

# **HEALTH & SAFETY MANUAL**

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# 1. HEALTH & SAFETY POLICY STATEMENT

## **PURPOSE**

The purpose of this statement is to formally communicate the corporate position on Occupational Safety and Health.

## **SCOPE**

This Corporate Safety Policy Statement applies to all divisions, subsidiaries and companies of this corporation.

## **RECORDS**

A copy of this Corporate Safety Policy Statement will be posted on all safety bulletin boards.

The Company is committed to providing a healthy and safe working environment for every employee. Toward that end, the company is guided in all its operations by an established Health and Safety Program. All personnel will observe the rules and procedures in this program, as a moral and legal responsibility and as a sound business policy.

It is the company's goal always to maintain an effective safety program to guard against accidents, injuries and illnesses. All members of management and supervision are charged with the responsibility of preventing incidents or conditions that could lead to occupational injuries or illness and for developing the proper attitude of employees toward accident prevention, instructing employees in the recognition of hazards and insuring that all operations are performed with the utmost regard for safety.

While the ultimate success of a safety and health program depends upon the full cooperation of each individual employee, it is management's responsibility to provide a safe environment in which to work. Health and safety must be considered an integral part of quality control, cost reduction and job efficiency. Every supervisor will be held accountable for the safety performance demonstrated by employees under his or her supervision.

The Health and Safety Program is designed to reduce the number of injuries to a minimum. Unfortunately, when accidents occur every segment of our operation, as well as the lives of our employees and their families, suffers. Therefore, our Health and Safety Program shall be interwoven into every phase of the business and will be enforced uniformly, consistently and swiftly.

## **SAFETY INCENTIVE / RECOGNITION PROGRAMS**

As every job progresses, safety performance will be evaluated and safety incentive / recognition programs will be tailored to meet the goals of the project at the discretion of management on a job by job basis.

## 2. SAFETY PROGRAM RESPONSIBILITY

### PURPOSE

To provide a complete and clear description of safety responsibilities for all employees. It is important for all employees to understand not only their responsibilities but also the responsibilities of fellow employees.

### PROCEDURE

All levels of management and supervision are charged with the responsibility of preventing conditions that could lead to occupational injuries or illness. While the ultimate success of our safety and health program depends upon the full cooperation of each employee, it is management's responsibility to see that safety and health rules and procedures are adequate and enforced, and to see that effective training and education programs are employed to the best advantage.

### RESPONSIBILITY

#### Corporate Management

- Communicate safety information and the corporate safety commitment.
- Administer Safety Policies and Procedures within the framework of the company Corporate Safety Procedures Manual with particular emphasis on potentially hazardous operations.
- Accompany inspectors during inspections and properly document any events arising out of OSHA inspections, corporate safety audits or other formal type safety inspections conducted at the division or project site by outside agencies.
- Ensure compliance in the following areas; OSHA compliance programs, employee safety awareness and training, monitoring and investigation of worker compensation claims and accident occurrence, and reporting requirements are met. (200 Log, First Report of Injury, Insurance Claims, etc.)

#### Office Manager

- Perform and carry out any other assignments delegated by corporate management.
- Record keeping requirements.

## **Field & Shop Managers**

- Enforce all safety policies and procedures.
- Ensure all accidents are reported, thoroughly investigated and corrective action is taken.
- Conduct monthly safety inspections. Maintain a formal monthly safety inspection program with a documented report reflecting environmental, safety and health discrepancies and recommendations or appropriate corrective actions by the responsible party.
- Follow up on all reported safety violations to ensure corrective action is taken.
- Initiate, implement, and administer safety training in accordance with established project site requirements.
- Prepare and distribute all required project site accident, injury, incident reports.
- Provide relevant safety programs information to site personnel and corporate personnel on site.
- Investigate all accidents, injuries, fires, property damage, and other safety and environmental related incidents, and issue required reports in a timely manner.
- Evaluate the need for and requisition the personal protective equipment, fire protection equipment and other safety-related equipment required to meet the project site's needs during construction or manufacturing operations.
- Display and maintain publicity materials on site bulletin boards, such as posters, safety signs, banners, and distribute safety literature.
- Take immediate corrective action whenever unsafe conditions and when unsafe acts are noted.

## **All Employees in the Company**

- Read, understand, and follow all company safety policies and procedures.
- Pre-employment physicals are included in the hiring process and also when changing into certain job functions and different environments, to ensure that employees are physically capable of performing their job function.
- Perform all duties in a safe manner.
- Report all unsafe acts and conditions.
- Report all accidents immediately.

- Wear all personal protective equipment that is required and maintain the equipment in good condition.
- Set an example of safe working practice and follow all safety regulations.
- Employees must take responsibility for:
  - Ensuring they are physically and mentally fit to perform their job functions safely.
  - Notifying their supervisor if they are fatigued to the point of not being able to perform their duties safely.
  - Their own safety as well as not reporting to work in a condition as to endanger the safety of their fellow workers.
- Participate in all safety training sessions.

### 3. SAFETY VIOLATION & DISCIPLINARY ACTION

#### PURPOSE

To support the enforcement of good safety performance and to eliminate repeated or continuing safety violations by the use of appropriate disciplinary measures.

#### OBJECTIVE

The primary objective of the company safety program is to provide a safe work environment for all employees. Foremen or supervisors are required to issue appropriate specific safety instructions to all employees prior to assigning them work. Foremen or supervisors are responsible for coordinating work with other supervisors in the work area to ensure that all work can be accomplished safely. Each employee is individually responsible for complying with each of the provisions of the Corporate Safety Program, in addition to those safety instructions issued by the employees' foreman or supervisor, either verbally or in writing. However, when Safety Policies and Procedures are violated or individuals continue to be involved in accidents or infractions, disciplinary action must be considered, in order to emphasize the gravity of the situation and bring about desired improvement.

Each employee who reports for work will be given a safety orientation as a part of the general hiring process. During this orientation, the company's positive attitude toward working safety will be stressed and the employee will be advised that safety compliance is a condition of work. The safety program will be explained and safe responsibilities will be clearly defined.

When an employee is observed committing an unsafe act, the employee is to be informed by a supervisor by means of a verbal warning or formal safety notice letter. The exact nature of the violation and what is acceptable must be thoroughly explained to the employee. The employee's removal from the job site will be under the discretion of the supervisor, should it be deemed necessary. A copy of the written warning will be given to the employee's supervisor and a copy placed in the employee personnel file.

Violations for which written warnings will be issued are as follows:

- Any bargained rules.
- Corporate policy where bargaining doesn't address or conflict.
- Any client mandated safety.





## Employee Reprimand Record

Employee Name: \_\_\_\_\_

Social Security Number: \_\_\_\_\_ Date of Reprimand: \_\_\_\_\_

Project Name or Shop: \_\_\_\_\_ Position or Craft: \_\_\_\_\_

What is the employee being reprimanded for?

Conduct  Production  Timeliness/Tardiness  Safety  Other

Please explain: \_\_\_\_\_

\_\_\_\_\_

What is expected of this employee in response to this reprimand?

\_\_\_\_\_

What action is recommended if the employee does not meet expectations outlined?

\_\_\_\_\_

How will supervision assist the employee? \_\_\_\_\_

Has the employee been warned about this before?  Yes  No  
 Written  Verbal

Date of earlier reprimand and by whom? \_\_\_\_\_

Supervisor's name: \_\_\_\_\_

Supervisor's signature: \_\_\_\_\_ Date: \_\_\_\_\_

Other comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

If this written record concerns the Corporate Safety Program, this record is for your own protection and safety, and the safety of those with whom you work. It also may document a violation of a safety rule, work rule, or safety direction. The company is very concerned for the safety of its employees and work place. Please note that this is a serious matter and may affect your employment with this company.

**NOTE: Place this form in the employee file**

## 4. DRUG FREE WORKPLACE POLICY

### POLICY STATEMENT

The company is committed to providing a drug-free workplace and we expect the cooperation of all employees and a similar commitment from them. Pursuant to the Drug-Free Workplace Act of 1988, the unlawful manufacture, sale, distribution dispensation, possession or use of a controlled substance in the workplace is prohibited. Any employee who violates the above rule may be subject to discipline up to and including termination. As a condition of employment, all employees must agree to the rule. In addition, any employee who is convicted of a drug statute violation arising out of conduct occurring in the workplace must notify the company of such a conviction within five (5) days after the conviction.

It is the policy of the company to provide a safe working environment for all employees, and to continue the tradition of the highest standards of quality in products and services. It is also this company's policy to assist employees who have a problem with drug and alcohol abuse. These goals mandate that this company establish a firm policy against drug and alcohol abuse in the workplace. Our goal is to eliminate the abuse, not the abuser our goal is to help, not to apprehend.

The following rules represent the company's policy concerning substance abuse. They are effective immediately and will be enforced uniformly with respect to all employees, as indicated.

- A. All employees are prohibited from being under the influence of alcohol or illegal drugs during working hours.
- B. The sale, possession, transfer or purchase of illegal drugs on company property or while performing company business is strictly prohibited. Such action will be reported to appropriate law enforcement officials.
- C. The use, sale or possession of an illegal drug or controlled substance while on duty is cause for termination.
- D. Any employee who commits an unlawful act on or off company premises or whose conduct discredits the company in any way will be subject to discipline, including termination.
- E. No alcoholic beverages will be brought or consumed on company premises except in connection with company authorized events.

- F No prescription drug will be brought on company premises by any person other than the one for whom it was prescribed. Such drugs will be used only in the manner, combination and quantity prescribed.
- G. Any employee whose off-duty abuse of alcohol or illegal use of prescription drugs results in excessive absenteeism or tardiness or is the cause of accidents or poor work will be referred to an employee assistance program for rehabilitation and will face termination if he or she rejects that program.
- H. As a condition of employment, the employee must abide by the terms stated previously and shall notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction. Such a conviction will subject the employee to the same disciplinary procedures as those employees who test positive under drug screening procedures.

The purpose of the policy set forth above are:

- To establish and maintain a safe and healthful working environment for all employees.
- To ensure the reputation of the company and its employees within the community and the industry at large.
- To reduce the number of accidental injuries to person or property.
- To reduce absenteeism, tardiness and improve productivity, and
- To provide rehabilitation assistance for any employee who seeks such help.

#### **WHEN TESTING WILL OCCUR**

All candidate employees will be required to submit to a drug screen test before being hired and as a condition of employment.

And under the following circumstances:

- Siena performs drug and alcohol testing following EVERY employee work-related injury or accident.
- If he or she has been observed using a suspected prohibited substance on the job.
- If he or she exhibits a severe and prolonged reduction in productivity
- Or if the company has other reasonable cause for testing him.

An employee who fails or refuses to submit to testing when requested will be subject to discipline, including termination.

#### **EMPLOYEE TESTING POSITIVE**

Employees who test positive are subject to immediate discipline including discharge.

#### **PRESCRIPTION DRUGS**

Employees taking prescription drugs must adhere to the following procedure:

- Notify the immediate supervisor prior to the commencement of the work shift and provide the supervisor with the name of the prescription drug and the prescribing physician.
- Carry the medication in the current prescription container with no more than the dosage required for the work shift.

## **5. RETURN TO WORK/LIGHT DUTY POLICY**

### **POLICY STATEMENT**

In the event of an occupational injury that does not prevent an employee's return to work with physical restrictions, the company will make a reasonable effort to provide the injured with a position with physical requirements that are consistent with the doctor's recommendations.

### **PROCEDURE**

With the injured employees' knowledge, the following three options may be considered by appropriate company personnel in order to accommodate the employee:

- A. Determination of work availability by the appropriate company personnel.
- B. Transfer the employee to a job position with physical requirements that are consistent with the doctor's recommendations.
- C. If the above two cannot be executed, on a case by case basis, depending on current work availability, the appropriate company personnel may develop a job with physical requirements that are consistent with the doctor's recommendations.
- D. If the injured employee does not accept or does not complete the job that is offered, disciplinary action up to termination is possible.

## **6. SAFETY COMMITTEES**

### **CORPORATE SAFETY PLANNING COMMITTEE**

The company has established a Corporate Safety Planning Committee consisting of the CEO, President, Vice President(s), Corporate Safety Director. This committee shall meet at least once each quarter and shall:

- Establish safety policy and procedures.
- Advise on safety policy matters.
- Communicate safety policies to the various operating center safety committees.
- Monitor legislation and regulation changes as they relate to the safety policy.
- Monitor safety performance.
- Advise on recommended policy changes.
- Identify and evaluate job hazards and recommended corrective action.
- Make safety equipment recommendations.
- Evaluate and recommend training requirements and safety training programs for job superintendents.
- Recommend policy enforcement procedures.
- Monitor program effectiveness and recommend improvements.

### **COMPANY SAFETY COMMITTEE**

Safety committees are simply a communications device to facilitate active thinking and participation in maintaining a safe work environment. The following guidelines may be used.

- The safety committee will meet once a month.
- All accidents and accident investigation reports are to be reviewed and discussed to share insights which may prevent reoccurrence.

- Review and discuss findings of joint construction site safety inspection and any other inspection conducted in the previous week.
- Discuss recommendations on safety improvements brought to light as a result of the inspection.
- Discuss safety concerns and suggestions.
- Discuss construction and production for coming month and safety issues to be addressed.
- Offer topics for discussion for the monthly "all hands" safety tool box safety talk.

## **COMMITTEE MEMBERSHIP STRUCTURE**

### Chairman

- Develop a written agenda for the meeting.
- Lead the safety committee meetings, following the agenda and encouraging open discussion.
- Designate one committee member per month to participate in the joint facility inspection.
- Communication of safety committee minutes.
- Start meetings on time and limit length of meeting to one-half hour.

### Committee Member

- Attend and actively participate in all safety committee meetings.
- Communicate safety concerns.
- Set an example of safe work and follow all safety regulations.
- Offer insight and assist accident investigation procedures.

### Recorder

- Take minutes of all safety committee meetings.
- Make sure minutes are typed and distributed.

## **RECORDS**

- Original shall be placed in file.

- Copy to each committee member.
- Copy to Corporate Safety Director.

## **7. WORK AREA HAZARD ASSESSMENT POLICY**

### **PURPOSE**

Work area hazard assessment procedures provide a mechanism through which the information needed to anticipate, recognize, identify, and evaluate work area hazards can be obtained. The information thus gained is utilized in the design and implementation of employee safety and environmental protection programs.

### **SCOPE**

These work area hazard assessment guidelines apply to all company divisions and field construction and maintenance projects. The outcome of the hazard assessments will be utilized in determining specific personal protective equipment requirements for employees.

### **SCOPE & POLICY**

This procedure will be implemented on an as needed basis where a thorough understanding of all work area hazards has not been established.

### **REGULATIONS**

Except to the extent that more explicit, or more stringent requirements are written directly into these guidelines, the primary regulatory reference relating to employee protection and the performance of work area hazard assessment activities shall be Title 29 Code of Federal Regulations Part 1926.20, 1926.35 and 1910.38. These regulations, promulgated and enforced by the Occupational Safety and Health Administration (OSHA), are applicable to the work performed by the company.

### **PROCEDURE**

Work area hazard assessment activities shall proceed in at least two distinct phases:

#### Initial Assessment

- Prior to initial deployment of employees into a work area, a preliminary hazard survey of the work area(s) may be completed. The survey should be made by an individual who is familiar with the type of industrial process involved in recognizing and evaluating exposures to potentially harmful materials.
- The individual should be accompanied by qualified plant personnel to explain any process or steps in manufacture that are not evident to the surveyor. Among the personnel who are best suited to the role of guide for the investigator are the production superintendent, the foreman of the work area under investigation, and the client Safety Manager.



- This initial phase of assessment will provide information about the facility to be occupied, about the process, raw materials present, waste materials present, and will serve to provide information useful in the development of hazard communication and personnel protection programs.
- Once the initial assessment has been completed and the data obtained evaluated, the procurement of appropriate, necessary equipment and services can be initiated.
- Information obtained from the initial assessment will serve to facilitate deployment of the workforce in a manner that is safe, in conformance with applicable regulations, timely, and cost effective.

#### Periodic Assessment

- It is important to recognize that work area hazard assessment is a continuous process. For each phase of work, i.e., contract specification, a work area hazard assessment shall be performed and evaluated to define the hazards that the work area and/or assignment may pose. This assessment shall be used to develop the safety and health strategy for the next phase of work.
- In addition to the formal information gathering that takes place during the phases of work area hazard assessment described here, all work area personnel should be constantly alert for new information about work area conditions.
- The sections below detail the components of the two phases of work area hazard assessment and provide a general guide which should be adapted to meet each specific work situation.

### **WORK AREA HAZARD ASSESSMENT**

- Work area hazard information can be obtained by two methods: The preliminary survey and, the investigational survey.

#### **PRELIMINARY SURVEY**

- As much data as possible should be collected from facility/client personnel prior to personnel deployment into the work area. The preliminary survey relies heavily on information being provided by the facility operator/owner to the company. The preliminary survey is usually made with no equipment for measurement purposes other than those portable pieces of equipment that can be conveniently carried on the person, such as a sound level meter.
- The surveyors should always determine the presence of control measures and provide an opinion about: The probable need for or effectiveness of control, The type of personnel, in terms of training, skill, or knowledge of the potential hazards in the workplace, and The attitude of management, supervising staff, the personnel employed at the work site toward health and safety practices, along with the control measures currently in effect and proper maintenance procedures.

- Additionally, where possible, the following information should be incorporated into the preliminary survey: Exact location of the work area(s) within the facility, mapped locations of buildings, containers, impoundments, pits, ponds, and tanks, detailed description of the activity that is to be performed in the work area, and anticipated duration of the activity.
- Hazardous substances involved and their chemical and physical properties. Information sources may include: company records, receipts, logbooks, ledgers, records from state and federal pollution control regulatory and enforcement agencies, state Attorney Generals Office, state occupational safety and health agencies, state Fire Marshal's office, waste storage inventories and manifests or shipping papers, and Interviews with facility personnel (all interview information should be verified).
- Vehicular traffic patterns/parking areas at the facility.
- Observations of labels, markings, or placards on containers or vehicles.
- Observations of deterioration or damage of containers or vehicles.
- Detection of unusual odors.
- Utilization of Preliminary Survey Data - Information obtained from the preliminary survey is to be used in the formulation of the project's hazard communication training program. Additionally, the data will assist the company in the selection of appropriate personal protective equipment for work activities.

## **INVESTIGATIONAL SURVEY**

- Components of an investigational survey may include, but may not be limited to, the following: Monitoring the air for IDLH and other conditions that may cause death or serious harm (combustible or explosive atmospheres, oxygen deficiency, toxic substances), monitoring for ionizing radiation, visual observation for signs of actual or potential IDLH or other dangerous conditions, monitoring of welding operations for conditions of toxic metals exposure, measurement of ventilation systems for both volume and velocity characteristic, measurement of occupational noise exposure, measurement of organic vapor concentrations during painting operations, Inspection and monitoring of asbestos containing materials, and measurement of organic solvent exposures during facility maintenance operations.  
Some situations warrant special consideration: Any indication of IDLH hazards or other dangerous conditions should be regarded as a sign to proceed with care and deliberation. Extreme caution should be exercised in continuing the work area survey when such hazards are indicted. If IDLH or other dangerous conditions are not present, or if proper precautions can be taken, continue the survey.

## **INFORMATION DOCUMENTATION**

Proper documentation and document control are important for ensuring accurate communication, ensuring the quality of the data collected, and providing the rationale for safety decisions. Documentation can be accomplished by recording information on the Hazard Assessment Form pertinent to field activities, sample analysis, and work area conditions.

## HAZARD ASSESSMENT

Once the presence and concentrations of specific chemicals or classes of chemicals have been established, the hazards associated with these chemicals must be determined. This is done by referring to standard reference sources for data and guidelines on permissible levels of exposure, flammability, etc.

Threshold Limit Value (TLV) - TLVs can be used as a guideline for determining the appropriate level of worker protection. These values have been derived for many substances and can be found in Threshold Limit Values for Chemical Substances and Physical Agents, which is published annually by the American Conference of Governmental Industrial Hygienists (ACGIH). The ACGIH defines three categories of TLVs: time-weighted average (TWA); short-term exposure limit (STEL) and ceiling (C). All three categories may be useful in selecting levels of protection within a work area. Refer to the Threshold Limit Values for Chemical Substances and Physical Agents for additional details.

Permissible Exposure Limit (PEL) - Permissible exposure limits are enforceable standards promulgated by OSHA. In many cases they are derived from TLVs published in 1968. The PEL for a substance is the 8-hour time weighted average or ceiling concentration above which workers may not be exposed. Although personal protective equipment may not be required for exposures below the PEL, its use may be advisable where there is a potential for overexposure.

Recommended Exposure Limit (REL) - A NIOSH recommended exposure limit (REL) is the workplace exposure concentration recommended by NIOSH for promulgation by OSHA as a PEL, but is not enforceable as is the OSHA PEL. In some cases, NIOSH as described time-weighted average concentrations in terms of 10-hour, rather than 8-hour averages.

IDLH Concentrations - IDLH exposure concentrations have been established by the NIOSH/OSHA Standards Completion Program (SCP) as a guideline for selecting respirators for some chemicals. The definition of IDLH varies depending on the source. For example, the Mine Safety and Health Administration Standard, Title 30 CFR Part 11.3(t), defines IDLH conditions as those that pose an immediate threat to life or health or that pose an immediate threat of severe exposure to contaminants such as radioactive materials that are likely to have adverse cumulative or delayed effects on health. The NIOSH Pocket Guide to Chemical Hazards defined IDLH concentration as the maximum level from which one could escape within 30 minutes without any escape-impairing symptoms or any irreversible health effects. The American National Standards Institute, Inc. (ANSI) defines IDLH as any atmosphere that poses an immediate hazard to life or produces immediate irreversible debilitating effects on health. Regardless of their exact definition, all IDLH values indicate whose concentrations of toxic substances from which escape is possible without irreversible harm should an employee's respiratory protective equipment fail. On projects, IDLH concentrations should be assumed to represent concentrations above which only workers wearing respirators that provide the maximum protection (i.e., a positive-pressure, full-face piece, self-contained breathing apparatus (SCBA) or a combination positive-pressure, full-face piece, supplied-air respirator with positive pressure SCBA are permitted. Specific IDLH values for many substances can be found in the NIOSH Pocket Guide to Chemical Hazards.

Potential Skin Absorption and Irritation - Information on skin absorption is provided in the ACGIH publication, Threshold Limit Values for Chemical Substances and Physical Agents and

in OSHA standard 29 CFR Part 1910.1000 and other standard references. These documents identify substances that can be readily absorbed through the skin, mucous membranes, and/or eyes by either airborne exposure or direct contact with a liquid. This information, like most available information on skin absorption is qualitative. It indicates whether, but not to what extent, a substance may pose a dermal hazard. Thus decisions made concerning skin hazards are necessarily judgmental. In addition, many chemicals, although not absorbed through the skin, may cause skin irritation at the point of contact. Signs of skin irritation range from redness, swelling, or itching to burns that destroy skin tissue. Standard references can be used to determine whether a chemical may act as an irritant.

Potential Eye Irritation - Quantitative data on eye irritation are not always available. Where a review of the literature indicates that a substance causes eye irritation, but no threshold is specified, a competent health professional should be consulted to evaluate the data to determine the level of personal protection needed for workers.

Explosion and Flammability Ranges - The lower explosive limit (LEL) or lower flammable limit (LFL) of a substance is the minimum concentration of gas or vapor in air below which the substance will not burn when exposed to a source of ignition. This concentration is usually expressed in percent by volume. Below this concentration, the mixture is too "lean" to burn or explode. The upper explosive limit (UEL) or upper flammable limit (UFL) of a substance is the maximum concentration of gas or vapor above which the substance will not burn when exposed to a source of ignition. Above this concentration, the mixture is too "rich" to burn or explode. The flammable range is the range of concentrations between the LFL and UFL where the gas-air mixture will support combustion. The flashpoint of a substance is the minimum temperature at which it gives off sufficient vapor to form an ignitable mixture with the air just above the surface of the substance. Ignition of a substance at the flashpoint is not continuous. The ignition temperature or auto-ignition temperature is the minimum temperature required to initiate or cause self-sustained combustion without an ignition source. When evaluating the fire or explosion potential in a work area, all equipment used should be intrinsically safe or explosion-proof. Where flammable or explosive atmospheres are detected, ventilation may dilute the mixture to below the LEL/LFL. However, ventilation is generally not recommended if concentrations exceed the UFL/UEL, since the mixture will pass through the flammable/explosive range as it is diluted. Note that combustible gas indicator readings may not be accurate when oxygen concentrations are less than 19.5 percent.

Hazardous Substance Information Form - Information on the chemical, physical, and toxicologic properties of each compound known or expected to be present in the work area should be recorded on a Hazardous Substance Information Form. Response personnel will then have the necessary health and safety information in one place, and can personnel be quickly briefed. As many reference sources as possible should be used to fill out the sheets because the information may vary from one source to another. Material Safety Data Sheets provided by chemical manufacturers is one source for this information.

Monitoring - Because work area activities and weather conditions change, an ongoing air monitoring program should be implemented after hazard assessment has determined that the work area is safe for routine operations.



## **SAFETY HAZARD ANALYSIS & SITE SAFETY PLAN**

**INSTRUCTIONS:** COMPLETE AND UPDATE THE FOLLOWING QUESTIONNAIRE WITH SPECIFIC INFORMATION REGARDING BOTH SELF-PERFORMED WORK AND OTHER CONTRACTOR-PERFORMED WORK THROUGHOUT THE SCOPE AND DURATION OF THIS JOB. REVIEW IT CONTINUOUSLY. LOOK FOR CHANGING CONDITIONS. UPDATE AS NEEDED. SHARE IT WITH EVERYONE ON THE JOB. ALWAYS BE AWARE. THIS ANALYSIS AND PLAN IS SPECIFIC FOR THE FOLLOWING PROJECT:

COMPANY NAME: \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_ PROJECT NUMBER: \_\_\_\_\_

NAME OR PERSON PREPARING: \_\_\_\_\_ DATE: \_\_\_\_\_

### **SAFETY HAZARD ANALYSIS & SITE SPECIFIC PLAN:**

1. WHAT IS THE JOB TASK AND WORK LOCATION ON THIS PROJECT?

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2. SPECIFIC WORK DESCRIPTION - WHAT DO WE HAVE?

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3. SPECIFIC SAFETY HAZARD - HOW CAN IT HURT US?

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4. SPECIFIC SAFETY MEASURE (NECESSARY PROCEDURES, RULES AND/OR EQUIPMENT)  
WHAT CAN WE DO ABOUT IT? ELIMINATE? PREVENT? CONTROL?

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5. NAME OF PERSON RESPONSIBLE FOR SPECIFIC SAFETY MEASURE. WHO WILL DO IT?

---

6. DATE - WHEN WILL THIS PLAN TAKE EFFECT?

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7. ANY CHANGES SHOULD BE NOTED HERE:

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## **8. SAFETY TRAINING POLICY**

### **SUMMARY**

The company regards its employees as vital parts of the organization. As such, the company accepts the responsibility of providing a work place where the employee can do his job without injury to themselves or others. This section defines Safety Training Requirements and methods which have been developed by the Safety Director and the Corporate Safety Planning Committee to meet job requirements and safety objectives, and maintain compliance with OSHA standards.

### **SCOPE**

The safety orientation handbook is to be used by all divisions. It will be used to train all employees.

### **SUPERVISOR SAFETY TRAINING**

The company will provide special instruction to those who are responsible for training activities. The purpose of "how to" training includes the following:

- Provide guidelines for developing, scheduling & delivery of safety awareness training for employees.
- Encourage safety awareness.
- Get employees actively involved in safety.
- Motivate employees to follow proper safety procedures.
- Eliminate safety hazards.
- Introduce employees to new safety rules, practices and equipment.

The instructional curriculum may include but is not limited to the following:

- Corporate Safety Manual
- Accident Reporting & Investigation
- New Hire Safety Orientation Process
- Hazard Recognition
- Monthly Safety Inspection Procedure
- OSHA Inspection Procedure

## **CONDUCTING SAFETY TRAINING**

- An effective safety meeting must be planned and prepared in advance.
- Toolbox safety meetings or field safety meetings are to be conducted when appropriate and last approximately 10 minutes.
- All meetings are to be divided into two sections (1) the presentation itself and (2) a question and answer period.
- It is very important to allow those in attendance to participate. This will help to ensure that the message has been received.
- Use the safety training sign-in sheet to document the training.

## **SAFETY ORIENTATION TRAINING**

Job Safety orientation shall be conducted prior to job start-up for all current employees assigned to the job. This training shall cover, but is not limited to, the following:

Company rules and regulations.

- General safety rules and uniform requirements.
- Site hazards, unique to a specific job, or a divisional project.
- Safety operating procedures.
- The Safety Policies & Procedures Handbook (all employees are to read or have read to them the contents). The employee, after receiving the aforementioned briefing, shall complete the "Safety Training Record" located at the end of the Safety Policies & Procedures Handbook.

## **ONGOING EMPLOYEE SAFETY TRAINING**

All employees will attend regular safety meetings. At each meeting different topics will be discussed and any specific safety conditions or concerns will be focused on. During these meetings employees will be instructed on:

### *Tool Box Safety Talks*

- the proper use of tools/equipment
- personal protection devices
- vehicle operations
- general site safety matters
- new or updated safety procedures

### *Formal OSHA Employee Safety Training*

- Hazard Communication
- Lockout/Tagout
- Confined Space
- Respiratory Protection
- Emergency Action Plan
- Forklift

The effectiveness of the training given to our employees will hopefully result in a low number of injuries/accidents. That is why each division will be responsible for implementing whatever training program will ensure that his workforce receives sufficient training. The company will comply with OSHA, DOT, and EPA standards. In addition, supervisors will meet with the Safety Director regularly to receive updates and training on safety matters.

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## **SPECIALIZED TRAINING**

Additional safety training for manlift-snorkel lift training, powder operated tools respirator fit test training should all be performed by highly trained individuals.

## **RECORDKEEPING**

Maintenance of records of training is required. Complete records are one of the most important resources in documenting compliance with the Safety Policies & Procedures. The following records shall be maintained by the site safety coordinator or office manager:

- New Hire Safety Orientation
- Formal OSHA Employee Safety Training Records
- Tool Box Safety Talks (shop or site safety information)
- Any other Specialized Safety Training

## **DOCUMENTATION**

A log shall be kept of all employees and their level of orientation. This will enable more experienced personnel to help the new hires and track required safety training.

- The trainer will enter on the attendance log the date, name, topics discussed and length of meeting.
- Each employee will sign the attendance log.
- The log will be maintained in the safety file for record retention.





## NEW HIRE SAFETY ORIENTATION

Company Name: \_\_\_\_\_

Your Name: \_\_\_\_\_

### **HEALTH & SAFETY POLICY**

It is the policy of the company to provide a safety and healthy worksite environment for our employees and to establish a cooperative attitude with management, trades, employees, and customer. Our pledge to each employee is to structure the worksite to be as safe as possible and to communicate potential health and safety hazards, as well as provide protective equipment and training and other measures that minimize the possibility of accidents, injury, or illness on the job.

An effective health and safety program requires a commitment from both the company and our employees for a combined effort to continually assess and improve the health and safety welfare for everyone. Therefore, our employees must share the responsibility of providing a safe work environment by communicating know health and safety hazards or potential hazards to management and adhering to the rules as set forth by the company.

### **HEALTH & SAFETY RULES**

1. Personal Protective Equipment will be provided by the company and must be used. Safety glasses and hard hats will be worn at all times.
2. Report unsafe situations immediately. Be aware of your surroundings and do what you can to make it safe. Watch out for yourself and others.
3. Report all accidents and injuries to your supervisor. Injuries must be reported even if very minor. First aid is available from management personnel.
4. No employee shall report to work under the influence of intoxicants. Immediate termination of employment will result.
5. Perform all duties in a safe manner.
6. Set an example of safe working habits and follow all safety regulations.
7. Participate in all safety training sessions and tool box meetings.
8. No horseplay is allowed on the job.

9. Do not ride on or work under loads that are being lifted by cranes or forklifts.
10. Material Safety Data Sheets and the Health and Safety Program are available upon request.
11. Safety Devices are for your protection. Never operate your machine unless all guards provided are in place. Guards should never be removed except when necessary to make adjustments or repairs and should be replaced immediately upon completion of work requiring the removal. If a guard is not in proper condition, report this at once to your foreman. Power should be turned off at the supply switch and locked before attempting to clean, oil, adjust, repair or unjam a machine.
12. Jewelry, rings, bracelets, watch chains, key chains, ties, loose or ragged clothing should not be worn, as these items might catch causing serious accidents such as loss of fingers or hands.
13. Use compressed air only for the job for which it is intended. Do not clean your clothes with it, do not play with it, and never blow the air against anyone as it might enter his or her body and possibly cause serious injury.
14. Before using any ladder, see that it has good safety feet and is free from cracks, broken rungs, and other defects. When necessary, to prevent slipping, tie the bottom and the top of the ladder or have another worker hold the bottom of the ladder.
15. Do not attempt to lift or push objects which may be too heavy for you - ask for help - when you need it. Learn to lift the right way: bend your knees, keep your back straight, and then push upwards with your legs. It is much easier and safer.
16. Never use defective hand tools. Exchange the tools or see that defective tools are repaired.
17. Scrap and refuse material should be placed in proper containers. Keep general working area free from clutter and obstacles. Pile material, place trucks, skids, racks, crates, boxes, ladders or other equipment so as not to block aisles, exits, fire fighting equipment, alarm boxes, electric lighting or power panels, valves, etc.
18. Slippery floors cause falls. Keep the floor clean and dry of oil and water.
19. Various techniques of Fall Protection (100%) shall be worn by all employees when working six (6) feet or more above a work surface when no other type of fall protection is provided.
20. Never take short cuts. If you don't know the safe way, STOP and find out.

## **PERSONAL SAFETY REMINDERS**

- PERSONAL SAFETY IS CONTROLLED BY YOU !!!!
- REMEMBER THAT THE ENVIRONMENT AND OTHERS CAN AFFECT YOUR SAFETY.
- STAY AWARE.....THINK BEFORE YOU ACT !!!



**NEW HIRE SAFETY ORIENTATION ACKNOWLEDGMENT FORM**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Jobsite: \_\_\_\_\_

ID/Badge Number: \_\_\_\_\_

An overview of the entire Safety Employment Policy was presented. I understand that failure to abide by these rules may result in dismissal. A copy of the Safety Policy was received, and it is understood that I may receive a copy of the entire Field Safety Program upon request. The above list has been discussed with me. I understand and agree to its provisions and know who to contact if I have questions.

\_\_\_\_\_  
**Employee Signature**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Company Representative**

\_\_\_\_\_  
**Date**



## TOOL BOX SAFETY TALK SIGN-IN SHEET

Company Name: \_\_\_\_\_

Instructor: \_\_\_\_\_

Location: \_\_\_\_\_

Topic: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Shift: \_\_\_\_\_

**Print Name:**

**Signature:**

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## 9. HAZARD COMMUNICATION PROGRAM

### POLICY

To provide a hazard free workplace, including a Hazard Communication Program to ensure the safety and health of all employees during the use, handling, and transfer of potential hazardous chemicals in which exposure could cause illness and injury.

### SCOPE

Compliance with this program is mandatory and is applicable to all employees. Failure to comply with this program is grounds for disciplinary action and/or termination.

### "RIGHT TO KNOW"

A variety of laws, standards, and regulations are included in the term "right to know". As applied to the workplace, "right to know" pertains to the individual employees' right to receive information about the potential hazards of working with materials and substances in the workplace. This right is guaranteed to virtually all employees by two rules issued by the Federal Occupational Safety and Health Administration (OSHA). The "Access to Records" rule gives employees the right to review and obtain copies of any records which the employer has regarding the employees exposure to hazardous materials in the workplace, as well as any health records pertaining to that employee.

Another rule, the "Hazard Communication" Standard, requires the employer to provide detailed information to employees about potential hazards in the workplace, by use of labels, Material Safety Data Sheets (MSDS), and employee training programs.

### DEFINITIONS

Chemical - any element, chemical compound or mixture of elements or compounds which include: *Liquids, Solids, and Gases*.

Hazardous Chemical - any chemical which has been identified as a physical hazard or a health hazard by the manufacturer or supplier.

Material Safety Data Sheet (MSDS) - Written/printed information concerning a hazardous chemical which is prepared in the format required by the OSHA standard.

Label - Any written, printed or graphic sign or symbol displayed on or affixed to containers of hazardous chemicals. A label identifies the hazardous chemical, appropriate hazard warnings, and name and address of the manufacturer, importer, or other responsible party, and target organ effects.

Hazardous Substance - exposure to which results or may result in adverse effects on health or safety of employees.

Health Hazard - a chemical, mixture of chemicals, or a pathogen for which there is statistically significant evidence based on least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees.

Immediately Dangerous to Life and Health (IDLH) - an atmospheric concentration of any toxic, corrosive or asphyxiant substance that poses an immediate threat to life or would cause irreversible or delayed adverse health effects or would interfere with an individual's ability to escape from a dangerous atmosphere.

Permissible Exposure Limit (PEL) - means the dermal or inhalation exposure limit.

## **INTRODUCTION**

Chemicals play an important part in our personal lives and likewise are a necessary part of many workplace operations. Few workplaces exist where there is not some potential exposure to chemical substances. The use of chemicals are required to complete work, for instance, solvents and lubricants are used to clean and maintain equipment, fuels are required to operate vehicles and other equipment, and fuel and gases are necessary to cut or melt materials.

The following written Hazard Communication Program (HCP) is in place for the personnel of the company in order to comply with 29 CFR 1910.1200 and to assist the company in achieving our overall goal of a safer workplace. The purpose of the HCP is to ensure that the hazards of chemicals located in the workplace are evaluated and that the information is transmitted to potentially exposed employees. A successful HCP will reduce potential incidents of chemical source illness and injuries.

The original documents are kept on file at each division. It will be used by all personnel in all operating areas of the company and, each division will be responsible for ensuring that the program complies with all current regulatory requirements and that adherence to the program is enforced.

A copy of this program is to be made available to employee(s) upon hiring, and a copy will be kept in the personnel break room. The program will be updated when new chemicals or hazards are introduced into the working environment, and reviewed annually.

## **HAZARD EVALUATION**

For all potentially hazardous materials used, handled, stored, or generated in the workplace, the company attempts to determine whether a potential hazard in fact exists. Based on this determination, appropriate precautionary measures are implemented to protect employees.

For other purchased products (such as solvents, acids, fuels, and other chemicals), the company relies on information in the MSDS provided by the suppliers. Each MSDS received is reviewed by the safety director upon receipt, and every effort is made to assure that the information on MSDS is complete and accurate. Whenever new information about a product is

received, the additional information is placed in the MSDS binder, and potentially exposed employees are informed of relevant details.

## **FORMS OF HAZARDOUS SUBSTANCES**

Exposure to different types of chemicals or other hazardous substances carry different potential hazards. Each employee should review the company's chemical inventory list to identify hazardous substances which may be present in his/her work area. Review the MSDS for those materials to determine what potential hazards are involved, under what conditions, and what precautions should be taken in using or handling the materials. In general, potentially hazardous materials in the workplace can be in several different forms:

*Fumes:* Any operation which results in cutting or welding metal materials may create potential hazards. To protect themselves from these potential hazards, employees exposed to these operations should read and understand the appropriate MSDS, check air monitoring results for their work area and be alert for any unusual emissions or odors in the work area.

*Dusts:* Potentially hazardous dust exposure can occur in certain operations. Employee overexposure to airborne dust from could present possible health problems. For example, cigarettes and food may become contaminated with airborne dust or dust on an employee's hands. When the cigarettes and food are consumed potentially hazardous dust enters the body resulting in possible health problems. For this reason, the company may prohibit smoking and/or eating in certain work areas. Employees should always wash their hands before eating and smoking. In addition to potential health hazards, excessive concentrations of some dusts could present a possible fire and explosion hazard. Employees should review the appropriate MSDS for material being handled and follow all suggested precautions.

*Acids:* Exposure to acids can occur when handling batteries. Contact with acid can cause severe burns to skin or eyes, and inhalation of acid mist can cause respiratory system damage. Any employee exposed to acid spills or splashes should immediately seek medical attention.

*Solvents:* Solvents may be used in the work area to clean machinery or other material. Excessive inhalation of solvent vapors can cause damage to internal organs, such as the liver, kidney, lungs or central nervous system. Skin contact with solvents can cause dermatitis or sensitization. Some solvents can also be absorbed through the skin and cause internal damage. The potential hazard of some solvents is increased by their poor warning properties. By the time the odor from solvents is detectable, overexposure has already occurred.

*Fuels and Fuel Gases:* Materials such as gasoline and diesel fuel are necessary for the operation of vehicles and other equipment. Likewise fuel gases such as propane or acetylene are used to torch material. Overexposure to these fuels can cause potential health or safety problems for employees. The most obvious danger from these materials is the potential for fire and explosion. Vapors or gases can travel long distances and possible reach an ignition source (i.e. sparks and electricity) resulting in severe fire or explosion. In addition, overexposure to these materials can cause skin or eye burns and other potential health problems. It is extremely important that employees know the information on labels and MSDS and follow instructions whenever using these materials.



*Other Materials:* A variety of other materials and chemical substances are routinely used in operations. The large number of ways in which exposure can be hazardous makes it impossible to develop general rules which apply in all situations. Specific hazards and precautions for particular materials are listed on the MSDS for those materials. If you encounter any information, which is difficult to understand, consult your supervisor. A general rule, employees must not handle any material without first determining its identity. Once the identity is known use of the material must be in accordance with precautions listed on the label and MSDS. Never torch or cut on an empty container without first determining what was previously in the container.

## **ROUTES OF ENTRY INTO THE BODY**

*Inhalation:* This is an important exposure route of concern with hazardous chemicals. The lungs are extremely vulnerable to chemical agents. Inhalation of chemical agents that do not directly affect the lungs may pass through lung tissue into the bloodstream, which then carries the toxins to other parts of the body. The human senses can not detect all chemical agents in the atmosphere, i.e. they may be colorless, odorless, and their toxic effects may not produce any immediate symptoms. Respiratory protection is extremely important if there is a possibility that the atmosphere may contain such hazardous substances. Chemicals can also enter the respiratory tract through punctured eardrums. Individuals with punctured eardrums should immediately be medically evaluated specifically to determine if such a condition would place them at unacceptable risk.

*Skin & Eyes:* Hazardous chemicals that come in direct contact with the skin and eyes is another important route of exposure. Hazardous chemicals can be absorbed through the skin and into the bloodstream where they are transported to vulnerable organs. Skin absorption is enhanced by abrasions, heat, moisture, and cuts. The eyes are moist and have capillaries near the surface which allows airborne materials to dissolve into the eye. Therefore, the hazardous material is carried throughout the body in the bloodstream. Factors that can help protect against skin and eye contact are protective equipment, keeping hands away from the face, not wearing contact lenses, and minimizing contact with chemicals.

*Ingestion:* It is important to be aware of how this type of exposure can occur even though it is least likely to occur. Forms of ingestion are smoking, drinking, applying cosmetics, and chewing gum or tobacco.

*Injection:* Chemicals can be introduced into the body through puncture wounds from sharp objects. Prevention is accomplished through wearing safety shoes, avoiding physical hazards, and common sense precautions.

## **RISKS ASSOCIATED WITH HAZARDOUS SUBSTANCES**

*Chemical Exposure:* Preventing exposure to toxic chemicals is of primary concern. Facilities contain many chemical substances in gaseous, liquid, or solid form. A hazardous chemical can cause damage at the point of contact or can act systematically, causing a toxic effect at a part of the body distant from the point of initial contact. Chemical exposures are generally divided into two categories; acute and chronic. Symptoms resulting from acute exposure usually occur during or shortly after exposure to a sufficiently high concentration of a contaminant. The term chronic exposure generally refers to exposure to low concentrations of a contaminant over a long period of time. Additionally, the effects of exposure depend on the

duration of exposure, chemical, concentrations, route of entry, and personal habits (i.e. smoking, medication, and age).

*Fire and Explosion:* There are many potential causes of fires and explosions with hazardous chemicals. They include chemical reactions, ignition of explosive or flammable chemicals, ignition of materials due to oxygen enrichment, agitation of shock or friction sensitive compounds, and sudden release of materials under pressure. Fires and explosions may happen spontaneously in situations of moving drums, accidentally mixing incompatible chemicals, and introducing an ignition source (i.e. sparks from equipment). Fires and explosions of hazardous chemicals pose hazards of intense heat, open flames, smoke inhalation, flying objects, release of toxic chemicals, and threatening on-site personnel and the public. Protecting against fires and explosions includes careful monitoring of explosive atmospheres, controlling ignition sources, using non-sparking tools, and following safe work practice procedures.

*Oxygen Deficiency:* The normal content of oxygen in the atmosphere is 21%. Physiological effects of oxygen deficiency in humans begin to appear when it reaches 16%. Impaired attention, judgement, loss of coordination, and increased breathing and heart rates are signs of oxygen deficiency. Concentrations of oxygen lower than 16% can result in nausea and vomiting, brain damage, heart damage, and death. Concentrations of oxygen of 19.5% or lower are considered to be oxygen deficient. Oxygen deficiency results from displacement from another chemical (chlorine) or consumption of oxygen by a chemical reaction (fire). Confined spaces or low lying areas are particularly vulnerable to oxygen deficiency and should always be monitored before and continuously during entry.

## **CONTAINER LABELING**

The company will assure that all containers of hazardous chemicals entering the workplace and will assure that the chemical containers are properly labeled with:

- identity of chemical
- hazard warnings
- name and address of the manufacturer, importer, or responsible party

If the chemical is to be transferred to a separate container which is not for immediate use, the employee will ensure that the new container is properly labeled. (i.e., that all secondary containers are labeled with an a copy of the original manufacturer's label or with generic labels which have a block for identity, hazard warning, and the name and address of the manufacturer) Employees will also be informed of the hazards associated with chemicals contained in pipes within the work area.

### National Fire Protection Association Labeling System

The NFPA label is diamond shaped and split into four sections. Each section is color coded and may have a number within the color(s) indicating the level of hazard.

*Blue Section:* The blue color indicates the potential health hazards of the substance.  
4- Deadly    3- Extreme Danger    2- Hazardous    1- Slightly Hazardous  
0- Normal Material

Red Section: The red color indicates the potential fire hazards of the substance. *Flashpoints:*  
4- Below 73F      3- Below 100F      2- Below 200F  
1- Above 200F      0- Will not burn

Yellow Section: The yellow color indicates the potential reactivity hazards of the substance.  
4- May detonate      3- Shock & heat may detonate      2- Violent chemical change  
1- Unstable if heated      0- Stable

White Section: The white color indicates any specific hazards of the substance.  
Oxidizer    Acid    Alkali    Corrosive    Use no water    Radiation

## **MATERIAL SAFETY DATA SHEETS**

Material Safety Data Sheets (MSDS') are the keystone to a successful HCP. MSDS' are designed to provide the necessary information needed to handle chemicals safely. Chemical manufacturers, importers, or distributors supplying the company with products are required by law to send MSDS' with the first shipment.

The company will maintain the MSDS filing system for their operation. Chemical purchases will be checked to be sure a statement requesting an MSDS appears on each purchase request before it is processed. Incoming data sheets will be reviewed for new and significant health/safety information and will ensure that the new information is given to the affected employees and reviewed annually for accuracy and completeness. Additionally, updated MSDS and new MSDS will be immediately placed in the MSDS binder.

Old MSDS linked to an exposure incident will be maintained for at least 30 years. MSDS' for chemicals that are no longer used, and not linked to employee exposure record will be maintained in one of two ways:

- place the old MSDS in a special file
- make a record of the MSDS and maintain it for 30 years

A current copy of the Hazard Communication Program and the chemical inventory list is always located in each area MSDS binder. New chemicals will not be used until a MSDS has been obtained.

## **HEALTH & PHYSICAL HAZARD WARNINGS**

Because of the increased public awareness during the past decade about possible chemical hazards, various government agencies have taken actions to insure that the employees receive information about potential exposures to chemicals. This information is gained through labels and MSDS which provides precautionary warnings and identify hazards associated with different substances.

### HEALTH HAZARD CLASSIFICATION

- Carcinogen - A substance that has been determined to produce cancer.
- Corrosive - Having the quality of corroding or consuming.

- Highly Toxic - Cause health problems that are life threatening or seriously disabling.
- Irritant - Not corrosive, but will cause a reversible inflammatory effect on living tissue by chemical reaction at the site of contact.
- Sensitizer - Causes a substantial proportion of exposed employees to develop an allergic reaction in tissue after repeated exposure.
- Toxic - Acting as or having the effect of a poison.
- Target Organ Effects

## PHYSICAL HAZARD CLASSIFICATION

- *Combustible Liquid:* Any liquid having a flashpoint at or above 100F (38.8C), but below 200F (93.3C), except any mixture having components with flashpoints of 200F (93.3C), or higher, the total volume which make up 99% or more of the total volume of a mixture.
- *Compressed Gas:* A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70F (21.1C), or higher, the total volume of which make up 99% or more of the total volume of mixture, or a gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130F (54.4C) regardless of the 70F (21.1C), or a liquid having a vapor pressure exceeding 40 psi at 100F (37.8C) as determined by ASTM D-323-72.
- *Explosive:* A chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.
- *Flammable: 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 at any degree of valve opening. *Gas, Flammable* A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of 13% by volume or less, or a gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than 12% by volume, regardless of the lower limit. *Liquid, Flammable* Any liquid having a flashpoint below 100F (37.8C) or higher, the total of which make up 99% or more of the total volume of the mixture. *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 from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered to be a flammable solid if when tested by the method described in 16 CFR 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.
- *Organic Peroxide:* An organic compound that contains the bivalent -O-O structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.

- **Oxidizer:** A chemical other than a blasting agent or explosive as defined in 1910.109(a), that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.
- **Pyrophoric:** A chemical that will ignite spontaneously in air at a temperature of 130F (54.4C) or below.
- **Unstable (reactive):** A chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.
- **Water- Reactive:** A chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

## **HAZARDOUS MATERIAL PLACARDING**

DOT hazardous material placards are diamond shaped and color coded according to the material being transported. The shipper has the responsibility of determining the proper placards to be placed on transportation vehicle. No carrier of hazardous materials may transport the shipment without appropriate placards affixed to the vehicle.

The purpose of the placard is for identification of the hazardous material, to alert personnel and emergency personnel to the potential dangers associated with the material. The location of the placard on tanker trucks is on the front, side, and back of the vehicle. Rail car placards are located on the sides and trailer placards on the side and back.

### BASIC COLOR CODING OF PLACARDS

Orange - Explosives  
 Red - Flammable  
 Red/White - Flammable Solid  
 Yellow - Reactive  
 White - Poison  
 White/Black - Corrosive  
 Green - Non-Flammable Gas  
 Dangerous  
 Yellow/White/Propeller - Radio Active

### INTERNATIONAL CLASSIFICATION SYSTEM

Class or division numbers may be displayed in the bottom of placards or in the Hazardous Materials description on shipping papers. In certain cases, A Class or Division number may replace the written name of the hazardous class description on the shipping paper.

#### *Class 1 - Explosives*

Division 1.1 Explosives with a mass explosion hazard  
 Division 1.2 Explosives with a projection hazard  
 Division 1.3 Explosives with predominantly a fire hazard  
 Division 1.4 Explosives with no significant blast hazard  
 Division 1.5 Very intensive explosive articles

Division 1.6 Extremely insensitive explosive articles

*Class 2 - Gases*

- Division 2.1 Flammable gases
- Division 2.2 Non-Flammable gases
- Division 2.3 Poison gases
- Division 2.4 Corrosive gases (Canadian)

*Class 3 - Flammable Liquids*

- Division 3.1 Flashpoint below - 18C (OF)
- Division 3.2 Flashpoint - 18C and above but less than 23C (73F)
- Division 3.3 Flashpoint of 23C and up to 61C (141F)

*Class 4 - Flammable Solids; Spontaneously Combustible Materials; & Materials That Are Dangerous Wet*

- Division 4.1 Flammable solids
- Division 4.2 Spontaneously combustible materials
- Division 4.3 Materials that are dangerous when wet

*Class 5 - Oxides and Organic Peroxides*

- Division 5.1 Oxidizers
- Division 5.2 Organic peroxides

*Class 6 - Poisonous and Etiologic (Infectious) Materials*

- Division 6.1 Poisonous materials
- Division 6.2 Etiologic materials

*Class 7 - Radioactive Materials*

*Class 8 - Corrosives*

*Class 9 - Miscellaneous Hazardous Materials*

**EMPLOYEE TRAINING AND INFORMATION**

Before starting work, the trainers of new employees will go over their copy of the HCP and each MSDS applicable to their job. The company will use a combination of handouts, videotapes, and classroom presentations to accomplish employee training.

Before any new chemical is used, all employees will be informed of its use, will be instructed on safe use, and will be trained on hazards associated with the new chemical. All employees will attend additional training, as appropriate, to review the HCP and MSDS'. Appropriate library reference material will also be discussed during the training sessions.

**The minimum orientation and training for a new employee is as follows:**

- an overview of the requirements contained in the Hazard Communication Standard, 1910.1200
- chemicals present in their workplace operations and this office
- location and availability of the written HCP

- physical and health effects of hazardous chemicals
- methods and observation techniques used to determine the presence or release of hazardous chemicals in the work area
- how to lessen or prevent exposure to these hazardous chemicals through used of control/work practices and personal protective equipment
- steps taken by the company to lessen or prevent exposure to the chemicals listed on the inventory list

Prior to a new chemical hazard being introduced into any section of the workplace, each employee will be given information and training as outlined. After attending the training class, each employee will sign a form to verify that they attended the training; that the written HCP was made available for review; and that he/she understands the HCP. If an employee has any questions about what protection they need, they will contact their supervisor immediately.

### **NON-ROUTINE TASKS**

Non-routine tasks are those that are not performed on a frequent basis or those tasks which are not identified as a normal production task. However, many of the tasks required of the maintenance personnel will be evaluated on a case by case basis to determine if they are to be considered a non-routine task.

Before any non-routine task is performed, employees shall be advised of special precautions to follow, however, in the event such tasks are required, The company will provide the following information about such activity as it relates to the specific chemicals expected to be encountered:

- specific chemical name(s) and hazard(s)
- personal protective equipment required and safety measures to be taken
- measures that have been taken to lessen the hazards including ventilation, respirators, presence of other employee(s), and emergency procedures

### **WORK PERFORMED BY OUTSIDE CONTRACTORS**

It will be the responsibility of the safety director to provide other personnel or outside contractors with the following information as follows:

- hazardous chemicals to which they may be exposed to while in the workplace
- measures to lessen the possibility of exposure
- location of MSDS' for all hazardous chemicals
- procedures to follow if they are exposed

The company will contact each contractor before work is started to gather and disseminate any information concerning chemical hazards the contractor is bringing into the facility. Copies of the MSDS', or location of the contractors MSDS' will be obtained.

- Per OSHA **1910.1200(e)(2)**: "Multi-employer workplaces." Employers who produce, use, or store hazardous chemicals at a workplace in such a way that the employees of other employer(s) may be exposed (for example, employees of a construction contractor working on-site) shall additionally ensure that the hazard communication programs developed and implemented under this paragraph (e) include the following: **Per OSHA 1910.1200(e)(2)(i)**: The methods the employer will use to provide the other employer(s) on-site access to material safety data sheets for each hazardous chemical the other employer(s)' employees may be exposed to while working; **per OSHA 1910.1200(e)(2)(ii)**: The methods the employer will use to inform the other employer(s) of any precautionary measures that need to be taken to protect employees during the workplace's normal operating conditions and in foreseeable emergencies; and, **Per OSHA 1910.1200(e)(2)(iii)**: The methods the employer will use to inform the other employer(s) of the labeling system used in the workplace.
- **Per OSHA 1910.1200(e)(3)**: The employer may rely on an existing hazard communication program to comply with these requirements, provided that it meets the criteria established in this paragraph (e).
- **Per OSHA 1910.1200(e)(4)**: The employer shall make the written hazard communication program available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director, in accordance with the requirements of 29 CFR 1910.1020 (e).
- **Per OSHA 1910.1200(e)(5)**: Where employees must travel between workplaces during a workshift, i.e., their work is carried out at more than one geographical location, the written hazard communication program may be kept at the primary workplace facility.

We establish and maintain that we shall not remove or deface existing labels on incoming containers of hazardous chemicals, unless the container is immediately marked with the required information, per OSHA 1910.1200(f)(8).

We establish and maintain that we shall ensure that labels or other forms of warning are legible, in English, and prominently displayed on the container, or readily available in the work area throughout each work shift. If we have employees who speak other languages may add the information in their language to the material presented, as long as the information is presented in English as well, per OSHA 1910.1200(f)(9).





## **Contractor Safety Procedures**

(Vendor - Trucking - Delivery - Contract Work)

**Personal Protective Equipment** - All outside personnel must wear and safety shoes & glasses. This equipment is to be furnished by the contractor.

**Smoking** - Smoking is permitted in designated areas only. Check with the safety director for designated smoking areas.

**Emergency Procedure** - *Reporting Fires*: Immediately contact any company personnel in the area. *Reporting Injuries & Other Emergencies*: Notify any company personnel in the area. *First Aid Facilities*: Notify any company personnel. All injuries must be reported to the safety director.

### **Explanation of Hazards**

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**Location of MSDS'** MSDS' are located in each area of the facility and the master MSDS binder is in the safety directors office. Any material brought into the plant by outside personnel must have the appropriate MSDS. All extra material left by outside personnel must be removed.

**Unsafe Conditions** Any suspected unsafe conditions must be reported immediately to the safety coordinator and/or any company personnel in charge of your work area. Any outside personnel equipment brought in the plant for demonstration must include written and verbal safety instruction before employees can operate. All outside personnel equipment must have proper guards and a lockout procedure before operating or demonstrating is started in plant.

**The above procedures have been explained to me on \_\_\_\_\_ (date) and I have received a copy. I understand I am responsible for keeping the on-site employees under my supervision informed of the above procedures. I have provided the client with the Material Safety Data Sheets of chemicals brought on-site.**

\_\_\_\_\_  
Contractor Representative

\_\_\_\_\_  
Company Representative

## Hazard Communication Quiz

Company: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. Where is the Hazard Communication Program located?

\_\_\_\_\_

2. List two forms of hazardous chemicals.

\_\_\_\_\_

3. List two ways chemicals can enter the body.

\_\_\_\_\_

4. Hazards associated with chemical substances are (circle one letter):

**A.** Fire & Explosion      **B.** Chemical Exposure      **C.** Oxygen Deficiency      **D.** All of the above

5. Important information regarding chemicals and their hazards can be found on labels, material safety data sheets (MSDS), and placards.      \_\_\_\_\_ True \_\_\_\_\_ False

6. Where is the MSDS binder is located?

\_\_\_\_\_

7. If you place a chemical a in a secondary container and do not use it completely by the end of your shift it must be labeled with the chemical identity and the hazards.      \_\_\_\_\_ True \_\_\_\_\_ False

8. If you have a question about labeling, MSDS, or chemicals where do you turn (circle one letter)?

**A.** Safety Coordinator      **B.** Your Supervisor      **C.** The Hazard Communication Program      **D.** All above

9. What does the red color on a label represent?

\_\_\_\_\_

I acknowledge that I have received information and training on the Hazard Communication Program in place at the company. The information presented to me included the following:

- an overview of the requirements contained in the Hazard Communication Standard, 1910.1200
- chemicals present in their workplace operations and this office
- location and availability of the written HCP
- physical and health effects of hazardous chemicals
- methods and observation techniques used to determine the presence or release of hazardous chemicals in the work area
- how to lessen or prevent exposure to these hazardous chemicals through used of control/work practices and personal protective equipment
- steps taken by the company to lessen or prevent exposure to the chemicals listed on the inventory list

I acknowledge that I have received a copy of the Hazard Communication Training Handout and that I have read these materials, understand it, and agree to abide by the rules, policies, and procedures set forth by the Hazard Communication Program. If I do not understand any instructions I will ask questions.

