AUTOMATIC SYSTEMS, INC.

Safety & Health Program

AUTOMATIC SYSTEMS, INC.

SAFETY & HEALTH PROGRAM

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AUTOMATIC SYSTEMS, INC.

HEALTH & SAFETY PROGRAM

POLICY

It is the policy of Automatic Systems that every employee is entitled to work under the safest conditions possible for the steel fabricating and installation industry. To this end, every reasonable effort will be made in the interest of accident prevention, fire protection, and health preservation. In this regard, Automatic Systems will endeavor to maintain a safe and healthful workplace. It will provide safe working equipment, necessary personal protection, and in case of injury provide the best first aid and medical services available. OSHA compliance will be integrated into our overall safety and loss program.

- All employees must recognize that safety is an integral part of their job and cannot be divorced from the other phases of operation. Safety is as important as workmanship, as quality, or quantity.

- No job shall be done in such a hurry as to create a hazard or jeopardize the safety and well being of the work force.

- The immediate supervisor in charge shall be responsible for the safe work practices on the job.

- Every reasonable precaution is to be taken on each job. This means that if there are four or five reasonable precautions that can be taken, every effort must be made to see that each of them is carried out. The failure of any employee to follow these instructions will be considered a case of lack of training, lack of instruction or insubordination and will be handled accordingly.

-AUTOMATIC SYSTEMS, INC.

AUTOMATIC SYSTEMS, INC.

SECTION 1

SAFETY HEALTH PROGRAM

AUTOMATIC SYSTEMS, INC.

SECTION 1

SAFETY HEALTH PROGRAM

INTRODUCTION

Construction is unique in terms of challenges and rewards. It is also one of the most hazardous. While construction methods and techniques have improved and consistently increased the efficiency and productivity of the industry, it can also be shown that the accident frequency rate for construction has increased while that of the general industry has decreased. Closer to home, our direct and indirect job costs and the cost of doing business increase in direct relationship to injury frequency rating.

Accidents and the injury and loss associated with them are preventable. To prevent accidents it is necessary to perform adequate planning, be sufficiently trained to identify and control hazards and to be vigilant to changing conditions. This safety and health program is to be implemented and revised as necessary to prevent accidents that result in death or injury to persons, damage to property or loss to production.

STATEMENT OF POLICY

IT IS THE POLICY OF THIS COMPANY TO PERFORM WORK IN THE SAFEST POSSIBLE MANNER CONSISTENT WITH GOOD CONSTRUCTION PRACTICES. TO FULLFILL THE REQUIREMENTS OF THIS POLICY, AN ORGANIZED AND CONSISTANT SAFETY AND HEALTH PROGRAM IS TO BE IMPLEMENTED AT EACH LOCATION WHERE WORK IS TO BE PERFORMED.

DEFINITIONS:

ACCIDENT - An undesired event that results in harm to people, damage to property or loss to production.

INCIDENT - An undesired event, which under slightly different circumstances, could have resulted in harm to people, damage to property or loss to production.

PROGRAM OBJECTIVES:

- To establish a Safety and Health Program responsive to company activities, industry recommendations and regulatory requirements.
- Elimination or frequency reduction of injuries to employees.
- Create and maintain a Safety conscious attitude throughout the workforce.
- Provide safety information, statistics and documentation used in the process of performance improvement.
- Identify and provide employee training that will improve performance.
- Establish responsibilities to facilitate effective implementation of the Safety and Health Program and control of resulting issues.
- To identify and correct unsatisfactory performance and recognize desired achievement.

AUTOMATIC SYSTEMS, INC.

SECTION 2

SAFETY PROGRAM RESPONSIBILITIES

AUTOMATIC SYSTEMS, INC.

SECTION 2

SAFETY PROGRAM RESPONSIBILITIES

MANAGEMENT

Management, in its stewardship of the company, has the prime responsibility for safety. Actions that work to satisfy this responsibility are LEADERSHIP, COMMITMENT OF RESOURCES and ALLOCATION OF TIME. Products of these actions will include:

- Development and implementation of a safety and health program that encompasses the activities of the company and provides adequate technical direction.
- Establish and assign responsibilities for the administration of the safety and health program.
- Perform field safety and health audits to ensure program objectives are being met.
- Regularly scheduled review of safety and health statistical and performance information to identify mitigation and improve strategies.
- Frequent communication with supervision and employees to reinforce the importance of safety and health activities and the accomplishment of their work.

SAFETY MANAGER

The Safety Manager, acting as the technical resource, shall have the following responsibilities:

- Assist and support the superintendents in establishing and maintaining an effective safety program by:
- Providing technical direction in the development, administration and implementation of the company's Safety and Health Program.
- Providing educational materials, which will assist in developing and maintaining an effective safety program?
- Assist in the development of techniques that will improve the presentation of information addressing safety policies and procedures.
- Control engineers and claims representatives with the safety efforts of the superintendents.

- Perform field safety audits.
- Maintain an effective system of reporting and documentation.
- Coordinate and perform employee safety and health training.

FIELD SUPERVISORY PERSONNEL PROJECT SUPERINTENDENT

The project superintendent shall be responsible for implementation of the safety and health program. He/she shall be responsible for ensuring that our employees and subcontractors comply with the program and to enforce the safety and health requirements of the project.

Getting the safety and health program organized and in place at the start of the job is important. Many serious accidents occur during mobilization and early stages of construction.

- Ensure that the required postings are posted.
- Include the safety factor in your operational planning, provide for personal protective equipment, machine guards, warning signs and barricades, fire extinguishers, trash and materials drop barrels etc.
- Arrange for orientation times, locations, etc. for "new hires" to present our safety policies and identify the specific hazards associated with his/her work assignment. Ensure a qualified person performs the orientation of "new hires". Ensure the foremen follow up with orientation information about specific hazard(s) of the task before the work begins. Employees and/or sub-contractors are actively involved in the hazard identification process and hazards are reviewed with all employees concerned. Provide mechanisms to involve workers and their elected representatives in the development of the worker safety and health program goals, objectives, and performance measures and in the identification and control of hazards in the workplace.
- Maintain the weekly toolbox-meeting schedule.
- Conduct a weekly supervisory safety meeting starting the first week even though there are only a few men to attend.
- Invite field subcontractors to site kick-off meetings, safety orientations, tailgate safety meetings, job safety analysis or hazard assessments and job safety inspections.
- Monitor the "odd" job closely (unloading operations, etc.) It is the "odd jobs" of the work that is incidental to production that too often results in serious accidents. Make sure these jobs are being done according to safe planning with the right equipment and qualified personnel.
- Monitor for unsafe acts and conditions and correct them immediately. Orderliness and good housekeeping on the jobsite is important to be safe and productive.
- Organize post-job safety review and include field subcontractors.
- Work with Corporate Safety Manager to make sure FIRST AID SUPPLIES are:
    - Easily accessible on the site with the location shared during orientation and training

    - Assessed on a regular basis to make sure supplies are sufficient and appropriate for the hazards and work conditions of the job site.
- Work with onsite safety representative to develop and communicate the site-specific plan in the event of an incident to get medical attention to the Employee (or the Employee to appropriate medical attention) For example, in many industrial settings, the Owner will require that plant safety be the first call and plant safety will coordinate with EMS or outside resources if necessary.

FOREMAN

Foreman safety and health responsibilities are as follows:

- Pre-plan work to identify and correct immediate or developing hazards
- Conduct weekly Tool Box Safety meetings
- Perform accident investigations as necessary in accordance with the company's Accident Investigation Procedure
- Audit work activities to identify and correct unsafe acts and conditions
- Participate in safety and health training and improvement activities
- Prepare and submit safety and health documentation in a timely manner
- Audit tools and materials to insure appropriate working condition
- Be knowledgeable of the site emergency action plan
- Be knowledgeable of the Safety and Health Program

EMPLOYEE

The employee is responsible to perform work in the manner specified by the employer.

- It is the duty of all employees to know the Safety Policies of the company and perform their work in compliance with these policies. Disregard of these safety policies and procedures is grounds for discharge.
- Employees shall report all injuries to the first available ASI supervisor immediately,

- Employees are to make full use of safeguards provided for their protection. The following general requirements are established conduct:

    - **Everyone without exception will wear hard hats. The safety coordinator shall also keep a supply of hard hats available for visitors to the project.**
    - **Employees shall wear suitable work clothes as directed by their foreman**
    - **Employees shall wear suitable work shoes in good repair as directed by their foreman**
    - **Safety glasses, plain or over the glass (OTG) for prescription wearers, are provided by the company and are the minimum acceptable eye protection. Eye protection must be increased to incorporate face shield and/or goggles when exposures increase.**
    - **Fall protection equipment, full body harness and shock absorbing lanyard with locking snap type hooks are provided and will be worn where there is exposure to falls where practicable. Otherwise, other safety measures will be taken by the company and are to be used in accordance with in accordance with the Fall Protection Program.**

- Employees shall not remove guards, barricades or safety devices. Work on energized equipment will be in accordance with the Hazards Energy Control Program.
- Employees shall not operate a machine unless guard or method is in good condition, working order, in place and operative. Employees shall stop machine before oiling, fueling, adjusting or repairing. All employees shall report any guard not accomplishing its intended function.
- When the nature of work requires the use of signals, they must be thoroughly understood before a job is begun. When in doubt, as to the meaning of a signal, do not proceed until the question has been resolved. Visual signals are preferable to those given orally. Only one person shall give signals at any one time, and such person must be in a position with a clear unobstructed view of the area affected by his signals.
- Employees must not work underneath or over others without first notifying them and implementing proper safeguards or precautions to ensure one each other's safety.
- Jobs shall be left in a safe condition with hazardous exposures identified, communicated and guarded. Before leaving a job, employees shall correct, or arrange to give warning of any conditions, which might result in injury to a fellow workman unfamiliar with existing conditions.
- Dangerous conditions or practices observed should be corrected if possible and/or reported as soon as possible to the first available supervisor or authority that can take action.
- Employees are to familiarize themselves with the posted Emergency Action Plan and information.

- Employees must attend safety-training sessions and participate in other activities as identified in the Safety and Health Program.
- An employee who is unsure of the task instruction or identifies and unrecognized hazard in the course of completion is responsible to make the hazard known to the job supervisor before proceeding.

BE CAREFUL!! YOUR LIFE DEPENDS ON IT!!

SAFETY & HEALTH PROGRAM REVIEW &

COMMUNICATIONS PROCEDURE

ASI management, supervision and employees will attend regularly scheduled meetings with safety items and issues as the central topic. The focus of these meetings will be safety training and issues identification and resolution.

MANAGEMENT MEETINGS

Management meetings will be held monthly on the first Monday at a designated time on all job sites. The agenda will include, but not be limited to the following information:

- It is mandatory for all supervision, documentation of attendance, will be mandated.
- Project Safety Review information: this is the number of accidents (frequency), type of accidents, classification of accidents (severity) and safety items submitted. Hazards are classified/prioritized and addressed based on the risk associated with the task.
- Supervisor and/or Safety Coordinator will chair this meeting.

SUPERVISOR MEETINGS

- Supervisor's Meeting will be held monthly on the first Thursday of each month at a designated time on all job sites. The agenda will include but not be limited to the following information:
- Project Safety Review information
- Any training, annual or one-time, that may be required (first aid, CPR, lock out/tag out, Hazard Communications, review of safety programs, etc.)
- Employee meeting topics review and selection.

These meetings will be held by the supervisor and/ or safety coordinator with documentation of attendance will be mandated.

AUTOMATIC SYSTEMS, INC.

SECTION 3

NEW EMPLOYEE ORIENTATION

AUTOMATIC SYSTEMS, INC.

SECTION 3

NEW EMPLOYEE ORIENTATION PROGRAM INTRODUCTION

WELCOME TO AUTOMATIC SYSTEMS, INC.

We are a Conveyor Installation Construction Company that takes pride in our ability to perform quality Conveyor Installation safely and efficiently. Our commitment is to provide and accident free workplace for our employees and our contract associates.

THIS IS YOUR SAFETY AND HEALTH REFERENCE BOOK. The information presented in this reference is an overview of Automatic Systems, Inc. Policies, Procedures, Standards and Rules.

This safety and health reference information is to be used to help you determine if a more detailed understanding is required. **THE AUTOMATIC SYSTEMS, INC. SAFETY AND HEALTH MANUAL,** which is available from your supervisor or the project office trailer, is to be reviewed to provide additional details whenever a job exposure is not sufficiently addressed in this pocket reference. Also, Automatic Systems, Inc. has a Safety Manager on staff to assist in interpretation of technical information and direction. The Safety Manager may be reached at the Corporate Office in Kansas City, Mo. At (816) 356-0660.

We ask you to use the safety information provided in this handbook, your initial orientation, the Safety & Health Manual, as scheduled safety meetings and directions from your supervisor and co-workers to enjoy a safe and productive employment with Automatic Systems, Inc. We are also very much interested in your ideas and observations to help us improve the Safety and Health program. You may communicate these ideas and observations through your supervisor or directly to the Safety Manager who is responsible to administer the program.

Research of accident cause and effect relationships has established that the Actions of People account for 95% of all accidents. **KNOW AND FOLLOW THE WORK RULES** that have been established through industry experience and standards. Pre-plan your work and ask for clarification if you are unsure of instructions. Every employee has not only the **RIGHT** but also the **RESPONSIBILITY** to refuse to perform work that will result in injury to him/her of a co-worker.

SAFETY & HEALTH PROGRAM INTRODUCTION

Construction is a unique industry in terms of challenges and rewards. It is also one of the most hazardous. While construction methods and techniques have improved and consistently increased the efficiency and productivity of the industry, it can also be shown that the accident frequency rate for construction has increased while that of general industry has decreased. Closer to home, our direct and indirect job costs and the cost of doing business increase in direct relationship to injury frequency rating.

Accidents and the injury and loss associated with them are preventable. To prevent accidents it is necessary to perform adequate planning, be sufficiently trained to identify and control hazards and to be vigilant to changing conditions. This safety and health program is to be implemented and revised as necessary to prevent accidents that result in death or injury to persons, damage to property or loss to production.

STATEMENT OF POLICY

It is the policy of this company to perform work in the safest possible manner consistent with good construction practices, and to fulfill the requirements of the policy. An organized and consistent safety and health program is to be implemented at each location where work is to be performed.

DEFINITIONS

ACCIDENT - An undesired event that result in harmt6o people, damage to property or loss to production.

INCIDENT - An undesired event, which, under slightly different circumstances, could have resulted in harm to people, damage to property or loss to production.

1. STANDARDS OF PERFORMANCE

The employer/employee relationship establishes, at the time of hire, the commitment of both parties to provide benefit to one another. To ensure the most beneficial of associations, it is important to establish communications that addresses the minimum acceptable standards of

performance. Both the employer and employee must work to these standards for mutual benefit. Responsibility for providing a safe and productive workplace is the charge of the employer.

2. ACCIDENT/INCIDENT INVESTIGATION PROGRAM

ALL accidents/incidents, no matter how insignificant they are judged to be, are to be reported to your supervisor immediately. Your report will allow the Accident/Incident Program to be implemented. This program incorporates pre-arranged and Emergency Medical Services, the investigation and documentation process, benefits review and assignment and the return to work coordination program.

3. HAZARDS COMMUNICATION PROGRAM:

Note to Presenter: *The two information sections. Client Site and Emergency Action, located at the end of the following "*Right-To-Know "script, must be identified and completed by site supervision before training commences to ensure that it is communicated to the employee and documented.

"WORKERS RIGHT-TO-KNOW" TRAINING SCRIPT

The 1988 Hazard Communication Standard, a federal law enforced by OSHA and commonly referred to as the "Worker's Right-To- Know", charges all employers with the responsibility to implement a uniform hazard communication program. The standard was enacted to prevent employees from harmful exposure to chemicals. The program requirements are:

1. To tell all employees about the Hazard Communications Standard (HCS).

2. To explain to all employees how the standard works and how to use its components to prevent their exposure to chemical hazards.

3. To provide information and training about hazardous chemicals that will enable the employee to use the methods of information specified in the standard. The methods of communication specified are:

Labels - how to recognize, understand the information and applications of the information to prevent exposure.

MSDS - where they are, their purpose and how to interpret the information provided Employee training - procedures for safe handling when working with hazardous substances

Information is critical for successfully handling hazardous chemicals.

Information for the chemicals on the jobsite is located on the individual chemical containers in the form of Labels. Additionally, information in the form of Material Safety Data Sheets (MSDS's), for all the hazardous materials, Automatic Systems, Inc. has on the jobsite is available from your supervisors' Safety & Health Manual. The written Hazard Communication Program can be reviewed in your supervisor's Automatic Systems, Inc. Safety & Health Manual or located in the jobsite office. The Safety Manager in Kansas City, Missouri City maintains a master file of all Automatic Systems, Inc. Hazard Materials headquarters. The phone number is (816) 356-0660.

Never handle or use a hazardous substance until you have reviewed the information available about the material. A part of the information available is affixed to the container in the form of a **Label.**

Labels are allowed to use symbols instead of words to identify hazards and there is no mandated format. However, labels must list the following information as a minimum:

1. Chemical name
2. Manufacturers' names, address, emergency phone number
3. Physical hazards i. e., flammable, corrosive, toxic, reactive, etc.
4. Storage and handling information
5. Health hazards, i. e., toxicity, carcinogen, irritant, etc.
6. Personal Protective Equipment recommendations for safely working with the chemical.

MATERIAL SAFETY DATA SHEET (MSDS)

This information form is available in the Automatic Systems, Inc. Safety & Health Manual in the site office or from your supervisor. You must review and understand this information prior to handling or working with any hazardous chemicals.

Material Safety Data Sheets are prepared by the chemical manufacturer to provide information about material. Everything that is known about the chemical is listed by section on the MSDS. A minimum of eight (8) information sections are required on all MSDS's and they must present the following information by section:

SECTION 1 CHEMICAL IDENTITY

Chemical and common name (s) must be provided for a single chemical substance. An identity on the MSDS must be cross-referenced to the identity found on the label.

SECTION 2 HAZARDOUS INGREDIENTS

For a hazardous chemical that has been tested as a whole to determine its hazards, the chemical and common names of the ingredients that are associated with the hazards, and the common name of the mixture must be listed.

If the chemical is a mixture that has not been tested as a whole, the chemical and common names of all the ingredients determined to be health hazards and comprising 1 percent or greater of the composition must be listed.

Chemical and common names of carcinogens must be listed if they are present in the mixture at levels of 1 percent or greater.

All components of a mixture that have been determined to present a physical hazard must be listed.

Chemical and common names of all ingredients determined to be health hazards and comprising of less than 1 percent (0.1 percent of carcinogens) of the mixture must also be listed if they can still exceed and established Permissible Exposure Limit (PEL) or Threshold Limit Value (TLV) or present a health risk to exposed employees in these concentrations.

SECTION 3 PHYSICAL AND CHEMICAL CHARACTERISTICS

The physical and chemical characteristics of the hazardous substance must be listed. These include items such as, boiling and freezing points, density, vapor pressure, specific gravity, solubility, volatility, and the products general appearance and odor. These characteristics provide important information for designing safe and healthy work practices.

SECTION 4 FIRE AND EXPLOSION HAZARD DATA

The compounds potential for fire and explosion must be described. Also, the fire hazards of the chemical and the conditions under which it could ignite or explode must be identified. Recommended extinguishing agents and fire-fighting methods must be described.

SECTION 5 REACTIVITY DATA

This section presents information about other chemicals and substances with which the chemical is incompatible, or with which it reacts. Information on any hazardous decomposition products, such as carbon monoxide, must be included.

SECTION 6 HEALTH HAZARDS

The acute and chronic health hazards of the chemical, together with signs and symptoms of exposure, must be listed. In addition, any medical conditions that are aggravated by exposure to the compound must be included. The specific types of chemical health hazards defined in the standard include carcinogens, corrosives, toxins, irritants, sensitizers, mutagens, teratogens, and efforts on target organs (i.e. liver, kidney, nervous system, blood, lungs, mucous membrane, reproductive system, skin, eyes, etc.)

The route of entry section describes the primary pathway by which the chemical enters the body.

There are three principal routes of entry:

1. Inhalation
2. Absorption
3. Ingestion

This section of the MSDS lists the OSHA-PEL, the ACGIH-TVL and other exposure levels used or recommended by the chemical manufacturer.

SECTION 7 PRECAUTIONS FOR SAFE HANDLING AND USE

The standard requires the preparer to describe the precautions for safe handling and use. These include recommended Industrial Hygiene practices, precautions to be taken during repair and maintenance of equipment, and procedures for cleaning up spills and leaks. Some manufacturers also use this section to include useful information not specifically required by the standard, such as Automatic Systems, Inc. waste disposal methods and state and local requirements.

SECTION 8 CONTROL MEASURES

The standard requires the preparer of the MSDS to list any generally applicable control measures. These include engineering controls, safe handling procedures and personal protection equipment. Information is often included on the use of goggles, gloves, body suits, respirators and face shields.

There are numerous means of detecting hazardous materials exposures. Most fixed exposures such as, storage or piping systems have detection monitors installed that have audible and visual alarms. Some exposures can be forecasted based on job activities so that temporary monitoring equipment for these short-term exposures can be employed. However, the most critical monitoring system is for employees to be aware that common non-hazardous chemicals when

mixed may present a hazard and to continuously monitor changing conditions and materials present on the job site.

EMPLOYEE RESPONSIBILITIES:

Automatic Systems, Inc. Management and supervision is responsible for continuously monitoring and implementing controls to prevent harmful exposure to hazardous materials. Your responsibility as an employee is to perform your work as follows:

1. Identify hazards before starting a job.
2. Never transfer a chemical to an unmarked container without affixing a label to that container, unless the quantity transferred will remain in your control and will be used up by the end of your work shift.
3. Follow all storage, handling and usage directions.
4. Never use a hazardous material until you have reviewed and completely understand the information.
5. Use the personal protective equipment recommended.

CLIENT SITE HAZARDOUS MATERIALS

The following hazardous materials exposures are present in addition to the hazardous materials already discussed. This listing will be posted along with other safety information and will be maintained by the Safety Manager or his designee.

- Area/Task
- Exposure
- Authorization
- Health Hazard Information
- Monitoring Requirements
- Control Methods

EMERGENCY ACTION PLAN

In the event of an emergency involving a hazardous material spill, leak or other exposure, the employee(s) affected are to take action as identified on the Jobsite Orientation-Emergency Action Plan.

- Warning Signal Audible/Visual
- Retreat Paths
- Safe Area Location
- Mustering Verification/Check-in
- All Clear Signal

4. HAZARDOUS ENERGY CONTROL PROGRAM

LOCK OUT/TAG OUT STATEMENT OF POLICY

All employees will perform their work in accordance with the company's LOCK OUT/TAG OUT Program that addresses the servicing and maintenance of machines and equipment during which unexpected startup or energization COULD result in injury to personnel. A preventative maintenance program has been established based on manufacturer requirements and industry standards.

Scope: All work activities: including, but not limited to, service, maintenance, demolition, construction, that requires an employee to remove/bypass a guard or other safety engineered control. Included are any activities that require an employee to place upon process material (point of operation) or where an associated danger zone exists during machinery or equipment operating cycles.

Purpose: This program is to prevent injury and accidents that result from the unexpected release of energy. As such, all requirements establish the minimum level of performance.

DEFINITIONS

Authorized Person - An employee who implements a Lock Out and/ or Tag Out procedure on machinery or equipment in order to perform work on that machinery or equipment.

Affected Employee - An employee whose job activities requires him/her to operate, use or be in the area of machinery or equipment that is being serviced or maintained subject to the control provisions of the company's LOCK OUT/TAG OUT Program.

Energy Isolation Device - A mechanical device that physically prevents the transfer or release of energy. It includes, but is not limited to: manually operated circuit breakers fusible disconnect switches, plug and receptacles, normally operated switches (where the circuit conductor can be disconnected from all ungrounded supply conductors and no pole can be operated independently), and process line blanks/blinds.

NOTE: Push button switches and other control circuit actuators are not energy isolation devices.

Energy Source - Electrical, hydraulic, mechanical, pneumatic, chemical, thermal, or other live or potential energy.

Function Checks - The act of ensuring equipment and/or machinery is at a Zero Energy State after Lock out/Tag Out is completed. A minimum electrical function check is accomplished by using a meter rated for the equipment being worked on and by operating all controls in every mode.

Lock Out - Placement of a Lock Out device on an Energy Isolating Device in accordance with established procedures, ensuring that the Energy Isolation Device and the machinery/equipment being controlled cannot be operated until the Lock Out Device is removed.

Lock Out Device - A device that employs a positive method of securing an Energy Isolation Device in a safe position to prevent the energization of machinery or equipment. This generally refers to a lock or multiple locking hasp and lock.

Maintenance/Service - Activities such s demolition, construction, installation, adjusting, inspection, modification, maintaining, etc.

Multiple Locking Hasp - A manufactured device designed to accommodate a number of locks (usually 6) to allow more than one person, craft, etc., to secure an Energy Isolation Device.

Function Checks - The act of ensuring equipment and/or machinery is at Zero Energy State after Lock out/Tag out is completed. A minimum electrical function check is accomplished by using a meter rated for the equipment being worked on and by operating all controls in every mode.

Tag - A prominent warning device incorporating the warning message "Danger Do Not Operate" and accommodating attachment that will withstand 50 pounds of pull stress, to and Energy Isolation Device.

AUTOMATIC SYSTEMS, INC. LOCK OUT PROCEDURE

1. The project superintendent will obtain clearance from the owner or other responsible party to determine de-energization effects and timing.
2. The job foreman will receive approval for de-energization from the project superintendent.
3. The job foreman with the employee who will be performing the work, will identify and be in agreement that the correct control point and method has been selected (circuit breaker, disconnect).
4. **NOTE:** Control circuits, stop buttons, etc., shall be used for purpose of LOCK OUT.
5. The person performing the work will de-energize and place their lock (s), lockout device(s) and identification tag (s) at the agreed upon points. The tag(s) will be legible and each block of information will be completed.
6. **NOTE:** Control circuits, starts/stop mechanism, etc., are not to be used as lock out control points.
7. After lock out is complete, verify that equipment is at zero energy state with all power isolated. This is accomplished by performing voltage meter checks and by operating control mechanism such as circuits, switches in all modes. If there are any questions about secondary or temporary power(s) to the equipment, it should be resolved at this time.
8. If more than one employee is working on the de-energized equipment or system, each employee must attach their individual lock and completed information tag at the lock out control point. **NOTE:** If there is no engineered accommodation for a lock or lock out device, the employee must follow the tag out procedure. One man, one lock, no group lockout's. If they use a lockout box, each worker puts their lock on the lockout box.
9. Once the equipment is locked out, appropriately tagged and verified to be a zero energy state, the key for the lock(s) are to be delivered to the job foreman for control and tracking.

10. When work is completed, the employee, with the job foreman, will verify that equipment/system start up poses no danger to personnel or equipment. Once this check is complete and all parties who might be affected have been informed of planned start-up, then the employee who performed the work, along with the job foreman, will remove the lock and/or lockout device and tag. This will allow the equipment/system to be re-energized.

TAG OUT PROCEDURE:

The **Automatic Systems, Inc.** Tag Out Procedure follows the same steps and has the same requirements for insuring de-energization as the Lock Out Procedure. However, because Tag Out does not provide the same level of security that is present with Lock Out the conditions listed below must be met.

- Tag out shall only be implemented when there is no physical engineered accommodation for lock out and the employee(s) performing the work can **maintain continuous line of sight monitoring** of the tag locations(s).
- Tag out requires the use of completed "Danger Do Not Operate" tag (s).

EMERGENCY LOCK OUT/TAG OUT REMOVAL

All locks, points of attachments, equipment/systems identification and employee performing work information will be logged into the Project Lock Out/Tag out Control Book. If an individual is not available at site or cannot be contacted away from site and it becomes necessary to remove or otherwise alter the lock out/tag out that the employee installed, the job foreman may re-energize by implementing the following steps:

1. The job foreman will, confirm contact with the employee performing the work cannot be established
2. The job foreman will, with the benefit of all knowledgeable personnel available, determine the status of the work.
3. If all personnel who might be affected by start up of the equipment are in agreement that the work is complete and that no hazard to personnel and/or equipment is presented by equipment/system start-up, then the job foreman can remove equipment/system locks, locking devices and tags.
4. Upon removal of lock out/tag out controls and re-energization, a "bump" test should be performed to further ensure safe operation.

5. The job foreman will enter the “new” Lock Out status on the Project Lock Out Log and verbally report the changed status to the unavailable employee who initiated the Lock Out immediately upon that employees' return to the job site.

DE-COMMISSIONING PROCEDURE – SYSTEM/CIRCUIT

This procedure is to be implemented by Project Management/Supervision for their control of System.

Circuits that are within the project work scope. It is to be implemented for Systems/Circuit that are to be decommissioned for a **period exceeding one week.** This procedure is supplemental to the requirements of Lock Out/ Tag Out.

SYSTEM/CIRCUIT CONTROL STEPS

1. Using blue line schematics identify the system/circuit power sources, branch circuits and terminals using proper voltage test equipment.
2. Review blue line mark-up with Owner/Operator/Contact Representative to establish exceptions.
3. Use corrected blue line mark-up for field identification of system/circuit.
4. With system/circuit energized, perform voltage/energy checks throughout. (Energized).
5. De-energized system/circuit and repeat voltage/energy checks throughout.(Energized).

NOTE: All exceptions to Steps 4 and % modality must be resolved before proceeding.

System/Circuit is correctly identified and ready to be placed in a ZERO ENERGY STATE by authorized and qualified personnel.

A. Bus Duct Systems:
   1) Eliminate all loads
   2) Open feeder circuit breaker
   3) Disconnect switch
   4) Rack out feeder breaker
   5) Remove breaker from its enclosure cell
   6) Verify de-energization at pre-determined Blue Line schematic junctures using a properly rated voltage tester

7) Attach a “System Decommissioned” information tag as verification checks are completed.

B. Bus Plug & Branch Circuits

1) Eliminate all loads
2) Open system disconnect switch or breaker
3) Disconnect and tape exposed ends of all phase wires from the load side of the switch or breaker
4) Attach a “System De-commissioned” information tag at the pre-determined junctures of the system/circuit

NOTE: Verification of Zero State Energy using a properly rated voltage meter, is required at each point of work exposure on the System Circuit.

5. FALL PREVENTION PROGRAM STATEMENT OF POLICY

Any task that exposes an employee to a fall of six (6) feet or more, or any distance where the likelihood of a serious or fatal injury exists, must be identified, evaluated and controlled based on the regulatory hierarchy of controls, i. e.: elimination, engineering, personal protective equipment and administration.

SCOPE

This policy applies to all elevated work locations not provided with standard engineered fall protection construction.

OBJECTIVE

This program is a compliance program (1926.500 Subpart M) targeted at preventing injury and death that result from falls during work at elevated location.

REQUIREMENTS

- Only company supplied full body harness (not belts) shall be used for personal fall protection.
- Full body harness shall employ shock absorbing (not rope-wire, nylon, etc.) type lanyards.
- Lanyards shall be equipped with locking, snap-type hooks matched to the harness.
- Where retractable lifelines may be applicable, the Safety Manager will be included in evaluation and approval.
- Where static lines may be applicable, the Safety Manager will be included in the evaluation and approval.
- Tie off points will be located as directly overhead as possible to prevent a pendulum fall.
- Tie off to structure or other appurtenances while working from an aerial lift of platform is prohibited.
- The employee is responsible for pre-job fall protection evaluation and coordination with his/her supervisor for required equipment if exposed to: (1) a fall of six 6 feet or more, (2) a fall, regardless of height, into machinery, tank, process or any danger area.
- The employee is responsible to thoroughly inspect all fall protection equipment prior to use. Any deficiency identified is to be corrected immediately with the assistance of the supervisor.

6. GENERAL and SITE SAFETY & HEALTH

RULES AND INFORMATION

NOTE: *This information may change at each jobsite or even in the course of the project. It should be posted on the Safety Information Board and updated by the Site Safety Representative as necessary. The minimum information requirement for each topic is listed in parenthesis after each topic.*

Tool Box Safety Meetings (time, location attendance requirement)

An effective safety program must incorporate adequate education and training of personnel to insure their familiarity with the program. The following provisions are presented to address this part of the program:

- Management and Supervisory personnel will meet on a regular basis to review safety topics to be presented to company personnel during toolbox meetings in addition to site safety information and companywide statistics.

- A minimum of one, five-minute toolbox safety meeting, shall be presented to all jobsite personnel each week. These presentations are to be conducted by the superintendent, foreman, project safety coordinator, safety manager or representatives of the insurance carrier
- Issues from previous meetings and conditions to be expected in the following weeks shall be discussed along with first aid, reporting of accidents and other general safety topics.
- To make the tool box meetings an interesting and educational experience, the following ideas are suggested:

a) Know the information to be presented
b) Keep the meeting fast moving
c) Ask for questions or comments
d) Use illustrated material and practical demonstrations
e) Discuss one topic at a time
f) Try to obtain involvement of all men in the discussion
g) Review safety involvement and activities the crew has had during the past week. Discuss: Injury Information
   - How the injury happened
   - How it could have been prevented
   - If it has occurred before or might occur again
h) Review all safety violations noted during the past week Discuss:
   - What the violation was
   - How severe the outcome might have been
   - Recommend how to identify same or like circumstance and how to effectively avoid or control the exposure
i) Review the work plan for the week ahead. Discuss:
   - Hazardous exposures to be aware of
   - Safety procedures or equipment to be used
   - Resources on hand
j) Stop On Time

All new employees will be given specific instructions by their immediate supervisors. The form and method of presentation will convey the message that ASI, **is interested in their safety and the safety of others**.

- The use of appropriate posters and materials is recommended as part of the educational process.
- The use of accident records and analysis of accidents is recommended as a tool for communicating the interest and attention that ASI, devotes to the safety of its' employees.

- All new employees shall be given a project safety orientation before they start work and will be advised of general and site exposures; how to identify them and action to be taken to avoid or control.
- Technical, compliance or program specific training is too identified and coordinated by the Safety Manager.

Personal Protective Equipment (minimum requirement – Hard Hat, Safety Glasses, work boots in satisfactory condition).

7. PERSONAL PROTECTIVE EQUIPMENT PROGRAM

STATEMENT OF POLICY

Supervision and employees will assess their work area exposures and identify any need to increase the personal protective equipment from the minimum level established.

SCOPE

All work activities and exposures will be assessed to determine if hazards are present, or likely to be present, which will necessitate increasing the level of personal protective equipment from the established minimum.

SELECTION CRITERIA

The criteria for selection, instructions for proper use, and correct sizing will be communicated to all employees during the Project New Employee Orientation Training or when there is an exposure-related change. This Personal Protective Equipment communication will be documented as being a part of the Project New Employee Training or an additional Exposure Change Training.

MINIMUM LEVEL OF PERSONAL PROTECTION

1. **Eye Protection-** Employees are required to wear the **ASI**, supplied Plano "safety glasses" that provide side shield protection from flying objects. These glasses comply with ANSI Z87.1 – 1989 and are provided in two types- **PLANO** for employees who do not require corrective lens for normal sight and Over The Glasses (OTG) for employees who require prescription glasses.
2. **Head Protection**- Protective Helmets (Hard Hats) that comply with ANSI Z89.1-1986 will be provided to each employee for their use.
3. **Foot Protection –** Employees will be responsible to wear "Industrial Service" footwear that is in good condition. If "steel toe" footwear is worn the steel reinforcement must be completely cover and unexposed.

ADDITIONAL EXPOSURE RELATED REQUIREMENTS

The following equipment is to be identified and provided by **ASI,** to the employee on a work task exposure basis.

Hand Protection - Gloves that are suited for purpose are to be worn to protect from:

1. cuts when handling sharp objects
2. chemical exposures welding/cutting burns
3. materials/tools/equipment entrapment

Eye/Face Protection – exposure from:

1. Welding /Torch Cutting requires a face shield with a filter lens with a shade rating appropriate for the work that is performed.
2. Grinding operations requires a face shield and safety glasses
3. Parts washing requires a face shield and chemical mono-goggle
4. Wire wheel buffing operations requires a face shield with a particulate mono-goggle

Hearing Protection - In any work situation where it is necessary to raise your voice to be heard then hearing protection should be used. Hearing protection is designed to have minimum attenuation in the speaking frequency ranges and a concentrated attenuation in the industrial noise frequency ranges. There are two basic types of hearing protection devices available:

1. Plugs that fit in the ear canal, generally disposable and designed for continuous background noise with an attenuation of 19 dBA (calculated)
2. Muff type that fit over the ears and are designed for impact noise that is intermittent generally referred to as shooters muffs their attenuation rating may be as high as 33dBA
3. If employees are exposed to 80db or more on average for their work shift, additional monitoring (and hearing health programs) will be made available at no cost to the Employee upon request. Please note the following:
    a. Within 6 months of an employee's first exposure at or above the action level, a valid baseline audiogram shall be established against which future audiograms can be compared. When a mobile van is used, the baseline shall be established within 1 yr.

    b. Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise. Hearing protection may be used to meet the requirement. Employees shall also be notified to avoid high levels of noise.

    c. At least annually after obtaining the baseline audiogram, the employer shall obtain a new audiogram for each employee exposed at or above an 8-hour time-weighted average of 85 decibels. Each employee's annual audiogram shall be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift, the employee shall be informed of this fact in writing, within 21 days of the determination.

    d. If a threshold shift has occurred, use of hearing protection shall be re-evaluated and/or refitted and if necessary a medical evaluation may be required.

4. Training shall be available at least annually for updates to hearing PPE and work processes.
5. Hearing protection will also be available at no cost to the Employee for potential exposure over 80 db.
6. When hearing tests are conducted as noted above, the records shall be kept for the same duration is normal medical records.
7. **NOTE:** A rule of thumb is that for every 3 dB noise attenuation reduces the sound level by one half. Noise will disrupt attention, create anxiety and promote irritation. **THINK ABOUT IT**!

Hand Protection - Gloves need to be selected for the application; however, wearing gloves not only will protect from cuts and abrasions they will, on occasion, allow the wearer to slip from beneath some pinch loads. Reference Hazard Communication Program.

Respiratory Protection - Any exposure that may indicate a need for Respiratory Protection, including nuisance dusts and odors, will be referred to the Safety Manager for implementation of the Respiratory Protection Program.

Fall Protection - Reference the ASI, Fall Protection Program

Jobsite Inspection Procedure - (inspection and focus-housekeeping, tools etc.)

8. PROTECTION INSPECTION PROGRAM

STATEMENT OF POLICY

Project assigned areas will be monitored to identify and remove employee exposures that may be introduced as a result of the work activity. The condition of these areas will be audited weekly by project management. Project Inspection Reports will be submitted to the Safety Manager for follow-up action.

SCOPE

All crew, gang box, storage/laydown and administrative areas.

DISCUSSION

The orderliness of our work area is influential to safety and productivity. It is important to establish and maintain order to reduce or eliminate adverse exposures to our employees and to minimize inefficiency.

PROJECT INSPECTION REPORT

Project_____
Date_____

Inspected By _____

Project MGR./SUPT._____

Site Safety Representative_____

Overview This checklist should be considered as a comprehensive list. It is used to assist in the identification of Personnel and Equipment exposures that could result in accident or incident.

Directions: Comments and/or Corrective Action(s), whether immediate or planned, are to be listed on the back page. Information blocks specifying the type of information i. e. item number, letter, corrective action etc. are to be used to help organize and track information. Check the block proceeding each item reviewed and follow directions listed in parenthesis ( ) after each heading.

