with ground-fault circuit interrupters;

16.2 Glove Bag Systems

Glove bag systems will be used to remove PACM and/or ACM from straight runs of piping with the following specifications and work practices.

16.1 Specifications:

- Glovebags will be made of 6 mil thick plastic and will be seamless at the bottom;

16.2 Work Practices:

- Each glovebag will be installed so that it completely covers the circumference of pipe or other structure where the work is to be done;
- Glovebags will be smoke-tested for leaks and any leaks sealed prior to use;
- Glovebags may be used only once and may not be moved;
- Glovebags will not be used on surfaces whose temperature exceeds 150 degrees0, unless the glovebags have been specifically designed for "hot work" and the manufacturer's information is included in your letter to OSHA requesting Alternative Control Methods;
- Prior to disposal, glovebags will be collapsed by removing air within them

using a HEPA vacuum;

- Before beginning the operation, loose and friable material adjacent to the glovebag/box operation will be wrapped and sealed in two layers of six mil plastic or otherwise rendered intact;
- Where system uses attached waste bag, such bag will be connected to collection bag using hose or other material, which will withstand pressure of ACM waste and water without losing its integrity;
- Sliding valve or other device will separate waste bag from hose to ensure no exposure when waste bag is disconnected; and
- At least two persons will perform Class I glovebag removals.

16.3 Negative Pressure Glove Bag Systems

Negative pressure glove bag systems will be used to remove ACM or PACM from piping.

a. Specifications:

- In addition to specifications for glove bag systems above, negative pressure glove bag systems will attach a HEPA vacuum systems or other devices to bag to prevent collapse during removal;

b. Work Practices:

- AMPCO will comply with all of the work practices for glove bag systems as noted in Paragraph 16.2 of this section.
- The HEPA vacuum cleaner or other device used to prevent collapse of bag during removal will run continually during the operation; and
- Where a separate waste bag is used along with a collection bag and discarded after one use, the collection bag may be reused if rinsed clean with amended water before reuse.

16.4 Negative Pressure Glove Box Systems

Negative pressure glove boxes will be used to remove ACM or PACM from pipe runs with the following specifications and work practices.

a. Specifications:

- Glove boxes will be constructed with rigid sides and made from metal or other material, which can withstand the weight of the ACM and PACM and water used during removal;

- A negative pressure generator will be used to create negative pressure in system;
- An air filtration unit will be attached to the box;
- The box will be fitted with gloved apertures;
- An aperture at the base of the box will serve as a bagging outlet for waste ACM and water;
- A back-up generator will be present on site; and
- Waste bags will consist of 6-mil thick plastic double-bagged before they are filled or plastic thicker than 6 mil.

b. Work Practices:

- At least two persons will perform the removal;
- The box will be smoke tested prior to each use;
- Loose or damaged ACM adjacent to the box will be wrapped and sealed in two layers of 6 mil plastic prior to the job, or otherwise made intact prior to the job; and
- A HEPA filtration system will be used to maintain pressure barrier in box.

16.5 Small Walk-In Enclosures

A small walk-in enclosure which accommodates no more than two persons (mini-enclosure) may be used if the disturbance or removal can be completely contained by the enclosure with the following specifications and work practices.

a. Specifications:

- The fabricated or job-made enclosure will be constructed of 6 mil plastic or equivalent; and
- The enclosure will be placed under negative pressure by means of a HEPA filtered vacuum or similar ventilation unit.

b. Work practices:

- Before use, the mini-enclosure will be inspected for leaks and smoke tested to detect breaches, and breaches sealed;
- Before reuse, the interior will be completely washed with amended water and HEPA vacuumed; and
- During use air movement will be directed away from the employee's breathing zone within the mini-enclosure.

16.6 Alternative Control Methods For Class I Work

Class I work may be performed using a control method which is not referenced in Paragraph 15.1 of this section, or which modifies a control method referenced in Paragraph 15.1 of this section, if the following provisions are complied with:

- The control method will enclose, contain or isolate the processes or source of airborne asbestos dust, or otherwise capture or redirect such dust before it enters the breathing zone of employees;

- A certified industrial hygienist or licensed professional engineer who is also qualified as a project designer will evaluate the work area, the projected work practices and the engineering controls and will certify in writing that the planned control method is adequate to reduce direct and indirect employee exposure to below the PELs under worst-case conditions of use, and that the planned control method will prevent asbestos contamination outside the regulated area, as measured by clearance sampling which meets the requirements of EPA's Asbestos in Schools rule issued under AHERA, or perimeter monitoring which meets the criteria of the Standard.

  a. Where the TSI or surfacing material to be removed is 25 linear or 10 square feet or less , the evaluation may be performed by a "competent person", and may omit consideration of perimeter or clearance monitoring otherwise required.

  b. The evaluation of employee exposure will include and be based on sampling and analytical data representing employee exposure during the use of such method under worst-case conditions and by employees whose training and experience are equivalent to employees who are to perform the current job.

- Before work which involves the removal of more than 25 linear or 10 square feet of thermal system insulation or surfacing material is begun using an alternative method which has been the subject of a required evaluation and certification, AMPCO will send a copy of such evaluation and certification to the national office of OSHA, Office of Technical Support, Room N3653, 200 Constitution Avenue, NW, Washington, DC 20210.

SECTION 17 - SPECIFIC CONTROL METHODS FOR CLASS II WORK

17.1 Control Methods for Class II Work

All Class II work will be supervised by a competent person as defined in paragraph (b) of this section. For all indoor Class II jobs, where AMPCO has not produced a Negative Exposure Assessment, or where during the job changed conditions indicate there may be exposure above the PEL or where AMPCO does not remove the ACM in a substantially intact state, AMPCO will use one of the following methods to ensure that airborne asbestos does not migrate from the regulated are:

- Critical barriers will be placed over all openings to the regulated area; or
- AMPCO will use another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area, as verified by perimeter area monitoring or clearance monitoring which meets the criteria set out in the Asbestos Standard; and
- Impermeable drop cloths will be placed on surfaces beneath all removal activity.

All Class II asbestos work will be performed using the work practices and requirements set out above in Paragraph (g)(3)(i) through (v) of this section.

17.2 Additional Controls for Class II Work

Additional Controls for Class II work. Class II asbestos work will also be performed by complying with the work practices and controls designated for each type of asbestos work to be performed set out in this paragraph. Where more than one control method may be used for a type of asbestos work, AMPCO may choose one or a combination of designated control methods. Class II work also may be performed using a method allowed for Class I work, except that glove bags and glove boxes are allowed, if they fully enclose the Class II material to be removed.

17.3 Vinyl and Asphalt Flooring Materials

For removing vinyl and asphalt flooring materials, which contain ACM, or for which in buildings constructed no later than 1980, AMPCO has not verified the absence of ACM. AMPCO will ensure that employees comply with the following work practices and that employees are trained in these practices:

- Flooring or its backing will not be sanded;
- Vacuums equipped with HEPA filter, disposable dust bag, and metal floor tool (no brush) will be used to clean floors;

- Resilient sheeting will be removed by cutting with wetting of the snip point and wetting during delammination. Rip-up of resilient sheet floor material is prohibited;
- All scraping of residual adhesive and/or backing will be performed using wet methods;
- Dry sweeping is prohibited;
- Mechanical chipping is prohibited unless performed in a negative pressure enclosure, which meets the requirements of Paragraph 10.0 of this section;
- Tiles will be removed intact, unless the employer demonstrates that intact removal is not possible;
- When tiles are heated and can be removed intact, wetting may be omitted; and
- Resilient flooring material including associated mastic and backing will be assumed to be asbestos containing unless an industrial hygienist determines that it is asbestos-free using recognized analytical techniques.

17.4 Roofing Materials

For removing roofing material, which contains ACM, AMPCO will ensure that the following work practices are followed:

- Roofing material will be removed in an intact state to the extent feasible;
- Wet methods will be used where feasible;
- Cutting machines will be continuously misted during use, unless a competent person determines that misting substantially decreases worker safety;
- All loose dust left by the sawing operation must be HEPA vacuumed immediately;
- Unwrapped or unbagged roofing material will be immediately lowered to the ground via covered, dust-tight chute, crane or hoist, or placed in an impermeable waste bag or wrapped in plastic sheeting and lowered to ground no later than the end of the work shift;
- Upon being lowered, unwrapped material will be transferred to a closed receptacle in such manner so as to preclude the dispersion of dust; and
- Roof level heating and ventilation air intake sources will be isolated or the ventilation system will be shut down.

17.4.1 Exempt From The Standard

The OSHA Asbestos Standard does not apply to asbestos-containing asphalt roof cements, coatings and mastics. This exemption followed a ruling by the court that there was a lack of substantial evidence that asphalt roof coatings and sealants containing asbestos posed a risk of asbestos exposure. While this ruling by the court affects OSHA, it does not necessarily affect any local or state agency, which may continue to regulate this activity.

17.5 Cementitious Asbestos-Containing Siding

When removing cementitious asbestos-containing siding and shingles or transite panels containing ACM, AMPCO will ensure that the following work practices are followed:

- Cutting, abrading or breaking siding, shingles, or transite panels, will be prohibited unless AMPCO can demonstrate that methods less likely to result in asbestos fiber release cannot be used;
- Each panel or shingle will be sprayed with amended water prior to removal;
- Unwrapped or unbagged panels or shingles will be immediately lowered to the ground via covered dust-tight chute, crane or hoist, or placed in an impervious waste bag or wrapped in plastic sheeting and lowered to the ground no later than the end of the work shift; and
- Nails will be cut with flat, sharp instruments.

17.6 Gaskets Containing Asbestos

When removing gaskets containing ACM, AMPCO will ensure that the following work practices are followed:

- If a gasket is visibly deteriorated and unlikely to be removed intact, removal will be undertaken within a glovebag as described in Paragraph 16.2 of this section;
- The gasket will be thoroughly wetted with amended water prior to its removal;
- The wet gasket will be immediately placed in a disposal container; and
- Any scraping to remove residue must be performed wet.

17.7 All Other Class II Asbestos-Containing Materials

When performing any other Class II removal of asbestos containing material for which specific controls have not been listed in Paragraph 15.6 of this section, AMPCO will ensure that the following work practices are complied with:

- The material will be thoroughly wetted with amended water prior and during its removal;
- The material will be removed in an intact state unless AMPCO demonstrates that intact removal is not possible;
- Cutting, abrading or breaking the material will be prohibited AMPCO can demonstrate that methods less likely to result in asbestos fiber release are not feasible; and
- Asbestos-containing material removed, will be immediately bagged or wrapped, or kept wetted until transferred to a closed receptacle, no later than the end of the work shift.

17.8 Alternative Control Methods for Class II Work

Instead of the work practices and controls listed in Paragraph 17.1 through 17.7 of this section, AMPCO may use different or modified engineering and work practice controls if the following provisions are complied with:

- AMPCO will demonstrate by data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used, that employee exposure will not exceed the PELs under any anticipated circumstances; and
- A competent person will evaluate the work area, the projected work practices and the engineering controls, and will certify in writing, that the different or modified controls are adequate to reduce direct and indirect employee exposure to below the PELs under all expected conditions of use and that the method meets the requirements of this standard. The evaluation will include and be based on data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used for the current job, and by employees whose training and experience are equivalent to employees who are to perform the current job.

SECTION 18 - SPECIFIC CONTROL METHODS FOR CLASS III WORK

The following work practices and engineering controls will be used for Class III asbestos work.

18.1 Class III Work Control Methods

Class III asbestos work will be conducted using engineering and work practice controls which minimize the exposure to employees performing the asbestos work and to bystander employees.

- The work will be performed using wet methods;
- To the extent feasible, the work will be performed using local exhaust ventilation;
- Where the disturbance involves drilling, cutting, abrading, sanding, chipping, breaking, or sawing of thermal system insulation or surfacing material, AMPCO will use impermeable drop cloths, and will isolate the operation using mini-enclosures or glove bag systems pursuant to Paragraph 16.2 of this section;
- Where AMPCO does not produce a "Negative Exposure Assessment" for a job, or where monitoring results show the PEL has been exceeded, AMPCO will contain the area using impermeable drop-cloths and plastic barriers or their equivalent, or will isolate the operation using a control system listed in and in compliance with paragraph 13.1 of this section; and
- Employees performing Class III jobs, which involve the disturbance of thermal system insulation or surfacing material, or where AMPCO has not produced a "Negative Exposure Assessment" or where monitoring results show a PEL has been exceeded, will wear respirators which are selected, used and fitted pursuant to all of the provisions of Section 7-1 of the Corporate Safety Manual.

SECTION 19 - SPECIFIC CONTROL METHODS FOR CLASS IV WORK

19.1 Class IV Asbestos Work

Class IV asbestos jobs will be conducted by employees trained pursuant to the asbestos awareness-training program. In addition, all Class IV jobs will be conducted in conformity with the requirements set out in paragraph 13.1 of this section, mandating wet methods, HEPA vacuums, and prompt clean up of debris containing ACM or PACM.

Employees cleaning up debris and waste in a regulated area where respirators are required will wear respirators which are selected, used and fitted pursuant to provisions of Section 7-1 of the Corporate Safety Program.
Employers of employees who clean up waste and debris in, and employers in control of, areas where friable thermal system insulation or surfacing material is accessible, will

assume that such waste and debris contain asbestos.

SECTION 20 - HEPA VACUUM TRUCKS

When utilizing a HEPA Vacuum Truck for moving material to facilitate disposal of friable asbestos-containing material being stripped and removed from a facility, AMPCO will determine if prior approval, or notification, is required by any local or state regulating agency.

Regardless of the removal method, wet, dry, or a combination of wet and dry, to be used in conjunction with the use of the HEPA Vacuum Truck, the following safety measures must be followed:

- All local exhaust ventilation and collection systems must not exhibit visible emissions of asbestos particles or fibers to and/or into the ambient outside air during the operation and use of such systems at the asbestos abatement site;
- An automatic system must have been installed to shut down each bag house at any time pressure drop reaches 25 percent of a pre-determined safe, adequate, and operational value for each bag house;
- There must be no visible emissions of asbestos particles or fibers to the outside air during the collection, processing, packaging, transporting or deposition of any asbestos-containing waste material generated through the use of a HEPA Vacuum Truck;
- The asbestos removal and collection vacuum system in each HEPA Vacuum Truck must perform at a minimum collection efficiency of 99.99 percent;
- No visible emissions of asbestos particulate matter can occur during the servicing of the vacuum system or during disassembly operations, and there can be no asbestos-contaminated water leaking from the door or other areas of the collection reservoir after vacuum shut-off;
- No part of the HEPA Vacuum Truck exterior body and frame can be contaminated with asbestos during disposal operations; however, if this should occur, then have a plan developed to take adequate precautionary measures while cleaning and decontaminating such surfaces;
- Any asbestos-contaminated water must be adequately filtered prior to disposal in an appropriate manner, and any exhaust which could contain asbestos particles must be monitored and tested during operation of the HEPA Vacuum Truck; and
- All personnel working directly with or on a HEPA Vacuum Truck must be equipped with protective coveralls and respiratory protection and a personnel decontamination unit must be available nearby.

SECTION 21 - PACKAGING ASBESTOS WASTE FOR DISPOSAL

Unless otherwise required by the contract document, AMPCO will place the asbestos waste into appropriately labeled 6-mil thick impermeable polyethylene plastic disposal bags. The bags should not be filled more than 40 percent by volume to avoid tearing. The ACM waste must be wetted with sufficient water to insure that it is adequately wet. Prior to gooseneck sealing, the bag should be collapsed to remove any trapped air that may later contribute to bursting. After the exterior of the sealed bag is wet cleaned to remove any gross material, it is then double bagged and sealed by goose necking and taping. The bagged and labeled ACM waste will then be stored in a secured container to await transport to the disposal site. Asbestos waste cannot be mixed with any other type of construction waste from the site. Personnel handling ACM waste outside of the containment must wear, as a minimum, protective clothing and a HEPA equipped half-mask, air-purifying respirator.

21.1 OSHA Warning Labels

In compliance with the OSHA Asbestos Standard, 29 CFR 1926.1101, the OSHA Hazard Communication Standard, 29 CFR 1926.59, and the EPA NESHAP Standard, all of which require each employer to ensure that all containers of hazardous chemicals in the workplace are labeled, tagged, or marked with the identity of the hazardous chemical contained therein, and an appropriate warning of the hazards of the chemical, all asbestos-containing waste disposal bags utilized by AMPCO will be appropriately marked as follows:



These labels must be three (3) inches high by five (5) inches wide and conform to the requirements specified in 29 CFR 1910.145 for danger labels or signs.

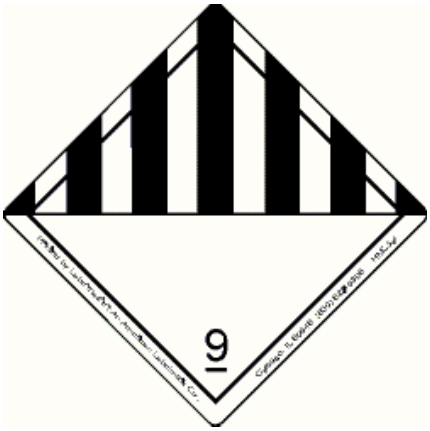
21.2 Generator Labels

NESHAPS requires that each bag of asbestos-containing material that is to be transported off of the facility site, contain a visible label identifying the name of the waste generator (owner) and the location at which the waste was generated. This generator label must either be printed on the outside of the bag or it must be a separate label attached to the

bag, or it can be a separate label that is inserted between the two poly bags if the outside bag is a clear bag that would allow the label to be read without opening the bag.

21.3 DOT Transportation Labels

In addition to the warning labels required by both OSHA and the EPA, the United States Department of Transportation (DOT) requires a “CLASS 9” warning label on each bag of asbestos-containing materials that is transported away from the removal site. The label should be as follows:



The “CLASS 9” (Miscellaneous Hazardous Materials) label should be approximately 100 m/m by 100 m/m in size and in addition to complying with Section 172.407; the background on the CLASS 9 label must be white with seven black vertical stripes on the top half. The black vertical stripes must be spaced, so that, visually, they appear equal in width to the six white spaces between them. The lower half of the label must be white with the class number ``9'' underlined and centered at the bottom.

21.4 Adequately Wet

NESHAPS describes the wording adequately wet as meaning to sufficiently mix or penetrate the ACM with a liquid to prevent the release of particulates. An adequate amount of the liquid control device (amended water) must be mixed with the ACM to form a slurry. AMPCO will make certain that enough water is in each bag of ACM to readily enable an observer to view the water without having to open the bag.

21.5 Leak-Tight Seal

NESHAPS states that each bag containing asbestos materials must have a "leak-tight" seal. This means that solids or liquids cannot escape or spill out. It also means dust-tight. Since NESHAPS also requires that the bagged ACM be sufficiently wet, a proper seal must also ensure that the water in the bag does not have sufficient air to evaporate thereby allowing the fibers to dry out and become airborne. In order to accomplish this "leak-tight" seal, the two bags must be individually "gooseneck" sealed. This is done by twisting the top of the bag to form a long twist and then bending over the top of the twisted portion and taping it to the bottom of the twisted portion, thereby forming the "gooseneck." In doing this, a small amount of air is trapped in the gooseneck which provides a leak-tight seal. Each of the two bags must be separately sealed in this manner.

21.6 Secured Storage Facilities

Drums, bags and/or wrapped components of ACM that have been removed from the immediate work area and are being temporarily stored while awaiting transportation to the disposal site, must be stored in an enclosed and lockable storage area, truck, or dumpster. These storage areas must be locked when unattended. The enclosed storage areas must be free of debris and lined with 6-mil poly sheeting to prevent contamination from leaking or spilled containers.

SECTION 22 - DISPOSAL OF ASBESTOS-CONTAINING MATERIALS

Friable asbestos-containing waste material and debris, which is packaged in accordance with the provisions of this Procedure, may be disposed of at any designated sanitary landfills when certain precautions are taken. These include notifying the appropriate Environmental Protection Agency regional office, and, where required, obtaining the necessary permits from appropriate state and/or local agencies.

22.1 ACM Waste for Transport

Unless otherwise required by the contract document, AMPCO will not be required to use containerized waste disposal methods.

Bagged asbestos-containing waste, which is ready for disposal, will not be stored in the open outside of the work area. These bags will either be left in a secured staging room, stored in an locked area designated by the Owner, or taken directly from the work area to a truck or dumpster which is closed and capable of being locked. Care must be exercised before and during transport to insure that no unauthorized persons can have access to the ACM waste material.

Waste disposal bags that are not containerized will not be transported in open trucks. Double bagged material may be transported in open trucks if they are first loaded into container drums and the drums are then sealed. These drums must then be labeled with the same warning label as the waste disposal bags.

Uncontaminated drums may be reused, but any drums that have been contaminated, must be treated as asbestos-containing waste and disposed of in accordance with these Guidelines.

When possible, the sanitary landfill operator should be notified at least twenty-four hours in advance of the transport and advised of the quantity of material to be delivered.

22.2 Marking Transport Vehicle

When ACM waste is transported by vehicle to a waste site, the vehicle being used to transport the waste must be marked during the loading and unloading of the waste in accordance with 40 CFR 61.150 (c). Although the EPA's NESHAP 40 CFR 61.149 (d)(1)(i) specifies the exact wording to be used for this marking of the transport vehicle, a recent interpretation by the EPA now allows for the use of the OSHA warning sign identified in Paragraph 8.3 of this Section.

22.3 Waste Shipment Record

On all asbestos-containing waste material transported off of the facility site, AMPCO will generate a Waste Shipment Record. This Record follows the outline prescribed by NESHAP in 40 CFR 61.150 (d)(1). All entries on the Waste Shipment Record must be complete, and a copy retained by the generator, the hauler, the landfill, the owner and AMPCO. The record must be signed by the operator, by each transporter, and by the waste disposal site owner or operator. A written report must be made to the local, state or federal EPA office if a copy of the completed Waste Shipment Record, signed by the disposal site operator, has not been returned to the waste generator within 45 days of the date the waste was accepted by the initial transporter. At the completion of the project, AMPCO's copy must be maintained as a part of the permanent job file.

22.4 At the Disposal Site

At the disposal site, the sealed waste bags should be carefully removed from the truck. If any of the bags are broken or damaged, they should be left on the truck and then placed into two more clean, unbroken disposal bags before being removed from the truck. In this case, the entire bed of the truck must then be cleaned and decontaminated. Receipts from the landfill for the materials disposed of must be retained in compliance with regulatory requirements.

SECTION 23 - WORK AREA CLEANUP PROCEDURES

This section details the cleaning and decontamination procedures to be followed during the final cleanup of the work area, including the decontamination of the air in the work area which has been contaminated by the elevated airborne asbestos fiber levels generated during the abatement activities.

It includes the cleaning and decontamination of all surfaces (ceilings, walls, floors) of the work area and all furniture and equipment in the work area. In order to accomplish this, the cleaning and decontamination process will be conducted in a series of cleanings. These cleanings apply to that portion of the abatement project in which all visible asbestos-containing material has been removed from the substrate and the substrate has been brushed and wet wiped. During this entire cleaning process, the air filtering units must be maintained in continuous operation.

23.1 Final Cleaning

After the removal of all visible accumulations of asbestos material and debris, all surfaces in the work area and the decontamination units should be thoroughly cleaned with HEPA filtered vacuums or wet wiped. The decontamination units must also continue to remain in operation.

A second cleaning should now be conducted; again using HEPA filtered vacuums and/or wet wiping all surfaces. When this second cleaning has been completed, AMPCO should conduct a visual inspection of the work area and the decontamination units, to ensure that all areas are free of visible asbestos fibers. With the air filtering units and the decontamination units remaining in operation, all of the remaining poly should be stripped from the work area, leaving only the critical barrier intact.

At the time of the second cleaning, all remaining tools and equipment remaining in the work area and the decontamination units should be decontaminated by HEPA by vacuuming and/or wet wiping and then removed from the area. Once this is completed, the area is now ready to be visually inspected by the Owner, the Owner's representative, or a representative of the independent air-monitoring firm. This individual should be identified in the contract document.

If the results of the inspection are satisfactory, the individual conducting the inspection should release the area for encapsulation. This involves applying a sealant to the substrate and the remaining poly sheeting to "lock down" any tiny invisible fibers, which might remain. The mist, which occurs during encapsulation, helps in settling and sticking down the fibers, which are still airborne. An adequate time period should be established to allow the sealant to dry before conducting additional air sampling.

Special attention must be paid to the Safety Data Sheet (SDS) of the encapsulant to be used, since the nature of some encapsulants may effect the requirements for respiratory protection. Vapors that are given off during the application of some encapsulants must be taken into account when selecting respiratory equipment if other than supplied-air respirators are used.

Air monitoring of the work area and the decontamination units should now be conducted to determine the fiber count in these areas. Unless other wise specified in the contract document, this very important phase of the air sampling will also be conducted by the independent air monitoring firm retained by AMPCO throughout the project.

If the results of this air sampling show a count of 0.01 or less fibers per cubic centimeter of air, the work area and decontamination units are ready for closeout. If however, there are still sufficient asbestos fibers airborne in the containment area to require additional cleanings, AMPCO may elect to perform an aggressive cleaning. In any case, AMPCO will continue to perform cleaning operations within the work area and the decontamination units until an acceptable level of decontamination, as specified in the contract document, is obtained.

23.1.1 **Aggressive Cleaning:** Aggressive cleaning can be performed by blowing all surfaces with a small motorized blower, such as a Leaf Blower, starting at the work area air inlet(s), if any, and proceeding methodically toward the air filtering units(s). Care must be taken to proceed at a pace that is slow enough to allow the general air movement in the room to keep the fiber "cloud" ahead of the blowing activity, so that fibers are not re-deposited on cleaned surfaces. This type of induced air movement will tend to "capture" all of the remaining airborne fibers and trap them in the air filtering units filter media, where they can be permanently removed.

23.2 Removal of Temporary Enclosures

Upon acceptance of the air monitoring results, AMPCO will now begin dismantling operations of the remaining work area, decontamination units, and critical barriers. Although the area has been tested "clean", all debris from the removal of these areas will be packaged in disposal bags or wrapped and sealed in poly for disposal as contaminated waste.

SECTION 24 - AIR MONITORING

This section describes the air monitoring carried out by AMPCO to ensure the protection of asbestos abatement workers and to verify that the building beyond the work area remains uncontaminated.

Unless the contract document specifies that air monitoring services are to be provided by the Owner, AMPCO will engage the services of a competent, independent air monitoring firm to perform sufficient air sampling to accurately determine the airborne concentrations of asbestos fibers to which the asbestos workers may be exposed.

The air monitoring firm selected by the AMPCO will have all of the professional qualifications and certifications necessary to collect air samples, conduct OSHA required analysis, provide timely results, and implement specific quality control procedures as set forth in Appendix A of the Asbestos Standard, 29 CFR 1926.1101 and Section 9-2 Air Monitoring Guidelines of the Corporate Safety Program. All work performed by the selected company must be in accordance with this mandatory Appendix.

24.1 Exception to Air Monitoring

The exception to the requirement for conducting daily monitoring that is representative of the exposure of each employee in the work area is when all workers in the work area are equipped with supplied –air respirators operated in the pressure demand mode , or other positive pressure mode respirator.

24.2 Termination of Air Monitoring

Termination of daily air monitoring will only be in compliance with the requirements of Section 9-2 of the Corporate Safety Manual.

24.3 Employee Notification

Immediately upon receipt of the air monitoring results, AMPCO will either post the results at the job site or will mail a copy of the results to the employees involved. When results are received after the completion of the job, or after the employees who were involved in the sampling have left the jobsite, copies of the results will be mailed directly to the employee, as soon as possible.

24.4 Observation of Air Monitoring

AMPCO will provide affected employees, or their designated representatives, an opportunity to observe the monitoring of employee exposure within the work area. When observation of this monitoring requires entry into the work area, the observer will be required to comply with all of AMPCO's safety procedures for entry into the work area. This includes such procedures as a medical examination, respirator fit-test, respirator and asbestos training, the use of protective coveralls, etc.

SECTION 25 - DEMOBILIZATION

The air filtering units should be turned off, sealed in poly and transported to the next project. All debris used cleaning materials, unsalvageable materials used for the enclosures, and any other remaining materials should be disposed of as contaminated waste. All sealed and labeled bags containing contaminated waste will then be removed from the Owner's property by approved transport methods.

All contaminated waste, which has been removed from the project during the demobilization operation, will be disposed of at the selected waste disposal site. The transport vehicles will then be decontaminated and the protective clothing worn by the disposal workers will be included in the disposal process.

SECTION 26 - FINAL DOCUMENTATION

Unless project documentation has been submitted to the Owner, or the Owner's representative on a timely basis throughout the length of the project, or unless otherwise stipulated by the contract document, final documentation will be submitted to the Owner, or the Owner's representative for review, acceptance and permanent file.

LEAD ABATEMENT GUIDELINES

SECTION 1 - PURPOSE

These procedures establish uniform guidelines for providing a program to protect construction employees from excessive exposure to lead while working on a construction site.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - OBJECTIVE

The objective of this program is to ensure the safety of each AMPCO worker who may be exposed to lead levels within the work place, by reducing all lead exposure levels to below the OSHA Action Level (AL) and Permissible Exposure Limit (PEL).

3.1 Action Level (AL)

The OSHA Action Level is 30 µg/m3

3.2 Permissible Exposure Limit (PEL)

The OSHA Permissible Exposure Limit is 50 µg/m3 for an 8-hour TWA and 40 µg/m3 for a 10-hour TWA.

3.3 AMPCO Requirements

Anytime an AMPCO employee may be exposed to lead levels at or above the Action Level the following items will be instituted:

- Exposure Assessment
- Initial Medical Surveillance, Biological Monitoring, and Medical Examinations
- Initial and Refresher employee training specific to lead. This training should mirror EPA Title X or State required training.
- Daily or periodic air monitoring as required
- Use of appropriate PPE including respiratory protection.

Operations within our industry which may generate Lead exposure include the following:

- Removal of lead-containing paint;
- Asbestos abatement operations in areas of high fly ash concentrations; and
- Flame-torch cutting, welding, and grinding of Lead painted surfaces in repair, reconstruction, dismantling, and demolition work.

SECTION 4 - CODES AND REGULATIONS

General applicability of Codes and Regulations: Except to the extent that more explicit or more stringent requirements are written directly into these guidelines, all applicable codes and regulations have the same force and effect as if copied directly into these guidelines.

Those standards governing the development of this program include, but are not limited to, the following:

- Lead CFR Title 29, Part 1926, Section 62
- Respiratory Protection CFR Title 29, Part 1910, Section 134
- Access to Employee Exposure and Medical Records CFR Title 29, Part 1910, Section 1020
- NIOSH/MSHA Approvals for Respirators CFR Title 30, Part II and 42 CFR Part 84
- Sanitation CFR Title 29, Part 1910, Section 141
- American National Standards Institute (ANSI) American National Standard: Practices for Respiratory Protection, Z88.2-1980
- Reference all Local and State Lead Standards
- Reference the AMPCO Corporate Safety Manual

SECTION 5 - DESIGNATION OF A COMPETENT PERSON(S)

Whenever the potential exists for lead exposure in a workplace, regardless of the extent of exposure, the project manager will designate a Lead Competent Person(s), herein after referred to as the Lead CP. The Lead CP(s) will be designated, in writing, by name and title. It is essential that a Lead CP be designated for each work shift. The Lead CP(s) will be responsible for enforcement of this Lead program on each shift. The Lead CP(s) will be assigned to the specific project full time and will have local certification as required.

In order to comply with OSHA's definition of a "competent person" under the Lead Standard, the individual(s) designated will be capable of identifying existing and predictable lead hazards in the workplace and have authority to take prompt corrective measures to eliminate such hazards.

SECTION 6 - RESPONSIBILITY

6.1 Manager, Safety and Regulatory Compliance

It will be the responsibility of AMPCO Corporate Safety or his designate, to evaluate this written program at least every six (6) months and to revise and update this program as required.

6.2 Competent Person

This individual will have full responsibility for implementation and adherence to all of the provisions of this program. This will include responsibility for identifying lead hazards and implementing corrective action. The Competent Person's duties will also include, as a minimum, at least the following:

- Determine, wherever possible prior to the performance of the job, whether or not lead is present within the workplace;
- Ensuring the adequacy of all employee lead monitoring data and lead exposure assessments;
- Ensuring that all employees with a potential exposure to lead are wearing the required protective work clothing and proper personal protective equipment, are adequately trained in the correct use of this equipment, and are maintaining appropriate exposure control methods;
- Ensuring that adequate and proper hygiene facilities are provided, that employees are properly trained in the use of those facilities, and that employees are using those facilities as required;
- Ensuring that engineering controls are adequately designed, effectively operated, and maintained properly;
- Ensuring that the work areas in which a potential for lead exposure exists, are adequately and properly demarcated and controlled; and
- Conducting frequent (at least daily) inspections of the work area to ensure that all of the corrective measures necessary to decrease the risk potential for lead exposure are properly implemented, correctly maintained and appropriately effective. Comprehensive notes of these inspections will be recorded in a separate file or log and any deficiencies noted will be immediately corrected and reported to the project supervisor and the Regional Safety Manager.

6.3 Project Manager

It is the responsibility of the Project Manager to ensure that all operations of the project

comply with the intent of this program. In addition, it is the responsibility of the Project Manager to provide for the necessary training and medical surveillance monitoring and to ensure compliance via documented Job Site Inspections.

6.4 Health & Safety and Presidents

It is the responsibility of the Health and Safety, and Presidents to provide the necessary support to the project to assist in the successful implementation of this program. Health and Safety will audit the jobsite as necessary to ensure program compliance.

6.5 Jobsite Employees

It will be considered a condition of employment, that all employees assigned to a project in which it has been determined that a potential for lead exposure exists, abide by the terms of this Lead program.

6.6 Disciplinary Action

Violation of this program or refusal to comply with the requirements of this program will result in disciplinary action up to and including discharge from employment. (See also paragraph 16.0 in this Section)

SECTION 7 - ALLOWABLE EXPOSURE LIMITS

Action Level (AL): 30 micrograms per cubic meter of air (30 µg/m3) averaged over any 8 hour period. At this level, first action will be initiated, such as employee training, medical surveillance and record keeping.

Permissible Exposure Limit (PEL): 50 micrograms per cubic meter of air (50 µg/m3) averaged over any 8 hour period. This is the maximum level employees may be exposed to without using respiratory protection according to OSHA. AMPCO requires respirator use with any exposure.

SECTION 8 - EXPOSURE ASSESSMENT

Prior to beginning work in any workplace or operation covered by the Lead Standard, AMPCO will initially determine if any employee may be exposed to Lead at or above the Action Level. Employee exposure is that exposure which would occur if the employee were not using a respirator.

This includes work that is done in connection with, but is not limited to, the following:

- Demolition of structures where lead-containing materials are present;
- Removal or encapsulation of materials containing lead;
- Alteration, repair or renovation of structures, substrates, or portions thereof, that

contain lead or materials containing lead;

- Installation of products containing lead;
- Emergency or scheduled cleanup of lead contamination;
- Transportation, disposal, storage or containment of lead or materials containing lead on the site or location at which the activities are to be performed; and
- Maintenance activities associated with any of the above.

Assessment may involve lead levels which have been previously determined by the customer. The project supervisor will review with the customer's representative any previous data obtained under normal facility working conditions. This data, obtained during normal facility operations, may not accurately reflect potential exposures to workers conducting AMPCO's type of operations; however, overexposure during routine work should signal concern for any workers performing non-routine tasks.

8.1 Protection During Assessment

Until exposure assessment has been completed, and actual employee exposures determined, AMPCO employees and subcontractors who are performing the following tasks, within an area in which there is a potential exposure to lead, will be treated as though they will be exposed to levels of lead in excess of the PEL, and will be provided with interim protection as specified below:

- **Half Mask APR:** A respirator with a protection factor of at least 10 will be used when doing manual demolition, manual scraping of lead-containing coatings or paint, manual sanding, scraping with a heat gun, or doing power tool cleaning with dust protection.

- **Full Face APR or PAPR:** A respirator with a protection factor of at least 50 will be used when using lead mortar or lead burning, when rivet busting, doing power tool cleaning without dust collection, doing clean-up activities where dry expendable abrasives are used, and abrasive blasting enclosure movement and/or removal.

Appropriate respiratory protection, personal protective clothing, clean change areas, hand and face washing facilities, biological monitoring and adequate training to reduce the employee's chance of exposure.

8.2 Basis of Initial Determination

Except as provided under paragraph 8.2.1 of this Section, AMPCO will monitor employee exposures and will base initial determinations on the employee exposure monitoring results and any of the following, relevant considerations:

- Any information, observations, or calculations which would indicate employee

exposure to lead;

- Any previous measurements of airborne lead; and
- Any employee complaints of symptoms which may be attributable to exposure to lead.

8.2.1 **Historical Data:** OSHA will allow AMPCO to use "historical data" to satisfy the requirements for Initial Air Monitoring, as outlined in paragraph 8.3 of this Section, for tasks other than structural dismantling or demolition activities. In order to determine if the "historical data" is close enough to current conditions, the data will meet the following specific conditions:

- The historical data will be scientifically sound and collected using methods that are accurate. Samples should have been obtained within the past twelve month period;

- Work processes and practices in use when the historical data was obtained will be essentially the same as those to be used during the job for which initial monitoring will not be performed; and

- Characteristics of the lead-containing material being handled, and the prevailing environmental conditions when the historical data was obtained, will both be essentially the same as those on the job for which initial monitoring will not be performed.

However, when objective data is used, an accurate record will be established and maintained documenting the nature and relevancy of objective data which is used to assess employee exposure in lieu of exposure monitoring.

If at any time, it is determined that significant differences exist between the historical data and the current conditions, which could cause the employee's current exposure to be underestimated, this will be considered a violation of the OSHA Standard.

8.3 Initial Air Monitoring

When initial air sampling will be conducted for representative operations in order to establish an 8-hour TWA of employee exposure, this initial air sampling determination may be limited to a representative sample of the exposed employee to whom it is reasonably believed will be exposed to the greatest airborne concentrations of lead in the workplace.

In lieu of prior sufficient and accurately established historical data, initial air sampling will be conducted while workers are using supplied-air respirators or as specified in

section 8.1. Results of this sampling will be used to determine the type of respiratory protection required. Each job classification will be tested for at least seven (7) hours.

8.4 Frequency

Air sampling will be conducted at the following frequency:

8.4.1 **Below the Action Level:** If the results are below the Action Level, monitoring may be discontinued. However, additional monitoring may be required if there is a change in plant operation, process, controls or any other change that may increase the exposure to lead.

8.4.2 **At or Above the Action Level:** Where a determination shows the possibility of any employee exposure at or above the action level, but below the PEL, monitoring which is representative of the exposure for each employee in the workplace who is exposed to lead, will be conducted. If the results are above the action level but below the PEL, air sampling will be conducted at least every six (6) months.

8.4.3 **At or Above the Permissible Exposure Limit:** At levels above the PEL, monitoring will be repeated every quarter until two consecutive measurements taken 7 days apart are below the PEL, at which time, the monitoring requirements of paragraph 8.4.2 will be required. Monitoring will continue at this frequency until two consecutive measurements taken 7 days apart are below the AL, at which time, the monitoring requirements of paragraph 8.4.1 will be required.

8.5 Additional Exposure Assessments

Whenever there has been a change of equipment, process, control, personnel or a new task has been initiated that may result in additional employees being exposed to lead at or above the action level or may result in employees already exposed at or above the action level being exposed above the PEL, additional monitoring is required.

8.6 Employee Notification

Within 5 working days after completion of the exposure assessment, each employee for whom the results are representative will be notified in writing. Each employee whose results exceeded the PEL, without regard to the respirator, will receive a statement of such accompanied by a description of the corrective action taken or to be taken to reduce exposure to below that level.

SECTION 9 - METHODS OF COMPLIANCE

9.1 Compliance Program

Whenever it is anticipated that employees on the jobsite will be exposed to lead, the project manager and/or the lead competent person will develop and implement a written Compliance Program for the work site. This written Compliance Program, which will be used to achieve a sufficient reduction of employee exposure below the PEL, will include as a minimum, the following:

- A description of each operation in which lead is emitted; e.g., machinery used, material processed, controls in place, crew size, employee job responsibilities, operating procedures, and maintenance practices;
- A description of the specific means to be employed to achieve compliance, including engineering plans and studies used to determine methods selected for controlling exposure to lead;
- A report of the technology considered in meeting the PEL;
- Air monitoring data which documents the source of lead emissions;
- A detailed schedule for implementation of the program, including documentation such as copies of purchase orders for equipment, construction contracts, etc.;
- A work practice program which includes protective work clothing and equipment, housekeeping requirements, and hygiene facilities and practices;
- A job rotation schedule if administrative controls are used to reduce employee TWA exposure to lead (See paragraph 8.3);
- A description of arrangements made among contractors on a multi-contractor work site with respect to informing affected employees of potential exposure to lead; and
- All other relevant information.

To assist project management in developing a site specific Compliance Program, refer to Procedure 10-2A of this Safety Manual for a Sample Lead Compliance Program.

9.2 Engineering and Work Practice Controls

AMPCO will implement all practical engineering and work practice controls, including mechanical ventilation, to reduce and maintain employee exposure to lead to below the PEL. Wherever all of the feasible engineering and work practice controls that can be installed, are still not sufficient to reduce employee exposure to below the PEL, they will nonetheless be used to reduce exposure to the lowest level. These controls will be supplemented with appropriate respiratory protection.

9.3 Administrative Controls

If administrative controls are used as a means of reducing employees TWA exposure to lead, then the project management will establish and implement a documented job

rotation schedule which includes the following:

- Name and identification number of each affected employee;
- Duration and exposure levels at each job or work station where each affected employee is located; and
- Any other information which may be useful in assessing the reliability of administrative controls to reduce exposure to lead.

When an administrative control schedule is used, a copy of this schedule will be included in the written site specific Compliance Program.

9.4 Establishing Regulated Areas

AMPCO will establish regulated areas where exposures may be in excess of the Permissible Exposure Limit.

9.5 Posting Warning Signs

AMPCO supervision will post signs for the appropriate hazards. When airborne Lead concentrations exceed the PEL, warning signs will read:



This warning sign will be posted at all entry points into regulated areas.

9.6 Restrict Access

Caution tape will be used to restrict access as required on all AMPCO job sites.

9.7 Eating Areas

Lead can be unintentionally ingested via eating, drinking, chewing, or smoking on the job site. AMPCO supervision will strictly enforce the policy of no eating, drinking, smoking, chewing gum or using tobacco products in regulated areas. A clean area, free from exposure to Lead will be provided for employee's to use as an eating area. Employees using the eating area will have access to hot and cold water, soap, and towels, and will be required to wash their hands and face before eating. While drinking water is allowed, proper hygiene practices will be observed with regard to water coolers and drinking cups.

SECTION 10 - RESPIRATORY PROTECTION

Respiratory protection will be used in the following circumstances:

- Whenever an employee's exposure to lead exceeds the PEL;
- In work situations in which engineering controls and work practices are not sufficient to reduce exposures to or below the PEL;
- Whenever an employee requests a respirator; and
- When they are used as an interim protection for employees performing tasks as specified during paragraph 7.1 of this Section.

Respirators will be supplied with a HEPA filter cartridge and provided according to the Respiratory Protection for Lead Aerosols table as shown in Appendix 1. All respirators will be NIOSH approved. In each case the minimum requirement is shown.

10.1 Respirator Protection Program

Respiratory protection used to comply with the requirements of this Section, will conform to the guidelines of AMPCO's Respirator Protection Program, including selection, fit-testing, cleaning and maintenance, etc., which are outlined in Section 7-1 of AMPCO's Corporate Safety Program.

10.2 Changing Filter Cartridges

Filter cartridges and/or pre-filters will be changed whenever there is an increase in breathing resistance and/or a Flow Check meter indicates the flow rate is below 4 CFM for PAPR's. A sufficient supply of appropriate filters will be maintained on-hand to permit replacement.

10.3 Personal Hygiene

Employees will be permitted to wash their face and respirator seal as often as necessary to prevent skin irritation which is often associated with respirator use. This activity is required at breaks and before eating as a good hygiene practice.

SECTION 11 - PERSONAL PROTECTION

11.1 Personal Protective Equipment

Where an employee is exposed to lead at or above the PEL, the employee will be provided with and required to use appropriate personal protective equipment. This personal protective equipment will include, but may not be limited to, the following:

- Hard Hat
- Hearing Protection

- Face Shield
- Over boots
- Fall Protection Equipment
- Safety Glasses or goggles
- Gloves
- Approved respirator & cartridge

11.2 Protective Work Clothing

Clean protective work clothing and shoe covers, in good condition, will be provided at least daily to those employees who are exposed at or above the PEL, and at least twice daily to those employees who are exposed to lead concentrations which are over 200 µg/m3 as a 8-hour TWA. Protective work clothing will be repaired or replaced as required.