\_\_\_\_\_  
Participant Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Instructor

\_\_\_\_\_  
Date

## 10. EMERGENCY ACTION PLAN

### PURPOSE

To provide a hazard free workplace and have a procedure in place for the safe egress and emergency response by employees. This emergency response plan designates safe assembly areas, emergency coordinators, and procedures to follow in emergency situations. Compliance with this emergency response plan is mandatory and is applicable to all employees.

### GENERAL REQUIREMENTS

- This plan shall address the following information:
  1. Responsibilities
  2. Notification
  3. Evacuation Routes
  4. Assembly Points
  5. Communications
  6. Subcontractors
  
- This plan shall be designed to anticipate the actions required by supervision and employees to minimize dangers to employees safety and damage to physical equipment or property in the event of an emergency.
  
- Types of hazards that normally would initiate an emergency action plan:
  1. Fire & Explosion
  2. Release of hazardous gases, vapors, or fumes
  3. Significant chemical spill
  4. Severe Weather
  5. Flood
  6. Earthquake
  7. Major power outage
  8. Bomb threats, sabotage, illegal activities
  9. Radiation emergencies
  10. Catastrophic or multiple employee Injury

### RESPONSIBILITIES

- The company will assure that each employee and subcontractor, as applicable, is trained and knowledgeable of the emergency plan. The company shall perform a

hazard analysis of the facility or project, identifying those areas with potential for initiating the emergency action plan, such as an evacuation, chemical spill, and/or exposure. Special consideration shall be given to hazardous chemicals, and the MSDS shall be reviewed for those materials identified. Prevailing wind direction and lay-of-land shall be considered.

- Each employee shall understand, know how to initiate, and follow the emergency action plan when it is put into effect.

## **NOTIFICATION**

- Each facility will have different facility notification requirements. On projects the company will coordinate the method of notification with the owner, and when possible use the same method, i.e. horn, siren, speaker system, etc. The selected method shall be effective enough that every employee will be notified in the fastest possible manner of the emergency condition. This method shall be related to all employees and subcontractors if they are on a project. The company shall be immediately notified when an emergency evacuation has taken place. The project manager shall be notified as soon as possible.

## **EVACUATION ROUTES**

- During the site evaluation the primary and secondary evacuation routes shall be determined. They shall represent the safest, most expedient paths from the potential hazard area.

## **ASSEMBLY POINTS**

- Each evacuation route shall terminate in an assembly area. This designated area shall be used to take a head count and assure that all employees have evacuated the danger area. No employee shall leave the designated assembly area without the direct permission of the senior company representative.

## **COMMUNICATIONS**

- The methods and equipment for communication shall be established in such a manner as to include those emergencies where power outages may occur, as well as command line breakdowns. Personnel issued portable radios shall be briefed in their use as part of the emergency action plan.

## **SUBCONTRACTORS**

- The company representative shall closely coordinate the emergency action plan with other contractors, sub-contractors, the owner, contract manager, and personnel on a

project to assure all are aware of the provisions, notifications, evacuations routes, assembly points, etc.

## **SPECIAL HAZARDS**

Hazardous Chemical Spill Procedure:

- A. Triggering of hazard alert and possible implementation of the emergency action plan.
- B. Evacuate the immediate area.
- C. Eliminate all sources of ignition.
- D. Evaluate the extent and toxicity of the spill using the MSDS.
- E. Contain the spill.
- F. Special HAZMAT teams may be necessary for large and very toxic spills.

For minor spills that do not endanger life:

- A. Use absorbent or neutralizer listed in the MSDS as soon as possible.
- B. Pick up the absorbed or neutralized material and place it in appropriate hazardous waste container with proper labeling.
- C. Thoroughly clean tools, and items which contacted the hazardous materials. For especially hazardous materials, cloths and tools may need to be included in the hazardous waste.
- D. Verify the safety of the area before permitting personnel to resume work tasks.

## **EVACUATION**

When notified of implementation of the evacuation plan each employee shall respond as follows or as trained:

- A. Shut off all sources of ignition. If in truck, fork lift, etc. park them and walk away.
- B. Make sure those working around you are aware of the emergency.
- C. Proceed to the emergency assembly area using the safest evacuation route.
- D. Wait in the area, calmly, while a head count is performed, and further instructions are given. Do not leave the assembly area until directed by the senior company representative.

## **TRAINING**

- A company representative shall train all employees on the emergency action plan.
- Retraining shall be provided for each employee as necessary so that the employee maintains the understanding and knowledge required for compliance with this section.
- Training shall be documented.



## Project or Facility Emergency Action Plan

This emergency action plan is specific for the following project:

Company Name: \_\_\_\_\_

Job Site & Address: \_\_\_\_\_

Site Emergency Phone Numbers: \_\_\_\_\_

Date Prepared: \_\_\_\_\_ Plan Prepared By: \_\_\_\_\_

Company Site Phone Number: \_\_\_\_\_

Site Foreman: \_\_\_\_\_

Dial 911 for emergency personnel?  Yes  No If no, please list emergency responders phone numbers: \_\_\_\_\_

**List the Company Site Emergency Response Coordinators:**

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**List the Site Designated Safe Assembly Areas:**

Evacuation: \_\_\_\_\_

Severe Weather: \_\_\_\_\_

**List the Site Forms of Emergency Warning:** \_\_\_\_\_

**List the Company Emergency Communication Systems:**

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**List any other Site Specific Procedures to Follow in an Emergency Situation (please attach client emergency response plan and post):**

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## EMERGENCY ACTION PLAN QUIZ

Company Name: \_\_\_\_\_

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. The purpose of developing an emergency action plan is to designate safe assembly areas, emergency coordinators, and procedures to follow in emergency situations. \_\_\_\_\_ True \_\_\_\_\_ False
2. This plan shall be designed to anticipate the actions required by supervision and employees to minimize dangers to employee's safety and damage to physical equipment or property in the event of an emergency. \_\_\_\_\_ True \_\_\_\_\_ False
3. List two types of emergency action hazards. \_\_\_\_\_
4. Special consideration shall be given to hazardous chemicals, and the MSDS shall be reviewed for those materials identified. \_\_\_\_\_ True \_\_\_\_\_ False
5. Each employee shall understand, know how to initiate, and follow the emergency action plan when it is put into effect. \_\_\_\_\_ True \_\_\_\_\_ False
6. The primary and secondary evacuation routes shall be determined and represent the safest, most expedient paths from the potential hazard area. \_\_\_\_\_ True \_\_\_\_\_ False
7. Each evacuation route shall terminate in an assembly area. This designated area shall be used to take a head count and assure that all employees have evacuated the danger area. No employee shall leave the designated assembly area without the direct permission of the senior company representative. \_\_\_\_\_ True \_\_\_\_\_ False

I acknowledge that I have received information and training on the company Emergency Response Plan. I understand this program contains important information regarding company policies, rules and regulations. I acknowledge that I have read these materials, understand them, and agree to abide by them. If I do not understand any information that has been presented to me, I will ask questions.

\_\_\_\_\_  
(Participant's Signature) Date

\_\_\_\_\_  
(Instructor) Date



## **10.1 STOP WORK AUTHORITY**

### **PURPOSE**

To provide a hazard free workplace and have a procedure in place for authorization of stoppage of work. This response plan designates safe practices and procedures to follow in a situation where on-site safety requires the temporary stoppage of work. Compliance with this stop work authority is mandatory and is applicable to all employees.

### **OVERVIEW**

Each project presents its own challenges with both hazard and risk analysis and specific requirements by the owner. This often requires site-specific training which is accomplished in coordination with our own safety program, the client's project management and EH&S team, and all subcontractors we might have on-site.

Siena Construction has a policy where any attention to adverse working conditions, safety, or otherwise, addressed immediately, and there are no repercussions for the reporting individual. We strongly believe that a safe worksite with open communication is best for the project.

### **TRAINING**

Siena works with the client to understand the protocols and train the field staff to ensure these requirements are met. With an emphasis on a safe and secure project site, Siena's employees are enabled to address immediate HSE risks at the moment they are identified. Additionally, our subcontractors are trained to do the same for any situation that might present the risk of health or safety concerns on the project.

All employees must receive Stop Work Authority training before initial assignment. The training will be documented including the employee name, the dates of training and subject.

Siena Construction's employees and subcontractors are given the authority to act in the best manner to ensure the project site is safe. After initial training all site employees are enabled to initiate Stop Work Intervention, or to coordinate a stoppage with their immediate superior.

### **STOP WORK PROCEDURES**

In the event that there is a safety issue on-site, any work that is compromised, whether by an individual situation, or in a particular area, will be halted while remedial efforts are planned, and the project team reviews to conclude that corrective measures have been put in place and work may proceed.

In the event that a Stop Work Intervention is initiated, the activity in question is halted, and the work area is made safe. After the work area is secure, the responsible party will notify their supervisor, and a plan for remedial action will be put in place. This may involve the subcontractor and Siena, but contact with the owner is maintained while any issue is addressed.

After the Stoppage Intervention, an incident report is generated and distributed to the appropriate members of the project team. Following that issuance, additional training for any issue leading to the Stop Work Intervention is held to ensure that the circumstances related to the report are addressed immediately.

All Stop Work reports are immediately sent to Siena's PM team for review and distribution to the project team. As appropriate these are distributed with the O/A/E group, as well as internally and with relevant subcontractors.

After the issuance of a Stop Work Order, and the immediate concerns related to the cause are addressed with regards to safety and workmanship, Siena will set-up a meeting with the parties involved and work to: identify the issue that resulted in the work stoppage; chart the remedial action to occur if required, and review and future issues related to the occurrence.

Employees shall not be reprimanded for issuing a Stop Work Intervention. Any form of tribution or intimidation directed at any individual or company for exercising their right to issue a stop work authority will not be tolerated.

## **10.2 WORKING ALONE**

### **PURPOSE**

To provide a hazard free workplace and have a procedure in place for authorization of a field worker working alone. This response plan designates safe practices and procedures to follow in a situation where on-site work requires an individual worker to temporarily be out of view or without immediate supervision. Compliance with these procedures is mandatory and is applicable to all employees.

### **OVERVIEW**

All employees are equipped with communication devices (cell phones, 2 way radios if facility does not have sufficient cellular coverage) to effectively communicate with supervisor or emergency services should an employee need to work alone.

Individuals are required to check in and be monitored at regular intervals. The job site is constantly supervised by Siena's supervisory team, and localized attention will be paid to specific area where high hazard work may occur as determined in the risk assessment.

### **PROCEDURES**

In the event an incident occurs, primary contact is the superintendent and concurrently, main office and safety officer will be notified. The intent will be to resolve the incident in the best way possible, and follow up with analysis of the conditions. Steps will be taken to ensure that any unsafe conditions are corrected. Additionally, the report will be documented and sent to the project team for additional review.

Supervisors are aware of all construction activities on site. Occasionally, particular job actions may require additional attention and monitoring if there is an unusual hazard, such as an individual working within a confined space, or with a dangerous/hazardous material, such as the electrical system on an active building. In the event that a worker working alone is not responsive, the immediate response is to coordinate with local emergency rescue services. In some cases, this may be coordinated through the clients' Environmental, Health, and Safety Services Division, which will be clarified during the pre-project planning. All construction activity is halted and the area is contained in order for emergency services to arrive and attend to the affected worker. In the event that a worker goes missing, project work will be halted while the location of the worker is located. Per the discretion of the supervisor, a designated search party may be formed with considerations to the immediacy and safety of the field conditions.

## 11. LOCKOUT/TAGOUT

### The Control of Hazardous Energy

#### PURPOSE

This procedure establishes minimum requirements for locking out and tagging switches, valves, circuit breakers, and other energy controlling devices when their unexpected energizing, start-up, or release of stored energy could cause harm to an employee or damage equipment or machines. It shall be used to ensure that the machine or equipment is isolated from all potentially hazardous energy.

#### SCOPE

This procedure is applicable on all company divisions, on-site construction and maintenance projects.

#### SUMMARY

Accidents involving electrical, mechanical, and/or pressurized equipment and systems have occurred in the construction industry due to incomplete planning of the work or task to be performed (failure to lock and tag out equipment and systems). Work performed on temporary electrical services and pressurized pipelines is as equally important from the standpoint of the use of the lockout/tagout procedure as is permanent plant equipment and systems.

OSHA estimates that over 100 fatalities and thousands of injuries occur each year due to employees working with equipment and machinery that has not been properly locked out. As a result, in the fall of 1989, OSHA passed the Lockout/Tagout regulations addressing this serious problem. The concept of lockout/tagout is based on communication, common sense and a good management approach to dealing with powered machinery and equipment. Employees do not realize how frequently they encounter situations where lockout/tagout procedures should be applied.

Lockout/Tagout is maintenance oriented and the key to the process of lockout/tagout is the isolation of a machine's energy source so there is not a sudden, unexpected release of stored energy that could injure maintenance personnel and employees.

Lockout does not simply mean throwing the machine or equipment in the off position. Placement of a lockout device (lock) on an energy isolating device (power box lever) prevents operation. Tagout is a form of communication warning employees not to energize the machine or equipment.

#### DEFINITIONS

*Affected Employee* means a person whose job requires him/her to operate or use a machine or piece of equipment that is locked or tagged out.

*Authorized Employee* means a person (lockout/tagout supervisor) who performs lockout/tagout procedures on a machine in order for servicing and maintenance activities to take place.

*Capable of Being Locked Out*, means an energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it.

*Energized*, means connected to an energy source or containing residual or stored energy.

*Energy Isolating Device* means a mechanical device that physically prevents the transmission or release of energy.

*Locks* means only locks approved and issued by the company specifically for lockout/tagout procedures. A tag must accompany a lock each time it is used.

*Lockout* means the placement of a lockout device on an energy-isolating device, in accordance with the established lockout procedure, ensuring that the energy isolating device and equipment being controlled cannot be operated.

*Lockout Device*, a device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the off position and prevents the energizing of a machine or piece of equipment.

*Tagout* means the placement of a tagout device on an energy-isolating device, in accordance with the established procedure, to indicate that the energy isolating device and machine or equipment being controlled may not be operated.

*Tagout Device*, means a warning device, such as a tag and means of attachment, which can be securely fastened to an energy isolating device, in accordance with the established procedure, to indicate that the energy isolating device and machine being controlled may not be operated.

*Zero Energy State*, the protection by isolation, blocking, and/or release of all sources of energy within equipment.

*Danger Tag Electric* - The tag is attached to a switch, circuit breaker, and other electrical controlling devices to warn others that the equipment and/or system has been isolated (from its power source (de-energized) and that employees are working on the equipment and/or system. The Danger Tag-Electrical placed on equipment and systems is not to be removed by anyone other than the person whose signature is on the tag and the equipment and system is not to be operated with the tags in place.

*Danger Tag-Mechanical* -The tag is attached to valve handles, all applicable circuit breakers, switches, and other operating mechanisms to prevent manipulation or operation of mechanical equipment and pressurized systems when work is being performed. It shall also be used to secure valves between operational and non-operational sections of a system. All Danger Tags-Mechanical shall be numbered in sequential order, and the letter M shall identify that the danger tag is to be used for MECHANICAL tagging only.

*Caution Tag* - may be used to inform personnel of special precautions or instructions relative to safe and proper operation of equipment. This tag is not to be used to prevent equipment and systems from being operated.

## REFERENCES

29 CFR 1926.417 - Lockout and Tagging of Circuits

29 CFR 1910.147 - The Control of Hazardous Energy - Lockout/Tagout

## RESPONSIBILITY

Only authorized employees who have received instruction and training on lockout/tagout procedures can lockout a piece of equipment and they are referred to as lockout/tagout supervisors. All other employees receive affected personnel training.

## FORMS OF HAZARDOUS ENERGY

There are many different types of machinery and equipment used by the company. These pieces of equipment function by using energy. Energy comes in many forms and can exist in two states, *active* and *stored*. Machinery and equipment used by the company are identified on the master equipment list and discussed individually in the Energy Control Shutdown Forms section of this program. The following are different forms of hazardous energy:

- Electrical
- Compressed Air (Pneumatic)
- Petroleum Fuels (Fuel Lines)
- Gravity (Suspended Components)
- Hydraulic
- Tension
- Chemical
- Thermal (Surface Temperature)

## AUTHORIZED EMPLOYEE

The only employees authorized to lock or tag machinery and equipment and remove their locks and tags are personnel who have had specific lockout/tagout training and are authorized by the company. These authorized employees are referred to as lockout/tagout supervisors (LTS). The LTS have received information and training on energy sources and stored energy with machinery and equipment used by the company. Machinery and equipment will not be energized without the consent of the LTS and the unauthorized removal of locks or tags will be grounds for disciplinary action and/or grounds for termination.

## AFFECTED EMPLOYEES

Affected employees are individuals who cannot use machines or equipment for production due to lockout/tagout devices. If the machine, which you frequently use, is to be locked-out for maintenance or repair you will be verbally notified by the LTS. You will also be notified if you typically use the products of the affected machine (such as materials cut to specific lengths). This will allow you to make other arrangements for obtaining the materials you need to do your work and/or do projects which do not require the affected machine. Do not attempt to restart

any machinery or equipment that is locked or tagged. When the machinery or equipment is ready for production the lockout/tagout supervisor will notify affected employees. Do not attempt to remove any energy-isolating device.

## **FACILITY LOCKOUT/TAGOUT PROCEDURE**

Preparation for Lockout/Tagout - Make sure to locate and identify all isolating devices to be certain which switches, valves, or other energy isolating devices apply to the equipment to be locked out and tagged. More than one energy source may be involved.

Lockout/Tagout Sequence - Each maintenance person working on equipment will have his own lock and the only key to that lock for locking out equipment. The master key to lockout locks is available only to maintenance supervisor and safety director. The following steps will be taken by the LTS to safely secure a listed machine for servicing and/or repair.

- Notify all affected employees and supervisors that lockout/tagout is required.
- The machine to be serviced/repared will be shut off using the standard operator controls, i.e. off switch, trigger release.
- The LTS will disconnect or isolate all energy sources. Some machines are of new construction and contain several safety interlocks. During work on gas, air, oil, acid, steam, and water lines the main valve will be closed and locked out. (Examples such as Release Tension, Release Compressed Air, Lower Hydraulics Bleed Gas Lines, Unplug Electrical Cords, Remove Spark Plugs, Bleed Hydraulics, Block Suspended Components, Block Rotating Parts, and Insert Blind Flange in Process Pipes)
- The LTS will then inspect the machine for any sources of *stored energy*. Make sure that nothing in or on the machine will cause any unexpected movement, which may cause any injury to those servicing the machine.
- Lockout/Tagout all energy sources with company locks and tags. When a switching device is encountered that cannot be locked out, a proper tag may be used.
- Each LTS involved in the work must lock and tag the main on/off switch. When three or more LTS are to work the same job, a lead LTS may be appointed to perform the lockout/tagout and only the lead LTS is then required to apply locks and tags.
- The LTS will then attempt to activate the machine by turning the operator switch to the on position. If the machine does not energize the LTS will return the switch to the off position. If the machine does energize the LTS will inspect for sources of energy and de-energized, block, and brake as necessary and then will repeat the attempt to reactivate the machine.
- Once the operator control has been returned to the off position, the LTS will release the machine as "LOCKED-OUT" and maintenance/repair efforts may proceed.

Lockout/Tagout Authorized Release Sequence - The LTS will utilize the following procedures for returning a machine to service.

- The LTS will inspect the machine to make sure that no tools, product or other parts have been left on the machine, which may cause a hazard when the machine is re-energized.
- The LTS will inspect to make sure that if any operating safety guards have been removed during the servicing/repair process, they are replaced before the machine is energized.
- The LTS will clear all employees from the area of the machine, particularly those areas close to or near any moving parts.
- The LTS will check to make sure the operator controls are in the off position.
- The LTS will remove the lockout security device and re-energize the machine.
- The LTS will activate the machine by moving the operator switch to the on position and observing the operation of the machine.
- The LTS will switch off the machine and ensure that it ceases operation.
- The LTS will notify you that the machine is available for use.

#### **USE OF THE DANGER TAG**

- The standard Danger Tag, Electrical Tag or Mechanical Tag shall be used only for the purpose of identifying a de-energized piece of equipment or system. It is not to be used as a substitute for a defective tag or a caution tag.
- A Caution Tag is to be used to inform personnel of special precautions or instructions relative to safe and proper operation of equipment.
- Do not use a Caution Tag to prevent a system or piece of equipment from operating. Only a Construction Danger Tag-Electrical or Mechanical can be used to prevent the operation of a system or piece of equipment.

#### **UNAUTHORIZED REMOVAL OF A DANGER TAG**

- The unauthorized removal of a Danger Tag from the controlling device of de-energized system or pieces of equipment shall be grounds for immediate disciplinary action of the involved employee(s).
- The unauthorized operation of a controlling device of a de-energized system or piece of equipment, which has been tagged-out with a Danger Tag, shall be grounds for immediate termination of the involved employee(s).



## **EXCEPTIONS**

The person installing locks normally removes the locks. Locks may also be removed due to any emergency or when an employee forgets to remove his or her lock at shift or job completion. In these rare occasions the supervisor will be responsible for completing the Emergency Removal of Lock Form and having the lock removed. The following steps are to be taken:

- **Attempt to contact the owner of the lock to be removed. He or she can tell you the status of the equipment.**
- **Whether the owner is reached or not, inspect the work site and equipment or machine to ascertain if the lock can be removed without endangering employees.**
- **If necessary contact a maintenance, electrical, or production employee to help inspect the equipment to be unlocked.**
- **If you cannot ensure the condition of the machine or equipment is safe, do not release it. Only a member of supervision can have a lock removed.**
- **Remove the lock by cutting or other means. This action takes personal responsibility for others' safety. Unauthorized cutting is a mandatory discipline offense.**

## **PERIODIC INSPECTION**

A periodic inspection will be performed by the company to see that the Lockout/Tagout Program and Procedure is being followed. The purpose of the inspection is to correct any deviations or inadequacies observed.

## **ENFORCEMENT**

Failure to follow the Lockout/Tagout program can create life threatening or serious injury situations. Failure to lockout or tagout or permitting employees and/or contractors to not follow procedure will result in disciplinary action up to and including discharge.

## **INFORMATION AND TRAINING**

All employees will be informed as to the procedures of the Lockout/Tagout Program at the company upon assuming employment and will be updated by the safety director at least once annually during the term of their employment. Then you will be told what the program is, why we do it, your responsibilities and mandatory compliance. All employees will be informed whenever new equipment is brought into the production process. Information and training for affected employees will consist of covering the Lockout/Tagout Program and specifically how to recognize lockout/tagout. LTS information and training covers hazardous energy, isolation and control, and machinery and equipment lockout procedures.

## RECORDS MAINTENANCE

All completed forms will be kept on file. The following forms are included in this program:

- Machine and Equipment Shutdown Forms
- Periodic Inspection Form
- Quizzes & Acknowledgment of Training
- Emergency Removal of Lock Form

## TRAINING AND COMMUNICATION

We have established to provide training to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees, per OSHA 1910.147(c)(7)(i).

The training shall include the following:

1. Per OSHA 1910.147(c)(7)(i)(A): Each authorized employee shall receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control;
2. Per OSHA 1910.147(c)(7)(i)(B): Each affected employee shall be instructed in the purpose and use of the energy control procedure;
3. Per OSHA 1910.147(c)(7)(i)(C): All other employees whose work operations are or may be in an area where energy control procedures may be utilized, shall be instructed about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out;
4. Per OSHA 1910.147(c)(7)(ii): When tagout systems are used, employees shall also be trained in the following limitations of tags: Per OSHA 1910.147(c)(7)(ii)(A): Tags are essentially warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock;
5. Per OSHA 1910.147(c)(7)(ii)(B): When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated;
6. Per OSHA 1910.147(c)(7)(ii)(C): Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective;
7. Per OSHA 1910.147(c)(7)(ii)(D): Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace;
8. Per OSHA 1910.147(c)(7)(ii)(E): Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program;
9. Per OSHA 1910.147(c)(7)(ii)(F): Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use;
10. Per OSHA 1910.147(c)(7)(iii): Employee retraining. Per OSHA 1910.147(c)(7)(iii)(A): Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedures;

11. Per OSHA 1910.147(c)(7)(iii)(B): Additional retraining shall also be conducted whenever a periodic inspection under paragraph (c)(6) of this section reveals, or whenever the employer has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures;
12. Per OSHA 1910.147(c)(7)(iii)(C): The retraining shall reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary;
13. Per OSHA 1910.147(c)(7)(iii)(C): The retraining shall reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary;
14. Per OSHA 1910.147(c)(7)(iv): We shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.

## **PERIODIC INSPECTION**

We establish and maintain to conduct a periodic inspection of the energy control procedure at least annually to ensure that the procedure and the requirements of this standard are being followed, Per OSHA 1910.147(c)(6)(i).

The inspections shall include:

1. Per OSHA 1910.147(c)(6)(i)(A): The periodic inspection shall be performed by an authorized employee other than the ones(s) utilizing the energy control procedure being inspected.
2. Per OSHA 1910.147(c)(6)(i)(B): The periodic inspection shall be conducted to correct any deviations or inadequacies identified.
3. Per OSHA 1910.147(c)(6)(i)(C): Where lockout is used for energy control, the periodic inspection shall include a review, between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected.
4. Per OSHA 1910.147(c)(6)(i)(D): Where tagout is used for energy control, the periodic inspection shall include a review, between the inspector and each authorized and affected employee, of that employee's responsibilities under the energy control procedure being inspected, and the elements set forth in paragraph (c)(7)(ii) of this section.
5. Per OSHA 1910.147(c)(6)(ii): We shall certify that the periodic inspections have been performed. The certification shall identify the machine or equipment on which the energy control procedure was being utilized, the date of the inspection, the employees included in the inspection, and the person performing the inspection.

## **APPLICATION OF ENERGY CONTROL**

We shall maintain, per OSHA 1910.147(d): The Application of control. The established procedures for the application of energy control (the lockout or tagout procedures) shall cover the following elements and actions and shall be done in the following sequence:

1. Per OSHA 1910.147(d)(1): Preparation for shutdown. Before an authorized or affected employee turns off a machine or equipment, the authorized employee shall have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means to control the energy.
2. Per OSHA 1910.147(d)(2): Machine or equipment shutdown. The machine or equipment shall be turned off or shut down using the procedures established for the

machine or equipment. An orderly shutdown must be utilized to avoid any additional or increased hazard(s) to employees as a result of the equipment stoppage.

3. Per OSHA 1910.147(d)(3): Machine or equipment isolation. All energy isolating devices that are needed to control the energy to the machine or equipment shall be physically located and operated in such a manner as to isolate the machine or equipment from the energy source(s).
4. Per OSHA 1910.147(d)(4): Lockout or tagout device application. Per OSHA 1910.147(d)(4)(i) Lockout or tagout devices shall be affixed to each energy isolating device by authorized employees.
5. Per OSHA 1910.147(d)(4)(ii): Lockout devices, where used, shall be affixed in a manner to that will hold the energy isolating devices in a "safe" or "off" position.
6. Per OSHA 1910.147(d)(4)(iii): Tagout devices, where used, shall be affixed in such a manner as will clearly indicate that the operation or movement of energy isolating devices from the "safe" or "off" position is prohibited.
7. Per OSHA 1910.147(d)(4)(iii)(A): Where tagout devices are used with energy isolating devices designed with the capability of being locked, the tag attachment shall be fastened at the same point at which the lock would have been attached.
8. Per OSHA 1910.147(d)(4)(iii)(B): Where a tag cannot be affixed directly to the energy isolating device, the tag shall be located as close as safely possible to the device, in a position that will be immediately obvious to anyone attempting to operate the device.
9. Per OSHA 1910.147(d)(5): Stored energy. Per OSHA 1910.147(d)(5)(i): Following the application of lockout or tagout devices to energy isolating devices, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained, and otherwise rendered safe.
10. Per OSHA 1910.147(d)(5)(ii): If there is a possibility of reaccumulation of stored energy to a hazardous level, verification of isolation shall be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.
11. Per OSHA 1910.147(d)(6): Verification of isolation. Prior to starting work on machines or equipment that have been locked out or tagged out, the authorized employee shall verify that isolation and deenergization of the machine or equipment have been accomplished.



## Energy Control Shutdown Form

Company Name: \_\_\_\_\_

Department or Location of Equipment: \_\_\_\_\_

Equipment Name: \_\_\_\_\_ Date: \_\_\_\_\_

Identify the types of energy in this machine and how a positive lockout/tagout procedure will occur:

Check When Complete:

Form of Energy:

Control Measures:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- **TEST ALL OPERATING CONTROLS TO ENSURE POSITIVE SHUTDOWN HAS OCCURRED.**
- **ENSURE ALL LOCKS AND TAGS ARE FASTENED AT THE POINT OF IGNITION.**



## Annual Lockout/Tagout Inspection Form

Company: \_\_\_\_\_

Inspector: \_\_\_\_\_

Date: \_\_\_\_\_

1. Are lockout/tagout procedures being performed?  Yes  No

2. List Machines and Equipment inspected:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Is all lockout/tagout equipment accounted for?  Yes  No

4. List employees reviewed: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

5. List all inadequacies identified: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

6. Is there any new equipment being introduced? \_\_\_\_\_

\_\_\_\_\_

7. Is old equipment being used in new ways or powered in new ways?

\_\_\_\_\_  
\_\_\_\_\_

8. Are there any changes in voltage?

\_\_\_\_\_  
\_\_\_\_\_

9. Is there an increase or change in line operating air pressure?

\_\_\_\_\_  
\_\_\_\_\_

10. Corrective action taken: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Signature of Inspector:** \_\_\_\_\_

**Date:** \_\_\_\_\_



## Lockout/Tagout Quiz

Company: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. Energy exists in two forms, active and stored.  True  False
2. List three forms of hazardous energy:  
\_\_\_\_\_
3. List two situations where lockout/tagout is necessary:  
\_\_\_\_\_
4. A lock or tag may be removed by anyone.  True  False
5. Unauthorized cutting of locks is grounds for disciplinary action.  True  False
6. The purpose of lockout/tagout is to control hazardous energy  True  False
7. List two types of lockout devices:  
\_\_\_\_\_
8. An affected employee may lockout a piece of equipment  True  False
9. A tag is a form of communication and warning.  True  False
10. A tag must always accompany a lock.  True  False
11. It is not necessary to notify all affected employees.  True  False
12. A tag must be placed at the point of ignition.  True  False
13. You should always test equipment to see if it will start after you have locked it out.  True  False

I acknowledge that I have received information and training on the Lockout/Tagout Program. This training has given me an understanding and the importance of controlling hazardous energy. I will abide by all rules, policies, and procedures set forth by the company. If I do not understand any instruction I will ask questions.

\_\_\_\_\_  
**Employee Signature**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Instructor**

\_\_\_\_\_  
**Date**



## Emergency Removal of Lock Form

Company: \_\_\_\_\_

Name of Supervisor: \_\_\_\_\_ Date: \_\_\_\_\_

Name of LTS that owns the lock that must be removed: \_\_\_\_\_

1. Contact was made with the LTS? Yes No Status of equipment:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. The work site and equipment or machine to has been inspected to ascertain if the lock can be removed without endangering employees. Yes No Status:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Was it necessary to contact a maintenance, electrical, or a production employee to help inspect the equipment to be unlocked? Yes No If yes, list employees:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**IF YOU CANNOT ENSURE THE CONDITION OF THE MACHINE OR EQUIPMENT IS SAFE, DO NOT RELEASE IT. ONLY A MEMBER OF SUPERVISION CAN HAVE A LOCK REMOVED.**

**REMOVE THE LOCK BY CUTTING OR OTHER MEANS BY THIS ACTION YOU TAKE PERSONAL RESPONSIBILITY FOR OTHERS SAFETY. UNAUTHORIZED CUTTING IS A MANDATORY DISCIPLINE OFFENSE.**

\_\_\_\_\_  
*Signature of Supervisor*



## 12. RESPIRATORY PROTECTION PROGRAM

### POLICY

The company makes every attempt to provide for a safe and hazard free workplace. This includes managing the quality of the air in the workplace by providing a Respiratory Protection Program. Failure to comply with this or any safety policy of the company, willful tampering, or destruction of any safety equipment provided for your protection, will be grounds for disciplinary action and/or termination.

### SUMMARY

The Respiratory Protection Program outlines protection procedures so that personnel can have a complete understanding of the company's, and of their own responsibilities as participants of the program. The proper selection and use of safety equipment, respiratory hazards, record-keeping requirements, fit testing, and information and training according to 29 CFR 1910.134 are covered in this program. In those instances where engineering controls are not feasible respiratory protection will be provided.

### DEFINITIONS

*Air Purifying Respirator* - A device to protect the wearer from inhalation of harmful contaminants by cleansing the atmosphere through mechanical and/or a chemical filtering media.

*Exhalation Valve* - A device that allows exhaled air to leave the respirator and prevents outside air from entering through the valve.

*Immediately Dangerous to Life and Health (IDLH)* - Conditions that pose an immediate threat to life or health, or conditions that pose an immediate threat of severe exposure to contaminants which are likely to have adverse cumulative or delayed effects on health.

*Inhalation Valve* - A device that allows air to enter the facepiece of a respirator and prevents exhaled air from leaving the facepiece through the intake opening.

*Negative Pressure Respirator* - A respirator that in the event of a leak would leak contaminated air into the facepiece.

*Oxygen Deficiency* - An atmosphere having less than the percentage of oxygen found in normal air. Normally air contains 21% oxygen.

*Permissible Exposure Limit* - The permitted dermal or inhalation exposure to any material as designated by OSHA.

*Positive Pressure Respirator (PAPR)* - A respirator that supplies air at a positive pressure and in the event of a leak, would leak clean air out of the facepiece.

SCBA - Self Contained Breathing Apparatus

*Supplied Air Respirator* - A device to protect the wearer from inhalation of harmful contaminants by delivering contamination free breathing air to the wearer.

*Threshold Limit Value (TLV)* - An airborne concentration of a substance to which nearly all personnel can be repeatedly exposed, day after day, without adverse health effects.

*Time Weighted Average (TWA)* - The average concentration for a normal 8 hour workday and 40 hour workweek to which nearly all personnel may be repeatedly exposed, day after day, without adverse health effects.

## **RESPONSIBILITIES**

### Employees

- Use the appropriate respirator as designated.
- Maintain face condition so as to allow for a good facepiece seal.
- Inspect personal respirator before each use.
- Do not wear contact lenses when using any respirator.
- Do not wear eyeglasses when using a full-face respirator.
- Perform positive and negative fit checks prior to use.
- Responsible for assuring that their respirator is kept clean, sanitary and in good working condition.

### Management

- Select appropriate respirators and cartridges for use at the facility or job site.
- Provide information, training, and instruction to employees on the selection, use, maintenance, and care of respirators.
- Inspect emergency and non-emergency respirators.
- Fit test employees annually who use respirators.
- Provide cleaning and disinfecting capabilities for respirators.
- Perform evaluations to determine the continued effectiveness of the respirator program.
- Perform workplace and personnel monitoring.
- Fit test employees who use respirators on a quarterly basis.
- Inspect required respiratory protection work area to ensure personnel are wearing protection.

## **SELECTION OF RESPIRATORS**

The effectiveness of personal respiratory protection rests with the proper matching of the protective system to the hazard. Respirators are designed to protect against specific conditions. Using the wrong type of respirator for the conditions in which you are working is the same as not using any protection at all. It is important that you understand this because serious injuries can occur when you think you are protected when you are not. The company

will select the proper respiratory protection based on the hazards to which the worker is exposed. The safety coordinator will make all selections and only MSHA/NIOSH certified respirators will be selected and used. The supervisors and foreman will conduct periodic inspections of the work area to ensure adequate ventilation and hazard free working conditions exist.

## **RESPIRATORS TYPES**

The following respirators will be supplied to employees depending on the appropriate hazard identified:

Dust Masks - Single use disposable dust mask respirators provide protection against non-toxic airborne matter (i.e. dusts, mists)

Chemical Cartridge Respirators - Negative pressure air purifying respirators provide protection against airborne particulate matter. (i.e. organic vapors, alkaline gases, acid gases, pesticides, mists and fumes, radioactive particulate and combinations of the above materials) They include ½ mask with twin cartridges, full-face mask with twin cartridges, and disposable ½ mask units.

Powered Air Purifying Respirators (PAPR) - Positive pressure air purifying respirators supply air to the respirator by positive pressure protecting against particulate and/or gases and vapors. (Full-face mask)

Air Supplied Respirators - Provide protection against oxygen deficient or enriched environments and in situations where high or unknown concentrations of toxic gas, vapors or particulate are present. (SCBA, Air line, Loose fitting suits, and Hoods)

## **RESPIRATOR DETERMINATION**

The selection of respirators for specific jobs or work areas will be based on the following:

- type of use intended for the respirator
- toxicological characteristics of the contaminant and the potential for exposure
- possibility of skin exposure
- potential of eye irritation from contaminant
- warning properties of contaminant
- sorbet characteristics
- IDLH concentrations
- employee characteristics
- industrial exhaust which may contain elements other than hot air
- any painting or adhesive application in a space of inadequate ventilation
- when working with asbestos, silica, or lead
- or any other identified or suspected hazard at a work site whose primary point of contact is the respiratory system

## **RESPIRATOR SELECTION GUIDE**

The following chart will be used by the safety coordinator as a guide for recommending a respirator for a particular task depending on the potential hazard:

Respirator Type:

½ face respirator (air purifying)  
Full face respirator (air purifying)  
Positive pressure air purifying respirator (PAPR)  
Continuous flow  
Pressure demand  
SCBA

Allowable Usage:

10x the PEL or less  
50x the PEL or less  
50x-100x the PEL or less  
100x the PEL or less  
1000x the PEL or less  
> 1000x the PEL

The life expectancy of a respirator cartridge depends on the quantity and size of particles in the atmosphere. Therefore, when there is a change in breathing resistance (i.e. hard to inhale) stop the work activities, leave the respirator zone, and change the cartridge. You should not be able to smell any odors in the work atmosphere when the respirator fits and the cartridge is functioning properly. If you begin to smell odors, stop the work activities, leave the respirator zone, and change the cartridge. If you have any questions ask your supervisor or foreman. (Note: Some chemicals are odorless, therefore, use the breathing resistance factor as a guide for changing cartridges.)

## **CLEANING & DISINFECTING A RESPIRATOR**

A great deal of responsibility and care is assigned to the use and maintenance of respirators as personal protection equipment so that you can be assured that the mask will perform its function every time you use it. Each employee using a respirator must clean and disinfect the unit and change the filter cartridges after each use or as appropriate. The following are basic steps used to clean and disinfect the rubber material of a respirators:

- wash with warm soap and water
- rinse in a disinfecting solution
- rinse thoroughly in clean water
- air dry

Any respirator not issued to an individual employee (i.e. emergency respirator) should be returned to the safety coordinator for cleaning and disinfecting immediately after use. If you have any questions or problems ask your supervisor or foreman.

## **LOCATION & PROPER STORAGE OF RESPIRATORS**

If you are assigned a task, which requires the use of a respirator, you can obtain one by simply asking your supervisor or foreman to provide you with one. If the mask does not fit properly, request the supervisor or foreman to supply you with another mask.

- Respirators must be stored in a convenient, clean, and sanitary location
- Respirators should be stored so as to prevent any damage or deterioration to the valves and rubber material.
- Respirators should be protected from dust, sunlight, temperature extremes, moisture, and chemicals.
- Emergency use respirators should be kept in emergency storage cabinets.

The respirators can be reused many times and still maintain their filtering effectiveness. Once you have finished your work task examine the respirator for cuts and tears, and disinfect and clean. The respirator will then be resealed in a plastic bag and stored for future use. If you stop using the respirator and wish to continue your task in a short period of time, simply remove it from your face and place it in the plastic bag. The filter cartridges will continue to absorb vapors whether you are wearing the mask or not. That is why it is very important that you reseal the mask in the plastic bag if you wish to wear it again for protection against potential hazards.

## **INSPECTION OF RESPIRATORS**

The respirators are cleaned and inspected on a regular basis. All masks are stored in sealed plastic bags to keep them clean and to ensure the quality of the filter cartridges. Any respirator inspection includes the following:

- Checking tightness of connections and the condition of the facepiece, headbands, straps, valves, connecting tubes and hoses, and cartridges/canisters.
- Checking for pliability and signs of deterioration of rubber or elastomer parts.
- Replacement or repair of worn or defective parts.

A thorough inspection will occur each time respirators are used routinely. All respirators, emergency respirators, including SCBA's, will be inspected monthly and after use by the safety coordinator.

## **MEDICAL SURVEILLANCE**

It will be determined medically that an employee is physically able to wear a respirator before that individual is assigned a job requiring the use of a respirator. In addition, once a determination is made as to physical ability to wear a respirator and perform the work task, a review of the employee's health status will be made on an annual basis. The treating physician will determine what medical factors are pertinent, which tests will be performed, such as a pulmonary function test, and ultimately whether or not an employee may wear a respirator. The following information will be obtained from the employee:

- History of respiratory disease, such as, asthma, emphysema, or chronic lung disease.
- Work History, such as, previous exposure to asbestos, silica, cotton dust, beryllium, etc.
- Any other medical information, such as, physical deformities, use of medication, tolerances to increased heart rate which can produce heat stress.

The following factors will be evaluated to determine a person's ability to wear a respirator:

**Pulmonary/Lungs** - Respirator wearers should be examined for any evidence of respiratory problems. The individual may be able to perform work adequately with continuous flow air supplied respirators. Breathing difficulty may not prohibit the wearer of a respirator if the employee is reasonably comfortable using the device, and a proper medical clearance has been obtained.

**Pulmonary Function Test** - When the pulmonary function test is performed it will be under certified pulmonologist, M.D. These tests are known as FVC, Forced Vital Capacity, on DL5B, singular-breathing diffusion. There are seven tests, which take about one hour. The employee

breaths into a mouthpiece attached to a computer that tests for forced vital capacity, tidal breathing, maximum volume ventilation, functional residual capacity, diffusion test, post-dilator study-forced vital capacity, and dilator-maximum voluntary ventilation. These tests are graphed and will show possible asthma, emphysema, and obstruction.

Cardiovascular (Heart & Blood Flow) - The use of air purifying, demand type, or pressure demand supplied air devices may pose serious problems for employees with cardiovascular disease. These employees may be able to use continuous flow respirators with proper medical clearance. Consideration should be given to job assignments.

Psychological Limitations - Not clearly defined, some psychological limitations may prevent employees from wearing a respirator, such as paranoia to enclosed places. Consult a physician for advice in these situations.

Facial Limitations - Facial deformities, dentures, or excessive facial hair may prohibit wearing certain types of respirator face pieces or mouthpieces. These situations prohibit the correct seal of a respirator to the face. Excessive facial hair is more than 24-hour growth.

## **SURVEILLANCE OF WORK CONDITIONS**

The supervisors or foremen will conduct personnel and work site inspections on a routine basis to help determine the adequacy of protective equipment. Where respirators are currently in use and where exposure levels have not been documented, conservative estimates of employee potential exposure and equipment requirements will be made. In some situations, industrial hygiene monitoring will be conducted to evaluate the level of potential contaminants. The surveillance of work conditions will consist of the following:

- Identification of the substance that may cause employee exposure.
- Whether feasible engineering controls are or can be provided to reduce or eliminate exposure.
- The estimated average and potential maximum exposure concentration on a time weighted average (TWA) basis that can be reasonable expected for normal operation. This estimate will be based on an 8 hour daily exposure and include the sum of exposure during routine operation, handling, and preparation of substances used. This estimate will be made using the best information available and will include results of industrial hygiene monitoring. The estimate will be made for each job classification.
- The estimated peak exposures that can be expected from any short-term exposure. As an example during clean up and maintenance operations.
- The location in the operation, type of respirator required, and other personal protective equipment.
- Frequency of periodic monitoring to be conducted. The periodic reviews of airborne contaminants are made to ensure employee protection and meet regulatory compliance. This review includes air sampling, process and work practice, raw materials, intermediates, product review, engineering controls, and emergency procedures.

## **EMERGENCY RESPIRATORY PROTECTION**

Emergency escape conditions have the potential for unexpected and rapid release of dangerous concentrations of gases or vapors. There are three conditions for which respirators are used in emergency situations:

- Employees self rescue when process excursions, spills, etc., create a sudden potentially hazardous environment.
- For the rescue of personnel trapped or overcome in a hazardous environment.
- To shut down or repair an operation that is creating a hazardous environment.

## **RESPIRATORY PROTECTION PROGRAM REVIEW**

The safety coordinator will perform annual evaluations of the respiratory protection program to ensure the continued effectiveness of the program. This evaluation will address at a minimum:

- Employee motivation and subjective evaluation.
- Actual usage of respirators.
- Written program versus actual program.
- Modifications necessary to the program due to changes in operation, technology advances, or regulatory revisions.

## **RECORDS MAINTENANCE**

All records that are generated from the respiratory protection program are located at the corporate office. Any records generated at a particular site will be kept on file with the site superintendent. The following records will be maintained:

- industrial hygiene monitoring (if available)
- medical surveillance and job assessment data
- respirator information and training acknowledgment form
- fit test records
- emergency equipment inspection/maintenance tags
- respirator monthly inspection form

## **INFORMATION-INSTRUCTION-TRAINING**

On an annual basis, the company will provide training to all applicable personnel required to wear a respirator as part of their job. Respirator training will consist of the following elements:

- An explanation of the nature of the hazards that may be present.
- An explanation as to why respirators are required.
- A discussion of the use of respirators and the proper selection processes, including supplied air respirators.
- A discussion of the capabilities and limitations of the respirator to be used.
- A discussion of the use of respirators in emergency situations.
- A discussion of the care, inspection, and maintenance procedures for the respirator.
- Familiarization with areas and times respirators must be worn at the facility or work site.
- Each individual will be given the opportunity to handle and wear the respirator in normal air for a familiarization period.
- Each individual will be fitted with a respirator.
- Each individual will be taught two methods for testing the seal of the respirator.

Records of the annual training will be retained at the corporate office for a period of five years. Fit testing records will be retained until a more current record is available. On a quarterly

basis, the respirator wearer must demonstrate to their supervisor/foreman the ability to properly put on a respirator, select the correct cartridge/canister, and dispose of a used cartridge/canister. Any employee who fails to demonstrate compliance with those items listed above to their supervisor/foreman will be retrained.





## Respiratory Protection Assessment Form

Company Completing Assessment:

---

Job Site & Address:

---

Phone Number: \_\_\_\_\_

Job Description: \_\_\_\_\_

Recommended Respiratory Protection (circle those that apply):

Self Contained	Supplied Air	Chemical Cartridge
Dust Mask	Powered Air	Pre-Filter
Dust/Mist Filter	HEPA Filter	Dust/Mist/Fume Filter
Other: _____		

Atmospheric Monitoring Results (if known please attach):

---

---

Other Special Respiratory Protection Requirements:

---

---

Identified Respiratory Protection Zones or Areas at the Site: \_\_\_\_\_

---

Respiratory Protection Storage Area: \_\_\_\_\_

Employee Instruction & Training?      Yes      No

Employee Fit Testing?                      Yes      No

Notes:

---

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---

---

Investigator Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Note: The respirators recommended on this page are the minimal required protection. Greater protection may be necessary if monitoring data should suggest otherwise, or if warranted by the particular conditions at the time. If there are any questions about this, check with the safety coordinator.

## Air Supplied Respirators

Breathing air used by employees will be at least Grade D air at a minimum. Grade D air must:

- be at least 19.5% oxygen but no more than 23.5%
- have < 5mg/m<sup>3</sup> of hydrocarbons
- have < 20 ppm CO
- have < 1000 ppm CO<sub>2</sub>
- have no unusual odor

Breathing air used by employees may be supplied to respirators from cylinders or air compressors or through air filtering devices designed to purify plant air.

All breathing air cylinders will be tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (401 CFR Part 178).

Breathing air containers will be marked accordingly.

All airline couplings shall be incompatible with outlets for other gas systems to prevent supplying a non-respirable gas to the airline.

## Respirator Fit Testing

Anyone assigned a job in which a respirator may be worn will be fit tested to determine whether a particular size and brand of respirator provides a satisfactory seal against the face. This determination will be made using a qualitative fit test method.

- The individual to be fit tested is asked to don the respirator and wear it for a familiarization period prior to the actual fitting. When the familiarization period is over the individual will be fitted.
- A sufficient quantity of irritant smoke will be generated near the respirator wearer. The individual will then perform a series of head, face, body movements, and acknowledge whether any irritation is perceived.
- When an individual is successfully fitted with a respirator, the brand, size, and type of respirator will be recorded. The date the fitting was conducted, the signature of the individual who conducted the fitting, and the signature of the individual fitted will also be recorded.
- The employee will then be apprised of the necessary information so that he/she may obtain the correct respirator.

### Field Positive-Negative Fit Test

As part of the fit test portion of respirator training and a field fit check, the individual is taught to perform two field fit check methods to determine if the respirator is fitting each time it is donned. These two methods are:

**Negative Pressure Test** - Performed by closing off the inlet valves to the respirator, inhaling gently, and briefly holding the breath. Collapse of the face piece indicates a good fit.

**Positive Pressure Test** - Performed by closing off the exhalation valve, and exhaling gently. If a slight positive pressure builds up in the facepiece (respirator puffs outward), a good fit is indicated.

**Note:** In order to be fit tested, the individual must pass a physical exam as described in the medical surveillance section of this program. The employee must be fit tested in each type of respirator to be worn on the job (i.e. ½ face and full face). This does not apply to disposable respirators (dust mask) or positive pressure respirators.



## Respirator Specification & Fit Test Record

Company Name: \_\_\_\_\_

Employee Name: \_\_\_\_\_ Date: \_\_\_\_\_

Job Description: \_\_\_\_\_

Recommended Respiratory Protection: \_\_\_\_\_

Respirator Size: \_\_\_\_\_ Respirator Type: \_\_\_\_\_

NIOSH Approval Number: \_\_\_\_\_

Fit Test Performed: \_\_\_\_\_

Any Limitations? Yes No If Yes, explain: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Respirator Maintenance:

Cleaning: \_\_Daily \_\_Weekly Other \_\_\_\_\_

Disposal: \_\_Daily \_\_Weekly Other \_\_\_\_\_

Cleaning By: \_\_Individual Other \_\_\_\_\_

Employee Signature: \_\_\_\_\_

Individual Who Conducted Fit Test: \_\_\_\_\_

Approved By: \_\_\_\_\_



## Respirator Monthly Inspection Form

Company Name: \_\_\_\_\_ Department: \_\_\_\_\_

Employee Name: \_\_\_\_\_ Date: \_\_\_\_\_

Type of Respirator: \_\_\_\_\_

### Respirator Inspection Checklist

<u>Component</u>	<u>Satisfactory</u>	<u>Non-Satisfactory</u>	<u>Explanation</u>
Face Piece	_____	_____	_____
Valves	_____	_____	_____
Cartridge	_____	_____	_____
Straps	_____	_____	_____
Rubber	_____	_____	_____
Storage	_____	_____	_____
Other _____	_____	_____	_____
Other _____	_____	_____	_____
Other _____	_____	_____	_____
Other _____	_____	_____	_____

Parts Replaced: \_\_\_\_\_

\_\_\_\_\_

Parts on Order: \_\_\_\_\_

\_\_\_\_\_

Employee Signature:

\_\_\_\_\_



## Respiratory Protection Program Quiz & Acknowledgment of Training

Company: \_\_\_\_\_

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. Air Purifying Respirator - A device to protect the wearer from inhalation of harmful contaminants by cleansing the atmosphere through mechanical and/or a chemical filtering media. \_\_\_True\_\_\_False
2. Oxygen Deficiency - An atmosphere having less than the percentage of oxygen found in normal air. Normally air contains 21% oxygen. \_\_\_\_\_True \_\_\_\_\_False
3. Supplied Air Respirator - A device to protect the wearer from inhalation of harmful contaminants by delivering contamination free breathing air to the wearer. \_\_\_\_\_True \_\_\_\_\_False
4. Always perform a positive and negative fit check before each use. \_\_\_\_\_True \_\_\_\_\_False
5. The respirator user is responsible for assuring that their respirator is kept clean, sanitary, and in good working condition. \_\_\_\_\_True \_\_\_\_\_False
6. Each employee using a respirator must clean and disinfect the unit and change the filter cartridges after each use or as appropriate. \_\_\_\_\_True \_\_\_\_\_False
7. The basic respirator cleaning steps include:
  - a. wash with warm soap and water
  - b. rinse in a disinfecting solution
  - c. rinse thoroughly in clean water
  - d. air dry
  - e. All of the above
8. Any storage of a respirator includes:
  - A. Respirators must be stored in a convenient, clean, and sanitary location
  - B. Respirators should be stored so as to prevent any damage or deterioration to the valves and rubber material.
  - C. Respirators should be protected from dust, sunlight, temperature extremes, moisture, and chemicals.
  - D. All of the above
9. Any respirator inspection includes the following:
  - A. Checking tightness of connections and the condition of the respirator which can include the facepiece, headbands and straps, valves, connecting tubes and hoses, and cartridges/canisters.
  - B. Checking for pliability and signs of deterioration of rubber or elastomer parts.
  - C. Replacement or repair of worn or defective parts.
  - D. All of the above

I acknowledge that I have received instruction, information, and training on the company Respiratory Protection Program. I understand the importance of the proper use, maintenance, storage, and cleaning of respirators provided to me. I have been instructed on the Positive-Negative Fit Test procedure and will complete the test before starting my assigned job task. If I do not understand any instructions I will ask questions.

Participants Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Instructors Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## 13. FALL PROTECTION PROGRAM

### PURPOSE

To provide guidelines to ensure the safety of all employees that may be exposed to fall hazards.

### SCOPE

This procedure applies to all divisions and on-site construction and maintenance projects, including contractors under contract with the company.

### DEFINITIONS

*100% Fall Protection* means workers six feet above the floor or ground level shall be protected from the possibility of a fall hazard which could result in injury or death.

*100% Tie Off* means persons working in areas where the use of safety harnesses with lanyard is required shall be used.

*Anchorage* means a secure point of attachment for lifelines, lanyards, or deceleration devices, which is capable of withstanding the forces specified in this procedure.

*Approved* means for the purpose of this section, tested and certified by the manufacturer, or any recognized national testing laboratory, possess that the strength requirements specified in this section.

*Full Body Harness* means a configuration of connected straps to distribute a fall arresting force over at least the thighs, shoulders and pelvis, with provisions for attaching a lanyard, lifeline, or deceleration devices.

*Full Body Harness System* means a Class III full body harness and lanyard which is attached to an anchorage meeting the requirements of applicable OSHA or state regulations, attached to a horizontal or vertical lifeline, which is properly secured to an anchorage(s) capable of withstanding the forces specified in the applicable sections of the applicable OSHA or state regulations.

*Catenary Line* (see horizontal lifeline)

*Christmas Treeing* means the lifting of more than one individual load from the load hook of a crane.

*Competent Person* means an individual knowledgeable of fall protection equipment. Including the manufactures recommendations and instructions for the proper use, inspection, and maintenance, and who is capable of identifying existing and potential fall hazards. This person has the authority to take prompt corrective action to eliminate those hazards, and is

knowledgeable of the rules contained in this section regarding the erection, use, inspection and maintenance of fall protection equipment and systems.

*Continuous Fall Protection* means the design and use of a fall protection system such that no exposure to an elevated fall hazard exists. This may require more than one fall protection system or a combination of protective measures.

*Control Zone* means the area between the warning line and the unprotected sides and edges of a building/structure floor or roof surface.

*Deceleration Device* means any mechanism, such as a rope grab, rip stitch lanyard, specifically woven lanyard or automatic self-retracting lifeline (yo-yo), which serves to dissipate more energy during a fall arrest than does a standard line or strap webbing lanyard.

*Drop Line* means an independent lifeline secured to an upper anchorage for the purpose of attaching a lanyard or a fall protection device. This line must be at least a 3/4" manila rope or a 1/2" nylon rope.

*Fall Arrestor System* means the use of multiple, approved safety equipment components such as, body harness, lanyards, deceleration devices, drop lines, horizontal and/or vertical lifelines and anchorages, interconnected and rigged as to arrest a free fall. Compliance with anchorage strength requirements specified in the applicable sections of OSHA or state regulations shall constitute approval of the anchorage.

*Fall Protection Work Plan* means a written document in which the employer identifies all areas on the job site where a fall hazard of 6 feet or greater exists. The plan describes the method or methods of fall protection to be utilized to protect employees, and includes the procedures governing the installation, use, inspection, and removal of the fall protection methods, which are selected by the employer.

*Fall-Restraint System* means an approved device and any necessary components that function together to restrain an employee in such a manner as to prevent that employee from falling to a lower level. When standard guardrails are selected, compliance with applicable sections governing their construction and use shall constitute approval.

*Fall Distance* means the actual distance from the employee's support to the level where a fall would stop.

*Hardware* means snap hooks, D-rings, buckles, carabiniers, adjusters, O-rings, that are used to attach the components of a fall protection system together.

*Horizontal Lifeline* means a rail, wire rope, or synthetic rope that is installed in a horizontal plane between two anchorages and used for attachment of a worker's lanyard or lifeline device while moving horizontally; used to control dangerous pendulum like swing falls.

*Lanyard* means a flexible line of webbing, rope, or cable used to secure a safety harness to a lifeline or an anchorage point usually 2, 4, or 6 feet long.

*Leading Edge* means the advancing edge of a floor, roof, or form work which changes location as additional floor, roof, or form work sections are placed, formed, or constructed. Leading



edges not actively under construction are considered to be "unprotected sides and edges" and positive methods of fall arrest or fall restraint shall be required to protect exposed workers.

*Lifeline* means a vertical line from a fixed anchorage or between two horizontal anchorages, independent of walking or working surfaces, to which a lanyard or device is secured. Lifeline as referred to in this text is one that is part of a fall protection system used as back-up safety for an elevated employee.

*Locking Snap Hook* means a connecting snap hook that requires two separate forces to open the gate; one to deactivate the gatekeeper and a second to depress and open the gate which automatically closes when released; used to minimize roll-out or accidental disengagement.

*Low-Pitched Roof* means a roof having a slope equal to or less than 4/12

*Positioning Belt* means a single or multiple strap that can be secured around the employee's body to hold the user in a work position; for example, a lineman's belt, a rebar belt, or saddle belt.

*Restraint Line* means a line from a fixed anchorage or between two anchorages to which an employee is secured in such a way as to prevent the worker from falling to a lower level.

*Roll-Out* means unintentional disengagement of a snap hook caused by the gate being depressed under torque or contact while twisting or turning, a particular concern with single-action snap hooks that do not have a locking gatekeeper.

*Rope Grab* means a fall arrester that is designed to move up or down a lifeline suspended from a fixed overhead or horizontal anchorage point, or lifeline, to which the belt or harness is attached. In the event of a fall, the rope grab locks onto the lifeline rope through compression to arrest the fall. The use of a rope grab device is restricted for fall restraint applications.

*Safety Monitor System* means a system of fall restraint used in conjunction with a warning line system only, where a competent person as defined by this part, having no additional duties, monitors the proximity of employees to the fall hazard when working between the warning line and the unprotected sides and edges, including, the leading edge of a low pitched roof or walking/working surface.

*Self-Retracting Lanyard* means a deceleration device which contains a drum-wound line which may be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which after onset of a fall, automatically locks the drum and arrests the fall.

*Shock Absorbing Lanyard* means a flexible line of webbing, cable, or rope used to secure a body belt or harness to a lifeline or anchorage point that has an integral shock absorber.

*Single-Action Snap Hook* means a connecting snap hook that requires a single force to open the gate which automatically closes when released.

*Snap Hook* means a self-closing connecting device with a gatekeeper latch or similar arrangement that will remain closed until manually opened. This includes single action snap

hooks that open when the gatekeeper is depressed and double action snap hooks that require a second action on a gatekeeper before the gate can be opened.

*Static Line* (see horizontal lifeline)

*Strength Member* means any component of a fall protection system that could be subject to loading in the event of a fall.

*Steep Roof* means a roof having a slope greater than 4/12

*Unprotected Sides & Edges* means any sides or edges (except at entrances to points of access) of a floor, roof, ramp or runway where there is no wall or guardrail system as defined in this section.