A. Office Area – (Check block of items inspected and circle missing or substandard items)

_____ 1. Safety Information Board-Emergency Numbers, OSHA Poster, Project Map Treatment Facility Map, Emergency Action Plan

_____ 2. 1st Aid Kit – adequately supplied, easily visible

_____ 3. Fire Extinguisher – good working condition; inspected, charged, visible - unobstructed.

_____ 4. ASI, Safety & Health Program Manual – Sub-contractor (s), General (s), Owner/Host

_____ 5. MSDS's - ASI, Subcontractor (s) General Contractor (s), Owner Host

_____ 6. Documentation – Accident Investigation file, up to date OSHA 200 form, training records- orientation, tool box, lift operations, Project Inspection, GFCI/AEGP, other

_____ 7. Physical Conditions-Housekeeping, stairs, railings, lighting, appliances, heaters, extension cords, storage/parking, battery charging stations

B. Tool Crib Area (s) - (Check block of items inspected and circle missing or substandard items)

_____ 1. Safety Information Board-Emergency Numbers, Project Map, "Right-To-Know" Poster, Other.
_____ 2. 1st Aid Kit-adequately supplied, visible, accessible
_____ 3. Fire Extinguisher-charged, visible, unobstructed, current annual inspection
_____ 4. Housekeeping-trash, walking surface, excess equipment/materials, tool layout
_____ 5. Flammable Liquids-storage cabinets/containers, signage, barricade
_____ 6. Electrical Cords-AEGP current inspection, physical condition, storage
_____ 7. Hand and Power Tools-storage, condition
_____ 8. Ladders-storage, condition, tie off rope/chains
_____ 9. Powered Lifts-parking, charging station, leaks, railings, controls
_____ 10. Materials Handling Equipment-pallet jacks, carts, come-alongs, hoists, ropes, chains
_____ 11. Gang Box(s) – access, condition, clearances, security

C. Tool Setup Area (s) – (Check items inspected and circle missing or substandard items)

_____ 1. Housekeeping – trash container, materials drop container, walking surface, excess materials, other
_____ 2. Access – ladders, lifts, scaffolds, tie-off points
_____ 3. Personnel Safeguards-barricades, warning signs/devices, welding screens, ventilation, working surface (s), other
_____ 4. Tool (hand & powered) – condition, adequate supply, storage, display
_____ 5. Permits, Signs, Tags, Lock-out devices, Locks

D. Parts Storage Area (s) – (Check items inspected and circle missing or substandard conditions)

_____ 1. Emergency Equipment-Fire Extinguisher, 1st Aid Kit, Safety Information Board with Emergency Numbers, Action Plan, Project Map, Treatment facility location

_____ 2. Access/Egress-steps, railings, aisle ways, exits, lighting

_____ 3. Electrical-GFCI, use rated, cord condition, heaters, lighting, appliances, other

_____ 4. Housekeeping – Trash container, shelving, bins, boxes, suspended, racks, lockers

_____ 5. Other

E. Personal Protective Equipment – (Correct observed deficiencies immediately, indicate approximate number of observations in the block proceeding each item)

_____ 1. Hard Hat
_____ 2. Safety Glasses

_____ 3. Work Boots

_____ 4. Noise Protection

_____ 5. Gloves

_____ 6. Face Shield

_____ 7. Harness & lanyard

_____ 8. Respiratory Protection

_____ 9. High Voltage Protection

_____ 10. Chemical Suits/Gloves

F. Protective Specific Safety Concerns – (List exposures and mitigation actions specific to the project)

_____ 1. _____

_____ 2. _____

_____ 3. _____

(End of Form)

9. GROUND FAULT CIRCUIT INTERRUPTION AND ASSURED EQUIPMENT GROUNDING PROGRAMS (ASI, Program unless superseded by a site program)

STATEMENT OF POLICY

ASI**,** will provide GFCI's for all single phase, 15-20 ampere receptacles that are part of the permanent facility wiring. Additionally, an Assured Equipment Grounding Program that addresses extension cords, receptacles and cord-and-plug-connected equipment will be implemented at all jobsites.

SCOPE

All temporary 15-20 ampere receptacles, extension cords and cord-and-plug equipment tools at all jobsites. **Exception:** Receptacles on a two-wire, single phase portable or vehicle mounted generator rated not more than 5 kW, where the circuit conductors of the generator are insulated from the generator frame and all other grounded surfaces.

PURPOSE

To prevent employees from exposure of electrical shock resulting from use of non-ground, damaged or improperly maintained extension cords, receptacles and cord-and-plugs.

PROCEDURE

The Project Superintendent/General Foreman will implement the program by listing the Assigned Journeyman Wireman's name in the Project Safety Manual responsibility section.

1. All 120 volt, single phase, 15-20 ampere receptacle outlets, which are not a part of the permanent wiring and are in use by employees, shall have approved and tested Ground Fault Circuit Interrupters of personnel protection

2. Each cord set, attachment cap, plug and receptacles of cord sets and any equipment connected by cord-and-plug shall be visually inspected by the user for defects before each use.
3. Defective equipment will be taken out of service, have a “DANGER- DO NOT USE” tag identifying the defect attached and turned over to the Assigned Journeyman Wireman for documentation and repair.

The Assigned Journeyman Wireman will perform tests and document equipment status:

Test Frequency

1. Before first use of equipment
2. Before equipment is returned to service following any repair
3. Before equipment is used after any incident which can be reasonably suspected to have caused danger.
4. At intervals not to exceed 3 months

Test requirements

1. All equipment grounding conductors shall be tested for continuity and shall be electrically continuous
2. Each receptacle and attachment cap or plug shall be tested for correct attachment of the equipment conductors
3. GFCI's will be tested for rated performance

Test Documentation

1. The GFCI and Assured Equipment Grounding Information Log will be used to document all test information
2. Equipment tested and suited for service will be identified by color coded tape located within 12 inches of plug and/or receptacle

January – March -	**White**
April – June -	**Green**
July – September -	**Red**
October – December -	**Orange**

10. CONFINED SPACE PROGRAM (identify project confined space and requirements)

STATEMENT OF POLICY

No company or contract employee is allowed to enter a Confined Space until all criteria of the Confined Space Procedure has been reviewed with them and the requirements of the Permit Required Confined Space Program (PRCS) have been met.

PURPOSE

This program is to be implemented to ensure the safety of employees who are asked to perform work in a Permit Required Confined Space

SCOPE

This program applies to all personnel, including non-company, who are in or around a confined space and who might be exposed or create exposures to the confined space

DEFINITIONS

Acceptable Entry Conditions - The criteria that must be present in a permit space to ensure employee can safely enter and work in that space.

Attendant - The assigned individual (s) stationed immediately outside a PRCS who continuously monitors the occupants and performs the attendant duties.

Attendant Duties - Activities that include but are not limited to authorizing entry into the PRCS, reviewing permit conditions with entrants prior to entry, continuous monitoring of PRCS occupants, monitoring ambient conditions and initiating emergency rescue.

Authorized Entrant – Personnel who have reviewed the Confined Space Program and who have satisfied the specific criteria for the PRCS to be entered.

Confined Space – Any area that has adequate size and configuration for employee entry, has limited means of access or egress, and is not designated for continuous employee occupancy.

Permit Required Confined Space (PRCS) a confined space that presents or has the potential for hazards related to atmospheric conditions (toxic flammable, asphyxiating) engulfment, configuration or any other recognized serious hazard.

Non-Permit Confined Space – A Confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

Emergency – Any occurrence, including partial or total failure of hazard monitoring or control equipment that alters or might alter the internal or external permitted space.

Engulfment – The surrounding and effective capture of a personal by a liquid is a finely divided (flowable) solid substance that can be aspirated to cause death by filliugging the respiratory system or that can exert sufficient force on the body to cause death by strangulation.

Entry (Work Associated) The action by which a person crosses the access plane of a PRCS.

Entry (Initial) The action of the Entry Supervisor to determine the status of a PRCS for documentation on the **Entry Permit** and entry approval.

Entry Permit The printed or written control document that is provided by the employer to identify exposures, methods of control, existing conditions, special considerations, emergency actions and all other information necessary for the safe and effective control of a PRCS.

Entry Supervisor The person responsible for determining if acceptable entry conditions are present in the area to be permitted. Also, the person to identify and test for exposure, plan coordinate means and methods of exposure control, establish written procedure for emergency response, and provide training for all components associated with the PRCS.

Hazardous Environment An atmosphere that may expose an employee to the risk of death, incapacitation, impairment of ability to self-rescue (to escape unaided), injury or acute illness from one of the following:

- Oxygen concentration below 19.5% volume or above 23.5% volume (20.8% is ambient normal)
- Flammable gas, vapor or mist in excess of 10% of its Lower Flammable Limit (LFL)
- Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart G - Occupational Health and Environmental Control or in Subpart Z Toxic and Hazardous Substances of 49 CFR 1910
- Airborne combustible dust that meets or exceeds its LFL
- Any other atmospheric condition that is Immediately Dangerous to Life or Health (IDLH)

Immediately Dangerous to Life or Health Any exposure that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit area.

Oxygen Deficient Atmosphere An atmosphere, which has less than 19.5% by volume of oxygen (O2). (Primary physical effects of drowsiness, headache, nausea)

Oxygen Enriched Atmosphere An atmosphere that has more than 23.5% by volume of oxygen (Primary physical effects of euphoria, giddiness, hyper-activity)

Permit System The written procedure for preparing and authorizing permits for entry into and for recommissioning a confined space.

Positive Isolation Employing Blinding/Blanking, Lock-Out/Tag-Out, De-inventory, disconnection, forced ventilation, removal to another location, etc. of all energy sources that might directly or indirectly affect the Permit Required Confined Space (PRCS)

Prohibited Condition Ant exposure in the PRCS area that is not allowed in accordance with the permit during the authorized period of access.

Rescue Service The personnel designated to perform rescue.

Retrieval System The equipment used for non-entry rescue of personnel; includes retrieval line, full body harness, wristlets-if appropriate and lifting device with adequate footing or anchor.

Safe - Out The process of preparing a PRCS for personnel entry through employment of Positive Isolation, purging and ventilation.

Testing The action of evaluating ambient atmospheric and physical hazards that may be present to determine if exposures are pre-established (regulatory, company, site) limits.

IMPORTANT At no time may the responder enter the diminishing perimeter of the fire.

Fire fighting priorities are:

1) Keep fixed systems in good working order.
2) Know emergency notification and actions.
3) Know and confirm the working order of portable equipment.
4) Orderly retreat.

g. Site Hazards Identification (welding, blasting, chemicals, laser, emissions, trenching, overhead, etc.)

11. HAZARDS IDENTIFICATION PROGRAM

STATEMENT OF POLICY

A continuous effort will be made by all employees to identify and mitigate hazards that are present or may be introduced in the course of their work activity.

SCOPE

This policy addresses all work areas and activities.

DISCUSSION

Exposures and conditions that may be present on a project that have not been addressed in other sections of the Safety and Health Manual are:

1. Evaluate. Think - Then act safely
2. Ensure the work plan corresponds with the work activities - are instructions complete and understandable?
3. Anticipate possible exposures and plan the work to avoid or limit their impact.
4. Report all accidents/injuries to supervision immediately.
5. Use the required personal protective equipment and be aware of changing exposures that may call for increased protection.
6. Wear acceptable work clothes - tank tops, shorts, tattered and torn clothing is unacceptable.
7. Maintain a clean an orderly work area - housekeeping is critical to safety and efficiency.
8. Know what to do in an emergency - Your emergency action responsibilities.
9. Do not operate or attempt to operate machinery or equipment you are unfamiliar with.
10. Observe barricade limits; always immediately replace barricades and hole covers that have been moved temporarily.
11. Never work under a suspended load.
12. Secure all materials during transport.
13. Slippery surfaces need to be identified with warning signs and cleaned in a timely manner.
14. Lighting should be adequate for the task to be performed,
15. Flammable liquids are required to be stored in a marked and well-ventilated area.
16. Damaged equipment is to be tagged out of service and repaired or replaced.
17. Establish communication methods and schedule when working alone in an isolated location.
18. Emergency Action Plan (ASI, Plan unless superseded by a site plan)

12. EMERGENCY ACTION PROGRAM

STATEMENT OF POLICY

Project supervision will identify, communicate and post Emergency Action Planning information for each jobsite prior to commencing work at that jobsite.

SCOPE

Emergency information will include as a minimum:

- Emergency notification systems - sirens, bells, lights, PA, etc.
- Types of emergencies that might occur such as Medical, Security, Fire, Weather, Gas Release, Over-pressurization, etc.
- Response measures to be implemented
- Evacuation paths, Safe Zones and mustering locations.
- First responder contact information - phone numbers, addresses, name, etc.
- "All Clear" and return to work authority

DISCUSSION

Successful control and management of emergency situations requires pre-planning.

OSHA regulations require that Emergency Phone Numbers identifying the company's Treatment Facility, Physician, Ambulance Service, Fire and Police/Security Responders.

This information is required to be posted in a "conspicuous location". All employees are to be familiar with this information and the posting location.

It is the intent of the company that each employee be prepared to take the emergency action appropriate to their individual assignment of responsibility and training. It is important that we contribute to the mitigation of emergency situations rather than add to their complexity.

Completed copies of the Project Emergency Action Plan will be posted in each work area for employee familiarization and reference. Maps that provide visual reference for evacuation routing, treatment facility location, Safe Zone etc. are to be developed by the Site Safety Representative and posted along with the Emergency Action Plan.

Note: In an automotive plant, always call Plant Security for any first aid needs or injuries. Plant Security will send EMS, Fire, Ambulance or other services to your location and will coordinate ingress & egress of these resources.

AUTOMATIC SYSTEMS, INC.

TRAINING OUTLINE

Job site Training Guide

1. Before any employee starts to work:
    a. Explanation of Written Hazard Communication Program.
    b. Explanation of OSHA Standard.
    c. Training in understanding Material Safety Data Sheets.
    d. Review of MSDS's for specific material the employee will be using.
    e. Make sure of the location of the communication systems and all emergency phone numbers.

Training Documentation for Hazard Communications Standard

Notice: This should be completed by every employee hired before beginning initial work assignment. Retraining is required when there is a change in job assignments, in machines, a change in the energy control procedures, or a new hazard is introduced.

1. I have received training and understand how to read the Material Safety Data Sheets (MSDS's) and container labels regarding hazardous products.
2. I understand that I am required to review MSDS's for any material I am using for the first time.

I know where the Material Safety Data Sheets are kept and understand that they are available to me for review.

I know where the emergency phone numbers and communication systems are and the location of medical, fire, and other emergency supplies.

I know who my supervisor is in case of any emergency.

I am aware of my right to obtain copies of the Hazardous Chemical List, Written Program, Standard, MSDS's.

Employee Signature

Date

Job Location

TOPICS FOR REVIEW

1. What important step has been taken to help increase employee's awareness of potentially hazardous chemicals used on the job? The introduction of Hazardous Chemical Right-To-Know Program and Training Guide in response to the OSHA Hazard Communication Standard.

2. Name five (5) important provisions of these regulations:

   - All chemicals and mixtures must be evaluated for potential hazards. Warning labels must be applied to all containers of potentially hazardous substances.
   - Material Safety Data Sheets (MSDS) must be compiled for all hazardous materials and be maintained for employee access within the workplace.
   - Employees must be provided with information and training annually regarding the hazardous substances in their specific work areas.
   - Written Hazard communication programs must be developed by individual contractors for each specific workplace.

3. How many chemicals be evaluated for potential hazards?

   - By thoroughly investigating all of the available scientific evidence.

4. Who is responsible for evaluating a chemical's potential for hazard?

   - Although each company has the option of performing its own chemical evaluation, the primary responsibility for evaluating a chemical's potentially harmful physical or health effects rests with the chemical's producer or importer.

5. What broad classifications of health hazards are identified in the regulations?

   - Irritants
   - Sensitizers
   - Carcinogens
   - Corrosives
   - Toxic Substances
   - Substances known to produce adverse effects on target organs.

6. What broad classifications of physical hazards are identified in the regulations?

- Flammable materials
- Compressed gases
- Oxidizers
- Unstable substances
- Water-reactive substances

7. If a chemical is potentially hazardous, what must a producer or importer do before allowing it to leave his facility for transport to an end user or processor?

- The producer, or importer, must label each container with an appropriate warning.

What information must be provided on a warning label?

- The identity of the chemical
- Appropriate hazard warnings
- The name and address of the producer or importer

9. If a hazardous substance is transferred from its original container to another container, what important step must be taken?

- The new container must be labeled, tagged, or marked with the identity of the hazardous substance and the appropriate hazard warning.

10. Is it necessary to label a portable container into which you have transferred a hazardous substance intended only for your immediate use?

- No, but doing so will help prevent accidental misuse by others.

11. What other warning devices may be used to alert employees to the presence of hazardous chemicals in the work area?

- Signs, operating instructions and procedures, or written materials.

12. What precautions should be taken with regard to warning labels?

- Since they play an important part in protecting safety, they should not be removed or defaced.

Hazard Communication

Quiz

Name: _____ **Date**:_____

SSN: _____

1. One of the purposes of the Hazard Communication Standard is to:

   A. Protect chemical manufacturers from liability.

   B. Communicate hazards to employers and employees.

   C. Provide information for MSDS research.

   D. Protect trade secrets.

2. Who is responsible for training employees of site specific hazards on the job?

   A. O.S.H.A.

   B. The Division of Safety and Hygiene.

   C. The employer.

   D. The union steward.

3. Labels are a valuable source of

   A. Communicating hazards.

   B. Revealing trade secrets.

   C. How much the chemical cost.

   D. Generic equivalents.

4. The concentration of a particular substance to which a person can be exposed for a specific period of time without experiencing toxic effects is called:

   A. Permissible Exposure Limit (P.E.L.)

   B. An asphyxiate.

   C. A mutagen.

D. N.I.O.S.H.

5. A (M.S.D.S.) is a:

   A. Mine Security and Department Safety

   B. Mud and Sludge Dumping Station

   C. Material Safety Data Sheet

6. If an MSDS is not available for particular material at a site, you should assume that material is non-toxic?

   A. True

   B. False

7. When the concentration of a chemical is I.D.L.H., it means:

   A. The chemical is safe to work in.

   B. This concentration is immediately dangerous to life and health.

   C. This concentration may require a paper mask.

   D. Contact the E.P.A.

8. A chronic effect of a chemical:

   A. May take 20 years to show effect.

   B. Is harmless.

   C. Is an immediate effect.

   D. Has an L.E.L.

9. A chemical that is a carcinogen can cause:

   A. Liver problems.

   B. Cancer

   C. Nervous system problems

   D. Hearing loss

10. Flash point is the temperature at which a liquid or solid gives enough vapor to Form a:

   A. A carcinogenic compound

   B. A flammable mixture

   C. A soluble mixture

   D. A corrosive mixture

SAFETY TASK ANALYSIS

To Be Posted In Area of Work

Contractor: _____ Date Issued: _____

Contract #: _____ Date Expires: _____

Supervisor: _____ Location: _____

Brief Description of Work Task (Be Specific):

Checklist Items – Yes indicates required use, permits obtained and training completed.

	YES	NO
1. Hot Work Permit Required	☐	☐
2. Confined Space Entry Permit Required	☐	☐
3. Lockout / Tagout Required (equipment, tooling, conveyors, etc.)	☐	☐
3A. If yes to 3, Have all energy isolation devices been identified	☐	☐
4. Clear Zones Established and Barricades in Place	☐	☐
5. Warning Signs in Place	☐	☐
6. PPE Requirements Assessed for Hazards and Available	☐	☐
7. Emergency Procedures in Place	☐	☐
8. Excavation/Penetration Permit Required	☐	☐
9. Crane and all Rigging Components Inspected	☐	☐
10. Work From Aerial Lifts Required	☐	☐
11. Fall Prevention/Protection Required	☐	☐
11A. If yes to 11, Methods of Fall Prevention/Protection and in Place	☐	☐

11B. Explain Fall Prevention/Protection Methods: _____

Comments:_____

Required Action_____

GMT 360 Safety Approval	Contractor Safety Approval
Contractor Supervisor	STA Number

NAMES AND SIGNATURES OF EMPLOYEES INVOLVED IN WORK TASK

PRINT NAME	SIGNATURE	DATE
PRINT NAME	SIGNATURE	DATE
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STEPLADDER SAFETY

Stepladders are quite commonly used by pipefitters and other trades to install equipment and materials. Because of this frequent use of stepladders a large percentage of falls has been experienced by these workers. Unfortunately, these falls have in general produced more serious injuries than other cause.

This does not necessarily mean that stepladders are unsafe. On the contrary. When these stepladder accidents were further investigated, it was determined that in most cases it was unsafe practice on the part of the workers or unsafe conditions of the stepladder that caused the accident.

To avoid becoming a stepladder victim, here are some things you should look for before using a stepladder:

1. Does the stepladder feet wobbly - that is can you move it from side to side when it is in the open position?
2. Does it have any loose or bent hinge spreaders?
3. Are the stops on hinge spreaders in good condition - i.e. not broken?
4. Are the hinges loose?
5. Are the steps split, broken or worn?

When you are satisfied that the stepladder has no apparent defects there are certain conditions that must be observed when actually using the stepladder. Some of these are:

1. Don't use a stepladder as a straight ladder.
2. Don't stand on the top step- A good practice is not to go above the second step from the top (third step on straight ladders).
3. Never use a stepladder as scaffold support. The treads are not designed to carry this kind of load.
4. Don't work from the rungs on the backside of the stepladder.
5. Make sure there is level footing for all four legs of the stepladder.

6. Make sure your own footwear is not muddy, greasy or otherwise slippery before you climb up the stepladder.

REMEMBER WATCH YOUR STEP ON STEPLADDERS - DON'T BECOME A STEPLADDER VICTIM.

I acknowledge that information on the above subjects was furnished for me during my orientation:

EMPLOYEE'S SIGNATURE: _____ DATE: _____

I have instructed the above named employee in the fundamentals of safety practice.

SAFETY REPRESENTATIVE'S SIGNATURE: _____

DATE: _____

Inspection & Maintenance of a Personal Fall Arrest System

Employee's Name: _____

Serial #: _____

Date: _____

To maintain proper service life and high performance, fall protection products should be inspected regularly!

Harness (and Body Belt) inspection

Results

To inspect your harness or body belt, perform the following procedures.

1) **Webbing-** Grasp the webbing with your hands 6 inches (152mm) to 8 inches (203mm) apart. Bend the webbing in an inverted "U" as shown. The surface tension resulting makes damaged fibers or cuts easier to detect. Follow this procedure the entire length of the webbing, inspecting both sides of each strap. Look for frayed edges, broken fibers, pulled stitches, cuts, burns, and chemical damage.
2) **D-Rings/Back Pads-** Check D-rings for distortion , cracks, breaks, and rough or sharp edges. The D-ring should pivot freely. D-ring back pads should also be inspected for damage.
3) **Attachment of Buckles-** Inspect for any unusual wear, frayed or cut fibers, or broken stitching of the buckle or D-ring attachments.
4) **Tongue/Grommets-** The tongue receives heavy wear from repeated buckling and unbuckling. Inspect for loose distorted or broken grommets. Webbing should not have additional punched holes.
5) **Tongue Buckles-** Buckle tongues should be free of distortion in shape and motion. They should overlap the buckle frame and move freely back and forth in their socket. Roller should turn freely on frame. Check for distortion or sharp edges.
6) **Friction and Mating Buckles-** Inspect the buckle for distortion. The outer bars and center bars must be straight. Pay special attention to corners and attachment points at the center bar.

Lanyard Inspection

When inspecting lanyards, begin at one end and work to the opposite end, slowly rotating the lanyard so that the entire circumference is checked. Additionally, follow the procedures below.

1) **Hardware-**
   a: Snaps: Inspect closely for hook and eye distortions, cracks, corrosion, or pitted surfaces. The keeper (latch) should seat into the nose without binding and should not be distorted or obstructed. The keeper spring should exert sufficient force to firmly close the keeper. Keeper locks must prevent the keeper from opening when the keeper closes.
   b: Thimbles: The thimbles must be firmly seated in the eye of the splice, and the splice should have no loose or cut strands. The edges of the thimble must be free of sharp edges, distortion, or cracks.
2) **Steel Lanyard-** 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.
3) **Web Lanyard-** 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, and charring are obvious signs of chemical or heat damage. Observe closely for any breaks in stitching.
4) **Rope Lanyard-** Rotation of the rope lanyard while inspecting from end-to-end for any fuzzy, worn, broken, or cut fibers. Weakened areas from extreme loads will appear as a noticeable change in original diameter. The rope diameter should be uniform throughout, following a short break-in period.
5) **Shock Absorber Pack-** The outer portion of the pack should be examinated for burn holes and tears. Stitching on areas where the pack is sewn to D-rings, belts, or lanyards should be examined for loose stands, rips and deterioration.
6) **Shock-Absorbing Lanyard-** Shock-absorbing lanyards should be examined as a web lanyard (described in item 3 above). However, also look for the warning flag or signs of deployment. If the flag has been activated, remove this shock-absorving lanyard from service.

Cleaning

Basic care of all safety equipment will prolong the durable 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 contaminats. Storage areas should be clean, dry and free of exposure to fumes or corrosive elements.

1) **Nylon or Polyester-** Remove all surface dirt with a sponge dampened in plain water. Squeeze the sponge dry. Dip the sponge in a mild solution of water and commercial soap or detergent. Work up a thick lather with a vigorous back and forth motion; then wipe with a clean cloth. Hang freely to dry, but away from excessive heat.

AUTOMATIC SYSTEMS, INC.

SAFETY VIOLATION NOTICE

Violation: _____

Employee Name: _____

_____

Date: _____ Time: _____

Signed: _____
Superintendent

Signed: _____
Safety Representative

AUTOMATIC SYSTEMS, INC.

ORIENTATION CHECKLIST

Employee: _____ **Supervisor:** _____

Date Hired: _____

1. Company safety policy statement and manual of rules provided.

2. Reviewed injury reporting procedures.

3. Reviewed personal protective equipment and use.

4. Reviewed Lockout/Tagout procedure.

5. Reviewed location of first aid kits.

6. Reviewed Hazard Communication program.

7. Reviewed disciplinary procedure.

8. Confined Space Entry program.

9. Other (Specify)

_____

I acknowledge that information on the above subjects were furnished to me during my orientation and, all training and/or retraining will be documented, signed & certified.

Employee's Signature: _____ **Date**: _____

I have instructed the above named employee in the fundamentals of safety practice.

Certified Representative's Signature: _____

Date:_____

13. EMPLOYEE ACKNOWLEDGMENT

- (Print Name) _____has been presented the ASI, New Employee Orientation and has been provided the opportunity to discuss the following topics and other job considerations of concern to me.
- Policy and Program Introduction Statement - Standards of Performance/Disciplinary Policy
- Accident/Injury Procedure - Hazard Communications "Right To Know" Program
- Hazardous Energy Control Program - Fall Protection Program - General and Site Safety Rules and Information consisting of - Tool Box Safety Meetings Program, Personal Protective Equipment, Jobsite Inspection Procedure, GFCI/AEGP, Confined Space, Site Hazards and the site Emergency Action Plan.

I understand that I am to perform my work safely and to identify and correct unsafe actions and conditions within my control and will be documented, signed & certified. Questions and issues will be resolved without prejudice and to the satisfaction of the employee's and the company representative.

Employee's Signature: _____**Date**:_____

Certified Representative's Signature: _____

Date:_____

APPROXIMATE ANGLE OF REPOSE

FOR SLOPING OF SIDES OF EXCAVATIONS

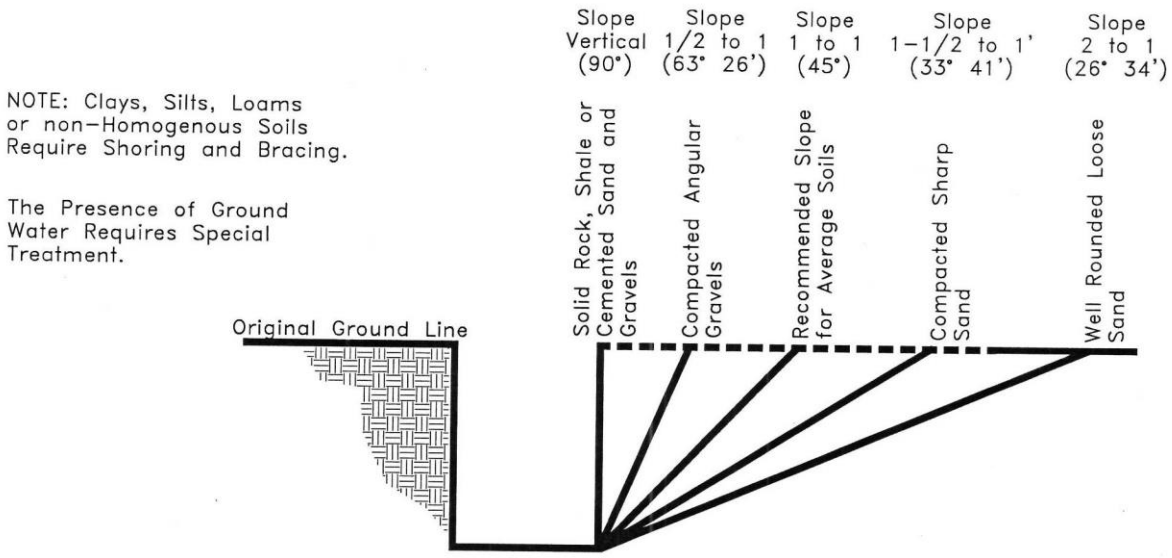
Slope Vertical (90°)
Slope 1/2 to 1 (63° 26')
Slope 1 to 1 (45°)
Slope 1−1/2 to 1' (33° 41')
Slope 2 to 1 (26° 34')
NOTE: Clays, Silts, Loams or non−Homogenous Soils Require Shoring and Bracing.
The Presence of Ground Water Requires Special Treatment.
Solid Rock, Shale or Cemented Sand and Gravels
Compacted Angular Gravels
Recommended Slope for Average Soils
Compacted Sharp Sand
Well Rounded Loose Sand
Original Ground Line

TABLE P-2-TRENCH SHORING – MINIMUM REQUIREMENTS

DEPTH OF TRENCH	KIND OR CONDITION OF EARTH	SIZE AND SPACING OF MEMBERS										
		UPRIGHTS		STRINGERS		CROSS BRACES: WIDTH OF TRENCH					MAX. SPACING	
		MINIMUM DIMENSION	MAXIMUM SPACING	MINIMUM DIMENSION	MAXIMUM SPACING	UP TO 3 FT.	3 TO 6 FT.	6 TO 9 FT.	9 TO 12 FT.	12 TO 15 FT.	VERTICAL	HORIZONTAL
FEET		INCHES	FEET	INCHES	FEET	INCHES	INCHES	INCHES	INCHES	INCHES	FEET	FEET
5 TO 10	HARD, COMPACT	3x4 or 2x6	6	–	–	2x6	4x4	4x6	6x6	6x8	4	6
	LIKELY TO CRACK	3x4 or 2x6	3	4x6	4	2x6	4x4	4x6	6x6	6x8	4	6
	SOFT, SANDY OR FILLED	3x4 or 2x6	CLOSE SHEETING	4x6	4	4x4	4x6	6x6	6x8	8x8	4	6
	HYDROSTATIC PRESSURE	3x4 or 2x6	CLOSE SHEETING	6x8	4	4x4	4x6	6x6	6x8	8x8	4	6
10 TO 15	HARD, COMPACT	3x4 or 2x6	4	4x6	4	4x4	4x6	6x6	6x8	8x8	4	6
	LIKELY TO CRACK	3x4 or 2x6	2	4x6	4	4x4	4x6	6x6	6x8	8x8	4	6
	SOFT, SANDY OR FILLED	3x4 or 2x6	CLOSE SHEETING	4x6	4	4x6	6x6	6x8	8x8	8x10	–	6
	HYDROSTATIC PRESSURE	3x6	CLOSE SHEETING	8x10	4	4x6	6x6	6x8	8x8	8x10	4	6
15 TO 20	ALL KINDS OR CONDITIONS	3x6	CLOSE SHEETING	6x8	4	4x12	8x8	8x10	10x10	10x12	4	6
OVER 20	ALL KINDS OR CONDITIONS	3x6	CLOSE SHEETING	6x8	4	4x12	8x8	8x10	10x10	10x12	4	6

NOTE: TRENCH JACKS MAY BE USED IN LIEU OF , OR IN COMBINATION WITH CROSS BRACES.
SHORING IS NOT REQUIRED IN SOLID ROCK, HARD SHALE, OR HARD SLAG.
WHERE DESIRABLE, STEEL SHEET PILING AND BRACING OF EQUAL STRENGTH MAY BE SUBSTITUTED FOR WOOD.

AUTOMATIC SYSTEMS, INC.

SECTION 3

GENERAL SAFETY RULES

All of safety must be obeyed. Failure to do so will result in strict disciplinary action will be taken.

1. Keep your mind on your work, at all times. No horseplay on the job. Injury or termination, or both, may be the result.
2. Personal safety equipment must be worn as prescribed for each job, such as; safety glasses for eye protection; hard hats at all times within the confines of the construction area; gloves when handling materials; and safety shoes are highly recommended for protection against foot injuries.
3. Keep your shirt on to prevent sunburn and to protect against acid burns, steam burns, weld splatters, and cuts. Minimum clothing for the upper body is a T-shirt.
4. If any part of your body should come in contact with an acid or caustic substance, rush to the nearest water available and flush over the affected area. Secure medical attention immediately.
5. Watch where you are walking. Do not run.
6. The use of illegal drugs or alcohol or being under the influence of some on the project will be cause for termination. If you take or are given strong prescription drugs that warn against driving or using machinery, let your supervisor know about them.
7. Do not distract the attention of fellow workers. To do so may cause injury.
8. Sanitation facilities have been provided for your use. Defacing or damaging these facilities is forbidden.
9. A good job is a clean job, and clean job is a safe one. So keep your working area free from rubbish and debris.
10. Do not use a compressor to blow dust from your clothes, hair, face, or hands.
11. Never work aloft if you are afraid to do so, or subject to dizzy spells or if you are apt to be nervous or sick.
12. Never move an injured person unless it is absolutely necessary. Further injury may result. Keep the injured as comfortable as possible and utilize job site first aid facilities until a doctor arrives.
13. Know where firefighting equipment is located and learn how to use it. 14. Learn to lift correctly - with the legs and not the back. If the load is too heavy, get help. Twenty-five percent of all construction related injuries result from lifting materials.
14. Riding on loads, fenders, running boards, sideboards, and gates or with your legs dangling over the ends or sides of trucks will not be tolerated.

15. Do not use power tools and equipment until you have been properly instructed in safe work methods and become authorized to use them.

16. Be sure that all guards are in place. Do not remove, displace, damage or destroy any safety devices or safeguards furnished or provided for us on the job, nor interfere with the use thereof
17. Do not enter an area, which has been roped off or barricaded.
18. 19.1f you must work around power shovels, cranes, trucks and dozers, make sure operators can always see you.
19. Never oil, lubricate or fuel equipment while it is running or in motion.
20. Rope or barricade danger areas.
21. Keep away from the edge of cuts, embankments, trenches, holes and/or pits.
22. Trenches over 4 feet in depth must be shored or sloped as required. Keep clear of trenches or cuts that have not been properly sloped or shored. Excavated or other material shall not be stored nearer than 3 feet from the edge of any excavation.
23. Use the "four and one" rule when using a ladder. One foot of base for every four feet of height.
24. Always secure the bottom of the ladder with cleats and/or safety feet. Lash off the top of the ladder to avoid shifting.
25. Ladders must extend 3 feet above a landing and tied off for proper use.
26. Defective ladders must be properly tagged and removed from service.
27. Keep ladder base free of debris, hoses, wires, material, etc.
28. Build scaffold according to manufacturer's recommendations.
29. Scaffold planks must be cleated or secured to prevent them from sliding.
30. Use only extension cords with of three prong type. Check the electrical grounding system daily.
31. The use of safety harness with the safety lanyard when working from unprotected high places is mandatory. Always keep your lanyard as tight as possible.
32. Never throw anything "overboard". Someone passing below may be seriously injured.
33. Open fires are prohibited.
34. Know what emergency procedures have been established for your job site (location of emergency phone, stretcher location, fire extinguishers location, evacuation plan etc.).
35. Notify your supervisor of unlabeled or suspect toxic substances immediately and avoid contact.
36. Gasoline must be stored and transported in authorized cans only; engines must be shut off when refueling - and no smoking anywhere near flammable liquids.
37. Compressed gas cylinders must be secured in an upright position.
38. When burning or welding is being done, a fire extinguisher must be close at hand.

HOUSEKEEPING

Form and scrap lumber with protruding nails and all other debris, shall be kept clear from all work areas.

Combustible scrap and debris shall be removed at regular intervals and placed in areas of low activity until it is removed completely. Containers shall be provided for collection and separation of all refuse.

Covers shall be provided on containers used for flammable or harmful substances.

Waste shall be disposed of at frequent intervals.

LADDERS

The use of ladders with broken or missing rungs or steps, broken or split side rails, or with other faulty or defective construction is prohibited. When ladders with such defects are discovered, they shall immediately be withdrawn from service.

Portable ladders shall be placed on a substantial base at a 4-1 pitch, have clear access at the top and bottom, extend a minimum of 3 feet above the landing and be secured against movement while in use.

Portable metal ladders shall not be used for electrical work or where they may contact electrical conductors.

Job-made ladders shall be constructed for their intended use. Cleats shall be inset into side rails 1/2 inch, or filler blocks used. Cleats shall be uniformly spaced, 12 inches, top-to-top.

LASERS

Only qualified and trained employees shall be assigned to install, adjust, and operate equipment.

Employees shall wear proper eye protection where there is a potential exposure to laser light greater than 0.005 watts (5 milliwatts).

Beam shutters or caps shall be utilized or the laser turned off when laser transmission is not actually required. When the laser is left unattended for a substantial period of time, such as during lunch hour, overnight, or at change of shifts, the laser shall be turned off. Employees shall not be exposed to light intensities above: direct staring -1 microwatt per square centimeter; diffused reflected light - 2 1/2 watts per square centimeter. Employees shall not be exposed to microwave power densities in excess of 10 milliwatts per square centimeter. The use of portable barriers is advisable to separate personnel from exposure.

MISCELLANEOUS RIGGING EQUIPMENT

1. Hooks, shackles, beam clamps, and chokers:

A. Only one eye in a hook. Use a shackle to hold two or more eyes.

B. All hooks must have a safety latch or be moused (shake out hooks are exceptions).

C. Always place a load in the center of a hook- never on the point.

D. Never rig from any structural member until you are sure it will support the load being raised.

E. Never use plate grips, tongs, pipe clamps, etc., as substitutes for beam clamps.

2. Chain falls and hoists:

A. A chain hoist must be in its rated capacity. Chain hoists are designed so that one man can operate the hand chain to lift the maximum load for the chain hoist.

B. Do not leave an unsecured and unattended load hanging on a chain fall or hoist.

C. Do not stand or have any part of the body below a load suspended on a chain hoist.

D. Do not wrap the load chain around the load to be lifted.

E. Every chain hoist should be inspected visually before making a lift. Your visual check should include: (1) hooks for any irregularities, (2) chain wear or damage, and (3) housing and sheaves for any signs of damage from abusive treatment.

F. Use softeners, where possible, to obtain a "bite" on material being rigged.

G. A minimum of 3 wire rope clips shall be used when forming loop eye splices or lapped splices. As rope diameter increases, the number of clips and spacing requirements increase. Consult your supervisor.

3. Rope

A. Wire - visually inspect for frays, kinks, and worn spots before using. Do not exceed safe working capacity.

B. Fiber - visually inspect for excessive broken fibers, wear, and deteriorated inner and outer strands prior to use.

C. Use the chart below as a guide for wire rope safe working load.

SAFE WORKING LOAD

(In tons of 2,000 pounds with design factor of 5)

Wire Rope Size	Straight Pull	Choke Hitch	Basket Hitch
3/8”	1.1	.8	2.2
7/16”	1.5	1.1	3.0
1/2”	2.0	1.5	4.0
9/16”	2.5	1.8	5.0
5/8”	3.1	2.3	6.2
3/4”	4.5	3.3	9.0
7/8”	6.5	4.8	13.0
1”	7.9	5.9	15.8

(Crane does not apply to crane revving).

*Figures above are for 6 X 37 improved plow steel, fiber core, and mechanical eye splice.

GUARDRAILS, CABLES, AND RAILINGS

1. Guardrails and cables (or adequate protection) is to be installed immediately in order to provide fall protection when working on elevated platforms, holes in floors, or roofs on top of ovens or booths.

2. Employees will not be permitted to walk through, climb on, or work in any area that does not have proper fall protection provided, or is barricaded for safety reasons.

3. Employees shall ensure all floor holes, or openings are covered or properly marked before leaving them unattended.

4. Cables, guardrails, or covers that are removed to allow equipment or employees access are to be replaced immediately. This is to be done whether ASI's employees, or another company's employees have removed the guardrail cable or cover.

5. All excavations more than four feet in depth must be barricaded to protect pedestrians and vehicles. Excavations must be shored - up, and properly sloped to prevent cave - ins.

6. A standard railing shall consist of top rail, intermediate rail, posts, and have a vertical height of approximately 42 inches from upper surface of top rail to the floor, platform, etc.

7. The top rail of a railing shall be smooth surfaced, with strength to withstand 200 pounds. The intermediate rail shall be approximately halfway between the top rail and the floor.

8. A stair railing shall be of construction similar to a standard railing, but the vertical height shall be not more than 34 inches nor less than 30 inches from upper surface of top rail to surface of tread in line with face riser at forward edge of tread.

PROPER LIFTING PROCEDURE

There is a right way to do everything. Let's make sure that each of you is instructed as to the right way of lifting. Back strain and hernia are likely to develop if we bend at the waist when we lean over to pick up a heavy, or awkward object. As we all know, such injuries are not only very painful, they often have serious and lasting consequences.

There is always a chance of something slipping and landing on your toes. Always make sure that they are protected by safety shoes. When lifting objects that have rough or sharp edges, make sure that you have a pair of good tough gloves. The safe way to lift is to bend the knees and keep the back straight. This is necessary because if you bend at your waist and lean over with your back horizontal, the load is too far from your center of balance, and all the strain is on your lower back muscles, which are not made to take such strain. The result can be a sprained back or more serious injury.