It is AMPCO's policy that all employees on projects, with mixed gender crews, requiring the use of disposable protective clothing be furnished with either disposable underwear (preferred) or two (2) sets of disposable suits to be worn together. Wearing nylon bathing suits under a single disposable suit is acceptable but this will be considered an individual preference. Acquiring the bathing suit and its associated costs will be solely the responsibility of the employee.

All protective work clothing will be removed at the completion of a work shift and only in those change areas provided for this purpose.

Disposable protective work clothing will be disposed of in accordance with local, state and federal regulations. AMPCO is required to inform, in writing, any person who cleans or launders protective work clothing, of the harmful effects of exposure to lead. If non-disposable protective work clothing is issued, and it is to be cleaned, laundered, or disposed of, it will be placed in a closed and sealed container which is labeled as follows:



SECTION 12 - HOUSEKEEPING

General housekeeping is an important part of limiting employee exposure. Every effort will be made to limit the build up of dust on surfaces or floors in the work place. It is preferred that wet cleaning or HEPA vacuuming be used to clean dust or debris to avoid sweeping. Every attempt will be made to minimize the likelihood of the lead becoming airborne. A written housekeeping plan and cleaning schedule will be posted for all eating areas and operations trailers.

12.1 Compressed Air

Although the use of compressed air for cleaning is generally prohibited by the Standard, there are certain circumstances where the use of this technique is necessary. In this instance, an appropriate exhaust ventilation system will be used with the compressed air.

SECTION 13 - HYGIENE FACILITIES

For employees working in regulated areas, the following will be provided:

- Clean change room with storage for street clothes and separate storage for personal protective equipment.
- When showers are required they will be furnished. When showers are provided, employees will change out of their protective work clothing and shower before changing into their street clothes and leaving the work area.

Note: The Company will provide body soap, shampoo and clean towels.

- Eating areas, sufficiently separated from the work area to insure that they are free of lead, will be provided. These eating areas will be wipe sampled at least daily to insure that they are maintained as free from lead as is reasonably possible.
- Adequate washing facilities will be provided for use by employees to wash their face and hands prior to eating. These wash facilities will be located in near proximity to the work area.
- It is the employee's responsibility to wash their hands and face prior to eating, drinking, placing anything into their mouth, or using cosmetics. It is the supervisors responsibility to assure that these employees do an adequate job of washing their hands and face.
- Break Decon: The company will provide for the employee's use, a HEPA vacuum with which to vacuum work clothing and boots prior to entering the change rooms and eating areas.

SECTION 14 - MEDICAL SURVEILLANCE

(Refer to Paragraph 18.0)

AMPCO will make available initial medical surveillance to any employee who is occupationally exposed on any day to lead at or above the Action Level.

This initial medical surveillance consists of biological monitoring in the form of blood sampling and analysis for blood lead levels and zinc protoporphyrin levels.

A medical surveillance program will be instituted for all employees who are or may be exposed at the work place to lead levels at or above the action level for more than 30 days in any consecutive 12 month period.

Medical examinations and procedures will be performed by or under the supervision of a licensed physician. Medical surveillance, including multiple physician review, will be made available at no cost to the employee.

14.1 Medical Surveillance Program for Lead

The complete Medical Surveillance Program for lead exposure is contained within paragraph 18.0 of this Section.

14.2 OSHA 300 Log

When, as a part of the medical surveillance program, an employees blood lead test level is greater than, or equal to 40 µg/dl or if the employee shows positive symptoms of lead poisoning, or if the employee is required to be medically removed from the project, this will require an entry to the job sites OSHA 300 Log.

14.3 Information Provided to Physician

AMPCO will provide an initial physician conducting a medical examination or consultation with the following:

- A copy of the Lead Standard, 29 CFR 1926.62, including all Appendices;
- A description of the affected employee's duties as they relate to the employee's exposure;
- The employee's exposure level or anticipated exposure level:
- A description of any personal protective equipment used or to be used;
- Prior blood lead level determinations; and
- All written medical opinions concerning the employee that are in the employer's possession or control.

14.4 Physician's Written Opinion

Each Branch that has required an employee to take a medical examination will obtain a satisfactory Physician's Written Opinion from the examining physician before allowing the employee to enter an area that has a potential exposure to lead.

The physician will be requested to respond using AMPCO's Physician's Written Opinion

and Recommendations. However, should the physician desire to use his/her own format, it will be consistent with AMPCO's form and contain, as a minimum, at least the following:

- The name and address of the medical facility and the date of the examination;
- The employee's name and social security number;
- Whether or not there have been any medical conditions detected that would place the employee at an increased risk of health impairment from exposure to lead;
- Any recommended special protective measures to be provided to the employee, or any limitations to be placed upon the employee's exposure to lead;
- Any recommended limitation upon an employee's use of respirators, including whether the employee can wear a PAPR respirator if the physician determines that the employee cannot wear a negative pressure respirator;
- The results of the blood lead determinations; and
- The signature of the examining physician.

AMPCO will instruct each examining and consulting physician (a) not to reveal to the employer, any findings of any type which are unrelated to the employee's occupational exposure to lead and (b) to advise the employee of any medical condition which dictates further medical examination or treatment.

SECTION 15 - EMPLOYEE INFORMATION AND TRAINING

The extent and effectiveness of the Company's employee education and training, as required under the Lead Standard, will be determined, in part, by the trainers and CP's ability to address site-specific issues and to demonstrate expertise in the area of lead hazards and their control. This expertise will be based upon their completion of specialized courses, degree programs, or work experience. Training and refresher training for all personnel will be required on an annual basis. New employees' will be expected to be trained already and/or provide a certificate of completion prior to starting work as an abatement technician.

15.1 Hazard Communication

Although the Lead Standard does reference the Construction Industry's Hazard Communication Standard, 29 CFR 1926.59 and 1910.1200 and requires that all employees covered by the Lead Standard receive hazard communication training, the Hazard Communication Standard would not normally cover employees subject to lead exposure generated from lead-containing materials already in place on the jobsite. However, AMPCO Corporate Policy requires that all employees receive specific hazard communication training for any toxic substance known to be located within the

workplace, including lead.

15.2 Exposure to Lead Below the Action Level

AMPCO will instruct each employee in the recognition and avoidance of unsafe conditions and in the regulations applicable to his or her work environment in order to control or eliminate any hazards or other exposure to illness or injury. AMPCO will instruct all of its employees who are exposed to lead in the specific hazards of lead and in the Construction Standard for Lead, 29 CFR 1926.62, even if this exposure does not exceed the action level.

15.3 Exposure to Lead At or above the Action Level

All employees who may be exposed at or above the action level will be provided with the training specific to lead prior to initial job assignment and at least annually thereafter which contains the following topics:

- The content of the applicable standards (lead and/or inorganic arsenic) and appropriate appendices (29 CFR 1926.62);
- The specific nature of operations which could result in exposures over the action level;
- The purpose, proper selection, fitting, use and limitations of respirators;
- The purpose and description of the applicable medical surveillance program; and
- Engineering controls and work practices.

In addition Initial and Refresher employee training will be provided that mirrors EPA Title X or State required training.

Note: Lead awareness trained employees' will not be allowed to disturb lead containing materials.

SECTION 16 - RECORDKEEPING AND EMPLOYEE NOTIFICATION

Recordkeeping will follow the requirements of 29 CFR 1926.62(n) for lead as appropriate. AMPCO will establish and maintain an accurate record of all monitoring and other data used in conducting employee exposure assessments.

16.1 Exposure Records

Exposure monitoring records will include at least the following:

- The date, number, duration, location and result of each of the samples taken,

including a description of the sampling procedure used to determine representative employee exposure;

- A description of the sampling and analytical methods used and evidence of their accuracy;
- The type of respiratory protective devices worn;
- The name, social security number and job classification of the employee monitored and of all other employees whose exposure the measurement is intended to represent; and
- The environmental variables that could affect the measurement of employee exposure.

These records will be maintained, in accordance with 29 CFR 1910.1020, for the duration of employment plus 30 years.

16.2 Medical Surveillance Records

AMPCO will establish and maintain accurate records for each employee subject to medical surveillance as required by this Section. These records will include:

- The name, social security number and description of the duties of the employee;
- A copy of the Physician's Written Opinions;
- Results of any airborne exposure monitoring done on or for the employee and provided to the physician;
- Any employee medical complaints related to lead exposure;
- A copy of all medical examination results and work history;
- A description of the laboratory's quality assurance program; and
- A copy of the results of the biological monitoring.

16.3 Medical Removals

AMPCO will establish and maintain an accurate record for each employee removed from current exposure to lead pursuant to the requirements of this Section. Each record will include:

- The name and social security number of the employee;
- The date of each occasion that the employee was removed from current exposure to lead as well as the corresponding date the employee was returned to his/her former job status;
- A brief explanation of how each removal was or is being accomplished; and
- A statement, with respect to each removal, indicating whether or not the

reason for the removal was an elevated blood lead level.

16.4 Records Retention

Maintain accurate and complete records of medical monitoring on each employee. These records will be maintained as medical records and access will be extremely limited in accordance with Section 3-5 of the Corporate Safety Manual.

Records of exposure monitoring and medical surveillance will be maintained for the duration of employment plus 30 years. Upon termination of the employee, these records will be maintained as per division requirements.

These records will be available, upon formal written request, to the Assistant Secretary of Labor, Director of OSHA, employees and designated representatives.

Employees will be informed in writing of the results of blood lead levels within 5 working days of receipt of the results.

SECTION 17 - PROGRAM PARTICIPATION

While the OSHA Standard mandates that AMPCO make available the Medical Surveillance program to each employee exposed to lead at or above the Action Level, there is nothing in the Standard requiring the worker to participate in the program.

The employee should be advised that all examinations and procedures will be performed by or under the supervision of a licensed physician and that they will be provided to the employee at no cost to the employee and at a reasonable time and place.

The employee should further be advised that AMPCO Corporate Policy makes participation in the Medical Surveillance program, including all prescribed examination components, a condition of employment or continued employment, and that anyone failing to comply with a request to participate in any aspect of the medical surveillance program, as it is outlined in these Lead Guidelines, will be subject to immediate discharge.

SECTION 18 - MEDICAL SURVEILLANCE PROGRAM

18.1 Medical Evaluation - Lead

Prior to each employee beginning a work assignment which will involve the employees' exposure to lead, the employee will be given a medical evaluation. This will consist, for the most part, of the employee completing an occupational history form and providing a

blood sample for analysis to determine the individuals blood lead and zinc protoporphyrin levels.

18.2 Medical Evaluation - Respirator

In the event the employee does not have a valid Physician's Written Opinion indicating the individual can wear and use a respirator, than the medical evaluation will also consist of a medical and work history, a physical examination directed to the pulmonary and gastrointestinal systems, a pulmonary function test and possibly a chest roentgenogram.

It will also include any other examinations or tests deemed advisable by the examining physician.

SECTION 19 – MEDICAL SURVEILLANCE

19.1 Initial Medical Surveillance

Any employee who is occupationally exposed to airborne lead concentrations at or above the Action Level on any day will be provided initial medical surveillance in the form of a blood test for analysis of blood lead (BLL) and zinc protoporphyrin (ZPP) levels. This initial medical surveillance will be made available to the employee within 48 hours of the employees' exposure.

Employees with an exposure at or above the Action Level are entitled to coverage under the complete medical surveillance program as outlined in paragraphs B, C, D and E below.

> **Note:** Although both the medical evaluation and the initial medical surveillance consist of the same type of biological monitoring in the form of blood sampling and analysis for lead (BLL) and zinc protoporphyrin (ZPP) levels, the medical evaluation is a Company required pre-employment examination while the initial medical surveillance is OSHA directed.

However, if AMPCO should anticipate employee exposure, at or above the Action Level, than the medical surveillance program should include a pre-assignment medical examination.

19.2 Biological Monitoring

Biological monitoring for BLL and ZPP will be made available for each employee exposed at or above the Action Level on the following schedule:

- For each employee exposed at or above the Action Level for more than 30 days in any consecutive 12 month period, biological monitoring will be made available at least every 2 months for the first 6 months and every 6 months

thereafter.

- For each employee exposed at or above the Action Level on any day, or for more than 30 days in any consecutive 12 month period, whose last blood sampling and analysis indicated a blood lead concentration at or above 40 µg/dL, but less then 50 µg/dL, biological monitoring will be made available at least every 2 months. This will continue until two consecutive blood samples and analysis indicate a blood lead level below 40 µg/dL.
- Should a worker be removed from exposure to lead because of a high blood lead concentration, the worker will be tested at least monthly during the period of removal.
- While it is necessary that this frequency continue until 2 consecutive tests indicate a concentration of below 40 µg/dL, please note that when the project ends, so does the testing.

19.3 Medical Examination and Consultation

A medical examination and consultation will be made available to each employee who either has been or may be exposed to lead at or above the Action Level for more than 30 days in any consecutive 12 month period on the following schedule:

- At least annually for each employee for whom a blood sampling test conducted at any time during the preceding 12 months indicated a blood lead level at or above 40 µg/dL.
- As soon as possible, upon notification by an employee that he/she has either developed signs or symptoms commonly associated with lead intoxication, that the employee desires medical advice concerning the effects of current or past exposure to lead on the employee's ability to procreate a healthy child, that the employee is pregnant, or that the employee has demonstrated difficulty in breathing during a respirator fit-test or during its use.
- As medically appropriate for each employee either removed from exposure to lead due to a risk of sustaining material impairment to health, or otherwise limited pursuant to a final medical determination.

19.4 Lead Removal by Chelation

Chelation is the process by which lead is removed from the body of an individual by the use of medication. The OSHA Standard prohibits prophylactic chelation simply to prevent elevated blood levels or to routinely lower blood lead levels, since this practice can be accompanied by the risk of many possible harmful complications and/or side effects.

If chelation will be performed diagnostically to confirm a diagnosis of lead poisoning, or therapeutically for the treatment of severe toxicity, it will only be done in a qualified medical setting by a licensed physician and only after the employee has been informed in

writing.

19.5 Medical Removal

If a worker's BLL, taken after exposure to lead, exhibits a blood lead concentration at or above 50 µg/dL, the Medical Consultant will be immediately notified and the worker will be required to provide at least one follow-up test within the two week period following receipt of the original test results.

Should the worker's last three blood lead concentrations meet or exceed 50 µg/dL, and the last blood lead concentration is at or above 40 µg/dL, the Medical Consultant will require that the worker will be removed from further workplace exposure to lead until the blood lead concentration falls to an acceptable concentration. The "acceptable concentration" depends on the worker's average concentration when removed.

Any worker who is determined by the Medical Consultant to no longer be medically qualified to work in lead-exposed tasks will be removed from those tasks until such medical restriction is lifted.

Should the worker's blood lead concentration not adequately decline within 18 months of removal, the worker will undergo a special medical evaluation to obtain a final medical determination of whether the worker may return to his/her former job status and any recommendations regarding protection of the worker's health.

19.6 Exit Examination

An exit medical examination to determine the employee's blood lead level, will be offered only to those employees who have been exposed to airborne concentrations of Lead either at or exceeding the Action Level during the course of their current employment with AMPCO.

SECTION 20 - MEDICAL RESPONSIBILITIES

20.1 Lead Competent Person (Lead CP)

A Lead Competent Person (Lead CP) will be appointed at each jobsite, where there is a potential exposure to lead, to coordinate scheduling of medical services by a Local Medical Provider, an approved Testing Laboratory, AMPCO's Medical Consultant, Health and Safety, and the required site personnel.

The Lead CP will arrange with the Testing Laboratory to have the proper sample containers forwarded to the Local Medical Provider. Once a sample is obtained by the Local Medical Provider, the Local Medical Provider will ship it directly to the Testing Laboratory.

All results of the blood analysis will then be forwarded by the testing laboratory to the AMPCO office with a copy to the Lead CP at the designated jobsite. The Lead CP and Health and Safety will both review the blood lead levels (BLL) and the zinc protoporphyrin levels (ZPP).

20.1.1 High Detection Levels

AMPCO has established an elevated BLL and ZPP level for inter-company use only. If the Lead CP detects any BLL results that are at or above 20 µg/dL, or any ZPP results that are at or above 50 µg/dL, the CP will immediately fax a copy of these results to the AMPCO Medical Consultant who will then contact the employee and inform him or her of the test results. In those cases where the BLL is below 20 µg/dL and/or the ZPP is below 50 µg/dL, the Lead CP will inform the employees of their results.

The Lead CP will track employee blood lead testing requirements and notify affected employees when additional samples are required. In the event that BLL and/or ZPP levels exceed either OSHA's acceptable limits, or AMPCO's established limits, the Lead CP will immediately confer with the Company's Medical Consultant. Acting only upon instructions of the Company's Medical Consultant, the Lead CP will inform employees when removal from service is necessary and reinstate them as appropriate.

20.2 Company Medical Consultant

In those situations where the Company would retain the services of a Medical Consultant, this consultant will act as a medical resource to the Offices and to related staff for lead-related medical services.

This Medical Consultant would have extensive experience in the field of occupational health, would be knowledgeable regarding OSHA's Lead Standard, 29 CFR 1926.62, and would have oversight responsibility for AMPCO's Medical Surveillance Program for Lead.

Should the Medical Consultant receive a copy of an elevated BLL and/or ZPP results, the Medical Consultant would contact and interview the individual concerned in an effort to determine the reason(s) for the elevated levels. The Medical Consultant would then advise the Lead CP as to whether or not the individual has acceptable levels.

The Medical Consultant would also respond to health-related inquiries by AMPCO personnel who have lead safety and health issues. In the event an employee should have a medical question concerning his/her lead levels, the employee could contact the Medical Consultant for resolution, after first discussing the situation with the Lead CP. The purpose of this is to insure that the Medical Consultant would not be tied up in questions

that the Lead CP can answer. In cases of this type, the Medical Consultant may request the Local Medical Provider forward pertinent files in order to respond to employee inquiry.

The name and address of AMPCO's Company Medical Consultant would be published and posted in the event that he or she should be retained

20.3 Biological Testing Laboratory:

OSHA Required Testing: Biological monitoring to determine blood lead and ZPP levels for the OSHA required medical surveillance program can only be performed at a laboratory which has been approved by OSHA to provide blood lead sampling analysis.

A registry of those laboratories which have been approved for blood lead analysis is published and periodically updated by OSHA. For a list of approved laboratories in your area, contact either your Regional Safety Manager or the AMPCO Director of Safety.

Pre-Employment Medical evaluation testing: Since this testing is only a requirement of AMPCO to obtain a pre-employment medical evaluation of the potential employee, there is no requirement to have the analysis performed by an OSHA approved laboratory.

> **Note:** It is important to keep in mind that if the blood lead and ZPP level testing has not been performed by an OSHA approved laboratory, the results cannot be used to satisfy an OSHA requirement for biological monitoring.

20.4 Local Medical Provider

The Local Medical Provider (LMP) will be selected by the Lead CP whose selection criteria will include the LMP's professional credentials, on-site capabilities, distance from the work site, competitive pricing, and experience with similar projects. In the event that oversight responsibility of the LMP is required, the Medical Consultant, as the primary contractor, will act as the liaison between the Lead CP and the LMP.

The LMP will be provided with a set of lead guidelines that includes examination protocols and instructions, medical and occupational history forms, Physician's Written Opinion forms, laboratory requisitions, a copy of OSHA's Lead Standard, 29 CFR 1926.62, and a copy of the Company Letter to the Physician relating to lead.

The LMP will conduct those medical examinations as requested, and when asked, will also obtain samples for biological monitoring tests in accordance with this Section. The LMP will forward the samples for BLL and ZPP analysis only to the laboratory designated by the Lead CP. The LMP will promptly notify any examinee and the AMPCO site designate whenever a lead related abnormality of an urgent nature is found and will complete the AMPCO Physician's Written Opinion - Lead.

SECTION 21 - MEDICAL EXAMINATION PROTOCOL

21.1 Examination for use of Respirator

A medical and work history should be performed with special emphasis directed to the pulmonary, cardiovascular and gastrointestinal system. A physical examination directed to the pulmonary and gastrointestinal systems, pulmonary function tests of forced vital capacity (FVC) and forced expiratory volume at one second (FEV/1)

Any other examinations or tests deemed advisable by the examining physician to enable him to determine if the employee either is or is not physically able to perform the required work while using the respiratory protection equipment provided.

21.2 Biological Monitoring

Blood sampling and analysis for lead and zinc protoporphyrin levels.

> **Note:** Blood level sampling and analysis will have accuracy (to a confidence level of 95 percent) within plus or minus 15 percent or 6 µg/dl, whichever is greater, and will be conducted by a laboratory approved by OSHA.

21.3 Examination and Consultation

A detailed work and medical history, with particular attention to past lead exposure, personal habits such as smoking and hygiene, and past gastrointestinal, hematologic, renal, cardiovascular, reproductive and neurological problems, should be performed.

A thorough physical examination with particular attention to teeth, gums, hematologic, gastrointestinal, renal, cardiovascular, and neurological systems, a blood pressure measurement, and a blood sample and analysis which determines blood lead level, hemoglobin and hematocrit, red cell indices, peripheral smear morphology, zinc protoporphyrin, blood urea nitrogen, and serum creatinine;

A routine urinalysis, with microscopic examination, and any laboratory or other test relevant to lead exposure which the examining physician deems necessary.

Additional components may be added in consultation with the AMPCO Health and Safety, the Local Medical Provider and/or the Medical Consultant. The scope of special medical evaluations will be determined by the local medical provider in consultation with the Medical Consultant.

SECTION 22 - MEDICAL RECORDS

Employees will be provided access to their medical records within 15 days of receipt of a properly completed written request from the employee or the employee's designated

representative. All employee Lead records will be maintained for 30 years following the last day of employment.

APPENDIX 1

RESPIRATORY PROTECTION FOR LEAD

WHEN THE LEAD CONCENTRATION IS:	YOU WILL HAVE A PROTECTION FACTOR OF AT LEAST:	THE RESPIRATOR NEEDED TO PROVIDE THIS PROTECTION IS:
Not in excess of 500 µg/m^3	10	Half -mask air purifying respirator with HEPA cartridge.
Not in excess of 2500 µg/m^3	50	Full facepiece air purifying respirator with HEPA cartridge. Tight fitting full facepiece powered air purifying respirator (PAPR) with HEPA cartridge. Full facepiece supplied air respirator in operated in either the continuous-flow or pressure demand modes.
Not in excess of 50,000 µg/m^3	1000	half mask supplied-air respirator operated in the pressure demand or other positive pressure mode.
Not in excess of 100,000 µg/m^3	2000	Full facepiece supplied-air respirator operated in the pressure demand mode.
Greater Than 100,000 µg/m^3 And unknown concentrations	>2000	Full facepiece SCBA operated in the pressure demand mode.

SAMPLE LEAD COMPLIANCE PROGRAM

SAMPLE LEAD COMPLIANCE PROGRAM

Required by

The OSHA Lead Standard, 29 CFR 1926.62

SAMPLE COMPLIANCE PROGRAM

GENERAL

A written Compliance Program must be available at the worksite and must be implemented prior to the start of the job. The Competent Person must evaluate the Compliance Program and it must be revised and updated at least every 6 months.

The Competent Person may elect to provide a written Compliance Program that is unique to the worksite however; OSHA does not require this. A generic Compliance Program, such as this sample program, or a Compliance Program developed for another worksite may be used as long as each of the elements required by 29 CFR 1926.62 (e)(2)(ii)(A) through (I) are specific to the conditions existing at the current worksite.

All of the necessary elements for a complete Compliance Program are included in the following sample. Read the sample carefully and then determine if you want to write your own site specific Compliance Program or if you would rather simply tailor this sample program to your work site. If you are going to write a program, it must contain information on each element printed in bold on the sample. If you are going to tailor the sample, select those items within each element on the sample program that more closely relates to your specific project and then circle those items on the sample. You can then use the sample program as your Compliance Program. If you have a problem in developing a site specific Compliance Program, you must immediately contact Health and Safety for assistance. The written Compliance Program must be completed before you start a lead removal project

The Compliance Program, including attachments, used on this project, must be retained for a period of 30 years following the last date of activity on the project.

A. DESCRIPTION OF ACTIVITIES

A-1 Scope: Any attempt to define the scope of a lead abatement project, must address not only the actual limits of the work to be done, but also the various aspects of the technology required for the specific project, acceptance of precise lead abatement regulations promulgated by either the local, state or federal regulating agency, and the recognition of the roles and perspectives of the principal participants, including the facility owner, contractors, consultants, and inspectors.

a) Residential: Remove the lead paint and dust from all accessible, mouth able surfaces. These include all interior or exterior architectural surfaces five feet or less from the floor or ground, and all fixtures five feet or less from the floor or ground that form a protruding corner or similar edge, or are free-standing so that a child can place his/her mouth on the surface, or protrude one-

half inch or more from a flat wall surface. Remove lead paint and dust from all impact surfaces, such as doors and doorjambs, window sashes, windowsills, etc. Remove all lead-containing soil and dust from the soil to a minimum depth of twelve (12) inches.

b) Industrial/Commercial: Remove the lead coatings from industrial structures such as water and storage tanks, bridges, and processing facilities. These coatings, applied over the past 15-40 years and longer, must be removed to prevent environmental pollution and worker overexposure to lead. This involves containing and collecting old lead paint and oxide along with abrasive and other materials used in the process, and proper disposal.

Environmental Survey Report: A copy of the Environmental (Lead Inspection) Survey Report, or scope of the contract, which specifically identifies the source of lead emissions, will be attached to this Compliance Program.

A-2 Equipment to be Used: We will provide either new or used equipment that is undamaged and in serviceable condition, and only that equipment that is recognized as being suitable for the intended use and in compliance with the appropriate standards.

Scaffolding	Electrical Panel
Water Service Connections	Extension Cords
Hot Water Heater	GFCI Units
Lighting Equipment	Fire Extinguishers
Wet and Dry Blasting Systems	HEPA Filtered Vacuums
HEPA Filtered Negative Air Units	Airless Sprayers
Assorted Hand Tools	Scrapers
Needle Guns	Grinders
Brushes, Wire	Heat Guns
Utility Knives and Blades	Cutting Torch
Sanders	Water Cooler
Sawz-alls	Staple Guns
Prefabricated Decon Units	Squeegees
Safety Harness and lanyards	Mops

A-3 Personal Protective Equipment: We will provide the following protective equipment for the safety of our workers: Refer to Section 8-14, Personal Protective Equipment, in the AMPCO Corporate Safety Manual.

Coveralls	Foot Covers
Rubber Boots	Hard Hats
Safety Glasses	Safety Goggles
Work Gloves	Hearing Protectors
Rain suits (chemical suits)	PAPR Respirators
Negative Pressure Respirators	Supplied-Air Respirators

Glove Extenders (sleeve protectors)
Air Sampling Pumps

A-4 Material Involved: The following material will be delivered to the worksite in the quantities required for the size of the project:

6-Poly sheeting
Duct Tape - Black
Barricade Tape
Commercial Stripping Agents
Drums Steel
Drinking Cups
Light Bulbs
Encapsulant
Insulation Fiberglass
Poly Glove Bags
Rewetable Canvas
HEPA Cartridges for N/P Respirators
Rags, 25 lb Package
Shower Towels and Soap
Ply Wood
Staples
WD-40 Spray
Spray Adhesive
6-Mil Poly Bags
Warning Signs
Fiber Drums
Duct Tape - Silver
Solvents
Orange Off Cleaner
Surfactant Wetting Agent
Cellotex
Sawzall Blades
HEPA Cartridges for PAPR'
Mastic Remover
Scouring Pads
Wood Strapping
Wood Studs
Spray Paint
Air Sampling Cassettes

A-5 Crew Size: Crew size should be held to the minimum number of workers possible in order to reduce the potential for additional lead emissions and exposure. List the number of supervisors and laborers that will be working on the project. Identify the type and degree of lead training and the certifications and/or licenses carried by each, and indicate that a copy of all training certificates and/or licenses will be attached to this Compliance Program. As an example:

One (1) supervisor who has completed an EPA sponsored Deleader-Supervisor training course conducted by a State certified training provider and is licensed by the State as a Deleader-Supervisor. A copy of the training certificate and license is attached.

Four (4) deleader laborers who have each completed a Deleader training course administered by a State certified training provider. Copies of their training certificates are attached.

A-6 Job Responsibilities: To be determined by Competent Person after analyzing scope of work.

A-7 Operating Procedures: Refer to Section B-4 of this sample program.

A-8 Maintenance Practices: All removal areas will be cleaned of waste and lead-containing materials at the end of each work shift to prevent the spread of the containment. All bags holding waste will be sealed and labeled at the end of each shift. Negative air units will not be turned off until clearance has been met.

B. MEANS TO ACHIEVE COMPLIANCE:

B-1 Respiratory Protection Program: This project will conform to all requirements for respiratory protection. Refer to Section 7-1 of the Corporate Safety Manual for a copy of AMPCO's complete Respiratory Protection Program.

B-2 Hazard Communication Program: This project will conform to all requirements for Hazard Communication. Refer to Section 7-2 of the Corporate Safety Manual for a copy of AMPCO's complete Hazard Communication Program.

B-3 Hearing Conservation Program: This project will conform to all requirements for Hearing Conservation. Refer to Section 7-3 of the Corporate Safety Manual for a copy of AMPCO's complete Hearing Conservation program.

B-4 Task Specific Engineering Options: The following outlines several specific tasks, which may be used on a lead abatement project. It describes the activity, notes the engineering control methods which may be used to reduce airborne exposure to lead, and prescribes the type of respiratory protection required:

- **Task: Abrasive Blasting:** Abrasive blast cleaning, a process through which paint, rust and mill scale are removed from a structure, is usually done prior to repainting. The blasting process usually uses compressed air to propel the blasting medium to the surface being cleaned. The blasting medium will either be manufactured, a natural mineral, slag, or an agricultural byproduct. Health hazards primarily result from airborne lead dust, which may produce concentrations as high as 58,700 µg/m3. Exposure level used to specify controls is 37,300 µg/m3 inside a full containment and 23,680 µg/m3 without containment.

  Interim respiratory protection is required: Use any type of respirator listed in Appendix 1 that provides adequate protection for an airborne concentration of lead greater than 2,500 µg/m3.

  Engineering Controls: Use a less dusty abrasive, such as coal slag, steel shot, and steel grit. Erect either a partial or a full containment.

  Ventilation:

1. Containment structures using ventilation should be designed to allow sufficient air movement for lead dust/abrasive removal.
2. Filtration system must be adequate to remove lead dust/abrasive from exhausted air.
3. Containment structure must be properly sealed and maintained to ensure proper removal of airborne dusts/abrasives.

Recyclable Abrasive System: This system, like conventional blasting, uses compressed air to propel the abrasive medium to the surface being cleaned. The difference, however, is that the spent abrasive and waste are collected and separated and the abrasive reused.

1. Less waste from abrasive materials is produced than when blasting with expendable abrasive.
2. Containment area must be designed to ensure effective removal of waste and abrasive.
3. Recycling equipment must be monitored to ensure waste is removed from abrasive and not re-blown into the containment area.
4. Airborne silica is eliminated.

Vacuum Blasting System: This system uses a specially designed blasting nozzle that applies abrasive medium like conventional blasting but simultaneously vacuums the spent abrasive and waste. The abrasive is later separated from the waste and reused.

1. Airborne lead exposures are significantly reduced.
2. More time consuming than conventional blasting.

Wet Abrasive Blast Cleaning: This system uses compressed air to propel the abrasive medium to the surface being cleaned; however, water is injected into the abrasive stream either before or after the abrasive exits the nozzle.

1. Airborne lead exposures are eliminated.
2. Waste produced can create containment and removal difficulties.

High Pressure Water Jetting with Abrasive Injection: This system uses an expendable abrasive medium that is metered into a pressurized water jet (up to 20,000 psi) for surface preparation.

1. Airborne lead exposures are eliminated.
2. Waste produced can create containment and removal difficulties.

Ultra-High Pressure Water Jetting: This system uses pressurized water (above 20,000 psi up to 40,000 psi or greater) to prepare surface. No abrasive medium is used.

1. Airborne lead exposures are eliminated.
2. Waste produced can create containment and removal difficulties.

Ultra-High Pressure Water Jetting with Abrasive Injection: This system uses an expendable abrasive medium that is metered into a pressurized water jet (above 20,000 psi up to 40,000 psi or greater) to prepare surface.

1. Airborne lead exposures are eliminated.
2. Waste produced can create containment and removal difficulties.

Other Paint or Isolation Removal Alternative Methods:

1. Chemical Stripping
2. Encapsulation
3. Power Tool Cleaning

- **Task: Welding and Cutting:** Welding and cutting are processes by which metal pieces are joined together or severed apart, usually performed with an oxy-acetylene torch or an arc welding rod holder. This operation is typically seen in new construction, maintenance or demolition of steel structures. Health hazards created by this process are from lead-based paint on the structure becoming superheated and released into the air in the form of fumes, which can create concentrations of lead dust as high as 28,000 µg/m3. Exposure level used to specify controls is 1,570 µg/m3 for activities on bridges and 980 µg/m3 for all others.

  Interim respiratory protection is required: Use any type of respirator listed in Appendix 1 that provides adequate protection for an airborne concentration of lead greater than 2,500 µg/m3.

  Engineering Controls: Use portable local exhaust ventilation.

  Method of removing from work area lead fume and gases:

  1. Must be equipped with HEPA or equivalent filter.
  2. Use is limited by location of welding operation.

  Removal of Lead-Based Paint from Cutting/Welding Area: This method involves the stripping back of at least 4 inches of paint from the area of heat application.

  1. Abrasive blasting or other methods can be used.

  Hydraulic Shears for Cutting Steel Coated with Lead-Based Paint: This is a method of mechanically cutting metal.

  1. Lead fume hazard is eliminated.
  2. Use is limited by access of shears to cutting area.

Working Upwind of Welding/Cutting Operations: This involves working upwind of, and sufficiently far enough away from, the welding/cutting operation.

1. Use is limited by wind direction changes.

Containment or Enclosure: This involves the erection of a containment or enclosure around the welding/cutting operation.

1. Use is limited by work area.
2. Must be used in conjunction with exhaust ventilation system.
3. Must be properly sealed to ensure effective operation of exhaust ventilation system.

Partitions: This involves the use of partitions between the welding/cutting area and other areas.

1. Helps confine lead fumes to local area.
2. Must be used in conjunction with a local exhaust system.

- **Task: Lead Burning:** Lead burning is a process by which lead or alloyed lead is melted with a torch or otherwise fused to another lead object. Lead health hazards in this operation are from lead that is superheated and released into the air in the form of a fume, as well as from additional exposures which occur from airborne lead dust released during handling of materials, all of which can create concentrations of lead dust as high as 2,560 µg/m3. Exposure level used to specify controls is 670 µg/m3.

  Interim respiratory protection is required: Use any type of respirator listed in Appendix 1 that provides adequate protection for an airborne concentration of lead greater than 500 µg/m3.

  Engineering Controls: Portable Local Exhaust Ventilation.

  Methods of vacuuming from work area lead fume and other gases.

  1. Local exhaust must be equipped with HEPA or equivalent filter.
  2. Use is limited by location of burning operation.

  Containment or Enclosure: This involves the erection of a containment or enclosure around the welding/cutting operation.

  1. Use is limited by work area.
  2. Must be used in conjunction with exhaust ventilation system.
  3. Must be properly sealed to ensure effective operation of exhaust ventilation system.

- **Task: Use of Power Tools for Cleaning and Rivet Busting:** The use of power tools for cleaning involves tools such as needle guns, grinders, brushes, and sanders to remove dirt, scale, or lead-based paints from coated surfaces. Rivet busting involves the use of pneumatic tools to remove rivets from steel structures where lead-containing paints are present. Rivet busting can also involve the use of torches as well as mechanical means for rivet extraction. Health hazards in these operations come from lead dust and paint chips created during tool use, and can create concentrations of lead dust as high as 20,600 µg/m3. Exposure level used to specify controls is 300 µg/m3 for housing abatement projects and 1,320 µg/m3 for all other projects.

  Interim respiratory protection is required:

  For power tool cleaning with dust collection system: Use any type of respirator listed in Appendix 1

  For power tool cleaning without dust collection systems: Use any type of respirator listed in Appendix 1 that provides adequate protection for an airborne concentration of lead greater than 500 µg/m3.

  For rivet busting: Use any type of respirator listed in Appendix 1 that provides adequate protection for an airborne concentration of lead greater than 500 µg/m3.

  Engineering Controls: Use a shrouded tool with exhaust ventilation.

  1. Must be equipped with HEPA or equivalent filter and appropriate collection system.

- **Task: Painting With Lead-Based Paint:** Painting with lead-based paint involves the application of lead-containing paints, typically primers, through spray equipment or by hand. Health hazards in this operation are from airborne lead created through the over spray and rebound of paint spray off the structure being painted, which can create concentrations of lead dust as high as 460 µg/m3. Exposure level used to specify controls is 110 µg/m3.

  Interim respiratory protection is required: Use any type of respirator listed in Appendix 1.

  Engineering Controls: Use Non-Lead Containing Paints and Primers:

  1. Hand Applying Lead-Based Paint:

  Portable Local Exhaust Ventilation: Method of removal of paint over spray and solvents from work area.

  1. HEPA or equivalent filtration must be used.

2. Use is limited by location of painting operation.

Containment or Enclosure: This involves the erection of a containment or enclosure around the welding/cutting operation.

1. Use is limited by work area.
2. Must be used in conjunction with exhaust ventilation system.
3. Must be properly sealed to ensure effective operation of exhaust ventilation system.

- **Task: Hand Scraping and Sanding of Lead-Based Paint:** Hand scraping and sanding of lead-based paints involves the use of hand-held scraping or sanding tools to remove paint from coated surfaces. The health hazards in this activity are from dust and paint chips produced in the scraping or sanding process, and can create concentrations of lead dust as high as 170 µg/m3. Exposure level used to specify controls is 100 µg/m3.

  Interim respiratory protection is required: Use any type of respirator listed in Appendix 1.

  Engineering Controls: No specific controls are suggested.

- **Task: Heat Gun Removal of Lead-Based Paint:** In this method, the worker uses a heat gun, a tool similar in design to a hand held hair dryer, to produce a stream of hot air. This is used to partially melt the lead-contaminated paint, which is then scraped off. The health hazards encountered are from lead fumes released into the air during the heating process and lead particulate created during the scraping process, all of which can create concentrations of lead dust as high as 920 µg/m3. Exposure level used to specify controls is 40 µg/m3.

  Interim respiratory protection is required: Use any type of respirator listed in Appendix 1.

  Engineering Controls: Monitor temperature level of the heat gun to reduce burning of the lead-based paint.

- **Task: Manual Demolition and/or Removal of Plaster or Gypsum Walls or Building Components:** This activity usually involves the demolition or removal of plaster or gypsum walls or building components by striking them with a sledge hammer or similar tool. The health hazards encountered are from dust and paint chips generated in the break-up and removal process, which can create concentrations of lead dust as high as 170 µg/m3. Exposure level used to specify controls is 80 µg/m3.

  Interim respiratory protection is required: Use any type of respirator listed in Appendix 1.

Engineering Controls: Partitions, or other barriers, which allow for partial containment of dust.

- **Task: Removal and Repair of Stained Glass Windows:** These tasks involve several distinct activities, such as (a) removal of the glass from the building structure, (b) tracing the locations of the pieces of glass, (c) disassembly of the lead strips and removal of the lead putty which seals it, (d) cleaning of the individual pieces of glass, and (e) reassembly and soldering of lead strips. Only the first activity, removal, takes place at the work site, with the latter steps usually occurring at the workshop. Health hazards are from lead dust released into the air during glass removal and can create concentrations of lead dust as high as 79 µg/m3.

  Interim respiratory protection is not required: Unless there is a reason to believe that an employee may be exposed to lead above the PEL. It is recommended that half mask APR be used.

  Engineering Controls: Portable local exhaust ventilation. Method of removing from localized area lead particulate.

  1. Must be equipped with HEPA or equivalent filter.
  2. Use limited by location of repair operation.

- **Task: Reinsulation Over Existing Mineral Wool:** Mineral wool is a form of insulation which contains lead. This insulation is either manually installed or mechanically blown in place. The lead health hazard during these operations comes from lead particulate released into the air, which can create concentrations of lead dust as high as 90 µg/m3.

  Interim respiratory protection is not required: Unless there is a reason to believe that an employee may be exposed to lead above the PEL. It is recommended that half mask APR be used.

  Engineering Controls: Local exhaust ventilation used at hopper of insulation blowing equipment.

- **Task: Enclosure Movement and Associated Miscellaneous Activities:** The workers involved with these tasks support in various ways the jobs that produce the primary lead exposures. These tasks include: (a) setting up, tearing down and moving of containment structures/materials; (b) support activities for burning, cutting and welding operations; (c) support activities for abrasive blasting; (d) support activities for power tool cleaning; (e) support activities for lead-based painting operations; and (f) support activities for demolition operations. Although the health hazards encountered from these operations include lead exposures from fumes, dusts and other particulate, which can create concentrations of lead dust as high as 9,580 µg/m3, in general, the level of protection offered these support workers

should be equivalent to the protection used by those individuals either directly or indirectly involved in the job being done.

Interim respiratory protection is required:

For clean-up activities where dry expendable abrasives are used Use any type of respirator listed in Appendix 1 that provides adequate protection for an airborne concentration of lead greater than 500 µg/m3.

For abrasive blasting enclosure movement and removal: Use any type of respirator listed in Appendix 1 that provides adequate protection for an airborne concentration of lead greater than 500 µg/m3.

Interim respiratory protection is not required:

For other activities: Unless there is a reason to believe that an employee may be exposed to lead above the PEL. It is recommended that half mask APR be used.

Engineering Controls: The engineering controls used will vary depending upon the support activities being done. Refer to the activity being supported to determine the engineering control options.

- **Task: Chemical Stripping of Lead-Based Paint:** In this activity, workers brush a caustic-based commercial stripping agent on the painted surface producing a sludge as the stripping agent reacts with the paint. After an appropriate amount of time, the sludge is either scraped or brushed from the surface for disposal. Health hazards encountered in this activity are from lead dust and paint chips created during removal process, which can create concentrations of lead dust as high as 480 µg/m3. Exposure level used to specify controls is 20 µg/m3.

  Interim respiratory protection is required: Use any type of respirator listed in Appendix 1 that provides adequate protection for an airborne concentration of lead greater than 2,500 µg/m3.

  Engineering Controls: Additional health hazards may be encountered from the chemical stripper itself.

  1. Clean-up often, all surfaces must be kept as free as practicable of accumulations of lead.
  2. Use appropriate personal protective equipment where there is risk of skin or eye irritation.

- **Task: Encapsulation of Lead-Based Paint:** Encapsulation involves the isolation of the lead hazard with some form of rigid material or sealant. This might involve the covering of painted walls with sheet rock, fiberglass or a sprayed-on "non-lead" encapsulant. Health hazards in this operation are from lead dust and paint chips created during the encapsulation or surface preparation process, which can create concentrations of lead dust as high as 26 µg/m3.

  Interim respiratory protection is required: Use any type of respirator listed in Appendix 1.

  Engineering Controls: Exhaust ventilation. Method of removing from localized area lead particulate.

  1. Must be equipped with HEPA or equivalent filter.
  2. Use limited by proximity of filter unit to operation.

- **Task: Industrial Vacuuming:** This is a process by which vacuum systems are used to clean areas of industrial plants. Health hazards are present when lead dust exposures occur during the cleaning of various areas such as catwalks, structural beams, and plant floors, which can create concentrations of lead dust as high as 2,900 µg/m3. Exposure level used to specify controls is 1,000 µg/m3

  Interim respiratory protection is required: Use any type of respirator listed in Appendix 1 that provides adequate protection for an airborne concentration of lead greater than 2,500 µg/m3.

  Engineering Controls: Use appropriately sized vacuum source with flexible hose for method of removing lead dust from work area.

  1. Must be equipped with HEPA or equivalent filter.
  2. Use is limited by distance to vacuum source.

- **Task: Cutting of Lead Foil Panels:** The cutting of lead foil panels usually occurs during the construction of units or rooms that require lead shielding. The lead foil panels, which consist of a specially prepared wallboard covered with a thin layer of lead foil, are cut to the needed size with either a knife or saw. After placement of the wallboard, lead foil is used to cap all punctures and seams. The lead health exposure during this operation can occur through lead dust created from cutting. The exposure level used to specify controls is 1 µg/m3.

  Interim respiratory protection is not required: Unless there is a reason to believe that an employee may be exposed to lead above the PEL.

Engineering Controls: None suggested.

C. TECHNOLOGY USED IN MEETING PEL:

While we will use several types of engineering controls to reduce our employees' exposure to airborne lead contaminants, the most routinely used controls will consist of regulating the area, the use of an enclosure under negative pressure, the use of amended water, strict adherence to decontamination and hygiene requirements, and finally, respirators with an appropriate protection factor.