*Walking/Working Surface* means for the purpose of this section, any area whose dimensions are 45 inches or greater in all directions, through which employees pass or conduct work.

*Warning Line System* means a barrier erected on a walking and working surface or a low pitch roof (4/12 or less), to warn employees that they are approaching an unprotected fall hazard(s).

*Work Area* means that portion of a walking/working surface where job duties are being performed.

## REFERENCES

29 CFR 1926.21 - 28 - 500 - 750

## GENERAL REQUIREMENTS

- Fall protection is required on low pitched roofs, floors and other working/walking surfaces with unprotected edges and sides when working/walking surface is more than 6 feet above lower levels. If the employee can fall 6 feet or more he/she must be protected.
- Holes more than 6 feet above lower levels shall be protected by covers or guardrail systems. Covers shall be closed when the hole is not in use, and when the cover is removed the employee shall have personal fall protection, or guardrails. Covers shall be secured to prevent accidental displacement and marked with appropriate hazard warning signs.
- The provisions of this fall protection program do not apply when employees are making inspections, investigations, or assessments of the job site prior to actual start of construction work or after all construction work has been completed. In these instances, the individual assures that the activity is conducted in the safest possible manner.
- Components of fall restraint systems shall be inspected prior to each use for mildew, wear, damage, and other deterioration, and defective components shall be removed from service if their function or strength have been adversely affected.

## **PROCEDURE**

Prior to the start of work where new facilities will be constructed and/or where work will be performed at a client's existing facilities, construction management shall make an initial survey of the types of fall hazards which are expected to be encountered and develop a plan relative to providing the kind and number of safe guards that shall protect against these fall hazards.

### **FALL PROTECTION WORK PLAN**

Project construction management shall develop and implement a written fall protection work plan including each area of the work place where the employees are assigned and where fall hazards of 6 feet or more exist. It is recommended that the written plan be upgraded every month. The fall protection work plan shall:

- Identify all fall hazards in the work area as the project work progresses.
- Describe the method of fall arrest or fall restraint to be provided.
- Describe the correct procedures for the assembly, maintenance, maps on, and disassembly of the fall protection system to be used.
- Describe the correct procedures for the handling, storage, and securing of tools and materials.

Describe the method of providing overhead protection for workers who may be in, or pass through the area below the work site.

- Be available on the job site for inspection.
- Ensure that employees are trained and instructed.
- Inspect fall protection devices and systems to ensure compliance with applicable parts of this procedure.
- Training of employees as required by this section shall be documented and shall be available on the job site.

### **FALL RESTRAINT & FALL ARREST SYSTEMS**

When employees are exposed to a hazard of falling from a location six feet or more in height, project management shall ensure that fall restraint or fall arrest systems are provided, installed, and implemented according to the following requirements. Fall restraint and arrest protection shall consist of:

#### **STANDARD GUARDRAILS**

- Top rail 39 to 45 inches above the working surface, and must be smooth and of a shape to permit grasping easily.

- Midrail (center between riser and top rail), screen or mesh (continuous) or intermediate vertical members (not more than 19 inches apart) shall be provided between the top rail and working surface.
- Guardrail systems shall be capable of supporting 250 pounds in the downward or outward direction at any point along the top edge.
- Midrail shall support a 150-pound load in the downward or outward direction.
- Top rails and midrails shall be at least 1/4-inch nominal thickness, plastic or steel banding shall not be used.
- Chain gates shall be used to cover hoisting areas, and the guardrails shall extend 4 feet minimum on either side of the opening.
- Rails shall be so constructed so as not to deflect under test loads. If cable or rope is used it shall have tension adjusting capability and remain taut at all times.
- Wood Railings: Wood components shall be minimum 1500 lb-ft/in<sup>2</sup> fiber (stress grade) construction grade lumber; posts shall be at least 2-inch by 4-inch (5 cm x 10 cm) lumber spaced not more than 8 feet (2.4 m) apart on centers; the top rail shall be at least 2-inch by 4-inch (5 cm x 10 cm) lumber, the intermediate rail shall be at least 1-inch by 6-inch (2.5 cm x 15 cm) lumber.
- Pipe Railings: Post, top rails, and intermediate railings shall be at least one and one-half inches nominal diameter (schedule 40 pipe) with posts spaced not more than 8 feet (2.4 m) apart on centers.
- Structural Steel Railings: Posts, top rails, and intermediate rails shall be at least 2-inch by 2-inch (5 cm x 10 cm) by 3/8-inch (1.1 cm) angles, with posts spaced not more than 8 feet (2.4 m) apart on centers.

### HARNESSES, LANYARDS, LIFELINES & ANCHOR POINTS

- An approved Class III full body harness shall be used.
- All full body harness and lanyard hardware assemblies shall be capable at withstanding a tensile loading of 4,000 pounds without cracking, breaking, or taking a permanent deformation.
- Anchorage points used for fall restraint shall be capable of supporting four (4) times the intended load.
- Restraint protection shall be rigged to allow the movement of employees only as far as the sides and edges of the walking/working surface.
- Full body harness will be attached to securely rigged restraint lines.

- Rope grab devices are prohibited for fall restraint applications unless they are part of a fall restraint system designed specifically for the purpose by the manufacturer and used in strict accordance with the manufacturer's recommendations and instructions.
- The project management shall ensure component compatibility.
- Body harness system or components subject to impact loading shall be immediately removed from service and shall not be used again for employee protection unless inspected and determined by a competent person to be undamaged and suitable for reuse.
- All safety lines and lanyards shall be protected against being cut or abraded.
- Body harness system shall be rigged to minimize a free fall distance with a maximum free fall distance allowed of 6 feet, and such that the employee will not contact any lower level.
- Hardware shall be drop forged, pressed or formed steel, or made of materials equivalent in strengths.
- Hardware shall have a corrosion-resistant finish and all surfaces and edges shall be smooth to prevent damage to the attached body harness or lanyard.
- When vertical lifelines (droplines) are used, not more than one employee shall be attached to any one lifeline.
- Full body harness systems shall be secured to anchorages capable of supporting 5,000 pounds per employee except when self-retracting lifelines or other deceleration devices are used which limit free fall to two feet; anchorages shall be capable of withstanding 3,000 pounds.
- Independent lifelines (droplines) shall have a minimum tensile strength of 5,200 pounds, except that self-retracting lifelines and lanyards which automatically limit free fall distance to two feet or less shall have a minimum tensile strength of 3,000 pounds.
- Horizontal lifelines shall have a tensile strength capable of supporting a fall impact load of at least 5,200 pounds per employee using the lifeline, applied anywhere along the lifeline.
- Lanyards shall have a minimum tensile strength of 5,200 pounds.
- All components of body harness systems whose strength is not otherwise specified in subsection in this section shall be capable of supporting a minimum fall impact load of 5,000 pounds applied at the lanyard point of connection.
- Snap-hooks shall not be connected to loops made in webbing-type lanyards.
- Snap-hooks shall not be connected to each other.

- Not more than one snap-hook shall be connected to any one D-ring.
- Independent lifelines used on rock-scaling operations, or in areas where the lifeline may be subjected to cutting or abrasion, shall be a minimum of 7/8-inch wire core manila rope. For all other lifeline applications, a minimum of 3/4-inch manila or equivalent, with a minimum breaking strength of 5,000 pounds, shall be used.
- Safety harnesses, lanyards, lifelines, independently attached or attended, shall be used while performing the following types of work when other equivalent type protection is not provided. Work in hoppers, bins, silos, tanks, or other confined spaces, work on hazardous slopes, or dismantling safety nets, working on poles or from boatswains chairs at elevations greater than six feet, swinging scaffolds or other unguarded locations, and work on skips and platforms used in shafts by crews when the skip or cage does not include the opening to within one foot of the sides of the shaft, unless cages are provided.
- Full body harness systems shall be inspected prior to each use for mildew, wear, damage, and other deterioration and defective components shall be removed from service if their function or strength has been adversely affected.

### SAFETY NETS

- Safety nets shall be installed as close as practicable under the walking/working surface on which employees are working, but in no case more than 10 feet below such levels.
- Safety nets shall extend outward at least 8 feet from the outermost projection of the work surface.
- Safety nets shall be installed with sufficient clearance under them to prevent contact with the surface or structures below when subjected to an impact force equal to the drop test specified in the Full Body Harness section.
- Safety nets and their installations shall be capable of absorbing an impact force equal to that produced by the drop test specified in the Full Body Harness section.
- Safety nets and safety net installations shall be drop-tested at the job site before used as a fall protection system. The drop-test shall consist of a 400-pound bag of sand 30+2 inches in diameter dropped into the net from the highest walking/working surface on which employees are to be protected. Exception: when the employer can demonstrate that a drop-test is not feasible or practicable, the net and net installation shall be certified by a qualified person to be in compliance with the provisions of this section.
- Safety nets shall be inspected weekly for mildew, wear, damage, and other deterioration, and defective components shall be removed from service.
- Materials, scrap pieces, and tools which have fallen into the safety net shall be removed as soon as possible from the net and at least before the next work shift.

- The maximum size of each safety net mesh opening shall not exceed 36 square inches nor be longer than six inches on any side measured center-to-center of mesh ropes or webbing. All mesh crossing shall be secured to prevent enlargement of the mesh opening.
- Each safety net (or section of it) shall have a border rope for webbing with a minimum breaking strength of 5,000 pounds.
- Connections between the safety net panels shall be as strong as integral net components and shall be spaced not more than six inches apart.

### CATCH PLATFORMS

- A catch platform shall be installed within ten vertical feet of the work area.
- The catch platforms width shall equal the distance of the fall but shall be a minimum of 45 inches wide and shall be equipped with standard guardrails on all open sides.

### **GUARDING OF LOW-PITCHED ROOF PERIMETERS**

During the performance of work on low pitched roofs with a ground to eaves height greater than 6 feet, project management shall ensure that employees engaged in such work be protected from falling from all unprotected sides and edges of the roof as follows:

- By the use of a fall restraint or fall arrest system, as defined in applicable OSHA or state regulations.
- By the use of a warning line system erected and maintained as provided in this section and supplemented for employees working between the warning line and the roof edge by the use of a safety monitor system as described in 29 CFR 1926.500.
- Mechanical equipment shall be used or stored only in areas where employees are protected by a warning line system, or fall restraint, or fall arrest systems as described in applicable OSHA or state regulations. Mechanical equipment may not be used or stored where the only protection is provided by the use of a safety monitor.
- The general provisions section of this section do not apply at points of access such as stairways, ladders and ramps, or when employees are on the roof only to inspect, investigate, or estimate roof level conditions. Roof edge materials handling areas and materials storage areas shall be guarded as provided in the roof edge materials handling section of this section.
- Employees engaged in built-up roofing on low-pitched roofs less than 50 feet wide may elect to utilize a safety system without warning lines where the use of hot tar poses an additional hazard to workers.

### **WARNING LINES SYSTEMS & ACCESS PATHS**

- Warning lines shall be erected around all sides of the work area.

- A warning line system as prescribed in 29 CFR 1926.500 and supplemented by the use of a safety monitor system as prescribed in 29 CFR 1926.500 to protect any employee engaged in duties between the forward edge of the warning line and the unprotected sides and edges, including the leading edge, of a low pitched roof or walking/working surface.
- Warning line and safety monitor systems as described in 29 CFR 1926.500 are prohibited on surfaces exceeding a 4/12 pitch, and on any surface whose dimensions are less than 45 inches in all directions.
- When mechanical equipment is not being used, the warning line shall be erected not less than six feet from the edge of the roof.
- When mechanical equipment is being used, the warning line shall be erected not less than six feet from the roof edge which is parallel to the direction of mechanical equipment operation, and not less than 10 feet from the roof edge which is perpendicular to the direction of mechanical equipment operation.
- The warning line shall consist of a rope, wire, or chain and supporting stanchions.
- The rope, wire, or chain shall be flagged at not more than six feet intervals with high-visibility material.
- The rope, wire, or chain shall be rigged and supported in such a way that its lowest point (including sag) is no less than 39 inches from the roof surface and its highest point is no more than 45 inches from the roof surface,
- After being erected, with the rope, wire or chain attached, stanchions shall be capable of resisting, without tipping over, a force of at least 16 pounds applied horizontally against the stanchion, 30 inches above the roof surface, perpendicular to the warning line, and in the direction of the roof edge.
- The rope, wire, or chain shall have a minimum tensile strength of 500 pounds, and after being attached to the stanchions, shall be capable of supporting, without breaking, the loads applied to the stanchions.
- The line shall be attached at each stanchion in such a way that pulling of one section of line between stanchions will not result in slack being taken up in adjacent sections before the stanchion tips over.
- Access paths - points of access, materials handling areas, and storage areas shall be connected to the work area by a clear access path formed by two warning lines.
- When the path to a point of access is not in use, a rope, wire or chain, equal in strength and height to the warning line, shall be placed at the point where the path intersects the warning line erected around the work area.



## **ROOF EDGE MATERIAL HANDLING AREAS & MATERIALS STORAGE**

Employees working in a roof edge materials handling or materials storage area location on a low-pitched roof with a ground to work area height greater than six feet shall be protected from falling along all unprotected roof sides and edges of the area.

- When guardrails are used at hoisting areas, a minimum of four feet of guardrail shall be erected on each side of the access point through which materials are hoisted.
- A chain or gate shall be placed across the opening between the guardrail sections when hoisting operations are not taking place.
- When guardrails are used at bitumen pipe outlets, a minimum of four feet of guardrail shall be erected on each side of the pipe.
- When safety harness systems are used, they shall not be attached to the hoist.
- When fall restraint systems are used, they shall be rigged to allow the movement of employees only as far as the roof edge.
- Materials shall not be stored within six feet of the roof edge unless guardrails are erected at the roof edge.

## **LEADING EDGE CONTROL ZONE**

When performing leading edge work, project management shall ensure that a control zone be established according to the following requirements:

- The control zone shall begin a minimum of six feet back from the leading edge to prevent exposure by employees who are not protected by fall restraint or fall arrest systems.
- The control zone shall be separated from other areas of the low-pitched roof or walking/working surface by the erection of a warning line system.
- The warning line system shall consist of wire, rope, or chain supported on stanchions, or a method which provides equivalent protection.
- The spacing of the stanchions and support of the line shall be such that the lowest point of the line (including sag) is not less than 39 inches from the walking/working surface, and its highest point is not more than 45 inches from the working/walking surface.
- Each line shall have a minimum tensile strength of 500 pounds.
- Each line shall be flagged or clearly marked with high visibility materials at intervals no to exceed six feet.

## SAFETY MONITOR SYSTEM

When positive means of fall protection as described in OSHA are not utilized, a safety monitor system as described in 29 CFR 1926.500 (g)(iii) shall be implemented to protect employees working between the forward edge of the warning line and the leading edge.

- A safety monitor system may be used in conjunction with a warning line system as a method of guarding against falls during work on low pitched roofs and leading edge work only.
- When selected, the employer shall ensure that the safety monitor system shall be addressed in the fall protection work plan, include the name of the safety monitor(s) and the extent of their training in both the safety monitor and warning line systems, and shall ensure that the following requirements are met:
- The safety monitor system shall not be used when adverse weather conditions create additional hazards.
- A person acting in the capacity of a safety monitor shall be trained in the function of both the Safety monitor and warning lines systems.
- The safety monitor shall be (1) a competent person as defined in 29 CFR 1926.32(f); (2) Have control authority over the work as it related to fall protection; (3) Be instantly distinguishable over members of the work crew; (4) Engage in no other duties while acting as safety monitor; (5) Be positioned in relation to the workers under their protection, so as to have a clear, unobstructed view and be able to maintain normal voice communication; (6) Not supervise more than eight exposed employees at one time.
- Control zone workers shall be distinguished from other members of the crew by wearing a high visibility vest only while in the control zone.

## PROTECTION FROM FALLING OBJECTS

When an employee is exposed to falling objects (overhead hazards), hard hats shall be mandatory on the job site and one of the following measures shall be implemented:

- Erect toeboards, screens, or guardrail systems to prevent objects from falling from higher levels.
- Erect a canopy structure and keep potential falling objects far enough from the edge of the higher level so that those objects would not go over the edge if they were accidentally displaced.
- Barricade the area to which objects could fall, prohibit employees from entering the barricaded area, and keep objects that may fall far enough away from the edge of a

higher level so that those objects would not go over the edge if they were accidental displaced.

## **ADDITIONAL PROCEDURES THAT REQUIRE THE USE OF FALL RESTRAINT AND/OR FALL ARREST PROTECTION FOR EMPLOYEES ARE LISTED BELOW**

- Ladder
- Suspended Scaffold
- Two Points Suspension Scaffold
- Boatswains Chain Scaffold
- Needle Beam Scaffold
- Ladder Jack Scaffold
- Window Jack Scaffold
- Float or Ship Scaffold
- Pump Jack Scaffold
- Boom Supported Elevating Work Platforms
- Vehicle Mounted Elevated and Rotating Work Platform
- Crane and Derrick Supported Work Platforms
- Open Load Floors
- Pile Driving
- Vertical Slip Forms
- Placing and Removal of Forms
- Steel Erection Temporary Floors
- Tunneling (Skips and Platforms)

## **TRAINING & INFORMATION**

Any employee who might be exposed to fall hazards will be provided with training and information. The training program enables each employee to recognize the hazards of falling and the procedures to follow in order to minimize these hazards. The following topics are included in the fall protection training program:

- The fall protection standards.
- The nature of fall hazards in the work area.
- The correct procedures for erecting, maintaining, disassembling, and inspecting fall protection systems to be used.
- The use and operation of protection methods being used (guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used).
- The role of each employee in the safety monitoring system when it is used. The limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roofs.

- The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection.
- The role of employees in fall protection plans.

All fall protection training is documented on a training certification record. Training and retraining shall be conducted on an as needed basis.

## **RECORDS MAINTENANCE**

- The Fall Protection Plan shall be maintained at the project and corporate office.
- Documentation of training in the use of fall protection shall be kept on file at the project of corporate office.

## **ACCIDENT INVESTIGATION**

All accidents that result in injury to employees regardless of their nature shall be investigated and reported. It is an integral part of any safety program that documentation takes place as soon as possible so that the cause and means of prevention can be identified to prevent reoccurrence.

In the event that a employee falls or some other related, serious incident occur, this plan shall be reviewed to determine if additional practices, procedures, or training need to be implemented to prevent similar types of falls or incidents from occurring.

## **TRAINING PROGRAM**

We establish and maintain to provide a training program for each employee who might be exposed to fall hazards. The program shall enable each employee to recognize the hazards of falling and shall train each employee in the procedures to be followed in order to minimize these hazards, Per OSHA 1926.503(a)(1).

We establish and maintain to mandatory Certification of training, Per OSHA 1926.503(b).

1. Per OSHA 1926.503(b)(1): We shall verify compliance with paragraph (a) of this section by preparing a written certification record. The written certification record shall contain the name or other identity of the employee trained, the date(s) of the training, and the signature of the person who conducted the training or the signature of the employer. If the employer relies on training conducted by another employer or completed prior to the effective date of this section, the certification record shall indicate the date the employer determined the prior training was adequate rather than the date of actual training.
2. Per OSHA 1926.503(b)(2): The latest training certification shall be maintained.

We establish and maintain to mandatory Retraining, Per OSHA 1926.503(c). When we have reason to believe that any affected employee who has already been trained does not have the understanding and skill required by paragraph (a) of this section, we shall retrain each such

employee. Circumstances where retraining is required include, but are not limited to, situations where:

1. Per OSHA 1926.503(c)(1): Changes in the workplace render previous training obsolete;
  2. Per OSHA 1926.503(c)(2): Changes in the types of fall protection systems or equipment to be used render previous training obsolete;
  3. Per OSHA 1926.503(c)(3) Inadequacies in an affected employee's knowledge or use of fall protection systems or equipment indicate that the employee has not retained the requisite understanding or skill.
- 
- **Per OSHA 1926.503(a)(2):** The employer shall assure that each employee has been trained, as necessary, by a competent person qualified in the following areas: **Per OSHA 1926.503(a)(2)(i):** The nature of fall hazards in the work area; **Per OSHA 1926.503(a)(2)(ii):** The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used; **Per OSHA 1926.503(a)(2)(iii):** The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used; **Per OSHA 1926.503(a)(2)(iv):** The role of each employee in the safety monitoring system when this system is used; **Per OSHA 1926.503(a)(2)(v):** The limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roofs; **Per OSHA 1926.503(a)(2)(vi):** The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection; and **Per OSHA 1926.503(a)(2)(vii):** The role of employees in fall protection plans; **Per OSHA 1926.503(a)(2)(viii):** The standards contained in this subpart.

## **PROMPT RESCUE IN THE EVENT OF A FALL**

We adhere to provide prompt rescue of employees in the event of a fall or shall assure that employees are able to rescue themselves, Per OSHA 1926.502(d)(20).



## Project Fall Protection Survey Form

This fall protection plan is specific for the following project:

Company Name: \_\_\_\_\_

Job Name & Address: \_\_\_\_\_

Erecting Company: \_\_\_\_\_

Date Prepared: \_\_\_\_\_ Plan Prepared By: \_\_\_\_\_

Plan Approved By: \_\_\_\_\_ Plan Supervised By: \_\_\_\_\_

List the areas and fall protection systems required on this site:

<u>Area</u>	<u>Fall Protection System</u>
_____	_____
_____	_____
_____	_____

If applicable, list all non-conventional fall protection, areas, and tasks required on this site:

<u>Fall Protection System</u>	<u>Area</u>	<u>Task</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Document why the use of conventional fall protection systems are infeasible or why their use would create a greater hazard.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

List other measures taken to reduce or eliminate fall hazards.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

NOTE: All employees must receive training and information on the fall protection systems that will be used on this project. Once the training is complete please post this plan and training sign-in at the project.



## Fall Protection Quiz & Acknowledgment of Training

Company: \_\_\_\_\_

Name: \_\_\_\_\_ Date: \_\_\_\_\_

- Hole means a gap or void 2 inches (5.1 cm) or more in its least dimension, in a floor, roof, or other walking/working surface. \_\_\_\_\_ True \_\_\_\_\_ False
- Employees on walking/working surfaces shall be protected from falling through holes (including skylights) more than 6 feet (1.8) above lower levels, by personal fall arrest systems, covers, or guardrail systems erected around such holes. \_\_\_\_\_ True \_\_\_\_\_ False
- Employees shall be protected from tripping in, stepping into, and objects falling through holes by covers. When the hole is not in use, they shall be closed, secured to prevent accidental displacement, and marked with hazard warning. \_\_\_\_\_ True \_\_\_\_\_ False
- Harness and lanyards shall be inspected prior to each use for mildew, wear, damage, and other deterioration, and defective components shall be removed from service if their function or strength have been adversely affected. \_\_\_\_\_ True \_\_\_\_\_ False
- Points of access, materials handling areas, and storage areas shall be connected to the work area by a clear access path formed by two warning lines. \_\_\_\_\_ True \_\_\_\_\_ False
- Always inspect ladders before each use. Examine the rungs and rails for cracks, breaks or missing supports. Examine the pulleys, ropers, and locks for signs of excessive wear. Examine the footings and pads for signs of wear. \_\_\_\_\_ True \_\_\_\_\_ False
- Falls can be prevented or their effects lessened by utilizing Safe Work Practices, Planning, and Personal Fall Protection Equipment. \_\_\_\_\_ True \_\_\_\_\_ False
- Leading edges not actively under construction are considered to be "unprotected sides and edges" and positive methods of fall protect shall be required to protect exposed workers. \_\_\_\_\_ True \_\_\_\_\_ False
- Guardrail systems shall be capable of supporting 250 pounds in the downward or outward direction at any point along the top edge. \_\_\_\_\_ True \_\_\_\_\_ False
- Body harness systems shall be secured to anchorages capable of supporting 5,000lbs. True False
- The safety monitor shall be (1) a competent person as defined in 29 CFR 1926.32(f), (2) have control authority over the work as it related to fall protection, (3) be instantly distinguishable over members of the work crew, (4) engage in no other duties while acting as safety monitor, (5) be positioned in relation to the workers under their protection, so as to have a clear, unobstructed view and be able to maintain normal voice communication, (6) not supervise more than eight exposed employees at one time. True False

I acknowledge that I have received instruction, information, and training on the Fall Protection Program and the specific requirements on this job site. I understand the importance of the information presented to me and I will follow all rules, policies, and procedures set forth by the company. If I do not understand any instructions I will ask questions.

Participant Signature: \_\_\_\_\_

Instructor Signature: \_\_\_\_\_

## **14. CONFINED SPACE PROGRAM**

### **PURPOSE**

This procedure establishes safe practices for entering and/or working in confined spaces which may be hazardous to employees.

### **SCOPE**

This procedure applies to all company divisions, on-site construction and maintenance projects.

### **REFERENCES**

29 CFR 1926.21 and 352  
29 CFR 1910.134 and 146

### **RESPONSIBILITY**

- The company will develop a written site specific confined space procedure when appropriate, complete training of all personnel required to work in confined space operations and monitor and administer this procedure.

### **INTRODUCTION**

Confined spaces may contain many safety and health hazards. They may include, but are not limited to: asphyxiation (unconscious or lack of oxygen), falls, burns, engulfment, chemical exposure, job function.

Following confined space procedures and safe work practice are essential to protect your health and safety. The goal is to control confined space environments and prevent accidents which could lead to injury and death. If you have a question about a confined space, ask your supervisor.

Most fatalities and injuries occur because employees are unaware of the potential hazards in confined spaces. Confined space entry can present many health and safety hazards. Personnel must be properly equipped to handle these situations. Millions of workers enter confined spaces each year and some of those never make it out alive. More than half of confined space deaths and accidents result from situations when a person rushed in to rescue a fellow employee, and they were not prepared or protected.

The objective of this program is to inform company employees to follow safe entry procedures and develop a respect for potential hazards in confined spaces. Serious consequences can result from the use of untrained personnel or failure to observe safe work practices. The goal is to eliminate accidents caused by confined space entry hazards.



## DEFINITIONS

Confined Space, means any space having a limited entrance or egress which is subject to the accumulation of toxic or flammable contaminants or the development of an oxygen deficient atmosphere. Confined spaces include, but are not limited to, storage tanks, bins, boilers, ventilation or exhaust ducts, sewers, underground utility vaults, tunnels, pipelines, and open top spaces more than four feet in depth, such as pits, tubs, vaults, and vessels.

Hazardous Atmosphere, means an atmosphere which exposes employees to a risk of death, incapacitation, injury or acute illness. It may be caused by one or more of the following conditions:

- An atmospheric oxygen concentration below 19.5 percent (an oxygen deficient atmosphere) or above 22.0 percent (an oxygen enriched atmosphere), by volume.
- A flammable gas, vapor, or mist in excess of 10 percent of its Lower Explosive Limit (LEL).
- A hydrogen sulfide gas concentration above 2 parts per million.
- A carbon monoxide gas concentration above 25 parts per million.
- An airborne combustible dust at a concentration that obscures vision at a distance of five feet or less.
- Presence of any substance in an atmospheric concentration above the Permissible Exposure Limits (PEL) published in Subpart Z of 29 CFR 1910.1000. If a contaminant is not published in Subpart Z consult Material Safety Data Sheets or other authoritative sources.
- Any atmospheric condition recognized as Immediately Dangerous to Life or Health (IDLH).

Chemical - any element, chemical compound or mixture of elements or compounds which include: *Liquids, Solids, and Gases*

Material Safety Data Sheet (MSDS) - Written/printed information concerning a hazardous chemical which is prepared in the format required by the OSHA standard.

Label - Any written, printed or graphic sign or symbol displayed on or affixed to containers of hazardous chemicals. A label identifies the hazardous chemical, appropriate hazard warnings, and name and address of the manufacturer, importer, or other responsible party, and information about possible organ effects.

Health Hazard - a chemical, mixture of chemicals, or a pathogen for which there is statistically significant evidence based on least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees.

Physical Hazard - physical hazards include fire or explosion, sudden release of pressure, or reactivity.

Immediately Dangerous to Life and Health (IDLH) - an atmospheric concentration of any toxic, corrosive or asphyxiant substance that poses an immediate threat to life or would cause irreversible or delayed adverse health effects or would interfere with an individuals ability to escape from a dangerous atmosphere.

Permissible Exposure Limit (PEL) - means the dermal or inhalation exposure limit.

Air Purifying Respirator - A device to protect the wearer from inhalation of harmful contaminants by cleansing the atmosphere through mechanical and/or a chemical filtering media.

MSHA - Mine Safety and Health Administration

NIOSH - National Institute of Occupational Safety and Health

Oxygen Deficiency - An atmosphere having less than the percentage of oxygen found in normal air. Normally air contains 21% oxygen.

Threshold Limit Value (TLV) - An airborne concentration of a substance to which nearly all personnel can be repeatedly exposed, day after day, without adverse health effects.

Time Weighted Average (TWA) - The average concentration for a normal 8 hour workday and 40 hour workweek to which nearly all personnel may be repeatedly exposed, day after day, without adverse health effects.

## **CONFINED SPACES**

A confined space is an enclosed area which:

- Is not designated for continuous occupancy.
- Is large enough and shaped so that a person can enter and perform assigned work.
- Has limited openings for entry or exit (storage tanks, silos, boilers, tanks, vessels, tunnels, vault, pipelines).
- Lacks natural ventilation.
- May contain one or more of the following: atmospheric hazards (lack of oxygen or presence of toxic vapors) potential for engulfment (silo), and chemical residue.
- All confined spaces should be marked with a sign, placard or permit. *If you have a question about a potential confined space ask your supervisor or foreman.*

## **NON-PERMIT REQUIRED CONFINED SPACE**

- Non-permit confined spaces may exist where there is little potential for generation of hazards.
- Ensure air ventilation from clean source.
- Determine if work activities will produce hazards.
- The space must be monitored/atmospheric testing.

- If a space is deemed non-permit, entry may occur.

## **PERMIT REQUIRED CONFINED SPACE**

- Permit required confined spaces may have a hazardous atmosphere.
- Potential for engulfment.
- Internal configuration leading to entrapment or asphyxiation
- Any other serious safety or health hazard.

## **CONFINED SPACE ATMOSPHERIC HAZARDS**

One of the leading causes of injuries and deaths in confined spaces is atmospheric hazards. Atmospheric hazards are caused by poor ventilation and can lead to asphyxiation. Workers rushing into confined spaces to rescue employees without proper protection lead to multiple deaths. That is why knowing the atmosphere hazards of a confined space is so important in preventing injuries and deaths. Atmospheric hazards include the following:

### FLAMMABLE GAS-VAPORS-MISTS LEVELS

The inhalation of toxic vapors is a leading cause of injury and death in confined spaces. Toxic vapors immediately enter the blood stream when inhaled. *Never stick your head in a confined space to check things out.* Many gases and vapors are heavier than air and higher concentrations may be greatest at ground level. In addition, some gases and vapors can travel long distances across the ground ending up in low lying areas.

The *Permissible Exposure Limit (PEL)* of any substance in the atmosphere must be within the limit set by the federal regulations. The PEL of a substance is the permitted dermal or inhalation level of that substance. This information can be obtained from the material safety data sheet (MSDS).

The *Lower Flammable Limit (LFL)* of any substance can not be greater than 10% of the limit set by federal regulations. The LFL means the minimum concentration of the flammable material which will ignite if an ignition source (spark) is present. Under some conditions it might be necessary to use explosion proof lighting or spark resistant tools in a confined space. This information can be obtained from the MSDS.

There are many potential causes of fires and explosions with hazardous chemicals. They include chemical reactions, ignition of explosive or flammable chemicals, ignition of materials due to oxygen enrichment, agitation of shock or friction sensitive compounds, and sudden release of materials under pressure. Fires and explosions may happen spontaneously when moving drums, accidentally mixing incompatible chemicals, introducing an ignition source. Fires and explosions of hazardous chemicals pose hazards of intense heat, open flames, smoke inhalation, flying objects, release of toxic chemicals, and threatening both on-site personnel and the public. Protecting against fires and explosions includes careful monitoring of explosive atmospheres, controlling of ignition sources, use of non-sparking tools, and following of safe work practice procedures.

## AIRBORNE COMBUSTIBLE DUST LEVELS

Potentially hazardous dust exposure can occur in certain operations. Employee overexposure to airborne dust could present possible health problems. As a rule of thumb, a material in the air capable of igniting and burning that is at concentrations where vision is limited to five foot or less, the area is not safe. Consult the MSDS for information pertaining to dust characteristics.

## OXYGEN LEVELS

The normal content of oxygen in the atmosphere is 21%. Physiological effects of oxygen deficiency in humans begin to appear when it reaches 16%. Impaired attention, judgement, loss of coordination, and increased breathing and heart rates are signs of oxygen deficiency. Concentrations of oxygen lower than 16% can result in nausea and vomiting, brain damage, heart damage, and death. Oxygen Deficiency means concentrations of oxygen are 19.5% or lower. Oxygen deficiency results from displacement from another chemical (ex. chlorine, CO<sub>2</sub>) or consumption of oxygen by a chemical reaction (ex. fire, hot work). *Confined spaces or low lying areas are particularly vulnerable to oxygen deficiency and should always be monitored before and continuously during entry.* Oxygen Enriched means the oxygen level reaches above 22%. This atmosphere could cause combustible materials present to explode if an ignition source is present. An ignition source could include sparks from welding.

## **CONFINED SPACE ENTRY PERMITS**

If an employee is entering a confined space to perform maintenance work, inspections, repairs, or new construction an entry permit is required. The entry permit is designed to communicate all potential hazards to personnel involved in the entry. It also serves as a valuable checklist to make sure necessary safety precautions and procedures are followed. The following information is contained on a confined space entry permit:

### An entry permit authorizes entry:

- Only by authorized employees.
- Into a specific permit entry confined space.
- For a specific purpose stating work activities.
- By a specific shift or work crew for a certain amount of time.

### Other information included on the entry permit:

- Any known hazards or those which could reasonably be expected to be present in the space.
- Measures that may be needed (ex. lockout/tagout).
- Measures needed to remove or control potential atmospheric hazards (ex. purging, ventilating, flushing).
- Any testing and monitoring equipment and procedures used to verify that acceptable conditions are maintained before and during entry.
- Rescue and other services to be used or summoned if needed and the means of communicating with those services.
- Rescue equipment provided if necessary (ex. life line, escape pod).
- Communication procedures and equipment used by entrants and attendants to maintain contact.
- Personal protective equipment necessary for the entry or rescue of workers in spaces.

- Hot work should be noted on the permit and/or on a separate hot work permit which is attached to the entry permit.

## **CONFINED SPACE ENTRY TEAM**

Attendant Responsibilities - The attendant (Hole Watch) is the person stationed outside the confined space who monitors the authorized personnel inside. The attendant must:

- Remain outside the confined space at all times during entry.
- Know how to summon rescue and other emergency services.
- Maintain continuous contact with personnel in the space.
- Maintain an account of personnel in the space.
- Monitor activities inside/outside the space to determine if personnel are safe.
- Know and be able to recognize potential hazards in the space.
- **Never enter a space for rescue by yourself unprotected!**
- Order a space evacuation if: Unsafe conditions exist inside/outside the space, toxic symptoms are exhibited by personnel in the confined space, and if the watchman leaves the work attendant position.

Entry Supervisor Responsibilities - The entry supervisor is the person authorizing or in charge of confined space activities. The entry supervisor is responsible for:

- Determining if conditions are acceptable for an entry.
- Withholding authorization for entry if unacceptable conditions exist.
- Terminating entry if aware of potential hazards.
- Make sure the entry permit is prepared correctly.
- Removing unauthorized individuals from entry permit area.
- Signing permit.
- Entry Supervisor may also assume the duties of *either* the attendant or entrant after training.

Entrant Responsibilities - The entrant is the person entering the confined space to complete job tasks. The entrant responsibilities are:

- Know how to use personal protective equipment required.
- Understand symptoms of overexposure to potential toxic hazards in the space.
- Stay in constant contact with the attendant.
- Be on the lookout for new potential hazards & communicate or evacuate the space.
- Evacuate the space if told to do so.

## **PERMIT REQUIRED CONFINED SPACE ENTRY PROCEDURE**

### Training

- Affected employees must be trained in all aspects of the purpose and use of the Confined Space Entry Procedures.
- Each employee must be trained in the use and purpose of all personal protective equipment. The training must include simulated emergencies during which respirators will be donned and rescue procedures practiced. A written training program based on this procedure shall be written by the Safety Manager and used as the training document.

## Sequence of Confined Space Entry

- Before any employee is allowed to enter a tank or other confined spaces, supervisory authorization must be obtained and a CONFINED SPACES ENTRY PERMIT must be initiated. The project supervisor in charge of the work must initiate this action.
- Prior to issuance of the permit, appropriate tests of the atmosphere must be made by authorized personnel from outside of the confined space to determine if established air contaminant limits are exceeded, or if the oxygen concentration is less than or greater than permissible concentrations. Tests must be made with the appropriate monitoring equipment. The person authorized to monitor the atmosphere must be trained in the proper use, calibration, and care of the monitoring instruments and must remain at the site any time work is being performed in a confined space.
- Tests may indicate the atmosphere is initially safe, but the work may produce a hazardous atmosphere from such processes as cutting and welding, distributing of accumulated sludge, or use of solvents. Entry without continuous air monitoring, safety harness and lifeline will not be permitted.
- If tests indicate that the atmosphere is unsafe, the confined space must be ventilated until the hazardous atmosphere is removed, prior to employee entry.
- If after ventilating the space, tests indicate a non-respirable atmosphere (less than 19.5 percent oxygen) or levels of toxic contaminants hazardous to health, no person will be allowed to enter unless equipped with an approved air-line respirator or a self-contained breathing apparatus, safety harness, and lifeline and the person has been properly trained in the use of that equipment. Employees entering contaminated confined spaces shall be kept to a minimum and only for emergency maintenance.
- The employee entering the space must wear protective clothing if the contaminant can cause dermatitis, chemical burns, or can be absorbed through the skin.

The CONFINED SPACE ENTRY PERMIT will not be issued unless provisions have been made for: (1) constant communication and/or observation with an employee in the immediate area who is not in the confined space: (2) an adequate rescue procedure: (3) someone to be readily available who has been trained in cardiopulmonary resuscitation (CPR).

- In all cases, the company procedure will be followed. Before entering a confined space, the contents must be drained and clean-out doors opened where provided. Further, all lines/pipes serving the confined space must be isolated by positive means which may include, but is not limited to, blanking, misaligning, and securing valves in a closed position. Closure of double valves with lock and tag out is preferred over single valve closure. All remote operated valves (ROVS) must be locked and tagged out and their energy source must be isolated and drained. (See Lockout/Tagout)
- A hole watch shall be stationed outside the entrance to each confined space when employees are inside the confined space. The hole watch shall be trained in his/her

duties regarding maintaining communication with employees and initiating rescue services if required. Hole watches shall not leave an entrance while employees are still in the confined space.

### Special Considerations

- In potentially explosive or flammable atmosphere, non-sparking tools and portable vapor-proof electric lighting not exceeding 12 volts must be used. Smoking, open flames, and cutting or welding will be prohibited.
- Personal protective equipment, such as coveralls, impervious gloves, boots, face and eye protection, must be used as required by the nature of the operation to be performed.
- In the event of a sudden life-threatening or otherwise potentially dangerous situation requiring immediate action which involves entry into a confined space as defined in this procedure, and in the absence of time to complete testing and ventilation procedures, the atmosphere will be considered as unsafe to enter. Anyone required to enter into such a confined space for rescue or to monitor shall be properly trained in the use of and wear a SCBA.

### Equipment

- A combination combustible gas/oxygen meter, which samples for combustible vapors and oxygen deficiency simultaneously, is required. However, individual meters to sample for combustible atmospheres and oxygen deficiency may also be used. Other atmospheric monitoring equipment must be purchased and used for evaluation for other known gases such as hydrogen sulfide, sulfur dioxide, etc., which may be present in an enclosed space (tanks, vessels, etc.) at a client's process facility.
- Supplied-air breathing apparatus, such as self-contained respirator with full face piece operated in pressure demand mode (SCBA), or TYPE-C supplied-air respirator with full face piece operated in pressure demand mode with an emergency backup SCBA or escape bottle operated in a pressure demand mode must be used in atmospheres Immediately Dangerous to Life and Health (IDLH) and from which the user can readily escape.
- A supplied-air TYPE-C respirator may be used but not mandatory. Either continuous flow or pressure demand mode may be used in areas which are not Immediately Dangerous to Life and Health (IDLH) and from which the user can readily escape.
- Harness and Lifelines: A harness should be capable of retrieving an inert body in an upright position. A full body harness with a single lifting ring attached to the upper back, or with dual lifting rings attached to the shoulder straps, is recommended for work in open areas. Where egress through narrow openings is necessary, wristlets with attached lifting rings are required in addition to a body harness. Sufficient lifelines of at least one-half inch manila must be provided to insure constant connection between the employee in the confined space and the attendant outside.

- When using hoseline supplied-air units, breathing air must be delivered through a filter board. The air quality of compressor supplied air must meet the requirement as specified in 29 CFR 1910.134.
- Ventilation: A portable blower with a minimum capacity of 600 dfm at 1.5 inches static pressure should be used to supply air and ventilate the enclosed space prior to and during occupancy. If the space is large enough, additional air volume may be required.

#### Maintenance of Equipment

- A competent person must maintain and issue all self-contained and/or supplied-air breathing apparatus required by this procedure.
- The safety designee shall be responsible for issuing all entry permits.
- The safety designee shall maintain and ensure calibration of all combustible gas/oxygen meters that must be readily available for use as required.

#### **RECORDS**

A confined space permit indicating the expiration time and date of the permit must remain posted at the entrance to the confined space for the duration. A copy of this permit will remain in the project files for the duration of the project along with the completed copy and test results of the atmospheric testing for the confined space.





## PERMIT REQUIRED CONFINED SPACE DECISION REPORT

**INSTRUCTIONS:** COMPLETE THE FOLLOWING QUESTIONNAIRE WITH SPECIFIC INFORMATION REGARDING CONFINED SPACE WORK TO DETERMINE IF THE SPACE IS PERMIT OR NON-PERMIT REQUIRED. THIS ANALYSIS AND PLAN IS SPECIFIC FOR THE FOLLOWING PROJECT:

Company Completing Analysis: \_\_\_\_\_

Job Site Address & Phone Number: \_\_\_\_\_

Space ID & Description: \_\_\_\_\_ Work Description: \_\_\_\_\_

Person Filling out this Form: \_\_\_\_\_ Date: \_\_\_\_\_

### CONFINED SPACE ANALYSIS:

1. Does the site/client/owner classify all confined spaces, as permit required? \_\_\_ Yes \_\_\_ No  
If yes a permit is required. Please continue the analysis.
2. Is the space designed for continuous human occupancy? \_\_\_ Yes \_\_\_ No  
If no a permit may be required. Please continue the analysis.
3. Does the space have limited openings for entry or exit (for example storage tanks, silos, boilers, tanks, vessels, tunnels, vault, pipelines)? \_\_\_ Yes \_\_\_ No If yes a permit may be required. Please continue the analysis.
4. Is there adequate ventilation? \_\_\_ Yes \_\_\_ No If no a permit is required. Please continue the analysis.
5. Are there any hazards in the space? (They may include, but are not limited to: lack of oxygen, falls, burns, engulfment, chemical exposure, excessive noise, live electrical parts, and explosive atmospheres) \_\_\_ Yes \_\_\_ No If yes a permit is required. If the hazards can be eliminated the space may be reclassified to non-permit. Please continue the analysis and list the hazards:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
6. Will your work bring or create (for example cutting, welding, or gas-powered equipment) any hazards in the space? \_\_\_ Yes \_\_\_ No If yes a permit is required. If the hazards can be eliminated the space may be reclassified to non-permit. Please continue the analysis and list the hazards:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

NOTE: If a permit is required all personnel that enter the space must receive information and training with documentation on file. All permit required confined spaces must have an attendant (hole watch) and continuous air monitoring must be completed. Attach this analysis to the confined space entry permit.



**Confined Space Entry Permit**  
**THE FOLLOWING ARE REQUIRED TO BE COMPLETED BEFORE ENTRY**

Company Name: \_\_\_\_\_

Date & Time Issued: \_\_\_\_\_ Date & Time Expires: \_\_\_\_\_

Job Site Address & Phone Number: \_\_\_\_\_

Space ID & Description: \_\_\_\_\_

Purpose of Entry: \_\_\_\_\_

Job Supervisor & Phone Number/Pager/Cell Phone: \_\_\_\_\_

Name(s) of Entry Team & Position: \_\_\_\_\_

\_\_\_\_\_

Entry Team Communication Procedures: \_\_\_\_\_

Rescue Procedures: \_\_\_\_\_

\_\_\_\_\_

Emergency Response Personnel Phone Number: \_\_\_\_\_

Client Emergency Phone Number & Contact \_\_\_\_\_

Monitoring Instrument Used \_\_\_\_\_ Model \_\_\_\_\_ Serial or Unit # \_\_\_\_\_

REQUIREMENT	YES	NO	N/A	REMARKS
Energy Isolation	___	___	___	_____
Purge/Flush/Vent	___	___	___	_____
Ventilation Equipment	___	___	___	_____
Secure Area	___	___	___	_____
Gas Monitors	___	___	___	_____
Breathing Apparatus	___	___	___	_____
Full Body Harness	___	___	___	_____
Emer. Escape Equip.	___	___	___	_____
Lifelines	___	___	___	_____
Fire Extinguisher	___	___	___	_____
Lighting (explosive proof)	___	___	___	_____

REQUIREMENT	YES	NO	N/A	REMARKS
Protective Clothing	___	___	___	_____
Hot Work Permit	___	___	___	_____
Stand-by Personnel	___	___	___	_____
Non-Sparking Tools	___	___	___	_____
SCBA(s)	___	___	___	_____
Hoisting Equipment	___	___	___	_____
Communications	___	___	___	_____
Other _____	___	___	___	_____
Other _____	___	___	___	_____

**RECORD CONTINUOUS MONITORING RESULTS EVERY HOUR (15 MINUTES FOR IDLH SPACES)**

Time	Oxygen%	CO%	H2S%	LEL%
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

**WE HAVE REVIEWED THE WORK AUTHORIZED BY THIS PERMIT AND THE INFORMATION CONTAINED HERE-IN. WRITTEN SAFETY INSTRUCTIONS AND SAFETY PROCEDURES HAVE BEEN RECEIVED AND UNDERSTOOD. THIS PERMIT IS NOT VALID UNLESS ALL APPROPRIATE ITEMS ARE COMPLETED. THIS PERMIT MUST REMAIN AT THE JOBSITE. RETURN PERMIT TO OFFICE AT THE COMPLETION OF THE JOB.**

**Permit Prepared By:** \_\_\_\_\_

**Permit Approved By:** \_\_\_\_\_

**Confined Space Supervisor:** \_\_\_\_\_



## Confined Space Entry Test & Training Acknowledgment

Company: \_\_\_\_\_

Name: \_\_\_\_\_ Date: \_\_\_\_\_

7. A confined Space is not designated for continuous occupancy. \_\_\_\_\_ True \_\_\_\_\_ False
8. Accidents and injuries in confined spaces result from.  
a. Lack of Monitoring                      b. Not using proper protection  
c. Not de-energizing equipment              d. All of the above
9. An attendant must be present during entry activities. \_\_\_\_\_ True \_\_\_\_\_ False
10. The atmosphere of a confined space is hazardous if the concentration of flammable gas, vapor or mist is:  
a. Not detected      b. So thick you can't see five yards in front of you.  
c. Greater than 10% of its lower flammable limit.
11. Placing your face through the opening of a confined space is considered an entry. \_\_\_\_\_ True \_\_\_\_\_ False
12. Protective Equipment required in a confined space depends on the hazards present. \_\_\_\_\_ True \_\_\_\_\_ False
13. In case of an emergency, the attendant should rush in to rescue the employee inside. \_\_\_\_\_ True \_\_\_\_\_ False
14. The MSDS contains valuable information pertaining to a chemicals characteristics. \_\_\_\_\_ True \_\_\_\_\_ False
15. Residue left in confined spaces can cause:  
a. Fire Hazards                                      b. Respiratory Hazards  
c. Explosion Hazards                                      d. All of the above
16. Precautions to take before confined space entry include:  
a. Atmosphere Monitoring                                      b. Lockout/Tagout  
c. Permitting    d. All of the above
17. The atmosphere in a confined space is oxygen deficient if the level of oxygen falls below what percent:  
a. 8                      b. 37                      c. 19.5
18. The entry permit authorizes anyone to enter a confined space. \_\_\_\_\_ True \_\_\_\_\_ False
19. The atmosphere of a confined space is unacceptable if the oxygen level is below \_\_\_\_\_ percent or above \_\_\_\_\_ percent.
20. The attendant may leave only if it's for a few minutes. \_\_\_\_\_ True \_\_\_\_\_ False
21. Hot work activities can change the atmosphere in a confined space. \_\_\_\_\_ True \_\_\_\_\_ False

I acknowledge that I have received information and training on potential hazards and proper procedures for confined spaces. This training has given me an understanding of the importance of atmospheric monitoring, confined space permits, attendant, entry supervisor, and entrant responsibilities. If I do not understand any information presented to me, I will ask questions.

\_\_\_\_\_  
**Participants Signature**

\_\_\_\_\_  
**Instructors Signature**

## 15. FORKLIFT SAFETY PROCEDURE

### PURPOSE

To establish guidelines for safe operations of powered industrial trucks, motorized hand trucks, etc.

### SCOPE

This procedure applies to all company divisions, on-site construction and maintenance projects.

### REFERENCES

29 CFR 1910.178

### INTRODUCTION

Forklifts are powerful vehicles designed to handle heavy loads. Operating a forklift is serious business and recklessness or carelessness will create dangerous situations that could lead to accidents, injury, and death. The safe operation of a forklift is a big responsibility and accidents can be avoided. A professional forklift operator understands how forklifts operate, is familiar with company rules and safe operating procedures, completes the pre-shift inspection form, uses safety equipment (seat belt), and keeps the vehicle under control at all times.

### TYPES OF FORKLIFTS

There are many different types of forklifts; the most commonly used is the counter-balance and narrow-isle. These vehicles are designed for indoor and outdoor use depending on their size, type of tire, load capacities, and working environment.

### FORKLIFT BALANCE & CENTER OF GRAVITY

The stability of a forklift is based on the ***principal of balance***. The drive wheels are the balance or pivot points of a forklift. An internal combustion forklift uses the engine, transmission, steer axle, counterweight, and frame to help offset or counterbalance a load. An electric powered forklift uses the battery, control panel, motors and pumps, steer axle, counterweight, and frame to help offset or counterbalance a load.

The center of gravity is located within an object at a point around which all weight is evenly distributed. The forklift center of gravity is located within the "***stability triangle***" which is an area contained inside a set of straight lines drawn between the two drive tires and the center point of the steer axle. If the center of gravity remains within the "stability triangle", the forklift will remain counterbalanced. The center of gravity will move as a result of two forces, static and dynamic:

- *Static Forces* - Static forces are load characteristics, lift height, amount of tilt, and tire condition.
- *Dynamic Forces* - Dynamic forces are acceleration, travel speeds, braking, and surface conditions.

Imbalance occurs when the center of gravity extends beyond the " **stability triangle** " and can result in loss of steering, loss of traction, unstable loads, and potential tipover. By properly positioning the load on the forks the forklift becomes balanced. Always put the load as close to the backrest as possible. The weight of the vehicle and the position of the load determine the amount a forklift can lift. If the load is too heavy it will bring the front of the forklift down and the back of the vehicle up. You can find the lifting capacity of your forklift on the identification plate. **Do not exceed the weight limit. If you have any questions consult your supervisor.**

## **FORKLIFT WARNING LABEL & IDENTIFICATION PLATE**

All forklifts are required by law to have labels warning that improper operation could result in injury or death. The identification plate also displays certain performance data of the forklift. This information includes:

- machine working capacity
- gross vehicle weight
- rated load center
- maximum lift height
- attachment identification
- tire data

## **FORKLIFT TIRES**

There are two types of forklift tires, cushion or solid tires and pneumatic or air-filled. The type of surface a forklift is operating on will determine the tire best suited for purposes of stability, load sensitivity, and the overall safety of load movement.

- *Cushion or Solid* - These tires are used mainly indoors because they operate effectively on smooth surfaces.
- *Pneumatic or Air-Filled* - These tires are used on uneven surfaces because the tire design provides a smooth ride which helps stabilize a load.

## **TYPES OF FORKS**

Most of the forklifts used in industry today use one of two general types of forks, half-tapered and full-tapered.

- *Half-Tapered Forks* - These forks are preferred for heavier loads. They can be identified by the appearance of the fork with a gradual increase in the width of the tip to its maximum thickness about midway back on the fork.
- *Full-Tapered Forks* - These forks are usually preferred for lighter duty lifting. They are also more convenient for pallet lifting and stacking.

## **FORKLIFT POWER SOURCES**

Forklifts can be powered by:

- Diesel Fuel
- Gasoline
- Liquid Propane (LP)
- Battery

## **PROCEDURE**

- All nameplates and markings shall remain in place and be maintained in a legible condition.
- Only trained and authorized operators shall be permitted to operate powered industrial trucks. Operators shall be trained in the safe operation of each powered industrial truck used at the facility or on projects.
- No person shall be allowed to stand or pass under the elevated portion of any truck, whether loaded or empty.
- No person shall ride on the lifting mechanism of a forklift, or use the forklift as a work platform. A manufactured approved personnel basket may be used if all stipulations of the manufacture are met.
- When a powered industrial truck is unattended, loads shall be fully lowered, controls neutralized, power shut off, and brakes set. Wheels shall be blocked if the truck is parked on an incline.
- Always use caution and proper positioning when loading, lifting, traveling, or executing turns.
- If a powered industrial truck is found to be in need of repair, is defective, or is in any way unsafe, the truck shall be taken out of service until it has been restored to safe operating condition. Authorized personnel shall make all repairs.

## **SAFE OPERATING RULES**

- Watch out for fellow employees.
- Stay in designated areas.
- Have a clear view of travel.
- Use only for intended purposes.
- Maintain safe distances.
- NO RIDERS.
- Obey all signs.
- Use horn.
- Use safety equipment. (seat belt)
- Check mirrors.
- Be on the lookout for hazards.
- Call attention to hazards.



- Do not block safety equipment and emergency exits.
- DO NOT LIFT PEOPLE.
- Never walk or allow anybody under the forks.
- Keep all body parts away from moving parts.
- Be aware of overhead clearance.
- Know the characteristics of your forklift. (mast height)

Note: Tipover can occur if truck is improperly operated. Injury or death could result. Always fasten seat belt. In case of a tipover, do not jump, hold on tight, brace feet, and lean away.

### **CHECKLIST FOR LOADING DOCK AREA**

- Check dock plates, boards, and ramps.
- Chock wheels on the trailer and truck.
- Make sure the driver and other employees are out of the way.
- Always drive straight on bridge plates and never accelerate.
- Drive at a slow, steady speed to avoid skidding.

### **CHECKLIST FOR LOADING TRAILERS OR RAIL CARS**

- Make sure the trailer is backed up and square to the loading dock.
- Check the flooring of the trailer.
- Always have the trailer wheels chocked and the deck lock engaged.
- Set the parking brake on truck.
- Use headlights when entering a trailer.
- Check deck capacity.
- Check combined load and vehicle weight.
- Do not over accelerate while inside a trailer.

### **REFUELING A FORKLIFT**

- Try to refuel when the engine is cold.
- Always shut off the engine.
- Designated areas only with adequate ventilation.
- NO SMOKING.
- Check for leaks.

### **CHANGING AN LP TANK**

- NO SMOKING.
- Shut off LP tank.
- Disconnect tank line.
- Remove tank.
- Check mounting.
- Check warning decal condition.
- Inspect replacement tank compatibility and condition.
- Secure position and reconnect tank.
- Slowly open fuel line.

- Inspect for leaks.
- Have fire extinguisher available.
- LP tanks should only be filled from bulk tanks by trained personnel.

## **CHARGING & CHANGING A BATTERY**

- Always maintain voltage consistency between battery and vehicle.
- The battery size will affect vehicle lifting capability, stability, charge life, and work cycle duration.
- Insure sufficient charge.
- Insure proper dissipation.
- Insure adequate ventilation.
- NO SMOKING.
- Wear personal protective equipment.
- Designated areas only.
- Have fire extinguisher available.

## **OPERATING ON RAMPS OR GRADES**

### *With a load:*

- Travel forward when moving a load up a ramp or grade.
- Travel in reverse when moving a load down a ramp or grade and look over your shoulder.
- When maneuvering on a ramp with a full load use a spotter to help guide the forklift.

### *Without a load:*

- Travel in reverse when moving up a ramp or grade.
- Travel forward when moving down a ramp or grade.

**Note: Only one forklift should be used on a ramp or grade at one time. Stay at a slow, steady pace when on a ramp or grade and never try to turn the vehicle.**

## **PARKING PROCEDURE**

### *Attended:*

- With the engine running.
- Operators stay within 25 feet and full view.
- Park in a safe area.
- Neutralize controls.
- Set the parking brake.

### *Unattended:*

- If you are past 25 feet or out of view.
- Park in a safe area.
- Neutralize controls.
- Set parking brake.
- Turn the power off and remove key.
- If the forklift is on an incline, chock the wheels.

- Disconnect the battery or shut off LP valve.

## **FORKLIFT INSPECTIONS**

According to OSHA standards, industrial powered trucks shall be examined before being placed into service. This is required to protect you and your employees, prolong equipment life, and assist maintenance personnel in effective replacement of parts and repairs.

### *VISUAL CHECKS*

- Tire Condition (foreign particles, gouges, cuts, pressure)
- Fuel System (check for leaks)
- Radiator (Check level) Caution!
- Engine Oil (Check level)
- Head and Tail Lights (Condition)
- Mast, Fork, Carriage, or Attachment (Check for loose or missing bolts, etc.)
- Oil and Water (Check for leaks)
- Radiator Water Level
- Fuel Level or Battery Charge
- Battery Connector (Cleanliness, tight)
- Hydraulic System (Check for leaks)
- Safety Equipment (Back-up alarm/seat belt)

### *OPERATIONAL CHECKS*

- Horn
- Steering
- Service Brakes
- Parking Brakes
- Hydraulic Controls
- Seat
- Brake
- Battery Load Test

## **TRAINING & INFORMATION**

- Only trained and authorized operator shall be permitted to operate powered industrial trucks.
- Operators shall be trained in the safe operation of each powered industrial truck used at the facility or construction site.
- Training documentation will be kept on file by the safety coordinator.

## **TRAINING**

We establish and maintain that training shall consist of a combination of formal instruction (e.g., lecture, discussion, interactive computer learning, video tape, written material), practical training (demonstrations performed by the trainer and practical exercises performed by the trainee), and evaluation of the operator's performance in the workplace, Per OSHA 1910.178(l)(2)(ii).

We establish and maintain that all operator training and evaluation shall be conducted by persons who have the knowledge, training, and experience to train powered industrial truck operators and evaluate their competence, Per OSHA 1910.178(l)(2)(iii).

## **REFRESHER TRAINING AND EVALUATION**

We establish and maintain that refresher training, including an evaluation of the effectiveness of that training, shall be conducted as required by paragraph (l)(4)(ii) to ensure that the operator has the knowledge and skills needed to operate the powered industrial truck safely, Per OSHA 1910.178(l)(4)(i).

We establish and maintain that refresher training in relevant topics shall be provided to the operator when:

1. Per OSHA 1910.178(l)(4)(ii)(A): The operator has been observed to operate the vehicle in an unsafe manner;
2. Per OSHA 1910.178(l)(4)(ii)(B): The operator has been involved in an accident or near-miss incident;
3. Per OSHA 1910.178(l)(4)(ii)(C): The operator has received an evaluation that reveals that the operator is not operating the truck safely;
4. Per OSHA 1910.178(l)(4)(ii)(D): The operator is assigned to drive a different type of truck; or
5. Per OSHA 1910.178(l)(4)(ii)(E): A condition in the workplace changes in a manner that could affect safe operation of the truck.