When bending your knees, do not sit on your heels. You will not have any leg power to raise a load from that position. Your position at the start of the lift should be more of a crouch, so the power of your leg muscles can be exerted. You cannot keep your back perfectly straight when lifting, but keep it reasonable straight so the back muscle will not be doing all the work.

The most important rules to remember for safe lifting are:

1. Wear gloves when handling rough equipment or material.
2. Be sure of a good grip and good footing.
3. Keep the load close to the body.
4. See that your fingers and toes are in the clear.
5. Bend your knees and use your leg muscles.
6. Do not twist your body while lifting.
7. Do not try to lift or carry a load that is beyond your physical ability, get help!!!

CHIPPING AND GRINDING

Chipping

Inspect chisels and gun daily. Turn in any defective equipment for repair. Oil gun at least once a day.

Inspect air hose for any loose connections. Keep hose out of aisles, and in orderly fashion to prevent a tripping hazard.

Where practical, shields should be set up to protect persons in the vicinity of a chipping operation from flying chips.

Never point a chipping hammer at anyone. Never throw tool down, or use it as a hammer to remove chipped metal.

Open the valves gradually on air hose, or tools so as to avoid sudden kickback.

Remove the chisel from the gun when not in use.

Maintain safe footing and be sure that the material you are chipping is clamped or otherwise secured to prevent movement.

Be alert for slipping spots when working inside of boxed sections, cylinders, etc.

When chipping tack welds apart, hold chisel so that fingers will not be caught when the weld breaks.

Grinding

All abrasive wheels shall be equipped with an approved type guard. Inspect guard daily. If necessary to remove guard temporarily to get fillets, or other close areas, specific authorization must be granted by the supervisor. Guards must be replaced immediately upon completion of that portion of the work.

The governor on each grinder should be checked a minimum of once each month by an authorized employee.

Inspect the abrasive wheels daily for any cracks or defects. Where any damage is evident, the wheel should be removed from service.

If there is any indication of excessive speed or malfunction of the governor, the tool must be taken out of service immediately. All repairs must be made by only authorized employees.

Avoid dropping the grinder on the floor, bumping against material, or other careless handling, which may damage the wheel. A wheel that has been dropped should be checked for damage. If in doubt, return the wheel to be checked inside a test box.

Make smooth grinding contact with the work. Avoid bumping or impact action. Do not jam portable grinder into corners, etc., the wheel may shatter.

Never force grinding so that the motor slows noticeably, or the work gets hot.

When grinders are not in use, they should be stored in a safe place, preferably on a storage stand. They should not be stored on a raised surface where someone can trip over the line and knock the grinder on the floor.

Allow the wheel to run idle a few seconds before applying to the work.

Keep in mind that the most constant causes of wheel breakages are:

- Improper mounting of wheel.
- Improper speed.
- Abusive operation.
- Careless handling and storage.

Oil the governor daily as recommended in the tool lubrication instructions.

See that the wheel is properly dressed at all times. Do not use a wheel with broken edges.

Do not stand directly in front of a stationary grinder when first starting up.

The maximum clearance allowed between the wheel and the tool rest is 1/8". Do not attempt to make adjustments to the tool rest while the grinding wheel is in motion.

In dressing tools, be sure to hold the tool to be ground firmly against the tool rest in front of the wheel. Side grinding is prohibited unless grinder is designed for that purpose.

Safety eye shields must be in place and in good order when using stationary grinders. Wear face shields at all times when grinding.

Gloves must be worn when using stationary grinders.

Repairmen should observe the following:

l. "Ring test" and inspect each wheel for cracks and breaks. Never use a stone that has any indication of cracks or other damage.

2. Check the maximum operating speed of the abrasive wheel (shown on the manufacturer's tag) against the machine speed must never exceed maximum operating speed of stone.

3. Abrasive wheel should fit snugly, but not tight on the spindle or bushing. Never alter the holes in the wheel or force the wheel on the spindle.
4. Tighten the nut only enough to hold the abrasive wheel firmly.
5. If an abrasive wheel breaks, flanges, and spindles should be carefully inspected for damage before a new wheel is mounted.
6. Handle abrasive wheels carefully to prevent dropping, bumping, or other action that is likely to cause damage.
7. Abrasive wheels should be stored in a dry area not subject to extreme temperature changes that may affect the bonding of the wheels.
8. Abrasive wheels must be stored in cabinets, racks, or bins so as to protect them from chipping and breaking. The storage area should be accessible only to supervisory and authorized repair personnel.

SAFETY PRECAUTIONS FOR PAINTING

You should realize that lead and other toxic materials which may be in some paint may enter your system through the skin, mouth, and inhalation. These harmful substances are taken into the system most commonly by inhalation, but just as readily in eating, or putting the hands to the mouth.

Obviously, personal cleanliness is most important. Wash carefully before you eat. Bathe each evening. Change work clothes frequently: at least once each week is recommended.

If you have any exposed cut or sores, be sure they are properly bandaged before starting work.

Wear gauntlet gloves, overalls, or clothing that will give you the greatest protection against paint.

Respiratory equipment with NIOSH or Bureau of Mines approval must be worn when power wire brushing, spray painting, grit, or sand blasting. Keep your respirator clean and in good working order. Change the cartridges and filters as, often as necessary to provide proper protection. When the vapor can he detected, the filter should be changed on the respirator. Respirators must be sterilized before transferring to others. Report any defect in your respirator equipment immediately to your supervisor.

Face shields must be worn in addition to your regular safety glasses when power brushing.

Take advantage of natural air movement so that dust and spray will not blow back in your face.

Do not keep your lunch with your working clothes. Do not eat, smoke, or chew while painting.

Do not spray any kind of paint, oil, or other flammable liquids near welding, burning, or any other flame.

Spray painters must not spray toward each other or where there is a possibility of spray or vapor striking the head or face of any other people in the area.

Painting between girders or other large members is prohibited unless they are properly braced or clamped. Use girder clamps on girders wherever possible. Smaller pieces should be safely spaced or secured to prevent chain reaction toppling.

When airless spraying, nozzle tip must not be allowed to contact any part of the body. Also, when cleaning up the gun, be sure that the pressure is off, so that any accidental tripping of the trigger will not cause injury.

Never point an air hose at another employee or use compressed air for dusting, or cleaning your clothing.

Do not strike a match, smoke, or use any open flame around paint or other flammable materials. Observe all "No Smoking" signs, which are posted around the area.

Always use safety cans with flame arresters for handling any flammable liquids such as naphtha, solvents, etc.

Inspect your paint and spray equipment frequently. If any equipment is not in good working order, have it replaced or repaired by an authorized person.

If your clothing is covered with paint and solvents, do not stand near salamanders or open fires.

Have a good handhold and footing when handling material by hand. Do not stop or walk on material that has wet paint on it. Be extremely careful when handling material that has been recently painted.

When turning material with a hand dog, pinch bar, or position bar position yourself so that you will not fall or that others' won't be injured if it slips.

Do not use compressed air to dry or clean small parts that are held in the hand.

A safety harness and lanyard must be worn when doing maintenance painting or while working aloft on structures.

ARC WELDING

Keep gloves, shoes, clothing, and other protective apparel as dry as possible, so as to avoid electric shocks.

When welding in confined areas, special means of ventilation may be required. Check with your supervisor before working in these areas.

When welding material that may give off dangerous toxic fumes such as lead ally, paint, etc. The Bureau of Mines or NIOSH approved respirators must be worn unless the fumes are adequately removed by artificial ventilation. Check with your supervisor before welding under such conditions.

Welding equipment should be used in its rated capacity.

Welding equipment should be stopped if any abnormal equipment condition arises. Work should not be resumed until authorized by the supervisor.

Only qualified are authorized persons shall repair welding equipment.

Contact lenses shall not be worn while welding.

Welders are required to wear safety glasses in addition to welding helmets. When welders are regularly working very close to one another, it may be desirable to use safety glass lens having a shade value of 1.5 or 1.7.

Welders should inspect the area in which they are to work to be sure that it is clear of objects, which might fall, or otherwise might cause injury when vision is obstructed by the welding helmet.

Welders must use caution to avoid electric shock from welding equipment and from other sources. When handling the electrode holders or cables, the welder must avoid electrical contact between his body, and objects connected to the work or "ground" of the welding circuit. The rules below are especially important in preventing a shock.

1. Welders must be careful to avoid shock when changing welding electrodes in the electrode holder.
2. Welders must not handle the electrode handlers from two different machines at the same time.
3. Electrode holders must not be dipped in liquids to cool them.

4. When a welding machine is in operation, the cable should not be looped over the shoulders, or around any part of the body.

5. Welders should not wear rings, metal wristbands, or other jewelry.

6. Welders shall not change polarity o€ the welding machine while welding is in progress.

7. When welders carry electrodes on themselves, they should be in the proper container.

8. Electrodes shall be removed from the electrode holder when welding is interrupted for another activity, or when the equipment is left attended.

9. The power supply to welding machines or welding transformers shall be shut off when work is completed. When the equipment is to be left unattended, or when the equipment is to be moved.

Any discomfort or injury to the eyes or other parts of the body caused by exposure to ultraviolet rays from the arc or by weld slag or scale, should be reported to the supervisor, and the welder should obtain medical attention.

When welding is done in areas not ordinarily used for such work, screens should be used to protect other workers and passers - by from the radiation from the arc. Persons in the vicinity should be warned against watching, or looking directly at the welding arc.

Welders should place welding cable, ventilating hose, and other equipment so that it is clear or high voltage power cables, steam lines, ladders, and stairs.

Welding current return circuits or "grounds" must carry their current without hot or sparking contacts, without heating conductors or their joints, and without passage or current through equipment or structures which might be damaged, or r made unsafe by the welding current of its voltage. In particular, welding current must not be allowed to pass through the following:

1. Acetylene, fuel gas, oxygen, or other compressed gas cylinders.
2. Tanks or containers used for gasoline, oil, or other flammable material.
3. Pipes carrying compressed air, steam, gases, or other flammable liquids.
4. Conduits carrying electrical conductors.
5. Chains, wire rope, metal hand railings, or ladders.
6. Machines, shafts, bearings, or weighing scales.

Welding electrode stubs must not be thrown on floors, decks, staging, or scaffolds. They shall be collected in a container for safe disposal.

Welders must avoid starting fires. Before starting to weld, the vicinity in which the welding is to be done must be inspected carefully. Combustible material shall be moved away or else it shall be protected. Where welding is being done on a floor, deck, wall, bulkhead, or other partition the welder must be sure there is no fire hazard on the opposite side. A fireguard shall be posted.

No welding shall be done in or near areas where there may be flammable materials, explosive gases, or vapors without authorization from the supervisor.

No welding or preheating is to be done on or in any task, pipeline, compartment, or container, which has contained flammable material until it has been thoroughly purged and cleaned. Also, an approval given by your supervisor. Any openings, which might allow flammable gas or vapor to leak into the structure shall be sealed securely before welding is started. Ventilation sufficient to keep the space purged of flammable gases or vapors shall be supplied when any welder is required to work inside such as a tank, pipeline, compartment, or container. If welding is to be done only on the outside of the structure, the interior shall be purged continuously with steam or inert gas to prevent any fire or explosion.

FLAME CUTTING, CAMBERING, AND HEAT STRAIGHTENING

Use standard burning goggles, or approved burning face shield recommended for this type of work.

Wear proper gloves and shirts with long sleeves when burning. Safety boots and trousers without cuffs are recommended. Clips or elastic bands around the bottom of the trousers will help prevent slag entering the shoes. Avoid burning while wearing ragged or oily clothes.

Respirators suitable for this type of work being performed should be worn.

Should the material you are cutting give off an irritating fume or smoke, notify your supervisor immediately.

Use the proper names of gases when referring to them. That is acetylene, oxygen (not "air"), MAPP, carbon dioxide, etc.

Keep burning hose and other equipment arranged in an orderly manner, so that they will not be knocked over, run over, or present tripping hazard.

Use no oil, grease, or any other lubricant on the apparatus. Burning equipment does not need lubrication. Oil or grease in the presence of oxygen under pressure may react violently. Do not handle cylinders or apparatus while hands, gloves, or clothing is greasy.

Frequently inspect the torch, hose, regulators, etc. Do not attempt to tape a burning hose. Defective equipment should be turned in for replacement or repaired by qualified personnel.

Use leak test solution (soapy water) to test for leaks.

Do not use compressed air, gas, or oxygen to blow out burning hoses, clean burning equipment, or purge gas pipelines. Ordinary compressed air may contain moisture and oil.

When stopping work for an hour or longer, close the cylinder valves and release the pressure in the regulators. Make certain the torch is out and valves are closed tightly when it is not in use.

Never burn on any closed container that has held flammable substances such as gasoline, oil, or solvents. All containers, gas lines, etc., must be fully purged before any burning is started.

Before lighting the torch, when burning or cambering, always open valves and check gauges to insure that you have proper pressure. Lack of pressure in either line may result in an explosion in the hose.

Make certain that hot slag or spark will not fall on or stroke people, scaffold ropes, safety lines, any hose, flammable substances or materials. Protective shields should be used when necessary.

Use a standard friction-spark lighter or stationary pilot flame to light torch. Never use a match, cigarette, cigarette lighter, etc.

Do not relight torch on hot work in a pocket or small confined space. Use the lighter. (In relighting a torch from hot metal, the gases do not always ignite instantly, and, in a small pocket, ignition may be violent).

Never leave a torch inside a vessel or closed container. Do not take cylinders into confined space. A leak might result in disastrous explosion or fire.

Cylinders should not be lifted or transported by slings, magnets, or hooking onto caps. Use cradle, platform, or other safe suitable means.

Do not allow cylinders as rollers or supports. These are devices, which may be easily damaged and are not designed for such use.

Never permit any open flame to come in contact with live wires or ground wires from electrical equipment. Welding current must not be allowed to pass through cylinders.

Leaking cylinders should be, (1) kept away from flame, sparks, etc., (2) taken outside building away from possible sources of ignition, (3) properly tagged to explain trouble, and (4) immediately report it to your supervisor.

If a cylinder catches fire at the valve, the valve should be closed, if possible. If it catches at another point, the area should be vacated and the Fire Department called.

Never use gases from the cylinders without using regulators to reduce the pressure.

Before installing the regulator, "crack" the valves of the cylinders momentarily to clear the valves of any dust, dirt, or other foreign material, which may have accumulated during storage.

If a regulator shows excessive "creep" (pressure build-up when torch valves are closed), close cylinder valves and have regulator repaired.

Never interchange regulators, hose, and other burning apparatus. Use equipment according to manufacturer's recommendations.

Make certain that all connections are secure, and all fittings tight. Do not force connections that do not fit.

Cylinders shall be repaired only by the manufacturer or qualified vendor.

Manifolding of cylinders should be done only by qualified personnel according to manufacturer's recommendations.

Do not leave the valves of empty cylinders open. Close the valve before replacing valve cap.

All cylinders, empty or full, should be stored away from open flame, furnaces, radiators, flammable or volatile liquids, or other hot places. In hot weather they should be protected from the sun's rays as much as possible.

Cylinders should be stored, transported, and used in an upright position. In storing, secure them with chain or bar to prevent toppling. See that protection caps are in place when cylinders are not in use or being moved.

Cylinders containing different gases (oxygen and acetylene) should be separated at least 20 feet apart or have a 1/2-hour firewall between them.

INSTRUCTIONS ON FITTING AND BOLTING

Use only proper size wrenches. Do not work with wrenches that have worn or sprung jaws. Do not alter, repair, or allow any welding to be done on fitting wrenches. Inspect fitting bolts for worn or misshapen nuts and heads from which wrenches are likely to slip. Do not use a wrench as a hammer.

Keep material piled in an orderly manner. Do not leave your tools lying around for others to trip over.

If temporary scaffolds are needed, be sure the scaffold is safe and adequate for the work. Use only approved type scaffold boards. Inspect scaffolds daily for defects. Each type of scaffold must be approved by the supervisor prior to use.

When using the hydraulic jack, be certain that is secure and centered on the blocking and load. Keep the jack perpendicular to load to avoid kick out or slipping. Be sure the footing and ram are free of oil or grease.

Place detail material so it will not slip or fall.

When assembling girders, etc., in an upright position the stiffeners should be placed on the floor - not leaned up against the web or other material.

Clamp or otherwise secure fillers to hold them to web plates, prior to bolting or drifting. Never remove the last bolt holding a filler to the web plate until you have checked the area and made sure that everyone is in the clear.

Stiffeners, fillers, etc., that are too heavy, to safely move by hand, should be moved by a crane or hoist.

Maintaining good handhold and footings when manually handling detail material. Be alert for sharp edges and burrs.

Check grinder for guard, grounding, etc., before using and be sure the cables do not present a tripping hazard for yourself or others.

Open valves gradually in air hose or tools as to avoid sudden kickback.

When bolts or drifts pins are being knocked out, care should be taken to keep them from falling.

BANDSAW MACHINERY

The operator should always keep his/her hand and feet clear when operating a metal band sawing machine to prevent injury from moving parts or while loading or removing metal pieces.

Reports show that many accidents while working around metal shaving machines are caused by dropping work pieces on the toes. In some cases, over half of the reported accidents were from this cause.

Never place round bar stock or cut pieces on a stock support table without some type of retaining device to keep them from rolling off the table. Use some type of supporting or catching device for the cut off pieces, whether long or short. They can drop off unexpectedly and injure feet and legs.

Never use pedestal type single roller stock support devices (stock stands) with heavy loads. Stock stands are very unstable with large bars and tip over easily. These devices are designed for light loads that can be lifted manually and placed on the roller by one operator.

When cutting thin pieces from large blocks (such as die blocks) always remember these thin work pieces are prone to tip over when cut off. Take steps to support them as they can cause injury.

Be sure to keep clear of the clamping area when operating machines equipped with hydraulic vises. When these vises clamp, a very high force is applied that can cause severe injury.

When loading large material requiring more than one person, be sure the operator and his helpers are all clear before starting any machine movement.

Never reach or position any part of our body under a saw blade. Someone could start the machine, or some type of malfunction could cause the cutting head to drop.

Never reach through or under a pinch point that could create a hazard if a machine part should move.

Never wipe or clean off parts, which are being sawed. The wipe rag could catch on the saw blade, and pull the operator's hand into the moving blade.

It is good sawing practice to support the saw blade as close as possible to the work piece for maximum cutting accuracy as well as safety. Always keep the saw guides' as close as possible to the work piece. Attaching blade guards to the guides will also keep guards closed as far as possible.

If the operator leaves his control station to observe or inspect the operation of the machine, he should always have another qualified operator at the control station in case he/she is inadvertently caught in the machine. Failure to do this could be very serious.

Always stop the machine when it becomes necessary to adjust it.

Do not get into the habit of climbing or leaning on the machine while it is in operation. Greasy, coolant-covered surfaces can be very slippery.

It is very important that your mind be entirely on your job at all times when working on a machine. Outside activities and problems which occupy your mind during working hours greatly endanger your personal safety.

Always keep the floor and working area around the machine free from debris, oil, and coolant slicks. These can be extremely hazardous.

Avoid unnecessary contact with machine coolants or other cutting compounds.

Always wear safety glasses when operating a band saw machine.

It is necessary for two or more operators to work with a machine, be sure only the lead operator "calls the signals", and make sure the other workers are clear before starting any machine movement.

Read, study, and know this manual and the other machine manuals before any attempt is made to operate the band saw machine.

IRONWORKERS

The operator of this machine should understand this manual before starting any operation.

Wear eye protection at all times.

Use the proper voltage outlet for your machine.

Assure that all guards and cover shields are down before starting machine. CAUTION: Do not remove guards.

Keep hands off working tables and out of path of moving parts during operation.

Remove all material from the tables except what you are using.

Remove punch and die setups before starting shearing and coping operation.

Assure all tooling is properly held in position before starting any operation.

The area around the machine should be well lighted, dry, and as free as possible from obstructions.

All maintenance and repair work should be performed by person familiar with this publication.

At the end of the working day, the operator should turn the power off to the machine.

Adjust limit switches when punching or bending to allow 1/4' maximum clearance between bottom of stripper foot or bending punch and top of the material. Have your foreman check adjustments before starting again.

PNEUMATIC TOOLS

Pneumatic tools will be used only by employees familiar with and properly instructed in their use.

Pneumatics tools will be kept in good operating condition, thoroughly inspected, at regular intervals and particular attention given to control and exhaust valves, hose connections, die clamps on hammers, and the check of reamers and drills.

Safety clips or retainers will be installed on pneumatic impact tools to prevent dies and tools from being accidentally expelled from the barrel.

Pressure will be shut off and exhausted from the line before disconnecting the line from any tool or connections.

Air hoses must be suitable to safely withstand the use pressure for which is intended. Leaking or defective hoses will be removed from service.

Hoses will not be laid over ladders, steps, scaffolds, or walkways in such a manner as to create a tripping hazard.

The use of compressed air for flowing directly to the hands, face, or clothing is prohibited.

All blow-off air nozzles shall be the safety type or the air pressure kept at 30 PSI or lower.

SCAFFOLDS AND PLATFORMS

Scaffolds, platforms, or temporary floors will be provided for all work except that which can be done safely from the ground, other substantial footing, or from ladders. Scaffolds, platforms, runways, floors, etc., will be kept free of ice, snow, grease, mud, or any other material or equipment, which could be hazardous. Where slippery surfaces cannot be avoided, abrasive material of some nature will be used to assure safe footing. All false work, trestles, ramps, scaffolds, and similar temporary load-bearing structures will be designed, constructed, and maintained with a safety factor of not less than four.

Stairs, ladders, or other safe means of access shall be provided to work areas, which are above ground elevation.

All metal scaffolds, towers, power scaffolding machines, and similar equipment will be of the type or equal to those approved by Underwriters Laboratories, Inc. All such equipment will be erected in accordance with manufacturer's specifications and the load limits as recommended by the manufacturer will not be exceeded. Extreme caution will be taken where metal scaffolds or ladders are used to prevent short circuits or electrical shock.

All rolling scaffolds will be equipped with a positive locking device to prevent accidental movement of the scaffolds will be from the base only. All wheels or castors will be made secure to the scaffold. Rolling scaffold working platforms heights will not exceed four times the smallest base dimensions.

Employees will be prohibited from riding on rolling scaffolds being moved.

The sections of metal scaffolds will be securely connected together.

All scaffolds or working platforms of any nature will be securely fastened to the building or structure, or if independent of the building, will be braced or guyed to prevent sway.

Extensions, alternations, or repairs to runways, platforms, working floors, or scaffolds will conform in their entirely to the standards herein established.

Handrails and toe boards are required for all scaffolding, whether fixed or rolling, in excess of 10' in height.

EXCAVATION

Excavation, if over 4' in depth, unless in solid rock, hard shale, hardpan, cemented sand and gravel or other stable materials, shall be either shored, sheathed and braced, or sloped to the angle of repose Fig. (1) All shoring and bracing will be designed so that it is effective to the bottom of the excavation. Sheeting, sheet piling, bracing, shoring, trench boxes and other methods or protection, including sloping will be based upon calculation of pressures exerted by and the condition and nature of the materials to be retained, including surcharge imparted to the sides of the trench by equipment and stored materials. Any exception to the requirement for shoring in excavation in excess of 4' deep will be cleared with the Safety Supervisor before proceeding with the work.

Materials used for sheeting and sheet piling, bracing, shoring, and underpinning will be in good serviceable condition and timbers will be sound and free from any large or loose knots.

Excavated or other material will not be stored nearer than 4' from the edge of any excavation and will be so stored and retained as to prevent excessive pressure upon sides of the excavation.

Sides and slopes of excavations will be maintained in a safe condition by scaling, benching, or barricading.

AUTOMATIC SYSTEMS, INC.

SECTION 4

ACCIDENT / INCIDENT INVESTIGATION PROGRAM

AUTOMATIC SYSTEMS, INC.

SECTION 4

ACCIDENT/INCIDENT INVESTIGATION PROGRAM

STATEMENT OF POLICY

Timely notification, investigation, documentation and follow – up review of injuries and property damage are required. These actions will not only enable the company to provide necessary treatment for our employees, but will also provide information that will allow us to accurately assess our policies, procedures, work rules and practices. It is extremely important that all employees take an aggressive approach to eliminate accidents. To accomplish this it is necessary to evaluate and understand the accidents that do occur.

SCOPE

All accidents that result in personal injury or property damage are to be reported immediately, regardless of how minor they are assessed initially.

DEFINITIONS:

ACCIDENT – An undesired event that results in injury to people, damage to property, or loss to process.

INCIDENT – An undesired event. Which, under slightly different circumstances, could have resulted in harm to people, damage to property, or loss to process.

UNSAFE ACT – Behavior that permits the occurrence of an accident.

UNSAFE CONDITION – A circumstance that could permit the occurrence of an accident.

TREATMENT – The application of first aid materials, or licensed health care.

INJURY CLASSIFICATION - (Additional definition is listed in OSHA/BLS Record Keeping Guidelines)

- First aid – Any one time treatment and subsequent observation. Which do not ordinarily require medical care even if provided by licensed personnel.
- Recordable – Injuries and illnesses that require treatment by licensed medical personnel.
- Lost time – Any injury or illness that results in loss of consciousness, restriction of work, activity or personnel motion, transfer to another job or activity or medical treatment beyond first aid injuries that require "days away from work" or restricted work activity.

RESTRICTED WORK ACTIVITY – Any injury that results in a diagnosis that establishes limits for the individual, i.e. weight, motion, etc.

TEST FOR CAUSE – ALL injuries that require more than first aid treatment will also require the injured to be tested for alcohol and the 49 CFR PART 195 Panel of Controlled Substances.

ACCIDENT INVESTIGATION PROCEDURE:

1. Employees are to notify their immediate supervisor of any injury upon the occurrence of the injury. The injured employee is to receive timely diagnosis and treatment.

    - If it is determined that the site First Aid is appropriate, the treatment must be approved by the injured employees' immediate supervisor.
    - If licensed medical diagnosis and treatment is required, requested, or the injured employee will be accompanied by a representative of site supervision.

2. The accident scene and related equipment is to be secured by the injured employees immediate supervisor who will commence the preliminary investigation to establish the who, what, when, where, and why.

3. Site supervision will contact the Safety Manager.

4. The Safety Manager will coordinate the regulatory, insurance, and medical information processes.

5. A formal site investigation will be performed which includes completion of the ASI. Accident Investigation Report by the injured employees' immediate supervisor.

    - The investigation team will include any technical representatives that might be required to perform evaluation as agreed upon by the site supervision and the Safety Manager.

6. The Initial Report of Accident is to be faxed to the ASI's Corporate Office upon completion of the preliminary investigation. If there are information categories that can't be completed before the end of the work shift in which the accident occurs, the report is to be marked "initial".

7. The Safety Manager is responsible for distribution of "initial" and follow up report information to all job sites for review discussion in their next scheduled Tool Box Safety Meeting.

8. The Safety Manager will coordinate injury activities including the ASI "RESTRICTED WORK POLICY" included in this section.

RESTRICTED WORK ACTIVITY POLICY

STATEMENT OF POLICY

Automatic Systems, Inc., will evaluate work activities to provide productive and meaningful work for all employees who have experienced a work related injury when there is a medical diagnosis that identifies physical restrictions.

SCOPE

ALL WORK RELATED INJURIES THAT RESULT IN MEDICAL DIAGNOSIS OF RESTRICTED ACTIVITY.

DISCUSSION

Automatic Systems, Inc., will return all injured employees to work as soon as possible after an accident with regard to their safety and medically diagnosed limitations. Our goal is to enable employees to return to their pre-injury work assignments in the shortest time possible. To accomplish this, alternative, temporary work assignments will be identified, evaluated and used. These assignments are offered for the benefit of injured employees to lessen the personal disruption and financial hardship often caused by accidents. These assignments will be:

- Within the project scope
- Consistent with all restrictions listed on the Medical Diagnosis.
- Reviewed in detail with the employee before assignment.
- Receive concurrence form Project Supervision, injured Employee, Safety Manager and Insurance Administrator.

PROCEDURE

1. **ALL employees** are required to return to the jobsite immediately upon completion of a work injury diagnosis with the documentation associated with the diagnosis.

a. A copy of the documentation will be made for the injured employee and the jobsite file.
b. The original documentation will be forwarded to the Insurance Administrator at the Corporate Office in Kansas City, Mo. For processing.
c. Project Supervision will review the restrictions listed and determine what ongoing or work ahead activities, if any, are within the restriction limits. Project Supervision will contact the Safety Manager and identify project tasks that are within the "Restricted" limits

2. The Safety Manager is responsible to:

a. Coordinate medical services for clarification of restrictions and task approval.
b. Provide activity modification recommendation to Project Supervision.
c. Coordinate record keeping and insurance activities with the Insurance Administrator.

3. Project Supervision will review the agreed upon "Restricted" activities with injured employee:

a. Verbal summary of assignment
b. Performance demonstration to identify and document work steps to ensure the assignment is within restriction limits; may require field measurement for physical conditions, i.e., weight, length, temperature etc.
c. Coordinate medical re-evaluation and update documentation.

4. The Safety Manager will develop and maintain a status report for all "Restricted Work" activity.

- Weekly Management Review
- Monthly Supervisor's Meeting Review
- Coordinate with Insurance Administrator
- Jobsite Safety Project Communication Update

SECTION 5

HAZARDOUS COMMUNICATION PROGRAM

AUTOMATIC SYSTEMS, INC.

SECTION 5

HAZARDOUS COMMUNICATION PROGRAM

This program has been developed to inform **AUTOMATIC SYSTEMS. INC.** Employees of the company's compliance procedures and activities as required by the **Hazards Communications Standard** 29 CFR 1910.1200 and 1926.59.

Information presented in this program includes:

- The Hazards Communication "Right-To-Know" Standard
- Program Administration, implementation procedures and responsibilities
- Listing of Hazard Substances used by ASI
- Discussion of Material Safety Data Sheets (MSDS's)
- Discussion of labels and other forms of warnings
- Discussion of the hazards associated with non-routine tasks
- Employee training requirements
- Client and contractor employees responsibilities

STATEMENT OF POLICY

Prior to beginning any work that has a possibility of chemical exposure, including piping systems, an evaluation of possible exposure will be made by the Supervisor and the employee to perform the work. If it is determined that an exposure may occur, additional methods of exposure control will be identified and implemented. Extensive planning will include review with the Safety Manager, who is responsible for coordinating the Hazardous Communication Program.

SCOPE

The Hazardous Communication Program applies to all work operations that may expose an employee to a hazardous substance under normal or emergency working conditions. This program covers all ASI Employees whether working on single work sites, multiple work sites or multiple-employer job sites.

OBJECTIVES

The Hazardous Communication Program will inform all employees and contractors of the Hazard Communication Standard, the hazardous properties of chemicals with which they may work, safe-handling procedures, and measures they must take to ensure protection from these chemicals. They will also be informed of the hazards associated with non-routine tasks, such as chemicals in unlabeled piping and unlabeled containers.

HAZARDS COMMUNICATION STANDARDS (HCS)

In 1989, the Federal Occupational Health and Safety Administration (OSHA) issued the current Hazardous Communication Standard. It established a chemical hazard information system commonly referred to as the "Worker's Right-to-Know" law, designed to make hazard information available to the employee. The requirements include:

1. Written policies and procedures including program administration, a complete listing if hazardous materials and evaluation and review cycle.
2. "MSDS" must be provided to the purchaser with details that include information about the manufacturer, correct and common name of the material, physical and chemical characteristics, physical hazards, reactivity, health hazards, safe usage and storage, personal protective equipment and first-aid recommendations.
3. Warning labels that identify the chemical name, the manufacturer's name address and emergency number, safe usage and storage information, possible health hazards, what body part or internal organ is susceptible to effects and personal protective equipment recommendations.
4. Employee training requirements include review of company procedures, location and identification of information sources, pre-exposure evaluation for routine and non-routine tasks, emergency action planning and employer/employee responsibilities.

5. Manufacturers and Producers are responsible for scientific evaluation of material to identify and develop information for LABELS and MSD'S.

HAZARDOUS CHEMICALS MASTER LIST

a) The Safety Manager will assemble and maintain a Master List of all hazardous chemicals used by **Automatic Systems, Inc.** employees and related work activities. This Master List will identify all chemicals used at each work site. A separate, site-specific list will be available at each work site and will be posted at each site. The MSDS Master List will be updated as necessary per the following procedures:

1. Purchasing Department
    A. Initial purchase of hazardous materials must be accompanied by a request for the manufacturer's MSDS along with notification that the material cannot be accepted until the MSDS is in hand.
    B. A copy of the purchase order (PO) or a written notice generated by the purchaser of a verbal request will be provided to the **Automatic Systems, Inc.** Safety Manager for the MSDScall-up file.
    C. Acceptance of the initial order requires the approval of the Safety Manager.

2. Field Purchasing
    A. Field Purchase Orders and verbal commitments to purchase materials that are identified as hazardous by 29 CFR 1910.1200 or any listing referenced there must be accompanied by a request to the supplier for the MSDS and notification to that supplier that the material cannot be accepted until the MSDS is in hand.
    B. A copy of the purchase order (PO) or a written notice, generated by the purchaser of a verbal request, will be provided to **Automatic Systems, Inc. S**afety Manager. Material Safety Data Sheets (MSDS):

The Safety Manager is responsible to ensure MSDS information is available in an accurate and timely manner. These MSDS"S are to be available and maintained in the MSDS Master File located at **Automatic Systems, Inc.** Corporate Office and also at the job site trailer. The Safety Manager will ensure manufacturers and vendors provide this information prior to delivery of hazardous materials.

Project managers/supervisors are responsible to coordinate their project's hazardous materials and MSDS information with the Safety Manager to endure that there is a complete set of job site MSDS's available to all employees upon request in the Project Safety & Health Manual, located in the project office.

LABELS

It is the responsibility of the Safety Manager to ensure that all project managers/supervisors are properly trained and knowledgeable of labeling requirements. This includes job site audits and coordination of updated information.

The project manager/ supervisor is responsible for ensuring that all hazardous chemicals on the project site are properly labeled. All labels will list the chemical identity, appropriate hazard warning, name and address of the manufacturer, vendor, and or other responsible party.

> *Note: Chemicals may be transferred from a labeled container to a portable container if the chemical is for immediate use and the quantity dispensed will be used immediately.*

NON-ROUTINE TASKS

The project manager/supervisor will identify and communicate to the Safety Manger prior to starting any non-routine tasks such as Permit Required Confined Space entry, Process Line Breaking, Lead Paint, etc. from which there may be an employee exposed to hazardous materials.

The Safety Manager will develop, conduct and/or implement any special training to inform employee of proper precautions to eliminate, avoid or reduce hazardous exposure to acceptable limits.

EMPLOYEE TRAINING

All employees who work with or are exposed to hazardous chemicals will receive initial training about the Hazardous Communication Standard and the safe use of those hazardous chemicals by the Safety Manager or his designee. A program that uses both audiovisual materials and classroom type training is presented for this purpose. Whenever a new hazard is introduced, additional training will be provided.

Tool Box Safety Meetings will also be used to review the information presented in the initial training. Management and Supervision will be extensively trained regarding hazard identification, mitigation procedures, surveillance and personal protective equipment.

The training program will emphasize these items:

- Summary of the Hazard Communication Standard and this written program
- Chemical and physical properties of hazardous materials (e.g., Cashpoint, boiling point, reactivity) and methods that can be used to detect the presence or release of chemicals (including in unlabeled pipes)
- Physical hazards of chemicals such as potential for fire or explosion
- Health hazards, including signs and symptoms associated with exposure to chemicals and medical condition known to be aggravated by exposure to the chemical
- Procedures to protect against hazards (e.g.. personal protective equipment required, proper use and handling of chemicals and procedures for emergency response)
- Work procedures to follow to assure protection in case of hazardous chemical spills or leaks
- Know where MSDS's are located, how to read and interpret the information on both Labels and MSDS's and how employees may obtain additional information

The Safety Manager is responsible for assessing the effectiveness of this training program and to incorporate employee suggestions for improvement where possible. Retraining is required when the hazards change or when a new hazard is introduced on the job site. At **Automatic Systems, Inc.**, the policy is to provide training regularly in safety meetings to ensure program effectiveness.

CLIENTS, CONTRACTORS, LOCAL RESPONDERS

The Safety Manager or his designee will, upon notification by supervision, advise and provide information to clients, contractors and local responders regarding any chemical hazard or information referenced in the Hazard Communication Plan.

"WORKERS RIGHT-TO-KNOW" TRAINING SCRIPT

A federal law enforced by OSHA, known as The 1988 Hazard Communication Standard, (commonly referred to as the "Worker's Right-To-Know,") charges all employers with the responsibility to implement a uniform hazard communication program. The standard was enacted to prevent employees from harmful exposure to chemicals.

The program requirements are:

1. To inform all employees of the Hazard Communications Standard (HCS).
2. To inform all employees how the standard works and how to use its information to prevent exposure to chemical hazards.
3. To provide information and training on hazardous chemicals giving the employee the knowledge to use the methods of information specified in the standard.

The methods of communication specified are:

4. Labels – how to recognize, understand and apply the information and applications to prevent exposure
5. MSDS's - where they are located, their purpose and how to interpret the information provided
6. Employee training – procedures for safe handling when working with hazardous substances

Information is critical for successful handling of hazardous chemicals

Information for chemicals on the job sites are located on the individual containers in the form of Labels. Additional information can be obtained from Material Safety Data Sheets (MSDS's) for all the hazardous materials ASI has at the job site is available from your supervisor's ASI SAFETY & HEALTH MANUAL, located in the job site office. The Safety Manager at the Corporate Office in Kansas City, Missouri maintains a master file of all ASI Hazardous Materials. The phone number is (816) 356-0660.

Never handle or use a hazardous substance without first reviewing the information about the substance. Part of the information available is affixed to the container in the form of a LABEL.

LABEL

Labels are allowed to use symbols instead of words to identify hazards and there is no mandated format. However, labels must list the following information as a minimum:

1. Chemical name
2. Manufacturers' names, addresses, emergency phone number
3. Physical hazards i.e., flammable, corrosive, toxic, reactive, etc…
4. Storage and handling information
5. Health hazards, i.e., toxicity, carcinogen, irritant, etc…
6. Personal Protective equipment recommendations for safely working with the chemical

MATERIAL SAFETY DATA SHEET (MSDS)

This information form is available in the AUTOMATIC SYSTEMS, INC. Safety & health Manual in the site office or from your supervisor. You must review and understand this information prior to handling or working with any hazardous chemicals. Material Safety Data Sheets are prepared by the chemical manufacturer to provide information about material. Everything that is known about the chemical is listed by section on the MSDS. Minimums of eight (8) information sections are required on all MSDS's and they must present the following information by section:

SECTION 1 CHEMICAL IDENTITY - chemical and common name (s) must be provided for a single chemical substance. An identity on the MSDS must be cross-referenced to the identity found on the label.

SECTION 2 HAZARDOUS INGREDIENT - For a hazardous chemical that has been tested as a whole to determine its hazards, the chemical and common names of the ingredients that are associated with the hazards, and the common name of the mixture must be listed.

If the chemical is a mixture that has not been tested as a whole, the chemical and common names of all the ingredients determined to be health hazards and comprising 1 percent or greater of the composition must be listed.

Chemical and common names of carcinogens must be listed if they are present in the mixture at levels of 1 percent or greater.

All components of a mixture that have been determined to present physical hazards must be listed.

Chemical and common names of all ingredients determined to be health hazards and comprising of less than 1 percent (0.1 percent of carcinogens) of the mixture must also be listed if they can still exceed and established Permissible Exposure Limit (PEL) or Threshold Limit Value (TLV) or present a health risk to exposed employees in these concentrations.

SECTION 3 PHYSICAL AND CHEMICAL CHARACTERISTICS - The physical and chemical characteristics of the hazardous substance must be listed. These include items such as, boiling and freezing points, density, vapor pressure, specific gravity, solubility, volatility, and the products general appearance and odor. These characteristics provide important information for designing safe and healthy work practices.

SECTION 4 FIRE AND EXPLOSION HAZARD DATA - The compounds potential for fire and explosion must be described. Also, the fire hazards of the chemical and the conditions under which it could ignite or explode must be identified. Recommended extinguishing agents and firefighting methods must be described.

SECTION 5 REACTIVITY DATA - This section presents information about other chemicals and substances with which the chemical is incompatible, or with which it reacts. Information on any hazardous decomposition products, such as carbon monoxide, must be included.

SECTION 6 HEALTH HAZARDS - The acute and chronic health hazards of the chemical, together with signs and symptoms of exposure, must be listed. In addition, any medical conditions that are aggravated by exposure to the compound must be included. The specific types of chemical health hazards defined in the standard include carcinogens, corrosives, toxins, irritants, sensitizers, mutagens, teratogens, and efforts on target organs (i. e. Liver, kidney, nervous system, blood lungs, mucous membrane, reproductive system, skin, eyes, etc.)