C-1 Regulated Area: In any work area where exposure to lead either exceeds or has the potential to exceed the PEL, that area will be regulated to insure that only authorized personnel will be allowed entry to the work area. The following warning signs will be posted:



C-2 Negative Pressure System: After construction of an enclosure is completed, a negative pressure system will be installed. This system is a fully operational engineering control system, which exhausts a sufficient amount of air from the work area necessary to create a continuous airflow and a negative pressure of -0.02 to -0.04 inches of water within the enclosure with respect to the area outside the enclosure. This is achieved by using an Air Filtering Device (AFD), which is a self-contained exhaust fan equipped with a HEPA filter to collect and retain the airborne lead dust. The exact pressure differential required will vary from project to project.

Estimating Number of Air Filtering Devices: Lacking specific air monitoring data, which would indicate the number of Air Filtering Devices (AFD) required, we will estimate the number of AFD's needed in the following manner:

Ascertain the volume, in cubic feet, of the work area by multiplying the floor area by the ceiling height. The total air circulation requirement for the work area, in cubic feet per minute (CFM),

will then be determined by dividing the above volume by the number fifteen (15), which is 4 air changes per hour.

Volume of work area (cu.ft.)
---------- = Air Circulation Requirement (CFM)
15

The number of Air Filtering Devices needed to achieve this rate will then be determined by dividing the air circulation requirement (CFM) by the working capacity of the AFD(s) used.

Air Circulation Requirement (CFM)
---------- = Number of AFD's needed
Capacity of AFD with loaded filters (CFM)

Normally, one (1) additional AFD will be added as a backup in case of equipment failure or if a machine needs to be shut down for filter changing.

C-3 Amended Water: Wherever possible, amended water will be used to hold down airborne lead dust. This will be used in wet scraping as well as in misting the area during removal and clean-up operations.

C-4 Decontamination and Hygiene Facilities: A personnel decontamination unit will be erected at each lead abatement worksite. The Personnel Decontamination Unit will consist of a serial arrangement of five (5) connected rooms or spaces, designated the Clean Room, the Air Lock, the Shower Room, the Air Lock and the Equipment Room, separated by impermeable walls. When space limitations are a factor, the air locks may be left out. Each worksite will have sufficient hygiene facilities to accommodate workers washing their face and hands before eating or drinking. No smoking in the work area will be allowed.

C-5 Respiratory Protection: When all existing engineering controls have been initiated to reduce the workers exposure to airborne lead contaminants, we will then rely on the protection offered by an appropriate respirators selected from the list in Appendix 1 of these guidelines. Whenever respirators are used, AMPCO's Respirator Protection Program, as outlined in Section 7-1 of the Corporate Safety Manual, will be in effect.

D. AIR MONITORING:

D-1 Air Monitoring: Air monitoring will be carried out to ensure the protection of deleading workers and to verify that areas outside the workplace remain uncontaminated. Unless the

contract document specifies that air monitoring services are to be provided by the Owner, AMPCO will either utilize trained supervisors or engage the services of a competent, independent air monitoring firm to perform sufficient air sampling to accurately determine the airborne concentrations of lead dust to which the deleading workers may be exposed. Refer to Section 9-2, Air Monitoring Guidelines, in the Corporate Safety Manual.

D-2 Air Monitoring Reports: The AMPCO Daily Air Monitoring Report form, which contains both the analytical data and the descriptive information, must be used by each individual engaged in the collection of air samples for personal air monitoring. This form must be used to both record the collection information and to report the results of its air sampling analysis.

D-3 Notification to Employees: A copy of each completed Air Monitoring Report will be posted daily for worker notification. Additionally, whenever the results indicate that employee exposure, without regard to respirators, is at or above the PEL, we will include a written statement to each employee exposed to this level, that the employees exposure was at or above the PEL and a description of the corrective action already taken or to be taken to reduce exposure to below the PEL.

D-4 Containment Logs: every individual entering and leaving the containment must complete The Containment Record. When the Daily Air Monitoring Report is completed, a copy of the Containment Record must be stapled to the Daily Air Monitoring Report when it is posted.

E. IMPLEMENTATION SCHEDULE:

E-1 Implementation and Completion Dates: All notifications will be made by registered mail with a return receipt requested. When doing demolition or renovation, all requirements for notification and emissions control apply for RACM in amounts greater than 160 square feet, 260 linear feet, or 35 cubic feet. The notification will contain both the start date and the completion date. A copy of the notification will be available on the project.

E-2 Work Schedule: The following schedule will be followed for implementation of the project:

Phase 1 - Notification: Notify appropriate regulatory agencies; notify employers on multi-employer worksite; appoint Competent Person; and develop site specific worker protection plan (Compliance Program).

Phase 2 - Mobilization: Mobilize at worksite; provide company required pre-employment physical; conduct required employee training; initiate record keeping process; regulate, control and demarcate area; and conduct exposure assessment.

Phase 3 - Preparation: Erect Decon and hygiene facilities; Require use of protective work clothing, equipment and respirators; erect critical barriers; erect containment; initiate air monitoring; establish engineering controls; prep work area; and initiate negative pressure and required air flow.

Phase 4 - Deleading: Begin deleading operations; initiate initial medical monitoring; initiate administrative control schedule (if applicable); complete deleading operations; clean-up, bag, and label waste; decon waste bags and remove to holding area; and initiate waste sampling;

Phase 5 - Clean-up: HEPA vac entire area; wash entire area with water and T.S.P; ship bags of waste and manifest per regulations; and initiate clearance procedures.

Phase 6 - Demobilize: Having obtained final clearance, remove containment; remove critical barriers; remove decon; remove regulating barriers and signs; complete required project records; and file for duration of time.

F. WORK PRACTICE PROGRAM:

F-1 Work Practice Controls: When dealing with lead hazards, our first line of defense is engineering and work practice controls. These controls must be utilized to reduce jobsite lead exposure before using any respiratory protection. A work practice control is the modification of a process or equipment to reduce or eliminate lead exposure, and while there are many types of work practice controls, they generally fall into four categories: encapsulation, substitution, process/equipment modification and isolation.

Encapsulation: This will be accomplished by covering the painted surface with a non-lead containing material to isolate the potential lead source. This is seen predominately in residential housing where, instead of removing the lead-based paint from walls, they can be covered with wallboard, sheetrock, wood paneling, flexible wall coverings or a "non-lead" based encapsulant. Before using any form of encapsulant, it will be necessary to check with local authorities to determine the types of encapsulants that can be used. During this process, workers will be protected by engineering controls, an appropriate respirator from the list in Appendix 1, disposable coveralls, personal air monitoring and medical surveillance.

Substitution: This will involve the replacement of one process or material with another. Using "non-leaded" paint rather than a coating that contains lead would be an example of this. When substituting one process or material with another, care will be taken to ensure that the material being substituted is evaluated for any other hazardous chemicals, which may produce new health

hazards. During this process, workers will be protected by engineering controls, an appropriate respirator from the list in Appendix 1, disposable coveralls, personal air monitoring and medical surveillance.

Process/equipment modification: This will involve changing a process or equipment to reduce or eliminate the hazard. One example of this would be for us to use a 6-foot cutting torch instead of a standard torch to increase the distance from the lead source to the worker's breathing zone. Another example would be for us to use local ventilation. For instance, instead of welding with no ventilation, the worker would use a portable local ventilation system to remove welding gases and fumes from the immediate area. When we are using negative air systems, filtration systems, ventilation systems or even modified equipment, performance of these systems must be continually evaluated to ensure their effectiveness. During this process, workers will be protected by engineering controls, an appropriate respirator from the list in Appendix 1, disposable coveralls, personal air monitoring and medical surveillance.

Isolation: This is a method of limiting lead exposure to only those employees directly working with it. It may be as simple as regulating the area by posting signs and erecting barricades to keep non-essential personnel away from potential exposure areas, to as complex as erecting a negative-pressure enclosure and decontamination unit to ensure that lead-bearing dust remains within the enclosure. During this process, workers will be protected by engineering controls, an appropriate respirator from the list in Appendix 1, disposable coveralls, personal air monitoring and medical surveillance.

F-2 Housekeeping Techniques: All surfaces will be kept as clean as possible by HEPA vacuuming and wet wiping as often as is considered necessary. Dry or wet sweeping, shoveling, and brushing will only be used as a last resort. All vacuums will be equipped with HEPA filters and will be emptied in such a manner as to prevent the spread of contamination. Unless used in conjunction with local ventilation system, compressed air will not be used to remove lead from any surface. All bags containing lead waste will be sealed and secured at the end of each work shift.

F-3 Hygiene Facilities and Practices: We will make certain that in areas where employees are exposed to lead above the PEL, without regard to the use of respirators, they will not be allowed to have food or beverages present or to consume them, nor will they be allowed to have tobacco or tobacco products, nor will they be allowed to apply cosmetics.

Clean Change Areas: Clean change areas and suitable clothing containers, separate for street and work clothing, will be provided so as to prevent cross-contamination. Employees will not be allowed to leave the workplace wearing any protective clothing or equipment that has been contaminated during the work shift.

Showers: Showers will be provided where feasible and we will enforce their use at the end of each work shift. We will provide sufficient hot water and an adequate supply of cleaning agents and towels for employee use.

Eating Facilities: Eating facilities or areas will be provided that are as free as practicable from lead contamination and are readily accessible to the workers.

Hand Washing Facilities: We will provide adequate hand washing facilities and provide assurance that each employee washes his or her face and hands at the end of each work shift.

G. ADMINISTRATIVE CONTROL SCHEDULE:

G-1 Administrative Controls: Work Schedule. In the event that administrative controls are utilized to maintain employee exposure to below the PEL, than a complete copy of the administrative work schedule, including employee names, social security numbers, dates, location, activities, and starting and completion times, must be attached to this Compliance Program. Any deviations must be noted on the attached schedule.

H. MULTI-EMPLOYER WORKSITES:

H-1 Multi-Employer Notification: On multi-employer worksites, where the lead abatement operation requires the establishment of a regulated work area, there is a responsibility to inform other employers on the site of the nature of AMPCO's work, the existence of the regulated area, and the requirements pertaining to this area. This will normally be accomplished by AMPCO providing the Owner with a letter in which this information is set forth. The Owner then notifies the other employers and tenants whom he deems necessary and who are in the immediate vicinity of the regulated area.

H-2 Hazard Communication Training: Other contractors working in the area will be given a copy AMPCO's Hazard Communication Program and appropriate training will be provided.

I. MEDICAL MONITORING:

I-1 Medical Monitoring Program: Medical monitoring of all personnel who are exposed to lead at or above the Action Level will be in accordance with the provisions outlined in Appendix Two of these guidelines.

J. DOCUMENTATION/REPORTS:

J-1 Site Inspections: The Competent Person will conduct physical inspections of the work area at least daily to ensure that all of the corrective measures necessary to decrease the risk potential for lead exposure are properly implemented, correctly maintained and appropriately effective. Oversight to insure that the deficiencies noted during these inspections are corrected in a timely and consistent fashion will be the responsibility of the Project Manager and/or Health and Safety. Comprehensive notes of these inspections must be recorded in a separate file or log and any deficiencies noted must be immediately corrected and reported to the project manager and the Health and Safety.

J-2 Soil Sample Report: If available, a copy of the Soil Sample Report is attached to this Program.

J-3 Site Log: A record of the daily activities on this lead abatement site will be maintained. This log will include, but will not necessarily be limited to, the following: visitors to the site; violation of any safety rules; equipment failures; workers on the site; visits by management; tools and equipment used; documentation of work accomplished; frequency of clean-up activities; and any unusual conditions. A copy of the completed site log will be attached to this Program at the completion of the project.

J-4 Clearance Testing: Copies of all clearance tests, including the times and dates of the tests, along with the environmental laboratory results for those tests, will be attached to this Program at the completion of the project.

J-5 Hazardous Waste Sample Report: A copy of all TCLP reports and material test results will be attached to this Program at the completion of the project.

J-6 Landfill Disposal Record: Copies of all Landfill Disposal Records will be attached to this Program at the completion of the project.

J-7 Hazardous Waste Manifest: Copies of all Hazardous Waste Manifest will be attached to this Compliance Program at the completion of the project.

J-8 Copies of Sub-Contracts: Copies of all sub-contracts let by AMPCO on this project will be attached to this Compliance Program. A copy of this Program and AMPCO's Corporate Safety Manual will be made available for review by all subcontractors.

INORGANIC ARSENIC GUIDELINES

SECTION 1 - PURPOSE

These procedures establish uniform guidelines for providing a program to protect construction employees from excessive exposure to arsenic while working on a construction site.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - APPLICATION

The primary application of this program is to asbestos abatement operations which are performed at incinerators and coal burning power plants. Experience has indicated there are generally elevated levels of arsenic in the fly ash at these locations, as well as inorganic arsenic in the fly ash of medical waste incinerators and coal burning plants. High levels of arsenic tend to go hand in hand with high dust volume areas, such as would be found in precipitators and ash hopper systems.

SECTION 4 - CODES AND REGULATIONS

General applicability of Codes and Regulations: Except to the extent that more explicit, or more stringent requirements are written directly into this program, all applicable codes and regulations have the same force and effect as if copied directly into this program.

Those standards governing the development of this program include but are not limited to the following.

- 29 CFR 1910.134 Respiratory Protection
- 29 CFR 1926.20 General Safety and Health provisions
- 29 CFR 1926.21 Safety Training
- 29 CFR 1926.28 Personal Protective Equipment
- 29 CFR 1926.55 Gases, Vapors, Fumes, Dusts and Mists
- 29 CFR 1926.59 Hazard Communication
- 29 CFR 1926.354 Welding, Cutting and Heating in Way of Preservative Coatings
- 29 CFR 1910.1018 Inorganic Arsenic

- 29 CFR 1910.1020 Access to Employee Exposure and Medical Records
- Reference AMPCO Corporate Safety Programs

SECTION 5 - DESIGNATION OF ADMINISTRATOR

A program administrator shall be designated by name. This should be a competent person who will have responsibility for implementation of, and adherence to, the provisions of this program. It is usually a good idea to also designate each person who is responsible for enforcement of the program at the job site. This is usually the site superintendent or general foreman.

In order to comply with OSHA's "competent person" requirement the person designated must have at least two qualifications. He or she should have an excellent working knowledge of the program and its required personal protective equipment, and should have sufficient authority to promptly prevent and correct hazardous conditions.

5.1 Responsibility

It is the responsibility of the Project Manager to ensure that all operating areas comply with the intent of this program.

It is the responsibility of the Health and Safety to provide for the necessary training, monitoring and to ensure compliance via the use of audits and job site inspections.

It is the responsibility of the Project and Branch management to provide the necessary support to the project to assist in the successful completion of this program. Health and Safety will audit as necessary to ensure compliance.

SECTION 6 - ALLOWABLE EXPOSURE LIMITS

6.1 Arsenic

Permissible Exposure Limit (PEL): 10 micrograms per cubic meter of air (10 µg/m3), averaged over any 8-hour period. This is the maximum level employees may be exposed to without respiratory protection.

Action Level (AL): 5 µg/m3 (8-hour TWA). This is the level at which first action must be taken, such as employee training, medical monitoring and record keeping.

SECTION 7 - EXPOSURE MONITORING

Jobs involving the use of construction materials containing arsenic, or where the likelihood of

disturbing in-place materials containing arsenic is present, should be targeted for detailed evaluation of their potential for arsenic exposure. There is no instantaneous, on-line method for measuring airborne arsenic concentrations. Samples must be taken and laboratory analyzed to determine concentrations.

7.1 Bulk Sampling

Whenever possible, attempt to obtain samples of fly ash from the potential work zones within the customer's facility. These samples should be analyzed for arsenic content and can then be used to predict the potential for exposure.

These samples should be drawn at least one week prior to the work start to allow for lab processing time. It is acceptable to discuss exposure concerns with the customer's safety/health personnel. If their analysis shows routine high concentrations of arsenic, overexposure should be considered a potential hazard.

7.2 Prior Data

If possible, AMPCO project management should review with the customer's safety representative any previous data obtained under the plants normal working conditions. Although data taken during normal plant operations does not accurately reflect potential exposures to workers conducting construction type operations, overexposure during routine work may signal concern for any construction workers performing non-routine tasks.

7.3 Air Sampling

Air Sampling should be conducted initially for representative operations in order to establish an 8-hour TWA of employee exposure. Each job classification should be tested for at least 7 hours. If the results are under the PEL, monitoring can be discontinued.

Additional monitoring may be required if there is a change in plant operation, process, controls or any other change that may increase the exposure to airborne arsenic.

Air samples should be taken and laboratory analyzed. These samples should be taken in accordance with the National Institute for Occupational Safety and Health (NIOSH) Method 7082, or equivalent, and under conditions that represent each employee's regular daily exposure to arsenic. Turn around time can run from a one day rush to 10 days normal. Ongoing monitoring should continue if the results are above the PEL.

At levels above the PEL, repeat monitoring every quarter and continue until two consecutive measurements taken 7 days apart are below the PEL.

Exposure monitoring results will enable us to:

- Identify sources of exposure;
- Select the appropriate respiratory device and monitor effectiveness;
- Determine the effectiveness of work practices in controlling exposures;
- Recognize the need for modifying exposure/control practices including the need for additional engineering controls; and
- Determine the need for medical monitoring.

7.4 Notification

All employees involved in air monitoring should receive notification of their results within 5 days of the results arrival.

SECTION 8 - ENGINEERING AND WORK PRACTICE CONTROLS

8.1 Burning, Cutting and Heating

In enclosed spaces, all surfaces covered with toxic preservatives shall be stripped of all toxic coatings for a distance of at least 4 inches from the area of heat application. Either general mechanical or local exhaust shall be used when burning, cutting or heating any arsenic base metals in an enclosed space.

8.2 Eating Areas

Arsenic can be unintentionally ingested via eating, drinking, or smoking on the job site. AMPCO supervision will strictly enforce the policy of no eating, drinking, smoking, chewing gum or using tobacco in regulated areas. A clean area, free from exposure to Arsenic should be provided for employee's to use for eating lunch. Employees using the lunch area shall have access to hot and cold water, soap, and towels, and shall be required to wash their hands before eating. While drinking water is allowed, proper hygiene practices should be observed with regard to water coolers and drinking cups.

8.3 Establishing Regulated Areas

The employer shall establish regulated areas where exposures are in excess of the PEL.

8.4 Posting Warning Signs

When airborne arsenic concentrations exceed the PEL, the area must then become regulated and the following warning signs must be posted:



Warning signs must be posted at all entry points into the regulated area and appropriate caution tape must be used to restrict access.

8.5 Labeling

The OSHA Arsenic Standard, 29 CFR 1910.1018, requires labels for shipping and storage containers of products which contain inorganic arsenic. Unfortunately, a minimum percentage of arsenic is not specified. OSHA does however, provide specific guidelines on hazard determination in their Hazard Communication Standard, 29 CFR 1926.59, which states that a mixture presents a carcinogenic hazard if it contains a carcinogen in concentrations of 0.1 percent or greater. Typically, fly ash contains up to approximately 0.04 percent arsenic. Further, current disposal requirements identify fly ash as a residual waste.

For these reasons, the following label is used.

FLY ASH
(Residue from coal combustion)

DANGER, CONTAINS LOW LEVELS OF
INORGANIC ARSENIC (OSHA REGULATED CARCINOGEN)
AND SILICA (SUSPECTED CARCINOGEN)

USE ONLY WITH ADEQUATE VENTILATION
OR RESPIRATORY PROTECTION
AVOID SKIN CONTACT

All non-incidental containers of fly ash must be so labeled.

SECTION 9 - RESPIRATORS AND FIT TESTING

If exposure levels are at or above the PEL, respirators should be provided according to the following table. All respirators must be NIOSH approved. In each case the minimum requirement is shown.

ARSENIC	RESPIRATOR TYPE
5 to 100 µg/m3	Half-face piece, HEPA filters
101 to 500 µg/m3	Full facepiece, HEPA filters
501 to 10,000 µg/m3	Powered-air purifying respirator with HEPA filters
10,001 to 20,000 µg/m3	Positive pressure, supplied-air, full facepiece, hood or helmet
20,000 µg/m3 and up	Full facepiece SCBA

NOTE: High Efficiency Particulate Air (HEPA) filter means a filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.

9.1 Respirator Protection Program

For information on AMPCO's Respirator Protection Program, including selection, fit-testing, cleaning and maintenance, etc., refer to Section 7-1 of AMPCO's Corporate Safety Program.

9.2 Changing Cartridges

Filters will be changed when there is an increase in breathing resistance. On-hand stock of filters shall be maintained to permit replacement. If the N or R series filters are used, they must have either a change schedule or an End-of-Service-Life Indicator (ESLI). The change schedule for the respirator cartridges are based on objective information or data that will ensure that the cartridges are changed before the end of their service life. The ESLI is a system that is used by the manufacturer to warn the respirator user of the approach of the end of adequate respiratory protection.

9.3 Personal Hygiene

Employees shall be permitted to wash their face and respirator seal to prevent skin irritation often associated with respirator use. This activity is required at breaks and lunch as a good hygiene practice.

SECTION 10 - PERSONAL PROTECTIVE EQUIPMENT

10.1 Personal Protective Equipment

Employee's working in regulated areas will be provided disposable coveralls. Disposable clothing will be disposed of in accordance with local, state and federal regulations. If non-disposable clothing is issued, it will have to be bagged, marked, and laundered in accordance with the required regulations. Other protective equipment includes but may not be limited to:

- Hard Hat
- Hearing Protection
- Disposable Clothing
- Respiratory Protection
- Face Shield
- Over-boots
- Fall Protection Equipment
- Safety Glasses
- Gloves
- Safety Goggles

It is AMPCO's policy that all employees on projects, with mixed gender crews, requiring the use of disposable protective clothing be furnished with either disposable underwear (preferred) or two (2) sets of disposable suits to be worn together. Wearing nylon bathing suits under a single disposable suit is acceptable but this will be considered an individual preference. Acquiring the bathing suit and its associated costs will be solely the responsibility of the employee.

SECTION 11 - HYGIENE FACILITIES

If the exposure levels of arsenic are at or above the PEL, employees working in those areas should be provided with the following:

- Clean change room with storage for street clothes and separate storage for protective equipment.
- Showers will be provided and must be used by all employees at the end of each shift worked in a regulated area. Note: The Company will provide body soap and clean towels.
- Lunchrooms, separate of the work site, should be provided. It is the employee's responsibility to wash their hands and face prior to eating. Washing facilities/arrangements shall be provided.
- Break Decon: The Company will provide and the employees will use a HEPA vacuum unit to vacuum work clothing and boots prior to entering change rooms or lunchrooms.

SECTION 12 - HOUSEKEEPING

General housekeeping is an important part of limiting employee exposure. Every effort shall be made to limit the build up of dust on surfaces or floors in our facilities. It is preferred that wet cleaning or vacuuming be used to clean dust to avoid sweeping.

SECTION 13 - MEDICAL EXAMINATIONS:

In the event that exposure monitoring should determine that a medical surveillance program is required, refer to paragraph 15.0, entitled Medical Surveillance, for more detailed information concerning medical examinations:

SECTION 14 - TRAINING

All employees who have the potential for exposure to arsenic, should be provided with Safety Training prior to their initial job assignment and at least annually.

Safety Training should include the following:

- The content of the applicable standards and appropriate appendices.
- The specific nature of operations which could result in exposures over the action level.
- The purpose, selection, fitting, use and limitations of respirators.
- The purpose and description of the applicable medical surveillance program.
- Engineering controls and work practices.

SECTION 15 - MEDICAL SURVEILLANCE

Medical examinations must be provided to employees who are exposed over the action level for more than 30 days per year. The examination shall be every 6 months for employees over 45 years old or with more than 10 years exposure over the Action Level and annually for other covered employees.

15.1 Medical Examination

The medical examination should include at least the following:

1. Medical and work history;
2. PA view chest x-ray;
3. Skin Examination;
4. Nasal examination and sputum cytology*; and
5. Pulmonary Function Test (PFT).

Note: The cytology exams are only given during initial exams and are standard after 45 years of age or employees having 10 or more years employment over the Action Level.

The examining physician will provide a written opinion containing the results of the exam, this opinion should also include a respirator approval. A copy of the results should be made available to the employee.

*** Please note that although this is required under 29 CFR 1910.1018 arsenic sputum cytology is a difficult procedure to execute and findings have been historically inconclusive.**

POLYCHLORINATED BIPHENYLS PROGRAM

SECTION 1 - PURPOSE

To ensure that employee exposure to polychlorinated biphenyls (PCBs) in the workplace is controlled by adherence to the safety requirements as outlined within this guideline.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

It is AMPCO's policy to protect the health and provide for the safety of its employees by substantially reducing any risk of reproductive or tumorigenic effects and to prevent any other adverse effects resulting from exposure to PCBs while in the workplace.

SECTION 4 - GENERAL

Polychlorinated biphenyls (PCBs) are toxic chemicals, which according to the U.S.EPA, are suspected of causing cancer in humans. The Centers for Disease Control report that workers exposed to PCBs have developed chloracne (a skin disorder), liver injury, irritation of the skin and mucous membranes, and adverse reproductive effects. Given the substantial evidence developed by NIOSH and the Centers for Disease Control, there is no longer a need for workers to face a risk while working with PCBs.

4.1 Exposure Hazard:

NIOSH has recommended a TLV for employees working with PCBs of .001 mg/m3 of air, averaged over an eight-hour work shift. PCBs are listed by the U.S. Environmental Protection Agency as carcinogens and once PCBs are absorbed into the body they attack the eyes, skin and liver, and remain in body tissues almost indefinitely. In the case of an exposed female, PCBs can be passed to her fetus or nursing newborn. A worker exposed to even a large quantity of PCBs may not experience any immediate ill health, though exposure may result in skin irritation and persistent skin rashes.

SECTION 5 - REGULATIONS

5.1 Environmental Protection Agency

Depending upon the concentration of the PCBs in weight and/or PPM, one or more of the following EPA Standards will provide disposal requirements:

There are two primary Federal laws, which affect the handling and disposal of PCBs:

- Toxic Substance Control Act (TSCA). TSCA Hotline is (202) 554-1404
- Superfund Law, or as it is officially known, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). CERCLA Hotline is (800) 424-9346.

Unfortunately, these two laws are conflicting and confusing. For example, TSCA states that it is permissible to dispose of non-leaking PCB filled light ballasts in a sanitary landfill, while Superfund prohibits the disposal of more than one pound of PCBs (16 or more ballasts or 8.5 or more gallons) in a sanitary landfill.

EPA's Resource Conservation and Recovery Act (RCRA) regulates hazardous wastes (that waste which is found to be hazardous by a Toxic Characteristic Leaching Procedure (TCLP) test and which contain more than 50 ppm PCBs).

5.2 Department of Transportation

Department of Transportation (DOT) regulations - CERCLA requires that DOT list and regulate the transportation of all hazardous materials, including PCBs.

5.3 Occupational Safety and Health Administration

OSHA does have specific standards for airborne levels for two isomers of PCBs and they are listed in 29 CFR 1910.1000 table Z-1. These forms are chlorodiphenyl (42% and 54% chlorine). These compounds are more commonly found in insulating liquids used in electrical capacitors, transformers, and nuclear reactors.

Repeated skin contact hazards with all PCBs should be addressed by the standards 29 CFR 1910.132 General Requirements and 29 CFR 1910.133 Eye and Face Protection.

It will be necessary to comply with all aspects of the Respirator Protection Program, 29 CFR 1910.134.

5.4 State and Local Regulations

In addition to Federal laws, there are state and local laws which regulate PCBs. Many of these classify PCBs as hazardous, special, regulated or industrial waste and ban large quantities of PCBs from sanitary or municipal landfills. In others, there may be more stringent requirements for disposal. It is therefore recommended that contact be made

with the individual state's environmental agency for specific requirements.

Once these regulations are known, then all applicable state and local regulations which are in effect at the time of bidding the PCB abatement project, and which have a direct bearing upon the project, must be included and incorporated by reference and made a part of the contract document. In addition to all applicable regulations pertaining to PCBs, AMPCO will also be required to comply with all applicable state hazard communication and right-to-know laws which have not been preempted by the federal hazard communication standard, 29 CFR 1926.59.

SECTION 6 – ENVIRONMENTAL (Workplace Air)

6.1 Occupational Exposure

Occupational exposure to polychlorinated biphenyls (PCBs) must be controlled so that no worker is exposed to PCBs at a concentration greater than 1.0 mg/m3 of air, determined as a time-weighted average (TWA) concentration, for up to a 8-hour workday, 40-hour workweek for PCBs with 42 % chlorine content, and not greater than 0.5 mg/m3 of air, determined as a time-weighted average (TWA) concentration, for up to a 8-hour workday, 40-hour workweek for PCBs with 54 % chlorine content.

6.2 Sampling and Analysis

The recommended TWA occupational exposure limit for PCBs has been determined to be the lowest reliably detectable limit by the sampling and analytical methods recommended by NIOSH. Environmental samples should be collected and analyzed as

SECTION 7 - MEDICAL SURVEILLANCE

Medical surveillance must be made available to all employees subject to occupational exposure to PCBs. Periodic clinical examination of employees should be made at least annually with special emphasis directed to skin disorders, liver function and reproductive history.

7.1 Initial Medical Examination

Elements of the initial medical examination should include, as a minimum, the following:

- A comprehensive medical and work history form, with special emphasis directed to the hepatic function, skin condition, and reproductive history.
- A physical examination directed to the pulmonary and gastrointestinal systems, pulmonary function tests of forced vital capacity (FVC) and forced expiratory volume at one second (FEV/1);

- Any other examinations or tests deemed advisable by the examining physician to enable him to determine if the employee either is or is not physically able to perform the required work and use the respiratory protection equipment provided.
- The results of the examination and the physician's written opinion as to the employee's ability to wear a respirator;
- Any recommended limitation on the use of the respirator;
- Any detected medical condition that could be directly or indirectly aggravated by exposure to PCBs or formulations containing PCBs that may place the employee at a health impairment when exposed to PCBs; and
- A written statement that the employee has been informed by the examining physician of the results of the examination and of any medical condition that may result from exposure to PCBs.

7.2 Instructions to the Physician

For purposes of the examination, the examining physician should be told to assume that all engineering controls will be exercised and the employee will be required to wear a respirator. The employee will be engaged in strenuous activity while scraping, removing, cleaning, and hauling wet PCB-containing materials, all of which require a great degree of physical exertion. The employee will be using one of the NIOSH approved respirators, which provides adequate protection against PCB exposure. The physician should be informed that the quality of PCBs absorbed through the intact skin might equal or exceed that absorbed by inhalation. The employee will be wearing protective clothing, which consist of coveralls, head covering, foot covers or boots, gloves, and safety glasses. All openings in the clothing will be taped shut, which may add to a heat stress factor.

7.3 Special Emphasis

The examining physician should pay particular attention to the skin and to hepatic function including determinations of serum glutamic-oxaloacetic transaminase (SGOT) and serum glutamic-pyruvic transaminase (SGPT) activities. The responsible physician may also wish to obtain measurements of serum triglyceride concentrations or of other indices of fat metabolism.

Women in the work force who are of childbearing age must be advised of the potential adverse effects of PCBs on the unborn child.

7.4 Medical Records

Pertinent medical records must be maintained for all employees exposed to PCBs in the workplace. Such medical records shall be maintained for the period of employment plus thirty (30) years. These records should be made available to the designated medical representatives of the Secretary of Labor, and of the employee or former employee.

SECTION 8 - PERSONAL PROTECTIVE EQUIPMENT

8.1 Protective Clothing

Normal disposable suits, such as poly or asbestos-type tyvek, generally do not provide the degree of protection required by exposure to PCBs. For working with PCBs the worker should be wearing Saranex protective clothing. As with the gloves, extreme care must be taken to insure the suit does not rip. Neoprene boots should be worn.

8.2 Hand Protection

Workers should use one pair of surgical gloves next to the skin, covered by a pair of top quality Milled Nitrile gloves. If possible, these gloves should also be covered by some type of light cotton work glove to protect the very expensive Nitrile gloves. If heavy work is to be done, a pair of Silver Shield gloves should protect the Nitrile gloves.

> **Note:** Hand coverings are extremely important and the gloves should be checked frequently and, if necessary, changed several times per shift.

8.3 Eye Protection

Chemical safety goggles; face shields with goggles, or safety glasses with side shields must be provided by AMPCO to each employee working in an area to which he or she may be exposed to PCBs. Eye protection of this type must be worn during any operation in which PCBs are present.

If liquid or solid PCBs contact the eyes, the eyes must be immediately irrigated with large amounts of clean running water, and then examined by a physician or other responsible medical personnel.

8.4 Respiratory Protection

If respiratory protection equipment is to be used, there must be present on the work site, a copy of Section 7-1 of the Corporate Safety Program. This Section constitutes the company's written respirator protection program required by 29 CFR 1910.134.

The National Institute for Occupational Safety and Health (NIOSH) recommends, for PCB protection, an exposure limit of .001 mg/m3. If we use the NIOSH recommended limit as a basis for respirator selection, any respirator, which has achieved a protection factor of 1,000, is acceptable. Only three types of tight fitting positive-pressure respirators can meet this requirement. These include: self-contained breathing apparatus (SCBA), continuous flow or pressure demand supplied-air respirators (SAR), and powered air-purifying respirators (PAPR) equipped with a combination of a high-efficiency particulate air (HEPA) filter and an organic vapor cartridge.

If there is no historical data available for this project from which to determine in advance, the degree of respiratory protection needed, this information must be obtained by initial monitoring, during which time, respiratory protection must be provided by the use of Type-C Supplied Air respirators. This should not require a time period of more than one or two shifts if the air sampling is sent to an appropriate laboratory for quick-time analysis.

If the amount of exposure can be determined in advance, or when it becomes known by the sampling analysis, the type and degree of respiratory protective equipment can hopefully be downgraded to full-face, tight-fitting PAPR with a combined HEPA and organic vapor cartridge. These respirators must be fit-tested using the qualitative fit-test method outlined in AMPCO's Corporate Safety Manual.

Note: These cartridges MUST be discarded at the end of each shift.

SECTION 9 - INSTRUCTION AND TRAINING:

Each worker involved in the prepping, gross removal, and cleanup phase of the PCB project must receive, as a minimum, the 40-hour training course as outlined in OSHA's 29 CFR 1926.65 Hazardous Waste Operations and Emergency Response Standard.

Using the Hazcom program as an outline, each worker must be thoroughly educated and trained in how to work safely with PCBs and any other hazardous chemicals involved in this project, including work practices to minimize risks, and recognition of signs that might indicate over exposure. This will include the use of all SDS information available.

Training must also include an assessment of the personal protective equipment necessary for this project, including protective clothing, adequate gloves and boots, the proper use of respiratory protective equipment, fitting procedures and fit-testing of all types of respirators that may be required for this project, the correct way to dress and disrobe, how to properly decontaminate, the emergency action plan, and procedures for handling a spill.

SECTION 10 - HAZARD COMMUNICATION

If the PCB is not covered under EPA's Resource Conservation and Recovery Act (RCRA), then it would be subject to the requirements of 29 CFR 1926.59, the Hazard Communication standard. If it is covered under RCRA, it is exempted from the requirements of the Hazard Communication standard, not because the concept of conveying information to the worker does not apply, but rather because it is covered by another standard.

SECTION 11 - HYGIENE PRACTICES

Employees occupationally exposed to PCBs should be provided with separate storage facilities for street clothing in an area which is free of PCBs. Work Clothing and personal protective equipment, which has been exposed to PCBs, will not be removed from the work area unless it has been thoroughly decontaminated prior to removal.

Employees exposed to PCBs must be advised to thoroughly decontaminate prior to eating, drinking, smoking or using toilet facilities.

Full decontamination facilities, the same type as used on all AMPCO asbestos-abatement projects, must be erected prior to allowing employees to work in an area in which they may be potentially exposed to PCBs.

11.1 Decontamination Procedures

Standard decontamination procedures, as outlined in AMPCO's Corporate Safety Manual, must be followed. The method of disrobing in the "dirty" side of the Decon is very important and each step must be followed in sequence. It is recommended that you have your workers use lots of soap and water during the showering process. If the Decon is not contiguous to the regulated area, contaminated suits must be removed prior to leaving the contaminated area and clean suits worn to and from the Decon unit. Respirators must be thoroughly cleaned with soap and water at the end of each shift and allowed to dry before reusing.

SECTION 12 - LABELING AND POSTING

All labels and warning signs must be printed both in English and in the predominant language of non-English-reading workers. Illiterate workers and workers reading languages other than those used on labels and posted signs must be otherwise informed regarding hazardous areas and must be informed of the instructions printed on the labels and signs. All labels must be placed on the exterior of the PCB items, containers and transport vehicles in such a manner that they can be easily read by any person inspecting or servicing the PCB items, containers or transport vehicle.

12.1 Labeling

Letters and striping must be black on a yellow or white background and must be sufficiently durable to equal or exceed the life, including Storage for Disposal, of the PCB contaminated material, equipment or container.

The PCB Mark-L label, which must be prominently displayed, should be at least 6 inches on each side, and must contain the following wording:



12.2 Posting

Warning posters must be affixed in readily visible locations in or near PCB work areas. The information contained on these posters should be as follows:

POLYCHLORINATED BIPHENYLS (PCBS)
DANGER
CANCER SUSPECT AGENT

AUTHORIZED PERSONNEL ONLY

Do not enter unless area is adequately ventilated.
Do not get in eyes, or on skin or clothing
First Aid; in case of skin or eye contact, flush with running water

SECTION 13 - WORK PRACTICES AND ENGINEERING CONTROLS

13.1 Regulated Areas

Each work area must be demarcated and regulated with appropriate warning signs for the hazard incurred. Access to PCB regulated areas must be limited to authorized personnel only, and efforts must be made to regulate access to these areas both during and between work hours. If necessary, some type of security should be obtained.

13.2 Handling of PCBs

The employment of good work practices is required if hazardous occupational exposures to PCBs are to be prevented. The carcinogenic, teratogenic, dermatologic, and fetotoxic effects of PCBs largely determines the nature of necessary work practices.

When PCBs are present, the following work practices are required:

- Only authorized and trained personnel will be permitted in the area;
- Adequate ventilation must be provided and the exhaust air cannot be discharged into any environment unless it has been decontaminated;
- To prevent skin contact with PCBs, workers must be required to wear and use PCB-resistant protective clothing and equipment, including respirators;
- When leaving regulated areas, workers must be required to remove such protective clothing and equipment (except respirators) and place it in impervious containers pending either decontamination or disposal; and
- after removing protective clothing, workers must enter the decontamination shower, wash off the respirator and remove it, and then shower thoroughly with soap and water.

Whenever a worker must come into direct contact with PCBs or whenever there is the potential for exposure to PCBs, such as during removal, renovation, cleanup of spills, etc., the worker must be wearing PCB-resistant protective clothing and an appropriate respirator.

13.3 Control of Airborne PCBs

Suitable engineering controls, designed to, maintain exposure to airborne PCBs at or below the TLV, must be used, with a complete enclosure being the recommended method. Local exhaust ventilation may be used either alone or in combination with process enclosure. When a local exhaust system is used, it must be designed to prevent accumulation or recirculation of airborne PCBs into the work place environment. Exhaust systems discharging to outside air must not constitute a hazard. Before any removal, renovation or cleanup begins, the generation of airborne PCBs must be eliminated to the extent feasible.

13.4 Air Monitoring

Air monitoring for PCBs should be conducted only by a competent air-monitoring firm supervised by a Certified Industrial Hygienist (CIH).

13.5 Record keeping

Personal air monitoring records must be maintained for at least 30 years following the employee's last occupational exposure to PCBs. These records must include the dates and times of measurements, job function, location of employees within the work site, methods

of sampling and analysis used, types of respiratory protection in use at the time of the sampling, TWA concentrations found, and identification of exposed employees.

Pertinent medical records for each employee will also be retained for 30 years following the employee's last occupational exposure to PCBs.

SECTION 14 - EMERGENCY ACTION PLAN:

OSHA Standards, 29 CFR 1926.24, Fire Protection and Prevention, and 29 CFR 1910.38, Employee Emergency Plans, both require employers to be responsible for the development and maintenance of an effective site specific Emergency Action Plan at each job site. Copies of the Emergency Action Plan must be posted at the job site.

14.1 EPA's PCB Spill Cleanup Policy

40 CFR 761.120, Subpart G contains EPA's PCB Spill Cleanup Policy. This policy establishes the criteria EPA will use to determine the adequacy of the cleanup of spills resulting from the release of materials containing PCB's at concentrations of 50 ppm or greater. This EPA Policy only applies to spills, which occur after May 4, 1987. Existing spills, which occurred prior to this date, are excluded from the scope of this policy and may have to be dealt with as a Remediation Site.

14.2 Response to a Spill

A spill could occur if a drum of PCB-containing waste material were to break open for any reason or if the PCB dielectric fluid were to escape from a damaged electrical transformer and allow the PCBs to enter the atmosphere. Because we use DOT approved shipping drums for packaging PCB waste, the chances of this occurring are slim. However, this is the type of emergency that AMPCO personnel have been trained for.

14.2.1 **Nature and Extent of Contamination** - In the event of an emergency exposure, the nature and extent of the contamination would have to be determined immediately. This will be accomplished in two ways, by determining the contaminants present and by sampling and analysis.

14.2.2 **Contaminants Present** - The primary contaminant present within the work area at this location is Polychlorinated Biphenyls (PCBs) dielectric fluid from electrical transformers. The PCB-containing material would be in a state where it does present an exposure hazard. Although the possibility always exists that some other toxic chemicals or substances may be present within the jobsite, if they are present, they will be identified by our industrial hygienist and will be handled so as not to pose a problem to either our workers or the public. Spill cleanup procedures will conform to the requirements of TSCA's 40 CFR 761.125.

14.2.3 **Sampling and Analysis** - As a part of AMPCO's Emergency Response Plan, air monitoring will be initiated immediately in the vicinity of the emergency location. In addition to airborne samples, settled dust samples and wipe samples will also be collected for on immediate analysis before, during, and after clean-up and decontamination. The results of this sampling will determine the levels of exposure to PCBs during the different periods of the clean-up operation and determine the spill boundaries. Ambient background samples will also be taken and analyzed to determine the fallout area of the airborne PCB contaminated dust.

14.2.4 **Health Hazard Evaluation** - The major health hazard resulting in an emergency response, would most certainly be from PCB-containing materials. There is an increasing awareness of the carcinogenic properties of PCBs and these hazards are present at this location, where PCBs have been used for an insulating liquid in electrical transformers.

14.2.5 **Notification** - In the event of an emergency situation or a spill or breach of a containment which has either released PCBs, or has the potential for releasing PCBs, or airborne PCB-contaminated dust into the air outside of a containment area, the following notifications will be required:

- **AMPCO Corporate Safety** - The AMPCO Safety Department must be notified of any emergency response or spill situation in which liquid PCBs or PCB-contaminated waste either have or will be released into the air outside of a containment area, or in which individuals either have or can be exposed to PCBs.

  In the event of an emergency which has the potential for affecting regulatory compliance, AMPCO Director of Safety must be contacted by calling (000) 000-0000.

In addition, Mr. Acosta should also be notified of all potential news-making events as they occur, since reporters often monitor police and fire calls and know about emergency situations before management.

- **Building or Project Management** - A list must be prepared of those individuals within the building or project management staff, who are to be notified immediately concerning any type of emergency response action resulting from an exposure or potential exposure of hazardous contaminants.

  This list, which must contain, in order of notification, the individuals name, position, and both day and evening telephone numbers, will be prominently posted in the Project Superintendents office and distributed to those members of the AMPCO management staff requiring access. Should it become necessary to notify any of the building's employees,

tenants, or other employers, this notification will be left to the building's staff. It will be the responsibility of the building's or projects management staff to make a determination as to the necessity of notifying any other parties.

- **Regulatory Agencies** - All spills at concentrations of 50 ppm or greater which are subject to decontamination requirements under TSCA must be reported. Under the National Contingency Plan, all spills of 10 pounds or more (270 gallons or greater) by weight of PCBs must be reported to the National Response Center by calling the toll free number 800-424-8802. Unless this spill constitutes a major crisis of which time is a critical factor, this notification should only be made by Health and Safety Department.

  Note: Where a spill directly contaminates surface waters, sewers, or drinking water supplies, contact the appropriate EPA regional office of the Office of Prevention, Pesticides and Toxic Substances in the shortest time possible, but in no case later than 24-hours after discovery.

- **Community Public Safety Agencies** - Should an incident occur which would require the involvement of one of the community public safety agencies, such as the fire department or state police for example, it will be necessary to notify that agency of the existence of the PCB-containing materials and the personal protective equipment required for personal safety. This notification will be the direct responsibility of the project's senior supervisor on site at the time of the incident. In most cases, this will be the project superintendent.