We establish and maintain that an evaluation of each powered industrial truck operator's performance shall be conducted at least once every three years, Per OSHA 1910.178(l)(4)(iii).



# WEEKLY FORKLIFT CHECKLIST

Company: \_\_\_\_\_ Operators Name: \_\_\_\_\_  
Date: \_\_\_\_\_

Unit #: \_\_\_\_\_ Model #: \_\_\_\_\_ Serial #: \_\_\_\_\_ Shift: 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_

Check Accordingly: Internal Combustion: \_\_\_\_\_ Electric: \_\_\_\_\_

Hour Meter Reading Start of Day: \_\_\_\_\_ End of the Day: \_\_\_\_\_

These items are to be checked weekly before operating this piece of equipment. Report all items in need of repair to the supervisor at time of inspection. Turn in the check sheet to the supervisor at the beginning of each week.

<b>VISUAL &amp; OPERATIONAL CHECKS</b>	<b>OK</b>	<b>NEEDS ATTENTION</b>
<u>Tire Condition</u>	_____	_____
<u>Fuel System</u>	_____	_____
<u>Radiator</u>	_____	_____
<u>Engine Oil</u>	_____	_____
<u>Head and Tail Lights</u>	_____	_____
<u>Mast, Fork, Carriage, or Attachment</u>	_____	_____
<u>Oil and Water</u>	_____	_____
<u>Radiator Water Level</u>	_____	_____
<u>Fuel Level or Battery Charge</u>	_____	_____
<u>Battery Connector</u>	_____	_____
<u>Hydraulic System</u>	_____	_____
<u>Safety Equipment</u>	_____	_____
<u>Horn</u>	_____	_____
<u>Steering</u>	_____	_____
<u>Service Brakes</u>	_____	_____
<u>Parking Brakes</u>	_____	_____
<u>Hydraulic Controls</u>	_____	_____
<u>Seat Brake</u>	_____	_____
<u>Battery Load Test</u>	_____	_____

Operator Signature: \_\_\_\_\_ Supervisor Signature: \_\_\_\_\_





## FORKLIFT OPERATOR TEST (page 2 of 2)

10. A detailed inspection of the forklift is required at the beginning of each shift. \_\_\_\_\_ True \_\_\_\_\_ False
11. When moving up a ramp or grade with a load you travel in what direction? \_\_\_\_\_
12. During a forklift tipover just jump out. \_\_\_\_\_ True \_\_\_\_\_ False
13. Unattended parking requires the engine to be shut off and the key removed. \_\_\_\_\_ True \_\_\_\_\_ False
14. The wheels must be chocked when moving in and out of a trailer. \_\_\_\_\_ True \_\_\_\_\_ False
15. Traveling with a load in the raised position to see ahead is ok. \_\_\_\_\_ True \_\_\_\_\_ False
16. Instead of using a ladder, just lift an employee on the forks to change a light bulb.  
True False
17. Tipover can occur if truck is improperly operated. Injury or death could result. Always fasten seat belt. In case of a tipover; do not jump, hold on tight, brace feet, and lean away.  
\_\_\_\_\_ True \_\_\_\_\_ False
18. When refueling a forklift, you should:  
A. Follow company policy                      B. Never smoke  
C. Shut off the engine                              D. All of the above
18. You do not have to maintain consistency between battery voltage and vehicle voltage.  
\_\_\_\_\_ True \_\_\_\_\_ False
20. Personal protective equipment should be worn when servicing a battery.  
\_\_\_\_\_ True \_\_\_\_\_ False
21. Maneuvering a load that is too high or heavy can not result in a tipover.  
\_\_\_\_\_ True \_\_\_\_\_ False

I acknowledge that I have received information and training according to OSHA standard 1910.178 "Industrial Powered Trucks." I understand that this information or completion of this course does not imply licensing certification. It only represents participation of this course. I will follow and obey all rules, policies, and procedures set forth by the company. If I do not understand any instructions I will ask questions.

\_\_\_\_\_  
Participants Signature

\_\_\_\_\_  
Instructors Signature



## Forklift Driver Evaluation Form

Company: \_\_\_\_\_

Driver Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Procedure:**

**Correct Completion/Comments:**

- |                                  |     |    |       |
|----------------------------------|-----|----|-------|
| 1. Pre-Inspection                | Yes | No | _____ |
| 2. Engaging the load             | Yes | No | _____ |
| 3. Preparing the load for travel | Yes | No | _____ |
| 4. Traveling with the load       | Yes | No | _____ |
| 5. Approaching the drop-off area | Yes | No | _____ |
| 6. Positioning for drop-off      | Yes | No | _____ |
| 7. Disengaging the load          | Yes | No | _____ |
| 8. Safe Shutdown                 | Yes | No | _____ |

Additional Comments:

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Instructor Signature: \_\_\_\_\_ Date: \_\_\_\_\_



## 16. HEARING CONSERVATION PROGRAM

### POLICY

The company is committed to provide a hazard free workplace and will take all practical measures to eliminate the hazard of excessive noise levels through a Hearing Conservation Program which will ensure the safety, health, and hearing conservation of all employees.

### SCOPE

Compliance with this program is mandatory and is applicable to all employees. Failure to comply will result in disciplinary action and/or is grounds for termination.

### SUMMARY

To ensure the company is in compliance with 29 CFR 1910.95, all employees exposed to high noise levels in the workplace where exposure is equal to or exceeds a time weighted average (TWA) of 85 decibels for an eight hour period will receive annual audiometric testing to establish a baseline for future reference. In addition, employee training will provide all applicable employees with information necessary to understand noise, the hazards associated with noise, the proper use and care of protective equipment, and when and where hearing protection is required.

### DEFINITIONS

*Frequency* - is the pitch of the sound (high or low)

*Intensity* - refers to the loudness of a sound

*Decibels (dB)* - units used to measure the loudness of sound

*Baseline* - the first audiometric exam results used for future reference

*Noise Reduction Rating (NRR)* - sound level protection built into a hearing protection device

### INTRODUCTION

Hearing loss due to excessive noise exposure in the workplace is usually not identified as a health hazard because it often takes a long period of time to develop. By the time hearing loss is detected, it is too late to correct it. Loss of hearing is frequently blamed on the aging process and little thought is given to the possibility that damage occurred in the workplace. Exposure to continuous excessive noise and impact noise attribute to hearing loss. Studies have linked exposure to high noise levels with headaches, high blood pressure, ulcers, and sleeping disorders.

## WHAT IS NOISE?

Noise is something that everyone is exposed to on a daily basis either at home, work, or recreation. It can be described as unwanted sound which can be loud, prolonged, and deafening. The effects of sound depend on the loudness in relationship to pitch, length of exposure, and a person's existing health and age. Temporary hearing loss is attributed to short term exposure and normal hearing usually returns within a short amount of time. Prolonged exposure to high noise levels over a period of time gradually causes permanent hearing damage.

To understand how sound affects our hearing it is important to identify and examine the source. Sounds are sent into the air as vibrations which are known as *sound waves*. These sound waves enter the ear and are changed into nerve impulses which are received by the brain and are then interpreted.

The ear identifies sound through *frequency* and *intensity*. Frequency is the pitch of the sound and can be high or low. A high frequency sound tends to cause more damage to the ear than a low frequency sound. Intensity refers to the loudness of the sound. Decibels (dB) are used to measure the loudness of sound. Intensity is used to establish hearing protection guidelines in the workplace. If the intensity of noise exceeds an average of 90 dB over an eight hour work day hearing loss may result.

## TYPES OF NOISE

There are three types of noise to understand:

- *Wide Band* - Noise that is spread over a wide range of pitches. An example is a production area, where many machines operate at the same time producing different pitches.
- *Narrow Band* - These noises are associated with a narrow range of pitches. An example is a power tool.
- *Impulse/Impact* - Impulse noise can be identified by temporary "beats" that can occur in a pattern or randomly. An example is a hammer.

## THE EFFECTS OF NOISE

Overexposure to noise can cause temporary hearing loss and permanent hearing loss can occur due to exposure over a period of years. High blood pressure, headaches, ulcers, and irritability may exist from high noise exposure. The strain of talking or listening over loud sounds may cause communication problems and misunderstood instructions resulting in production errors. Reasons for hearing loss may include not wearing ear protection, not wearing ear protection properly, use of inadequate ear protection, exposure to off-the-job noise where ear protection is not used, and ear infection or disease.

## THE PURPOSE OF AUDIOMETRIC TESTING

The purpose of audiometric testing is to measure an employees level of hearing. This test is an effective tool for early detection of hearing loss. The results from the exam are recorded on an *audiogram*. The first exam is called a *baseline* and it shows the endurance level for each ear and provides a reference for future test results. This exam is conducted annually and any change in hearing ability is recorded. This change is known as a *hearing threshold shift*.

## MONITORING & REQUIREMENTS

The company will conduct noise level surveys when applicable and advise employees of the various noise levels present. Monitoring will be completed in a manner that will accurately identify employees who are exposed to noise. Noise level monitoring will take place when new equipment, machinery, or production process are introduced into the workplace. Every effort will be made to make engineering or mechanical changes where feasible, to eliminate or reduce noise to a level below 85 dB. However, employees are required to wear hearing protection where noise levels equal or exceed 85 dB. Exposure measurements shall include the following:

- All intermittent, continuous, and impulsive noises within 80-130 dB.
- Measurements shall be taken during normal working hours and procedures.
- Employees who are monitored must be informed of the results.
- Monitoring instruments shall be calibrated.
- The final report shall include: Employee monitored, type of instrument used, calibration date, monitoring area, TWA, peak sound exposure, and date employee was monitored.

## DESIGNATED HEARING PROTECTION AREAS

While a time weighted average of 85 dB may not be present at some work areas, there are designated areas in the operation where the noise level *may be* equal to or exceed 85 dB. As a result, all employees are required to wear hearing protection whenever they are working in these designated areas. The company will provide proper hearing protection to all employees who have a chance of exposure at 85 dB or greater.

Due to the style of field work the company performs, seldom at the same location, it is difficult to determine when specific exposures may occur. All employees and assisting employees operating all equipment that produces 85 dB or higher are required to wear hearing protection.

## THE PURPOSE OF HEARING PROTECTION

Hearing protection can help prevent the loss of hearing and it is important to understand what hearing protection devices are best for the workplace. There are advantages and disadvantages to all types of hearing protection. The hearing protection depends on sound level protection built into the hearing protection device. These levels are known as the *Noise*

*Reduction Ratings (NRR).* The hearing protection effectiveness is indicated by the number on the label. The higher the NRR the greater the protection if it is used properly.

## HEARING PROTECTION DEVICES

### Earplug Protectors

These hearing protection devices are normally referred to as inserts or earplugs. These types of earplugs are made of rubber, plastic, acoustical fibers, foam, and wax impregnated cotton.

- *Molded Inserts.* They usually have an NRR within the range of 25-26 dB and are made of soft silicone, rubber, and plastic. *Advantages:* Generally inexpensive, able to wash and reuse, and there is little danger of inserting the plug too far into the ear canal. *Disadvantages:* Often hard to get a snug fit because of ear canal sizes, eventually the molded insert hardens and shrinks, must maintain a variety of sizes, and possible allergic reaction due to earplug material.
- *Form-able Inserts.* Due to the design of form-able inserts, they have a NRR that ranges 27-33 dB. The materials used are often fine glass fiber, expandable plastic, foam, and wax impregnated cotton. *Advantages:* Can fit all ears, mold to the ear canal, and available with a cord. *Disadvantages:* Possible to push plug too far into the ear canal, usually good for one time use, becomes dirty easily, and more prone to cause ear infections.

### Canal Cap Protectors

This type of protection is made to rest against the outer edge of the ear canal. They are made of a soft rubber and are held in place with a headband. The NRR on this type of protector ranges from 17-25 dB. *Advantages:* Reusable and one size fits all with an adjustable headband. *Disadvantages:* Does not provide a high NRR, and requires regular cleaning.

## Earmuff Protectors

Earmuffs are designed to fit over the entire ear and ear lobe and seals against the side of the head with suitable cushion or padding. They generally have a NRR that ranges from 22-29 dB when used properly. *Advantages:* A good alternative to those who are allergic to inserts, easy to replace the protective seal, and many can be adjusted easily to fit an individuals head. *Disadvantage:* Perspiration eventually stiffens the plastic seal, not practical for confined space work, electricians need to wear non-conductive earmuffs, and efficiency of the muff type protector is reduced when worn over the frames of eye protection.

## FIT & CARE FOR HEARING PROTECTION

### Earplugs

- *Proper Fit.* Wash your hands, Slowly roll and compress foam plugs into a very thin cylinder, Reach around the head and pull the ear outward and upward during insertion,

While compressed - insert plug well into the ear canal, and hold in place for a moment until it begins to expand.

- *Proper Care.* Keep plugs as clean as possible, Inspect before reinsertion, If damaged or dirty - dispose immediately and replace, Periodically check to be sure the fit is still snug, and do not share ear plugs with others.

### Earmuffs

- *Proper Fit.* Earmuffs must fully enclose the ears to seal against the head, Adjust the headbands so cushion exerts even pressure, and keep hair from underneath the cushion.
- *Proper Care.* Clean with warm water and mild soap, Do not use alcohols or solvents to clean cushions. Replace the cushion if stiff, worn, cut, or torn, and check the headband for deterioration.

## **RECORD KEEPING & EMPLOYEE ACCESS**

Employees have the right of access to any and all information regarding this hearing conservation program as well as the right of access to the results of their individual audiogram and related audiometric test results. Employees are responsible for understanding the results and corrective measures to be taken. Hard copy audiometric test results will be kept in the employee personnel file.

Audiometric test results will be retained for the duration of the tested employee's employment and as long thereafter as inactive records are maintained.

Job site and equipment noise exposure measurement records will be retained for two years, or until new measurements are recorded.

All records pertaining to hearing conservation shall be provided upon request to employees, former employees, representatives designated by the employee and the Assistant Secretary of Labor.

The Hearing Conservation Program will be maintained by the division and all records generated by the program will be kept in employee personnel files.

## **INFORMATION & TRAINING**

Annual information and training will be conducted by the company. Information and training requirements will be accomplished through handouts and video programs. Topics will include a review of this program, how noise effects hearing, how hearing works and is diminished by excessive noise, where hearing protection is required, and the selection, fitting, use, and care of hearing protection devices. Upon completion of training all employees will be given a written quiz to test their understanding of the material covered. All information and training will be documented and kept in the employee personnel files.

## TRAINING PROGRAM

- **Per OSHA 1910.95(k)** "Training program." **Per OSHA 1910.95(k)(1)**: The employer shall train each employee who is exposed to noise at or above an 8-hour time weighted average of 85 decibels in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program.
- **Per OSHA 1910.95(k)(2)**: The training program shall be repeated annually for each employee included in the hearing conservation program. Information provided in the training program shall be updated to be consistent with changes in protective equipment and work processes.
- **Per OSHA 1910.95(k)(3)**: The employer shall ensure that each employee is informed of the following: **Per OSHA 1910.95(k)(3)(i)**: The effects of noise on hearing; **Per OSHA 1910.95(k)(3)(ii)**: The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care; and **Per OSHA 1910.95(k)(3)(iii)**: The purpose of audiometric testing, and an explanation of the test procedures.

## ACCESS TO INFORMATION AND TRAINING MATERIALS

- **Per OSHA 1910.95(l)**: "Access to information and training materials." **Per OSHA 1910.95(l)(1)**: The employer shall make available to affected employees or their representatives copies of this standard and shall also post a copy in the workplace.
- **Per OSHA 1910.95(l)(2)**: The employer shall provide to affected employees any informational materials pertaining to the standard that are supplied to the employer by the Assistant Secretary.
- **Per OSHA 1910.95(l)(3)**: The employer shall provide, upon request, all materials related to the employer's training and education program pertaining to this standard to the Assistant Secretary and the Director.

## HEARING PROTECTION

- **Per OSHA 1910.95(c)(1)**: The employer shall administer a continuing, effective hearing conservation program, as described in paragraphs (c) through (o) of this section, whenever employee noise exposures equal or exceed an 8-hour time-weighted average sound level (TWA) of 85 decibels measured on the A scale (slow response) or, equivalently, a dose of fifty percent. For purposes of the hearing conservation program, employee noise exposures shall be computed in accordance with appendix A and Table G-16a, and without regard to any attenuation provided by the use of personal protective equipment.

## MONITORING PROCEDURES

We establish and maintain that when information indicates that any employee's exposure may equal or exceed an 8-hour time-weighted average of 85 decibels, we shall develop and implement a monitoring program, per OSHA 1910.95(d)(1).

Siena shall establish and maintain an audiometric testing program as provided in this paragraph by making audiometric testing available to all employees whose exposures equal or exceed an 8-hour time-weighted average of 85 decibels, per OSHA 1910.95(g): "Audiometric testing program." Per OSHA 1910.95(g)(1).

We establish and maintain that within 6 months of an employee's first exposure at or above the action level, we shall establish a valid baseline audiogram against which subsequent audiograms can be compared, Per OSHA 1910.95(g)(5)(i).

We establish and maintain that where mobile test vans are used to meet the audiometric testing obligation, we shall obtain a valid baseline audiogram within 1 year of an employee's first exposure at or above the action level. Where baseline audiograms are obtained more than 6 months after the employee's first exposure at or above the action level, employees shall wear hearing protectors for any period exceeding six months after first exposure until the baseline audiogram is obtained, Per OSHA 1910.95(g)(5)(ii): "Mobile test van exception."

We will maintain testing to establish a baseline audiogram that shall be preceded by at least 14 hours without exposure to workplace noise. Hearing protectors may be used as a substitute for the requirement that baseline audiograms be preceded by 14 hours without exposure to workplace noise, per OSHA 1910.95(g)(5)(iii).

We will establish and maintain, per OSHA 1910.95(g)(6): an "Annual audiogram." To include at least annually after obtaining the baseline audiogram, we shall obtain a new audiogram for each employee exposed at or above an 8-hour time-weighted average of 85 decibels.

We will establish and maintain, per OSHA 1910.95(g)(7): an "Evaluation of audiogram." Also per OSHA 1910.95(g)(7)(i): 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. This comparison may be done by a technician.

We will establish and maintain, **per OSHA 1910.95(g)(8):** "Follow-up procedures." Per OSHA 1910.95(g)(8)(i): If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift has occurred, the employee shall be informed of this fact in writing, within 21 days of the determination. **Per OSHA 1910.95(g)(8)(ii):** Unless a physician determines that the standard threshold shift is not work related or aggravated by occupational noise exposure, we shall ensure that the following steps are taken when a standard threshold shift occurs: Per OSHA 1910.95(g)(8)(ii)(A): Employees not using hearing protectors shall be fitted with hearing protectors, trained in their use and care, and required to use them; Per OSHA 1910.95(g)(8)(ii)(B): Employees already using hearing protectors shall be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if necessary; Per OSHA 1910.95(g)(8)(ii)(C): The employee shall be referred for a clinical audiological evaluation or an otological examination, as appropriate, if additional testing is necessary or if we suspect that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors and; Per OSHA 1910.95(g)(8)(ii)(D): The employee is

informed of the need for an otological examination if a medical pathology of the ear that is unrelated to the use of hearing protectors is suspected.

## **HEARING PROTECTORS**

We establish and maintain, Per OSHA 1910.95(i): "Hearing protectors."

Per OSHA 1910.95(i)(1): We shall make hearing protectors available to all employees exposed to an 8-hour time-weighted average of 85 decibels or greater at no cost to the employees. Hearing protectors shall be replaced as necessary.

We establish and maintain, Per OSHA 1910.95(j): "Hearing protector attenuation."

Per OSHA 1910.95(j)(1): We shall evaluate hearing protector attenuation for the specific noise environments in which the protector will be used. We shall use one of the evaluation methods described in Appendix B: "Methods for Estimating the Adequacy of Hearing Protection Attenuation."

## **RECORDKEEPING**

- **Per OSHA 1910.95(m): "Recordkeeping" – Per OSHA 1910.95(m)(1): "Exposure measurements."** The employer shall maintain an accurate record of all employee exposure measurements required by paragraph (d) of this section.
- **Per OSHA 1910.95(m)(5): "Transfer of records."** If the employer ceases to do business, the employer shall transfer to the successor employer all records required to be maintained by this section, and the successor employer shall retain them for the remainder of the period prescribed in paragraph (m)(3) of this section.





## PERMISSIBLE EXPOSURE LIMITS OSHA CFR 1910.95

<u>DURATION PER DAY (Hours)</u>	<u>SOUND LEVEL (dBa)</u>
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
1/4 or less	115

Noise levels are determined using a Type 2 sound level meter measuring on the A-scale at slow response. Maximum level 140 dB impact noise.



## Hearing Conservation Quiz & Acknowledgment of Training

Company: \_\_\_\_\_

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. Exposure to unwanted sound can be controlled. \_\_\_\_\_ True \_\_\_\_\_ False
2. Signs posted in a work area requiring hearing protection are only for people who wear hearing aids. \_\_\_\_\_ True \_\_\_\_\_ False
3. You should wear earmuffs loosely to allow proper ventilation. \_\_\_\_\_ True \_\_\_\_\_ False
4. Exposure to sound levels above 85 decibels over a long period of time will result in hearing loss. \_\_\_\_\_ True \_\_\_\_\_ False
5. The noise from your lawn mower at home can affect your hearing as much as noise at work. \_\_\_\_\_ True \_\_\_\_\_ False
6. Only one audiometric test is required to determine if there has been a loss of hearing. \_\_\_\_\_ True \_\_\_\_\_ False
7. Loudness, length of exposure, and distance from the source determines if hearing damage can result. \_\_\_\_\_ True \_\_\_\_\_ False
8. If you hear a ringing in your ears chances are you have been exposed to dangerously high sound levels. \_\_\_\_\_ True \_\_\_\_\_ False
9. Using cotton as a form of hearing protection is acceptable. \_\_\_\_\_ True \_\_\_\_\_ False
10. Improper care of your hearing protection can lead to ear infections. \_\_\_\_\_ True \_\_\_\_\_ False
11. If you have hearing damage the ear will heal after a few months. \_\_\_\_\_ True \_\_\_\_\_ False
12. You do not have access to your audiometric test results. \_\_\_\_\_ True \_\_\_\_\_ False

I acknowledge that I have received information and training on the Hearing Protection Program. This training has given me important information regarding the following topics:

- A review of the Hearing Conservation Program.
- How noise affects hearing.
- How hearing works and is diminished by excessive noise.
- Where hearing protection is required.
- The selection, fitting, use, and care of hearing protection devices.

I agree to abide by all rules, policies, and procedures set forth in the Hearing Conservation Program. If I do not understand any instructions I will ask questions.

\_\_\_\_\_  
Employee Signature Date \_\_\_\_\_

\_\_\_\_\_  
Instructor Signature Date \_\_\_\_\_

## **17. BLOODBORNE PATHOGENS EXPOSURE CONTROL PLAN**

### **INTRODUCTION**

The Occupational Safety and Health Administration(OSHA) has a variety of regulations which all employers must follow to ensure the health and safety of employees in the workplace.

This company program is designated to comply with Title 29 of the Code of Federal Regulations Part 1910.1030 which says that when first aid is given to someone who is injured, there is a chance that the first aid provider may come in contact with the blood or body fluids of the person being treated. Many diseases such as AIDS and HEPATITIS are transmitted by this exposure.

This bloodborne pathogen program gives us procedures to protect ourselves.

The written program may sound very technical and, there are many record keeping requirements however, there are only three key points to remember:

- Any human blood or body fluid can contain disease which can infect you.
- Whenever you might come in contact with blood or body fluid PROTECT YOURSELF - cover any part of you that may come in contact, gloves for your hands, mask over your nose and mouth, safety glasses over your eyes, etc.
- Clean up and sanitize any spills

### **POLICY**

The company has adopted the Bloodborne Pathogen Program as part of the comprehensive Safety Program to help insure all employees are provided with a safe and hazard free workplace. The company will provide at no cost to employees personal protective equipment and Hepatitis B vaccines to those who have reasonable chance of contact with body fluids and have had specific first aid training.

### **SCOPE**

Compliance with this Bloodborne Pathogens Program is mandatory and all employees are responsible for reporting any exposure to blood or bodily fluids.

## SUMMARY

This program details the methods which will be used to prevent employee exposure to Bloodborne Pathogens like Hepatitis B while administering first aid resulting from an accident such as a serious laceration resulting from the use of tools. The program complies with all of the regulations explained in 29 CFR 1910.1030 (the bloodborne pathogens standard).

## DEFINITIONS

Blood, means human blood, human blood components, and products made from human blood.

Bloodborne Pathogens, means pathogenic microorganisms that are present in the 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).

Contaminated, means the presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.

Contaminated Laundry, means laundry which has been soiled with blood or other potentially infectious materials or may contain sharps.

Contaminated Sharps, means any contaminated object that can penetrate the skin including, but not limited to, needles, scalpels, and broken glass.

Decontamination, means the use of physical or chemical means to remove, inactivate, or destroy Bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.

Engineering Controls, means controls (i.e. sharps disposal container, biohazard bag and box) that isolate or remove the Bloodborne pathogens hazard from the workplace.

Exposure Incident, means a specific eye, mouth, or other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials that results from performance of a employee duties.

HBV, means hepatitis B virus.

HIV, means human immunodeficiency virus.

Sterilize, means the use of a physical or chemical procedure to destroy all microbial life including highly resistant bacterial endospore.

Universal Precautions, is an approach to infection control. According to the concept of universal precautions, all human blood and certain human body fluids are treated as if to be infectious for HIV, HBV, and other Bloodborne pathogens. Which means, proper personal protective equipment should always be used insuring protection to all routes of exposer/ points of entry (orifice, skin, eyes, etc.).

## **EXPOSURE DETERMINATION**

### Pre-Incident Determinations

The company has performed an exposure analysis to determine which employees may incur occupational exposure to blood or other potentially infectious materials. This determination is based on risks incurred while performing job procedures without the use of personal protective equipment.

All employees have a very remote to no risk of exposure in the workplace environment. However, a employee having remote potential of exposure would be that person in close proximity to an employee experiencing an incident. Accidents are random, therefore, there is no method for determining the exact circumstance of any given incident or location of incident.

### Responsibilities of the "Good Samaritan"

For the purpose of rendering first aid to an injured employee the company maintains a policy of self assistance for minor injury. This policy relies upon the injured individual to access their minor need at the time of the incident and respond accordingly using readily available First Aid Kits which contain such supplies as aspirin, band-aids, eye-wash, tweezers, gauze and gauze tape, and personal protective equipment.

When assistance is rendered to the individual by another it is considered appropriate that whoever is physically closest to the injured employee as the one identified to provide "Good Samaritan" assistance. This may include assistance walking with the victim, obtaining first aid supplies or notifying the First Responder of the incident. It does not mean perform first aid or first responder duties unless you are a trained and authorized member.

The following tasks have risk to occupational exposure and should only be preformed by trained and authorized employees:

- First Aid for Wounds
- CPR
- First Aid for Vomiting
- Spill cleanup and sanitation
- Other Rescue

### Responsibilities Of The First Responder (trained personnel)

First Responder action, as defined by the company, is an incident in which the severity of the injury presents the possibility of exposure to potentially infectious materials to the assistor. In the event of First Responder action, the First Responder has assigned responsibilities and has been provided with training on basic first aid procedures. The First Responder is responsible for implementing first aid procedures according to the methods set forth in the Exposure Control Plan.

The only employee having the assigned risk of exposure is the designated first responder provider. The following is a list of job classifications in which employees may have risk to occupational exposure:

- First Responder
- CPR/First Aid Trained

## **METHOD OF COMPLIANCE**

As summarized in the exposure determination, the potential for exposure only exists in the event of an accident. Therefore, the actual presence of infectious material within the workplace is a rare event. The approach to prevent employee exposure includes six specific attributes. Universal Precautions (see definitions for meaning) will be used to prevent potential contact with blood or other potentially infectious materials.

### Work Practice Control Methods

The term work practice control methods as defined by the company means a combination of physical facilities (washrooms) and procedures which when followed will eliminate the possibility of employee exposure to bloodborne pathogens. Some general policy guidelines are:

- Wash exposed areas before eating
- Wash exposed areas after giving first aid
- Wash exposed areas after clean-up

### Engineering Controls

Washroom facilities are available to all employees for hand washing activities. Washing facilities are located in the employee laboratory. Employees are encouraged to wash their hands on an ongoing as needed basis. This will minimize or prevent the potential either to self inflicted exposure or cross contamination resulting from contact with others. In addition, the available washroom facilities also provides hand cleaner stations. These stations contain approved disinfectant solutions for hand cleaning. The use of these hand cleaners also addresses individual concerns for dermal reactions to the various chemicals.

### Personal Protective Equipment

Equipment provided for protection against potential bloodborne pathogen exposure includes, but is not limited to, gloves, masks and eye protection which are located in the biohazard stations. The purpose of this personal protective equipment is to prevent blood and other potentially infectious materials to pass through to or reach the employees work cloths. Information and training is provided to employees on the correct use, laundering and disposal of potentially contaminated clothing and personal protective equipment.

### Designated Provider Control Methods

This helps control the possibility for exposure by limiting employee response to personnel that are formally trained in exposure control procedures. Situations where infectious materials may disperse and result in exposure of others are controlled by the actions of the designated first responder. It is the responsibility of the responder to administer first aid in a specified exposure containment manner, thus localizing the infectious or presumed infectious materials. Biohazard Kits/Stations are located in each department for use by authorized personnel.

## Housekeeping and Laundry

The work areas will be kept in a clean and sanitary condition. Any equipment or working surface will be cleaned and disinfected after contact with blood or other potentially infectious material with a bleach solution (one cup commercial/house hold bleach to 9 cups water). Receptacles intended for refuse will be inspected and decontaminated on a regular basis. Any material (i.e. tissue) that is a potential biohazard will be saturated with the bleach solution and placed in receptacles intended for refuse. Contaminated sharps will be discarded in closed containers that are puncture resistant and leak proof on sides and the bottom. Potentially contaminated laundry will be handled as little as possible. Contaminated laundry will be placed in leak proof bags or containers and labeled accordingly. All regulated waste disposal will comply with applicable federal and state regulations.

## Hepatitis B Vaccination

The hepatitis B vaccine will be made available to employees within 10 working days of assignment who have been identified as having potential exposure as part of their job duties. Employees who choose to not be vaccinated must sign a declination form but still have the option to receive the vaccine at a latter date. In the event the first responder is exposed to blood or other potentially infectious material, the hepatitis vaccine will be offered within 24 hours of the exposure if the employee has not previously been vaccinated.

### **EXPOSURE CONTROL PLAN per OSHA 1910.1030(c)(1)(iii).**

- We will ensure that a copy of the Exposure Control Plan is accessible to employees in accordance with 29 CFR 1910.1020(e).

### **INCIDENTAL EXPOSURE**

If an employee is exposed to blood or body fluid it should be reported to the safety coordinator or supervisor immediately. This enables the proper response and precautions concerning the potentially exposed individual. All records of exposure incidents will be kept on file by the office supervisor. Individuals who incur an exposure incident will be offered a post exposure evaluation and follow up. Examples of types of exposures can be but are not limited to:

- Stabbed with a sharp
- Blood or body fluid in the eye
- Blood or body fluid on the skin
- Any other method of contact that may allow absorption into the body

### **INCIDENT INVESTIGATION**

A primary responsibility of the designated first provider is the investigation and report of findings of the actual circumstances of the exposure incident. The response procedure to an exposure incident has been structured to be highly visible to management. This was done purposely to keep management informed and provide a mechanism to access ongoing procedures and make modifications as necessary to continuously improve safe conditions.

At the conclusion of any incident, the first provider must provide a completed Incident Investigation Form to management. The investigation form addresses specific issues of the incident and defines actions to eliminate potentials and prevent recurrence.

## **MEDICAL RECORDS**

We establish and maintain to keep an accurate record for each employee with occupational exposure, in accordance with 29 CFR 1910.1020. (Reference-OSHA 1910.1030(h)(1)(i): Per OSHA 1910.1030(h)(1)(ii): Siena will ensure this record shall include: per OSHA 1910.1030(h)(1)(ii)(A) the name and social security number of the employee; Per OSHA 1910.1030(h)(1)(ii)(B) a copy of the employee's hepatitis B vaccination status including the dates of all the hepatitis B vaccinations and any medical records relative to the employee's ability to receive vaccination as required by paragraph (f)(2); Per OSHA 1910.1030(h)(1)(ii)(C) a copy of all results of examinations, medical testing, and follow-up procedures as required by paragraph (f)(3); per OSHA 1910.1030(h)(1)(ii)(D) Siena's copy of the healthcare professional's written opinion as required by paragraph (f)(5); and per OSHA 1910.1030(h)(1)(ii)(E) a copy of the information provided to the healthcare professional as required by paragraphs (f)(4)(ii)(B)(C) and (D).

We establish and maintain all confidentiality, Per OSHA 1910.1030(h)(1)(iii): Siena shall ensure that employee medical records required by paragraph (h)(1) are: per OSHA 1910.1030(h)(1)(iii)(A), kept confidential; and per OSHA 1910.1030(h)(1)(iii)(B) not disclosed or reported without the employee's express written consent to any person within or outside the workplace except as required by this section or as may be required by law.

We establish, Per OSHA 1910.1030(h)(1)(iv): That Siena shall maintain the records required by paragraph (h) for at least the duration of employment plus 30 years in accordance with 29 CFR 1910.1020.

## **TRAINING RECORDS**

We establish, per OSHA 1910.1030(h)(2)(i) that training records shall include the following information:

- per 1910.1030(h)(2)(i)(A) the dates of the training sessions;
- per OSHA 1910.1030(h)(2)(i)(B) the contents or a summary of the training sessions;
- per OSHA 1910.1030(h)(2)(i)(C) the names and qualifications of persons conducting the training;
- per OSHA 1910.1030(h)(2)(i)(D) the names and job titles of all persons attending the training sessions.

We establish and maintain, Per OSHA 1910.1030(h)(2)(ii): that training records shall be maintained for 3 years from the date on which the training occurred.

## **TRANSFER OF RECORDS**

We establish and maintain, Per OSHA 1910.1030(h)(3)(iii): that Employee medical records required by this paragraph shall be provided upon request for examination and copying to the subject employee, to anyone having written consent of the subject employee, to the Director, and to the Assistant Secretary in accordance with 29 CFR 1910.1020. Per OSHA



1910.1030(h)(4)(i): Siena shall comply with the requirements involving transfer of records set forth in 29 CFR 1910.1020(h).

If Siena ceases to do business and there is no successor employer to receive and retain the records for the prescribed period, Siena shall notify the Director, at least three months prior to their disposal and transmit them to the Director, if required by the Director to do so, within that three month period, per OSHA 1910.1030(h)(4)(ii).

## **POST EVALUATION AND FOLLOW-UP**

All employees who incur an exposure incident will be offered post-exposure evaluation and follow-up in accordance with the OSHA standard. This follow-up will include the following:

- Documentation of the route of exposure and the circumstances related to the incident.
- If possible, the identification of the source individual and, if possible, the status of the source individual. The blood of the source individual will be tested (after consent is obtained) for the HIV/HBV.
- Results of testing of the source individual will be made available to the exposed employee with the exposed employee informed about the applicable laws and regulations concerning disclosure of the identity and infectivity of the source individual.
- The employee will be offered the option of having their blood collected for testing. The blood sample will be preserved at least 90 days to allow the employee to decide if the blood should be tested for HIV serological status. However, if the employee decides prior to that time that testing will be conducted then the appropriate action can be taken and the blood sample discarded.
- The employee will be offered post exposure prophylaxis in accordance with the current recommendations of the U.S. Public Health Service.
- The employee will be given appropriate counseling concerning precautions to take during the period after the exposure incident by the treating physician. The employee will also be given information on what potential illnesses to be alert for and to report any related experiences to appropriate personnel.

## **INTERACTION WITH THE HEALTH CARE PROVIDER**

A written opinion shall be obtained from the health care professional who evaluates employees of this facility. Written opinions will be obtained in the following instances:

- When the employee is sent to obtain the Hepatitis B vaccine.
- Whenever the employee is sent to a health care professional following an exposure incident.

Health care professionals shall be instructed to limit their opinions to:

- Whether the Hepatitis B vaccine is indicated and if the employee has received the vaccine, or for evaluation following an incident.
- That the employee has been informed of the results of the evaluation.
- That the employee has been told about any medical conditions resulting from exposure to blood or other potentially infectious materials.
- The written opinion to the employer is not to reference any personal medical information.

## **DESIGNATED FIRST PROVIDER PROCEDURES**

The following are defined as the first responder methods and responsibilities:

- Open "First Aid Kit" and put on Personal Protection Equipment. Administer First Aid to stop bleeding and make the individual comfortable.
- Contact your supervisor immediately to determine where to send the individual for medical care.
- Call for medical assistance or drive the individual to the care facility.
- While the individual is at the care facility you should fill out the indicated questions on the Incident Investigation Form and the Information Provided to the Health Care Professional.
- Get a copy of any paperwork given to the worker by the treating physician.
- Supervise the safe clean-up and decontamination of any areas of the workplace may have been contaminated during the incident. Use the personal protective equipment contained in the "First Aid Kit" and a 10% bleach solution to decontaminate equipment and floors.
- Disinfect transport vehicle and place all contaminated materials in the Biohazard Containment Box for controlled disposal.
- Use the Biohazard Containment Box to store any contaminated sharps or garments. Place all cleanup materials on the Biohazard Containment Box for safe disposal.
- Conduct an inventory of the supplies and equipment used so that the appropriate supplies may be replaced and give the report to the safety coordinator or your supervisor.

- Get these three pages and the doctor's paperwork to the office by the close of business on the day after the accident. (Incident Report-Inventory Replacement Form-Information Provided to the Health Care Professional).

## **INFORMATION AND TRAINING**

Training for all employees will be conducted prior to initial assignment to tasks where occupational exposure may occur. Training will be conducted in the following manner:

Training for employees will include the following:

- The OSHA Standard for Bloodborne Pathogens.
- Epidemiology and symptomatology of Bloodborne diseases.
- Modes of transmission of Bloodborne Pathogens.
- This Exposure Control Plan, i.e. points of the plan, lines of responsibility, how the plan will be implemented, etc.
- Procedures which might cause exposure to blood or other potentially infectious materials at this facility.
- Control methods which will be used at the facility to control exposure to blood or other potentially infectious materials.
- Personal protective equipment available at this facility and who should be contacted concerning.
- Post Exposure evaluation and follow-up.
- Signs and labels used at the facility.
- Hepatitis B vaccine program at the facility.

Training will be conducted using videotapes, written material, etc. and all employees will receive annual refresher training. The materials used for training are located in the Bloodborne Pathogen Training Handout on file at the corporate office.

## **RECORDS MAINTENANCE**

Five separate information forms are generated and maintained as an integral part of the Bloodborne Pathogen Program. A sample copy of each form is included in this program. The specific forms are as follows:

- Incident Investigation Form
- Training Acknowledgment & Renewal Endorsement
- HBV Vaccine Status Form
- Inventory Replacement Form
- Information Provided to the Health Care Professional

The title of each form is self explanatory as to the substance and justification of the form and the summary information provided by the completion of the forms complies with the record. All required records will be maintained and kept confidential by authorized personnel.



## Exposure/Incident Investigation Form

Company: \_\_\_\_\_

Incident Date: \_\_\_\_\_

Employee Name: \_\_\_\_\_

Time of Day: \_\_\_\_\_

Location or Job site: \_\_\_\_\_

When was the incident reported & to Whom?

---

---

What is the nature of the injury?

---

---

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---

---

Why did the accident happen?

---

---

---

How could the accident have been avoided?

---

---

---

What steps have you taken to prevent any similar accidents from occurring in the future?

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SIGNED: \_\_\_\_\_  
Supervisor's Name

DATE: \_\_\_\_\_

Employee: \_\_\_\_\_

DATE: \_\_\_\_\_



## Bloodborne Pathogens Exposure Control Plan Acknowledgment of Training

Company: \_\_\_\_\_

I acknowledge that I have received information and training on the following:

- The OSHA Standard for Bloodborne Pathogens
- Epidemiology and symptomatology of Bloodborne diseases
- Modes of transmission of Bloodborne pathogens
- This Exposure Control Plan, i.e. points of the plan, lines of responsibility, how the plan will be implemented, etc.
- Procedures which might cause exposure to blood or other potentially infectious materials at this facility.
- Control methods which will be used at the facility to control exposure to blood or other potentially infectious materials.
- Personal protective equipment available at this facility and who should be contacted concerning
- Post Exposure evaluation and follow-up
- Signs and labels used at the facility
- Hepatitis B vaccine program at the facility

This information gave me an understanding of the importance of protecting myself from bloodborne pathogens and other potentially infectious material. I will follow all rules, policies, and procedures set forth by the company. If I do not understand any instructions I will ask questions.

\_\_\_\_\_  
Employee Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Instructor

\_\_\_\_\_  
Date



## HBV Vaccine Status Form

Company: \_\_\_\_\_

Employee Name: \_\_\_\_\_ Date: \_\_\_\_\_

Social Security Number: \_\_\_\_\_ -- \_\_\_\_\_ -- \_\_\_\_\_

Date of Hepatitis B Vaccine: \_\_\_\_\_

### HEPATITIS B VACCINE DECLINATION

Date of Hepatitis B Vaccine Decline: \_\_\_\_\_

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

\_\_\_\_\_  
Employee Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Witness Signature

\_\_\_\_\_  
Date



## First Aid Inventory Replacement Form

Company: \_\_\_\_\_

Name of Inspector: \_\_\_\_\_

Date of Inspection: \_\_\_\_\_

Location(s) of Inspection:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

List Items Needed:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Notes:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Signature of Inspector or Supervisor



## Information Provided to the Health Care Professional Form

Company: \_\_\_\_\_ Date: \_\_\_\_\_

Employee Name: \_\_\_\_\_

Hepatitis Vaccine Status: \_\_\_\_\_

Date of incident: \_\_\_\_\_ Time of Day: \_\_\_\_\_

Location or Job site: \_\_\_\_\_

Description of Job Duties:

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Description of exposure incident:

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Routes of Exposure:

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Notes:

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\_\_\_\_\_  
Employee or First Responder

\_\_\_\_\_  
Date



## 18. ASBESTOS PROCEDURE

### PURPOSE

To protect the health and safety of all employees from accidental exposure to asbestos during construction operations.

### SCOPE

This section applies to all company operations and field activities.

### DEFINITIONS

**Asbestos** - Includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, and any of these minerals that has been chemically treated and/or altered.

**Employee Exposure** - Means that exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

**Regulated Area** - Means an area established by the employer to demarcate areas where airborne concentrations of asbestos exceed or can reasonably be expected to exceed the permissible exposure limit.

**Demolition** - Means the wrecking or taking out of any load-supporting structural member any related razing, removing, or shipping of asbestos products.

**Removal** - Means the taking out or stripping of asbestos or materials containing asbestos.

**Renovation** - Means the modifying of any existing structure, or portion thereof where exposure to airborne asbestos may result.

**Repair** - Means any reconstructing, or reconditioning of structures or substrates where asbestos is present.

### OPERATIONS PROCEDURES

Employees of the company are generally are not required to perform any work involving asbestos or asbestos like materials. However, if workers suspect the presence of such materials at any work site, they should immediately inform their supervisor. Workers should not touch, remove, demolish, or in any other manner disturb materials that are suspected to

contain asbestos. Supervisors should inform the safety director immediately if asbestos is suspected to be present at a job site. The safety director will determine methods to identify and if necessary control or abate the material prior to further operations.

## **MULTI-EMPLOYER SITE**

When a supervisor determines that another employer onsite is performing abatement, measures should be taken to protect employees from entering regulated areas. This may be accomplished by using barricades, "danger" tape, and warning signs.

## **TRAINING**

On projects where contact with asbestos containing materials is likely due to the nature of the work to be accomplished, proper training on the appropriate asbestos handling procedure will be conducted. Company employees are restricted from such tasks until such training is given.

## 19. LEAD PROTECTION PROGRAM

### POLICY

To provide a hazard free workplace and have a Lead Protection Program to ensure the safety and health of all company employees performing job tasks in which a potential lead exposure could occur.

Compliance with this program is mandatory and is applicable to all company employees who work in an environment where lead is present in any amount. Failure to comply will result in disciplinary action and/or is grounds for termination.

### METHODS OF COMPLIANCE

The nature of job activities sometimes involve working with lead environments where there is a potential for lead exposure. Prior to commencing work on a job site where potential lead exposure is identified as a hazard, a pre-job investigation using the Lead Assessment Form is completed which allows the company to provide effective control methods for employees. The Lead Protection Program incorporates all of the requirements of 29 CFR 1926.62(e)(2)(ii)(A)-(I) as follows:

- 1926.62(e)(2)(ii)(A) A description of each activity in which lead is emitted; e.g. equipment used, material involved, controls in place, crew size, employee job responsibilities, operating procedures and maintenance practices.
- 1926.62(e)(2)(ii)(B) A description of the specific means that will be employed to achieve compliance and, where engineering plans and studies used to determine methods selected for controlling exposure to lead.
- 1926.62(e)(2)(ii)(C) A report of the technology considered in meeting the PEL.
- 1926.62(e)(2)(ii)(D) Air monitoring data which documents the source of lead emissions.
- 1926.62(e)(2)(ii)(E) A detailed schedule for implementation of the program, including documentation such as copies of purchase orders for equipment, construction contracts, etc..
- 1926.62(e)(2)(ii)(F) A work practice program which includes items required under paragraphs (g) *protective work clothing and equipment*, (h) *housekeeping*, and (l) *hygiene facilities and practice* of this program and incorporate other relevant work practices such as those specified in paragraph (e)(5) *employees will follow safe work practice*.
- 1926.62(e)(2)(ii)(G) An administrative control schedule required by paragraph (e)(4) *administrative controls-implementation of a job rotation schedule*.

- 1926.62(e)(2)(ii)(H) A description of arrangements made among contractors on multi-contractor sites with respect to informing affected employees of potential exposure to lead and with respect to responsibility for compliance with this program.
- 1926.62(e)(2)(ii)(I) Other relevant information. (e.g. site inspections, revision of the program every six months, and reviewing the performance of mechanical ventilation).

Once the site specific Lead Assessment Form is completed (this form provides a specific step by step sequence for implementing all aspects of the program) all applicable employees will receive information and training for the identified areas of potential lead exposure at that site. During work activities, the site foreman or supervisor will periodically inspect the area to maintain the effectiveness of the lead protection program. If the inspection reveals a change in the work environment which could increase potential lead exposure, all employees will evacuate the area and a follow-up lead assessment will be completed and the necessary additional precautions will be implemented before work activities resume.

## DEFINITIONS

*Permissible Exposure Limit* - means the dermal or inhalation exposure limit figured on an (8) eight hour time weighted average of (50) micrograms per cubic meter of air.

*Time Weighted Average (TWA)* - the some of all exposure over an 8 hour work shift.

*Action Level* - employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 ug/m<sup>3</sup> averaged over an (8) hour time weighted average.

*Exposure Assessment* - Employers are required to determine if any employee is exposed to lead concentrations at or above the action level of (30) thirty microns per cubic meter of air as a (8) eight hour TWA.

*Lead (Pb)* - metallic lead, all inorganic lead compounds, and organic lead soaps. It is a heavy metal at room temperature and pressure and is a basic chemical element. It can combine with various other substances to form numerous lead compounds. Excluded from this definition are all other organic lead compounds.

*Final Medical Determination* - the outcome of a multiple physical review or an alternate medical determination.

## INTRODUCTION

Exposure to lead occurs in at least 120 different occupations, including primary and secondary lead smelting, lead storage, battery manufacturing, lead pigment manufacturing and use, shipbuilding and ship repair, auto manufacturing, and printing. As an employee of the company, potential exposure to various forms and amounts of lead may occur during certain jobsite activities. Lead exposure is not limited to the lead industries, in fact, food, water, and air all contain certain amounts of lead. Therefore, each of us has normal amounts of lead stored in body tissue.

## FORMS OF LEAD EXPOSURE

- Lead Metal

- Lead Dust
- Lead Fumes
- Lead Mist

Non-occupational exposure to lead is less than industrial exposure. Lead and lead forms are found at operations such as stacking, pasting, casting, burning and smelting, oxide manufacturing and assembly. There may be a potential health hazard at manufacturing facilities where lead is a part of operations.

### **WAYS LEAD CAN ENTER THE BODY**

- inhalation
- ingestion

When lead is absorbed into the body in certain doses it is a toxic substance. Lead is not absorbed through the skin, but can enter the body by inhalation and ingestion. When lead is scattered through the air as a dust, fume, or mist it can be inhaled and absorbed by the lungs and upper respiratory tract.

Inhalation of airborne lead is generally the most important source of occupational lead absorption. Lead can also be absorbed through the digestive system if swallowed. Handling food, cigarettes, chewing tobacco, or make-up with hands contaminated with lead will contribute to ingestion. It is for this reason that eating, drinking, and smoking in identified lead areas is avoided.

Lead blood levels will continue to increase if exposure is not controlled. A significant portion of the lead that you inhale or ingest gets into the blood stream. Once in your blood stream, lead is circulated throughout your body and stored in various organs and body tissue. Some of the lead is filtered out of the body by excretion, but some remains in the blood and other tissues. The amount of lead stored in the body will increase if lead absorbing is more than body excretion. The lead stored in the body can slowly cause irreversible damage to cells, organs, and the body system.

### **HEALTH EFFECTS OF LEAD OVEREXPOSURE**

If steps are not taken to control exposure, continued absorption of lead could result in:

- constipation or diarrhea
- lack of appetite
- weight loss
- nausea
- abdominal pain
- adverse effects in the male and female reproductive systems
- adverse effects in an unborn fetus

#### Short Term Overexposure (Acute)

Lead is a systemic poison that serves no known useful function once absorbed by the body. Exposure to lead in large enough quantities can kill in a matter of days. A condition affecting the brain may arise, known as acute encephalopathy which develops into seizures, coma, and death. A short term exposure of this magnitude is highly unlikely, but not impossible. There is no sharp dividing line between developing acute and chronic health effects. Lead adversely

affects numerous body systems and causes forms of health impairment and disease which arise after periods of exposure as short as days or as long as several years.

### Long Term Overexposure (Chronic)

Chronic overexposure to lead may result in severe damage to your blood-forming, nervous, urinary, and reproductive systems. Some common symptoms of chronic overexposure include loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, excessive tiredness, weakness, insomnia, headache, nervous irritability, muscle and joint pain or soreness, fine tremors, numbness, dizziness, and hyperactivity. At this stage, lead poisoning may be diagnosed by a qualified physician.

### Human Reproductive & Fetal Health

The medical and scientific community has recognized that lead exposure can have significant adverse health effects on an unborn fetus and the reproductive systems of males and females. At current acceptable OSHA blood-lead levels there are no known teratogenic effects which may result in birth defects or malformations, however, at higher blood-lead levels diverse effects have been reported. Some symptoms of lead overexposure affecting the male reproductive system may include a decrease in sexual drive, impotence, decreased ability to produce healthy sperm and sterility. With respect to females, these effects may include menstrual disturbances, decreased viability of the fertilized ovum and changes in reproductive capacity.

## **REPORTING OF PROBLEMS**

Immediately notify your supervisor if you develop potential signs or symptoms associated with lead poisoning. You should also notify your supervisor if you have difficulty breathing while wearing a respirator or suspect problems with other personal protective equipment.

## **EXPOSURE ASSESSMENT**

The company will determine if employees are exposed to concentrations of lead at or above the action level of 30 ug/m<sup>3</sup> on an eight-hour TWA. The exposure determination shall be based on the following:

- personal exposure monitoring
- objective data demonstrating that the lead containing material, product, process, operation, or activity cannot result in exposure at or above the action level
- historical measurements of airborne lead that have been taken within the last 12 months

If the initial exposure determination reveals employee exposure to be at or below the PEL, monitoring will be performed at least every six months. If the exposure determination reveals employee exposure above the PEL, monitoring will be performed quarterly. Additional monitoring will take place if a change in an operations production process occurs which may result in additional exposure to lead. In addition, employees will be given written notification of the results of their exposure assessment within five working days.

## **PREVENTING LEAD ABSORPTION**

Proper control of exposure to lead is the responsibility of both the employer and the employee. All of the control methods discussed below are essential to minimize additional sources of lead absorption from inhalation or ingestion of lead that may accumulate on you, your clothing, or your possessions. High personal standards of cleanliness are necessary. Strict compliance with these provisions can virtually eliminate several sources of lead exposure which significantly contribute to excessive lead absorption.

### Respiratory Protection

Exposure to hazardous materials requires special precautions against absorption of toxic compounds. While engineering controls (e.g. ventilation systems) are the primary means of controlling materials such as lead dust, fumes, vapors, and mists, it is often necessary to rely on respiratory protection. The respirator will give you the proper amount of protection based on the nature of the hazard. Only use respirators tested and certified by the National Institute for Occupational Safety & Health (NIOSH). The cartridges that come with the mask are approved for the environment in which you will be working. Never use a cartridge respiratory in an atmosphere containing less than 19.5% oxygen or an atmosphere immediately dangerous to life and health (IDLH). In addition, observe the requirements of the Respiratory Protection Program.

### Protective Work Clothing & Equipment

Protective clothing and equipment must be worn when the exposure to lead and lead compounds is above the PEL. If work clothing is provided, it will be given to you in a clean and dry condition at least weekly, and daily if your airborne exposure to lead is greater than 200 ug/m<sup>3</sup>. Protective work clothing and equipment can include coveralls, tyvek coveralls, gloves, hats, shoes, shoe coverlets, face shield or vented goggles. All clothing and equipment will be repaired, replaced, cleaned, laundered, or disposed of as necessary by the company. Contaminated work clothing and equipment must be removed in the designated change room and placed in the provided closed containers to be cleaned or disposed of. At no time may lead be removed from protective clothing or equipment by any means which disperses lead into the workplace air.

### Hygiene Facilities & Practices

Employees exposed to lead above the PEL must change, shower, and eat in designated areas. After changing and showering, no clothing or equipment worn during the shift should be carried home, this includes shoes and underwear. The change area will be equipped with separate storage facilities for protective work clothing and equipment and for street clothing to prevent cross-contamination. The container for lead contaminated clothing will be labeled as follows: CAUTION: CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS. Lunchrooms may not be entered with protective clothing or equipment unless surface dust has been removed by vacuuming, down draft booth, or other accepted cleaning method. Finally, workers exposed above the PEL must wash both their hands and face prior to eating, drinking, smoking, or applying cosmetics.

## Housekeeping & Cleaning Practices

All surfaces will be maintained as free as practicable of accumulation of dust. In addition, the use of compressed air to clean floors and other surfaces is restricted. When vacuuming methods are used, take special precaution when emptying the vacuum to minimize the re-entry of lead into the workplace atmosphere. Where vacuuming methods are not feasible, shoveling, dry or wet sweeping, and brushing are acceptable.

## Administrative Controls & Practices

Based on the specific site lead assessment, the company will implement a job rotation schedule as one means of reducing an employees TWA exposure to lead. The schedule includes the name or identification number of each affected employee, the duration and exposure levels at each job or work station where affected employees are located, and any other information useful in assessing the reliability of the administrative controls used to reduce potential lead exposure.

## **MEDICAL SURVEILLANCE**

The medical surveillance program is part of the comprehensive approach to the prevention of lead related disease. It's purpose is to supplement the lead program which is aimed at minimizing airborne concentrations of lead and sources of ingestion. Only medical surveillance can determine if the provisions of the lead program have affectively protected an employee. Periodic medical surveillance of individual employees will help detect those failures in the lead program and engineering techniques.

## Biological Monitoring

The initial phase of the medical surveillance program includes blood-lead and zinc level tests. Biological monitoring will be made available to all employees who are exposed in excess of the action level for more than thirty days a year:

- at least every six months.
- whose last blood sampling and analysis indicated a blood lead level at or above 40 ug/100g of whole blood will continue monitoring every two months.
- and will continue until two consecutive blood samples and analysis indicate a blood lead level below 40 ug/100g of whole blood.

Written notification of test results will be given to employees within five days indicating blood lead levels and be given medical removal protection benefits when blood sampling and analysis indicate a blood lead level at or above 40 ug/100g of whole blood.

## Medical Examinations and Consultations

- The second phase of medical surveillance is medical examinations and consultations. Medical examinations and consultations will be made available to employees:
- who are exposed in excess of the action level for more than thirty days a year.



- at least annually for each employee for whom a blood sampling test conducted at any time during the preceding 12 months indicated a blood level at or above 40 ug/100g.
- prior to the assignment for the first time to an area in which airborne concentrations of lead are at or above the action level.
- as soon as possible, upon notification by an employee, that he/she has developed signs and symptoms commonly associated with lead intoxication, or desire medical advice concerning the effects of current or past exposure to lead and the ability to procreate a healthy child.
- as medically appropriate for each employee either removed from exposure to lead due to risk of sustaining material impairment to health, or otherwise limited pursuant to a final medical determination

All medical examinations and consultations will be performed by a licensed physician and sampling and analysis tests will be performed by a laboratory licensed by the Center of Disease Control.

### **MEDICAL REMOVAL PROTECTION**

Excessive lead absorption subjects employees to increased risk of disease. Medical Removal Protection (MRP) is a means of protecting employees when, for whatever reasons, such as engineering controls, work practices, and respirators, have failed to provide the needed protection. MRP involves the temporary removal of an employee from his or her regular job to a place of lower exposure without loss of earnings, seniority, or benefits.

### **POSTING WARNING SIGNS**

A warning sign must be illuminated, kept clean, and posted in work areas where the exposure to lead exceeds the PEL. The sign must read WARNING-LEAD WORK AREA-POISON-NO SMOKING OR EATING

### **EMPLOYEE INFORMATION & TRAINING**

Information and training will be given to all employees who may be exposed to lead above the action level, or who may suffer skin or eye irritation from lead. The training program will inform employees of the following:

- specific hazards associated with their work environment
- personal protective equipment
- lead exposure
- dangers of lead
- health hazards associated with lead overexposure
- employee rights under the lead standard

Documentation of employee information and training is kept on file at the corporate office.

### **RECORD KEEPING**

The following records will be kept on file at the corporate office or job sites, if applicable:

#### Exposure monitoring for airborne lead

- name and job classification of employees measured
- details of the sampling and analytic techniques
- results of the sampling
- type of respiratory equipment worn
- records will be kept on file for 40 years or for at least 20 years after termination of employment, whichever is longer

#### Biological Monitoring & Medical Evaluations

- names of employees and social security numbers
- physicians written opinion
- copy of exam results
- records will be kept on file for 40 years or for at least 20 years after termination of employment, whichever is longer

#### Temporary Removal

- name and social security number
- date of removal and return
- how the removal was or is being accomplished
- whether or not the removal was an elevated blood lead level
- kept for duration of employment

#### Job Rotation Schedules

- name and identification number of each effected employee
- duration and exposure levels at each job or work station where each affected employee is located
- any other information useful in assessing the effectiveness and reliability of the rotation schedule

#### Lead Assessment Form

- description of the facility and potential lead exposure areas
- job description of employees working in the potential lead exposure area
- any specific operating and maintenance procedures
- any engineering controls necessary or in place to prevent potential exposure to lead
- all air and emissions monitoring results of the area are copied for company records
- any specific protective clothing and respiratory protection required
- any job specific rotation schedules
- necessary hygiene facilities and practices
- mandatory house keeping and cleaning practices
- all mechanical ventilation will be evaluated for effective performance
- identification of safe work practice controls

#### Acknowledgment of Training Form

- documentation of employee training

**Note: This program must be updated every six months.**



## Job-Site Lead Assessment Form

PLEASE PROVIDE SPECIFIC DETAILS

Company Name & Address:

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Job Location Address:

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Crew Size & Job Activities:

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Does job site already use Lead Standard Operating Procedures & Practices?

Yes  No If yes please list or attach:

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List Lead Exposure Controls in Place at the job site:

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List identified areas of potential lead exposure:

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Did the company receive all Air Monitoring Data?  Yes  No If yes please attach.