The route of entry section describes the primary pathway by which the chemical enters the body. There are three principal routes of entry: Inhalation (2.) absorption (3.) ingestion

This section of the MSDS lists the OSHA-PEL, the ACGIH-TVL and other exposure levels used or recommended by the chemical manufacturer.

If the compound is listed as a carcinogen (cancer causing agent) by OSHA, the National Toxicology Program (NTP), or the International Agency for Research of Cancer (IARC), this information must be indicated on the MSDS.

SECTION 7 RECAUTIONS FOR SAFE HANDLING AND USE - The standard requires the preparer to describe the precautions for safe handling and use. These include recommended Industrial Hygiene practices, precautions to be taken during repair and maintenance also use this section to include information not specifically required by the standard, such as EPA waste disposal methods and state and local requirements.

SECTION 8 CONTROL MEASURES - The standard requires the preparer of the MSDS to list any generally applicable control measures. These include engineering controls, safe handling procedures and personal protection equipment. Information is often included on the use of goggles, gloves, body suits, respirators and face shields.

There are numerous means of detecting hazardous materials exposures. Most fixed exposures such as storage or piping systems have detection monitors installed that have audible and visual alarms. Some exposures can be forecasted based upon job activities so that temporary monitoring equipment for these short terms exposures can be employed. However, the most

critical monitoring system is for employees to be aware that common non-hazard chemicals when mixed may present a hazard and to continuously monitor changing conditions and materials present of the job site.

EMPLOYEE RESPONSIBILITIES

ASI management and supervision responsible for continuously monitoring and implementing controls to prevent harmful exposure to hazardous materials. Your responsibility as an employee is to perform your work as follows:

1. **Identify hazards before starting a job.**
2. **Never transfer a chemical to an unmarked container without affixing a label to that container, unless the quantity transferred will remain in your control and will be used up by the end of your work shift.**
3. **Follow all storage, handling and usage directions.**
4. **Never use a hazardous material until you have reviewed and completely understand the information.**
5. **Use the personal protective equipment recommended.**

CLIENT SITE HAZARDOUS MATERIALS

The following hazardous materials exposures are present in addition to the hazardous materials already discussed. This listing will be posted along with other safety information and will be maintained by the Safety Manager or his designee.

- **Area/Task**
- **Exposure**
- **Authorization**
- **Health Hazard Information**
- **Monitoring Requirements**
- **Control Method (s)**

EMERGENCY ACTION PLAN

In the event of an emergency involving a hazardous material spill, leak or other exposure, the employee (s) affected are to take action as identified in the Job Site Orientation-Emergency Action Plan.

- ✓ **Warning Signal Audible/Visual**
- ✓ **Retreat Path (s)**
- ✓ **Safe Area Location**
- ✓ **Mustering Verification/Check-In**
- ✓ **All Clear Signal**

TOPICS FOR REVIEW

1. What important step has been taken to help increase employee's awareness of potentially hazardous chemicals used on the job?

The introduction of Hazardous Chemical Right-To-Know Program and Training Guide in response to the OSHA Hazard Communication Standard.

2. Name five (5) important provisions of these regulations:

- All chemicals and mixtures must be evaluated for potential hazards.
- Warning labels must be applied to all containers of potentially hazardous substances.
- Material Safety Data Sheets (MSDS) must be compiled for all hazardous materials and be maintained for employee access within the workplace.
- Employees must be provided with information and training annually regarding the hazardous substances in their specific work areas.
- Written Hazard communication programs must be developed by individual contractors for each specific workplace.

3. How many chemicals will be evaluated for potential hazards?

By thoroughly investigating all of the available scientific evidence.

4. Who is responsible for evaluating a chemical's potential for hazard?

Although each company has the option of performing its own chemical evaluation, the primary responsibility for evaluating a chemical's potentially harmful physical or health effects rests with the chemical's producer or importer.

5. What broad classifications of health hazards are identified in the regulations?

- Irritants
- Sensitizers
- Carcinogens
- Corrosives
- Toxic Substances
- Substances known to produce adverse effects on target organs.

6. What broad classifications of physical hazards are identified in the regulations?

- Flammable materials
- Compressed gases
- Oxidizers
- Unstable substances
- Water-reactive substances

7. If a chemical is potentially hazardous, what must a producer or importer do before allowing it to leave his facility for transport to an end user or processor?

The producer, or importer, must label each container with an appropriate warning.

8. What information must be provided on a warning label?

- The identity of the chemical
- Appropriate hazard warnings
- The name and address of the producer or importer

9. If a hazardous substance is transferred from its original container to another container, what important step must be taken?

The new container must be labeled, tagged, or marked with the identity of the hazardous substance and the appropriate hazard warning.

10. It is necessary to label a portable container into which you have transferred a hazardous substance intended only for your immediate use?

No, but doing so will help prevent accidental misuse by others.

11. What other warning devices may be used to alert employees to the presence of hazardous chemicals in the work area?

Signs, operating instructions and procedures, or written materials.

12. What precautions should be taken with regard to warning labels?

Since they play an important part in protecting safety, they should not be removed or defaced.

13. Who must compile the information found on a Material Safety Data Sheet?

The producer or importer of the potentially hazardous chemical.

14. Who may be allowed access to an MSDS?

MSDS will be kept on file at Kansas City Corporate Office and various site offices and be made available to employees, their representatives, of emergency response personnel who need to review the information.

15. What kinds of information are provided on an MSDS?
Important health and safety data including:

a) Specific information regarding the physical and chemical properties of the substance.

b) Any potential health hazard associated with the use or misuse of the substance.

c) Any precautions necessary for safe use, handling, or storage.

d) Emergency procedures for leaks, spills, fires, and first aid.

16. When may producers or importers legitimately withhold certain information from disclosure on an MSDS?

When the information is a trade secret. This applies only to non-critical information. All appropriate safety, health and handling procedures must be fully disclosed.

17. Is trade secret information ever revealed?
Yes, trade secret information will be provided by the chemical producer or importer to qualified health professionals, as defined by the standard, in the event of a medical or occupational health need.

18. To further ensure employee health and safety when working with hazardous substances, what specific training and information, will be provided by your supervisor?
The training and information provided by the Construction Safety Coordinator or designate will include:

a) The availability and location of the Material Safety Data Sheets.

b) An explanation of the labeling requirements and system.

c) The methods and observations that may be used to detect the presence or release of a hazardous chemical in the workplace, such as monitoring with personal or continuous work area monitoring devices, and any other indicators such as appearance or odor of potentially hazardous chemicals.

d) The physical and health hazards of the chemicals in your work area.

e) The measures to take to protect yourself from these hazards, such as appropriate work practices, emergency procedures, and appropriate personal protective equipment.

f) The Safety Coordinator will also give employees information concerning the location and availability of the written workplace Hazard Communication Program.

19. What is the purpose of the written workplace Right-To-Know Program?

The written workplace Right-To-Know Program describes how the company plans to ensure that the hazardous materials are appropriate labeled, how and where the MSDS will be maintained, and how employees will be provided with specific information and training.

20. What steps must employees take to help ensure their protection from potential chemical hazards?

Employees must cooperate in the hazard communication program by being alert to warning signs and labels, reading Material Safety Data Sheets (MSDS) when appropriate, and by following the company's Safety and Environmental procedures for handling hazardous substances.

AUTOMATIC SYSTEMS, INC.

INDEX OF MSDS'S

Automotive Gasoline

Chem-o-Lene Fuel Gas

WELDING

Thoriated Tungsten Electrodes
Welding Rods, 7018 & 7024

Welding Wire

Alloys, Aluminum

Alloy, Nickel Based

Brass

Carbon, Alloy

Carbon, Chrome Plated

Carbon, High Manganese Silver Streak Resulphurized Steel

Stainless Steel

PAINTING & COATING

- May cause irritation of skin, eyes, nose and throat
- May cause headache, nausea and dizziness
- May cause nervous system disorders
- May be reproductive hazard
- May cause allergic sensitization of skin/respiratory tract
- Some materials may be carcinogenic
- Very High levels may cause unconsciousness and death
- These materials can be flammable or highly flammable

COMPRESSED GASES

- Vessel rupture may result in a missile reaction
- Concentrated streams may cause skin rupture and body damage
- May result in toxic effects specific to each gas
- May cause asphyxiation in confined spaces

CARBON MONOXIDE

- May cause dizziness, nausea or a headache
- Excessive exposure may cause unconsciousness and death
- May aggravate heart and artery diseases

WOOD DUST

Short-term exposure may cause:

- Irritation of eyes, nose, throat and lungs
- Allergies

Long-term exposure may cause:

- Accumulation in lungs
- Cancer (hardwood)
- Asthma and related problems (Hardwood)

WELDING

- Fumes and gases may cause irritation of the eyes, nose and throat
- Fumes and gases may cause chest pain/pulmonary edema
- Fumes and gases may cause chronic lung diseases/lung cancer
- Fumes and gases may cause metal fume fever/lead poisoning
- Polyester and other man-made fibers may melt and cause severe bums if struck by a welding spark
- May result in asphyxiation in confined spaces

GENERAL EFFECTS OF CHEMICALS

Short term (acute) effects may include:

- Bums from flammable materials
- Eyes, nose, throat, lung irritation or injury
- Dry skin or dermatitis
- Nausea (sick feeling)
- Vomiting
- Fever
- Nervous system effects (i.e., dizziness, headache, highs)
- Unconsciousness
- Death

Long term (chronic) effects may include:

- Damage to liver, kidney, stomach, central nervous system, muscles, brain,. blood, bones and lungs
- Sensitization
- Cancer
- Birth defects

- Reproductive effects
- Death

ORGANIC SOLVENTS

Short-term exposure may cause:

Low Levels

- Irritation of eyes, nose and throat
- Skin irritation/disease
- Headache, nausea or light-headedness

High Levels

- Unconsciousness or coma
- Sudden collapse
- Death

Long-term exposure may cause these additional problems:

- Nervous system damage
- Blood disorders
- Permanent eye damage/blindness

HALOGENATED SOLVENTS

AND VAPOR DEGREASERS

Short term exposure may cause:

Low Levels

- Irritation of eyes, nose and throat
- Skin irritation/disease
- Headache, nausea or light-headedness

High Levels

- Dizziness, drowsiness
- Unconsciousness
- Death

Long term exposure may cause these additional problems:

- Permanent nervous system damage
- Some materials may be carcinogenic
- High exposure to heat or !lames may release toxic gases.

POLYNUCLEAR AROMATIC

HYDROCARBONS (PAII)

- PAH may be contained in coal tar pitch products, asphalt products, untreated oils and greases, byproducts of overheating and burning hydrocarbon oils and emissions from coke ovens
- May cause skin and eye irritation
- Can cause skin and lung cancer
- Some of these materials may be carcinogenic
- Exposed skin should be kept out of sunlight (sunlight worsens effect)

LEAD

May cause:

Low levels

- Headache
- Joint and muscle pain
- Abdominal cramping

High levels

- Anemia
- Kidney disease
- Damage to nervous system

Very high levels

- Seizures-coma-death
- May be reproductive hazard

SILICA

- May cause silicosis (scarring of the lungs)
- May cause lung cancer
- Exposure is usually associated with inhalation of silica dust particles

ASBESTOS & FIBERGLASS

- May cause cancer of lung and digestive tract/throat, kidney
- May cause asbestosis/scarring of the lungs
- May cause skin irritation
- Exposure is usually associated with inhalation of fibers

METALWORKING FLUIDS

- May cause skin, eye, nose and throat irritation May cause skin rash, red eyes, cough or sneezing and respiratory problems
- May cause bacterial infections
- Some of these materials may be carcinogenic
- May cause skin, colon and stomach cancer

DIISOCYNATES

- May cause irritation of the eyes, skin, nose and throat
- May cause allergic breathing problems
- Allergic sensitization may occur
- Some of these materials may be carcinogenic

CAUSTIC & ACIDS

- Skin contact may cause severe bums/skin ulcers
- Eye exposure causes blindness
- Inhalation may cause respiratory problems nasal damage
- Ingestion may bum throat and stomach
- Chromic acid may be carcinogenic
- These materials are highly reactive.

Improper mixing may cause fire or explosion.

ADHESIVES

- May cause irritation of eye, nose, throat and lumps
- May cause skin rash and allergic reactions
- May cause respiratory allergies
- Liquid resins may contain flammable solvents
- Glycidyl ethers are a possible carcinogenic
- Allergic sensitization may occur

PLASTIC & POLYMERS

- May cause skin rash and respiratory irritation
- May cause skin and respiratory allergies
- May cause eye irritation
- These problems may occur from direct contact or through dust or vapors in the air
- Burning or heating may produce hazardous vapors or smoke
- Allergic sensitization may occur

GLYCOL ETHERS & ACETATES

- Can pass directly through the skin into blood stream May be reproductive hazard
- May cause kidney injury
- May cause blood disorders/anemia
- May cause headaches and drowsiness
- These compounds do not have strong odors and cannot be detected by smell at hazardous levels.

ALDEHYDES, AMINES & AMIDES

- May cause irritation or burns of the skin, eyes, nose, throat, and lungs
- May cause allergic reactions
- May cause nervous system or internal organ damage Allergic sensitization may occur
- Some of these chemicals are easily absorbed through the skin.

Right To Know Law

Employers must make available for employees in a readily accessible manner, Material Safety Data Sheets (MSDS) for those hazardous chemicals in their workplace.

Employees cannot be discharged or discriminated against for exercising their rights including the request for information on hazardous chemicals.

Employees must be notified and given direction (by employer posting) for locating Material Safety Data Sheets and the receipt of new or revised MSDS(s).

MSDS(s) For This Workplace Are Located At

LOCATION(S)

LOCATION(S)

PERSON(S) responsible for MSDS(S)

PHONE

Revised 11-1-2015

5-123

New or Revised MSDS

NEW OR REVISED TITLE	RECEIPT DATE	POSTING DATE	LOCATION OF NEW OR REVISED MSDS

MSDS GLOSSARY OF TERMS

The following glossary presents brief explanations of acronyms and common terms frequently used by chemical manufacturers in their MSDS':

ACGIH - American Conference of Governmental Industrial Hygienists is an organization of professional personnel in governmental agencies or educational institutions engaged in Safety and Health programs. ACGIH establishes recommended occupational exposure limits for chemical substances and physical agents. See TLV

Acid – Any chemical that undergoes disassociation in water with the formation of hydrogen ions. Acids have sour taste and may cause severe skin burns. Acids turn limus paper red and have pH values of 0 to 6.

Acute Effect - Adverse effect on a human or animal that has severe symptoms developing rapidly and coming quickly to a crisis.

Acute Toxicity - Acute effects resulting from a single dose of, or exposure to, a substance. Ordinarily used to denote effects in experimental animals.

Aden Carcinoma - A tumor with glandular (secreting) elements.

Adenosis - Any disease of a gland.

Adhesion - Unions of two surfaces that are normally separate.

Aerosol - A fine aerial suspension of particles sufficiently small in size to confer some degree of stability from dementation (e.g.,smoke or fog).

Air-Line Respirator - A respirator that is connected to a compressed breathable air source by a hose of small inside diameter. The air is delivered continuously or intermittently in a sufficient volume to meet the wearer's breathing requirements.

Air-Purifying Respirator - A respirator that uses chemicals to remove specific gases and vapors from the air or that uses a mechanical filter to remove particular matter. An air-purifying respirator must only be used when there is sufficient oxygen to sustain life and the air contaminant level is below the concentration limits of the device.

Alkali - Any chemical substance that forms soluble soaps with fatty acids. Alkalis are also referred to as bases. They may cause severe burns to the skin. Alkalis turn litmus paper blue and have pH values from 8 to 14

Allegeric Reaction – An abnormal physiological response to chemical or physical stimuli.

Amenorrhea - Absence of menstruation

Benign - Not recurrent or not to progress. Not cancerous.

Carcinogenity - The ability to produce cancer.

Carcinoma - A malignant tumor A forms of cancer.

CAS - Chemical Abstracts Service is an organization under the American Chemical Society. CAS abstracts and indexes “Chemical Literature’ from all over the world “chemical abstracts,” ”CAS numbers” are used to identify specific chemical or mixtures.

Caustic - See Alkali.

CC - Cubic Centimeter is a volume of measurement in the metric system that is equal in capacity to one milliliter (ml). One quart is about 946 cubic centimeters.

Central Nervous System - The brain and spinal cord. These organs supervise and coordinate the activity of the entire nervous system. Sensory impulses are transmitted into the central nervous system and impulses are transmitted out.

CERCLA - Comprehensive Environmental Response Compensation and Liability Act of 1980. The act requires that the coast guard national response center be notified in the event of a hazardous substance release. The act also provides for a fund (the superfund) to be used for the clean up of abandoned hazardous waste disposal sites.

CFR - Code of Federal Regulations. A collection of regulations that have been promulgated under United States Law.

Chemicals - An element (e.g., chlorine) or a compound (e.g ., sodium bicarbonate) produced by chemical reaction.

Chemical Cartridge Respirator - A respirator that uses various chemical substances to purify inhaled air of certain gases and vapors. This type respirator is effective for concentrations no more than ten times the TLV of the contaminant, if the contaminant has warning properties(odor or irritation) below the TLV.

Chemical Family - A group of single elements or compounds with a common general name Example: acetone, methyl ethyl ketone (MEK) and methyl isobutyl ketone (MIBK) are of the"Ketone" family; acrolein, furfural and acetaldehyde are of the"aldehyde"

COC - Cleveland Open Cup. A cashpoint test method.

Combustible - A term used by NFPA, DOT, and others to classify certain liquids that will burn, on the basis of flashpoints. Both NFPA and DOT generally define :combustible liquids" as having a flashpoint of 100 F (37.80C) or higher but below 200 F (93.30C). Also, see "flammable." Non-liquid substances such as, wood and paper are classified as "ordinary combustibles" by NFPA.

Combustible Liquid - Any liquid having a flashpoint at or above 100F (37.80C) but below 200F (93.30), except any mixture having components with flashpoint of 200F (93.30C) or higher, the total volume of which makes up ninety-nine (99) percent or more of the total volume of the mixture.

Common Name - Any means used to identify a chemical other that its chemical name (e. g., code name, code number, trade name, brand name or generic name). See Generic.

Compressed Gas - A gas mixture of gases having, in a container, an absolute pressure exceeding 40 pounds per square inch (psi) at 70 degrees Fahrenheit (21.1C); or a gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130F (54.4C) regardless of the pressure at 70F (21.1C); or a liquid having a vapor pressure exceeding 40 psi at 100F (37.8C) determined by ASTMD-323-72.

CONC - See Concentration.

Concentration - The relative amount of a substance when combined or mixed with other substances. Examples: 2 ppm hydrogen sulfide in air, or a 50 percent caustic solution.

Conditions To Avoid - Conditions encountered during handling or storage that could cause a substance to become unstable.

Confined Space - Any area that has limited openings for entry and exit that would make escape difficult in an emergency, has lack of ventilation, contains known and potentials hazards, and is not intended nor designated for continuous human occupancy.

Conjuctivitis: Inflammation of the conjuctiva, the delicate membrane that lines the eyelids and covers the eyeballs.

Container: Any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of MSDS or HCS, pipes or piping systems are not considered to be containers.

Dilution Ventalation - Air flow designed to dilute contaminants to acceptable levels. Also, see General Ventilation or Exhaust.

DOL - U.S. Department of Labor, OSHA and MSHA are part of DOL.

DOT - U.S. Department of transportation regulates transportation of chemical and other substances.

Dry Chemical - A powered fire-extinguishing agent usually composed of sodium bicarbonate.

Dysmenorrheal - Painful menstruation.

Dysphasia - An abnormality of development.

Dyspnea - A sense of difficulty in breathing; shortness of breath.

Ectopic Pregnancy – The fertilized ovum becomes implanted outside the uterus.

Edema – An abnormal accumulation of clear watery fluid in the tissues.

Endocrine Glands – Glands that regulate body activity by secreting hormones.

Endometrium – The mucous membrane lining the uterus.

Environmental Toxicity – Information obtained as a result of conducting environmental testing designed to study the effects on aquatic and plant life.

EPA – U.S. Environmental Protection Agency.

Epidemiology – Science concerned with the study of disease in a general population. Determination of the incidence (rate of occurrence) and distribution of a particular disease (as by age, sex, or occupation), which may provide information about the cause of the disease.

Epithelium - The covering of internal and external surfaces of the body.

Estrogen – Principal female sex hormone.

Epithelium - The covering of internal and external surfaces of the body

Estrogen - Principal female sex hormone

Evaporation Rate - The rate at which a material will vaporize (evaporate) when compared to the known rate of vaporization material. The evaporation rate can be useful in evaluating the health and fire hazards of a material.

The designated standard material is usually normal butyl acetate (NBUAC or n-BuAc), with a vaporization rate designated as 1.0. Vaporization rates of other solvents or materials are then classified as:

1. **FAST** evaporating id greater and 3.0. Examples: Methyl Ethyl Ketone = 3.8 Acetone = 5.6. Hexane=8.3.

2. **MEDIUM** evaporating if 0.8 to 3.0. Examples: 190 proof (95%) Ethyl Alcohol = 1.4. VM&P Naphtha = 1.4. MIBK = 1.6

3. **SLOW** Evaporating if less than 0.8. Examples: Xylene = 0.6. Normal Butyl Alcohol = 0.4. Water = 0.3. Mineral Spirits = 0.1.

Explosive - A chemical that causes a sudden, almost instantaneous release of pressure, gas and heat when subjected to sudden shock, pressure or high temperature.

Exposure or Exposed - State of being open and vulnerable to a hazardous chemical by inhalation, ingestion, skin contact, absorption or any other course; includes potential (accident or possible) exposure.

Extinguishing Media - The firefighting substance to be used to control a material in the event of a fire. It is usually identified by its generic name, such as fog, foam, water, etc..

Eye Protection - Recommended safety glasses, chemical splash goggles, face shields, etc.. to be utilized when handling a hazardous material.

F - Fahrenheit is a scale for measuring temperature. On the Fahrenheit scale, water boils at 212 degrees Fahrenheit and freezes at 32 degrees Fahrenheit.

F/cc - Fibers per cubic centimeter of air.

FDA - U.S. Food and Drug Administration.

Fetal - Pertaining to the fetus.

Fetus - The developing young in the uterus from the seventh week of gestation until birth.

Fibrosis - An abnormal thickening of fibrous connective tissue, usually in the lungs.

FIFRA - Federal Insecticide, Fungicide, and Rodenticide Act requires that certain useful poisons, such as chemicals pesticides, sold to the public contain labels that carry health hazard warnings to protect users. It is administered by the EPA.

First Aid - Emergency measures to be taken when a person is suffering from overexposure to a hazardous material, before regular medical help can be obtained.

Flammable - A chemical that includes one of the following categories:

1. "Aerosol", flammable." An aerosol that, when tested by the method described in 16 CFR 1500.45, yields a flame projection exceeding 18 inches at full valve opening, or a flashback (aflame extending back to the valve) at any degree of valve opening:

2. "Gas flammable",

    a. A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of 13 percent by volume or less: or

b. A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air than 12 percent by volume, regardless of the lower limit;

3. "Liquid flammable." Any liquid having a Cashpoint below 100 degrees Fahrenheit (37.8 degrees Celsius), except any mixture having components with flashpoints of 100 degrees Fahrenheit (37.8 degrees Celsius) or higher, the total of which make up 99 percent or more of the total volume mixture.

4."Solid flammable". A solid other than a blasting agent or explosive as defined in 1910. 109 (a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change or retained heat form manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A solid is a flammable solid if, when tested by the method described in 16 CFI 1500.44, it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.

Flashback - Occurs when flame from a torch burns back into the tip, the torch or the hose. It is often accompanied by a hissing or squealing sound with a smoky or sharp-pointed flame.

Flashpoint - The minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested by the following methods:

- Tagliabue Closed Tester (see American National Standard Method of Test for Flashpoint by Tag Closed Tester, Z11.24 1979 (ASTM D5679).
- Pensky - Martens Closed Tester, (see American National Standard Method of Test for Flashpoint by Pensky-Martens Closed Tester, Zl 1.71979. (ASTM D93-79).

Setaflash Closed Tester (see American National Standard method for Test for Flashpoint by Setaflash Closed Tester (ASTM D 3278-78).

Foreseeable Emergency - Any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment, which could result in an uncontrolled release of a hazardous chemical into the workplace.

Formula - The scientific expression of the chemical composition of a material (e. g., water is H2O sulfuric acid is H204, sulfur dioxide is S02).

Fume - A solid condensation particle of extremely small diameter, commonly generated from molten metal as metal fume.

G - Gram is a metric unit of weight. One ounce U. S. (avoirdupois) is about 28.4 grams.

General Exhaust - A system of exhausting air-containing contaminants from a general work area. Also see Local Exhaust.

Generic Name - A designation or identification used to identify a chemical by other than its chemical name (e. g., code name, code number, trade number, and brand name).

Gestation - The development of the fetus in the uterus from conception to birth: pregnancy.

G/kg - Grams per kilogram is an expression of dose used in oral and dermal toxicology testing to denote grams of a substance dosed per kilogram of animal body weight. Also see "kg" (kilogram).

Grounding - The procedure used to carry an electrical charge to ground through a conductive path. A typical ground may be connected directly to a conductive water pipe or to a grounding bus and ground rod. See Bonding.

Gynecology - The study of the reproductive organs in women.

Hand Protection - Specific type of gloves or other hand protection required to prevent harmful exposure to hazardous materials.

Hazardous Chemical - Any chemical whose presence or use is a physical hazard or health hazard.

Hazardous Warning - Words, pictures, symbols or any combination thereof presented on a label or other appropriate form to inform of the presence of various materials.

HCS - Hazards Communication Standard is an OSHA regulation issued under 29 CFR Part 1910. 1200.

Health Hazard - A chemical for which there is significant evidence, based on at least one study conducted in accordance with established scientific principles, that acute or chronic health effects may

occur in exposed employees. The term "health hazard" includes chemicals that are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents that act on the hematopoietic system, and agents that damage the lungs, skin, eyes, or mucous membranes.

Hemoglobin - An iron-containing conjugated protein or respiratory pigment occurring in the red blood cells or vertebrates.

Hematoma - A blood clot under the surface of the skin.

Hematopoietic System - The blood - forming mechanism of the human body.

Hematuria - The presence of blood in the urine.

Hepatotoxin - A substance that causes injury to the liver.

Highly toxic - A chemical in any of the following categories:

1. A chemical with a median lethal dose (LD50) of 50 milligrams or less per kilogram of body weight when administered orally to albino rates weighing between 200 and 300 grams each.
2. A chemical with a median lethal dose (LD50) of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between 2 and 3 kilograms each.
3. A chemical that has a median lethal concentration (LCSO) in air of 200 parts per million by volume or less of gas or vapor, or 2 milligrams per liter or less of mist, fume, or dust, when administered by continuous inhalation for 1 hour (or less if death occurs within 1 hour) to albino rats weighing between 200 and 300 grams each.

Hormones - Act as chemical messengers to body organs.

Hyperplasia - Increase in volume of a tissue or organ caused by the growth of new cells.

IARC - International Agency for Research of Cancer.

Ignitable - Capable of being set afire.

Impervious - A material that does not allow another substance to pass through or penetrate it.

Incompatible - Materials that could cause dangerous reactions by direct contact with one another.

Ingestion - Taking in by the mouth.

Inhale - See inhalation.

Inhalation - Breathing in of a substance in the form of a gas, vapor, fume, mist, or dust.

Inhibitor - A chemical added to another substance to prevent an unwanted chemical change.

Insol - See insoluble.

Insoluble - Incapable of being dissolved in a liquid.

Intrauterine - Within the uterus.

Irritant - A chemical, which is not corrosive, that causes a reversible inflammatory effect on living tissue by chemical action at the site of contact. A chemical is a skin irritant if, when tested on the intact skin of albino rabbits by the methods of 16 CFR 1500.41 for 4 hours exposure or by other appropriate techniques, it result in an empirical score of 5 or more. A chemical is an eye irritant if so determined under the procedure listed in 16 CFR 1500.42 or other appropriate techniques.

Irritating - As defined by DOT, a property of a liquid or solid substance which, upon contact with fire or when exposed to air, gives off dangerous or intensely irritating fumes, (not including poisonous materials). See Poison, Class A and Poison, Class B.

kg - Kilogram is a metric unit of weight, about 2.2 U. S. pounds. Also, see «$_{g/kg,}$,1 "g," and "mg."

L - Liter is metric unit of capacity. A U. S. quart is about 9/10 of a liter.

Lacrimation - Secretion and discharge of tears.

Label - Notice attached to a container, bearing information concerning its contents.

Lactation - The secretion of milk by the breasts.

LC - Lethal concentration is the concentration of a substance being tested that will kill.

LCL - Lethal concentration, low, lowest concentration of a gas or vapor capable of killing a specified species over a specified time.

LC50 - The concentration of a material in the air that will kill 50 percent of a group of test animals with a single exposure (usually 1 to 4 hours). The LC50 is expressed as parts of material per million parts of air, by volume (ppm) for gases and vapors, or a micrograms of material per liter of air (g/1) or milligrams of material per cubic meter of air (mg/m3) for dusts and mists, as well as for gases and vapors.

LD - Lethal dose is the quantity of a substance being tested that will kill.

LDL - Lethal dose, low, lowest administered dose of a material capable of killing a specified test species.

LD50 - A single dose of a material expected to kill 50 percent of a group of test animals. The LD50 dose is usually expressed as milligrams or grams of material per kilogram of animal body weight (mg/kg or g/kg). The material may be administered by mouth or applied to the skin.

LEL or LFL - Lower explosive limit, or lower flammable limit, of a vapor or gas; the lowest concentration (lowest percentage of the substance in air) that will produce a flash of fire when an

ignition source (heat, arc or flame) is present. At concentrations lower than the LEL, the mixture is too "lean" to burn. Also see "UEL."

Lesion - Any damage to a tissue.

Elf/m - Linear feet per minute, a unit of air velocity.

Local Exhaust - A system for capturing and exhausting contaminants from air at the point where the contaminants are produced (welding, grinding, sanding other processes or operations). Also see General Exhaust.

M - Meter is a unit of length in the metric system. One meter is about 39 inches.

M3 - Cubic meter is a metric measure of volume, approximately 35.3 cubic feet or 1.3 cubic yards.

Malaise - A feeling of general discomfort, distress or uneasiness, an out-of sort feeling.

Malignant - Tending to become progressively worse and to result in death.

Mammary - Pertaining to the breast.

Mechanical Exhaust - A powered device, such as a motor-driven fan or air stream venturi tube.

Mechanical Filter Respirator - A respirator used to protect against airborne particulate matter he, dusts, mists, metal fume, and smoke. Mechanical filter respirators do not provide protection against gases, vapors or oxygen deficient atmospheres.

Melting point - The temperature at which a solid substance changes to a liquid state.

Menorrhagia - Excessive menstruation.

Menstruation - Periodic discharge of blood from the vagina of a nonpregnant uterus.

Metabolism - Physical and chemical processes taking place among the ions, atoms, and molecules of the body.

Metastasis - The transfer of disease from one organ or part to another not directly connected with it.

Meter - A unit length; equivalent to 39.37 inches.

Mg - Milligram is a metric unit of weight that is one-thousandth of a gram.

Narcosis - A state of stupor, unconsciousness, or arrested activity produced by the influence of narcotics or other chemicals.

Nausea - Tendency to vomit, feeling of sickness at the stomach.

NCI - National Cancer Institute is that part of the National Institutes of Health that studies cancer causes and prevention as well as diagnosis, treatment, and rehabilitation of cancer patients.

NFPA - National Fire Protection Association is an international membership organization which promotes/improves fire protection and prevention and establishes safeguard against loss of life and property by fire. Best known on the industrial scene for the National Fire Codes-16 volumes of codes, standards, recommended practices and manuals developed (and periodically updated) by NFPA technical committees. Among these is NFPA 704M, the code for showing hazards of materials as they might be encountered under fire or related emergency conditions, using the familiar diamond-shaped label or placard with appropriate numbers or symbols.

Neo - See neoplasia.

Neonatal - The first 4 weeks after birth.

Neoplasia - A condition characterized by the presence of new growths (tumors).

Nephrotoxin - A substance that causes injury to the kidneys.

Neurotoxin - A material that affects the nerve cells and may produce emotional or behavioral abnormalities.

Neutralize - To eliminate potential hazards by inactivating strong acids, caustics, and oxidizers. For example, acids can be neutralized by adding an appropriate amount of caustic substances to the spill.

Ng - Nanogram equaling one-billionth of a gram.

NIOSH - National Institute for Occupational and Health, U. S. Department of Health and Human Services (DHHS), among other activities, tests and certifies respiratory protective devices and sir sampling detector tubes, recommends occupational exposure limits for various substances, and assists OSHA and MSHA in occupational safety and health investigations and research.

Nonflammable - Not easily ignited, not burning rapidly.

Non-sparking Tools - Tools made from beryllium-copper or aluminum bronze greatly reduce the possibility of igniting dusts, gases or flammable vapors. Although these tools may emit some sparks when striking metal, the sparks have a low heat content and are not likely to ignite most flammable liquids.

NOX - Oxides of nitrogen, which are undesirable air pollutions. No emissions are regulated by EPA under the Clean Air Act.

NPIRS - National Pesticide Information Retrieval System is an automated database operated by Purdue University containing information on EPA registered pesticides, including reference feel MSDS's.

NRC - National Response Center is a notification center that must be called when significant oil or chemical spills or other environment-related accidents occur. The toll-free telephone number is 1-800-424-8802.

NTP - National Toxicology Program. The NTP publishes an annual report on carcinogens.

Odor - A description of the smell of the substance.

Odor Threshold - The lowest concentration of a substance's vapor, in air, that can be smelled.

Olfactory - Relating to the sense of smell.

Oral - Used in or taken into the body through the mouth.

Oral Toxicity - Adverse effects resulting firm taking a substance into the body by mouth. Ordinarily used to denote effects in experimental animals.

Organic Peroxide - An organic compound that contains the bivalent -0-0 structure and may be consider a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.

Organogensis - The formation of organs during development.

OSHA - Occupational Safety and Health Administration, U. S. Department of Labor.

Ovary - The female sex gland in which ova are formed.

Overexposure - Exposure to a hazardous material beyond the allowable exposure limits. Oxidation in a literal sense, oxidation is a reaction in which a substance combines with oxygen provided by an oxidizer or oxidizing agent. See Oxidizing agent.

Oxidizer - A chemical other than a blasting agent or explosive that initiates or promotes combustion in other materials, causing fire either by itself or through the release of oxygen or other gases.

Oxidizing Agent - A chemical or substance that brings about an oxidation reaction. The agent may (1) provide the oxygen to the substance being oxidized (in which case the agent has to be oxygen or contain oxygen) or, (2) it may receive electrons being transferred from the substance undergoing oxidation (chlorine is a good oxidizing agent for electron-transfer purposes, even though it contains no oxygen).

Pathologic - Pertaining to or caused by disease.

Pathology - Scientific study of alterations produced by disease.

PEL - Permissible Exposure Limit is an occupational exposure limit established by OSHA's regulatory authority. It may be a time-weighed average (TWA) limit or a maximum concentration exposure limit.

Percent Volatile - Percent volatile by volume is the percent of a liquid or solid (by volume) that will evaporate at an ambient temperature of 70 degrees F (unless some other temperature is specified). Examples: butane, gasoline, and paint thinner (mineral spirits) are 100 percent volatile; their individual evaporation rates vary, but in time, each will evaporate completely.

Ph - The symbol relating the hydrogen ion (H+) concentration to that of a given standard solution. A pH of 7 is neutral. Numbers increasing from 7 to 14 indicate greater alkalinity. Number decreasing from 7 to 0 indicate greater acidity.

Physical Hazard - Means a chemical for which there is scientifically valis evidence that is a combustible liquid, a compressed gas, explosive, flammable, or organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

Placenta - A structure that grows on the walls of the uterus during pregnancy, through which the fetus is nourished.

PMC - Pensky-Martens Closed Cup. See Flashpoint.

Pneumoconiosis - A condition of the lung in which there is permanent deposition of particulate matter and the tissue reaction to its presence it may range from relatively harmless of iron oxide deposition to destructive forms of silicosis.

Poison, Class A - A DOT term for extremely dangerous poisons-poisonous gases or liquids that, in very small amounts, either as gas or as vapor of the liquid, mixed with air, are dangerous to life. Examples: phosgene, cyanogen, hydro cyanic acid, nitrogen peroxide.

Polymerization - A chemical reaction in which one or more small molecules combine to form larger molecules. A hazardous polymerization is such a reaction that takes place at a rate that releases large amounts of energy. If hazardous polymerization can occur with a given material, the MSDS usually will fist conditions that could start the reaction and since the materials usually contains a polymerization inhibitor-the length of time during which the inhibitor will be effective.

Ppb - Parts per billion is the concentration of a gas or vapor in air-parts (by volume) of the gas or vapor in a billion parts of air. Usually used to express extremely low concentrations of unusually toxic gases or vapors, also the concentration of a particular substance in a liquid or solid.

Ppm - Parts per million is the concentration of a gas or vapor in air-parts (by volume) of the gas or vapor in a million parts of air; also the concentration of a particulate in a liquid or solid.

Prenatal - Preceding birth.

Psi - Pounds per square inch (for MSDS purposes) is the pressure a material exerts on the walls of a confining vessel or enclosure. For technical accuracy, pressure must be expressed as psig (pounds per square in gauge) or pisa (pounds per square inch absolute; that is, gauge pressure plus sea level atmospheric pressure, or psig plus approximately 14.7 pounds per square inch). See also mm/Hg.

Pul - See Pulmonary.

Pulmonary - Relating to, or associated with, the lungs.

Pulmonary Edema- Fluid in the lungs.

Pyrophoric - A chemical that will ignite spontaneously in air at a temperature of 13 degrees F (54.4 degrees C) or below.

Reaction - A chemical transformation or change. The interaction of two or more substances to form new substances.

Reactivity - Chemical reaction with the release of energy. Undesirable effects-such as pressure buildup, temperature increase, formation of noxious, toxic or corrosive byproducts-may occur because of the reactivity of a substance to heating, burning, direct contact with other materials, or other conditions in use or in storage.

Reducing Agent - In a reduction reaction (which always occurs simultaneously with an oxidation reaction)the reducing agent is the chemical or substance which (1) combines with

oxygen or (2) loses electrons to the reaction. See oxidation.

REL - The NIOSH REL (Recommended Exposure Limit)is the highest allowable airborne concentration, which is not expected to injure the workers. It may be expressed as a ceiling limit or as a time-weighted average (TWA).

Reproductive Toxin - Substances that affect either male or female reproductive systems and may impair the ability to have children.

Respiratory Protection - Devices that will protect the wearer's respiratory system from overexposure by inhalation to airborne contaminants. Respiratory protection is used when a worker must work in an area where he/she might be exposed to concentration in excess of the allowable exposure limit.

Respiratory System - The breathing system that includes the lungs and the air passages (trachea or windpipe, "larynx, mouth and nose) to the outside the body, plus the associated nervous and circulatory supply.

Routes of Entry - The means by which material may gain access to the body; for examples, inhalation, ingestion and skin contact.

Sarcoma - A tumor that is often malignant.

Self-Contained Breathing Apparatus - A respiratory protection device that consists of a supply or a means of irrespirable air, oxygen or oxygen generating material, carried by the wearer.

Sensitizer - A chemical that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.

SETA - Setaflash Closed Tester. See Flashpoint.

Silicosis - A disease to the lungs (fibrosis) caused by the inhalation of silica dust.

Skin - "Skin" A notation (sometimes used with PEL or TLV exposure data) that indicates that the stated substance may be absorbed by the skin, mucous membranes and eyes-either airborne or by direct contact-and that this additional exposure must be considered part of the total exposure to avoid exceeding the PEL or TVL for that substance.

Skin absorption - Ability of some hazardous chemicals to pass directly through the skin and enter the bloodstream.

Skin Sensitizer - See Sensitizer.

Skin Toxicity - See Dermal Toxicity.

Solubility in Water - A term expressing the percentage of a material (by weight) that will dissolve in water at ambient temperature. Solubility information can be useful in determining spill cleanup methods and reextinguishing agents and methods for a material.

Solvent - A substance, usually a liquid, in which other substances are dissolved. The most common solvent is water.

Sox - Oxides of sulfur.

Species - On the MSDS's species refer to the test animals-usually rats, mice or rabbits-used to obtain the toxicity test data reported.

Specific Chemical Identity - The chemical name, Chemical Abstracts Service (CAS) Registry Number, or any precise chemical designation of a substance.

Specific Gravity - The weight of a material compared to the weight of an equal volume of water is an expression of the density (or heaviness) of a material. Insoluble materials with specific gravity of less than 1.0 will float in (or on) water. Insoluble materials with specific gravity more than 1.0 and, if not soluble, will float on water-an important consideration for fire suppression.

Spill or Leak Procedures - The methods, equipment, and precautions that should be used to control or clean up a leak or spill.

Splash-Proof Goggles - Eye protection made of non-corrosive material that fits snugly against the face, and has indirect ventilation ports.