SECTION 15 - PACKAGING OF PCB'S

If you are packaging ballasts containing PCBs, the following should be followed:

- steel drums can be obtained from local suppliers to reduce shipping costs;
- when purchasing drums, specify 17C or 17H 55-gallon, open head, steel drums for transporting hazardous materials;
- you do not need to use new drums. Used or reconditioned drums are suitable if they have been properly cleaned, tested and labeled pursuant to DOT regulations;
- Don't crush the ballasts because this could cause leaks;
- a typical drum will hold 150 to 250 F40 ballasts from 4-foot light fixtures or 60 to 100 F96 ballasts from 8-foot light fixtures. Do not overload the drum;
- a drum filled with ballasts will weigh approximately 600 to 1000 pounds. Drum weight should not exceed this weight for safety purposes. Do not attempt to move this weight

drum manually without special equipment;

- only fill up the drums half way to reduce the weight;
- do not use any drums large then 55 gallons in size;
- if you plan to landfill the non-leaking drums, put 6 to 12 inches of absorbent material, such as kitty litter or sawdust, in the bottom of the drum and in the areas between the ballasts;
- if drums are being sent to a recycling facility, do not use the absorbent material; and
- do not use plastic liners inside the drums or an "over pack" drum.

SECTION 16 - SAMPLING AND DOCUMENTATION

16.1 Sampling

In practice, the contaminated area from a spill will be irregular in shape. In order to standardize sampling in the field, and to protect against underestimation of the spill area by the cleanup crew, sampling should be conducted within a circular area surrounding the contaminated area. Try to detect a circular area of uniform residual contamination whose center is randomly placed within the sampling circle.

16.2 Documentation

Although there is no TSCA requirements for record keeping of PCB spill cleanup activities, except for documentation of PCBs stored or transported for disposal, the PCB owner should keep records of the spill cleanup in case of future questions or concerns. Relevant information may include dates, a description of the activities, records of shipment and disposal of PCB-contaminated materials, and a report of collected samples and results of analysis. The industrial hygienist who is collecting and analyzing the samples should be requested to follow the documentation methods as recommended by the EPA in their document 560/5-86-017, entitled Field Manual for Grid Sampling of PCB Spill Sites to Verify Cleanup.

SECTION 17 - STORAGE AND DISPOSAL

17.1 Disposal Under TSCA

TSCA does not regulate the disposal of non-leaking, intact "small capacitors", which are defined as those containing less than 3 pounds of PCB dielectric fluid. Therefore, under TSCA, lighting ballasts, which contain a small PCB capacitor, are unregulated for disposal and can be disposed of in a sanitary landfill.

Exceptions to this TSCA rule are as follows:

- if the small capacitor or ballast is leaking PCBs;
- if the ballast is owned by a company which, at any time in the past, manufactured equipment which contained PCBs;
- if the asphalt potting material inside the ballast contains PCBs in excess of 50 ppm.

If a ballast meets any of the above exceptions to the TSCA rule, then it must be disposed of by incineration in a TSCA-approved facility that complies with the requirements of 40 CFR 761.70 or in a chemical waste landfill (after the PCBs are drained) that complies with the requirements of 40 CFR 761.75. Liquid PCBs may also be disposed of in a high efficiency boiler provided the boiler and the boiler operation comply with 40 CFR 761.60.

Note: Even though it is legal to dispose of PCB ballasts in a sanitary landfill, the EPA encourages disposers of large quantities of PCB ballast to treat them as if they were a regulated waste and dispose of them in chemical waste landfills or high-temperature incinerators.

17.2 Disposal Under Superfund

Under the Superfund laws, PCBs are specifically listed as a hazardous substance, and as such, the release or threat of release of more than one pound of PCBs (16 or more ballasts or 8.5 or more gallons) into the environment triggers a Superfund notification and cleanup requirement.

SECTION 18 - TRANSPORTATION

The transport of PCB contaminated materials must be left to a qualified and properly licensed hazardous waste hauler. The U.S. Department of Transportation (DOT) regulates, and CERCLA requires, that DOT list and regulate the transport of all hazardous materials, including PCBs.

MERCURY GUIDELINES

SECTION 1 - PURPOSE

These procedures establish uniform guidelines for providing a program to protect construction employees from excessive exposure to mercury while working on a construction site.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - HISTORY

For three thousand years, mercury and its compounds have been widely used in industry. Today, the uses of mercury in industry are increasing.

SECTION 4 - IDENTIFICATION

Abbreviation for Mercury is Hg, synonym quicksilver. Metallic mercury is a shiny, silver-white, odorless liquid. If heated, it is a colorless odorless gas. Inorganic mercury is usually in the form of white powders or crystals. Mercury is the only metal that is liquid throughout usual temperature ranges.

Mercury may be found in thermostats, electrical switches, lamps, mirrors, power tubes, medical equipment, electrical applications in several manufacturing processes; industrial and control instruments such as meters, and some light bulbs including fluorescent, high intensity, and mercury vapor high-pressure sodium.

SECTION 5 - CHEMICAL AND PHYSICAL PROPERTIES

Reactivity – Contact with acetylene, acetylene products, or ammonia gases; may form solid products that are sensitive to shock, and which can initiate fires of combustible materials.

Mercury is not treated as an eye irritant.

SECTION 6 - APPLICATION

The primary application of this program is to demolition operations, involving the removal of thermostats, switches, and fluorescent lights.

SECTION 7 - CODES AND REGULATIONS

General applicability of Codes and Regulations: Except to the extent that more explicit or more stringent requirements are written directly into this program, all applicable codes and regulations have the same force and effect as if copied directly into this program.

Those standards governing the development of this program include but are not limited to the following.

- 29 CFR 1910.134 Respiratory Protection
- 29 CFR 1926.20 General Safety and Health provisions
- 29 CFR 1926.21 Safety Training
- 29 CFR 1926.28 Personal Protective Equipment
- 29 CFR 1926.55 Gases, Vapors, Fumes, Dusts and Mists
- 29 CFR 1926.59 Hazard Communication
- Occupational Health Guideline for Inorganic Mercury (U.S. Department of Health & Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety & Health, U.S. Department of Labor, Occupational Safety & Health Administration)
- 29 CFR 1910.1020 Access to Employee Exposure and Medical Records
- Reference AMPCO Corporate Safety Programs

SECTION 8 - DESIGNATION OF ADMINISTRATOR

A program administrator shall be designated by name. This should be a competent person who will have responsibility for implementation of, and adherence to, the provisions of this program. It is usually a good idea to also designate each person who is responsible for enforcement of the program at the job site. This is usually the site superintendent or general foreman.

In order to comply with OSHA's "competent person" requirement the person designated must have at least two qualifications. He or she should have an excellent working knowledge of the program and its required personal protective equipment, and should have sufficient authority to promptly prevent and correct hazardous conditions.

8.1 Responsibility

It is the responsibility of the Project Manager to ensure that all operating areas comply with the intent of this program.

It is the responsibility of Health and Safety to provide for the necessary training, monitoring and to ensure compliance via the use of audits and job site inspections.

It is the responsibility of the Project Management to provide the necessary support to the project to assist in the successful completion of this program. The Health and Safety will audit as necessary to ensure compliance.

SECTION 9 - ALLOWABLE EXPOSURE LIMITS

9.1 Mercury

Permissible Exposure Limit (PEL): The current OSHA standard for mercury is a ceiling level of 0.1 milligrams (mg) of mercury per cubic meter (m3) of air this is the maximum level employees may be exposed to without respiratory protection.

SECTION 10 - EXPOSURE MONITORING

Jobs involving the demolition of construction materials containing mercury, or where the likelihood of disturbing in-place materials containing mercury is present, should be targeted for detailed evaluation of their potential for mercury exposure.

10.1 Air Sampling

Air Sampling should be conducted initially for representative operations in order to establish an 8-hour TWA of employee exposure. Each job classification should be tested for at least 7 hours. If the results are under the PEL, monitoring can be discontinued.

Additional monitoring may be required if there is a change in plant operation, process, controls or any other change that may increase the exposure to airborne mercury.

Air samples should be taken and laboratory analyzed. These samples should be taken in accordance with the National Institute for Occupational Safety and Health (NIOSH) Method 7082, or equivalent, and under conditions that represent each employee's regular daily exposure to mercury. Turn around time can run from a one-day rush to 10 days normal. Ongoing monitoring should continue if the results are above the PEL.

At levels above the PEL, repeat monitoring every quarter and continue until two consecutive measurements taken 7 days apart are below the PEL.

Be aware that air levels of mercury vapor will probably increase 10-20 times, during the clean up, due to the mercury being disturbed

Exposure monitoring results will enable us to:

- Identify sources of exposure;
- Select the appropriate respiratory device and monitor effectiveness;

- Determine the effectiveness of work practices in controlling exposures;
- Recognize the need for modifying exposure/control practices including the need for additional engineering controls; and
- Determine the need for medical monitoring

10.2 Criteria For Reoccupancy

Before it is reoccupied for normal use, the area of the spill should be cleaned enough, so that the level of mercury vapor present in the air is well below the 8-hour exposure limit of 0.025 mg/m3 (25 ug/m3). To determine if this standard is being met, mercury in air readings should be taken throughout the area of the spill, at the breathing zone level (five feet from the floor), using a mercury vapor meter.

Wipe samples of cleaned surfaces should also be taken to determine if any mercury is left on the surface.

10.3 Notification

All employees involved in air monitoring should receive notification of their results within 5 days of the results arrival.

SECTION 11 - ENGINEERING AND WORK PRACTICE CONTROLS

11.1 Eating Areas

Mercury can be unintentionally ingested via eating, drinking, or smoking on the job site. AMPCO supervision will strictly enforce the policy of no eating, drinking, smoking, chewing gum or using tobacco in regulated areas. A clean area, free from exposure to Mercury should be provided for employee's to use for eating lunch. Employees using the lunch area shall have access to hot and cold water, soap, and towels, and shall be required to wash their hands before eating. While drinking water is allowed, proper hygiene practices should be observed with regard to water coolers and drinking cups.

11.2 Establishing Regulated Areas

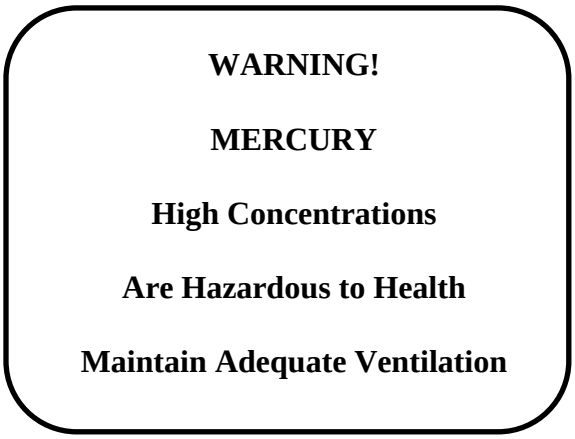
The employer shall establish regulated areas where exposures are in excess of the PEL.

11.3 Posting Warning Signs

The following warning shall be posted to be readily visible at or near entrances, or access ways to work areas, where there is potential exposure to mercury.



The following warning sign shall be posted in readily visible locations, in any work area where there is potential exposure to mercury.



11.4 Isolation, Ventilation & Storage

The work area will be isolated through the use of critical barriers on an as needed basis. General or local exhausts ventilations and/or Hepa filtered air filtration devices must be used to adequately provide a continuous flow of fresh air to the workers. Waste materials shall be kept in leak tight containers and marked in accordance to paragraph 11.5.

11.5 Labeling

OSHA requires labels for shipping and storage containers of products, which contain mercury.

MERCURY

DANGER, CONTAINS LOW LEVELS OF MERCURY

USE ONLY WITH ADEQUATE VENTILATION OR RESPIRATORY PROTECTION
AVOID SKIN CONTACT

SECTION 12 - RESPIRATORS AND FIT TESTING

If exposure levels are at or above the PEL, respirators should be provided according to the following table. All respirators must be NIOSH approved. In each case the minimum requirement is shown.

MERCURY	RESPIRATOR TYPE
0.25 mg/m3 or less (10 X TLV)	Half-mask cartridge respirator approved for protection against mercury vapor
1.25 mg/m3 or less	Full-face cartridge respirator
5 mg/m3 or less	Any supplied-air respirator with full facepiece, helmet, or hood. Any SCBA with full facepiece
28 mg/m3 or less	Type C supplied-air respirator operated in pressure-demand or other positive pressure or continuous-flow mode
Greater than 28 mg/m3 or entry and escape from unknown concentrations	SCBA with full facepiece operated in pressure-demand or other positive pressure mode Combination respirator includes Type C supplied-air respirator with full facepiece

	operated in pressure-demand or other positive pressure or continuous-flow mode, and auxiliary SCBA operated in pressure-demand or other positive pressure mode
Fire Fighting	SCBA with full facepiece operated in Pressure-demand or other positive pressure mode
Escape	Any gas mask providing protection against mercury, any escape SCBA

12.1 Respirator Protection Program

For information on AMPCO's Respirator Protection Program, including selection, fit testing, cleaning and maintenance, etc., refer to Section 7-1 of AMPCO's Corporate Safety Program.

12.2 Changing Cartridges

Filters will be changed when there is an increase in breathing resistance. On-hand stock of filters shall be maintained to permit replacement. If the N or R series filters are used, they must have either a change schedule or an End-of-Service-Life Indicator (ESLI). The change schedule for the respirator cartridges are based on objective information or data that will ensure that the cartridges are changed before the end of their service life. The ESLI is a system that is used by the manufacturer to warn the respirator user of the approach of the end of adequate respiratory protection.

12.3 Personal Hygiene

Employees shall be permitted to wash their face and respirator seal to prevent skin irritation often associated with respirator use. This activity is required at breaks and lunch as a good hygiene practice.

SECTION 13 - PERSONAL PROTECTIVE EQUIPMENT

13.1 Personal Protective Equipment

Employee's working in regulated areas will be provided impervious clothing. Impervious clothing will be disposed of in accordance with local, state and federal regulations. Other protective equipment includes but may not be limited to:

- Hard Hat

- Hearing Protection
- Impervious/Chemical
- Resistant Clothing
- Respiratory Protection
- Face Shield (8 inch min)
- Over-boots or Shoe Covers
- Fall Protection Equipment
- Safety Glasses
- Gloves
- Safety Goggles

Preferred glove types include Viton neoprene, neoprene, PVC, and butyl neoprene. Preferred disposable clothing types, include; Dupont 2-Ply Tyvek/Saranex and Barricade.

SECTION 14 - HYGIENE FACILITIES

If the exposure levels of mercury are at or above the PEL, employees working in those areas should be provided with the following:

- Clean change room with storage for street clothes and separate storage for protective equipment.
- Showers will be provided and must be used by all employees at the end of each shift worked in a regulated area. Note: The Company will provide body soap and clean towels.
- Lunchrooms, separate of the work site, should be provided. It is the employee's responsibility to wash their hands and face prior to eating. Washing facilities/arrangements shall be provided.
- Break Decon: The Company will provide and the employees will use a HEPA vacuum unit to vacuum work clothing and boots prior to entering change rooms or lunchrooms.

SECTION 15 - HOUSEKEEPING

General housekeeping is an important part of limiting employee exposure. Spilled Mercury is most easily handled by vacuuming. The use of brooms is strictly prohibited as a method of

housekeeping.

SECTION 16 - SPILLS

16.1 Spill Containment & Area Protection

Use diking to prevent the mercury from rolling on sloped surfaces. Divert mercury away from cracks, crevices, and floor drains. Keep away all persons not involved in clean up. Close doors to other areas. Post warning signs and barriers to prevent entry by unauthorized persons; post a sentry if necessary. Open windows and doors to the outdoors. Turn on fans, only if they exhaust directly to the outside. Turn off any heating, ventilating, or air conditioning system that circulates air from the spill area to other parts of the workplace. Turn off or lower any type of heat as far as possible, since mercury vaporization increases significantly with temperature. Turn on window air conditioners, if available, to cool the area and reduce vaporization.

16.2 Decontaminate Individuals

Individuals involved in the spill; should be visually examined for evidence of mercury on their skin, hair, shoes, and/or clothing during the spill. They should stay in the area, so they do not spread the mercury elsewhere. Have them put their contaminated shoes/clothing into a trash bag, wipe any visible mercury off their skin into the bag, and then have them shower and shampoo well.

16.3 Assess The Size And Difficulty Of Cleaning Up The Spill

Estimate the amount of mercury that was spilled, and the size of the area affected. Note the types of surfaces the mercury was spilled onto; such as whether they are hard or porous, accessible or difficult to reach, contain cracks or crevices, are disposable or permanent.

A spill on a hard surface, free of cracks and crevices, in a limited and easy to reach area; can probably be handled by properly trained and equipped employees in the immediate area of the spill.

A spill on a hard surface with some cracks and crevices, in a limited area with some difficult to reach places, or on disposable porous items such as clothing; can probably be handled by a properly trained and equipped Hazardous Materials team. Any outside HazMat team, and their emergency phone numbers, must be specified in your emergency response plan.

16.4 Equipment

The equipment needed to identify and cleanup a mercury spill, includes: flashlight, mercury vapor analyzer/meter, vacuum with charcoal/mercury vapor filter (optional), rubber squeegee, dust pan, plastic trash bags, plastic bags which zipper shut, wide mouth container, large tray or box, paper towels or napkins, powdered sulfur (visualizes mercury by turning yellow to brown), powdered zinc (amalgamates mercury), syringe with blunt needle (optional), and eye dropper

A mercury vapor meter will be needed both to assess airborne exposure, and to decide whether the area has been cleaned-up well enough to allow re-occupancy. For both of these purposes, a mercury vapor meter is better than other ways of measuring mercury in air, for two reasons. First, a meter is gives an immediate reading, so decisions concerning the level of respiratory protection required, and whether more clean-up is necessary, can be made at once. Second, a meter is the only direct reading method, which is sensitive enough to read down to the recommended clearance level. Meters must be calibrated regularly at the factory, and used according to manufacturer's directions.

16.5 Procedure

Wear appropriate respiratory protection when testing shows that levels of airborne Mercury is greater than the PEL. Wear impervious protective suit.

While wearing rubber or plastic gloves, carefully pick up any broken glass and debris. Working on a tray, place the pieces of glass on a paper towel, fold, place in plastic bag, and seal. Take care not to spread the mercury. Dispose of the glass in a zip-loc plastic bag or other proper disposal container.

Consolidate the spill as much as possible, by using a squeegee, thin piece of cardboard or plastic. Cordon off area to avoid traffic and dispersal of this material.

Collect in dustpan and pour into plastic bag or container. (Vacuum mercury with vacuum equipped with charcoal/mercury vapor filter.) Work from the outside of the spill area, toward the center. It is safest to work over a large tray or box, when pouring mercury. A good flashlight is essential for finding fugitive droplets.

Alternatively, a disposable syringe with blunt needle or eyedropper can be used to draw up the mercury.

After the gross contamination has been removed, sprinkle the entire area of the spill with a liberal application of sulfur. If it turns from yellow to brown, this indicates that the mercury is still present, and more clean up is needed. Sprinkle elemental zinc powder.

Dampen the zinc powder with dilute 7.5% sulfuric acid, to create a paste-like consistency. Work the paste into the contaminated surface with a sponge or brush. After the paste dries to a light gray color, it may be swept up for routine disposal. The residual material is removed with soap and water.

16.6 Prohibited Procedures

Never use an ordinary shop vacuum to clean up mercury. The vacuum will put mercury vapor into the air and increase exposure. The vacuum cleaner will be contaminated and have to be thrown away. Special mercury vacuums, however, are commercially available, and can safely be used.

Never use a broom to clean up mercury. It will break the mercury into smaller beads and spread them around.

Never use an ordinary vacuum pump to clean up mercury. The pump exhaust will put mercury vapor in the air and increase exposure unless it is very well filtered.

Never pour or allow mercury to go down a drain. Not only is this a violation of environmental regulations, but also the mercury may lodge in the plumbing and cause future problems during plumbing repairs. Dumping mercury onto the ground or into waterways is also illegal. Information on recycling mercury is given later in this document.

Never allow people whose shoes or clothing may be contaminated with mercury to walk around. They may spread the mercury contamination.

16.7 Cleanup Procedures For Spills In Specific Areas

Hard Surface – or tightly woven fabric, use stiff paper to push beads of mercury together. Use an eyedropper to suction the beads of mercury; or working over the tray to catch any spills, lift the beads of mercury with the stiff paper. Carefully place the mercury in a wide mouth container. Pick up any remaining beads of mercury with sticky tape, and place contaminated tape in a plastic bag along with the eyedropper, stiff paper, and gloves. Label the bag as mercury waste. Place this bag and sealed container in the second bag. Label it as mercury waste.

Carpet or Rug – The mercury contaminated section should be cut out. This cut out section, along with all cleanup items, should be placed in a plastic bag. Label it as mercury waste.

Sink of Water – Mercury will sink to the bottom. Remove as much water as possible,

without disturbing the mercury, and then recover the mercury with an eyedropper. Place in a wide mouth container, close the lid, and seal it with tape. Label it as mercury waste.

Drain – Mercury will get caught in sink trap. Working over a tray, remove the trap and pour the contents into large mouth container. Close the container lid and seal with tape. Label it as mercury.

SECTION 17 - HEALTH HAZARDS

17.1 Routes of Exposure

Mercury exposures are most often contributed to eye and skin contact. Airborne Mercury can enter the body through the respiratory system.

17.2 Overexposure Effects

Short-term exposure - Inhaled mercury vapor may cause headaches, cough, chest pains, chest tightness, and difficulty in breathing. It may also cause chemical pneumanitis. In addition, it may cause soreness of the mouth, loss of teeth, nausea, and diarrhea. Liquid mercury may irritate the skin.

Long-term exposure - Repeated or prolonged exposure to mercury liquid or vapor, causes effects that develop gradually. The first effects to occur are often fine shaking of the hands, eyelids, lips, tongue, or jaw. Other effects are allergen skin rash, headaches, sores in the mouth, sore and swollen gums, loose teeth, insomnia, excess salivation, personality change, irritability, indecision, loss of memory, and intellectual deterioration.

SECTION 18 - EMERGENCY FIRST AID PROCEDURES

Eye exposure – If liquid mercury gets into the eyes, wash eyes immediately with large amounts of water, lifting the lower and upper lids occasionally. If irritation is present after washing, get medical attention. Contact lenses should not be worn when working with this chemical.

Skin exposure – If liquid mercury gets on the skin, promptly wash the contaminated skin using soap or mild detergent and water. If liquid mercury penetrates through the clothing, remove the clothing promptly and wash the skin using soap or mild detergent and water. If irritation persists after washing, get medical attention.

Breathing – If a person breathes in large amounts of mercury, move the exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the affected person warm and at rest. Get medical attention as soon as possible.

Rescue – Move the affected person from the hazardous exposure. If the exposed person has been overcome, notify someone else and put into effect the established emergency evacuation procedures. Do not become a casualty. Understand the facility's emergency rescue procedures and know the locations of rescue equipment before the need arises.

SECTION 19 - MEDICAL EXAMINATIONS:

In the event that exposure monitoring should determine that a medical surveillance program is required, refer to paragraph 15.0, entitled Medical Surveillance, for more detailed information concerning medical examinations:

19.1 Initial & Periodic

Initial - A complete history and physical examination. The purposes are to detect existing conditions that might place the exposed employee at increased risk, and to establish a baseline for future health monitoring. Persons with a history of allergies or known sensitization to mercury, chronic respiratory disease, nervous system disorders, or kidney disease, would be expected to be at increased risk from exposure. Examinations for any signs or symptoms of unacceptable mercury absorption such as weight loss, insomnia, tremors, personality changes, or other evidence of central nervous system involvement, as well as evidence of kidney damage, should be stressed. The skin should be examined for evidence of chronic disorders.

Urinalysis: Since kidney damage has been observed in humans exposed to mercury, a urinalysis should be obtained to include, at a minimum; specific gravity, albumin, glucose, and a microscopic on centrifuged sediment. Determination of mercury level in urine may be helpful in assessing extent of absorption.

Periodic – The aforementioned medical examination should be repeated on an annual basis.

SECTION 20 - TRAINING

All employees who have the potential for exposure to mercury will be provided with Safety Training prior to their initial job assignment and at least annually.

Safety Training will include the following:

- The content of the applicable standards and appropriate appendices.
- The specific nature of operations, which could result in exposures over the Permissible Exposure Limit (PEL).
- The purpose, selection, fitting, use and limitations of respirators.
- The purpose and description of the applicable medical surveillance program.
- Engineering controls and work practices.

20.1 Training of Personnel to be Involved in Clean-up

Employees should be trained in the following topics: Operations in their work area where mercury is present, methods to detect the presence or release of mercury, health hazards of mercury, protective work practices and emergency procedures, when PPE is necessary, what PPE is necessary; how to properly put on, remove, adjust, and wear, PPE; proper care, maintenance, useful life, and disposal methods for PPE; and limitations of PPE.

SECTION 21 - MEDICAL

Medical examinations must be provided to employees who are exposed over the PEL for more than 30 days per year. The examination shall be annually for covered employees.

21.1 Medical Examination

Medical examinations must be provided to employees who are exposed over the PEL for more than 30 days per year. The examination shall be annually for covered employees.

The medical examination should include at least the following:

1. Medical and work history;
2. PA view chest x-ray;
3. Skin Examination;
4. Nasal examination and sputum cytology*; and
5. Pulmonary Function Test (PFT)
6. Nervous System Emphasis
7. Kidney examination
8. Oral Cavity examination
9. Lung examination

10. Eye examination

A baseline handwriting sample should be obtained and compared with later samples.

> **Note:** The cytology exams are only given during initial exams and are standard after 45 years of age or employees having 10 or more years employment over the PEL.

The examining physician will provide a written opinion containing the results of the exam; this opinion should also include a respirator approval. A copy of the results should be made available to the employee.

21.2 Medical Surveillance

Ideally, the urinalysis collection should be over 24 hours. Optional spot urine samples must be taken at the same time of day, near the end of the workweek, and corrected for creatinine. This test is not affected by eating fish containing methyl mercury. Results greater than 20 micrograms (ug) per (/) liter (L) indicate exposure.

21.3 Removing Employees From Exposure

Individuals should be removed from mercury exposure, if signs or symptoms of intoxication are detected on physical exam, or if their biologic monitoring levels equal or exceed, either: 50 ug/g creatinine in urine or 3 ug/dl in blood.

An individual, who must be removed from mercury exposure because of elevated blood, urine mercury levels, or physical examination results suggesting early mercury intoxication, should be given alternate work with no exposure. His or her wages, benefits, and seniority, should be maintained. No employee should be terminated or otherwise punished, because of overexposure to mercury.

Employees should be returned to work, only after they are free of symptoms of mercury intoxication, and mercury urine levels have fallen below 35ug/g creatinine.

In the event that no job without mercury exposure is available, the employee may continue to work using a supplier air respirator; provided that biological monitoring results and/or symptoms display a satisfactory decline over time.

SECTION 22 - DISPOSAL

If mercury that is a commercial chemical product is spilled, it is a hazardous waste. When the

spilled mercury is cleaned up, the clean up material is a hazardous waste according to the "mixture rule". This determination is not concentration dependent.

However, if the spilled mercury was not a commercial chemical product, or was from an unknown source, the generator would have to determine if the mixture contained mercury at or above 0.2 milligrams (mg) per (/) liter (L), according to the Toxicity Characteristic Leaching Procedure (TCLP0. If the threshold is exceeded, the waste must be discarded as containing mercury.

METH LAB CLEANUP GUIDELINES

SECTION 1 - PURPOSE

Provide uniform procedures for reducing the contamination at illegal drug manufacturing sites. The goal of cleaning a site is to reduce the levels of contaminants so it may be made safe for re-occupancy.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - BACKGROUND

Methamphetamine is an illegal drug known as “meth,” “speed,” “crank,” “crystal,” and “ice.” Meth is a powerful synthetic drug that affects the central nervous system. It is often made in makeshift laboratories, such as residential homes, rented apartments or hotel rooms. After the production of meth, a property is often contaminated with hazardous chemicals.

Meth can be made from different chemical processes. Most of these include flammable volatile organic compounds (VOCs), acids, bases metals, and inorganic salts. Many steps are involved in the manufacturing (or cooking) process of methamphetamine; it is during “cooking” that additional chemicals are formed.

As a result of “cooking,” several different chemicals may contaminate a property; some materials may actually absorb the chemicals. For example: carpeting, ceiling, tile, or fabric may soak up the chemicals. Furniture or drapery may also become contaminated. If meth residues enter a heating or air conditioning ventilation system, other areas in the building can become contaminated. Soil or groundwater may become contaminated if chemicals are dumped in a septic system or on the ground.

SECTION 4 - HEALTH EFFECTS

Health effects of chemical exposure depend on several factors: the nature and quantity of chemical(s) present, the length of exposure, and the personal health of the person exposed.

Exposure to meth residues may cause symptoms similar to those experienced by meth users. Exposures to VOCs may cause symptoms such as nose and throat irritation, headaches, dizziness, nausea, vomiting, confusion, and breathing difficulties. Benzene is a VOC known to cause cancer.

Acids or bases will cause burning sensation in the skin and mucous membranes and can cause severe eye damage. Exposure to metals and chemical salts can cause a wide range of health effects including respiratory irritation, decreased mental function, anemia, and kidney damage.

Routs of exposure include the following:

- Inhalation
- Skin Absorption
- Ingestion
- Injection

There is a greater risk of chemical exposure at a site where a lab is actively producing drugs than a formerly producing site.

SECTION 5 - ACTIVE LAB

A functioning meth lab presents the greater risk of adverse health effects for occupants. If a site is found to be still supplied with chemicals and lab hardware, it will be considered unsafe for entry. Law enforcement officials generally will have a HAZMAT team remove the lab equipment, lab waste, and any bulk chemicals during sit seizure.

SECTION 6 - FORMER LAB

After removal of the illicit laboratory equipment and chemicals, residual amounts of some substances may persist on building surfaces and furnishings. Substances present from the active lab as gases or volatile solvents should dissipate rapidly with ventilation, unless there has been a significant spill and a residual pool of liquid remains.

SECTION 7 - PRELIMINARY ASSESSMENT

The local authorities should be contacted during the preliminary assessment to determine the manufacturing method used and chemicals involved. The hazardous materials transportation manifest, obtained from the HAZMAT team, will allow a chemical inventory and a site-specific written work plan to be developed.

Some drug manufacturing methods include the use of mercury or lead. If these contaminants are found, cleanup protocols will deviate to a more stringent cleanup process in compliance with all applicable regulations and AMPCO's Corporate Safety programs.

> **NOTE:** See the "Methods of Manufacturing Table" at the end of this section for a list of chemicals associated with known methods.

SECTION 8 - SITE CLEAN UP

The actual chemicals involved in the manufacturing process will need to be known to determine site-specific cleanup requirements. In rare cases (e.g., in the case of severe mercury contamination) proper cleanup may require demolition of the contaminated structure. Most situations will require one or more of the following measures:

- **Removal:** Furnishings, draperies, carpeting, paneling, wallpaper, etc., that cannot be cleaned using other methods must be disposed of according to the type and degree of contamination present. Some materials may not be suitable for normal landfill disposal and must be disposed of as a hazardous or special waste. (i.e., asbestos or lead) Appliances where meth was stored or cooked in, such as refrigerators, kitchen ranges, or ovens should be prudently evaluated for disposal and replacement. In some cases, chemically contaminated soils will have to be removed and disposed at special facilities.
- **Venting:** Solvents and other chemicals that have soaked into furnishings and/or building materials will slowly vaporize. Proper ventilation may safely reduce contamination.
- **Neutralization:** In cases where acids or bases are known to be a source of contamination, the potential for harmful effects may be reduced or removed through neutralization. Acids may be neutralized with solutions of sodium bicarbonate (baking soda), and bases may be neutralized by using weakly acidic solutions of vinegar, citric, or acetic acid in water. Liquids can be absorbed with clay (cat litter or floor sweep) or other non-reactive materials.
- **Detergent-Water Washing:** Some non-porous and semi-porous surfaces, such as floors, tiles, walls, and ceilings, may be decontaminated with detergent and water solutions. Steam cleaning or pressure washing may be helpful for large areas of contamination.
- **Encapsulation or Sealing:** When alternative methods are not available, contamination may be covered by a physical barrier, such as layers of an oil-based paint, polyurethane, or other similar materials. Prior to the application of any physical barrier, intensive surface cleaning is required.

8.1 HVAC Systems

Heating and air conditioning ventilation systems tend to collect fumes and dust and redistribute them throughout the home. Vents, ductwork, filters, and even walls and ceilings near vents should be areas of concern for contamination.

8.2 Plumbing

While some of the waste products generated during meth manufacturing end up in yards and discarded along sides of roads, most are dumped down sinks, drains, and toilets. These waste products can collect in drains, traps, and septic tanks causing clogs.

Chemical drain cleaners must not be used, as their ingredients may have severe reactions with waste chemicals.

8.3 Decontamination

Decontamination procedures will be developed, communicated to employees and implemented before any employees or equipment may enter areas on site where potential for exposure exists.

All employees leaving a contaminated area will be appropriately decontaminated. All contaminated clothing and equipment leaving the contaminated area will be appropriately disposed of or decontaminated.

Standard decontamination procedures, as outlined in AMPCO's Corporate Safety Manual, must be followed. It is recommended that lots of soap and water be used during the showering process.

If the decontamination area is not contiguous to the contaminated area, a clean disposable suit will be placed over contaminated suit and then proceed to the decon area.

Respirators must be thoroughly cleaned with soap and water and rinsed prior to removal.

SECTION 9 - DISPOSAL

Many of the chemicals from clandestine drug laboratories, such as acids, bases, and solvents, are considered to be hazardous waste and are required to be managed in accordance with hazardous waste rules. County or law enforcement agencies become the "generator" of the waste and are required to obtain a Hazardous Waste Generator I.D. number issued by the Environmental Protection Agency.

Consumable cleanup supplies such as rags and liquid absorption materials, site furnishings, and building materials may be required to be disposed of as hazardous waste. While waste is stored at the site, it must be kept in closed, leak proof containers. Liquid waste must be stored on a curbed, impermeable surface. Drums and containers used during the clean up must meet the appropriate DOT, OSHA and EPA regulations for the wastes that they contain. Each hazardous waste container must be manifested and marked with:

- The words Hazardous Waste;
- A clear description of the contents; and
- The date at which the waste began to accumulate.

SECTION 10 - PERSONAL PROTECTIVE EQUIPMENT

10.1 Protective Clothing

Disposable suits normally found on asbestos or Lead abatement projects will not provide the protection required to protect against the health effects associated with hazardous chemicals. Full body chemical protective suits and neoprene steel toe boots will be required on all lab cleanup sites.

10.2 Hand Protection

Workers should use one pair of surgical gloves next to their skin, covered by a pair of top quality neoprene gloves. Hand covering are extremely important and require frequent checks for rips. Damaged gloves must be replaced immediately.

10.3 Respiratory Protection

The use of respiratory equipment will be in compliance with Section 7-1 of AMPCO's Corporate Safety Program and 29 CFR 1910.134.

The preliminary assessment and environmental monitoring results will determine selection of respiratory equipment. As a minimum full-face negative pressure respirators equipped with P-100/Acidgas, organic vapor combination cartridges are required. Respirators must be fit-tested using the qualitative fit-test methods outlined in AMPCO's Corporate Safety Manual.

SECTION 11 - MEDICAL SURVEILLANCE

The medical surveillance requirement will be in accordance with 1926.65(f) Hazardous Waste Operations for all workers who are or may be exposed to hazardous substances. Medical examinations will be made available prior to work assignment and at least once every twelve months for each employee covered. Medical examinations are also required at termination of employment or reassignment to an area where the employee would not be covered if the employee has not had an examination within the last six months.

11.1 Contents of Medical Examination

- Medical and work history with special emphasis on symptoms related to the handling of hazardous substances.

- Fitness for duty including the ability to wear any required PPE under conditions that may be expected at the work site.

11.2 Physician's Written Opinion

AMPCO will obtain and furnish the employee with a copy of a written opinion (see form on page 9 of this procedure) from the attending physician containing the following:

- The physician's opinion as to whether the employee has any detected medical conditions which place the employee at increased risk of material impairment of the employee's health from work in hazardous waste operations or emergency response, or from respiratory use.
- The physician's recommended limitations upon the employee's assigned work.
- A statement that the employee has been informed by the physician of the results of the medical examination and any medical condition which require further examination or treatment.

SECTION 12 - TRAINING

All employee's involved in hazardous substance clean up activities which expose or potentially expose them to hazardous chemicals and their health effects shall receive a minimum of 40 hours of HAZWOPER training.

Site-specific Hazard Communication training will include chemical elements identified during the preliminary assessment and whenever updated information is received.

METHODS OF MANUFACTURING TABLE		PHENYL - 2					
		Propanone Amalgam	Propanone Alternative No. 1	Propanone Alternative No. 2	Propanone Leukart Reaction	Propanone Manufacture Method No.1	Propanone Manufacture Method No.2
REAGENTS	Acetic Acid					X	
	Acetic Anhydride					X	
	Aluminum	X					
	Aluminum Chloride						X
	Calcium Hydroxide			X			
	Copper Sulfate			X			
	Hydrochloric Acid	X	X		X		
	Hydrogen gas			X			
	Lead Acetate					X	
	Lime Hydrate					X	
	Lithium Aluminum Hydride					X	
	Magnesium Sulfate		X		X		
	Mercuric Chloride	X					
	Platinum					X	
	Platinum Chloride					X	
	Platinum Oxide			X			
	Potassium Acetate					X	
	Pyridine					X	
	Sodium			X			
	Sodium Acetate					X	
	Sodium Cyanotrihyborate		X				
	Sodium Hydroxide		X		X		
	Thorium Oxide					X	
SOLVENTS	Acetone	X		X			
	Benzene	X					
	Chloroform	X					
	Ethanol	X		X			
	Ether	X	X		X	X	
	Isopropyl Alcohol	X					
	Methanol	X	X	X			

PHYSICIAN'S WRITTEN OPINION – HAZARDOUS CHEMICALS

Applicant's Name: _____ Social Security No.:_____

Address:_____

"The above named individual was seen by me on _____, and in accordance with all applicable portions of OSHA's Hazardous Waste Operations Standard for the Construction Industry, 29 CFR 1926.65, with which I am familiar, I have indicated by my initials, that I have performed the following:"

1. _____ Determined that this individual can □ or can not □ use a negative pressure respirator while performing his/her required employment services, and if, having determined that this individual cannot use a negative pressure respirator, I have further determined that this individual can □ or can not □ use a Powered Air Purifying Respirator (PAPR).

2. _____ Informed this individual that I have □ or have not □ detected a medical condition which would place this individual at an increased risk of material impairment of his/her health from exposure to hazardous waste;

3. _____ Informed this individual that I have □ or have not □ recommended any special protective measures to be provided or limitations to be placed upon the employee's exposure to hazardous waste;

4. _____ Advised this individual of the results of my examination and of any medical condition, occupational or non-occupational, which dictates further medical examinations or treatment.

5. _____ Advised this individual that I will not reveal, either in this written opinion or orally, or in any other means of communication with the employer, findings, including laboratory results, any diagnoses unrelated to this individuals occupational exposure to hazardous waste.

Comments and/or Limitations (if any): _____

_____

_____

_____
(Physician's Phone No.)

_____ _____
(Physician's Printed Name) *(Physician's Signature)*

_____
(Physician's Address)

[ORIGINAL TO AMPCO OFFICE - COPY TO JOB SITE - COPY TO EMPLOYEE]

MOLD ABATEMENT GUIDELINES

SECTION 1 - PURPOSE

The Mold Abatement Guidelines are intended to standardize operational procedures and provide guidance where no specific regulatory requirements exist.

SECTION 2 - SCOPE

AMPCO's Corporate policy for Mold Abatement applies to all Offices, subsidiaries, joint ventures and affiliates.

SECTION 3 - POLICY

The use of appropriate engineering controls and work practices will be the primary procedures used by AMPCO to reduce worker and third party exposure to airborne mold spores.

These procedures, both general and specific, are intended as guidelines for mold abatement operations based upon current regulations and recommendations and a comprehensive review of each project. Each point discussed may not always be applicable to every mold abatement project, and in these cases, the procedures outlined in these Guidelines will vary with the project and/or specific regulatory agency requirements.

These Guidelines will only be in force as a contractual agreement where the Owner and AMPCO have indicated mutual acceptance by signature.

General policy statement as related to mold abatement is as follows and will be discussed in more detailed in section 4.0 General and Administrative Requirements.

- AMPCO gives no warranty for recurring mold contamination.
- AMPCO will require a specific scope of work inclusive of quantities, areas and square footage of remedial areas.
- Clearance criteria will be agreed and established in writing up front with completion forms (Area Release Form) signed off after abatement.

SECTION 4 - GENERAL AND ADMINISTRATIVE REQUIREMENTS

4.1 Contract Documents

4.1.1 **Warranty:** No AMPCO Contract or proposal will warranty mold remediation for any period of time after AMPCO releases any given area. AMPCO will only guarantee to the extent of satisfying the contract and clearance protocol. Owner is to be notified of their responsibility to control biological and water intrusions (see and Sign Area Release Form).

4.1.2 **Licenses and Permits:** When required, AMPCO will be responsible for obtaining all necessary licenses and permits pertaining to the removal and disposal of mold contaminated materials.

4.1.3 **Scope of Work:** AMPCO will make a site visit to verify all dimensions and become familiar with specific site conditions. Where access is not feasible, for safety or other reasons, an understanding of the proposed scope will be indicated. AMPCO will establish a detailed scope of work including start and stop locations, square footage, and other tangible points of delineating the quantity of removal. No work will go to contract without this in writing, unless it is a strict time and material or unit price project. If AMPCO is to develop the scope of removal, the same still applies.

4.1.4 **Contract Changes:** All change orders or variances to the mold abatement procedures must be approved in writing by the Owner or the Owner's representative.

4.1.5 **Request for Variance:** Any request for variance must be approved in writing prior to beginning any phase of the work covered by the variance.

4.1.6 **Contract Materials:** AMPCO is responsible for the handling, storage and transportation of all materials, both new and/or salvaged, until such time as the job is completed.

4.1.7 **Subcontractors:** All subcontractors employed by the AMPCO will be required to comply with each applicable provision of these Guidelines. Refer to sections 6-1 and 6-2 in the AMPCO Corporate Safety Manual.

4.2 Waste Removal

Unless otherwise specified by the contract document, AMPCO will obtain a waste disposal site in compliance with all applicable EPA, state or local Regulations.

4.3 Services and Equipment

Unless otherwise specified by the contract document, AMPCO will furnish all labor, materials, services and equipment necessary to carry out the abatement operations in

accordance with OSHA Standards, EPA Guidelines and all applicable state or local government regulations governing the job site.

4.4 Fire and Emergency

AMPCO will develop a fire and emergency action plan for use in connection with the mold abatement operation. Emergency procedures will have priority over the abatement operations. Refer to section 4-0, Emergency Action Plans, in the AMPCO Corporate Safety Manual.

4.5 Applicable Codes

General applicability of Codes and Regulations: Except to the extent that more explicit or more stringent requirements are written directly into these Guidelines, all applicable codes and regulations will have the same force and effect as if copied directly into these Guidelines.

In order to comply with all local, state and federal requirements, copies of all required documents, including appropriate EPA Guidelines and OSHA Standards, will be maintained at the job site. Specific documents required for employee information, will be posted in a place accessible to employees.

4.1 Federal Regulations and Guidelines: Those which reference mold abatement work include, but are not limited to, the following:

- New York City Department of Health, Guidelines on Assessment and Remediation of Fungi in indoor Environments;
- U.S. Environmental Protection Agency (EPA), “Mold Remediation in Schools and Commercial Buildings”;
- American Conference of Governmental Industrial Hygienists, “Bioaerosols: Assessment Control”;
- National Air Duct Cleaners Association (NADCA) guidelines;
- National Electric Code (NEC) guidelines;
- National Fire Protection Association (NFPA) guidelines;
- National Association of Demolition Contractors (NADC) guidelines.

4.2 State and Local Regulations: All applicable state and local regulations which are in effect at the time of bidding the mold abatement project, and which have a direct bearing upon the project, will be included and incorporated by reference and made a part of the contract document. AMPCO will also comply with all applicable hazard communication and right-to-know laws.

4.6 Notification

All notifications must be made by registered mail with a return receipt requested when required.

On most commercial mold projects, even without asbestos, the required EPA Notification of Demolition and Renovation Form may still be applicable. Check the local, City and State Requirements as they may apply.

4.7 Work Plan

AMPCO will devise a site specific Work Plan of the procedures proposed for use in complying with the requirements of the mold abatement operation, the magnitude of which will be dependent upon the complexity of the removal project. Included in the plan will be the location and layout of the decontamination areas, the sequencing of the removal work, the interface of trades involved in the performance of work, methods to be used to assure the safety of AMPCO's employees, building occupants and visitors to the site, the disposal plan including the location of the disposal site, and a detailed description of the methods to be employed to control contamination.

The Work Plan may be expanded to include the use of portable HEPA ventilation systems, closing out the building's HVAC system, the method of removal to prohibit visible emissions in the work area, and the packaging of removed mold debris.