Is a Job Rotation Schedule Required?  Yes  No

List Specific Personal Protective Equipment Required:

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## Job-Site Lead Assessment Form (Page 2 of 2)

List Specific Housekeeping Requirements:

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Location of Hygiene Facilities and Specific Procedures:

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List Specific Safe Work Practice Procedures:

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Inspector: \_\_\_\_\_

Date: \_\_\_\_\_



## Lead Protection Program Quiz & Acknowledgment of Training

Company: \_\_\_\_\_

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. Excessive lead absorption subjects employees to increased risk of harm.  True  False
2. Ways lead can enter the body are inhalation and ingestion.  True  False
3. If steps are not taken to control exposure, continued absorption of lead could result in nausea, abdominal pain, adverse effects in the male and female reproductive systems, and adverse effects in an unborn fetus.  True  False
4. Immediately notify your supervisor if you think you have develop potential signs or symptoms associated with lead poisoning.  True  False
5. Control of exposure to lead is the responsibility of both the employer and the employee.  True  False
6. It is essential to minimize additional sources of lead absorption from inhalation or ingestion of lead that may accumulate on you, your clothing, or your possessions. High personal standards of cleanliness are necessary.  True  False
6. Engineering controls (e.g. ventilation systems) are the primary means of controlling materials such as lead dust, fumes, vapors, and mists, it may be necessary to use respirators.  True  False
8. Protective clothing and equipment must be worn when the exposure to lead and lead compounds is above the PEL.  True  False
9. All clothing and equipment must be repaired, replaced, cleaned, laundered, or disposed of as necessary.  True  False
10. Contaminated work clothing and equipment must be removed in the designated change room and placed in the provided closed containers to be cleaned or disposed of.  True  False
11. At no time may lead be removed from protective clothing or equipment by any means which disperses lead into the workplace air.  True  False
12. Employees exposed to lead above the PEL must change, shower, and eat in designated areas.  True  False
13. Workers exposed above the PEL must wash both their hands and face prior to eating, drinking, smoking, or applying cosmetics.  True  False

I acknowledge that I have received information and training on the dangers of lead and the policies and procedures in place to protect myself. This training has given me an understanding that lead may have adverse health effects on my health and the health of a developing fetus. Furthermore, I understand that the decision to work in a potential lead exposed job is mine, exclusively, and that if I make this choice, I do so voluntarily. If I do not understand any of the materials presented to me I will ask questions.

\_\_\_\_\_  
Employee Signature

\_\_\_\_\_  
Instructor Signature

## **20. PERSONAL PROTECTIVE EQUIPMENT**

### **PURPOSE**

To ensure the use of appropriate company approved personal protective equipment wherever and whenever there is a potential for exposure, either real or assumed, to hazardous working conditions, or where a hazardous condition exists and a need is indicated for using such equipment to adequately reduce the hazard to its personnel, visitors and/or subcontractors.

### **SCOPE**

This procedure applies to all Company divisions, on-site construction and maintenance projects.

### **REFERENCES**

- OSHA 29 CFR 1926 & 1910
- Applicable Current ANSI Standards

### **PROCEDURE**

The company reserves the right to select and or approve all personal protective equipment to be issued and used by its employees, visitors and/or subcontractors, and only such equipment issued or approved will be allowed on its job sites. Failure to comply with this procedure will result in disciplinary action up to and including termination.

### **REQUIREMENTS**

Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.

Where employees provide their own protective equipment, the employer shall be responsible to assure its adequacy, including proper maintenance, and sanitation of such equipment.

All personal protective equipment shall be of safe design and construction for the work to be performed.

Hazard assessment and equipment selection: The employer shall assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE). If such hazards are present, or likely to be present, the employer shall:

Select, and have each affected employee use, the types of PPE that will protect the affected employee from the hazards identified in the hazard assessment. Communicate selection decisions to each affected employee and select PPE that properly fits each affected employee.

The employer shall verify that the required workplace hazard assessment has been performed through a written certification that identifies the workplace evaluated; the person certifying that the evaluation has been performed; the date(s) of the hazard assessment; and, which identifies the document as a certification of hazard assessment.

Defective or damaged personal protective equipment shall not be used.

### Personal Work Clothing

The minimum work clothing that is acceptable for all employees is long pants, good work shoes or boots, and a shirt that completely covers the worker's shoulders and provides adequate protection against such hazards as concrete splash, abrasions to the skin, oil or grease spills, and slag from welding or cutting. Tank top type or sleeveless shirts are not allowed on company projects. A minimum of 4-inch sleeves is required.

Welders should be cautioned against wearing any type of highly flammable clothing, such as polyesters, double-knits, etc. Wool and specially treated cotton are two natural fibers that are fire-resistant and comfortable. Heat-resistant material, such as leather, is used to protect against dry heat, flames, and molten material. Fire-resistant clothing also protects from high workplace temperature and electrical operations.

For the most part, construction workers should wear clothing that is reasonably snug, particularly about the neck, wrists, and ankles. Employees shall be cautioned against wearing loose clothing, rings, watches, necklaces or having long hair, all of which may catch in power driven equipment.

Rubber and rubberized fabrics, neoprene, and plastics protect against some acids and chemicals. Disposable chemical suits are used to protect against dusty materials and materials that splash. For materials that have are extremely toxic, a fully encapsulated suit may be necessary.

Dress for the job. Wear a shirt with a minimum of 4 inch sleeves and pants that cover the entire body. Do not wear oil soaked or to loose clothing, and be aware of rings, watches, etc. which might be caught. If you have any questions ask your supervisor. Clothing that has become torn, ragged, or frayed is not acceptable, since it presents a hazard of catching on tough corners or machine parts which could cause the wearer to trip or fall.

### Eye and Face Protection

To prevent possible eye and face injuries suitable eye protection must be worn. Potential eye and face injuries occur from flying objects, liquid chemicals, acids or caustic liquids, molten metal, chemical gases or vapors, and light radiation. Eye protection must provide adequate protection, be reasonably comfortable, fit snugly, be durable, capable of being disinfected and cleaned, kept sanitary and in good repair. When selecting eye and face protection consider what kind and degree of hazard is present.

This will assist in deciding the proper protection. Employees who use corrective spectacles and are required to wear eye protection must wear face shields or goggles over their

spectacles or safety glasses with protective optical corrective lenses. It is important to use the proper shade lenses when working with injurious light energy. Welders must wear a welder's hood with lenses, which have the correct color density for the type of welding involved. Welder's helpers must wear the same, or at the minimum, must wear burning goggles with the correct color density. Lenses See Exhibit A & B. Safety glass must be worn in front or behind the welder's shaded lenses.

Eye and face protection purchased prior to July 5, 1994 must be in accordance with ANSI Z87.1-1968 and any eye or face protection purchased after July 5, 1994 must comply with ANSI Z87.1-1989. Full face shields must be used when doing such work as grinding or chipping. If you have questions about eye or face protection ask your supervisor or refer to the manufacture instructions.

### Foot & Leg Protection

Most foot injuries occur from employees not wearing protective footwear. The typical foot injury is caused from objects falling fewer than 4 feet. For protection from falling or rolling objects, sharp objects, molten metal, hot surfaces, and slippery surfaces, employees should use appropriate foot guards, steel toe safety shoes, steel toe safety boots, metatarsal guards and leggings. Leggings protect the lower leg and feet from molten metal and welding sparks.

Leather work shoes/boots are required and safety shoes are recommended for use by all employees. Safety shoes should be sturdy, have an impact resistant toe, and have puncture resistant soles. Protective footwear purchased prior to July 5, 1994 must comply with ANSI Z41.1-1967 and protective footwear purchased after July 5, 1994 must comply with ANSI Z41-1991.

When working with wet concrete, workers must wear rubber boots. Shoes and boots must be kept in good repair, and those with worn heels or thin or worn soles should not be permitted. In addition, the wearing of sneakers, sandals, or shoes that have been slit or have holes cut in them, will not be permitted.

### Hand & Arm Protection

Arm and hand protection is used to prevent skin contact and absorption with potentially harmful materials, to prevent burns, and electrical shock. Where needed, workers should wear work gloves in good condition which are suited to the type of work involved. Some of the factors taken into account when gloves were selected are the toxic properties of chemicals handled by employees, the degree of dexterity required, duration, frequency, degree of exposure to the hazards, and physical stress that will be applied. The company relies on the manufacturers standard test procedures for hand and arm protection performance characteristics.

Employees who are required to operate or work around drill presses, power saws, and similar rotating machinery should not wear gloves. Special type gloves such as neoprene or rubber to handle chemicals shall be issued to those employees who have a need for them. Welders shall wear gloves during settling operations.

It is important to wear the right type of glove for the task. During material handling leather gloves shall be worn. Make sure they fit properly, not too tight or too loose. They should be able to be removed quickly. Employees required to wear protective clothing will be individually instructed by their supervisors. If you have any questions about the need for protective



equipment in your work area, consult the MSDS for materials in the work area, or contact your supervisor.

### Hard Hats

Head protection is used to prevent injury from overhead head hazards and electrical shock. Head injuries are caused by falling or flying objects, or by bumping the head against a fixed object. Head protection will accomplish two things, resist penetration and absorb the shock of a blow. The shell of the hard hat is made of a material hard enough to resist the blow. The shock absorbing lining is composed of a headband and crown straps to keep the shell away from the skull. Headband assemblies must be in good condition and should be exchanged whenever they become broken or weakened. The area between the top of the headband and the top of the hard hat should never be used for storage. Head protection shall be worn properly with the *brim in front*.

All employees that wear company issued hard hats must wear them at all times when working on construction projects or areas of an existing facility which has been designated as a "Hard Hat Area." This includes visitors, subcontractors, engineers, inspectors, and anyone else who has authorization to be on the project.

Hard hats which have been altered by drilling or cutting will not be permitted, nor will those hats which have been altered by the addition of any items on the outside of the hat other than safety, or site stickers. When it is necessary to use additional personal protective equipment which must be attached to the hard hat, only those hard hats designed for this purpose may be used.

Protective hard hats purchased prior to July 5, 1994 must meet ANSI requirements for Industrial Head Protection Z89.1-1969 and ANSI requirements for Industrial Protective

Helmets for Electrical Workers Z89.2-1971. For protective helmets purchased after July 5, 1994 shall meet ANSI requirements Personal Protection-Protective Headgear for Industrial Workers Z89.1-1986.

### Respiratory Protection

Company issued respiratory protective devices, appropriate for the hazard, must be used where airborne contaminants, such as fibers, dust, smoke, vapors, and mists exist and may exceed acceptable levels. Respiratory protection shall be worn according to the task or job, where exposure exceeds the Permissible Exposure Limit (PEL), in regulated areas of the facility, and in emergency situations. Respirators shall not be manipulated and shall meet ANSI standards. Respiratory protective devices must be used in accordance with the provisions of the Respiratory Protection Program in the Safety & Health Programs Section of this Manual.

### Hearing Protection

The primary objective of hearing protection is to prevent exposure of personnel to excessive noise levels and thereby preventing hearing loss or impairment during the course of employment. Excessive noise levels can create physical and psychological stress. There is no cure for hearing loss so hearing conservation is the only way to protect employees and avoid hearing damage. Our employees shall not be exposed to more than an average of 90 db over an 8 hour period, and hearing protection is required when noise is above 85 db.

When employees are subject to sound levels exceeding those in Exhibit C, hearing protection will be provided and used to reduce the sound level. Hearing protection will be provided whenever necessary and training in the proper use and care will be provided. Monitoring and training shall be by competent persons. For more specific information refer to the Hearing Protection Program.

#### Full Body Harness and Lanyards

Harnesses with lanyards in use, must be worn by all employees who are working at elevated levels which are not protected by standard handrails, or when working from suspended scaffolds. Employees are required to wear and use full body harnesses to protect them from falling when they are exposed to falls from heights of six feet or more. If they are working over machinery, moving equipment or objects posing an impalement hazard, or in the case of entering a confined space, with an attended lifeline, 100% full protection is required. This might include the need for two lanyards per belt. All harnesses and lanyards shall be inspected and each inspection documented with the harness serial number. Inspections shall be performed by supervision. Quick release belts shall only be used when working over bodies of water. Lanyards shall have locking snaps that require two actions to open.

#### Flotation Vests

US Coast Guard approved flotation vests must be worn by all employees who are working on barges or floating pipelines or plants, or on structures extending over water, that are not protected by adequate standard handrails. In addition, any employee who is working over the side of a vessel or structure which is extended over water, or in any area where a drowning hazard exists, must wear an approved flotation vest.

#### Traffic Vests

Whenever employees are required to work in the immediate vicinity of moving traffic, all personnel must be required to wear, as a minimum, a fluorescent orange or red traffic safety vest which will be provided by the company.

#### Protective Equipment for Specific Use

Failure to comply with company policy requiring the use or wearing of personal protective equipment in connection with specific tasks, will result in disciplinary action which could include termination of employment.

### **PPE TRAINING AND RETRAINING**

We maintain that we shall provide training to each employee who is required by this section to use PPE, per OSHA 1910.132(f)(1). Each such employee shall be trained to know at least the following:

1. Per OSHA 1910.132(f)(1)(i): When PPE is necessary;
2. Per OSHA 1910.132(f)(1)(ii): What PPE is necessary;
3. Per OSHA 1910.132(f)(1)(iii): How to properly don, doff, adjust, and wear PPE;
4. Per OSHA 1910.132(f)(1)(iv): The limitations of the PPE;
5. Per OSHA 1910.132(f)(1)(v): The proper care, maintenance, useful life and disposal of the PPE.

We establish and maintain that each affected employee shall demonstrate an understanding of the training specified in paragraph (f)(1) of this section, and the ability to use PPE properly, before being allowed to perform work requiring the use of PPE, Per OSHA 1910.132(f)(2).

We establish and maintain that when we have reason to believe that any affected employee who has already been trained does not have the understanding and skill required by paragraph (f)(2) of this section, that we shall retrain each such employee, per OSHA 1910.132(f)(3).

Circumstances where retraining is required include, but are not limited to, situations where:

1. Per OSHA 1910.132(f)(3)(i): Changes in the workplace render previous training obsolete; or
2. Per OSHA 1910.132(f)(3)(ii): Changes in the types of PPE to be used render previous training obsolete; or
3. Per OSHA 1910.132(f)(3)(iii): Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.

We establish and maintain that we shall verify that each affected employee has received and understood the required training through a written certification that contains the name of each employee trained, the date(s) of training, and that identifies the subject of the certification, per OSHA 1910.132(f)(4).



## FILTER LENS SHADE NUMBERS FOR PROTECTION AGAINST RADIANT ENERGY

WELDING OPERATION	SHADE NUMBER
Shielded metal-arc welding 1/16, 3/32, 1/18, 5/32 inch diameter electrode	10
Gas-shielded arc welding (non-ferrous) 1/16, 3/32, 1/8, 5/32 inch diameter electrodes	11
Gas-shielded arc welding (ferrous) 1/16, 3/32, 1/8, 5/32 inch diameter electrodes	12
Shielded metal arc welding 3/16, 7/32, 1/4 inch diameter electrodes	12
Shielded metal arc welding 5/16, 3/8 inch diameter electrodes	14
Atomic hydrogen welding	12 to 14
Carbon arc welding	14
Torch soldering	2
Torch brazing	3 or 4
Light cutting, up to 1 inch	3 or 4
Medium cutting, 1 inch to 6 inches	4 or 5
Heavy cutting, over 6 inches	5 or 6
Gas welding (light), up to 1/8 inches	4 or 5
Gas welding (medium), 1/8 inch to 1/2 inch	4 or 5
Gas welding (heavy), over 1/2 inch	6 or 8

## EYE HAZARD & PROTECTION APPLICATIONS CHART

OPERATION	HAZARDS	PROTECTORS
Acetylene-Burning Acetylene-Cutting Acetylene-Welding	Sparks, harmful rays molten metal, flying, particles	5, 6, 7
Chemical handling	Splash, acid burns	3 (for severe exposure add 8)
Chipping	Flying, particles	1, 2 (for severe exposure add 8)
Electric (arc)	Sparks, intense rays	8 with tinted lens (in combination with 1)
Welding	Molten metal	8 with tinted lens (in combination with 1)
Furnace Operations	Glare, heat, molten	5, 6, 7 (for severe metal exposure add 8)
Grinding-Light	Flying particles	1, 2 (for severe exposure add 8)
Grinding-Heavy	Flying particles	2 (for severe exposure add 8)
Laboratory	Chemical splash	3 (for severe glass breakage exposure add 8)
Molten Metals	Heat, glare, sparks, splash	5, 6 (8 in combination with 1 in tinted lenses)
Spot Welding	Flying particles, sparks	1, 2 (limited lenses advisable, For severe exposure add 8)

### REFER TO THE FOLLOWING FOR APPROPRIATE PROTECTORS:

1. Safety spectacles with side shields
2. Goggles, flexible fitting, regular ventilation
3. Goggles, flexible fitting, indirect ventilation
4. Face shield, plastic
5. Welding goggles, eyecup type, tinted lenses
6. Welding goggles, coverspec type, tinted lenses
7. Welding goggles, coverspec type, tinted plate
8. Welding helmet



## PERSONAL PROTECTIVE EQUIPMENT QUIZ & ACKNOWLEDGMENT OF TRAINING

Company: \_\_\_\_\_

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. The purpose of a hazard assessment is to locate hazards in the workplace and assign ppe. \_\_\_\_\_ True \_\_\_\_\_ False
2. Personal protective equipment can protect the head, eyes, face, lungs, and extremities. \_\_\_\_\_ True \_\_\_\_\_ False
3. PPE can not prevent absorption, inhalation, or physical contact with hazards. \_\_\_\_\_ True \_\_\_\_\_ False
4. Define HAZARD: \_\_\_\_\_
5. List two types of ppe you use: \_\_\_\_\_  
\_\_\_\_\_
6. You should replace your damaged ppe:  
a. At the end of your shift      b. The next day      c. Immediately
7. Always inspect your ppe before each use. \_\_\_\_\_ True \_\_\_\_\_ False
8. PPE that you use depends on the hazards associated with the task. \_\_\_\_\_ True \_\_\_\_\_ False

I acknowledge that I have received information and training on personal protective equipment. This information has given me an understanding of personal protective equipment and its importance to my personal well being.  
I further agree to abide by the personal protective equipment safety policies and procedures as set forth by the company.  
If I do not understand the material presented to me I will ask questions.

Employee Signature \_\_\_\_\_

Instructor \_\_\_\_\_



## PERSONAL PROTECTIVE EQUIPMENT & SAFE WORK PROCEDURE HAZARD ASSESSMENT FORM

Company: \_\_\_\_\_

Date: \_\_\_\_\_

Location/Department: \_\_\_\_\_

Job Description: \_\_\_\_\_

Equipment Used: \_\_\_\_\_

Analysis Made By: \_\_\_\_\_

Analysis Certified By: \_\_\_\_\_

Sequence of Basic Job Steps:

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Tools/Materials Used:

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Potential Accidents or Hazards:

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Recommended Safe Job Procedure, Practices, and Personal Protective Equipment:

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## 21. MATERIAL STORAGE & HANDLING

### PURPOSE

To provide guidelines enabling individual supervisory personnel to develop and implement procedures for the safe handling and storage of materials.

### SCOPE

This procedure applies to all material storage and handling activities at the companies divisions and all on-site construction and maintenance projects.

### RESPONSIBILITY

The company will initiate a plan prior to construction activity and will implement, monitor, enforce, and administer this procedure.

### PROCEDURE

#### Shop & Job Sites

- Both temporary and permanent storage should be neat and orderly. When planning material storage, a minimum of 24 inches of clearance must be allowed under sprinkler heads. Automatic sprinkler controls and electrical panel boxes must be kept free and unobstructed.
- There must be unobstructed access to fire hoses and extinguishers, and access to emergency exits and aisles shall always be maintained. Areas immediately outside of emergency exits shall also be left clear for egress.
- Materials shall be segregated as to kind, size, and length, and placed in neat, orderly piles that are safe from falling. If the piles are high, they shall be stepped back as the height increases, and shall be secured by cross-piling or cross-tying. Piles of materials shall be arranged so as to allow for passageways.
- Storage of materials will be facilitated and hazards reduced, with the use of storage bins and racks which are in good condition. Storage racks shall be secured to the wall and/or floor as well as to each other. Damaged racks shall not be used for storage and employees shall not be allowed to climb racks.



- Depending on the value of the materials in storage, it may be considered advisable to provide some type of security to enable the preservation of the materials.

### Lumber Storage

- Lumber shall be stacked on solid, level surface. Cross-strips or cross-pilings shall be used where the pile is more than four feet high. The top of each pile shall be kept as level as possible when lumber is being removed. Used lumber shall have nails removed before it is piled. Two employees shall carry long boards, and care should be exercised at corners and crosswalks.

### Steel Storage

- Reinforcing steel shall be stored in separate piles according to size and length. Corrugated and sheet steel must be stacked in flat piles. Spacing strips shall be placed between each bundle.

### Pipe Storage

- Pipe shall be stored on specially designed sills or racks, and shall be safety blocked to prevent rolling. When removing pipe, employees shall work from the end of the pile as much as possible. Pipe larger than two (2) feet in diameter should be handled by using mechanical equipment. Two employees should carry long lengths of pipe, and care shall be maintained at corners. Stored sewer pipe shall be blocked.

### Petroleum Product Storage

- Petroleum products delivered to the job site and stored there in drums shall be protected during handling to prevent loss of identification through damage to drum markings, tags, etc. Unidentified petroleum products may result in improper use, with possible fire hazard, damage to equipment, or operating failure.
- Bulk delivery and storage of petroleum products requires care in identification and particular attention to fire hazards during handling and storage. Appropriate fire extinguishers must be easily accessible in the immediate storage location. The storage area is to be diked to prevent the spread of accidentally released material (outside storage of bulk material).

### Flammable Liquid and Gas Storage

- All gases and liquids should be considered as flammable unless the label clearly indicates that no such exposure exists. Conditions on construction sites change so rapidly that extreme care is necessary whenever flammable liquids or gases are being used. Flammable liquids and gases can be ignited by open flames, sparks, or excessive heat, so it is necessary that each of these factors be considered when setting

up safe storage facilities for these items. Oxygen cylinders shall be separated from fuel gas cylinders by a distance of 20 feet and stored outside of buildings.

- No other equipment or materials should be contained in the area where flammable or combustible liquids or gases are stored. This is especially true for compressed gases and petroleum products.
- All areas that are to be used for the storage of flammable liquids and gases should be conspicuously designated as such, and No Smoking signs posted. Combustible materials shall not be stored within 20 feet of any fuel gas or oxygen cylinder storage area.
- The "No Smoking" must be vigorously enforced. These areas shall always be located so that local fire protection will always have access to the material.
- Only approved containers can be used for the storage of flammable liquids, and each container must have an emergency-venting device. All containers, from which flammable liquids are to be dispensed, shall be grounded, and when transferring flammable liquids, the dispensing container shall be bonded to the receiving container.

#### Storage of Compressed Gas Cylinders

- Cylinders shall be kept away from radiators and other forms of heat (protected from solar).
- Inside buildings, cylinders shall be stored in a dry, well-ventilated and protected area. Cylinders shall not be stored in unventilated enclosures such as lockers and cupboards.
- Assigned storage spaces shall be located where cylinders will not be knocked over or damaged by passing or falling objects, or be subject to tampering by unauthorized persons.
- Empty cylinders shall have the valves closed. Storage of cylinders shall be separated and identified with content and condition (full or empty).
- When cylinders are not in use the caps shall be in place.
- Compressed gas cylinders shall be secured (chained) in an upright position at all times, including when being hoisted or transported.
- Retention chains or straps will be provided on storage racks and carts compressed gas cylinders will be secured against falling.
- Small, hand held compressed gas cylinders used for propane torches, gas detector test cylinders, etc. may be stored without use of retention chains or straps. However, attention should be given to storing these cylinders away from open flames or sources of heat, and in a manner that will protect the cylinder from being knocked over or damaged by work activities.

- Compressed gas cylinder storage area - A 20 pound ABC rated fire extinguisher (minimum) shall be placed no closer than 25 feet, but not further than 75 to fuel gas storage areas.
- Compressed gas cylinder storage area - Warning signs shall be conspicuously placed and shall read, "Danger-No Smoking, Matches or Open Lights or Flames," or other equivalent wording.
- Compressed gas cylinder storage area - Inside buildings, cylinders (except those in actual use or attached for use) shall be limited to a total gas capacity of 2,000 cubic feet or 300 pounds of liquefied petroleum gas.
- Compressed gas cylinder storage area - Oxygen cylinders in storage shall be separated from fuel-gas cylinders or combustible materials (especially oil or grease) a minimum of 20 feet, or by a noncombustible barrier at least five feet high having a fire-resistant rating of at least one-half (1 /2) hour.

### Material Handling

- Supervisors must give advance consideration to the size, shape and weight of materials to be handled and plan the most efficient and safest method to accomplish the task. Proper tools shall be provided for the job and alternate methods should be considered.
- Employee selection should be considered so that work assignments will match the employee to the job in terms of knowledge and physical abilities. Whenever unusual or hazardous operations are to be performed, prior to commencing the work, employees shall be warned about all possible hazards and given specific safety instructions by their immediate supervisor.
- Special precautions shall be taken to prevent hernias and back injuries. Employees naturally tend to bend at the waist and attempt to lift loads with their hands and arms. This is improper and causes injuries. Instead, employees should be cautioned to bend the knees and lift with their legs. Avoidance of these injuries begins with instructing the employee in the correct way to do the work and changing any bad lifting habits. Employee's first efforts following safety instruction should be closely monitored to ensure that proper lifting methods are used.

### Safe Practices

Recognizing that proper storage and material handling procedures and methods will provide for conservation of materials and equipment, increase productivity by providing a smooth flow of materials as needed, and reduce the number of accidents and injuries usually associated with this function, the following practices must be followed:

- Proper storage methods and designated areas for flammable and combustible liquids.

- Proper stacking of materials as regard to size, type, and length in piles, shelves, racks, or bins as necessary.
- Maintenance of good housekeeping procedures throughout job site at all times.
- Proper disposal of scrap and waste materials.
- Segregation of non-compatible materials.
- Material handling methods and procedures which will provide safe and orderly storage in accordance with recognized practices.
- Posting of warning signs, tags, or bulletins as may be required.
- Providing the necessary grounding and bonding required for specific materials.
- Proper receiving and dispensing of incoming and outgoing materials which will include chocking and blocking of trucks during loading and unloading operations.
- Providing proper personal protective equipment that may be necessary for certain products.
- Assuring that only properly trained personnel are used in the handling of hazardous materials and to assure that proper material handling methods are used.
- Prompt reporting of any unsafe conditions or practices which can not be corrected within the scope of his authority.
- Leveling floors and storage racks with maximum capacities.

We establish and maintain that Rigging equipment shall not be loaded in excess of its recommended safe working load, Per OSHA 1926.251(a)(2).

We establish and maintain that Rigging equipment, when not in use, shall be removed from the immediate work area so as not to present a hazard to employees, Per OSHA 1926.251(a)(3).

We establish and maintain that Tag lines shall be used unless their use creates an unsafe condition, Per OSHA 1926.550(g)(6)(iii).

We establish and maintain that hooks on overhaul ball assemblies, lower load blocks, or other attachment assemblies shall be of a type that can be closed and locked, eliminating the hook throat opening. Alternatively, an alloy anchor type shackle with a bolt, nut and retaining pin may be used, per OSHA 1926.550(g)(4)(iv)(B).

We establish and maintain that Bridles and associated rigging for attaching the personnel platform to the hoist line shall be used only for the platform and the necessary employees, their tools and the materials necessary to do their work and shall not be used for any other purpose when not hoisting personnel, Per OSHA 1926.550(g)(4)(iv)(E).

We establish and maintain that All employees shall be kept clear of loads about to be lifted and of suspended loads, Per OSHA 1926.550(a)(19).

## 22. HOUSEKEEPING & SANITATION

### PURPOSE

To provide the basic guidelines necessary for a good housekeeping program which will be a part of the daily routine at each division or jobsite, with clean-up being a continuous operation.

### REFERENCES

- 29 CFR 1926.51
- 29 CFR 1910.22

### RESPONSIBILITY

- Each company division will implement, monitor, administer, and enforce this procedure.

### PROCEDURE

- Good housekeeping is an important element of accident prevention and must be a primary concern to all superintendents and foremen. Good housekeeping will be planned at the beginning of a job and will be carefully supervised and followed through to the final clean-up. A clean and orderly work place will not only contribute greatly to the prevention of accidents and injuries, but will also lend itself to the proper utilization of available facility space.

#### Housekeeping

- Responsibility for good housekeeping shall be assigned to each supervisor. If the size of the job and working force permit, crew should be specifically detailed to continuously clean up. Regardless of the size of the work force, housekeeping shall not be left undone and left to someone else's discretion. Duties shall be assigned to one or more responsible persons.

#### Storage Areas

- All materials shall be maintained in neat stockpiles for ease of access. Aisles and walkways shall be kept clear of loose materials and tools. Combustible material shall not be stored under stairways.

#### Work Areas

- Clean up loose materials, waste, etc., immediately. This is especially important on scaffolds and in the vicinity of ladders, ramps, stairs, and electrical or mechanical equipment. Tools and loose materials shall be removed immediately if a hazard is created.

#### Areas Used by Personnel

- Empty bottles, containers, papers, and discarded equipment shall not be allowed to accumulate where lunches are eaten on the job site. Trash disposal cans shall be provided with covers and their use enforced.

### Oil and Grease

- Spills of oil, grease, or other liquids shall be removed immediately or sprinkled with sand, cleaned up, and removed.

### Disposal of Waste

- An effective means of preventing litter is the provision of suitable receptacles for waste, scrap, etc. Combustible waste, such as oily rags, paper, etc., shall be stored in a safe place, such as a covered metal container, and disposed of regularly as a hazardous waste. All containers shall be labeled as to permissible contents. Common trash which does not contain any hazardous waste, shall not be stored.

### Protruding Nails

- Protruding nails shall either be removed or bent over in such a way that they no longer present a risk. This shall be done as the hazard develops and not at a later time. Cleaned lumber shall be stacked in orderly piles. Employees performing this task shall wear heavy gloves, hard toed and puncture resistant work shoes.

### Lighting

- Adequate lighting shall be provided in or around all work areas, passageways, stairs, ladders, and other areas used by personnel.

### Unobstructed Access

- There must be unobstructed access, at all times, to such areas as electrical panels, safety disconnect switches, fire extinguishers, emergency exits, etc.

### Sanitation

- Typhoid fever, dysentery, and other diseases could be caused by contaminated drinking water by the lack of proper sanitation at the job site. It is essential that the provision of adequate sanitary facilities to accommodate the number of co-workers involved, be one of the first operations initiated at the job site.
- Temporary toilets shall be maintained in accordance with local, state, or federal ordinances. Toilets shall be constructed so as to shield the occupants from view and protect against weather and falling objects. They shall be lighted and ventilated, and all windows and vents screened. Adequate tissue shall be provided. All toilet facilities shall be cleaned and emptied when necessary.

### Drinking Water

- An adequate supply of fresh, portable water, from a city water line if possible, shall be provided at a readily accessible location for drinking purposes. Portable water containers used to dispense drinking water must be capable of being tightly closed, sealed and equipped with both a tap and a paper cup dispenser. Where paper cups are supplied, a receptacle for disposing of the used cups should be provided. The use of dippers or a common drinking cup for dispensing drinking water is prohibited. When city water is not used, periodic testing of the water is required.
- Any container used to distribute drinking water must be clearly marked as to the nature of its contents and not used for any other purpose. If for any reason water which is unfit for human consumption is provided at the jobsite, it must be identified and labeled to clearly indicate that the water is unsafe for drinking, washing, or cooking purposes. Any

employee observed removing the lid of a water container, except for those employees assigned to sanitize and clean such containers, shall be subject to disciplinary action including possible discharge. Portable water containers must be cleaned daily.

## HOUSEKEEPING QUIZ

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. A main cause of slips and falls are obstructions in the pathway. \_\_\_\_\_ True \_\_\_\_\_ False
2. Housekeeping is an important element in preventing accidents. \_\_\_\_\_ True \_\_\_\_\_ False
3. Oil, construction debris and scraps can all cause slips and falls. \_\_\_\_\_ True \_\_\_\_\_ False
4. A job site should only be cleaned up after the job is finished. \_\_\_\_\_ True \_\_\_\_\_ False
5. Foot-level-falls are from one level to another level 6 feet below. \_\_\_\_\_ True \_\_\_\_\_ False
6. 4-1 rule means to place a ladder 1' from supporting structure for every 4' of ladder height.  
\_\_\_\_\_ True \_\_\_\_\_ False
7. Only inspect ladders once per year. \_\_\_\_\_ True \_\_\_\_\_ False
8. The top rung of a ladder is a safe place from which to work. \_\_\_\_\_ True \_\_\_\_\_ False
9. Holes are considered to be 2 inches or more in a walk surface. \_\_\_\_\_ True \_\_\_\_\_ False
10. Slow down on wet and icy surfaces. \_\_\_\_\_ True \_\_\_\_\_ False

Instructor: \_\_\_\_\_



## **23. POWDER ACTUATED TOOLS**

### **PURPOSE**

To establish procedures for the safe use of powder actuated tools.

### **SCOPE**

This procedure applies to all company divisions, on-site construction and maintenance projects.

### **REFERENCES**

- OSHA 29 CFR 1926.302
- ANSI A I 0.3 - 1977

### **RESPONSIBILITY**

- All management will enforce this procedure where powder actuated tools are used and ensure that those employees under their direction have been trained and certified in the safe use of this tool.
- Employees who use powder actuated tools will be trained and certified in their use and to follow the project's safety requirements and manufacturer's recommendations when operating this type of tool.

### **PROCEDURE**

- All manufacturers' recommendations and applicable local laws governing the proper use, inspection and maintenance of powder actuated tools shall be followed.
- Only authorized, certified employees will be allowed to use powder actuated tools.
- General precautions apply to all types of powder actuated stud guns.
- The explosive powder-actuated tool and ammunition must be kept in a locked box at all times (other than when being used) to prevent unauthorized use.
- Storage of the tool, ammunition and studs shall be controlled so that only AUTHORIZED, TRAINED personnel can withdraw them for use.
- The manufacturer's representative of the tool to be used shall train, qualify, and certify site employees in the use and maintenance of the stud gun.

- A current certification card for the powder actuated tool being used must be in the operator's possession while tool is being used.
- The powder actuated tool shall not be used where the stud is to be driven into surface-hardened steel, cast iron, glazed brick or tile, marble, granite, live rock or similar brittle materials.
- Tools must not be used in any location where explosives, flammable gasses, vapors or dusts are present.
- The tool operator and any nearby employees must wear face shields and goggles when the tool is being used. Ear protection shall be used 100% of the time this tool is use. Other co-workers in the near vicinity shall wear ear protection.
- The utmost care must be exercised to insure that ammunition, studs, nails, etc., are of the proper specification.
- The tool must at all times be equipped with the proper ricochet or spall guard.
- Signs shall be posted warning of the use of powdered actual tools in use.

#### High Velocity Guns

- Only the "captive stud" type gun should be used. Guns capable of firing a stud into free flight at high velocity are prohibited.
- No stud is to be driven closer than three inches to the edge of brick, concrete or masonry surfaces because of their tendency to split or crack. Exception to this rule may be made where steel safety shields are placed on the sides of the surfaces as in the case of concrete curbs to prevent flying pieces.
- In case of misfire, the tool shall be kept in operating position for one full minute and then placed in vertical position muzzle down while the charge is removed.
- The tool shall never be pointed at anyone. The line of fire, whether up, down, or across, must be clear of personnel. Do not assume the stud will not shoot all the way through something.
- Studs shall never be driven through pre-drilled or pre-punched holes in fixtures or material without a special guard designed for this type of operation.

#### Low Velocity

- This type gun employs the principle of a powder actuated captive piston (high mass) driving a free stud at low velocity. Stud-driving energy is derived from piston inertia. Once free of the piston, the stud alone has insufficient inertia to produce free flight, ricochets, penetration, etc. This type gun is recommended from both safety and productivity standpoints.
- Adherence to the general precautions in the procedure section will afford adequate protection.

## **24. POWER TOOLS**

### **PURPOSE**

To provide guidelines for the safe use of power tools.

### **SCOPE**

This procedure applies to all company divisions, on-site construction and maintenance projects.

### **REFERENCES**

- OSHA 29 CFR 1926.300; 1926.305

### **RESPONSIBILITY**

- All supervisory personnel will implement, monitor, administer, and enforce this procedure.

### **GENERAL INFORMATION**

- Many fatalities have resulted from employees getting caught on rotating shafts.
- Abrasive wheels have exploded when used beyond their rated speed.
- Non use of guards. Common injuries occur while grinding welds and the grinder slips hitting employees in the leg.
- Grinder wheel not rated for speed of grinder. This is very dangerous situation.
- Grinding wheels are rated for a certain speed and using a faster grinding speed may cause the wheel to explode. This is also true of metal cutting blades used to cut concrete.
- No protection for rotating parts. All tools must have guards for rotating shafts and parts to prevent employee's body and clothing from getting caught in them. Most equipment will usually come with a guard, replacement guards can be obtained from the manufacturer.

- No training for powder actuated tools. Employees using the powder actuated tools must be trained in the use of the tool and personal protective equipment needed.
- Mortar mixer is not fully guarded. Fatalities have occurred when employees have got their clothing caught by the mixer blades and they got pulled in. This often occurs during the cleaning operation.

## **GUARDS**

- Hazardous moving parts of a power tools need to be safeguarded. For example, belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, or other reciprocating, rotating, or moving parts of equipment must be guarded if such parts are exposed to contact.
- Guards should be provided to protect the operator and others from the point of operation, in running nip points, rotating parts, and flying chips and sparks.
- Safety guards must never be removed when a tool is being used. For example, portable circular saws and grinders must be equipped with guards. An upper guard must cover the entire blade. A retractable lower guard must cover the cutting edge, except when it makes contact with the work material. The lower guard must automatically return to the covering position when the tool is withdrawn from the work.
- Anytime an adapter is used to accommodate a two-hole receptacle, the adapter wire must be attached to a known ground. The third prong should never be removed from the plug.
- Double insulation is preferred. The user and the tools are protected in two ways: by normal insulation on the wires inside, and by a housing that cannot conduct electricity to the operator in the event of a malfunction

These general practices should be followed when using electric tools:

- Gloves and safety footwear are recommended during.
- When not in use, tools should be stored in a dry place.
- Electric tools should be operated within their design limitations.
- Work areas should be well lighted.

## **GENERAL PROCEDURES WHEN USING POWER TOOLS**

- Follow all manufacturer's instructions regarding the safe storage, operation, and maintenance of power tools.

- Do not use a power tool unless you have been trained on how to use it properly and safely.
- All guards must be in place before operating the tool.
- Appropriate eye protection must be worn when operating the tool.
- Do not wear loose fitting clothing or jewelry when using power tools.
- Disconnect the tool before changing blades, bits, etc.
- Remove chuck keys, etc. before using a power tool.
- Disconnect power tools from the power source by pulling out the plug--do not pull on the power cord.
- Make sure that tools are either double-insulated, or have three prong plugs with grounded extension cords and receptacles.
- Keep your finger off the trigger and make sure the switch is "off" before plugging in a tool.
- Do not use electric tools that have worn or damaged plugs or cords.
- Secure small pieces of work with a clamp, or in a vise.
- When using power tools, keep the work area free of any trip hazards, or slippery conditions.
- Never use compressed air to blow off equipment or clothing; use a brush.

## **POWERED ABRASIVE WHEEL TOOLS**

- Abrasive grinding, cutting, polishing, and wire buffing wheels present special safety problems because they may throw off fragments.
- Before an abrasive wheel is mounted it should be inspected and sound or ring tested to be sure that it is free of cracks or defects. Tap the wheel with a non-metallic instrument. If it sounds cracked or dead, it could fly apart. A good wheel will give a clear metallic tone or ring.
- Be sure the wheel fits freely on the spindle. The spindle nut should be tight but, the flanges should not be distorted.
- Due to the possibility of a wheel disintegrating (exploding) during start-up, the employee should never stand directly in front of the wheel as it accelerates to full operating speed.

- Portable grinding tools need to be equipped with safety guards to protect employees not only from the moving wheel surface, but also from flying fragments in case of breakage.
- In addition, when using a powered grinder Always use eye protection, Turn off the power when not in use, and Never clamp a hand-held grinder in a vise.

## **PNEUMATIC TOOLS**

- Pneumatic tools are powered by compressed air and include chippers, drills, hammers, and sanders.
- There are several dangers encountered in the use of pneumatic tools. The main risk is the danger of getting hit by one of the tools attachments or by some kind of fastener the co- worker is using with the tool.
- Eye and face protection is required for employees working with pneumatic tools.
- Noise is another hazard. Working with noisy tools requires proper, effective use of hearing protection.
- Pneumatic power tools must be securely attached to the compressed air hose.
- Do not make adjustments to pneumatic tools until you are sure that no air pressure is being supplied to the hose or tool.
- Do not hoist, lower, or carry a tool by the hose.
- Follow the manufacturer's guidelines for safe operating pressures.
- Locate all air hoses so they do not present a tripping hazard.

## **SAWS**

- Do not jam or force saws into the work.
- Portable saws should have a spring loaded operating switch.
- Stay out of the saw's line of cutting.
- Start and stop the saw outside the work piece.
- Wear appropriated eye and hearing protection.

## **CIRCULAR SAWS**

- Do not retract the lower guard while the blade is moving.

- Use the retracting handle or safety lift lever to move the lower guard.
- Do not clamp or tie the guard open.
- Do not operate the saw if the guard is not working properly.
- Keep your hand away from the blade while using the saw.
- Keep the power cord out of the line of the saw cut.

### **RECIPROCATING SAWS**

- Do not lock the trigger, the saw may need to be stopped quickly.
- Do not use the saw unless the insulating boot is in place.
- Be especially careful to keep your hands away from the blade when using this tool.

### **DRILLS**

- Wear appropriate eye protection.
- Do not use dull or chipped bits.
- Let the bit cool down before changing or adjusting.
- Do not force the drill into the work.
- Use a light oil to keep bit lubricated and cool during use.

### **PORTABLE BAND SAWS**

- Return dull or damaged blades to the tool room. Do not leave blades in work area. They create serious trip hazards.

### **RADIAL ARM SAWS**

- The radial arm shall be self retracting.
- Do not remove any manufacturer's guards.
- Only approved employees are to use a radial arm saw.

## **MAGNETIC BASS DRILLS**

- Always use a safety chain to secure mag drills to work.
- Tag electrical cord connections.

We will adhere to the guidelines set for by OSHA that the use of any machinery, tool, material, or equipment which is not in compliance with any applicable requirement of this part is prohibited. Such machine, tool, material, or equipment shall either be identified as unsafe by tagging or locking the controls to render them inoperable or shall be physically removed from its place of operation, Per OSHA 1926.20(b)(3).

We establish and maintain that tags shall be used as a means to prevent accidental injury or illness to employees who are exposed to hazardous or potentially hazardous conditions, equipment or operations which are out of the ordinary, unexpected or not readily apparent. Tags shall be used until such time as the identified hazard is eliminated or the hazardous operation is completed. Tags need not be used where signs, guarding or other positive means of protection are being used, per OSHA 1910.145(f)(3).



## 25. HAND TOOLS

### **PURPOSE**

To provide guidelines for the safe use of hand tools.

### **SCOPE**

This procedure applies to all company divisions and on-site construction and maintenance projects.

### **REFERENCES**

- 29 CFR 1926.300
- 29 CFR 1926.305

### **RESPONSIBILITY**

- The company's supervisory personnel will implement, monitor, administering, and enforce this procedure.

### **GENERAL PROCEDURE**

- Use hand tools only for the purpose for which they were designed.
- Use tools that are in good condition. Worn or broken tools must be repaired or replaced.
- Always use appropriate safety equipment.
- Store tools that are not in use. Proper storage includes tool boxes, tool racks, and cabinets.
- Do not leave tools on overhead work areas where they may fall and strike someone below.
- Do not carry a sharp or pointed tool in pockets or belts unless the point or edge is protected with a cover.

### **HAMMERS AND SLEDGES**

- Always wear appropriate eye protection.
- Check behind you before swinging a hammer or sledge.
- Keep your eyes on the object to be hit.
- Never use a damaged hammer or sledge.

## **CHISELS AND PUNCHES**

- Always wear appropriate eye protection.
- Keep chisels sharp and in good condition. Repair or replace dull or damaged tools.
- Strike blows squarely; aim chisel/punch away from your body.
- All mushroom heads on chisels and punches shall be ground down.

## **WRENCHES**

- Never use a "cheater" to increase leverage.
- Whenever possible, pull on the wrench handle rather than push. Adjust your stance to avoid a fall if the wrench slips.
- Repair or discard any worn or damaged wrenches.
- Never use hand sockets on power or impact tools.
- Never use a hammer on a wrench unless it is the striking face type.

## **PLIERS**

- Do not use pliers for cutting hardened wire unless they are specifically made to do so.
- Never use pliers as a striking tool.
- Use dielectric pliers and shut off power when working with electricity.

## **SCREWDRIVERS**

- Use a screwdriver with the right type of blade, and one that properly fits the size screw.
- Never use a bent or damaged screwdriver.
- Do not use a screwdriver as a pry bar or a chisel.
- Keep handles free of grease and oil.

## **HAND SAWS**

- Always wear appropriate eye protection.
- Keep saw blades sharp; re-sharpen, or replace blades that have lost good cutting teeth.
- Lubricate hacksaw blades with light machine oil to prevent heat build-up which can cause the blade to break.
- Store saws so that there is no chance for someone to fall onto or bump into the blade.

## 26. PERSONNEL HOISTING PROCEDURE

### PURPOSE

The purpose of this procedure is to establish guidelines for the safe use of personnel hoisting platforms where **"no other method is feasible"**.

### SCOPE

This procedure applies to all company divisions, on-site construction and maintenance projects.

### REFERENCES

- 29 CFR 1926.550

### RESPONSIBILITY

Supervision is responsible for implementing and enforcing this procedure whenever personnel hoisting platforms are to be used.

### PROCEDURE

The use of a crane or other similar hoisting equipment to hoist a personnel lift platform to allow co-workers to perform work at elevated heights is strictly forbidden unless the use of conventional means would be more hazardous. It is the responsibility of management to determine that no other method is capable of getting the task done in a safer manner. It is also management's responsibility to ensure that these procedures are strictly adhered to when using personnel hoisting platforms.

### GENERAL REQUIREMENTS

No lifting, lowering, holding, swing or travel shall be done while anyone is in the hoisting platform, until after all of the following conditions have been complied with:

- The company shall determine that there is not a practical safe alternative method to perform the needed work.

- Evidence must be developed and documentation provided that other less hazardous methods of access, egress or work activity are not available or practical.
- There must be documented reasons why other alternative means of access, egress and work activity were eliminated.
- Ladders, scaffolding, aerial lifts, etc., must be used wherever practical for access, egress and work activity.
- Cranes will not be used to hoist or suspend personnel on a hoisting platform in situations where other equipment designed for the purpose is feasible.
- Time and money factors should not be applied to alternative methods of access and egress that are considered.
- Prior to lifting any personnel, the hoisting device shall be inspected and documentation will be made and maintained of the inspection in accordance with the requirements for that particular piece of equipment.
- THE HOISTING MACHINE MUST BE EQUIPPED WITH A SHUT OFF ANTI-TWO BLOCK DEVICE.
- A Lift Plan will be developed and documented for each lift or group of lifts. It will be used as documentation of lift planning for personnel hoisting.
- A firm footing, uniformly level within 1 percent (1 foot in 100 feet), shall be provided for all boom type cranes.
- A meeting for planning the lift and work activities will be attended by the operator of the hoisting equipment; signal person(s) person(s) to be lifted and the companies supervision of the work activity. A step by step discussion will be made of the work procedure from start through completion. Notes will be made of the meeting and will be maintained for future use.
- Voice communication between the operator, signal person and the person(s) being lifted shall be maintained whenever voice communication is available. If 2-way radios are used, an isolated frequency for the personnel lifting operation will be used.
- Hoisting equipment in no instance shall exceed a speed of 100 feet per minute.
- When welding is being performed from a suspended personnel hoisting platform, welding leads shall be protected from contact with any surface of the platform. All 110 volt service used in the platform shall be protected by ground fault circuit interrupters.
- Employees on the platform shall wear safety harnesses and lanyards attached to the platform at all times.

- The operator of the lifting equipment will remain at the controls and maintain visual/voice contact with the signal person(s) the entire time the personnel hoisting platform is elevated.
- The number of employees to be hoisted shall be kept to a minimum, and in no situation shall the number exceed four (4). Employees using the hoisting platform shall be considered as weighing 250 pounds each.
- The hoisting platform shall not be used during high winds, electrical storms, snow, or other adverse weather conditions which could endanger personnel on the hoisting platform.
- All lifts shall be made in accordance with the hoisting equipment manufacturer's lifting recommendations.

## **PERSONNEL PLATFORMS**

- The platforms used for lifting personnel must be designed with a minimum safety factor of five, and they must be designed by a qualified engineer who is competent in structural design. The suspension system must be designed to minimize tipping when personnel move on the platform.
- Each personnel platform must be provided with a standard guardrail system that is enclosed from the toe board to the mid-rail to keep tools materials, and equipment from falling on employees below. The platform also must have a grab rail, overhead protection, adequate headroom for employees, and a plate or other permanent marking that clearly indicates the platform's weight and rated load capacity or maximum intended load.
- An access gate must not be exposed to any rough edges on the platform.
- All welding must be performed by a qualified welder who is knowledgeable of weld grades and types as well as the materials specified in the platform design.

## **LOADING**

- The rated load capacity of the platform must not be exceeded.
- Only authorized personnel, their tools, equipment and materials needed for the job are allowed on the platform.
- Materials and tools must be secured and evenly distributed to balance the load while the platform is in motion.

## **RIGGING**

- When a wire rope bridle is used to connect the platform to the load line, the bridle legs must be connected to a master link or shackle so that the load is evenly positioned between the legs. Bridles used as a connection for the personnel platform must not be used for any other purpose.
- Attachment assemblies such as hooks must close and lock to keep the hook throat from opening; an alloy anchor type shackle with a bolt, nut, and retaining pin may be used as an alternative.
- "Mousing" (using wire to close the hook opening) is not permitted.
- A separate wire rope choker will be utilized as a "safety" and will be connected to a shackle on the load line directly above the headache ball to the eye or shackle to the hoisting platform.

## **INSPECTION AND TESTING**

- A trial lift must be made before employees are allowed to be hoisted. During the trial lift, the personnel platform must be loaded to twice its anticipated lift weight. The lift must start at ground level or at the location where employees will enter the platform, and proceed to each location where the personnel platform is to be hoisted and positioned.
- The crane or derrick operator must check all systems, controls, and safety devices to ensure that they are functioning properly, multiple part lines are not twisted, the primary attachment is centered over the platform and there is no slack in the wire rope. If the rope is slack, the hoisting system must be inspected.

## **MOVEMENT OF CRANES**

Personnel hoisting is prohibited while the crane is traveling except when the employer demonstrates that this is the least hazardous way to accomplish the task or when portal, tower, or locomotive cranes are used.

When cranes are moving while hoisting personnel, the following rules apply:

- Travel must be restricted to a fixed track or runway.
- Travel also must be limited to the radius of the boom during the lift.
- The boom must be parallel to the direction of travel.
- There must be a complete trial run before employees occupy the platform.
- If the crane has rubber tires, the condition and air pressure of the tires must be checked and the chart capacity for lifts must be applied to remain under the 50% limit of the hoist's rated capacity.

## **RECORDS**

The company must retain at the jobsite the produce when requested, documentation of all meeting notes pertaining to the lift, construction and testing of the hoisting platform, all lift plans including the full cycle operational test.

## 27. SCAFFOLD SAFETY

### PURPOSE

To provide safety guidelines for erecting and dismantling elevated work platforms.

### SCOPE

This procedure applies to all company divisions, on-site construction and maintenance projects.

### DEFINITIONS

*Fixed Scaffolds* include the following; tubular welded frame, bracket scaffolds, tube and coupler (tube-lox) scaffolds, woodpole scaffolds and trestle scaffolds.

*Suspended Scaffolds* includes the following: two-point suspended scaffolds, multilevel suspended scaffolds, floats, needle-beam scaffolds, boatswain's chair and electric hoist platforms.

*Qualified Person* means a person with specific training, knowledge and experience in the area which the person has the responsibility and authority to control.

### REFERENCES

- OSHA 29 CFR 1926.451 - Scaffolding
- ANSI A 10.8 - Safety Requirements for Scaffolding

### RESPONSIBILITY

- Supervision is responsible for implementing and administering this procedure. In addition, supervision is in charge of the scaffolding erection and are responsible for the work being performed

### PROCEDURE

#### General Requirements

- Any elevated work presents a potential fall hazard; therefore, it is essential that precautionary measures be thorough.
- All working platforms must be capable of sustaining a minimum working load of 75 psf on 6-ft spans or have a safety factor of 4 to 1 for the intended load.
- Posts shall be plumb, and scaffold platforms shall be level.



- A stationary scaffold shall be secured to the building or a fixed structure vertically every 25 ft starting at the base of the scaffold and horizontally every 30 ft. This rule shall also apply to rolling scaffolds at their working stations. Outriggers may be used in lieu of tying off, or scaffolds may be clamped together so that the height does not exceed three times the smallest base dimension without additional stabilization.
- A qualified person shall determine the structural integrity of structural steel, reinforcing steel, and concrete or building members prior to the attachment of scaffolds by bracing or tying off.
- Where persons are required to work or walk under scaffolding, a screen guard of No. 18 gage ½ in. wire mesh or equivalent shall be provided between the toe board and handrail.
- All employees shall tie off with a safety harness when there is no or an incomplete handrail, when there are openings over 18 inches in the working platform, or when on suspended working platforms.
- Swinging stages, floats, and boatswain's chairs shall be tested before using (test by applying a dead load with unit close to floor or ground).
- Crews requiring scaffolds shall request them well in advance to avoid delays and to allow time to provide the best scaffold for the job.
- Scaffold erection crews shall inspect all components for defects as the erection proceeds. Any components found to be defective shall be set aside and tagged for repair or disposal.
- Daily inspections shall be performed under the direction of competent supervision responsible for the work being performed. All defects shall be corrected at once or have defective tags attached.
- All lumber used in scaffolding should be fire-retardant treated except when otherwise specified in writing by the companies division or client. Fire retardant may be applied by pressure treatment or fire retardant paint. Non-combustible scaffolding such as aluminum pickboards or aluminum grating should be used whenever it is practical to do so.

## **FIXED SCAFFOLDS REQUIREMENTS**

Fixed scaffolds include tubular welded-frame scaffolds, bracket scaffolds, tube and coupler (Tube-lox) scaffolds, and trestle scaffolds.

### Tubular Welded-Frame Scaffolds Requirements

- Scaffolds of 10 ft or more in height shall include diagonal braces, handrails, midrails, toe boards, and 2 in. x 10 in. or 2 in. x 12 in. scaffold planks or manufactured scaffold decking which will provide a complete working deck without gaps or openings. Corner posts shall have the metal feet in place. On soft ground, wooden sills of at least 2 in. x 10 in. lumber or channel iron shall be provided. Scaffold planks shall be rough cut undressed lumber. Scaffold planks shall be painted on each end for 12 in. to designate it as an inspected plank only to be used for scaffolding, and marked for overhang limits.

- When scaffold sections are erected, only scaffold pins are to be used for the corner post connections. (Do not use tie-wire or welding rods.) When casters are used for a rolling scaffold, they shall be locked except when the scaffold is being move. No one shall be permitted on a scaffold while it is being moved.
- Scaffold screw jacks shall be extended in accordance with the manufacturer's recommendations but in no case shall they be extended in excess of 12 in. Whenever screw jacks and casters wheels are not used, metal base plates must be used for adequate base support. All supports are to be pinned and secured.
- Scaffolds shall have solid footing and shall be erected so that vertical members are always plumb and the platform is as horizontal as practical. Scaffold planks are to be cleated, wired down, or otherwise secured against accidental displacement.
- Wedge shims shall not be used. Work from incomplete scaffolds, when approved, will require that the employee take added precautions to meet accident prevention requirements. Safety harnesses must be worn if handrails are missing or the platform is incomplete or other fall hazards exist.
- Horizontal braces of 2 in. x 4 in. lumber or equivalent shall be secured across corner posts when it is necessary to remove the diagonal braces. Diagonal braces shall not be removed from more than one section in a series of sections unless there are four braced sections between.
- Ladders shall be used if access to the scaffold platform is blocked or the scaffold climbing devices are more than 16 in. apart.
- Every scaffold higher than 50 ft. must be inspected and approved by a licensed professional engineer. This inspection shall be documented and kept on file.
- Toe boards shall be secured in a firm manner by interlocking at the corner posts with notches, wiring, nailing, U-clamping to the bearing members, or by use of approved commercial toe board systems.
- Employees gaining access to scaffolds shall have both hands free at all times and shall use the hand-over-hand method of climbing on the rungs. Employees shall not use toe boards as handholds or footholds to gain access to the platform.

#### Bracket Scaffolds Requirements

- The procedure when using bracket scaffolds on reinforcing steel wall installations is as follows:
- Where more than one layer of horizontal bars has been placed and conditions permit, the scaffold shall be secured to an inside horizontal bar.
- If conditions do not permit attaching the bracket scaffold to an inside horizontal bar, the scaffold shall be secured with a minimum of three 3/8-in. diameter U-bolts attached to

each end and middle of the outer horizontal or vertical bar. Additionally, No. 9 wire shall be placed at a minimum of every fourth tie location.

- The horizontal reinforcing bar shall be secured to a vertical reinforcing bar that is either embedded in concrete or has been spliced by an approved method.
- Each scaffold shall have a 4 ft x 1/4 in. safety chain attached to the ends of the scaffold and secured to an inner rebar other than the bar that is supporting the scaffold.
- Guardrails and toe boards shall be installed on all open sides and ends of scaffolds.
- No more than three persons plus the necessary tools and equipment shall be permitted on a single scaffold section at any one time. The load is not to go beyond the scaffold's designed capacity. Bracket scaffolds shall be constructed to support 1,550 lb, and the capacity shall be posted on the scaffold.
- Employees working with safety harnesses shall have the lanyard secured above the point of operation, but under no circumstances shall it be attached to the scaffold.
- Scaffolds may be painted caution yellow to give the adjacent crane operators a better perspective when working close to them during the day or night.

#### Tube and Coupler (Tube-Lox) Scaffolds

- Posts shall be erected on suitable bases and maintained plumb.
- Diagonal cross bracing shall be provided horizontally every third section, vertically every fourth section, and whenever posts are farther apart than 7 ft, the braces shall be at a 45 degree angles.
- Runners shall be erected along each side vs. the scaffold at the bottom and top of each section.
- Bearers and braces shall extend past the posts a minimum of 4 in., but not more than 12 in. Extensions of these shall not protrude into walking or climbing areas.

#### Trestle Scaffolds

- Trestle scaffolds shall have at least a 6 in. ridge pole and should be limited to one level only.

### **SUSPENDED SCAFFOLDS REQUIREMENTS**

Suspended scaffolds include two-point suspended scaffolds, multilevel suspended scaffolds, floats, needle-beam scaffolds, boatswain's chairs, and electric hoist platforms.

#### Two-Point Suspended Scaffolds

- When two-point suspended scaffolds are used, the following rules will apply:
- These scaffolds shall have standard toe boards, midrails and handrails.

- A lifeline for each employee shall be provided and secured independently from the scaffold support lines.
- Employees shall be tied off at all times when on the scaffold, using a triple sliding hitch or catch hardware. Employees must be provided with a safe method of moving to and from the scaffold.
- When moving the scaffold root supports, co-workers must remain behind the guardrail or be tied off with a safety boil to an independent support if there is no guardrail.
- Protection for areas below the work shall be provided by the use of signs and barricades and screened staging, when applicable.
- Do not lower the scaffold below the point of three turns of the supporting cables on the drum of a swinging stage scaffold. Supporting cables shall be marked or painted to include limits.
- Check the loading on the stage one foot off the ground before using it.
- Outrigger beams, when required, should extend from 1 ft to 6 ft beyond the edge of the building, and the inboard length from the fulcrum should be at least 1½ times the outboard length from the fulcrum. A mechanical stop to retain the supporting cables shall be secured at the outer end of the outrigger.
- If cornice hooks are used, each hook must be tied back to something solid. All hooks must be latched or moused.