Spontaneously Combustible - A material that ignites as a result of retained heat from processing or that will oxidize to generate heat and ignite, or that absorbs moisture to generate heat and ignite.

Squamous - Scaly or platelike.

Stability - The ability of a material to remain unchanged. For MSDS purposes, a material is stable if it remains in the same form under expected and reasonable conditions of storage or use. Conditions that may cause instability (dangerous change) are stated: for example, temperatures about 150 degrees Fahrenheit; shock from dropping.

STEL - Short -Term Exposure Limit (ACGIH terminology). See TLV.

Stenosis - Narrowing of a body passage or opening.

Steroid - A complex molecule among which are the male and female sex hormones.

Subcutaneous - Beneath the layers of the skin.

Supplied-Air Respirators - Air line respirators of self-contained breathing apparatus.

Sys - System or Systemic.

Systemic Poison - A poison that spreads throughout the body, affecting all body organs. Its adverse effect is not localized in one spot or area.

Systemic Toxicity - Adverse effects caused by a substance that affects the body in a general rather than a local manner.

Synonym - Another name or names by which a material is known. Methyl Alcohol, for example, is known as Methanol or wood alcohol.

Target Organs Effects - The following is a target organ categorization of effects that may occur, including examples of signs and symptoms and chemicals that have been found to cause such effects. These examples are presented to illustrate the range and diversity of effects and hazards found in the workplace and the broad scope employers must consider in this area. These are not meant to be all-inclusive.

- **Hepatoxins** - Chemicals that produce liver damage signs & symptoms Jaundice: liver enlargement. Chemicals - Carbon Tetrachloride, Nitrosamines.
- **Nephrotoxins** - Chemicals that produce Kidney damage signs and symptoms: Edema: proteinuria. Chemicals - Halogenated Hydrocarbons; uranium.
- **Neurotoxins** - Chemicals that produce their primary toxic effects on the nervous system. Signs & Symptoms. Narcosis; behavioral changes; decrease in motor functions. Chemicals - Mercury, carbon disulfide • Agents that act on blood hematopoietic system - Decrease hemoglobin functions, deprive the body tissue of oxygen. Signs & Symptoms - Cyanosis; loss of consciousness. Chemicals- Carbon Monoxide, Cyanides
- **Agents that damage the lungs** - Chemicals that irritate or damage the pulmonary tissue. Signs & Symptoms - Cough, tightness in chest, shortness of breathes. - Chemicals - Silica, Asbestos
- **Reproductive Toxins** - Chemicals that adversely affect the reproductive capabilities including chromomal damage (mutations) and effects on fetuses (teratogensis) Signs & Symptoms. - Birth defects, sterility. Chemicals - Lead, DBCP
- **Cutaneous hazards** Chemicals that affect the dermal layer of the body. Signs & Symptoms - defatting of the skin; rashes; irritation. Chemicals - Ketones, chlorinated compounds.

- **Eye hazards** - Chemicals that affect the eye or visual capacity. Signs & Symptoms - Conjunctivitis, corneal damage. Chemicals - Organic solvents; acid.
- **Target Organ Toxins** - A toxin substance that attacks a specific organ of the body. For example, overexposure to carbon tetrachloride can cause liver damage.

TCC - Tag (Tagliabue) Closed cup. See Flashpoint.

TCC - Toxic concentration, below (1) one, the lowest concentration of a gas or vapor capable of producing a defined toxic in a specified test over a specified period of time.

TDL - Toxic dose, low, lowest administered dose of a material capable of producing a defined toxic effect in a specified test species.

Temp - Temperature

Ter - See Teratogen.

Teratogen - A substance or agent, exposure to which by a pregnant female can result in malformations in the fetus.

Tfx - Toxic effect (s)

TLV - Threshold Limit Value is a term used by ACGIH to express the airborne concentration of material to which nearly all persons can be exposed day after day without adverse effects. ACGIH expresses TLVs in three ways:

- TLV-TWA: The allowable Time-Weighted Average Concentration for a normal 8-hour workday or 40-hour workweek.
- TLV-STEL: The short-term Exposure Limit, or maximum, concentration for a continuous 5-minute exposure period (maximum of four such periods per day, with at least 60 minutes between exposure periods, and provided the daily TLV-TWA is not exceeded).
- TLV-C: The cooling Exposure Limit-the concentration that should not be exceeded even instantaneously.

TOC - Tag Open Cup. See Flashpoint

Torr - A unit of pressure, equal to 1/760 atmosphere.

Toxic - A chemical falling within any of the following categories: A chemical that has a median lethal dose (LD50) of more than 50 mg per kg, but not more than 500 milligrams per kg of body weight administered orally to albino rats weighing between 200 and 300 grams each.

Ventilation - See General Exhaust, Local Exhaust and Mechanical Exhaust.

Vermiculite - An expanded mica (hydrated magnesium-aluminum-iron silicate) used as solvent for spill control and cleanup.

Viscosity - The tendency of a fluid to resist internal flow without regard to its density.

Volatility - A measure of how quickly a substance forms a vapor at ordinary temperatures.

Water Disposal Methods - Proper disposal methods for contaminated material, recovered liquids or solids and their containers.

Water-Reactive - A chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

Work Area - A room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

Workplace - An establishment at one geographical location containing one or more work areas.

Zinc Fume fever - A condition brought on by inhalation if zinc oxide fume characterized by flu-like symptoms. With a metallic taste in the mouth, coughing weakness, fatigue, muscular pain and nausea followed by fever and chills. On -site of symptoms occurs 4-12 hours, after exposure.

AUTOMATIC SYSTEMS, INC.

SECTION 6

HAZARDOUS ENERGY CONTROL PROGRAM

AUTOMATIC SYSTEMS, INC.

SECTION 6

HAZARDOUS ENERGY CONTROL PROGRAM

STATEMENT OF POLICY

All employees will perform their work in accordance with the company's LOCK OUT/TAG OUT PROCEDURE that addresses the servicing and maintenance and equipment during which unexpected startup or energization COULD result in injury to personnel.

SCOPE

All work activities: including, but not limited to, service, maintenance, demolition, construction; that requires an employee to remove/bypass a guard or other safety engineered control. Included are any activities that require an employee to place any part of his/her body into an area or machine or a piece of equipment where work is actually performed upon process material (point of operation) or where an associated danger zone exists during machinery or equipment operating cycles.

PURPOSE

This program is to prevent injury and accidents that result from the unexpected release of energy. As such, all requirements establish the minimum acceptable level of performance.

DEFINITIONS

AUTHORIZED PERSON - An employee who implements a Lock out/Tag Out procedure on machinery or equipment in order to perform work on that machinery or equipment.

AFFECTED EMPLOYEE - An employee whose job activities requires him/her to operate, use or be in the area of machinery or equipment that is being serviced or maintained subject to the control provisions of the company's LOCK OUT/TAG OUT Program.

ENERGY ISOLATION DEVICE - A mechanical device that physically prevents the transfer or release of energy. It includes, but is not limited to: manually operated circuit breakers, fusible disconnect switches, plug and receptacles, normally operated switches (where the circuit conductor can be disconnected from all ungrounded supply conductors and no pole can be operated independently), and process line blanks/blinds. **NOTE:** Push button switches and other control circuit actuators are not energy isolation devices.

ENERGY SOURCE - Electrical, hydraulic, mechanical, pneumatic, chemical thermal, or other energy; both active and stored.

FUNCTION CHECKS - The act of ensuring equipment and/or machinery is at Zero Energy State after LOCK OUT/TAG OUT is completed. A minimum electrical function check is accomplished by using a meter rated for the equipment being worked on and by operating all controls in every mode.

LOCK OUT - Placement of a LOCK OUT device on an Energy Isolating Device in accordance with established procedures, ensuring that the Energy Isolation Device and the machinery/equipment being controlled cannot be operated until the LOCK OUT Device is removed.

LOCK OUT DEVICE - A device that employs a positive method of securing an Energy Isolation Device in a safe position to prevent the energization of machinery or equipment. This generally refers to a lock or multiple locking hasp and lock.

MAINTENANCE or SERVICE - Activities such as demolition, construction, installation, adjusting, inspection, modification, maintaining, etc.

MULTIPLE LOCKING HASP - A manufactured device designed to accommodate a number of locks (usually 6) to allow more than one person, craft, etc., to secure an Energy Isolation Device.

FUNCTION CHECKS - The act of ensuring equipment and/or machinery is at Zero Energy State after LOCK OUT/TAG OUT is completed. A minimum electrical function check is accomplished by using a meter rated for the equipment being worked on and by operating all controls in every mode.

TAG - A prominent warning device incorporating the warning message "DANGER-DO NOT OPERATE" and accommodating attachment that will withstand 50 pounds of pull stress, to and Energy Isolation Device.

LOCK OUT PROCEDURE:

1. The project superintendent will obtain clearance from the owner or other responsible party to determine de-energization effects and timing.
2. The job foreman will receive approval for de-energization from the project superintendent.
3. The job foreman, with the employee who will be performing, will identify and be in agreement that the correct point and method has been selected (circuit breaker, disconnect).
4. **NOTE:** Control circuits, stop buttons, etc., shall not be used for purpose of LOCK OUT.
5. The person performing the work will de-energize and place their lock (s), lockout device (s), and identification tag (s) at the agreed upon points. The tag (s) will be legible and each block of information will be completed.
6. **NOTE:** Control circuits, starts/stop mechanism, etc., are not to be used as lock out control points.
7. After lock out is complete, verify that equipment is at zero energy state with all power isolated. This is accomplished by performing voltage meter checks and by operating control mechanisms such as circuits, switches in all modes. If there is any question about secondary or temporary power (s) to the equipment, it should be resolved at this time.
8. If more than one employee is working on the de-energization equipment or system, each employee must attach their individual lock and completed information tag at the lock out control point.
9. **NOTE:** If there is no engineered accommodation for a lock or lock out device, the employee must follow the tag out procedure.
10. Once the equipment is locked out, appropriately tagged and verified to be a zero energy state, the key for the lock (s) are to be delivered to the job foreman for control and tracking.
11. When work is completed, the employee, with the job foreman, will verify that equipment/system start-up poses no danger to personnel or equipment. Once this check is complete and all parties who might be affected have been informed of planned start-up, then the employee who performed the work, along with the job foreman, will remove the lock and/or lockout device and tag. This will allow the equipment/system to re-energize.
12. Every employee will be issued a lock for the duration of the project. ASI will note all serial numbers of all locks and if the locks are lost a fee will required to be paid by the employee for a new lock.
13. ASI will use the lock box method for their projects. One lock will be placed on either the panel or the disconnect on the drive. The key will be put in a lock box and employees working on that system will place their locks on the lock box.

TAG OUT PROCUDURE:

The ASI, Tag Out Procedure follows the same steps and has the same requirements for insuring de-energization as the Lock Out Procedure. However, because Tag Out does not provide the same level of security that is present with Lock Out, the conditions listed must be met.

- Tag out shall only be implemented when there is no physical engineered accommodation for lock out and the employees (s) performing the work can **maintain continuous line of sight monitoring** of the tag location (s).
- Tag out requires the use of completed "DANGER-DO NOT OPERATE" tag (s).

EMERGENCY LOCK OUT/TAG OUT REMOVAL

- All locks, point of attachments, equipment/systems identification, employee performing work and inspector information will be logged into the Project Lock Out/Tag Out Control Book and kept with the safety manager. If an individual is not available at site or cannot be contacted and is away from site, it becomes necessary to remove or otherwise alter the lock out/tag out that the employees installed, the job foreman may re-energize by implementing the following steps:

    1. The job foreman will confirm contact with the employee performing the work cannot be established.
    2. The job foreman, with the benefit of all knowledgeable personnel available, determines the status of the work.
    3. If all personnel who might be affected by start up of the equipment are in agreement that the work is complete and that no hazard to personnel and/or equipment is presented by equipment/system start up, then the job foreman can remove equipment/systems locks, locking devices and tags.
    4. Upon removal of lock out/tag out controls and re-energization, a "bump" test should be performed to further ensure safe operation.
    5. The job foreman will enter the "Lock Out status on the Project Lock Out Log and verbally report the changed status to the unavailable employee who initiated the Lock Out immediately upon that employees' return the job site.

Note: ASI Safety Manager will periodically review and inspect lockout/tagout procedures or jobsites to verify they are being followed properly. Reviews will be no less than annual.

WORKING WITH OR NEAR EXPOSED ENERGIZED PARTS

ASI personnel are not allowed to work on energized parts EVER. ASI will subcontract this work only to Qualified Electrical Contractors. If ASI's Qualified Electrical Contractor, or another Qualified Electrical Contractor, is working on energized parts, ASI personnel are restricted from working in this area. **Note:**

Employees may not enter spaces containing exposed energized parts unless illumination is provided that enables the employees to work safely.

WORKING WITH OR NEAR EXPOSED DE-ENERGIZED PARTS

First, always follow ASI's Lock Out Tag Out procedures as noted above. If for any reason an Employee cannot complete the Lock Out Tag Out procedure, or cannot positively confirm that the part has been locked out, the part shall be treated as Energized and the steps in "Working with or near exposed energized parts" shall be followed. Remember de-energized parts can re-accumulate different types of energy. You must verify a de-energized parts remains that way, or treat it as an energized part.

DE-COMMISIONING PROCEDURE - System/Circuit

This procedure is to be implemented by Project Management/Supervision for their control of System/Circuits that are within the project work scope. It is to be implemented for Systems/circuits that are to be decommissioned for a period exceeding one week. This procedure is supplemental to the requirements of Lock Out/ Tag Out.

SYSTEMS/CIRCUIT CONTROL STEPS

1. Using blue lines schematics, identify the system/circuit power sources, branch circuits and terminals using a proper voltage test equipment.
2. Review blue line mark-up with Owner/Operator/Contract Representative to establish exceptions.
3. Use corrected blue lines mark-up for field identification of system/circuit.
4. With system/circuit energized, perform voltage/energy throughout. (Energized).
5. De-energized system/circuit and repeat voltage/energy checks
6. **NOTE:** All exceptions to Steps 4 and 5 modality must be resolved before proceeding. System/Circuit is correctly identified and ready to be placed in a ZERO ENERGY STATE by authorized and qualified personnel.

A. Bus Duct Systems:

1. Eliminate all loads
2. Open feeder circuit breakers
3. Disconnect switch
4. Rack out feeder breaker
5. Remove breaker from its enclosure cell
6. Verify de-energization at pre-determined Blue Line schematic junctures using a properly rated voltage tested
7. Attach a "System Decommissioned" information tag as verification checks

are completed.

B. Bus Plug & Branch Circuits

1. Eliminate all loads
2. Open system disconnect switch or breaker
3. Disconnect and tape exposed ends of all phase wires from the load side of the switch or breaker
4. Attach a "System De-commissioned" information tag at the pre-determined junctures of the system/circuit.

C. Overhead Power Lines

1. ASI personnel are NEVER to be considered Qualified Employees for working on overhead high voltage power lines.

2. Personnel and any of their equipment, including motor vehicles, lift and rigging equipment, or anything else, must be operated at least 10 feet away from any overhead power lines at all times, energized or not. When in doubt, assume they are fully energized. This applies whether Employees are working or not.

3. If you are working near overhead power lines, you must maintain a minimum of 10' distance away in all circumstances. When approaching overhead lines, also follow Table S5 regarding safe distances to maintain.

NOTE: Verification of Zero Energy State, using a properly rated voltage meter, is required at each point of work exposure on the System/Circuit.

SECTION 7

GROUND FAULT CIRCUIT INTERRUPTION AND

ASSURED EQUIPMENT GROUNDING PROGRAMS

AUTOMATIC SYSTEMS, INC.

SECTION 7

GROUND FAULT CIRCUIT INTERRUPTION AND

ASSURED EQUIPMENT GROUNDING PROGRAMS

STATEMENT OF POLICY

AUTOMATIC SYSTEMS, INC. will require GFCI's for all single phase, 15-20 ampere receptacles that are not part of the permanent facility wiring. Additionally, an Assured Equipment Grounding Program that addresses extension cords, receptacles and cord-and plug-connected equipment will be implemented at all job sites.

SCOPE

All temporary 15-20 ampere receptacles, extension cords and cord-and-plug equipment/tools at all job sites.

EXCEPTION: Receptacles on a two-wire, single phase portable or vehicle mounted generator rated mot more than 5kW, where the circuit conductors of the generator are insulated from the generator frame and all other grounded faces.

PURPOSE

To protect employees' from exposure to electrical shock resulting from use of non-grounded, damaged or improperly maintained extension cords, receptacles and cord-and plugs.

PROCEDURE ACTION PLAN

- The Project Superintendent/General Foreman will implement the program by a qualified Journeyman with the responsibility of the assured equipment grounding programs.
- All 120 volt, single phase, 15-20 ampere receptacle outlets, which are not a part of the permanent wiring and are in use by employees, shall have approved and tested Ground Fault Circuit Interrupters for personnel protection.
- Each cord set, attachment cap, plug and receptacle of cord sets and any equipment connected by cord-and-plug shall be visually inspected by the user for defects before

each use. Defective equipment will be taken out of service, have a "DANGER-DO NOT USE" tag identifying the defect attached and turned over to the Assigned Qualified Journeyman for documentation and repair.

- The Assigned Qualified Journeyman will perform tests and document equipment status.

  - Test Frequency
    1. Before first use of equipment
    2. Before equipment is returned to service following any repair
    3. **Before equipment is used after any incident which can be reasonably suspected to have caused damage.**
    4. At intervals not to exceed 3 months.
  - Test Requirements
    1. All equipment grounding conductors shall be tested for continuity and shall be electrically continuous.
    2. Each receptacle and attachment cap or plug shall be tested for correct attachment of the equipment conductor.
    3. GFCI's will be tested for rated performance
  - Test Documentation
    1. The GFCI and Assured Equipment Grounding Information Log will be used to document all test information.
    2. Equipment tested and suited for service will be identified by color-coded tape located within 12 inches of plug and/or receptacle.

January - MarchWhite	
April - June	Green
July – September	Red
October - December	Orange

NOTE: Color code requirements of the Client or General Contractor that are more stringent will take precedence.

AUTOMATIC SYSTEMS, INC.

SECTION 8

PERMIT REQUIRED TO CONFINED SPACE

SECTION 8

PERMIT REQUIRED TO CONFINED SPACE

Primary Reference Standards: *49 CFR 1910.119 & 146.49 CFR 1926.21 ANSI Z 117.1*

STATEMENT OF POLICY

No company or contract employee is allowed to enter a Confined Space until all criteria of the Confined Space Program has been reviewed with them and the requirements of the Permit Required Confined Space Procedure (PRCS) have been met.

PURPOSE

The program is to be implemented to ensure safety of employees who are asked to perform work in a Permit Required Confined Space**.**

SCOPE

This program applies to all personnel, including non-company, who are in a confined space and who might be exposed to create exposures to the confined space.

DEFINITIONS:

ACCEPTABLE ENTRY CONDITIONS – The criteria that must be present in a permit space to ensure that employees can safely enter and work in that space.

ATTENDANT – The assigned individual(s) stationed immediately outside a PRCS who continuously monitor the occupants and performs the attendant duties.

ATTENDANT DUTIES – Activities that include but are not limited to authorizing entry into the PRCS reviewing permit conditions with entrants prior to entry, to continuous monitoring of PRCS occupants, monitoring ambient conditions and initiating emergency rescue.

AUTHORIZED ENTRANT – Personnel who have reviewed the Confined Space Program and who have satisfied the specific criteria for the PRCS to be entered.

CONFINED SPACE – Any area that has adequate size and configuration for employee entry has limited means of access or egress and is not designated for continuous employee occupancy.

PERMIT REQUIRED CONFINED SPACE (PRCS) – A confined space that presents or as the potential for hazards related to atmospheric conditions (Toxic, Flammable, Asphyxiating), engulfment, configuration or any other recognized serious hazard.

ATTENDANTS

- Follow all procedures detailed in this program, which apply, to attendants.
- Successfully complete training required for both authorized entrants and attendants.
- Demonstrate proficiency in all attendant and entrant duties.
- Demonstrate proficiency in monitoring techniques and the use, care, and maintenance of the required instrumentation.
- Maintain continuous and effective contact with authorized entrants during entry.
- Be able to immediately recognize conditions that require immediate removal of the authorized entrants from the confined space.
- Be able to immediately respond appropriately when a rescue is needed.

RESCUE PERSONNEL

- Successfully complete all required training for rescue personnel in addition to any other required training such as hazard communication and respiratory protection training.
- Follow all procedures for emergency response and rescue operation detailed in the program.
- Practice drills performed annually with dummies or real life personnel.

OTHER EMPLOYEES

- Participate in training on the identification and characteristics of a confined space. This training will be provided by the employer and may be given during a safety meeting or as part of hazard communication training.
- Heed all labels and signs warning of confined spaces.

- Cooperate with the policy of unauthorized entry of a confined space. Failure to comply with this policy will result in disciplinary action up to and including termination.

TRAINING REQUIREMENTS

One of the most important components of a successful and effective confined space program is training. The very nature of the hazards involved in confined space entry demand a complete and effective training program tailored to foreman, entrant, attendant, and rescue personnel duties and responsibilities. The effective confined space entry program will ensure that confined spaces are entered with all required safety precautions in place.

EMPLOYEES REQUIRED TO BE TRAINED

- All foremen who may be in charge of a confined space entry. And all entrant, attendant, and confined space rescue personnel are required to be thoroughly trained.
- To enter a confined space all employees will receive training on confined space identification and hazards recognition.

FREQUENCY OF TRAINING

All employees who may be assigned to any confined space duties or have duties related to confined space work must be trained initially before conducting any work related to confined space entry.

Retraining of authorized entrants, attendants, foremen, and rescue personnel is required whenever:

- There is a change in the employee's job assignment.
- There have been additional confined spaces identified.
- There has been a change in the hazards of a confined space(s).
- There has been a change in Confined Space Entry Program procedures or any Federal, State, or Local regulations affecting this Program or the required training.
- Periodic auditing and inspection by an authorized person who is qualified reveals inadequacies in procedure or in the knowledge and/or work practices of an employee(s).

DOCUMENTATION OF TRAINING

- Any training must be documented and kept in the designated file permanently.
- The required elements of this documentation include:

- The employee's name and identification number.
- The date of training.
- The qualified trainer's name.
- Training topics covered.
- The signatures of the employee(s) and trainer(s).

TRAINING OF SUPERVISORS RESPONSIBLE FOR AUTHORIZING ENTRY

Supervisors authorizing or in charge of entry must receive the following training:

- Determining that the entry permit is properly completed before authorizing and allowing entry.
- Determining that all necessary procedures and practices for safe entry are in effect before entry.
- Determining, before entry, that all the necessary safety equipment is available, functioning properly and will be used correctly.
- Determining through periodic checks that conditions are remaining safe for the authorized entrants to remain inside the confined space.
- Recognizing the need to cancel a permit, withdraw authorized entrants from the space, or initiate rescue operations.
- Knowing procedures to follow after work has been completed within the confined space such as closing the opening to the confined space and canceling the permit.
- Knowing appropriate methods for controlling hazards specific to the confined spaces in the supervisor's area of responsibility.
- Knowing methods for actively observing employees performing confined space work.
- Practicing appropriate methods for avoiding entry into a confined space as well as methods to prevent or control the confined space entry hazards.

PERMIT REQUIRED CONFINED SPACE ENTRY PROCEDURE

PRE-ENTRY

1. Review enter-only conditions with PRCS Host Authority (H-A) to ensure all variable conditions are under control (Safe-Out).
2. Review and complete the identifying information section of the permit with H-A.

    - Space to be entered.
    - Purpose of entry.
    - Date and duration of permit (not to exceed one shift).
    - ASI Entry Supervisor's name.
    - Name of PRCS Attendant.

3. Verify Safe-Out Positive Isolation locations and accomplishment-note procedure Reference Nomenclature on permit.
4. Ensure required emergency and rescue equipment as present and serviceable.

INITIAL ENTRY

1. Establish and review with H-A the Communications Procedure for Initial and Working entry into the PRCS.
2. Conduct Emergency Services and Equipment mobilization review with the H-A and Rescue Personnel.
3. Ensure all monitoring and metering test equipment is available, calibrated and suited for purpose.
4. Ensure that all personal protective equipment necessary is suitable and effective.
5. Ensure that all access equipment is identified and the entrant(s) is familiar in its placement and usage.
6. Ensure pre-determined ventilation requirements will be functional.
7. Allow Host-Authority to open PRCS.
8. Establish ventilation and continue for 6 (six) complete air changes; shut down ventilation prior to atmospheric testing to ensure the maximum exposure is surveyed.
9. Begin general area monitoring up to access plan of the PRCS.
10. Monitor immediately inside the PRCS-minimize respiratory and body exposure.
11. Place access and retrieval equipment for service.
12. ENTER the PRCS and conduct atmospheric and visual monitoring to determine if exposures are within acceptable working limits.
13. Complete Working Entry PRCS Permit with sampling results information and any other special considerations determined in the course of Initial Entry.

WORKING ENTRY

- Conditions of the Permit are to be reviewed with the attendant who is responsible for advising workers of the permitted conditions.
- The attendant will post the working copy of the permit by the PRCS entry location: included on or in addition to will be a log for those who enter to sign as they enter and upon exit.
- The attendant will post a “SAFE TO ENTER” sign(s) by the access opening and “DO NOT ENTER” sign(s) at all other openings.
- The attendant will have available at the PRCS a reference copy of this policy: POLICY GUIDELINE INFORMATION

IDENTIFICATION AND ANALYSIS OF CONFINED SPACES

IDENTIFICATION

Any new areas such as pits, vaults, and tunnels and new equipment such as tanks and vats will be identified and evaluated by qualified person before classifications as a confined space and before entry by any individual. This program will apply to any newly added confined space as well as existing or previously identified confined space.

If conditions of an existing area, piece of equipment of confined space change, which may affect its confined space status and/or its associated hazards, a qualified person or consultant will re-evaluate the area.

ANALYSIS OF HAZARD

Any new areas such as pits, vaults, and tunnels and new equipment such as tanks and vats will be thoroughly evaluated for all hazards and potential hazards before an entry is allowed or planned. A qualified person must do this evaluation. Depending upon the potential hazards, all applicable procedures in this program will apply.

If conditions of an existing confined space change, which may affect the potential hazards, a qualified person will re-evaluate the space for potential hazards. If the classifications of the space changes due to different or new hazards, the appropriate control measures will be taken as detailed in the Program.

CONFINED SPACE HAZARD ASSESSMENT

The final component of the confined space assessment is the classification of the space. All confined spaces will be treated as permit required spaces until baseline data from testing of the spaces is gathered and a reassessment is conducted.

POSTING OF CONFINED SPACES

All confined spaces must be posted with a warning sign or communicated effectively to all employees. Signs must be placed near the entrance to the confined space and contain the following wording:

- Danger
- Confined Space
- Enter By Permit Only

The colors of danger signs should be red for the background, and black and white according to OSHA specifications. The wording must be easily read. All signs must be in English and Spanish and posted near the opening to the space. If any workers are unable to read labels and posted signs they must be informed verbally or trained to recognize these particular signs warning of confined space danger.

PREVENTION OF UNAUTHORIZED ENTRY

Post signs “Danger-Confined Space-Enter by Permit Only” by each confined space entrance in order to prevent unauthorized entry.

If covers have been removed from pits and vaults, the opening must be promptly guarded by railings, wooden horses, barrier tape, etc., and suitable warning signs if the confined space is to be left unattended for any reason.

The attendant and supervisor are in charge of preventing unauthorized entries during a confined entry. Anyone approaching the immediate confined space area will be stopped by the attendant or supervisor.

Entry is by permit only.

The foreman is responsible for initiating the permit and will sign off on the entry permit when he/she has reviewed and confirmed that the necessary actions for safe entry have all been taken.

The permit is good for the specified time listed on the permit. The permit will be reviewed and updated for each shift.

After the foreman has signed the permit, it should be posted in an obvious area near the opening to the confined space. A copy will be kept in the superintendent's office in the designated file.

The foreman in charge of the confined space entry must sign the permit after it is completed and contains all the correct and necessary information.

One qualified entrant, one qualified attendant, and one qualified foreman is required for each confined space entry at a minimum. At least two trained rescue personnel must be available to be on site in an acceptable amount of time.

The foreman must notify the rescue team of the confined space entry. No entry will be permitted if rescue personnel are unavailable.

OBTAINING AND SETTING UP EQUIPMENT

All necessary safety equipment and supplies must be obtained prior to entry. Use the section as a guide in obtaining equipment.

Rescue team members will ensure that emergency equipment is available for rescue. This includes SCBA's with extra air cylinders, extra ropes, lifelines, and harnesses, a fire extinguisher, and oxygen resuscitation equipment.

Post warning signs to warn of the confined space entry. Barricade the area around the opening to prevent unauthorized entry.

Set up the retrieval system.

Prepare and set-up the ventilator using a blower, motor and ducting for ventilation of the space. Make sure the motor is explosion-proof and kept a safe distance from the space opening. Make sure all equipment is grounded and bonded and ensure the air entering the blower is not contaminated by an outside source (such as plant emissions or vehicle exhaust).

Calibrate all direct reading air monitoring instruments according to the manufacturer's instructions. Use the manufacturer's recommended calibration gases for methane and hydrogen sulfide. Make sure these instruments are properly calibrated before use. Document the calibration on the appropriate form.

After the instrument is fully calibrated, follow the manufacturer's directions for proper setup for air testing. Make sure the sample probe can reach all remote areas of the confined space.

The foreman in charge of entry must ensure that rescue equipment and rescue personnel are at the ready.

POSITIVE ISOLATION/LOCK OUT/TAG OUT

A written procedure identifying points and methods of Positive Isolation must be developed and implemented for each PRCS.

Implement a lock out tag out procedure. This can only be performed by individuals trained and qualified to lockout equipment.

BONDING AND GROUNDING

All electrical equipment used in confined space entry must be bonded and grounded.

All electrical equipment must be approved by a certifying agency-i.e. Underwriters Laboratory.

OPENING THE SPACE

Before opening up the confined space, ensure that it is safe to do so. Check for excessive heat, odors, etc. The pressure and temperature should be approximately ambient. If unusual conditions exist (such as, excessive heat), additional precautions are necessary. Contact the Safety Manager immediately and keep the opening closed and barricaded.

If possible, the air inside the space should be monitored before opening by placing the instrument probe or hose into the space.

The confined space will be opened with the foreman observing. Either the attendant or the entrant may open the space. Protective clothing and a suitable respirator are required to be worn by the worker opening the confined space if the space is under pressure or other unusual conditions exist. Air Monitoring will be conducted when the space is being opened if such conditions exist.

OPEN FLAMES OR OTHER SOURCES OF IGNITION

If open flames or any source of arc or ignition are to be used in a confined space, a test for flammable gases and vapors must be made immediately before their use and continuous monitoring will be conducted during the entry and occupancy.

Continuous ventilation with clean, fresh air must be provided to the space during entry and hot work.

No tank of welding or compressed gases is allowed inside the confined space.

A test for flammability must be taken immediately before beginning any hot work inside the confined space.

No welding, grinding, or other hot work will be permitted if the flammability level in the space exceeds 10 percent of the Lower Explosive Limit (LEL). If the LEL is exceeded, ventilation must be used to purge the environment and re-testing is then necessary until a safe level is reached for hot work. This safe level must be monitored for and maintained continuously during entry.

Once such areas have been cleared and the foreman has approved hot work, a fire watch with fire extinguisher (class ABC) must be stationed immediately outside the confined space.

The entrant or attendant must suspend hot work immediately if safe conditions for hot work are diminished.

SAFE ENTRY CONDITIONS

Before entry, the foreman must check the permit conditions and verify their status to authorize "safe for entry". Protective shields, protective barriers or insulating materials as necessary shall be provided. .Exposures to consider:

- Ladders, catwalks, or other safe means will be used for safe access into and out of confined space.
- The entrant(s) must check to ensure that he/she has all of the necessary safety equipment needed for entry. The entrant(s) must have a full body harness that is attached to a lifeline. The lifeline must be attached to a winch or other retrieval system. For small openings, wristlet lines may be worn instead.
- The authorized entrants may enter the confined space without special breathing equipment when the following conditions exist in the space:

    - The oxygen content is about 19.5% and below 23.5%. If the oxygen content is too high, purge with fresh air to lower it to a safe level. High oxygen levels and a source of ignition will lead to an explosion and probable death inside the confined space.
    - The level of a flammable substance is below 10% of its lower explosive limit.
    - No contaminants exist in the confined space at a level above their permissible exposure limit. If it does, full-face respirators with the correct cartridges for the contaminant must be worn. If a level of a contaminant exists that exceeds the capacity supply, or the entrant(s) must wear a SCBA.
    - **Absolutely No Entry Is Allowed** if oxygen levels remain above 23.5%.
    - The space must not be entered if the concentration of airborne combustible dust obscured vision at a distance of 5 feet or less. Continue to ventilate with fresh clean air until safe for entry.

ATTENDANT DUTIES

The attendant is allowed to monitor only one confined space at a time and is not to perform any other duties unrelated to the confined space entry. Authorized attendants may rotate duties if the second attendant is fully aware of the conditions established on the permit.

The attendant must continuously ensure the ventilator is working properly. If the ventilator should fail, the entry will stop and the entrant(s) will be removed from the confined space.

The attendant and authorized entrants will communicate using hand held radios if they are unable to see each other during the entry. The attendant should also be able to summon the rescue teams by using the hand held radio or other listed means on the permit.

ENTRY SUPERVISOR DUTIES

The Entry Supervisor must make periodic checks during the entire entry time. If safe conditions are not maintained, the permit will be concealed and the entrant(s) will be immediately removed from the space.

The Entry Supervisor is responsible to coordinate with the Host Authority to ensure adequate procedures are implemented, resources available, and information is understood by everyone involved.

RESCUE

The attendant, entry supervisor, or entrant must conclude confined space entry under the following circumstances:

- A situation that is IDLH (immediately dangerous to life and health) such as engulfment by liquid or solid, electrocution from exposed conductors, or escape of uncontrolled energy.
- There is an engulfment hazard.
- The condition on which the permit was based on has changed.
- There is a failure of safety equipment such as ventilation equipment.
- The attendant or rescue team is not available, standing by.
- The authorized entrants are using unsafe work practices with the space.
- The work being done in the space is creating a hazardous atmosphere.
- The entrant (s) must immediately leave the space if the monitor detects a hazard, or if any other hazard is detected.

SELF – RESCUE

Should dizziness, nausea, or any other sign /symptom of hazardous exposure occurs, notify the attendant, and exist the space immediately. The attendant will assist if required by using the retrieval system to retrieve entrant. The entrant must be moved to fresh air, and a medical consultation will be given.

The attendant will immediately inform the authorized entrants of changes in conditions so that the authorized entrants can begin self – rescue.

In the event of an emergency, the attendant will immediately summon help from the rescue team using the hand – held radio, or other means listed as described on the permit. The rescue team will call the local fire department. The attendant will retrieve the entrant (s) with a winch for self - rescue if needed. The attendant must not enter the space for rescue.

IN – HOUSE RESCUE TEAM

Under no circumstances is the attendant, foreman, or any other individual to go into the confined space. Rescue is to be accomplished by the rescue team.

If self – rescue is not possible; the rescue personnel will enter the space wearing SCBA's, lifelines, and a full body harness. If an in – house rescue team cannot initiate rescue, then the local fire department are to initiate rescue.

The attendant is to maintain ventilation and continue monitoring the space and assist the rescue team by giving them as much information as possible about the hazards of the confined space, changes as they occurred, and the layout of the space.

PERSONAL PROTECTIVE EQUIPMENT

The entry permit must list the protective equipment needed for the confined space entry. The completed permit must be received by and signed by the designated foreman after all stated permit conditions have been met and it is deemed safe to enter. Management should provide all necessary safety equipment necessary for confined space entries.

Those items normally used to protect against accidents, exposure, or injury include but not limited to, safety glasses or goggles, hardhats, steel toed safety shoes, protective heavy-duty rubber gloves and protective clothing including a full body coverall. The personal protection required will be determined by the foreman.

Eye and face protection.

- No contact lenses may be worn in confined spaces.
- Prescription safety glasses must be worn instead.
- If a chemical, dust or vapor is present, safety goggles must be worn which will protect against chemical splashes and are impact-resistant.
- The goggles should fit comfortably over any prescription glasses worn, and must contain polycarbonate lenses.
- If the face as well as the eyes are exposed to a hazard, a full-face shield and goggles must be used.
- During welding operations, the goggles and face shield required must be in accordance with 29 CFR 1910.252.

Hardhats are required in all confined spaces. They must be ANSI approved.

Foot protection.

- Serviceable shoes are required for all confined space entries. Serviceable shoes must meet ANSI requirements.
- The foot protection must provide protection from falling objects and any other hazards which could be encountered inside of the confined space. Waterproof over boots are required in wet environments.
- Neoprene over boots are required over safety shoes if exposure to chemicals if possible. Polyvinyl chloride or other over boots resistant to corrosives is required if corrosives may be present.

Body Protection.

- Full coverage work clothing is required when working in confined spaces to protect the body and skin from chemical and other hazards.
- If special hazards are present, full body coveralls made from material which will protect against the hazard must be worn. Safety clothing suppliers can explain what hazards the protective clothing protects against. Thick rubber or Neoprene gloves must be worn to protect against toxic or irritating materials.

Hearing Protection.

- Hearing protection must be worn if power tools will be used in confined spaces.
- Hearing protection may be in the form of earmuffs, foam earplugs or bands.
- The emergency alarms must be able to be heard by the entrant who will be wearing the hearing protection. A test must be conducted before hand using a simulated noise at approximately the same noise level as the alarm to ensure that the entrant will be able to hear an alarm while wearing hearing protection.
- If any confined space where there is the potential for an explosion, any sound level meter used must be explosion-proof design.

Respiratory Protection

- Respiratory protection must comply with all provisions of the OSHA requirements in 29 CFR 1910.134. This includes following all requirements for the following: Fit testing, medical surveillance, facial hair, inspection procedures, training, and care and maintenance of respirators.
- Respirator protection needed must be determined by the Safety Manager and be based upon conditions and test results of the confined space and the work activity to be performed.
- Respiratory protection is required when the air contaminant level for the contaminant exceeds the limit specified in 20 CFR part 1910-1000 (Subpart Z), and engineering controls such as ventilation have failed to reduce the limit below the PEL (permissible exposure limit). Half-mask respirators must not be worn in any atmosphere which contain a contaminant in excess of ten times its PEL, because of the probability of accidentally breaking the face piece to the face seal. Full-face respirators or supplied air respirators must be worn, instead.
- A SCBA (self-contained breathing apparatus) must be worn in any confined space where the oxygen level in the confined space atmosphere is below 19.5%. **NOTE:** entry into spaces with less that 19.5% oxygen is prohibited except for rescue.
- SCBA's will be worn by rescue personnel when performing rescue's of authorized entrants from confined spaces.
- When respiratory protective equipment is selected, consider fumes or conditions that could result from work within the space.
- If welding will be done, an approved respirator must be worn to protect against welding fumes, dusts, and mists.
- When fumes may be generated that contain highly toxic or other airborne metal contaminants, the requirements in the 29 CFR part 1910.252 must be followed for self-contained breathing apparatus.
- Self-contained breathing apparatus is the only respiratory protection allowed for use by rescue personnel for attempting rescue.
- If an oxygen deficient environment, SCBA must be worn by authorized entrants.
- All rescue personnel must be trained in proper use and restrictions of SCBA's. No one will attempt any confined space entry rescue until they have had this training.
- SCBA's must be maintained and used according to the manufacturer's instructions in OSHA regulations 29 CFR 1910.134.

SAFETY EQUIPMENT LIST FOR CONFINED SPACE ENTRY

Safety equipment in addition to the protective clothing listed above must be available for confined space entry and includes:

A blower with a motor and ducting for ventilating confined spaces. Ventilation equipment must be electrically approved, be able to be grounded, be of explosion-proof design, and contain an alarm to signal its malfunction.

- Hand tools must be kept clean and in good repair.
- Portable electrical tools, equipment and lighting must be in accordance with OSHA 29 CFR Part 1910 Subpart S and electrically approved. They must also be connected to GFCl. All grounds must be checked before electrical equipment is used inside the confined spaces.
- All electrical cords, tools, and equipment must be of heavy-duty type with heavy-duty insulation and inspected for defects before used in confined space.)0- Use of flammable solvents must be avoided. Consult with the Safety Directors before using any power tools in confined spaces in combination with flammable solvents.
- Lighting shall be of explosion proof design, and be low-voltage. The lights should also be equipped with guards where necessary.
- Compressed gas cylinders must never be taken inside of a confined space, and must be turned off at the cylinder valve when not in use. Cylinders which are part of SCBA's or resuscitation equipment are equipped.
- All ladders must be adequately secured, used correctly and in good repair. The permanent types of ladders must be used where possible. All ladders used must conform to 29 CFR Part 1910.28.
- Scaffolding and staging must be properly designed to carry the maximum expected load, and be equipped with traction type planking and meet the requirements of 29 CFR Part 1910.28.
- All equipment used in this type of confined space must be explosion – proof, and electrically approved.
- Use ground fault circuit interrupters with all electrical equipment brought in to the space.