4.8 Environmental Issues

An effort must be made to address all specific environmental issues that may emerge as a result of starting and completing the mold abatement project. In addition, future environmental issues, which may be a consequence of the completed project, must also be anticipated.

Environmental issues management must be planned and conducted as an ongoing, organized activity during the project, mainly limited to immediate or near term regulatory concerns.

4.9 Contingency Plans

AMPCO will prepare a contingency plan for any emergency, which may arise during the course of the project. However, nothing in these procedures will impede safe exiting or providing of adequate medical attention in the event of an emergency.

Many of these procedures are already included in AMPCO's Corporate Safety Program, which along with the other procedures and the telephone numbers and locations of emergency services, including but not limited to, fire, ambulance, doctor, hospital, police,

power company, telephone company, etc., will be located at the job site for employee information.

4.10 Incident Reporting

In accordance with Section 3-1 of AMPCO's Corporate Safety Manual, Incident Reporting, AMPCO will prepare and document reports of all accidents associated with this work. For this purpose, an accident is defined to include all injuries and illnesses reported to a supervisor, or when a property loss is sustained.

4.11 Supplementary Conditions

Where portions of the Guidelines are inappropriate for a specific project, or do not include needed provisions. Supplementary Conditions will be used to make the modifications and additions needed.

SECTION 5 - ADMINISTRATIVE AND SUPERVISORY PERSONNEL

5.1 Designated Competent Person

On all construction worksites covered by these guidelines, AMPCO will designate a Competent Person who has the qualifications and authority for ensuring worker safety and health as required by General Safety and Health Provisions for Construction 29 CFR 1926, which provide for a Competent Person, health and safety prevention programs, and frequent and regular inspections of the job sites, materials, and equipment.

5.1.1 Required Inspections: The designated Competent Person shall make frequent and regular inspections of the job sites, in order to perform the duties set out in paragraph 5.1 of this section.

5.2 Project Manager / Superintendent

AMPCO will employ full-time personnel who will have the designation of either Project Manager or Superintendent, depending upon the organizational structure of the AMPCO Division involved. These individuals will be experienced in administration and supervision of abatement projects, including work practices, protective measures for building and personnel, disposal procedures, respiratory protection, etc..

5.3 General Foreman (As required)

Except as otherwise indicated, the General Foreman will normally have the same education and training in mold control operations as the Project Manager or the Superintendent, with only slightly less on-the-job experience. The General Foreman can also act as the AMPCO's Competent Person on the job site.

5.4 Safety Coordinator

AMPCO has designated an individual to be responsible for ensuring compliance with all applicable standards of those local, state and federal regulatory agencies having jurisdiction over an abatement project as well as the specific health and safety requirements of the Corporate Safety Program. This individual, in addition to having successfully completed all of the required courses, has also received specialized training in OSHA Construction Safety Practices. While not necessarily assigned to each abatement project on a full-time basis, the Safety Coordinator does conduct periodic safety audits and worker training at each site.

SECTION 6 - WORKER TRAINING AND EDUCATION

AMPCO shall, at no cost to the employee, institute a training program for all employees who perform abatement operations, and shall ensure their participation in the program. Training shall be provided prior to or at the time of initial assignment.

6.1 Training Content

The training program shall be conducted in a manner that the employee is able to understand. AMPCO shall ensure that each such employee is informed of the following:

- Methods of recognizing microbial agents;
- The health effects associated with fungal and bacterial exposure;
- The nature of operations that could result in exposure to microbial agents, the importance of necessary protective controls to minimize exposure including, as applicable, engineering controls, work practices, respirators, housekeeping procedures, hygiene facilities, protective clothing, decontamination procedures, emergency procedures, and waste disposal procedures, and any necessary instruction in the use of these controls and procedures.
- The purpose, proper use, fitting instructions, and limitations of respirators as required by 29 CFR 1910.134;
- The appropriate work practices for performing the mold remediation project;
- Medical surveillance program requirements;
- The requirements for posting signs and affixing labels and the meaning of the required legends for such signs and labels.

6.2 Access to Training Materials

AMPCO shall make readily available to all affected employees without cost, written materials relating to the employee training program.

6.3 Respiratory Protection

Except to the extent that more stringent requirements are written directly into the Contract, Section 7-1 of the AMPCO's Corporate Safety Manual, Respiratory Protection, will have the same force and effect as if copied directly into the Contract. Where there is a conflict in the requirements set forth in this Program and the best-practice guidelines cited at the Introduction Section of this plan, the more stringent requirements will be enforced.

The respiratory protection intended for use on each operation of the remediation project will be full-face respirators with combination HEPA/Organic Vapor cartridges.

6.4 Protective Equipment

In addition to respiratory protection, AMPCO requires the following protective equipment for the safety of its workers: (Refer to section 8-14, Personal Protective Equipment, in the AMPCO Corporate Safety Manual).

6.7.1 Coveralls

AMPCO will provide either disposable or reusable full body coveralls and head covers, and require that they be worn by all persons entering the work area.

AMPCO will provide a sufficient amount of protective clothing for the required number of changes for all workers in the work area. Disposable coveralls, once contaminated, will be disposed of daily as contaminated waste.

It is AMPCO's policy that all employees on projects, with mixed gender crews, requiring the use of disposable protective clothing be furnished with either disposable underwear (preferred) or two (2) sets of disposable suits to be worn together. Wearing nylon bathing suits under a single disposable suit is acceptable but this will be considered an individual preference. Acquiring the bathing suit and its associated costs will be solely the responsibility of the employee.

6.7.2 Foot Covers

AMPCO will provide either disposable or washable foot covers, which must be worn over, or in some cases in lieu of, the employee's personal footwear. If unable to adequately decontaminate personal footwear, it must be properly disposed of as contaminated waste at the end of the project.

6.7.3 Rubber Boots

When rubber boots are used in the work area, they will be required to remain in the work area until the completion of the project, at which time they must be thoroughly cleaned and decontaminated. When working in areas requiring the use of safety shoes or boots, the rubber boots must be an approved type having a hard toe safety shield inside the boot.

6.7.4 Hard Hats

AMPCO will provide hard hats and require that they be worn at all times when working on a remediation project. Contaminated hard hats must remain in the work area until they can be thoroughly cleaned and decontaminated.

6.7.5 Safety Glasses and/or Goggles

Where required, AMPCO will provide eye protection in the form of either approved safety glasses or goggles for all employees on the job site. If taken into containment, the safety glasses and/or goggles must remain in the work area where they will be appropriately cleaned.

In those cases where additional eye protection is deemed necessary, this will be provided by AMPCO in the form of face shields. The same requirements for contaminated safety glasses and goggles also apply to face shields.

6.7.6 Work Gloves

AMPCO will provide appropriate work gloves to all personnel in the work area. The gloves must remain in the work area until the completion of the project, at which time they will be appropriately cleaned or properly disposed of as contaminated waste.

6.5 Materials and Equipment

AMPCO will provide either new or used materials and equipment that is undamaged and in serviceable condition. Only equipment recognized as being suitable for the intended use and is in compliance with the appropriate standards will be used.

6.5.1 Scaffolding

AMPCO will provide all scaffolding, ladders and/or staging, etc. as necessary to accomplish the remediation project. The scaffolding may be of the suspension type or the standing type, such as metal tube and coupler, tubular welded frame, pole or outrigger type or cantilever type. The type, erection and use of all scaffolding will comply with all

applicable OSHA Standards. At the conclusion of the abatement work, the scaffolding will be decontaminated before leaving the work area.

Note: Only those supervisors or foremen possessing a valid certification of scaffold training will be considered qualified to erect, modify, move or dismantle any type of scaffolding, regardless of the height of the scaffold. All workers must have scaffold user training in accordance with OSHA requirements.

6.5.2 Water Service

Where required by the contract document, all connections to the Owner's water system will include valves that are temperature and pressure rated for operation of the temperatures and pressures encountered. After completion of use, connections and fittings will be removed without damage or alteration to existing water piping and equipment. Only heavy duty abrasion-resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system will be used to provide water to the work area or the decontamination facilities.

6.5.3 Electrical Service

Except to the extent that other conditions are written directly into the Contract, the Owner will provide electrical service and Section 8-7, Electrical Safety, in the AMPCO Corporate Safety Manual, will have the same force and effect as if copied directly into the Contract.

6.5.4 Ground Fault Circuit Interrupter

Employee's will not be permitted to work in any remediation area, in proximity to any part of an electric power circuit in which they may come in contact during the course of this work, unless the employee is protected against electric shock by use of a Ground Fault Circuit Interrupter (GFCI). Here again, refer to section 8-3, Electrical Safety, in the AMPCO Corporate Safety Manual.

6.5.5 Lighting

Unless otherwise noted in the Contract, the Owner will provide the necessary lighting required for adequate illumination of the work area. When required to do so, AMPCO will provide sufficient temporary lighting to ensure proper workmanship throughout the work area. This will include the use of daylight, general lighting, or portable plug-in lighting, or any combination of these.

6.5.6 Fire Extinguishers

AMPCO will comply with all governing regulations and recognized recommendations within the construction industry for providing portable fire extinguishers at the remediation site. The fire extinguishers will be located where they will be most convenient and effective for their intended purpose. Fire extinguishers will be located as required by Federal, State and Local regulations. Personnel will be cautioned to use fire extinguishers to combat only those fires which are in their incipient or beginning stages, and that if the fire appears to be life threatening, they are to sound the alarm immediately and evacuate the area. Refer to the projects site specific Emergency Action Plan and Section 4-1, Emergency Action Plan, in the AMPCO Corporate Safety Manual.

6.6 Entry Procedures

6.6.1 Job Site

Workers entering the job site will be required to wear adequate clothing applicable to a construction job site. This includes appropriate footwear, trousers, shirts with sleeves, and hard hats and any other designated personal protective equipment.

6.6.2 Work Area

All personnel entering the work area, in which there is a potential to exposure to bio aerosol contaminants, or respiratory protection is required, must first meet the following criteria:

They must have received a medical examination in compliance with the medical examination requirements of OSHA standard 29 CFR 1910.134 within the past twelve (12) months and have a written certificate, or facsimile, from the physician attesting to his opinion that they are physically able to wear a respirator. They must be trained in the use of the respiratory device and they must be fit-tested.

After they have met the above criteria, all personnel must enter the Clean Room and remove all street clothing, including underwear and socks. Under AMPCO's current policy, employees must then put on disposable underwear, or use a nylon bathing suit. Being nude under the protective clothing is no longer an individual preference. The underwear and bathing suit are generally furnished by the individual.

A clean set of protective clothing must then be put on, leaving the head covering off. The individual must then don a respirator approved for the project and conduct the necessary field checks to determine the facepiece-to-face seal. The head covering is then secured over the top of the respirator straps. The individual should then leave the Clean Room and proceed through to the work area.

All donning of respiratory protective equipment and protective work clothing should be accomplished using the "buddy" system, involving two employees assisting each other. Prior to entering a work area, each worker should be examined by his "buddy" to ensure that all connections in the respirator system are properly made and that the protective clothing, booties, head covers, etc. are properly donned.

6.7 Personnel Decontamination Procedures

Before leaving the work area, all personnel are required to remove gross contamination and debris from their protective clothing and feet by either HEPA vacuum or wet wiping. The worker then removes all clothing and equipment with the exception of respiratory protection equipment. All tools and extra work clothing, such as cold weather coats and pants, work boots or shoes, etc. which are contaminated, must remain in the work area. All disposable protective clothing must be placed in an appropriately marked bag for disposal with other contaminated waste materials. All personnel are then required to use the following decontamination procedures when leaving the work area:

Still wearing the respirator, proceed to the wash facility. At a minimum, personnel must wash their face and hands with soap and water prior to removal and cleaning of their respirator.

6.7.1 Towels

All disposable towels which are contaminated must be treated as contaminated waste and properly disposed of.

6.8 Medical Examinations

AMPCO will offer at no cost to the employee, a physical examination for all AMPCO personnel who are either working in an area in which there is a potential exposure to bio aerosol contaminants, or who are required to use any type of respiratory protection equipment.

6.8.1 Report of Medical Examination

At a minimum, the following information will be contained on each report of medical examination completed by the examining physician:

The name and social security number of the employee;

Any recommended limitations on the worker and/or clearance on the use of respirators;

6.9 Emergency Procedures

Emergency Procedures must be developed prior to the initiation of remediation activities. The Emergency Procedures must be in written form and prominently posted in the site office and the employees' eating area. Copies must also be posted in the clean change room and the Dirty equipment room of the worker decontamination unit. Prior to entering the containment for the first time, everyone must read and sign these procedures to acknowledge receipt and understanding of the work site layout, location of emergency exits, emergency routes to follow and the emergency procedures.

The Emergency Procedures must include considerations of fire, explosion, toxic atmospheres, electrical incidents, slips, trips and falls, confined spaces, and heat-related injuries. Procedures must be written, emergency exits noted and marked, emergency evacuation routes mapped out, emergency and evacuation annunciation systems identified, emergency phone numbers listed, and any other critical information, such as barriers that may affect response capabilities, must be included.

Once these procedures have been posted, employees must be trained in these procedures. Refer to Section 4-1 of the Corporate Safety Manual, entitled Emergency Action Plans.

6.9.1 For Non-Life Threatening Situations

Employees injured or otherwise incapacitated must decontaminate following normal procedures, with assistance from fellow workers if necessary, before exiting the work area to obtain proper medical treatment.

6.9.2 For Life-Threatening Injury or Illness

Measures to stabilize the injured worker, remove him/her from the work area, and secure proper medical treatment will take priority over worker decontamination. Personal protective equipment should be available for response team members needing to enter the containment.

SECTION 7 - MATERIAL DECONTAMINATION PROCEDURES

7.1 Exiting the Work Area

While still in the work area, the appropriately bagged contaminated waste materials will be properly sealed with a "goose neck" seal and then a HEPA vacuum will be used to remove the gross contamination from the bags.

SECTION 8 - NEGATIVE PRESSURE ENCLOSURE SYSTEM (When Required)

8.1 General

The work area is the location where the bio aerosol remediation work occurs. It may be a portion of a room, a single room, or several rooms. The work area is considered contaminated during the remediation work and must be isolated from the balance of the building. The enclosure, by which this contaminated area is isolated, is known as the temporary enclosure.

The work area will be completely isolated from the other parts of the building so as to prevent contaminated dust or debris from passing beyond the isolated area. Should the area beyond the work area become contaminated as a consequence of an accident or a spill, those areas must be cleaned in accordance with appropriate procedures.

Unless otherwise specified by the contract document, all uncontaminated movable furniture, equipment, etc., will be cleaned with a HEPA filtered vacuum cleaner and removed from the work area before commencing the remediation work. Those items that cannot be removed will be cleaned with a HEPA filtered vacuum cleaner or wet wiped and then covered with one or two layers of poly sheeting, properly taped. This covered furniture or equipment will then be considered as "outside" the work area unless the poly covering or seal is breached.

Unless otherwise specified in the contract document, all heating, air conditioning, ventilating or return air system openings within the work area must be completely shut down and sealed off with poly and tape. Caution must be taken to check with the Owner to ensure that this sealing off of the HVAC system will not cause any undue problems.

8.2 Critical Barrier

AMPCO will construct a critical barrier, which will ensure the work place is isolated and contained, by erecting impermeable barriers at all exits or openings, including doorways, duct chases, manholes, mechanical shafts, elevator shafts, floor openings, drains, and the like, so that all possible exit or entrance routes are effectively barricaded and sealed.

8.3 Work Area Preparation

When not desirable to provide extensive work area preparation installation as a general measure, plastic sheeting will be used, but only where there is specific need to protect particular items, areas, or finishes from damage or temporary contamination.

All tools, scaffolding, vacuums, air filtering units, etc. which are necessary for the abatement work, should be placed into the work area before it is completely isolated.

8.4 Access Control

The primary access to the work area will be regulated to authorized personnel only. All other means of access will be closed off and sealed, and warning signs will be displayed on the clean side of the closed access. No one will be allowed to enter the work area who does not have a direct need to do so. Persons entering the work area must follow all entry

procedures, including the signing in and out on the Containment Record, the removal of street clothing, donning protective clothing, using the appropriate respiratory protective device, and complying with all of the requirements of AMPCO's respiratory protection program and medical surveillance program.

8.5 Warning Signs

AMPCO will post a sufficient number of appropriately worded warning signs to adequately notify all persons in the vicinity of the work area of the dangers involved. The signs will normally be posted directly onto the clean side of the work area isolation barrier and at each entrance to the work area.

SECTION 9 - NEGATIVE PRESSURE SYSTEM

The Negative Pressure System is a fully operational engineering control system, which exhausts only the minimum amount of air from the work area necessary to create a minimum continuous negative pressure of -0.02 to -0.4 inches of water within the enclosure with respect to the area outside the enclosure.

This is achieved by using an Air Filtering Device (AFD), which is a self-contained filtering machine capable of producing air flow and using a HEPA filter to collect and retain the airborne particles.

The methodology used in the Negative Pressure System is to seal all potential air paths into the work area as tightly as possible and provide a filtered exhaust system which removes only enough air from the sealed, isolated work area to establish a lower pressure to offset any air leakage which occurs, and to provide additional engineering controls within the work area to lower airborne contaminants.

Note: Once the remediation operation has begun, and the negative pressure system has been activated, the negative pressure must be maintained continuously until completion of the work.

9.1 Establishing Negative Pressure

After construction of the enclosure is completed, a ventilation system(s) should be installed to create a negative pressure within the enclosure. Such ventilation systems must be equipped with HEPA filters to prevent the release of airborne contaminants to the environment outside the enclosure and should be operated 24 hours per day during the entire project until the final cleanup is completed. ACGIH guidelines recommend that a sufficient amount of air be exhausted to create a minimum pressure of -0.02 – -0.028 inches of water within the enclosure with respect to the area outside the enclosure. This should commence at the beginning of any work that could possibly disturb bioaerosol contaminants and continue until completion of the project.

The exact pressure differential required will vary from project to project, depending upon how difficult it may be for the contractor to seal the area and how much existing air movement we may be competing with from other building sources. In other words, exactly how many air changes per hour should be specified for the project, depends on the overall project design.

From a practical standpoint, this pressure differential should not be above the -0.06 inches of water column range, since anything higher begins to "float" the plastic off of the walls and floor.

This ventilation system should exhaust the HEPA-filtered clean air outside the building in which the remediation is taking place. If access to the outside is not available, the ventilation system can exhaust the HEPA-filtered bio aerosol-free air to an area within the building that is as far away as possible from the enclosure. Care must be taken to ensure that the clean air is released either to a contaminant-free area or in such a way as not to disturb any contaminated materials.

9.2 Estimating Number of Air Filtering Devices

A portable ventilation system, identified by AMPCO as an Air Filtering Device (AFD), is necessary to create a Negative Pressure System within the asbestos enclosure. The AFD's are designed to capture and clean the air inside the enclosure before exhausting it to the outside of the enclosure. The AFD's must be equipped with a series of filters which include: the first-stage or pre-filter, which is a low-efficiency type filter for particles 100 um and larger; the second-stage or intermediate filter, which is a medium efficiency filter effective for particles down to 5 um; and third-stage or final filter which is a High Efficiency Particulate Filter having an efficiency of not less then 99.97 percent. AFD's are available from several manufacturers and range from 600 CFM to over 2000 CFM and are capable of filtering particles of 0.3 micron in size with an efficiency of 99.97 percent. The number and capacity of AFD's required to ventilate an enclosure depends on the size of the area to be ventilated.

To determine the number of AFD's required, AMPCO will ascertain the volume, in cubic feet, of the work area by multiplying the floor area by the ceiling height. The total air circulation requirement for the work area, in cubic feet per minute (CFM), will then be determined by dividing the above volume by the number fifteen (15), which is 4 changes per hour.

$$\frac{\text{Volume of work area (cu.ft)}}{15} = \text{Air Circulation Requirement (CFM)}$$

The number of Air Filtering Devices needed to achieve this rate will then be determined by dividing the air circulation requirement (CFM) by the working capacity of the AFD(s) used.

Air Circulation Requirement (CFM)

---------- = Number of AFD's needed
Capacity of AFD with loaded filters (CFM)

Normally, one (1) additional AFD is added as a backup in case of equipment failure or if a machine needs to be shut down for filter changing.

9.3 Positioning the Air Filtering Devices

Locate the AFD's so that makeup air enters and traverses the work area as much as possible. This may be accomplished by positioning the HEPA filtered AFD's at a maximum distance from the worker access opening or other makeup air sources.

Additional AFD machines could be located free standing inside the work area to circulate air within the area in order to filter and trap contamination out of the air. Depending on work methods, other engineering controls, and previous treatments, the number of machines may be varied as little or as much as needed to lower the airborne contaminant levels in the work area.

> **Note:** Care should be taken to avoid having the exhaust opening of the AFD directed at the plastic walls of the containment area or at any of the sealed openings.

> **Note:** Air movement from the AFD's should be directed away from employees performing remediation work within the enclosure, and toward a HEPA filtration or a collection device exhausting out of the work area.

6.3.1 Exhausting the AFD

AFD's should, whenever possible, be exhausted outside of the building.

9.4 Other Considerations

Under certain conditions, other hazards must be given consideration. For example, high work area temperatures, gaseous or organic contaminants may dictate a need to increase exhaust air. These hazards must be considered and balanced one against the other. If the other contaminants cannot be eliminated or filtered, or if cooling devices are not available to reduce temperatures, then additional air exhausting may be necessary. In these cases, exhaust may be increased or machine positioning may be changed until the other contamination levels, temperature, etc., are reduced to acceptable levels. This must be done with extreme care, however, since each unit of additional exhaust to the outside increases the risk of contamination release in the event of an accident or component failure. If air inlets are provided to introduce make-up air, they must be monitored, provided with fixed doors, which are closed when not in use, or equipped with HEPA filters to prevent contamination escape.

9.5 Dismantling the System

Upon completion of the project, the Air Filtering Devices may be turned off and removed from the work area.

Before removal from the work area, the pre-filter of the AFD(s) should be removed and properly disposed of as contaminated waste, and the intake opening of the machine should be sealed with 6 mil poly to prevent environmental contamination from the balance of the machine's filters.

SECTION 10 - PRESSURE DIFFERENTIAL MONITORING

10.1 Manometer / Pressure Instruments

An inclined manometer or differential pressure gauge, capable of 0-3" wg for measuring the negative pressure within the enclosure, must be installed at a representative location on the negative pressure enclosure on each AMPCO project and must be monitored frequently throughout all work shifts during which remediation takes place.

10.2 Documenting Manometer Readings

It will be the responsibility of the project Competent Person to insure that manometer readings are taken at the beginning of, and at least twice during, each shift and that these readings are accurately documented in an appropriate log or the supervisor's daily journal.

If a CRSI Neg-a-Master strip-tape or wheel chart recording manometer is being utilized, a job site supervisor will be required to monitor and sign the strip-tape or wheel chart daily, and to notify the project manager of any potential problems.

SECTION 11 - REMEDIATION METHODS

AMPCO will use the following engineering controls and work practices in all operations covered by this section:

11.1 HEPA Equipped Vacuums

HEPA filter equipped vacuum cleaners shall be used to collect dust and small particulates.

11.2 Wet Wiping

Wet wiping will be used to prevent dispersal of contaminants during cleaning and to control employee exposures.

11.3 Prompt Clean-Up

Prompt clean-up (not allowing accumulation) and disposal of wastes and debris contaminated with microbial agents in to leak-tight containers.

11.4 Additional Control Methods

In addition to the above, AMPCO will use the following control methods:

Local exhaust ventilation equipped with HEPA filter dust collection systems;

Enclosure or isolation of processes producing contaminated dust;

Ventilation of the regulated area to move contaminated air away from the breathing zone of employees and toward a filtration or collection device equipped with a HEPA filter; and

Use of biocides and anti-microbial agents, as dictated by the particular project and contaminants.

SECTION 12 - WORK AREA CLEANUP PROCEDURES

This section details the cleaning and decontamination procedures to be followed during the final cleanup of the work area, including the decontamination of the air in the work area which has been contaminated by the elevated airborne contaminants generated during the remediation activities.

It includes the cleaning and decontamination of all surfaces (ceilings, walls, floors) of the work area and all furniture and equipment in the work area. In order to accomplish this, the cleaning and decontamination process will be conducted in a series of cleanings. These cleanings apply to that portion of the project in which all visible debris and contaminated material has been removed from the work area. During this entire cleaning process, the air filtering units must be maintained in continuous operation.

12.1 Final Cleaning

After the removal of all visibly contaminated material, and materials presumed to be reservoirs for microbial growth, as stipulated in the contract documents, all surfaces in the work area should be thoroughly cleaned with HEPA filtered vacuums and wet wiped. The decontamination units must also continue to remain in operation.

At the time of this cleaning, all tools and equipment remaining in the work area should be decontaminated by HEPA by vacuuming and/or wet wiping and then removed from the area. When this cleaning has been completed, AMPCO should conduct a visual inspection of the work area to ensure that all areas are free of visible contamination. With the air filtering units remaining in operation, all of the remaining poly should be stripped from the work area, leaving only the critical barrier intact.

Once this is completed, the area is now ready to be visually inspected by the Owner or the Owner's representative. This individual should be identified in the contract document.

If the results of the inspection are satisfactory, the individual conducting the inspection should conduct surface and/or air sampling if required by the contract documents. The acceptable levels of microbial agents to remain in the building after cleaning should be established prior to the start of the project, and be contained in the contract documents.

12.2 Removal of Temporary Enclosures

Depending on the contract documents, AMPCO will begin dismantling operations of the remaining work area and critical barriers, upon receipt of acceptable analytical results and/or a signed clearance release form. Regardless, all debris from the removal of these areas will be packaged in disposal bags or wrapped and sealed in poly for disposal as contaminated waste.

SECTION 13 - DEMOBILIZATION

The air filtering units should be turned off, sealed in poly and transported to the next project. All debris, used cleaning materials, unsalvageable materials used for the enclosures, and any other remaining materials should be disposed of as contaminated waste. All sealed and labeled bags containing contaminated waste will then be removed from the Owner's property by approved transport methods.

SECTION 14 - FINAL DOCUMENTATION

Unless project documentation has been submitted to the Owner, or the Owner's representative on a timely basis throughout the length of the project, or unless otherwise stipulated by the contract document, final documentation will be submitted to the Owner, or the Owner's representative for review, acceptance and permanent file.

SILICA DUST GUIDELINES

SECTION 1 - PURPOSE

These procedures establish uniform guidelines for providing a program to protect construction employees from excessive exposure to silica dust while working on a construction site.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 – BACKGROUND (Types of Silica)

Crystalline silica may be of several distinct types. Quartz, a form of silica and the most common mineral in the earth's crust, is associated with many types of rock. Other types of silica include cristobalite and tridymite.

SECTION 4 - HEALTH EFFECTS OF CRYSTALLINE SILICA EXPOSURE

When workers inhale crystalline silica, the lung tissue reacts by developing fibrotic nodules and scarring around the trapped silica particles. This fibrotic condition of the lung is called silicosis. If the nodules grow too large, breathing becomes difficult and death may result. Silicosis victims are also at high risk of developing active tuberculosis.

A worker's lungs may react more severely to silica sand that has been freshly fractured (sawed, hammered, or treated in a way that produces airborne dust). This factor may contribute to the development of acute and accelerated forms of silicosis.

4.1 Types of Silicosis

A worker may develop any of three types of silicosis, depending on the airborne concentration of crystalline silica: Chronic silicosis, which usually occurs after ten or more years of exposure to crystalline silica at relatively low concentrations. Accelerated silicosis, which results from exposure to high concentrations of crystalline silica and develops five to ten years after the initial exposure. Acute silicosis, which occurs where exposure concentrations are the highest and can cause symptoms to develop within a few weeks to four or five years after the initial exposure [Peters 1986; Ziskind et al. 1976].

4.2 Complications

Initially, workers with silicosis may have no symptoms. As silicosis progresses, there may be difficulty in breathing and other chest symptoms such as cough. Infectious complications may cause fever, weight loss, and night sweats. Severe mycobacterial or fungal infections can complicate silicosis and may be fatal. Fungal or mycobacterial infections are believed to result when the lung cells (macrophages) that fight these infections are overwhelmed with silica dust and are unable to kill mycobacteria and other organisms. About half of the mycobacterial infections are caused by Mycobacterium tuberculosis (TB), with the other half caused by M. kansasii and M. avium intracellulare. Nocardia and Cryptococcus may also cause infections in silicosis victims.

Medical evaluations of silicosis victims usually show the lungs to be filled with silica crystals and a protein material. Pulmonary fibrosis (fibrous tissue in the lung) may or may not develop in acute cases of silicosis, depending on the time between exposure and onset of symptoms.

Furthermore, evidence indicates that crystalline silica is a potential occupational carcinogen, and NIOSH is reviewing the data on carcinogenicity.

SECTION 5 - APPLICATION

The primary application of this program is to demolition operations. (Please note that there is not significant information on silica dust exposure in the NADC Safety Manual). Concrete and masonry products contain silica sand and rock containing silica. Since these products are primarily materials for construction, construction workers may be easily exposed to respirable crystalline silica during activities such as: Chipping, hammering, and drilling of rock; crushing, loading, hauling, and dumping of rock; abrasive blasting using silica sand as the abrasive; abrasive blasting of concrete (regardless of abrasive used); sawing, hammering, drilling, grinding, and chipping of concrete or masonry; demolition of concrete and masonry structures, and dry sweeping or pressurized air blowing of concrete, rock, or sand dust. Even materials containing small amounts of crystalline silica may be hazardous if they are used in ways that produce high dust concentrations.

SECTION 6 - CODES AND REGULATIONS

General applicability of Codes and Regulations: Except to the extent that more explicit or more stringent requirements are written directly into this program, all applicable codes and regulations have the same force and effect as if copied directly into this program.

Those standards governing the development of this program include but are not limited to the following.

- 29 CFR 1910.134 Respiratory Protection
- 29 CFR 1926.20 General Safety and Health provisions

- 29 CFR 1926.21 Safety Training
- 29 CFR 1926.28 Personal Protective Equipment
- 29 CFR 1926.55 Gases, Vapors, Fumes, Dusts and Mists
- 29 CFR 1926.59 Hazard Communication
- 29 CFR 1910.1020 Access to Employee Exposure and Medical Records
- Reference AMPCO Corporate Safety Programs

Some of the information in this procedure was obtained from NIOSH (National Institute of Occupational Safety & Health).

SECTION 7- DESIGNATION OF ADMINISTRATOR

A program administrator shall be designated by name. This should be a competent person who will have responsibility for implementation of, and adherence to, the provisions of this program. It is usually a good idea to also designate each person who is responsible for enforcement of the program at the job site. This is usually the site superintendent or general foreman.

In order to comply with OSHA's "competent person" requirement. the person designated must have at least two qualifications. He or she should have an excellent working knowledge of the program and its required personal protective equipment, and should have sufficient authority to promptly prevent and correct hazardous conditions.

7.1 Responsibility

It is the responsibility of the Project Manager to ensure that all operating areas comply with the intent of this program.

It is the responsibility of Health and Safety to provide for the necessary training, monitoring and to ensure compliance via the use of audits and job site inspections.

It is the responsibility of the Project Management to provide the necessary support to the project to assist in the successful completion of this program.

SECTION 8 - ALLOWABLE EXPOSURE LIMITS

8.1 Respirable Silica Dust

OSHA Permissible Exposure Limit (PEL): Time Weighted Average of 10 MG/M3 ⁒ % quartz + 2.

NIOSH recommended exposure limit (REL): 0.05 mg/m3 (50 ug/m3), for up to a 10-

hour workday during a 40-hour workweek. This is the maximum level employees may be exposed to without respiratory protection.

SECTION 9 - MONITORING

Air monitoring is needed to measure worker exposures to respirable crystalline silica and to select appropriate engineering controls and respiratory protection. Perform air monitoring as needed to measure the effectiveness of controls. Collect and analyze air samples according to NIOSH Method Nos. 7500 and 7602 [NIOSH 1994] or their equivalent.

Exposure monitoring results will enable us to:

- Identify sources of exposure;
- Select the appropriate respiratory device and monitor effectiveness;
- Determine the effectiveness of work practices in controlling exposures;
- Recognize the need for modifying exposure/control practices including the need for additional engineering controls; and
- Determine the need for medical monitoring.

9.1 Notification

All employees involved in air monitoring should receive notification of their results within 5 days of the results arrival.

SECTION 10 - ENGINEERING AND WORK PRACTICE CONTROLS

10.1 Eating Areas

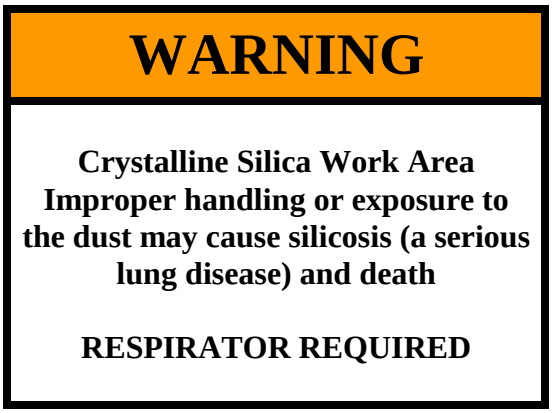
Silica dust can be unintentionally ingested via eating, drinking, or smoking on the job site. AMPCO supervision will strictly enforce the policy of no eating, drinking, smoking, chewing gum or using tobacco in regulated areas. A clean area, free from exposure to Silica should be provided for employee's to use for eating lunch. Employees using the lunch area shall have access to hot and cold water, soap, and towels, and shall be required to wash their hands before eating. While drinking water is allowed, proper hygiene practices should be observed with regard to water coolers and drinking cups.

10.2 Posting Warning Signs

Warning signs should be posted to mark the boundaries of work areas contaminated with crystalline silica. These signs should warn workers about the hazard and specify any protective equipment required (for example, respirators). The sample sign below contains

the information needed for a silica work area where respirators are required.

Warning signs must be posted at all entry points into the silica work area and appropriate caution tape must be used to restrict access.



SECTION 11 - RESPIRATORS AND FIT TESTING

11.1 Respiratory Protection

For information on AMPCO's Respirator Protection Program, including selection, fit-testing, cleaning and maintenance, etc., refer to Section 7-1 of AMPCO's Corporate Safety Program.

11.2 Use of Respirators

Respirator use is required until air monitoring data indicates that engineering controls effectively maintain exposure below the PEL. Effective source controls can be substitution, automation, enclosed systems, local exhaust ventilation, wet methods, and good work practices. Such means should be the primary means of protecting workers. However, when source controls cannot keep exposures below the NIOSH REL, controls will be supplemented with the use of respirators.

11.3 Respiratory Protection Program

When respirators are used, the employer must establish a comprehensive respiratory protection program, as required in the OSHA respiratory protection standard [29 CFR 1910.134 and 1926.103]. Important elements of this standard are: periodic environmental monitoring; regular training of personnel; selection of proper NIOSH-approved respirators; an evaluation of the worker’s ability to perform the work while wearing a respirator; respirator fit testing; maintenance, inspection, cleaning, and storage of

respiratory protection equipment. The respiratory protection program should be evaluated regularly by the employer.

11.4 Type CE Abrasive-Blasting Respirators

Type CE abrasive-blasting respirators are the only respirators suitable for use in abrasive blasting operations. Currently, four Type CE abrasive-blasting respirators are certified by NIOSH: continuous-flow respirator with loose-fitting hood and assigned protection factor (APF) of 25, continuous-flow respirator with tight-fitting facepiece and an APF of 50, positive-pressure respirator with tight-fitting half-mask facepiece and APF of 1,000. pressure-demand or positive pressure respirator with tight-fitting full facepiece and an APF of 2,000.

NIOSH recommends that workers wear a Type CE, pressure-demand or positive-pressure, abrasive-blasting respirator (APF of 1,000 or 2,000) during abrasive-blasting operations that involve crystalline silica.

11.5 Other Respirators

For operations other than abrasive blasting, Table 1 lists the minimum respiratory equipment required to meet the NIOSH REL for crystalline silica under given conditions. Use the most protective respirator that is feasible and consistent with the tasks to be performed. For additional information about respirator selection, consult the NIOSH Respirator Decision Logic. Workers should use only respirators that have been certified by NIOSH and MSHA according to 30 CFR 11, or respirators certified by NIOSH according to 42 CFR 84.

11.6 Changing Cartridges

Filters will be changed when there is an increase in breathing resistance. On-hand stock of filters shall be maintained to permit replacement. If the N or R series filters are used, they must have either a change schedule or an End-of-Service-Life Indicator (ESLI). The change schedule for the respirator cartridges are based on objective information or data that will ensure that the cartridges are changed before the end of their service life. The ESLI is a system that is used by the manufacturer to warn the respirator user of the approach of the end of adequate respiratory protection.

11.7 Personal Hygiene

Employees shall be permitted to wash their face and respirator seal to prevent skin irritation often associated with respirator use. This activity is required at breaks and lunch as a good hygiene practice.

The following personal hygiene practices are essential for protecting workers from respirable crystalline silica and other contaminants such as lead, particularly during abrasive-blasting operations. Do not eat, drink, or use tobacco products in dusty areas. Wash hands and face before eating, drinking, or smoking outside dusty areas. Park cars where they will not be contaminated with silica and other substances such as lead.

SECTION 12 - PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment

Take the following steps to assure that dusty clothes do not contaminate cars, homes, or worksites outside the dusty area. Change into disposable or washable work clothes at the worksite; shower and change into clean clothes before leaving the work site.

Other protective equipment includes but may not be limited to:

- Hard Hat
- Hearing Protection
- Disposable Clothing
- Respiratory Protection
- Face Shield
- Over-boots
- Fall Protection Equipment
- Safety Glasses
- Gloves
- Safety Goggles

It is AMPCO's policy that all employees on projects, with mixed gender crews, requiring the use of disposable protective clothing be furnished with either disposable underwear (preferred) or two (2) sets of disposable suits to be worn together. Wearing nylon bathing suits under a single disposable suit is acceptable but this will be considered an individual preference. Acquiring the bathing suit and its associated costs will be solely the responsibility of the employee.

SECTION 13 - HOUSEKEEPING

General housekeeping is an important part of limiting employee exposure. Every effort shall be made to limit the build up of dust on surfaces or floors in our facilities. It is preferred that wet cleaning or vacuuming be used to clean dust to avoid sweeping.

SECTION 14 - MEDICAL EXAMINATIONS:

Employees required to wear respirators will have medical clearance to do so. Refer to paragraph 16.0 of this procedure, entitled Medical Surveillance, for more detailed information concerning medical examinations:

SECTION 15 - TRAINING

All employees who have the potential for exposure to silica dust should be provided with Safety Training prior to their initial job assignment and at least annually.

Safety Training should include the following:

- The content of the applicable standards and appropriate appendices.
- The specific nature of operations which could result in exposures over the action level.
- The purpose, selection, fitting, use and limitations of respirators.
- The purpose and description of the applicable medical surveillance program.
- Engineering controls and work practices.

Workers should receive safety training and education that includes the following [29 CFR 1926.21]: Information about the potential health effects of exposure to respirable silica crystalline silica; material safety data sheets for silica, masonry products, alternative abrasives, and other hazardous materials [29 CFR 1926.59]; instruction about the purpose and setup of regulated areas marking the boundaries of work areas containing crystalline silica; information about safe handling, labeling, and storage of toxic materials; discussion about the importance of substitution, engineering controls, work practices, and personal hygiene in reducing crystalline silica exposure; instruction about the use and care of appropriate protective equipment (including protective clothing and respiratory protection).

SECTION 16 - MEDICAL SURVEILLANCE

Medical examinations should be considered for workers who may be exposed to respirable crystalline silica. However, examinations should always supplement effective dust monitoring and controls, never substitute for them. Such examinations should occur before job placement or upon entering a trade, and at three year intervals. Examinations should include at least the following items: A medical and occupational history to collect data on crystalline silica exposure and signs and symptoms of respiratory disease; a chest x-ray classified according to the 1980 International Labour Office (ILO) International Classification of Radiographs of Pneumoconioses; pulmonary function testing (spriometry); and an annual evaluation for tuberculosis.

The examining physician will provide a written opinion containing the results of the exam, this

opinion should also include a respirator approval. A copy of the results should be made available to the employee.

SECTION 17 - CONCLUSIONS

This section illustrates the variety of conditions in the U.S. construction industry that can lead to the development of silicosis. Efforts to prevent silicosis may be inadequate if any of the five following conditions exist:

- A lack of awareness about the sources of silica exposure, the nature of silicosis and the causes of the disease.
- Failure to substitute abrasive blasting materials less toxic than those containing silica.
- Inadequate engineering controls and work practices
- Inadequate respiratory protection programs for workers
- Failure to conduct adequate surveillance programs, including exposure and medical monitoring

SECTION 18 - RECOMMENDATIONS

NIOSH recommends the following measures to reduce exposures to respirable crystalline silica in the workplace and to prevent silicosis and deaths in construction workers.

Recognize when silica dust may be generated and plan ahead to eliminate or control the dust at the source. Awareness and planning are keys to prevention of silicosis.

Do not use silica sand or other substances containing more than 1 percent crystalline silica as abrasive blasting materials. Substitute less hazardous materials.

Use engineering controls and containment methods such as blast-cleaning machines and cabinets, wet-drilling, or wet-sawing of silica-containing materials to control the hazard and protect adjacent workers from exposure.

Routinely maintain dust control systems to keep them in good working order.

Practice good personal hygiene to avoid unnecessary exposure to other worksite contaminants such as lead.

Wear disposable or washable protective clothes at the worksite.
Shower (if possible) and change into clean clothes before leaving the worksite to prevent contamination of cars, homes, and other work areas.

Conduct air monitoring to measure worker exposures and ensure that controls are providing

adequate protection for workers.

Use adequate respiratory protection when source controls cannot keep silica exposures below the NIOSH REL.

Provide periodic medical examinations for all workers who may be exposed to respirable crystalline silica.

Provide workers with training that includes information about health effects, work practices, and protective equipment for respirable crystalline silica.

Report all cases of silicosis to State health departments and OSHA.

Table 1 – NIOSH-recommended respiratory protection for workers exposed to respirable crystalline silica

CONDITION	MINIMUM RESPIRATORY PROTECTION REQUIRED TO MEET THE NIOSH REL (0.05 mg/m3 OR 50 ug/m3)
< or = 0.5 mg/m3* or 500 ug/m3 (10 x REL)***	Any half-mask, air purifying respirator with a high-efficiency particulate filter**
< or = 1.25 mg/m3 or 1,250 ug/m3 (25 X REL)	Any powered, air purifying respirator with a high-efficiency particulate filter, or Any supplied-air respirator equipped with a hood or helmet and operated in a continuous-flow mode (for example, type CE abrasive-blasting respirators operated in the continuous-flow mode)
< or = 2.5 mg/m3 or 2,500 ug/m3 (50 X REL)	Any air-purifying, full-facepiece respirator with a high-efficiency particulate filter, or Any powered air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter
< or = 50 mg/m3 or 50,000 ug/m3 (1,000 X REL)	Any supplied air respirator equipped with a half-mask and operated in a pressure-demand or other positive-pressure mode (for example, A Type CE abrasive blasting respirator operated in a positive-pressure mode****
< or = 100 mg/m3 or 100,000 ug/m3 (2,000 X REL)	Any supplied-air respirator equipped with a full facepiece and operated in a pressure-demand or other positive pressure mode (for example, a Type CE abrasive-blasting respirator operated in a positive-pressure mode)
Planned or emergency entry into environments containing unknown concentrations or concentrations > 100 mg/m3 (2,000 X REL)	Any self-contained breathing apparatus equipped with a full facepiece and operated in a pressure-demand or other positive-pressure mode, or Any supplied-air respirator equipped with a full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in a pressure-demand or other positive-pressure demand mode

* is greater than

** The NIOSH respirator certification regulation (42 CFR 84) became effective July 10, 1995, and replaced the old regulation (30 CFR 11). High-efficiency is the appropriate filter for respirable crystalline silica under 30 CFR 11; N100, R100, and P100 are the appropriate filters for respirable crystalline silica under 42 CFR 84.

*** Assigned protection factor (APF) times the NIOSH REL. The APF is the level of protection provided by each type of respirator.

**** Type CE abrasive-blasting respirators are the only respirators suitable for use in abrasive-blasting operations.

ANTHRAX RESPONSE PROCEDURES

SECTION 1 - PURPOSE

To provide guidance and direction and set parameters for responding to client requests to perform bioremediation or clean up of anthrax organisms (bacillus or spores).

SECTION 2 - SCOPE

These procedures apply to offices, subsidiaries, and joint ventures responding to a situation where anthrax has been confirmed by laboratory tests or is suspected.

SECTION 3 - BACKGROUND

Anthrax is an acute infectious disease caused by a spore-forming bacterium called Bacillus anthracis. It is generally acquired following contact with anthrax-infected animals or anthrax-contaminated animal products. Anthrax is receiving heightened attention, because of its use as a biological agent.