#### Multilevel Suspended Scaffolds Requirements

- Multilevel suspended scaffolds are used primarily for large-area vertical work such as installation of siding.
- Multilevel suspended scaffolds shall have two lifelines attached to the scaffold, independent of the supporting lines.
- Employees on the top stage will tie off with a safety harness to an independent lifeline.
- Employees on the lower stages will tie off with a safety harness to the scaffold itself.

#### Floats

- Floats shall be installed in accordance with standard rigging practices, using a 1 in. manila rope, or equivalent. The supporting ropes shall be run diagonally under the platform from corner to corner.
- Employees working on floats shall tie off with a safety harness before getting on a float and untie after getting off a float.
- Floats are to be constructed to the standard 4 ft. x 6 ft. size, and additional support shall be given to the platform with diagonal 1 in. x 4 in. braces on the bottom.

- The platform shall be of 3/4 in. plywood or equivalent, with 4 in. x 1 in. minimum edging on top to prevent items from rolling off.

#### Needle-Beam Scaffolds

- Needle-beam scaffolds shall be supported by 1 in. manila rope, 1/2 in. wire rope cable, 1/4 in. or high test chain or equivalent, using a standard scaffold hitch or eye splice, with supports on the beam not to be more than 10 ft. apart for the 4 in. x 6 in. timbers.
- Needle-beams shall be at least 4 in. x in. construction grade lumber, with a minimum of 1,500-psi fiber stress.
- The platform span between needle-beams shall not exceed 8 ft. when 2 in. scaffold plank is used. The overhang of scaffold planks shall not be less than 6 in. or more than 12 in.
- Handrails and toe boards shall be used, and employees shall wear a safety harness.

#### Boatswain's Chairs

- Seats shall be a minimum of 12 in. x 24 in. and 2 in. thick. Splitting of the board shall be prevented by cleats fastened on the underside.
- Boatswain's chairs shall be suspended with the standard 5/8-in. nylon rope boatswain's sling through four corner holes.
- The employee shall be tied off to an independent lifeline with a safety harness.

#### Electric Hoist Platforms

- When working platforms are suspended from electric hoist mechanisms and used to raise and lower employees to and from working positions, a safety harness shall be worn and properly attached to a lifeline secured independently from the platform support line.
- Such platforms shall have sides 42 in. in height above the platform.
- Prior to each use, the hoist mechanism shall be visually inspected and the load support checked at 1 ft off the ground.
- The cable and the lay of the cable on the spool shall be checked constantly.

#### Scaffold Erection and Dismantling Requirements

- A risk of serious accident may exist when scaffolds are being erected or dismantled. All individuals working on scaffolds at these times shall comply with the following safety rules and regulations:
- Employees must keep both hands empty for secure handholds when moving above on scaffolds.
- Packets, pouches, and tool belts are to be used to carry the necessary tools for the work.

- Scaffold members shall be hoisted or lowered with a hand line or passed from and to hand. Throwing items up to employees or dropping them is not permitted.
- Constant fall prevention measures must be maintained. Provisions shall be established for using a safety harness and working on firm scaffold decks when this can be done safely.
- Scaffold feet shall be established on a firm and level base of support.
- When scaffolds are to be secured to fixed structures or outriggers are to be used, they shall be installed as soon as possible. When dismantling a scaffold, these should be left on as long as is practical.
- The coordination of this activity with surrounding operations and environment shall be given priority consideration.

### **MOUNTING & DISMOUNTING SCAFFOLDS**

This activity is the most common cause of scaffold accidents. Therefore, all individuals mounting and dismantling scaffolds shall comply with the following safety rules and regulations:

- Do not carry objects in hands, but keep both hands empty for climbing handholds.
- Step only on secured ladder or access rungs.
- Give full attention to stability while getting on and off the working platform. Do not use the toe board as a handhold or foothold.
- Pay attention to each step and handhold; most falls occur near the top of the ladder or near the bottom.

### **SCAFFOLD TAGGING**

#### General Scaffold Tagging Requirements

- This scaffold tagging procedure is designed to ensure the safe use of all jobsite scaffolds.
- A scaffold which is ready for use shall be tagged with either a green or a yellow tag.
- A green scaffold tag designates a complete scaffold, as defined by the manufacturer.
- A yellow scaffold tag designates a scaffold which is not complete but which is altered to suit a specific job and may be used safely. A yellow scaffold tag shall detail the reason or reasons the scaffold is incomplete and safety measures needed.
- If scaffold is in the process of being erected, changed, or dismantled, it shall have a red tag. A scaffold which contains a red scaffold tag shall be considered unsafe and shall not be used.

- If a scaffold has been damaged or is defective, a Red Tag must be attached.
- The yellow, red, and green scaffold tags are approximately 4 in. wide by 8 in. long with a hole centered at the top of the tag.

#### Installation & Removal of Scaffold Tags

- A qualified person shall determine whether a useable scaffold receives a yellow or a green tag. He/she shall be responsible for completing all pertinent information on the tag and affixing the tag to any scaffold erected under his/her supervision.
- The scaffold tag shall be affixed to each scaffold access ladder approximately 5 ft., 6 in., from its base, where it will not interfere with normal access.
- The qualified person may remove a scaffold tag from a scaffold which has been damaged, has been improperly modified, is missing components, or is deficient in any safety aspect. A red tag may be used in these circumstances.
- After a scaffold has been repaired, the qualified person shall inspect it to determine whether it is ready to be re-tagged and shall do so accordingly.
- Periodic inspections shall be performed to ensure that all tags are legible and in good condition.
- Inspection, attention, and stability are three keys to scaffold safety.
- No tag on scaffold shall be considered the same as a red tag.

#### **INSPECTION AND TESTING - SCAFFOLD PLANKS**

- Scaffold planks shall be inspected and tested upon receipt, prior to use, and users shall examine each plank visually prior to each use.
- Examine planks for knots, excessive grain slope, shakes, decay, dry rot, and other defects.
- Density of lumber should be equivalent to Douglas Fir and capable of supporting four times the intended load. Moisture content should not exceed 20 percent.
- All scaffold planks shall be scaffold grade or equivalent as recognized by approved grading rules.
- Planks shall be 2 in. x 10 in. or 2 in. by 12 in. heavy duty (75 psi on 6 ft. span).
- Discard the plank as a scaffold plank if evidence of a defect is noted.

#### **SPECIAL SCAFFOLDING**

Any scaffold which must be specialty adapted to work place where the above requirements cannot be met must be approved by a qualified person.

## **STORAGE OF SCAFFOLDING**

Scaffold materials shall be temporarily stored in a manner that will protect and prevent damage to them. Scaffold materials shall not be left in work areas where they obstruct traffic and/or cause fire hazards.

## **RECORDS**

Completed tags shall be kept on file.

We establish and maintain that each employee who performs work while on a scaffold trained by a person qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards, per OSHA 1926.454(a).

We establish and maintain per OSHA 1926.454(a)(1) that the training program shall include the following: how to recognize the nature of any electrical hazards, fall hazards and falling object hazards in the work area; Per OSHA 1926.454(a)(2) that the correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used; Per OSHA 1926.454(a)(3) that the proper use of the scaffold, and the proper handling of materials on the scaffold; Per OSHA 1926.454(a)(4) that the maximum intended load and the load-carrying capacities of the scaffolds used; and Per OSHA 1926.454(a)(5) that any other pertinent requirements of this subpart.

We establish and maintain per OSHA 1926.454(c) that when we have reason to believe that an employee lacks the skill or understanding needed for safe work involving the erection, use or dismantling of scaffolds, that we shall retrain each such employee so that the requisite proficiency is regained. Retraining is required in at least the following situations: Per OSHA 1926.454(c)(1): Where changes at the worksite present a hazard about which an employee has not been previously trained; or Per OSHA 1926.454(c)(2): Where changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained; or Per OSHA 1926.454(c)(3): Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the requisite proficiency.





## SCAFFOLD SAFETY QUIZ

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Department: \_\_\_\_\_

Shift: \_\_\_\_\_

1. A competent person can **not** stop work on a scaffold.  True  False
2. Fall Protection is never required when working from a scaffold.  True  False
3. Three forms of fall protection are: Safe Walking/Working Surface, Personal Fall Arrest System, Work Rules.  True  False
4. A scaffold must be able to support at least 2 times its expected load.  True  False
5. A scaffold with a 4 foot wide base which stands 36 feet tall does not need to be tied to the supporting structure.  True  False
6. Scaffolds shall be inspected prior to each use for damage, footing, and defective components, and shall be repaired before returning to service.  True  False
7. The warning lines or barricades shall be used to control access to the scaffold.  True  False
8. Points of access, materials handling areas, and free fall zones areas shall be controlled to prevent unauthorized persons from entering.  True  False
9. Extension ladders should not be used as access to a scaffold.  True  False
10. Scaffolds used within a minimum of 10 feet from an electrical source must be protected from the energy source.  True  False
11. Falls can be prevented or their affects decreased by utilizing Safe Work Practices, Planning, and Personal Fall Protection Equipment.  True  False
12. The top rail of a scaffold guardrail shall be 39 to 42 inches above the walking / working surface.  True  False
13. Midrails are to be centered between walking/working surface and top rail and be not more than 19 in apart.  True  False
14. A 10 inch wide scaffold board alone is considered a safe walking/working Surface.  True  False
15. Scaffolds boards must extend 12-24 inches past the supporting member.  True  False
16. Vertical members of a scaffold must be plumb and square.  True  False
17. A Competent person need not be at the jobsite during the entire scaffold assembly.  True  False
18. Any rope or strap can be used as a lanyard in a fall arrest system.  True  False
19. Toe boards are only used on scaffolds that are 10 feet or taller.  True  False
20. Scaffold walking/working platforms must be at least 18 inches wide with on more than 1 inch gaps between scaffold boards.  True  False

***I acknowledge that I have received information and training on the potential hazards and proper procedures for Scaffold Safety. This training has given me an understanding of the importance of***

***recognizing hazards associated with scaffold systems. If I do not understand any information presented to me, I will ask questions.***

\_\_\_\_\_  
***Participant's Signature***

\_\_\_\_\_  
***Instructor's Signature***

\_\_\_\_\_  
***Date***

## 28. TOWER CRANES

### PURPOSE

This procedure provides guidance for the protection of personnel operating, or working in the area of tower cranes.

### SCOPE

This procedure applies to all company divisions, on-site construction and maintenance projects.

### REFERENCES

- ANSI B30.3 Current, Hammerhead Tower Cranes
- ANSI B30.4 Current, Portal, Tower and Pillar Cranes
- National Safety Council's Data Sheet #630, "Tower Cranes"
- 29 CFR Part 1926.32

### RESPONSIBILITY

- Management is responsible for reviewing this procedure relative to the specific equipment in use, and for making the necessary changes to keep the equipment current.
- Supervision is responsible for implementing and administering this procedure.

### PROCEDURE

#### Hold-Harmless Agreement

- There should be a strong contractual hold-harmless agreement between the company and all other interested parties, such as the tower crane owner and/or vendor, the erecting/disassembling contractor and all crane users.

#### Inspection/Erection

- Due to the nature of tower cranes and the stress placed on weld joints, lack of a good visual inspection due to painting, and the causes of failure in past accidents, a complete and documented annual inspection before the machine arrives on site, followed by an annual inspection thereafter is a requirement. The complete annual inspection approved by the Department of Labor, of all structural crane parts, including NDE test of welded joints, by a competent person qualified in accordance with 29 CFR Part 1926.32(f),

should be furnished by the crane supplier prior to the erection of the crane. A copy of this inspection and NDE test results should be maintained on site. The inspection should also be certified by a registered engineer.

- All tower, jib, and structural bolts and nuts should be new at erection time and of manufacturer specifications. The same conditions stated above also affect the machine's other structural fasteners. Therefore, all tower jib and slewing ringbolts and nuts should be closely inspected and replaced as required during erection. All inspections, NDE tests, preventive and maintenance, and repairs of tower cranes shall be performed by a qualified and competent party.

### Operations

- Tower cranes shall have flags or other indicators on the jib identifying to the operator the working load radius.
- Tower cranes shall have limiting devices to limit: trolley travel at both ends of the jib; anti-two blocking; operating radius in accordance with lifted load; pressures in hydraulic or pneumatic circuits; and crane travel at both ends of the runway tracks. Load limiting devices, and acceleration and deceleration limiters, when provided, shall be installed in enclosures that can be locked or sealed to inhibit unauthorized tampering. Operational test shall be conducted and a load limit device setting shall be verified by applying test loads of 100 percent of manufacturers requirements of the applicable ratings. These tests shall be performed prior to use of newly erected and altered cranes with records dated and kept on site.
- A wind velocity indicating device shall be mounted at or near the top of the crane. A velocity readout shall be provided at the operator's station in the cab, and a visible or audible alarm shall be triggered in the cab and at remote control stations when a preset wind velocity, recommended by the manufacturer has been exceeded.
- The manufacturer's operator's manual shall be kept with the crane while it is on site.

### Operator Certification

- The operator should be trained, experienced, and qualified for the operation of that specific make and model of tower crane. Prior tower crane experience or training is a must due to the dissimilarity between tower cranes and other types of equipment operations. Operator experience of training documentation shall be provided by the utilizing contractor even if he/she is using a subcontractor on the site.

### Maintenance

- Regular inspections and maintenance of the cranes shall be conducted and
- performed in accordance with the manufacturer's specifications and current ANSI Standards. Maintaining the tower crane in good working conditions must be of utmost consideration to eliminate unnecessary downtime and to prevent possible accidents. Utilizing contractors shall be able to provide this documentation and the documentation shall be inspected regularly.

## **RECORDS**

- Maintenance records shall be maintained and reviewed on the project.

## 29. MOBILE CRANES

### PURPOSE

This procedure provides guidance for the protection of personnel operating mobile cranes or working in the area of operation.

### SCOPE

This procedure applies to all company divisions, on-site construction and maintenance projects.

### REFERENCES

- ASME/ANSI B30.5 Current.

### RESPONSIBILITY

- Management is responsible for reviewing this procedure periodically and requiring the necessary changes to keep equipment current.
- Supervision is responsible to implement, monitor and administer this procedure.

### PROCEDURE

#### Equipment Inspection and Testing

- Each mobile crane will be inspected by a competent person for mechanical defects upon its arrival and before its use on the project and at 30-day intervals thereafter. Maintenance records will be completed and retained. All annual crane inspections will be performed by a third party inspector approved by the Department of Labor. When a crane has been dismantled or has had major repairs, it will be inspected by a third party inspector approved by the Department of Labor.
- It is recommended that the equipment be load-tested only in accordance with the manufacturer's specifications and limitations and American National Standard Institute (ANSI) B30.5 Current, Mobile and Locomotive Cranes.

- No modifications or alterations that affect the capacity or safe operation of the equipment will be made by the project or any individual without the manufacturer's written approval.

## **OPERATOR CERTIFICATION**

- All mobile crane operators must be instructed in or given the opportunity to read and understand the manufacturer's Operator's Manual for assigned make and model machine, applicable OSHA and ANSI standards. The mobile crane operator must be certified to operate the specific make and model crane assigned.

## **OPERATIONS**

- Each day the operator, prior to starting work, will check all safety features of the crane. These include but are not limited to: Fire extinguisher, Seat belts, Tire pressure, Window glass, Horn, Back-up alarm, Lights, and Signs.
- Accessible areas within the swing radius of the rotating superstructure counterweight of a crane will be barricaded to prevent employees from being struck or crushed by the counterweight unless the superstructure is elevated 7-feet or more.
- The ground shall be level to within 1 degree of the horizon. All applicable danger signs shall be posted. This includes but is not limited to: 1) Danger Electrical Hazard; 2) Swing Radius Warning; 3) Stop Warnings.
- The hand signals to be used are those prescribed by the ANSI standard applicable to each crane. Only one individual will assume the flagging duties and no other person shall flag during the lift, with the exception of a person giving an emergency stop signal.
- A copy of the manufacturer's Operator's Manual for each make and model machine must be on the project site and the manufacturer's specifications and limitations noted in it will be observed.
- In the operations and use of any hydraulic crane, when both an auxiliary and main hoist lines are reeved, an anti-two blocking warning system is required on both auxiliary and main hoist lines.
- Attachments used with cranes will not exceed the capacity rating or scope recommended by the crane manufacturer.
- No person will ride the headache ball, the hook, or the load being handled by the crane. All operations involving the use of suspended personnel baskets or platforms shall comply with OSHA regulations and the crane shall be equipped with a positive action anti-two blocking device.
- Equipment will not be lubricated while in use unless it is designed for safe lubrication application while in use.

- No person(s) shall ride on the machine; the machine should not be used for personnel transportation or be equipped with a personnel carrier.

## **ELECTRICAL HAZARDS**

A crane will not be operated, under any circumstances, where any part of the crane or load will come within 10 feet of energized electrical distribution lines rated 50 kV or below unless the following conditions are met:

- The lines have been de-energized and are grounded at the point of work.
- Insulating barriers that are not part of the hoisting equipment have been erected.
- For lines rated over 50kV, the minimum clearance between lines and any part of the machine or load will be 10 feet plus 0.4 inch for each kilovolt over 50kV or twice the length of the line insulator. The clearance will not be less than 10 feet.
- All lines will be considered energized unless the person or utility owning the lines indicated that they are not energized and that the lines are grounded at the point of operation.

## **TRAVELING WITH A LOAD (PICK AND CARRY)**

- Traveling with a load (pick and carry) is not recommended as a means of transporting load from one location to another on the project and should be used as a last resort. The use of farm wagons, forklifts, boom trucks, and flat bed trucks should be used to transport these loads rather than "pick and carry" operations.
- Traveling with suspended loads entails many variables, i.e., the type of terrain, boom length, momentum in starting and stopping, etc. Therefore, it is impossible to formulate a single standard procedure with any assurance of safety. Thus, when traveling with load, the operator must evaluate the prevailing conditions and determine the applicable safety precautions. No matter what, manufacturers' guidelines shall not be exceeded.

The following precautions would fall into a general category:

- DO NOT exceed rated "on rubber" capacity chart.
- Position the boom parallel to the direction of travel.
- Engage the swing (house) lock.
- Maintain as short a boom length and as low a boom angle as possible.
- Secure load off to carrier.
- Provide tag or restraint lines to snub load swing.
- Load should be carried close to ground.
- Do not start and travel until outriggers are fully stowed (retracted).
- Terrain must be smooth, firm, and level.
- Maintain travel speed suitable to terrain.

- Avoid sudden starting and stopping.
- Maintain correct tire pressure for type of tire used.
- Always use flagmen, both front and rear, to give directions and watch for hazards.
- Flagman should watch for power lines and other overhead obstructions.
- No person shall ride on the machine during "pick and carry" operations.

## **WIRE ROPE**

Wire rope with one or more of the following defects will be removed or replaced immediately. If one wire rope of a set (pendant lines, multi-leg slings, etc.) requires replacement, the entire set of ropes will be replaced.

- In standing ropes, more than two broken wires in one lay in areas beyond end connections or more than one broken wire at an end connection.
- In running ropes, six randomly distributed broken wires in one lay or three broken wires in one strand in one lay.
- Wear of one-third of the original diameter of the outside individual wires caused by abrasion, scrubbing, flattening, or peening.
- Kinking, crushing, birdcaging, or any other damage resulting in distortion of the rope structure.
- Evidence of heat damage from any cause.
- Reduction from nominal diameter of more than: 1/64 inch for diameters up to and including 5/16 inch; 1/32 inch for diameters from 3/8 inch up to and including 1/2 inch; 3/64 inch for diameters 9/16 inch to and including 3/4 inch; 1/16 inch for diameters from 7/8 inch up to and including 1 1/8 inches; 3/32 inch for diameter from 1 1/4 inches up to and including 1 1/2 inches.

## **NOTICES AND POSTING**

- Rated load capacities, recommended operating speeds, special hazards warnings, operating notes, and special instructions will be posted on all equipment and will be visible to the operator while he/she is at the control station. Illustrations of the hand signals used connection with the operation of equipment will be posted at the project site.

## **RECORDS**

Maintenance records shall be maintained at the project.



## 30. VEHICLE SAFETY

### PURPOSE

To establish guidelines for proper use of equipment and procedure for safe vehicle operation.

### SCOPE

This procedure applies to all company divisions, on-site construction and maintenance projects.

### PROCEDURE

- All employees operating vehicles and the passengers in the vehicles are required to wear seat belts at all times except for DOT exempted vehicles.
- Drivers must have a current, valid vehicle operator's license.
- Drivers must comply with all federal, state, and local traffic regulations.
- Only authorized employees will drive a motor vehicle.
- Authorized drivers are not allowed to operate the vehicle while under the influence of alcohol, illegal drugs or certain medications.
- All traffic violations and vehicle accidents shall be reported.
- Loads shall be within the manufacturer's legal limits.
- Only vehicles that are of the correct size and designed for intended use shall be utilized.

#### Transporting Personnel and Material

- Personnel will not be used to support or steady loads while a vehicle is in motion.
- Truck running boards may not be ridden.
- Employees must be seated, with arms and legs within the confines of the vehicle. Co-workers may mount or dismount vehicles only when fully stopped.
- Personnel may not stand and ride in a moving vehicle.

- Personnel are to vacate all vehicles being loaded by a crane, backhoe, shovel, loader, etc., and are to move away from the vehicle.
- Loads extending beyond the back of a truck or wagon are to be flagged, and marked at night with red lanterns or clearance lights. Loads are to be secured to prevent any movement.
- Only three (3) people may ride in the cab of a truck. Seat belts must be used.
- When left unattended, vehicles must be shut off, and left in gear with brakes set. If vehicle is parked on a grade or incline, wheels must be chocked. Vehicles are not to be left running while unattended.
- When repair work or maintenance of any sort is performed on any vehicles, the parking brake shall be set and the wheels chocked to prevent movement of the vehicle.
- Always exhibit safe driver behaviors such as hands-free cell phone use, or cell phone use prohibited while driving, not manipulating radios or other equipment which may cause distraction, not exceeding the posted speed limit and maintaining a safe distance between other vehicles.

### Vehicle Equipment

All vehicles used on site will be equipped in accordance with state and local laws and regulations. The company Safety Standards require the following equipment:

- Non-glare rear view mirror
- Left-hand outside rear view mirror
- Seat belts to accommodate all passengers
- Turn signals
- Three flares for emergency use. Flares should be placed 300' behind, 150' behind and adjacent to (disabled vehicle) disabled vehicle.
- Two windshield wipers
- Back-up lights
- First-aid Kit
- Snow tires and chains, where conditions warrant
- A minimum 2-1/2 pound ABC rated fire extinguisher
- A working horn
- A back-up alarm

### **RECORDS**

All vehicles will be inspected using a vehicle safety inspection checklist. Completed inspection forms will be kept on file.

## 31. OFFICE SAFETY

### PURPOSE

To establish guidelines for providing safety in both general office and project office locations.

### SCOPE

This procedure applies to all company offices and temporary offices on project sites.

### PROCEDURES

#### Office Machines

- Machines should not be placed near the edge of tables or desks.
- Machines that creep or vibrate during operation should be secured in a manner to prevent movement.

#### File Cabinets

- File cabinets should be placed against walls or columns. When possible, file cabinets should be secured against tipping.
- Do not overload drawers. Open only one drawer at a time to prevent the cabinet from tipping over.
- Do not leave file drawers open.

#### Floors

- All floor finishes and/or carpets should be selected for anti-slip qualities. Well maintained floors/carpets will provide protection against slips and falls.
- Defective tile or carpet should be repaired immediately.

#### Passageways/Aisles

- A minimum width of four (4) feet should be established for aisles. Obstructions such as waste baskets, telephone and electrical outlets, low tables and office equipment must be kept where they do not present tripping hazards. Stairways should be protected with anti-slip material. Doors should not open into the path of employee travel.

## Electrical

- Electrically operated machines and extension cords require that outlets and extension cords be arranged to avoid tripping hazards. If extension cords are required, they must be secured and covered to eliminate tripping hazards. Extension cords shall be capable of carrying intended power loads.

## Material Storage

- Materials should be stored so that in gaining access to these materials, normal office traffic does not have to be crossed.
- Materials should be stored neatly so that they will not fall or cause a tripping hazard.
- Flammable or hazardous liquids used in office must be stored and dispensed from approved safety containers. Bulk storage must be in a properly constructed fireproof room or cabinet.

## Lighting and Ventilation

- Adequate lighting and ventilation must be provided in accordance with applicable standards.

## Ladders/Stools

- Ladders and stools used for reaching high storage should have either non-skid safety feet attached, or be equipped with brakes that automatically lock when weight is applied.

## Fire Protection, Prevention, and Emergencies

- Good housekeeping is essential in preventing fires.
- Portable fire extinguishers must be conspicuously located and labeled. Extinguishers must be inspected and tagged annually, and maintained in a fully charged condition.
- Smoke detectors and/or alarm systems should be checked once a month for proper operation.
- A fire emergency procedure and a basic emergency plan must be developed for each office complex.
- Emergency phone numbers for fire, police or medical emergencies must be posted at each telephone.

## 32. AERIAL MANLIFT SAFETY

### PURPOSE

To establish guidelines for proper use of equipment and procedure for safe operation of all aerial man-lifts.

### SCOPE

This procedure applies to all company divisions, on-site construction and maintenance projects.

### REFERENCE

- 29 CFR 1910.67
- ANSI A92.2-1990
- ANSI A92.3-1990
- ANSI A92.5-1992
- ANSI A92.6-1990

### DEFINITIONS

Outrigger- extension device for expanding the stabilization base of the platform ground support.

Competent person - A person who because of training and experience, is capable of identifying hazardous conditions in scissors lifts and of training employees to identify such conditions.

Portable outrigger- outriggers designed to be moved from one work location to another.

### PROCEDURE

- Only trained authorized individuals can operate a manlift.
- All training shall be performed and documented.
- The employer shall certify that employees have been trained in operating and inspection procedures.
- Each scissor lift must have a clearly noted rating chart posted where the operator can see it. **Do not exceed the rated maximum loadings listed.**

- Equipment must be inspected regularly.
- Employees shall always stand firmly on the floor of the lift. Don't sit or climb on the edge or use the planks of the lift for a ladder.
- An effective two-way voice communication system can be provided between the operators and stationary people on the ground.
- When working six (6) feet or higher, personal fall protection must be used.
- When required a diaper and wheel covers must be used.

### **OPERATOR RESPONSIBILITY**

- It is your responsibility to read and understand the manufacturer's manual(s) and this safety handout before operating an aerial scissor lift.
- Remember that YOU are the key to safety. Good safety practices not only protect you but also protect the people around you.
- Ensure the operating and safety manuals are stored in a weatherproof storage compartment.
- Ensure a pre-start inspection is accomplished at the beginning of each shift.
- Report any problems or malfunctions and do not operate prior to repair.
- Make sure you have been properly trained on an aerial scissor lift.
- Check the area in which the aerial platform is to be used for possible hazards.
- Ensure the operation of the aerial platform is within the provisions outlined in the operator's manual.
- Ensure all personnel on the aerial platform comply with the provisions outlined in the operator's manual.
- Brakes shall be set to insure that the scissor lift does not move when the boom is elevated in a working position with an employee in it.
- Chocks shall be used on tires.
- Outriggers must be used when lift is extended.
- Transportable outriggers can be used as a method of suspension for ground rigging work for scissor lifts where the point of suspension does not exceed 300 feet above the safe surface.

- Before the scissor lift can be moved the boom shall be inspected to insure that it is properly cradled and outriggers are in the properly stowed position.
- When using outriggers make sure they are totally extended and they are located to support the load.
- If outdoors remember to check for sewers and pipes if loads are very heavy.
- Any “Field Modification” for uses other than those intended, must be certified in writing by the manufacturer prior to use.

## **TRAINING REQUIREMENTS**

The purpose of the training and inspection requirements are as follows:

- Training can only be done by a competent person.
- Prevention of accidents and injuries
- Establishing the criteria for design, manufacture, testing, performance inspection, maintenance, training, and operation.
- Establish understanding of responsibilities.

## **INSPECTIONS REQUIREMENTS**

According to ANSI and OSHA standards, three inspections are required when using an aerial scissor lift. The inspections include a daily visual inspection, daily lift control inspection, and a monthly detailed documented inspection. These inspections are necessary to minimize or eliminate potential serious injury or death.

### Daily Visual Inspection

There shall be a daily visual inspection, a daily lift control inspection on lift controls which shall be tested each day prior to use to determine that such controls are in safe operating condition, this inspection shall be done by the operator using a daily list with these things in mind:

- Check for missing, damaged, or unreadable safety signs.
- Check for broken, missing, damaged or loose parts.
- Check pivot pins for damaged or missing retaining devices.
- Check the tires for cuts, bulges, and pressure as specified by the manufacturer.
- Perform all maintenance procedures as outlined by the manufacturer of your machine.
- Check for cracked welds and other evidence of structural damage.
- Check hydraulic system for leaks and damage.

### Daily Lift Control Inspection

- After starting, recheck all gauges and lights.
- Check all audible and/or visual alarms (if provided). Make sure everything is functioning correctly.

- Check all control functions, including emergency stop mechanism, from the upper control station and the lower control station (if provided). If the aerial platform does not respond correctly when each control is operated, do not use the machine until it is fixed.
- Move slowly until you are sure everything is operating properly.
- Recheck the steering and platform making sure it works properly.

Monthly Documented Inspection

All scissors lifts shall also be inspected by a competent person at 30 day intervals using the check sheet which shall be kept on file. If anything is found to be unsafe, operation of the unit will not be allowed until it is repaired. A sample checklist is attached.

**WORKING ON OR AROUND ELECTRICAL EQUIPMENT**

- Electrical conductor parts of the power supply system shall be protected against accidental contact.
- Electrical grounding shall be provided.
- General building electrical installations shall comply with all standards and electric codes.
- Safe operating procedures can be reached by using the minimum safe approach distance (M.S.A.D.).
- Maintain M.S.A.D. From all other energized lines and parts.
- Assume all electrical parts are energized.
- Do not maneuver machine or personnel inside prohibited zone.
- Where flammable vapors or combustible dusts may be present, electrical installations shall be in accordance with all standards that may apply.
- Watch out for electrical lines and cables-they result in fatalities.
- To use the M.S.A.D. system refer to the chart that follows:

<b>VOLTAGE RANGE</b>	<b>MINIMUM SAFE APPROACH DISTANCE</b>	
	<b>(FEET)</b>	<b>(METERS)</b>
<b>(PHASE TO PHASE)</b>		
0 TO 3	AVOID CONTACT	
Over 30V to 50V	10	3.05
Over 50KV to 200KV	15	4.60
Over 200KV to 350KV	20	6.10



Over 350KV to 500KV	25	7.62
Over 500KV to 705KV	35	10.67
Over 750KV to 1000KV	45	13.72

## **WELDING IN A MAN-LIFT**

- When welding is being performed a hot work permit should be completed notifying personnel that hot work is being performed.
- A hot work permit is a system intended to assure that employees maintain control over operations involving hot work. These include such safeguards as relocating hot work operations to a safe location if possible. Relocating or covering combustible materials in the vicinity, and provisions for providing a fire watch. It should be noted that the permit is not a record, but is an authorization by the employer certifying that certain safety precautions have been implemented prior to the beginning of work operations.
- When welding in a lift, a fire watch with an extinguisher shall be used when appropriate.
- Maintenance repair work requiring welding or open flame, where toxic metal fumes such as cadmium, chromium, or lead may be evolved, shall be done only with sufficient local exhaust ventilation to accordance with the standards that apply.
- Welding or use of open flame near any solvent cleaning equipment shall be permitted only after such equipment has first been thoroughly cleaned and cleared of solvents and vapors.

## **AERIAL LIFTS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE AMERICAN NATIONAL STANDARDS PER OSHA 1926.453(a)(1):**

- Aerial lifts acquired for use on or after January 22, 1973 shall be designed and constructed in conformance with the applicable requirements of the American National Standards for "Vehicle Mounted Elevating and Rotating Work Platforms," ANSI A92.2-1969, including appendix. Aerial lifts acquired before January 22, 1973 which do not meet the requirements of ANSI A92.2-1969, may not be used after January 1, 1976, unless they shall have been modified so as to conform with the applicable design and construction requirements of ANSI A92.2-1969.

## **MODIFICATION TO AERIAL LIFTS MUST BE CERTIFIED IN WRITING BY THE MANUFACTURER PER OSHA 1926.453(a)(2):**

- Aerial lifts may be "field modified" for uses other than those intended by the manufacturer provided the modification has been certified in writing by the manufacturer or by any other equivalent entity, such as a nationally recognized testing laboratory, to

be in conformity with all applicable provisions of ANSI A92.2-1969 and this section and to be at least as safe as the equipment was before modification.

**EQUIPMENT WILL HAVE A WORKING BACK-UP ALARM WHEN BACKING PER OSHA 1926.952(a)(3)(i):**

- The vehicle will have a reverse signal alarm audible above the surrounding noise level.

**A SPOTTER WILL BE UTILIZED WHEN BACKING PER OSHA 1926.952(a)(3)(ii):**

- The vehicle is backed up only when an observer signals that it is safe to do so.



## AERIAL LIFT CHECKLIST

(Note: This form should be completed every 30 days and kept on file)

Company: \_\_\_\_\_ Inspector Name: \_\_\_\_\_

Date: \_\_\_\_\_ Name of equipment inspected: \_\_\_\_\_

Does this piece of equipment need attention (n/a)? Yes \_\_\_ No \_\_\_ If yes, refer to checklist.

ITEM	OK	N/A	EXPLAIN PROBLEM
<b>Oscillating axle</b> properly secured, lubrication, no leaks or damage.	___	___	_____
<b>Safety props</b> stored securely, no parts missing.	___	___	_____
<b>Steer cylinder, linkage and tie rods (left front)</b> no loose or parts missing, visible damage, or leaks, proper lubrication, tie rod studs locked.	___	___	_____
<b>Leveling jack/stabilizer (if so equipped)</b> no loose or missing parts, damage, leaks.	___	___	_____
<b>Steer wheel &amp; tire assembly</b> secured, no loose parts, damage, or leaks.	___	___	_____
<b>Hydraulic filter</b> secured, no damage or leaks.	___	___	_____
<b>Ground controls</b> switches operable, no damage, placards secured & legible.	___	___	_____
<b>Battery installation</b> proper electrolyte, level, cables secured, no damage/corrosion.	___	___	_____
<b>Ladders or steps</b> no damage, secured, free of debris.	___	___	_____
<b>Hydraulic reservoir</b> Recommended: oil level, cap secure, breather working, no leaks.	___	___	_____
<b>Fuel tank assembly (if so equipped)</b> filter cap secured, visible gauge, no damage or leaks.	___	___	_____
<b>Safety props</b> stored securely, no parts missing.	___	___	_____



## AERIAL LIFT CHECKLIST (Page 2 of 3)

(Note: This form should be completed every 30 days and kept on file)

Company: \_\_\_\_\_ Inspector Name: \_\_\_\_\_

Date: \_\_\_\_\_ Name of equipment inspected: \_\_\_\_\_

Does this piece of equipment need attention (n/a)? Yes \_\_\_ No \_\_\_ If yes, refer to checklist.

ITEM	OK	N/A	EXPLAIN PROBLEM
<b>Drive brake</b> no loose, missing, or damaged parts.	___	___	_____
<b>Wheel &amp; tire assembly (left right)</b> secured, no loose parts or damage, properly inflated.	___	___	_____
<b>Drive hub</b> no damage or leakage.	___	___	_____
<b>Drive motor &amp; brake</b> no damage or leaks.	___	___	_____
<b>Battery charger (if so equipped)-</b> no damage and properly secured.	___	___	_____
<b>Leveling jack/stabilizer (left rear) if so equipped</b> no loose or missing parts, damage, or leaks.	___	___	_____
<b>Engine installation (if so equipped)</b> full mark on dipstick, oil cap secured, exhaust system properly secured, air filter secured, no loose parts, element clean, radiator cap secured, correct coolant level	___	___	_____
<b>Brake release cylinder, springs &amp; linkage</b> no loose or missing parts, damage, or leaks	___	___	_____
<b>Leveling jack/stabilizer (right rear), if so equipped</b> no loose or missing parts, damage, or leaks	___	___	_____
<b>Wheel &amp; tire assembly (right rear)</b> secured, no loose or missing parts, damage, or leaks	___	___	_____
<b>Drive brake (right rear)</b> no loose or missing parts, no damage	___	___	_____
<b>Motor/pump unit (electric models)</b> properly secured, no damage or leaks	___	___	_____



## AERIAL LIFT CHECKLIST (Page 3 of 3)

(Note: This form should be completed every 30 days and kept on file)

Company: \_\_\_\_\_ Inspector Name: \_\_\_\_\_

Date: \_\_\_\_\_ Name of equipment inspected: \_\_\_\_\_

Does this piece of equipment need attention (n/a)? Yes \_\_\_ No \_\_\_ If yes, refer to checklist.

ITEM	OK	N/A	EXPLAIN PROBLEM
<b>Hydraulic reservoir</b>	___	___	_____

no damage, missing parts, or leaks,  
recommended hydraulic fluid, breather cap secured and working.

Inspector's Signature: \_\_\_\_\_



## AERIAL LIFT QUIZ & ACKNOWLEDGMENT OF TRAINING

Company: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. 21% or 1 out of every 5 falls are from less than 15 feet.  True  False
2. You should only check lift controls on a yearly basis.  True  False
3. Personal fall arrest system is used to arrest an employee from a fall from a working level.  True  False
4. Before the boom is elevated the brake system must be set.  True  False
5. When using outriggers they have to be totally extended.  True  False
6. You can exceed twice the maximum rated load capacity listed on the lift.  True  False
7. It is ok to sit or climb on the edge or use the planks of the lift for a ladder.  True  False
8. If an employee can fall 4 feet or more he/she needs fall protection.  True  False
9. The surface level can be sloped when raising the lift.  True  False
10. Before you operate a lift, read and understand the manufacturer's manual.  True  False

**I acknowledge that I have received information and training on the safe operation and use of vehicle mounted elevating and rotating platforms as per the requirements of 29 CFR 1910.67. I understand the importance of this information and will follow all rules, policies and procedures set forth by the company. If I do not understand any information or instructions presented to me, I will ask questions.**

---

**Participant's Signature**

---

**Instructor's Signature**

## 33. LADDER SAFETY

### PURPOSE

To provide guidelines for the selection and design of ladders for the use intended, in the construction of job built ladders, and in the maintenance, inspection, and proper use of ladders.

### SCOPE

This procedure applies to all company divisions, on-site construction and maintenance projects.

### REFERENCES

- 29 CFR 1926.450
- 29 CFR 1926.951

### PROCEDURE

- Ladders present one of the major hazards in construction work, and their improper use is the cause of many serious accidents. An analysis of accidents involving ladders revealed that the five principal causes of such accidents are: (1) ascending or descending improperly, (2) failure to secure ladder at top and/or bottom, (3) structural failure of the ladder itself, (4) carrying objects in hands while ascending or descending ladders, and (5) employees leaning out from the ladder (over reaching).

#### Ladder Selection

- Great care should be taken in the selection of the proper size and design of the ladder for the use intended.

#### Straight Ladders

- Ladders must be selected to be of sufficient length to end not less than thirty-six inches (36') above any platform or landing which they serve. All portable straight ladders must be equipped with approved safety shoes.
- All metal ladders are electrical conductors. Their use around electrical circuits of any type, or places where they may come in contact with such circuits, is not recommended. Metal ladders should be marked with signs reading "CAUTION: DO NOT USE AROUND ELECTRICAL EQUIPMENT".

## Step Ladders

- Step ladders sometimes referred to as A frame ladders, must have positive locking spreaders which will be fully spread and locked when the ladder is in use.
- Step ladders will not be used as straight ladders. They should be of sufficient height to preclude the necessity of employees using the top two steps of the ladder. Employees will not be allowed to work from the top two steps of a step ladder.
- Step ladders shall be firm and well constructed. Special care shall be taken when setting any ladder on grating. Often the feet of a step ladder can slip through the grating causing the ladder to fall. Step ladders shall be tied off or a worker shall hold the ladder when the user is 6 feet or more above the floor.

## Ladder Usage

- The feet of the ladder shall be placed approximately one-quarter of its supported length away from the vertical of its top support (1 to 4 ratio). Extension ladders should be positioned based on the 1/4 rule. (Example - If the ladder is 12 feet, the base of the ladder should be 3 feet from the structure). Most ladders provide a pictorial guide to assist in proper ladder positioning. What happens if you do not use the 1/4 rule? If the ladder is set too far from the structure there is a greater chance the ladder will slide down the structure. If the ladder is set too close to the structure there is a greater chance of a fall backwards away from the structure.
- Only light, temporary work should be performed from ladders. Employees should be cautioned frequently about the danger of trying to reach too far from a single setting.
- Since, in most ladder applications, the weight of the employee is unevenly distributed over an area of approximately 3 inches long by 3 inches wide, any effort which tends to shift the balance of the employee should be discouraged. This includes using the upper torso for activities as pulling, pushing, prying, etc,
- Ladders shall not be placed in front of doors which open toward the ladder unless the door is locked or otherwise guarded.
- The ladders feet shall be placed on a firm base, and the area in the vicinity of the bottom of the ladder shall be kept clear. When using straight ladders, both the top and bottom of the ladder shall be secured to prevent displacement. Use ladder shoes, stakes, or other means of securing the ladder.
- Ladders leading to landings, walkways, platforms, etc., must extend thirty-six inches above this point and must be securely fastened to prevent moving. Long ladders must be braced at intermediate points as necessary to prevent springing
- When ascending or descending ladders, employees are to face the ladder and use both hands to hold onto the side rails. If material must be moved from one level to another, a rope, block and tackle, or other means must be used. Materials are not to be hand carried on ladders.



- ***Ladders must never be used in horizontal position as runways or scaffold.***

#### Ladder Inspection

- Ladders must be inspected prior to each use and monthly for deterioration and damage. Close visual inspection is recommended in preference to load testing. Jumping on a ladder which is supported horizontally subjects the ladder to more severe loads than it is intended to carry and may result in damage that can lead to sudden failure while in use.
- Metal ladders require frequent inspection. All parts should be checked for wear, corrosion, and structural failure.
- No employee will be allowed to use for any reason any ladder that has broken, loose, or cracked rungs, side rails or braces. Any ladder found in this condition will be removed from service immediately (TAG IT!). All inspections shall be documented and ladders shall be color coded for each month.

#### Ladder Maintenance

- Metal ladders should have the rungs cleaned to prevent accumulation of materials that might destroy their non-slipping properties, and all metal fittings should be carefully checked for rust and corrosion.
- When not in use, all types of ladders shall be stored under suitable cover protected from the weather. Ladders stored horizontally should be supported at both ends and at intermediate points to prevent sagging of the middle section, which tends to loosen the rungs and warp the rails. A rope should be spliced onto one of the top rungs of a ladder to provide a ready method to secure the ladder to the support.

#### Ladder Safety Reminders:

- Get training before using ladders
- Follow manufacturers instructions
- Inspect ladders before use
- Use proper ladder positioning
- Properly secure ladders
- Use common sense and take time to do the job right

#### Before the job:

- Use the right ladder for the job.
- Use the 1/4 rule.
- The ladder must extend 3 feet above the exiting surface.
- Tie the ladder off to a stationary point on the roof to prevent movement.

#### During the job:

- Always face the ladder when climbing up or down.
- Keep both hands free to hold on to the ladder when climbing.
- Keep your body centered with the rails when climbing.
- If you need tools, etc. they should be handed to you or pulled up on a rope once you are in position to work.
- If you remain on the ladder to complete a task, use fall protection and tie off to the ladder.

- The general rule of thumb, when standing or working on a ladder is that you should not go above the top 1/3 of the ladder. If you need to go higher, you should get a higher ladder.
- **Never climb on the top rung of any ladder.**

We will adhere to and maintain the guidelines set forth by OSHA that ladder rungs, cleats, and steps shall be parallel, level, and uniformly spaced when the ladder is in position for use, Per OSHA 1926.1053(a)(2).

We will adhere to and maintain the guidelines set forth by OSHA that ladders shall not be loaded beyond the maximum intended load for which they were built, nor beyond their manufacturer's rated capacity, per OSHA 1926.1053(b)(3).

We will adhere to and maintain that ladders shall be used only for the purpose for which they were designed, Per OSHA 1926.1053(b)(4).



## LADDER SAFETY QUIZ

Company: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. Improper use of a ladder can cause serious accidents.  True  False
2. An analysis of accidents involving ladders revealed that there are five principal causes of such accidents. Please list two:  
(1) \_\_\_\_\_  
(2) \_\_\_\_\_
3. Great care should be taken in the selection of the proper size and design of the ladder for the intended use.  True  False
4. Ladders must be selected to be of sufficient length so that it at least extends thirty-six inches (36") above any platform or landing, which they serve.  True  False
5. All portable straight ladders must be equipped with approved safety shoes.  True  False
6. Stepladders, sometimes referred to as A frame ladders, must have positive locking spreaders, which will be fully spread and locked when the ladder is in use.  True  False
7. Stepladders will not be used as straight ladders.  True  False
8. Special care should be taken when setting any ladder on grating.  True  False
9. Ladders shall be tied off or a worker shall hold the ladder when the user is 6 feet or more above the floor.  True  False
10. When working off a stepladder, never straddle to gain positioning.  True  False
11. Extension ladders should be positioned based on the 1/4 rule.  True  False
12. Ladders must be inspected prior to each use and monthly for deterioration and damage.  True  False
13. Any ladder found damaged will be removed from service immediately. (TAG IT)  True  False

Instructor: \_\_\_\_\_

## **34. GENERAL FIRST AID**

### **PURPOSE**

To define minimum company requirements and responsibilities for providing quality first aid and medical care for occupational injuries and illness.

### **SCOPE**

This procedure applies to all company divisions and on-site construction and maintenance projects.

### **RESPONSIBILITY**

- First aid kits will be available at each division, on-site construction and maintenance project.
- The company will see that the first aid kits are available, stocked and maintained. In addition, a record of first aid provided shall be kept and if no medical attention is available within 4 minutes, an individual trained in first aid and CPR will be available.

### **EMERGENCY FIRST AID**

We establish and maintain that in the absence of an infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees, a person or persons shall be adequately trained to render first aid. Adequate first aid supplies shall be readily available, Per OSHA 1910.151(b). Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use, Per OSHA 1910.151(c).

We establish and maintain that in the absence of an infirmary, clinic, hospital, or physician, that is reasonably accessible in terms of time and distance to the worksite, which is available for the treatment of injured employees, a person who has a valid certificate in first-aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence, shall be available at the worksite to render first aid, Per OSHA 1926.50(c).

We establish and maintain that the contents of the first aid kit shall be placed in a weatherproof container with individual sealed packages for each type of item, and shall be checked by the

employer before being sent out on each job and at least weekly on each job to ensure that the expended items are replaced, Per OSHA 1926.50(d)(2)

We establish and maintain that proper equipment for prompt transportation of the injured person to a physician or hospital, or a communication system for contacting necessary ambulance service, shall be provided, Per OSHA 1926.50(e).

We establish and maintain that in areas where 911 is not available, the telephone numbers of the physicians, hospitals, or ambulances shall be conspicuously posted, Per OSHA 1926.50(f).

We establish and maintain where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use, Per OSHA 1926.50(g).

## 35. FIRE PROTECTION

### PURPOSE

Provides guidelines for the protection of personnel from fires and for the prevention of fires.

### SCOPE

This procedure applies to all company divisions, on-site construction and maintenance projects.

### DEFINITIONS

The following is a brief description of fire classifications and the recommended extinguisher to be used on each:

- CLASS "A" FIRES Ordinary combustibles such as rubbish, paper, rags, scrap lumber etc. These are fires that require a cooling agent for extinguishment. *The recommended extinguishers are* - water through use of hose, pump type water cans, pressurized extinguishers and soda acid extinguishers. *Fighting the fire* - soak fire completely, even the smoking embers.
- CLASS "B" FIRES Flammable liquids, oils, and greases. These fires require a smothering effect for extinguishment. *The recommended extinguishers are* - ABC units, dry chemical, foam, and carbon dioxide. *Fighting the fire* - start at the base of the fire and use a swinging motion from left to right, always keeping the fire in front of you.
- CLASS "C" FIRES Electrical equipment. These fires require a non-conducting extinguishing agent. *The recommended extinguishers are* - ABC units, carbon dioxide, and dry chemical. *Fighting the fire* - use short bursts on the fire. When the electrical current is shut off on a Class "C" fire, it can become a Class "A" fire when materials around the electrical fire become ignited.

### PROCEDURE

- Good house keeping and fire prevention go hand-in-hand for obvious reasons, not only on your job site but in the home and office, as well. Fires can start anywhere at any time and this is why it is important to know how to use a fire extinguisher and which fire extinguisher to use on different types of fire.

- The fact that fire extinguishers are our first line of defense in the event of a fire should warrant a periodic and complete inspection. Fire extinguishers must be kept clean to attract attention, they must be kept accessible to eliminate lost time when needed, and the rubber hose, horn or other dispensing component must be checked to assure against blockage. Also know where and how to activate the fire alarm and sprinkling systems.
- An alarm system will be established for notification of all employees at the site of an emergency. The alarm system should include lights, horns, sirens, or other appropriate devices to ensure that every employee is aware of shop/project emergencies.
- To prevent ignition hazards, electrical wiring and equipment will be installed in accordance with the National Electrical Code and National Fire Protection Association (NFPA) Code 70. Smoking will be prohibited in areas where fire hazards may exist, and "No Smoking" signs will be posted.
- A fire extinguisher rated not less than 2A will be provided for each 3,000 square feet of building area and in each yard storage area. Travel distance to any fire extinguisher will not exceed 100 feet from any protected area.
- One or more extinguishers rated not less than 2A will be located on each floor of a multi-storied building. At least one 2A-rated extinguisher will be located adjacent to a stairway in a multi-storied building. Extinguishers rated not less than 10B will be provided between 25 feet and 75 feet of any area in which more than 5 gallons of flammable or combustible liquids or 5 pounds of flammable gas are being used or stored. Note: This does not apply to fuel tanks of motor vehicles.
- Extinguishers will be conspicuously located where they will be readily accessible and immediately available in case of a fire, and their locations will be conspicuously marked. Extinguishers will be installed on hangers or in the brackets provided. Those extinguishers are not more than 5 feet from the floor. Those extinguishers weighing more than 40 pounds will be installed so the top is not more than 3 feet from the floor.

## **STORAGE OF FLAMMABLE & COMBUSTIBLE LIQUIDS**

- Above ground storage tanks shall have spill containment capable of controlling 110% of capacity of tanks.
- A 20 pound ABC fire extinguisher shall be posted between 25 feet and 75 feet from storage area.
- Storage tanks shall be grounded.
- Storage tanks and container to be filled shall be bonded.
- Storage tanks shall be vented.
- Storage tanks shall have automatic shut off on dispensing hoses.

- Storage tanks shall have impact protection, in some form, from vehicle traffic.
- Storage area shall be at least 25 feet from buildings.

## **INSPECTIONS**

- Extinguishers will be inspected monthly, or more often when circumstances warrant, to ensure that they have not been actuated or tampered with, and to detect any damage. Inspection tags will be placed, and the date of inspection will be indicated after each inspection. Hydro-testing or weighing in accordance with NFPA requirements should be completed.
- Each extinguisher will have a durable tag securely attached to show the maintenance test and recharge date and the initials or signature of the person who performed the services. A discharged fire extinguisher will be removed from service immediately and replaced with equipment protection.

## **RECHARGING**

A plan will be established for the prompt recharging and testing of fire extinguishers in accordance with NFPA standards.

## **SUBSTITUTIONS**

In areas where 2A extinguishers are required, the following may be substituted for each extinguisher:

- One 55-gallon drum of water with three pails.
- One water hose of not less than ½ inch diameter, of not more than 100 feet in length, and with a discharge capacity of 5 gallons per minute.
- One fire hose of not less than 1 ½ inch diameter, of not more than 100 feet in length, and with a discharge capacity of 25 gallons per minute.

Note: The hose referred to above must be of sufficient length and have a stream range so as to reach all points in the protected area. These substitutions will not apply where the possibility of freezing exists.

## **EMPLOYEE TRAINING IN USE OF FIRE EXTINGUISHERS**

We establish and maintain, Per OSHA 1910.157(g): Training and education. Where we have provided portable fire extinguishers for employee use in the workplace, we shall also provide



an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved with incipient stage fire fighting, Per OSHA 1910.157(g)(1).

We establish and maintain that we shall provide the education required in paragraph (g)(1) of this section upon initial employment and at least annually thereafter, Per OSHA 1910.157(g)(2).

- **Per OSHA 1910.157(g)(3):** The employer shall provide employees who have been designated to use fire fighting equipment as part of an emergency action plan with training in the use of the appropriate equipment.
- **Per OSHA 1910.157(g)(4):** The employer shall provide the training required in paragraph (g)(3) of this section upon initial assignment to the designated group of employees and at least annually thereafter.
- **Per OSHA 1926.150(a)(5):** As warranted by the project, the employer shall provide a trained and equipped firefighting organization (Fire Brigade) to assure adequate protection to life.

## **MAINTENANCE PROGRAM**

We establish and maintain that we shall assure that portable fire extinguishers are subjected to an annual maintenance check. Stored pressure extinguishers do not require an internal examination. The employer shall record the annual maintenance date and retain this record for one year after the last entry or the life of the shell, whichever is less. The record shall be available to the Assistant Secretary upon request, Per OSHA 1910.157(e)(3).

- **Per OSHA 1910.157(e)(2):** Portable extinguishers or hose used in lieu thereof under paragraph (d)(3) of this section shall be visually inspected monthly.
- **Per OSHA 1926.150(c)(1)(iii):** A 1/2-inch diameter garden-type hose line, not to exceed 100 feet in length and equipped with a nozzle, may be substituted for a 2A-rated fire extinguisher, providing it is capable of discharging a minimum of 5 gallons per minute with a minimum hose stream range of 30 feet horizontally. The garden-type hose lines shall be mounted on conventional racks or reels. The number and location of hose racks or reels shall be such that at least one hose stream can be applied to all points in the area.



## Facility Fire Protection Information Sheet

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Phone Number/Extension: \_\_\_\_\_

Emergency Number/Extension: \_\_\_\_\_

Emergency Coordinator(s): \_\_\_\_\_

Is the Emergency Action Plan Complete? \_\_\_\_ Yes \_\_\_\_ No If yes, please attach.

Person Completing Form: \_\_\_\_\_ Date: \_\_\_\_\_

Potential Fire Hazard Location	Available Fire Protection	Method of Reporting Fires
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
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_____	_____	_____

## 36. WELDING AND CUTTING

### PURPOSE

To provide guidelines for the safe operation of welding and cutting equipment, and to itemize some of the fundamental hazards inherent with the use of this equipment.

### SCOPE

This procedure applies to all operations involving this company.

### REFERENCES

- 29 CFR 1926.350, .354, .556, .153, .406, and .102

### DEFINITIONS

Industrial Gases - Oxygen - Oxygen itself is not flammable, but the presence of pure oxygen accelerates the combustion reaction. Oil and grease, in the presence of oxygen, become highly explosive. Oxygen must not be allowed to contact petroleum based substances.

Fuel Gasses - Acetylene is an unstable gas when compressed above 15 psig. Acetylene cylinders are filled with a porous material and saturated with liquid acetone. Acetylene, when pumped into the cylinder, dissolves in the acetone and is held in a stable condition. If the acetylene cylinder is stored or used in the horizontal position, the acetone may leak out, leaving an explosive mixture of acetylene. It is for this reason that all acetylene cylinders stored and used in the upright or vertical position.

MAPP Gas is a stabilized mixture of methylacetylene, and has considerably less tendency to backfire than acetylene. Maximum allowable use pressure is 94 psi versus 15 psi for acetylene.

### PROCEDURE

#### Setting up equipment

- All operators of welding and/or cutting equipment must be trained to operate the equipment that they will use. Appropriate safety procedures must be reviewed and understood prior to the use of this equipment.

- Remove safety caps from the tops of the cylinders. Clean all threaded connections to be sure that they are free of dirt, dust, oil or grease. Before connecting regulators to cylinders, carefully open the cylinder valve, approximately 1/8 - 1/4 inch, to blow out any foreign particles. After regulator is connected, stand to one side of gauge while the cylinder valve is open. Open cylinder valve slowly.
- Second stage of regulator must be closed before opening the cylinder valve.
- Open valves 1/4 turn only on fuel gas cylinders (propane, acetylene, natural gas). Open oxygen cylinder valves wide open. Keep valve wrench in place during use.
- When using acetylene, do not exceed 15 psi on the torch side of the gauge.
- Reverse flow check valves must be used at the regulator end on both fuel and oxygen hoses. It is strongly recommended that they also be used at the torch end of the lines. These valves are inexpensive and provide a great degree of insurance against the possibility of mixing gasses in the hoses and regulator, which could result in an explosion.
- Remember, never stand directly in front or in back of regulator when opening the cylinder valve, always check for leaks in all threaded connections. If valve handles are missing and it is necessary to use a wrench to open the valves, the wrench must remain in place on the valve while the unit is in use.

### Lighting The Torch

- Open the oxygen valve on the torch handle and adjust the oxygen regulator to the desired pressure. Allow the gas to flow a minimum of 10 seconds for every 50 feet of hose. Now close the oxygen valve on the torch.
- With the regulator valve backed out, open the fuel valve on the cylinder. Remember, for acetylene the valve is only opened a maximum of one full turn. Open the fuel gas valve on the torch and adjust the fuel gas regulator to the desired setting. Purge the lines the same way as described above for oxygen. Now close the fuel valve on the torch.
- Hold the torch in one hand and spark lighter with the other hand. Open the torch fuel valve approximately one-half turn and ignite the gas. Keep opening the fuel valve until the flame stops smoking and leaves the end of the tip about 1/8 inch. Then slightly reduce the fuel supply to bring the flame back to the tip.
- Open the oxygen fuel valve at the torch until a bright neutral flame is reached. If you experience a backfire or flashback, immediately turn off the oxygen valve and then the fuel valve. Begin again by holding the torch in one hand and spark the lighter in the other hand and proceed from there.

### Shutting Off The Torch

- First shut off the torch oxygen valve and then shut off the torch fuel valve. If this procedure is reversed, a pop may occur which will cause carbon to form in the torch.

Now close both cylinder valves. Open the torch oxygen valve to release the pressure in the system. Now close the torch oxygen valve and release the adjusting screws on the oxygen regulator.

### Safety Considerations

The following safety procedures need to be re-emphasized:

- Never use oil or grease on any fittings or apparatus in contact with oxygen.
- Blow out the cylinder valves before attaching the regulators to the cylinders.
- Release the adjusting screw prior to opening the cylinder valves.
- Never stand directly in front of or in back of a regulator when opening the cylinder valve; stand so that the cylinder valve is between you and the regulator.
- Always open the cylinder valves slowly. If a wrench is used, keep it on the valve.
- An acetylene cylinder should never be opened more than one full turn.
- Always purge the oxygen and fuel passages separately before lighting the torch.
- Light the fuel gas first before opening the oxygen valve on the torch.
- Follow the procedures as outlined. Do not take short cuts or use defective equipment.
- Never begin any welding or cutting without the proper permits.
- Always check to see that you have appropriate fire protection equipment immediately available before doing any welding or cutting.
- Welders must not wear any flammable or disposable type clothing.

## **ARC WELDING AND CUTTING**

### Protective Clothing

- Welders must wear head and eye protection that is required in the area in which they are working. They must wear appropriate welding helmets, long sleeve shirts, leathers and welder gloves. If grinding, chipping or buffing is done, a face shield must be worn. If respirators are required they must be worn too.
- As a minimum, fitters who are working with welders, should wear long sleeve shirts, leathers, and welders gloves, and appropriately tinted eye goggles or glasses with side shields.