POST – EXIT PROCEDURES

1. Return the confined space to its normal state, including removal of blanks on lines, and locks on equipment and controls. Check to be sure no work materials were left in the space.
2. Make sure the opening to the space is secure, and there is a sign present to prevent unauthorized entry.
3. Cancel permit, and file in the Safety office.
4. Execute a new permit for the next entry for this type of space.

PERMIT REQUIRED CONFINED SPACE ASSIGNED RESPONSIBILITIES

MANAGEMENT REPRESENTATIVE

- Ensure that all confined spaces have been identified, analyzed, and evaluated by a qualified person (s).
- Ensure that measures are in place to eliminate entry into a confined space whenever possible.
- Maintain this program which must be reviewed on at least an annual basis, and updated as necessary by a qualified person (s).
- Ensure quarterly audits of the implementation of the program by any qualified person (s).
- Ensure that management enforce the training requirements detailed in the program. The level of training required for the employee depends upon his or her assigned duties, and is detailed in the training section of the program.
- Ensures that management personnel understand that compliance with this program must be strictly enforced with discipline if necessary.

PROJECT MANAGERS

- Ensure that all affected foremen, authorized entrants, attendants, and rescue personnel are trained in confined space entry procedures. The level of training required depends upon what the employee's duties are under this program.
- Ensures that the Confined Space Entry Program is strictly enforced with discipline (including suspension or termination) in the event of non – compliance with the program.

PROJECT SUPERINTNEDENT

- Ensure that all lock out/tag out for a confined space entry complies with all applicable facility safety procedures for lock out/tag out.
- Ensure that any other isolation of energy sources (blanking, blinding, or capping) for a confined space entry be in compliance with all applicable facility safety procedures, and instructions from manufacturers.
- Ensure that all authorized entrants, and qualified attendants employees have received training in their respective confined space duties, and have demonstrated competency in these duties.
- Ensure that all proper equipment needed for safe confined space entry is available at all times, and in good repair.
- Ensure that all employees follow the parts of this program which apply to them, and that disciplinary action is taken for non – compliance.
- Ensure that any non – company employees are given all of the necessary information on the hazards of any confined space they will be entering.
- Ensure that all personnel entering a PRCS under the company authority follow this program and utilize the permit system for confined space entry.
- Ensure that any contractor representative in charge of a crew certifies that his/her crew is properly trained for safe confined space entry.

FOREMEN

- Ensure that all authorized entrants and qualified attendants under the foreman's leadership are thoroughly trained in confined space entry procedure.
- Ensure that all employees under their control comply with the confined space entry procedures which apply to them.
- Strictly enforce disciplinary action in the event of non-compliance with this program.
- Ensure that all of the proper equipment, protective clothing and instrumentation is always available, accessible and in good working order.
- Certify the entry permits are properly completed and that conditions for confined space entry have been met by signing off on the permit before entry is allowed. Ensure that hot work will be performed safely and not increase the hazards inside the confined space.
- Ensure that all confined spaces in the Forman's area of responsibility or under his control are labeled and identified as a permit required confined space.
- Ensure that all confined spaces subject to the program requirements are protected from unauthorized entry by locks or other means if they are not labeled.

SAFETY MANAGER

- Provide technical assistants in confined space entry when necessary. Periodically audit actual entries to ensure compliance with this program. Advise the purchase of safety equipment, instrumentation, and protective clothing.
- Review this program on an annual basis and update as needed.
- Work with local emergency response organization in the event of an emergency involving confined space entry.

AUTHORIZED ENTRANTS

- Follow all procedures of this Program, which apply to authorize entrants. Successfully complete confined space entry training for authorized entrants and any other training which is required before entering confined spaces such as hazard communication and respiratory protection training. Other training may also be required depending upon the work being done inside the confined space. Demonstrate Proficiency in the confined space and all other entry procedures for authorized entrants.
- Understand that compliance of the confined space entry procedures will be enforced with disciplinary action if necessary.
- Conduct all assigned confined space work activities in accordance with all applicable company health and safety policies and procedures.

CONFINED SPACE PROGRAM

ACCEPTABLE ENTRY CONDITIONS - The criteria that must be present in a permit space to ensure that employees can safely enter and work in that space.

ATTENDANT - The assigned individual (s) stationed immediately outside a PRCS who continuously monitors the occupants and performs the attendant duties.

ATTENDANT DUTIES - Activities that include but are not limited to authorizing entry into the PRCS, reviewing permit conditions with entrants prior to energy, continuous monitoring of PRCS occupants, monitoring ambient conditions and initiating emergency rescue.

AUTHORIZED ENTRANT - Personnel who have reviewed the Confined Space Program and who have satisfied the specific criteria for the PRCS to be entered.

CONFINED SPACE - Any area that has adequate size and configuration for employee entry, has limited means of access or egress, and is not designed for continuous employee occupancy.

PERMIT REQUIRED CONFINED SPACE (PRCS) - A confined space that presents or has the potential for hazards related to atmospheric conditions (Toxic, Flammable, Asphyxiating), engulfment, configuration or any other recognized serious hazard.

NON-PERMIT CONFINED SPACE - A Confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

EMERGENCY - Any occurrence, including partial or total failure of hazard monitoring or control equipment that alters or might alter the internal or external permitted space.

ENGULFMENT - The surrounding and effective capture of a personal by a liquid or a finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert sufficient force on the body to cause death by strangulation, constriction or crushing.

ENTRY (Work Associated) - The action by which a person crosses the access plane of a PRCS.

ENTRY (Initial) - The action of the ENTRY SUPERVISOR to determine the status of a PRCS for documentation on the **ENTRY PERMIT** and entry approval.

ENTRY PERMIT - The printed or written control document that is provided by the employer to identify exposures, methods of control, existing conditions, special considerations, emergency actions and all other information necessary for the safe and effective control of a PRCS.

ENTRY SUPERVISOR - The person responsible for determining if acceptable entry conditions are present in the area to be permitted. Also, the person to identify and test for exposure, plan coordinate means and methods of exposure control, establish written procedure for emergency response, and provide training for all components associated with the PRCS.

HAZARDOUS ENVIRONMENT - An atmosphere that may expose an employee to the risk of death, incapacitation, impairment of ability to self-rescue (to escape unaided), injury or acute illness from one of the following:

- Oxygen concentration below 19.5% volume or above 23.5% volume (20.8% volume is ambient normal)
- Flammable gas, vapor or mist in excess of 10% of its Lower Flammable Limit (LFL)
- Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart G – Occupation Health and Environmental Control or in Subpart Z Toxic and Hazardous Substances of 49 CFR 1910
- Airborne combustible dust that meets or exceeds its LFL
- Any other atmospheric condition that is Immediately Dangerous to Life or Health (IDLH)

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH - Any exposure that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit area.

OXYGEN DEFICIENT ATMOSPHERE - An atmosphere, which, has less than 19.5% by volume of oxygen (02). (Primary physical effects of drowsiness, headache, nausea)

OXYGEN ENRICHED ATMOSPHERE - An atmosphere which has more than 23.5% by volume of oxygen (Primary physical effects of euphoria, giddiness, hyper-activity).

PERMIT SYSTEM - The written procedure for preparing and authorizing permits for entry into and for recommissioning a confined space.

POSITIVE ISOLATION - Employing Blinding/Blanking, Lock-Out/Tag Out, De-inventory, disconnection, forced ventilation, removal to another location, etc. of all energy sources that might directly or indirectly affect the Permit Required Confined Space (PRCS).

PROHIBITED CONDITION - Any exposure in the PRCS area that is not allowed in accordance with the permit during the authorized period of access.

RESCUE SERVICE - The personnel designated to perform rescue.

RETRIEVAL SYSTEM - The equipment used for non-entry rescue of personnel; includes retrieval line, full body harness, wristlets-if appropriate and lifting devise with adequate footing or anchor.

SAFE – OUT - The process of preparing a PRCS for personnel entry through employment of Positive Isolation, purging and ventilation.

TESTING - The action of evaluating ambient atmospheric and physical hazards that may be present to determine if exposures are pre-established (regulatory, company, site) limits

AUTOMATIC SYSTEMS, INC.

SECTION 9

FALL PROTECTION PROGRAM

AUTOMATIC SYSTEMS, INC.

SECTION 9

FALL PROTECTION PROGRAM

PURPOSE AND OBJECTIVES

The purpose of the Automatic Systems, Inc. Fall Protection Program is to provide methods of protection for personnel working at elevated work sites.

This Fall Protection Program is devised to prevent employee injury and death from falls from elevated workstations and to identify elevated workstations requiring fall protection equipment.

SCOPE

This policy applies to all work performed at elevated work sites. Where exposure to a fall hazard exists that cannot be eliminated, or where such exposure cannot be prevented through such measures as utilizing standard handrails, barriers or other mean, personal fall protection equipment and systems must be used.

FALL HAZARD CONTROL POLICY

Any task that would allow a worker to fall a distance of six (6) feet or more, or any distance where likelihood of a serious or fatal injury exists, must be identified, evaluated and controlled based on the hierarchy of controls. (i.e.) elimination, engineering controls, personal protective and administration.

FALL PREVENTION REQUIREMENTS

Approved full body harness instead of body belts and 100% tie off shall be used on all Automatic System, Inc. field installations. Lanyards should be the shock absorbing type. All lanyard hooks shall be of the locking snap type. Where required, only approved retractable lifelines with fall arresters shall be used.

All overhead-working conditions (above 6 feet from floor or any distance where likelihood of death or serious injury exists) shall require the use of full body harness with lanyard attached to a **certified anchorage point** where other means of fall protection is not provided or scaffold, would be hazardous, or is not possible because of structural design or worksite conditions.

Any personnel platform used with a crane as mentioned above shall be designed by a qualified engineer or qualified person competent in structural design. The personnel platform and the loading and lifting operation shall meet the requirements of Federal OSHA as contained in 29 CFR 1926.550.

No scaffold shall be erected, moved, dismantled or altered except under the supervision of competent person. Guardrails and toe boards shall be installed on all open sides and ends of platforms more than 10 feet above the ground or floor except needle beam scaffolds and floats. Scaffolds 4 to 10 feet in height having a minimum horizontal dimension in either direction of less than 45 inches shall have standard guardrails installed on all open sides and ends of platforms.

Special circumstances must be given to fall protection where using ladders. Portable ladders must be maintained in good condition. Only non-conductive ladders should be used on a construction site. Ladders should only be selected and used as stipulated in CFR 29, 1926.1053. Placement of ladders in relation to door openings, lashing of ladders in place, proper angle of the ladder to the vertical, are just some of the items that must be considered to prevent falls from ladders. The three-point contact shall be used when working from a ladder.

A stairway or ladder shall be provided at all personnel points of access where there is a break in elevation of 19 inches or more and no ramp, runway, sloped, embankment, or personnel host is provided.

A site specific fall protection plan shall not be necessary as the fall protection requirements covered in this section of the safety manual apply to any and all jobsite.

RESPONSIBILITY

Each employee is responsible for evaluating the need for all protection/prevention systems as an integral part of performing a job that would expose a worker to a fall of six feet or a fall of any height into machinery, water, tank or other dangerous area. This systematic evaluation shall take place before the job begins and shall include determination of tasks needs. Any problems, which appear that would prevent the employees(s) from completing the job safely, shall be brought to the attention of the employee's supervisor, foreman or superintendent.

The employee's supervisor, foreman, or superintendent shall provide equipment, assistance; etc. to make sure the job can be completed safely.

Every effort should be made to eliminate the fall hazard prior to the start of work.

Safety harness and harness lanyards shall be minimum of one-half nylon, or equivalent, with a maximum length to provide a fall of no more than six feet. The rope shall have a nominal breaking strength of 5,000 lbs.

Any life used shall be used three-quarters inch manila rope with a breaking strength of 5,000 lbs.

Static lines may be used to provide continuous fall protection for safety harness. The minimum diameter for wire rope static line is one-half inch. Any lanyard or lifeline anchorage point must be capable of supporting a minimum dead weight of 5,000 lbs. The tie-off location should be above the D-ring wherever possible to keep the fall distance below 6 feet. If the retractable lifeline is used, the tie-off point should be kept overhead where possible to reduce the potential for pendulum fall. The complete fall arrest system must always maintain a safety factor of at least two (2).

Each employee operating, working on or moving from one location to another in a manually powered or vehicle mounted elevating work platform or any other vehicle mounted elevating work platform or any other lifting device is required to wear an approved harness and lanyard.

Tie-offs to an adjacent pole, structure, or equipment while working from an aerial lift shall not be permitted. Employees shall always stand firmly on the floor of the basket or platform and shall not sit or climb on the edge of the basket or on the railings of any platform or use planks, ladders or other devices to achieve a work position. Boom and basket load limits specified by the manufacturer shall never be exceeded.

Only authorized persons shall operate an aerial lift.

Fall protection devices (body harness with lanyard attached) must be used where employees must climb or work at heights near open sided floors, platforms, and screen guard openings if standard handrail has not been installed. Every open sided floor or platform 6-feet or more above adjacent floor or ground level shall be guarded by a standard handrail.

Temporary floor openings shall have standard railings. Floor holes, into which persons can accidentally walk shall be guarded by either a standard railing with standard toe board on all exposed sides, or a floor hole cover of standard strength and construction that is secured against accidental displacement. While the cover is not in place a standard railing shall protect the floor hole.

Wall openings from which there is a drop of four feet or more and the bottom of the opening is less than 3 feet above the working surface shall be properly guarded to negate the danger of failing.

The use of crane or derrick to hoist employees on a personnel platform is prohibited except when the erection, use and dismantling of conventional means of reaching the worksite, such as a personnel hoist, ladder, stairway, aerial lift, elevating work platform.

INCIDENT RESPONSE

In the event of a fall or injury, the first priority shall be prompt rescue and medical attention for the person or people involved.

In the event of a fall, near miss or other serious incident, the onsite safety leader shall be responsible to conduct and document an investigation, using ASI Accident/Incident Investigation Report. This investigation should include, at a minimum, witness statements, information about the location and nature of the incident, and a root cause analysis to determine why the incident occurred and what emergency, temporary, interim and/or permanent corrective action(s) should take place to prevent recurrence of this or a similar incident. A copy of the investigation report shall be sent to the Corporate Safety Officer and shall be the basis for a safety tool box talk or safety stand down talk.

TRAINING

All employees whose job responsibilities may expose them to work at elevated work positions will receive training on fall prevention and protection at the time of work and safety orientation. If misuse or lack of appropriate use of fall protection equipment and/or techniques is observed, retraining will be provided. Training shall be documented in both the Employees personnel file and in ASI's corporate training database.

PENALTIES

Refusal or failure to comply with this fall protection program could result in dismissal from the job site.

AUTOMATIC SYSTEMS, INC

SECTION 10

PERSONAL PROTECTIVE EQUIPMENT PROGRAM

AUTOMATIC SYSTEMS, INC.

SECTION 10

PERSONAL PROTECTIVE EQUIPMENT PROGRAM

STATEMENT OF POLICY

Supervision and employees will assess their work area exposures and identify any need to increase the personal protective equipment from the minimum level established.

SCOPE

All work and exposures will be assessed to determine if hazards are present or likely to be present, which will necessitate increasing the level of personal protective equipment from the established minimum.

SELECTION CRITERIA

The criteria for selection, instructions for proper use and correct sizing will be communicated to all employees during the Project New Employee Orientation Training or when there is an exposure related change. This Personal Protective Equipment communication will be documented as being a part of the Project New Employee Training or as additional Exposure Change Training.

MINIMUM ESTABLISHED LEVEL OF PERSONAL PROTECTION

1. **EYE PROTECTION** – Employees are required to wear **ASI** supplied "safety glasses" that provide side shield protection from flying objects. These glasses comply with ANSI Z87.1-1989 and are provided in two types – PLANO for employees who do not require corrective lens for normal sight and Over the Glasses (OTG) for employees who have prescription glasses.

2. **HEAD PROTECTION** – Protective Helmets (Hard Hats) that comply with ANSI Z89.1-1986 will be provided to each employee for their use.

3. **FOOT PROTECTION** – Employees will be responsible to wear "Industrial Service" footwear that is in good condition. If "steel toe" footwear is worn the steel re-enforcement must be completely covered and unexposed.

ADDITIONAL PERSONAL PROTECTION EXPOSURE REQUIREMENTS

The following equipment is to be identified and provided by **ASI** to the employee on a work task exposure basis.

HAND PROTECTION – Gloves that are suited for purpose are to be worn to protect from:

- Cuts when handling sharp objects
- Chemical exposure
- Welding/cutting burns
- Materials/tools/equipment entrapment

EYE / FACE PROTECTION – exposure from:

- Welding/Torch Cutting requires a face shield with a filter lens with a shade rating appropriate for the work that is performed
- Grinding operations requires a face shield and safety glasses
- Parts washing requires a face shield and chemical mono-goggle
- Wire wheel buffing operations requires a face shield with a particulate mono-goggle

HEARING PROTECTION - In any work situation where it is necessary to raise your voice to be heard then hearing protection should be used. If noise levels are sustained above 85 db, hearing protection is mandatory. Hearing protection is designed to have a minimum attenuation in the speaking frequency ranges and a concentrated attenuation in the industrial noise frequency ranges. There are two basic types of hearing protection devices available:

- Plugs that fit it the are canal, generally disposable and designed for continuous background noise with as attenuation of 19 dBA (calculated)

- Muff Type that fit over the ears and are designed for impact noise that is intermittent, generally referred to as shooters muffs their attenuation rating may be as high as 33 dBA
- NOTE: As a rule of thumb it is often stated that every 3 dB reduction in noise cuts the sound level by 50%. Noise will cause attention from being focused, create anxiety and promote irritation. THINK ABOUT IT!

HAND PROTECTION – Gloves need to be selected for the application however wearing gloves not only will protect from cuts and abrasions they will also allow the wearer to slip from beneath some pinch loads. Reference Hazard Communication Program

RESPIRATORY PROTECTION – Any exposure that may indicate a need for Respiratory Protection, including nuisance dusts and odors, will be referred to the Safety Manager for implementation of the Respiratory Protection Program.

FALL PROTECTION – Reference the ASI Fall Protection Program

PPE TRAINING REQUIREMENTS

1. Retraining will be provided as needed. Basis for retraining may include changes in the workplace, changes in the relevant hazards, change type of PPE available on the market, observed lack of or improper use of PPE, or anything else that may make previous training obsolete.
2. PPE training shall be documented in either ASI's corporate training database and/or in the documentation of the toolbox talk that addressed this training.
3. If the Employee or their supervisor believe that any PPE is defective or damaged, it should be taken out of service immediately or marked as "defective/DO NOT USE". The Employee will then be given replacement PPE.

PPE REMINDERS

1. Remember that PPE must be fitted to each affected employee.
2. If the Employee chooses not to bring their own appropriately-maintained, appropriately-fit and sanitized PPE, it will be provided by ASI at no cost to the employee (other than foot wear, which is covered in the relevant contract).
3. When Employees bring their own PPE, it is still ASI's responsibility to make sure PPE is appropriately-fit and sanitized, just like ASI-provided PPE.
4. Conductive items of jewelry or clothing shall not be worn unless they are rendered non-conductive by covering, wrapping or other insulating means.

PPE ON PRE-TASK ASSESSMENT

Pre-task analysis (aka written hazard assessments) worksheets are prepared by ASI supervision and then reviewed, acknowledged and signed by the Employee before work begins on any shift. The pre-task analysis addresses the potential hazards specifically relevant to the work location, environment, work assignment, tools and potential hazards. PPE is often the first line of defense when addressing the hazards in a pre-task analysis.

AUTOMATIC SYSTEMS, INC.

SECTION 11

ARC/GAS WELDING & CUTTING PROGRAM

AUTOMATIC SYSTEMS, INC.

SECTION 11

ARC/GAS WELDING & CUTTING PROGRAM

STATEMENT OF POLICY

Welding and cutting equipment and operations will be in accordance with 29 CFR 1926 Section 350, 351, 352, and 353.

SCOPE

All arc, gas welding, and cutting operations.

DISCUSSION

The following requirements for control of welding and torch cutting operations are to be observed to control exposure to employees and facilities. These operations account for a large portion of minor injuries such as "Foreign Body in the Eye", first degree burn and lifting strains. They also present severe exposure to uncontrolled fire, explosion, and asphyxiation.

PROGRAM REQUIREMENTS

1. A fire extinguisher in good working order, and rated for the size and type of exposure is to be readily available before and during all welding and cutting operations. Reference: Fire Protection Program.

2. The minimum personal protective equipment for any welding or cutting operation is a face shield with a properly rated shade of lens, safety glasses with side shield, leather gauntlet gloves, oil free clothing, and high leather boots.

3. Welding screens or enclosure panels are to be placed around operations in foot traffic areas to protect pedestrians and other area workers from exposure to sparks and flashes.

4. A "Fire Watch" is required for each welding or cutting operation that occurs in a non-dedicated area that has combustible materials that cannot be removed from the operation.

5. Welding, cutting, or heating of closed containers is forbidden because of the likelihood of explosion.

6. Only known metallurgy is approved for welding, cutting, or grinding operations to prevent exposure to harmful fumes or vapors such as lead, cadmium, zinc etc. Reference: Respiratory Protection Program

7. Torches are only to be lit by friction strikers designated for purpose.

8. All welding and cutting operations in non-designated areas are to be suspended thirty minutes prior to leaving the work site to ensure there is no spark or heated combustibles that may ignite.

9. Welding grounds are to be attached in close proximity to the welding operation to prevent shock ignition from stray current.

10. Used electrodes are to be properly disposed of in a dedicated container; they are not to be dropped from heights or thrown on the floor.

11. Electrodes are to be removed from the holder and the holder placed in a secure protected position away from possible contact with personnel or conductive material when not in use.

12. Welding or Cutting in a confined space requires a written permit issued as a condition of entry. Reference: Confined Space Entry Program.

13. Welding or Cutting equipment must be listed by Underwriters Laboratories, Factory Mutual, or the Compressed Gas Association and be in good working order.

14. Cables and hoses are to be routed out of personnel and equipment travel lanes whenever possible: especially when they are to remain in place for more than one full work shift.

15. Cables or hoses run through doorways, man ways, or other thresholds are to be protected from sharp cutting edges by securing or padding the door or barrier.

16. All compressed gas cylinders, including empty cylinders, will be secured in an upright position with the valve covers in place during transport even of the shortest duration.

17. Hoses are to be stored in a ventilated area free from possible oil or grease contamination.

18. Hose couplings are to be discreet screw type, not quick connect to prevent mixing of dissimilar service.

19. Compressed gas cylinders are to protect from contact with sparks or flames.

20. Compressed gas cylinder valves are to be closed with the hoses, regulators, and torches de-pressured when not in use and when left unattended off shift.

21. Compressed gas cylinders are to be stored in an upright position, secured to prevent tipping and oxygen is to be segregated from Fuel Gases by a distance of 20 feet or by a separation of at least 5 feet high that has a (1) hour fire rating.

22. Empty cylinders are to be clearly marked and/or tagged Empty or MT. These cylinders will receive the same treatment and care as full cylinders.

23. Welding cables must be free of repair or splices a minimum of ten feet from the electrode holder.

24. Welding or cutting on pipeline that has a gas or flammable/combustible liquid service must be in accordance with 49 CFR 192.

AUTOMATIC SYSTEMS, INC.

SECTION 12

HAND AND POWER TOOL PROGRAM

AUTOMATIC SYSTEMS, INC.

SECTION 12

HAND AND POWER TOOL PROGRAM

STATEMENT OF POLICY

All tools, hand and power are to be maintained in a safe working condition. Tools that are damaged, altered from engineered design, job made or otherwise made unsuitable for purpose are not to be used. Used practices will also conform to the manufacturer's recommended guidelines and comply with requirements specified by the Department of Labor – OSHA.

SCOPE

All hand and power tools furnished by **ASI**, by the employee or another entity at the jobsite. Inventory of the company's machinery/equipment are to be kept current, when new machinery or equipment is acquired, it must be added to the inventory.

PRIMARY RULES FOR HAND AND POWER TOOLS

1. Select the proper tool for the job to be done.
2. Inspect the tool to ensure it is in proper condition.
3. Use the tool for its designed purpose.
4. Store the tool properly.

HAND TOOLS

Hand tools are to be inspected for defects before use.

All hand tools shall be kept in good repair and used only for their intended purpose.

Unsecured hand tools are not to be left on scaffolds, ladders or overhead working spaces.

Moving tools from one location to another will be accomplished using methods, which do not jeopardize safety. Dropping tools from overhead to ground level or throwing tools from one employee to another is not approved.

Only non-sparking tools shall be used in locations where sources of ignition may cause explosion or fire.

Defective tools are to be removed from service immediately upon determination of defect and not used again until repaired or replaced with a tool in an acceptable condition of repair.

POWERED TOOLS

Only certified personnel will be allowed to use powder actuated tools. Reference Powder Operated Tools discussion in this section.

All power tool operators shall wear eye protection of a type suitable for the exposure presented by the power tool and activity.

Electric tools will be provided with grounding connections or insulated cases. Ground fault circuit interrupters are to be used as required by 29 CFR 1926.404(b)(ii).

Electric power tools are not to be operated in wet areas because of the increased severity of a shock hazard. Only low voltage equipment, generally lighting, is approved for wet exposures.

Electric power actuated tools shall be disconnected when changing attachments, making minor adjustments or repairing.

All power cables shall be inspected for breaks in the insulation prior to use. Defective cables shall be repaired or replaced immediately.

Power actuated tools are not to be used when safety guards are missing.

Gasoline engine-driven tools shall not be used in unventilated areas. Gasoline shall be stored in a safe place and handled with caution. Only U. L. approved safety cans, which are equipped with “flash back screens”, vents and pouring spouts, are to be used for gasoline storage.

Each power-actuated tool shall be marked with a discreet identification number. This identification number will be used to record safety inspections of the tool. When a defective tool is discovered it shall be tagged as “Out of Service – Do Not Use”. Records of maintenance performed on machinery or equipment must be documented for the live of the equipment.

Supply air hoses for pneumatic tools are to be either screwed fittings or if a “crows foot” connection is used the “crows foot” is to be secured with a key or an anti-whip cable.

Supply air for tools is not to be used for cleaning purposes unless regulated to 30 pounds (psig) or less.

Hydraulic tools are to be maintained in a good state of repair free from leaks that may come into contact with personnel, result in poor walking/working surfaces or present a spontaneous combustion exposure.

Power tools that are located semi-permanently for use by crews shall have “drop” containers adjacent to the tool to facilitate housekeeping and uncluttered walking/working surfaces.

Power tools are not to be carried, raised or lowered by their cords or supply hoses.

All grinders will have handles attached to them before operation.

POWDER ACTUATED TOOLS

All operators of Powder Actuated Tools must be trained and certified for the use of the tool.

Powder Actuated Tools will be used in accordance with ALL manufacturers' instructions for testing and use.

Powder Actuated Tools are subject to "HOT WORK PERMIT" checks and authorization.

Personal protective equipment to include eye and hearing protection is required when using this type of equipment.

Tools are to be located just prior to use and unloaded immediately after use; loaded tools are not to be left unattended.

Equipment is to be stored in a secure area.

Areas of operation will be clearly identified by signs and barricaded to prevent exposure to non-involved personnel.

SECTION 13

FIRE PREVENTION PROGRAM

AUTOMATIC SYSTEMS, INC.

SECTION 13

FIRE PREVENTION PROGRAM

STATEMENT OF POLICY

Automatic Systems, Inc, Supervision will evaluate work activities that might result in an uncontrolled fire to ensure that these activities are properly assessed and controlled.

SCOPE

All welding, torch cutting, portable heaters, fuel storage/filling or any other activity that involves a heat source above the ignition time/temperature of exposed materials.

DISCUSSION

The key to preventing fires is housekeeping and containment of heat sources including sparks and slag. Once a fire starts, it is imperative to respond in a timely and appropriate manner to minimize loss and destruction. The following rules are to assist in fire exposure decision-making and control.

FIRE PREVENTIONS RULES

1. Flammable and combustible liquids are to be stored in OSHA approved containers and cabinets.
2. Equipment and vehicles are to be shut down for fueling.
3. Fire extinguisher (s) suited for fire class and size are to be easily accessible, properly maintained, located and identified for use for all exposures that may result in a fire.

4. Fire watch personnel will be trained in the use of available firefighting equipment, emergency notification numbers and methods, and advised of exposure assessment information.
5. Only solvents approved by the Safety Manager will be used for washing parts. Gasoline, diesel fuel and 1. 1. 1. Trichloroethane are not approved.
6. Gas cylinders are to be stored in an upright position with all valve caps on. Oxygen and acetylene cylinders are to be separated by a minimum of 20 feet.
7. Fire lanes around structures are to remain open and hydrants are to have a minimum access perimeter of 10 feet.
8. All equipment left running during non-working hours will receive prior approval of the clients and or Project Management.
9. All non-construction debris such as rags, paper, banding straps, etc. will be properly segregated and disposed of in appropriate containers.
10. Smoking areas are to be equipped with “butt cans” and trash containers appropriately marked.

TRAINING

Training for fire protection will be provided prior to initial work assignments and will be provided annually thereafter.

FIRE SUPPRESSION

The easiest, quickest and most effective fire fighting occurs when designed systems are activated and deployed. **DO NOT** block access to hydrants, water piping, sprinkler nozzles, water flow valves, fire fighting agent storage, fire extinguishers or any fire control system or component without written authorization of the client authority. Also, do not alter the energy status of any system or component without written authorization.

FIRE EXTINGUISHERS

There are four (4) classifications of fire with extinguishers designated accordingly.

Class A – ordinary combustibles such as wood, paper, cloth, etc.
Class B - Flammable liquids such as oils, gasoline, paints, etc.
Class C - Electrical equipment such as motors, switchgear, wirings, etc.
Class D - Combustible metals such as magnesium, titanium, lithium, etc.

All extinguishers are marked for the class of fire they are suited for:

Some extinguishers have multiple designations such as {A}{B} or {B}{C} or {A}{B}{C}.

STEPWISE USAGE INSTRUCTIONS

1. Activate and verify working conditions with a "trail burst" before approaching the fire
2. Approach fire from the upwind or away from duel source if it is liquid.
3. Target agent at the area immediately in front of the fire perimeter.
4. Direct agent forward as fire is extinguished.

IMPORTANT At no time should the responder enter the diminishing perimeter of the fire.

FIRE RESPONSE PRIORITIES ARE TO:

1. Keep fixed and portable systems in good working order.
    a. This includes conducting visual inspections monthly and maintenance checks annually of portable fire extinguishers
2. Know emergency notification and actions
3. Know and confirm the working order of portable equipment
4. Orderly retreat.

AUTOMATIC SYSTEMS, INC.

SECTION 14

SUBSTANCE AND ALCOHOL ABUSE PROGRAM

AUTOMATIC SYSTEMS, INC.

SECTION 14

SUBSTANCE AND ALCOHOL ABUSE PROGRAM

ASI is committed to a workplace environment, which will ensure the safety and encourage the personal health and productivity of all its employees. We encourage that substance abuse in the workplace is a threat to the safety, health and job performance of all employees. The goal of the following procedure is to balance respect for individuals with the duty to maintain a safe, productive, alcohol and drug free environment. This policy and the performance requirements are meant to detect and remove abusers of alcohol and drugs from our workplace.

SCOPE

ALL ASI employees are required to abide by this policy as a condition of employment.

ALL ASI employees need proof they have passed a nine (9) panel drug screening passed in the previous two years. A test will be provided by ASI as needed.

ZERO TOLERANCE

ASI and Ford Motor have a zero tolerance policy. A failed drug test will be grounds for immediate dismissal.

AUTOMATIC SYSTEMS, INC.

SECTION 14

SUBSTANCE AND ALCOHOL ABUSE PROGRAM

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DEFINITIONS

a. "Alcohol" means the intoxicating agent in beverage alcohol, ethyl alcohol, or other low molecular weight alcohols, Including methyl and isopropyl alcohol.
b. "Alcohol Testing" means testing by a certified breath-alcohol technician, using a DOT approved breath testing device.
c. "Controlled Substance" (herein referred as to "Drugs") means any controlled substance including those assigned by 21 U.S.C. 802 and includes all substances listed on Schedule I, through Schedule V., as they may be revised from time-to-time (21 CFR 1308). They may include, but are not limited to:

Marijuana

Cocaine

Opiates

Phencyclidine (PCP)

Amphetamines

Barbiturates

Benzodiazepines

Methadone

Propoxyphene

d. "Drug Testing" or "Drug Test" means scientific analysis for the presence of drugs or their metabolites in the human body.
e. "Employee" means sole proprietors, partners, corporate officers, clerical workers, estimators, supervisors, warehouse workers, laborers and any subcontractor including their bargaining unit employees. SEE "SHORT TERM EMPLOYEE"
f. "Employer" means AUTOMATIC SYSTEMS, INC. - a contractor who is signatory to a collective bargaining agreement with ALL LOCALS, with the charter membership organizations.
g. "Employee Assistance Program (EPA)" means a designated provider of services for the purpose of drug and alcohol use assessment, provision of treatment options and plans and referrals for employees who violate this policy.
h. "Employer Property" means all facilities, job sites, vehicles and equipment that are leased, operated or utilized by the Employer or its employees for work related purposes. This includes parking areas and driveways, lockers, tool boxes or other related storage areas used by employees. It also includes other public or private property, facilities, vehicles and equipment located away from the Employer facility if the employee is present on such property for work related purposes.

i. "Employer Time" means all working hours regardless of whether the employee is on the Employer's property, and at any time the employee represents the Employer in any capacity.
j. "Medical Review Officer (MRO)" means a licensed physician with knowledge of drug abuse disorders that is employed or used by the third-party administrator to conduct a review of drug results.
k. "Positive Alcohol Test" means test levels on both the initial test and the confirmation test which produce a result of 0.2 percent or greater for fitness for duty determination; or an initial test and confirmation test result of 0.4 percent or greater for violation of this policy determination.
l. "Positive Drug Test" means test levels on both the screening test and the confirmatory test which are recognized as positive by the U. S. Department of Health and Human Services (DHHS) in its Mandatory Guidelines for Federal Workplace Drug Testing Program. In the event that the DHHS issues subsequent rules or regulations regarding test levels. No drug test shall be deemed positive until the MRO certifies to the Safety Manager or his/her alternate, the Substance and Alcohol program administrator, that the result is positive.
m. "Prospective Employee" means any person who has made a written or oral application to become an employee of an employer.
n. "Random Testing" means the unannounced drug testing of an employee who was selected by using a statistically accepted random generated selection method unbiased by any personal characteristic or work assignment.
o. "Reasonable Cause" or "For-Cause Testing" means testing performed as a result of an informed observation and/or occurrence that has been documented and includes the premise that the employee is impaired, under the influence of, or has used controlled substances or the alcohol or work.
p. "Sample or Specimen" means any sample of urine, or breath used for drug or alcohol testing.
q. Short Term Employee means any apprentice or journeyman, referred for a "Short Term Call" whose employment must be terminated within 14 days.
r. "Use" means to consume, sell, purchase, manufacture, distribute, be under the influence of, or be in the possession of drugs or alcohol. The term "use" shall also include the presence of drugs or alcohol in the body of an employee, including the presence as a metabolite, as indicated by a positive drug or alcohol test, and the use of a prescription drug without a valid prescription from an authorizing physician.

PROHIBITED ACTIVITIES

It is a violation of this policy for any employee to use drugs or alcohol while on Employer time, conducting Employer business or on Employer property. An employee shall be considered to be in violation of the policy if they have reported to work under the influence of, or have the presence in their body of drugs or alcohol when the drug test is reported by the MRO as "positive" for drugs or their metabolites or their alcohol test is reported as "positive".

Events such as retirement celebrations and performance recognition gatherings that are attended voluntarily are not considered to be covered by this policy.

The use of a prescription drug, under the care of a physician that may impair the employee's ability to safely perform their duties must be reported to the employee's supervisor. It will be a violation of the policy to use a prescription drug without a valid prescription from an authorizing physician.

It is a violation of this policy for an employee to use alcohol while on Employer time or on Employer business, or to report to work under the influence of alcohol. If an employee's alcohol screening test is between .02--.039 percent "that employee will not be allowed to work for 24 hours, or one shift. Any employee with an alcohol screening of .02--.039 percent will be required to take a return to work breath alcohol test. An employee will not be allowed to return to work until a breath-alcohol test, with the result below .02 percent has been achieved. Any employee whose screening test is .02-.039 for the second time in 12 consecutive months shall be in violation of this policy and shall be referred to the "Employee Assistance Program (EAP) for evaluation. Any employee with a breath alcohol test of .04 percent or higher will be in violation of this policy and shall be referred to the EAP for evaluation.

It is a violation of this policy for any employee who is required to submit to a post accident drug and/or alcohol test to consume any drug, or alcohol until they have completed a post-accident drug and/or alcohol test.

It is a violation of this policy for an employee to refuse to submit a specimen when required to do so under this policy. Refusal to submit a specimen (breath, urine) will be treated as a positive test result.

Any employee who tampers with or adulterates a drug or alcohol specimen will be in violation of this policy. Any attempt to tamper with or adulterates a specimen will be treated as a positive result.

If a customer of ASI has additional requirements for drug and alcohol testing, policies, or procedures, all employees and employers shall abide by such requirements. Failure to abide by such requirements shall constitute a violation of this policy justifying re-assignment or other appropriate discipline.

It is a violation of this policy for any employee to fail to cooperate in the collection of a specimen for a drug or alcohol test which has been properly ordered. Failure to cooperate will be treated as positive test result.

It is a violation of this policy for any employee to refuse to cooperate with the EAP in counseling and rehabilitation after being referred to the EAP for violation of this substance abuse policy.

DISCIPLINARY ACTION

Employees who violate this policy for the first time will be referred to an EAP for evaluation. Said employees shall be allowed to return to work so long as the employee receives a work

release from the EAP and participates in treatment or counseling, if any, required by the EAP counselor or treatment provider.

Employees who violate this policy by selling, manufacturing or distributing drugs or alcohol will be terminated from employment.

Employees who violate this policy again will be terminated from employment and will be allowed to return to work upon completion of the EAT treatment program. Employees must pass a drug and alcohol test after completion of the EAP program and prior to returning to work.

If an employee suspects that he or she has a substance abuse problem, the employee is expected to contact an EAP. Any employee who voluntarily seeks assistance or rehabilitation for drug or alcohol abuse shall not be considered in violation of this Policy and shall not be subject to the disciplinary action for violation of the Policy as long as the employee continues to participate satisfactorily in a counseling or rehabilitation program. The employee must obtain a work release from the EAT or treating provider before returning to work.

GRIEVANCE PROCEDURE

Any employee who has a grievance as a result of the implementation and/or the administration of this policy shall grieve the issue through the labor-management committee designated in the applicable collective bargaining agreement, or through the grievance procedure established by the employer if the employee is a non-bargaining employee.

DRUG TESTING CIRCUMSTANCES

PRE-EMPLOYMENT TESTING:

All new entrants into the pool of employees shall pass a drug test, the cost of which is paid for by ASI. Bargaining unit employees shall pass this drug test as a condition of employment. Non-bargaining unit employees shall also pass this drug test before being hired. Refusal to consent to a pre-employment drug test will stop any further action toward employment.

POST-ACCIDENT TESTS:

Any employee involved in a job-related accident will be drug and alcohol tested if the incident:

- Results in a fatality; or

•results in an injury that is "Recordable" as defined in the Bureau of Labor Statistics' (BLS) "OSHA Record keeping Guidelines'.

- causes reasonable suspicion by a supervisor who has been trained in the recognition of Substance and Alcohol Abuse behavior.

REASONABLE CAUSE: (FOR-CAUSE TEST)

Reasonable Cause testing will be done in cases where there is a belief by a supervisor trained in the recognition of controlled substance and alcohol use and abuse that an employee may be using drugs or alcohol while at work or reporting to work under the influence of drugs and alcohol, or using prescription drugs illegally. Reasonable Cause or For-cause test will be required when there is any of the following:

- Observable phenomena (actual use or possession) or
- Abnormal behavior (as specified in the "Observed Behavior Reasonable Cause Record form) not satisfactorily explained by circumstances not attributable to drug or alcohol use.

An employee's private property may only be inspected for reasonable cause and shall include employee's lunch boxes, tool boxes, back packs, purses and the like that are brought by the employee onto the Employer's property or used for work related purposes.

POST-ACCIDENT TESTING

Post-accident drug test will be conducted within 32hours of the accident. If a drug test is not conducted within 32 hours of the occurrence of the accident all drug testing will stop. If an employee is not allowed to return to work until the test is received and the test result is negative, the employee will be compensated for all lost time. All alcohol testing will take place within 2 hours, but not later than eight hours after an accident occurs. If an alcohol test is not conducted within 8 hours of an accident all alcohol testing will stop. If a post-accident test is required, the third-party administrator should be contacted immediately. Post-accident test can be conducted either at the Employee facility or, if the parties are injured and admitted to a hospital, at the hospital.