SECTION 4 - HEALTH EFFECTS

In humans, three types of anthrax infections can occur, based on the route of exposure: Cutaneous (skin exposure), Inhalation (inhalation exposure), and Intestinal (ingestion exposure). Symptoms are dependent on the route of exposure. Those most often associated with skin infections are itching, boils, and formation of a black scab. Symptoms most often associated with inhalation infections are fever, chest pain, and difficulty breathing. Symptoms most often associated with ingestion infections are nausea, vomiting, and diarrhea. Inhalation Anthrax is often lethal.

SECTION 5 - RESPONSE

In any cleanup where bioterrorism (BT) is suspected or may be a possibility, the FBI, local law enforcement, and the local public health officials must be notified. AMPCO must obtain permission from the coordinating law enforcement agency prior to proceeding with the cleanup.

SECTION 6 - TRAINING

All personnel actively involved in cleanup must be currently 40 HAZWOPER trained. All personnel must also attend a bio-terrorism response training, which consists of a minimum of eight (8) hours of training specific to Anthrax and other biological and chemical agents, biochemical remediation procedures, decontamination procedures and Personnel Protective Equipment (PPE). The eight (8) hour training will include a minimum of two (2) hours of hands on training, wearing SCBA and Fully Encapsulating Suits (SEE ATTACHMENT A).

SECTION 7 - MEDICAL SURVEILANCE

All personnel involved in the remediation of Anthrax will participate in the Medical Surveillance Program. Participation in the Medical Surveillance is mandatory.

7.1 Pre-Placement

All personnel involved in remediation of Anthrax will receive a pre-placement physical examination by a licensed physician. The physical examination will include an evaluation to determine that the individual is capable of heavy manual labor, medically capable of wearing a respirator, is not immunocompromised, and has no open wounds or sores. In addition a baseline anthrax serology will be performed to detect the presence of antibodies against B. anthracis. If the serology is positive it must be followed up with blood culture and the individual is referred to the public health department. Only persons with a negative baseline may work in bioremediation of Anthrax.

7.2 Periodic

Nasal swabs and an Anthrax serology to detect the presence of antibodies in the blood will be conducted weekly. Any abnormal results will be evaluated by a physician for appropriate action, which may include prophylactic treatments with antibiotics.

7.3 End of Project or Termination

All personnel will receive a complete general physical exam to rule out any signs or symptoms of Anthrax infection and a nasal swab and blood culture will be collected.

7.4 Medical Removal

Any personnel developing cold or flu-like symptoms will not be allowed to continue working.

7.5 Acknowledgement

All personnel involved in the bioremediation of Anthrax must sign an acknowledgement that they understand the dangers involved specific to working with Anthrax. The acknowledgement will be in their primary language.

SECTION 8 - PERSONAL PROTECTIVE EQUIPMENT (PPE)

The selection and use of PPE for Anthrax cleanup will at a minimum be in accordance with the interim recommendations made by the Centers for Disease Control and Prevention (CDC).

8.1 When responding to an event where the type or concentration of airborne agent is unknown or if the dissemination was via an aerosol-generating device, the following PPE will be utilized:

8.1.1 All persons entering the work area or exclusion zone will wear Level A protection, which will consist of:

i. Pressure demand SCBA.
ii. Fully encapsulating chemical resistant suit.
iii. Chemical-resistant outer gloves.
iv. Chemical-resistant inner gloves.
v. Chemical-resistant boots with steel toe and shank.
vi. Disposable coveralls.
(Worn under the fully encapsulating suit).
vii. Hard hat (worn under suit).
viii. Disposable boot covers.
ix. Two-way radio.

8.1.2 All persons entering the personnel or waste decontamination area or working in the contamination reduction zone will wear Level B protection at a minimum, which consists of:

i. Pressure demand SCBA.
ii. Chemical-resistant clothing
(minimum Saranex coverall with pullover hood).
iii. Chemical-resistant outer gloves.
iv. Chemical-resistant inner gloves.
v. Chemical-resistant boots with steel toe and shank.
vi. Disposable coveralls.
(Worn under the fully encapsulating suit).
vii. Hard hat (worn under suit).
viii. Two-way radio.

8.1.3 All persons working inside the support zone directly adjacent to the contaminant reduction zone will wear Level C protection at a minimum,

which consists of:

i. Full face PAPR.
ii. Chemical-resistant clothing.
iii. Chemical-resistant inner gloves.
iv. Chemical-resistant boots.
v. Hard Hat
vi. Two-way radio.

8.1.4 After a biocide is applied within the work area or exclusion zone, PPE may be downgraded to Level C protection.

8.2 When responding to an event where the biological agent is no longer being generated, the type of agent has been identified as a "normal" strain and the airborne concentrations are known the following PPE will be utilized.

8.2.1 All persons entering the work area or exclusion zone will wear Level B protection, which will consist of:

i. Pressure demand SCBA.
ii. Fully encapsulating chemical resistant Level B suit. (minimum Tyvek/Saranex Hazmat Response Suit)
iii. Chemical-resistant outer gloves.
iv. Chemical-resistant inner gloves.
v. Chemical-resistant boots with steel toe and shank.
vi. Disposable coveralls. (Worn under the fully encapsulating suit).
vii. Hard hat (worn under suit).
viii. Disposable boot covers.

8.2.2 All persons entering the personnel or waste decontamination area or working in the contamination reduction zone will wear Level C protection at a minimum, which consists of:

i. Full Face PAPR.
ii. Chemical-resistant clothing (minimum Saranex coverall with pullover hood).
iii. Chemical-resistant outer gloves.
iv. Chemical-resistant inner gloves.
v. Chemical-resistant boots with steel toe and shank.
vi. Disposable coveralls.

(Worn under the fully encapsulating suit).

vii. Hard hat (worn under suit).

8.2.3 All persons working inside the support zone directly adjacent to the contaminant reduction zone will wear Level C protection at a minimum, which consists of:

i. Full Face Air Purifying Respirator
ii. Chemical-resistant clothing.
iii. Chemical-resistant inner gloves.
iv. Chemical-resistant boots.
v. Hard hat
vi. Two-way radio.

8.2.4 After a biocide is applied within the work area or exclusion zone, PPE may be downgraded to Level C protection.

8.3 When responding to an event where an aerosol generating device was not used to disperse the biological agent, dissemination was via a letter or package that has been bagged and removed, the agent has been identified as a "normal" strain or the absence of a live agent has been confirmed, and airborne concentrations are determined to be negligible the following PPE may be used:

8.3.1 All persons entering the work area or exclusion zone will wear Level C protection, which will consist of:

i. Full Face PAPR.
ii. Chemical-resistant clothing
(minimum Saranex coverall with pullover hood).
iii. Chemical-resistant outer gloves.
iv. Chemical-resistant inner gloves.
v. Chemical-resistant boots with steel toe and shank.
vi. Disposable coveralls.
(Worn under the chemical resistant suit).
vii. Hard hat .

8.3.2 All persons entering the personnel or waste decontamination area or working in the contamination reduction zone will wear Level C protection at a minimum, which consists of:

i. Full Face PAPR.

ii. Chemical-resistant clothing
(minimum Saranex coverall with pullover hood).
iii. Chemical-resistant outer gloves.
iv. Chemical-resistant inner gloves.
v. Chemical-resistant boots with steel toe and shank.
vi. Disposable coveralls.
(Worn under the chemical resistant suit).
vii. Hard hat.

8.3.3 All persons working inside the support zone directly adjacent to the contaminant reduction zone will wear Level D protection at a minimum, which consists of:

i. Chemical-resistant clothing.
ii. Chemical-resistant inner gloves.
iii. Chemical-resistant boots.
iv. Hard hat.

8.4 Each project will be evaluated on a case-by-case basis to determine if PPE is appropriate. Beginning any project in Level C protection must be approved in writing by Corporate Health and Safety.

SECTION 9 - EQUIPMENT

Only HEPA filtered vacuums and air filtration devices (AFD) will be used. All HEPA filtered equipment must be Dispersed Oil Particulate (DOP) tested.

PAPR's will be belt mounted and use more than one filter.

SECTION 10 - REMEDIATION WORK PROCEDURES

The work area will be regulated to restrict entrance to authorized personnel.

- A personnel decontamination chamber will be setup and be fully functional prior to entering the work area.
- The work site will be segregated into 3 work zones: the Exclusion Zone (contaminated work area); the Contamination Reduction Zone (transition area between the contaminated and clean areas); and the Support Zone (non contaminated area).
- The work area will be sealed off from adjacent areas via critical barriers to prevent cross contamination.
- HVAC will be shut down/locked out and evaluated for contamination.
- All HVAC registers, drains, or openings, will be sealed with critical barriers.

- If HVAC systems is contaminated it must be treated with biocide and cleaned, as well.
- The work area will be placed under negative pressure using HEPA filtered AFD exhausting to the outdoors.
- Use only biocides approved by the client.
- Allow biocide to set for prescribed kill time.
- Collect disposable items and containerize in red biohazard bags.
- Clean residues of biocide from all surfaces by wet wiping and HEPA vacuuming.
- Collect all waste and seal in red-labeled bags for disposal, as biohazard waste.
- Run clearance monitoring for Anthrax.
- Upon written receipt of successful clearance monitoring (no live anthrax) dismantle the containment.

> **Note:** When using Easy Decon Foam DF100, follow the manufacturer's application recommendations and decontamination procedures.

SECTION 11 - PERSONAL AND EQUIPMENT DECONTAMINATION

Decontamination consists of physically removing contaminants and/or changing their chemical nature to render them innocuous. Decontamination procedures appropriate to a site's hazards must be developed and implemented before anyone enters the site, and must continue throughout site operation.
Initially, all personnel and equipment leaving the Exclusion Zone should be assumed to be grossly contaminated. An area within the Contamination Reduction Zone known as the Contamination Reduction Corridor (CRC) is designated for decontamination activities. These are arranged as a sequential doffing, washing, and rinsing of equipment and protective clothing. Each step in the process is assigned a separate location or station within the CRC, and stations are separated by at least three (3) feet. Decontamination will follow the following sequence at a minimum:

Step 1	Segregated Equipment Drop.
Step 2	Boot Cover and Glove Wash.
Step 3	Boot Cover and Glove Rinse.
Step 4	Tape Removal.
Step 5	Boot Cover Removal.
Step 6	Outer Glove Removal.
Step 7	Suit/Safety Boot/Glove Wash (Disinfection).
Step 8	Suit/Safety Boot Rinse.
Step 9	Safety Boot Removal.
Step 10	Fully Encapsulating Suit and Hard Hat Removal.
Step 11	SCBA Backpack Removal.
Step 12	Inner Glove Wash.
Step 13	Inner Glove Rinse.
Step 14	Inner Glove Removal.

Step 15	Inner Clothing Removal.
Step 16	Shower With Antibacterial Soap.
Step 17	Face Piece Removal.
Step 18	Redress.

The decontamination sequence may be modified, depending upon the PPE employed.

SECTION 12 - SITE SAFETY AND HEALTH PLAN

A Site Safety and Health Plan (SSHP) will be developed for every project. The SSHP contains general information concerning a site, its personnel, the hazards present and the personal protective equipment they require, and other relevant factors. The SSHP will include discussions of:

1. Personnel.
2. Site Description.
3. Hazard Evaluation.
4. Contingency Planning.
5. Decontamination.
6. Personal Protective Equipment.

The site-specific safety and health plan developed will address the following:

a. The risks associated with the incident and with each operation.
b. Key personnel and their alternates.
c. Levels of protection to be worn (PPE).
d. Work zones, boundaries, and access control points.
e. Decontamination procedures for personnel and equipment.
f. Numbers of personnel and equipment needed in the work zones during various operations.
g. Emergency procedures, including escape routes, evacuation signals and communications.
h. Emergency medical care.
i. Air monitoring, personal monitoring, and environment sampling.
j. Training requirements.
k. Weather and other conditions.
l. Security and access control procedures.

CADMIUM ABATEMENT GUIDELINES

SECTION 1 - PURPOSE

These procedures establish uniform guidelines for providing a program to protect construction employees from excessive exposure to cadmium while working on a construction site.

SECTION 2 - SCOPE

This section applies to all AMPCO operations where an employee may potentially be exposed to cadmium and cadmium compounds in all forms, including fumes and dust. The activities include, but are mot limited to, wrecking, demolishing, and salvaging structures where cadmium or cadmium-containing materials are present; cutting, brazing, grinding, or welding on surfaces that are painted with cadmium-containing paints; and transporting, storing, and disposing of cadmium or cadmium-containing materials on the site or location where construction activities are preformed.

SECTION 3 - OBJECTIVE

The objective of this program is to ensure the safety of each AMPCO worker who may be exposed to cadmium levels within the work place, by reducing all cadmium exposure levels to below the OSHA Action Level (AL) and Permissible Exposure Limit (PEL) defining work practices, engineering controls, PPE and medical surveillance requirements.

3.1 AMPCO Requirements

Anytime an AMPCO employee may be exposed to cadmium levels at or above the **Action Level** the following items will be instituted:

- Exposure Assessment
- Initial Medical Surveillance, Biological Monitoring, and Medical Examinations
- Initial and Refresher employee training specific to cadmium.
- Daily or periodic air monitoring as required
- Use of appropriate PPE including respiratory protection.
- Hygiene Facilities and Practices

Operations within our industry which may generate Cadmium exposure, include the

following:

- Removal of cadmium-containing paint;
- Abrasive blasting on cadmium or cadmium-containing materials
- Asbestos abatement operations in areas of high fly ash concentrations; and
- Flame-torch cutting, welding, and grinding of Cadmium painted surfaces in repair, reconstruction, dismantling, and demolition work.

SECTION 4 - CODES AND REGULATIONS

General applicability of Codes and Regulations: Except to the extent that more explicit or more stringent requirements are written directly into these guidelines, all applicable codes and regulations have the same force and effect as if copied directly into these guidelines.

Those standards governing the development of this program include, but are not limited to, the following:

- **Cadmium** CFR Title 29, Part 1926, Section 1127
- **Respiratory Protection** CFR Title 29, Part 1910, Section 134
- **Access to Employee Exposure and Medical Records** CFR Title 29, Part 1910, Section 1020
- **NIOSH/MSHA Approvals for Respirators** CFR Title 30, Part II and 42 CFR Part 84
- **American National Standards Institute (ANSI)** American National Standard: Practices for Respiratory Protection, Z88.2-1980
- **Ventilation and Protection in Welding, Cutting and Heating** CFT Title 29, Part 1926, Section 353
- **Welding, Cutting and Heating in way of Preservative Coatings** CFT Title 29, Part 1926, Section 354
- **Reference all Local and State Cadmium Standards**
- **Reference the AMPCO Corporate Safety Manual**

SECTION 5 - DESIGNATION OF A COMPETENT PERSON(S)

OSHA established a “competent person” provision in the construction cadmium standard because there were no accurate exposure data available regarding the average length of exposure per week, the exposure levels, and the worker turnover in various job categories. The standard, therefore, requires employers to designate a person capable of identifying existing and potential cadmium hazards in the workplace and taking prompt, corrective actions to eliminate or control such hazards.

The designated "competent person" must be able at least to:

- Determine, prior to beginning a job, whether cadmium is present in the workplace;
- Establish regulated areas and ensure that access to and from those areas is limited to "authorized" employees;
- Ensure the adequacy of any employee exposure-monitoring required by the standard;
- Ensure that all employees exposed to airborne cadmium levels above the PEL wear the appropriate personal protective equipment and are trained to use appropriate methods to control cadmium exposure;
- Ensure that proper hygiene facilities are provided and that workers are trained to use these facilities; and
- Ensure that required engineering controls are implemented, maintained in proper operating condition, and functioning properly.

SECTION 6 - RESPONSIBILITY

6.1 Manager, Safety and Regulatory Compliance

It will be the responsibility of AMPCO Corporate Safety or his designate, to evaluate this written program at least every six (6) months and to revise and update this program as required.

6.2 Health & Safety and Presidents

It is the responsibility of Health and Safety and Presidents to provide the necessary support to the project to assist in the successful implementation of this program. Health and Safety will audit the jobsite as necessary to ensure program compliance.

6.3 Jobsite Employees

It will be considered a condition of employment, that all employees assigned to a project in which it has been determined that a potential for cadmium exposure exists, abide by the terms of this Cadmium program.

6.4 Disciplinary Action

Violation of this program or refusal to comply with the requirements of this program will result in disciplinary action up to and including discharge from employment. (See also paragraph 16.0 in this Section)

SECTION 7 - ALLOWABLE EXPOSURE LIMITS

Action Level (AL): 2.5 micrograms per cubic meter of air (2.5 µg/m3) averaged over any 8 hour period. At this level, first action will be initiated, such as employee training, medical surveillance and record keeping.

Permissible Exposure Limit (PEL): 5 micrograms per cubic meter of air (5 µg/m3) averaged over any 8 hour period. This is the maximum level employees may be exposed to without using respiratory protection according to OSHA. **AMPCO requires respirator use with any exposure.**

SECTION 8 - EXPOSURE MONITORING

Prior to the performance of any construction work where employees may be potentially exposed to cadmium it must be determined whether cadmium is present in the workplace and if exposures will be at or above the action level. AMPCO will designate a competent person who shall make this determination. The determination of if cadmium is present shall be based on a review of:

- Relevant Plans, Bid Documents
- Past Records
- Safety Data Sheet
- Consultations with Property Owner

Where cadmium has been determined to be present in the work place, and it has been determined that there is a possibility the employee's exposure will be at or above the action level, the competent person shall identify employees actual exposures by the use of personal air monitoring.

Determination of employee exposure shall be made from breathing-zone air samples that reflect their 8-hour TWA exposure to cadmium. Where several employees perform the same job task, in the same job classification, on the same shift, in the same work area, and for the same duration and the level of cadmium is similar it is not required to sample all employees that are expected to have the highest cadmium exposure will be sampled to represent all employees exposure.

8.1 Initial Monitoring

Unless the competent person has determined that employee exposure will not exceed airborne concentrations at or above the action level through the use of objective data, air monitoring will be conducted that is representative of the exposure for each employee in the workplace who is or may be exposed to cadmium at or above the action level.

NOTE: Objective data, for the purpose of exemption from initial monitoring, must demonstrate that a particular product or material containing

cadmium or a specific process, operation, or activity involving cadmium cannot release dust or fumes in concentrations at or above the action level even under the worst case release conditions. “Objective Data” records must be maintained for 30 years.

8.2 Periodic Monitoring

If an employee periodically performs tasks that may expose the employee to a higher concentration of airborne cadmium, the employee shall be monitored while performing those tasks.

8.3 Monitoring Frequency

If the initial monitoring or periodic monitoring reveals employee exposures to be at or above the action level monitoring will continue at a frequency and pattern needed to assure that it reflects typical exposures, adequacy of work practices and respiratory selection.

8.4 Discontinue of Monitoring

If the initial monitoring or the periodic monitoring indicates that employee exposures are below the action level and confirmed by results of another monitoring taken at least seven days later, monitoring may be discontinued.

8.5 Additional Monitoring

Air monitoring will be re-instated whenever there has been a change in the materials, equipment, personnel, work practices or whenever the competent person has any reason to suspect that any other change might result in exposures at or above the action level.

8.6 Employee Notification

Results of any air monitoring will be communicated to affected employees individually in writing and posted in an appropriate location no later than five working days after receipt.

Whenever monitoring results indicate that employee exposures exceeds the PEL, the written notice will include a statement that the PEL has been exceeded and a description of the corrective action being taken to reduce exposures below the PEL.

SECTION 9 - REGULATED AREA

A regulated area will be established whenever an employee is or can be expected to be exposed to cadmium in excess of the PEL. Regulated areas must be demarcated from the rest of the workplace in a manner that adequately establishes and alerts employees of the boundaries of the

regulated area.

Access to the regulated area will be limited to authorized persons only equipped with appropriate respirators. No one will be allowed to eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas or carry or store such products associated with any of these activities into a regulated area.

Warning signs bearing the following information must be posted at all approaches to regulated areas:

DANGER CADMIUM
CANCER HAZARD
CAN CAUSE LUNG AND KIDNEY DISEASE
AUTHORIZED PERSONNEL ONLY
RESPIRATORS REQUIRED IN THIS AREA

SECTION 10 - METHODS OF COMPLIANCE

Engineering controls must be implemented when exposures can be reasonably expected to exceed the PEL. Whenever engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL we will implement controls to reduce exposure to the lowest possible levels. Employee rotation may not be used as an engineering control.

10.1 Abrasive Blasting

Abrasive blasting on cadmium or cadmium-containing materials will be conducted in a manner that will provide adequate protections to employees, general public and the environment.

10.2 Heating and Burning

Local exhaust ventilation must be used during heating or burning operation in an enclosed space and designed to remove fumes and smoke at the source and away from the breathing zone.

In enclosed spaces, all surfaces covered with cadmium must be stripped of its coating for a distance of at least 4 inches from the area of heat or flame application or employees will be equipped with air line respirators.

10.3 Prohibitions

High speed abrasive disc saws and similar abrasive power equipment shall not be used unless they are equipped with appropriate engineering controls to minimize emissions.

SECTION 11 - WRITTEN COMPLIANCE PROGRAM

A written compliance program must be established and implemented that describes how AMPCO will reduce employee exposure to the PEL or below by the use of engineering and work practice controls, and the use of respiratory protection where required.

The written compliance program must be reviewed and updated as often and as promptly as necessary to reflect any significant changes. A designated "competent person" shall review the compliance program, initially and after each change, to ensure that the written program offers adequate employee protection from occupational exposure to cadmium.

Upon request, the written compliance program must be made available for examination and copying to the Assistant Secretary for OSHA, the Director of the National Institute for Occupational Safety and Health (NIOSH), and affected employees and their designated representatives.

SECTION 12 - RESPIRATOR PROTECTION

Respirators are required during all operation where employees have the potential to be exposed to airborne cadmium of any concentrations. Respirator use, care and maintenance will be in full compliance with AMPCO's Respirator Protection Program, section 7-1.

12.1 Respirator Selection

The appropriate respirator will be selected from Table 1 and based on airborne concentration levels.

12.2 Emergency Situations

A site specific written emergency plan will be developed and implemented for dealing with any substantial release of airborne cadmium. The plan will include provisions for the use of appropriate respirators and personal protective equipment. Employees not essential to correcting the emergency shall be restricted from the area and normal operations halted until the emergency is abated.

SECTION 13 - PERSONAL PROTECTIVE EQUIPMENT

When employee exposure is expected to be above the PEL or where skin or eye irritations is associated with Cadmium exposures at any levels, PPE will be provided at no cost to the employee. PPE for Cadmium work includes but is not limited to:

- Full body disposable coverings
- Gloves

- Eye Protection
- Respirators (any concentrations)

It is AMPCO's policy that all employees on projects, with mixed gender crews, requiring the use of disposable protective clothing be furnished with either disposable underwear (preferred) or two (2) sets of disposable suits to be worn together. Wearing nylon bathing suits under a single disposable suit is acceptable but this will be considered an individual preference. Acquiring the bathing suit and its associated costs will be solely the responsibility of the employee.

13.1 Removal and Storage

Employees will remove all protective clothing and equipment contaminated with Cadmium at lunch and at the completion of the work shift in a clean change room. The removal of Cadmium from protective clothing and equipment by blowing, shaking, or any other means that disperses Cadmium into the air is prohibited.

SECTION 14 - HYGIENE FACILITIES

When airborne exposures to cadmium exceed the PEL a clean change room, hand washing facilities, showers and lunch room facilities will be provided.

14.1 Clean Room

Change rooms will be equipped with separate storage facilities for street clothes.

14.2 Shower and Hand Washing Facilities

Employees must wash their hands and faces prior to eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics. Employees must shower at the end of the work shift.

14.3 Lunchroom Facilities

Lunchroom facilities must be readily accessible to employees and maintained in a manner that insures that no employee, in the lunchroom, is exposed at any time to cadmium at or above the Action Level. Employees will not be allowed in the lunchroom with clothing or equipment contaminated with cadmium dust.

SECTION 15 - HOUSEKEEPING

All surfaces shall be maintained as free as possible of accumulations of cadmium. All spills and sudden releases of material containing cadmium shall be cleaned up as soon as possible.

Vacuuming equipment will be equipped with HEPA filtration. Shoveling, dry or wet sweeping and brushing may be used only when HEPA vacuuming have been tried and found not to be effective. Compressed air will not be used unless used in conjunction with a ventilation system designed to capture the dust cloud.

15.1 Disposal

Waste, scrap, debris, bags, containers, PPE, disposable clothing contaminated with cadmium will be collected and disposed in sealed impermeable bags. All waste bags will be labeled with the following:

DANGER CADMIUM
CANCER HAZARD
CAN CAUSE LUNG AND KIDNEY DISEASE
AUTHORIZED PERSONNEL ONLY
RESPIRATORS REQUIRED IN THIS AREA

SECTION 16 - MEDICAL SURVEILLANCE

Employees assigned to projects where cadmium exposure levels are expected to exceed the Action Level will be required to submit to a medical exam prior to being allowed in a regulated area.

16.1 Initial Exam

The initial medical examination will include a detailed medical and work history, with emphasis on: Past, present, and anticipated exposures to cadmium: any history of renal, cardiovascular, respirator, hematopoietic, reproductive, and/or musculoskeletal system dysfunction: current usage of medication with potential nephrotoxic side-effects: and smoking history; and

Biological monitoring that includes the following tests:

- Cadmium in urine (CDU), standardized to grams of creatinine (g/Cr);
- Beta-2 microglobulin in urine(B2-M), standardized to grams of creatinine (g/Cr), with ph specified as described in Appendix F in 29 CFR 1926.1127; and
- Cadmium in blood (Cd B), standardized to liters of whole blood (1 wb).

16.2 Termination of Employment Exam

A termination medical exam is required if the last exam was more than six months prior

to date of termination.

16.3 Physician's Written Opinion

A written, signed medical opinion from the examining physician for each medical exam is required and must contain:

The physician's diagnosis for the employee;

- The physician's opinion as to whether the employee has any detected medical condition(s) that would place the employee at increased risk of material impairment to health from further exposure to cadmium, including any indications of potential cadmium toxicity;
- The results of any biological or other testing or related evaluations that directly assess the employee's absorption of cadmium;
- Any recommended removal from, or limitation on the activities or duties of the employee or on the employee's use of personal protective equipment, such as respirators;
- A statement that the physician has clearly and carefully explained to the employee the results of the medical examination, including all biological monitoring results and any medical conditions related to cadmium exposure that require further evaluation or treatment, and any limitations on the employee's diet or use of medications.

16.4 Information to Employee

A copy of the Physician's Written Opinion must be provided to the employee within 5 working days after receipt.

SECTION 17 - TRAINING

Training will be provided prior to initial assignment to tasks involving potential exposure to cadmium and at least annually thereafter. Training will include:

- Health hazards associated with cadmium exposure;
- Quantity and location of cadmium;
- Engineering controls and work practices associated with the employee's job task;
- Measures employees can take to reduce exposures;
- Purpose, selection, fitting and proper use and limitations of respirators and protective clothing;
- Medical Surveillance;
- 1926.1127 Cadmium
- Access to records;

- Additional access to training documents.

TABLE 1

RESPIRATORY PROTECTION FOR CADMIUM

WHEN THE CADMIUM CONCENTRATION IS:	YOU WILL HAVE A PROTECTION FACTOR OF AT LEAST:	THE RESPIRATOR NEEDED TO PROVIDE THIS PROTECTION IS:
Not in excess of 50 µg/m^3	10	Half-mask air purifying respirator with HEPA cartridge
Not in excess of 250 µg/m^3	50	Full face-piece air purifying respirator with HEPA cartridge Tight fitting half face-piece powered air-purifying respirator (PAPR) with HEPA cartridge Half mask face-piece supplied air respirator operated in continuous flow mode
Not in excess of 1,250 µg/m^3	250	Full face-piece powered air purifying respirator equipped with HEPA filter or a supplied air respirator operated in continuous flow (Full Mask)
Not in excess of 5,000 µg/m^3	1,000	Full or half face-piece supplied-air respirator operated in the pressure demand mode

BENZENE GUIDELINES

SECTION 1 - PURPOSE

These procedures establish uniform guidelines for providing a program to protect construction employees from excessive exposure to benzene while working on a construction site.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - OBJECTIVE

The objective of this program is to ensure the safety of each AMPCO worker who may be exposed to benzene levels within the work place, by reducing all benzene exposure levels to below the OSHA Permissible Exposure Limit (PEL).

3.1 Permissible Exposure Limit (PEL)

Airborne: The maximum time-weighted average (TWA) exposure limit is 1 part of benzene vapor per million parts of air (1 ppm) for an 8-hour workday and the maximum short-term exposure limit (STEL) is 5 ppm for any 15-minute period.

SECTION 4 – POSSIBLE EXPOSURE LOCATIONS

Possible locations where AMPCO employees may be exposed to Benzene:

- Petroleum refining sites
- Tank Gauging (tanks at producing, pipeline & refining operations)
- Field Maintenance

SECTION 5 – CHARACTERISTICS

Appearance and Odor: Benzene is a clear, colorless liquid with a pleasant, sweet odor. The odor of benzene does not provide adequate warning of its hazard.

SECTION 6 – HEALTH HAZARD DATA

Ways in which benzene affects your health. Benzene can affect your health if you inhale it, or if it comes in contact with your skin or eyes. Benzene is also harmful if you happen to swallow it. Effects of overexposure.

- **Short-term (acute) overexposure:** If you are overexposed to high concentrations of benzene, well above the levels where its odor is first recognizable, you may feel breathless, irritable, euphoric, or giddy; you may experience irritation in eyes, nose, and respiratory tract. You may develop a headache, feel dizzy, nauseated, or intoxicated. Severe exposures may lead to convulsions and loss of consciousness.
- **Long-term (chronic) exposure:** Repeated or prolonged exposure to benzene, even at relatively low concentrations, may result in various blood disorders, ranging from anemia to leukemia, an irreversible, fatal disease. Many blood disorders associated with benzene exposure may occur without symptoms.

SECTION 7 – PERSONAL PROTECTIVE EQUIPMENT

- **Respirators**

  Respirators are required for those operations in which engineering controls or work practice controls are not feasible to reduce exposure to the permissible level. However, where employers can document that benzene is present in the workplace less than 30 days a year, respirators may be used in lieu of engineering controls. If respirators are worn, they must have joint Mine Safety and Health Administration and the National Institute for Occupational Safety and Health (NIOSH) seal of approval, and cartridge or canisters must be replaced before the end of their service life, or the end of the shift, whichever occurs first. If you experience difficulty breathing while wearing a respirator, you may request a positive pressure respirator from your employer. You must be thoroughly trained to use the assigned respirator, and the training will be provided by AMPCO with no cost to employee.

- **Protective Clothing**

  You must wear appropriate protective clothing (such as boots, gloves, sleeves, aprons, etc.) over any parts of your body that could be exposed to liquid benzene.

- **Eye and Face Protection**

  You must wear splash-proof safety goggles if it is possible that benzene may get into your eyes. In addition, you must wear a face shield if your face could be splashed with benzene liquid.

SECTION 8 – EMERGENCY AND FIRST AID PROCEDURES

- **Eye and Face Exposure**

  If benzene is splashed in your eyes, wash it out immediately with large amounts of water. If irritation persists or vision appears to be affected see a doctor as soon as possible.

- **Skin exposure**

If benzene is spilled on your clothing or skin, remove the contaminated clothing and wash the exposed skin with large amounts of water and soap immediately. Wash contaminated clothing before you wear it again.

- **Breathing**

If you or any other person breathes in large amounts of benzene, get the exposed person to fresh air at once. Apply artificial respiration if breathing has stopped. Call for medical assistance or a doctor as soon as possible. Never enter any vessel or confined space where the benzene concentration might be high without proper safety equipment and at least one other person present who will stay outside. A life line should be used.

- **Swallowing**

If benzene has been swallowed and the patient is conscious, do not induce vomiting. Call for medical assistance or a doctor immediately.

SECTION 9 – MEDICAL REQUIREMENTS

If you are exposed to benzene at a concentration at or above 0.5 ppm as an 8-hour time-weighted average, or have been exposed at or above 10 ppm in the past while employed by AMPCO, AMPCO will provide a medical examination and history and laboratory tests within 60 days of the effective date of this standard and annually thereafter. These tests shall be provided without cost to you. In addition, if you are accidentally exposed to benzene (either by ingestion, inhalation, or skin/eye contact) under emergency conditions known or suspected to constitute toxic exposure to benzene, AMPCO is required to make special laboratory tests available to you.

9.1 Observation of Monitoring

AMPCO will perform measurements that are representative of your exposure to benzene and you or your designated representative is entitled to observe the monitoring procedure. You are entitled to observe the steps taken in the measurement procedure, and to record the results obtained. When the monitoring procedure is taking place in an area where respirators or personal protective clothing and equipment are required to be worn, you or your representative must also be provided with, and must wear the protective clothing and equipment.

9.2 Access to Records

You or your representative is entitled to see the records of measurements of your exposure to benzene upon written request to AMPCO. Your medical examination records can be furnished to yourself, your physician or designated representative upon request by you to AMPCO.

SECTION 10 – PRECAUTIONS FOR SAFE USE, HANDLING AND STORAGE

Benzene liquid is highly flammable. It should be stored in tightly closed containers in a cool, well ventilated area. Benzene vapor may form explosive mixtures in air. All sources of ignition must be controlled. Use non-sparking tools when opening or closing benzene containers. Fire extinguishers, where provided, must be readily available. Know where they are located and how to operate them. Smoking is prohibited in areas where benzene is used or stored. Ask your supervisor where benzene is used in your area and for additional plant safety rules.

SECTION 11 – SITE SPECIFIC CONTINGENCY PLANS

AMPCO employees must receive site specific training as to be informed where benzene is used in host facility and aware of additional plant safety rules.

HYDROGEN SULFIDE GUIDELINES

SECTION 1 - PURPOSE

These procedures establish uniform guidelines for providing a program to protect construction employees from excessive exposure to Hydrogen Sulfide while working on a construction site.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - OBJECTIVE

The objective of this program is to ensure the safety of each AMPCO worker who may be exposed to Hydrogen Sulfide levels within the work place, by reducing all H2S exposure levels to below the OSHA Permissible Exposure Limit (PEL).

3.1 Permissible Exposure Limit (PEL)

The American Conference of Governmental Industrial Hygienists recommends a Threshold Limit Value of 10 ppm and a short-term exposure (STEL) limit of 15 ppm averaged over 15 minutes. Exposure at the STEL should not be repeated more than four times per day with at least 60 minutes between successive exposures in this range.

SECTION 4 – POSSIBLE EXPOSURE LOCATIONS

Possible locations where AMPCO employees may be exposed to H2S:

- **Drilling Operations**
  - Recycled Drilling Mud.
  - Water from sour crude wells.
  - Blowouts
- **Tank Gauging** (tanks at producing, pipeline & refining operations)
- **Field Maintenance.**

- Tank batteries and wells, etc.

SECTION 5 - CHARACTERISTICS

Hydrogen sulfide is an extremely toxic, flammable gas that may be encountered in the production of gas well gas, high-sulfide, high sulfur content crude oil, crude oil fractions, associated gas, and waters. Since hydrogen sulfide is heavier than Procedure 10-4 H2S Awareness Program AMPCO Corporate Safety Manual 10-4.1 air, it can collect in low places. It is colorless and has a foul rotten egg odor. In low concentrations, H2S sometimes can be detectable by its characteristic odor; however, the smell cannot be relied upon to forewarn of dangerous concentrations (greater than 100ppm) of the gas because it rapidly paralyzes the sense of smell due to paralysis of the olfactory nerve. A longer exposure to the lower concentrations has a similar desensitizing effect on the sense of smell.

It should be well understood that the sense of smell will be rendered ineffective by hydrogen sulfide, which can result in an individual failing to recognize the presence of dangerously high concentrations.

SECTION 6 – HEALTH HAZARD DATA

Most of the information on human health effects from hydrogen sulfide exposure comes from accidental and industrial exposures to high levels. Exposure to high levels can cause muscle cramps, low blood pressure, slow respiration and loss of consciousness. Short-term exposure to moderate amounts of hydrogen sulfide in the workplace produces eye, nose and throat irritation, nausea, dizziness, breathing difficulties, headaches and loss of appetite and sleep. Continued exposure can irritate the respiratory passages and can lead to a buildup of fluid in the lungs.

SECTION 7 – PERSONAL PROTECTIVE EQUIPMENT

Respirators: Approved self-contained breathing apparatus or airline respirator with escape SCBA must be used in the presence of H2S. Respirators are to be used only for those operations in which engineering controls or work practice controls are not feasible to reduce exposure to the permissible level. You must be thoroughly trained to use the assigned respirator, and the training will be provided by AMPCO with no cost to employee.

SECTION 8 – EMERGENCY AND FIRST AID PROCEDURES

Acute exposure to hydrogen sulfide may require decontamination and life support for the victims. Emergency personnel should wear protective clothing appropriate to the type and degree of contamination. Air-purifying or supplied-air respiratory equipment should also be worn, as necessary. Rescue vehicles should carry supplies such as plastic sheeting and disposable plastic bags to assist in preventing spread of contamination.

SECTION 9 – MONITORING REQUIREMENTS

- Portable monitors must be utilized when there is a risk of exposure to H2S
  - Monitors must alarm at the appropriate permissible exposure limit of 10 PPM for the construction industry.
  - The area must be vacated when an alarms sounds and may not be reentered until the atmosphere is proven to be safe.

SECTION 10 – SITE SPECIFIC CONTINGENCY PLANS

AMPCO employees must receive site specific training as to be informed of host facility safety rules addressing H2S safety.

HEXAVALENT CHROMIUM PROGRAM

1.0 PURPOSE

These procedures establish uniform guidelines for providing a program to protect construction employees from excessive occupational exposures to Hexavalent Chromium.

2.0 SCOPE

This section applies to all AMPCO operations where there is an occupational exposure to chromium (VI) in all forms and compounds in construction, except:

2.1 Exposures that occurs in the application of pesticides regulated by the Environmental Protection Agency or another federal government agency;

2.2 Exposure to Portland cement; or

2.3 Where the employer has objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of chromium (VI) in concentrations at or above 0.5 µg/m^3 as an 8-hour time-weighted average (TWA) under any expected conditions of use.

3.0 OBJECTIVE

The objective of this program is to ensure the safety of each LVI worker who may be exposed to Hexavalent Chromium levels within the work place, by reducing all Chromium (VI) exposure levels to below the OSHA Permissible Exposure Limit (PEL) of 5 micrograms per cubic meter of air (5 µg/m^3), calculated as an 8-hour time-weighted average (TWA).

4.0 DEFINITIONS

Action level means a concentration of airborne chromium (VI) of 2.5 micrograms per cubic meter of air (2.5 µg/m^3) calculated as an 8-hour time-

weighted average (TWA).

Chromium (VI) [hexavalent chromium or Cr(VI)] means chromium with a valence of positive six, in any form and in any compound.

Emergency means any occurrence that results, or is likely to result, in an uncontrolled release of chromium (VI). If an incidental release of chromium (VI) can be controlled at the time of release by employees in the immediate release area, or by maintenance personnel, it is not an emergency.

Employee exposure means the exposure to airborne chromium (VI) that would occur if the employee were not using a respirator.

High-efficiency particulate air [HEPA] filter means a filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter or larger.

Historical monitoring data means data from chromium (VI) monitoring conducted prior to May 30, 2006, obtained during work operations conducted under workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Objective data means information such as air monitoring data from industry-wide surveys or calculations based on the composition or chemical and physical properties of a substance demonstrating the employee exposure to chromium (VI) associated with a particular product or material or a specific process, operation, or activity. The data must reflect workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Physician or other licensed health care professional [PLHCP] is an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by paragraph 8.0 of this section.

Permissible exposure limit (PEL). The employer shall ensure that no employee is exposed to an airborne concentration of chromium (VI) in excess of 5 micrograms per cubic meter of air (5 µg/m^3), calculated as an 8-hour time-weighted average (TWA).

4.0 EXPOSURE DETERMINATION

Work operation covered by this section shall determine the 8-hour TWA exposure for each employee exposed to chromium (VI). This determination shall be made in accordance with either paragraph 4.1 or paragraph 4.2 of this section.

4.1 *Scheduled monitoring option*.

Initial monitoring shall be performed to determine the 8-hour TWA exposure for each employee on the basis of a sufficient number of personal breathing zone air samples to accurately characterize full shift exposure on each shift, for each job classification, in each work area. If representative sampling is performed, instead of sampling all employees in order to meet this requirement, the employer shall sample the employee(s) expected to have the highest chromium (VI) exposures.

4.1.1 If initial monitoring indicates that employee exposures are below the action level, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

4.1.2 If monitoring reveals employee exposures to be at or above the action level, the employer shall perform periodic monitoring at least every six months.

4.1.3 If monitoring reveals employee exposures to be above the PEL, the employer shall perform periodic monitoring at least every three months.

4.1.4 If periodic monitoring indicates that employee exposures are below the action level, and the result is confirmed by the result of another monitoring taken at least seven days later, the employer may discontinue the monitoring for those employees whose exposures are represented by such monitoring.

4.1.5 Additional monitoring will be performed when there has been any change in the production process, raw materials, equipment, personnel, work practices, or control methods that may result in new or additional exposures to chromium (VI), or when the employer has any reason to believe that new or additional exposures have occurred.

4.2 **Performance-oriented option**. The 8-hour TWA exposure for each employee can be based on any combination of air monitoring data, historical monitoring data, or objective data sufficient to accurately characterize employee exposure to chromium (VI).

5.0 EMPLOYEE NOTIFICATION OF DETERMINATION RESULTS

Within 5 work days after making an exposure determination in accordance with paragraph 4.1 or paragraph 4.2 of this section, AMPCO shall individually notify each affected employee in writing of the results of that determination or post the results in an appropriate location accessible to all affected employees.

Whenever the exposure determination indicates that employee exposure is above the PEL, the employer shall describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL

6.0 OBSERVATION OF MONITORING

Where air monitoring is performed to comply with the requirements of this section, the employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to chromium (VI).

7.0 ENGINEERING AND WORK PRACTICE CONTROLS.

Except as permitted in paragraph 7.1 of this section, AMPCO shall use engineering and work practice controls to reduce and maintain employee exposure to chromium (VI) to or below the PEL unless the company can demonstrate that such controls are not feasible. Wherever feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, AMPCO shall use them to reduce employee exposure to the lowest levels achievable, and shall supplement them by the use of respiratory protection that complies with the requirements of paragraph 8.0 of this section.

7.1 Where the employer can demonstrate that a process or task does not result in any employee exposure to chromium (VI) above the PEL for 30 or more days per year (12 consecutive months), the requirement to implement engineering and work practice controls to achieve the PEL does not apply to that process or task.

7.2 Prohibition of rotation. The employer shall not rotate employees to different jobs to achieve compliance with the PEL.

8.0 RESPIRATORY PROTECTION.

Where respiratory protection is required AMPCO will provide each employee an appropriate respirator that complies with all the requirements of OSHA's 1910.134 and AMPCO CSM procedure 7-1. Respirators are required during the performance of:

8.1 Installation or implementation of any engineering and work practice controls;

8.2 Work operations, such as maintenance and repair activities, for which engineering and work practice controls are not feasible;

8.3 Work operations for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL;

NOTE: ANY EMPLOYEE REQUIRED TO WEAR A NEGATIVE PRESSURE RESPIRATOR MUST PARTICIPATE IN OUR MEDICAL SURVEILLANCE PROGRAM AND BE MEDICALLY CLEARED TO DO SO..

9.0 PROTECTIVE WORK CLOTHING AND EQUIPMENT

Where a hazard is present or is likely to be present from skin or eye contact with chromium (VI), AMPCO shall provide appropriate personal protective clothing and equipment at no cost to employees, and shall ensure that employees use such clothing and equipment.

9.1 Removal and Storage. Employees will remove all protective clothing and equipment contaminated with chromium (VI) at the end of the work shift or at the completion of their tasks involving chromium (VI) exposure, whichever comes first. The employer shall ensure that no employee removes chromium (VI)-contaminated protective clothing or equipment from the workplace, except for those employees whose job it is to launder,

clean, maintain, or dispose of such clothing or equipment. When contaminated protective clothing or equipment is removed for laundering, cleaning, maintenance, or disposal, it will be stored and transported in sealed, impermeable bags or other closed, impermeable containers labeled in accordance with the requirements of the Hazard Communication Standard, § 1910.1200.

9.2 Cleaning and Replacement. AMPCO will clean, launder, repair and replace all protective clothing and equipment required by this section as needed to maintain its effectiveness.

9.2.1 AMPCO prohibits the removal of chromium (VI) from protective clothing and equipment by blowing, shaking, or any other means that disperses chromium (VI) into the air or onto an employee's body.