- Heli-arc and MIG welding operations emit intense ultra-violet radiation which can result in third degree burns to exposed skin areas as well as painful flash burns to the eyes. Welding hoods must be checked periodically to insure that they are light tight. Arc gouging generally produces a great deal of slag and hot metal sparks. Additional personal protective equipment such as boots, nomex suits and mini-goggles may be appropriate.

### Equipment and Inspection

- Equipment must be industrial rated, in good condition, and conforming to OSHA requirements governing application, installation, and operation of arc welding and cutting equipment. Some, but not all, of the OSHA requirements are repeated in this standard for emphasis. A complete preventative maintenance inspection should be made at least annually by trained and qualified people. The last inspection date should be stenciled on the equipment. Open circuit voltage measurements should also be made annually and stenciled and dated on the equipment.
- Before each use, the following items must be inspected; All leads for broken or cut insulation, electrode holders for broken insulators or work holders, oil and fuels on gas or diesel powered units, and both power and return leads to insure that they are the same lengths so that the return lead can be attached as close as possible to the work.

### Electric Shock Hazard

- Almost all electric currents present some degree of potential shock hazard. Under optimum conditions, even welding voltages as low as 30 volts can be serious. Operating voltages listed on the ID nameplates are usually much lower than open circuit voltages. Open circuit voltages should not exceed more than 100 volts D.C. or 80 volts A.C.
- A.C. or D.C. current can be used for welding, and although both present serious shock hazard, A.C. is potentially more hazardous. Be certain not to use any equipment that is either wet now or has been drenched recently. Welding units that are powered by A.C. must be adequately grounded, and in order to change polarity, the unit must be shut down.
- Electrodes should never be changed with bare hands, wet gloves, or when standing on a wet floor or grounded surface. Whenever possible, welding receptacles should be interlocked so that the power must be shut off before the plug can be withdrawn. Cables that become worn enough to present a hazard must be replaced immediately. Keep welding cables away from the power supply cables and high voltage wires, and do not dip hot electrode holders into water to quick cool them. GFCI's can not be used on welding machines with D.C. current.

### Inert and Toxic Gas Exposure

Many welding procedures require an inert gas, such as argon and/or helium. These gasses present an asphyxiation hazard and welders and fitters need to keep these points in mind:

- Large diameter pipe will contain larger volumes of inert gas and a greater hazard potential.

- Temporary enclosures over field installations should be checked for oxygen level before use, and monitored continuously when in use.
- Argon will register "hot" when checked using an explosion meter, but will measure correctly when using an oxygen meter.
- Welders should be familiar with special hazards related to rod coatings containing such items as cadmium, beryllium and fluorides. Proper ventilation with these rods is very important. Lead, mercury and cadmium require special written procedures. Ventilation in work areas must be checked and should conform to good safety practices. In enclosed areas, such as tanks, vessels and columns, the site safety coordinator should be contacted for appropriate ventilation rates.

## **STORAGE OF COMPRESSED GAS CYLINDERS**

- Cylinders shall be kept away from radiators and other sources of heat.
- Inside of buildings, cylinders shall be stored in a dry, well-ventilated, well-protected location. Assigned storage spaces shall be located where cylinders will not be knocked over or damaged by passing or falling objects, or be subject to tampering by unauthorized persons. Cylinders shall not be kept in unventilated enclosures such as lockers and cupboards.
- Empty cylinders shall have their valves closed.
- Storage of empty cylinders shall be separated from charged cylinders. Storage racks shall be identified as to compressed gas cylinder content and condition.
- Valve protection caps, where cylinder is designed to accept a cap, shall always be in place, hand tight (except when cylinders are in use or connected for use).
- Protection from solar radiant heat shall be provided where cylinders are directly exposed to sunlight.
- Compressed gas cylinders shall be secured in an upright position at all times, including when being hoisted or transported.
- Retention chains or straps will be provided on storage racks and carts so that compressed gas cylinders will be secured against falling.
- Small, hand held compressed gas cylinders used for propane torches, gas detector test cylinders, etc. must be stored with the use of retention chains or straps. However, attention should be given to storing these cylinders away from open flames or sources of heat and in a manner that will protect knocked over or damaged by work activities.

- Compressed gas cylinder storage area must have a 20 pound ABC rated fire extinguisher (minimum) shall be placed no closer than 25 feet, but not further than 75 feet to fuel gas storage areas.
- Compressed gas cylinder storage areas must have Warning signs, shall be conspicuously placed and shall read, "Danger-No Smoking, Matches, Open Lights or Flames", or other equivalent wording.
- Compressed gas cylinder storage area inside buildings, cylinders (except those in use or attached for use) shall be limited to total gas capacity of 2000 cubic feet or 300 pounds of liquified petroleum gas.
- Oxygen cylinders in storage shall be separated from fuel gas cylinders or combustible materials (especially oil or grease) a minimum of 20 feet, or by a non-combustible barrier at least five feet high having a fire resistant rating of at least one-half (1/2) hour.

## **RECORDS**

- A Burning Permit must be issued for specific areas prior to the start of any welding, burning, grinding or any other form of hot work.
- A copy of the Hot Work Permit will be kept on file for a 24 Hour period and will then be discarded.

## **EYE AND FACE PROTECTION**

To prevent possible eye and face injuries, suitable eye protection must be worn. Potential eye and face injuries occur from flying objects, liquid chemicals, acids or caustic liquids, molten metal, chemical gasses or vapors, and light radiation. Eye protection must provide adequate protection, be reasonably comfortable, fit snugly, be durable, capable of being disinfected and cleaned, kept sanitary and in good repair. When selecting eye and face protection consider what kind and degree of hazard is present. This will assist in deciding the proper protection. Employees who use corrective spectacles and are required to wear eye protection must wear face shields or goggles over the spectacles or safety glasses with protective optical corrective lenses. It is important to use the proper shade lenses when working with injurious light energy.

In general, start with start with a shade that is too dark to see the weld zone. Then use a lighter shade which gives sufficient view of the weld zone without going below the minimum protection. Oxyfuel gas welding or cutting produces a yellow light, it is suggested to use a filter lens that absorbs the yellow or sodium line in the visible light of the operation.

Eye and face protection shall be appropriate for the task. When a hazard assessment determines that eye and face protection is necessary, protection shall be worn at all times without exception. Eye and face protection purchased prior to July 5, 1994 must be in accordance with ANSI Z-87. 1-1968 and any eye or face protection purchased after July 5, 1994 must comply with ANSI Z87.1 -1989. If you have question about eye protection ask your supervisor/foreman or refer to the manufacturers instructions.



## **FIRE HAZARDS**

We establish and maintain, Per OSHA 1910.252(a)(1)(i): that if the object to be welded or cut cannot readily be moved, all movable fire hazards in the vicinity shall be taken to a safe place.

We establish and maintain, Per OSHA 1910.252(a)(1)(ii): that if the object to be welded or cut cannot be moved and if all the fire hazards cannot be removed, then guards shall be used to confine the heat, sparks, and slag, and to protect the immovable fire hazards.

We establish and maintain, Per OSHA 1910.252(a)(1)(iii): that if the requirements stated in paragraphs(a)(1)(i) and (a)(1)(ii) of this section cannot be followed then welding and cutting shall not be performed.

## **FIRE WATCH**

We establish and maintain, Per OSHA 1910.252(a)(2)(iii): to enforce fire watch. Per OSHA 1910.252(a)(2)(iii)(A): Fire watchers shall be required whenever welding or cutting is performed in locations where other than a minor fire might develop, or any of the following conditions exist:

1. Appreciable combustible material, in building construction or contents, closer than 35 feet (10.7 m) to the point of operation per OSHA 1910.252(a)(2)(iii)(A)(1).
2. Appreciable combustibles are more than 35 feet (10.7 m) away but are easily ignited by sparks, Per OSHA 1910.252(a)(2)(iii)(A)(2).
3. Wall or floor openings within a 35-foot (10.7 m) radius expose combustible material in adjacent areas including concealed spaces in walls or floors, Per OSHA 1910.252(a)(2)(iii)(A)(3).
4. Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation, Per OSHA 1910.252(a)(2)(iii)(A)(4).

We establish and maintain that fire watchers shall have fire extinguishing equipment readily available and must be trained in the use of fire extinguishers. They shall be familiar with facilities for sounding an alarm in the event of a fire. They shall watch for fires in all exposed areas, try to extinguish them only when obviously within the capacity of the equipment available, or otherwise sound the alarm. A fire watch shall be maintained for at least a half hour after completion of welding or cutting operations to detect and extinguish possible smoldering fires. Per OSHA 1910.252(a)(2)(iii)(B).

We establish and maintain before cutting or welding is permitted, the area shall be inspected by the individual responsible for authorizing cutting and welding operations. He shall designate precautions to be followed in granting authorization to proceed preferably in the form of a written permit, Per OSHA 910.252(a)(2)(iv).

We establish and maintain that first-aid equipment shall be available at all times. All injuries shall be reported as soon as possible for medical attention. First aid shall be rendered until medical attention can be provided, per OSHA 1910.252(c)(13).

We establish and maintain that workmen in charge of the oxygen or fuel-gas supply equipment, including generators, and oxygen or fuel-gas distribution piping systems shall be instructed and judged competent by their employers for this important work before being left in charge. Rules and instructions covering the operation and maintenance of oxygen or fuel-gas supply equipment including generators, and oxygen or fuel-gas distribution piping systems shall be readily available, Per OSHA 1910.253(a)(4).

We establish and maintain that workmen designated to operate arc welding equipment shall have been properly instructed and qualified to operate such equipment, Per OSHA 1910.254(a)(3).

We establish and maintain that workers assigned to operate or maintain arc welding equipment shall be acquainted with the requirements of OSHA section 1910.252 (a), (b), and (c).

We establish and maintain that the operator should report any equipment defect or safety hazard to his supervisor and the use of the equipment shall be discontinued until its safety has been assured. Repairs shall be made only by qualified personnel, Per OSHA 1910.254(d)(9)(i).

- **Per OSHA 1910.254(d)(2):** Machine hook up. Before starting operations all connections to the machine shall be checked to make certain they are properly made. The work lead shall be firmly attached to the work; magnetic work clamps shall be freed from adherent metal particles of spatter on contact surfaces. Coiled welding cable shall be spread out before use to avoid serious overheating and damage to insulation.
- **Per OSHA 1910.254(d)(3):** Grounding. Grounding of the welding machine frame shall be checked. Special attention shall be given to safety ground connections of portable machines.
- **Per OSHA 1910.254(d)(4):** Leaks. There shall be no leaks of cooling water, shielding gas or engine fuel.
- **Per OSHA 1910.254(d)(5):** Switches. It shall be determined that proper switching equipment for shutting down the machine is provided.
- **Per OSHA 1910.254(d)(6):** Manufacturers' instructions. Printed rules and instructions covering operation of equipment supplied by the manufacturers shall be strictly followed.
- **Per OSHA 1910.254(d)(7):** Electrode holders. Electrode holders when not in use shall be so placed that they cannot make electrical contact with persons, conducting objects, fuel or compressed gas tanks.
- **Per OSHA 1910.254(d)(8):** Electric shock. Cables with splices within 10 feet (3 m) of the holder shall not be used. The welder should not coil or loop welding electrode cable around parts of his body.
- **Per OSHA 1910.254(d)(9):** Maintenance.

- **Per OSHA 1910.254(d)(9)(i):** The operator should report any equipment defect or safety hazard to his supervisor and the use of the equipment shall be discontinued until its safety has been assured. Repairs shall be made only by qualified personnel.
- **Per OSHA 1910.254(d)(9)(ii):** Machines which have become wet shall be thoroughly dried and tested before being used.
- **Per OSHA 1910.254(d)(9)(iii):** Cables with damaged insulation or exposed bare conductors shall be replaced. Joining lengths of work and electrode cables shall be done by the use of connecting means specifically intended for the purpose. The connecting means shall have insulation adequate for the service conditions.



## HOT WORK PERMIT

Company: \_\_\_\_\_

Work Location: \_\_\_\_\_ Time & Date: \_\_\_\_\_

Person Requesting Permit: \_\_\_\_\_

Duration of Work in Area: \_\_\_\_\_(days/hours).

Type of Work: \_\_\_\_\_

Number of Persons Covered Under this Permit: \_\_\_\_\_

Fire Watch Required:  Yes  No If Yes, Name of Fire Watch: \_\_\_\_\_

Type of Fire Protection Used:  Extinguisher  Fire Hose  Other

Potential Fire Hazard Location	Measure Used to Prevent Fires	Other Information
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Signature of Person Authorizing Permit: \_\_\_\_\_

Signature of Person Requesting Permit: \_\_\_\_\_

## **37. ROPE, CABLE & SLING INSPECTION**

### **PURPOSE**

To provide guidelines for the inspection of all ropes and cables used for personnel and material handling prior to use and as deemed necessary during their use, in order to ensure the safety of employees

### **SCOPE**

This procedure applies to all material handling activities at company divisions, on-site construction and maintenance projects.

### **REFERENCES**

- 29 CFR 1926.251 and 29 CFR 1926.550

### **PROCEDURE**

Although OSHA Standard 29 CFR 1926.251 pertains primarily to rigging equipment for material handling, the rope, cable and sling portions of the standard will be applied to all hoisting equipment, winches, pullers, and safety lines in use by the company. The OSHA guideline regarding visual and detailed inspections, disposition of damaged items, and lubrication procedures will be the policy.

Ropes, cables and slings, regardless of whether they are made of natural or synthetic fibers, steel wire, or metal mesh, are subject to certain hazards that cannot be removed by mechanical means, but only by the exercise of intelligence, care, and common sense. It is therefore essential to have personnel involved in the proper care, use and inspection of this equipment who are competent, careful, and well trained.

### **VISUAL INSPECTION**

Since safety depends on the proper use and care of all types of ropes, cables and slings a visual inspection of these items must be performed daily by an appointed person. Items to look for while conducting the visual inspection should include the following:

- Deformed, worn or flattened surfaces
- Kinks or severe twists

- Nicks, breaks, frayed or unraveled edges
- Shortened or lengthened rope lays
- Corroded or pitted surfaces

## **DETAILED INSPECTION**

The following, more detailed inspection, must be performed by a designated person at least monthly, or at more frequent intervals, depending on operating conditions and use:

- Run out rope completely and note conditions, such as number of broken strands, broken wires in one lay, reduction in rope diameter, corrosion, shorting of the lay, or fraying.
- Run a soft cloth, preferably cotton, over the entire length of wire rope and examine any rope lays which pick up threads of the cloth.
- Determine the extent of damage due to broken wires, nicks, cuts, frayed, or unraveled edges.
- Ensure that wire rope is properly lubricated.

When any of the above conditions exist and show evidence of abnormal deterioration, the item must be watched and reinspected daily. If this condition continues to worsen, the item must be condemned and replaced.

## **DISPOSITION OF DAMAGED RUNNING ROPE**

The length and type of service, as well as the severity of operation, must be taken into consideration before determining the disposition of ropes or cables which show signs of damage. Where failure of the rope or cable might endanger life or equipment, the rope cable must be condemned and replaced immediately. In all cases, the rope or cable must be condemned and replaced if any of the following conditions are found to exist.

- **Broken Wires:** Six or more wires broken in any one wire lay. Three or more wires broken in any one strand of one rope lay.
- **Worn Outside Wires:** Wearing of one-third or more of the original diameter and of the outside individual wires.
- **Broken Strand:** One or more broken strands.
- **Kinking, Crushing, Unraveled, or Other Damage:** Rope severely kinked, crushed, cut, frayed, birdcaged, or unraveled, or any other damage resulting in distortion of the rope structure.
- **Heat or Weld Damage:** Any evidence of heat damage or weld splatter.

- Corrosion: Considerable corrosion in the valleys between strands or corroded broken wires at end connections.
- Reduction in Diameter: Noticeable reduction from normal rope diameter.

## **SLINGS**

Slings are generally used in conjunction with other material handling equipment for the movement of material by hoisting. Slings are made of alloy steel chain, wire rope, metal mesh, natural or synthetic fiber, or fibers woven into a web. Many manufacturers of slings will produce their slings with a safety mark already on them. An example of this would be a sling with a red colored strand woven right into the material. If the sling has been cut or nicked to the point where the red colored strand is visible, the sling should be replaced immediately. However, since not all manufacturers make this safety mark, it will have to be up to the inspector to determine when the sling should be replaced.

### Sling Inspection

- Each day, before each use, the sling and all fastenings and attachments must be inspected for damage or defects by a competent person designated by the company. Damaged slings shall be removed from service per manufacturers' recommendations.
- Additional monthly inspections should be performed during sling use, and where service conditions warrant. Damaged or defective slings must be immediately removed from service and/or replaced.
- Wire rope slings shall not be used if, in any length of eight diameters, the total number of visible broken wires exceeds 10% of the total number of wires, or if the rope shows other signs of excessive wear, corrosion, or defect.
- In the case of alloy steel chain slings, the inspection shall include a thorough check for wear, defective welds, deformation of the links, and increase in length. When such defects or deterioration are present, the chain sling must be immediately removed from use.

## **ROPE CLIPS**

Fixtures are usually attached to wire rope by means of wire rope clips, commonly referred to as either "U" clips or "U" bolts. These wire rope clips are also used when making a loop at the end of a wire rope. There is a right way and a wrong way to use a wire rope clip. The correct method for installing a wire rope clip is to attach the clip with the base or saddle over the short or dead end of the wire rope. This will allow the clip to develop 81 to 90 percent efficiency and is the only correct method of attaching wire rope clips. The saying, "Never Saddle a Dead Horse" will help prevent incorrect mounting of wire rope clips.

## **RECORDS**

**Inspection Records shall be maintained.**

## SLING AND HOST QUIZ

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. Slings can be made of Rope, Chain, or Synthetic Fiber.  True  False
2. Welding sparks can damage slings.  True  False
3. Shock loading a hoist will not damage it.  True  False
4. Tying a knot in a sling is a good way to shorten it.  True  False
5. Only qualified and trained people should use a hoist.  True  False
6. The lifting cable of a hoist can be used instead of a sling.  True  False
7. The main components of a sling are: the body, the cable, and the hook.  True  False
8. Hand powered hoists should never be used on a roof.  True  False
9. The ground lifting area should be protected by a Guard Rail System.  True  False
10. People who are in danger of falling items should wear hard hats.  True  False

**INSTRUCTOR:** \_\_\_\_\_



## **38. EXCAVATION AND TRENCHING**

### **PURPOSE**

To provide guidelines to ensure the safety of all employees who are required to work in and around excavations.

### **SCOPE**

This procedure applies to all company divisions, on-site construction and maintenance projects.

### **REFERENCES**

- 29 CFR 1926.650 - 652

### **RESPONSIBILITY**

Project Supervision in charge of the excavation work is responsible for ensuring the following:

- All preparatory work is conducted as set forth in this procedure prior to any excavating.
- Excavation work is performed within the guidelines as set forth in this procedure.
- An Excavation Permit has been issued and properly completed by the appropriate personnel.
- Project Supervision is responsible for locating any electrical lines in the vicinity of the excavation to be dug. If electrical lines are present, the company must communicate their exact location to the person in charge of the excavation work.
- Project Supervision is responsible for locating any acid, steam, water, fuel-gas and/or other process/service type underground line in the vicinity of the excavation to be dug. If pipelines as those described above are present, the company must communicate their exact location to the person in charge of the excavation work.
- The company will ensuring that prior to assigning any employee to perform trenching and excavation work, all safe guards are in place and a completed Excavation Permit has been posted in the area where excavation and trenching operations will be constructed.

## PROCEDURE

- Before any excavation can be made, an Excavation Permit must be filled out and approved by the company.
- Soil classification shall be made by a qualified person. Unclassified soil will be sloped 1 ½ : 1 or shored when the excavation exceeds 4 foot in depth.
- All shoring for excavations over 20-feet must be designed by a registered professional engineer and all shoring installed must be approved and signed off by a registered professional engineer.
- All spoils must be placed a minimum of three (3) feet from the edge of the excavation.
- Excavations four (4) feet in depth or greater, must have a stairway, ladder, ramp or other safe means of egress within 25 feet of any employee.
- All excavations shall be inspected at the start of each shift, After heavy rains, and after freezing and/or thawing temperatures occur
- For all excavations four (4) feet in depth or greater, the atmosphere in the excavation must be tested to ensure that no hazardous atmosphere exists.
- The person responsible for the crew working in the excavation must inspect the excavation throughout the work period and stop operations when unsafe conditions exist.
- The number of workers in the excavation is to be limited to the number needed to perform the work.

## RECORDS

**A copy of the excavation permit will be maintained in the safety file.**

We establish and maintain that all employees exposed to public vehicular traffic shall be provided with, and shall wear, warning vests or other suitable garments marked with or made of reflectorized or high-visibility material, Per OSHA 1926.651(d).

We establish and maintain that no employee shall be permitted underneath loads handled by lifting or digging equipment. Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped, in accordance with 1926.601(b)(6), to provide adequate protection for the operator during loading and unloading operations, Per OSHA 1926.651(e).

We establish and maintain that employees shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each

situation, but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline, per OSHA 1926.651(h).

- **Per OSHA 1926.651(h)(2):** If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations shall be monitored by a competent person to ensure proper operation.
- **Per OSHA 1926.651(h)(3):** If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains will require an inspection by a competent person and compliance with paragraphs (h)(1) and (h)(2) of this section.

We establish and maintain that daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated, per OSHA 1926.651(k).

We establish and maintain that the competent person shall: have had training in, and be knowledgeable about, soils analysis, the use of protective systems and the requirements of this standard. The competent person having such training and knowledge must be capable of identifying existing and predictable hazards in excavation work and have the authority to take prompt measures to abate these hazards. Thus, a backhoe operator who would otherwise meet the requirements of the definition is not a competent person if the person lacks the authority to take prompt corrective measures to eliminate existing or potential hazards. Per OSHA 1926.651.

- **Per OSHA 1926.651(k)(2):** Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

We establish and maintain that walkways shall be provided where employees or equipment are required or permitted to cross over excavations to protect against falls. Guardrails which comply with 1926.502(b) shall be provided where walkways are 6 feet (1.8 m) or more above lower levels, Per OSHA 1926.651(l).

- **Per OSHA 1926.652(a):** Protection of employees in excavations. **Per OSHA 1926.652(a)(1):** Each employee in an excavation shall be protected from cave-ins by an adequate protective system designed in accordance with paragraph (b) or (c) of this

section except when: **Per OSHA 1926.652(a)(1)(i)**: Excavations are made entirely in stable rock; or **Per OSHA 1926.652(a)(1)(ii)**: Excavations are less than 5 feet (1.52 m) in depth and examination of the ground by a competent person provides no indication of a potential cave-in.

- **Per OSHA 1926.652(a)(2)**: Protective systems shall have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied or transmitted to the system.
- **Per OSHA 1926.652(b)**: Design of sloping and benching systems. The slopes and configurations of sloping and benching systems shall be selected and constructed by the employer or his designee and shall be in accordance with the requirements of paragraph (b)(1); or, in the alternative, paragraph (b)(2); or, in the alternative, paragraph (b)(3); or, in the alternative, paragraph (b)(4), as follows:
  - **Per OSHA 1926.652(b)(1)**: Option (1) - Allowable configurations and slopes.
    - **Per OSHA 1926.652(b)(1)(i)**: Excavations shall be sloped at an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal), unless the employer uses one of the other options listed below.
    - **Per OSHA 1926.652(b)(1)(ii)**: Slopes specified in paragraph (b)(1)(i) of this section, shall be excavated to form configurations that are in accordance with the slopes shown for Type C soil in Appendix B to this subpart.
  - **Per OSHA 1926.652(b)(2)**: Option (2) - Determination of slopes and configurations using Appendices A and B. Maximum allowable slopes, and allowable configurations for sloping and benching systems, shall be determined in accordance with the conditions and requirements set forth in appendices A and B to this subpart.
  - **Per OSHA 1926.652(b)(3)**: Option (3) - Designs using other tabulated data.
    - **Per OSHA 1926.652(b)(3)(i)**: Designs of sloping or benching systems shall be selected from and in accordance with tabulated data, such as tables and charts.
    - **Per OSHA 1926.652(b)(3)(ii)**: The tabulated data shall be in written form and shall include all of the following: **Per OSHA 1926.652(b)(3)(ii)(A)**: Identification of the parameters that affect the selection of a sloping or benching system drawn from such data; **Per OSHA 1926.652(b)(3)(ii)(B)**: Identification of the limits of use of the data, to include the magnitude and configuration of slopes determined to be safe; **Per OSHA 1926.652(b)(3)(ii)(C)**: Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.
    - **Per OSHA 1926.652(b)(3)(iii)**: At least one copy of the tabulated data which identifies the registered professional engineer who approved the data, shall be maintained at the jobsite during construction of the protective system. After that time the data may be stored off the jobsite, but a copy of the data shall be made available to the Secretary upon request.

- **Per OSHA 1926.652(b)(4):** Option (4) - Design by a registered professional engineer.
- **Per OSHA 1926.652(b)(4)(i):** Sloping and benching systems not utilizing Option (1) or Option (2) or Option (3) under paragraph (b) of this section shall be approved by a registered professional engineer.
- **Per OSHA 1926.652(b)(4)(ii):** Designs shall be in written form and shall include at least the following: **Per OSHA 1926.652(b)(4)(ii)(A):** The magnitude of the slopes that were determined to be safe for the particular project; **Per OSHA 1926.652(b)(4)(ii)(B):** The configurations that were determined to be safe for the particular project; **Per OSHA 1926.652(b)(4)(ii)(C):** The identity of the registered professional engineer approving the design.
- **Per OSHA 1926.652(b)(4)(iii):** At least one copy of the design shall be maintained at the jobsite while the slope is being constructed. After that time the design need not be at the jobsite, but a copy shall be made available to the Secretary upon request.
- **Per OSHA 1926.652(c):** Design of support systems, shield systems, and other protective systems. Designs of support systems, shield systems, and other protective systems shall be selected and constructed by the employer or his designee and shall be in accordance with the requirements of paragraph (c)(1); or, in the alternative, paragraph (c)(2); or, in the alternative, paragraph (c)(3); or, in the alternative, paragraph (c)(4) as follows: **Per OSHA 1926.652(c)(1):** Option (1) - Designs using appendices A, C and D. Designs for timber shoring in trenches shall be determined in accordance with the conditions and requirements set forth in appendices A and C to this subpart. Designs for aluminum hydraulic shoring shall be in accordance with paragraph (c)(2) of this section, but if manufacturer's tabulated data cannot be utilized, designs shall be in accordance with appendix D.
- **Per OSHA 1926.652(c)(2):** Option (2) - Designs Using Manufacturer's Tabulated Data.
- **Per OSHA 1926.652(c)(2)(i):** Design of support systems, shield systems, or other protective systems that are drawn from manufacturer's tabulated data shall be in accordance with all specifications, recommendations, and limitations issued or made by the manufacturer.
- **Per OSHA 1926.652(c)(2)(ii):** Deviation from the specifications, recommendations, and limitations issued or made by the manufacturer shall only be allowed after the manufacturer issues specific written approval.
- **Per OSHA 1926.652(c)(2)(iii):** Manufacturer's specifications, recommendations, and limitations, and manufacturer's approval to deviate from the specifications, recommendations, and limitations shall be in written form at the jobsite during construction of the protective system. After that time this data may be stored off the jobsite, but a copy shall be made available to the Secretary upon request.
- **Per OSHA 1926.652(c)(3):** Option (3) - Designs using other tabulated data.

- **Per OSHA 1926.652(c)(3)(i):** Designs of support systems, shield systems, or other protective systems shall be selected from and be in accordance with tabulated data, such as tables and charts.
- **Per OSHA 1926.652(c)(3)(ii):** The tabulated data shall be in written form and include all of the following: Per OSHA **1926.652(c)(3)(ii)(A):** Identification of the parameters that affect the selection of a protective system drawn from such data; Per OSHA **1926.652(c)(3)(ii)(B):** Identification of the limits of use of the data; Per OSHA **1926.652(c)(3)(ii)(C):** Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.
- **Per OSHA 1926.652(c)(3)(iii):** At least one copy of the tabulated data, which identifies the registered professional engineer who approved the data, shall be maintained at the jobsite during construction of the protective system. After that time the data may be stored off the jobsite, but a copy of the data shall be made available to the Secretary upon request.
- **Per OSHA 1926.652(c)(4):** Option (4) - Design by a registered professional engineer.
- **Per OSHA 1926.652(c)(4)(i):** Support systems, shield systems, and other protective systems not utilizing Option 1, Option 2 or Option 3, above, shall be approved by a registered professional engineer.
- **Per OSHA 1926.652(c)(4)(ii):** Designs shall be in written form and shall include the following: Per OSHA **1926.652(c)(4)(ii)(A):** A plan indicating the sizes, types, and configurations of the materials to be used in the protective system; and Per OSHA **1926.652(c)(4)(ii)(B):** The identify of the registered professional engineer approving the design.
- **Per OSHA 1926.652(c)(4)(iii):** At least one copy of the design shall be maintained at the jobsite during construction of the protective system. After that time, the design may be stored off the jobsite, but a copy of the design shall be made available to the Secretary upon request.
- **Per OSHA 1926.652(d):** Materials and equipment.
- **Per OSHA 1926.652(d)(1):** Materials and equipment used for protective systems shall be free from damage or defects that might impair their proper function.
- **Per OSHA 1926.652(d)(2):** Manufactured materials and equipment used for protective systems shall be used and maintained in a manner that is consistent with the recommendations of the manufacturer, and in a manner that will prevent employee exposure to hazards.
- **Per OSHA 1926.652(d)(3):** When material or equipment that is used for protective systems is damaged, a competent person shall examine the material or equipment and evaluate its suitability for continued use. If the competent person cannot assure the material or equipment is able to support the intended loads or is otherwise suitable for

safe use, then such material or equipment shall be removed from service, and shall be evaluated and approved by a registered professional engineer before being returned to service.



# EXCAVATION PERMIT

Company: \_\_\_\_\_ Date: \_\_\_\_\_

Job Site: \_\_\_\_\_

Date Issued: \_\_\_\_\_ Date Expires \_\_\_\_\_

Specific Work Location: \_\_\_\_\_

Sketch of Location Attached? Yes \_\_\_\_\_ No \_\_\_\_\_

Size of Trench, Pit, or Wall Opening: \_\_\_\_\_ Ft. Long x \_\_\_\_\_ Ft. Wide x \_\_\_\_\_ Ft. Deep

Lines in Vicinity of Work: Electrical \_\_\_ Steam \_\_\_ Telephone \_\_\_ Alarm \_\_\_ Water \_\_\_ Drain \_\_\_

Sewer \_\_\_ Process (specify) \_\_\_\_\_

Other: \_\_\_\_\_

Other Know Obstructions: Footings \_\_\_\_\_ Pilings \_\_\_\_\_ Concrete Encasement \_\_\_\_\_

Other \_\_\_\_\_

Precautions to be Taken: De-energized Lines \_\_\_\_\_ Insulate \_\_\_\_\_

Operator \_\_\_\_\_ Ground Tools \_\_\_\_\_ Hand Excavate \_\_\_\_\_

Other (specify) \_\_\_\_\_

Is Shoring or Sloping Necessary? \_\_\_\_\_

The above data has been checked with blueprints on file. When close clearances are indicated, hand excavation must be used to determine the exact location. Existing lines and interferences in the vicinity of work must be marked by stakes indicating location and depth prior to excavation.

Who is the competent person? \_\_\_\_\_

Inspector's Name: \_\_\_\_\_

Construction Signatures: (must be signed prior to beginning of work)

PROJECT MANAGER \_\_\_\_\_ Date: \_\_\_\_\_

PROJECT SUPERINTENDENT \_\_\_\_\_ Date: \_\_\_\_\_

SITE SAFETY COORDINATOR \_\_\_\_\_ Date: \_\_\_\_\_

GENERAL SUPERINTENDENT \_\_\_\_\_ Date: \_\_\_\_\_



## 39. ELECTRICAL SAFETY

### PURPOSE

To eliminate unsafe conditions involving electrical equipment and tools, including faulty insulation, improper grounding, loose electrical connections, defective parts, ground faults in equipment and unguarded live electrical parts.

### RESPONSIBILITY

Every Siena employee has a duty to actively participate in our safety program and to report any unsafe working conditions and areas of concern encountered in the workplace to their supervisor or project safety manager. Employees are required to observe all safety precautions and use all required personal protective equipment. Compliance with all Federal, State, Local, and Siena safety, health and environmental rules and regulations is mandatory. Responsibility for the safety program is delegated to line supervisors in accordance with the chain of command. Safety department personnel are staff assistants to line personnel and their presence in no way relieves the line organization of its responsibility.

Each project manager, superintendent, general foreman and/or foreman is responsible for implementing all phases of our electrical policies. Each employee is responsible for working in accordance with Siena Safety Policy and for reporting unsafe conditions and unsafe acts to their supervisor immediately.

**Per NFPA 70E 110.1(B)(3):** Siena Construction Corporation shall advise the host employer of:

- (1) Any unique hazards presented by the Siena's work.
- (2) Any unanticipated hazards found during the Siena's work that the host employer did not mention; and
- (3) The measures that Siena took to correct any hazards reported by the host employer to prevent such hazards from recurring in the future.

### SCOPE

This procedure applies to all company divisions, on-site construction and maintenance projects.

### REFERENCES

Additional references for specific electrical work not covered within this policy can be found in:

- OSHA 29 CFR 1910, Subpart S - Electrical;
- OSHA 29 CFR 1926, Subpart K - Electrical;
- NFPA 70E, Standard for Electrical Safety in the Workplace;
- NFPA 70, the National Electrical Code (NEC).

## GENERAL REQUIREMENTS

- Electrical systems must be inspected and maintained on a regular basis.
- Electrical equipment shall not be opened, adjusted, repaired, or otherwise handled until it is de-energized and locked-out according to the Siena lockout /tagout policy.
- De-energized equipment shall be tested to prove the absence of voltage using appropriate Personal Protective Equipment (PPE) required before anyone works on it.
- Ground fault circuit interrupters (GFCI) shall be used to protect employees on construction sites. The use of an assured equipment grounding conductor program will be acceptable only if GFCI use is infeasible.
- Subcontractors shall protect their employees with ground fault circuit interrupters (GFCI). An assured equipment grounding conductor program will be acceptable only if GFCI use is infeasible.
- Temporary wiring shall utilize ground fault receptacles and breakers. A portable ground fault circuit interrupter will be used on permanent building circuits.
- All metal panels, boxes, covers, conduit, etc., that are part of our electrical system shall be grounded.
- All power tools and extension cords must be grounded, unless double insulated.
- All wiring splices and repairs shall be made inside an approved box or encapsulated/sealed with epoxy or vulcanizing kits identified for the purpose and suitable for the use. Open splices or open repairs using tape alone are not acceptable.
- Electric lines carrying more than 240 volts shall not be unplugged until they have been shut off.
- Metal ladders shall not be used for electrical work.
- All electrical equipment that is exposed to flammable gases or vapors, combustible dust, or ignitable fibers must meet hazardous location requirements and shall be identified and suitable not only for the class of location but also for the explosive, combustible, or ignitable properties of the specific gas, vapor, dust, fiber, or filings that will be present.
- Label all circuit breakers to show what they control.
- Label all circuit breaker panels to show the voltage they contain.
- Panel covers must be kept in place whenever the panel is energized.
- All panels shall be equipped with a lockable door so that power can be turned off and locked-out for repairs. Adequate space is needed to open the door at least 90 degrees.
- Panels shall be locked to prevent unauthorized access.
- Circuit breakers that protect hand tool receptacles shall have a maximum rating of 20 amps. Waterproof connectors shall be used as necessary.
- All holes and unused openings in panel boards, boxes, cabinets etc. including spaces where circuit breakers are missing shall be effectively closed.
- Circuit breakers shall be properly sized for the circuit and load they supply.

## RESPONSIBILITY

- The company supervision is responsible for implementing, monitoring, administering and enforcing this procedure.
- Employees are responsible for compliance to this procedure and the requirements reflected in the written GFCI Programs.

## DEFINITIONS

*Labeled* - Equipment or materials to which has been attached a label, symbol, or other identifying mark of a qualified testing laboratory which indicates compliance with appropriate standards or performance in a specific manner.

*Qualified Person* - One familiar with the construction and operation of the equipment and hazards involved.

## PROCEDURE

- Each project and shop must provide a safe place to work for every employee which includes protecting the employee from electrical hazards such as fault currents to ground.
- When an electrical ground fault occurs, the current flows through the path with minimum impedance to ground. It is imperative that any employee does not inadvertently become the conductor of the current.
- All electrical sources will be grounded or the use of a portable ground fault circuit interrupters (GFCI) is required.
- Attention shall be given to the proper installation and maintenance of GFCIs within the requirements of the National Electric Code (NEC). The system shall be tested prior to being activated into service and the test results documented and kept on file.
- If a fault trip-out occurs after the circuit has been tested and activated into service, a thorough investigation must be made to determine the cause. The necessary repairs or corrections shall be made before re-using. Application of a silicone solution may be helpful if the fault trip-out is due to excessive moisture.
- In purchasing GFCIs the specifications shall state that GFCIs shall conform with Underwriters Laboratories Standard 943, "Ground Fault Circuit interrupters".
- Each circuit protected by a circuit breaker GFCI requires its own neutral conductor.
- Receptacle type GFCIs may be used on common neutral systems and where receptacles are more than 250 feet from the breaker.
- A special GFCI polarity tester shall be used to ensure trip current values and to test the satellite receptacles downstream from the receptacle containing a GFCI.
- It is recognized that in order to prevent injury from a ground fault, the integrity of the grounding system must be maintained at all times. To achieve this, a program of inspection and testing shall be implemented.
- All employees are responsible for the inspection and testing of each cord set, electric tool, piece of electrical equipment and receptacle: before first use, before equipment is

returned to service following repairs, before equipment is used after any incident which can be reasonably suspected to have caused damage, and every month.

- Each cord set, electric tool, receptacle, and piece of electrical equipment shall be tested to ensure a continuous ground circuit, and that the equipment grounding conductor is connected to its proper terminal. The testing equipment shall be capable of testing for ground conductor continuity and resistance line fault, and proper connection of conductors to terminals. All testing equipment shall also be tested each month and these results shall be documented and the documents maintained by the Electrical Supervisor.
- Receptacles, which are a permanent part of the wiring of permanent buildings, are excluded from the monthly testing and inspection requirements of this procedure. Also excluded are trailers, change shacks, Butler-type buildings, and similar structures. However, after installation and before initial use, each receptacle shall be tested. Note: If permanent receptacle in permanent building, trailers, change shacks, Butler-type building or similar structure is being used to support construction activities, a ground fault circuit interrupter device will have to be employed in conjunction with each cord set, electric tool or piece of electrical equipment.
- Daily, each cord set, electric tool, or piece of electrical equipment shall be visually inspected by the user before use for signs of damage. They shall be inspected for signs of frayed or damaged insulation, crushed cable, loose or missing covers or screws, missing ground prongs on plug, and other similar substandard conditions. Equipment found to be damaged or defective shall not be used until repaired, and equipment suspected of being damaged or defective shall be inspected and tested prior to using.
- It shall be the responsibility of each subcontractor to ensure that his/her electric tools and electrical equipment are tested and documented.

## **RECORDS**

**All tests performed in the GFCI Program shall be recorded.**

## **TRAINING RECORDS**

We establish and maintain that per OSHA 1910.332(a), training requirements apply to employees who face a risk of electric shock that is not reduced to a safe level by the electrical installation requirements of 1910.303 through 1910.308.

We will adhere to the content of training set forth by OSHA code 1910.332(b).

We establish and maintain, Per OSHA 1910.332(b)(1): Practices addressed in this standard. Employees shall be trained in and familiar with the safety-related work practices required by 1910.331 through 1910.335 that pertain to their respective job assignments. Per OSHA 1910.332(b)(2): Additional requirements for unqualified persons. Employees who are covered by paragraph (a) of this section but who are not qualified persons shall also be trained in and

familiar with any electrically related safety practices not specifically addressed by 1910.331 through 1910.335 but which are necessary for their safety.

**Per NFPA 70E 130.4(D):** Unqualified persons shall not be permitted to enter spaces that are required to be accessible to qualified employees only, unless the electric conductors and equipment involved are in an electrically safe work condition.

We establish and maintain, Per OSHA 1910.332(b)(3): Additional requirements for qualified persons. Qualified persons (i.e. those permitted to work on or near exposed energized parts) shall, at a minimum, be trained in and familiar with the following:

1. Per OSHA 1910.332(b)(3)(i): The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment.
2. Per OSHA 1910.332(b)(3)(ii): The skills and techniques necessary to determine the nominal voltage of exposed live parts, and
3. Per OSHA 1910.332(b)(3)(iii): The clearance distances specified in 1910.333(c) and the corresponding voltages to which the qualified person will be exposed.
4. Per OSHA 1910.332(c): Type of training. The training required by this section shall be of the classroom or on-the-job type. The degree of training provided shall be determined by the risk to the employee.

## **WORKING ON OR NEAR EXPOSED DE-ENERGIZED PARTS**

We establish and maintain to adhere to guidelines set forth by OSHA code [http://www.osha.gov/pls/oshaweb/owalink.query\\_links?src\\_doc\\_type=STANDARDS&src\\_unique\\_file=1910\\_0333&src\\_anchor\\_name=1910.333\(b\)](http://www.osha.gov/pls/oshaweb/owalink.query_links?src_doc_type=STANDARDS&src_unique_file=1910_0333&src_anchor_name=1910.333(b)) 1910.333(b): Working on or near exposed deenergized parts. Per OSHA 1910.333(b)(1): Application. This paragraph applies to work on exposed deenergized parts or near enough to them to expose the employee to any electrical hazard they present. Conductors and parts of electric equipment that have been deenergized but have not been locked out or tagged in accordance with paragraph (b) of this section shall be treated as energized parts, and paragraph (c) of this section applies to work on or near them.

We establish and maintain, per OSHA 1910.333(b)(2), while any employee is exposed to contact with parts of fixed electric equipment or circuits which have been deenergized, the circuits energizing the parts shall be locked out or tagged or both in accordance with the requirements of this paragraph. The requirements shall be followed in the order in which they are presented (i.e., paragraph (b)(2)(i) first, then paragraph (b)(2)(ii), etc.).

We will maintain, per OSHA 1910.333(b)(2)(i): Procedures. We shall maintain a written copy of the procedures outlined in paragraph (b)(2) and shall make it available for inspection by employees and by the Assistant Secretary of Labor and his or her authorized representatives.

We maintain that, per OSHA 1910.333(b)(2)(ii)(C): Stored electric energy which might endanger personnel shall be released. Capacitors shall be discharged and high capacitance elements shall be short-circuited and grounded, if the stored electric energy might endanger personnel. **Note: If the capacitors or associated equipment are handled in meeting this requirement, they shall be treated as energized.**

We establish and maintain, per OSHA 1910.333(c): Working on or near exposed energized parts. Per OSHA 1910.333(c)(1) "Application." This paragraph applies to work performed on

exposed live parts (involving either direct contact or by means of tools or materials) or near enough to them for employees to be exposed to any hazard they present.

We maintain that only qualified persons may work on electric circuit parts or equipment that have not been deenergized under the procedures of paragraph (b) of this section. Such persons shall be capable of working safely on energized circuits and shall be familiar with the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools, Per OSHA [http://www.osha.gov/pls/oshaweb/owalink.query\\_links?src\\_doc\\_type=STANDARDS&src\\_unique\\_file=1910\\_0333&src\\_anchor\\_name=1910.333\(c\)\(2\)1910.333\(c\)\(2\).](http://www.osha.gov/pls/oshaweb/owalink.query_links?src_doc_type=STANDARDS&src_unique_file=1910_0333&src_anchor_name=1910.333(c)(2)1910.333(c)(2).)

## ***ARC FLASH PROTECTION BOUNDARY***

### **Definition: FLASH PROTECTION BOUNDARY**

An approach limit at a distance from exposed live parts within which a person could receive a second-degree burn if an electrical arc flash were to occur.

The Flash Protection Boundary is intended to trigger the need for PPE that can protect the worker from potential thermal injury (heat energy).

### **Definition: INCIDENT ENERGY**

The amount of energy impressed on a surface, a certain distance from the source, generated during an electrical arc event. One of the units used to measure incident energy is calories per square centimeter (cal/cm<sup>2</sup>).

Flame-Resistant (FR) clothing must be rated at least as great as the incident energy that could be received.

## ***APPROACH BOUNDARIES TO LIVE PARTS***

Crossing one of these approach boundaries: Limited, Restricted, Prohibited increases the chance that a worker might contact exposed live parts, (see NFPA 70E Table 130.2(C)).

## ***ENERGIZED ELECTRICAL WORK PERMIT***

**Ref NFPA 70E 130.2(B)** Work on energized electrical conductors or circuit parts that are not placed in an electrically safe work condition, shall be considered energized electrical work and shall be performed by written permit only.

## ***TESTING / INSPECTION***

**Ref NFPA 70E 110.4(A)(1)**: Only qualified persons shall perform tasks such as testing, troubleshooting, and voltage measuring within the limited approach boundary of energized electrical conductors or circuit parts operating at 50 volts or more or where an electrical hazard exists.

**Ref NFPA 70E 110.4(A)(4)**: Test instruments, equipment, and their accessories shall meet the requirements of ANSI/ISA-61010-1-Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use -Part 1 General Requirements, for rating and design requirements for voltage measurement and test instruments intended for use on electrical systems 1000 Volts and below.

**Ref NFPA 70E 110.4(A)(5)**: When test instruments are used for the testing for the absence of voltage on conductors or circuit parts operating at 50 volts or more, the operation of the test instrument shall be verified before and after an absence of voltage test is performed.

**Ref NFPA 70E 130.7(C)(7)(c)**: All insulating PPE must be inspected before each day's use and immediately following any incident that can reasonably be suspected of having caused damage. Insulating gloves shall be given an air test, along with the inspection.

**Ref NFPA 70E Table 130.7(C)(7)(c)**: Maximum test intervals for rubber insulating personal protective equipment. Tests Include 1) Blankets-before first issue/every 12 months thereafter, 2) Gloves-before first issue and every 6 months, 3) Sleeves before first issue and every 12 months. Covers and Line hose shall be testing if insulating value is suspect.

**Definition: LIMITED APPROACH BOUNDARY**

An approach limit at a distance from an exposed live part within which a shock hazard exists. The Limited Approach Boundary is intended to restrict the approach of unqualified persons.

**Ref NFPA 70E 110.1(G)** Hazard Analysis should contain event severity, frequency, probability and avoidance to determine the level of safe practices employed.

**Ref NFPA 70E 110.2(D)** Employees shall be trained in the skills and techniques to: distinguish exposed energized electrical conductors and circuit parts from other parts of electrical equipment, to determine the nominal voltage of exposed energized electrical conductors and circuit parts, the approach distances specified in Tables 130.4(C)(a) and 130.4(C)(b), and the decision making process necessary to determine the degree and extent of the hazard and the personal protective equipment and job planning necessary to perform the task safely.

**Ref NFPA 70E 110.2(D)1** Program elements include: evaluations, anticipating unexpected events, all electrical parts are considered live until proven otherwise, work permits, electrical flash arc hazard analysis.

**Definition: RESTRICTED APPROACH BOUNDARY**

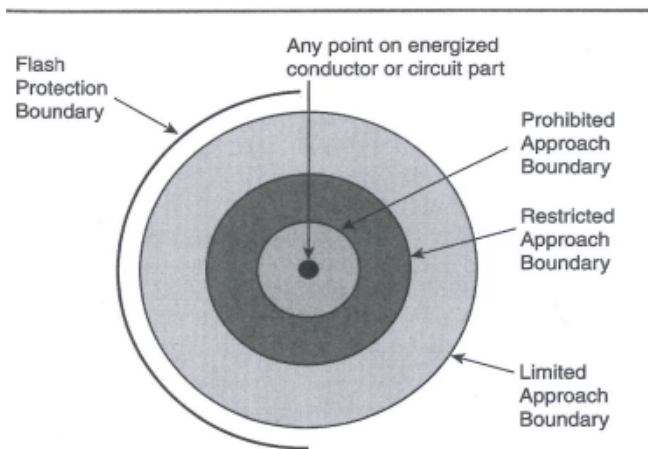
An approach limit at a distance from an exposed live part within which there is an increased risk of shock, due to electrical arc over combined with inadvertent movement, for personnel working in close proximity to the live part.

The Restricted Approach Boundary is intended to restrict the approach of QUALIFIED persons.

**Definition: PROHIBITED APPROACH BOUNDARY**

An approach limit at a distance from an exposed live part within which work is considered the same as making contact with the live part.

Crossing the Prohibited Approach Boundary is considered the same as making contact with the live part.



**EXHIBIT 130.1. Approach boundaries.**

## **Job Training**

**Ref NFPA 70E 110.2(A):** Employees shall be trained in safety-related work practices and procedural requirements as necessary to provide protection from the electrical hazards associated with their respective jobs. Employees shall be trained to identify and understand the relationship between electrical hazards and possible injury.

## **Job Briefing**

**Ref NFPA 70E 110.3(H):** Before starting each job, the electrical supervisor shall conduct a job briefing and include all employees involved. The briefing should cover hazards associated with the job, work procedures involved, special precautions, energy source controls, PPE requirements, and the information on the energized electrical work permit, if required. Additional job briefings shall be held if changes that might affect the safety of employees occur during the course of work and must include:

- Electrical hazards associated with the work task
- Procedures that must be followed when executing the work task
- Any special precautions that are required by the working conditions
- Where and how to remove the source of energy
- Emergency response and emergency communications
- Required personal protective equipment (PPE)
- Other work in the immediate physical area
- Other work associated with the same electrical circuits or equipment

## **Selection of Personal Protective Equipment (PPE)**

The PPE requirements of NFPA 70E 130.7.C.9 shall be permitted to be used in lieu of the detailed flash hazard analysis approach described in NFPA 70E 130.3.A.

NFPA 70E Table 130.7(C)(9)(a) Hazard/Risk Category Classifications lists common work tasks that may be used to determine a hazard/risk category. An arc flash analysis must be performed for fault-clearing times and short circuit capacities that exceed the information contained in the notes.



Once the Hazard/Risk Category has been identified, NFPA 70E Table 130.7(C)(10) Protective Clothing and Personal Protective Equipment (PPE) Matrix shall be used to determine the required personal protective equipment (PPE) for the task.

The preferred option is: **Always de-energize and put live parts into an electrically safe work condition.**

## RECORDS

**All tests performed in the GFCI Program shall be recorded.**

## TRAINING RECORDS

We establish and maintain that per OSHA 1910.332(a), training requirements apply to employees who face a risk of electric shock that is not reduced to a safe level by the electrical installation requirements of 1910.303 through 1910.308.

**Per NFPA 70E 110.2(E):** Documentation shall be made when the employee demonstrates proficiency, be maintained for the duration of the employee's employment, and contain the content of the training, each employee's name, and date of training.

We will adhere to the content of training set forth by OSHA code 1910.332(b).

We establish and maintain, Per OSHA 1910.332(b)(1): Practices addressed in this standard. Employees shall be trained in and familiar with the safety-related work practices required by 1910.331 through 1910.335 that pertain to their respective job assignments. Per OSHA 1910.332(b)(2): Additional requirements for unqualified persons. Employees who are covered by paragraph (a) of this section but who are not qualified persons shall also be trained in and familiar with any electrically related safety practices not specifically addressed by 1910.331 through 1910.335 but which are necessary for their safety.

We establish and maintain, Per OSHA 1910.332(b)(3): Additional requirements for qualified persons. Qualified persons (i.e. those permitted to work on or near exposed energized parts) shall, at a minimum, be trained in and familiar with the following:

1. **Per OSHA 1910.332(b)(3)(i):** The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment.
2. **Per OSHA 1910.332(b)(3)(ii):** The skills and techniques necessary to determine the nominal voltage of exposed live parts, and
3. **Per OSHA 1910.332(b)(3)(iii):** The clearance distances specified in 1910.333(c) and the corresponding voltages to which the qualified person will be exposed.
5. **Per OSHA 1910.332(c):** Type of training. The training required by this section shall be of the classroom or on-the-job type. The degree of training provided shall be determined by the risk to the employee.
6. **Per NFPA 70E 110.2(D)(3):** An employee shall receive additional training (or retraining at intervals not to exceed 3 years) under any of the following conditions:
  - (1) If the supervision or annual inspections indicate that the employee is not complying with the safety-related work practices;

- (2) If new technology, new types of equipment, or changes in procedures necessitate the use of safety-related work practices that are different from those that the employee would normally use;
- or (3) If he or she must employ safety-related work practices that are not normally used during his or her regular job duties.

## WORKING ON OR NEAR EXPOSED DE-ENERGIZED PARTS

We establish and maintain to adhere to guidelines set forth by OSHA code [We establish and maintain, per OSHA 1910.333\(b\)\(2\), while any employee is exposed to contact with parts of fixed electric equipment or circuits which have been deenergized, the circuits energizing the parts shall be locked out or tagged or both in accordance with the requirements of this paragraph. The requirements shall be followed in the order in which they are presented \(i.e., paragraph \(b\)\(2\)\(i\) first, then paragraph \(b\)\(2\)\(ii\), etc.\).](http://www.osha.gov/pls/oshaweb/owalink.query_links?src_doc_type=STANDARDS&src_unique_file=1910_0333&src_anchor_name=1910.333(b)1910.333(b)1910.333(b): Working on or near exposed deenergized parts. Per OSHA 1910.333(b)(1): Application. This paragraph applies to work on exposed deenergized parts or near enough to them to expose the employee to any electrical hazard they present. Conductors and parts of electric equipment that have been deenergized but have not been locked out or tagged in accordance with paragraph (b) of this section shall be treated as energized parts, and paragraph (c) of this section applies to work on or near them.</a></p></div><div data-bbox=)

We will maintain, per OSHA 1910.333(b)(2)(i): Procedures. We shall maintain a written copy of the procedures outlined in paragraph (b)(2) and shall make it available for inspection by employees and by the Assistant Secretary of Labor and his or her authorized representatives. We maintain that, per OSHA 1910.333(b)(2)(ii)(C): Stored electric energy which might endanger personnel shall be released. Capacitors shall be discharged and high capacitance elements shall be short-circuited and grounded, if the stored electric energy might endanger personnel. **Note: If the capacitors or associated equipment are handled in meeting this requirement, they shall be treated as energized.**

We establish and maintain, per OSHA 1910.333(c): Working on or near exposed energized parts. Per OSHA 1910.333(c)(1) "Application." This paragraph applies to work performed on exposed live parts (involving either direct contact or by means of tools or materials) or near enough to them for employees to be exposed to any hazard they present.

We maintain that only qualified persons may work on electric circuit parts or equipment that have not been deenergized under the procedures of paragraph (b) of this section. Such persons shall be capable of working safely on energized circuits and shall be familiar with the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools, Per OSHA

[http://www.osha.gov/pls/oshaweb/owalink.query\\_links?src\\_doc\\_type=STANDARDS&src\\_unique\\_file=1910\\_0333&src\\_anchor\\_name=1910.333\(c\)\(2\)1910.333\(c\)\(2\).](http://www.osha.gov/pls/oshaweb/owalink.query_links?src_doc_type=STANDARDS&src_unique_file=1910_0333&src_anchor_name=1910.333(c)(2)1910.333(c)(2).)

## GUIDELINES FOR WORKING UNDER/NEAR/AROUND OVERHEAD LINES

We establish and maintain if work is to be performed near overhead lines, the lines shall be deenergized and grounded, or other protective measures shall be provided before work is started. If the lines are to be deenergized, arrangements shall be made with the person or

organization that operates or controls the electric circuits involved to deenergize and ground them. If protective measures, such as guarding, isolating, or insulating, are provided, these precautions shall prevent employees from contacting such lines directly with any part of their body or indirectly through conductive materials, tools, or equipment. Note: The work practices used by qualified persons installing insulating devices on overhead power transmission or distribution lines are covered by 1910.269 of this Part, not by 1910.332 through 1910.335 of this Part. Under paragraph (c)(2) of this section, unqualified persons are prohibited from performing this type of work, Per OSHA 1910.333(c)(3).

We establish and maintain per OSHA 1910.333(c)(3)(i), when an unqualified person is working in an elevated position near overhead lines, the location shall be such that the person and the longest conductive object he or she may contact cannot come closer to any unguarded, energized overhead line than the following distances:

1. Per OSHA 1910.333(c)(3)(i)(A)(1): For voltages to ground 50kV or below - 10 feet (305 cm);
2. Per OSHA 1910.333(c)(3)(i)(A)(2): For voltages to ground over 50kV - 10 feet (305 cm) plus 4 inches (10 cm) for every 10kV over 50kV.

We establish and maintain that when an unqualified person is working on the ground in the vicinity of overhead lines, the person may not bring any conductive object closer to unguarded, energized overhead lines than the distances given in paragraph (c)(3)(i)(A) of this section.

Note: For voltages normally encountered with overhead power line, objects which do not have an insulating rating for the voltage involved are considered to be conductive, Per OSHA 1910.333(c)(3)(i)(B).

We establish and maintain Per OSHA 1910.333(c)(3)(ii): That when a qualified person is working in the vicinity of overhead lines, whether in an elevated position or on the ground, the person may not approach or take any conductive object without an approved insulating handle closer to exposed energized parts than shown in Table S-5 unless:

1. Per OSHA 1910.333(c)(3)(ii)(A): The person is insulated from the energized part (gloves, with sleeves if necessary, rated for the voltage involved are considered to be insulation of the person from the energized part on which work is performed),
2. Per OSHA 1910.333(c)(3)(ii)(B): The energized part is insulated both from all other conductive objects at a different potential and from the person,
3. Per OSHA 1910.333(c)(3)(ii)(C): The person is insulated from all conductive objects at a potential different from that of the energized part.

## **VEHICULAR AND MECHANICAL EQUIPMENT CLEARANCE DISTANCES AND PROTECTIVE MEASURES**

We establish and maintain Per OSHA 1910.333(c)(3)(iii): Per OSHA 1910.333(c)(3)(iii)(A): Any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines shall be operated so that a clearance of 10 ft. (305 cm) is maintained. If the voltage is higher than 50kV, the clearance shall be increased 4 in. (10 cm) for every 10kV over that voltage. However, under any of the following conditions, the clearance may be reduced:

1. **Per OSHA 1910.333(c)(3)(iii)(A)(1):** If the vehicle is in transit with its structure lowered, the clearance may be reduced to 4 ft. (122 cm). If the voltage is higher than 50kV, the clearance shall be increased 4 in. (10 cm) for every 10 kV over that voltage.

2. **Per OSHA 1910.333(c)(3)(iii)(A)(2):** If insulating barriers are installed to prevent contact with the lines, and if the barriers are rated for the voltage of the line being guarded and are not a part of or an attachment to the vehicle or its raised structure, the clearance may be reduced to a distance within the designed working dimensions of the insulating barrier.
3. **Per OSHA 1910.333(c)(3)(iii)(A)(3):** If the equipment is an aerial lift insulated for the voltage involved, and if the work is performed by a qualified person, the clearance (between the uninsulated portion of the aerial lift and the power line) may be reduced to the distance given in Table S-5.

TABLE S-5 - APPROACH DISTANCES FOR QUALIFIED EMPLOYEES - ALTERNATING CURRENT

Voltage range (phase to phase)	Minimum approach distance
300V and less .....	Avoid Contact
Over 300V, not over 750V .....	1 ft. 0 in. (30.5 cm).
Over 750V, not over 2kV .....	1 ft. 6 in. (46 cm).
Over 2kV, not over 15kV .....	2 ft. 0 in. (61 cm).
Over 15kV, not over 37kV .....	3 ft. 0 in. (91 cm).
Over 37kV, not over 87.5kV .....	3 ft. 6 in. (107 cm).
Over 87.5kV, not over 121kV .....	4 ft. 0 in. (122 cm).
Over 121kV, not over 140kV .....	4 ft. 6 in. (137 cm).