RANDOM TESING

Random testing will be administrated by the Safety Manager as a part of this procedure. Random testing will be conducted monthly and the random will for the month will occur on the first Monday of each month. All payroll employees of record for the first day of each month will be included in the Random Sample Pool each month.

RETURN-TO-DUTY AND FOLLOW-UP:

When an employee has violated this policy and has been referred to an EAP for evaluation, and has received a work release from the EAP, he/she shall be subject to drug or alcohol testing as determined by the EAP or treatment provider.

ADMINISTRATIVE PROCEDURES

CONFIDENTIALTY

Drug testing records will be kept in a separate locked file not accessible to unauthorized personnel. No information will be communicated to any person who does not have a bona fide need to know.

To ensure the confidentiality of test results and the privacy of employees, all communication concerning drug or alcohol testing, sample collection, test results, employee notification, and discipline will be handled only by the authorized ASI representatives or designee. In cases, involving bargaining unit employees where notification to a third party administrator is required, notification will also be given to an authorized representative of the Local Union.

REASONABLE CAUSE TESTING PROCEDURE

Supervisors will fill out the form "Observed Behavior-Reasonable Cause Record" before requesting a reasonable cause test. The circumstances supporting a reasonable cause test shall be set forth by completing the narrative portion of the reasonable cause test form. If a second supervisor is not available to corroborate the request for a test, the test will be based on the observations of a single supervisor. A reasonable-cause teat can be conducted at the third-party administrators testing facility, or on site. If a reasonable cause test is needed, the third-party administrator should be contacted immediately.

When a reasonable cause test has been properly ordered, the test will be done as soon as possible and within 32 hours of notification of the employee by the employer for a drug test and within 8 hours of notification to the employee for an alcohol test. No employee will be allowed to proceed to a "Reasonable-Cause" test on his/her own. Any employee who is suspected of being under the influence of drugs or alcohol and who may test positive for alcohol will be offered transportation to their residence. Any employee who is required to submit a "Reasonable Cause" test sample will not be allowed to return until the test results is received by the employer.

When an employee is tested under the "Reasonable Cause" provision of the Substance Abuse Policy and the test is negative, the employee will be compensated for all lost time associated with the testing procedure.

MEDICAL REVIEW OFFICER

In the case of a "positive" test result, the employee shall be so advised by the Medical Review Officer (MRO) in person or by telephone, on a confidential basis, prior to reporting the test result to the program administrator, The employee or applicant shall have the right to discuss and explain the test result, including the right to advise the MRO of any medication prescribed by his/her physician, which may have affected the results of the test. The MRO shall also review the chain of custody documentation to insure compliance with DHHS guidelines and normal chain-of-custody procedures.

CONTROLLED SUSTANCE SCREENING AND CUT-OFF LEVELS

Screening and Confirmation Test Cut-Off Levels for the Controlled Substances being tested are those which are recognized as possibility by the DHHS and are as follows:

Substance	Screening	Confirmation
Marijuana	50 Ng/ML	15Ng/ML
Cocaine	300 Ng/ML	150 Ng/ML
Opiates	300 Ng/ML	300 Ng/ML
Amphetamines	1,000 Ng/ML	500 Ng/ML
Phencyclidine	25 Ng/ML	25 Ng/ML
Barbiturates	300 Ng/ML	300 Ng/ML
Benzodiazepines	300 Ng/ML	150 Ng/ML
Methadone	300 Ng/ML	300 Ng/ML
Propoxyphene	300 Ng/ML	300 Ng/ML

DILUTED OR ADULTERATED TEST SPECIMEN

Any specimen that is deemed adulterated, or otherwise appears tampered with, will result in an employee or applicant being requested to give a second specimen immediately. If the second specimen is invalid it will be treated as a positive test result.

- Specimens which are diluted below a specific gravity of 1,003, or which have a creative level less than 15 will be considered valid. If the reportable measurement for these two indices are below the acceptable level the employee or applicant will be requested to refrain from drinking excessive amounts of fluids for 24 hours and will be required to give a second test specimen.

IMPLEMENTATION COMPLIANCE

Upon implementation of this substance abuse policy, all employees of ASI, who have a Substance test on file, will be incorporated into the program. These employees will constitute the Initial pool of employees subject to the random testing procedures.

- New entrants into pool of employees, who are not Short Term, must pass a pre--employment drug screen. Upon passing the pre-employment drug screen, an employee will be listed as Substance Qualified.

- Short Term employees will not be Substance Abuse Tested because of the temporal restraint of the employment classification and the "Positive Test" confirmation reporting delay that would in most cases extend beyond their employment period. This classification of employment will be coordinated with the Safety Manager to insure that employment opportunities are not shifted to Short Term and away from Substance Abuse Testing.

- If an employee violates the substance abuse policy, the employee's name will be listed as Suspended pending retest report. All authorized representatives will be notified. The employer will refer the employee to an EAP. When an employee has been released by the EAP to return to work, the EAT will notify the ASI Substance Abuse administrator. The employee's name will then be listed as eligible for employment.

REPORTING PROCEDURE:

Employee's who test positive for drugs or alcohol will be removed from the job site by the Substance/Alcohol Abuse program administrator or designee up on receipt of notification of the positive test result. The notification to the employee of this positive test result will occur in privacy and will include identification of the substance/alcohol limit exceeded. EAP's will also be identified to the employee at the time of notification.

CONTESTING A POSITIVE DRUG/ALCOHOL TEST:

An employee will have 72 hours to request the re-test specimen that is deemed positive.

An employee who has tested positive shall have the right to request in writing, from the employer, a copy of the laboratory report.

OBSERVED BEHAVIOR

REASONABLE CAUSE RECORD

_____ _____

_____

EMPLOYEES NAME **SOCIAL SECURITY #** **DATE**

_____

EMPLOYEE BIRTH DATE

_____ _____ **AM/PM**

_____

WORK SITE **OBSERVATION TIME** **OBSERV. DATE**

Reasonable suspicion of current use or impairment by:

CAUSE FOR SUSPICION

Appearance:

☐ **Normal** ☐ **Flushed** ☐ **Puncture Marks** ☐ **Disheveled**

☐ **Tremors** ☐ **Dilat./Constrt. Pupil** ☐ **Profuse Sweating** ☐ **Dry Mouth**

☐ **Runny Nose/ Sores/Frequent Sniffing** ☐ **Inappropriate wearing of shades**

☐ **Other:** _____

Behavior: Speech:

☐ **Normal** ☐ **Incoherent** ☐ **Slurred** ☐ **Silent**

☐ **Confused** ☐ **Slowed** ☐ **Loud** ☐ **Whispering**

☐ **Other:** _____

Behavior: Awareness:

☐ **Normal** ☐ **Confused** ☐ **Mood Swing** ☐ **Euphoria**

☐ **Lethargic** ☐ **Disoriented** ☐ **Paranoid** ☐ **Lack of Concentration**

☐ **Aggressive/Violent** ☐ **Other:** _____

Motor Skills: Balance:

☐ **Normal** ☐ **Swaying** ☐ **Falling** ☐ **Staggering** ☐ **Head Bobbing**

☐ **Other:** _____

Motor Skills: Walking and Turning:

☐ **Normal** ☐ **Swaying** ☐ **Arms raised for Balance** ☐ **Stumbling**

☐ **Falling** ☐ **Reaching for Support** ☐ **Other: _____**

Motor Skills: Other

☐ **Dropping Things** ☐ **Lack of Coordination** ☐ **Slowed Reaction Time**

ATRICULATED OBSERVED ACTS OF BEHAVIOR (use back form if more space is needed).

Supervisor: Name and Title:

_____

Signature_____**Date:**_____

_____

Comments and/or corroborations by a second supervisor or employee:

_____

Corroborators Name and Title:

_____

Signature_____**Date:**

_____

AUTOMATIC SYSTEMS, INC.

SUBSTANCE AND ALCOHOL PROGRAM

RECOMMENDED EMPLOYEE ASSISTANCE PROGRAMS

The following list of treatment and care facilities is a partial listing of Preferred Care institutions recommended for Substance and Alcohol rehabilitation. Additional facilities and programs are listed in the Preferred Care information supplied by the Health and Welfare Division from your local union.

MISSOURI

Saint Luke's Hospital	**816-932-2000**	**Sober 1 House of Hope**	**816-216-1994**
Truman Medical Center	**816-404-1000**	**Alcohol Recovery Care Unit**	**816-361-3500**
North Kansas City Hospital	**816-691-2000**	**Imani House**	**816-929-2600**
St. Joseph Medical Center	**816-942-4400**	**Northland Dependency Services**	**816-472-4637**
Research Medical Center	**816-276-4000**	**Comprehensive Mental Health Services**	**816-254-3652**
Research Psychiatric Center	**816-444-8161**	**Accent On Recovery**	**816-228-5455**
Centerpoint Medical Center	**816-698-7000**	**Recovery Plus AA Group**	**816-353-9539**
Liberty Hospital	**816-781-7200**	**Two Rivers Behavioral Health System**	**816-382-6300**

KANSAS

University of Kansas Hospital (KU Med)	**913-588-1227**	**Addiction Treatment Services**	**913-722-1118**
Menorah Medical Center	**913-498-6000**	**Charles Stebbins & Associates**	**913-381-7200**
Shawnee Mission Medical Center	**913-676-2000**	**LaSalida Inc.**	**913-722-1800**
Overland Park Regional Medical Center	**913-541-5000**	**Confidential Mental Health**	**913-707-5532**
Providence Medical Center	**913-596-4000**	**Olathe Medical Center**	**913-791-4200**

AUTOMATIC SYSTEMS, INC.

SECTION 15

BLOODBORNE PATHOGENS

AUTOMATIC SYSTEMS, INC.

SECTION 15

BLOODBORNE PATHOGENS

Bloodborne pathogens means pathogenic microorganisms that are present in human blood and can cause disease in humans. The pathogens include, but are not limited to, Hepatitis B virus (HBV) and Human Immunodeficiency Virus (HIV).

The purpose of this policy is to prevent any Bloodborne Pathogens exposure incident involving ASI employees, sub-contractor employees, or any other person or persons associated with any work performed at any work site by ASI.

1. Exposure Determination

Exposure to Bloodborne Pathogens at construction sites is, or should be, very minimal. However, at least two potential exposure possibilities exist. They are:

a. Employees who are insulin users and improperly dispose of insulin needles at the job site, thus creating potential Bloodborne Pathogens exposure incidents for other workers such as laborers who clean the area.

b. Employees trained in first aid - CPR procedures who may be required to respond in emergency situations.

2. Schedule and Method of Implementation

a. Universal precautions, in as much as they apply to construction job sites, shall be implemented immediately and at all future job sites of Automatic Systems, Inc.

1. Engineering and work practice controls shall be used to eliminate or minimize employee exposure.

2. Where total elimination of employee exposure is impossible, personal protective equipment shall be provided to and used by any and all employees.
3. Training and education shall be provided to all employees potentially endangered by Bloodborne Pathogens to communicate the hazards of the job.
4. Any and all employees required to work in a potential exposure situation shall be offered hepatitis B vaccination series and if the vaccination is refused the employees will be required to sign a declination statement.

b. Exposure incidents must be reported to the safety representative immediately with post -exposure medical evaluation and counseling for the employee.

3. Work Practice Controls

a. Employees will be provided handwashing facilities reasonably close to their work sites and break areas. When handwashing facilities are not available or practical, alternatives are to be developed and provided. These alternatives should include antiseptic solutions (e.g. Purell bottles) or other appropriate options.

b. Employees who have a medical need to take an insulin injection during work hours shall not dispose of the hypodermic needle at the job site.

c. Employees who must use insulin injections at work shall be counseled to seek advice from their personal physician as to proper disposal.

d. Employees using insulin injection needles as a contaminated "sharp" and after use shall place the "sharp" in an appropriate container which is puncture resistant, labeled or color coded as a biohazard and leak resistant.

e. Any employee trained in first-aid and CPR and required by his employer to respond to medical emergencies at work shall receive the training required by the Bloodborne Pathogens standard, be provided information

on the exposure control plan, and have access to hepatitis B at no cost to the employee.

f. Employees shall be provided and trained on the location and tools to use for quick drenching or flushing of eyes or body where anyone may have been exposed to corrosive materials.
g. Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities shall be provided within the work area.
h. All employees shall be instructed as to how to properly handle an incident-involving discovery of a potentially contaminated with human blood or other human body fluid. This procedure shall be as follows:3

1. The affected employee shall not touch the item discovered and shall immediately notify his foreman or superintendent of the discovery;
2. The foreman or superintendent shall contact the safety representative at the job site for proper handling; or
3. In the event that the foreman or superintendent is the safety representative at the job, he/she be responsible to see that all safety precautions are used in recovering the item or items for proper incarceration and disposal.
4. All equipment or surfaces that came in contact with blood or other infectious material shall be (a) taken out of service and (b) cleaned and sanitized before being put back in service.

4. Training

a. Training on this section shall be provided before initial assignment and at least an annual basis thereafter.
b. Record of this training shall be kept for duration of no less than 3 years, in an Employee's personnel file and in ASI's corporate training database.

5. Record Keeping

a. Medical records related to this shall be kept on file for the duration of an Employee's tenure at ASI plus 30 additional years after their separation.

AUTOMATIC SYSTEMS, INC.

SECTION 16

EMERGENCY ACTION PLAN

AUTOMATIC SYSTEMS, INC.

SECTION 16

EMERGENCY ACTION PLAN

Note: Each supervisor is responsible for establishing a method of warning for their employees. When the Owner's Security, the fire department, police department, or other response agency is present on the job site to handle an emergency, the response agency or security shall have total authority. Cooperation with their authority is mandatory and a lack of cooperation may lead to prosecution.

In the event of an emergency evacuation signal:

1. It is the superintendent's responsibility to inform all supervisors of the contact information to the plant safety and security.

2. Evacuate all personnel from the area. Utilize "word of mouth" to alert workers who may not have heard the evacuation signal.

3. Call plant safety and notify them of the situation so they can determine what emergency services need to be notified.

4. Each supervisor shall pre-determine a location and an alternate location where personnel are to congregate. This location shall be a minimum of 50 feet from the building or as otherwise notified. A headcount will be taken to assure the presence of all employees.

5. Each foreman shall notify the supervisor of the status as follows:

    a. Confirm that all employees have been evacuated, or
    b. The number of employees and their last known location within the building who have not been accounted for at the pre-determined congregation area.

4. Each supervisor shall provide and train a sufficient number of employees to assist in an orderly evacuation of employees, should an emergency evacuation be required.

5. The emergency will be reported to the plant officials at the earliest possible time after reaching a safe location.

6. Each employee must be familiar with exits in the area and access routes to the exits.

7. No one may re-enter the building for any reason unless a proper authority has approved re-entry.

8. Post flagmen to stop and/or detour traffic away from the building or affected area as required.

9. Upon receipt of the “all clear” from authorities, supervisor will notify the employees and entry may be permitted.

AUTOMATIC SYSTEMS, INC.

SECTION 17

WORKPLACE VIOLENCE POLICY

AUTOMATIC SYSTEMS, INC.

SECTION 17

WORKPLACE VIOLENCE POLICY

In order to provide a safe work environment, Automatic Systems Inc., has adopted the following workplace violence policy. This policy is designed to address workplace violence through preventive measures, supervisory training, and employee counseling. Nothing is more important to Automatic Systems Inc., than the safety and security of its personnel. Threats, threatening behavior, or acts of violence against employees, guests, or other individuals by anyone on company-controlled property will not be tolerated. All personnel are responsible for notifying management of any threats, which they have witnessed of, received, and threats, which they have been told that others have witnessed or received.

In the event of a violent potentially workplace incident, Automatic Systems, Inc. will remove the employee or contractor from the site. Automatic Systems will convene a hearing on behalf of the individual within 48 hours of the incident, excluding Saturdays, Sundays and hearing will offer an opportunity for all parties to provide statement of fact. Information provided at such hearings will be considered by Automatic Systems, Inc. management in determining what disciplinary action, if any should be taken. In all cases, the severity of the incident and the employee's site work history will have a bearing on the action. Automatic Systems, Inc. may, at its discretion, impose one or some combination of the following:

- Revocation of site access
- Suspension of site access for a period of one (1) year
- Referral of the employee for a psychological evaluation
- Issuance of a written reprimand
- Reinstatement of site access

No Weapons Allowed

The possession of any and all dangerous weapons is prohibited on the premises.

Automatic Systems, Inc.

Guidelines for Managing Workplace Violence

Framework for Response

What Constitutes Workplace Violence?

A threat consists of any words or actions that either creates a perception that there may be intent to harm persons or property or that actually bring about harm.

Conduct Initial Risk Assessment and Determine Level of Response Required. Assessment team consists of Human Resources, Safety & Health and Labor Relations.

- Verify validity of initial information
- Assess risk immediately within one hour

Evaluate the immediacy of risk Management personnel make preliminary assessment of threat (EAP, Medical, Legal) included as available.

If carried out what harm to persons or property likely scope of immediate danger to persons or property.

Review of site security system and needs.

- Involvement appropriate resources

Contact local security management and personnel.

- Conduct preliminary investigation

Formulate initial steps to gather data.

Discuss details with person reporting the threatening.

Identify location, situation context and demeanor of person making threats, as appropriate.

Interview the Alleged Threatening Employee

- Establish Plan for Employee Interview

Prepare details of allegation.

Consider safety issues when selecting an interview location.

Determine interim corrective action steps to be taken (if any) based upon the interview (often non-punitive suspension is used to facilitate the period of investigation).

Determine whether or how to reveal the name of the individual reporting the threat.

Prepare to listen to "the other side" of story. Prepare caution statement about retaliation.

- Conduct Interview with Alleged Threatening Employee

Presentation of the facts and reported statement Key Questions:

Continuously Re-Assess: Take Additional Actions Steps as Necessary (Sample)

- Increase site security
- Review security needs of those threatened
- Consult local police
- Develop internal and external communication strategy
- Provide EAP support for impacted employees
- Interpret medical information
- Re-evaluate situation based on new facts

Management Individual (s) Fears and Anxiety: Key Points

Do's

- Do treat threats seriously
- Do respond in a timely manner
- Do respect confidentially
- Do maintain flexibility
- Do ensure site and line management responsibility for managing situation • Do establish and maintain written documentation throughout
- Do involve key resources at the project
- Do be sensitive to individual rights, fears and concerns
- Do work as a team-Coordinate, Cooperate, Communicate

Don’ts

- Don't isolate yourself and go it alone • Don't assume anything
- Don't minimize the facts or underestimate the potential danger
- Don't contact local law enforcement agencies without guidance (unless imminent danger exists)
- Don't over react, become emotional and part of the problem
- Don't use external medical or consultant resources without the approval of management
- Don't over commit to safety, protection, anonymity

Investigation Guidelines

The following guidelines are intended to assist project management in planning and conducting the investigation. As with any guidelines, they are not intended to be all-inclusive, but rather a minimum that should be covered in any investigation of a threat of violence. The project is expected to determine who the appropriate members are to actually conduct the interviews.

A. Interview the Person Reporting the threat:

The person reporting the threat should be told that the company takes such reports seriously and will take immediate action to investigate and appropriately address any violations of work rules. Care should be taken to provide reassurance but not over commitments. As with all investigations, the basic concept is not to make any assumptions that later prove incorrect simply because your questioning took too narrow a focus. Examples of such assumptions might be: this is a one-time behavior.

When in facts, it has gone on for years; the threat came out of nowhere, when in reality the person reporting the threat had just threatened the person about whom he/she is now reporting.

Remember that the management of all such situations are very fact dependent. It is critical to get the facts. An interview(s) may proceed as follows:

1. Who made the threat?
2. What specific threat was made?
3. Where (specific location) was the threat made?
4. When was the threat made (date & time)?
5. Do you know why (prior events, facts) the threat was made?
6. How was the threat made? (What were the words/actions, and how close together were the participants if this was a one on one confrontation)?
7. Did you witness this personally? If not, who told you about the threat?
8. Give their names, locations. And what actions they actually observe.
9. How did people present respond to the threat?
10. Why do you believe the threat was serious, as opposed to a statement made in jest or as a joke?
11. What is the relationship (professional and social) between the person making the threat and those threatened?

12. Do you believe that the person making the threat has the capability and intent to carry out the threat? Why?
13. What do you think should be done about the behavior? How do you believe it should be accomplished?
14. Are you willing to be identified to a person who made the threat as the person who reported it? Are you willing to testify about the incident as necessary?

B. Interviewing Other Witnesses to the reported Behavior:

First, you need to confirm that the witness was actually a witness to the situation. If a person denies witnessing the behavior, ask them why he/she thinks they might have been named as a witness.

If a person confirms he/she was indeed a witness, ask why he/she did not come forward sooner.

If a person is willing to come forward as a witness, the interview may proceed as described above (Al1.)

C. **NOTE: It is important here not to jump to conclusions; to get a full understanding of this** person's side of the story. Also, remember that if he/she is likely to be confused, emotional and defensive at being accused. In addition, this guideline assumes that the person reporting the threat has agreed to allow their name to be used as the source of the allegation. If the person reporting has not so agreed, then the issue should be escalated immediately to the corporate Human Resources. When conducting the interview, make sure you ask at least the following questions:

1. Did you do or say the following? (Interviewer provides summary of the event and the words etc.)
2. If the answer is yes, continue with the following questions.
3. If the answer is no, go to question #7 below.
4. What did you mean by the statement action your own words?
5. Why did you make this statement (Action)?
6. Is this the first time that something like this has happened like this? If not tell me about other similar incidents, and what you did to fulfill the threat.
7. What do you intend to do in the current situation?
8. What is your relationship (professional and social) with the person threatened? What is your relationship with the person reporting the threat? (Ask only if the threat is denied).
9. What did happen? Why could it be reported that you allegedly made the threat?

D. The interview of Other Individuals in the Environment:

Care should be taken before broadening the scope of the investigation and/or providing information to persons without a need to know. The other concern is to avoid using a technique known as "sensing" which generally asks employees how things are going in their organization with a guarantee of confidentiality. Such a process, if successful, generates the kind of situation covered under "Requests for Anonymity" and potentially jeopardizes the investigation while creating duties and risks for the company.

The technique here in particular should be to set the stage as narrowly as possible in terms of information about the threat, and then begin questioning on general tensions in the group and any instance of hostile or threatening behavior. Context is again important,

e. g., overloads, failing program, reorganizations, uncertainty, historical pattern, etc. Any reports of threatening or hostile behavior should take you back to the kinds of questions set forth above in Section 1. A (person reporting of threatening or hostile behavior).

E. Visit the Location:

Unless you are very familiar with the location, it is probably a good idea to visit it to understand exactly how the behavior occurred. Seeing the location helps ground the situation. Also, security should immediately begin an assessment of

the overall security of the worksite of the employees involved. This will enable the management team and its resources to make an informed judgment regarding any necessary additional precautions.

AUTOMATIC SYSTEMS, INC.

SECTION 18

LADDER AND SCAFFOLD PROGRAM

AUTOMATIC SYSTEMS, INC.

SECTION 18

LADDER AND SCAFFOLD PROGRAM

LADDERS – SELECTION, INSPECTION and USE

STATEMENT OF POLICY

Employees' will be provided with means of access, ladders and scaffolds that are suitable for purpose and properly maintained. They will receive instructions detailing inspection and safe usage methods and procedures.

SCOPE

This policy applies to **all** ladders and scaffolds that are to be used by ASI employees.

TRAINING AGENDA

The following points are required, as a minimum, to be addressed in all training that refers to the subject as listed. Training will be provided prior to assignment using ladders or scaffolds and retraining will be offered annually and if misuse or inappropriate use is observed.

LADDERS AND SCAFFOLDS

1. Ladders and scaffolds are to be inspected prior to use by a Competent Person. Items for inspection will include – rails, rungs, steps, hardware, tie off ropes and chains, feet, spreaders, screws, bolts, braces, treads, and cleanliness.
2. Ladder rungs, cleats, and steps shall be parallel, level, and uniformly spaced, when the ladder is in position for use. Never use a defective ladder or scaffold. Defective ladders or scaffolds are to be taken out of service immediately and identified with a "Do Not Use" tag that lists the defect and who placed the tag.

3. Ladders and scaffolds are to be used only for their designed purpose and within the load specification of the manufacturer. They are not to be tied or fastened together to provide longer sections unless specifically designed for that application. Metal Ladders or Ladders with metal rails are not to be used – ONLY NON-CONDUCTIVE SIDE RAIL LADDERS SHALL BE ALLOWED
4. Ladders and scaffolds are to be placed on stable, level surfaces unless secured to prevent displacement.
5. Ladders placed in location where they may be displaced by the work activity i.e. doorway, passageway, mobile equipment are to be used in all situations where mobile equipment is a consideration.
6. Employees' are to use both hands and face the ladder when ascending and descending. They are to not carry tools, materials, or other objects that could cause them to lose their balance.
7. The top and top steps of stepladders are not to be used as steps by personnel.
8. The area around the top and bottom of all ladders and scaffolds are to be kept clear.
9. Ladders and scaffolds are not to be moved, shifted, or extended while occupied.
10. Ladders used to access an upper level or landing will have the side rails extended
11. Three feet beyond the level or landing's surface. The ladder will also be secured at the level or landing being accessed.
12. Non – self – supporting ladders shall be secured in all cases and the foot shall
13. Extend out 1 foot from vertical for every 4 feet of working length.
14. The top of a non – self – supporting ladder shall be placed with the 2 rails
15. Supported equally unless equipped with "single support" attachment equipment.
16. Ladders and scaffolds are to be maintained free of oil, grease, or other slipping agents. Also, employees' are to examine their footwear for oil, grease, or other contaminants that might cause slipping.
17. Employees' are not allowed to climb fixed ladders where the height of the top of the fixed ladder is more than 24 feet unless it is equipped with a ladder safety device, cage, or retractable lifeline.
18. Stepladders are to be used in the full open position with the spreaders locked.

SCAFFOLDS – CONSTRUCTION, INSPECTION and USE

STATEMENT OF POLICY

Scaffolds shall be provided for all work that cannot be performed safely by employees standing on permanent or solid construction which is at least 20 inches wide, expect in such cases that the work can be safely accomplished using ladders, manbaskets, or manlifts (powered or mechanical).

TRAINING AND INSPECTIONS

When scaffolds will be in use, the employees utilizing them must be trained on the safe use of scaffolds. This training shall include all potential hazards including, but not limited to, electrical hazards, falling object hazards, any other forms of potential energy that can generate a hazard, as well as fall protection for the Employee, proper scaffold use and load capacity of the scaffold that should consider static and potential dynamic loads of personnel, tools, equipment, or other objects.

EXCEPTIONS

1. Work of a limited nature and of short duration is allowed when the permanent or solid construction is less than 15 feet, the location is provided with adequate risk control and fall protection is maintained under the supervision of a competent person.
2. Work of short duration from joists or similar members at a maximum of 2-foot centers with planks resting on plank platform 12 inches wide of the equivalent protection and with approved Personal Fall Protection Equipment in use.

SCOPE

This policy applies to all access related activities that involve scaffolds including erection, inspection, use, modification and dismantlement.

DEFINITIONS

SCAFFOLD – Any temporary elevated platform and its supporting structure used to support workers, tools, materials, or a combination.

COMPETENT PERSON – One who is capable of identifying existing and predictable hazards in the surrounding or working conditions which are unsanitary, hazardous, or dangerous to employees and who has the authority to take prompt corrective measures to eliminate them.

QUALIFIED PERSON – One who by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.

PROGRAM RULES

1. All scaffolds used by company employees' shall be erected, moved, modified, and dismantled under the direction of a competent person.
2. All scaffold components shall be inspected by a competent person before each use and at a period not to exceed 3 months.
3. Standard guardrails, midrails, and toeboards shall be installed on all open sides of platforms more than 10 feet above the supporting grade or level to which personnel, tools, or materials could fall.
4. Scaffolds 4-10 feet high, having a minimal horizontal dimension in either direction of less than 45 inches shall have standard guardrails installed on all open sides and ends.
5. Where persons are required to work or pass under the scaffold, it will be provided with a screen between the toeboard, guardrail, extending along the entire opening, consisting of #18 gauge U.S. Standard wire ½ inch mesh or the equivalent.
6. Scaffolds and their components shall be capable of supporting without failure at least 4 times their intended load.
7. Any scaffold including accessories such as braces, brackets, trusses, screw legs, ladders, or other components damaged or weakened from any cause shall be repaired or replaced immediately.
8. All planking of platforms shall extend over their end supports between 6 – 12 inches and be secured from movement.
9. All scaffolds will be provided with safe access by means of designed or affixed ladders, walkways, or stairways that do not influence the stability or integrity of the scaffold.
10. The poles, legs, or uprights of scaffolds shall be plumb, and securely and rigidly braced to prevent swaying and displacement.
11. Overhead protection shall be provided if there is an overhead exposure.
12. Slippery or cluttered conditions are to be prevented and eliminated immediately upon occurrence.
13. Employees shall not be allowed to ride on manually propelled scaffolds.
14. Platforms shall be tightly planked for the full width of the scaffold except for necessary entrance openings.
15. All casters on manually propelled mobile scaffolds shall be provided with a positive locking device to hold the scaffold in position.
16. The height of a freestanding mobile scaffold will not exceed 4 times the base dimension.
17. Materials, tools, equipment etc. must be secured or removed from a mobile scaffold before it is moved.
18. Employees' shall not work on scaffolds when exposed to adverse weather i.e. high wind, rain, lightening, snow, and sleet.
19. Materials, tools etc. being hoisted onto lowered from a scaffold will have a tag line attached.
20. When a scaffolds height exceed 3 times the smallest base dimension, the scaffold shall be secured to the building or structure beginning with the second section and every other section thereafter. Ties shall be installed during erection and are to remain in place until descending to that level during dismantlement.
21. All wooden pole scaffolds over 60 feet in height shall be designed by a Registered Professional Engineer.

AUTOMATIC SYSTEMS, INC.

SECTION 19

ENVIRONMENTAL EXPOSURES

CONTROL PROGRAM

QUALITY AND ENVIRONMENTAL POLICY

ASI WILL CONTINUE TO SERVE AS A GLOBAL LEADER IN OUR INDUSTRY BY DEVELOPING INNOVATIVE IDEAS, CREATING QUALITY PRODUCTS, PROVIDING TIMELY SERVICE, AND PERFORMING THESE TASKS IN AN ENVIRONMENTALLY FRIENDLY MANNER. WE INTEND TO CONTINUALLY IMPROVE THE RELIABILITY AND MAINTAINABILITY OF OUR PRODUCTS.

ASI'S PRACTICES AND PRODUCTS WILL MEET OR EXCEED ALL APPLICABLE PERFORMANCE SPECIFICATIONS PLUS ENVIRONMENTAL REGULATIONS, ENVIRONMENTAL LEGISLATION, AND OTHER ENVIRONMENTAL REQUIREMENTS.

ASI WILL IDENTIFY OPPORTUNITIES, SET TARGETS, AND ESTABLISH PROGRAMS TO MINIMIZE WASTE. THESE PROGRAMS WILL ADDRESS RECYCLING, CLEANLINESS, ENERGY EFFICIENCY, AND RESOURCE USAGE.

ASI'S QUALITY AND ENVIRONMENTAL PROGRAMS WILL BE ESTABLISHED, MONITORED FOR PROGRESS, AND MEASURED FOR CONTINUOUS IMPROVEMENT.

ASI MANAGEMENT SUPPORTS AND ALLOCATES RESOURCES TO FULFILL THESE RESPONSIBILITIES. EMPLOYEES AT ALL LEVELS ARE ENCOURAGED TO HONOR THIS RESPONSIBILITY.

ASI'S QUALITY AND ENVIRONMENTAL ORGANIZATION, PROGRAMS, AND PROCEDURES ARE AVAILABLE FOR EMPLOYEE REVIEW THROUGH OUR WEB BASED DOCUMENTATION SYSTEM. A WEB ADDRESS IS MAINTAINED TO SHOW OUR COMMITMENT TO I

AUTOMATIC SYSTEMS, INC.

SECTION 19

ENVIROMENTAL EXPOSURES CONTROL PROGRAM

1. LEAD EXPOSURES CONTROL PROGRAM

STATEMENT OF POLICY

No employee performing work for Automatic Systems, Inc. to be exposed to concentrations of lead which exceed the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PEL).

SCOPE

All work activities where an employee may be exposed to lead such as:

- Flame-torch cutting, welding and grinding of lead painted surfaces in repair, reconstruction, dismantling and demolition work:
- Abrasive blasting of steel structures containing lead-base paints. Maintaining process equipment or exhaust ductwork;
- Spray painting with lead-based paints and primers; using solder in plumbing and electrical work.

DISCUSSION

Lead is a cumulative poison. It accumulates in the blood, bones and organs, including the kidneys, brain and liver. It may remain in the bones for up to thirty years. It is generally released slowly over an extended period of time to cause toxic effects. The early effects of lead poisoning are not specific and resemble "flu-like" illnesses. Lead is principally absorbed into the body by inhalation (breathing) and ingestion (eating).

Cumulative exposure to lead, which is typical in construction settings, may result in damage to the blood, nervous system, kidneys, bones, heart and reproductive system and contributes to high blood pressure.

The Safety Manager is responsible for the implementation and coordination of this program to ensure correct Industrial Hygiene controls, documentation and communication are achieved.

ACTION LEVEL

The is the exposure level that triggers the implementation of this program and is determined to be 30 micrograms per cubic meter (mg/cm3) calculated for an 8-hour exposure.

EXPOSURE ASSESSMENT

Identification of the possible exposure to lead will include:

- Any information; pre-bid, materials activities, previous measurements etc. that points to any exposure.
- Employee symptoms or complaints any objective data.

TRAINING AND COMMUNICATION

Workers awareness and training are important so that employees can recognize the symptoms of exposure and get prompt medical attention.

Buildings trades that are typically exposed to lead include electricians, ironworkers, demolition work, painting, plumbing, heating/air conditioning.

- Because of the acute effects of overexposure to this substance and in compliance with 29 CFR1926.21 and 1926.62, it is required that all potentially exposed employees be informed of the hazard of lead and be trained in the precautions to take when working around it. The employee shall also be instructed in proper work practices, personal hygiene procedures, and the use and limitations of protective equipment, such as eye and face protection, head protection, coveralls and respirators.
- Work activities that present physical or atmospheric conditions resulting in an unsafe accumulation of lead contamination requires suitable mechanical ventilation and/or respiratory protective equipment to be employees to eliminate or control the exposure.
- If for any reason, the possibility of exposure to lead is suspected, the suspected source shall be sampled, if possible. (In all cases sampling shall be done on b the owner's permission). If source sampling confirms the existence of lead, then representative sampling shall be done of selected employees and under conditions that represent each employee's regular daily exposure to lead. The samples should be taken in accordance with the National Institute of Occupational Safety and Health (NIOSH) method 7082 or equivalent. The objectives of the sampling are to:

    1. Identify the extent of exposure:
    2. Determine the need for engineering controls;
    3. Determine the effectiveness of work practices in controlling exposures;
    4. Determine any need for medical monitoring;
    5. Select the appropriate respiratory device, if needed, and monitor its effectiveness.

- When evidence shows that any worker's exposure level will exceed the OSHA PEL. Immediate steps are to be taken to minimize the hazards of lead and protect all affected employees. Engineering and work practices to be considered are:

    - Increasing the length of the cutting torch, thereby increasing the distance from the source of contamination, to reduce the exposure of workers burning lead containing products:
    - Using chemical stripping systems such as methylene chloride are toxic or release toxic by-products when subjected to high temperatures);
    - Working upwind of the cutting torch when the configuration of the job permits;
    - Using wet methods to reduce the spread of dust;

- Using proper ventilation to reduce the exposure.

- Respiratory protection is meant to supplement the use of engineering controls and good work practices. When respirators are provided, a respiratory protection program must be established which is in accordance to 29 CFR 1910.134. All workers required to wear respiratory protection must be trained in the proper use of respirators and their limitation. Qualitative or quantitative fit testing shall be done at the time of the initial fitting and at least semiannually thereafter.
- Under no circumstances will employees be allowed to eat, drink or smoke in areas where lead contamination exists. All lunch boxes and coffee cups must be kept away from the work area.
- Before any ASI employee or subcontractor is assigned a job with exposure to lead, a physician shall evaluate and document the worker's baseline health status by collecting medical, environmental and occupational histories. A physical examination shall be done and permission issued by the worker's physician verifying the fitness of the worker to perform the job including the fitness to use respirators.
- No employee or subcontractor with a lead blood level of 50 micrograms per deciliter of blood shall be allowed to work in a work environment of lead exposure. Workers exposed to lead for more than 30 days per year at levels in excess six months intervals. If a worker's blood level exceeds 40 micrograms per 100 grams (ugll00g) the monitoring frequency will be increased to at least every 2 months.

2. BLOODBORNE PATHOGENS PROGRAM

STATEMENT OF POLICY

Automatic Systems, Inc. will implement the requirements specified by the Department of Labor-OSHA to prevent any Bloodborne Pathogens exposure incident involving it's employees, sub-contractor employees or any other person or persons associated with any work performed at any **Automatic Systems, Inc.** work site.

SCOPE

This program applies to all work activities that might expose an employee or sub-contractor.

DEFINITION

Bloodborne pathogens means pathogenic micro-organisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

EXPOSURE DETERMINATION

Exposure to Bloodborne Pathogens at construction sites is very minimal. However, at least two conditions increase the probability of exposure. The conditions are:

1. Employees who are insulin users and improperly dispose of insulin needles at the jobsite, thus creating potential Bloodborne Pathogens exposure incidents for other workers such as laborers who clean the area.
2. Employees trained in first-aid CPR procedures who may respond to emergency situations.

COMPLIANCE PROGRAM

Universal precaution will be observed at all worksites to prevent contact with blood or other potentially infectious materials. These precautions will include:

- Engineering and work practice controls shall be used to eliminate or **minimize** employee exposure.
- Where total elimination of employee is impossible, personal protective equipment shall be provided to employees who are required to use the equipment.
- Training and education shall be provided to all employees who may be endangered by Bloodborne Pathogens to properly communicate the hazards of the job.
- Any and all employees required to work in a potential exposure situation shall be offered hepatitis B vaccination series and if the vaccination is refused the employee will be required to sign a declination statement.
- Exposure incidents must be reported to the site safety representative immediately to insure post-exposure medical evaluation and counseling for the employee.

WORK PRACTICE CONTROLS

Employees who have a medical need to take an insulin injection during work hours **shall not dispose of the hypodermic needle at the work site**.

- Employees using insulin injection needles at work shall be counseled to seek advice from their personal physician as to proper disposal.
- Employees using insulin injection needles at work shall treat the used hypodermic needles as a "contaminated sharp" object and immediately after use shall place the object in an appropriate container which is puncture and leak resistant, labeled or color coded as a bio-hazard.
- Any employee trained in First-Aid and CPR and required by his employer to respond to medical emergencies at work shall receive the training required by the Bloodborne Pathogens standard, be provided personal protective equipment, be provided information on the exposure control plan and have access to hepatitis B vaccination at no cost to the employee.
- All employees shall be instructed as to how to properly handle an incident-involving discovery of a potentially contaminated with human blood or other body fluid. The procedure shall be as follows:
  - The affected employee shall not touch the item discovered and shall immediately notify his foreman or superintendent of the discovery;
  - The foreman or Superintendent shall contact the safety representative at the jobsite for proper handling; or
  - In the event that the foreman or superintendent is the safety representative on the job, he/she shall be responsible to see that all safety precautions are used in recovering the item or items for proper incarceration and disposal.

AUTOMATIC SYSTEMS, INC.

SECTION 20

SAFETY VIOLATIONS AND DISCIPLINE POLICY

AUTOMATIC SYSTEMS, INC.

SECTION 20

SAFETY VIOLATIONS AND DISCIPLINE POLICY

It is held by Management that repeated violations of safety rules should result in disciplinary action. The policy will be as followed:

- For the first offense, the employee will be notified verbally of the particular violation.

- The second offense will result in a written citation. The employee will receive a copy of the citation documenting what rule and why it was violated.

- The third offense of a particular safety rule will result in immediate discharge from the Project with his/her access revoked for the duration of the project.

Flagrant violations of Lockout/Tagout, Confined Space Entry, Fall Protection or Material Handling can lead to immediate discharge.

All the rules and regulations contained this document are subject to this policy. The provisions of this policy do not exclude the company from discharging employees for misconduct without repeated offenses.

AUTOMATIC SYSTEMS, INC.

SECTION 21

BOOM & SCISSORS LIFT

TRAINING PROGRAM

AUTOMATIC SYSTEMS, INC.

SECTION 21

BOOM & SCISSORS LIFT

TRAINING PROGRAM

POLICY

Employees' who might operate extensible boom and/or scissors lift equipment in the course of their work activities will be trained to ensure their knowledge and ability to safely operate this equipment. Training shall be completed before work can proceed.