9.2.2 AMPCO will inform any person who launders or cleans protective clothing or equipment contaminated with chromium (VI) of the potentially harmful effects of exposure to chromium (VI) and that the clothing and equipment should be laundered or cleaned in a manner that minimizes skin or eye contact with chromium (VI) and effectively prevents the release of airborne chromium (VI) in excess of the PEL.

10.0 HYGIENE AREAS AND PRATICES

Where protective clothing and equipment is required, AMPCO shall provide change rooms in conformance with 29 CFR 1926.51 Where skin contact with chromium (VI) occurs, the employer shall provide washing facilities in conformance with 29 CFR 1926.51. Eating and drinking areas provided by the employer shall also be in conformance with § 1926.51.

10.1 Change rooms. The employer shall assure that change rooms are equipped with separate storage facilities for protective clothing and equipment and for street clothes, and that these facilities prevent cross-contamination.

10.2 Washing facilities. AMPCO shall provide readily accessible washing facilities capable of removing chromium (VI) from the skin, and

shall ensure that affected employees use these facilities when necessary. The employer shall ensure that employees who have skin contact with chromium (VI) wash their hands and faces at the end of the work shift and prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics, or using the toilet.

10.3 Eating and drinking areas. When employees are allowed to consume food or beverages at a worksite where chromium (VI) is present, AMPCO shall ensure that eating and drinking areas and surfaces are maintained as free as practicable of chromium (VI). Employees will not be allowed to enter eating and drinking areas with protective work clothing or equipment.

10.4 Prohibited activities. Employees will not be allowed to eat, drink, smoke, chew tobacco or gum, or apply cosmetics in areas where skin or eye contact with chromium (VI) occurs; or carry the products associated with these activities, or store such products in these areas.

11.0 MEDICAL SURVEILLANCE.

Medical surveillance will be provided at no cost to the employee, and at a reasonable time and place, for all employees who are or may be occupationally exposed to chromium (VI) at or above the action level for 30 or more days a year; experiencing signs or symptoms of the adverse health effects associated with chromium (VI) exposure; or exposed in an emergency. All medical examinations and procedures required by this section will be performed by or under the supervision of a Physician or Licensed Health Care Professional (PLHCP).

11.1 Frequency. Medical examination will be provided:

11.1 Within 30 days after initial assignment, unless the employee has received a chromium (VI) related medical examination that meets the requirements of this paragraph within the last twelve months;

11.2 Annually;

11.3 Within 30 days after a PLHCP's written medical opinion recommends an additional examination;

11.4 Whenever an employee shows signs or symptoms of the adverse health effects associated with chromium (VI) exposure;

11.5 Within 30 days after exposure during an emergency which results in an uncontrolled release of chromium (VI); or

11.6 At the termination of employment, unless the last examination that satisfied the requirements of paragraph (i) of this section was less than six months prior to the date of termination.

11.2 Contents of examination. A medical examination consists of a medical and work history, with emphasis on: past, present, and anticipated future exposure to chromium (VI); any history of respiratory system dysfunction; any history of asthma, dermatitis, skin ulceration, or nasal septum perforation; and smoking status and history. A physical examination of the skin and respiratory tract; and any additional tests deemed appropriate by the examining PLHCP.

11.3 Information provided to the PLHCP. AMPCO shall ensure that the examining PLHCP has a copy of this standard, and shall provide the following information:

11.3.1 A description of the affected employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to chromium (VI);

11.3.2 The employee's former, current, and anticipated levels of occupational exposure to chromium (VI);

11.3.3 A description of any personal protective equipment used or to be used by the employee, including when and for how long the employee has used that equipment; and

11.3.4 Information from records of employment-related medical examinations previously provided to the affected employee, currently within the control of the employer.

11.4 PLHCP's written medical opinion. AMPCO shall obtain a written medical opinion from the PLHCP, within 30 days for each medical examination performed on each employee, which contains:

11.4.1 The PLHCP's opinion as to whether the employee has any detected medical condition(s) that would place the employee at increased risk of material impairment to health from further exposure to chromium (VI);

11.4.2 Any recommended limitations upon the employee's exposure to chromium (VI) or upon the use of personal protective equipment such as respirators;

11.4.3 A statement that the PLHCP has explained to the employee the results of the medical examination, including any medical conditions related to chromium (VI) exposure that require further evaluation or treatment, and any special provisions for use of protective clothing or equipment.

11.4.4 The PLHCP shall not reveal to the employer specific findings or diagnoses unrelated to occupational exposure to chromium (VI).

11.4.5 The employer shall provide a copy of the PLHCP's written medical opinion to the examined employee within two weeks after receiving it.

12.0 COMMUNICATION OF CHROMIUM HAZARDS TO EMPLOYEES

12.1 Hazard communication. AMPCO shall include chromium (VI) in the program established to comply with the Hazard Communication Standard (HCS) (§ 1910.1200). AMPCO shall ensure that each employee has access to labels on containers of chromium and safety data sheets, and is trained in accordance with the provisions of § 1910.1200. Information will be provided on at least the following hazards: Cancer; eye irritation; and skin sensitization.

12.2 Employee information and training. AMPCO shall ensure that each employee can demonstrate knowledge of at least the following:

The contents of this section; and

Understand the purpose and a description of the medical surveillance program required by paragraph 11.0 of this section.

AMPCO shall make a copy of this section readily available without cost to all affected employees.

13.0 RECORDKEEPING

13.1 Air monitoring data. The employer shall maintain an accurate record of all air monitoring conducted to comply with the requirements of this section. This record shall include at least the following information:

The date of measurement for each sample taken;

The operation involving exposure to chromium (VI) that is being monitored;

Sampling and analytical methods used and evidence of their accuracy;

Number, duration, and the results of samples taken;

Type of personal protective equipment, such as respirators worn; and

Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

The employer shall ensure that exposure records are maintained and made available in accordance with 29 CFR 1910.1020.

13.2 Medical surveillance. AMPCO shall establish and maintain an accurate record for each employee covered by medical surveillance under paragraph (i) of this section. The record shall include the following information about the employee:

Name and social security number;

A copy of the PLHCP's written opinions;

A copy of the information provided to the PLHCP as required by paragraph (i)(4) of this section.

AMPCO shall ensure that medical records are maintained and made available in accordance with 29 CFR 1910.1020.

QUALITY ASSURANCE PROGRAM

SECTION 1 - PURPOSE

To describe the quality assurance activities exercised by AMPCO during the estimating, engineering, procurement, and abatement phases of all major lead and asbestos abatement projects.

SECTION 2 - SCOPE

This Quality Assurance Program establishes the Quality Assurance requirements for AMPCO and any subcontractors performing work for AMPCO. The Quality Assurance Program identifies and describes the integral elements of the Quality Assurance activities that apply to the broad spectrum of work performed by AMPCO and its subcontractors for all activities associated with a specified project.

SECTION 3 - POLICY

AMPCO is committed to the safe execution of its projects, within each of the applicable regulations, guidelines and its Corporate Safety Manual. An integral part of successfully pursuing this policy is to ensure that the required level of quality in all site activities is achieved, while also taking the necessary measures to ensure the health and safety of the site personnel and the public, and safeguarding the environment.

The success of the project depends on the required level of quality being achieved in every functional area including:

- design and analysis
- procurement
- fabrication
- installation
- surveying
- construction
- decontamination
- decommissioning
- training
- documentation

AMPCO recognizes a responsibility to assure its clients that it is dedicated to insuring dependable, reliable, and quality service in all work performed within applicable codes, legal

requirements, and construction standards as defined in AMPCO contracts.

SECTION 4 - GENERAL

The entire AMPCO Corporate Safety Manual is in complete accordance with this program; however, practices for individual projects may vary as established by the contractual requirements, providing such requirements are not in conflict with applicable codes and standards.

In use, the AMPCO Safety Manual is our quality assurance program and is reviewed on a continuing basis for changes that can simplify or improve the effectiveness of the program. Suggestions will be carefully evaluated by safety and other appropriate departments before final action.

4.1 Applicable

The objective of this quality assurance program is to ensure that AMPCO projects are conducted with safe and reliable workmanship to establish confidence that systems and work practices are designed and implemented in accordance with established and applicable codes, standards, and contract specifications.

This quality assurance program is applicable to:

- Quality assurance activities related to estimating, engineering, procurement, and maintenance of equipment for which AMPCO has responsibility;
- Quality assurance activities related to work practices for which AMPCO has construction responsibility; and
- Those job site quality assurance activities conducted by another contractor currently under contract to AMPCO as a subcontractor.

SECTION 5 - OPERATIONAL RESPONSIBILITY

Although the key individuals, who are involved in implementing this quality assurance program, are an integral part of the functional construction organization, this will not be allowed to subordinate or compromise their quality assurance responsibilities. The respective responsibilities of these individuals are as follows:

5.1 Company President

The company president has the ultimate responsibility for the implementation of this quality assurance program. The company president's responsibilities are accomplished through:

- the preparation and signing of the quality assurance program policy statement which establishes a governing company policy to conduct estimating, engineering and work practices within this quality assurance program;
- delegation of the day-to-day administration of this quality assurance program to individual project management; and
- an annual management review of this quality assurance program to determine the status, adequacy, and effectiveness of the program.

5.2 Purchasing Manager

The purchasing manager is responsible for procurement of engineering and work practice materials for AMPCO projects. He or she confirms that major procurements are processed in accordance with this quality assurance program. These duties and responsibilities include:

- reviewing procurement documents;
- reviewing supplier quality assurance programs and procedures and performing pre-award surveys of prospective suppliers; and
- reviewing drawings and specifications for proper quality requirements and participating in design review of client design bases.

5.3 Project Superintendent

Each individual project superintendent is responsible for the management and direction of his or her project, and for assuring that all activities on that project are conducted in accordance with this AMPCO quality assurance program. Duties and responsibilities include:

- preparing detailed quality assurance and quality control procedures for all phases of the project;
- assisting in the training of personnel in the requirements of the quality assurance program;
- participating in audits of internal quality assurance activities;

- performing follow-up audits of corrective action commitments to correct previous findings;
- assisting in evaluation of the quality assurance program effectiveness; and
- maintaining a working knowledge of the latest applicable codes and standards utilized by AMPCO in the completion of this project.

5.4 Supervisory Personnel

All supervisory personnel are responsible for the execution of all construction activities and for coordinating this work with the project superintendent. These responsibilities include, but are not limited to, the following:

- establishing and maintaining this quality assurance program which describes AMPCO's quality assurance activities;
- day-to-day administration of the quality assurance program;
- assuring that any other operating procedures or work practices, prepared by other company departments, to supplement or support this quality assurance program is consistent;
- stopping work when a condition adverse to quality warrants such action to maintain a required quality level; and
- insuring that participating personnel are adequately trained in the requirements of this quality assurance program and in the special skills required to perform their job duties.

5.5 Safety Personnel

- performing daily inspections of the projects activities and work practices and advising appropriate management of deviations from established policies and procedures;
- conducting planned, periodic in-depth audits of the projects quality assurance program to insure implementation of the program and to determine the Company's ability to constantly operate within its parameters; and
- insure the results of all inspections and audits, performed in accordance with these procedures, are documented and reviewed.

SECTION 6 - ADMINISTRATIVE RESPONSIBILITY

The preparation, review, approval, maintenance, issuance, revisions, additions, deletions and recall of this quality assurance program will be the responsibility of the Director of Health and Safety and Regulatory.

SECTION 7 - INSPECTIONS AND AUDITS

AMPCO will continuously monitor the project to assure that requirements defined by the scope of work and other documents presented in the contract package are being met. AMPCO will have adequate monitoring systems in place so that defects are discovered on a timely basis to eliminate need for large amounts of rework to meet the contract requirements.

In addition, ascertain the following by daily inspections and periodic audits:

- determine if adequate measures have been established to prevent the inadvertent use of nonconforming activities or work practices;
- insure that those nonconforming activities and work practices which may have been identified have been appropriately corrected; and
- that adequate records are maintained of all activities affecting the quality assurance program.

7.1 Communications

Direct, informal, and timely communications between AMPCO's inspectors and the client's inspectors will be considered mandatory, especially for notification points and in the event of a problem development. AMPCO will advise the client, in as expeditious a manner as possible, of all situations where changes or compromises in specifications are considered or where non-conformance is being encountered.

SECTION 8 - DESIGN CONTROL REVIEW

A design control, quality assurance and safety review shall be held when a new or modified operation is to be started, a new process is developed or an existing process has been expanded or significantly revised, a major item of capital equipment is to be purchased or put into service, an unusual or hazardous construction activity is to be started, a chemical or hazardous substance is to be handled or disposed of for the first time and the chemical or hazardous substance's properties are significantly different from materials usually handled.

This review shall 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.

There must be adequate time provided following the evaluation and/or inspection and before start up for the reviewing personnel to address any quality assurance and/or safety concerns that may be developed.

8.1 Review Team Selection

A review team will normally be composed of safety personnel, project management, and if warranted, members from disciplines of engineering, technical products, operations, etc., depending on the requirements of the project. Other individuals from specialized functions, both within and outside of AMPCO, may be appointed to a team as deemed advisable. The senior management member of the team will act as the team leader. Additional members of a 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.

SECTION 9 - CALIBRATION REVIEW

The measuring of air pollutants or contaminants and the testing of equipment, products or materials must be performed with the measuring and/or test equipment calibrated for each specific operation as required by codes, standards and contract specifications. The project superintendent will be responsible for the following:

- reviewing calibration records daily and monthly and establishing a list of equipment to be calibrated;
- removing any equipment from use on the project for sufficient time to have adequate calibration performed;
- if scheduled calibration of measuring and/or test equipment is found to be discrepant, or the item found to be out of calibration, immediately notifying the appropriate vendor or subcontractor; and
- Insuring that measuring and/or test equipment which is constantly found to be out of calibration is either repaired or replaced.

9.1 Calibration Equipment

Tools, gauges, instruments, and other measuring and testing devices which, due to their

design, may inherently be or may become inaccurate must be calibrated using certified equipment or standards traceable to the National Bureau of Standards when such standards exist. When no national standards exist, calibration will be performed in accordance with the instrument manufacturer's recommendations.

SECTION 10 - PROCUREMENT CONTROL

AMPCO has established measures to assure that quality provisions are identified in purchasing / subcontract documents for materials, equipment, and services. To the extent necessary, purchases documents require subcontractors to provide quality assurance/quality control consistent with the requirements to be satisfied by AMPCO's quality assurance program.

SECTION 11 - LEVEL OF QUALITY

The level of quality assigned to any project determines the degree of quality assurance/quality control effort applied to verify conformance to the design and contract requirements. The detailed assignment of a level of quality is based on the contract requirements and job complexity. The following establishes the quality assurance program activities imposed on projects classified as level 1, level 2, 3 or level 4:

- **Quality Level 1** - is defined as applying to those projects which requires a contractor who has a documented Quality Assurance Program which meets the requirements of ANSI/ASME NQA-1 “Quality Assurance Program Requirements for Nuclear Facilities.”
- **Quality Level 2** - is defined as applying to those projects which requires a contractor that has a documented Quality Assurance Program that adequately address the quality requirements applying to work normally performed.
- **Quality Level 3** - is defined as applying to those projects in which the contractor does not need to have a documented Quality Assurance Program, but must have successfully performed construction activities with the client in the past.
- **Quality Level 4** – is defined as applying to those projects in which the contractor does not need to have a documented Quality Assurance program and has not previously performed any construction work for the client.

11.1 Levels of Inspection

Level 1 - In addition to letting project management prepare specifications, field requisition materials, inspect upon job site arrival, and inspect at end of field activities, include a pre-mobilization meeting, review required documentation on a daily basis, make regular inspection as needed, and increased level of final testing. Also make daily

inspections, continuous testing and/or monitoring of critical activities, and continuous monitoring of work in progress.

Levels 2 and 3 - In addition to letting project management prepare specifications, field requisition materials, inspect upon job site arrival, and inspect at end of field activities, include a pre-mobilization meeting, review required documentation on a daily basis, make regular inspection as needed and increased level of final testing.

Level 4 - Let project management prepare specifications, let the field requisition materials, do not require source inspection, inspect upon job site arrival, and inspect at end of field activities.

SECTION 12 - TRAINING

Training of personnel performing activities affecting quality will be conducted to assure an understanding of the quality assurance program and project requirements.

PRE-STARTUP HEALTH & SAFETY REVIEW

SECTION 1 - PURPOSE

To assure that a new or modified operation, process, major item of capital equipment or unusual construction activity is safe for use by confirming that all health and safety concerns have been addressed prior to start-up.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

To conduct an intensive review before AMPCO utilizes any new or modified process, engages in any unusual activity, or becomes involved with any new product or hazardous substance, before a determination has been made of the effects of this process or product upon the health and safety of our personnel and to be assured that the use of this process or product will allow AMPCO to remain within the confines of any pertinent regulatory agency standards.

SECTION 4 - REQUIREMENTS

A Pre-Startup Health and Safety Review shall be held when:

- A new or modified operation is to be started.
- A new process is developed or an existing process has been expanded or significantly revised.
- A major item of capital equipment is to be purchased or put into service.
- An unusual or hazardous construction activity is to be started.
- A chemical or hazardous substance is to be handled or disposed of for the first time and the chemical or hazardous substance's properties are significantly different from materials usually handled.

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

There must be adequate time provided following the evaluation and/or inspection and before startup for the reviewing safety personnel to address and concerns that may be developed.

SECTION 5 - PROCEDURE

5.1 Team Selection and Make-up.

- The Project Manager has the responsibility for establishing the need for a safety review and initiating the review with a written document. In his/her absence, this responsibility will revert to Health and Safety who will initiate this review.
- When considered necessary, the initiating Project Manager will select a health and safety review team from different disciplines depending on the type and scope of the project.
- A team will normally be composed of safety personnel, and if warranted, members from disciplines of engineering, technical products, operations, etc., depending on the requirements of the project. Other individuals from specialized functions, both within and outside of AMPCO, may be appointed to a team as deemed advisable. The senior safety member of the team will act as the team leader. Additional members of a team may be composed of a representative from the original project, operational personnel, and at least one or more member not directly related to the project under review.

5.2 Preparation and Execution

- The representative from the project is responsible for familiarizing the team with the project and for reviewing the final report prior to publication.
- The team shall become familiar with the operating aspects of the project or process being evaluated.
- The team should be aware of Safety and Health considerations identified in the design review and included in the project design. Team members should 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 include a review of the unit design criteria or construction specifications.
- When considered necessary, the team shall physically visit the project location in order to conduct an inspection to ensure that process installation, personnel safety, environmental concerns and health hazards are satisfied that the project is as designed.
- Operating procedures and operator training shall be checked to see that they contain

adequate provisions for start-up, operation, and shut down as well as for component failure and emergency response activities. Operating procedures and training must address all health and safety aspects of the project.

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

SECTION 6 - REPORTING AND FOLLOW-UP:

6.1 Team Leader

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

6.2 Action Plan

Action plans shall be addressed in the following manner:

- The Branch Manager has the responsibility to see that the more significant deficiencies and/or concerns highlighted by the team have been addressed prior to approval for start-up and operation of the project.
- The Branch Manager is responsible for addressing all the safety deficiencies and concerns noted by the team in an action plan with steps that include accountability and completion dates.

6.3 Written Report

The written report and response documents are to be maintained in the project file.

PROCESS SAFETY REVIEW

SECTION 1 - PURPOSE

To define the minimum company requirements and responsibilities for systematically identifying, understanding, and controlling chemical process hazards which could cause injuries, property damage or significant harm to the environment.

SECTION 2 - SCOPE

This Section applies to all operations.

SECTION 3 - POLICY

Any operation, which could result in an uncontrolled reaction, emission, fire, explosion, or release of a hazardous chemical to the surrounding environment, must be reviewed in accordance with the provisions of this Section as well as with those requirements outlined in Section 11-2 of the Corporate Safety Manual entitled Pre-Startup Health and Safety Review.

SECTION 4 - RESPONSIBILITIES

4.1 Health and Safety

Health and Safety is responsible for providing guidance and technical assistance to Project Managers and the Process Safety Review Teams and acting as a member of a Major Incident Review Team as needed.

4.2 Company Presidents

Company Presidents are responsible for allocating the necessary resources to complete process safety reviews in compliance with the OSHA Chemical Process Safety Standard and corporate guidelines and directives and assigning Health and Safety to also assume the duties of Process Safety Coordinators.

4.3 Health and Safety

Health and Safety, acting as Process Safety Coordinators, are responsible for the education and training of supervisory personnel. They are also responsible for assisting Process Safety Review Teams and, as needed, serving as a member of such teams. The Health and Safety is also responsible for tracking the progress of the process safety review and assuring its completion.

4.4 Project Managers

The Project Manager is responsible for assigning personnel to participate in Process Safety Review Teams and to respond to their recommendations.

4.5 Project Supervisors

Each project supervisor is responsible for the training of all necessary workers who may be actively engaged as a member of a process safety review team.

SECTION 5 - REQUIREMENTS

The following requirements must be followed in complying with this Process Safety review program:

- All projects for new processes, or any process modification, must be reviewed and approved by the Health and Safety and a health and safety review team as prescribed in Section 11-2 of this manual;
- A pre-startup inspection for health and safety hazards must be conducted on all new or modified processes as described in Section 11-2 of the Corporate Safety Manual;
- Each job site requiring a process safety review must conduct an initial walk-through to identify the potential process safety hazards which come within the scope of the policy of this Section;
- A process safety review team, which should be comprised of multi-disciplined office personnel and Health and Safety, and led by an individual experienced in process safety from the Office or the Company, must be established whenever warranted. At least one member of the team should be expert in the process being reviewed;
- All of the necessary information on the processes being reviewed should be assembled or developed. At a minimum, the following information should be collected for each process being reviewed:
    - information pertaining to the hazards of the highly hazardous chemicals or substances;

  - information pertaining to the technology of the process, such as block flow diagrams or process flow diagrams, process chemistry, intended inventory, etc.;
  - information pertaining to the equipment in the process, such as materials of construction, piping and instrumentation diagrams, electrical classification, etc.; and
  - information pertaining to operations including operating procedures, procedural controls, SOP's, training lesson plans and records, emergency procedures, past incident reports, JSA's, etc.

- The process safety review team must prioritized the processes to be reviewed according to the hazard risk and conduct a check list review of the process beginning with the process judged to be the most hazardous in accordance with company guidelines;
- The results should be recorded, including the questions asked, the consequence or hazard involved, and the recommendation. The results must be reviewed with the appropriate safety and Branch personnel and management;
- Action plans and resolution schedules for all recommendations identified in the analysis should be implemented and tracked by the Project Manager and Health and Safety, with status reports being sent to the Company President;
- Written Standard Operating Procedures (SOPs) should be developed for each process which addresses the following:

  - initial startup
  - normal operations
  - temporary operations
  - emergency operations and shut-down
  - normal shut-down
  - consequences of deviation from the SOP
  - health and safety considerations

- Employees must be trained on the SOPs for the operations in which they work initially and, at a minimum, every three years or whenever the SOP changes. This training must be documented;
- Each process will be re-evaluated each time an equipment change is made, a new chemical hazard is introduced, at the time of an incident or, minimally, every five years;
- Customers or subcontractors working near or on the process will be informed of the potential hazards related to the work the customer or subcontractor is performing. Refer to Section 6-2, Visitors and Contractor safety, in the Corporate Safety Manual; and
- Job site personnel should anticipate potential emergency situations and develop action

plans to respond to those emergencies. Refer to Sections 4-1 and 4-2 of the Corporate Safety Manual.

SELF INSPECTION REVIEW

SECTION 1 - PURPOSE

This program establishes procedures for conducting daily self-inspections of the company's ongoing safety, health and environmental compliance programs.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

It is AMPCO's policy to evaluate and measure the effectiveness of its day-to-day safety, health and environmental compliance programs by conducting self-inspections of all projects and work sites on a daily basis.

SECTION 4 - THE AUDIT

Safety, health and environmental compliance programming evaluations are as essential to the goodwill and growth of the Company as its financial audits of the company's books, its physical assets, or its financial position. Although AMPCO is constantly engaged in the performance of its Corporate Safety program, it is important to recognize that constant safety and environmental evaluations of job sites are absolutely necessary.

The principal characteristic of the AMPCO safety evaluation is a systematic and comprehensive daily self-inspection as recommended by the Corporate Safety program. In short, the safety evaluation is primarily a daily re-examination and appraisal of the safety and environmental objectives, policies, and recommendations as required for the effective management of our operations and personnel and as defined by Corporate policy. It is a planned effort to test and assess, review and define the extent to which the results of the safety program is effective in providing safety to our personnel and compliance with regulatory and environmental standards.

4.1 Self-Inspections

Self-Inspections must be performed daily to assist in evaluating the status of each Operating Unit's conformance with Corporate Policy, the Corporate Safety Program, and required regulatory agency standards. At each AMPCO job site, a Competent Person must conduct at least one daily safety self-inspection of the project during each work shift.

4.2 Customer Audits

AMPCO customers are encouraged to and may also conduct safety and/or regulatory audits of AMPCO job sites or projects at any time. The purpose of this type of audit is generally to measure the safety and regulatory performance of AMPCO personnel and operations through a review of established safety and regulatory compliance requirements and management systems.

Normally, advance notification of upcoming audits by customer representatives, are made to the project management; however, unannounced inspections are permitted at any time the job site or project is staffed by AMPCO personnel.

4.3 Regulatory Agency Audits

Regulatory authority evaluations, when conducted, may serve to also provide informative program effectiveness. Such information is to serve in the same manner as self-audits in identifying issues requiring attention. Refer to Section 1-4 of this Manual for AMPCO's policy on inspections by regulating agencies.

4.4 Program Implementation

Each Office must develop a program to review compliance with Corporate, regulatory and customer requirements at various stages of a project. Verification of compliance with select management areas of all job sites must be conducted routinely and be based on the appropriate Competent Person's Daily Inspection Checklist. Answers to each question on the checklist must be documented by checking the appropriate box and making specific deficiency notations on the form as necessary. For information concerning the environmental audit, review section 11-5 of the Corporate Safety Manual.

Every internal or external identified inspection issue which cannot be corrected immediately must be identified and monitored using a compliance tracking system. Each issue must have, at a minimum, an acceptable corrective action, due date and an assigned person responsible for resolving the issue.

SECTION 5 - DOCUMENTATION

There are two Competent Person's Daily Safety Inspection Checklist, one for use on asbestos or lead remediation projects and the other for use on general construction projects. The appropriate Competent Person's Daily Safety Inspection Checklist must be completed in order to document the daily safety inspection. A copy of each completed Competent Person's Daily Inspection Checklist must be retained at the job site during the duration of the project.

In the event supporting documentation is necessary for the final resolution of an issue developed during the inspection, a copy of these documents shall also be retained at the job site.

Upon completion of the project, all of the above mentioned documentation must be retained as a part of the project's permanent job file.

SECTION 6 - RESPONSIBILITIES

Job site visits can and do provide a key indication of just how well safety policies and procedures are being applied at the execution level.

6.1 Project Supervision

Each project supervisor, who by virtue of his or her training and authority may be considered a Competent Person, must participate in the job site's daily safety self-inspection program. As a minimum, they are to conduct at least one safety inspection of their project during each work shift, noting their observations and corrective actions taken on the appropriate Competent Person's Daily Safety Inspection Checklist. Additional comments and more detailed corrective actions should be documented on the Safety and Occupational Health Hazards Identification and Control form.

Supervisors should review the results of their inspections with the work force during the daily tool box safety talks, addressing the issues found, the corrective actions taken, and then soliciting comments from the labor force on how these issues can be prevented in the future.

6.2 Project Manager

Each Project Manager should make an effort to schedule a minimum of two (2) visits to an active job site each week. Project Managers should be familiar with the Competent Person's Daily Safety Inspection Checklist form and should attempt to review at least one or more areas of this form with the job site's senior supervisor.

When notified of inspection issues by either Safety Personnel or the Project Manager and the project supervisor must determine the corrective action and schedule necessary to resolve any issues. The Health and Safety and the Project Manager are responsible, with the assistance of the site supervisor, for assuring that issues are tracked until resolution.

6.3 Health and Safety

Health and Safety should attempt to visit as many active job sites each week as possible. During these visits, which should be both scheduled and unannounced, the Health and Safety is required to conduct portions of each part of AMPCO's self-inspection program. This may consist of either a comprehensive inspection of the entire project or a detailed inspection of one or more specific areas of the project. In conducting these inspections, it is the Health and Safety decision as to whether he will use the Competent Person's Daily Safety Inspection Checklist form or the Construction Safety and Health Program Audit form. In the majority of cases, a Safety and Occupational Health Hazard Identification and Control form is to be used to record observations and corrective actions.

Upon completion of the inspection, the Health and Safety must provide copies of each form to the site supervisor and review the results with him. He must also provide copies of the completed forms, under a summary cover letter, to the site supervisor and the Project Manager. In those cases where the safety manager wants to bring the information to the attention of upper management, copies of the inspection report should also be forwarded to the Branch Manager and the Corporate Safety office.

6.4 General Superintendent

General Superintendent will conduct both scheduled and unannounced inspections of active job sites. Emphasis will be placed on assuring that no activity or element of AMPCO's operation is neglected from a safety and health, regulatory and environmental point of view. These audits should be documented using either the Safety and Occupational Hazard Identification and Control form or the Competent Person's Daily Inspection Checklist. Copies of the completed form should be furnished to the project supervisor, the Project Manager, and Health and Safety.

SECTION 7 - TRAINING

AMPCO has prepared specific training for presentation to all supervisory and management personnel. This is directed specifically to AMPCO's self-audit policy and practices and contains the following:

- Aspects of conducting a self-inspection;
- Proper report writing and documentation of site audits;
- Corrective action practices; and
- The legal responsibilities of a supervisor.

COMPETENT PERSON'S DAILY SAFETY INSPECTION CHECKLIST

PROJECTS INVOLVING ASBESTOS OR LEAD REMEDIATION

Job Name: _____ Job No.: _____

Competent Person: _____ Date: _____

MUST BE COMPLETED AT LEAST ONCE DURING EACH WORK SHIFT

		YES	NO
I.	**ADMINISTRATIVE**		
	Are all required personnel records current as of today's date?	☐	☐
	Are Physician's Written Opinions current for all workers?	☐	☐
	Are copies of all EPA required training certificates on site?	☐	☐
	Was an employee safety talk conducted today?	☐	☐
	Were new employees reporting aboard today given a Safety Orientation?	☐	☐
	Are all required posters and notices properly completed and posted?	☐	☐
	Have all new employers on work site been notified?	☐	☐
	Has the first aid kit been inspected today and is it adequately full?	☐	☐
II.	**REGULATED AREAS**		
	Has barrier tape been erected to denote the Work Area?	☐	☐
	Are sufficient numbers of OSHA Warning Signs properly posted?	☐	☐
	Have workers been warned against using tobacco in Regulated Areas?	☐	☐
	Has a Regulated Area been established where waste bags are stored?	☐	☐
III.	**WORK AREAS**		
	Have all HVAC Systems within the Work Area been turned off?	☐	☐
	Have all openings to HVAC Systems within the Work Area been sealed?	☐	☐
	Are all Critical Barriers in place?	☐	☐
	Where required, are walls within the Work Area covered with poly?	☐	☐
	Where required, are floors within the Work Area covered with poly?	☐	☐
	Are all openings to the Work Area correctly sealed?	☐	☐
	Are all penetrations to the Work Area correctly sealed?	☐	☐
	Are Entry and Exit curtains in place and operating properly?	☐	☐
	Are adequate procedures In use to control Entry and Exit to the Work Area?	☐	☐
	Are there sufficient fire extinguishers located in the Work Area?	☐	☐
	Has each fire extinguisher within the Work Area been inspected today?	☐	☐
IV.	**DIFFERENTIAL PRESSURE CONTAINMENTS**		
	Are all Air Filtering Devices in constant operation?	☐	☐
	Has required Differential Pressure been achieved?	☐	☐
	Is a Manometer or Differential Pressure Gauge being used?	☐	☐
	Is Differential Pressure being recorded at least twice during each shift?	☐	☐
	Was each containment Smoke Tested at the beginning of this shift?	☐	☐
	Is "No Smoking, Eating or Drinking Within Containment" being enforced?	☐	☐
	Enter the manometer's current differential pressure reading: _____		

V. ELECTRICAL EQUIPMENT AND CORDS

Have all wires in Containment been checked for live voltage?	☐	☐
Are all workers in Containment protected against live voltage?	☐	☐
Is a GFCI or GFI Circuit Breaker being used for all electrical cords?	☐	☐
Are all GFCI and GFI Circuit Breakers tested daily?	☐	☐
Are all circuits being tested for ground before use?	☐	☐
Have all electric cords been checked and found to be intact?	☐	☐
Are all exposed electrical parts protected against accidental contact?	☐	☐
Have all electric cords been placed so as not to present tripping hazards?	☐	☐
Have all open sockets been filled with bulbs and broken bulbs replaced?	☐	☐

VI. WORK PRACTICES

Are OSHA required Work Practices for the type of work being followed?	☐	☐
Is ACM being "Adequately Wetted" prior to removal?	☐	☐
Is removed regulated waste being promptly bagged?	☐	☐
Are bags containing waste properly labeled and "Goose-Neck Sealed"?	☐	☐
Is the ACM in sealed bags "Adequately Wet" by Regulatory Standards?	☐	☐
Are bags properly decontaminated before removal from Containment?	☐	☐
Is the Work Area being cleaned at the end of each shift?	☐	☐

VII. DECONTAMINATION UNITS

Are workers showering after leaving regulated areas or containment?	☐	☐
Is there an adequate number of showers for the number of workers?	☐	☐
Are all of these showers functioning properly with Hot and Cold water?	☐	☐
Is there an adequate amount of soap and towels available for use?	☐	☐
Is there an adequate "Water Filtration System" being used in each Decon?	☐	☐
Is Air Monitoring being conducted daily in the Clean Room of each Decon?	☐	☐
Were all Decon Units "Smoke Tested" at the beginning of this shift?	☐	☐
Is there sufficient negative air flow in each of the Decon units?	☐	☐

VIII. PERSONAL PROTECTIVE EQUIPMENT

Is Air Monitoring being conducted and are results properly posted?	☐	☐
Is each job being analyzed to determine the PPE required for that job?	☐	☐
Are Hard Hats worn correctly and by all personnel in the Work Area?	☐	☐
Are the appropriate respirators being used on this project?	☐	☐
Are respirators inspected and cleaned daily, and properly stored?	☐	☐
Is torn Disposable Clothing promptly repaired or replaced?	☐	☐
Is Disposable Clothing being worn correctly and disposed of properly?	☐	☐

IX. CORRECTIVE ACTIONS TAKEN

_____
_____
_____

ENVIRONMENTAL AUDIT

SECTION 1 - PURPOSE

This Policy establishes procedures for all AMPCO operations and facilities to conduct a self-audit program with follow-up procedures for all environmental audits whether customer or internal.

SECTION 2 - SCOPE

This section applies to all AMPCO operations.

SECTION 3 - POLICY

It is AMPCO's policy to measure the effectiveness of its environmental compliance program by conducting self-audits of environmental compliance on an annual basis.

SECTION 4 - GENERAL

The Environmental Protection Agency (EPA) recognizes that environmental auditing and sound environmental management generally can provide potentially powerful tools toward protection of workers health and the environment. These tools are internal controls that can help our Company do the following:

- Pinpoint areas for immediate correction;
- Determine how successfully a job site is managing its environmental responsibilities;
- Compare between job sites; and
- Decide whether or not environmental performance is improving year-to-year.

SECTION 5 - THE AUDIT

The principal characteristic of the AMPCO environmental audit is a systematic and comprehensive self-evaluation as recommended by the EPA. In short, the environmental audit is primarily an annual examination and appraisal of the environmental policies, objectives, and recommendations as required for the effective management of our environmental program. It is a planned effort to test and assess, review and define the extent to which the results of the environmental program are effective in providing compliance with regulatory standards.

5.1 Environmental Audit

An environmental audit should be performed to assist in evaluating the status of regulatory compliance with environmental issues. Each Operating Unit should conduct an annual environmental audit at all facilities owned and/or leased by AMPCO and at all work sites and projects under operation by AMPCO at the time of the audits. A key Item Check List for an environmental audit is provided as a part of this section of the manual. Typically these audits are required to be performed during the fourth quarter, however, the Branch may audit at its discretion.

5.2 Customer Audits

Customer auditors may conduct environmental audits of AMPCO facilities and operations from time to time. The purpose of these audits is generally to measure the environmental performance of AMPCO facilities and operations through a review of established environmental compliance requirements and management systems.

Usually advance notification of upcoming audits are made to the facility or Office. Safety Director is available for discussions regarding the participants in the audits and other questions.

5.3 Regulatory Agency Audits

Regulatory authority evaluations, when conducted, may also serve to provide informative program effectiveness. Such information is to serve in the same manner as self-audits in identifying issues requiring attention.

5.4 Program Implementation

Each Office must develop a program to review compliance with regulatory and customer requirements at various stages of a project. Verification of compliance with select management areas of all facilities and/or jobs must be conducted at least annually and be based on an audit checklist. Answers to each question on the checklist must be documented by checking the appropriate box and making specific deficiency notations on the form as necessary.

Every internal or external audit issue which cannot be fixed immediately must be identified and monitored using a compliance tracking system. Each issue must have, at a minimum, an acceptable corrective action, due date and a person responsible for resolving the issue.

SECTION 6 - CORRECTIVE ACTION

To successfully correct problems disclosed as a result of the audit, keep the problems corrected, and head off finding the same problems at other work sites, the corrective action process must be implemented. Audit findings have to be evaluated for underlying causes and then corrective actions developed involving management solutions to resolve root causes.

The corrective action process should be built on the following categories:

- identify hazards and evaluate risks;
- develop control programs;
- implement control programs; and
- maintain and oversee programs.

By placing the problems identified during the audit into such categories, it may be possible to see patterns in the findings which can then help direct corrective actions. The results can help answer the following questions:

- Are work site personnel aware of the environmental requirements?
- Are control programs missing important elements?
- What is preventing the full implementation of the control program, even though the program itself seems sound?
- Do the work sites have internal measurement processes to continually gauge the effectiveness of their programs?

SECTION 7 - DOCUMENTATION

A copy of the completed audit must be retained at the jobsite and a copy forwarded to the Branch Manager.

Supporting documentation for issue resolution shall be retained at the Branch level.

Upon completion of the project, all of the above mentioned documentation must be retained as a part of the project's permanent job file.

SECTION 8 - RESPONSIBILITIES

Health and Safety or their designate, should conduct an annual audit for each job site and/or facility in operation during the period of the audit. After the audit is completed, the Safety Director reviews the results with the facility or project management and the Presidents, to

determine the corrective action and schedule necessary to resolve the finding. Health and Safety is responsible for assuring that issues are tracked and resolved.

Health and Safety or their designate, must update and provide the status of all unresolved audit findings to Safety Director each quarter.

SECTION 9 - TRAINING

There are no mandatory training requirements for this Section.

KEY ITEM CHECK LIST - ENVIRONMENTAL AUDIT

	Yes	No
Pre-Audit Review		
• Have you reviewed your Emergency Response procedures?	☐	☐
• Have you reviewed your notification procedures and updated it where necessary?	☐	☐
• Have you reviewed your Hazardous Chemical Inventory and determined that all hazardous chemicals on your work site have been identified?	☐	☐
• Have you reviewed prior audit results and corrective action processes?	☐	☐
Hazardous Waste Categorization		
• Are you generating hazardous waste at your work site?	☐	☐
• Have you identified the type of hazardous waste generated?	☐	☐
• Are you complying with the applicable regulations for containerizing and storing your hazardous waste?	☐	☐
• Are all of your employees licensed to work with this type of hazardous waste?	☐	☐
Inspection of the Work Site		
• Are required warning signs posted?	☐	☐
• Does hazardous waste storage comply with regulations?	☐	☐
• Is your pollution-control equipment properly maintained?	☐	☐
Clean Water Compliance		
• Is hazardous waste disposed of in waste water systems?	☐	☐
• Is contaminated waste water being pollution-controlled?	☐	☐
• Are hazardous waste draining into standing water?	☐	☐
Clean Air Compliance		
• Is asbestos waste being maintained adequately wet?	☐	☐
• Is emission-control equipment properly maintained?	☐	☐
• Are air monitoring records accurately maintained?	☐	☐
Hazardous Waste Transportation		
• Are you using a licensed transporter to move your hazardous waste?	☐	☐
• Is waste transported directly from work site to disposal site?	☐	☐
• Is hazardous waste being transported in sealed containers?	☐	☐
Hazardous Waste Disposal		
• Are you utilizing an authorized and licensed disposal site?	☐	☐
• Are you maintaining the appropriate manifest and disposal records?	☐	☐

ALCOHOL AND DRUG FREE WORKPLACE

SECTION 1 - PURPOSE

To provide the framework from which our Companies can effectively and legally engage in a total Alcohol and Drug Free Workplace.

SECTION 2 - SCOPE

This Alcohol and Drug Free Workplace Program applies to all AMPCO Offices/Companies. It does not apply to those work locations in which a federally mandated or client required alcohol and/or drug program is specifically dictated. For example, those workers covered by the Department of Transportation's Federal Highway Administration are required to comply with the alcohol and drug program contained in the Section of the Corporate Safety Manual entitled DOT Safety and Compliance.

SECTION 3 - POLICY

To initiate and maintain an alcohol and drug free safe workplace and to comply with federal regulations governing substance abuse.

SECTION 4 - GENERAL

AMPCO recognizes that substance abuse in the workplace is a major concern. It affects not only job performance and the work environment but also undermines the public's confidence in the Company and the safety of its operations. AMPCO believes that by identifying substance abuse, the safety, health, and general well-being of employees at all levels of employment will improve. To further this belief, AMPCO has instituted this Alcohol and Drug Free Workplace Policy. The purpose of this Policy is to initiate and maintain an alcohol and drug free workplace and to comply with federal regulations governing substance abuse.

AMPCO will notify each employee of its commitment to an alcohol and drug free workplace. To comply with this Policy, AMPCO will (a) establish an ongoing program to ensure an alcohol and drug free workplace; (b) maintain an effective, safe and healthy workplace for all employees and others exposed to the work site, including the general public; (c) safeguard the property and operations of the Company and its customers; and (d) provide direction for alcohol and drug abuse assistance.

4.1 Safety Sensitive Positions

Because of the inherent risks involving worker safety and health in the construction industry in general, and the potential risk factors of exposing personnel and the environment to hazardous or toxic substances in particular, AMPCO personnel are considered to be employed in highly Safety Sensitive Positions.

SECTION 5 - PROGRAM IMPLEMENTATION

AMPCO will take the following steps to implement the program:

- Inform its employees of the hazards of using alcohol and illegal substances.
- Screen its employees for the bodily presence of alcohol and illegal substances consistent with federal and state laws.
- Not employ substance abusers consistent with federal and state laws and company policy.
- Remove substance abusers from AMPCO's workplace.
- Where possible, assist employees with substance abuse problems in their rehabilitation efforts.

SECTION 6 – DEFINITIONS
(For this Section)

Company - The Company, as the term is used in this Program, include AMPCO its offices, subsidiaries and affiliated companies.

Company Vehicle - Any vehicle leased or owned by the company, including rental autos or trucks.

Alcohol - Any liquid intended for human consumption that contains ethyl (ethanol), methyl or isopropyl alcohol.

Legal Drugs - Prescribed drugs and over-the-counter drugs which have been (under U.S. law) legally obtained and are being used for their intended purpose, or as prescribed and manufactured.

Illegal Drugs - Any drug which is prohibited by law (e.g., cocaine, marijuana, etc.), any drug which is legally obtainable but which has not been legally obtained, and any prescribed drug which is not being used as prescribed or used by the person named in the prescription.

Controlled Substance - Any substance as defined in the Schedule of Controlled Substance 29 CFR Part 1308.

Unfit for Duty - For the purpose of this Program, "unfit for duty" shall mean an employee who is

adversely affected by alcohol, drugs or any combination of alcohol and drugs, in an observable manner. The symptoms are not confined to misbehavior, nor to obvious impairment of physical or mental ability, such as slurred speech or difficulty maintaining balance. A determination of influence may be established by a professional opinion or a scientifically valid test. The definition "Unfit for Duty" includes having a blood alcohol level at or greater than .02.

Medical Review Officer - The Medical Review Officer (MRO) is a licensed physician knowledgeable in the medical use of prescription drugs and the pharmacology and toxicology of illegal drugs. The role of the MRO is to review and interpret test results obtained through the Company's drug testing program. The MRO will consult with the employee to assess and determine whether alternate medical explanations, such as the use of prescribed medications, could account for the positive laboratory test results. The MRO acts as a vital screen to assure that management is not notified of a positive result on a drug test until the MRO is satisfied that it resulted from illegal drug use.

SECTION 7 - ALCOHOL AND DRUG FREE WORKPLACE PROGRAM

7.1 Position on Substance Abuse

The Company has established the following positions with regard to alcohol or drugs:

- **Alcohol**

  It is prohibited for any employee to be "Under The Influence" of alcohol while performing Company business, while on a Company job site, or in a Company facility, or while in or operating vehicles or equipment owned or leased by the Company. "Under The Influence" is defined as having a blood alcohol level at or greater then .04.