- **Per OSHA 1910.333(c)(3)(iii)(B):** Employees standing on the ground may not contact the vehicle or mechanical equipment or any of its attachments, unless: **Per OSHA 1910.333(c)(3)(iii)(B)(1):** The employee is using protective equipment rated for the voltage; or **Per OSHA 1910.333(c)(3)(iii)(B)(2):** The equipment is located so that no uninsulated part of its structure (that portion of the structure that provides a conductive path to employees on the ground) can come closer to the line than permitted in paragraph (c)(3)(iii) of this section.
- **Per OSHA 1910.333(c)(3)(iii)(C):** If any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines is intentionally grounded, employees working on the ground near the point of grounding may not stand at the grounding location whenever there is a possibility of overhead line contact. Additional precautions, such as the use of barricades or insulation, shall be taken to protect employees from hazardous ground potentials, depending on earth resistivity and fault currents, which can develop within the first few feet or more outward from the grounding point.

## ILLUMINATION IN SPACES CONTAINING EXPOSED ENERGIZED PARTS

**Ref NFPA 70E 130.6(C)(1-2):** We establish and maintain, Per OSHA 1910.333(c)(4): Employees may not enter spaces containing exposed energized parts, unless

illumination is provided that enables the employees to perform the work safely, Per OSHA 1910.333(c)(4)(i) or where lack of illumination or an obstruction precludes observation of the work to be performed, employees shall not perform tasks within Limited Approach Boundary of exposed energized electrical conductors or circuit parts operating at 50 volts or more or where an electrical hazard exists. Employees may not reach blindly into areas which may contain energized parts, Per OSHA 1910.333(c)(4)(ii).

## **PROTECTION WHILE WORKING IN CONFINED/ENCLOSED SPACES WHERE ELECTRICAL HAZARDS MAY EXIST**

We establish and maintain when an employee works in a confined or enclosed space (such as a manhole or vault) that contains exposed energized parts, the employer shall provide, and the employee shall use, protective shields, protective barriers, or insulating materials as necessary to avoid inadvertent contact with these parts. Doors, hinged panels, and the like shall be secured to prevent their swinging into an employee and causing the employee to contact exposed energized parts, Per OSHA 1910.333(c)(5).

## **CONDUCTIVE MATERIALS AND EQUIPMENT**

We establish and maintain that conductive materials and equipment that are in contact with any part of an employee's body shall be handled in a manner that will prevent them from contacting exposed energized conductors or circuit parts. If an employee must handle long dimensional conductive objects (such as ducts and pipes) in areas with exposed live parts, the employer shall institute work practices (such as the use of insulation, guarding, and material handling techniques) which will minimize the hazard, Per OSHA 1910.333(c)(6).

## **PORTABLE LADDERS SHALL HAVE NON-CONDUCTIBLE SIDE RAILS**

- **Per OSHA 1910.333(c)(7):** "Portable ladders." Portable ladders shall have nonconductive siderails if they are used where the employee or the ladder could contact exposed energized parts.

## **CONDUCTIVE APPAREL**

We establish and maintain that conductive articles of jewelry and clothing (such a watch bands, bracelets, rings, key chains, necklaces, metalized aprons, cloth with conductive thread, or metal headgear) may not be worn if they might contact exposed energized parts. However, such articles may be worn if they are rendered nonconductive by covering, wrapping, or other insulating means, Per OSHA 1910.333(c)(8).



## ELECTRICAL SAFETY QUIZ

Company: \_\_\_\_\_

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. All personnel must inspect and test each cord set, electric tool, piece of electrical equipment and receptacle: (1) before first use, (2) before equipment is returned to service following repairs, and (3) before equipment is used after any incident which can be reasonably suspected to have caused damage. \_\_\_\_\_ True \_\_\_\_\_ False
2. List two primary hazards associated with electricity and its use:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
3. The effects of electric shock on the human body depend on several factors. The major factors are:
  1. Current and Voltage
  2. Resistance
  3. Path through a body
  4. Duration of shock\_\_\_\_\_ True \_\_\_\_\_ False
4. A fuse is an electrical device that opens a circuit when the current flowing through it exceeds the rating of the fuse. The "heart" of a fuse is a special metal strip (or wire) designed to melt and *blow out* when its rated amperage is exceeded. \_\_\_\_\_ True \_\_\_\_\_ False
5. Circuit breakers provide protection for equipment and conductors from excessive current without the inconvenience of changing fuses. Circuit breakers *trip* (open the circuit) when the current flow is excessive. \_\_\_\_\_ True \_\_\_\_\_ False
6. *Effective grounding* means that the path to ground: (1) is permanent and continuous, and (2) has ample current-carrying capacity to conduct safely any currents liable to be imposed on it, and (3) has impedance sufficiently low to limit the potential above ground to facilitate the operation of the overcurrent devices in the circuit \_\_\_\_\_ True \_\_\_\_\_ False
7. *Effective bonding* means that the electrical continuity of the grounding circuit is assured by proper connections between service raceways, service cable armor, all service equipment enclosures containing service entrance conductors, and any conduit or armor that forms part of the grounding conductor to the service raceway. \_\_\_\_\_ True \_\_\_\_\_ False

Instructor: \_\_\_\_\_

## 40. ENVIRONMENTAL PROTECTION

### PURPOSE

The Environmental Protection Procedures have been developed to provide specific guidelines for handling hazardous waste in ways that will protect human health and the environment. The procedures are designed to provide a means to control hazardous waste from the moment it is generated until its ultimate disposal.

### SCOPE

These environmental protection procedures apply to all company divisions and operations which involve or may generate hazardous waste. These procedures will be strictly enforced where applicable to ensure that all environmental requirements are complied with.

### POLICY

The company is committed to protection and enhancement of the environment and to updating our practices in light of advances in technology and new understandings in health and environmental science. The principles of this policy are applicable to all divisions and operations, and we will take demonstrable actions on a continuing basis in furtherance of the principles. The company will ensure that all employees and subcontractors operate within program guidelines.

### REFERENCES

Except to the extent that more explicit, or more stringent requirements are written directly into these procedures, the primary regulatory references relating to environmental protection practices during company operations shall be: Title 40 Code of Federal Regulations Part 261, Title 49 Code of Federal Regulations Part 172, and Title 29 Code of Federal Regulations Part 1910.

### DEFINITIONS

*Waste Generator* - any person or organization whose act or process produces hazardous waste, or whose act first causes a hazardous waste to become subject to regulation. The generator designation determines who is responsible for record keeping and compliance.

*RCRA* - Resource Conservation and Recovery Act (1976, 1984); Administered by the US EPA, the act regulates management and disposal of hazardous materials and wastes currently generated, treated, stored, disposed or distributed.

*Hazardous Waste* - a waste, in solid or liquid form, which is no longer used. It is material which is thrown away or stored until the quantity warrants disposal. The material is deemed hazardous if it has certain properties that could pose dangers to human health and the

environment after it is discarded. Hazardous wastes are classified by the US EPA as either listed or characteristics waste, depending on specific criteria.

*Listed Waste* - material considered to be hazardous, based on the material appearing on any one of four hazardous waste lists contained in the US EPA regulations. These wastes have been listed because they either exhibit characteristics or contain any number of toxic constituents that have been shown to be harmful to health and the environment. The regulations list over 400 hazardous wastes, including wastes derived from manufacturing processes and discarded commercial chemical products.

*Characteristic Waste* - even if a waste does not appear on one of the US EPA lists, it is considered hazardous if it has one or more of the following characteristics:

- Ignitable: it is easily combustible or flammable, e.g., degreasers, paint waste, solvents.
- Corrosive: it dissolves metals, other materials, or burns the skin, e.g., rust removers, waste acids, alkaline cleaning fluids, waste battery acid.
- Reactive: it is unstable or undergoes rapid or violent chemical reaction with water or other materials, e.g., metal plating wastes, waste bleaches, waste oxidizers.
- Toxic: if an extract from the waste is tested and found to contain high concentrations of heavy metals e.g., lead, cadmium, mercury, and certain pesticides) that could be released into the ground water.

*Acutely Hazardous Waste* - wastes that the US EPA has determined to be so dangerous in small amounts that they are regulated the same way as are large amounts of other hazardous wastes. This waste may include, but may not be limited to, certain pesticides and dioxin containing wastes.

## **RESPONSIBILITY**

- Management shall have the responsibility for the research and preparation of specific environmental protection procedures. The procedures shall be implemented as the primary environmental protection guidance document. The procedures shall be reviewed and approved by the Corporate Safety Director.
- Management is responsible for the implementation and maintenance of employee training programs relating to this procedure, the performance of hazard assessment and exposure control activities related to employee health protection, and for the performance of regularly scheduled compliance status audits on the project.
- Supervision is responsible for implementing the procedures on the project or shop. Further, supervision shall have responsibility on the project for overall regulatory compliance with all applicable standards and regulations. The project safety designee shall be responsible for the generation and submission of incident and/or status reports related to environmental protection activities.
- Project Supervision is responsible for ensuring that the project has a current, written procedure which fully details the environmental protection program on the project.



- Project Safety Designee shall be responsible for implementation and enforcement of the environmental protection procedures as it relates to their subordinates.
- Project Safety Designee shall have the responsibility for the creation and maintenance of a detailed waste inventory, which shall be utilized to account for material requisitions, receipt, storage, use, and disposal activities. The warehouse manager shall also have the responsibility for the acquisition and maintenance of all Material Safety Data Sheets (MSDS) which pertain to products utilized on the project.

## **PROCEDURE**

- The company will operate in a manner designed to minimize environmental, health, or safety hazards. The company will minimize risk and protect our employees, and others in the vicinity of our operations, by providing specific hazard awareness training and information programs to employees, and where applicable, community residents. Additional chemical protection safeguards will be provided through the application of safe management technologies and operating procedures and by being prepared for emergencies.
- The company will make available to our employees and to the public, information related to any of our operations that we believe could cause environmental harm or pose health or safety hazards.
- The company will encourage employees to report any condition that creates a danger to the environment or poses health or safety hazards, and will provide confidential means for them to do so.

## **WASTE REDUCTION, RECYCLING, TREATMENT AND DISPOSAL**

- The company shall work to minimize the volume and toxicity of waste generated by the companies operations. Minimization of wastes results from the initiation and maintenance of process/production review which will enable substitution and/or reuse of potentially hazardous chemicals to take place.
- The company will initiate and maintain waste recycling programs, to the extent possible, as an effort to minimize the volume of generated wastes and to provide renewable resources within other industries.
- The company will not initiate activities which produce a demand for extensive chemical treatment operations, with the possible exception of small scale, waste stabilization efforts relating to transport of wastes.
- Disposal of generated hazardous wastes shall be performed in conformance with the requirements established by Title 40 CFR Part 261, which details three important considerations related to waste management: (1) That, depending on quantities generated, a generator must comply with specific storage time, quantity, and handling requirements for containers and tanks, (2) That the company, as a generator, may have to obtain specific storage, treatment, or disposal permits if storage, treatment, or disposal of wastes at the project locations is anticipated, and (3) That the company, as generator, will be required to implement adequate precautions to prevent accidents, and

that the company must be prepared to handle them properly in the event that they do occur.

## 41. SPILL CONTROL PLAN

### PURPOSE

To minimize the risk of occupational and environmental hazards that may be encountered on projects.

### SCOPE

These guidelines apply to all company divisions, on-site construction and maintenance projects.

### DEFINITIONS

*Hazardous Chemical*, any material which because of quantity, concentration, physical, chemical, or infectious characteristics may:

- Cause or significantly contribute to an increase in serious or incapacitating illness.
- Pose a substantial, actual, or potential hazard to human health, property or the environment when not properly treated, stored, transported, or disposed of, or otherwise managed.

*Hazardous Waste*, any material possessing the characteristics of a hazardous chemical for which no use or reuse is intended and which is to be discarded.

*Hazardous Material Spill*, any condition resulting from an accidental or intentional release or accumulation of hazardous waste or materials in concentrations or quantities sufficient to pose a substantial actual or potential hazard to human health, property, or the environment.

*Spill*, any abnormal release of a substance that could possibly cause an adverse effect on the environment (land, air, water) or people in the general area.

### RESPONSIBILITIES

#### Administrator/Primary Coordinator Responsibilities

- Ensures appointment and accreditation in hazardous material response of the Safety Manager or alternate to meet requirements of 29 CFR 1910.
- Retains authority to commit material and resources to emergencies as designed.

- Requires subcontractors to prepare and implement Hazardous Material Handling Plan, SCP, and mitigation effort.
- Notify appropriate local authorities in the event of spills or releases.

#### Emergency Coordinator Responsibilities

- Assumes Primary Coordinator's responsibilities in his absence and has the responsibility of the site SCP Administrator, to provide assistance and support to the client Safety and Environmental Coordinator and to make evaluations and decisions on matters of regulatory compliance associated with hazardous material spills or releases.
- Provide client safety and environmental departments with appropriate material safety data sheets of materials brought on-site and gather and submit subcontractors MSDS. Maintain a site MSDS file.
- Ensure that trained and qualified personnel are selected and trained to alert emergency responders and are available on all shifts for emergency action.
- Review and approve SCP submitted by subcontractors.
- Provide detailed on-site inspection of chemical containment areas and equipment.
- Review and approve mitigation plans submitted by subcontractors and monitor compliance.
- Ensure that training in Hazardous Waste Handling and Spill Containment is available for personnel. Review training periodically to assure compliance with 29 CFR I 910.120 and 40 CFR PART 372.
- Ensure that timely corrective action is taken by subcontractors to control the emergency in accordance with this plan.
- Determining the immediate course of action to prevent injury and damage to property and the environment, including minimizing spread of the hazardous material by:
- Determining the quantity and type of material.
- Determining method of containment and "run-off" control (i.e., berm, plastic barricades, absorbents, etc.)
- Notify client Environmental Coordinator immediately in the event of a spill.
- Ensure notification of client organizations of complete details so that they may (1) notify appropriate federal, state, and local authorities, (2) assume responsibility for investigation of the emergency, (3) provide the necessary reports, (4) assure that corrective action is taken, (5) notify the companies corporate officers, if appropriate and required.

- Maintain an inventory of spill containment and cleanup tools and material.

#### All Departments

- Provide support to the Hazardous Waste Officer or a designated alternate in the response actions to be taken in the event of a hazardous material spill.

#### Subcontractors

- Comply with all federal and state laws.
- Furnish a spill contingency and prevention plan.
- Clean up all spills.

#### Other On-site Personnel

- Area Supervisor directly responsible for the specific location or activity at which a hazardous material spill occurs.

### **SPILL CONTROL PLAN**

Spill and leak prevention and response policies will be inherent to the efficient operation of this facility and will be made familiar to all personnel. All personnel responsible will review this SCP and have a complete working knowledge of the procedures and techniques included in the plan. The spill and leak prevention and response plans are a major component of the overall SCP.

#### Spill and Leak Prevention Plan

This plan will require subcontractors to:

- Comply with 29 CFR 1910 and 40 CFR Part 372 and all applicable state and federal laws.
- Provide conforming storage tanks with secondary containment.
- Perform routine visual inspections at all facilities (i.e., piping, valves, pumps, etc.).
- Adhere to proper hazardous material loading and unloading techniques at all times.
- Conduct a preventive maintenance program to repair faulty equipment before spills or leaks occur.
- Maintain an efficient inventory record of materials stored to prevent unaccountable losses (i.e., materials lost to spills or leaks).
- Provide proper employee training in all facets of the facility operation and the requirements of this plan.
- Periodically update facilities, techniques, and their SCP.

## **SPILL AND LEAK RESPONSE PLAN**

This plan will require subcontractors to:

- Notify the companies and emergency responders immediately in the event of a spill.
- Locate the sources of the spill or leak.
- Ensure the use of appropriate Personal Protection Equipment (PPE).
- Take all necessary actions to stop the spill or leak, or require action by subcontractors as appropriate.
- Notify designated responders responsible, if appropriate.
- Clean up liquids by use of absorbent materials.
- Immediately notify the client Environmental Coordinator, who will notify appropriate local, state, and federal agencies.
- Clean up used absorbent and other material, and properly dispose.
- Complete written report of an incident.
- Update plan as necessary to prevent future occurrences of this nature.

## **INSPECTION-MONITORING & MAINTENANCE PROGRAM**

One of the main requirements of the Spill and Leak Prevention Plan is an adequate inspection, monitoring, and maintenance program in effect for the operating subcontractors. This program should include but not be limited to requiring subcontractors to:

- Perform routine visual inspections of all exposed piping, pumps, valves, connections or any other visible potential sources for leaks or spills.
- Maintain an up-to-date inventory of all material received, stored, and used on an itemized basis. Any inventory unaccounted for may indicate a leak in the system. Inventory sheets should be updated daily and reviewed periodically to account for discrepancies and maintain accuracy.
- Note all deficiencies and make repairs or replace components immediately.
- Routinely inspect equipment and maintain records for monitoring adjustments and corrective maintenance.

## **SPILL EMERGENCY RESPONSE PLAN**

- The Emergency Response Plan shall be activated immediately upon detection of a spill or leak. All spills and leaks shall be contained and cleaned up immediately. In the event of a spill emergency, the companies SCP Administrator and the client Environmental Coordinator shall be notified immediately and shall be responsible for taking all actions necessary to minimize the emergency situation and potential hazard to the environment, notify all required agencies, and prepare a written report of the incident.

## **DUTIES OF SCP ADMINISTRATOR & EMERGENCY COORDINATOR**

- The companies SCP Administrator & Emergency Coordinator and all alternates shall be thoroughly familiar with all aspects of this SCP and the site environmental policies, all activities conducted at the facility, the location and characteristics of all stored materials and emergency equipment, the location of the records, and the general layout of the facility.
- The primary SCP Administrator & Emergency Coordinator or designated alternates shall also have the authority to take all actions and commit resources to implement and carry out this plan.

When an imminent or actual emergency situation arises, the companies SCP Administrator & Emergency Coordinator shall immediately:

- Notify site personnel as required.
- Visually identify the character, source, and extent of the emergency.
- Assess possible hazards to human health or the environment.
- Notify the site designated responders (i.e. fire company and site security) and client Environmental Coordinator.
- Complete a written report of the incident.
- Upon activation of this plan, the company shall report the facts by phone to the client Environmental Coordinator, who will notify appropriate local, state, and federal agencies.
- Name of person reporting the incident.
- Name and address of facility.
- Phone number where person reporting can be reached.
- Date, time, and location of incident.
- A brief description of the incident, including type of accident, nature of hazardous material involved, and possible hazard to human health or environment.

- The extent of injuries, if any.
- The shipping name and quantity of waste involved.
- Other responders as necessary.

## **SPILL RESPONSE**

### The response to a hazardous spill will be as follows:

- The person discovering a chemical spill will immediately notify the company who will then notify the appropriate facility designated responders and the client Environmental Coordinator. The on-site emergency number should not be used unless the spill is of a magnitude that requires evacuation of populated work or residential areas or there is an injury involved requiring emergency medical treatment.
- The first safety professional to arrive at the spill area will assume responsibility for emergency action, utilizing available personnel and equipment as required until more experienced help arrives.
- The first concern of the responsible person at a chemical spill area will be for the safety of personnel. All persons not required to directly respond to the emergency will be restricted to safe locations and barriers, or personnel positioned to prevent unauthorized persons from entering the hazardous area. First aid or other medical treatment will be provided as needed, and proper protective clothing and equipment used to remove injured personnel from the hazardous area and control and cleanup of spilled materials.
- The next efforts will be directed to limiting the extent of the spill source if safely possible, and confinement of the spill to selected areas offering the least exposure to hazards associated with the spilled material. Neutralization and removal of spill residue will be closely monitored by the Hazardous Material Response Team to ensure compliance with all safety and regulatory requirements.
- Immediately (or within 24 hours after the emergency) the client Environmental Coordinator will be notified of the emergency and given a description of the situation.
- The responsible person at the emergency scene, as defined in the preceding portions of this procedure, will get assistance from the other members of the Hazardous Material Response Team as necessary. All persons assisting with the emergency will remain at the scene until released by the person in charge.
- When it has been determined by observation, tests and/or inspections that the emergency is over, an announcement will be made by the person in charge and cleanup of the area and of equipment involved will continue as necessary to restore conditions to an acceptable level.



The companies Coordinator, or Alternate, will ensure that:

- Personnel are notified of the end of the emergency and reports of damage or injuries as applicable are completed.
- The responsibility for investigating the spill is performed by accredited individuals, and necessary notification and reports provided to client within the established time limits of 24 hours for notification and 5 days for written reporting.
- Required reports are transmitted to client for submittal to federal or state agencies, with concurrence by the Owner.
- Corrective action is taken to prevent a reoccurrence of the spill.

The procedures for final "Cleanup" of Hazardous Material Spills are defined, as follows:

- Determine level of personal protective equipment appropriate for response.
- Determine quantity and type of material or toxic chemical.
- Evaluation of material or toxic chemical.
- Determine test methods and extent of cleanup required.
- Expedite decision of cleanup methods.
- Obtain approval of actions from client Environmental Coordinator or Project Manager.
- Ensure that toxic chemical cleanup is complete, and verification of disposal methods is obtained.

Subcontractors will be:

- Required to place fuel storage tanks on a bermed concrete slab or other secondarily contained storage facility directed by the Project Manager.
- Held responsible for cleanup of chemical spills and/or unauthorized disposal.
- Required to submit their Spill Prevention, Control and Countermeasures Plan for review/approval by the company.
- Responsible for implementing remedial action.

## **AGENCIES TO BE NOTIFIED**

- County agencies identified by each site.
- State agencies identified by each site.
- Federal Agencies

- U.S. Environmental Protection Agency (Spill Hotline 800 424-2723)
- National Response Center (800 424-8802)
- Environmental Protection Agency (Local Listing)
- U.S. Coast Guard (Local Listing)



## HAZARDOUS SUBSTANCE EVALUATION SHEET

Company Name: \_\_\_\_\_

Job Location: \_\_\_\_\_

Hazardous Substance Name: \_\_\_\_\_

Product Location: \_\_\_\_\_

D.O.T. Number: \_\_\_\_\_ UN Class Hazard: \_\_\_\_\_

CAS Number: \_\_\_\_\_ Flash Point: \_\_\_\_\_

Ignition Temperature: \_\_\_\_\_ Boiling Point: \_\_\_\_\_

Flammable Limit Range: \_\_\_\_\_ lower % \_\_\_\_\_ to upper % \_\_\_\_\_

Vapor Density: (air=1.0) \_\_\_\_\_

Specific Gravity: (water=1.0) \_\_\_\_\_ Water Solubility: \_\_\_\_\_

Extinguishing Agent: \_\_\_\_\_

PPE Required: \_\_\_\_\_

EPA Suit: \_\_\_\_\_ Foam Type: \_\_\_\_\_

Flash Suit Required: \_\_\_\_\_

Evacuation Distance: \_\_\_\_\_ Hot Zone Size: \_\_\_\_\_

Special Precautions: TLV= \_\_\_\_\_ ppm \_\_\_\_\_

NFPA Rating Red \_\_\_\_\_ Blue \_\_\_\_\_ Yellow \_\_\_\_\_ White \_\_\_\_\_

Special Information/Precautions: \_\_\_\_\_

Evaluation By: \_\_\_\_\_ Date: \_\_\_\_\_

## **42. SUBCONTRACTOR SAFETY REQUIREMENTS**

### **PURPOSE**

To familiarize all subcontractors with the company safety rules, procedures, and guidelines for controlling jobsites accidents and injuries.

### **SCOPE**

This procedure applies to all contractors working on a subcontract to any company construction and maintenance projects.

### **RESPONSIBILITY**

The company is responsible to ensure that each project subcontractor has developed and adheres to their own environmental, safety, and health policies and procedures.

- Ensure that each subcontractor's contract reflects the knowledge of and adherence to their formal safety programs and OSHA compliance.
- Observe the performance of each subcontractor's safety program.

### **PROCEDURE**

- Prior to the start of work, the contractor and subcontractor will establish clear lines of communication, as well as define clear roles and responsibilities.
- Each subcontractor must have the appropriate license(s) and registration(s) pertinent to their trade(s), as well as proper and valid insurance to complete the required work.
- Each subcontractor will be expected to be aware of and comply with all local, state, federal, and the company safety standards and regulations.
- Subcontractors are required to submit their company safety programs to the company for review.
- Safety metrics, such as TRIR, EMR, DART, Fatality Rate will be used as a criterion for selecting subcontractors.
- The subcontractor will provide to the company his job supervisor's home address and telephone number so that he may be contacted after hours in case of an emergency involving the subcontractor's work or his equipment.

- The subcontractor will ensure that his safety program is in compliance with all existing safety and health requirements of local, state, and federal regulatory agencies. Where applicable, this may include, but not be limited to, hazard communication training, personal protective equipment training, respiratory protection training (including respirator fit testing), required medical examination and clearance, etc.
- In addition to compliance with government safety requirements, the subcontractor is also responsible for explaining their safety program to his employees and for ensuring compliance with them including any safety standards that exceed the government requirements.
- The subcontractor is responsible for all employees working for him/her and for all other persons calling on him or doing business with him on a company's project.
- Prior to the commencement of any work on the company's project, the subcontractor will ensure that all his personnel, both supervisory and hourly, receive a safety and health orientation.
- Prior to the commencement of work, the subcontractor shall provide the name of their safety representative to the company. This representative must be assigned to the project site and be responsible for the administration and enforcement of the safety program.

## **SUBCONTRACTOR SAFETY RULES**

The following is a summary of some important accident prevention rules and working procedures, which apply to all the company's subcontractors while working a company project:

### Medical Facilities

- The subcontractor must furnish his own first aid supplies which are to be located in a place where they are immediately available to his personnel.

### Accident Reporting

- All subcontractor accidents are to be reported immediately to the companies Site Safety Coordinator. In addition, a copy of each accident report prepared is to be provided to the company. Copies of the subcontractor's OSHA 200 log will be furnished when requested.

### Clothing

- The subcontractor will be expected to comply with the OSHA's requirement for the wearing of appropriate construction type clothing by all of his personnel, including such items as good work shoes, gloves, etc.

### Personal Protective Equipment

- Approved hard hats must be worn at all times when on the jobsite. Hearing protection must be worn in all areas of high noise levels. Safety glasses, face shields, etc., must be worn at all times. Appropriate respiratory protection equipment must be used when conditions warrant. Suitable protective clothing must be worn when required. Approved fall protection and properly attached safety lines must be worn by all subcontractor employees working at unprotected heights.

### Inspections

- Subcontractors are encouraged to conduct safety checks of each of the area where their men are working and to report any unsatisfactory conditions to the company. Safety inspections are required on all company jobsites.

### Unsafe Conditions

- Subcontractors will be required to correct any unsatisfactory safety conditions created as a result of their operations within a reasonable period of time. If this is not done, violation procedures will apply.

### Violation Procedures

- When unsafe conditions or practices are observed by the Site Safety Coordinator, or a representative of the safety office, the subcontractor supervisor will be requested to correct them. If no action is taken within a reasonable length of time, a letter outlining the violation will be issued and submitted to the management offices of the subcontractor and the company for appropriate action.

### Stop Work Order

- If the subcontractor creates a hazard or situation that can cause death or serious injury, the work should be stopped immediately until such hazard is corrected. The subcontractor will incur all expenses created as a result of the hazardous condition.

### Safety Meetings

- All company craft personnel are required to participate in pre-job meetings or kick-off meetings, and safety orientations, as well as post-job safety performance reviews. These are short training sessions held by the company's supervisory staff or the company Site Safety Designee to comment on one or more job hazards and safe practices to follow for avoiding accidents.
- Subcontractors are required to conduct similar meetings for their personnel. Meetings should be documented in a brief report filed with the company.

### Electrical Equipment

- Subcontractors are responsible for maintenance of their extension cords. Defective extension cords must be removed from service immediately. Subcontractors are expected to use ground fault circuit interrupters (GFCI).

- Prior to working on any energized electrical equipment, the subcontractor must make certain that all energized circuits in the immediate vicinity of his work are appropriately protected or that they are either locked out or tagged out of service to assure that no one will accidentally energize the circuit.

### Fire Protection

- Gasoline and other flammable substances must be kept in approved containers and storage requirements for quantities and types used must comply with local and federal regulations.
- "NO SMOKING" signs must be posted in area where flammable substances are stored. The subcontractor will be expected to enforce all "NO SMOKING" areas located on the jobsite.
- The subcontractor will be expected to furnish the appropriate number, size, and type of portable fire extinguishers required for the job and to provide the necessary training to his personnel in their use. Fire extinguishers are not to be tampered with or removed from their assigned locations.
- When applicable, subcontractors are responsible for obtaining hot work permits and providing dedicated fire watch personnel.

### Housekeeping

- Good housekeeping practices are extremely important, and the subcontractors are responsible for housekeeping conditions in their respective work areas. Refuse and scraps should not be allowed to accumulate, particularly when they interfere with work flow or create additional fire hazards. Combustible materials must be placed in appropriate metal containers and not be permitted to accumulate in the work area.

### **SUBCONTRACTOR SECURITY**

- The subcontractor should take the required security measures to protect his materials, including those furnished to him/her by the company, in that the company will not be responsible for any missing subcontractor materials or tools.
- The subcontractor will be responsible for any loss or damage caused by himself/herself, his/her workers, or his/her subcontractors to the work or materials, to adjacent property, and to persons.

### **RECORDS**

- All subcontractor violations will be documented and maintained.
- Safety meetings will be documented and filed.
- A copy of the subcontractor's safety program will be kept on file.
- A copy of the subcontractor's OSHA 200 Log will be kept on the file. This OSHA Log is to be updated within six workdays of the last recordable injury.

## 43. SAFETY INSPECTIONS

### PURPOSE

To provide a guide for conducting regular physical site safety inspections to ensure that corporate and regulatory standards are being adhered to and to ensure the safety of all employees and visitors on the jobsite.

### SCOPE

This procedure shall be applied to all company divisions, on-site construction and maintenance projects as deemed necessary to ensure safe work conditions and practice.

### RESPONSIBILITY

- Each division is responsible to ensure that documented facility safety inspections are conducted in a timely manner and that corrective actions to unsafe conditions/acts are accomplished.
- The company's safety designee is responsible for conducting documented safety inspections of the field projects. In addition, the safety designee is responsible for implementing those safety recommendations to correct safety hazards observed during safety inspections of the project.
- Supervisory personnel are to conduct visual inspections of their work areas on a regular basis throughout the shift. Unsafe conditions and unsafe acts observed are to be corrected immediately.

### PROCEDURE

- The most widely accepted way to identify hazards is to conduct physical safety inspections. The only way you can be certain of the actual situation is to look at it from time to time. Safety Inspection is a must if you are to know where hazards exist and if they are under control.
- Checklists are by no means all inclusive. You may wish to add or delete portions that do not apply to your division or site. Consider carefully each item as you come to it and then make your decision. Completing the checklist will give you some indication of hazards that exist in your shop or construction site.



- Make sure the safety inspection is done properly and consistently. Leave nothing to memory or chance. Write down what you see, do not see, and what you think should be done to correct any unsafe conditions.
- 
- Once the hazards have been identified, you can institute control procedures using the OSHA standards as guidelines. The OSHA standards can be of great assistance since they address controls in order of effectiveness and performance for (1) eliminating the hazard from a machine, the method, the material or plant structure, (2) abating the hazard by limiting exposure or controlling it at the source, and (3) prescribing personal protective equipment to protect employees against the hazard.

### Job Site Safety Inspection

- A thorough inspection must be made by the company of each job site, as needed or per customer requirements. Even areas, which are not used frequently, shall be inspected. Housekeeping, stairway lighting, work methods, equipment, tools, etc. should be examined to identify hazardous conditions that may have escaped routine detection. Special attention should be given to things or conditions that have caused injury or illness on the particular job site or other job sites.
- Any and all unsafe or unhealthy places or conditions shall be immediately corrected or reported. Unsafe and unhealthy conditions at the job site, even though these conditions result from work performed by others and are the responsibility of the General Contractor, are of serious concern to the company's employees and management. It is absolutely essential that where the company does not have the responsibility or authority to eliminate unsafe conditions at the job site, these conditions must be reported, in writing, to the General Contractor or Owner/Client.

### Shop Inspection

- A thorough inspection of all shop areas shall be made at each division. Special attention should be given to areas which are used infrequently, such as storage areas for volatile materials. Housekeeping, stairway lighting, work methods, equipment, tools, etc. should be examined to identify hazardous conditions that may have escaped routine detection. Special attention should be given to things or conditions that have caused injury or illness.
- All shop machinery and equipment should be inspected for proper set up, placement of safety guards, maintenance, etc. Special attention should be given to the inspection of materials handling and hoisting equipment in the shop. Slings and chains used for hoisting materials and equipment should be inspected and equipment limit switches activated to assure proper operation.

### Inspection Checklists

- A Safety Inspection & Report Record shall be used to record all unsafe conditions. This record shall be kept current and maintained in a clean, clear and legible manner. Any and all company activities are subject to immediate inspection at any time. All company

activities shall be documented in full compliance with applicable federal and state safety standards and shall be ready for compliance inspections at all times. The following are examples of inspection checklist items:

### Equipment (Shop & Site)

- Are appropriate warning signs posted on or near the equipment?
- Is there any system for inspecting small hand tools for ragged ends, cracked handles, etc.?
- Are hand tools and other equipment regularly inspected for safe condition?
- Are portable ladders adequate for their purpose, in good condition and provided with secure footing?
- If you have fixed ladders, are they adequate, and are they in good condition and equipped with side rails, cages, or special safety climbing devices if required?
- Is equipment provided with proper guards?
- Are all machines or equipment that expose operators or other employees to rotating parts, pinch points, flying chips, particles or sparks adequately guarded?
- Are mechanical power transmission belts guarded?
- Are only trained and authorized personnel allowed to operate forklifts, power brakes, power shears, and other equipment?
- Is house keeping done on a regular basis?
- Are exits proper marked and kept clear of debris?

### Arc, Flame, & Cutting Operations (Shop and Site)

- Are only authorized and trained personnel permitted to use such equipment?
- Have flammable liquids, combustible materials, and gases been removed from welding areas?
- Are arc welding and cutting cables completely insulated and in good repair?
- Are fuel gas and oxygen hoses easily distinguishable and in good condition?
- Is proper eye protection provided and used?

### Cylinders (Shop and Site)

- Are compressed gas cylinders separated - flammable from non-flammable?
- Are compressed gas cylinders examined regularly for obvious signs of defects, deep rusting or leakage?
- Are cylinders properly secured to prevent falling?

## **RECORDS**

- **Safety inspections are to be documented and kept on file.**



## SAFETY INSPECTION REPORT

Company: \_\_\_\_\_

Location: \_\_\_\_\_ Date: \_\_\_\_\_

Person Completing Inspection/Title: \_\_\_\_\_

INSPECTION ITEM	YES	NO	COMMENTS
Are appropriate warning signs posted on or near all equipment?	_____	_____	_____
Are hand tools inspected for safe condition and removed from use if damaged?	_____	_____	_____
Are ladders in good working condition with safety feet and removed if damaged?	_____	_____	_____
If you have fixed ladders, are they adequate, and are they in good condition and equipped with side rails, cages, or special safety climbing devices if required?	_____	_____	_____
Are all machines and equipment with rotating parts, pinch points, flying chips, belts, particles or sparks adequately guarded?	_____	_____	_____
Are only trained and authorized personnel allowed to operate equipment such as forklifts, power brakes, power shears, and other equipment?	_____	_____	_____
Are floors clean and scrap materials removed?	_____	_____	_____
Is housekeeping done on a regular basis?	_____	_____	_____
Are material storage areas clean?	_____	_____	_____
Are exits and entrances kept clear & properly marked?	_____	_____	_____
Are fire extinguishers readily available, inspected monthly, and proper marked?	_____	_____	_____



## SAFETY INSPECTION REPORT (Page 2 of 3)

INSPECTION ITEM	YES	NO	COMMENTS
Are arc welding and cutting cables completely insulated and in safe condition?	___	___	_____
Are welding areas properly shielded and vented?	___	___	_____
Is proper eye protection used when performing hot work?	___	___	_____
Is welding equipment properly stored, maintained, and secured?	___	___	_____
Are stairs and aisle ways clean and proper lighted?	___	___	_____
Are sanitary facilities adequate and clean?	___	___	_____
Are slings, hoists and chains in good condition and load rated?	___	___	_____
Are flammable materials stored proper?	___	___	_____
Are oxygen cylinders stored with fuel gas? If so, separate?	___ ___	___ ___	_____ _____
Are all compressed gas cylinders chained to a support structure with the cap in place?	___	___	_____
Are all containers, tanks, drums, and secondary containers labeled with substance identity, hazard warning, and manufacturer information?	___	___	_____
Are all breaker panels clear of obstacles to maintain easy access and panel switches, outlets or covers replaced?	___	___	_____
Are eyewash units or solution accessible near eye hazard areas?	___	___	_____
Is there a first aid kit?	___	___	_____



## SAFETY INSPECTION REPORT (Page 3 of 3)

INSPECTION ITEM	YES	NO	COMMENTS
Does storage above offices and mezzanines have posted weight limits to ensure safe limit is not exceeded?	___	___	_____
Are extension cords used as a substitute for fixed wiring?	___	___	_____
Are loading areas properly marked and guarded?	___	___	_____
Is personal protective equipment used when appropriate?	___	___	_____

**Signature of Inspector:** \_\_\_\_\_ **Date:** \_\_\_\_\_

## **44. ACCIDENT REPORTING AND RECORDKEEPING**

### **PURPOSE**

- To fulfill federal and state requirements for reporting and recording occupational accidents, injuries and illnesses.
- To fulfill Worker's Compensation insurance carrier requirements for reporting occupational accident, injury or illness claims.
- To fulfill the corporate procedures for processing occupational accident, injury and illness claims.
- To establish a minimum incident reporting system which will be consistent with governmental requirements, corporate claims processing procedures, and good loss control practices.
- To establish a method whereby each project accident costs can be charged Directly against the profit of that project.

### **SCOPE**

This procedure applies to all company divisions, on-site construction and maintenance projects.

### **REFERENCES**

- 29 CFR 1904

### **PROCEDURE**

- It is the policy of the company to voluntarily comply with all employee and visitor accident, injury and illness reporting requirements established by OSHA, state Worker's Compensation Agencies, and our Worker's Compensation insurance carriers.
- All incidents having either an immediate or potential effect on the safety and well-being of the Company's employees and visitors, will be reported and recorded within the 24-hour period immediately following the incident. Whenever possible, this will also include incidents involving company vehicles and personnel. All lost time accidents must be reported and the Corporate Safety Director will be notified within 24 hours of the accident.
- Upon the occurrence of an accident, prompt and appropriate attention and assistance must be provided to the party or parties Involved. Supervisory personnel will conduct a

timely investigation to obtain the details of the accident and take immediate precautions to prevent its recurrence. Appropriate recording and reporting procedures will be initiated and the required forms completed within the time frame allowed.

### Provide Medical Attention

- When an accident occurs in which there is either an injury or a suspected injury, appropriate and timely medical attention shall be secured for the party or parties involved. If it only involves first aid treatment, the entry should be made on the First Aid Log.

### Accident Investigation Report

- The foreman or supervisor of the area in which the accident occurred shall immediately determine the factors that led to the incident and take the necessary precautions to prevent its recurrence. He/she shall then complete the Accident Investigation Report in detail, answering each question with sufficient information.

### Employer's First Report of Injury

- The Employer's First Report of Injury shall be completed from the information contained on the Accident Investigation Report and other employment records as necessary. An Employer's First Report of Injury must be completed on every accident in which an employee has sustained a recordable injury or illness, an alleged injury, or seen a physician for a first aid case.
- Original is forwarded to the reporting agency as determined by the state's industrial commission (Worker's Compensation Commission) within 8 Hours; and to the host facility / client within 24 hours.
- If an insurance claim is filed, a copy shall be sent to the claim office of the company's Worker's Compensation insurance carrier that handles the claims for the location of the accident.
- A copy shall be maintained in a file where it can be reviewed by OSHA.
- A copy shall become a part of the injured employee's Worker's Compensation file.

### OSHA Form 200

- Use the Guidelines for Determining OSHA Recordability.

### Notice to Physician

- When an employee is sent to a physician, a "Notice to Physician" form shall be sent with the employee. An employee shall not be allowed to return to work without a return to work release from the physician.

## Monthly Accident Report

- Entries shall be made for this statistical data report and forwarded at the end of each month to the Corporate Safety Director.

## First Aid Treatment

- Not all injuries which occur on a construction site result in a Worker's Compensation claim. Each year there are thousands of minor scrapes, cuts, and bruises that receive nothing more than immediate first aid treatment. There is no lost time and the employee recovers rapidly while continuing to work. There are however, some injuries which very clearly may result in Worker's Compensation claims and these must be reported to the insurance carrier as quickly as possible. The following criteria may be used in determining which is a first aid injury, and which should be immediately reported to the insurance carrier.
- Injuries which fall into the first aid treatment category are generally classified as injuries which (1) Are not required to be recorded on the OSHA 200 Log, (2) Do not result in lost time, and (3) Do not require Medical Treatment.
- Any time an injured employee begins seeing his/her personal physician, returns to a physician to have the injury treated a second time, or gives any indication that a Worker's Compensation claim may be filed, the injury must be immediately reported to the insurance carrier.

## Insurance Carrier Notification

Injuries which must be immediately reported to the insurance carrier are those injuries which:

- Are required to be recorded on the OSHA 200 Log if medical payment is involved.
- Result in lost time.
- Require medical Treatment
- For instance in determining whether or not an injury must be recorded on the OSHA 200 Log, use the Guidelines for Determining OSHA Recordability. All work related illnesses must be recorded.

## **RECORDS**

### Report of Injury

- A copy is to be placed in the injured person's permanent Worker's Compensation file.

### Employer's First Report of Injury

- A copy is to be placed in the injured person's permanent Worker's Compensation file.



### Medical Bills

- Copies are to be placed in the injured person's permanent Worker's Compensation file. Originals are promptly sent to the Worker's Compensation insurance carrier who is handling the insurance.

### Physician's Reports

- Reports received are placed in the injured person's permanent Worker's Compensation file.

### OSHA Form 200

- Maintained at the job or the shop.

### Authorization for Treatment and Release of Medical Information

- A copy is to be placed in the injured person's permanent Worker's Compensation file.
- All safety/medical/worker's compensation files shall be sent to division for filing.
- Boxes containing original OSHA 200 logs, daily first aid logs and all open worker's compensation files shall be sent to the division.

## **GUIDELINES FOR DETERMINING OSHA RECORDABILITY**

Whenever an injury or illness meets the following criteria, it must be recorded on the OSHA Form 200.

- Every work-related fatality.
- Any diagnosed work-related illness.
- All work-related injuries requiring "medical treatment".
- All work-related injuries which cause a worker to have a loss of consciousness.
- All work-related injuries involving restriction of work or motion.
- If the work-related injury involves days away from work, days of restricted work activity, or both.
- All work-related injuries involving a transfer to another job or termination of employment.

In order for an injury or illness to be recorded, it must be work-related. An injury or illness is only considered work-related if it occurs in the work environment, and this is defined as any where on the employer's premises, such as the worksite, the company cafeteria, the

customer's worksite where the employer has a contracted job, etc. The work environment surrounds the worker wherever he or she goes on company business on official travel, on dispersed operations, or along regular routes (i.e. sales representatives, truck drivers, construction workers, field personnel, etc.).

While most of the above are clear cut and easily understood, Item 3 above, "All work-related injuries requiring medical treatment" forces you to make the decision concerning recordability. In this category, recordable and nonrecordable injuries are only distinguishable by the actual treatment provided. That is, if the injury actually required medical treatment, as opposed to first aid treatment, it is recordable. If, on the other hand, the injury is such that only first aid treatment is required, regardless of who applies the first aid, it is not a recordable incident. The following guidelines should assist you in determining the difference between medical treatment and first aid.

## **MEDICAL TREATMENT**

The following are generally considered to involve medical treatment, and as such, should be recordable for a work related injury:

- Antiseptics applied on a second or subsequent visit to a doctor or nurse.
- Burns of a second or third degree nature.
- Butterfly adhesive dressings in lieu of stitches.
- Compresses, hot or cold, when applied on a second or subsequent visit to medical personnel.
- Cutting away dead skin (surgical debridement).
- Diathermy treatment.
- Removal of foreign bodies that are actually embedded in the eye.
- Treatment for infection.
- Removal of a foreign body from a wound when the depth of embedment, size or shape of the object, or location of the wound, requires a physician.
- When prescription medications are used (only as required by law) exception-single dose.
- Soaking, either hot or cold, on a second or subsequent visit to a doctor or nurse.
- Sutures (stitches).
- Whirlpool treatment when requested by a physician.
- X-ray which is positive.

## **FIRST AID TREATMENT**

The following are considered to involve only first aid treatment and need not be recorded if the work-related injury does not involve any other criteria.

- Application of an antiseptic on a first visit to a doctor or nurse.
- Bandaging on any visit to a doctor or nurse.
- First degree burns.
- Compresses, hot or cold, when applied on a first visit to a doctor or nurse.
- Use of an elastic bandage on a first visit to a doctor or nurse.
- Irrigation of the eye for the removal of a foreign body from the eye when not embedded.
- Removal of foreign bodies from a wound by use of tweezers or other simple techniques.
- Use of nonprescription medications.
- Observation of injury on second or subsequent visits to a doctor or nurse.

- Applying ointment to abrasions to prevent drying or cracking.
- Tetanus shots, initial or boosters.
- Hospitalization for observation (when patient receives no treatment other than first aid).
- X-ray which is negative.

## 45. ACCIDENT INVESTIGATION

### PURPOSE

To provide an outline of the process necessary to investigate an accident; reconstruct an accident scene; analyze the findings and circumstances involved and ensure the quality of documentation in order to develop an accurate understanding of the primary and secondary causes of an accident.

### SCOPE

This procedure applies to all company divisions, on-site construction and maintenance projects.

### DEFINITIONS

Accident: An unintended occurrence that either caused or may have caused personal injury, property damage or interference with production.

Primary Cause: What caused the accident to occur?

Secondary Cause: Why was the primary cause allowed to exist?

### RESPONSIBILITY

- The investigation designee is responsible to document the results of the accident in a written report and make appropriate distribution of the written report.
- Superintendents, supervisors, and foremen are responsible to participate in each accident investigation which involves their work or employees and to complete the required accident investigation reports required by this procedure; according to their pre-training and refresher courses as to their responsibilities and incident investigation techniques.

### PROCEDURE

#### The Accident

- When an accident occurs, first and foremost, it is important to treat the injured person. Once the injured person has been cared for, the accident scene must be secured to prevent recurrence and a thorough investigation can take place.

- The accident scene should be secured as soon after the accident as possible to preserve all evidence. The investigator should make a sketch of the area indicating the location of the injured person, equipment being used, material in the area, people in the area and include any other pertinent information. Photographs should be taken of the area and equipment and should show different angles of the accident scene.
- Witnesses to the accident should be taken to a quiet area, separated and given a witness statement form to fill out. It is extremely important that witness statements be taken soon after the occurrence, while the facts about the accident are still clear in their minds. Of equal importance, they should be asked not to converse among themselves until they have completed the witness statement form.

### The Investigation

- When an accident occurs that involves a doctor's care, a recordable and/or a lost time injury, it is the responsibility of the injured employee's immediate supervisor / foreman to properly investigate the accident; according to their pre-training and refresher courses as to their responsibilities and incident investigation techniques then complete the Accident Investigation Report (exhibit A) and take immediate action necessary to prevent recurrence of a similar type accident. The Accident Investigation Report must be completed in its entirety.
- After all the facts have been gathered and witness statements taken, the information must then be analyzed. In the data gathering process the investigation will answer questions as to who, what, when, where, and how and to some extent why. The analysis process will further develop answers to why. By analyzing all the facts and asking the question "why" several times in the process, the investigation will be able to arrive at the root cause(s) of the accident. Once the foreman has arrived at the root causes (and please keep in mind there may be several causes) he/she can then develop the corrective actions to be taken.
- The completed Accident Investigation Report will then be presented to the Safety Director for comments and signature.

### Serious Injury or Death

- For accidents resulting in serious injury or death, notify the Corporate Safety Director. Arrangements will then be made to conduct a formal accident investigation by the Corporate Safety Director in conjunction with appropriate personnel.
- For accidents resulting in one or more deaths or in the hospitalization of five or more employees, notify the local area OSHA office. This notification must be made within 48 hours after the occurrence of the accident. It can be made either orally (telephone) or by telegram to the OSHA Area Director.

### **RECORDS**

- The Accident Investigation Report is to be filed for record retention.

- A copy of the Accident Investigation Report is to be sent to the Safety Director for all accidents.
- All formal investigation reports will be maintained in the office.
- A copy of any telegrams to OSHA shall remain on file.



## ACCIDENT & INJURY INVESTIGATION FORM

Company: \_\_\_\_\_

Employee Name: \_\_\_\_\_ Birth Date: \_\_\_\_\_

Gender: \_\_\_\_\_ Injured Part of Body: \_\_\_\_\_

Accident Date: \_\_\_\_\_ Time of Day: \_\_\_\_\_

First Aid or Recordable Injury? \_\_\_\_\_

Project Address: \_\_\_\_\_ Project Number: \_\_\_\_\_

Occupation when injured: \_\_\_\_\_

Location of Injury: \_\_\_\_\_

What job was being done?  
\_\_\_\_\_

What step in job process was being done?  
\_\_\_\_\_

How often does injured perform this job?  
\_\_\_\_\_

How did the accident happen? (provide specific details)  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

What did the individual do or fail to do that contributed to this incident?  
\_\_\_\_\_

What did someone else do or fail to do that contributed to the incident?  
\_\_\_\_\_

What other conditions contributed to the incident?  
\_\_\_\_\_

Is there a written safety rule written concerning this job? Yes \_\_\_\_\_ No \_\_\_\_\_



## ACCIDENT & INJURY INVESTIGATION FORM (Page 2 of 2)

Were they being followed? Yes \_\_\_\_\_ No \_\_\_\_\_

Was the injured employee instructed on the rule? Yes \_\_\_\_\_ No \_\_\_\_\_

When did the individual last attend a safety meeting? Date \_\_\_\_\_

Topic? \_\_\_\_\_

Names of witnesses: \_\_\_\_\_

\_\_\_\_\_

Witness Statement: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

What actions have been taken and/or do you plan to take to prevent reoccurrence of this or any similar injury?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

What recommendations do you make?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
Supervisor/Foreman Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Superintendent Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Witness Signature

\_\_\_\_\_  
Date



## **46. OSHA REQUIREMENTS**

### **INTRODUCTION**

OSHA, the Occupational Safety and Health Administration is a federal agency created within the Department of Labor to develop and enforce mandatory job safety and health standards. Corporate safety and health policy shall meet or exceed OSHA standards. There shall be no variation from OSHA standards unless the Corporate Safety Director submits an application for a permanent variance and such variance is granted.

The appropriate company Division shall be responsible for OSHA compliance. Deficiencies are to be promptly corrected, or reported to the corporate office for management action, if applicable.

### **OSHA RECORDS**

Certain OSHA records must be maintained on the job site to document the employer's efforts to comply with OSHA standards and to provide a safe and healthful workplace. These records consist of:

- Corporate Safety Manual
- Handbooks and Bulletins
- Safety Meeting Minutes
- Records of Tool Box Talks
- Safety Training Records
- Job Site Safety Inspection Records
- Injury Reports
- OSHA 200 Form

These records are maintained by each division and are subject to OSHA review and shall be made available upon request by an authorized OSHA representative. The records may be reviewed on site or copied by the OSHA representative but originals are not to be removed from the premises, except by subpoena.

### **INJURY/ILLNESS REPORTS**

OSHA 101 must be completed to record details of each work related injury or illness.

- A. The State Industrial Commission Reports (Employers First Report of Injury) are acceptable in lieu of OSHA 101, therefore, to avoid duplication, only the State Industrial Commission Reports shall be completed as required in the Accident Investigation and Reporting Section.
- B. These reports are not to be sent to OSHA, but must be retained by the employer for five (5) years.

- C. If an "on-the-job" accident results in the death of an employee, or the admission of three (3) or more employees to a hospital, the corporate office must phone the nearest OSHA office and provide a detailed report within 8 hours of the incident. This requirement applies to cases when a fatality or inpatient hospitalization occurs within thirty (30) days of a work-related incident. Again, OSHA must be informed within 8 hours of the occurrence.

## **OSHA 200**

Log and Summary of Occupational Injuries and Illness are required for each division and job site, on a calendar year basis.

- A. OSHA requires that each "recordable" occupational injury, and all illnesses, must be recorded on the log within six (6) working days after being reported to the employer.
- B. OSHA's definition of "recordable" and instructions for completion of OSHA 200, are on the reverse side of the form.
- C. Specific instructions for the OSHA 200 form are contained on the reverse side, and detailed in the Accident Investigation and Reporting section.
- D. These forms must be returned to the division upon completion of each project, or years end whichever is first.

## **OSHA 2203**

Job Safety and Health Protection posters shall be posted in a conspicuous place where notices to employees are customarily posted, for each office, shop and job site.

- A. Required OSHA posters are forwarded to the job site by the Safety Designee upon notification of job award.
- B. The Job Superintendent or designee is responsible for completing the required information and posting of documents.

## **MULTI-EMPLOYER CITATION POLICY**

The OSHA Multi-Employer Citation Policy applies to multi-employer work sites, such as construction projects, where one employer may create a hazard that exposes the employees of another employer, thereby exposing that employer to a citation. If another employer has created the hazard, OSHA will not issue a citation to the employer with employees exposed to a hazard if the following conditions have been met:

1. That the company did not create the hazard.
2. That the company did not have the authority or the ability to correct the hazard.
3. That the company made an effort to persuade the employer creating the hazard to make the necessary corrections.
4. That the company has informed its employees of the hazard, instructed them how to avoid or minimize the dangers presented by the hazard and, where feasible, has taken alternative steps to protect employees short of walking off the job (except when special circumstances require such extreme action).

If the above conditions are met, and adequately documented, the citation will be issued to the employer creating the hazard, even if they have no employees exposed to the danger. In all

cases where another employer has created a hazard for our employees, the Job Superintendent or designee shall:

- a. Prepare a written notification to our employees, which provides the date, location of the hazard area, description of the hazard, and instructions on steps to avoid or reduce the hazard.
- b. Distribute a copy to all exposed employees and obtain their signature indicating receipt and understanding of the notice.
- c. Post a copy of the notice in the hazard area.
- d. Prepare and submit a notification of the safety hazard to the employer creating the hazard, retain a copy on file and send copies to the appropriate division. The notification is to contain:
  1. Job number and location
  2. Contractor creating the hazard
  3. Date the hazard was observed
  4. Area of the hazard
  5. Specific details of the hazard
  6. Job superintendents 'or designees' signature
  7. If the hazard is promptly corrected, the division is to be notified and further action determined.

## **OSHA INSPECTIONS**

OSHA inspections may be conducted without warning at any workplace by Federal or State OSHA inspectors. This procedure is an outline of steps to be taken in the event of an OSHA inspection. It is not our policy to require a warrant, however, we must conform to the Owner/Client if they require a warrant. We shall be courteous and cooperative, and we shall also protect our legal rights under the Occupational Safety and Health Act. Inspections must be conducted during regular work hours, and without unreasonable disruption of the work.

The OSHA Inspector will usually make initial contact at a security gate or owner's office (job site) or front office (plant). At this time it will generally be determined whether the inspection is:

- routine safety and/or health inspection of the job site
- re-inspection to confirm abatement of prior citations
- response to a complaint

If the inspection involves a re-inspection or complaint involving only another employer on site we need not, and are not, to be involved. If the OSHA visit is for a general job site inspection, or if we are involved in a special inspection, we should be immediately notified of the inspectors' arrival. The employee initially contacted shall immediately notify the senior site supervisor, who may elect to participate in the conferences and/or walk around inspection, or may designate some other site supervisory representative. Our actions will be governed by whether the Owner/Client and/or other contractors will be involved. Multi-employer inspections will require coordination of the activities of all employer representatives. The senior site supervisor or designated representative shall:

- Notify the Construction/Project Manager and the corporate office that an OSHA inspection is to be conducted and advise the purpose of the inspection.

- Verify the inspector's OSHA identification credentials. If there are any questions, phone the OSHA regional office for confirmation.
- Make detailed notes of the conferences and inspection. Include the OSHA inspector's name and identification number; date of inspection; time of inspector's arrival; start and finish of walk through and departure purpose of inspection; conference topics and all names of persons present persons interviewed; areas inspected operations observed records requested photos taken inspectors comments and potential citations.
- In a general inspection, the Owner/Client Representative is expected to conduct the conferences; our representative is to protect our best interests and to conduct a walk through of our work areas. The inspector is to be given access to any work area he/she requests, and he/she must adhere to all safety rules in effect.
- If the inspection is to confirm abatement of previous citations issued at that job site, those citations are the only valid topic for the conferences and inspection.
- If the inspection is due to a complaint, obtain a copy of the complaint. Only the specific subject of that complaint is to be discussed and inspected. If an inspector observes another hazard while in route to inspect the subject of a complaint or re-inspection, that subject becomes subject to inspection.

Pre-inspection Conferences are brief meetings of the OSHA inspector and employer(s) management or supervisory representatives. The inspector may request that an employee representative (Union Steward) be present. This request must be granted. The inspector may also request to interview other employees in private. This request is also to be granted, within reasonable limits.

The inspector may request records to review. Records which are to be produced, upon request, when applicable to the inspection, are the OSHA 200, injury reports with all pertinent accident investigation and medical records, tool box talk records, safety meeting and training records, confined space entry and hot work permits, the safety manual and hand book, the Hazard Communication Program and chemical inventory list with MSDS'. Records may be copied; originals are not to be taken off site except by subpoena. The inspector may request permission to take photos. Determine the Owner/Client policy regarding photos and comply with that policy.

During the walk through inspection, escort the inspector(s) to wherever they request during a general inspection, and only to specific areas involved in re-inspection and inspections due to complaints. Avoid undue interruption of the work. An authorized employee representative may accompany the inspector and management representative. If the inspector points out any obvious infractions during the walk through, correct these at once, if feasible. If there is an imminent danger situation this is to be evaluated by the senior site manager, and necessary corrective action taken. At the Post Inspection Conference the inspector will discuss his observations and conclusions about potential citations. The inspector does not have the authority to issue citations. Do not admit to any violations, or agree to any specific abatement dates. After the conference, the inspector is to be escorted off the job site. The Project Manager and corporate office are to be notified that the inspection has been completed, and advised of potential violations, requests for information or any return visits indicated. If a Notice of Citation is received, notify the division who will respond or conduct an onsite inquiry to evaluate the citations/corrective actions and coordinate the company response.

Many OSHA standards require the employer to train employees in the safety and health aspects of their jobs. Some standards require an employer to limit certain job assignments to

persons who are certified, competent or qualified, meaning they have had special training. All safety training is to be documented. OSHA Training Requirements are specified in U.S. Department of Labor, OSHA 2254.



## OSHA Inspection Data Form

Company: \_\_\_\_\_

Job site: \_\_\_\_\_

Foreman: \_\_\_\_\_

Superintendent: \_\_\_\_\_

Compliance Officer(s): \_\_\_\_\_

Inspection #: \_\_\_\_\_

Date(s) of Inspection:  
Opening Conference \_\_\_\_\_

Physical Inspection \_\_\_\_\_

Closing Conference \_\_\_\_\_

Reason for Inspection & Type: \_\_\_\_\_

If a compliant, did you ask for a copy? Yes \_\_\_\_\_ No \_\_\_\_\_

Does the inspector have a search warrant? Yes \_\_\_\_\_ No \_\_\_\_\_

Was Office Contacted? Yes \_\_\_\_\_ No \_\_\_\_\_

Was the Inspector allowed access to the site? Yes \_\_\_\_\_ No \_\_\_\_\_

Did the inspector review company safety records? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, what records were reviewed: \_\_\_\_\_

Did inspector ask for training? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, what training: \_\_\_\_\_

Were pictures taken by OSHA: Yes \_\_\_\_\_ No \_\_\_\_\_  
Of what? \_\_\_\_\_

Were there employee interviews? Yes \_\_\_\_\_ No \_\_\_\_\_

Who and what were asked? \_\_\_\_\_

Alleged Violations: \_\_\_\_\_