SCOPE

All employees assigned to projects that have access to extensible boom and/or scissors lifts.

AERIAL LIFT GUIDELINES

- Only trained and authorized persons shall operate an aerial lift.
- A malfunctioning lift shall be shutdown until repaired.
- Lift controls shall be tested each day prior to use to determine that the controls are in safe working condition.
- A full body harness with lanyard shall be worn and attached to the basket when operating an aerial lift.
- Employees shall always stand on the floor of the basket and shall not sir or climb on the edge or the basket or use planks, ladders, or other devices for a work position.

- Load limits specified by the manufacturer shall not be exceeded.

- Aerial lift shall not be used near electric power lines unless the lines have been de-energized or adequate clearance is maintained.

- Employees using aerial lifts shall be instructed how to recognize and avoid unsafe conditions and hazards.

OPERATION CHECKLIST

Pre-start Inspection (fill out pre-operation inspection form)

OPERATION

- Operate on smooth, firm, and level surface.

- Operate within the platforms load limits as displayed on the machine.

- Aerial lifts with extendible axles or outriggers must have these stabilizing devices properly positioned before platform can be raised or boom extended.

- Do not operate platform ground controls with personnel in platform except in an emergency.

- Never operate, modify, or disable the foot switch by blocking or any other means.

- You must maintain a clearance of at least 10’ between any part of the machine or its load and any electrical line or apparatus up to 50,000 volts. Two feet of additional clearance is required after 50,000 volts.

- Allow engines and hydraulic system to warm up before inspecting machine for malfunctions.

- Do not drive machine to work location with boom in any position other than centered over rear axle and below horizontal.

- Never use boom on grades or side slopes exceeding those specified on the machine.

- Do not drive machine on grades or side slopes exceeding those specified on the machine.

- Use extreme machine when driving with platform elevated. Activate controls with a slow even motion.

- Never walk or climb the boom to access to or to leave the platform.

- Never attach to adjacent object or structure.

MAINTENANCE

- Use only clean approved nonflammable cleaning solvents.

- Shut off all power controls before making adjustments, lubricating, or performing any other maintenance.

AUTOMATIC SYSTEMS, INC.

SECTION 22

HEXAVALENT CHROMIUM

TRAINING PROGRAM

AUTOMATIC SYSTEMS, INC.

SECTION 22

HEXAVALENT CHROMIUM

Purpose:

The purpose of this program is to assist our employees with knowledge of the toxic effects, and how to minimize exposures to hexavalent chromium.

Hexavalent Chromium has many uses in industrial processes. Some major industrial sources of hexavalent chromium are:

- Chromate pigments in dyes, paints, inks, and plastics.
- Chromates added as anti-corrosive agents to paints, primers and other surface coatings.
- Chrome plating by depositing chromium metal onto an items' surface using a solution of chromic acid.
- Particles released during smelting of ferro-chromium ore.
- Fume from welding stainless steel or nonferrous chromium alloys.
- Impurity present in Portland cement.

Requirements:

2.1 An initial assessment to determine whether there is hexavalent chromium in the workplace:

- Chromate pigments in dyes, paints
- Review MSDS to help make this determination
- Review processes in workplace to determine if hexavalent chromium could exist (e.g., welding on stainless steel, electroplating, chrome stripping).
- If hexavalent chromium exposures do exist, ask whether the Company actually needs the substance in the workplace. It would be best to eliminate it and/or substitute it with something less toxic.

Housekeeping:

- The prevention of spreading of dust and fume is critical to minimize exposure.
- Vacuuming by use of a HEPA (High Efficiency Particulate Air Filter) is the

preferred method. Proper use of a HEPA vacuum prevents the dust from being dispersed back into the air.

- Eating, drinking, smoking and applying lip balm and cosmetics is prohibited in areas where hexavalent chromium is used.

Employee Exposure/Monitoring:

- No employee shall be exposed in excess of 5 micrograms per cubic meter of air (PEL) as an 8-hour TWA.
- If the initial exposure assessment finds hexavalent chromium exposures to be at or above the action level (2.5 micrograms per cubic meter of air) , periodic personal exposure air monitoring must be done at least every six months. If the hexavalent chromium levels are at or above the PEL in the initial assessment then monitoring must be done at least every three months.
- Periodic monitoring may cease if two consecutive personal air samples, taken at least seven days apart, indicate that results are below the action level.
- If an employee is exposed to hexavalent chromium above the PEL for more than 30 days per year, implementation of engineering and work practice controls to reduce and maintain employee exposures to hexavalent chromium to or below the PEL shall be completed, unless the Company can demonstrate that such controls are not feasible.
- If engineering and work practice controls do not reduce exposures below the PEL. respiratory protection must be used.
- PPE required when exposure is determined shall be provided to employees at no cost.

Medical Surveillance:

- Company shall set up a medical surveillance program at no cost to employees if they are exposed to hexavalent chromium over the action level (2.5 micrograms per cubic meter of air) for more than 30 days per year, if employees exhibit signs or symptoms of adverse effects of exposure or if they are exposed in an emergency. The contents of the medical examination must include:
    - A medical and work history, with emphasis on: Past, present, and anticipated future exposure to hexavalent chromium; 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.
- Any additional tests deemed appropriate by the physician or licensed health care professional (PLHCP) conducting the exam-

Recordkeeping:

- Company shall maintain an accurate record of all air monitoring conducted to comply with the requirements of the hexavalent chromium standard. The record shall include at least the following information:
  - The date the measurement was taken;
  - The operation involving exposure to hexavalent chromium that is being monitored;
  - Sampling and analytical methods used and evidence of their accuracy;
  - Number, duration, and 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.

Exposure monitoring records shall be kept for at least 30 years. Company shall provide employee access to the monitoring records in a reasonable time, place and manner. 2.5

Regulated Areas:

- Any area where employees may have exposures to airborne concentrations of hexavalent chromium that exceed or may be reasonably expected to exceed the PEL must be demarcated from the rest of the workplace in a manner that adequately establishes the boundaries of the regulated area and alerts employees to these boundaries.
- Access to regulated areas must be restricted to persons authorized by the Company and required by work duties to be in the area.

When protective equipment and clothing is required, Company shall provide change rooms and washing facilities that conform to OSHAs' Sanitation regulation (1910.141).

- The change rooms must have separate storage facilities for protective clothing and equipment and for street clothes to prevent cross contamination.
- The washing facilities must be readily accessible and capable of removing hexavalent chromium from the skin.
- Company shall verify that employees use these facilities when

necessary.
One shower for every 10 employees of each sex during the same shift must be

- supplied along with body soap, hot and cold water and clean towels.

Training:

- Company shall provide the following information and training to employees if they have potential hexavalent chromium exposure at their workplace:

  - The contents of the OSHA Hexavalent Chromium Standard (29CFR1910.1200).
  - The purpose and a description of the medical surveillance program required by the standard;
  - The specific nature of the operations which could result in overexposure to hexavalent chromium;
  - The purpose, proper selection, fitting, use and limitations of respirators and any other personal protective equipment used;
  - The proper use of ventilation or other engineering controls used to reduce employee exposures to hexavalent chromium.

References:

OSHA 29CFR1910.1026

OSHA 29CFR1926.1026

Exhibits:

None.

AUTOMATIC SYSTEMS, INC.

SECTION 23

FORKLIFT SAFETY PROGRAM

AUTOMATIC SYSTEMS, INC.

SECTION 23

FORKLIFT SAFETY PROGRAM

1.0 OVERVIEW

Material handling is a significant safety concern. During the movement of products and materials, there are numerous opportunities for injuries and property damage. Powered industrial trucks, better known as forklifts are essential tools in handling material. This document has been created to minimize the risk of injury to operators, bystanders, and to avoid damage to ASI property.

2.0 POLICY

Each department assigned forklifts must ensure that supervisors and operators comply with all aspects of this safety program. All employees must successfully complete this training program and receive certification to the operation of any powered industrial truck.

3.0 REQUIREMENTS

- Valid driver's license
- No uncorrectable adverse vision problems.
- No uncorrectable adverse hearing loss.
- No physical limitations that would impair safe operation of the forklift.
- No neurological disorder that affect balance or consciousness.
- No medication use that affects perception, vision, or physical abilities.

4.0 PURPOSE

This program has been developed to reduce the risk of physical injury or property damage in areas where forklifts are in operation. It also brings ASI in compliance with federal, state, and local law.

5.0 SCOPE

This program applies to the operation of all forklifts.

6.0 PROCEDURES

6.1 Pre-Use Inspection

- Prior to the operation of any forklift the Pre-Use Inspection Checklist found in Appendix A must be completed. This applies to the beginning of the work day.
- Any safety defects (such as hydraulic fluid leak, defective brakes, steering, lights (if equipped), and horn) must be reported for immediate repair. The forklift must be taken out of service.

6.2 Operation

- Operators must sound the horn and use extreme caution when meeting pedestrians, making turns, and cornering.
- Passengers are not allowed to ride on a forklift.
- Arms or legs may not be placed between the uprights of the mast or outside the running lines of the truck.
- Persons are not allowed to stand or pass under any elevated portion of a forklift.
- If forklifts are used to elevate persons then an appropriate man lift platform (cage with standard rails and toe boards) that is attached to the mast must be used.
- Trucks must not be driven up to anyone standing in front of a fixed object.
- Lift capacity must be marked on all forklifts. Operators must assure the load does not exceed rated weight limits.
- When forklifts are left unattended, load engaging means must be fully lowered, controls neutralized, power shut off, and brakes set. Wheels must be blocked if the forklift is parked on a incline.
- Operators must report all accidents, regardless of fault and severity to their Supervisor.

6.3 Loading

- Only handle loads within the rated capacity of the forklift.
- Loads should be safely arranged, stable, and centered-always use caution when handling loads. If still unstable the load must be fixed to mast or forks to prevent the load from shifting.
- A load engaging means must be placed under the load as far as possible. The mast must be carefully tilted backward to stabilize the load.
- Use extreme care when tilting the load forward or backward, especially when high tiering.

6.4 Traveling

- All traffic regulations must be observed.
- Yield to all pedestrians
- Forklift must be kept under control at all times.

- Do not pass other trucks traveling in the same direction at intersections, blind spots, or other dangerous locations.
- The driver must look in the direction of and keep a clear view of the path of travel.
- Stunt driving and horseplay are prohibited.
- Avoid running over loose objects on the roadway surface.

7.0 RESPONSIBILITIES

7.1 Safety Coordinator

- Must implement and administer the forklift program.
- Review the program annually for compliance and effectiveness.
- Verify that all employees are properly trained.
- Maintain written records of each operator.
- Observe the operation of forklifts and report any unsafe practices to the appropriate supervisor.
- Provide the general safety training requirements for program.

7.2 Foreman

- Help coordinate with Safety Coordinator employee training.
- Ensure that only trained and qualified individuals use forklifts.
- Observe the operation of forklifts in their department and correct any unsafe practices.

7.3 Operators

- Complete Forklift Safety Program
- Complete the Daily Pre-Use Inspection Checklist before operating any forklift.
- At least annually review the procedures outlined in Section 6.0 of this program.
- Observe the operation of forklifts and report any unsafe practices to the appropriate supervisor.

8.0 TRAINING REQUIREMENTS

Employees who authorized to operate a forklift must receive training prior to engaging in their duties, and at least annually thereafter. The training is to ensure the Forklift Safety Program is understood.

Trainers will be selected by the Safety Coordinator and approved by the Manufacturing Manager. The trainers must be experienced operators who have knowledge, training, and skills necessary to evaluate the competence of trainees. Operational training will consist of a combination of general safety instruction, practical/operational training (demonstrations performed by the trainer, and practical exercises performed by the trainee), and evaluation of the operator's performance in the workplace.

8.1 Initial Training

- Receive instruction on the intended purpose and function of each control.
- Be informed of the forklift operating limitations and restrictions.
- Understand by reading or having a qualified person explain all decals, warnings, and instructions displayed on forklift.
- During operational training, trainees may operate forklift only under direct supervision of authorized trainers, and where such operation does not endanger the trainee or other employees.
- All training, operator evaluation, and operator test must be completed before an operator is permitted to use a forklift without continual supervision.

8.2 Annual Training-Must include at least the following:

- Review of Pre-Use Inspection Checklist
- Review of Section 6.9-Procedures
- Update information on any new equipment
- Review of written program

8.3 Re-training-must be provided when:

- The operator has been observed operating the forklift in an unsafe manner.
- The operator has been involved in an accident or near-miss incident.
- A condition in the workplace changes in a manner that could affect safe operation of the forklift.
- There is a change in equipment or process, or whenever there is a change in the program.
- Re-training will take place prior to continued equipment operation if the supervisor observes safety violation.

8.4 Training Records

Training records will be maintained of all individual training:

- Subject of training.
- Date of training
- Name of individual trained
- Name of supervisor providing the training.

9.0 Monitoring

9.1 Safety Coordinator

Review documents prepared by foreman. Documents may include but not be limited to:

- Operator Evaluation
- Operator Test
- Daily Pre-Use Inspection forms including the resolution of any deficiencies noted.
- Review all records received and evaluate them for completeness and accuracy.
- Provide any additional training as may be necessary to ensure compliance.

9.2 Foreman

- Review Daily Pre-Use Inspection forms to ensure accuracy.
- Ensure that forklifts do not remain in service if safety concerns are noted on the Daily Pre-Use Inspection forms.
- Visually observe daily operation of each operator.

AUTOMATIC SYSTEMS, INC.

SECTION 24

RESPIRATORY PROTECTION

AUTOMATIC SYSTEMS, INC.

SECTION 24

RESPIRATORY PROTECTION

I. Purpose

The purpose of this program is to ensure that all employees of Automatic Systems, Inc. are protected from exposure to respiratory hazards and that Automatic Systems, Inc. is in compliance. Engineering controls, such as ventilation and substitution of less toxic materials, are used where feasible; however, engineering controls are not always completely effective in controlling the identified airborne hazards. In these situations, respirators, and other types of personal protective equipment must be used. Respirators are also needed to protect your health during emergencies. It is Automatic Systems, Inc.'s policy that use of PPE, including respirators, will be enforced, and failure to comply may result in disciplinary action, up to and including termination for serious or repeated infractions.

In addition, if an employee desires to wear respirators during certain operations that do not involve exposures to airborne contaminants requiring respiratory protection, as a general policy, each such request will be reviewed on a case-by-case situation. If the use of respiratory protection in a specific case will not jeopardize an employee's health or safety, or that of coworkers, an employee may use the respirators provided or may provide his/her own for voluntary use, subject to approval by the Program administrator. As outlined in the Voluntary Usage section of this program, voluntary usage is subject to certain additional program requirements.

II. Scope and Application

Automatic Systems, Inc. has determined that some employees may be exposed to respiratory hazards during some operations. This program applies to all employees who are required to wear respirators during normal work operations, and during some non-routine or emergency operations such as clean-up of spills of hazardous substances. Employees participating in this program do so at no cost to them; the expense associated with training, medical evaluations and equipment are to be paid by the company. In addition, where any employee voluntarily wears a respirator when one is not required (i.e., a hazard assessment reviewed by the Program administrator revealed respirators are not required), the employer must implement the medical evaluation provisions of a program, and is responsible for ensuring that employees comply with cleaning, maintenance, and proper storage of the respirators.

Dust masks (filtering face piece) are not subject to even these minimal requirements. Voluntary use of dust masks alone does not require the employer to have a written program. For filtering face piece respirator use, the employer needs only ensure that dust masks are not dirty or contaminated, that their use does not interfere with the employee's ability to work safely, and that a copy of Appendix D (Section VI, Attachments) is provided to each voluntary wearer.

III. Responsibilities

A. Program Administrator

The program administrator is responsible for administering the respiratory protection program. Duties include:

- Identifying work areas, processes, or task that require workers to wear respirators, and evaluating the associated hazards.
- Selecting appropriate, approved respiratory protection options.
- Monitoring respirator use to ensure that respirators are used in accordance with their certifications.
- Arranging for and or conducting training.
- Ensuring proper storage and maintenance of respiratory protection equipment.
- Conducting qualitative fit testing.
- Administering the medical surveillance program.
- Maintaining required program records.
- Evaluating the respiratory protection program.
- Updating the written program, as necessary.

The program administrator is the ***Safety Coordinator***.

B. Responsibilities of Supervisors

Supervisors are responsible for ensuring that the respiratory protection program is implemented in their work areas. In addition to being knowledgeable about the program requirements for their own protection, supervisors must also ensure that the program is understood and followed by the employees under their charge. Supervisors are required to:

- Ensure that employees under their supervision (including new hires) have received appropriate training, fit testing, and annual medical evaluation.
- Ensure the availability of appropriate respirators and accessories.
- Be aware of tasks requiring the use of respiratory protection.
- Enforce the proper use of respiratory protection.
- Ensure that respirators are properly cleaned, maintained, and stored in accordance with the program.
- Monitor work areas and operations with sufficient frequency to identify respiratory hazards and select proper equipment.
- Coordinate with the program administrator on how to address respiratory hazards or other concerns regarding the program.

C. Employees

Each employee must wear his or her respirator when and where required and in the manner in which they were trained. Employees also are required to:

- Be familiar with this program.
- Care for and maintain the respirators as instructed, and store in a clean sanitary location.
- Inform the supervisor if the respirator no longer fits well, and request a new one that fits properly.
- Inform the supervisor or program administrator of any potential respiratory hazards or other concerns regarding the program.

IV. Program Elements

A. Selection Procedures

The program administrator selects the respirators to be used, based on the hazards employees encounter and in accordance with all OSHA standards.

B. Medical Evaluation

Employees who (1) are required to wear respirators, or (2) choose to wear an APR voluntarily, must pass a medical examination before being permitted to wear a respirator on the job. Employees are not permitted to wear respirators until they are medically approved to do so.

Employees refusing the medical evaluation are not permitted to work in an area requiring respirator use. The medical evaluation is conducted using the questionnaire provided in Appendix C of the respiratory protection standard (Section VI, Attachments) or an actual examination that obtains the same information as contained in the questionnaire. All employees requiring medical evaluations are provided a copy of the medical questionnaire as found in Appendix C of the standard (Section VI, Attachments). Medical evaluation procedures are as follows:

- All examinations and questionnaires are to remain confidential between the employee and the **Physician or other Licensed Health Care Professional (PLHCP).**
- All affected employees are given a copy of the medical questionnaire to complete, along with a stamped, addressed envelope for mailing the completed document to the PLHCP.
- The questionnaire is completed confidentially during the employee's usual work shift.
- To the extent feasible, the company accommodates employees who are unable to read the questionnaire. Someone other than the employer, at the employee's request, may be asked to assist in reading the document. If this is not possible, the employee will be sent to the physician or other licensed health care professional (PLHCP) for a medical evaluation.
- Follow-up medical exams are granted to employees as required by the standard, and/or as deemed necessary by the PLHCP.
- All employees are provided the opportunity to speak with the PLHCP about their medical evaluation, if requested.
- Any employee required, for medical reasons, to wear a **Powered Air Purifying Respirator (PAPR)** is provided a powered air purifying respirator.

After an employee has received approval and started to use a respirator, additional medical evaluation is provided if:

1) The employee reports signs and/or symptoms related to their ability to use a respirator, such as shortness of breath, dizziness, chest pains, or wheezing.
2) The PLHCP or supervisor informs the program administrator of a need for reevaluation.
3) Information from this program, including observations made during fit testing and program evaluation, indicates a need for reevaluation.
4) A change occurs in the workplace conditions that may result in an increased physiological burden on the employee a physician or other licensed health care professional (PLHCP) evaluates the information found in Sections 1 and 2, Part A of Appendix C of the standard. The PLHCP, prior to making a determination for fitness of duty, is provided vital information for respirator usage. This includes the type and weight of the respirator, duration and frequency of use, expected work effort, additional personal protective clothing/equipment to be used, and estimated temperature and humidity extremes that may be encountered. If an employee responds positively to any of questions 1 through 8 in Section 2 of the questionnaire, or if the PLHCP upon initial review of the questionnaire deems it necessary, a follow-up medical examination is provided. This follow-up exam includes any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination for safe respirator usage.

C. Fit Testing

Fit testing is required for employees wearing respirators with a negative or positive pressure tight-fitting face piece. The fit test is conducted prior to the employee being required to use the respirator and uses the same make, model, style, and size of respirator to be used on the job. The company may use a qualitative fit test (QLFT) or a quantitative fit testing (QNFT) approach. Fit test forms may by found in Section VI, Attachments. Fit testing is conducted:

- Prior to initial use of the respirator.
- If a different respirator face piece (size, style, model or make) is used.
- On an annual basis.
- If the employee, employer, PLHCP, supervisor or program administrator makes a visual observation of changes in the employee's physical condition that would affect respirator fit. (This might include: facial scarring, dental changes, cosmetic surgery or a drastic change in weight.)
- If an employee passes either test, but notifies the employer that the fit is unacceptable, the employee is allowed to select a different respirator and is retested.

D. Respirator Usage

Employees use their respirators under conditions specified by this program, and in accordance with the training they receive on the use of each particular model. In addition, the respirator shall not be used in a manner for which it is not certified by NIOSH or by its manufacturer. Each time a respirator is put on, employees must conduct a positive and

negative pressure user seal check. Additional personal protective equipment, combined with respirator use, may be necessary to adequately prevent exposure. Use of eye, face or skin protection may be required in certain processes. Tight fitting face piece respirators are not permitted for use if:

- An employee has facial hair that interferes with the sealing surface of the respirator and the face, or interferes with the valve function.
- Corrective glasses/goggles or other personal protective equipment interferes with the seal of the face piece.
- Any other condition interferes with the face piece seal.

The employee must vacate the respirator use area:

- To wash face and respirator face pieces as necessary to prevent respirator induced eye or skin irritation.
- If vapor or gas breakthrough is detected.
- If there is a change in breathing resistance.
- If there is face piece leakage.
- To replace the respirator or filter, cartridge, or canister elements.

If any of the above conditions are caused by a failure of the respirator or any of its components, or if cartridges or filters need to be changed, the company provides replacement parts or repairs the respirator prior to allowing the employee to return to the respirator use area.

Voluntary Usage of Respirators: At the request of employees, the company may provide respirators or permit employees to use their own respirators for voluntary use in areas where respirators are not mandatory. However, prior to the voluntary use of respirators and on a case-by-case basis, the program administrator first determines that the use of such a respirator does not, in itself create a hazard. Once this determination is established, employees voluntarily using respirators are issued a copy of "Information for Employees Using Respirators When Not Required Under the Standard," Appendix D of the standard as found in Section VI, Attachments. In addition, employees voluntarily using tight-fitting respirators are governed by the medical surveillance, cleaning, storage and maintenance aspects of the respirator as outlined in the respiratory protection program. However, employees who voluntarily wear disposable filtering face pieces or those whose only respirator is an escape-only respirator are not subject to the medical evaluation provision of this program.

E. Respirator Malfunction

1. **APR Respirator Malfunction:** In the event of an APR malfunction (such as breakthrough, face piece leakage, or improperly working valve), the employee should inform the supervisor that the respirator is no longer functioning as intended, leave the respirator use area and repair or replace the defective respirator. The supervisor is responsible for ensuring that the employee receives the necessary parts for repair or a new functional respirator.

2. **Atmosphere-supplying Respirator (SAR) Malfunction:** Usually employees using atmosphere-supplying respirators work in pairs. If one worker is experiencing a SAR malfunction, by using hand signals, he or she notifies the partner of the problem. The partner then escorts the employee with SAR malfunction outside the respirator use area to assess and rectify the malfunction.

F. Air Quality

Supplied-air respirators use only Grade D breathing air as described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989 meeting the following specifications:

- Oxygen content (v/v) of 19.5-23.5%
- Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less
- Carbon monoxide content of 10 ppm or less
- Carbon dioxide content of 1000 ppm or less
- Lack of noticeable odor

The program administrator maintains a certificate of analysis from the supplier that (1) Grade D breathing air is contained in the cylinders used to supply breathing air; (2) cylinders are tested and maintained as required in the Shipping Container Specification Regulations of the Department of Transportation; and (3) the moisture content in the cylinder does not exceed a dew point of -50 degrees Fahrenheit at 1 atmosphere pressure. Compressors used to provide breathing air to respirators shall be constructed and situated so as to:

- Prevent entry of contaminated air into the air supply system
- Minimize moisture content so that the dew point at 1 atmosphere pressure is 10 degrees F below the ambient temperature
- Have suitable in-line air purifying sorbent beds and filter to further ensure breathing air quality. Sorbent beds and filters shall be maintained and replaced or refurbished periodically following manufacturer's instructions
- Have a tag containing the most recent change date and the signature of the person authorized to perform the change
- For compressors that are not oil-lubricated, the employer shall ensure that carbon monoxide levels in the breathing air do not exceed 10 **parts per million (ppm).**
- For oil-lubricated compressors, a high temperature alarm or carbon monoxide alarm, or both, shall be used to monitor carbon monoxide levels
- Breathing air couplings must be incompatible with outlets for non-respirable worksite air or other gas systems.

G. Cleaning, Maintenance, and Storage

Respirators are to be regularly cleaned and disinfected in accordance with the manufacturer's instructions. APR are to be cleaned and disinfected as often as necessary, but at least every day used or as outlined. SAR and emergency use respirators are to be cleaned and disinfected after each use.

The following procedure is to be used for cleaning and disinfecting, unless the manufacturer directs otherwise:

- Disassemble respirator, removing all filters, canisters, or cartridges.
- Wash the face piece and associated parts in a mild detergent with warm water. Do not use organic solvents or bleach.
- Rinse completely in clean, warm water.
- Wipe the respirator with disinfectant wipes (70% isopropyl alcohol) to kill germs.
- Air dry in a clean area. If a clean area is not available, use clean disposable paper towels to blot excess moisture.
- Reassemble the respirator and replace any defective parts (noting the condition of the head straps and valve flaps.)
- Place in a clean, dry plastic bag or other air tight container.

Note: The program administrator ensures an adequate supply of the appropriate cleaning and disinfection supplies. If supplies are low, employees should notify the supervisor or program administrator.

Respirators are to be properly maintained at all times in order to ensure that they function properly and can adequately provide protection to the employee. Maintenance involves a thorough visual inspection for cleanliness and/or defects. Worn or deteriorated parts must be replaced prior to use. No components are replaced or repairs made beyond those recommended by the manufacturer. Regulator or alarm repair of atmosphere-supplying respirators are conducted by the manufacturer. The following list is used when inspecting respirators:

Face piece: cracks, tears, or holes, facemask distortion, cracked or loose lenses/face shield
Head straps: breaks or tears, broken buckles/clasps, overstretched elastic bands
Valves: residue or dirt, cracks or tears in valve material, absence of valve flap
Filter/Cartridges: proper cartridge for hazard, approval designation, intact gaskets, cracks or dents in housing
Air Supply Systems: breathing air quality/grade, condition of supply hoses, hose connections, settings on regulators and valves

Respirators that are defective or have defective parts are taken out of service immediately. If an employee discovers a defect in a respirator during an inspection, the employee shall bring the defect to the attention of the supervisor. Supervisors give all defective respirators to the program administrator or the person responsible for replacement or repair. The appropriate person then decides whether to:

- Temporarily take the respirator out of service until it can be repaired;
- Repair the respirator; or
- Dispose of the respirator due to a defect or irreparable problem.
- Employees are permitted to leave their work area to perform limited maintenance on their respirator in an area that is free from respiratory hazards. Situations when this is permitted include: face or respirator washing to prevent skin/eye irritation; replacement

of filter, cartridge or canister; leakage is detected in the face piece; vapor or gas breakthrough is detected; or detection of any damage to the respirator or its components.

Note: When a respirator is taken out of service, it is tagged as such to prevent accidental use of a malfunctioning device. All defective respirators are stored separately from functional respirators. APR are stored in a clean, dry area and in accordance with the manufacturer's recommendations. Each employee cleans and inspects their own respirator in accordance with the provisions of this program and stores their respirator in a plastic bag or air tight container. Each employee has his or her name on the bag/container and only stores his or her own respirator in that container. Atmosphere supplying respirators will be stored in Manufacturing Office.

H. Cartridge & Canister Change Out Schedules

For atmospheres that are not **Immediately Dangerous to Life and Health (IDLH)**, ***Automatic Systems, Inc.*** shall provide a respirator adequate to protect the health of the employee and ensure compliance with OSHA requirements under routine and reasonably foreseeable emergency situations. These respirator selected by the Program Administrator shall be appropriate for the chemical state and physical form of the contaminant.

I. Training

The program administrator provides training to respirator users and their supervisors on the contents of this respiratory protection program, their responsibilities under it, and the OSHA respiratory protection standard. Employees are trained prior to using respirators in the workplace. Supervisors are trained prior to using a respirator in the workplace or prior to supervising employees required to use respirators. The training program covers the following topics:

- The company respiratory protection program.
- The OSHA respiratory protection standard.
- The respiratory hazards encountered at the worksite.
- The proper selection and use of respirators.
- Additional personal protective equipment.
- Respirator limitations.
- How to put-on and perform user seal (fit) checks.
- Fit testing.
- Emergency use procedures.
- Maintenance and storage.
- Medical signs and symptoms limiting the effective use of respirators.

Employees are retrained annually, or as needed (i.e. relocation to another department using a different type of respirator). Employees are required to demonstrate their understanding of the topics covered in the training through hands-on exercises and a written quiz. Respirator training is documented by the program administrator. The documentation includes the type, model, and size of respirator for which each employee has been trained and fit tested.

V. Program Evaluation

The program administer and other responsible supervisors conduct periodic evaluations of the workplace to ensure that the provisions of this program are being implemented. The evaluations include regular consultations with employees who use respirators and their supervisors for recommendations of improvement or problematic issues. Records reviews, site inspections and periodic air monitoring also assist in program review.

VI. Documentation and Recordkeeping

A written copy of this program and the OSHA standard is maintained by the program administrator and is available to any employee interested in reviewing the document. Training and fit testing records are also maintained by the program administrator. These records are updated as new employees are trained, when existing employees receive refresher training and/or new fit testing is conducted.

Medical evaluations are maintained in accordance with the OSHA medical records standard. However, the PLHCP's written recommendation regarding the employee's ability to use a respirator are maintained by the program administrator.

VII. Attachments

Qualitative Respirator Fit Test Form
(QLFT)

Employee: _____

Company: _____

Date: _____

Respirator Model: _____ Respirator Type: _____

Respirator Size :

_____ Cartridge(s): _____

PRIOR TO FIT TESTING:

Subject must be allowed to select the correct size respirator and shown how to assemble, don, doff and adjust the respirator. Once it has been established that the employee is able to detect the fit test challenge agent (isoamyl actate), the test may be administered. If the subject is unable to detect the challenge agent, a different type test must be administered. Contact an industrial hygienist or the respirator vendor for assistance.

To assess proper comfort and fit, the respirator must be worn for at least five minutes, while allowing the subject to determine the following:

Chin properly placed
Positioning of mask
Strap tension
Fit across nose bridge
Distance from nose to chin
Positive and negative pressure test
Room to talk
Tendency to slip
Cheeks filled out
Self observation in mirror
Room for safety glasses

TEST: One minute each

( ) Breathe normally
( ) Breathe deeply
( ) Turn head from side to side
( )Nod head up and down
( ) Talking (Rainbow Passage, nest page)
( ) Jogging in place
( ) Breathe normally

( ) PASS ( ) FAIL

Comments: _____

Tested by:

_____ Date: _____

Employee Signature:

_____ Date: _____

Appendix C : OSHA Respirator Medical Evaluation Questionnaire (Mandatory)

To the employer: Answers to questions in Section 1, and to question 9 in Section 2 of Part A, do not require a medical examination.

To the employee:
Can you read (circle one): Yes/No

Your employer must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers, and your employer must tell you how to deliver or send this questionnaire to the health care professional who will review it.

Part A. Section 1. (Mandatory) The following information must be provided by every employee who has been selected to use any type of respirator (please print).

1. Today's date: _____
2. Your name: _____
3. Your age (to nearest year):
4. Sex (circle one): Male/Female
5. Your height: _____ ft. _____ in.
6. Your weight: _____ lbs.
7. Your job title: _____
8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the Area Code): _____
9. The best time to phone you at this number: _____
10. Has your employer told you how to contact the health care professional who will review this questionnaire (circle one): Yes/No
11. Check the type of respirator you will use (you can check more than one category):
 a. ___ N, R, or P disposable respirator (filter-mask, non-cartridge type only).
 b. ___ Other type (for example, half- or full-facepiece type, powered-air purifying, supplied-air, self-contained breathing apparatus).
12. Have you worn a respirator (circle one): Yes/No
If "yes," what type(s):

_____

Part A. Section 2. (Mandatory) Questions 1 through 9 below must be answered by every employee who has been selected to use any type of respirator (please circle "yes" or "no").

1. Do you currently smoke tobacco, or have you smoked tobacco in the last month: Yes/No
2. Have you ever had any of the following conditions?
 a. Seizures (fits): Yes/No
 b. Diabetes (sugar disease): Yes/No
 c. Allergic reactions that interfere with your breathing: Yes/No
 d. Claustrophobia (fear of closed-in places): Yes/No
 e. Trouble smelling odors: Yes/No
3. Have you ever had any of the following pulmonary or lung problems?

a. Asbestosis: Yes/No
b. Asthma: Yes/No
c. Chronic bronchitis: Yes/No
d. Emphysema: Yes/No
e. Pneumonia: Yes/No
f. Tuberculosis: Yes/No
g. Silicosis: Yes/No
h. Pneumothorax (collapsed lung): Yes/No
i. Lung cancer: Yes/No
j. Broken ribs: Yes/No
k. Any chest injuries or surgeries: Yes/No
l. Any other lung problem that you've been told about: Yes/No

4. Do you currently have any of the following symptoms of pulmonary or lung illness?
a. Shortness of breath: Yes/No
b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline: Yes/No
c. Shortness of breath when walking with other people at an ordinary pace on level ground: Yes/No
d. Have to stop for breath when walking at your own pace on level ground: Yes/No
e. Shortness of breath when washing or dressing yourself: Yes/No
f. Shortness of breath that interferes with your job: Yes/No
g. Coughing that produces phlegm (thick sputum): Yes/No
h. Coughing that wakes you early in the morning: Yes/No
i. Coughing that occurs mostly when you are lying down: Yes/No
j. Coughing up blood in the last month: Yes/No
k. Wheezing: Yes/No
l. Wheezing that interferes with your job: Yes/No
m. Chest pain when you breathe deeply: Yes/No
n. Any other symptoms that you think may be related to lung problems: Yes/No

5. Have you ever had any of the following cardiovascular or heart problems?
a. Heart attack: Yes/No
b. Stroke: Yes/No
c. Angina: Yes/No
d. Heart failure: Yes/No
e. Swelling in your legs or feet (not caused by walking): Yes/No
f. Heart arrhythmia (heart beating irregularly): Yes/No
g. High blood pressure: Yes/No
h. Any other heart problem that you've been told about: Yes/No

6. Have you ever had any of the following cardiovascular or heart symptoms?
a. Frequent pain or tightness in your chest: Yes/No
b. Pain or tightness in your chest during physical activity: Yes/No
c. Pain or tightness in your chest that interferes with your job: Yes/No
d. In the past two years, have you noticed your heart skipping or missing a beat: Yes/No
e. Heartburn or indigestion that is not related to eating: Yes/No
f. Any other symptoms that you think may be related to heart or circulation problems: Yes/No

7. Do you currently take medication for any of the following problems?
   a. Breathing or lung problems: Yes/No
   b. Heart trouble: Yes/No
   c. Blood pressure: Yes/No
   d. Seizures (fits): Yes/No
8. If you've used a respirator, have you ever had any of the following problems? (If you've never used a respirator, check the following space and go to question 9:)
   a. Eye irritation: Yes/No
   b. Skin allergies or rashes: Yes/No
   c. Anxiety: Yes/No
   d. General weakness or fatigue: Yes/No
   e. Any other problem that interferes with your use of a respirator: Yes/No
9. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire: Yes/No

Questions 10 to 15 below must be answered by every employee who has been selected to use either a full-facepiece respirator or a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.

10. Have you ever lost vision in either eye (temporarily or permanently): Yes/No
11. Do you currently have any of the following vision problems?
   a. Wear contact lenses: Yes/No
   b. Wear glasses: Yes/No
   c. Color blind: Yes/No
   d. Any other eye or vision problem: Yes/No
12. Have you ever had an injury to your ears, including a broken ear drum: Yes/No
13. Do you currently have any of the following hearing problems?
   a. Difficulty hearing: Yes/No
   b. Wear a hearing aid: Yes/No
   c. Any other hearing or ear problem: Yes/No
14. Have you ever had a back injury: Yes/No
15. Do you currently have any of the following musculoskeletal problems?
   a. Weakness in any of your arms, hands, legs, or feet: Yes/No
   b. Back pain: Yes/No
   c. Difficulty fully moving your arms and legs: Yes/No
   d. Pain or stiffness when you lean forward or backward at the waist: Yes/No
   e. Difficulty fully moving your head up or down: Yes/No
   f. Difficulty fully moving your head side to side: Yes/No
   g. Difficulty bending at your knees: Yes/No
   h. Difficulty squatting to the ground: Yes/No
   i. Climbing a flight of stairs or a ladder carrying more than 25 lbs: Yes/No
   j. Any other muscle or skeletal problem that interferes with using a respirator: Yes/No

Part B Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.

1. In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen: Yes/No
If "yes," do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you're working under these conditions: Yes/No
2. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g., gases, fumes, or dust), or have you come into skin contact with hazardous chemicals: Yes/No
If "yes," name the chemicals if you know them:

_____

_____

3. Have you ever worked with any of the materials, or under any of the conditions, listed below:

a. Asbestos: Yes/No
b. Silica (e.g., in sandblasting): Yes/No
c. Tungsten/cobalt (e.g., grinding or welding this material): Yes/No
d. Beryllium: Yes/No
e. Aluminum: Yes/No
f. Coal (for example, mining): Yes/No
g. Iron: Yes/No
h. Tin: Yes/No
i. Dusty environments: Yes/No
j. Any other hazardous exposures: Yes/No

If "yes," describe these exposures:

_____

4. List any second jobs or side businesses you have:

_____

5. List your previous occupations:

_____

6. List your current and previous hobbies:

_____

7. Have you been in the military services? Yes/No
If "yes," were you exposed to biological or chemical agents (either in training or combat): Yes/No
8. Have you ever worked on a HAZMAT team? Yes/No
9. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications): Yes/No
If "yes," name the medications if you know them:
10. Will you be using any of the following items with your respirator(s)?

a. HEPA Filters: Yes/No
b. Canisters (for example, gas masks): Yes/No
c. Cartridges: Yes/No

11. How often are you expected to use the respirator(s) (circle "yes" or "no" for all answers that apply to you)?:

a. Escape only (no rescue): Yes/No
b. Emergency rescue only: Yes/No

c. Less than 5 hours per week: Yes/No
d. Less than 2 hours per day: Yes/No
e. 2 to 4 hours per day: Yes/No
f. Over 4 hours per day: Yes/No

12. During the period you are using the respirator(s), is your work effort:
a. Light (less than 200 kcal per hour): Yes/No
If "yes," how long does this period last during the average shift:_____hrs._____mins.
Examples of a light work effort are sitting while writing, typing, drafting, or performing light assembly work; or standing while operating a drill press (1-3 lbs.) or controlling machines.
b. Moderate (200 to 350 kcal per hour): Yes/No
If "yes," how long does this period last during the average shift:_____hrs._____mins.
Examples of moderate work effort are sitting while nailing or filing; driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; walking on a level surface about 2 mph or down a 5-degree grade about 3 mph; or pushing a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.
c. Heavy (above 350 kcal per hour): Yes/No
If "yes," how long does this period last during the average shift:_____hrs._____mins.
Examples of heavy work are lifting a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; shoveling; standing while bricklaying or chipping castings; walking up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 lbs.).

13. Will you be wearing protective clothing and/or equipment (other than the respirator) when you're using your respirator: Yes/No
If "yes," describe this protective clothing and/or equipment:

_____

14. Will you be working under hot conditions (temperature exceeding 77° F): Yes/No
15. Will you be working under humid conditions: Yes/No
16. Describe the work you'll be doing while you're using your respirator(s):

_____

17. Describe any special or hazardous conditions you might encounter when you're using your respirator(s) (for example, confined spaces, life-threatening gases):

_____

18. Provide the following information, if you know it, for each toxic substance that you'll be exposed to when you're using your respirator(s):
Name of the first toxic substance:
Estimated maximum exposure level per shift:
Duration of exposure per shift
Name of the second toxic substance:
Estimated maximum exposure level per shift:
Duration of exposure per shift:
Name of the third toxic substance:
Estimated maximum exposure level per shift:
Duration of exposure per shift:
The name of any other toxic substances that you'll be exposed to while using your

respirator:

_____

19. Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, security):

_____

Appendix D (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, of if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.

2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.

3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.

4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.