  Use of alcohol or possession of an open container of alcohol while on a Company job site or in a Company facility or Company vehicle is prohibited.

- **Legal Drugs**

  Any employee utilizing a prescribed medical treatment involving a legal drug or substance which may alter the employee's physical or mental ability to perform the job, must report this treatment to his/her supervisor. A medical evaluation may then be required to determine fitness for duty. The physician and the supervisor will discuss whether a temporary or permanent change in the employee's job assignment is warranted. If such use of legal drugs adversely affects fitness for duty, the employee will be relieved of his/her job duties or re-assigned.

  Individuals taking prescribed medication shall indicate taking this medication on the collection form at the time of the drug test.

- **Illegal Drugs**

  The manufacture, distribution, dispensation, possession, use, sale or being under the influence of an illegal drug by any employee while performing Company business, while on a Company job site or in a Company facility, or while in or operating vehicles or equipment owned or leased by the Company is prohibited. Illegal substance concentrations in excess of the cut-off levels are considered to be "under the influence".

7.2 Employee Awareness

In its efforts to develop employee awareness of the hazards of substance abuse, the Company will provide employee awareness components which may, for example, utilize videotapes, toolbox talks, alcohol and drug awareness days, and distribution of written materials. Information contained within these components will be made available to employees.

7.3 Supervisory Training

AMPCO's Alcohol and Drug Free Workplace Program includes a commitment to train supervisors and managers to identify and respond to substance abuse use by Company employees. This training includes information on AMPCO's Alcohol and Drug Free Workplace Program and Program implementation, and will provide, at a minimum, sixty minutes of training each, in both alcohol abuse and drug abuse.

SECTION 8 - SUBSTANCE SCREENING

The Company reserves the right to require employees to undergo alcohol or drug screening as described in this Program.

8.1 The Laboratory

The Company will utilize a Department of Health and Human Services (DHHS) accredited laboratory which is able to assure that appropriate methods will be used. Laboratory procedures will follow the context of a quality assurance program. Adequately trained personnel will be used in the analysis and interpretation of the results. When selecting a laboratory, the Company will consider equipment, personnel, quality assurance, standardized procedures, quality control, and certification.

8.2 Collection Of Specimens

The collection of urinary specimens from the employee (donor) will be accomplished to assure each donor that personal dignity and privacy will be respected. Both urinary drug and breath alcohol specimens will be collected by trained medical personnel. The donor

will be present until the container is sealed and the donor writes his/her initials across the seal. The chain of custody will be documented thereafter.

8.3 Test Results

If the results of the initial screening exceed the specific cut-off levels, a confirmation test will automatically be conducted by Gas Chromatograph Mass Spectrometry (GCMS) to confirm the initial results. If this confirmation test is negative, then the results will be reported as negative and entered into the donor's file.

However, if the confirmation test exceeds the prescribed limits and the result is positive, the Medical Review Officer will contact the donor to evaluate potential interference with the test protocol. If none are identified, the results will be reported as positive. Test results will be handled in a confidential manner and available only to those individuals who need to know the results to administer or apply this policy and program.

With the exception of those employees who are required to be screened under U.S. Department of Transportation (DOT) regulations, or other regulatory requirements, the panel of drugs for which these test are conducted will include, but will not necessarily be limited to, the following: amphetamines; barbiturates; benzodiazepines; cannabinoids; opiates; phencyclidines; and cocaine.

8.4 Action Levels for Positive Results

The action levels for positive test results for controlled substances will be the metabolic levels accepted by consensus of the scientific community.

SECTION 9 - EMPLOYEE ASSISTANCE PROGRAM

Presently AMPCO does not offer an independently contracted Employee Assistance Program (EAP), however AMPCO will offer every assistance to an employee who requests help.

9.1 Self-Referral

At any time, if any employee should recognize that he or she has a substance abuse problem and wishes help, the employee may contact AMPCO management for confidential assistance. AMPCO management will assist the employee in obtaining a referral to an recognized local substance abuse program. Notification to AMPCO management does not preclude disciplinary action, up to and including termination, in the event the employee is tested positive for drugs or alcohol use under the circumstances as outlined in this policy.

1. **Exception AMPCO Assistance**

   There is only one time period when an employee is not allowed to voluntarily request substance abuse assistance from AMPCO, and that is during the twenty-

four (24) hour period just preceding his or her being notified to report to a medical provider to provide a sample for a random drug test.

2. Eligibility

Employees who have tested positive for substance abuse are not eligible to obtain assistance from the Company during the twelve month period immediately following the date of the positive test results.

9.2 Procedure

The employee may contact a substance abuse program directly or ask AMPCO management for assistance. In either case the employee must notify AMPCO management that they are in treatment. The employee is responsible for all cost of treatment not covered by his or her Health Insurance Plan.

In the event the employee does not elect to contact the treatment program directly, then the employee should notify his or her supervisor or the Company's Benefits Coordinator (HSO) and advise them of the substance abuse problem. If the supervisor has been notified, then he or she will immediately notify the Branch's Program Administrator (HSO) and the Company's Benefits Coordinator. The Company's Benefits Coordinator will make a referral. Since the treatment program should keep the Company's Benefits Coordinator informed of the employee's progress, the Benefits Coordinator will in turn keep the Supervisor and the Program Administrator informed. The Benefits Coordinator will continue to work with the employee, the supervisor, the Program Administrator and the Treatment program in the event of non-compliance with the "Last Chance Agreement."

9.3 Employer Referral

If the employee acknowledges to the company that he or she has a substance abuse problem and is willing to follow an approved rehabilitation and follow-up program for one year, the employer will make every effort to:

- hold the job open while the employee is going through inpatient rehabilitation; or
- place the employee in a job where the employee is not in a position to hurt other workers while he or she is going through an outpatient rehabilitation program.

Under both conditions, the employee must sign a "Last Chance Agreement." The "Last Chance Agreement" stipulates the following:

- the employee will participate in a sponsored substance abuse program;
- the employee will sign a waiver allowing the substance abuse program to keep the employer notified as to whether the employee is successfully participating in the program. The employee will be required to sign a waiver allowing the Branch Program

Administrator to receive progress reports;

- an employee who does not, either satisfactorily participate in or satisfactorily complete, both the rehabilitation program and the one-year prescribed follow-up program , will be subject to disciplinary action, up to and including discharge;
- when the employee returns to work, the employee will be randomly tested for the greater of two years or the length of time required by the customer's substance abuse policy or mandated by local, state or federal regulations; and
- while the employee is actively working, if the employee tests positive or refuses to be tested, the employee may receive disciplinary action consistent with this policy.

SECTION 10 - IDENTIFICATION OF SUBSTANCE ABUSERS

The following screening (testing) procedures are used to detect the abuse of alcohol and controlled substance. Compliance with this Program is a condition of employment.

AMPCO is free to utilize some or all of the following components to assure an alcohol and drug-free workplace.

10.1 Pre-Employment Testing

Pre-employment testing may be utilized in selected locations. When used, it is a condition of employment. An offer for employment will not be tendered if the test is positive or if the applicant does not submit to testing.

When pre-employment testing is required it can be tailored to the specific requirements of either the customer or the project.

10.2 Random Testing

Random testing of employees may be conducted at any time during their employment with AMPCO. Since random selection will be conducted by the MRO, employees may be selected for random testing more than once. Random selection of employees will normally be conducted on a quarterly basis.

When required, the frequency of random selection for testing can be tailored to the specific requirements of either the customer or the project.

10.3 Post-Accident Testing

Post-accident testing is used to assist in determining the true cause of accidents or injuries. Post-accident testing must be performed immediately following an accident involving any type of injury requiring off-site medical treatment or property damage. Testing must be performed for all workers who are involved in the incident.

10.4 Reasonable Cause Testing

Reasonable Cause Testing can be utilized when supervision, with the concurrence of the Branch's Program Administrator, determines that an employee's conduct sustains a reasonable suspicion that the employee is impaired by drugs or alcohol.

10.5 Customer or Regulatory Agency Required Testing

Customer or Regulatory Agency required testing will be conducted as required by the customer or regulatory authority. If an employee tests positive in a client test, he or she shall be removed from the client's premises and may be tested for cause under the AMPCO program.

10.6 Follow-up Testing

Testing for re-hire or follow-up testing will be conducted in the same manner as pre-employment testing and/or random testing.

SECTION 11 - PRE-EMPLOYMENT TESTING

Although pre-employment substance abuse testing must be performed after the offer of employment, a negative test results will still be considered a condition of employment. The offer of employment will be withdrawn if the test is positive.

11.1 Procedures For Pre-Employment Testing

- The applicant will sign the Acknowledgement of Substance Abuse Testing form.
- The medical personnel will confirm the identity of the donor by requesting to view a picture I.D. The sample may not be collected unless the donor provides a valid picture I.D. or is physically identified by an AMPCO supervisor.
- The donor will provide the sample as directed by the medical personnel conducting the test.
- After the sample container is closed, it will be sealed in accordance with the instructions from the laboratory.
- The donor will then sign the tamper seal.
- The medical provider will complete the chain of custody form, package the sample and send it overnight express delivery to the laboratory.

SECTION 12 - RANDOM TESTING

Random substance abuse testing is applicable to employees only. Random testing is a method of randomly selecting a fixed percentage of the entire work force to be screened on a quarterly basis. The random computer generated selection process will be conducted by the MRO from a

list of eligible names furnished by the Branch's Program Administrator on a monthly basis.

12.1 Informed at Time of Hiring

All employee applicants must be informed at the time of application and hiring, that AMPCO conducts random substance testing. The candidates for employment must be given time to read and understand the Company's Acknowledgement of Substance Abuse Testing form and then be required to sign the form as a condition of employment.

12.2 Eligibility List

Each month, a list of all personnel eligible for random testing will be sent by the individual Branch's Program Administrator to the Medical Review Officer (MRO). The MRO will then use a computer generated program to randomly select the names of individuals until the appropriate number is selected from the pool. If the name selected is no longer an employee, the MRO will randomly select another name. The names of all employees shall return to the random selection pool after selection, thus it is possible for a given employee to be selected more than once.

12.3 Number of Random Tests

The number of positive results will be statistically evaluated for conformance with historical experience. If there is a significant difference, the number of participants for the next sample period may be increased. The statistical analysis will be used to assure the number of participants remains at least twice the size of the number of anticipated substance abusers.

12.4 Request for Screening

The MRO will contact the Office's Program Administrator to identify the individuals who will submit a sample before the end of the next shift they work. Failure to submit the sample within this time frame will result in termination of employment. The MRO will match the lists of samples submitted versus samples required. The names of all "required to" who did not submit will be directed to the Branch Manager for resolution.

12.5 Reporting Results

The MRO will report the positive or negative test results to the appropriate Office's Program Administrator. A quarterly summary of the names of personnel testing both positive and negative will be sent to the Company's Benefits Coordinator for follow-up.

12.6 Eligibility for Re-Hire

Employees whose employment is terminated due to violation of this policy and program will not be eligible for re-hire for a 12 month period. To be eligible for re-hire, they must be able to furnish evidence of successful completion of an approved substance abuse

rehabilitation program and sign the agreement that provides for unannounced testing. Refer to paragraph 17.0 of this policy. However, these employees will not be permitted to return to a jobsite of a customer who has a “zero tolerance” policy.

12.7 Procedures for Random Testing

The same testing procedures will be followed as outlined in paragraph 11.1 of this policy.

SECTION 13 - REASONABLE CAUSE TESTING

An employee may be screened for alcohol or drug abuse for reasonable cause only when the Company has determined that reasonable cause for screening exists. Justification must be performance oriented and determined by a supervisor's direct and documented observation of the employee.

13.1 Abnormal Performance

If a supervisor observes that an employee's performance abnormally varies from performance standards, or that the employee's on-the-job conduct endangers the employee or others, the supervisor may require the employee to undergo screening.

However, before the screening can be accomplished, the supervisor must document the observation in writing, personally consult with the employee and review the observation and evidence with the Project Manager, Health and Safety or Safety Director. The responsibility for the decision to screen the individual will, however remain with the supervisor and it is not necessary for either the Project Manager and Health and Safety to concur with the supervisor's observations in order to commission this screening. It is however, necessary that one be notified prior to its taking place.

13.2 Procedures for Reasonable Cause Testing

The same testing procedures will be followed as outlined in paragraph 11.1 of this policy.

SECTION 14 - POST-ACCIDENT TESTING

The Company has resolved that all persons who are involved in any way in an accident or incident involving any type of off-site medical treatment, will be immediately tested for substance abuse to determine if any of the individuals involved were impaired by drugs or alcohol at the time of the accident or incident.

14.1 Time Limit for Post-Accident Testing

In cases involving post-accident screening, the screening must be performed as soon as possible following the accident, but in no case will it be conducted after thirty-two (32) hours have exceeded the time of the accident.

14.2 Seriously Injured Employee

If the employee is seriously injured and sent directly to a health care provider, the health care provider that normally obtains the samples should be requested to obtain the sample.

14.3 Who Should be Tested

In addition to the injured worker, all individuals who were in any way involved in the incident must also be screened. This is to help determine if someone other than the injured worker contributed to the accident.

14.4 Under the Influence

The MRO must be requested to make the statement, based upon the results of the screening that the employee either was or was not under The Influence of the substance at the time of the testing. Just using the word "Positive" to identify the employee's condition will not be sufficient.

14.5 Procedures for Post-Accident Testing

The same testing procedures will be followed as outlined in paragraph 11.1 of this policy.

SECTION 15 - TESTING UPON RE-HIRE

An employee, whose employment with the Company is interrupted for other than disciplinary reasons, will not be required to undergo additional pre-employment substance testing as long as the employee's re-hire with the Company occurs within the twelve (12) month period following the employee's last substance test under the AMPCO program.

SECTION 16 - CUSTOMER AND REGULATORY REQUIREMENTS

When necessary, AMPCO will supplement its Alcohol and Drug Testing Program to meet testing required by regulatory, contract or customer requirements for access to a facility, site, or operation.

16.1 DOT Testing

DOT Testing is required by the Federal Department of Transportation for drivers of vehicles governed by DOT regulations. AMPCO's DOT testing policy is outlined in detail in the Section of the Corporate Safety Manual entitled Procedures for DOT Testing.

SECTION 17 - DISCIPLINARY ACTION

The Company reserves the right and authority to initiate the following disciplinary actions with reference to any employee found to have violated this Alcohol and Drug Free Workplace Program:

1. If the employee's alcohol or drug test is confirmed positive, the employee will be immediately discharged from employment unless this is specifically prohibited by State Law. In situations of this type, each case will be handled on a case-by-case basis;
2. Refusal to produce a timely sample will result in discharge; and
3. Refusal to sign the Acknowledgement of Substance Abuse Testing form will result in discharge.
4. Negative Dilute Test Results - In the event that the MRO reports the results of the testing regarding a specific urine sample to be negative, but in addition specifies that that urine sample is “diluted”, has a “low creatinin level”, or other synonymous result, the employee in question shall be required, at a time of our choosing, to repeat the collection and analysis process. Should the MRO report the results of the testing regarding a specific urine sample as “substituted”, the employee in question shall be considered to have refused testing and shall be subject to disciplinary action commensurate with a positive test for prohibited substances.

The employee may be eligible for rehire after a period of 12 months following termination provided that:

1. Evidence, acceptable to the company, of the successful completion of an approved substance abuse rehabilitation program; and
2. The employee successfully passes each subsequent alcohol and/or drug test; and
3. The employee continues to maintain contact with the rehabilitation facility and participates in the follow-up maintenance program as recommended by the rehabilitation facility; and
4. The employee agrees to be subject to unannounced substance abuse tests from time to time for a period of three (3) years following completion of the rehabilitation program; and
5. There is no evidence the employee has been tampering with any of the required tests.

17.1 Suspension Without Pay

In the event the MRO has made a specific effort to contact an employee for any reason, and it becomes apparent the employee is not returning the effort by contacting the MRO, then the employee will be immediately suspended without pay until such time as a successful contact is made with the MRO. After contact with the employee, the MRO has obtained sufficient information to make a final decision and that decision is that the employee's test results are positive, the employee will be immediately discharged.

If however, the MRO's final decision is that the test results are negative, and the employee has a good excuse for not contacting the MRO, then the employee will be immediately reinstated and the suspended wages will be reimbursed.

SECTION 18 - PROGRAM CLARIFICATION AND ADMINISTRATION

A copy of the Company's Alcohol and Drug Free Workplace Policy and acknowledgement will be provided to all applicants and employees. Copies of this policy and acknowledgement will be posted in a prominent place at each branch. Each applicant and employee shall read and understand this Policy and sign the Acknowledgment of Substance Abuse Testing form. This Acknowledgment will then be retained in the employee's personnel file.

All classified advertisements for employment with the Company will advise prospective applicants that the Company has an Alcohol and Drug Free Workplace Program.

Questions regarding any provision of either the Program or the Policy should be forwarded to the Company’s Benefits Coordinator.

18.1 Responsibility of the Program Administrator

Each Branch, including Corporate, will select and appoint a Program Administrator who will have responsibility for the day-to-day administration of the Branch's Alcohol and Drug Free Workplace Program.

Additionally, the Program Administrator will:

- Send the MRO monthly updates of the Branch’s employees who are eligible for random selection;
- Receive the list of the Branch’s positive and negative test results from the MRO;
- Establish the Branch’s list of medical providers who are available to obtain samples; and
- Ensure that adequate "supplies" are maintained at the Branch or with the medical provider.

18.2 Responsibility of Each Employee

It is a condition of employment that all employees abide by the terms of the Company's Alcohol and Drug Free Workplace Program. In the event of a conviction for any criminal drug violation, the employee must notify the Company's Benefits Coordinator within five (5) days of the date of the conviction.

SECTION 19 - RECORDS RETENTION

All Alcohol and Drug Free Workplace Program records will be retained by the Branch in the individual employee's Medical Records file for a minimum period of two (2) years.

SECTION 20 - CONTRACTED SERVICES

Services for AMPCO's Alcohol and Drug Free Workplace Program will be provided by the following:

20.1 DHHS Accredited Laboratory

The Branch may utilize any SmithKline Beecham laboratory or may choose any Department of Health and Human Services (DHHS) or National Institute of Drug Awareness (NIDA) accredited laboratory which is able to assure that appropriate methods will be used. The Laboratory's procedures must follow the context of a quality assurance program, and have adequately trained personnel to carry out the analysis and interpretation of the results. When selecting a laboratory, the Branch must consider equipment, personnel, quality assurance, standardized procedures, quality control, and certification.

20.2 Medical Review Officer (MRO Services)

In selecting a Medical Review Officer (MRO), the individual must be a licensed physician knowledgeable in the medical use of prescription drugs and the pharmacology and toxicology of illegal drugs. The role of the MRO is to review and interpret test results obtained through the Company's drug testing program. The Branch may contract with any knowledgeable physician to provide the MRO services required.

AMPCO'S ALCOHOL AND DRUG FREE WORKPLACE POLICY

The Company has a vital interest in maintaining safe, healthful and efficient working conditions for its employees. Being under the influence of alcohol or any other drug on the job poses serious safety and health risks not only to the user, but to all those who work with or come in contact with the user (i.e. fellow employees, customers, the general public). The manufacture, distribution, dispensation, possession, use or sale of an illegal drug or alcohol in the workplace or during the work day, also poses unacceptable risks for safe, healthful and efficient operations.

Accordingly, it is the right and intent of the Company to maintain a working environment that is free of substance abuse. For this reason, the Company has established a policy for pre-employment, random, DOT required, reasonable cause, or customer required screening procedures designed to prevent the hiring and employment of individuals who use illegal drugs or individuals whose legal use of alcohol or other drugs indicate a potential for impaired or unsafe job performance.

I. Alcohol

It is prohibited for any employee to be under the influence of alcohol while performing Company business, while on a Company job site or in a Company facility, or while in or operating vehicles or equipment owned or leased by the Company.

Possession of alcohol while in or operating a Company vehicle is prohibited.

Use of alcohol or possession of an open container of alcohol while on a Company job site or in a Company facility is prohibited except for special occasions approved by the manager of the facility.

II. Legal Drugs

Prescribed and/or over-the-counter drugs may affect behavior and performance. Employees are required to notify their supervisor that they are taking such drugs for medical reasons, and medical evaluation may be required. During any period that such use of drugs adversely affects job performance, the employee will be relieved of his/her job duties or re-assigned by the Company.

III. Illegal Drugs

The manufacture, distribution, dispensation, possession, use, sale or being under the influence of an illegal drug by any employee while performing Company business, while on a Company job site or in a Company facility, or while in or operating vehicles or equipment owned or leased by the Company is prohibited.

IV. Employee Responsibility

It is a condition of employment that all employees abide by the terms of the Alcohol and Drug Free Workplace Policy. In the event of any conviction for a criminal drug violation occurring on a Company job site, in a Company facility, or while in or operating a Company owned or leased vehicle, the employee must notify the Company's Benefits Coordinator within five (5) days of the date of the conviction.

V. Disciplinary Action

Violation of this Policy or refusal to comply with a request to be screened will result in discharge from employment.

Employee Assistance

The Company recognizes that chemical dependency is a disease and should be regarded as a disease with no stigma attached. The Company will assist any employees who suffer from alcohol or other drug dependency . Contact a Manager at AMPCO for confidential assistance BEFORE your use/abuse of alcohol or other drugs leads to disciplinary action! Your job will not be jeopardized by contacting AMPCO for help.

"LAST CHANCE AGREEMENT"

TO PARTICIPATE IN A SUBSTANCE ABUSE PROGRAM

In order to continue my eligibility for employment, subject to my participation in the employee substance abuse treatment and follow-up care programs referred to below, I hereby agree that:

1. I will participate fully and in good faith in the prescribed treatment program at:
   _____
   _____

   until such time as the director of such program determines that I have satisfactorily completed the program and releases me.

2. I will also participate in good faith in the prescribed follow-up care program until released as set out in Item 1 above.

3. Upon my completion and release of the treatment program and upon my return to work: (a) I will be subject to unannounced substance abuse tests from time to time for a period of three (3) years; (b) in the event any of such tests are positive, or if I should refuse to submit to any of such tests, I will be immediately discharged from employment; and (c) I will continue to be subject to all of my employer's employment policies and procedures, and may also be disciplined or discharged at any time in accordance therewith.

4. I fully release and discharge AMPCO and its subsidiaries, affiliates, predecessors, assignees and their officers, directors, employees, agents and attorneys, past and present (collectively, "AMPCO"), from any and all liabilities and claims now known or unknown, arising out of my participation in the programs referred to above or any actions which AMPCO has taken or may take in connection therewith; and I will indemnify, defend and hold harmless AMPCO from and against any and all actions, suits, proceedings, judgments and orders, and the costs of defense and settlement thereof (including reasonable attorney's fees) arising out of my participation in such programs or any actions of AMPCO.

5. This agreement will be binding upon my heirs and personal representatives.

Date: _____ Acknowledged and agreed to:

_____ _____
Witness signature Employee signature

Accepted by: _____
Name and title

ACKNOWLEDGEMENT OF SUBSTANCE ABUSE TESTING

I, the undersigned, hereby acknowledge and agree: (a) that I have received a copy of AMPCO's Alcohol and Drug Free Workplace Policy; (b) that I have read the Policy and fully understand the implications of the Policy with regard to its affecting my employment or continued employment with AMPCO; and (c) that I will fully comply with said Policy during the term of my employment with AMPCO its subsidiaries, divisions or affiliates (AMPCO).

I also understand that as a part of this program, I may be tested for chemical substance abuse. If required to be tested, I hereby consent to such testing, and whenever the testing is performed at the request of, or in conjunction with, the Alcohol and Drug Abuse Program of an AMPCO Customer, I authorize the medical provider to release the results of this testing to such Customer, the DHHS accredited Laboratory being used by AMPCO, the licensed physician (MRO) under contract to AMPCO, AMPCO its subsidiaries, divisions, and affiliates and to release the Customer, the Clinical Laboratory involved, AMPCO, and its MRO from any liability they might otherwise have for conducting such testing, test results, or making employment decisions based upon the results of such testing.

I further understand and acknowledge that my employment with AMPCO is contingent upon my ability to successfully pass drug screening tests, and should this screening produce a confirmed and verified positive test result, or should I refuse to take this drug screening test, I will be immediately discharged from the Company.

ACKNOWLEDGED AND AGREED TO: _____
(Employee Signature)

DATE OF SIGNATURE: _____

_____
(Employee's printed name)

_____
(Supervisor's signature)

This Acknowledgment will be maintained in the employee's personnel file.

SUBSTANCE ABUSE PANEL AND DETECTION LEVELS
DEPARTMENT OF TRANSPORTATION
(D.O.T. ONLY)
Substance Abuse Panel - 10 Panel

Detection Levels

Initial	Confirmation (GCMS)	Panel
1000 ng/ml	500 ng/ml	Amphetamines
300 ng/ml	200 ng/ml	Barbiturates
300 ng/ml	200 ng/ml	Benzodiazepines
300 ng/ml	150 ng/ml	Cocaine Metabolites
100 ng/ml	15 ng/ml	Marijuana Metabolites
300 ng/ml	200 ng/ml	Methadone
300 ng/ml	200 ng/ml	Methaqualone
2000 ng/ml	2000 ng/ml	Opiates
25 ng/ml	25 ng/ml	Phencyclidine
300 ng/ml	200 ng/ml	Propoxyphene

Panels may be tailored to meet the requirements of the customer, and therefore may be subject to change.

SUBSTANCE ABUSE PANEL AND DETECTION LEVELS

Substance Abuse Panel - 7 Panel

Detection Levels		
Initial	**Confirmation (GCMS)**	**Panel**
1000 ng/ml	500 ng/ml	Amphetamines
300 ng/ml	200 ng/ml	Barbiturates
300 ng/ml	200 ng/ml	Benzodiazepines
300 ng/ml	150 ng/ml	Cocaine Metabolites
100 ng/ml	15 ng/ml	Marijuana Metabolites
2000 ng/ml	2000 ng/ml	Opiates
25 ng/ml	25 ng/ml	Phencyclidine

Panels may be tailored to meet the requirements of the customer, and therefore may be subject to change.

DRUG & ALCOHOL PROGRAM FOR DRIVERS

AS REQUIRED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION

The Federal Highway Administration ("FHWA") has issued regulations which require AMPCO to implement a controlled substance testing program. The Company will comply with these regulations and is committed to maintaining an alcohol and drug-free workplace. All drivers are advised that remaining alcohol and drug-free and medically qualified to drive are conditions of continued employment with the Company.

SECTION 1 - PURPOSE

The purpose of this administrative guide is to set forth the procedures for the implementation of controlled substances and alcohol use and testing of driver applicants and current drivers pursuant to the Alcohol and Drug Abuse Policy. These procedures are intended as a guide only, and are in no way intended to alter any existing relationship between AMPCO and any driver.

AMPCO's alcohol and drug program administrator designated to monitor, facilitate, and answer questions pertaining to these procedures is Health & Safety Director.

SECTION 2 - DEFINITIONS

When interpreting or implementing these procedures, or the procedures required by the Federal Highway Administration ("FHWA") controlled substance testing regulations, the following definitions apply:

Alcohol - means the intoxicating agent in beverage alcohol, ethyl alcohol, or other low molecular weight alcohol including methyl and isopropyl alcohol.

Alcohol concentration (or content) - means the alcohol in a volume of breath expressed in terms of grams of alcohol per 210 liters of breath as indicated by an evidential breath test under this part.

Collection site - means a place where individuals present themselves for the purpose of providing breath, body fluid, or tissue samples to be analyzed for specified controlled substances. The site must possess all necessary personnel, materials, equipment, facilities and supervision to

provide for the collection, security, temporary storage and transportation or shipment of the samples to a laboratory.
Controlled substance - has the meaning assigned by 21 U.S.C. 802 and includes all substances listed on Schedules I through V as they may be revised from time to time (21 CFR 1308).

Driver - means any person who operates a commercial motor vehicle. This includes, but is not limited to: full time, regularly employed drivers; casual, intermittent or occasional drivers; leased drivers and independent, owner-operator contractors who are either directly employed or under lease to an employer or who operate a commercial motor vehicle at the direction of or with the consent of an employer. For the purposes of pre-employment/pre-duty testing only, the term "driver" includes a person applying to an employer to drive a commercial motor vehicle.

Drug - means any substance (other than alcohol) that is a controlled substance as defined in this section and 49 CFR Part 40.

FHWA - means the Federal Highway Administration, U.S. Department of Transportation.

Owner-Operator(s) - means a driver(s) who has been contracted for services with the Company. For the purposes of these procedures and the Company's Alcohol and Drug Abuse Policy, owner-operators are not to be considered employees, but will be required to participate in the Company's Alcohol and Drug Abuse Policy like all Company employee drivers.

Medical Review Officer ("MRO") - means a licensed M.D. or D.O. with knowledge of drug abuse disorders that is employed or used by a motor carrier to conduct drug testing in accordance with this part.

Performing (a safety-sensitive function) - means a driver is considered to be performing a safety-sensitive function during any period in which he or she is actually performing, ready to perform, or immediately available to perform any safety-sensitive functions.

Random selection process - means that alcohol and drug tests are unannounced; that every driver of a motor carrier subject to test-tests conducted annually shall equal or exceed twenty-five percent (25%) for alcohol tests and fifty percent (50%) for drug test of the total number of drivers subject to testing a motor carrier.

Reasonable cause - means that the motor carrier believes the actions or appearance or conduct of a commercial motor vehicle driver who is on duty as defined below, are indicative of the use of a controlled substance.

Safety-Sensitive Function - means any of those on-duty functions set forth in CFR 49 Section §395.2.

On Duty Time - means all time from the time a driver begins to work or is required to be in readiness to work until the time he/she is relieved from work and all responsibility for performing work. "On duty time" shall include:

a. All time at a carrier or shipper plant, terminal, or facility, or other property, or on any public property, waiting to be dispatched, unless the driver has been relieved from duty by the motor carrier.
b. All time inspecting, servicing, or conditioning any commercial motor vehicle at any time;
c. All driving time.
d. All time, other than driving time, in or upon any commercial motor vehicle except time spent resting in a sleeper berth.
e. All time loading or unloading a vehicle, supervising, or assisting in the loading or unloading, attending a vehicle being loaded or unloaded, remaining in readiness to operate the vehicle, or in giving or receiving receipts for shipments loaded or unloaded.
f. All time spent performing the driver requirements relating to accidents.
g. All time repairing, obtaining assistance, or remaining in attendance upon a disabled vehicle.

SECTION 3 - PROHIBITED SUBSTANCES

- **Alcohol Use:** means the consumption of any beverage, mixture, or preparation, including any medication containing alcohol which, when consumed, causes an alcohol concentration in excess of those prescribed by Part 382 Subpart B (FMCSR) and section IV of this policy.

- **Controlled Substances:** In accordance with FHWA rules, urinalysis will be conducted to detect the presence of the following substances:

  a. Marijuana
  b. Cocaine
  c. Opiates
  d. Amphetamines
  e. Phencyclidine-(PCP)

  Detection levels requiring a determination of a positive result shall be in accordance with the guidelines adopted by the FHWA in accordance with the recommendations established by the Dept. of Health and Humans Services (DHHS).

SECTION 4 - PRESCRIPTION MEDICATIONS

- **Prescription Medications:** Drivers taking legally prescribed medications issued by a licensed health care professional familiar with the driver's work-related responsibilities must

report such use to their immediate supervisor or dispatcher, and may be required to present written evidence from the health care professional which describes the effects such medications may have on he driver's ability to perform his/her tasks.

In the sole discretion of the alcohol and drug program administrator, a driver may be temporarily removed, with pay, from a safety-sensitive position if deemed appropriate.

SECTION 5 - PROHIBITIONS

- **Alcohol Prohibitions:**

The new alcohol rule prohibits any alcohol misuse that could affect performance of a safety-sensitive function. These include the following:

1. Use while performing safety sensitive functions.
2. Use during the 4 hours before performing safety-sensitive functions.
3. Reporting for duty or remaining on duty to perform safety-sensitive functions with an alcohol concentration of 0.04 or greater.
4. Possession of alcohol, unless the alcohol is manifested and transported as part of a shipment. This includes the possession of medicines containing alcohol (prescription or over-the-counter), unless the packaging seal in unbroken.
5. Use during 8 hours following an accident, or until he/she undergoes a post-accident test.
6. Refusal to take a required test.

NOTE: A driver found to have an alcohol concentration of greater than 0.02, but less than 0.04, will not perform nor be permitted to perform any safety-sensitive functions for at least 24 hours. The other consequences imposed by the regulations and discussed below do not apply. However, documentation of this test constitutes written warning that company policy has been violated, and the next occurrence could result in disqualification of a driver.

- **Drug Prohibitions:**

The regulations prohibit any drug use that could affect performance of safety-sensitive functions. These include the following:

1. Use of any drug, except by doctor's prescription, and then only if the doctor has advised the driver that the drug will not adversely affect the driver's ability to safely operate the CMV;
2. Testing positive for drugs; and
3. Refusing to take a required drug test.

Drivers must inform the alcohol and drug program administrator of any therapeutic drug use prior to performing a safety-sensitive function.

SECTION 6 - DRIVER APPLICANT AND CURRENT DRIVER TESTING

- **Applicant Testing:** All driver applicants will be required to submit to and pass a breath alcohol test and a urine drug test as a condition of employment. Job applicants who are denied employment because of a positive test, may reapply for employment after 12 months.

  Offers of employment are made contingent upon passing the Company's medical review, including the alcohol and drug test. Driver applicants who have received firm employment offers are to be cautioned against giving notice at their current place of employment, or incurring any costs associated with accepting employment with the Company until after medical clearance has been received. All newly hired drivers shall be on a probationary status for 30 days, contingent upon medical clearance for illicit controlled substance or alcohol usage, as well as other conditions explained in the personnel policies. Under no circumstances may a driver perform a safety-sensitive function until a confirmed negative result has been received.

  Driver applicant drug testing will follow the collection, chain-of-custody and reporting procedures as set forth in CFR 49 Part 40.

- **Owner-Operators** - Owner-Operators engaged by AMPCO are not employees of AMPCO, nor are they to be considered as such under this Policy. However, every owner-operator engaged to provide services to AMPCO must agree to, and successfully participate in the Company's alcohol and drug testing program. All owner-operator agreements will be entered into the Company contingent upon the operators' successful completion of the urinalysis and breath analysis under all phases of the Company's program, and are contingent upon the owner-operator's continued status as a medically qualified driver.

  The term "driver" as used in these procedures includes owner-operators.

- **Employee Drivers:** Under all circumstances, when a driver is directed to provide either a breath test or urine sample in accordance with these procedures, he or she must immediately comply as instructed. Refusal will constitute a positive result. The driver will be immediately removed from the safety-sensitive function and will be subject to further discipline or termination as appropriate.

SECTION 7 - SUSPICION-BASED TESTING

- **Reasonable Suspicion:** If a driver is having work performance problems or displaying behavior that may be alcohol or drug-related, or is otherwise demonstrating conduct that may be in violation of the Policy where immediate management action is necessary a supervisor or dispatcher, with the concurrence of the alcohol and drug program administrator, will require that driver to submit to a breath test or urinalysis. The following conditions are signs of possible alcohol or drug use (not all-inclusive):

- Abnormally dilated or constricted pupils
- Glazed stare - redness of eyes (sclera)
- Flushed face
- Change of speech (i.e. faster or slower)
- Constant sniffing
- Increased absences
- Redness under nose
- Sudden weight loss
- Needle marks
- Change in personality (i.e. paranoia)
- Increased appetite for sweets
- Forgetfulness - performance faltering - poor concentration
- Borrowing money from coworkers or seeking an advance of pay or other unusual display of need for money
- Constant fatigue or hyperactivity
- Smell of alcohol
- Slurred speech
- Difficulty walking
- Excessive, unexplained absences
- Dulled mental processes
- Slowed reaction rate

- **Immediate Action:** Supervisors or dispatchers must take action if they have reason to believe one or more of the above-listed conditions is indicated, and that the substance abuse is affecting a driver's job performance or behavior in any manner. A supervisor or dispatcher observing such conditions will take the following actions immediately:

  - Confront the employee involved, and keep under direct observation until the situation is resolved
  - Secure the alcohol and drug program administrator's concurrence to observations; job performance and company policy violations must be specific.
  - After discussing the circumstances with the supervisor or dispatcher, the alcohol and drug program administrator will arrange to observe or talk with the driver. If he/she believes, after observing or talking to the driver, that the conduct or performance problem could be due to substance abuse, the driver will be immediately required to submit to a breath test or urinalysis. If the driver refuses to submit to testing for any reason, the driver will be informed that continued refusal will result in termination of employment.
  - Employees will be asked to release any evidence relating to the observation for further testing. Failure to comply may subject the employee to subsequent discipline

or suspension from driving duties. All confiscated evidence will be receipted for with signatures of both the receiving supervisor, as well as the provider.

- If prior to confrontation by the supervisor or dispatcher, the driver admits to use but requests assistance, the alcohol and drug program administrator will arrange for assessment by an appropriate substance abuse professional (SAP). Reassignment to the driver position is conditional to completing the SAP's guidelines and return to work testing.

- **Documentation:** The supervisor or dispatcher shall, within 24 hours or before the results of the controlled substance test are released, document the particular facts related to the behavior or performance problems, and present such documentation to the alcohol and drug program administrator.

- **Removal from Driving:** The alcohol and drug program administrator will remove or cause the removal of the driver from the Company-owned vehicle and ensure that the driver is transported to an appropriate collection site and thereafter to the driver's residence or, where appropriate, to a place of lodging. Under no circumstances will that driver be allowed to continue to drive a Company vehicle or his/her own vehicle until a confirmed negative test result is received.

- **Acknowledges Use:** If, during the course of employment, the driver acknowledges a substance abuse problem and requests assistance, the problem may be treated as if it were an illness, subject to the provisions set forth below:

  - The decision to seek diagnosis and accept treatment for the substance abuse problem is the responsibility of the driver;
  - The diagnosis and prescribed treatment of the driver's condition will be determined by health care professionals designated by the alcohol and drug program administrator in conjunction with the driver's physician; and
  - The driver might be placed on medical leave for a predetermined period recommended by those medical professionals if the SAP determines that such action is appropriate.

- **Post-Accident Testing:** Currently, federal regulations place the burden of compliance with post-accident alcohol and drug testing regulations on the driver. Therefore, all drivers are required to provide a breath test and a urine specimen to be tested for the use of controlled substances "as soon as practicable" after an accident. The driver must remain readily available for such testing or may be deemed by the alcohol and drug program administrator to have refused to submit to testing. No alcohol may be consumed for 8 hours after the accident or until a test is conducted. If the driver is seriously injured and cannot provide a specimen at the time of the accident, he or she shall provide the necessary authorization for obtaining hospital reports and other documents that would indicate whether there were any controlled substances in his or her system.

An accident is defined by FHWA regulations as an accident which results in the death of a human being or bodily injury to a person who, as a result of the injury, immediately receives medical treatment away for the scene of the accident; or which has had one of the vehicles towed from the scene of the accident. Except for a fatality accident, verification of the driver's responsibility in the above accident scenario must be established by a citation to the driver.

Drivers may be provided with collection kits to be carried in their vehicles at all time. A list of nationally available collection sites will be provided through the Company Operating Unit Managers, including pertinent instructions and procedures prior to the driver operating a commercial motor vehicle.

Adherence by drivers to post-accident specimen collection requirements is a condition of continued employment. The failure of an owner-operator to comply with DOT post-accident and specimen collection rules will be considered a breach of contract with the Company, and the contract will remain invalid until appropriate substance abuse professional counseling has been completed.

- **Random Testing:** AMPCO will conduct random testing for all covered drivers as follows:

    - A company-wide selection process which removes discretion in selection from any supervisor personnel will be adopted by the Company. This process will select covered drivers through the use of a computerized program.
    - The random testing, once begun, will provide for alcohol testing of at least twenty-five percent (25%) and for drug testing of at least fifty percent (50%) of all covered drivers.
    - The random testing will be reasonably spaced over any twelve (12) month period.
    - Once notified, a driver must proceed immediately to the assigned collection site.

- **Program Administrator:** The alcohol and drug program administrator will be responsible for designating the appropriate substance abuse professional who, in conjunction with the driver's physician, will diagnose the problem and recommend treatment.

    - The driver's successful completion of the approved treatment program is a condition of continued employment as a driver.
    - Following successful completion of any approved treatment program, the driver will be required to submit to at least six random drug tests during the first year, and follow-up testing may be conducted for up to 60 months. Failure to adhere to this condition is grounds for immediate termination.
    - All supervisors or dispatchers will receive training to assist them in identifying alcohol and drug use behavioral characteristics.

- **Return-to-Duty Testing:** Before a driver returns to duty, that requires the performance of a safety-sensitive function, after engaging in conduct prohibited by this policy and Part 382 Subpart B (FMCSR), the driver shall undergo a return to duty alcohol test with a result of less than a 0.02 BAC or receive a confirmed negative result from a controlled substance urinalysis test.

SECTION 8 - COLLECTION OF BREATH AND URINE SPECIMENS

Breath Alcohol Testing: This will be conducted either on site or at a prearranged location by a qualified Breath Alcohol Technician according to CFR 49 Part 40 procedures. Refusal to complete and sign the testing from or refusal to provide breath will be considered a positive test, and the driver will be removed from a safety-sensitive function until resolved.

Specimen Collection: Specimen collection will be conducted in accordance with applicable state and federal law. The collection procedures will be designed to ensure the security and integrity of the specimen provided by each driver, and those procedures will strictly follow federal chain-of-custody guidelines. Moreover, every reasonable effort will be made to maintain the dignity of each driver submitting a specimen for analysis in accordance with these procedures.

SECTION 9 - LABORATORY ANALYSIS

Laboratory Analysis: As required by FHWA regulations, only a laboratory certified by Department of Health and Human Services (DHHS) to perform urinalysis for the detection of the presence of controlled substances will be retained by the Company. The laboratory will be required to maintain strict compliance with federally approved chain-of-custody procedures, quality control, maintenance and scientific analytical methodologies.

SECTION 10 - CONSEQUENCES OF POSITIVE TEST RESULTS

Positive Test Results: Alcohol and drug abuse may not only threaten the safety and productivity of all employees at AMPCO, but causes serious individual health consequences to those who use them. Any confirmed actions prohibited by Part V above, while performing a safety-sensitive function or refusing to take a breath test, will be grounds for termination as an employee.

Negative Dilute Test Results: In the event that the MRO reports the results of the testing regarding a specific urine sample to be negative, but in addition specifies that that urine sample is “diluted”, has a “low creatinin level”, or other synonymous result, the employee in question shall be required, at a time of the EMPLOYER’s choosing, to repeat the collection and analysis process. Should the MRO report the results of the testing regarding a specific urine sample as

"substituted", the employee in question shall be considered to have refused testing and shall be subject to disciplinary action commensurate with a positive test for prohibited substances.

Termination of Employment: A driver testing positive for alcohol or drug use is subject to termination. Refusal to submit to testing will also be considered as positive.

Refusal may be defined as not providing a breath sample or urine as directed, neglecting to sign appropriate control forms, using alcohol within 8 hours of an accident, or engaging in conduct that clearly obstructs the testing process.

SECTION 11 - APPEAL OF TEST RESULTS

Any driver testing positive for the presence of a controlled substance will be contacted by the Company's MRO. The driver will be allowed to explain and present medical documentation to explain any permissible use of a drug. All such discussions between the driver and the MRO will be confidential. The Company will not be a party to, or have access to matters discussed between the driver and the MRO. If medically supportable reasons exist to explain the positive result, the MRO will report the test to the Company as a negative.

Within 72 hours after the driver has been notified of a positive test result for drugs, he/she may request a retest of the split sample. This signed request will be provided to the MRO in writing, who will then initiate the new laboratory analysis. If a different result is detected by the subsequent laboratory analysis, the test will be voided by the MRO, and the company alcohol and drug program administrator will be notified. A retest may be initiated as appropriate.

SECTION 12 - CONFIDENTIALITY

Under no circumstances, unless required or authorized by law, will alcohol or drug testing information or results for any employee or applicant be released without written request from the applicable employee.

Drivers are entitled, upon written request, to obtain copies of any records pertaining to the driver's use of alcohol or controlled substances, including any records pertaining to his or her alcohol or controlled substance tests. A copy of the requested records will be sent within 5 working days.

Collection of breath and urine samples must always be documented and sealed with a tamper-proof sealing system in the presence of the driver, to ensure that all tests can be correctly traced to the driver.

Drug test analysis from the DHHS approved laboratory will be forwarded directly to the Medical Review Officer assigned by the alcohol and drug program administrator.

Alcohol test results will be forwarded by the MRO to the alcohol drug program administrator for confidential recordkeeping.

Exhibits Index

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